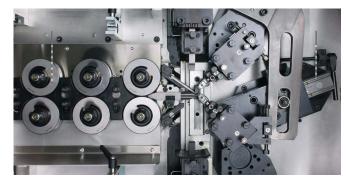


# Spring Coiling Machine for the Production of Compression Springs



### Baureihe

Tool room F6



Our Accomplishments for your Benefit

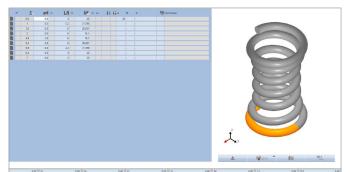
- Fully-fledged compression spring coiler even in standard version, equipped with the latest drive technology
- Performance Machine: Great compromise between high performance and attractive price
- Uses the familiar FPS 1.2 software with user-friendly interface and simplified spring input (except for F4 and F6)
- Modern machine design
- PTP coiling finger for regulating initial tension (except for F4 and F6)
- At F 12: The perfect intermediate size for the economical production of compression springs up to 1.2 mm wire diameter
- At F 18: Higher output in comparison to previous model (F2) due to increased feed speed

#### **Design Features**

Machine Structure

- New and cost-optimized coiling unit with rigid 2-axes coiling device
- Optional PTP coiling finger
- No optional second shape drive as motor can be easily converted from top to bottom due to innovative machine design (F08, F12, F18, F30)
- New design of the coiling pin holder similar to the F 30 with rotatable insert for the coiling pin (F 12 and F 18)
- Cost-optimized standard equipment with 4 CNC axes
- Axes for infeed, straight cut, vertically displaceable pitch device and coiling device
- High-precision roller feed unit with two or three (F 6) pairs of feed rollers

Input of the spring geometry



- Manually adjustable cutting mandrel, optionally also available as pneumatic mandrel displacement device
- Optional mandrel displacement device
- Electronic handwheel for convenient and safe set-up of machine and spring (option)
- Straight cut (optional multi cut, except for F 30)
- Vertically displaceable pitch device (parallel displaceable pitch device available as option)
- Modular configuration as stand-alone solution or integrated in production line
- Reduced variety of options

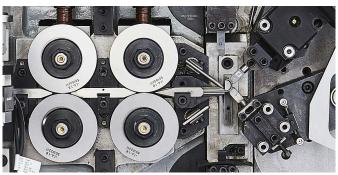
Measuring and software technology

- Optical camera measuring system for measuring and regulating the spring length and diameter (FVS)
- Sorting device

#### Software/Programming

- Industrial PC with color touchscreen / keyboard / mouse
- Multi-touch screen as control panel
- Handwheel (option)
- OPC UA Interface for exchanging data (Industry 4.0)

#### Tool room F 30



## Versatile, Flexible and Profitable – WAFIOS CNC Spring Coiling Machines, Series F

#### Trend-Setting Machine Concept

The F series has been designed for the production of high-precision compression springs of 0.12 - 7 mm wire diameter. The Performance Machine combines high output with an attractive price. It thus constitutes an economical alternative to all established compression spring coilers.

The machines of the F series are fully-fledged, fully functional and precise production facilities, even in their standard version. The modular machine design can be adjusted depending on the requirements and production range. The F machine can be upgraded or downgraded to meet the needs of the production line. Modern, optical measuring systems for measuring the spring length and diameter and a sorting device guarantee a high quality of springs.

The F 08 succeeds the FSE 15 while the F 18 is the successor machine of the F2. The gap between the two machine sizes is closed by the F 12.

Application area: All types of compression springs and extension spring strands for e.g. the automotive industry, medical goods and technical components

#### Quality

Since 1893, the WAFIOS name is synonymous with outstanding quality, safety standards, and technical innovations in the German mechanical engineering 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.





Product example

Sorting device



▲ User friendly WAFIOS Programming System WPS 3.2 EasyWay



Technical Data		F4	F6	F 08
Wire-Ø bei (Wm) Rm	[mm] [N/mm²]	1,5–4,0 mm at Rm 2.000 N/mm²	2,1–6,0 mm at Rm 2.000 N/mm <sup>2</sup>	0,12–0,6 (6) mm at Rm 2.600 N/mm <sup>2</sup>
		1,5–4,5 mm at Rm 1.800 N/mm²	2,1–7,0 mm at Rm 1.800 N/mm <sup>2</sup>	0,6–0,8 (4) mm at Rm 2.300 N/mm <sup>2</sup>
Spring diameter, max.:	[mm]	100 mm	130 mm	20 mm
Feed speed, max.:	[m/min]	100 m/min	100 m/min	160 m/min
Springs, max.:	[Stk/min]	280 Stk/min	160 Stk/min	1.500 Stk/min
Dimensions [mm] (lxwxh) mm (without pay-off unit)		1.900 × 1.800 × 2.350 mm	2.300 × 2.200 × 2.450 mm	900 × 1.700 × 900 mm
Weight	[kg]	ca. 3.200 kg	ca. 5.400 kg	ca. 700 kg
Technical Data		F 12	F 18	F 30
Wire-Ø bei (Wm) Rm			0,35–1,6 (4) mm	0,7–2,5 (4) mm
Rm	[mm] [N/mm²]	0,2–1,1 (4) mm at Rm 2.500 N/mm²	at Rm 2.300 N/mm <sup>2</sup>	at Rm 2.000 N/mm <sup>2</sup>
Rm				
Rm Spring diameter, max.:		at Rm 2.500 N/mm <sup>2</sup>	at Rm 2.300 N/mm <sup>2</sup> > 1,6-1,8 (4) mm	at Rm 2.000 N/mm <sup>2</sup>
	[N/mm²]	at Rm 2.500 N/mm <sup>2</sup> > 1,1 – 1,2 (5) mm at Rm 1800 N/mm <sup>2</sup>	at Rm 2.300 N/mm <sup>2</sup> > 1,6-1,8 (4) mm at Rm 1900 N/mm <sup>2</sup>	at Rm 2.000 N/mm <sup>2</sup> > 2,5 – 3,0 (6) mm at Rm 1800 N/mm <sup>2</sup>
Spring diameter, max.:	[N/mm²] [mm]	at Rm 2.500 N/mm <sup>2</sup> > 1,1 – 1,2 (5) mm at Rm 1800 N/mm <sup>2</sup> 30 mm	at Rm 2.300 N/mm <sup>2</sup> > 1,6 – 1,8 (4) mm at Rm 1900 N/mm <sup>2</sup> 40 mm	at Rm 2.000 N/mm <sup>2</sup> > 2,5 – 3,0 (6) mm at Rm 1800 N/mm <sup>2</sup> 65 mm
Spring diameter, max.: Feed speed, max.:	[N/mm²] [mm] [m/min] [Stk/min] [mm]	at Rm 2.500 N/mm <sup>2</sup> > 1,1 – 1,2 (5) mm at Rm 1800 N/mm <sup>2</sup> 30 mm 160 m/min	at Rm 2.300 N/mm <sup>2</sup> > 1,6 – 1,8 (4) mm at Rm 1900 N/mm <sup>2</sup> 40 mm 140 m/min	at Rm 2.000 N/mm <sup>2</sup> > 2,5 – 3,0 (6) mm at Rm 1800 N/mm <sup>2</sup> 65 mm 135 m/min

F08 Limited operating range only with optional second pair of feed rollers (see FUL 16+ flyer)

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