SCHMIDT Tension Meters for Wire EDM

The use of tension meters ensures optimum wire tension

- Increases workpiece accuracy, reduces machine downtimes
- Optimum use of production times
- Increased lifetime of wire tensioning brakes

You should therefore check the wire tension regularly.
EDM operator, please mind!

EDM wires are sensitive “tools” and any disturbance in the course of the wire becomes apparent in the cut. Depending on the operating time and load feed traces and other signs of wear will occur on mechanical parts and cause vibration of the wire. It is therefore necessary to regularly check the running smoothness of the electrode wire. This is done with a tension meter. The correct tension of the EDM wires reduces wire vibration and ensures the maximum accuracy of your machines. (see fig. 1)

fig. 1: Influence of the wire tension on the quality of cut

Handling:
Checking the tension must be carried out on the running wire in setup mode with the generator switched off. An unsteady deflection of the tension meter pointer is also a sign of possible winding faults in the electrode wire coil. Wire EDM manufacturers recommend testing the EDM wire tension at least once a week.

Selection criteria:
For most conventional wire EDMs, the use of a test instrument with an analog display is sufficient. For thin-wire EDMs, a digital display tension meter is recommended since the wire tension must be precisely adjusted within a very small tolerance of just a few cN.

fig. 2 Tension meter
Model: DX2-3500-C0072
Special purpose tension meter with small measuring head width for limited access space

fig. 3 Erosive cutting of feelers

fig. 4: Machining of tools, such as cutting tools
**Model DX2-EDM**

- Easy to operate
- Everything in operator’s view:
  - the guide rollers
  - the measured material
  - the readings
- Ball-bearing mounted, V-grooved rollers

**Available Models**

<table>
<thead>
<tr>
<th>Model</th>
<th>Measuring Range cN</th>
<th>Measuring Head Width mm</th>
<th>Wire Guide</th>
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<td>DX2-2000-EDM</td>
<td>50 - 2000</td>
<td>91</td>
<td></td>
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<td>DX2-3000-EDM</td>
<td>100 - 3000</td>
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<tr>
<td>DX2-4000-EDM</td>
<td>200 - 4000</td>
<td>116</td>
<td>✔</td>
</tr>
</tbody>
</table>

**Guide Rollers**

- V-grooved
- Standard 2000 Hardcoated Aluminium

**Specification**

- Calibration: SCHMIDT - factory procedure
- Accuracy: ± 1% full scale or ± 1 graduation on scale
- Temperature range: 10 - 45 °C
- Housing material: Die-cast aluminium
- Housing dimensions: 188 x 85 x 45 mm (L x W x H)
- Weight, net (gross): approx. 470 g (approx. 1000 g)

**Model ZED**

- Simple handling
- “ZERO SETTING” using a push button for measurement in different measuring positions
- Everything in operator’s view:
  - the guide rollers
  - the measured material
  - the measuring material

**Available Models**

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<thead>
<tr>
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<th>Measuring Head Width mm</th>
<th>Wire Guide</th>
</tr>
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<tbody>
<tr>
<td>ZED-200</td>
<td>1 - 200</td>
<td>63</td>
<td>✔</td>
</tr>
<tr>
<td>ZED-500</td>
<td>1 - 500</td>
<td>63</td>
<td>✔</td>
</tr>
</tbody>
</table>

**Guide Rollers**

- V-grooved
- Standard 2000 Hardcoated Aluminium

**Specification**

- Calibration: SCHMIDT factory procedure
- Accuracy: ± 1% FS* ± 1 Digit or better
- Display: 3-digit LCD, 10 mm high
- Temperature range: 10 - 45 °C
- Power supply: 2 size AAA 1.5 V
- Housing material: Plastic (POM)
- Housing dimensions: 157 x 85 x 32 mm (L x W x H)
- Weight, net (gross): approx. 200 g (approx. 600 g)

*FS = Full Scale
DT Series

Model DTS

- 3 different display modes:
  - numeric
  - numeric with bargraph
  - numeric with graph (Time-Tension)
- The display rotates in 90° steps
- Force reduced material catching system
- To reach highest accuracy the diameter of the material to be measured can be set with a wheel and will be displayed in the screen
- Automatic „Zero-Setting“ in each measuring position
- 4 Material memory locations for customer made calibrations
- Measuring frequency 1000 measurements/sec.
- Recording and displaying MIN-, MAX-, last reading, PEAKS, average and standard deviation
- Calibration adjustment for fine tuning of the calibration if material differs from the used calibration material
- Programmable MIN- and MAX alarms

### Available Models

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<tr>
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<th>Measuring Head Width mm</th>
<th>Wire Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTS-300</td>
<td>0.5 - 300.0</td>
<td>66</td>
<td>✓</td>
</tr>
<tr>
<td>DTS-2000</td>
<td>20 - 2000</td>
<td>66</td>
<td>✓</td>
</tr>
<tr>
<td>DTS-2500</td>
<td>25 - 2500</td>
<td>116</td>
<td>✓</td>
</tr>
</tbody>
</table>

### Guide Rollers

- **V-grooved** Standard 2000 Hard-coated aluminium

### Specifications

- **Calibration:** According SCHMIDT factory procedure
- **Accuracy:**
  - For PA from 5 % up to 100 % FS*:
    - ± 0.5 % FS* ± 1 digit
  - remaining tension range and other calibration materials:
    - ± 3 % FS* ± 1 digit
- **Memory for material curves:**
  - 1 for SCHMIDT calibration
  - plus 4 for customized calibrations
- **Measuring units:**
  - Force (switchable): cN, g, kg, N, lb
  - Thickness (switchable): mm, inch
- **Measuring roller deflection:** Max. 0.2 mm
- **Measuring frequency:** 1000 measurements/sec.
- **Display:** Graphic LCD
- **Display update rate:** Approx. 2 times per second
- **Memory:** MIN, MAX, PEAK, AVG and LAST
- **Damping:** Adjustable electronic damping
- **Thickness compensation:** Max. 2.5 mm
- **Temperature range:** 10 - 45 °C
- **Air humidity:** 85 % RH, max.
- **Power supply:** LiPo accumulator
- **Housing material:** Die-cast aluminium
- **Housing dimensions:** 265 x 78.5 x 46 mm (L x B x H)
- **Weight, net (gross):** Approx. 875 g (1550 g)

* FS = Full Scale

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Model DTS-2500

With wire catcher for easier acquisition of the wire

Displays the measured material and the adjusted material diameter