Fixturlaser SMC

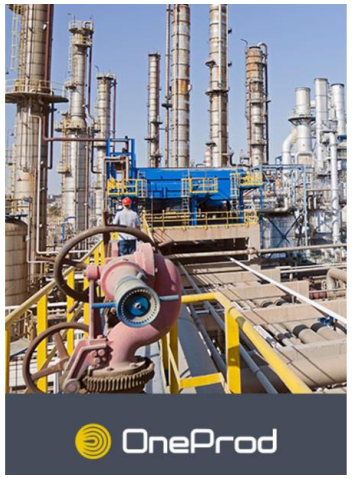
Smart

Machine

Checker

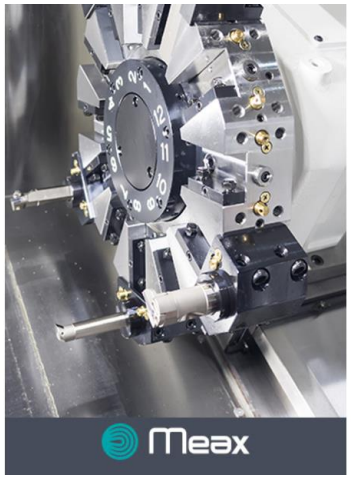
Fixturlaser
ACOEM Group

Brands of ACOEM

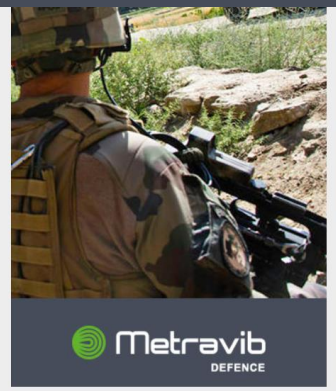


Condition monitoring of rotating machinery

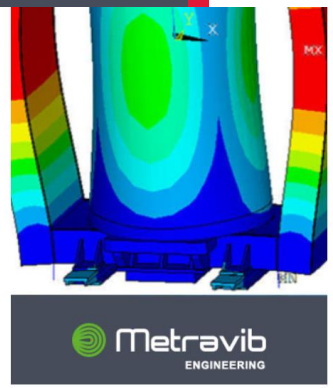
Rotating machinery measurements



Machinetool measurement



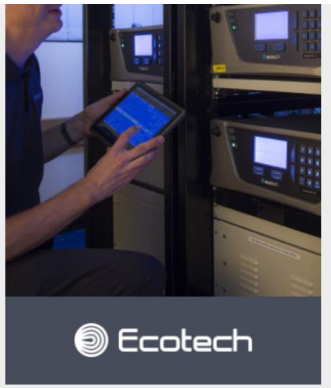
Protection of people, sites & vehicles



Noise and vibration engineering

Material testing & material properties

Noise and vibration monitoring



Environmental monitoring solution

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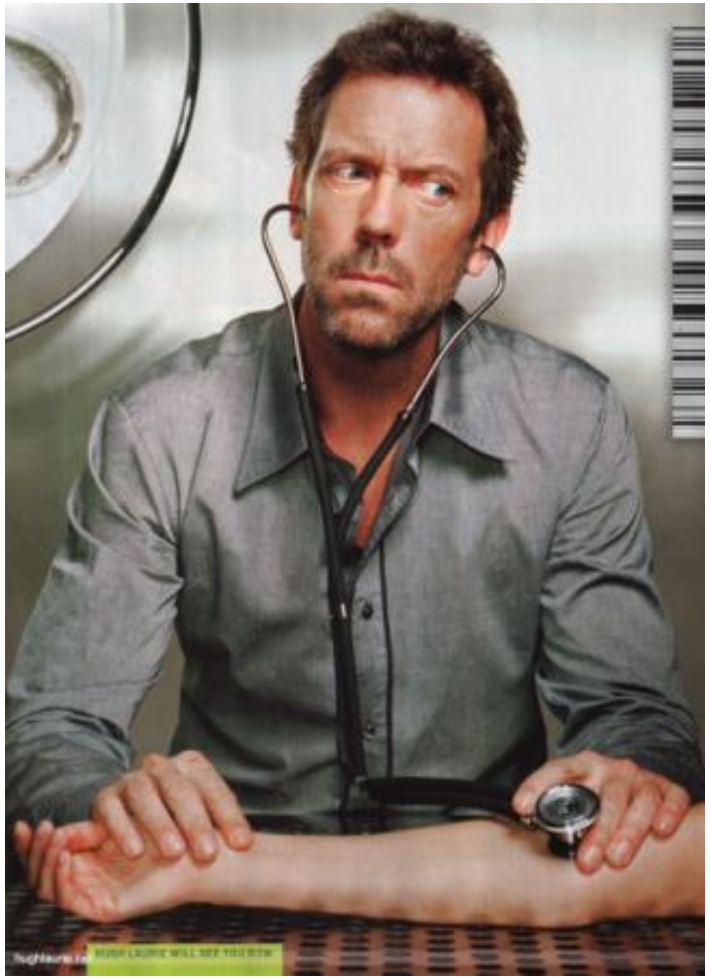
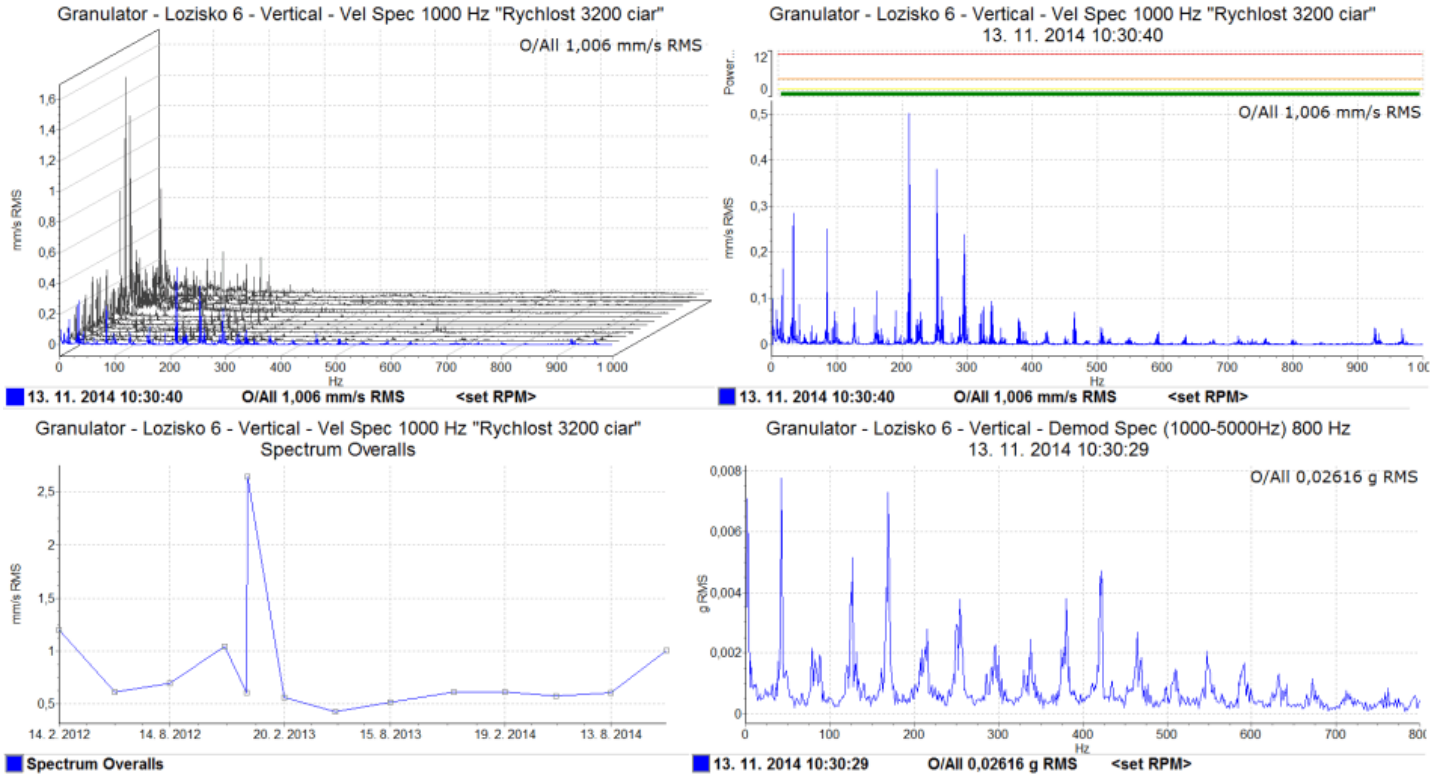
Simple Vibration checker vs. Portable FFT vib. analyser

