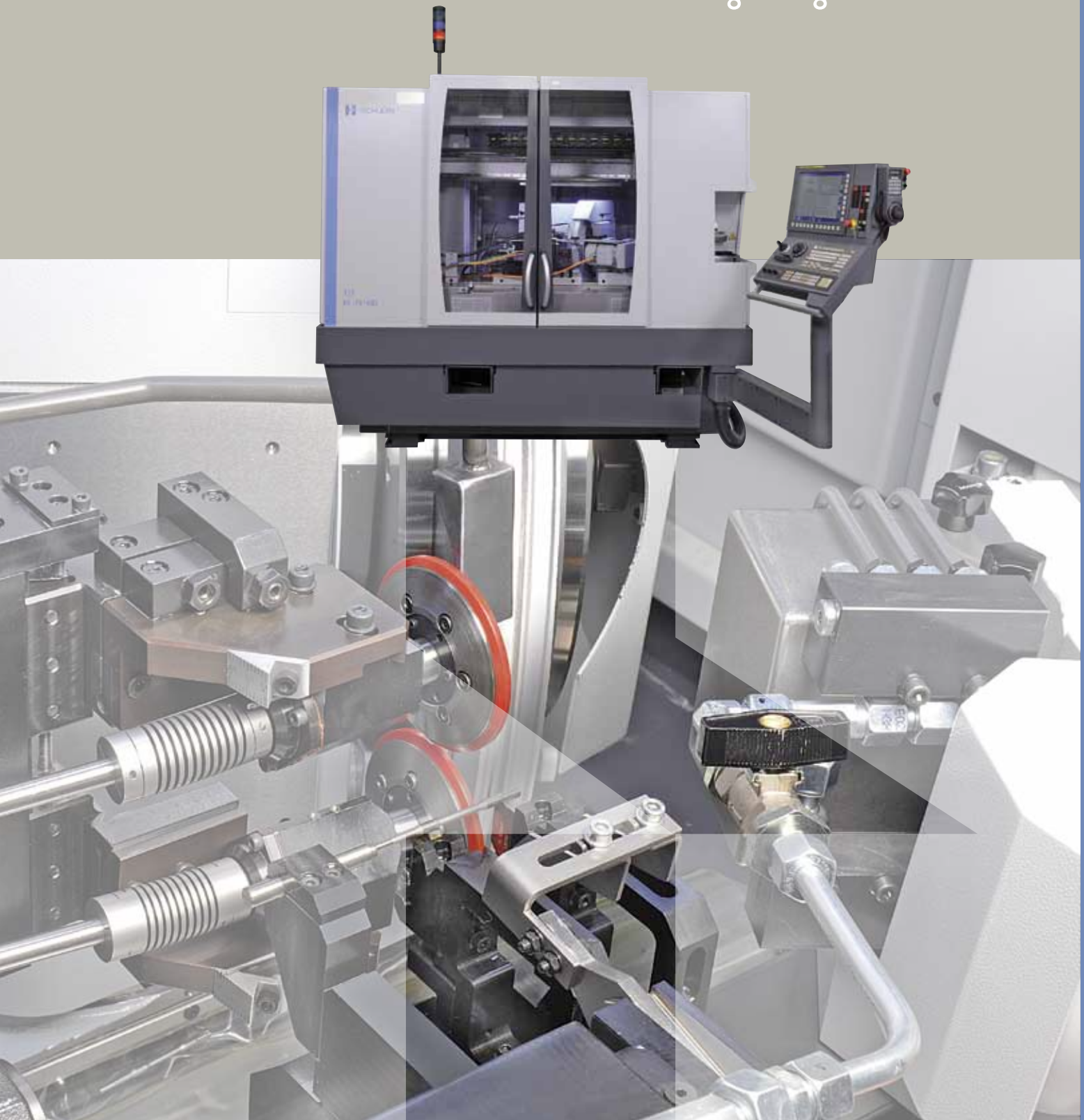




# TSCHUDIN T25

The efficient production grinding machine



[www.kellenberger.com](http://www.kellenberger.com)

 **KELLENBERGER**

## The efficient production grinding machine

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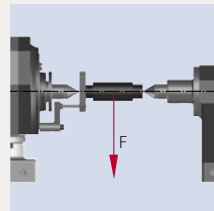
### Workhead

