

## Machine

### Consisting of:

#### **58001371 – Twin-Spindle Base Unit**

With one vertically suspended and one vertically standing turning spindle mounted on a column module, in a 2 x 2-axis compact configuration with front operation for optimal accessibility to clamping devices, tools, and pick-up positions.

The machine base, made from high-quality spheroidal graphite cast iron and heavily ribbed, provides extremely high rigidity with optimal damping characteristics, ensuring high turning and long-term accuracy. It serves as the mounting base for the cross slides with motor spindles and the attachment of tool carriers.

Sturdy and optimally dimensioned preloaded linear roller guides ensure a long service life even at high rapid traverse speeds. All guides, ball screw drives, and measuring systems are chip-protected and positioned outside the machining area for easy access.

Steep, smooth walls in the work area ensure fast and efficient removal of hot chips.

### **1 Set of leveling elements**

#### **58800280 – Slide Unit, Left Side of Machine**

### Consisting of:

#### **58001286 – Slide Unit**

Design of the slide for extremely high precision and increased dynamics in both horizontal and vertical directions, with preloaded precision linear guides. Drive via high-dynamic ball screw drives in horizontal and vertical directions using maintenance-free synchronous motors. Three-phase servo drives with digital drive technology.

### **Travel Distances:**

Horizontal X-axis: 1,700 mm

Vertical Z-axis: 500 mm

### **Ball Screw Drives:**

X-axis: 40 mm Ø, feed force 8 kN at 40% duty cycle

Z-axis: 40 mm Ø, feed force 10 kN at 40% duty cycle

### **Rapid Traverse Speeds and Measuring Systems:**

X-axis: 60 m/min, linear position measuring system

Z-axis: 30 m/min, linear position measuring system

**Spindle Unit – Left Side of the Machine****Equipped with:****58002578 – Motor Spindle with Water Cooling**

Power: 35/40 kW at 100/40% duty cycle.

Equipped with precision angular contact ball bearings in a tandem-O arrangement at the front, with lifetime grease lubrication and labyrinth sealing via purge air.

Maintenance-free spindle motor with digital drive technology.

**Spindle Bearing Diameter:** 120 mm

**Spindle Flange:** A8 according to DIN 55026

**Maximum Speed:** 3,500 rpm

**Torque:** 430 / 610 Nm (100 / 40% duty cycle)

**Nominal Speed:** 780 rpm

**The maximum permissible spindle speed depends on the specific machining task and clamping device.**

**58002163 – 3D-Printed Coolant Nozzles**

For grinding under demanding conditions. Includes two plastic nozzles for the setup process. Comes with installation and testing.

**58000351 – Dressing Unit**

With lifting mechanism, mounted next to the turning spindle.

Maximum speed: 16,000 rpm

Dressing wheel holder: diameter 40 x 10 mm

*Note: Diamond dressing wheel not included.*

**58002171 – Spindle Locking Mechanism**

For locking the spindle during clamping device change.

**58800242 – Tool Carrier – Left Side of the Machine****Equipped with:****58001135 – 12-Position Disc Turret**

With electric indexing drive for extremely short indexing times.

Indexing direction controlled by directional logic.

Tool disc for cylindrical shank tools, 50 mm according to DIN ISO 10889, with internal supply of coolant or compressed air to the tool holders.

**58002314 – Internal Grinding Spindle with Grinding Software**

Tool holder Ø28/43.

Designed for attachment to the machine frame next to the tool carrier.

Equipped with precision angular contact ball bearings in a tandem-O arrangement at the front, featuring oil-air minimal quantity lubrication and labyrinth sealing via purge air.

Maintenance-free three-phase spindle motor.

