

Extraction of primary resources in small  
and medium-scale mining operations.

## Surface Miner 220 SM / 220 SMi





THE 220 SM / 220 SMi IS THE PRIME CHOICE NOT ONLY FOR USE IN SMALL AND MEDIUM-SCALE MINING OPERATIONS BUT ALSO FOR ROUTING WORK AND INFRASTRUCTURE PROJECTS.

THE COMPACT, MULTIPURPOSE SURFACE MINER EXTRACTS PRIMARY RESOURCES WITH AN UNCONFINED COMPRESSIVE STRENGTH OF UP TO 50 MPA SELECTIVELY AND AT A CUTTING DEPTH OF UP TO 300 MM.

THE 2.2-M WIDE CUTTING DRUM UNIT IS TAILORED PRECISELY TO THE SPECIFIC APPLICATION AND GUARANTEES HIGH PRODUCTIVITY AT LOW OPERATING COSTS.

PRIMARY RESOURCES ARE EXTRACTED IN A SINGLE, ENVIRONMENTALLY SUSTAINABLE OPERATION WITHOUT DRILLING AND BLASTING, YIELDING MATERIAL OF THE PUREST QUALITY.

WINDROWING ENABLES THE MINED MATERIAL TO BE DEPOSITED BEHIND THE MACHINE IN A CONTINUOUS PROCESS.

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# At a glance: outstanding features of the 220 SM/220 SMi

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## HIGH-PRODUCTION CUTTING DRUM UNIT

- > Efficient cutting drum for high-quality windrowing applications
- > Cutting drum housing optimized to minimize wear during operation
- > Effective scraper blade deposits the cut material as an even surface
- > Six different cutting drum speeds minimize tool wear

2 |

## HIGH-PERFORMANCE ENGINE TECHNOLOGY

- > High-powered Cummins diesel engine
- > Large diesel tank for extended uptimes
- > Controlled fan speed for low noise emission levels and reduced diesel consumption

3 |

## DURABLE COMPONENTS

- > Track units in heavy-duty design
- > Large-displacement engine
- > High-volume hydraulic pumps and numerous hydraulic fluid pressure filters

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## RELIABLE OPERATION

- > Pre-pressurized hydraulic tank
- > High filter capacity of water system for low cutting tool wear
- > Hydraulic side plate cylinders with integrated heavy-duty displacement sensors
- > Central lubrication system with three separate lubricating circuits



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## EFFECTIVE SAFETY CONCEPT

- > Sound-insulated, anti-vibration mounted ROPS/FOPS cabin
- > ROPS/FOPS-certified trainer's seat inside the cabin
- > Quick and easy replacement of cutting tools
- > Mechanical lockout of electrical system during machine stoppages/maintenance (battery and starter isolators)
- > Manual valves allow safe manoeuvring of the machine in emergency operation
- > Simple mechanical lock to prevent sudden inadvertent lowering of the machine during maintenance procedures

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## EASE OF OPERATION AND HIGH OPERATOR COMFORT

- > High-precision **LEVEL PRO PLUS** levelling system
- > Ergonomically optimized cabin and operating concept
- > Automated lowering and raising of the cutting drum for the simple, accurate production of ramps in open-cast mining
- > Automatic parallel machine height adjustment, front and rear
- > 5-V USB port and 12-V and 24-V sockets inside the cabin

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## QUICK MANOEUVRING

- > Hydraulic all-track steering system with Ackermann steering geometry to minimize wear during turning
- > Electronic optimization of tractive power to ensure maximum traction
- > Large ground clearance for quick manoeuvring on difficult ground
- > Reversing camera and reverse assist for smooth manoeuvring



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## INTELLIGENT MAINTENANCE CONCEPT

