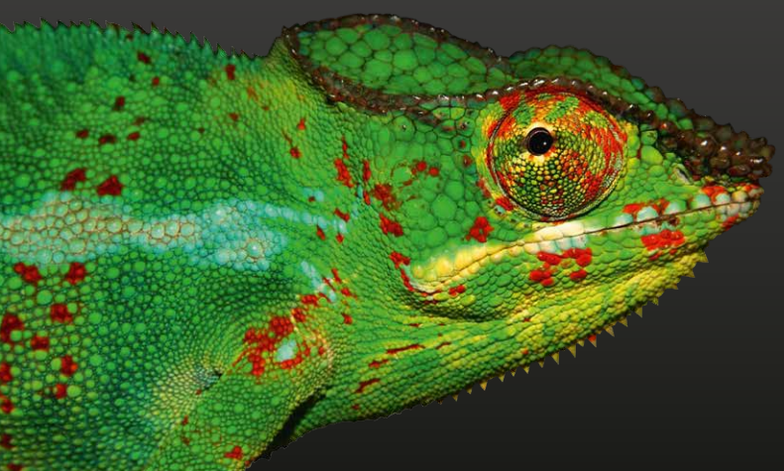
TGSK

TURBO GEARS · SERVICES · KEMPTEN



Quality by
experience

Company
We combine many years of experience in gear business, state of the art technical infrastructure and a team of gear experts in our TGSK location in Kempten (South Bavaria). We are your specialist for turbogears and services worldwide.

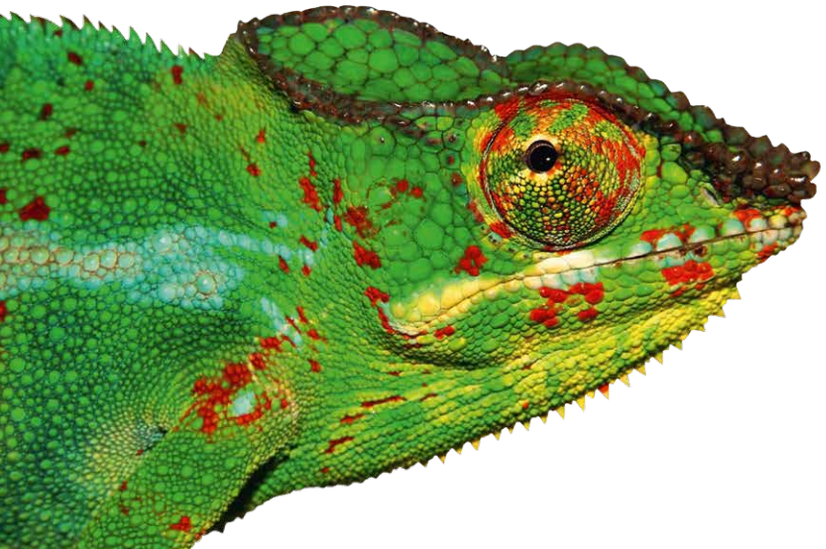
Team
We are a highly motivated team with extensive experience in design, engineering, calculations, production, assembly, quality and customer support for turbogears – this makes us special.

Motivation
Our passion are high speeds, demanding specifications, dependability and close collaboration with our customers – this drives us.

Quality guaranteed
Highest quality, flexibility, dependability and first class service – this is our ambition.

f.l.t.r.:
Franz Seestaller (Engineering)
Kilian Seefried (Service & Customer Support)
Christian Natterer (Sales & Finance)
Andreas Lingg (Production & Supply Chain)

SERVICES



My motivation:

“Master the various challenges in fieldservice with expertise.”

Ulrich Herz, Fieldservice
20 years of turbogear experience

Inspection and maintenance

Equipment failure and shutdowns cause high losses and costs. We prevent those scenarios and provide support for required maintenance measures.

Our services:

- Inspection of your gear box worldwide
- Gear-CheckUp – condition validation and inspection of your gear box during a shutdown and/or during operation
- Vibration diagnostics
- Video-endoscopy
- State of the art inspection report
- Individual consulting
- Service agreements for turbogears of all brands

Overhaul

Tooth breakage, bearing damage, worn gears, increased noise or vibration levels: Working together with all departments our gear experts will provide you with the tailored solution to solve your gear issue.

Our services:

- Trouble shooting and root cause analysis
- Overhauling by repair or replacement of worn or damaged parts
- Non-destructive replica analysis in cooperation with experienced failure analysis specialists
- Oil inspection and gear specific evaluation

Commissioning and start-up

We provide comprehensive support for your commissioning phase – you save time and money.

Our services:

- Installation of the gear box into the customer drive train
- Consulting and commissioning by our specialists on-site
- Commissioning test incl. vibration measurement and monitoring of operational data by our gear experts on-site
- Individual commissioning report

Spare parts

We deliver high quality spare parts for your gear box - for all brands and age.

