

## Multiple Inspector

Rotating simultaneous  
Measurements

多功能检测  
同时旋转测量

pure  
perfection

# General Information 一般信息

The inspection of workpieces is carried out within a continuous rotation of 360°. The workpieces are scanned by radially assembled measuring carriages, each equipped with its own sensor and powered by a central encoder.

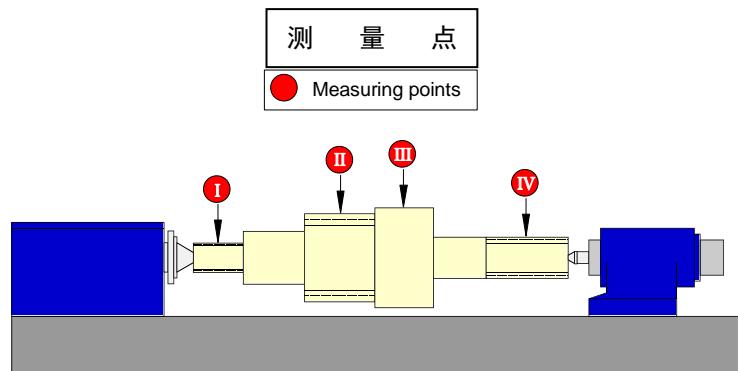
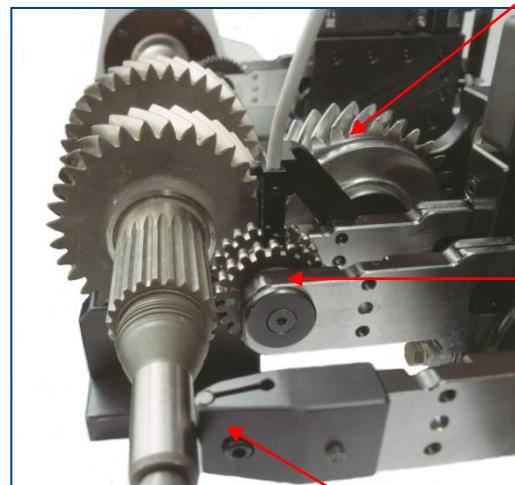
零件的检测是 360° 的连续旋转进行的。零件被径向安置的组合模块扫描测量。每个组件都有自己的传感器和一个角度编码器。

The alignment of various measuring carriages, with one sensor each and a central encoder, allows for different measuring tasks to be carried out simultaneously within one single rotation. The measuring data is processed in real time via the measuring electronic MEG32.

各种测量模块组成的队列和一个传感器与一个角度编码器在一起对于不同的测量任务实施一个单一的旋转。测量数据通过测量主机 MEG32 实时处理。

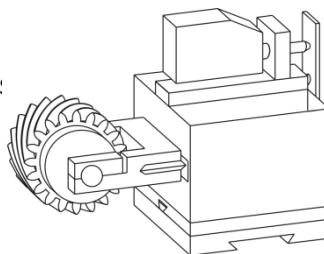
There are three types of measuring carriages that can be combined as required.

这里有三种类型的测量模块可以根据需要进行组合。

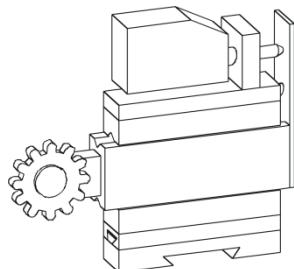


The axes of the individual geometrical elements of the workpiece can be determined and offset against each other.

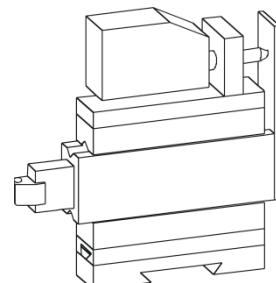
零件的一个轴的几何尺寸可以被确定和被相互算出。



Measuring slide with master gear for a double flank roll test  
带有标准齿轮的测量滑台 对于齿轮双端面啮合测试



