Best practice

Industry

Mechanical Engineering

Area of use

Laboratory

Customer

M + S Hydraulic

Main products:

Hydraulic motors, steering units, valves, brakes

Employees:

1100 employees

Locations:

Kazanlak - Bulgaria

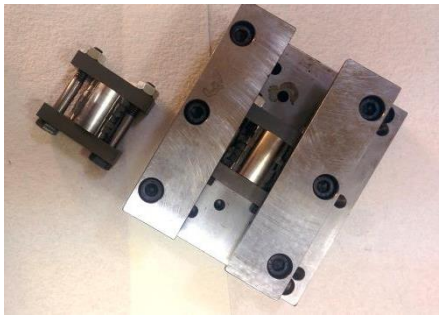
Distribution partners worldwide

M + S Hydraulic is a **leading manufacturer of hydraulic motors, steering units, valves, brakes** and accessories. The company is TÜV certified for maintaining the quality of production around the world. It is a **supplier to leading companies in the mechanical engineering industry**.

M + S Hydraulic focuses on customer satisfaction. The **highest product quality**, highly attractive prices and best services are its pillars for ensuring customer satisfaction.

Requirements

Different test types - different specimens - fully automated testing



Quality assurance is a top priority of M + S Hydraulic. Many checks and tests are performed to ensure quality, including hardness testing. **Sample tests are made of each batch** in addition to **incoming inspections** of all purchased parts and raw materials (iron and steel). On the one hand, these test components are controlled for meeting technical specifications. On the other hand, important conclusions can be made about the heat treatment performed to better monitor the process.

Many tests are performed in connection with a wide variety of **research projects** in addition to daily quality inspections. The focus is on enhancing the quality of existing processes. New production processes and technologies are therefore constantly investigated. **Damage diagnosis**, including hardness testing, forms an important part of process improvement.

Many components tested are made of **sintered materials** with an inhomogeneous distribution of hardness because of the porous structure. Hardness testing of these components is an extremely difficult process. A lot of measurements must be performed on a component to determine a representative hardness value. This is possible only by selecting the right test method. These hardness values are used to calculate the mean value and its variance.

In summary, the hardness tester must meet the following **requirements**:

- Required methods: HV1, HV10, HV30, HRC
- Very **high number of measurements per day**
- **Fully automatic evaluation**
- **Various sample geometries** and **different surface qualities**
- **Automatic report generation**
- **Different test types (single measurement** and **CHD measurement) on a sample**

Solution

DuraVision 250 - a new valuable colleague in a high quality laboratory

M + S Hydraulic selected for the required hardness testing methods the **universal hardness tester DuraVision 250** with an **automatic turret**. Its test load range is between **1 kg and 250 kg** and thus covers all testing methods required by the customer. The **turret** is equipped with Rockwell and Vickers indenters and the necessary optics. Thus there is **no need for tool change**. Fully automatic brightness adjustment, optimised autofocus, rapid turret, and cross slide movements, plus intuitive operation, all help to reduce test cycle durations.

Especially when testing samples with different shapes or sizes, the intelligent design of the machine allows adaptations to be made very quickly, thus reducing re-equipping times. Another strength of the fully automatic DuraVision is seen when conducting serial tests on several work pieces, allowing even more valuable time to be saved. The **overview camera** produces a live image of the work piece, thus making it easier to set several test points and complex test rows.

Customized test reports can be created with the flexible and highly convenient form and report generator. Test results are always documented and the risk of data errors in the recording procedures is kept to an absolute minimum. These advantages of the DuraVision 250 make **quality controls** very simple, quick and safe.

Why EMCO-TEST?

"The first demonstration convinced me that the DuraVision 250 would meet our requirements in the metallography and physics laboratory at M + S Hydraulic" says the experienced director of the physics laboratory. ***"Everything is automatic.*** *All we need to do is position the sample, select the template and start the measurement. Everything else is automatic. This* ***saves*** *a lot of* ***time*** *and enormously facilitates the daily work. The high degree of automation also* ***eliminates any source of error and any influencing factor****, such as the operator. The load range is perfect too. Several devices were previously required for our various test methods. Now* ***everything is possible with just a single machine****. The* ***speed*** *of the machine has convinced us as well. A CHD measurement is done in no time.*
The overview camera comes in very handy for our sintered components. It enables the ***setting of test points in the live image****, which is especially handy for sintered components. The picture with the set test points can even be applied to the report. Previously we had to manually draw all test points in the report.*
If we had to describe our hardness tester in just three words, we would call it **fast, easy and convenient**."

Mag. Mag. Dipl. Ing. Jan Ivanov,
Head of Physics Laboratory
M+S Hydraulic