Our services:

- Spare parts delivery for gear boxes no matter which brand and how long they were in service
- Design, calculation and production of spare parts for turbo gears like bearings, gear sets and other components based on customer documentation or dimensional verification of the part
- Short deliveries by in house manufacturing
- Including technical documentation
- Delivery and installation worldwide

Retrofit / Upgrades

Improved efficiency comes with state of the art units. Our Retrofit-Services increase the availability and process stability for your unit.

Our services:

- Replacement with a complete, new gearbox as drop-in solution with identical interfaces
- Design, calculation and production of main components like gear set or bearings for increased power requirements to suit your application
- Updates for turning gear control units
- Retrofit of connecting couplings

Customer Support

We operate fast and reliable – our customer support specialists provide assistance remote or on-site.

Our services:

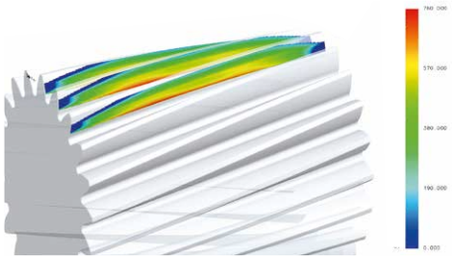
- Field Service for turbo gears of all brands world-wide
- Trouble shooting and root cause analysis
- Technical customer support
- Emergency service and expedited delivery
- Consulting and maintenance agreements for turbo gears of all brands

My motivation:

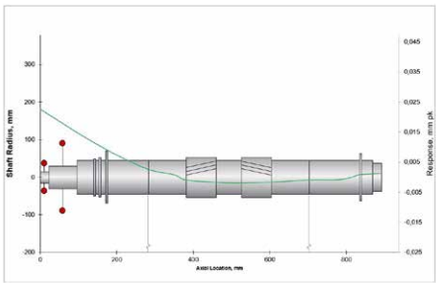
“Provide the best support and the highest quality for the customer on site.”

Holger May, Fieldservice
26 years of turbogear experience

Engineering



Stress analysis of a loaded tooth face



Bending mode of a pinion

My motivation:

“Create sustainable solutions together with my team to prevent issues upfront.”

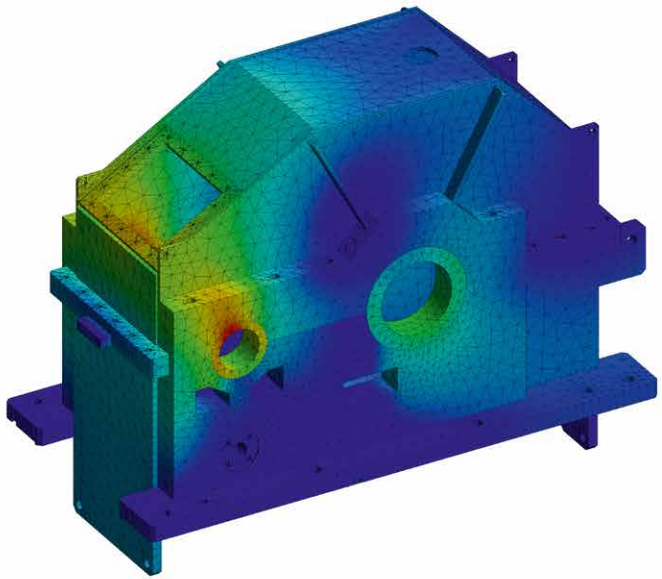
Stefan Eiterer, Calculation & Simulation
14 years of turbogear experience

OUR KNOW HOW FOR YOUR APPLICATION

Our engineering team incorporates years of experience. Combined with state of the art calculation and engineering tools, we optimize turbogears and their components tailored to your application.

Our core competencies:

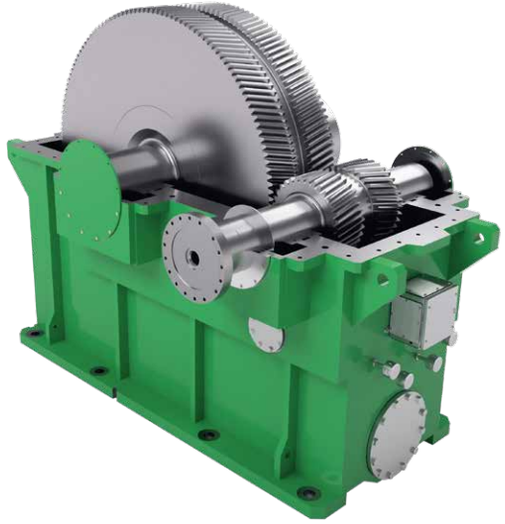
- Toothing design according established standards (API, AGMA, ISO, DIN, etc.)
- Profile and lead modifications optimized to the given load conditions
- Calculation and optimization of hydrodynamic and hydrostatic sleeve and tilting pad bearings
- Bending and torsional rotordynamic analysis for the gear set as well as for a complete train – also according API requirements
- Structural analysis for complex parts using FEA (stability, deformation, temperature distribution, etc.)