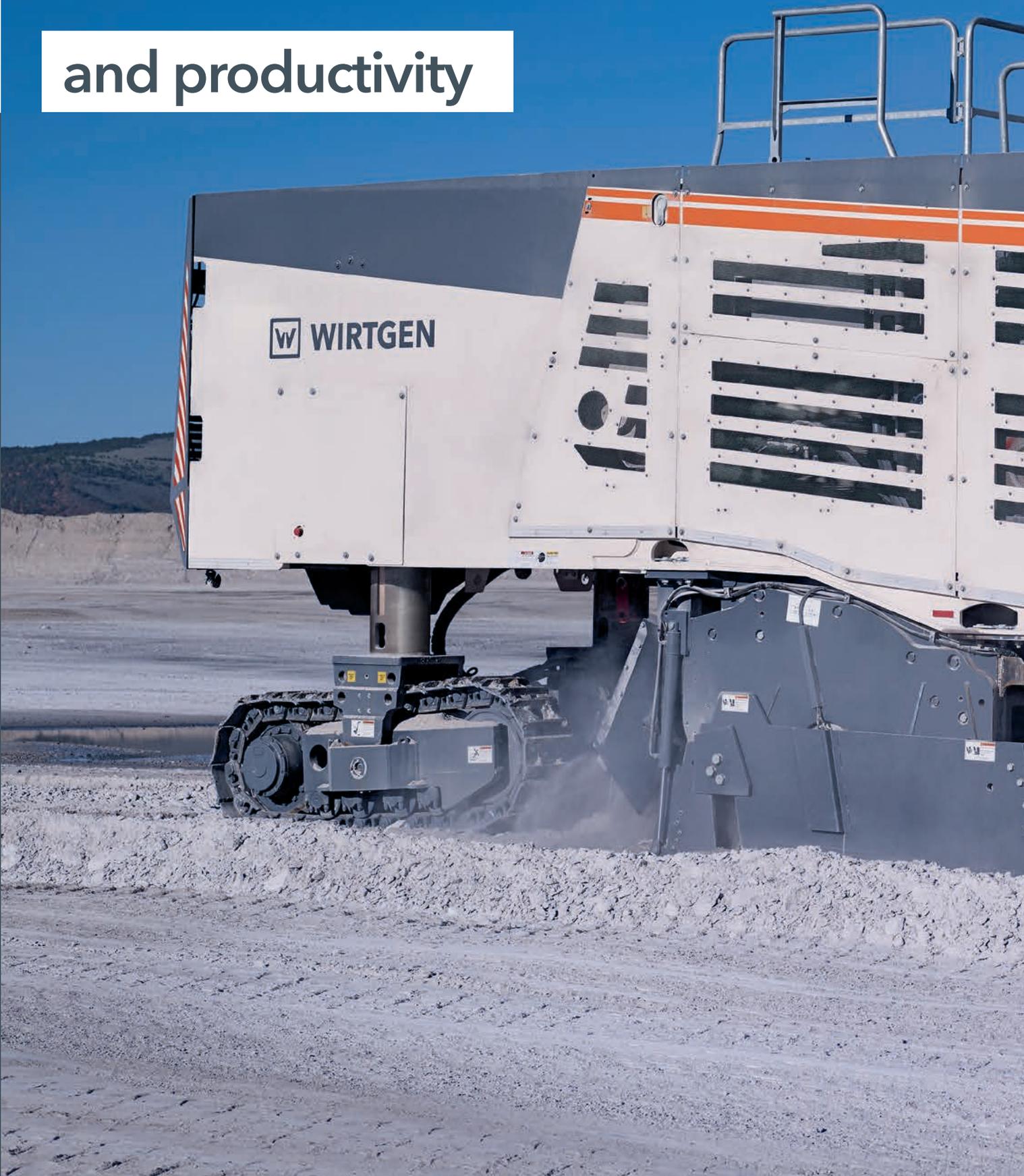
- > Easy access to points of maintenance and servicing
- > Walk-in engine compartment
- > Plain text displays for quick troubleshooting
- > Easy cleaning of cooling system
- > Hydraulic tank can be easily removed for cleaning purposes

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## EFFICIENT MACHINE MANAGEMENT

