WIRTGEN GROUP

Wirtgen

Surface Miner 2200 SM

Technical specification

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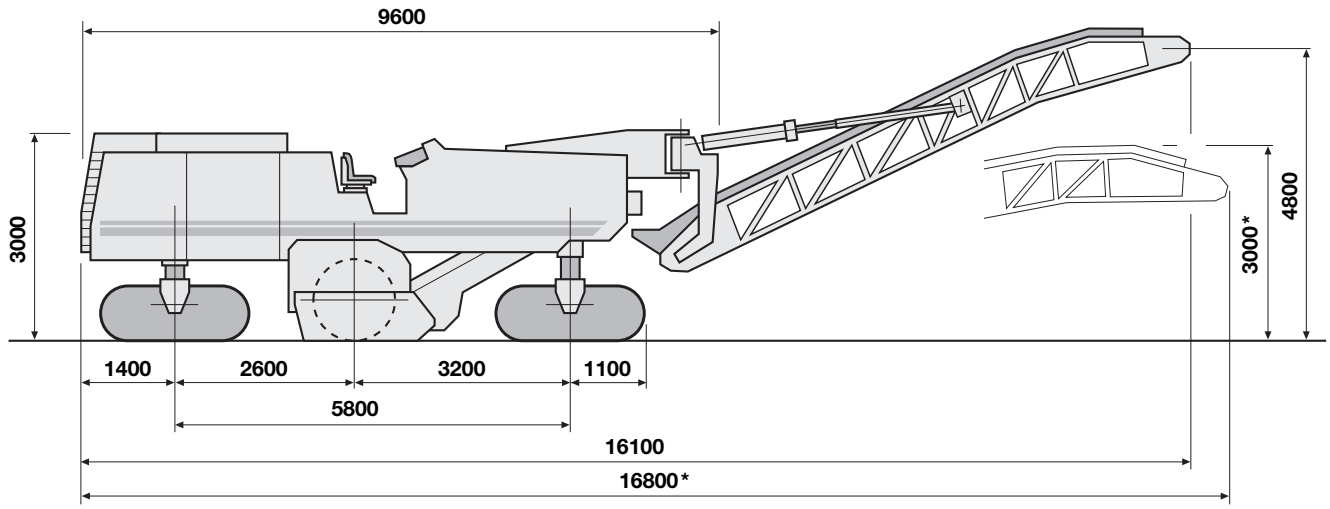
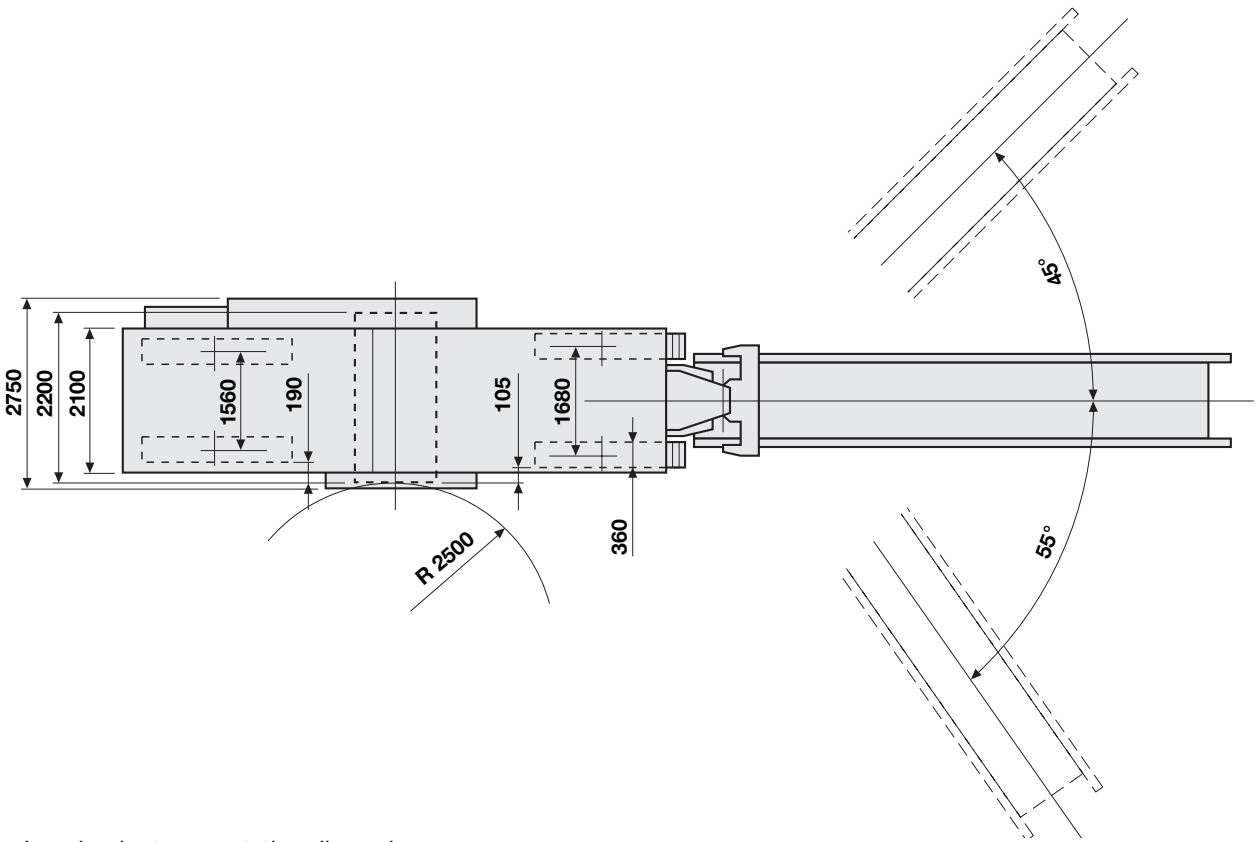
		Surface Miner 2200 SM	
Cutting width max.	mm	2,200	
Cutting depth*1	mm	0–350	
Cutting drum			
Tool spacing	mm	38	
Number of tools		76	
Drum diameter with tools	mm	1,140	
Drum inclination, max.	°	5	
Engine			
Manufacturer		Caterpillar	
Type		3412E	
Cooling		Water	
Number of cylinders		12	
Output	kW/HP/PS	596.5/800/811	
Engine speed	min^{-1}	2,100	
Displacement	cm^3	27,000	
Fuel consumption, 1/1 load	l/h	150	
Fuel consumption, 2/3 load	l/h	100	
Speed/gradeability			
Travel speed	m/min (km/h)	0 – 84 (0 – 5)	
Theoretical gradeability	%	90	
Ground clearance	mm	370	
Weights*2			
Front axle load, full tanks	daN (kg)	25,430	
Rear axle load, full tanks	daN (kg)	25,350	
Own weight	daN (kg)	44,500	
Operating weight, CE*3	daN (kg)	47,730	
Operating weight, full tanks	daN (kg)	50,780	
Tracks			
Front tracks (L x W x H)	mm	2,200 x 370 x 790	
Rear tracks (L x W x H)	mm	2,200 x 370 x 790	
Tank capacities			
Fuel tank	l	1,500	
Hydraulic fluid tank	l	450	
Water tank	l	5,000	
Electrical system	V	24	
Conveyor system			
Belt width 1st belt (loading belt)	mm	1,100	
Belt width 2nd belt (discharge belt)	mm	1,100	
Theoretical conveying capacity	m^3/h	668	
Shipping dimensions/weights*2			
Dimensions of machine (L x W x H)	mm	9,600 x 2,750 x 3,000	
Dimensions of discharge conveyor (L x W x H)	mm	8,600 x 1,600 x 1,200	
Upper part of operator's cab (L x W x H)	mm	2,600 x 2,900 x 1,500	
Weight of machine	daN (kg)	41,700	
Weight of discharge conveyor	daN (kg)	1,800	
Weight of upper part of operator's cab	daN (kg)	1,000	

