

Siepmann



WS-CNC

Serration & Profile Grinding Machine

The WS-CNC Concept

The WS-CNC series was developed for grinding scallops, serrations, teeth and profiles e.g. on steak or bread knives, scissors, machine blades, agricultural blades or similar parts. The machine is available in two sizes.

Features

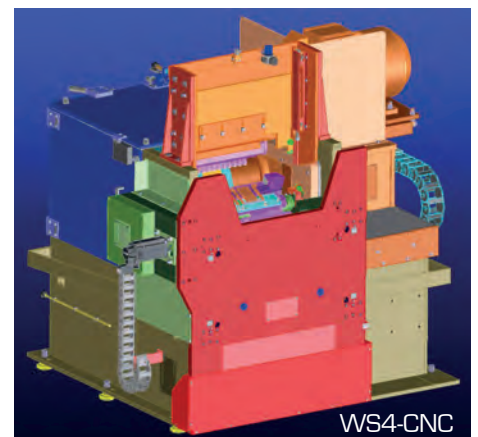
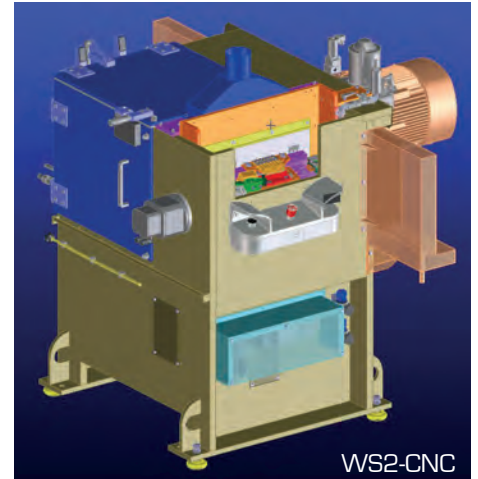
| |
|---|
| ✓ CNC controlled feeding axis of the grinding head with integrated compensation of the grinding wheel wear and automatically controlled constant surface speed |
| ✓ Diamond-coated dressing rolls allow precise profiles of any shape to be ground |
| ✓ Programmable dressing amount and dressing intervals |
| ✓ Safe and simple workpiece loading and unloading in horizontal position |
| ✓ Loading and unloading during the machining time |
| ✓ Integration with different robots systems (SCARA or 6-axis robots) and magazines to suit the customers' requirements |
| ✓ Additional axes possible as an option |
| ✓ An optionally available single point dresser allows for easy dressing of the grinding wheel which makes the machine especially suited for prototype manufacturing |
| ✓ Modular design enables the interlinkage with other operations and machining stations, thus allowing to configure manufacturing cells for complete machining. |
| ✓ Full enclosure of the workspace available as an option |
| ✓ The machine is capable for industry 4.0 applications |



Typical parts for the WS series of machines

Sizes and Technical Data

| | WS2-CNC | | WS4-CNC | |
|-----------------------------|-----------------------------|----------------|----------------------------|----------------|
| Grinding width | 310 mm | | 360 mm | |
| Grinding width with HSK | 270 mm | | 340 mm | |
| Drive power | 11-22 kW | | 18.5-30 kW | |
| Peripheral speed | 35 m/s | | 35 m/s | |
| Dressing roll drive | 1.5 kW | | 1.5 kW | |
| Rapid traverse speed X axis | 30 m/min | | 15 m/min | |
| Grinding wheel diameter | Min. 235 mm | Max. 400 mm | Min. 270 mm | Max. 500 mm |
| Optional Y axis max. stroke | 180 mm | | 180* mm | |
| C axis drive | Servo drive | | Servo drive | |
| CNC control | 840 D SL | | 840 D SL | |
| Control panel | HT 8 (optionally TCU 20) | | HT8 (optionally TCU 20) | |
| Weight | approx. 2,200 kg | | approx. 4,400 kg | |



* special version

Type WS2-CNC



Type WS4-CNC



Machine Design

Definition of axes

The basic version of the WS2-CNC has 2 axes:

Axes

✓ **X axis** for the grinding wheel infeed

✓ **C axis** for positioning of the clamping fixtures at the correct grinding angle

Optionally extendable up to 6 axes.

The picture shows a WS machine with two axes.

