



IMPRINT

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formvermittlung, Hamburg

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AVOID WASTE.

Efficient coolant systems.



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COMPANY

You have nothing to give away.
And also nothing to waste.

Welcome to the campus of the elite university, RWTH Aachen. Welcome to grindaix! Here and in Cologne we have found an ideal environment which precisely mirrors us - innovative, synergetic and unique! And it was here that the idea behind grindaix was conceived: Ultra-advanced products and services which provide your company with the opportunity of implementing waste-free production engi-

neering rapidly and effectively. At the same time, the operative performance of your production systems is increased, and sustainable resource efficiency is successfully mastered and guaranteed in the long term.

Or to put it simply: With grindaix you avoid all lubricoolant waste in metal processing!



Take a look at our brand new product film at: www.grindaix.de

This is because our measurement and evaluation technology, developed by our engineers and unique worldwide, allows us to determine in detail the waste potential of your lubricoolant systems as well as to generate and implement lasting optimization solutions. We place particular value on being able, to provide all components from one professional source - from the initial analysis and implementation

of results to the production and application of the necessary special parts.

Trust in professional team work from Germany - trust in your grindaix team!

ANALYSIS

You could call it “analysis for significantly reducing overall coolant requirements”.
Or simply “Coolant Audit”.



YOUR BENEFITS

- + clear annual savings per machine
- + reduction in overall lubricoolant requirements
- + optimum feed to machining sites
- + no waste in auxiliary consumers
- + needs-based pump selection possible
- + more robust and smaller lubricoolant systems
- + only as much consumption as necessary
- + no unnecessary losses
- + ROI < 4 months incl. follow-up investments

At grindaix we have found a way to prevent wastage of lubricoolants in existing and planned production systems in metal processing, namely the grindaix audits!

By “auditing” we mean the measurement, recording, analysis and evaluation of lubricoolant systems (piping, valves, fixtures, branch ducts, throttles, all nozzle types) with respect to the extent of their wastage. To do that, our experienced engineers and technicians visit you in your production environment and check machine tools for all production processes as well as all types of lubricoolant treatment systems, including peripheral pipe systems, in the briefest possible time. Naturally,

we bring the highly specialized equipment required for the audits along with us.

The result is impressive. You find out precisely how much lubricoolant is exiting at which points in your production system as well as when and at what speed and volume this is occurring. You also receive detailed information on oversupply, undersupply or waste. Naturally, we also recommend remedial measures which can be implemented directly!



Coolant Audit **S**

First aid fast! The Coolant Audit S provides an initial and immediate way of determining lubricoolant oversupply and undersupply of a machining site (all production processes). Flow rates and supply pressures are measured on a machine tool for a selected production scenario and the geometries of the process-relevant lubricoolant supply nozzles are recorded. One particular advantage of the Coolant Audit S is that the assessment results are available within the space of a day.

THE AUDIT RESULT

We record your machining task on site and generate comprehensive documentation of the supply per nozzle to the machining site. Furthermore, we provide information on any undersupply or oversupply of the area analyzed.

Coolant Audit **M**

With the Coolant Audit M nothing escapes us. We carry out a complete analysis of a production machine. All supply lines, fixtures, piping as well as all lubricoolant exiting within the machine is analyzed in detail and checked for relevance with respect to waste. We would be happy to assist you when it comes to new machine developments. Or if you intend to procure new machines, we will audit the planned machines prior to purchase to check their lubricoolant-related operating costs.

THE AUDIT RESULT

We completely log all machine lubricoolant periphery data and record all possible production scenarios. From this, we determine the technical savings potential and performance-related characteristic curves, among other things.

Procedure for a Coolant Audit

1 VISIT TO YOUR PRODUCTION SITE



Our technicians visit you with all the necessary measurement equipment. Within a very short space of time (approx. 3h/machine), the periphery inside the machine is recorded.

2 MEASUREMENT OF FLOW RATES



By means of state-of-the-art measurement technology, we check the current lubricoolant flow rate per line. Depending on the audit, we also monitor all scenarios of your production process.

Coolant Audit **L**

Get to know your production line like never before. The Coolant Audit L provides a complete analysis of a production line. On every machine all supply lines, fixtures and piping as well as lubricoolant exiting within the machine is analyzed in detail. The relevance thereof is checked with respect to waste. In addition, the lubricoolant circuitry of the machines is analyzed. We also audit planned machines prior to purchase to check for waste and suitability.