- n 1-1000 min-1
- Fixed center / rotating spindle



### Workhead with direct drive

- n 1-1000 min-1
- C-axis (option)



### Load with chucked work

- 100 Nm

### Load between centers

- 100 kg



### Spindle nose

- Size 5 ISO 702-1
- Morse taper 5



### Universal driving system

- Highest quality standard
- Quick change-over times



## Perfection at a glance

### CNC control system Fanuc 31i

- The latest generation control system with Windows embedded
- User guided ISO programming with expanded functionality
- Display of process data with various display variations for optimum monitoring of production
- KEL-REMOTE (option) for customer support by remote diagnosis

### Table / slide

- Low-friction X-guide for the best infeed precision
- Low-wear Z-guide
- Circulation lubrication
- Glass measuring devices on X and Z axes
- High dynamics

### Wheelhead

- Various types of wheelhead
- Configurable for every customer application

## Efficient

- Production grinding machine to satisfy the strictest demands on **quality** and **cycle times**
- High unit volumes in smallest of space
- Process-oriented solutions, thanks to modular system
- Rigid machine concept with corresponding driving systems

## Costs

- Cost-optimized CNC production grinding machine
- Standardized and integrated automation solutions
- Energy efficient
- High availability

TSCHUDIN T 25

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### Tailstock

- Morse taper 4
- Retraction of sleeve 48 mm



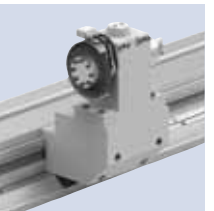
### Micro-adjustment of tailstock

- Adjustment range +/- 60 µm
- Automatic micro-adjustment (option)



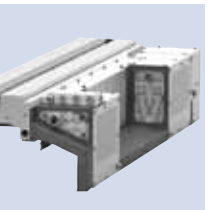
### Dressing device interface

- Neutral dressing position
- Rigid diamonds
- Rotating dressing discs and profile rolls



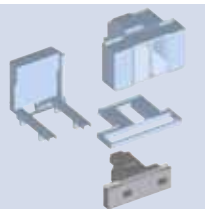
### Peripheral connections for

- In-process control units
- Steady-rests
- Deburring systems
- Various coolant supply connections



### Design

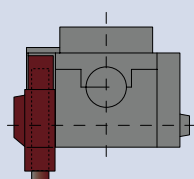
- Separation of base and infrastructure
- No external influences on machining processes
- Three-point set-up