1 X axis

2 C axis

1

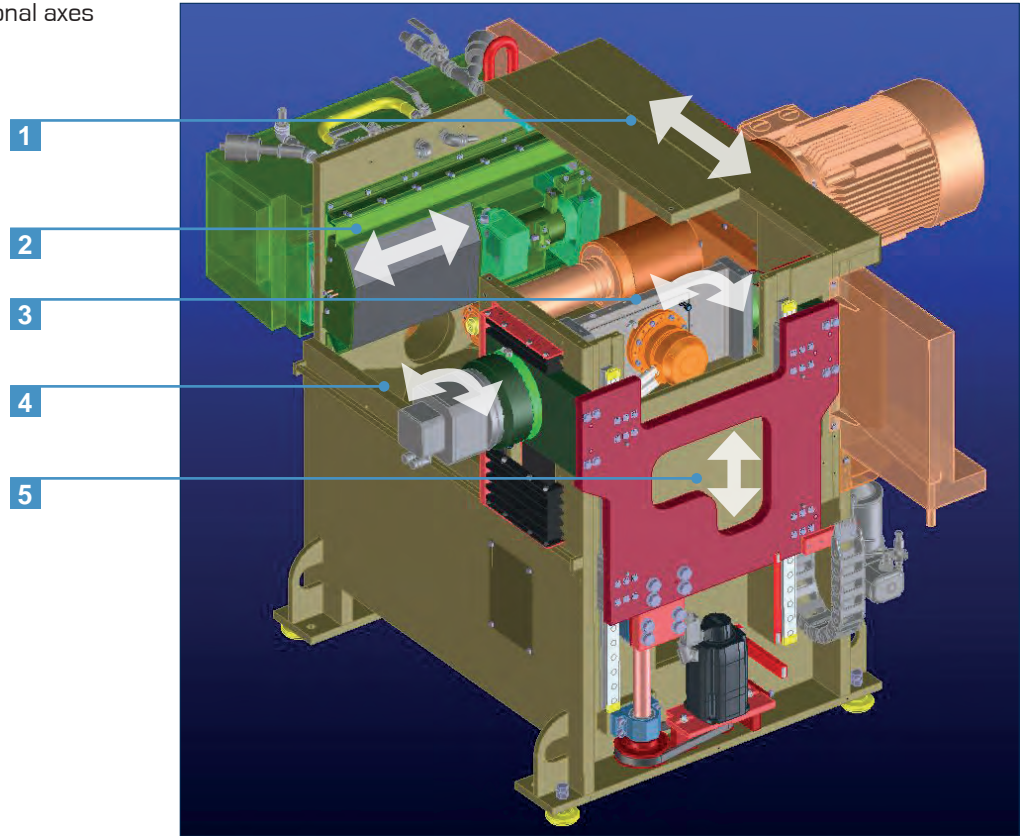
2



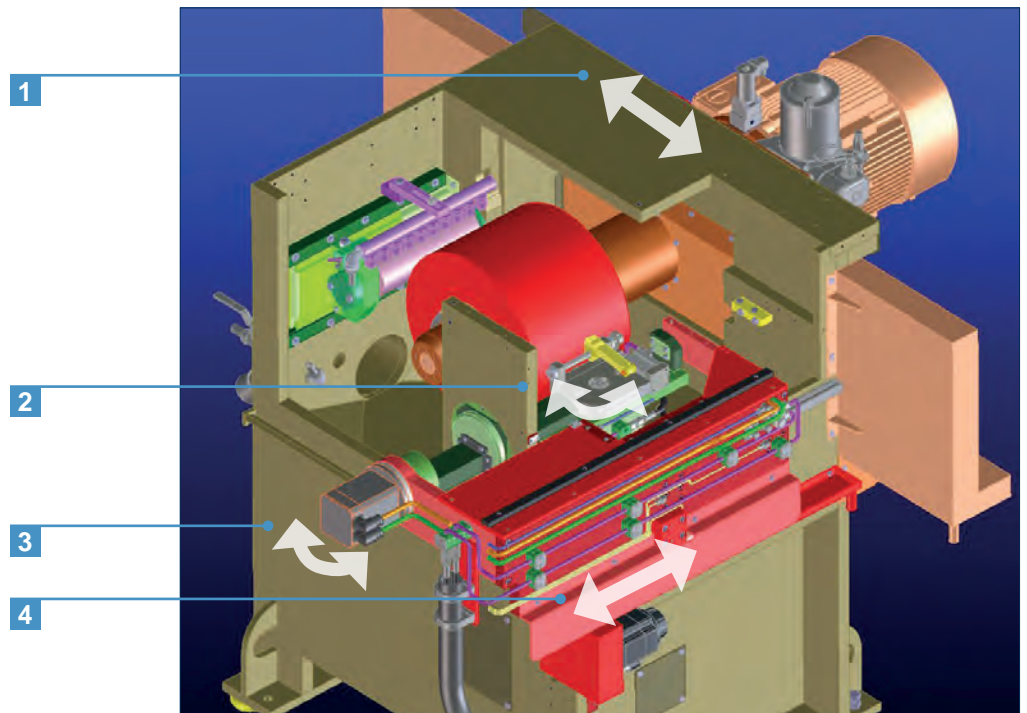
Additional Axes / Options

The 3D pictures show the optional axes and their designations.