Structural analysis using the finite element method (FEM)

P

Parallel shaft gears



POWER TRANSMISSION TO DEPEND ON

Units in service for many years, operating around the clock without standstill and maintenance stops, available anytime, require highest dependability for all components.
Therefore, our parallel shaft gears are built with hydrodynamic sleeve bearings and carburized gears, calculated for fatigue endurance and manufactured with highest precision. These measures minimize wear and extend the lifetime of the unit.
Compliance to international standards like API 613, longtime experience of our design and calculation experts as well as inhouse manufacturing and quality control guarantee highest quality and reliability of our gear boxes.

Your advantage:

- Customized design, tailored to your application
- Simple setup for easy maintenance
- High efficiencies up to 99.2 %
- Optimized friction bearings for lower oil consumption
- Highest manufacturing quality with our state of the are machine tools
- Low vibration levels through highest balance quality for rotating parts
- Long lifecycles through fatigue endurable calculation and design for all parts

Applications and industries

Power generation	Generators driven by industrial gas or steam turbines for power generation
Oil & gas	Compressors and pumps driven by electric motors or turbines for natural gas and crude oil production
(Petro-)Chemical	Compressors driven by electric motors or turbines for processing of various gases
Steel mills	Compressor and blower drives, energy recovery using expansion turbines

Technical data

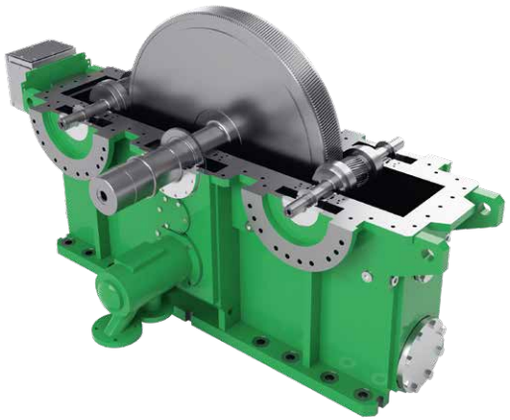
Power	up to 80 MW
Speeds	up to 60.000 rpm
Efficiency	up to 99,2 %
Ratio	up to i = 10 (one state design)
Gears	Carburized single helical or double helical toothing
Bearings	Hydrodynamic sleeve bearings and tilting pad bearings
Casings	Fabricated casing with horizontal or vertical shaft offset
Designs	According ISO 6336, AGMA 6011 or API 613

My motivation:

“Provide the best results with state of the art technology and highest accuracy.”

Melanie Russler, 3D-measuring technology
32 years of turbogear experience

Integral gears



My motivation:

“Put in my personal creativity and produce a great product together.”

Marcus Herzog, Production / Grinding
34 years of turbogear experience

WE BUILD WHAT YOU NEED

Integrally geared compressors and expanders for various gases need to operate reliable at challenging conditions and high speeds. Therefore, we design each integral gear unit tailor made to the requirements of our customer and their application.
We pay special attention to the impeller and casing interfaces as well as the thrust requirements and solutions for each unit in close collaboration with our customer.
Using automated data exchange with our customers (like shaft and bearing data for rotordynamics) we increase efficiency of the design process – for you and for us.

Your advantage

- Customer specific concerted interfaces
- Applicable for compressor drives, expansion turbines and combined cycles.
- Driven by electric motor, gas and steam turbines, integrated expansion turbines and combinations
- Impeller connection with Hirth toothing or acc. customer requirements
- Increased efficiency with our thrust collar designa-vailable for many applications
- Individual speeds for each stage realised with multi-shaft-design
- Detailed rotordynamic analysis and improvement by our calculations specialists

Applications and industries

Power generation:	Generator driven by expansion turbines for power generation (waste heat, geothermal, etc.)
Oil & gas:	Compressors driven by electric motor or steam turbine for gas compression or liquefaction
(Petro-)Chemical:	Compressors driven by electric motor for processing of various gases
Air separation:	Air compression to separate Nitrogen and Oxygen

Technical data

Power	up to 40 MW
Speeds	up to 70.000 rpm
Ratio	up to i = 25
Shaft arrangement	up to 4 pinions with up to 8 stages, driven via bull gear or turbine shaft
Impeller connection	With Hirth toothing or acc. Customer requirements
Gears	Nitrided or carburized single helical toothing
Bearings	Radial: hydrodynamic sleeve bearings for bull gear and turbine shaft, tilting pad bearings for pinion shafts Axial: Bull gear with thrust bearing, pinions with thrust collar or thrust bearings
Designs	According ISO 6336, AGMA 6011, API 617 or API 672

E

Epicyclic gears

RELIABILITY AND PERFORMANCE AT ITS BEST

TGSK epicyclic gears with their high grade of reliability and vibration performance are made for applications, demanding high speeds without vibration issues or toothing wear.
Beside our standard spur gear design, we provide double helical gearing for increased requirements towards running, vibration and noise performance.
Multiple teeth in mesh at a time guarantee increased performance.

