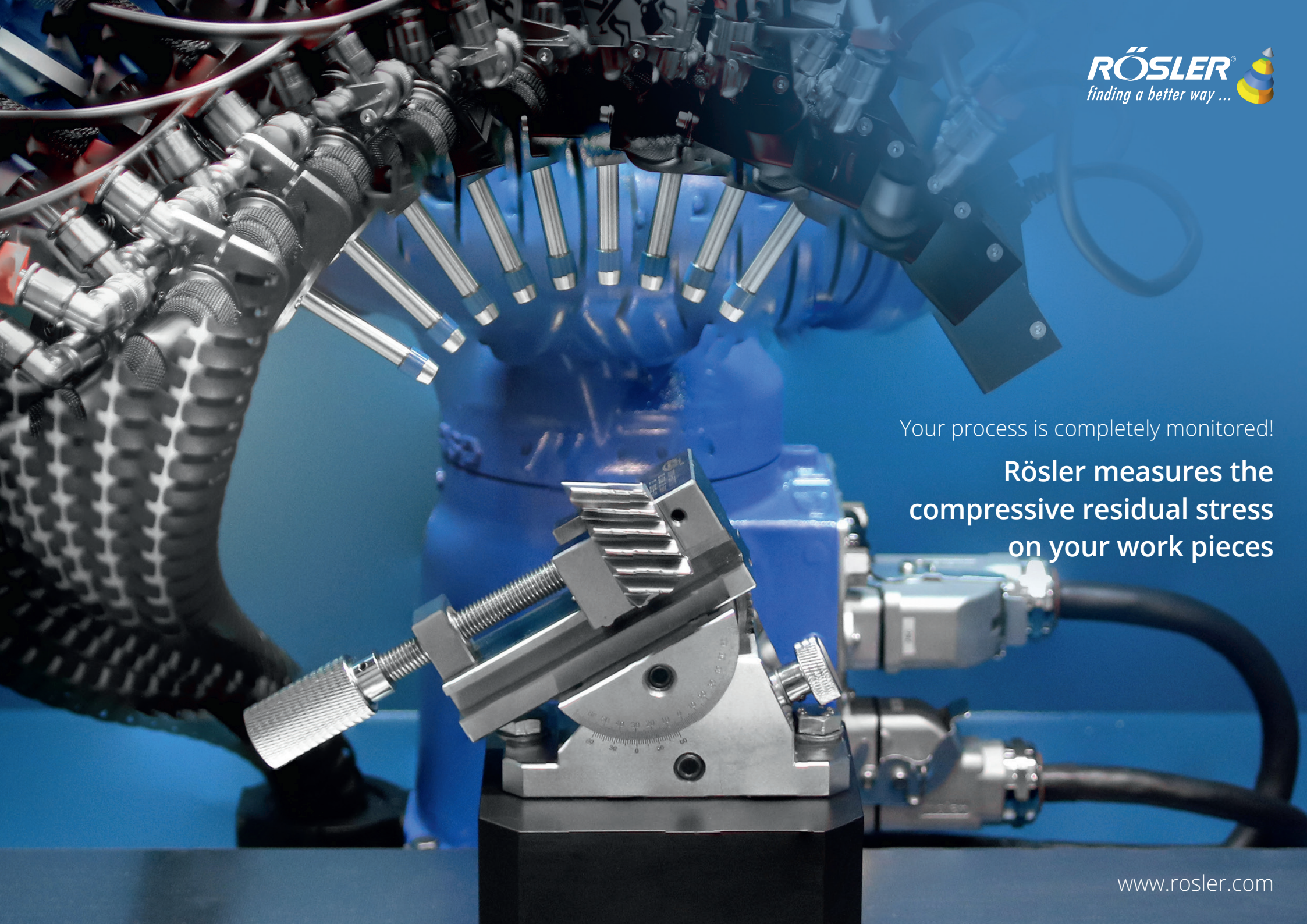

RÖSLER
finding a better way ...
Your process is completely monitored!
Rösler measures the compressive residual stress on your work pieces
www.rosler.com

We specialize in process development and process control!