*1 = The maximum cutting depth may deviate from the value indicated, due to tolerances and wear.
*2 = All weights refer to basic machine incl. operator's cab and additional weight.
*3 = Weight of machine with half-full water tank, half-full fuel tank, driver (75 kg) and tools.

Dimensions in mm





* = Low-loader transportation dimensions

Technical description

Basic design

The 2200 SM is a Surface Miner with a mechanically driven cutting drum and two-part slewing front-end discharge conveyor of variable height. The machine travels on crawler tracks.

Chassis

Robust welded construction with mounts for the individual function modules and superstructures. The tanks for diesel fuel and water are integrated into the chassis. The hydraulic fluid tank forms a separate unit. Together with an engine hood which automatically opens hydraulically and service doors which open wide on the right and left-hand sides, the optimally arranged individual components ensure easy access for maintenance and servicing.

Operator's platform

The walk-through operator's platform with access ladder on each side is located in the middle part of the machine. It is equipped with two separate control consoles which can be pivoted and vertically adjusted. Both control consoles and the right-hand driver's seat can be displaced outwards beyond the edge of the machine.
The controls are conveniently located within the operator's field of vision. The operator's platform includes a display of the Wirtgen information and diagnosis system for monitoring the operating status of the machine. The ergonomic sitting position, clear overview and elastically sprung floor of the operator's platform help to make operation of the machine simple and convenient.
The steering and feed control operate with proportional action and are controlled via joysticks.
As an option the machine can be equipped with an operator's cab.

Wirtgen information and diagnosis system and instruments

The Wirtgen information and diagnosis system WIDIS 32 provides the driver with comprehensive up-to-the-minute information on the current status of the engine and hydraulic system and generates visual and acoustic alarms when necessary. The data and messages appear on a multi-function display (LC display) on the operator's platform. Such data as operating hours, engine speed, engine temperature or battery charge, can also be viewed there.
The pressure in the hydraulic system is additionally monitored by two pressure gauges on which the momentary pressure in 12 different parts of the hydraulic system can be read off.
The two air filters and the filters in the hydraulic system are monitored electronically.

Drive unit

The machine is driven by a modern V12 engine with a power rating of 811 PS and meeting the stringent emission standards of the US Environment Protection Authority (EPA). It is equipped with an all-electronic motor management system with which the engine automatically adjusts to changing ambient conditions, such as different atmospheric pressure, temperature or humidity.
In addition, the engine also ensures maximum torque stability even with extreme engine compression, thus preventing breaks in operation.
The extremely large radiator surface ensures that the engine is efficiently cooled so that the machine can safely be operated even in high outdoor temperatures. The drive additionally includes a fan controller. The fan speed is reduced at low ambient temperatures and low loads, thus reducing the noise levels.
All service work on the engine can be carried out from the ground.

Soundproofing

Soundproofing is a standard feature and reduces the level of noise generated, thus protecting both the operating personnel and the neighbourhood from noise.

Cutting drum drive

The cutting drum is driven mechanically by the diesel engine via a shifting clutch and power belts acting on the drum gear. Due to their width, the three power belts each with five ribs ensure optimum power transmission and a long service life. The belts are automatically tensioned by a hydraulic cylinder.

Cutting drum

The cutting drum rotates against the feed. Toolholders accommodating the round-shank cutters are welded onto the body of the drum. Neatly milled edges are ensured by special edge segments. Additional ejectors ensure that the cut material is efficiently transferred to the loading belt. If the material is to remain on the ground, a flap on the scraper blade ensures that it is deposited in windrows between the crawler tracks. For these purposes a cut material guiding device is available, preventing the tracks from wearing.
The drum housing is made of wear-resistant material (Brinell-hardness HB 400).

Tool changes

The scraper blade opens hydraulically to provide access to the cutting drum for tool changes, which can be carried out in a comfortable working position. Storage areas for the toolboxes are provided.

Crawler tracks/adjustment of the machine height

The crawler tracks are suspended from the chassis via round cylinders, the height of which can be adjusted hydraulically. The height of each crawler track can be adjusted individually. The height required for the cutting depth is adjusted via the two cylinders at the front, while the rear crawler tracks form a full floating axle. The large lift ensures considerable ground clearance simplifying such difficult manoeuvers as reversing or loading and unloading the machine from a low-bed truck.

Travel drive

The Surface Miner is equipped with large crawler tracks (5 HD) lined with 2-grouser steel crawler shoes and driven by separate hydraulic motors. The traction drive motors are fed by a common variable displacement hydraulic pump. The crawlers are hydraulically tensioned.

The automatic drive makes it unnecessary to change over between cutting and driving gear. The speed can be infinitely varied from zero to the high maximum speed. A switchable hydraulic fuel distributor acts as differential lock and ensures uniform traction even under difficult conditions.
When the machine has travelled at a particular speed, that speed can be saved in a "Tempomat" and reused after changing trucks, for example.

Automatic power control

The machine is equipped with an automatic power control which adjusts the rate of advance in accordance with the load on the diesel engine, but which can also be deactivated.

Steering

The machine has a fingerlight hydraulic all-track steering with proportional action (can be operated from the right or left-hand side of the operator's platform). The front and rear crawler tracks are steered separately via joysticks.
The steering function is decoupled from the height adjustment by specially designed steering rings. Large steering angles permit an extremely small turning circle.

Brakes

Braking is achieved by drag from the hydrostatic transmission. The Surface Miner is additionally equipped with two automatic multiple disk parking brakes at the front.