Measuring slide with measuring wheel for splines  
带有转轮的测量滑台 对于花键测量。



Measuring slide with measuring edge for diameter  
带有测量头的对于直径测量的测量滑台

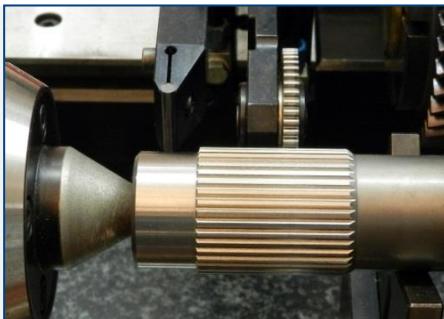
# Performance and Application 性能和应用

- Fast measuring of specific features for gears and splines like dimension over balls, runout and roundness 直径, 跳动和圆度等齿轮和花键的特性可以被快速的测量。
- Double flank roll test for gears 齿轮的双端面啮合测量。
- Rolling ball inspection using measuring wheels on splines 使用测棒进行花键测量。
- Measuring time approximately 15 seconds simultaneously on all measuring points 所有的测量点上，测量时间大约 15 秒。
- Automatic slide and tailstock 尾座和滑台自动移动。
- Detecting deviations in position on gears, diameters and surfaces 可以检测检测啮合，直径和表面的位置偏差。
- Automated testing allows a 100-percent - inspection 自动测量，可实现 100% 的检测。
- Highest precision due to substitution procedure (calibration with setting master) 通过替换方式，实现最高精度（对设置标准件进行校准）
- Designed for shop-floor use, very robust 为工厂使用设计，非常坚固
- Link between production and measuring laboratory 生产和测量室之间的联系环节。
- Freely programmable system with a powerful evaluation software 可自由编程的系统，和一个高效的评价软件。
- Recording of all measurement results for process monitoring. Interfaces: qs-stat®, transfer format, csv®, pdf® etc. 过程监控记录的测量结果接口 QS-STAT 输出格式可转换为 csv®, pdf® 等等。
- Adaption of mechanics and software to customers' specification 机械部分和软件适用于客户的要求。

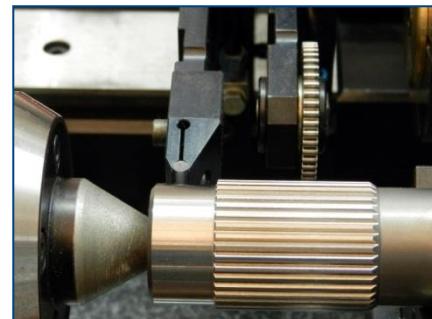
## Measurement of geometries 几何形状的测量



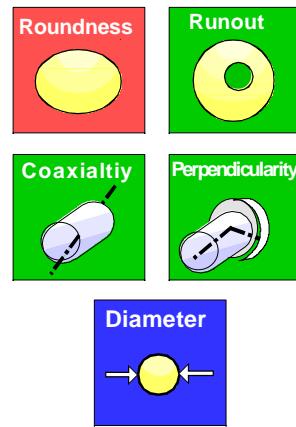
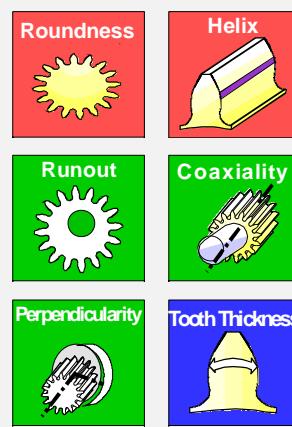
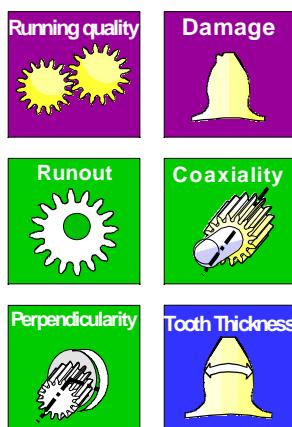
Double flank gear roll test  
双端面啮合测试



Spline  
花键



Diameter  
直径



# RM – Horizontal 卧式

The typical place of use of URM-R/W inspection machines is directly next to the production machine. They can be used for quick random checks and are perfect for a 100 percent inspection.

直接在生产设备旁边，一个合适的位置使用 URM-R/W 测量仪。他们适用于快速检测和完全的 100% 检测。

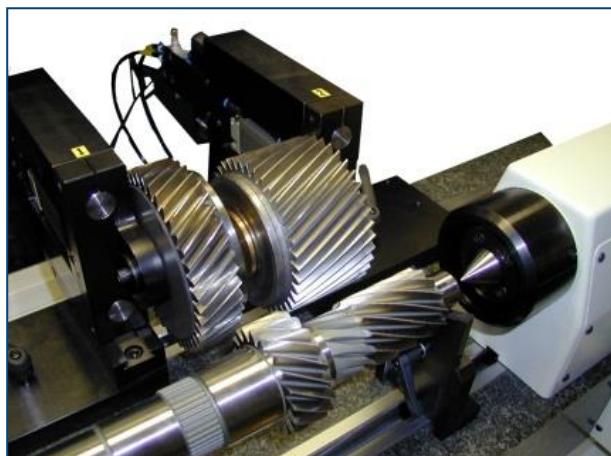


## Measurement of splines

### 花键测量

2 x measuring slides for splines with index measurement.