Your advantage

- Compact design, small footprint
- High power density and efficiency
- Low weight
- Coaxial shaft arrangement
- Integrated flexible connection coupling on highspeed side
- Optimal power distribution through the whole gear set (sun – planets – annulus)
- Project specific design for your application

Applications and industries

Power generation:	Generators driven by gas, steam, water or expansion turbines for power generation
Oil & gas:	Energy recovery using expansion turbines
(Petro-)Chemical:	Compressors and pumps driven by electric motors
Test stands:	For compressor / turbine or motor development, balancing machines, aerospace applications

Technical data

Power	up to 25 MW
Speeds	up to 45.000 rpm
Efficiency	up to 99,3 %
Ratio	up to i = 12 (one state design)
Design	With fixed or rotating planet carrier, self centering sun wheel and thin, flexible annulus for optimized power distribution
Gears	Spur gear or double helical toothing
Casing	Fabricated casing, foot mounted, split line mounted, or flange design for direct connection with motor / generator


My motivation:
“Manufacture turbogears at the highest level.”
Sebastian Besler, Production / Gearing
15 years of turbogear experience

KEEP YOUR TRAIN IN MOTION

Turning gears

Our turning gears are the optimal solution for direct integration within your train – either on a free shaft end with overrunning clutch, or on top of the rotor with swivel pinion and gear rim.
For the swivel pinion solution the turning gear is installed on top of the rotor, so the pinion can drop down, engage with the gear rim and keep your rotor turning.
Including the suitable control unit we provide a tailor made solution for your train.

Your advantage

- Project specific design according your requirements
- Reliable start-up and coast down for your turbine drive train
- Easy integration in the drive train
- Mechanical solution with overrunning clutch
- Automatic engagement and disengagement of the swivel pinion for start-up and coast down
- Low maintenance combined with high durability

Applications and industries

Power generation:	Start-up and coast down for gas or steam turbines, for industrial turbines up to 125 MW and power plant turbines up to 1400 MW
Oil & gas:	Start-up and coast down for turbine driven compressor trains, Alignment and breakaway for trains with big electric motors

Technical data

Power	up to 75 kW
Speeds	1 to 300 rpm
Breakaway torque	up to 200.000 Nm
Design	For installation on a free shaft end with overrunning clutch For integration in the train with swivel pinion and gear rim

My motivation:

“Provide the highest performance with my colleagues every day.”

Johannes Luitz, Engineering Turning Gears
13 years of turbogear experience

D

Diaphragm coupling

RELIABLE AND MAINTENANCE-FREE

Our couplings are custom-engineered to meet specific customer requirements. The flexible diaphragm geometry enables uniform load distribution and efficiently compensates for axial, radial, and angular misalignments. We also implement project-specific solutions for special dimensions or attachment components.

With our proven engineering expertise and precise manufacturing, we ensure long service life and minimal downtime in your system.

Advantages

- High power density and temperature resistance
- Maintenance-free operation thanks to wear-free diaphragm design
- Compensates for significant shaft misalignments while maintaining high torsional stiffness
- Low mass and moment of inertia for dynamic systems
- Design according to API 671 for maximum industrial safety standards
- Custom adaptation to machine and process interfaces

Applications and industries

Power Generation:	Between steam or gas turbines and the generator
Oil & Gas:	Between electric motors or turbines and high-speed machines such as compressors
Test Rigs:	For high-speed test benches, often with integrated torque measurement
Retrofit / Revamp:	Replacement of existing couplings with adaptation to new operating conditions

Technical data

Power	up to 50 MW
Speed	up to 50.000 1/min
Torque	up to 500.000 Nm
Design	API 671

My Motivation:

“To contribute my many years of experience – for smooth operations on site.”

Bernd Natter, Field Service
33 years of turbogear experience

SMART AND CONFIGURABLE

Condition Monitoring System (CMS)

Our „Black-Box“

Our Condition Monitoring System (CMS) offers a compact and powerful solution for monitoring the condition of rotating machinery. It enables continuous acquisition and simultaneous analysis of vibration, temperature, and other sensor signals—easily integrable and fully remotely accessible if required via network, Wi-Fi, mobile data, and optionally through a cloud connection.

Thanks to its modular design (Type M, L, or with an expansion module), the system can be flexibly adapted to individual requirements. Intuitive operation and a high sampling rate ensure accurate diagnostics.

