SEW EURODRIVE

Condition monitoring

Systems and services for condition-based maintenance

SERVICE

CDS® – the modular service concept

Condition monitoring – for reducing your maintenance costs

Condition monitoring is a systematic means for determining the condition of all installed drive technology components. The approach includes measurement, interpretation and visualization of defined parameters that are then forwarded to your maintenance department. The accuracy of these evaluations is based on technical expertise and precise sensor technology.

Condition monitoring is a system module of the CDS® modular concept of SEW-EURODRIVE.
➟ Green light for your production.

Our services at a glance:

- DUV vibration sensor[1] for monitoring bearings and gears
- DUO oil aging sensor[2] for determining the next oil change period
- DUB brake diagnostics[3] for function and wear analysis
- Thermograms for control cabinets and drive components
- Gear unit inspection through oil analysis
- Endoscopy for gear unit diagnostics
- Visual check of drive technology
- Load state analysis
- Detection of EMC interference sources
- Supply voltage analysis
- Analysis of unit-specific environmental impacts
- Current consumption measurement

[1] Diagnostic Unit Vibration
[2] Diagnostic Unit Oil aging
[3] Diagnostic Unit Brake

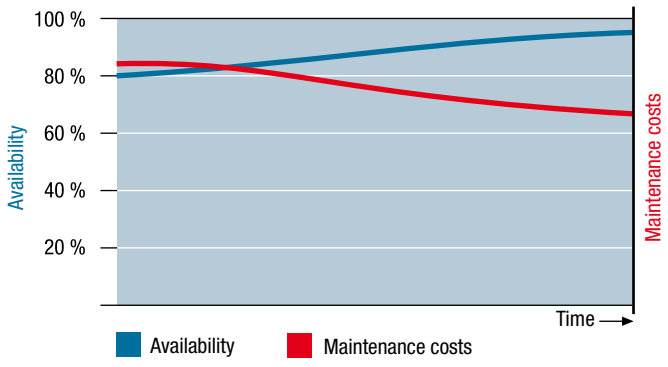
Your benefits

Systematic condition analysis using the latest measuring methods will reduce your maintenance costs. We compare the measurements on-site with the values we have collected throughout the years (manufacturer expertise) enabling you to act instead of react.

- Minimization of production downtimes
- Reduction of maintenance costs
- Ability to schedule downtimes
- Greater operational reliability
- Optimum control of personnel resources
- Targeted material procurement
- Reduction of storage costs for spare parts
- Wear-oriented maintenance and servicing
- Optimum utilization of system capacity

What we offer

Just as with the modular drive technology concept, SEW-EURODRIVE also offers a comprehensive range of condition monitoring solutions. We provide and implement complete solutions that include initial consultation and identification of the best analysis method, all the way to installation and diagnostics.



Reduce your indirect expenses, minimize production downtimes and avoid unscheduled standstills with the help of condition monitoring.

DUV vibration sensor for monitoring bearings and gears

Keeping an ear on your gear unit

The DUV (Diagnostic Unit Vibration) unit from SEW-EURODRIVE is the perfect instrument for the simple and reliable monitoring of rolling bearings and gearings. The DUV diagnostic unit measures the structure-borne noise and uses this to calculate the frequency spectrum. The unit uses this frequency spectrum to constantly evaluate the condition of the rolling bearings. The sensor and evaluation electronics are fully integrated into the diagnostic unit.

Your benefits

- Rolling bearings and gearing components are permanently monitored
- The condition of the rolling bearings and damage development can be easily detected and identified: the colors green, yellow and red indicate the development of the damage
- Monitoring options: values can be read directly from the sensor or visualized externally via switch outputs (DUV can be linked to bus systems)
- Level monitor that monitors the entire vibration spectrum
- Permanent monitoring of 5 bearing locations or 20 individual frequencies (e.g. tooth meshing frequency, imbalance) with one sensor
- Parameters can also be set by the system operator via an RS-232 interface
- Data is recorded, processed, and evaluated decentrally
- Vibration speed is monitored according to DIN ISO 10816-1
- Monitoring is also possible for ATEX zone 1/21 (special design)
- Maintenance intervals can be planned individually

What we offer

- Consulting services regarding the use of our vibration sensor
- Installation of vibration diagnostic units and referencing
- Calculation of kinematics, gear unit and bearing frequencies
- Integration and evaluation of sensor data on a process level
- Assembly and start-up with referencing and parameter backup
- Sensor also available in ATEX design for use in zone 1/21
- Carrying out of maintenance work

Reduce your indirect expenses, minimize production downtimes and avoid unscheduled standstills with the help of condition monitoring.