Loading system

The reclaimed material is transported to the truck (front-end loading) by a wide conveyor system comprising a loading belt and a discharge belt.
The gradation control beam largely prevents the material being cut from breaking into large slabs and simultaneously protects the loading belt against premature wear.
The discharge belt delivers the material at a great height and can be slewed to both sides. The height can be adjusted. This ensures optimum adaptation to the conditions prevailing on site. The high conveying speed and 1,100 mm wide, V-ribbed steep-incline conveyor belts ensure that the material is discharged rapidly.
The conveyor system is designed and built in such a way as to permit easy replacement of the belts.

Milling depth control/Automatic level control

The Surface Miner is equipped with an electronic automatic level control system for controlling the cutting depth. It operates by proportional action, i.e. changes in the height of the reference plane are compensated rapidly and without overshooting by the machine.
The reference planes can be scanned by various methods, e.g. via a cable sensor on drum shields at the sides, via an ultrasonic sensor on the surface, via a grade line in combination with rotary transducers or via a plane formed by lasers. A slope sensor is also available on request; the required connections are included as standard equipment.
The multiplex system, which compensates longitudinal unevenness, can likewise be integrated into the automatic level control system if desired.

Hydraulic system

Independent hydraulic systems for travel drive, conveyor belts, fan drive for the radiator, water spray system and control functions (cylinders). The hydraulic pumps are driven by the diesel engine via a transfer gearbox. The entire system is filtered via a return line suction filter. The oil for the control functions (cylinders) is additionally passed through a pressure filter.

Electrical system

24 Volt system with starter, 3-phase alternator and two 12 V batteries, as well as socket outlets for lamps.

Water spray system

The formation of dust clouds during the cutting process is largely prevented by a hydraulic water spray system, which also cools the round-shank cutters, thus considerably extending their tool life. The spray nozzles can easily be removed for cleaning. The tank is generously dimensioned so that the work need only be interrupted occasionally for refilling.

Fillers

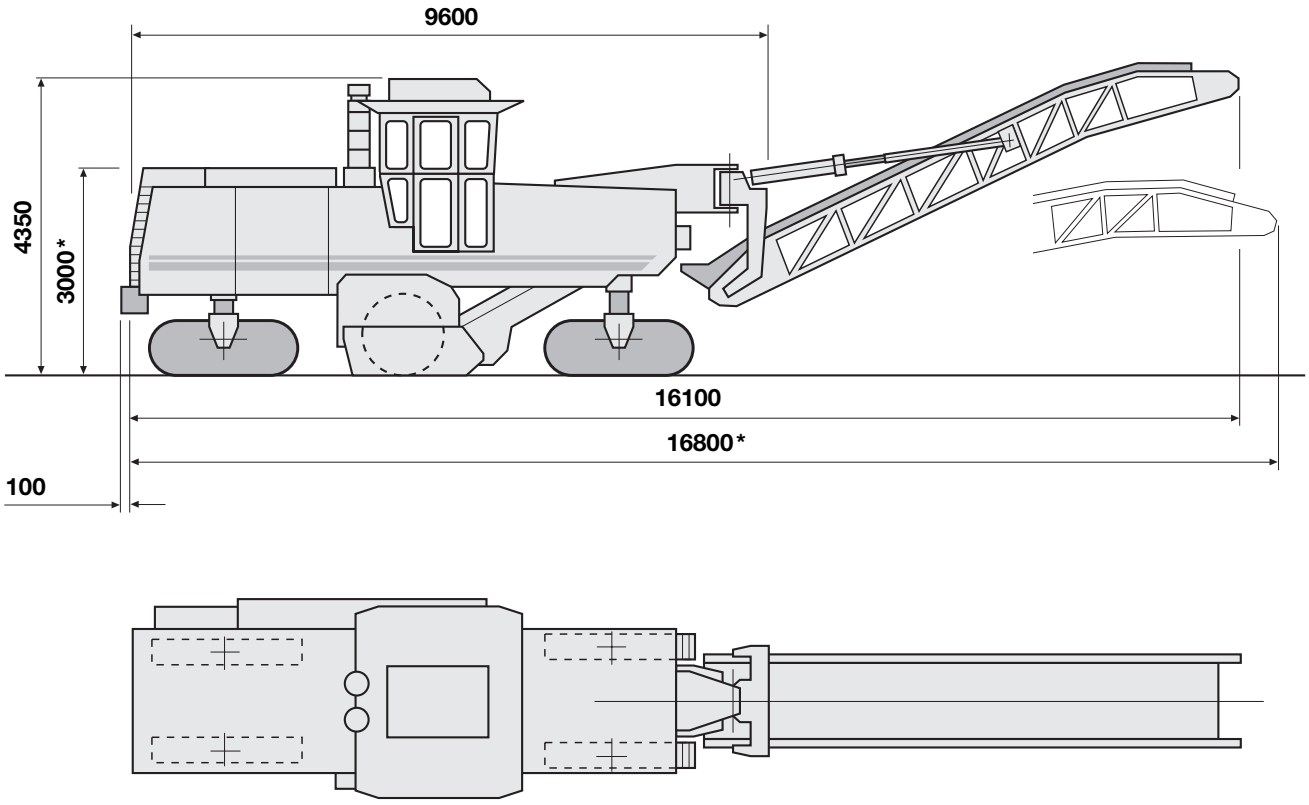
Water is filled via C-pipe connections or large filler ports. Diesel is refilled via large ports.