THE AUDIT RESULT

We completely log all machine lubricoolant periphery data and use this to determine technical savings potential and related implementation measures as well as lubricoolant needs when using a central facility.

Coolant Audit **F**

Here the focus is on the filtration of lubricoolants. During Coolant Audit F we carry out an analysis and evaluation of a lubricoolant filtration facility. We look into the suitability of the facility for your lubricoolant environment and also monitor your requirements with respect to the production process and lubricoolant discharge. From this, we determine how much lubricoolant is required for which process (machine tools) and work together with you and your supplier to design your lubricoolant filtration systems based on needs, ensuring that they are not unnecessarily over-dimensioned.

THE AUDIT RESULT

The Coolant Audit F provides a number of different results, from a statement about the facility dimensions, the benefits and drawbacks of various types of filtration and specific lubricoolant features to investment benchmarking.

3 RECORDING ALL COMPONENTS



All pipes are completely recorded – from the lubricoolant supply connection to all nozzle exits. All geometrical and type values are also logged.

4 EVALUATION OF WASTE



We demonstrate how machining sites may be supplied in a robust way to meet the highest productivity demands, and how all waste in secondary zones may be avoided.



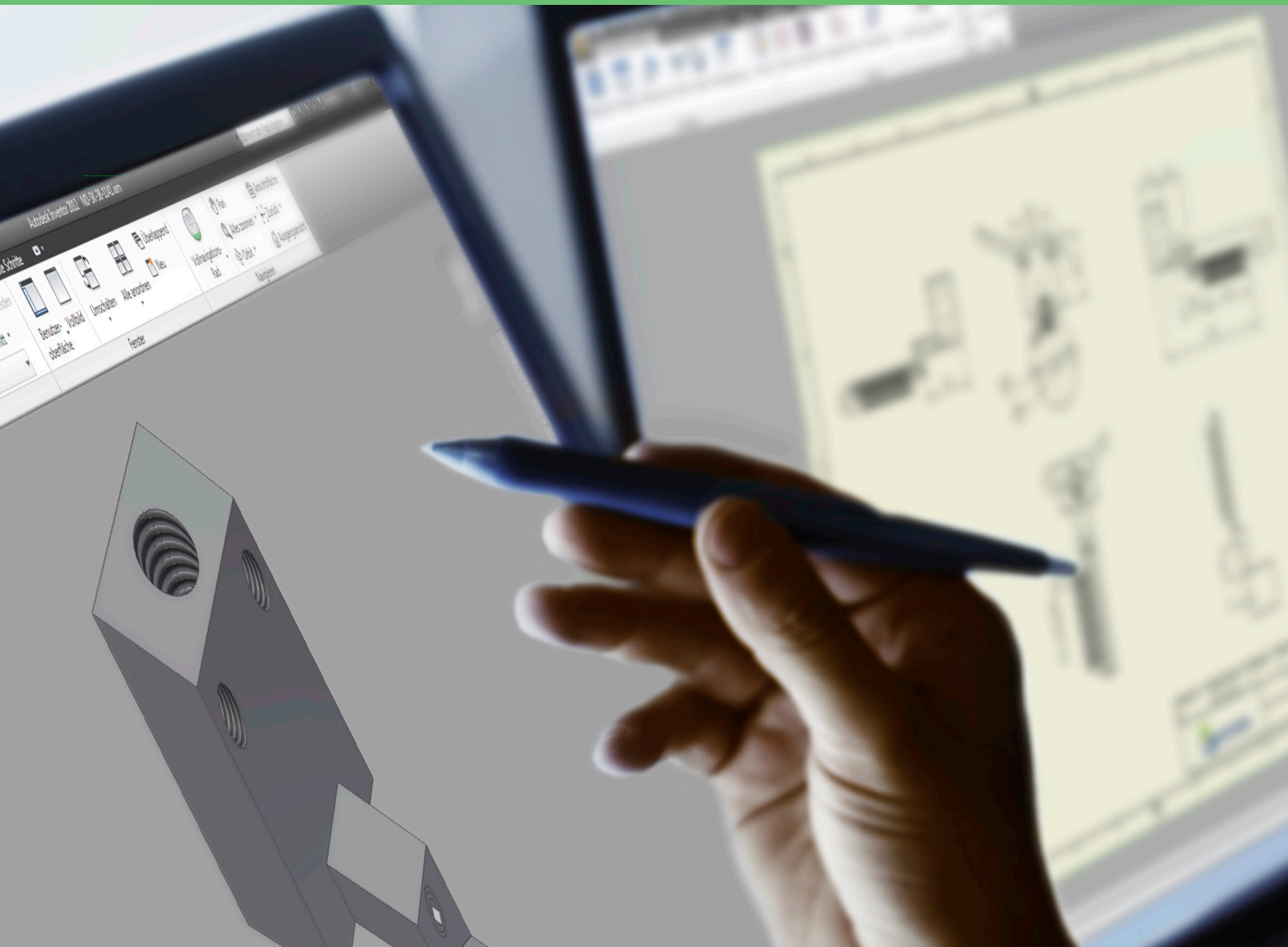
OPTIMIZING

Coolant Design – The path to your customized lubricoolant system.

With Coolant Design, there is no longer any place at your company for lubricoolant waste. We take care of the development, design and optimization of your audited production system. We design all lubricoolant outlets in the machine, all pipes, valves, taps, branch ducts, etc. based on needs and optimized with re-

spect to consumption. The standardization of parts with maximum system flexibility is our primary focus.

Our experienced team is specialized in the complexity of the entire system and designs it effectively and efficiently. Thus, for the pro-



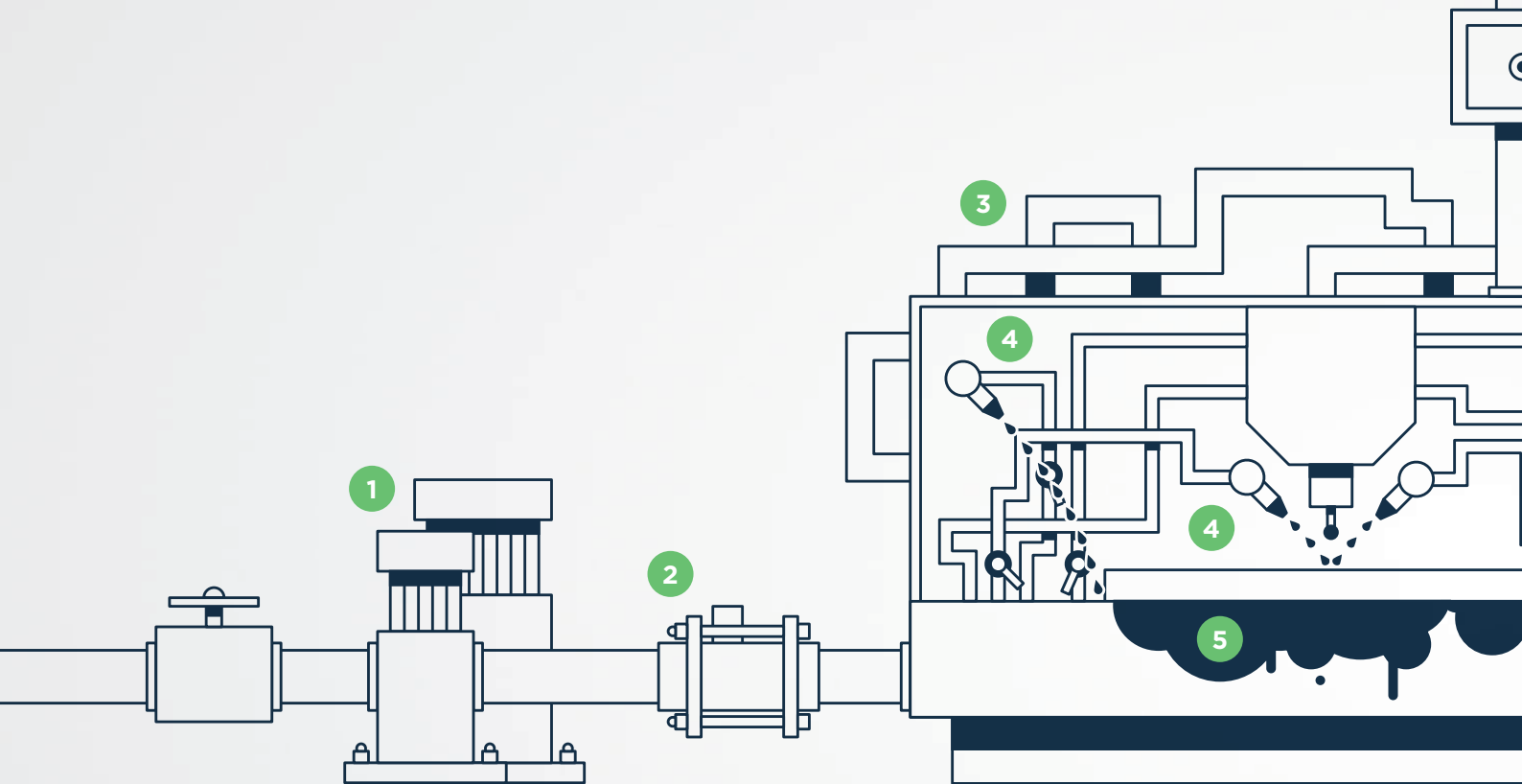
duction system and each of the components within it, we determine and optimize friction loss (waste of pump pressure) as well as the interdependence of pressure at each lubricoolant outlet, flow rate and outlet-specific lubricoolant exit speed (for all nozzle geometries and types). What sometimes appear to be only marginal changes to the system often have significant effects!

