

# Krautkramer Testing Machines

## ERW-Pipes

### Electric Resistance Welded Pipes

**ERW-pipes: testing weld seams, parent material of Heat Affected Zones (HAZ), remaining parent material and tube ends**

Of course it is desirable to have testing placed as near as possible behind the welding point. This can only have advantages for the production: tubes with defects can be directly sorted out and the welding process readjusted in order to avoid further defects. The tubes are tested for longitudinal defects (transverse defect detection only on request) in the weld seam as well as for laminations in the HAZ.

Either angle-beam probes with fixed angles or immersion probes with adjustable incidence angles can be used in this test system. Laminations are detected with immersion probes.

The number of probes is dependent on the wall thickness of your tubes and on the test task. A test system consists of at least two probes for longitudinal testing. It is possible to extend the system if it is necessary to distinguish between inside and outside defects. The tubes are further tested for laminations on both sides of the weld seam in the HAZ.

The test is carried out in a pulse reflection method.

With weld testing, coupling and function checks are made via the through-transmission echo and with HAZ testing via the backwall echo.

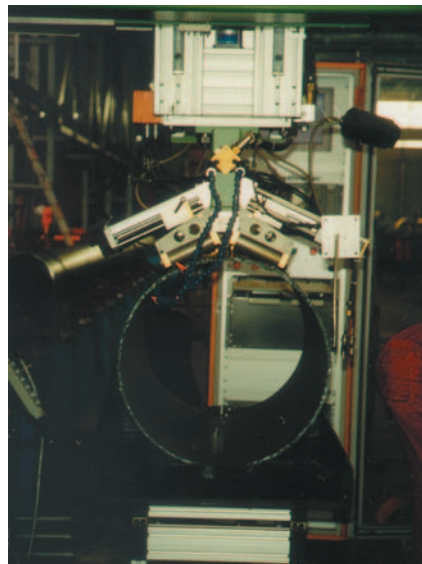
**For longitudinal weld seam testing:**

The testing machine for weld seams and parent material on ERW-pipes con-

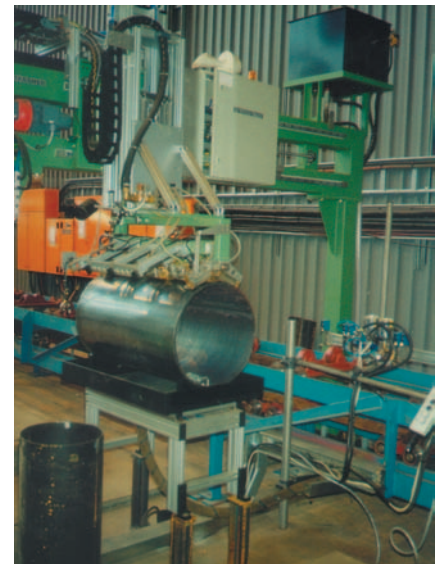
sists of mechanics mounted on a portal. Lifting and lowering of the complete mechanics is made with the central pneumatic unit. The mechanics consist of a test frame with guiding rollers which are positioned before and behind

the probe unit for guidance on the tube surface.

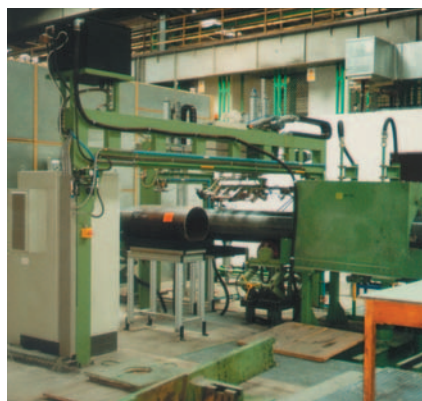
The complete unit can be withdrawn out of the mechanics for calibration on a reference piece outside of the production line.