## Wheelheads and accessories

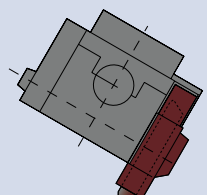
4



### R-wheelhead

for external cylindrical grinding

- V-constant



### RS-wheelhead

for angular infeed grinding

- V-constant

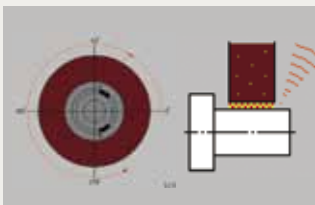


### Water-cooled precision-balanced drive motors

- Use of spindle bearings

### Hydrodynamic multi-surface spindle bearings

- High-accuracy spindle bearings, pre-stressed

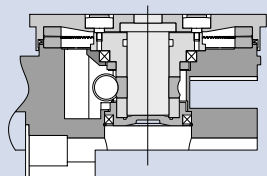


### KEL-BALANCE

- Semi or fully automatic balancing

### KEL-TOUCH

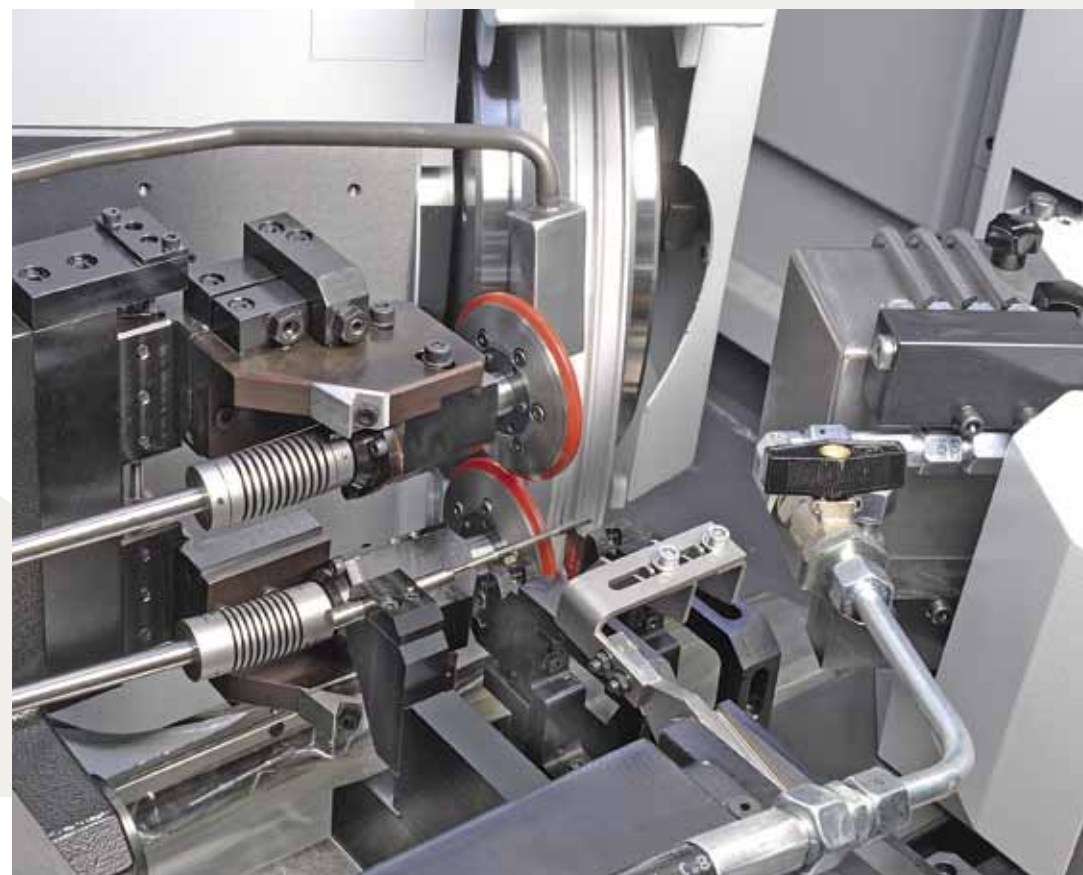
- Process optimization and monitoring



### Indexing (option)

for quick retooling

- Manual indexing 2.5°
- Automatic indexing 1°



## Applications

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### Prismatic holder grinding

- Grinding of rotation-symmetric components in PCD prisms
- Driven by 2 plastic rollers



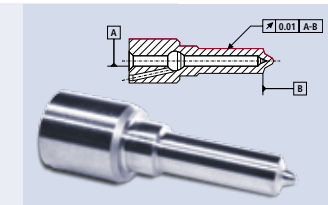
### Match grinding

- Producing a defined amount of play by matching two bodies
- Diameter and length



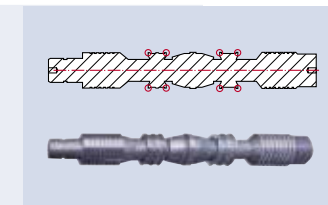
### Nozzle body grinding

- Grinding of the exterior contour of a nozzle body in one single setup operation



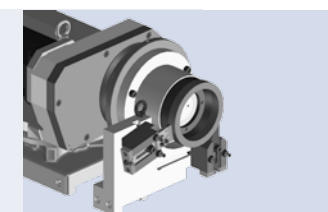
### Control valve grinding

- Highly accurate, sharp-edged and burr-free guide edges



### Shoe grinding

- Production of ring-shaped mass-produced parts
- Self-centering system



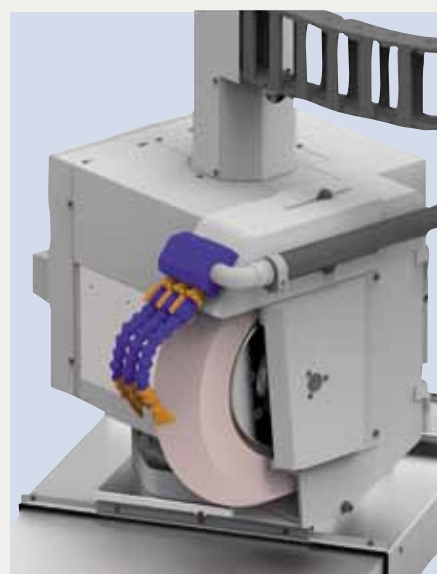
### Indexing (option)

The Hirth coupling with indexing ensures excellent positioning and repetition accuracy.

