

UGE 300 N, UGE 400 N UNDERFLOOR WHEEL LATHES



i BASIC SPECIFICATIONS

Range of wheel tread diameters:	540 to 1,500 mm
Maximum axle load (UGE 300 N / UGE 400 N):	30 / 40 × 10 kN

→ PURPOSE

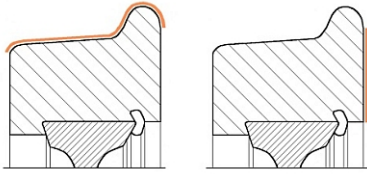
The **UGE 300 N / UGE 400 N** Underfloor Wheel Lathes are the CNC double-saddle special-purpose lathes, designed for the reprofiling of wheels used in rail vehicles. Their main application is reconditioning of wheel profiles of heavy rail vehicles (locomotives) without dismantling of wheelsets from the vehicles. This significantly shortens the shutdown time of vehicles and thus increases the efficiency of their exploitation. Reprofiling of single wheelsets or bogies dismantled from vehicles is also possible.

The machine tools are also available in the tandem configuration (2 UGE 300/400 N), which is capable of machining two wheelsets of the same bogie.

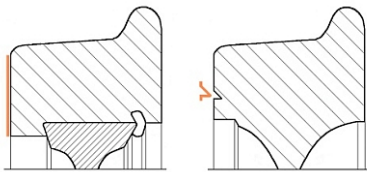
The machines are installed on a pit-type foundation (below the traffic rails), which ensures their operation in a roll-through system.

The UGE 300 N / UGE 400 N Underfloor Wheel Lathes are capable of performing the following operations:-

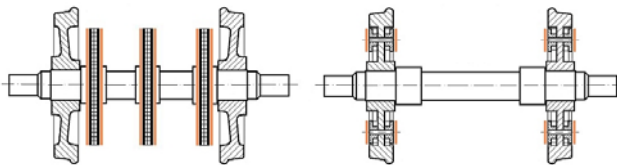
- Turning of wheel profile according to technological program.
- Wheel rim inner facing.



- 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 reliable 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 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.

A blue circular icon containing a white square with a smaller square inside, representing a document or equipment.

ADDITIONAL EQUIPMENT

- Centres.
- Supports for wheelset inboard axle boxes / portal.
- Device and 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 300 N	UGE 400 N	2 UGE 300 N	2 UGE 400 N
Wheelset geometry					
Track gauge ⁽¹⁾	mm	To be agreed upon			
Max. wheel tread diameter before machining	mm	1,500			
Min. wheel tread diameter after machining ⁽²⁾	mm	540			
Max. width of wheel rim	mm	150			
Max. axle load	× 10 kN	30	40	30	40
Machine tool parameters					
Min. wheel base	mm	—		1,900	
Max. chip cross-section ⁽³⁾	mm ²	2 × 10		2 × 2 × 10	
Continuously variable cutting speed of main drive for wheel profile machining	m/min	20 to 80		20 to 80	
Max. peripheral speed of drive rollers:					
Profile machining	m/min	130		130	
Brake disc facing	m/min	300		300	
Power of main drive motors	kW	4 × 15		2 × 4 × 15	
Total power installed (standard execution)	kW	95		195	
Machine tool overall dimensions and weight					
Machine tool overall dimensions:					
Length ⁽⁴⁾	mm	5,570			
Width	mm	1,960		4,400 ⁽⁵⁾	
Height	mm	2,150 ⁽⁶⁾ / 900 ⁽⁷⁾			
Machine tool weight ⁽⁴⁾	× 10 kN	26		60	
Machining accuracies					
Difference in diameters between two wheels of the same wheelset ⁽⁸⁾	mm	≤0.15			
Difference in diameters of four wheels in the same bogie ⁽⁸⁾	mm	≤0.30			
Radial run-out of wheel tread ⁽⁸⁾	mm	≤0.10			
Axial run-out of wheel inner faces ⁽⁸⁾	mm	≤0.10			
Accuracy of profile machining ^{(8), (9)}	mm	≤0.15			
Roughness of wheel profile surface after machining, Ra	µm	≤16			

(1) Multi track gauge version available.

(2) Additional equipment as rail brakes, sanders, etc. not considered.

(3) At axle load ≥8 × 10 kN and wheelset holding down; wheel material: steel of hardness ≤270 HB and tensile strength Rm ≤950 N/mm².

(4) For track gauge of 1,435 mm and standard execution.

(5) For wheel base 3,000 mm.

(6) Height measured from bottom of machine tool bed to floor level.

(7) Height measured from floor level to top of holding down device at its max. elevation.

(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.

(9) Measured with machine tool measuring system or clearance between profile gauge and wheel profile surface.

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.