



FLENDER
SERVICE

A
GearController[®]
for analysing
all types of
gear units



FLENDER SERVICE CONDITION MONITORING

www.flender-cm.com

...developed by drive and diagnostic specialists

GearController® applications

The mobile GearController® allows to easily monitor the operating conditions of gears and rotating parts of machinery. Moreover it detects changes in machine vibrations over time.

Depending on the type of drive and gears different optimised measuring modules are applied. The gathered data can then be read out and also be printed out and stored if required.

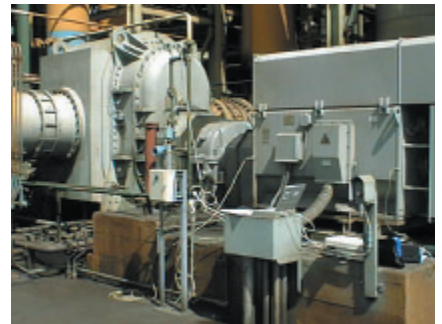
The GearController® technology is based on frequency spectra analysis. The GearController® works like a specialist by evaluating the changes in the significant frequency components.

The results form a good base for decisions on condition related maintenance.

on the sea



in steel mills



in cement plants



in copper mills



in the paper industry



GearController®

Mobile Data Logger for Condition Monitoring of Gears

Readily Available Measuring Modules for Condition Monitoring

- **Vibration velocity analysis**

In steps of >2, >20, >200 rpm with measuring times between 10 sec and 10 min (MM1 – MM9)

- **Acceleration analysis**

For steel and cast gear boxes (MM10 – MM11)

- **Envelope curve analysis**

Depending on the rpm and the type of gear box (MM12 – MM24)

- **Band and trend analysis**

(specific to type of machinery)

Standard Delivery

12-GC-2N-16	Standard GearController® with 2 VIB inputs and 16MB RAM
12-GC-PowB	Battery pack
12-GC-PowL	Charger
12-GC-PowN	Power supply
12-GC-AccN	Accelerometers (2)
12-GC-HmN	Magnets (2)
12-GC-Kab1.5	1.5 m oil-proof-cable (2)
12-GC-TrN	Transport case
12-GC-CMan	Handbook
12-GC-CD-ROM	Software license for Webserver, Mactalk, Progalog + Ethernet-cable



Klaus S., Diagnostic Engineer
Now I can monitor the bearings at low rpm's. I really like the free adjustable filters for the enveloping curves.....

Joe C., Independent Diagnostic Specialist
Until now I had to reject all orders to measure planet gears as I couldn't come up with reproducible results. ... this definitely has changed since I purchased a GearController®.....

Frank K., Technical Director
Our measuring modules have been programmed once by diagnostic specialists. In four week intervals I send somebody through our company to gather all required data. The logged data is then fed into our Intranet.

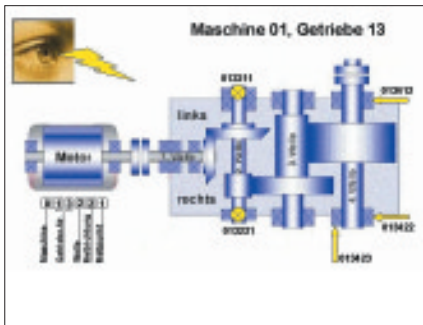
...we only give it a closer look if the data show significant changes...

Extensions and optional features

- Extension to 4 or 6 accelerometer channels
- Extension to 1 microphone channel
- Extension to 1 rpm input-signal
- Up to 25.0 m of extension cable for sensors
- Custom designed software
- Barcode-Scanner
- Wireless Ethernet connection up to a distance of 7.2 km



Front-end and Evaluation Software in Internet Technology



Measuring point oriented route definition



Customer specific evaluation front-end



Traffic light spectra for easier diagnosis



Front-end and evaluation software of the GearController® are identical to the Java-software well-known from Internet applications. The front-end and evaluation software can thus easily be uploaded and run as prepared evaluation pages into the browser of any computer independent of it's operating system.

As the GearController® is already provided with a web-server, it's data can be directly transmitted into an Intranet or to external diagnostic specialists via e-mail.



Special Features

- Free programmable software for all applications and sequence of data logging
- Free adjustable envelope filter for slow moving machinery
- Trend- and parameter-analysis based on frequency spectra
- Programming of customer defined and gear related evaluation menus
- Web-based TeleService data base and service hotline
- Palm-Tops facilitate storage of information and allow to carry out preliminary on-site diagnosis