YOUR BENEFITS

- + audit-based calculation and optimization
- + optimum lubricoolant supply to the machining site
- + consumption-based pipe dimensioning
- + needs-based fixtures planning (valves)
- + precise lubricoolant requirements planning
- + consumption-optimized secondary consumers

OVERVIEW OF WASTE

On-site audit



1 Pumps

Size, type, frequency control, stationary performance, operating costs

2 Valves

Dimension, friction losses, number, pressure regulation

3 Pipes

Number, type, diameter, friction losses, bows, cocks

4 Nozzles

Number, size, type, process supply, high pressure, cleaning, bed flushing

5 Lubricoolant

Type, viscosity, purity after filtration, foaming, operating costs

6 Machine bed

Cleaning, cooling, recirculation, foam formation



7 Air Extraction

Size, type, coolant deposition, pipe dimensions, operating costs

8 Filtration

Size, type, filtration performance, pump size, operating costs

9 Cooling

Size, type, number of units, efficiency factor, operating costs

10 Disposal:

Chip presses, centrifugation, leakages, drag out, operating costs

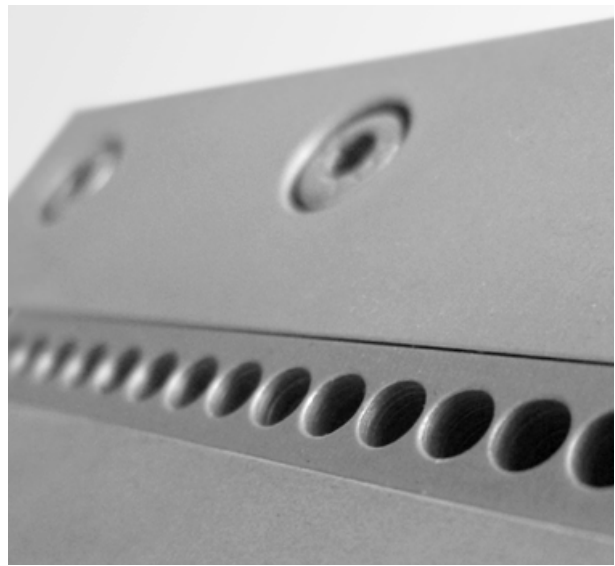
i How much waste does your coolant system generate?

We would be happy to analyze your coolant system with respect to efficiency and needs-based operation. The focus lies on increasing productivity and reducing the cost of your production processes.





Our needle nozzles provide your lubricoolant system with exactly what it needs: precision.



More precise, easier, better: Nozzles from grindaix are individually designed for each machine and are on offer for all production processes. In this way, the lubricoolant is supplied in a targeted way to the machining site – and metered in an exact, needs-based manner. Narrow nozzles ensure that the lubricoolant exits at high speed, thereby reaching the machining site with maximum efficiency.

