# WWTE - WELDING WIRE TEST EQUIPMENT

brief description

## test & record the properties of welding wires

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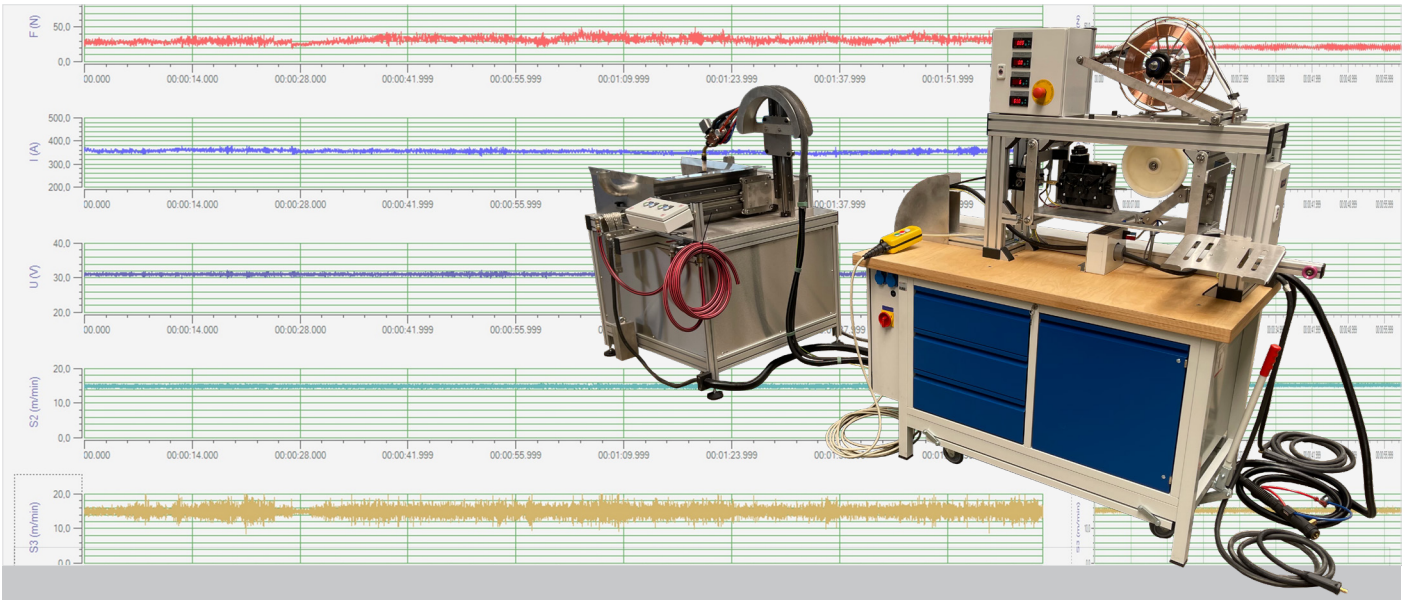
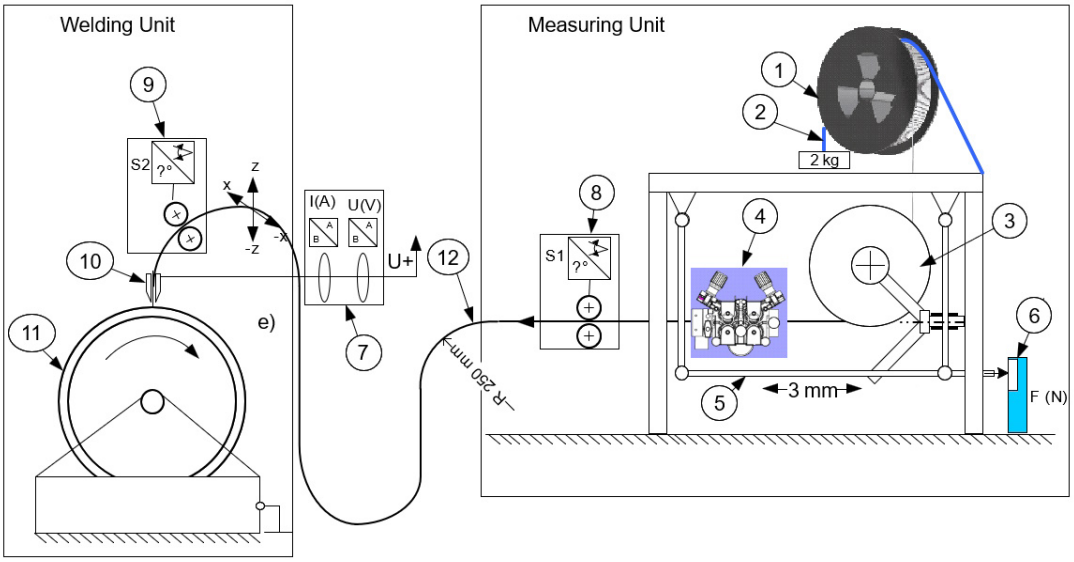
|---|---|
| Wire Diameter | Ø 0,8 to 1,6 mm |
| Wire Material | stainless steel, ferrous & non-ferrous materials/flux cored wire |
| Measurable Parameters | feed resistance F(N)<br>welding current I(A)<br>welding voltage U(V)<br>wire speed directly after the wire feed rollers S1 (m/min)<br>wire speed in front of the welding gun S2 (m/min) |
| Wire Speed | 5 to 30 m/min |
| Test Workpiece | water cooled steel tube<br>DIN EN 10210 Ø 305 x 12,5 x 500 mm |
| Water Cooling | approx.3 l/min at 2 bar |
| Welding Speed | stepless from 10 to 70 cm/min |
| Feed Linear Drive | stepless from 2 to 20 mm/min |