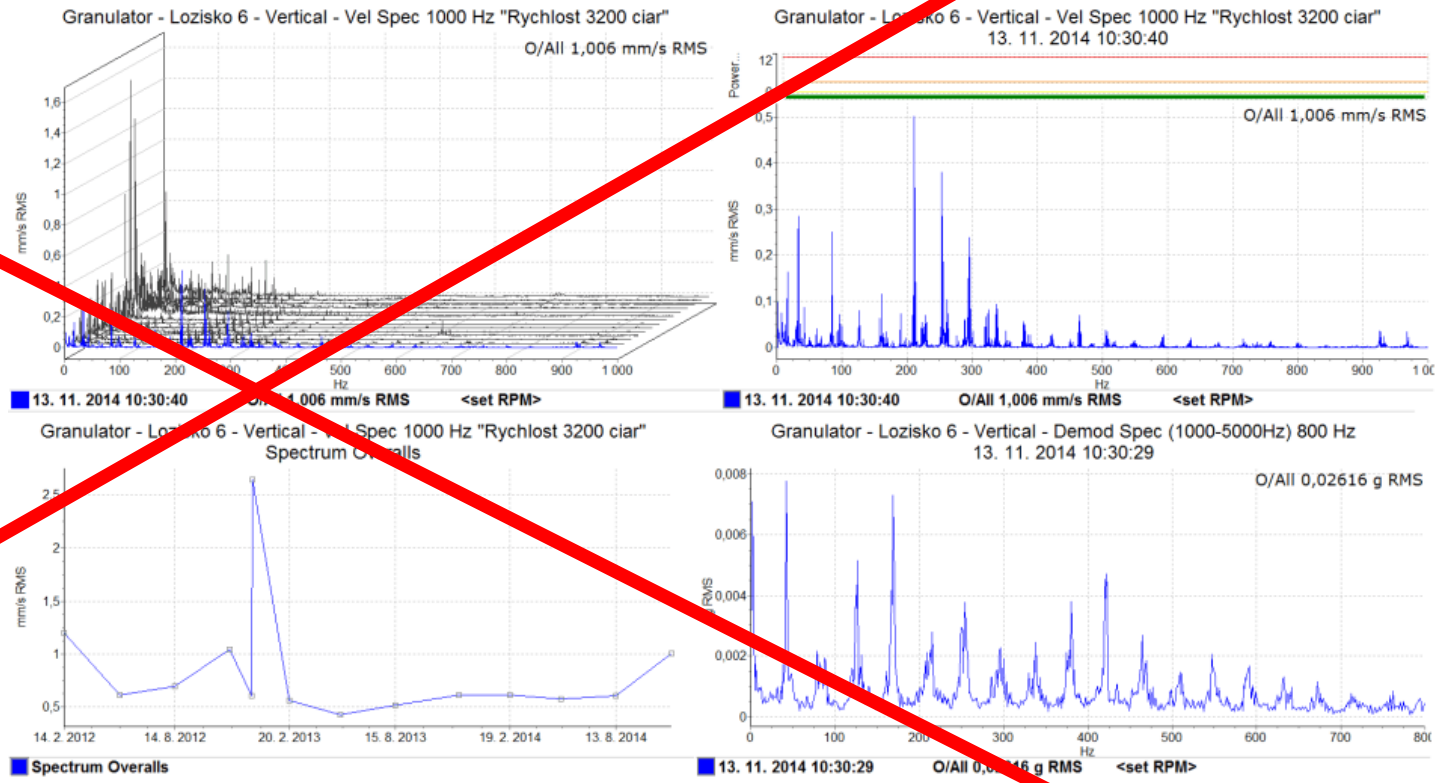
?