Advantages

- Compact design for easy integration
- Remote access via network, cellular, or cloud
- Compatible with all common operating systems
- No software required
- User-friendly operation
- Expandable with add-on modules
- High sampling rate (up to 51,200 Hz) for precise diagnostics
- Individually configurable (inputs, signals, protocols)
- Flexible storage options

Applications and industries

Machine Monitoring:	Continuous monitoring of gearboxes, turbines, motors, and more Also suitable as an add-on for existing systems
Maintenance / Service:	Temporary installation for commissioning and troubleshooting
Remote-Monitoring:	Access from anywhere (optional) – software-independent, ideal for decentralized facilities

Technical data

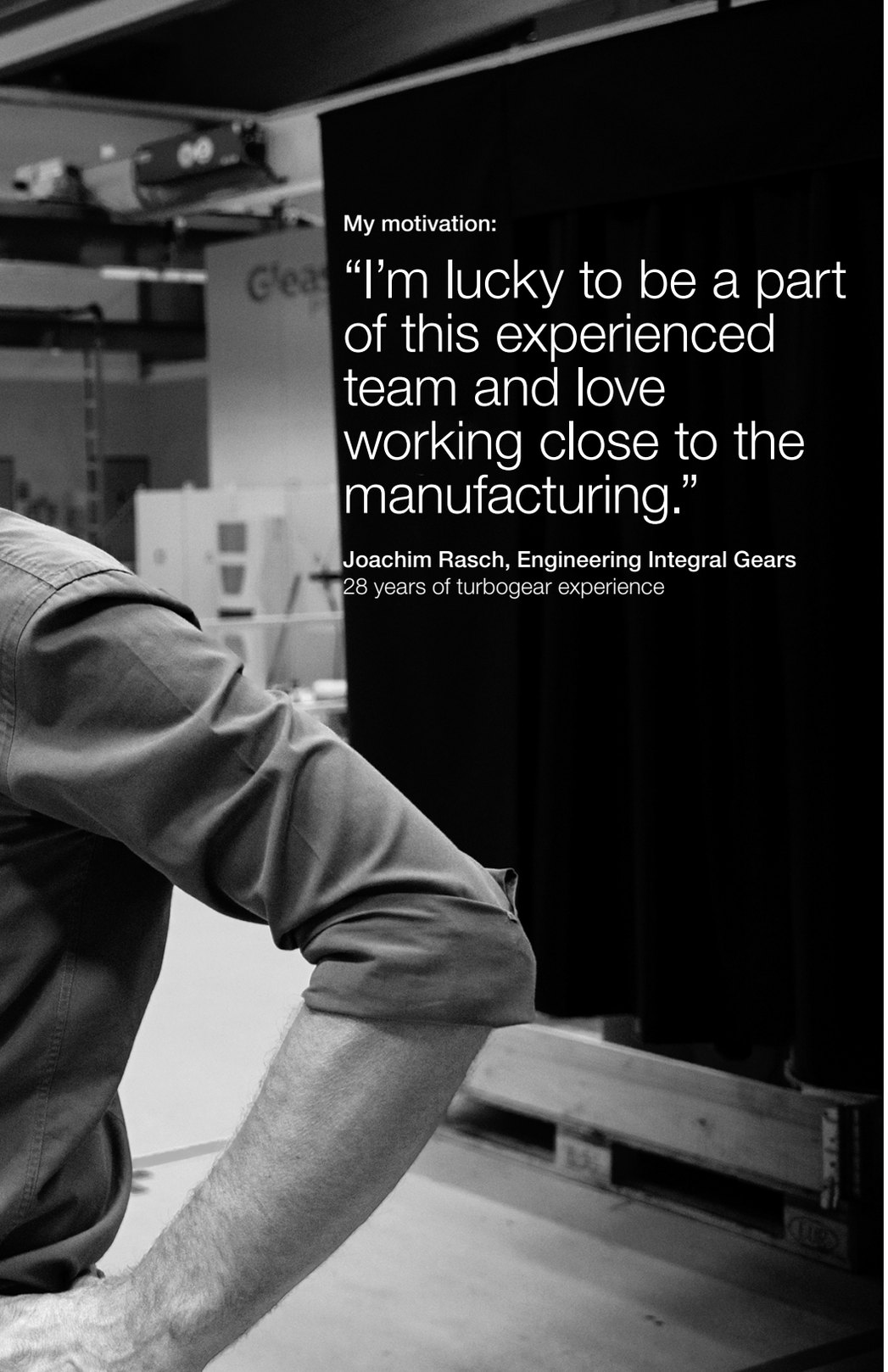
Types:	**TGSK8-M**: 8 dynamic analog inputs **TGSK8-L**: plus 4 additional inputs for tachometer or static signals Optional expansion module for TGSK8-M: 8 additional static inputs
Interfaces:	Interfaces: Ethernet, USB, OPC-UA, Modbus
Signal Inputs:	V/mA, tachometer, analog, temperature, and more
Sampling Rate:	Up to 51,200 Hz
Operating Systems:	Platform-independent

Compact. Flexible. Configurable.

