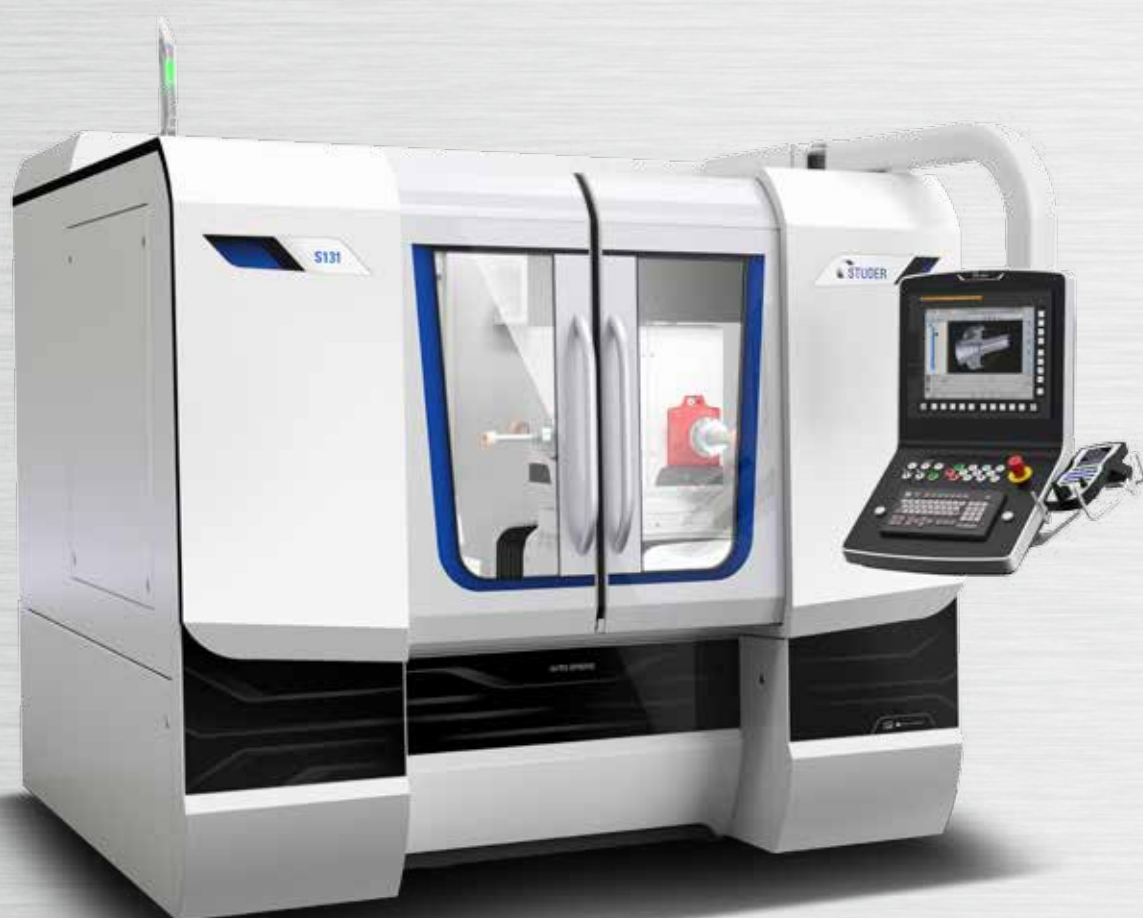


# S131

The universal machine for diverse applications in internal grinding



## Key data

The S131 is a CNC universal internal cylindrical grinding machine for medium-sized workpieces in individual, small batch and high volume production. It has a swing diameter of 250 mm above the workpiece table.

# Internal grinding to perfection for medium-sized workpieces

The S131 universal internal cylindrical grinding machine is the perfect complement to the S141, already successfully launched on the market. With a maximum grinding length of 175 mm internally and 125 mm externally and a swing diameter above the table of 250 mm it is smaller and more compact

than the S141. However, it features the same sophisticated technology such as e.g. direct drive, automatically swiveling workpiece table and two swivel-in dressing units. Great attention has been paid to ergonomics in the development of the S131.