Vibration skills – Spectrum analizis





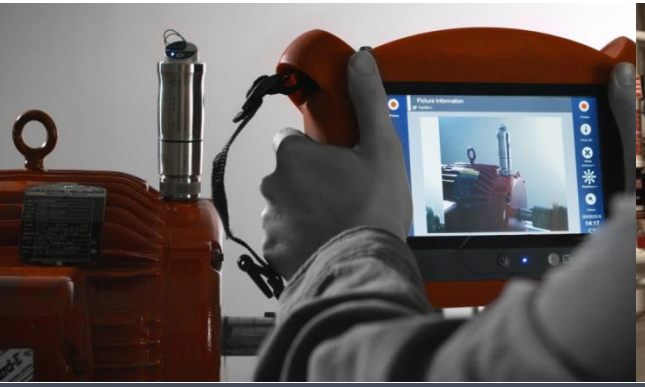
Vibration skills – Spectrum analizis



SMC
SIMPLE, RELIABLE MACHINE DIAGNOSTICS WHERE AND WHEN YOU NEED IT

The SMC empowers mechanics to know their machines better.

- Designed for use on-demand, one machine at a time.
- Only requires machine RPM and horsepower to provide an accurate diagnosis.
- The SMC guides your measurement process, every step of the way.




Fixturlaser SMC - Main features

- Fast. Simple, and Effective diagnostics
- No need diagnostical knowledge & expert
- No need PC software, database, trend, etc..
- Wireless, safety and comfortable measurement
- Touch screen based, easy for use
- Automatic diagnostics, automatic expert report (word)
- Built-in camera
- Built- in stroblite
- Built -in pyrometer
- Three axis sensor

- Simple for all of mechanics

Customer 1: Pump Repair Shop

“I need to find a way to attest that I’ve done my job properly.”

“Usually, I offer only onsite Alignment Services to my customers, but with a simple tool, I could also offer balancing services”

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Customer 2: Small Organization

Plant Manager:

“I’m currently using third party services when I suspect a problem on my machines, or when I need to balance a Fan or a Pump”

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Customer 3: Bigger organization

Mechanics:

“It’s quite hard to access my PDM team, they are focusing their time on critical machines, I’d like to make machine health diagnosis at any time”

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Customer 4: Services company

“I’m doing alignment services and it happens a lot that my customers would like me to diagnose and fix other types of faults. I have no vibration background but I’d like to complete the range of services I can offer”

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Machine types

- Motor
- Pump
- Fan
- Shaft
- Roller
- Compressor
- Generator
- Spindle
- Direct or belt driven machines
- Gearboxes, transmission lines

Machine failures

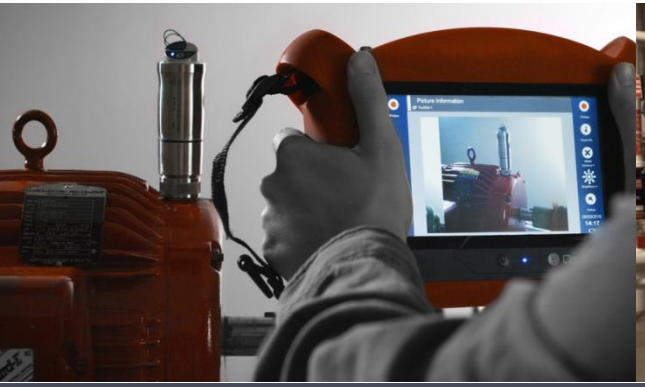
- Unbalance
- Misalignment
- Mechanical looseness
- Cavitation
- Belt drive problems
- Gear tooth problems
- Bearing failures
- Lubrication problems
- Motor electrical problems
- Friction, clearance,
- etc

SMC, Balance & Diagnose your machines:

