



WIAP®

MEMV®



Metall entspannen mit Vibration

Investigative report:
MEMV_WM850_Walzen_01



1. Measuring the differences an annealed roll and a roll unannealed. Weight 12.2 tones. Mat. 42CrMo4
Photo WM_850_05

Investigation: Can rollers be treated with vibrate instead glow?

Findings: The annealed roll does not change the G value only in the longitudinal axis; the unannealed roll several times. Total Area changed the annealed roll around 4:14 G the unannealed to 11,18G, which shows that a Annealed roll has not any tension away.

Measurement with 3 axis directions. Clamping at roll 1, 2, 3

Findings: The evaluation of the data logger to the third measurement are very meaningful. There were held at the beginning of 3 measuring points and at the end also 3 measuring points. These were compared. Similarly as in the manual measurement 2, which we run extended for about 2 years. All

were measured at the same time starting. Thanks to that everything is measured from the start, when the logger solution identical, there is no error, which can be caused, as in the single dipstick measurement. For the first load cycles, the voltage changed immediately. Hand measurement we can not know that because elapse from the first to the last measuring point, for example at 24 measuring points, already 2 to 3 minutes. This shift, in the time of measurement of the measuring point one to the measuring point 24, may distort results and does not apply to the data logger solution.

Measurement of a 12.2 ton annealed roll and not annealed, where we have a difference:

Displacement of the annealed roll: 4.14 G at 4 measuring points in each 3 axes. What in the 0 degree direction pathogen was only 0.67 move in the annealed roll, between before and after.

In return, the unannealed roll:

Displacement: 11.28 G at 4 measuring points in each 3 axes. What in the 0 degree direction excitation only 7.23 G were moved; 10.8 times less offset an annealed roll over a roller unannealed.

We will extend the software so that we can capture the entire displacement curves during the entire runtime. So can be evaluated even more. The data we have; but the evaluation still requires some finishing work.

Measurement result in the reality: Customer statement: "The shafts behave inconspicuously, that behave like conventional relaxed shafts."

The MEMV procedures laid not only welded structures, but also forged workpieces, which were annealed hitherto tension arm.

2. different measurement methods:

2a) the conventional one-point measurement at roll 1, 2, 3

This method shows that the explanatory power not to the multipoint manual measurement or data logger measurement is by far zoom. See measurement protocols WM850_30.

2b) The past year applied, manual 24-point measurement, to each component for details Special logging. This measuring method, fast, better alternative to conventional measuring. However, not as accurate as the data logger measurement.

2c) 4 datalogger measurements; per position of 3 axles are measured

3. Different measurements between the LC 20-20 tones vibrator and the LC 50 - 50 tones vibrator. 1 shaft

4. Recognize what is happening in the axial directions with the dead centers, as to shift. At shaft 1, 2, 3

Findings: Undisputed all 3 axial directions are necessary to stimulate. All axial directions show a reduction of tensions; regardless of the starting position at an angle.

5. How important is the attachment of the virus is responsible for the excitation logging

Findings: Incredibly important is a perfect setting. The ratio of the span to the span is important. If only the excitation shaking around, but the workpiece does not move, indicates that a connection to the workpiece and better excitation secure with 100 tones, only 50 tons, is necessary.



Below we have laid an already ignited roller with vibratory. WM_850_50



This measurement, the end face is connected directly to our controller. WM_850_80



The rubber pads were scarce for the narrow flange. But there are no vibrations were transferred to the space.

For future projects here a system with wedge rubber is created, where the cm / 2 rubber load is not exceeded. WM_850_100

The Multi-axis excitation was all recorded in 3 channels. WM_850_120

Shaft type 3 6 tons FA172247

Detailed Report MEMV WM850 10 d

Summary:

In all 3 shafts has been shown that vibrate in only 2 axes, a few points which are not excited, the results are influenced. What also showed that the ratio of the amount of steel to component volume fraction, is an important factor. This point we need to consider in future excitation energies and consider this also with. Especially that shaking is not just shaking.

What G-values, where at what point, what they do with the new measurement methods to determine so that a better understanding in the matter MEMV Metal relax with vibration is created.

How important is the duration of the stimulus has yet to be determined and documented.

But the statements of the customer:

"The shafts behave inconspicuously, that behave like conventional relaxed shafts."

There are some theories are revised.

See Reports:

Report MEMV_850_10_a roller 1

Annealed. Total G shift between Before and After: 11.28 G

Alone in the Z axis 7.23 G

Report MEMV_850_10_b roller 1, annealed

Total G shift between Before and After: 4.14 G

Alone in the Z axis 0.67 G

Report MEMV_850_10_c roller 2, FA172564

Total G shift between Before and After: 31.13 G

Report MEMV_850_10_c roller 3,

Total G shift between Before and After: 18.3 G

Final Report after editing:

Information From customers who has performed the test in Germany:

Statement from 10.21.2016 the customer was where the test was conducted.

Previous experience of finishing:

The shafts behave inconspicuously, that behave like conventional relaxed shafts.

That is: The Metal relax with vibration in the 3D process MEMV the new method MEMV 2014, can also reduce stress on components, which are not only welded structures but also forgings.

End Photo Report WIAP MEMV UM_850_01, 21,102,016