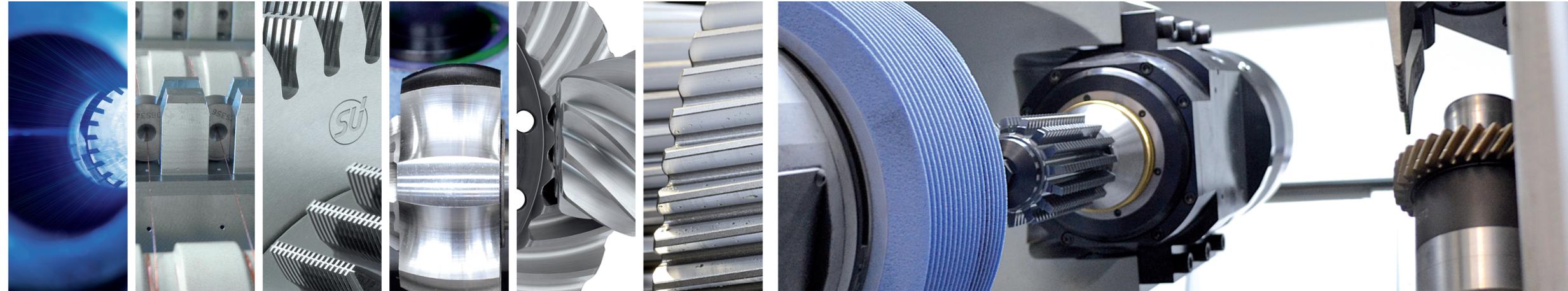
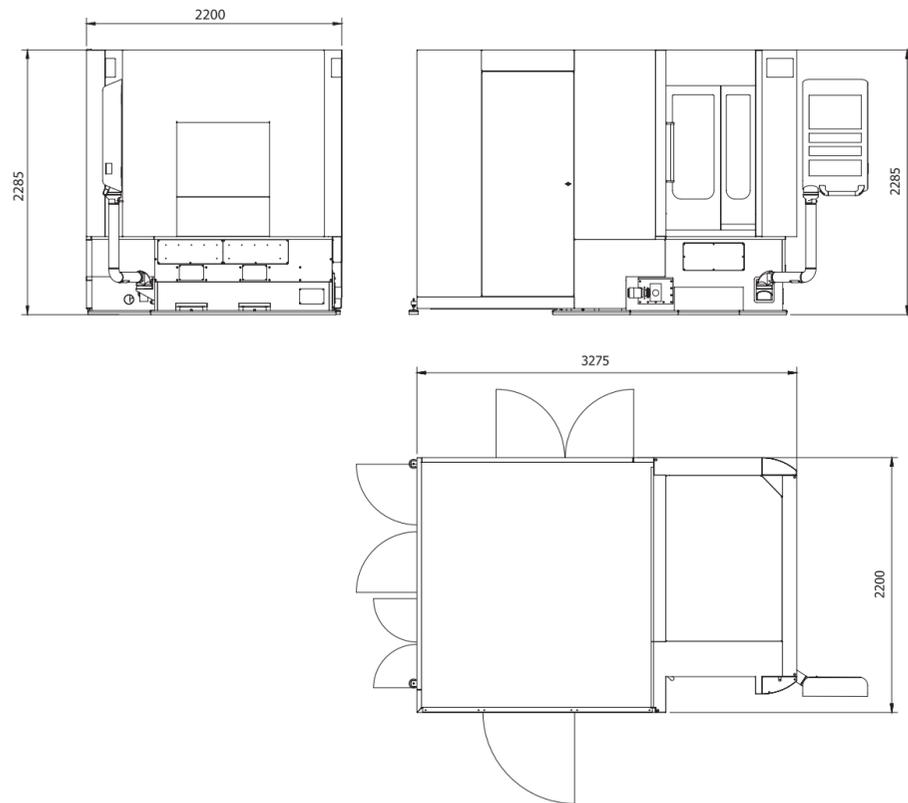


Technical data

Workpiece diameter, max.	mm	160
Module range	m <sub>n</sub>	1.0 - 3.0
Workpiece length, max.	mm	300
Face width, max.	mm	180
Helix angle degree		+/- 45°
Grinding wheel dia.	mm	250 max 210 min
Grinding wheel width	mm	100
Grinding speed, max.	m/s	80
Dressing tool dia.	mm	123
Machine dimensions L x W x H	mm	3,275 x 2,200 x 2,285
Controls Siemens		Sinumerik 840 D sl



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## Discover the new SG 160 SKYGRIND: a ground-breaking concept for the dry grinding of gears!

### The challenge

It is known that when grinding most of the heat is transferred into the workpiece. Reducing friction, discharging the heat and evacuating the chips are the primary technological tasks for the oil-based lubricant. However, the equipment dedicated to the oil treatment (tanks, high-pressure pumps, filtration unit, etc.) absorb 75% of the total energy consumed by a grinding machine, require a massive amount of space and significantly contribute to the costs of investment and maintenance of grinding machines.