- 1 X axis
- 2 Z axis
- 3 A axis
- 4 C axis
- 5 Y axis

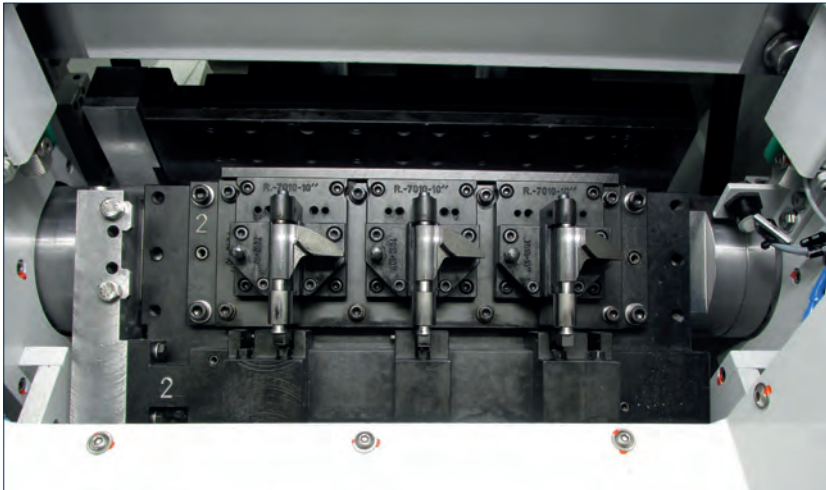


- 1 X axis
- 2 A axis
- 3 C axis
- 4 Z axis



Clamping Facilities

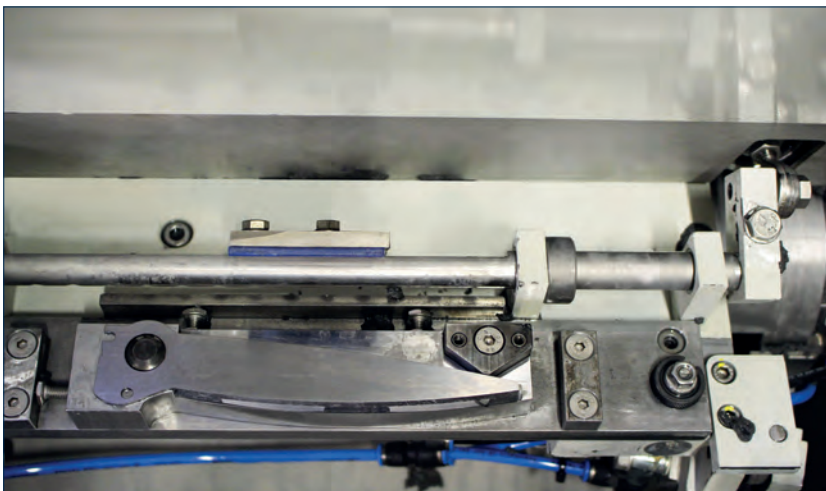
The machine comes equipped with hydraulic or pneumatic clamping fixtures.