The TGSK CMS offers flexible configuration options and enables online access if required – for maximum efficiency and control.

A

Applications and industries



My motivation:

“I’m lucky to be a part of this experienced team and love working close to the manufacturing.”

Joachim Rasch, Engineering Integral Gears
28 years of turbogear experience

Power generation

Combined cycle power plants / biomass heating plants

Applications	Generators driven by gas and steam turbines, drive for natural gas compressors, coast down for turbine trains
Products	Parallel shaft gears / Epicyclic gears / Integral gears / Turning gears

Hydropower plants

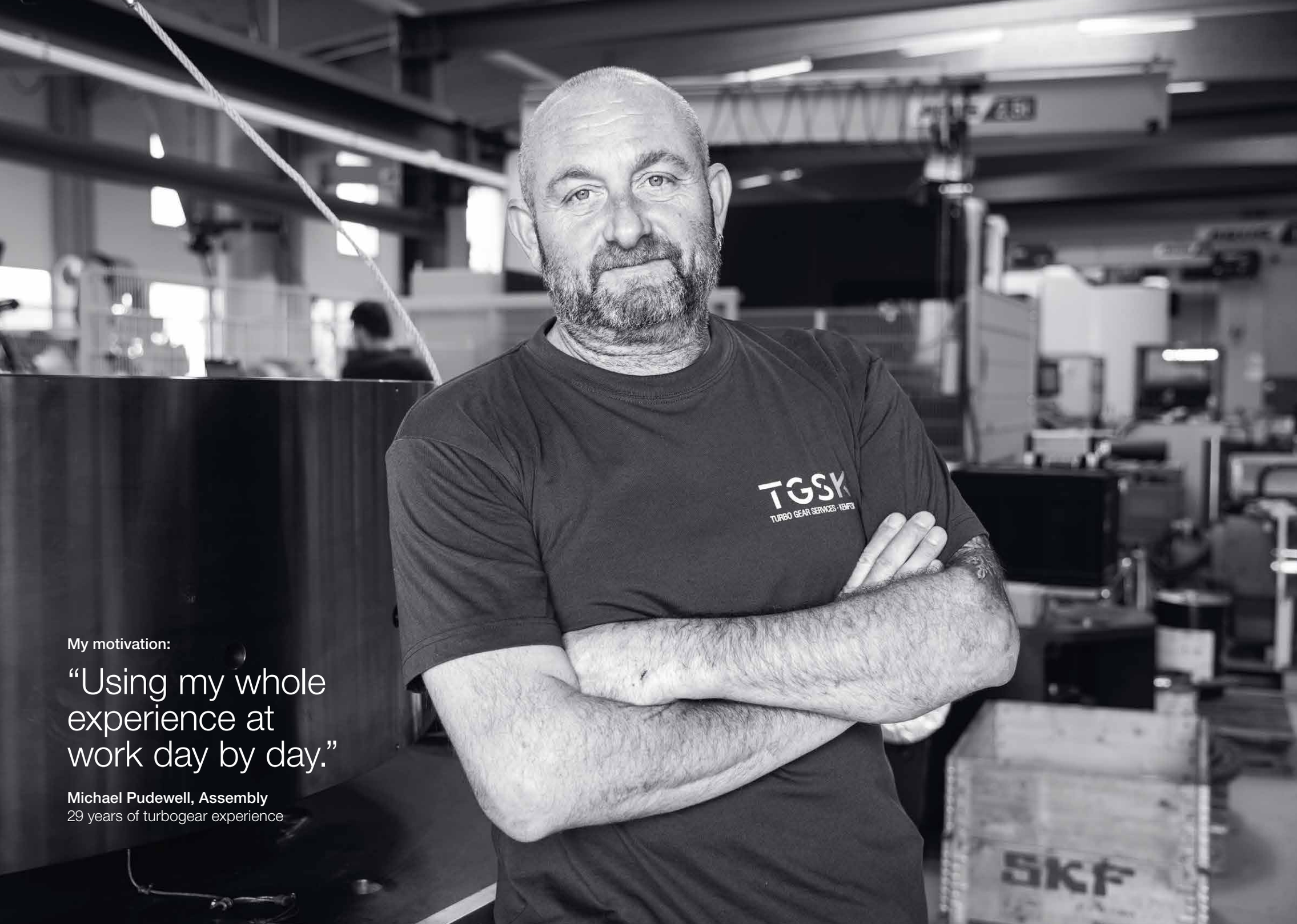
Applications	Small and medium sized generators driven by water turbines
Products	Parallel shaft gears / Epicyclic gears

Geothermal power plants

Applications	Generators driven by steam and expansion turbines
Products	Parallel shaft gears / Epicyclic gears / Integral gears / Turning gears

Solar power plants

Applications	Generators driven by steam turbines
Products	Parallel shaft gears / Epicyclic gears / Turning gears



My motivation:

“Using my whole experience at work day by day.”