DUO oil aging sensor to determine the right time to change the oil

So that things keep running smoothly

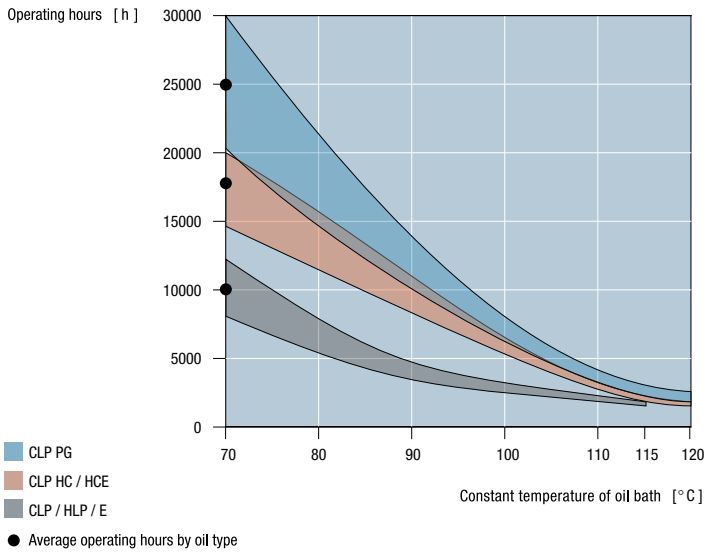
The DUO (Diagnostic Unit Oil-aging) unit from SEW-EURODRIVE is the perfect sensor to determine the remaining life of the gear unit oil and indicate the right time for an oil change. A thermal sensor installed in the gear unit measures the oil temperature and sends this information to an evaluation unit that will calculate the remaining time until the next oil change. This feature is particularly important when the temperature of the gear unit oil is not constant during operation.

Your benefits

– Reduction in oil costs
– Optimum utilization of oil service life
– Start-up can be performed directly on the diagnostic unit (without PC)
– Simple detection and reading of the time remaining until the next oil change
– 5 different oil types can be parameterized
– Warning message is issued if predefined limit values are exceeded, such as max. oil temperature
– Permanent oil aging monitoring
– Maintenance intervals can be planned individually
– Monitoring is also possible for ATEX zone 1/21 (special design)

What we offer

– Consulting services regarding the use of our oil aging sensor
– Installation of the sensor and evaluation unit
– Parameterization of the evaluation unit
– Integration and evaluation of sensor data on a process level
– Changing and disposing of the waste oil
– Flameproof housings with the required components, such as resistance divider switch for using the diagnostic unit in ATEX zone 1/21



Reduce your indirect expenses, minimize production downtimes and avoid unscheduled standstills with the help of condition monitoring.

DUB brake monitoring sensor for monitoring functionality and wear

So the brake always holds its end up

The DUB (Diagnostic Unit Brake) unit from SEW-EURODRIVE is the ideal sensor for the reliable monitoring of brake lining wear and brake function. A recoiling microswitch is used as a normally closed contact or normally open contact, depending on the task. It sends the voltage-dependent signal to a higher-level controller. This monitoring of the brake increases safety and allows for condition-oriented maintenance. Both monitoring options can be utilized at the same time by installing two microswitches.

Your benefits

- Brake lining wear can be detected in good time
- Reliable brake function monitoring
- Condition signal of the microswitch can be implemented as a normally closed or normally open contact
- The voltage-dependent output signal can be easily processed
- Evaluation directly via SEW-EURODRIVE inverter with corresponding error protocol
- Can be used in damp conditions up to IP65
- Self-cleaning contacts inside the sensor
- Maintenance intervals can be planned individually according to wear

What we offer

- Consulting services regarding the use of our diagnostic unit
- Installation and setting of the microswitches
- Integration and evaluation of sensor data at process level
- New drives with built-in brake monitoring sensor
- Upgrading of existing SEW-EURODRIVE drives

Reduce your indirect expenses, minimize production downtimes and avoid unscheduled standstills with the help of condition monitoring.

Thermograms of control cabinets and drive components

A picture is worth a thousand words

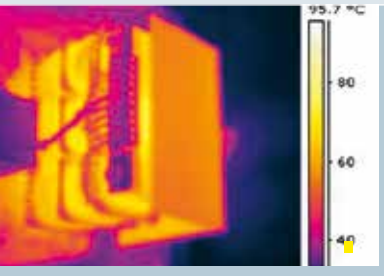
Using thermography, we are able to clearly show the temperature distribution in drives and control cabinets. This method helps us assess problems such as wear, overloads and worn-out contacts. Our service specialists will provide a correct interpretation of the test results.