Example hydraulic clamping fixture



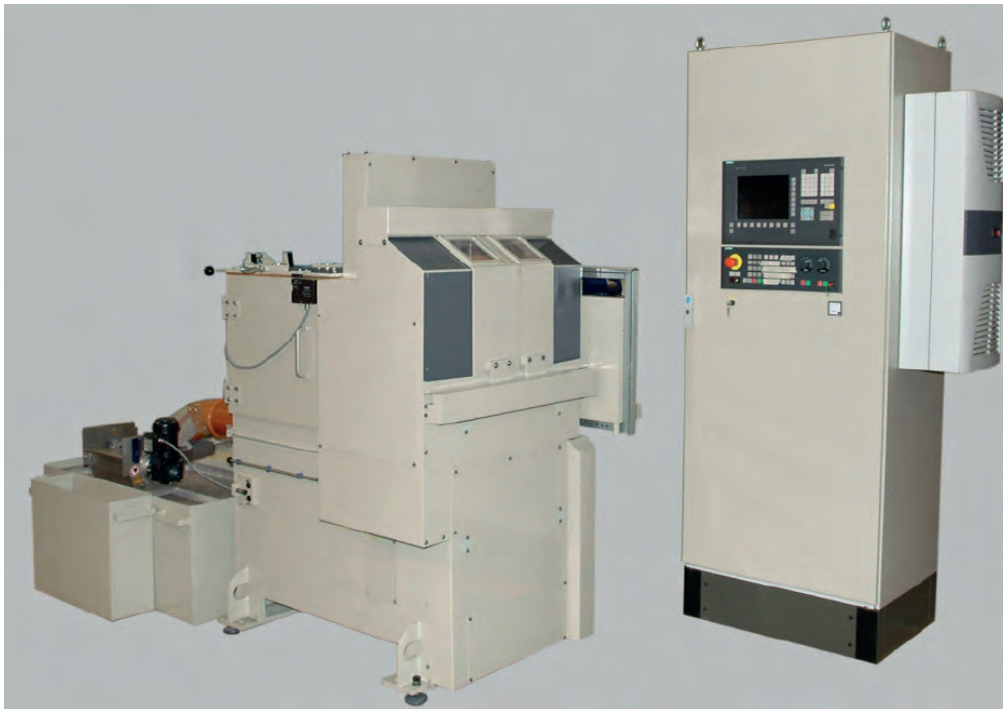
Example pneumatic clamping fixture for package clamping



Example pneumatic clamping fixture for knives

Safety Doors in the Grinding Area

The **machine interior is protected by two safety doors** against interference from outside. Optionally the machine can be equipped with sliding doors.



Operation and Programming



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OPO10 + MCP483PN

10" display, numeric keyboard

Machine control panel for all important functions. For example operation mode selection, manual functions, axis movement and program control.

Key switch for access level [0,1,2,3].

Installed in the main cabinet or optionally in a swivel arm housing.



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HT8

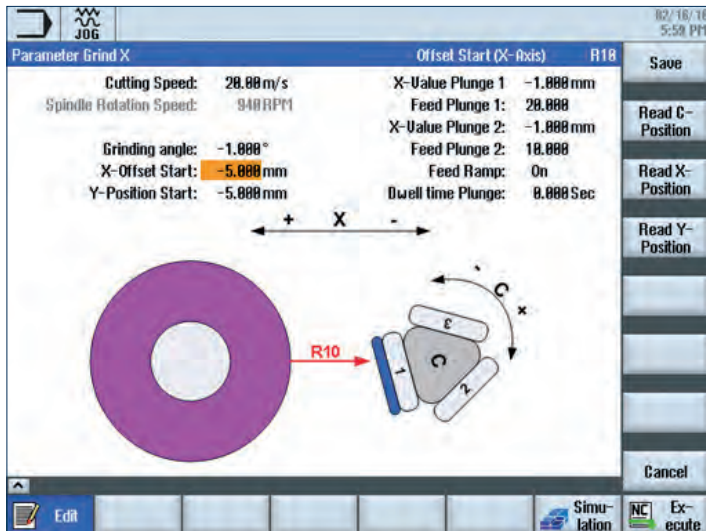
Handheld 8" touch display, keyboard will appear on the display when needed.

Integrated machine control panel for all important functions. For example operation mode selection, manual functions, axis movement and program control.

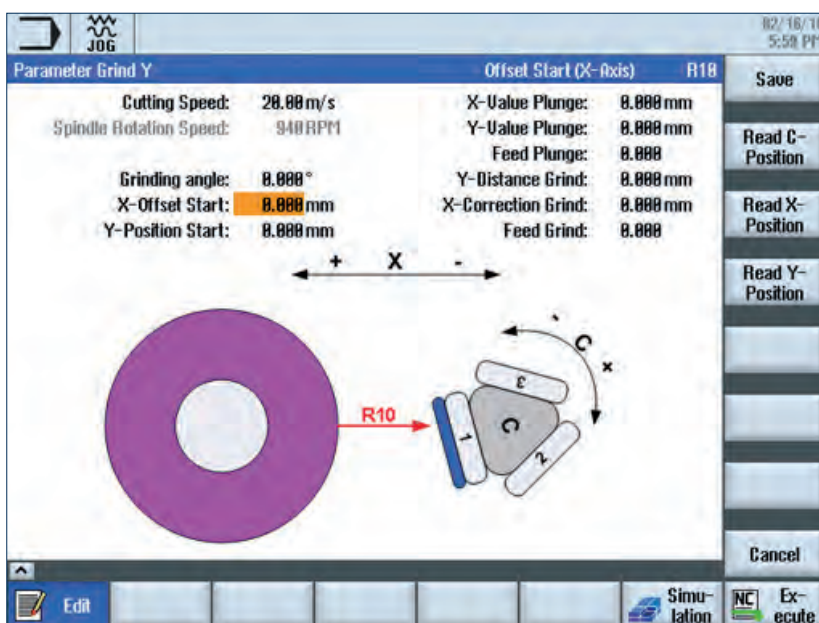
Confirm button for left-handed and right-handed operators.