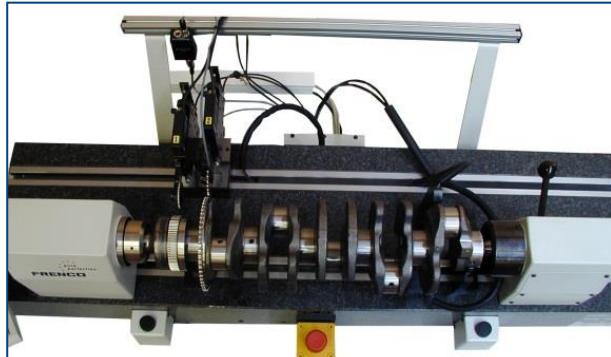
2 个测量滑台对于齿形端面检查。



## Measurement of a crankshaft

### 曲轴测量

Measuring slide for splines and measuring slide for straight sided splines with index measurement relative to each other.  
测量滑台对于花键和对于有端面测量的直的键槽



## Measurement of a shaft

### 轴测量

5 measuring slides for 5 splines with index measurement. Prepared for automatic loading  
.5 个测量滑台对于 5 个花键，对自动上料做准备。



# Technical Data 技术数据

Part 零件	max. length 最大工件长度	750 mm
	max. external dia 最大外径	230 mm
	min. internal dia 最小内径	20 mm
	max. weight 最大重量	15 kg
Measurement 量程	Slide 滑台	85 mm
measurement sequence 测量方式	Automatic 自动测量	✓
Clamping 夹紧方式	between tips automatic 顶尖之间自动测量	✓
Calibration 校准	profiled setting master 校准标准齿轮	✓
	ground shafts 研磨轴	Optionally 可选

## Special Designs 特殊设计

### RM – vertical RM 立式

Double flank gear rolling inspection with special evaluation for steering pinions  
双端面啮合测量，  
对于转向齿轮的专门测量



### RM – vertical RM 立式

Double flank rolling inspection machine with a vertical slide and a tailstock  
双端面啮合测量，带有垂直滑台和尾座



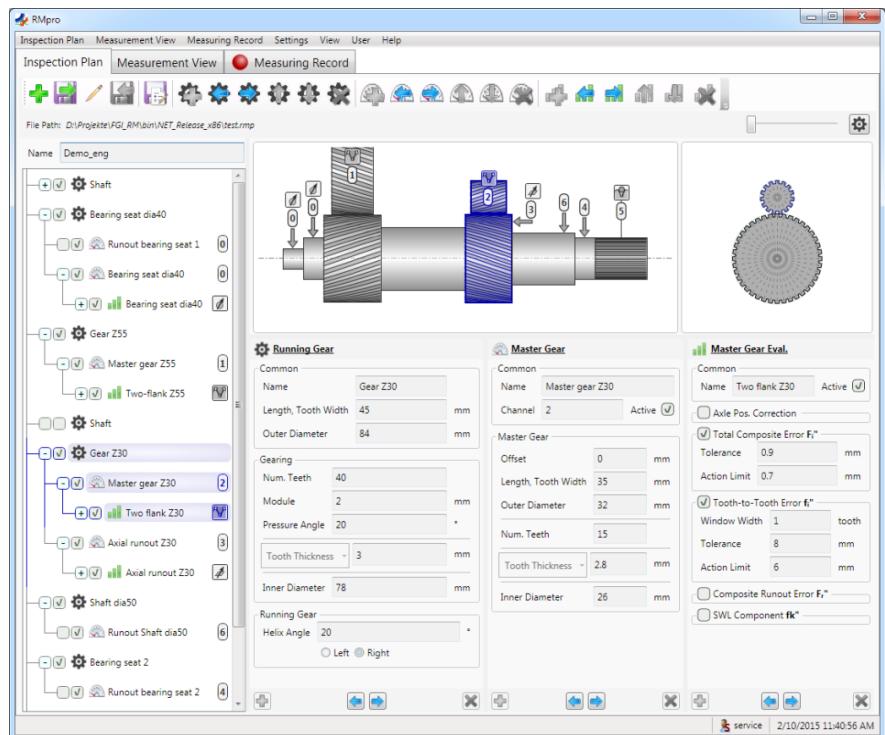
# Software RM-pro 软件 RM-PRO

The RM-pro software is used to measure and evaluate shafts with any number of measuring points. These measuring points can be: radial run-out, axial run-out, master gear or master wheel. The software provides a kind of modular system of components, measuring points, measurements, evaluations and representations.

