THE CHANGE IN GEAR ENGINEERING

THE GEARING OF THE FUTURE IS ELECTRIFIED, AUTOMATED AND NETWORKED.

GEARCONTROL:
i:GEAR 4.0®
GEARCONTROL-SYSTEM®
GEARCONTROL-OIL®

EISENBEISS
LEADING THE WAY IN SPECIAL GEAR ENGINEERING FOR THE MARKETS OF THE WORLD.
GearControl sets new standards in reliability and availability and takes a leading role in the current industrial revolution “Industry 4.0”.

Gears are the most efficient and thus the most cost-effective transmitter of speed and torque. Gears have just one short-coming: bearings and toothing have to be lubricated and require maintenance as a result. The electrification gives the gear a further boost in terms of reliability by means of sensor technology.

By linking gears with intelligent systems you can determine gear status at any time and prevent damage in a proactive way. This also makes gear systems the safest link in the power train even in the toughest of applications. Expensive (gear) substitution solutions such as high-pole motors or generators lose their significance as a result of this revolutionary and convincing development.

- AVOID GEAR DAMAGE
- EXTEND MAINTENANCE INTERVALS
- MAXIMISE OPERATIONAL RELIABILITY
- PLAN DOWNTIME

i:GEAR 4.0*
GearControl-System*
GearControl-Oil*

Eisenbeiss, headquartered in Enns, Austria, has developed in GearControl a new type of gear support system which, unlike condition monitoring systems, not only gives a warning when a problem has already occurred but also prevents damage and therefore maximises both the service life and the efficiency of the plants.

Besides vibration supervision GearControl additionally supervises lubrication oil supply, lubrication oil quality and oil condition, plus temperature development. Such multi-parameter analyses enable you to form better opinions about current gear condition and individual components. The combination of all the measuring data available reduces the risk of incorrect diagnosis at the same time.

Eisenbeiss is a globally active manufacturer of special gear systems and, with GearControl, enables its customers to make use of the producer’s know-how not only in the design phase but also throughout the entire service life of the gear.
GEAR ENGINEERING WILL NOT WORK IN FUTURE WITHOUT SENSOR ENGINEERING!

INNOVATIVE MEASURING TECHNOLOGY TO ENSURE CONDITION-ORIENTED OIL CHANGE INTERVALS AND PROPER LUBRICATION.

GearControl-Oil® is a multi-parameter sensor and measured data storage unit all in one. It continuously measures six specific oil condition parameters and identifies any impermissible status of the oil reliably and early on. The plant operator avoids any "flying blind" between laboratory analyses and can, as a result, take action without delay before any severe damage to the gear system occurs.

THE BENEFITS

GearControl-Oil® at a glance
- Evaluation of impurities, water content, soot formation, air content, oil ageing, acidification
- Measuring of medium temperature, ambient temperature, relative moisture, transmission, electrical conductivity, relative permittivity
- Configurable warning/alarm thresholds
- Continuous data recording and determination of real operating hours
- Controls signalling equipment and is integrated in existing control systems
- Autonomous battery operation for 2 years
- Extensive configuration, monitor and analysis software
- Easy and intuitive operation


The Expert Edition is a worry-free package including application-specific parameterisation of threshold values, generation of condition-dependant maintenance intervals and advice from gear experts.

80% of gear damage can be traced back to improper lubrication and advanced oil ageing and can be avoided.

The intelligent assistance system GearControl-OIL® is the ideal aid to ensure at all times that the oil is in a satisfactory condition.
GearControl-System®

THE NEW EARLY IDENTIFICATION SYSTEM – YOUR WORRY-FREE PACKAGE!

AVAILABILITY, RUNNING COSTS AND MAINTENANCE COSTS ARE CONSIDERABLE FACTORS IN THE COST-EFFECTIVENESS OF GEARS.

THE BENEFITS
- Early identification of problems and damage prevention
- Analyses and optimisation potential
- Clear action recommendations
- Top operational reliability
- Maximum reliability and availability
- Unbeatable cost-benefit ratio
- Gear and condition monitoring know-how
- Ready to use and easy to work with
- Remote maintenance and support

GearControl records the condition of the gear throughout its entire service life from the testing phase at the manufacturer’s and during the whole period of operation and stoppage. The measuring data gathered from this and information collected in combination with the models of the gear development are used to signal alarm statuses, prevent gear damage, optimise operating conditions and to determine condition-oriented maintenance, inspection and oil change intervals.

HOW THE GEARCONTROL-SYSTEM® WORKS.

