WIAP® MEMV®

Metall entspannen mit Vibration

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Good day,

Below you will read a new information from one of the largest steel mills in Germany.

In April 2019, WIAP AG tested 13 workpieces using their vibration technology: 13 rings made of steel and aluminum - both clamped together and individually.

On July 12, 2019 Iris Widmer and Hans Peter Widmer were again on site for analysis. The result showed that all test parts from April 9, 2019 fully met the expectations.

The same results were obtained as in the stress relieving method. In order to obtain independent opinions, the client placed different parts in different places for processing and testing. The statement was clear for all test parts: "There is no difference between the stress-relief annealed and the MEMV vibrated components." The components are forged steel rings and rings made of aluminum.

These advantages are what the customer calls:

- Significantly less energy is needed.
- The process is much faster.
- Even small series can be done without waiting.
  When annealing, it is usually necessary to wait until the furnace is filled.
- Transport costs such as annealing omitted.

In a "rating", most users cite the tremendous energy savings in MEMV technology as their biggest asset.

Brochure Englisch Brochure Deutsch Brochure Italienisch Brochure Französisch Brochure Russisch and Brochure Vietnamesisch

Greetings from Switzerland

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Numerous customer examples illustrate the many advantages:

1. Enormous energy savings when processing rolls

Annealed roller scales

Unhardened roller during vibration unloading

- In 2017, WIAP AG carried out intensive investigations for a customer in the Greater Dortmund area (Germany). Heavy rolls in the range of 12 tonnes were annealed and annealed with the WIAP® MEMV® process. Among other things, extensive measurement technology was used in order to be able to clearly illustrate possible differences in the relaxed components. Finally, the results show that annealed or WIAP® MEMV® relaxed rolls achieve the same result.

  In terms of energy consumption, an annealing roller tested in the test runs requires approximately 935 kW / h, while the WIAP® MEMV® process requires only 2 kW / h. That means a 400-fold saving!

  Based on these findings, the customer ordered the MEMV system. The purchase of two more systems is in the planning stage.

- Résumé: All projects that were defined in advance were implemented in real terms and excellent results were achieved in the given time. Remaining or follow-up work is completely eliminated. The results and elaborations were checked for their informative value and correctness and in total rated as "very satisfactory". There was a professional and technical acceptance. A particularly noteworthy finding is that there is a significantly higher stress during stress relief annealing. In addition, at least 700 times more CO2 is generated when annealing a workpiece than during vibration decompression.

2. Flame-oriented forming tubes - no material distortion after processing

The flame-directed tube is tested for straightness and torsion. Result: There is no material distortion after processing if it has been treated with the WIAP® MEMV® method.

- In 2017, thanks to the new WIAP® MEMV® process, we were also able to design flame-retardant components without material distortion. After the flame straightening annealed components warped again and / or showed significant curvature. In contrast, parts processed on WIAP® MEMV® no longer showed any material distortion.

3. Welding constructions, which often also occur in the vehicle industry - no more material distortion with the WIAP MEMV® process

Welded constructions: Numerous different workpieces can be treated with the WIAP® MEMV® process.

- In many places, the glowing in the automotive or aircraft industry is no longer used, but as a preferred alternative, the vibration relaxation used. One of the key reasons is that annealed constructions tend to warp, whereas WIAP MEMV technology does not.

4. Metal plates vibrated with MEMV - no more material distortion during laser cutting

A bundle of sheet metal plates is vibrated using the WIAP® MEMV® process.

- A recent test was conducted in 2019 at a major Swiss corporation: The company complained of a material distortion of the sheets during laser cutting. The new WIAP® MEMV® vibration proved to be the solution to the problem. Here, either individual sheets or several metal

sheets are clamped together. Since the use of the new method, virtually no material distortion has been detected after the laser cutting.

5. Fan wheels: vibrating MEMV saves stress-relieving annealing

Welded impeller is vibrated WIAP® MEMV®

- WIAP AG recently received an order for the delivery of a system. The manufacturer of ventilation systems now relaxes, among other things, impellers up to 4000 mm in diameter using the WIAP® MEMV® process.

6. Oversized forged rings up to 10 m in size are successfully vibrated with MEMV

The forged ring is relaxed in place of stress relieving with WIAP® MEMV® technology.

- The user appreciates the energy-saving alternative. "There is no difference between stress-relieved or MEMV-vibrated components," says the convinced customer.

7. Aluminum rings as blanks or preprocessed: no material distortion during machining thanks to MEMV

A forged aluminum ring is vibrated WIAP® MEMV®.

- "Since the use of the MEMV vibrate there is no more material distortion", so the original sound of the customer.