Operation and Programming

Parameters grind X and grind Y

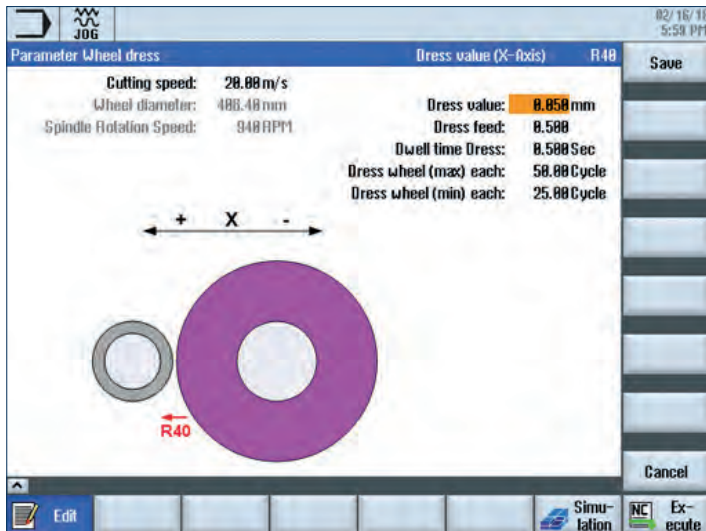


- ✓ Clear and simple input of grinding parameters due to reduction to the most essential parameters
- ✓ Graphical help pictures for each parameter
- ✓ Takeover (Teach) of current position to start position
- ✓ 2 dialogs for different workpieces