Up to 16 percent of production costs are incurred through the use of lubricoolants. With our nozzles, you drastically reduce consumption and minimize waste when handling lubricoolants, while at the same time achieving optimum supply for your production task. During an audit we determine how much lu-

bricoolant is required where, in which volume, when and at which exit speed. In addition, we check where and how many other resources (oil, water, energy) are wasted.

YOUR BENEFITS

- + no thermal component damage
- + reduction in coolant requirements
- + increased tool life
- + higher productivity
- + optimization of pump size/type
- + smaller lubricoolant filtration facilities
- + smaller lubricoolant cooling systems



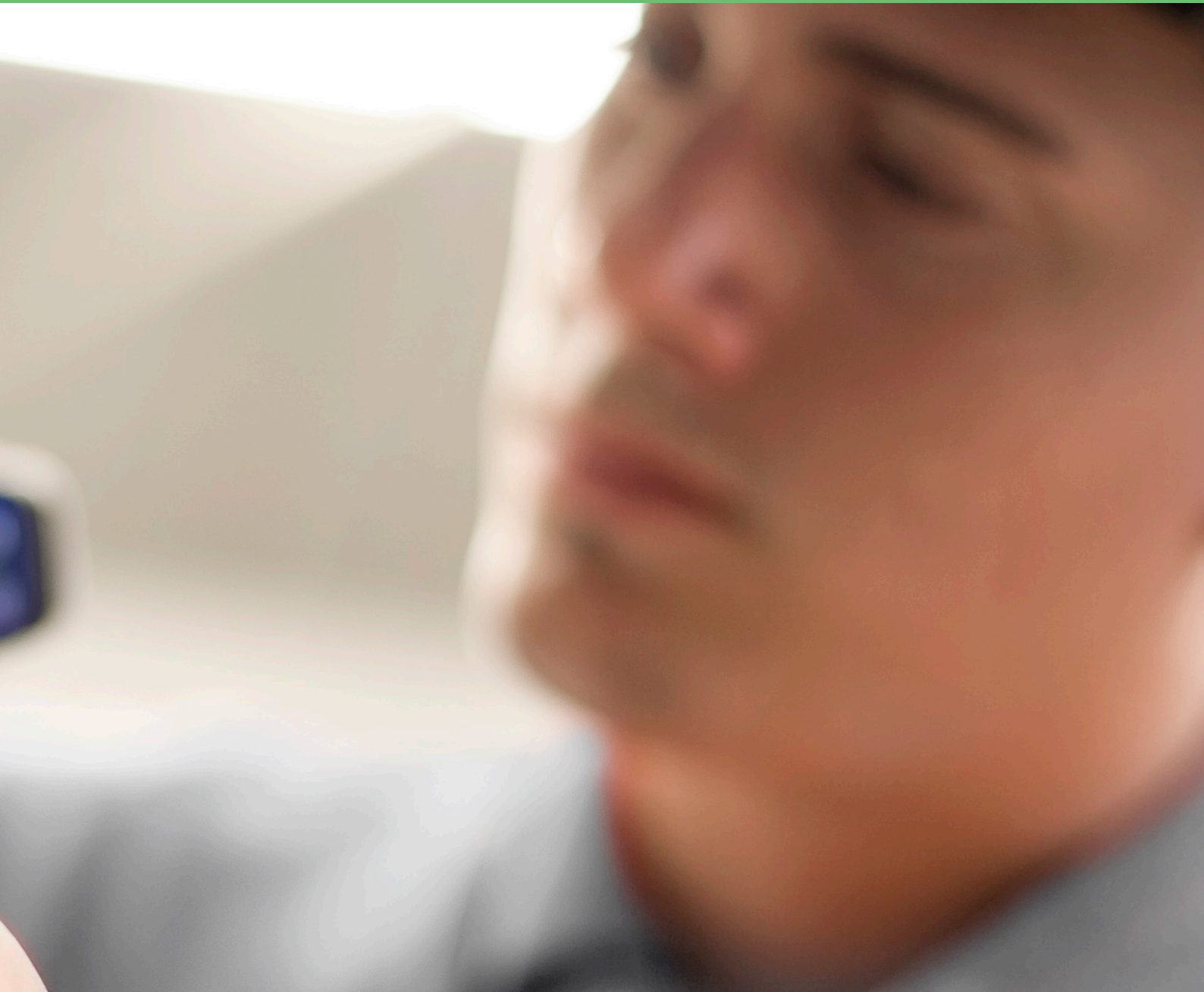
INSTALLATION

Bringing our work to a perfect end.

