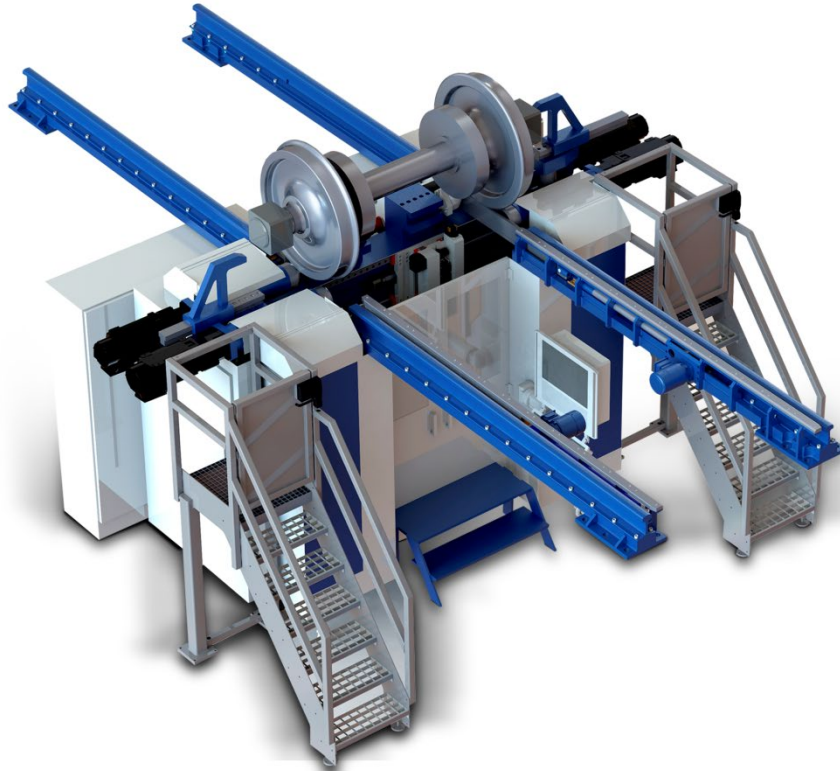


# UGE 180 N, 2 UGE 180 N

## UNDERFLOOR WHEEL LATHE



### BASIC SPECIFICATIONS

Range of wheel tread diameters:	350 to 1,270 mm
Maximum axle load:	18 × 10 kN
Available multi track gauge version	

### PURPOSE

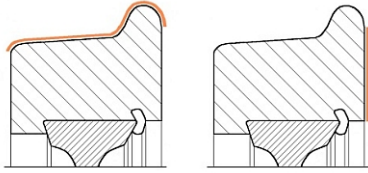
The **UGE 180 N** Underfloor Wheel Lathe is a CNC double-saddle special-purpose lathe, designed for the machining of wheelsets used in rail vehicles. Its main application is reconditioning of wheel profiles of light rail transit system vehicles (trams, metro, commuter) and facing of brake discs without dismantling of wheelsets from the vehicles. This significantly shortens the shutdown time of vehicles and thus increases the efficiency of their exploitation. Reprofileing of single wheelsets or bogies dismantled from vehicles is also possible.

The machine tool is also available in the tandem configuration (2 UGE 180 N), which is capable of machining two wheelsets of the same bogie.

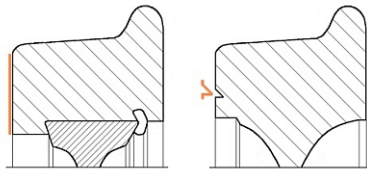
The machine is installed on a pit-type foundation (below the traffic rails), which ensures its operation in a roll-through system.

The UGE 180 N Underfloor Wheel Lathe is capable of performing the following operations:-

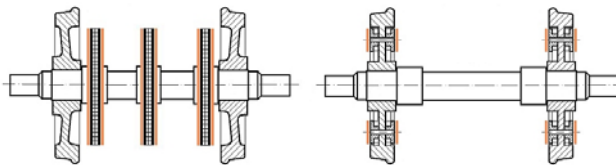
- Turning of wheel profile according to technological program.
- Wheel rim inner facing.



- Wheel rim outer facing.
- Turning of limit machining groove.



- Axle-mounted brake disc facing.
- Wheel-mounted brake disc facing.



## MAIN FEATURES

- Compact and extremely rigid design based on a single-piece high-grade grey iron casting, which guarantees both the machine tool high geometrical stability and the most efficient vibration damping.
- Unique system of wheelset lifting and driving realized by four independent drives ensuring flexible pressure of rollers and constant contact between driving rollers and wheels.
- Automatic and wheel profile profile wear measurement using touch-type measuring heads (laser-based measurement as option).
- Productive machining of narrowed (economical) profiles.
- Versatile equipment and wide programming capabilities facilitate easy machining of unusual wheel profiles.