RM-Pro 软件用来测量和评价有任意测量点的轴。这些测量点可以是以下的形式：径向跳动、端面跳动，标准齿轮或转动轮。软件提供了一种从工件，测量位置，测量、评价和图形表示，进行整体处理方式，

The inspection plan is made up from the following lists: components, measurements, evaluations, representations and data exports. This ensures that measurements can be attached to components, and evaluations to measurements.

检验计划是由以下列表：元件、测量、评价、图形表示和输出数据。这样可以完成在零件上的测量和对于测量的评估。



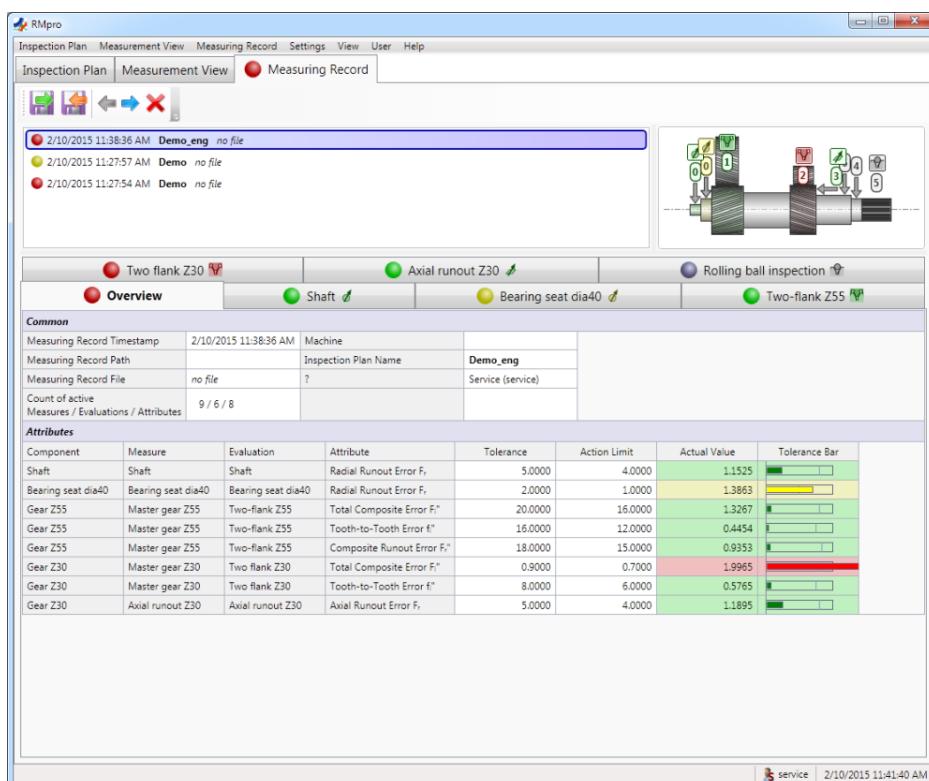
## Axial position 轴的位置

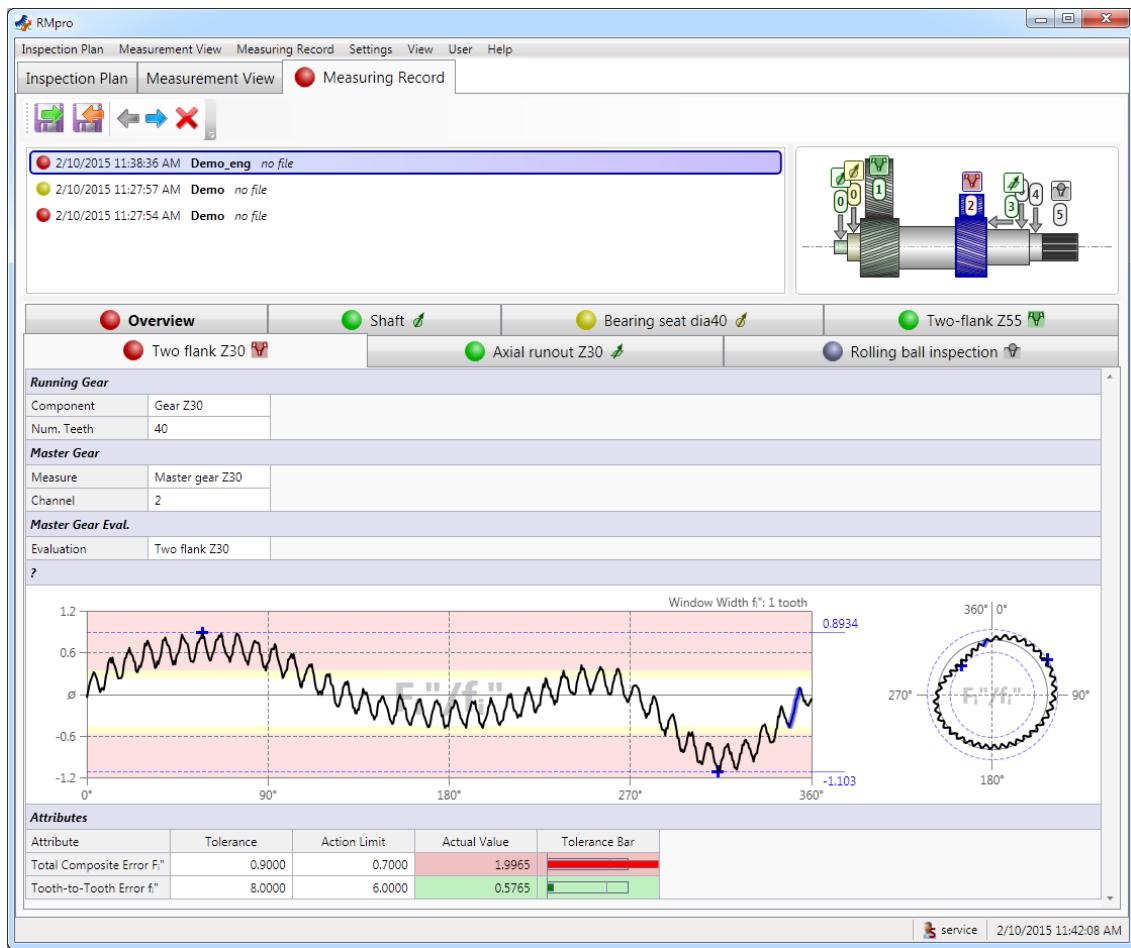
Calculation of the axial position of the shaft can be carried out by linking the results of one to three measuring points. Individual measurements can then also be corrected using the established axial position.

通过将一个到三个测量点的计算结果连接到轴的轴向位置进行计算。单个项目的测量也可以使用已建立的轴向位置进行校正。

Tolerance bar graph, evaluation graph, radial run-out diagram, axial run-out diagram, ZWP diagrams, master wheel diagram. An overview is available for the entire workpiece.

公差柱状图评价曲线，径向跳动图。轴跳动图，ZWP 图。标准件旋转图，对整个工件是一个综合有效的概述





The measured values can also be viewed individually.

测量值可以单独查看。

## User Management 用户管理

Integrated user management with user configurable group rights  
集成用户管理功能,用户可自行配置的工作组和权限。