## Control system and operation

The S131 is equipped with a 31i-B series Fanuc control with integrated PC. The 15" touch screen facilitates intuitive operation and programming of the machine. All controls are clearly and ergonomically arranged. Two different operating systems are available, **StuderWIN** and **StuderSIM**. Both operating systems are suitable for a wide variety of internal grinding applications and enable reliable programming of all basic cycles for grinding, dressing and process-supporting measurement.

- Ergonomically arranged controls
- Latest software technology



## Granitan® S103 / StuderGuide®

The excellent dampening behavior of the machine base ensures outstanding surface quality of the ground workpieces. Temporary temperature fluctuations are extensively compensated by the favorable thermal behavior of Granitan®. The StuderGuide® guide system for the longitudinal and cross slides is finished with a wear-resistant Granitan® S200 surfacing material and offers the highest possible accuracy through the entire speed range with high load capacity and dampening levels. The StuderGuide® guide system extends the advantages of hydrostatic systems and guideways with patented surface structure. A huge advantage of StuderGuide® over hydrostatic guideways is the damping component in the movement direction. The slides are powered by linear motors with direct measuring systems.

- High geometrical traverse precision

## Grinding spindle turret

The spindle turret with integrated swivel axis enables the use of up to four grinding spindles (including a maximum of two external grinding spindles) and a universally usable measuring probe. The swivel axis has a direct drive which provides for very quick and precise positioning. The high-resolution direct measuring system guarantees a positioning range of <math><1''</math>. This allows complete machining of workpieces in the same clamping – with minimal auxiliary times and highest precision.

- Large selection of grinding spindles
- Grinding mandrel length up to 190 mm



## Workpiece table

The workhead is adjustably mounted on a swiveling table. The automatic swivel axis has a swiveling range of  $-10^\circ$  to  $+20^\circ$ . The automatic swiveling action allows axis-parallel grinding of cylinders and various high-precision tapers in a single clamping. The machine concept allows optimal accessibility for the operator, whether for workpiece changeover, dressing or grinding wheel change.

- Workhead adjustable for long workpieces
- Swiveling table for axis-parallel grinding of tapers
- Good ergonomics

## Dressing technology

Appropriately tailored dressing options are available for specific grinding operations. Rotating and fixed dressing tools can be mounted on two pivoting dressing units.

- Configurable to customer requirements
- Rotating or stationary dressing can be used



# Technical Data

## Main dimensions

Swing diameter above table	250 mm (9.8")
Length of parts (incl. chuck)	max. 300 mm (11.8")
Internal grinding length	max. 175 mm (6.9")
External grinding length	max. 125 mm (4.9")

## Transverse axis X

Max. travel	350 mm (13.8")
Speed	0.001 - 20 000 mm/min (0.000,04-787 ipm)
Resolution	0.00001 mm (0.000,000,4")

## Longitudinal axis Z

Max. travel	400 mm (15.7")
Speed	0.001 - 20 000 mm/min (0.000,04-787 ipm)
Resolution	0.00001 mm (0.000,000,4")

## Grinding spindle turret

Spindle set-up	Revolver
Max. number of spindles	4
Swiveling range	-50 to +280 deg
Repetition accuracy	< 1"
Swiveling time for 180 deg	< 3 s
Resolution	0.00005 deg

### Internal grinding

Spindle diameters	dia. 100/120 mm (3.9"/4.7")
Speeds	24 000 - 120 000 rpm
Grinding mandrel length (swiveling on the turret)	max. 190 mm (7.5")

### External grinding

Peripheral speed	50 m/s (9840 sfpm)
Fitting taper	HSK-C50
Grinding wheel	dia. 250/50 x 20 mm (10"/2" x 0.8")

### Options

Measuring probe
Manual balancing

## Workhead

Speed range	1-1200 rpm
Spindle head according to DIN/ISO 702-1	A4 / MK5
Bar capacity (spindle bore)	35.5 mm (1.4")
Driving power	1.6 kW (2.2 hp)
Load for live spindle grinding	300 Nm (224 ft lbs)

### C-axis for form grinding

- High-precision, direct measuring system	0.0001 deg
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## Control system

Fanuc 31i -B with integrated PC
15" touch screen

## Connected loads

Total connected load	30 kVA
Air pressure	5.5 bar
Extraction capacity for cooling lubricant mist	1 200 - 1 800 m <sup>3</sup> /h

## Dimensions

Machine dimensions (without operating panel)	2 270 x 2 220 mm (89.4" x 86.6")
Total weight	5 200 kg (11440 lbs)



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