Safety features

Retaining lugs ensure that the machine can be tightly secured to a low-bed trailer or loaded by crane. The comprehensive working and safety lights ensure that the working area is well illuminated and the work can proceed safely, even in inclement weather. Furthermore, a lamp with magnetic base which can be positioned anywhere, ensures e.g. a safe tool change.

Special equipment: Operator's cab and additional weight

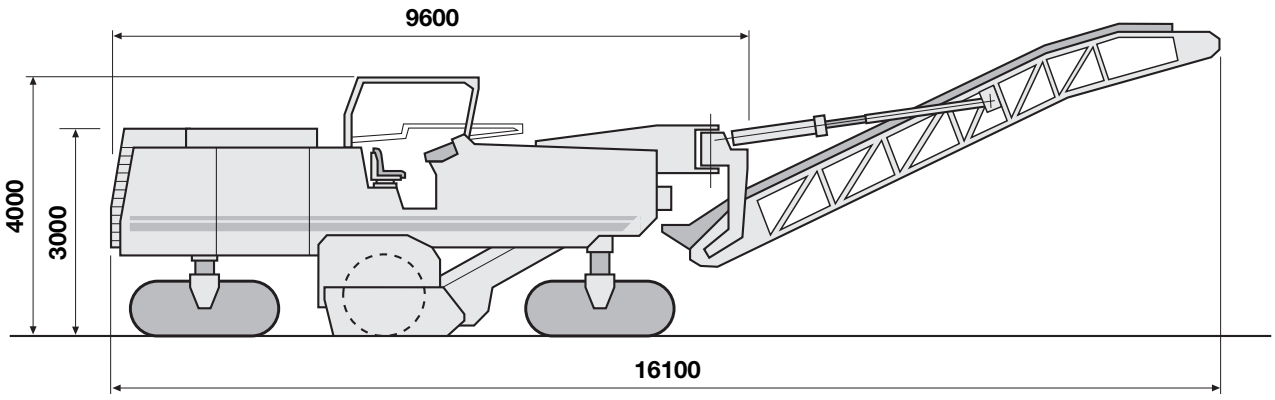
Dimensions in mm



* = Low-loader transportation dimensions

Special equipment: Canopy roof

Dimensions in mm



○ Standard ● Optional

Equipment	Surface Miner 2200 SM
Frame / operator's platform	
Control consoles, can be pivoted and displaced sideways	○
Special painting	●
Canopy roof with front and rear window, hydraulically hinged	●
Wing mirrors	○
Operator's cab with heating and air-conditioning	●
Machine control and level control	
Automatic levelling system	○
Sensors for scanning a grade line	●
Multiplex system	●
Slope sensor	●
WIDIS 32 (Wirtgen information and diagnosis system)	●
Cutting drum	
Tool holder system HT6	○
Additional lock-valve for the scraper blade	●
Gradation control beam	●
Cut material guiding device	●
Hydraulic side plate lifters	●
Pneumatic tool ejector	●
Loading the cut material	
Discharge belts, 1,100 mm wide	○
Variable discharge belt speed	●
Hydraulically raised loading belt	●
Conveyor belt support when transported on low-bed trailer	●
Travel drive	
4-track dual steering	○
Hydraulically controlled crawler tensioning	○
Miscellaneous	
Temperature-controlled cooling system	○
Soundproofing	○
Working lights (detachable)	○
Warning lights	○
Normal horn and reversing horn	○
Towing device	○
Loading and lashing lugs	○
Comprehensive tool kit	○
Safety certificate by the employer's liability insurance association	○
Comprehensive safety package with 6 Emergency-OFF-switches	○
Compressed air system	●
Water tank filling port at rear	●
Emergency traction unit	●
Cyclone air filter	○
Operation of the Surface Miner with biodegradeable hydraulic fluid	●
High-pressure water wash down	●
Filling pump for water tank – hydraulic driven	●
Additional weight 2,000 kg	●

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