## Data export 数据输出

Export of the data in QS-Stat format.  
以 QS-Stat 的格式输出

## System requirements 系统要求

The software requires at least Windows 7  
and the .NET Runtime Version 4.0.  
软件要求至少 W7 和 4.0 版本以上

# Frenco Produktgruppen



## Verzahnte Höchstpräzision H

Prüfkörper  
Verzahnungslehren  
Prüfräder  
Meister  
Normale  
Werkzeuge  
Spannsysteme  
Umformwerkzeuge  
Elektroden  
Verzahnungsherstellung



## Rotationsmessgeräte R

Messgeräte mit Messkreisen  
Multiple Mehrstellenmessgeräte  
Wälzprüfgeräte  
Linear-Wälzprüfgerät Zahnstange  
Wälzscangeräte  
Zweiflankenwälzprüfgeräte



## Istmaßprüfgeräte Gruppe V

Messrollen- und Kugeleinsätze  
Prüfgeräte zum Auspendeln  
Prüfgeräte mit Plananschlag  
Prüfgeräte mit Führungsverzahnung  
Drehflankenspielmessgeräte  
Sonderprüfgeräte



## Verzahnungsprüfung P

Werkstückprüfungen  
Prüfzertifikate im Neuzustand  
Prüfmittelüberwachung  
DAkkS-Kalibrierscheine



## Know-how Transfer K

Beratung und Berechnung  
Software für Passverzahnungen  
Schulungen und Seminare  
Literatur und Dokumentationen  
Normung

\* \* \*  
**pure**  
**perfection**

**FRENCO**

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