At Commissioning

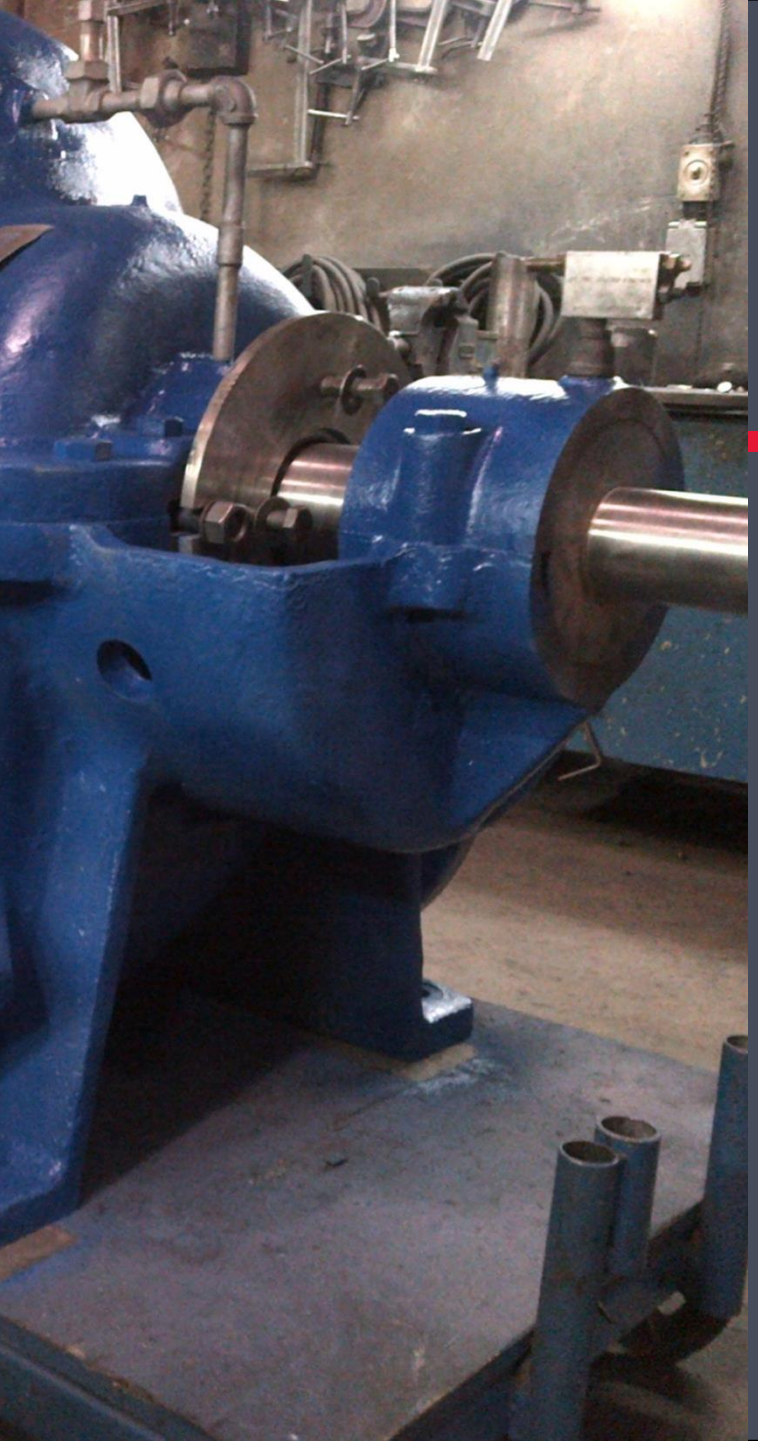
In Operation

Before/After Repair




SMC: Smart Machine Checker…
& Standalone Machine Checker

- Built-in machine setup
- Built-in automatic diagnostic
- Built-in reports



1. step

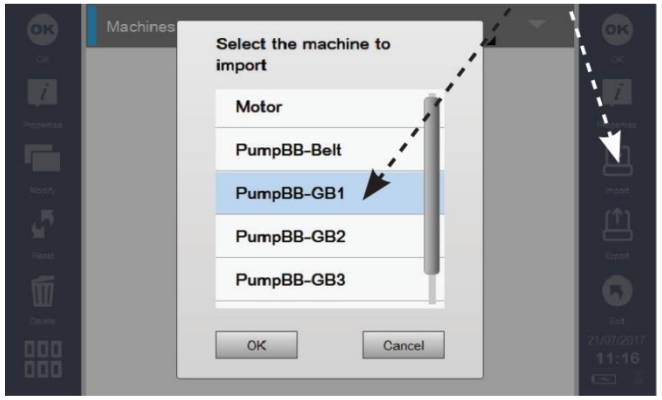
Built-in machine setup

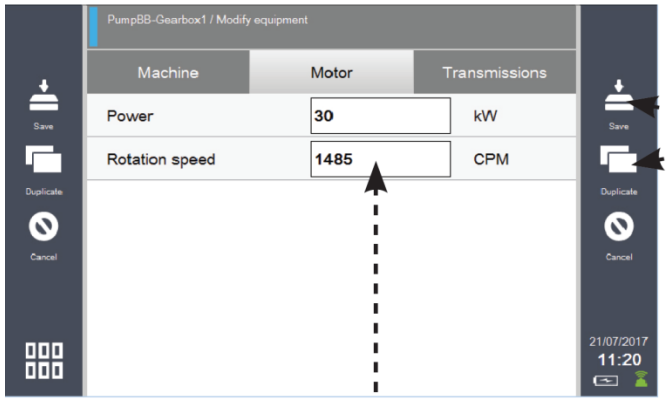
OneProd

Quick & Easy setup in the field

- 2min
- No vibration setup
- No software needed

How does it working…





- Machine template selection
- RMP
- POWER
- Frame type : Rigid/Flexible

Easy duplication

- Check a machine
- Fix it
- Duplicate it
- Re-check it

2 reports available!

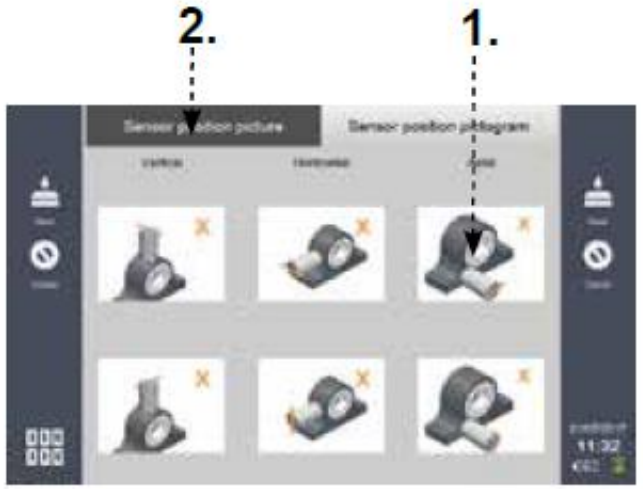
2. step

Built-in diagnostic

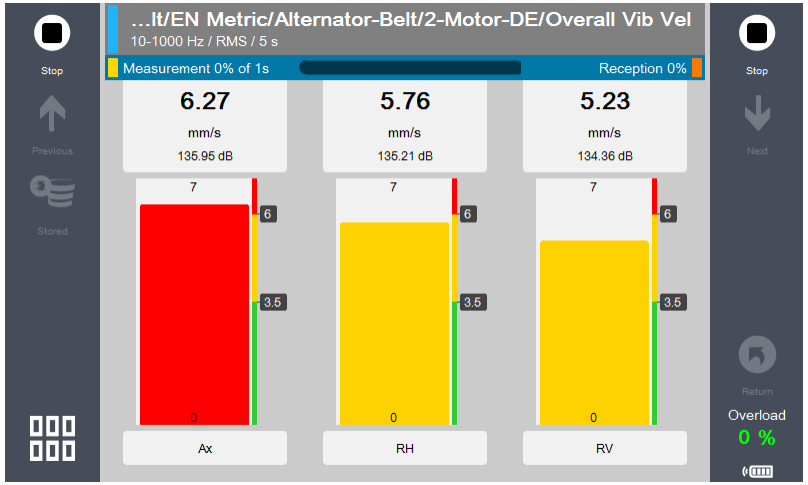
OneProd

Guided Measurement

- Points number on the machine picture
- Measurement point orientation
- Guided measurement procedure, auto advance to the next point

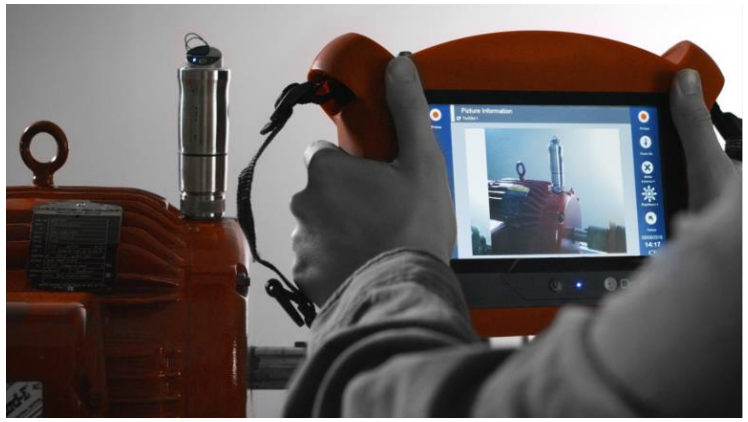


Quick/Wireless Measurement



- Triaxial wireless sensor: **8s per bearing**
- Safety/Comfort measurement
- No cable error