 **STANDARD EXECUTION**

- Machine tool main structure made as single-piece iron casting.
- Machine tool rails – fixed and movable.
- Four (4) flexible wheelset lifting and driving units.
- Holding down devices with claws to attach to outboard axle boxes.
- Wheelset axial locators.
- Saddles and quick change tool holders with cassettes and cutting plates for profile cutting.
- Touch-type wheel wear measuring heads.
- Four (4) motors of continuously variable rotation rates with digital controllers for main drive.
- Four (4) motors of continuously variable rotation rates with digital controllers for feed drives.
- Latest SIEMENS SINUMERIK 840D sl computer numerical control system with PLC.
- Anti-slip system for friction roller drive.
- Main control panel and auxiliary side control panels.
- Fault diagnostics with text messages in user's language and Help function.
- Program for machining of one type of basic or economical wheel profile.
- Profile gauge and master gauge for one type of basic wheel profile.
- HMI screen pages – operator guidance during machining process.
- Electrical equipment and control cabinet.
- Hydraulic power system.
- Lubrication system.
- Chip covers, chip chute and chip conveyor.
- Lighting of working zone.
- Spanners for machine tool operation and installation.
- Equipment for setting and fixing the machine tool on foundation.
- Calibration wheelset for machine tool measuring system.
- Operation and Maintenance Manuals.
- Stack light and buzzer indicating machine tool working condition.
- CE mark and EC declaration of conformity.

 **ADDITIONAL EQUIPMENT**

- Centres.
- Supports for wheelset inboard axle boxes / portal.
- Cutters for brake disc facing.
- Hydraulic lifting jacks for machining of coupled wheelsets.
- Touch screen for main control panel.
- Additional programs for machining of basic and economical profiles.
- Wheelset database.
- Laser measuring heads for scanning of wheel profile.
- Wheelsets diagnostic stand.
- Equipment for tool retraction in case of power failure.
- Equipment for monitoring of profile cutters wear condition.
- Equipment for calibration of cutting tools.
- Mechanical chip crusher and chip bin.
- Dust and fume extraction system.
- CCTV system for monitoring of machining process.
- Rail-road shunting vehicle / winching system for positioning of rail vehicles on machine tool.
- Other upon request.


**TECHNICAL SPECIFICATIONS**

MODEL		UGE 180 N	2 UGE 180 N
<b>Wheelset geometry</b>			
Track gauge <sup>(1)</sup>	mm	To be agreed upon	
Max. wheel tread diameter before machining	mm	1,270	
Min. wheel tread diameter after machining <sup>(2)</sup>	mm	350	
Max. width of wheel rim	mm	145	
Max. axle load	× 10 kN	18	
<b>Machine tool parameters</b>			
Min. wheel base	mm	–	1,800
Max. chip cross-section <sup>(3)</sup>	mm <sup>2</sup>	2 × 6	2 × 2 × 6
Continuously variable cutting speed of main drive for wheel profile machining	m/min	20 to 90	
Max. peripheral speed of drive rollers:			
Profile machining	m/min	165	
Brake disc facing	m/min	265	
Power of main drive motors (S1 / S6-40%)	kW	4 × 9 / 13	2 × 4 × 9 / 13
Total power installed (standard execution)	kW	65	135
<b>Machine tool overall dimensions and weight</b>			
Machine tool overall dimensions:			
Length <sup>(4)</sup>	mm	4,530	
Width	mm	2,300	4,800 <sup>(5)</sup>
Height	mm	2,000 <sup>(6)</sup> / 95 <sup>(7)</sup>	
Machine tool weight <sup>(4)</sup>	× 10 kN	18	42
<b>Machining accuracies</b>			
Difference in diameters between two wheels of the same wheelset <sup>(8)</sup>	mm	≤0.15	
Difference in diameters of four wheels in the same bogie <sup>(8)</sup>	mm	≤0.30	
Radial run-out of wheel tread <sup>(8)</sup>	mm	≤0.10	
Axial run-out of wheel inner faces <sup>(8)</sup>	mm	≤0.10	
Accuracy of profile machining <sup>(8), (9)</sup>	mm	≤0.15	
Roughness of wheel profile surface after machining, Ra	µm	≤16	
<p>(1) Multi track gauge version available.</p> <p>(2) Additional equipment as rail brakes, sanders, etc. not considered.</p> <p>(3) At axle load ≥8 × 10 kN and wheelset holding down; wheel material: steel of hardness ≤270 HB and tensile strength Rm ≤950 N/mm<sup>2</sup>.</p> <p>(4) For track gauge of 1,435 mm and standard execution.</p> <p>(5) For wheel base 3,000 mm.</p> <p>(6) Height measured from bottom of machine tool bed to floor level.</p> <p>(7) Height measured from floor level to top of holding down device at its max. elevation.</p> <p>(8) The tolerances concern the following conditions: machining process of steel solid wheels in two cutting passes and with intermediate measurement of wheel tread diameter; the cutting tools in good condition; the wheelsets equipped with outboard axle boxes of bearing slackness within tolerances by manufacturer.</p> <p>(9) Measured with machine tool measuring system or clearance between profile gauge and wheel profile surface.</p>			

Some of the above data can be altered to meet the customer requirements.

Above data are subject to change due to product development, without prior notice.