UGE 300 N, UGE 400 N
2 UGE 300N, 2 UGE 400 N
UNDERFLOOR WHEEL LATHES

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

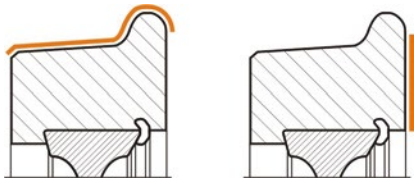
The **UGE 300 N / UGE 400 N** Underfloor Wheel Lathes are the CNC double-saddle special-purpose lathes, designed for the reprofiling of wheels used in rail vehicles. Their main application is reconditioning of wheel profiles and brake discs of heavy rail vehicles (locomotives) without dismantling of 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 N / 2 UGE 400 N**, which is capable of machining two wheelsets of the same bogie.

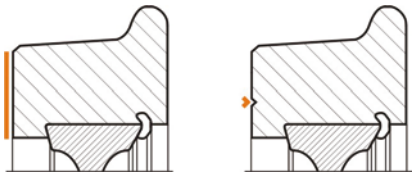
The machines are installed on a pit-type foundation (below the traffic rails), which ensures their operation in a roll-through system.

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

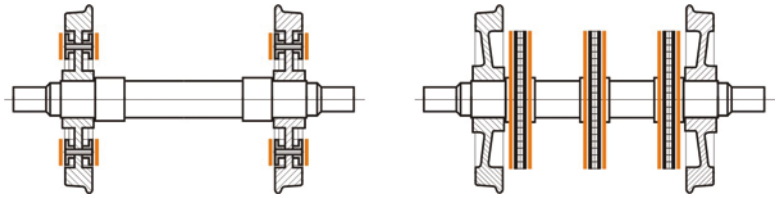
- Turning of wheel profile according to technological program
- Wheel rim inner facing



- Wheel rim outer facing
- Turning of limit machining groove



- Wheel-mounted brake disc facing
- Axle-mounted brake disc facing (fixed between the wheels)



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;
- 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
- Wheelset clamping and centering system:
  - Holding down devices with claws to attach to outer axle boxes
  - Support devices for wheelset outer axle boxes
  - Wheelset axial locators
  - Four (4) flexible wheelset lifting and driving units
- Saddles and tool holders with cassettes and cutting plates for profile cutting
- Touch-type wheel wear measuring heads
- Four (4) motors of infinitely variable rotation rates with digital controllers for main drive
- Four (4) motors of infinitely 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
- Remote diagnostics system, 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 and lubrication system
- Stack light and buzzer indicating machine tool working condition
- 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
- CE mark and EC declaration of conformity

ADDITIONAL EQUIPMENT

- Wheelset clamping and centering system:
  - Support devices for wheelset inner axle boxes
  - Rotary centers
- 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
- Wheelsets diagnostic stand
- Equipment for tool retraction in case of power failure
- 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 Code:		UGE 300 N D-3	UGE 400 N D-4	2 UGE 300 N D-3T	2 UGE 400 N D-4T
Wheelset geometry					
Track gauge	mm	1,435 (1)			
Min. wheel tread diameter after machining	mm	540 (2)			
Max. wheel tread diameter before machining	mm	1,500			
Max. width of wheel rim	mm	150			
Max. axle load	× 10 kN	30	40	30	40
Machine tool parameters					
Min. wheel base	mm	–		1,800	
Max. chip cross-section (for each saddle)	mm^2	10 (3)		10 (3)	
Infinitely variable cutting speed of main drive for wheel profile machining	m/min	20 to 90		20 to 90	
Max. peripheral speed of drive rollers:					
• Profile machining	m/min	130		130	
• Brake disc facing	m/min	300		300	
Number of main drive motors	pcs	4		2 × 4	
Power of each main drive motor	kW	15		15	
Total power installed (standard execution)	kW	95		195	
Machine tool overall dimensions and weight					
Machine tool overall dimensions:					
• Length	mm	2,270		3,900 (5)	
• Width	mm	5,600 (4)			
• Height (measured from bottom of machine tool to floor level)	mm	1,850			
Machine tool weight	× 10 kN	24		50 (5)	
Machining accuracies					
Difference in diameters between two wheels of the same wheelset	mm	≤ 0.15 (6)			
Difference in diameters of four wheels in the same bogie	mm	≤ 0.30 (6)			
Radial run-out of wheel tread	mm	≤ 0.10 (6)			
Axial run-out of wheel inner faces	mm	≤ 0.10 (6)			
Accuracy of profile machining	mm	≤ 0.15 (6), (7)			
Roughness of wheel profile surface after machining, Ra	µm	≤ 16			
Roughness of brake disc surface after machining, Ra	µm	≤ 4,5			

(1) Another track gauge - to be agreed upon.
(2) 540 mm - with additional drive rollers.
(3) At axle load ≥ 240 kN and wheelset holding down; Wheel material - Steel: Hardness ≤ 270 HB, Tensile strength ≤ 950 N/mm^2.
(4) For track gauge of 1,435 mm and standard execution.
(5) For wheel base 1,800 mm.
(6) 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.
(7) 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.

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