- > Standardized data interface for different customer systems

# Highlights in performance and productivity





#### **FEEL THE POWER**

THE TREMENDOUS CUTTING POWER OF WIRTGEN CUTTING DRUMS CANNOT ONLY BE SEEN. IT CAN LITERALLY BE FELT. BECAUSE OF THE HEAVY-DUTY CUTTING DRUM DESIGN TAILORED TO PERFORMANCE REQUIREMENTS. MANUFACTURED FROM EXTREMELY WEAR-RESISTANT MATERIALS. BASED ON EXPERTISE GAINED IN SEVERAL DECADES OF EXPERIENCE IN CUTTING TECHNOLOGY. COST-OPTIMIZED. SO THAT WE CANNOT ONLY MEET BUT EXCEED YOUR REQUIREMENTS IN EFFICIENCY AND PRODUCTIVITY.

# High-production cutting drum unit

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The cutting drum unit installed in the 220 SM/220 SMi offers a cutting width of 2.2 m and is the core element of the top performer. It achieves high productivity levels in cutting primary resources with an unconfined compressive strength of 50 MPa selectively and depositing the material behind the machine as an even surface.

## EFFICIENT CUTTING DRUM

Designed specifically for high-quality windrowing applications, the cutting drum is highly efficient in translating the engine power into maximum cutting performance and increased productivity. It is fitted with high, slender holder bases which optimize the flow of material and minimize energy consumption.

## OPTIMIZED CUTTING DRUM HOUSING

Tailored to real-life requirements, the cutting drum unit optimizes the flow of material. This results in a significant reduction of wear and tear of the cutting drum housing, holders, point-attack tools and scraper blade.

## EFFECTIVE SCRAPER BLADE

Designed in accordance with field requirements, the scraper blade deposits the cut material behind the machine as an even surface.

## SIX CUTTING DRUM SPEEDS

Six different cutting drum speeds can be set to allow perfect adjustment to the material to be cut. This feature significantly reduces wear and tear of the cutting tools while increasing productivity at the same time.



1 | The picks are arranged in a specific pattern tailored to the windrowing method.

2 | Depositing the cut material as an even surface reduces wear and tear of the rear track units.



# High-performance engine technology

1 | Thanks to its high-powered engine, the 220 SM/220 SMi is an ideal candidate for tough opencast mining operations.

2 | High efficiency is a hallmark of the miner's mechanical cutting drum drive via power belt in the strength-sapping extraction of primary resources using the windowing method.

The surface miner's tremendous engine performance makes a significant contribution towards achieving high cutting performance and high daily production rates.

## HIGH-POWERED CUMMINS DIESEL ENGINE

The 220 SM/220 SMi is equipped with a high-powered Cummins diesel engine. The engine impresses with fuel economy thanks to high-pressure injection and an intelligent engine management system. The engine technology used in the 220 SM complies with the emission standards of US Tier 2 (EU not regulated). The 220 SMi complies with the stringent specifications of exhaust emission standards EU Stage 4/US Tier 4f.