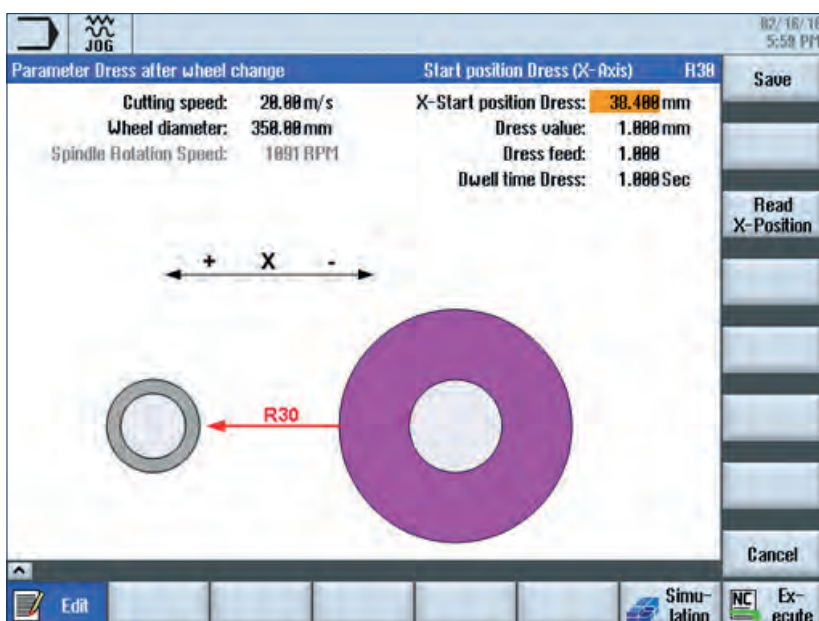


Operation and Programming

Parameters truing and dressing after wheel change

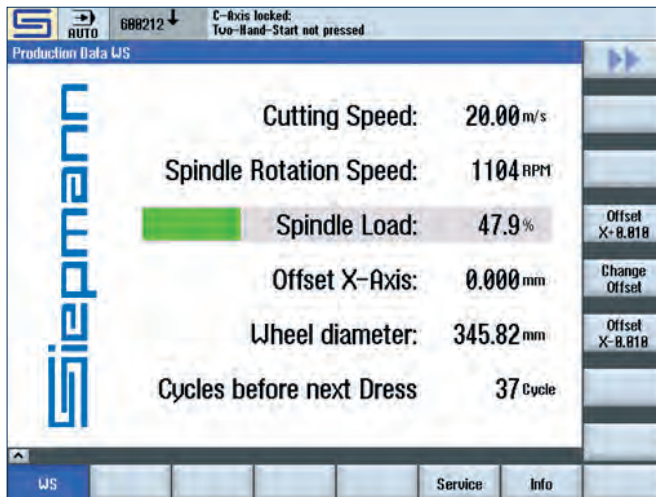


- ✓ Clear and simple input of dressing parameters due to reduction to the most essential parameters
- ✓ Graphical help pictures for each parameter
- ✓ Takeover (Teach) of current position to new wheel start position



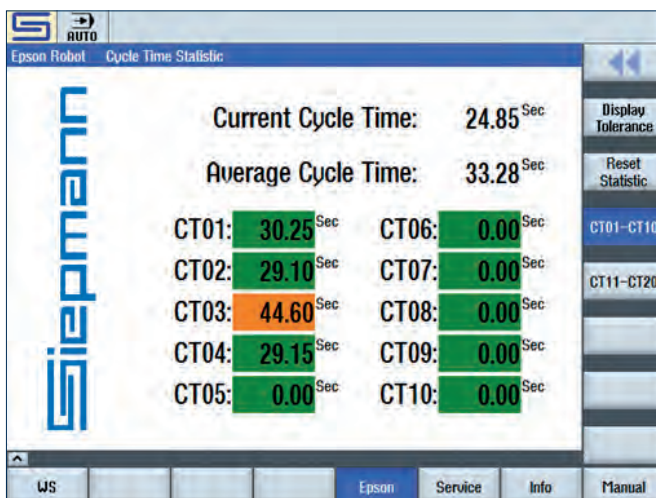
Operation and Programming

Production data screen



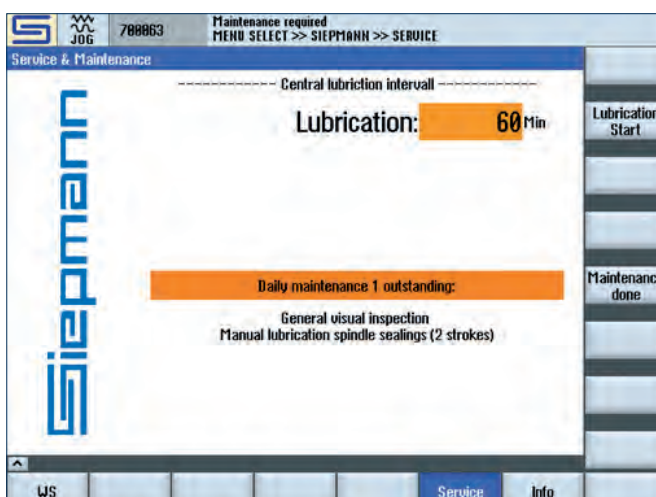
- ✓ Display of important machine information
- ✓ Display of spindle load with color changing progress bar (Green → Yellow → Red)
- ✓ Global offset for smaller adjustments during the production without needing to stop the machine.

Robot production data screen



- ✓ Display of the average cycle time
- ✓ Adjustable cycle time tolerance
- ✓ Display of the last 20 cycle time values with color highlighting when the tolerance limit has been exceeded

Service and maintenance



- ✓ Adjustable intervals for central lubrication.
- ✓ Manual executing of a lubrication cycle
- ✓ Display of current pending maintenance tasks.

SIEPMANN

Latest grinding technology combined with long tradition.

The internationally renowned brand of SIEPMANN represents more than 130 years of tradition and experience in grinding technology. As part of the company SVQ GmbH and with own patented products SIEPMANN is one of the leading brands in the field of grinding and polishing of knives, hand tools and machine blades.

We supply solutions worldwide – from single machines to completely automated systems.



The headquarter of Global Retool Group in Lebach.

Contact



SVQ GmbH
SIEPMANN Solingen

Mankhauser Str. 7a
D-42699 Solingen

Phone: +49 2 12 . 64 57 26 0

Fax: +49 2 12 . 64 57 26 18

E-Mail: info@siepmann-solingen.com



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