

» RUMUL – Pioneer of resonant fatigue testing technology. A dynamic success story.«

RUMUL with its high-quality resonant fatigue testing machines is an indispensable factor in the testing machine market. The Swiss inventive spirit has been making history for many decades and continues to innovate.

The technical principle of resonant fatigue has always inspired the engineers at RUMUL. The history of the company shows the most progressive ideas at an early stage, which have now been further developed.

Special equipment TPP (Twin-PurPose) for the RUMUL resonant fatigue testing machines

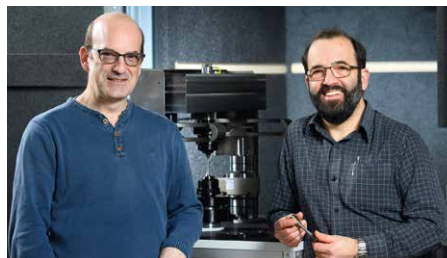
An idea more than forty years old, to be able to carry out static tests on resonant fatigue testing machines in the fastest possible working steps, was realized with a new, innovative special design on the 100-fold proven testing machine RUMUL TESTRONIC.

Particularly attractive is the possibility of directly combining dynamic fatigue tests with static tests. The precracking of fracture mechanics specimens and the subsequent breaking up of the specimens without having to change to another testing ma-

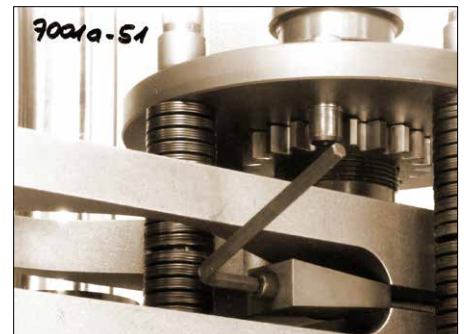
chine is an efficient and economical application of this special TPP device.

From the RUMUL success story

More than 40 years ago, the legendary resonant fatigue testing machines RUMUL MIKROTRON 654 and RUMUL TESTRONIC 7001 already allowed solutions to block the preload springs in order to carry out tensile tests on these machines.



Jürg and Markus Berchtold present another innovation from RUMUL.



On the 7001 series machines, a pair of wedges was fitted with a screw at a suitable position in the preload spring.

In the late 1980s, a new concept was developed with the MAGNODYN drive. About 30 years ago, this made it possible for the first time to make the air gap adjustment on the exciter magnet independent of the static mean load. This progressive concept has now been further developed with the special TPP device.

RUMUL resonant fatigue testing machines at a glance



RUMUL CRACKTRONIC
8 kN | 160 Nm



RUMUL GIGAFORTE
50 kN | 1000 Hz



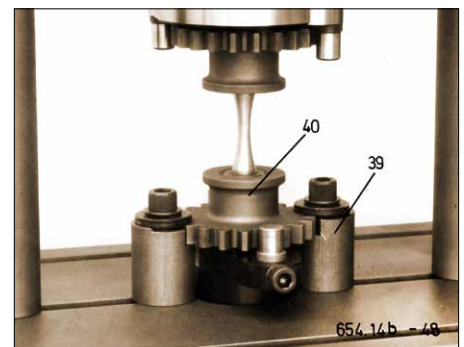
RUMUL MIKROTRON
5 kN | 20 kN



RUMUL TESTRONIC
50 kN – 250 kN



RUMUL VIBROFORTE
500 kN | 700 kN



Also with the machines of the series 654 there was a simple possibility to block the springs. The oscillating head was blocked by inserted spacers which were tightened with screws. Microsoft®-DOS-based software for tensile tests and deformation measurements was already available for both machine types in the 1980s.



Therefore, there are basically two solutions available:

■ **Proven manual solution**

Spacers which are inserted and tightened by hand using screws. This solution is suitable for occasional static tests.

■ **New automatic solution**

A hydraulic piston system, which is automatically integrated into the workflow, blocks the oscillating springs. Pump, oil reservoir, valves and monitoring elements are housed in a compact unit.

Precise data evaluation

For both solutions, the RUMUL software performs the test evaluation and generates the test reports with the relevant data. The raw data acquired with a high recording rate of 25 kHz are also available to the user for his own evaluations if required.

Innovative solution for combined dynamic and static tests

The current design of the RUMUL testing machines allows the blocking of the oscillating springs to be designed in such a way that the system as a whole becomes stiffer and easy to automate.

In case of a large number of samples, the automatic solution offers a tremendous increase in efficiency.

With the hydraulic piston system, the test sequence for fracture mechanics examinations is fully automated. Once the sample has been inserted and the COD sensor attached, the



precracking process starts, i.e. the fatigue crack is introduced. The software detects by the frequency drop method when the required crack length has been reached, stops the dynamic drive and automatically blocks the preload springs. Now the sample is torn up until the sample is completely separated.

Once again a long existing RUMUL idea has been successfully realised. The dynamic success story continues.

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- ◆ Maintenance-free

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- ◆ Resonant fatigue testing machines from 5 – 700 kN
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