Comfort functions



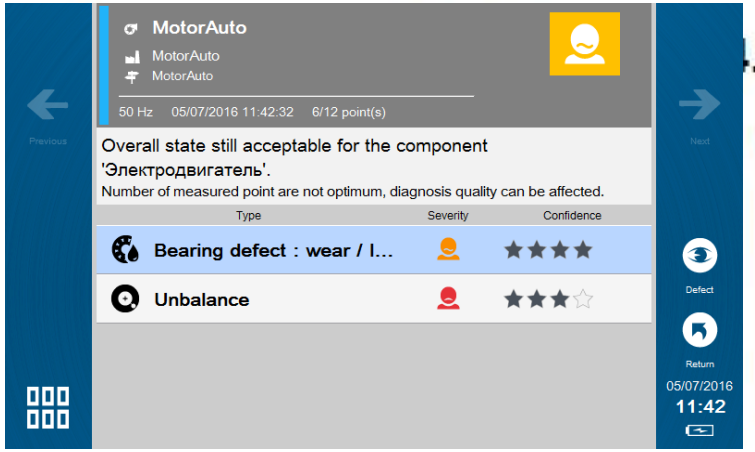
- Picture for real report
- Stroblite for RPM check/input
- Compatible with all templates provided: all common machines
- On-site evaulation and report

Diagnosis immediately on-site

1. Once the measurement are finished, simply click on the diagnostic button.

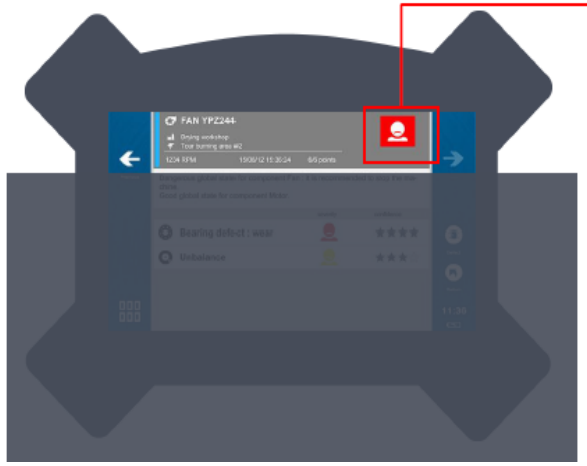
2. See the global status of your machine directly on the Fixturlaser SMC
   - Good: No action required
   - Fair: Monitor the evolution
   - Critical: Schedule corrective action

3. See the list of defects with impact level of the defect on the global status:
   Orange = minor defect
   Red = major defect



4. To enrich your diagnostic and report, you can take a picture, text note, voice notes or a temperature measurement by going to the shortcuts.

On-site diagnosis : ISO, what, where, and confidence



Consolidated Machine Risk assesment indicator

- Immediate action required
- Shorten control periodicity
- No action required

Details and recommendations per location

- Slight defect
- Defect to be monitored
- Defect to be corrected

- **Confidence level indicator**
  - Can it be converted into action ?
  - or just used as assistance to the diagnostic?

3. step

Built-in report

OneProd

=

Vibration velocity table

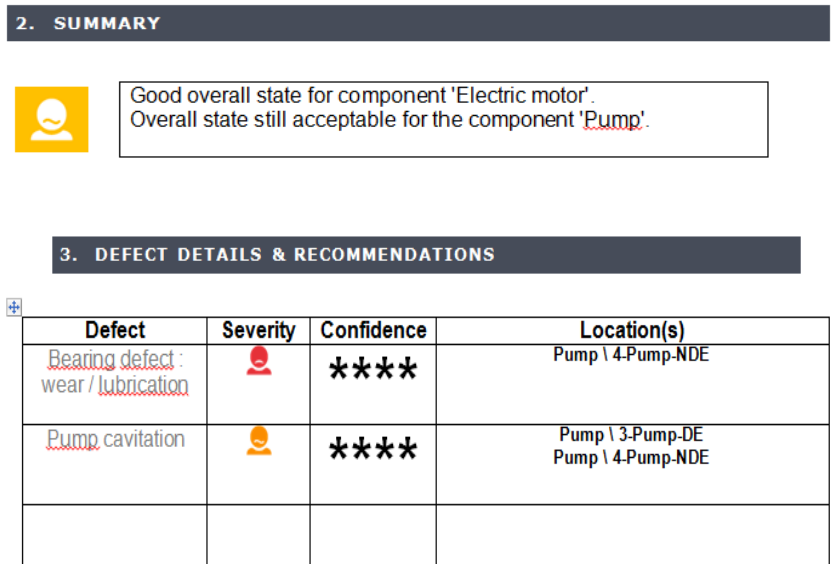
acoem
MAINTENANCE

EXPERTISE REPORT

6. VIBRATION VELOCITY

	AX	RH*	RV**	Unité
1-Motor-NDE	0.056	0.055	0.047	inch/s
2-Motor-DE	0.061	0.055	0.049	inch/s
3-Pump-DE	0.041	0.036	0.077	inch/s
4-Pump-NDE	0.078	0.067	0.083	inch/s

Full Expertise Report



2. SUMMARY

Good overall state for component 'Electric motor'.
Overall state still acceptable for the component 'Pump'.

3. DEFECT DETAILS & RECOMMENDATIONS

Defect	Severity	Confidence	Location(s)
Bearing defect : wear / lubrication		****	Pump \ 4-Pump-NDE
Pump cavitation		****	Pump \ 3-Pump-DE Pump \ 4-Pump-NDE

Recommendations:
•Bearing wear to be corrected: lubricate the component and measure again. If lubrication is not in cause, replace the bearing on component Pump as soon as possible.
•Cavitation to be watched: process control and action might be needed. Follow the dynamic behavior of the pump to prevent impeller damage.