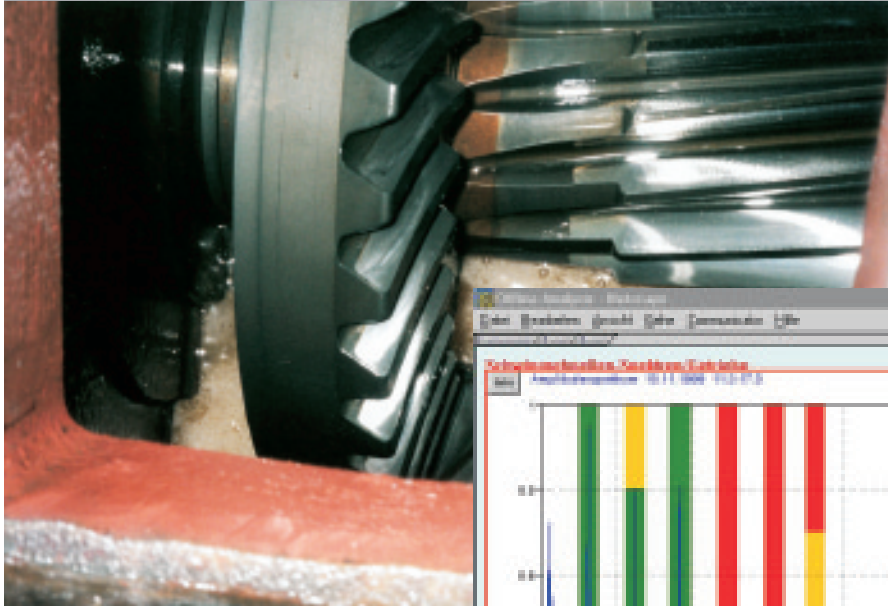
GearController®

Why do you need a data logger for condition monitoring of gears?

Gears – especially toothed gears – are the most sensitive and complex components in drives; finally teeth “knock” onto each other.

Unknown and unexpected wear may lead to sudden stand-stills and even additional damages.

What can all happen inside a gear box...

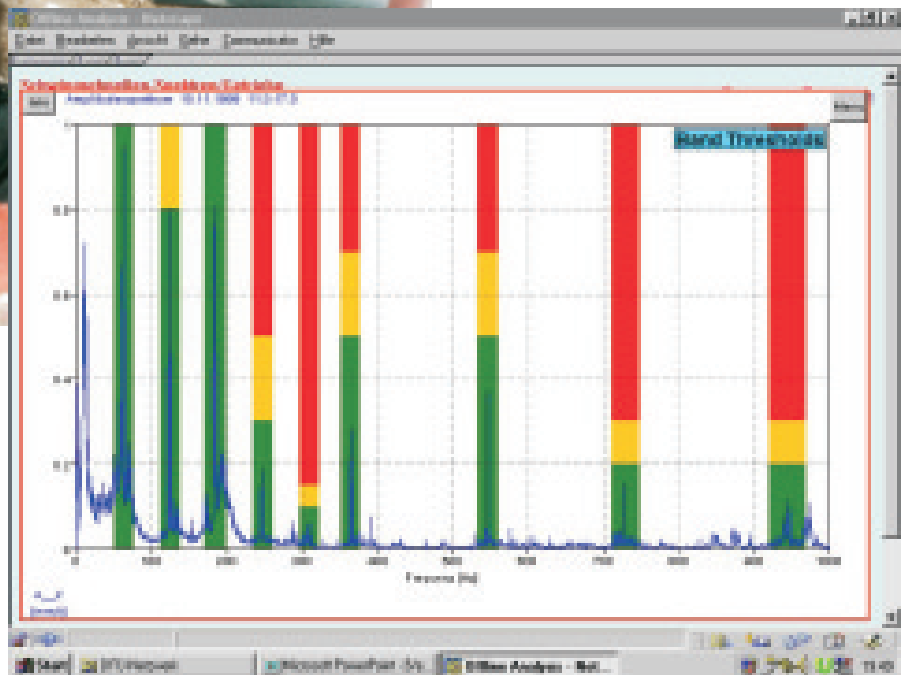


Typically at first the roller bearings fail leading to increased forces in the gears. The likelihood for complete failure increases.

In most cases then it's too late to think about condition related maintenance and service.



Failure of cages



Increased noise generation



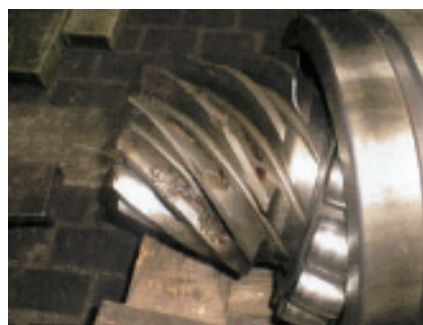
Teeth damages



Axial movement and vibrations



Wear on roller elements



Surface damages



Pittings on the inner ring of a bearing

- Frequency spectra for gear analysis with 102 dB amplitude resolution and 8,200 frequencies (standard rating)
- 16 MB RAM allow lots of data to be collected in a single round
- Integrated DSP and web-server for automatic data analysis
- Generous battery capacity, separate power supply and battery charger
- Easy to operate with flexible definition of data logging, measuring points shown on large display
- IP 65 cabinet, military spec plugs and oil-proof cables
- Data recording via wireless or Internet and storage in sub-directories
- E-mail service possible to be carried out by gear and diagnostic specialists

Technical Data

Input channels:	1, 2, 4 up to 6 channels possible
Trigger inputs:	Internal and external
Frequency range:	0.3 Hz to 32 kHz
Measuring range:	stepped parameters set with aid of software
Dynamics:	102 dB, 16 Bits
Frequency spectra of the FFT analysis:	300 to 15,600 frequencies
Connectable sensors:	ICP accelerometers, ICP microphone (optional), rpm and phase sensors (optional)
Possible measurements:	vibration velocity analysis, acceleration analysis, enveloping curve method with free definable filters
Filter:	free definable with software
Main storage capacity:	16 MB
Typical number of storages:	300 spectra, 16 MB flash
PC interfaces:	RS 232, 10 MB Ethernet, 2 MB via wireless Ethernet
Screen:	4-line LCD or Palm-Top
Dimensions:	300 x 250 x 50 mm
Weight:	2.5 kg
Cabinet:	IP 65

More Information:

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