**Spindle Bearing:** 45 mm in hybrid design

**Tool Holder:** Ø28/43 (Thread M28x2)

**Maximum Speed:** 45,000 rpm

**Nominal Speed:** 30,000 rpm

**Drive Power:** 15 / 18 kW (100 / 60% duty cycle)

**Torque:** 4.7 / 5.7 Nm (100 / 60% duty cycle)

**Note:** Without dressing unit, without grinding wheel.

**Customer Requirement:** A minimum pressure of 5 bar must be provided.

**58000607 – External Grinding Spindle with Grinding Software**

Designed for attachment to the machine frame next to the tool carrier.

Equipped with precision angular contact ball bearings in O-arrangement with permanent grease lubrication, labyrinth sealing via purge air, and a maintenance-free three-phase spindle motor.

**Spindle Bearing:** 80 mm in hybrid design

**Tool Holder:** Taper 1:10; Ø73 mm

**Maximum Speed:** 6,000 rpm

**Nominal Speed:** 2,700 rpm

**Drive Power:** 11.5 / 14 kW (100 / 60% duty cycle)

**Torque:** 39.7 / 49 Nm (100 / 60% duty cycle)

**Note:** Without dressing unit, without grinding wheel

**58001490 – Swivel Unit, B-Axis  
with NC Rotary Table**

**Load Capacity:** 1,000 kg

**Tangential Torque:** 6,000 Nm

**Clamping:** Hydraulic

**NC Drive:** Worm gear and 1 FT7 ...

**Dimensions (Diameter Ø):** 520 mm

**Speed at i = 120:** 125 rpm

**Swivel Range:** 30° + 2 × 59°

**Indexing Accuracy (indirect measurement):**  $\pm 10''$

**Corresponding Arc Deviation at Ø520 mm:**  $\pm 0.013$  mm

#### **58001713 – Machine-Side Enclosure of the Working Area**

Includes working area lighting, electrically interlocked working area door with safety glass, and rear machine paneling.

**Maximum noise level:** 78 dB(A) according to DIN 45635-1 during machining.

This applies to continuous machining of a solid steel workpiece (material: C45) without interruptions.

**Note:** Customer-specific workpieces, technologies, or special clamping devices may require additional noise insulation measures. Any resulting additional costs must be clarified.

#### **58001460 – Cooling Unit (Water/Air)**

Integrated fluid-air cooling system (FLKS) for cooling spindle motors, the hydraulic unit, and potentially other components.

Control cabinet cooling is provided via a separate, autonomous cooling device.

**Required ambient condition (provided by customer):**

**Maximum hall air temperature:** 45 °C

#### **58000034 – Central Lubrication**

Automatic central minimum-quantity lubrication system with pressure and level monitoring for linear guides and ball screw drives.

Lubrication lines made of steel and plastic.

#### **58000029 – Hydraulic Unit**

Mounted on the machine. Includes oil tank, motor, hydraulic pump, return filter, pressure and level monitoring, and DIN-standard valves for controlling hydraulic components.

**Maximum system pressure:** 70 bar

#### **5B800244 – Clamping Technology, Left Side**

##### **Note on Clamping Cylinder:**

The standard clamping cylinder is replaced by a special cylinder from the company Sterman and is therefore no longer included in the base machine scope.

#### **58000862 – Pneumatic Equipment**

Controls and filters the factory-supplied compressed air for purge air supply to the main spindle and possibly other components.

Controls and actuates the pneumatic units.

**Required system pressure:** Minimum 6 bar

**58800014 – Electrical Equipment****Consisting of:****58001124 – Control Cabinet with Basic Electrical Installation**

Includes channel wiring, complete with power and control section. Cooling via control cabinet cooling unit(s).

A swiveling operator panel is mounted on the machine for improved usability.

Cables and system wiring are suitable for the control and drive system. In wet areas, cables have a PUR outer sheath.

Multi-core cables and individual wires according to VDE/EN standards.

Design according to VDE 0113 / DIN EN 60 204-1.

**Control voltage:** 24 V DC

**58800261 – Machine Control System****Consisting of:****58000305 – CNC Control SINUMERIK 840D sl**

For a single-spindle machine, with integrated high-performance PLC adaptation controller 317-3PN/DP.