Michael Pudewell, Assembly
29 years of turbogear experience

Oil and gas

Upstream Onshore & Offshore - Production

Applications	Driving compressors and pumps for natural gas and crude oil production, as well as for injection of additives to increase production for existing installations. Power generation for offshore production
Products	Parallel shaft gears / Integral gears

Midstream - Transport

Applications	Driving compressors and pumps in pipeline stations, liquefaction and transport for LNG terminals and vessels
Products	Parallel shaft gears / Integral gears / Epicyclic gears

Downstream - Processing

Applications	Driving Compressors in refineries for compression, liquefaction or separation of various gases
Products	Parallel shaft gears / Epicyclic gears / Integral gears

FPSO & FLNG - Floating processing and storage

Applications	Driving compressors and generators aboard a vessel for processing and storage of oil and natural gas
Products	Parallel shaft gears / Integral gears

Other applications

Air separation

Applications	Driving compressors for air separation
Products	Parallel shaft gears / Integral gears

Chemical industry

Applications	Driving compressors for compression and liquefaction of various gases
Products	Parallel shaft gears / Epicyclic gears

Steel mills

Applications	Driving compressors for oxygen production, Blowers for blast furnaces / flue gases
Products	Parallel shaft gears / Integral gears / Epicyclic gears

Test stands

Applications	Driving high speed machines as for the development of gas turbines, compressors, motors or balance machines
Products	Parallel shaft gears / Epicyclic gears

T

Test bench

FOCUS ON QUALITY

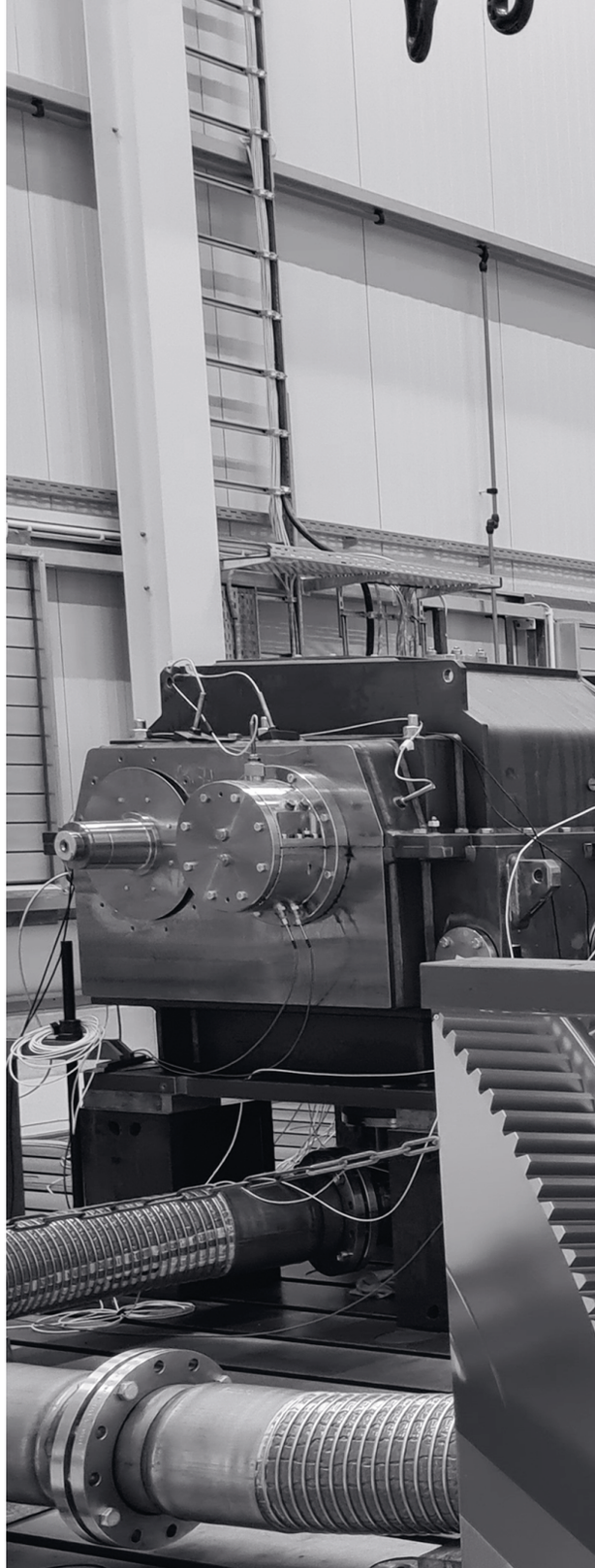
Our state-of-the-art test facility is designed for the testing of high-performance turbo gear units under realistic operating conditions. With an installed motor output of 1.4 MW and a maximum drive speed of 42,300 rpm, we can test a very wide range of gearbox types.