- Retooling of various part families
- More flexibility for production machines
- Flexible angles  
R 0° to 30°  
RS 0° to -30°

### RS/R-wheelhead

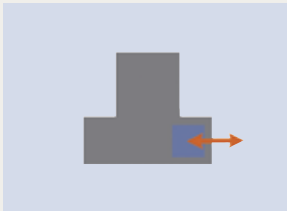
- The wheelhead for external cylindrical and angular infeed grinding
- Thermal stability thanks to optimized spindle bearings and water-cooled motor
- Motor output 10 kW
- Grinding wheel dimensions  
Ø 500 x 80 x 203 mm
- Peripheral grinding wheel speed 45m/s
- Optional 63 m/s
- Fixed angle  
R 0°  
RS -30°



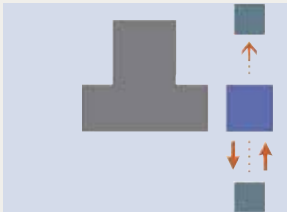
## In the area of machine systems Kellenberger offers

- More than 50 years experience in production grinding
- A very high level of expertise in production grinding
- Support for optimum design of the grinding part during the development phase
- Innovative solutions for new processing challenges
- Willingness to take on new process developments
- Intensive counseling and support during the proposal phase
- Good relations with competent suppliers

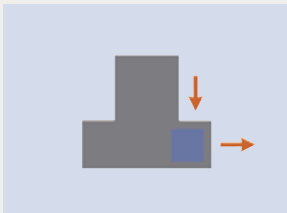




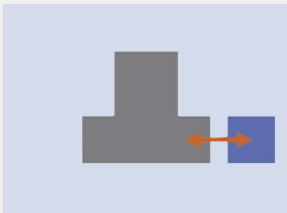
- KEL-PORTAL**
- Keyhole solution
  - V-grippers, H-grippers
  - V-block
  - Drawer (option)



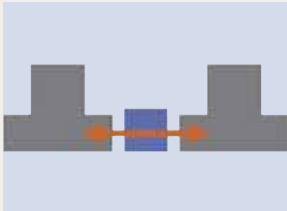
- KEL-PORTAL**
- Fixed cycle feed
  - V-grippers, H-grippers
  - SPC/NIO
  - Pallet solution (option)



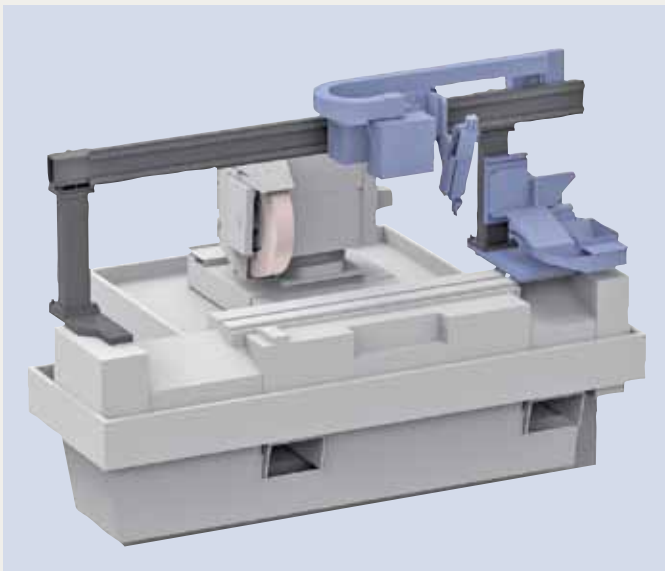
- KEL-PORTAL**
- Prismatic holder grinding
  - Double gripper
  - Plate conveyor
  - SPC/NIO



- Autonomous handling**
- Customer-specific automation
  - Standardized loader interface