The standard WWTE system is operated with commercially available MIG / MAG welding equipment with a maximum welding current of 500 A (water cooling required). Without interruption, the maximum welding time is 10 minutes at 500 A.

# PROCESS




- The measuring system consists of the measuring unit and the welding unit. Both are connected with a hose package (12).
- Welding wire is pulled off the welding wire reel (1) with a constant braking force. The braking force is ensured by a band brake (2).
- The pendulum deflection roller (3) ensures a constant wire position when entering the drive unit.
- The wire is driven by the drive unit (4), which is mounted together with the pendulum deflection roller on a swing unit (5).
- The swing transmits the resistance of the wire when passing through the delivery hose and contact tip. The resistance is detected by the force sensor (6). The signal from the force sensor is recorded as the **feed resistance F in Newtons** as a measured variable with the data logger (not shown). At the same time, the values are output on the display of the the control cabinet, which includes the force sensor and the measuring converter.
- The **welding current** and the **welding voltage** are detected by means of a special measuring sensor (7) and recorded as galvanically separated analog signals corresponding to **I in amperes** and **U in volts** as measuring parameters from the data logger.
- Following the drive unit, the wire is guided through the first **speed measuring unit S1** (8) into the feed hose (12).
- The signal from the incremental encoder at the speed measuring unit is converted into a galvanically separated analog signal by means of the frequency-to-analog converter and recorded as a **speed signal S1** in m/min as a measurement parameter from the data logger.
- From the feed hose, the wire is guided by the second speed measuring unit S2 (9) directly into the welding gun (10). The signal from the incremental encoder at the speed measuring unit S2 is converted into a galvanically separated analog signal by means of the frequency-to-analog converter (T6) and recorded as a speed signal S2 in m/min as a measurement parameter from the data logger.
- In the standard version, the weld is made in position PA according to DIN EN ISO 6947: 2011-08 (or 1G according to AWS A3.0, ASME Section IX) on the surface of a water cooled steel tube Ø 300 mm (11), rotating about the horizontal longitudinal axis. The design also allows the welding gun to be set up for welding positions PB, PC, PD and PE.
- The recording and statistical evaluation of the parameters is performed using the QuickDAQ software (Notebook & software included). The measurement data can be transferred to different formats, such as Excel.

**GEO Reinigungstechnik GmbH**

T +49 (0) 25 42 / 9555 - 290
info@geo-reinigungstechnik.de www.geo-reinigungstechnik.de