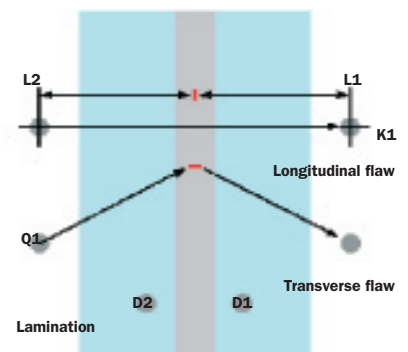
Test frame lowered



Calibration stand



Complete ERW-pipe inspection system

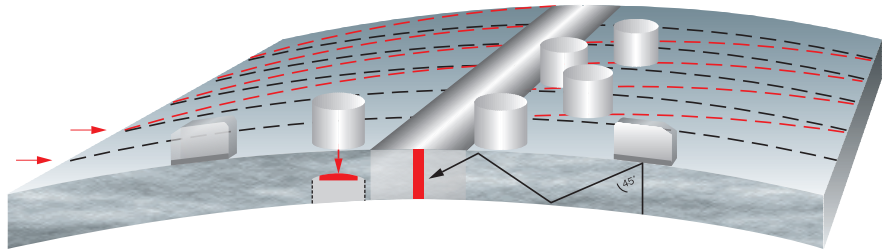


The acceptance test with ERW-pipes in the finishing shop is carried out using a weld seam as well as a full body and pipe end inspection mechanism. The demand for short untested tube ends is decisive here. The testing machine being able to detect laminations in the tube ends is also used for the remaining parent material.

The number of probes which are used with these mechanics is of course dependent on the special factors in your field of application.

For example the following are decisive:

- Test specifications (e.g. the size of flaw to be measured)
- The maximum test speed to be reached (rotation and translation)
- Tube geometry
- Width of test track
- Cycle time or test time per tube



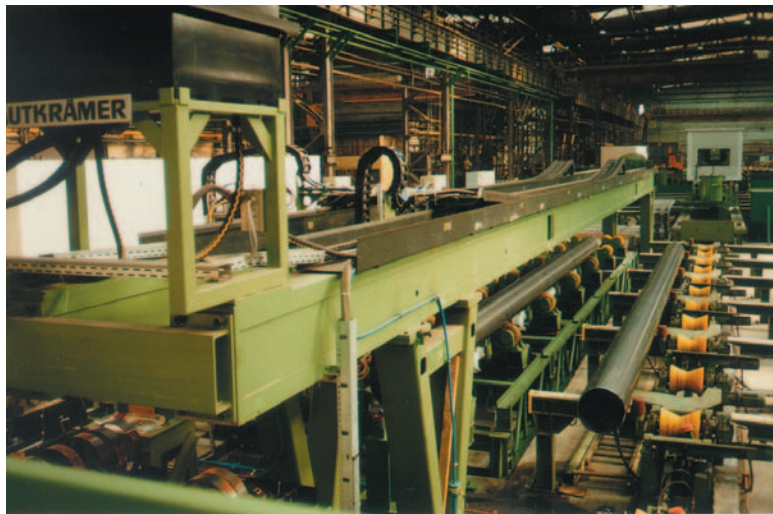
**Testing weld seams: ERWPT**

The testing system consists of mechanics mounted on a portal. Lifting and lowering of the mechanics is made by a central pneumatic unit. The mechanics consists of a test frame with guiding rolls which are arranged before and behind the probe unit and act as guides along the tube surface.

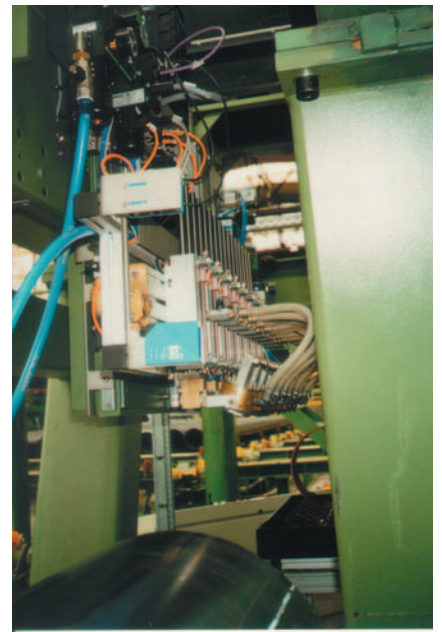
The complete frame can be withdrawn from the mechanics in order to carry out calibration on a reference piece outside of the production line.

**Full body or tube end testing: GKP/REP**

This is a machine for testing tube ends and the remaining parent material. It consists of a portal having height adjustable test mechanics with all the required probe holders, the independent elevation device for each probe and the horizontal support.



ERW-pipe testing in the finishing shop with a portal system



Full body and pipe end inspection



Weld seam inspection