- Risk assessment indicator with overall machine health
- Second level diagnostic
- Maintenance recommendations

All editable (word)

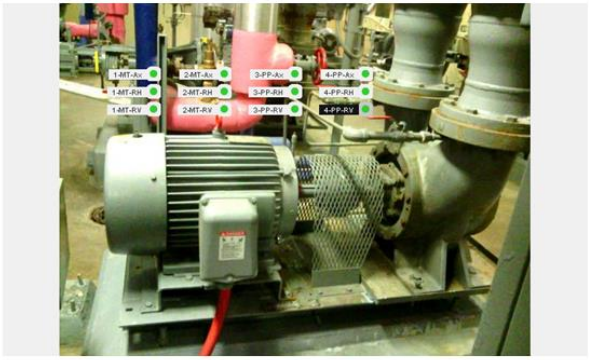
Illustrated Report

EXPERTISE REPORT

Machine	P08
Date	20151202_094058
Device SN	10000
Diagnosis	Bearing defect : wear / lubrication + Pump cavitation

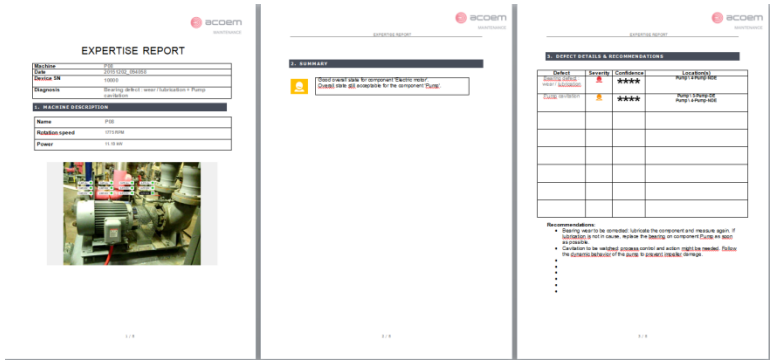
1. MACHINE DESCRIPTION

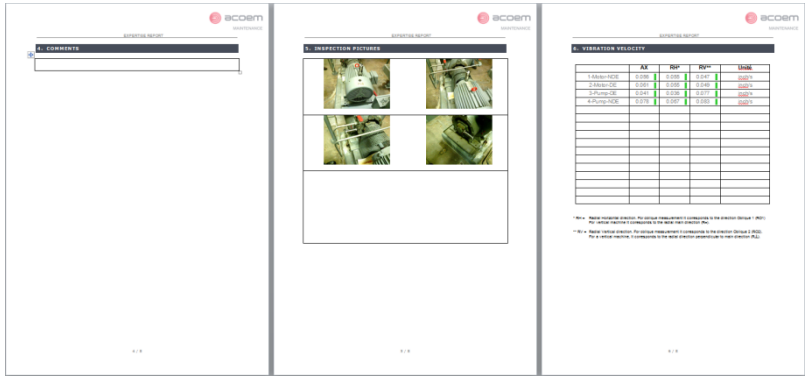
Name	P08
Rotation speed	1775 RPM
Power	11.19 kW



- Machine picture with points alarms
- Inspection Pictures
- Tri-axial wireless sensor pictures

Customized word report





- Change logo
- Add static elements in the report
- Possibility to edit every report (word), add screenshots, comments…

4.

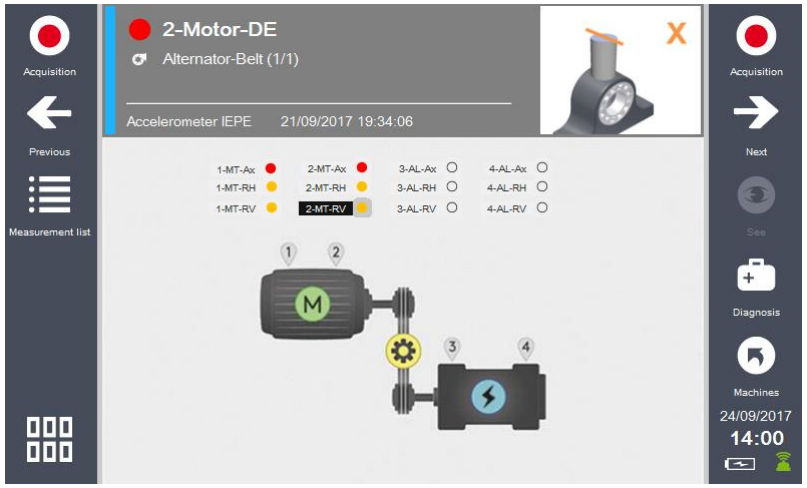
More than a Smart Machine Checker

OneProd

Maintenance inspection tool

- Built-in pyrometer
- Built-in camera
- Built-in strobe light (check dirt on fans, missing bolt…)

Type of machines managed



- Type of machines compatible = templates
- Electric motor
- 7 driven components
- 1 transmission

-(belt/pulley/chain;

-Gearbox; Bevel GB

-coupling)

1. Template composition

Each template is composed of:

- An electric Motor
- Optional: A Transmission
- A driven Component

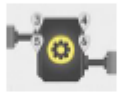
Example of a Motopump with a 1-stage gearbox transmission:

Notes:

- Vertical and Horizontal machines are using the same templates.
- For Belt, Pulley and chain transmission, use the same templates
- The language of the machine is linked to the template. Multiple languages are available on the USB stick delivered with the instrument.
- For machines that are not in the templates, a template named "_OtherMachine" can be used to measure the vibration overall velocity