Drive system: SINAMICS S120 with digital interface to SINUMERIK 840D sl.

**Safety and Diagnostic Function:** "SIEMENS Safety Integrated"

**58002121 – Multi-Touch Operating Panel with Multi-Window Technology**

Equipped with an intuitive WEISSER user interface and multi-window technology for the display of additional information.

Integrated PC with Windows 7 and 21.5" touchscreen, EKS-Light authorization system, USB and Ethernet interfaces.

**58002185 – WEISSER Fluid Technology Specifications**

The following specifications must be observed:

- For the hydraulic system, hydraulic oil HLP46 (manufacturer optional) according to DIN 51524-2 must be used.
- For the pneumatic system, the machine must be supplied with compressed air of quality class 4 (ISO 8573-1).
- For the central lubrication system, slideway oil CGLP68 (manufacturer optional) according to DIN 51502 must be used.
- The cooling water circuit (cooling unit) for spindle cooling must consist of a mixture containing 35% radiator antifreeze (e.g. SPINCOOL IGW / manufacturer: BEKU Oil GmbH) and demineralized water.  
For centralized coolant supply, the particle size must not exceed 100 µm and water hardness must not exceed 10 °dH.  
WEISSER assumes no liability for damage resulting from improper use of coolant.

**Regarding coolant lubricants (KSS), the VDI guidelines 3035 and 3397 must be observed.**

WEISSER does not issue a general approval for coolant lubricants.

Both the machine operator and the coolant supplier (KSS manufacturer) must consider and, if necessary, implement the following:

- Corrosion protection according to DIN 51360, with extension: no corrosion after 24h (based on Part 2).
- No attack on machine coatings etc., in accordance with VDI 3035.
- No alteration of the Shore hardness or elongation properties of elastomers (VDI 3035).
- Compatibility with slideway oil must be ensured (ideally, both products from the same manufacturer). There must be no resinification or glass-hard deposits on machine components, especially guides or ball screws.
- Coolants must not contain ester compounds. These attack machine components, especially plastics, and may lead to damage or failure.
- Emulsion concentration typically: 7–8% → ensure corrosion protection (follow manufacturer's specifications).

**58002313 – Technical Data**

**Ambient Temperature:** +15°C to +42°C

**Electrical Connection:**

- Power supply from above
- Network type: TN system
- Mains voltage: 400 V ±10%
- Frequency: 50 Hz

**Compressed Air Supply:** 6 bar

**Fume / Dust Extraction:**

**Required Extraction Capacity:** 2,000 m<sup>3</sup>/h

**Dimensions and Weight of the Transport Unit:**

**Length (approx.):** 3,200 mm

**Width (approx.):** 3,360 mm

**Height (approx.):** 3,800 mm

**Weight (approx.):** 18,000 kg (depending on machine configuration)

**58800064 – Additional Equipment****58800086 – Control Accessories**

**58002486 – Remote Maintenance / Remote Diagnostics of the Machine**

Includes installation and testing of the Siemens software package "Step?" for IPC and TeamViewer "Quicksupport".

The connection is established via a network connection (requirement: the machine must be connected to a shop floor network).

On-site commissioning is not included and will be invoiced according to applicable installation conditions.

**58000128 – Interface for Handheld Operating Device****58000171 – Mobile Handheld Operating Device HT2**

Equipped with a 3-stage enabling switch and a manual pulse generator for axis feed, facilitating manual operation during setup work on the machine.

**58800027 – Visualization Accessories****58001856 – WEISSER Tool Correction Center**

Can be adapted to the machining tasks of the machine and to individual user specifications.

Enables manual or automatic correction transfers for tools and variables.

Correction naming and numbering are independent of tool numbers or variable names.

As the system operates across multiple channels, corrections can be made for tools and variables in all channels.

Provides extended functionality compared to the SIEMENS SINUMERIK tool and sister tool management systems.