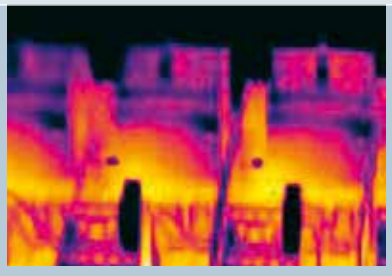
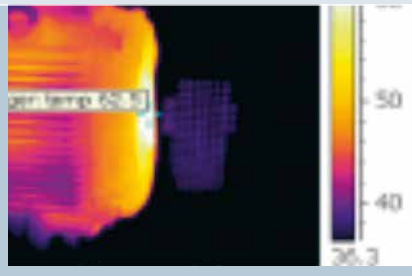
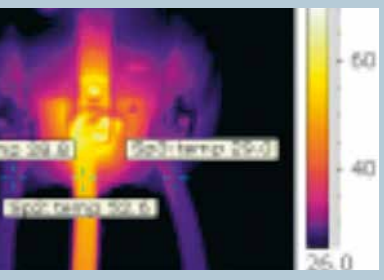
Your benefits

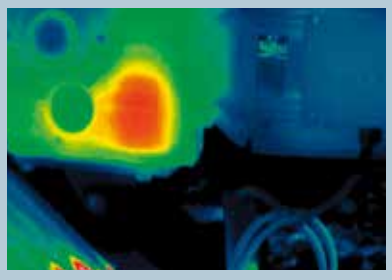
- Non-destructive measurement method
- Analysis can take place during ongoing production
- Fast identification of conspicuous components
- Component-based damage analysis
- Maintenance according to plan with specific goals
- Ability to distinguish between actual problems and signs of wear
- Detection of dangerous heat sources (burn/touch prevention)

What we offer

- Thermographic testing of the drive technology in use
- Thermographic testing of the power components installed in the control cabinet
- Photographic and thermographic documentation and evaluation of the components
- Recommendations on how to eliminate risks and on necessary maintenance jobs






Reduce your indirect expenses, minimize production downtimes and avoid unscheduled standstills with the help of condition monitoring.

Gear unit inspection through oil analysis

The inner values matter

This specific analysis is used to determine factors for possible wear, for example on gearings and rolling bearings. Future wear can be reduced to a minimum based on the results of the analysis and manufacturer expertise.

Your benefits

- Gear unit inspection can be determined without having to disassemble the gear unit
- Oil change can be planned based on the condition
- Development of measures to avoid gear unit wear

What we offer

- Oil sampling
- Oil analysis for standard gear units and planetary gear units
- Oil analysis by an independent institute to identify:
  - wear metals
  - additives
  - contamination
  - oil condition
  - TAN
  - particle count analysis
- Interpretation of laboratory reports
- Measures to avoid gear unit wear

Supply voltage analysis

Current flow made transparent

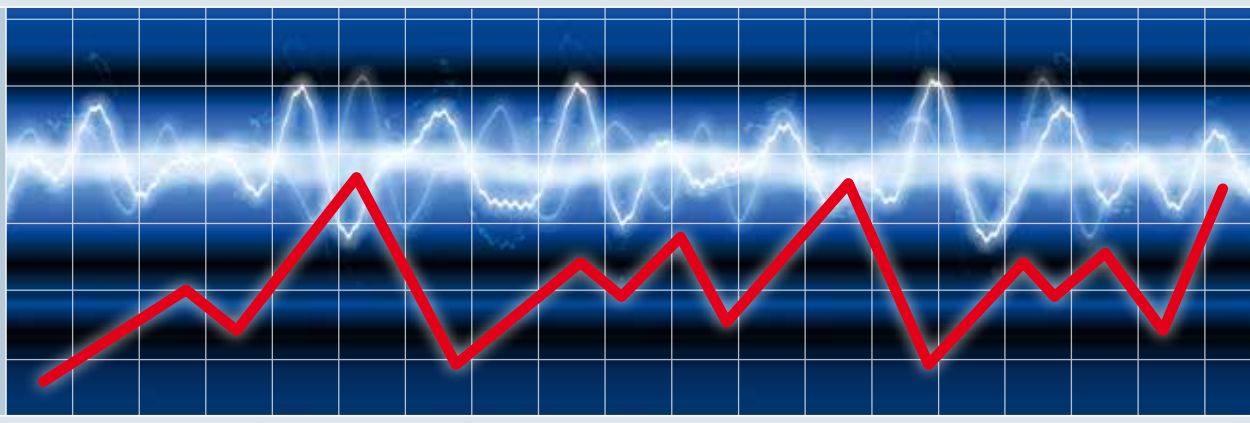
Supply voltage analysis is a service offered by SEW-EURODRIVE, in which issues such as machine and system interferences, environmental influences and overload are analyzed and for which solutions are provided. The supply voltage analysis report makes transparent, for example, the supply of current from the source to the consumer.