Following analysis and production of the optimized parts, our service technicians visit you and build your production machine on site - precisely, cleanly and in the briefest possible time. Please note that we carry out installation work only in the context of our audits, lu-

bricoolant system optimizations and grindaix nozzles. It may not be booked individually.

After installation has been completed, we will of course accompany you during the subsequent ramp-up of the modified system and



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verify optimization success by means of follow-up measurements and field tests. In this way, we can ensure together that your optimized production facility precisely meets your requirements and expectations.

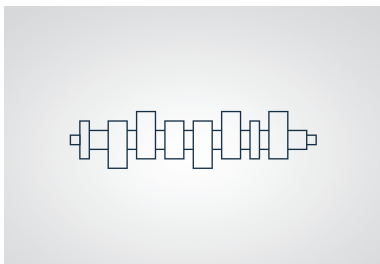
YOUR BENEFITS

- + reducing servicing and maintenance
- + precise knowledge of technical correlations
- + audit, design, fixtures and installation from one source

REFERENCES

News of our good work gets around: 600 new customers in seven years!

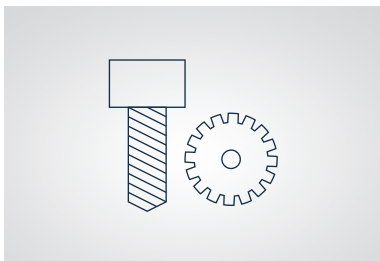
From big industry to medium-sized companies our customers are as defined and diverse as the areas in which they operate. But there is one thing that all production companies have in common - they trust in our products and services made in Germany.



LINE: CAMSHAFT PRODUCTION

- 20 machine tools
- Turning, milling, drilling, grinding
- Cast iron & assembled camshafts
- German automotive supplier

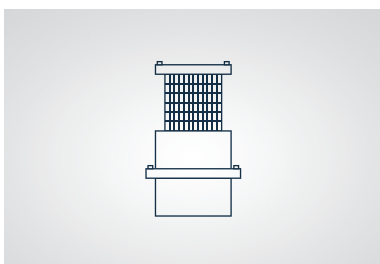
Annual cost savings: > 260,000 euros



MACHINE GEAR SHAFT GRINDING

- External cylindrical grinding
- CBN, conventional tools
- Dressing
- Car manufacturer

Annual cost savings: > 22,000 euros



COOLANT FILTRATION SYSTEM

- Oil
- 8,000 l/min - coolant flow rate
- Investment benchmark
- Car manufacturer

Total savings: > 600,000 euros

MORE SATISFIED CUSTOMERS OF OURS:

- VW
- Daimler
- Bosch
- INA
- LUK
- FAG
- Schleicher
- JUNKER
- EMAG
- Schaudt
- Thyssen
- SEW
- ZF
- Lufthansa
- MAN
- Siemens
- Renault
- uvm.



COOPERATION

Our strong partners
make us even stronger.

With grindaix you can always rely on the best – to ensure this, we cooperate with selected partners who stand for absolute excellence in their fields. Thus you profit from the latest research insights or from the specialist know-how of our experienced industry professionals. You and your company deserve it!