Shot blast processes are becoming increasingly more complex and demanding. This is especially true in the field of shot peening, where clearly defined compressive residual stresses must be induced into the work piece surface. Such compressive stress values can be precisely analyzed by X-ray diffraction technology.

With our expert knowledge and the most modern analytical tools available in the market we can conduct highly complex measurements of compressive residual stresses. The exceptional analytical capabilities of our test lab are indispensable for all kinds of shot peening applications, especially in the aerospace and automotive industries. The combination of science with practical application methods provides valuable benefits to our customers and ensures our joint success.

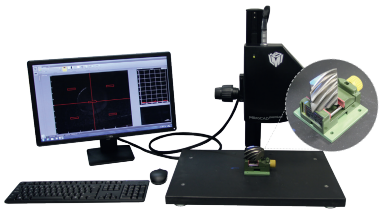
Our service for analyzing shot peening processes:

In order to exactly adapt shot peening operations to the material and the technical requirements of a specific application, measurements of the achieved compressive residual stress values must be conducted. X-ray diffraction has become the prevailing method for such measurements. This system works as follows: X-rays are emitted at a given angle into the surface of a metallic work piece with a cristalline and partially cristalline structure. Most of the x-rays penetrate the crystals. A small portion of the x-rays, however, are deflected and reflected by the atomic plane of the crystals, which is registered by a special detector. With the help of the Bragg equation and by taking into account the known technical material characteristics, this so-called x-ray diffraction allows measuring of the induced compressive stress. Multiple readings with different x-ray angles guarantees extremely precise measurements.

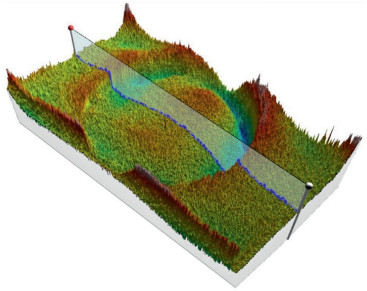
Currently our system is equipped with an x-ray tube with chrome anode, which is especially suitable for measurements on ferritic steel and aluminum.

Examples:

16MnCr5	X10CrNi18-8	AlZn4,5Mg1
20MnCr5	38Si7	AlMg5
17NiCrMo4/6	61SiCr7	AlCuMg2
20MoCr4	52CrMoV4	AlMgSi0,7
20MoCrS4n	C67E/S	AlCuMgPb



With the ultra modern, three-dimensional surface measuring system we can exactly determine the material surface abrasion on the work pieces. Even in the case of work pieces with complex geometrical shapes, for example hypoid gears, we can determine the **penetration with a precision of 2µm**. This would not be possible with conventional analytical tools!

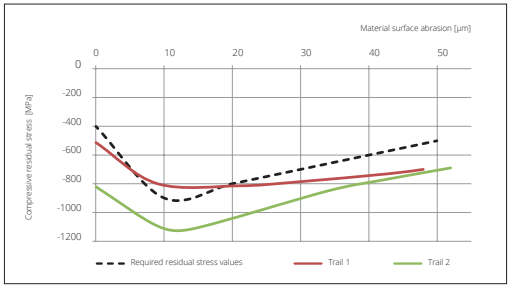


Our measurements are in compliance with ASTM E915, ASTM E2860 and EN 15305 standards. Our data handling fully meets the OEM specifications of Getrag (GFT_4010), VW (PV 1005), Daimler and other manufacturers.

RÖSLER finding a better way ...

How our service works:

You provide us with the required residual compressive stress values. At the moment your work pieces are processed at a job shop; the process parameters are not known. You want to run the same process in-house. We will run processing trials with various parameters (with a variety of blast media sizes). Running of the actual trials, compressive stress readings, optimization and equipment layout can be done entirely at Rösler.



Example: Compressive residual stress depth profile

Stand: 07/2016

If you still have questions, please contact:

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