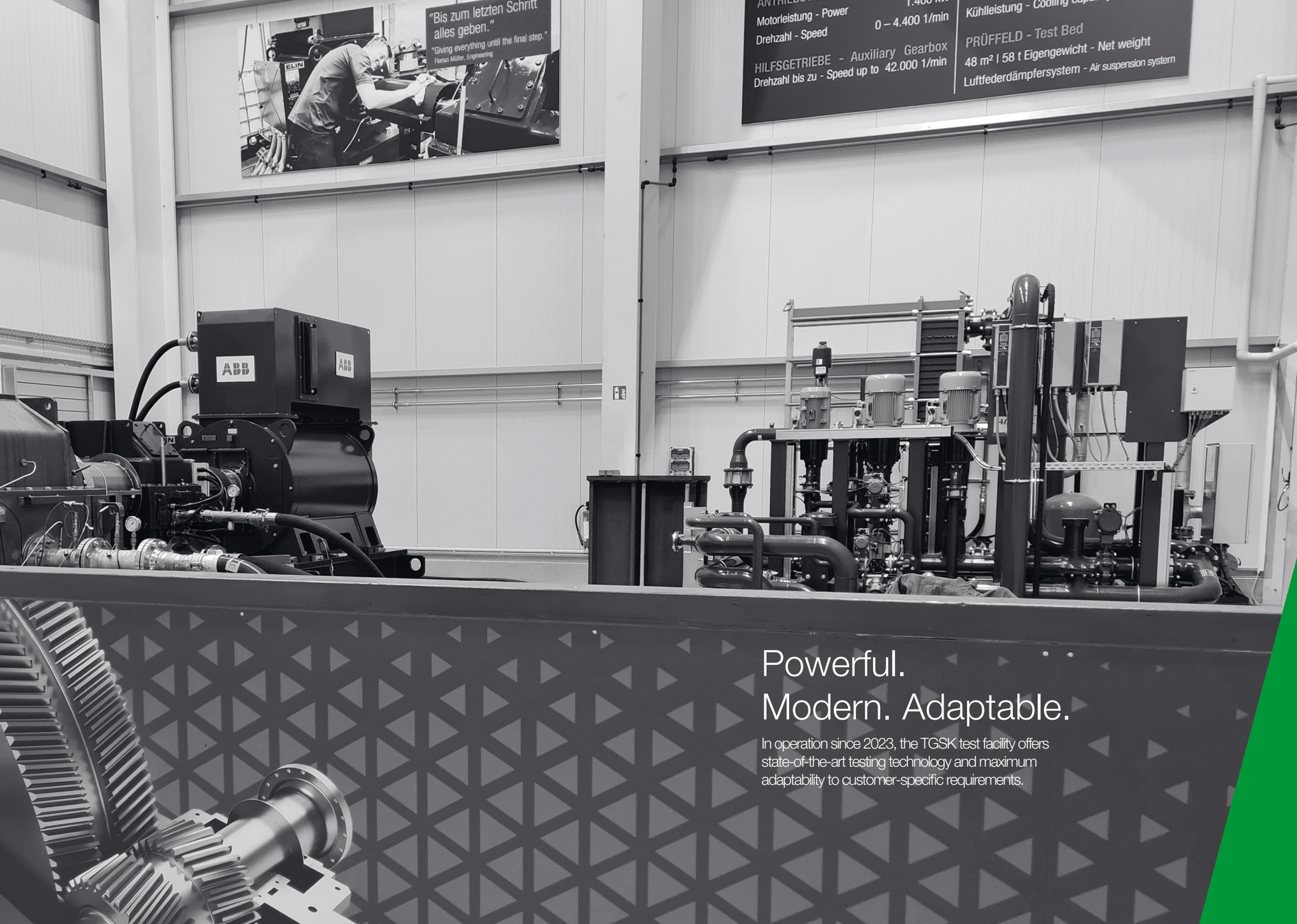
For condition monitoring, we use our modern Condition Monitoring System (CMS). This enables continuous data acquisition of all relevant operating parameters – including the option for live data transmission for virtual acceptance by our customers.

Our test facility is designed for variable setups, allowing maximum flexibility in validating a wide variety of test scenarios.

Key Technical Data:

- Drive power up to 1,4 MW
- Max. motor speed: 4.400 rpm
- Max. drive speed: 42.300 rpm
- 14 m hall height
- 50-ton crane capacity
- Online customer acceptance possible





Powerful.
Modern. Adaptable.

In operation since 2023, the TGSK test facility offers state-of-the-art testing technology and maximum adaptability to customer-specific requirements.

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