### Our solution

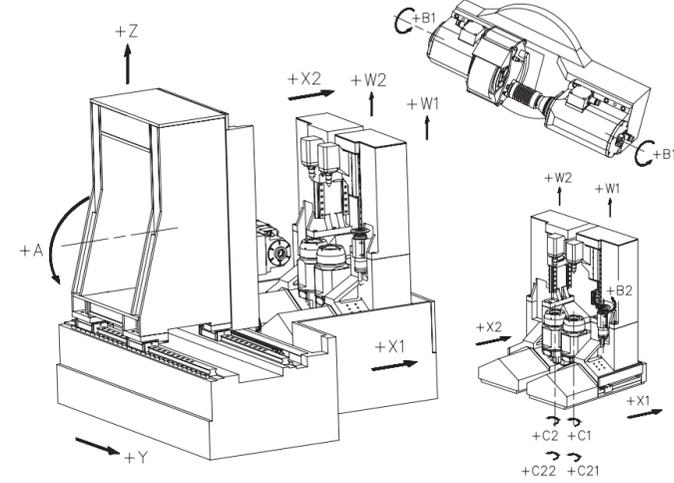
The SG 160 removes most of the stock allowance with the first pass using a hobbing tool, which has the advantage of not heating the workpiece excessively. Subsequently, with the second finishing pass, a grinding wheel removes the remaining stock without causing problems of overheating the workpiece, therefore resulting in a completely dry process.

### Your advantage

Moreover, its innovative structure with two spindles actuated by linear motors and the use of more channels simultaneously ensure a time of chip-to-chip of less than 2 seconds. The final result is an amazingly productive machine, even faster than traditional dual table grinding

machines, characterized by a very small footprint and a lower cost of investment for auxiliary equipment. More importantly, by totally eliminating the need for cutting oils, the machine is extremely environmental friendly, both towards ecosystems and towards our most valuable resource: the health of working people.

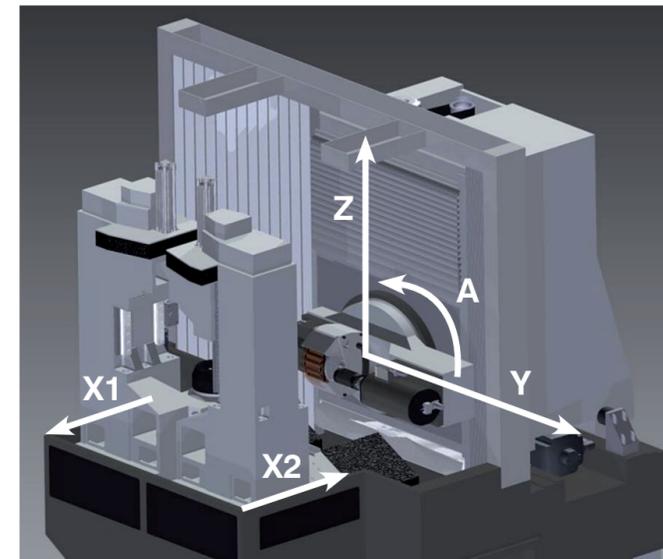
### SG 160 axis layout



- Y Tangential movement axis
- Z Axial movement axis
- X1 Radial movement axis
- X2 Radial movement axis
- A Head tool holder tilt axis
- B1 Spindle grinding wheel tool holder rotation axis
- B11 Spindle skiving hobbing tool holder rotation axis (dry version)
- C1 1 workpiece spindle rotation axis
- C2 2 workpiece spindle rotation axis
- W1 1 tailstock movement
- W2 2 tailstock movement
- C21 1 rotary carter
- C22 2 rotary carter

The SG 160 splits the X-axis of traditional machines into two linear slides (X1, X2), each of which carries one workpiece spindle. In this way both workspindles are under full position control any time.

Being driven by high dynamic 30 m/s linear motors, changing spindles including simultaneous repositioning of the tools with the Y-Z-A axes.



### Ultra fast part change

X1  
Retract Work spindle slide

X2  
Infeed Work spindle slide

Y, Z, A  
Change tool positions from grinding to hobbing

All done simultaneously in less than 2 seconds!

### Machine highlights

Based on a very rigid and unique machine architecture, the SG 160 Sky Grind is the first dry grinding machine for high productivity industries.

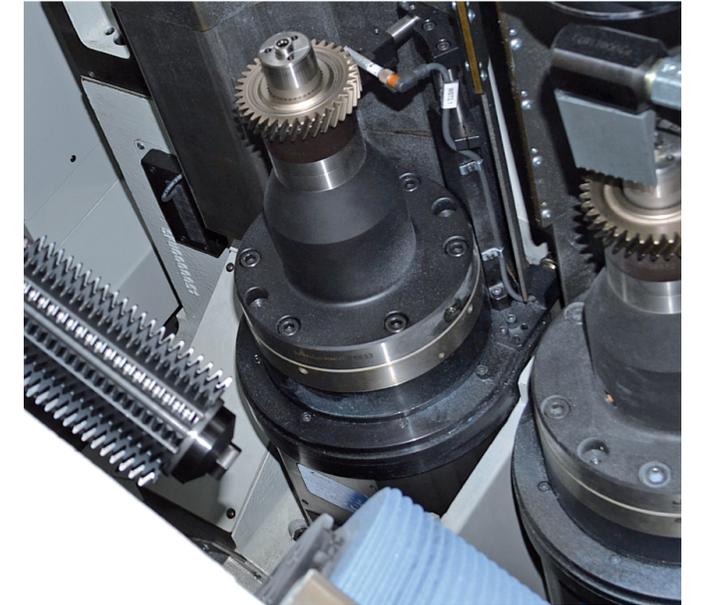
+ Chip-to-chip time less than 2 sec.

+ Innovative and patent-pending machine architecture

+ Dual tool spindles: one for skive-hobbing, one for generating grinding

+ New virtual Y-axis configuration for high dynamic stiffness

+ High thermal and mechanical stability



### Significant reduction in:

- + cost of consumables
- + total investment
- + machine footprint

### Significant improvement of:

- + work health
- + environmental impact

The new SG 160 ensures cycle times for the finishing of gears that are perfectly in line with the automotive industry, at a lower cost compared to traditional manufacturing solutions.

### Gear Production is finally turning in "Green" in 2015

#### State of the art



#### Now it's possible!