Condition-oriented maintenance, inspection and oil change intervals
- Formation of operational data groups
- Heating/cooling control
- Alarm signalling in the event of critical statuses
- Ensures proper and compliant usage

Evaluator
Oil level
Oil condition
Oil pressure
Oil viscosity
Gear condition
Indicator light
Ethernet
Modbus RTU / TCP
Analog 4-20 mA
Indicator light control

CentralNodE
Oil quantity
Oil contamination
Oil ageing
Oil water content
Oil temperature
Oil prewarming
Oil cooling control

Online monitoring
Detailed analysis
Remote maintenance
External know-how

CLOUD

1) Diagnosis and control of gear condition
2) Indicator light system gives a clear signal regarding gear condition
3) Condition information via Ethernet, signal indicator light and industry field buses

“LITTLE EFFORT GREAT EFFECT.”

Different damage pictures of bearings and toothing parts show characteristic patterns in the frequency spectrum of vibration signals. This makes a reliable trend analysis and assignment to the appropriate components possible. GearControl forms parameters for all damage possibilities, follows their development and gives a specific alarm for any signs of damage which may arise.
i:GEAR 4.0®

i:GEAR 4.0® = EISENBEISS GEAR + GEARCONTROL

EISENBEISS IS THE FIRST GEAR MANUFACTURER IN THE WORLD TO COMBINE INDUSTRIAL GEARS WITH A COMPREHENSIVE GEAR SUPPORT SYSTEM.

EISENBEISS OFFERS DRIVE SOLUTIONS AND SUPERVISION FROM A SINGLE SOURCE – A GLOBAL FIRST!

You receive an optimally tuned drive system including supervision and integrated engineering know-how from gear development. This means that i:GEAR 4.0® can analyse its operating conditions independently and signal any potential improvements.

Increased service life and maximum plant availability with minimal operating costs are the result.

i:GEAR 4.0® ensures the cost-effectiveness of your plants with a fast ROI!

SMALL INVESTMENT
BIG RETURN

i:GEAR 4.0® GEAR MANAGEMENT

Everything from a single source
Your gear system and supervision from a single source. Our competent experts are at your disposal around the clock.

Know-how
Take advantage of the up-to-date know-how concerning condition monitoring and perfective servicing every time.

Service life maximisation
Thanks to the constant evaluation of the load-carrying capacity of the lubrication film and operating conditions you can directly influence the service life of your components and maximise it.

With i:GEAR 4.0® an alarm is given automatically in critical situations and you can avoid routine checks.

This enables you to spend more time on your key tasks (your economical and innovative production processes).
Oil condition monitoring
Lubrication monitoring
Stress monitoring
Operating parameter monitoring
Gear condition monitoring
Operating parameter control
Remote maintenance
Operating parameter optimisation
Perfective servicing
Optimised maintenance intervals

EQUIPMENT DATA (CENTRAL EVALUATION UNIT)

Type designation
GearControl-CentralNode®

UMGEBUNGSBEREICH BETRIEB

Temperature -20...+50 °C
Protection class IP66 (if mounted as specified in IP66 control cabinet)

POWER SUPPLY

External supply
90-244 (47-63 Hz) / 120-370 Vac / VDC

PIN ASSIGNMENT PLUS CONNECTOR

Indicator light
M12 4-pole
1...Green Pull-Down
2...Yellow Pull-Down
3...Red Pull-Down
4...24 VDC

System Bus
M12 8-pole
1...VDC
2...24 VDC
3...RB
4...RA
5...An_SA
6...An_SB
7...An1_SA
8...An2_SA

USER I/O
M12 12-pole
1...Green Pull-Down
2...Yellow Pull-Down
3...Red Pull-Down
4...Digital Input

INTERFACES

Signal indicator light
Green, yellow, red
Gear condition

Bus interfaces
RS485 Ethernet Modbus RTU TCP/IP

Analog outputs
4 x 4...20 mA, power output

DIMENSIONS

Control cabinet
300 x 300 x 150 mm
YOU DON’T WANT ANY PROBLEMS FROM GEARS?

GEARCONTROL LETS YOU KNOW IN GOOD TIME WHEN YOUR GEAR NEEDS YOU.

YOUR COMPETENT PARTNER.

EISENBEISS GmbH
Lauriacumstraße 2
4470 Enns, Austria
Tel.: +43 7223 896-0 / DW 737
Fax: +43 7223 896-85 / DW 92
Email: gearcontrol@eisenbeiss.com

www.eisenbeiss.com