8. Rollers with cooling channels treated with MEMV

WIAP® MEMV® vibration is used on already finished rolls.

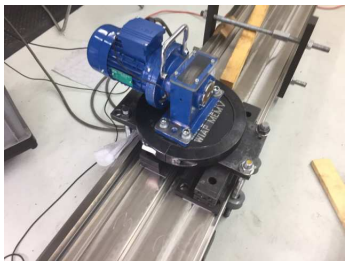
- MEMV vibrated rollers are chromed after completion. Without the use of the MEMV method, there is a material distortion in the hundredths of a millimeter range. Rollers processed with MEMV no longer show any material distortion.

9. Warpless gas turbine parts: MEMV as an alternative technique after laser cutting

General picture of a turbine

- Gas turbines are manufactured in a Siemens plant. During a manufacturing process, rings are preturned; WIAP® MEMV® treated in the next step, then finished and then cut using laser technology. Without WIAP® MEMV®, production would not be possible because of uncontrolled material distortion. Since the parts are only cut after the WIAP® MEMV® vibration, there are no more material distortion problems. The customer himself is positively surprised: "We do not know why it works - but it works." And: There is no alternative.

10. Deep-hole drilled components: MEMV vibrates - no material distortion



Deep hole drilled, more than 4 m long components: MEMV vibrates

- A customer manufactures deep-hole drilled stainless steel components that are subject to significant material distortion in the course of the process. It then attempts to direct the parts or otherwise process them accordingly. Today, the customer uses MEMV technology - and gives the following answer:
  "Mr. Widmer, we would like to confirm to you that we have achieved very good results in the machining after the vibration process of our parts. That is, there was almost no material

distortion in the parts after vibrating. Material according to project numbers: Project 1; Mat. 1.4439 2; Mat. 1.4404 3; Mat. 1.4439."

11. Turbine components: material distortion-free after MEMV machining

Raw material: cut from S355J2 + N (forged, normalized, pre-turned)

- The user vibrates several rings WIAP® MEMV®.
- The customer writes: "Hello Mr. Widmer, the material distortion is practically zero. This has worked out well. Thank you very much."

12. Small parts under 10 kg - that's what the MEMV solution can do

Small parts are treated WIAP® MEMV®.

- A new feature of WIAP AG is that with the WIAP® MEMV® even small parts weighing less than 10 kg can be relaxed with the help of vibration. After finishing, the precision is in the 0.002 mm range without material distortion.

13. Artificial age aging with MEMV vibration

Young font is vibrated for artificial aging WIAP® MEMV®.

- An interesting field of application concerns the artificial aging of young castings. Without annoying or costly waiting times can be processed immediately. The test at a major Swiss company confirms a material distortion of less than 0.003 mm.

14. Even heavy-duty components weighing 110 tons can be relaxed with MEMV

A 110-ton workpiece is treated with WIAP® MEMV® - it would not be easy to stress-anneal such a workpiece

- Workpieces weighing 110 tons are also relaxed using the WIAP® MEMV® process. This contract work includes an order from the year 2018.

15. Personal use: WIAP CNC machine tools vibrate with MEMV

WIAP AG built the machine Wiap DM3S in 2018 on behalf of the Swiss Federal Railways. Numerous machine parts were relaxed with the WIAP® MEMV® technology.

- In this application from the year 2018, the machine bed of the Wiap DM3S will be relaxed with vibration. The process guarantees freedom from material distortion after machining and the energy-intensive technology stress relief annealing is unnecessary.

16. Further information

Today's WIAP® MEMV® process, which is based on many years of know-how, not only makes it possible to work on welded constructions, but also tensions - deep in the microstructure - are compensated so that a component no longer warps during mechanical processing.

WIAP AG has several patents in technology WIAP® MEMV® - metal relax with vibration. And we are constantly evolving: The latest patent was filed by WIAP in 2019.

Best Practice: This link provides interested parties with a list of other components.

Since vibration relaxation can save a lot of energy, we filed a petition in 2019:

Submitted petition and confirmation of receipt

How does the technology vibrational relaxation work?

- The component is placed on a rubber base or base.
- This is followed by the solid attachment of a WIAP® MEMV® vibration exciter to the component. WIAP AG has many suitable clamping and clamping constructions in its product range.
- Then vibrate with WIAP® MEMV® technology. This process usually takes only 30 to 40 minutes - and the component is finished.
- The comfort version in our product program automatically activates all zones.
- In the standard version, a separate device is available for this purpose.

If you are interested, we would be pleased to provide further information and give you detailed advice on the possibilities of this innovative technology.

Would you rather receive this information in English? Then you can answer with the term "English" and we will send you the English version.

Thank you very much.

Freundliche Grüsse / best regards

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