Your benefits

- Power consumption made transparent
- Daily peak power supply is avoided; Cost reduction, as less energy is required from public utility companies
- Early detection of impermissible loads of electrical consumers
- Quick identification of interfering factors
- Fuses no longer trip for unknown reasons
- Machine operation free from interference
- Proper functioning of office and data processing devices
- Compensation equipment works properly
- High availability of electrical consumers due to optimum energy quality

What we offer

- Measurement and documentation
  - Effective power, apparent power, reactive power
  - Frequency
  - Curve shape development
- Analysis report after:
  - measures taken to improve the quality of electric current
  - having determined interfering factors, such as EMC
- Optimize/develop suitable measures



Further condition monitoring services

Endoscopy for gear unit diagnostics
- Visual check of gearing
- Determining the condition of gearing and make recommendations for maintenance work when required

Inspection of drive technology components
- Evaluation of various features: Cabling, EMC-compliant installation, contamination, leakage, noise, function, mounting position, brake wear, etc.
- Professional analysis based on manufacturer's expertise
- Recording actual status with recommendations for optimization

Load state analysis
- Measurement and analysis of static and dynamic variables (current, torque, forces, etc.)
- Measurements taken directly in the plant using mobile equipment
- Evaluation of measurements and optimization of drive concept/determining cause of damage

Determine EMC sources
- Metrological analysis of EMC sources
- Visual check of installed measures for EMC protection
- Recommendation for optimized installation

Analysis of unit-specific environmental impacts
- Chemical analysis of aggressive deposits on components
- Individual recommendations for optimizing operation (e.g. protective coating, material recommendations, etc.)

Current consumption measurement
- Representation of changes in current consumption and sluggishness
- Current measurements of a reference movement can assist in showing changes in sluggishness
- Current measurement for controlled drives and automated data comparison in control system

Reduce your indirect expenses, minimize production downtimes and avoid unscheduled standstills with the help of condition monitoring.

CDS® – the modular service concept

The individual and combinable CDS® system modules always provide exactly the service you need for your drive technology – no matter when and where you need it.

Simply select the specific modules to obtain a tailor-made CDS® service package. In this way you always have the right solution so that you can avoid downtimes and reduce malfunctions to a minimum.

„Green light“ for your production, so to speak.

- 24h Service Hotline 0800 SEWHELP 0800 7394357
- Installation Consulting Service
- Startup Service
- Application Programming Service
- Inspection and Maintenance Service
- Repair Service
- Spare Parts Service
- Express Assembly Service
- Industrial Gear Service
- Pick-Up and Delivery Service
- Retrofit Service
- Condition Monitoring Service
- CDM® Maintenance Management
- Training Service

1684 6028 / 1214

24h Service Hotline

0800 SEWHELP

0800 7394357

Service Competence Center (SC)

SC Central
Ernst-Blickle-Straße 1 · 76676 Graben-Neudorf
Phone +49 7251 75-1710 · Fax +49 7251 75-1711
sc-mitte@sew-eurodrive.de

SC North
Alte Ricklinger Straße 40-42 · 30823 Garbsen (near Hanover)
Phone +49 5137 8798-30 · Fax +49 5137 8798-55
sc-nord@sew-eurodrive.de

SC East
Dänkritzer Weg 1 · 08393 Meerane (near Zwickau)
Phone +49 3764 7606-0 · Fax +49 3764 7606-30
sc-ost@sew-eurodrive.de

SC South
Domagkstraße 5 · 85551 Kirchheim (near Munich)
Phone +49 89 909552-10 · Fax +49 89 909552-50
sc-sued@sew-eurodrive.de

SC West
Siemensstraße 1 · 40764 Langenfeld (near Düsseldorf)
Phone +49 2173 8507-30 · Fax +49 2173 8507-55
sc-west@sew-eurodrive.de

SC Electronics
Ernst-Blickle-Straße 42 · 76646 Bruchsal
Phone +49 7251 75-1780 · Fax +49 7251 75-1769
sc-elektronik@sew-eurodrive.de

SEW EURODRIVE

SEW-EURODRIVE GmbH & Co KG
P.O.Box 30 23
76642 Bruchsal/Germany
Phone +49 7251 75-0
Fax +49 7251 75-1970
sew@sew-eurodrive.com

➟ **www.sew-eurodrive.com**