2. Types of transmissions available

Belt/Pulley/Chain



1-stage Gearbox

2-stage Gearbox

3-stage Gearbox

4-stage Gearbox

Bevel Gearbox

3. Types of driven components available

Pump Between Bearings

Overhung Pump

Fan Between Bearings

Overhung Fan

Centrifugal Compressor

Lobe Compressor

Alternator

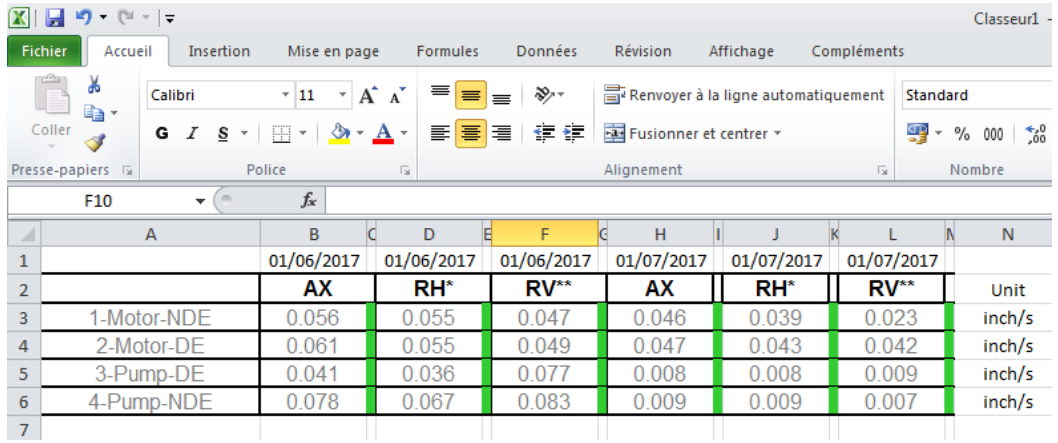
Roller

Shaft

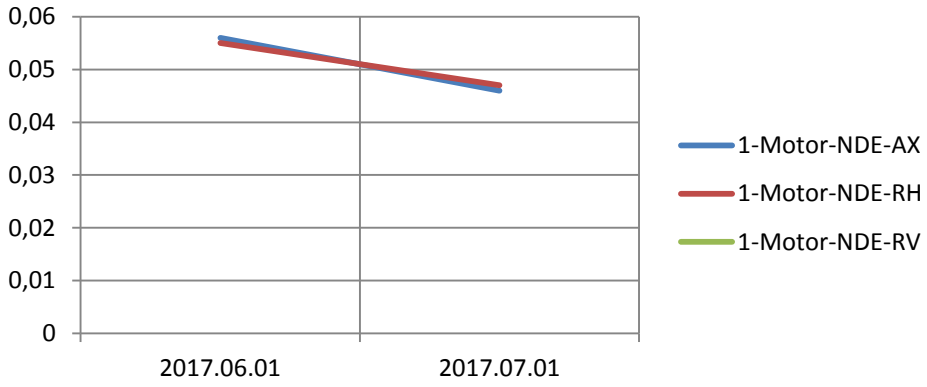
4. Description table of the SMC built-in templates

Transmission / Component	Direct coupling	Belt/Pulley/Chain	1-stage Gearbox	2-stage Gearbox	3-stage Gearbox	4-stage Gearbox	Bevel Gearbox
Pump Between Bearings	PumpBB	PumpBB-Belt	PumpBB-GB1	PumpBB-GB2	PumpBB-GB3	PumpBB-GB4	PumpBB-BevelGB
Overhung Pump	PumpOH	PumpOH-Belt	PumpOH-GB1	PumpOH-GB2	PumpOH-GB3	PumpOH-GB4	PumpOH-BevelGB
Fan Between Bearings	FanBB	FanBB-Belt	FanBB-GB1	FanBB-GB2	FanBB-GB3	FanBB-GB4	FanBB-BevelGB
Overhung Fan	FanOH	FanOH-Belt	FanOH-GB1	FanOH-GB2	FanOH-GB3	FanOH-GB4	FanOH-BevelGB
Centrifugal Compressor	CompressorC	CompressorC-Belt	CompressorC-GB1	CompressorC-GB2	CompressorC-GB3	CompressorC-GB4	CompressorC-BevelGB
Lobe Compressor	CompressorL	CompressorL-Belt	CompressorL-GB1	CompressorL-GB2	CompressorL-GB3	CompressorL-GB4	CompressorL-BevelGB
Alternator	Alternator	Alternator-Belt	Alternator-GB1	Alternator-GB2	Alternator-GB3	Alternator-GB4	Alternator-BevelGB
Roller	Roller	Roller-Belt	Roller-GB1	Roller-GB2	Roller-GB3	Roller-GB4	Roller-BevelGB
Shaft	Shaft	Roller-Belt	Roller-GB1	Roller-GB2	Roller-GB3	Roller-GB4	Roller-BevelGB

Export & Trending

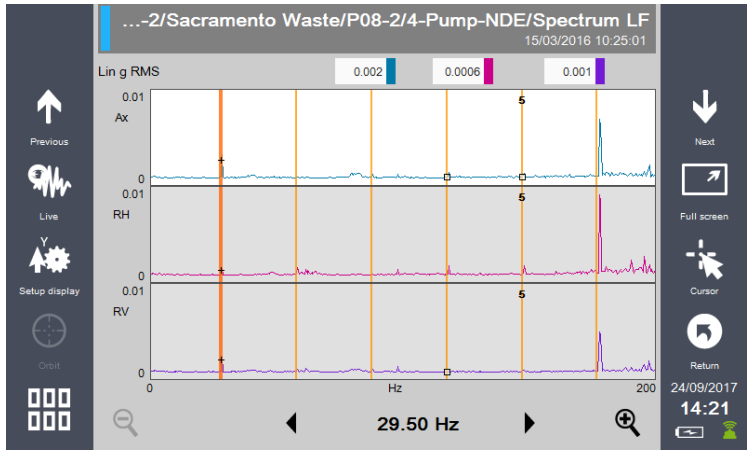


	A	B	D	F	H	J	L	N
1		01/06/2017	01/06/2017	01/06/2017	01/07/2017	01/07/2017	01/07/2017	
2		AX	RH*	RV**	AX	RH*	RV**	Unit
3	1-Motor-NDE	0.056	0.055	0.047	0.046	0.039	0.023	inch/s
4	2-Motor-DE	0.061	0.055	0.049	0.047	0.043	0.042	inch/s
5	3-Pump-DE	0.041	0.036	0.077	0.008	0.008	0.009	inch/s
6	4-Pump-NDE	0.078	0.067	0.083	0.009	0.009	0.007	inch/s
7								



- Copy/paste velocity table in excel

Access to the raw signals…



- Need the measurements for the auto diagnostic
- Need the LF spectrum for the use with the strobe light
- A vibration specialist may be able to confirm if there's something wrong with the machine

BUT it doesn't have classic features (custom. Measurements) that vibration specialist need.