GrindTec

GrindTec Fair Augsburg

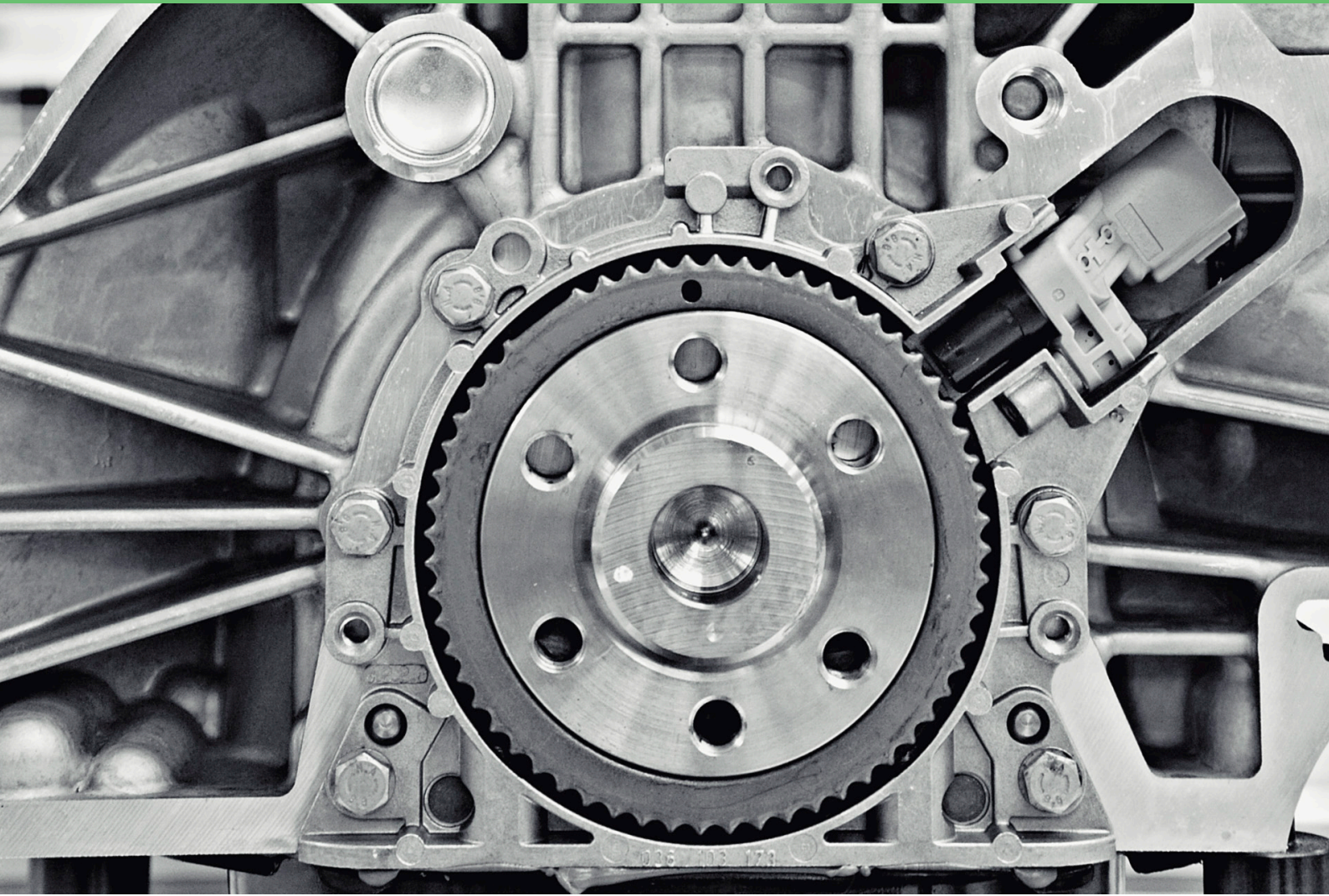


Industriearbeitskreis
Kühlschmierstofftechnik

Work group for coolant technology

SCHLEIFTAGUNG

Grinding symposium, Fellbach



SUSTAINABILITY

We are not only thinking of you,
but also the environment.

You can associate two things with us which, at first, could not appear more different, namely maximizing return on investment and ecological corporate behaviour. Together we develop and implement measures for preparing your production operations to meet the various challenges of the future.

On the one hand that means rapid and long-term optimization of your productivity. On the other hand our products and services allow you to achieve lasting and sustainable handling of energy and resources by consistently reducing lubricoolant volume.

MADE IN GERMANY

German high tech solutions for your production unit!

We are proud of one German cliché which happily is also true: “Made in Germany” is a symbol across the whole world for the highest level of competence, outstanding quality and absolute reliability. Following this tradition, the focus at grindaix is on highly specialized engineering know-how from Germany which is applied by highly professional skilled workers and developers.

Many years’ experience, intensive research and a passion for work has made us specialists in our area, namely in the downsizing of lubricoolant systems in metal processing. Profit from our competence made in Germany!







CONTACT



Your first step in avoiding waste: Personal contact.

No matter whether we receive them by post, email or telephone, we are happy to answer your questions on our products and services at any time. Simply contact us - we would be pleased to hear from you.

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grindaix is always looking for experts to expand its team – only together can we achieve outstanding results. Take a look at our current job offers at www.grindaix.de