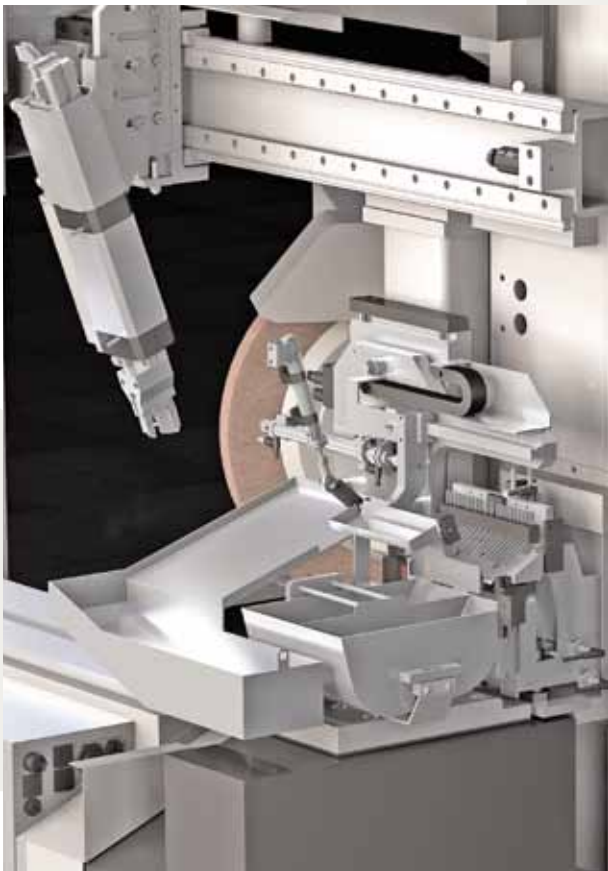


- Process chains**
- Multiple processes with central handling system
  - Standardized loader interface



**Handling**

- Diverse handling variations with different options available
- Handling is integrated in the machine design in a modular and space-saving way
- Greatest possible autonomy
- Stiff support integrated in the machine concept
- Very quick change-over times
- Shortest part change time >1.5 Sec. (application-dependent)



- Monitor**
- 15" TFT
  - Softkeys
  - Expanded display of process data



- KEL-PROG**
- Operator-controlled ISO programming
  - Cycle selection via softkeys
  - Form editor



- KEL-TOOL**
- Tool administration
  - Local and global dressing devices
  - Standard wheel definition with multiple reference points



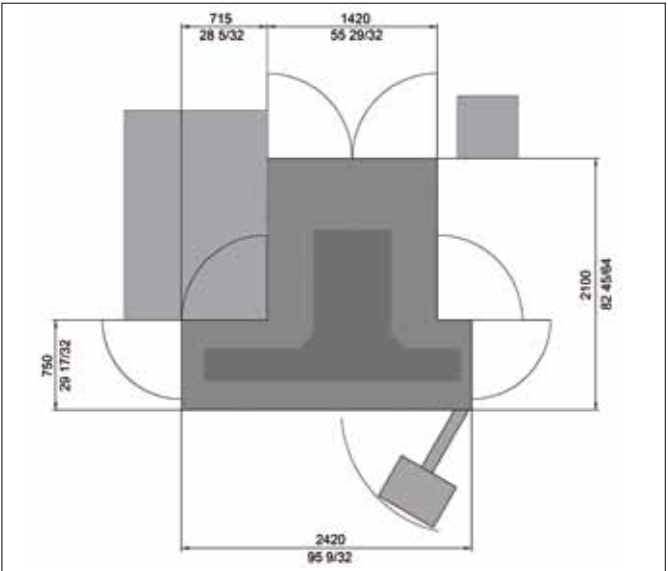
- Keypad**
- Handwheel with confirmation key
  - Travel stick
  - Mobile handpanel as option,
  - USB, flash card, Network connection



- Movomatic / Marposs**
- Control unit ESZ 400 / P7 ME
  - In-process
  - Pre-process
  - Post-process



**Space assignment**



**Technical data**

|                          |       |                      |
|--------------------------|-------|----------------------|
| Distance between centers | mm    | 400/600              |
| Z-axis travel            | mm    | 500/750              |
| Rapid traverse speed     | m/min | 20                   |
| Resolution               | µm    | 0.1                  |
| X-axis travel            | mm    | 365                  |
| Rapid traverse speed     | m/min | 10                   |
| Resolution               | µm    | 0.1                  |
| Grinding wheel           | mm    | 500x80 (100)         |
| Rotational speed         |       |                      |
| Roller bearings          | m/s   | 45 (63)              |
| Drive motor              | kW    | 10                   |
| Space required, machine  |       | ca. 5 m <sup>2</sup> |





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