**Function Overview:**

- Manual correction of tools and variables, including cross-channel correction
- Automatic correction of tools and variables via variables, programs, or external sources
- Limitation of permissible input values
- Access control and permission settings
- Grouping of corrections and assignment to softkeys
- Inversion of input values (e.g., input of a negative value results in a smaller workpiece feature regardless of tool orientation)
- Automatic correction of fixed values in response to specific events
- TO data protection module
- Individually configurable for each workpiece

### 58000186 – WEISSER Workpiece Counter via Display Panel

The counting function is triggered in the CNC program using a predefined auxiliary function. Visualization is performed via a menu interface with the following features:

- 1 counter for total quantity (non-resettable)
- 1 counter for daily production with 6-digit display and reset option via softkey
- Counting mode: additive

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### 58000194 – 3-Color Signal Tower Light

Mounted on the operator panel. Visual indicators as per WEISSER standard:

- **RED (flashing):** Machine is stopped due to fault
- **YELLOW (flashing):** Warning limit for tool life reached
- **YELLOW (steady):** Tool life limit reached
- **GREEN (flashing):** Interruption of fully automatic operation selected
- **GREEN (steady):** Fully automatic operation active

### 58800251 – Internal Inspection System

#### 58000157 – Measuring Grid for Workpiece Inspection in the Machine

Chip-protected integration, suitable for both dry and wet machining.

Measurement is triggered via a switching probe in conjunction with the measuring systems of the NC axes.

Suitable for checking easily accessible cylindrical diameters and lengths.

#### Features:

- Programmable measuring frequency, e.g., every workpiece, every 6th, 10th, or 20th workpiece, followed by automatic correction
- Operator guidance via the machine control system
- Tabular display of measured values
- History of the last 200 measurements
- Output in ASCU format
- NIO parts trigger machine stop; part remains in the clamping device
- Probe calibration via reference measurement on a known workpiece
- Measuring time is not included in the cycle time and must be added accordingly



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**58800252 – Coolant System Assembly****58000538 – Preparation for Connection to Autonomous Coolant System**

Includes piping and valves for coolant supply to the tool carrier, flushing of the working area, and external flushing of clamping devices.

Lifting pump in the chip conveyor with level control.

**58000159 – Coolant System with Compact Belt Filter**

Equipped with filter fleece as a filter medium.

**Filter capacity:** 200 l/min

**Coolant tank volume:** 1,400 liters

**Coolant pump pressure:** 4–6 bar

**Maximum flow rate:** 200 l/min

Includes level monitoring, machine connection, sensors, and control unit.

**58000204 – Rinsing Gun with Magnetic Shut-Off Valve**

For flushing tools and clamping devices in the working area of the machine.

**58001292 – High-Pressure Pump**

**Maximum pressure:** 25 bar

**58001325 – Immersion-Type Recooler**

Designed for installation in the tank of the coolant system.

Constructed as an air cooler for an ambient temperature of up to 31°C.

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**58800253 – Chip Disposal System****58000670 – Hinged Belt Chip Conveyor**

For transporting various types of long-cutting metal chips. Equipped with electric run monitoring.

Operated via the machine control panel.

**Discharge height:** approx. 1,200 mm

**Transport direction:** according to installation plan

**58001696 – Note on Chip Disposal:**

Chip carts, shredders, and pump stations, or their interfaces—as well as interfaces to central or underfloor chip conveyors—are not included in the scope of supply by WEISSER.

**58000083 – Oil Pan Drawing**

Included in WEISSER's scope of delivery. The oil pan itself is provided by the customer.

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**58800254 – Exhaust System Assembly**

**58000028 – Capture Unit for Fume / Dust Extraction**

Includes internal piping and the capture element or internal extraction duct.

**Extraction Port Diameter:** 200 mm

**Required Extraction Capacity:** 2,000 m<sup>3</sup>/h

**Note:** The fume / dust extraction system is to be provided by the customer or offered as an additional option.