<u>It is not an analyzer for expert users.</u>

The 3 important things for a good diagnostic

- Rotation speed
- Rotation speed
- Rotation speed

Demo

SMC

Balancing Kit

Fixturlaser
ACOEM Group

Balancing kit (1 and 2 planes)

FIXTURLASER SMC DU

Fixturlaser SMC Trap

For connectors (USB, power supply, Ethernet...)

USB cable for connecting the Fixturlaser SMC to a computer (reports)

ACCELEROMETERS

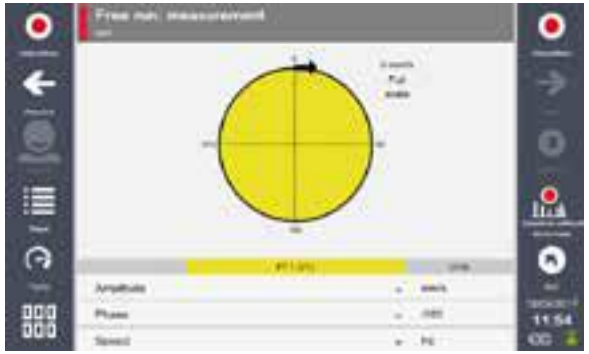
2 ASH accelerometers
2 straight cables for ASH
2 high-power magnets for ASH

Laser tachometer with cable for connection on channel C, supplied with a 5m extension cable.

Magnet holder

Balancing procedure

- Free Run

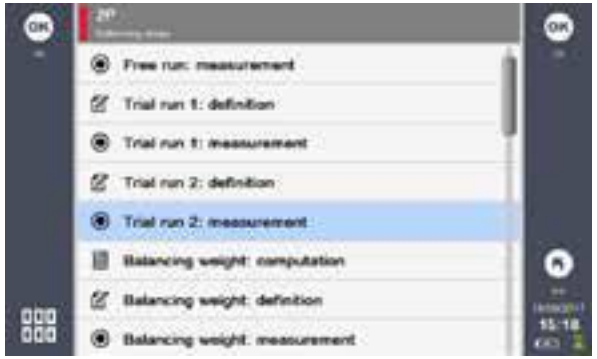


- Trial Run

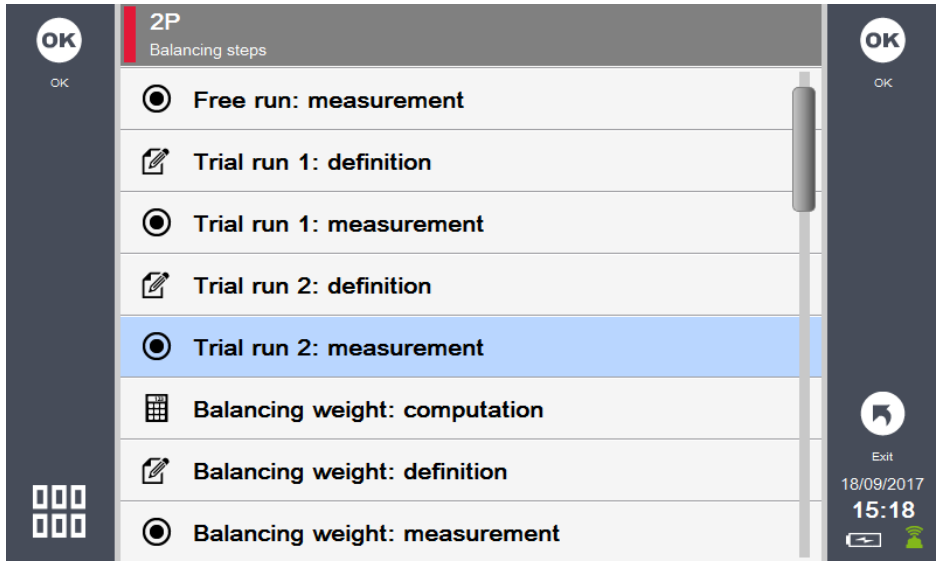
Balancing procedure

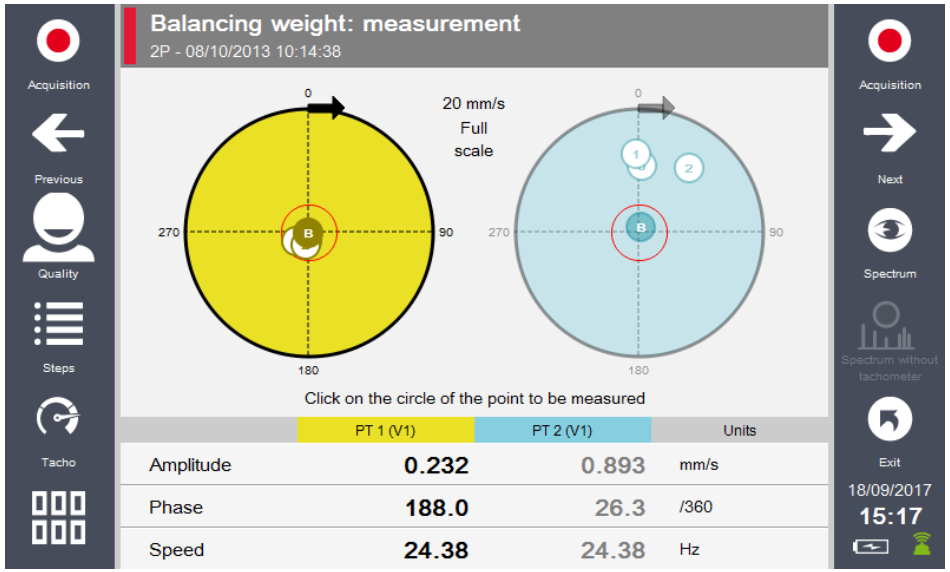
- Balancing Run

- Automatic report



Supervisor + Balancer





SMC

Commercial

Fixturlaser
ACOEM Group

Order information

- 1-1075 Fixturlaser SMC, complete with WLS Wireless tri-axial accelerometer
  - Price EUR 9 000

- 1-1076 Fixturlaser SMC Balancing Upgrade Kit including wired sensor and tachometer
  - Price EUR 3 000

Delivery information

Release to public, press releases, websites etc, and delivery

- from 27 November, 2017

Ex version

- Ex version will be available, date not set
- Paperwork related to certification remains
- Ex version will not be stocked
  - Expect longer than normal delivery times

Thanks for attention!