CNC Spring Coiling Machines with Multi-Cut System, 3D Former and PTP Coiling Finger for the Production of Compression, Torsion and Extension Springs

FUL 26+
FUL 36+
FUL 46–86
Our Accomplishments for your Benefit

- **High output, high flexibility**
  - Configuration of machine ensures a fast production of springs due to a high infeed speed, excellent axis acceleration values and very short cutting times
  - Different types of cuts are available
  - Versatile equipment options
- **Future-oriented machine concept**
  - Latest drive and control technology
  - Modular machine structure and innovative tool solutions
- **Convenient programming system WPS 3.2 EasyWay increases machine availability**
  - Programming of geometries for simplified spring input
  - Manual settings can be saved with the spring program
- **High quality standards ensure zero-defect production**
  - Optical measuring of product with subsequent adjustment
  - Sorting by fast sorting chutes
  - iQcontrol function for in-process measurement and control
  - Further process monitoring features like e.g. slip control and color detection

Design Features

**Machine structure**
- High-precision roller feed
- Programmable vertical mandrel slide adjustment
- Programmable pitch, parallel and vertical to the spring axis
- Multi-cut system for straight/rotary and flying cut
- Individually programmable cutting speed
- Rigid spring-shaping device with 2-axes coiling unit and simple mechanical system for quick changeover from right- to left-hand coiled springs
- Two more CNC axes for convenient and simple changeover from right- to left-hand coiling at the push of a button
- Motor-adjustable coiling pin holder (PTP coiling finger) for the upper and lower slider
- Motor-adjustable torsion spring device (3D Former) for manufacturing torsion springs with tangentially bent spring legs (option for FUL 26+ - 86)
- Optimized cut now also available when using the guide plate and color detection
- Freely programmable cutting ellipse (Multi-E cut, option for FUL 36+, 46 and 56) for implementing different cutting angles, also: rotary cut even for small spring indexes

**Programming**
- Simple, program-supported configuration of tools
- Convenient operation via touchscreen
- Sensors available for unmanned process monitoring
- Graphical spring correction

4speed – max. output rate for FUL 26+ and 36+
- Highest feed speed up to 600 m/min due to water-cooled drive technology
- Optimum wire feed towards connected machine due to enhanced wire guiding concept
New Definition of Productivity

Designed for the production of precise, close-tolerance compression and extension spring bodies with high output due to pioneering design features.

Fast, easy cut type changes using the new multi-cut system give users more flexibility and operating convenience.

Set new standards of quality with the new motor-adjustable coiling pin holder (PTP coiling finger). Motor-adjustable torsion spring device (3D Former) for a universal production of the most different types of torsion springs.

Shorter set-up times thanks to fast, precise tool settings made with comprehensive CNC control technology.

Quality

For more than 125 years, the name of WAFIOS has been synonymous with highest quality, safety standards, and technical innovations in the German machine manufacturing industry.

Reliability

Strict quality controls, state-of-the-art production systems, and many years of experience guarantee that your investment is safe in our hands. Our global service network ensures high availability of WAFIOS machinery.

Cost efficiency

High production output and a long service life will save money and shorten the amortization time of your investment.
## Technical Data

<table>
<thead>
<tr>
<th></th>
<th>FUL 16**</th>
<th>FUL 26+**</th>
<th>FUL 36+**</th>
<th>FUL 46</th>
<th>FUL 56</th>
<th>FUL 76</th>
<th>FUL 86</th>
<th>FUL 166**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire Ø: [mm]</td>
<td><img src="image" alt="Wire Ø Diagram" /></td>
<td></td>
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<tr>
<td>(RM - N/mm²)</td>
<td>0.12 – 0.6 (Wm &gt; 4) 2,600</td>
<td>0.2 – 1.6 (Wm &gt; 4) 2,300</td>
<td>0.5 – 2.8 (Wm &gt; 4) 2,300</td>
<td>0.9 – 4.0 (Wm &gt; 4) 2,000</td>
<td>1.5 – 5.0 (Wm &gt; 4) 2,000</td>
<td>2.1 – 7.0 (Wm &gt; 4) 2,000</td>
<td>3.1 – 8.0 (Wm &gt; 4) 2,000</td>
<td>6.1 – 16.0 (Wm &gt; 5) 2,000</td>
</tr>
<tr>
<td>Wire Ø: [mm]</td>
<td><img src="image" alt="Wire Ø Diagram" /></td>
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</tr>
<tr>
<td>(RM - N/mm²)</td>
<td>0.12 – 0.8 (Wm &gt; 6) 2,600</td>
<td>0.2 – 1.8 (Wm &gt; 5) 1,900</td>
<td>0.5 – 3.0 (Wm &gt; 5) 2,000</td>
<td>0.9 – 4.5 (Wm &gt; 5) 1,900</td>
<td>1.5 – 5.5 (Wm &gt; 5) 1,900</td>
<td>2.1 – 7.5 (Wm &gt; 5) 1,700</td>
<td>3.1 – 9.0 (Wm &gt; 5) 1,700</td>
<td>6.1 – 17.0 (Wm &gt; 5) 1,700</td>
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<tr>
<td>Feed roller pairs:</td>
<td>2 (option)</td>
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<td>2</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>6</td>
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<tr>
<td>Outer spring Ø: [mm]</td>
<td>20</td>
<td>45</td>
<td>65</td>
<td>95</td>
<td>95</td>
<td>140</td>
<td>150</td>
<td>240</td>
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<tr>
<td>Max. output: Standard [m/min]</td>
<td>240</td>
<td>240</td>
<td>600</td>
<td>220</td>
<td>175</td>
<td>150</td>
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<tr>
<td>Max. speed [m/min]</td>
<td>1,500</td>
<td>600</td>
<td>1,100</td>
<td>500</td>
<td>350</td>
<td>300</td>
<td>250</td>
<td>160</td>
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<tr>
<td>Dimensions: [mm] (w×h×l)</td>
<td>900 × 1,700 x 900</td>
<td>1,200 × 1,850 x 1,650*</td>
<td>1,650 × 2,100 x 1,800*</td>
<td>1,900 × 2,350 x 2,000*</td>
<td>2,100 × 2,400 x 2,000*</td>
<td>4,000 × 2,500 x 2,670*</td>
<td>4,000 × 2,600 x 2,670*</td>
<td>6,560 × 3,200 x 4,200*</td>
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<tr>
<td>Weight: [kg]</td>
<td>700</td>
<td>700</td>
<td>× 1,850</td>
<td>700</td>
<td>700</td>
<td>700</td>
<td>700</td>
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</tbody>
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* Length without control panel carriage
** FUL 16, 26+, 36+, 166 see separate flyers

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Precision Machinery for Wire and Tube

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