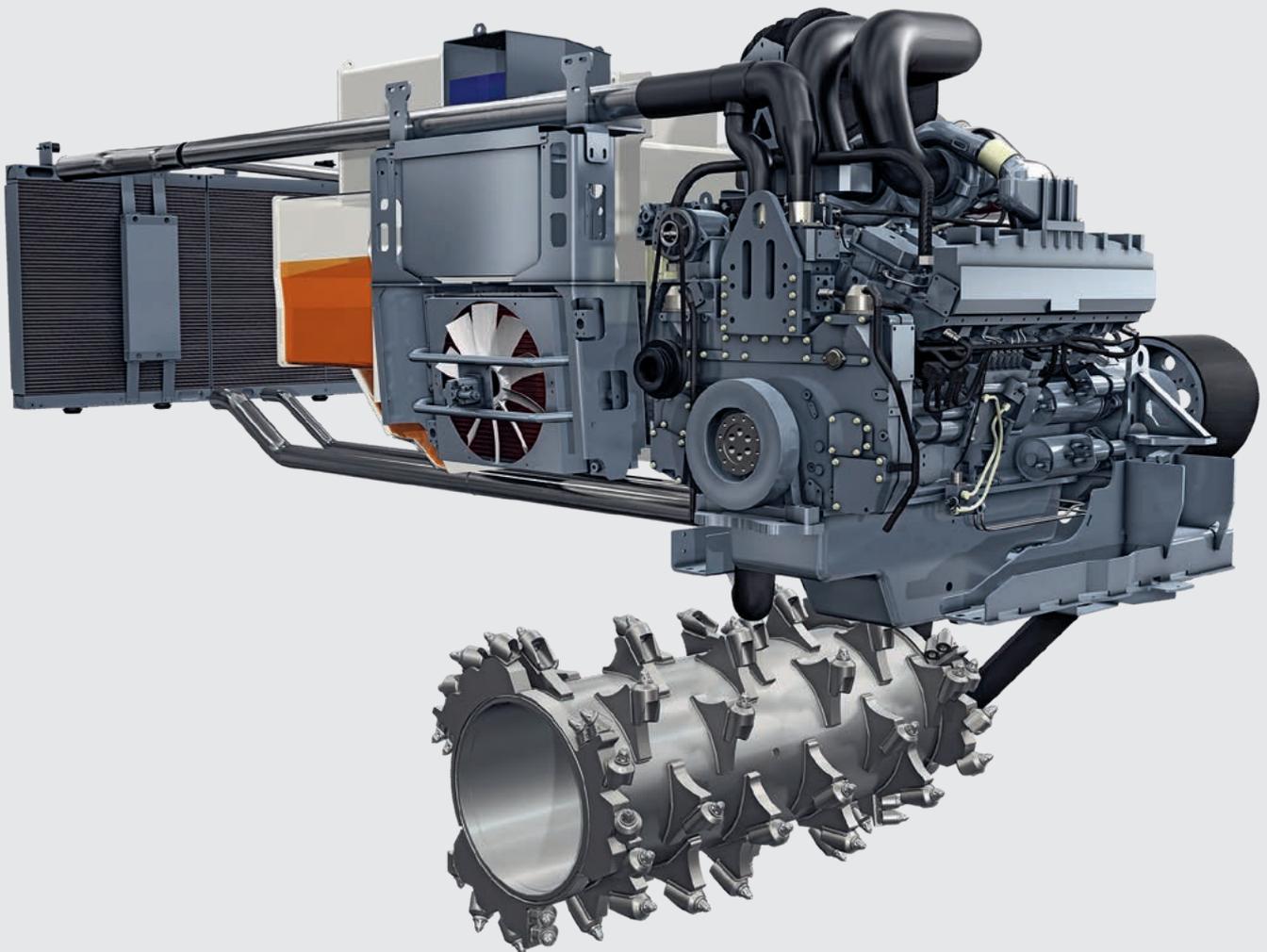
## LARGE DIESEL TANK

The large diesel tank of the 220 SM/220 SMi holds 2,300 litres of diesel to ensure extended uptimes without the need for refuelling. As a result, fewer tanker trucks need to approach the miner.

## FAN SPEED CONTROL

The cooling system and fan speed governed in accordance with requirements ensure reduced fuel consumption and lower noise emission levels.

1 |









# Highlights in tough operating conditions

## **DESIGNED WITH DURABILITY IN MIND**

THE WIRTGEN SURFACE MINER 220 SM / 220 SMi. AN EPITOME OF RELIABILITY. AND A PROMISE FOR A LONG MACHINE LIFE. MACHINE COMPONENTS OF EXTREMELY ROBUST DESIGN GIVE THE COMPACT SURFACE MINER THE DECISIVE LEAD IN OPENCAST MINING. HIGHLY PRODUCTIVE. ALWAYS.

# Durable components

All components of the 220 SM/220 SMi have been designed for use in extremely tough opencast mining operations. The result: exceptional durability of the components and minimized downtimes of the miner for increased productivity and economic efficiency.

## TRACK UNITS IN HEAVY-DUTY DESIGN

In opencast mining operations, the track units are exposed to extremely high levels of stress and strain. Heavy-duty track units fitted with sturdy double grouser track pads enable the 220 SM/220 SMi to achieve high advance rates even in difficult mining situations. The generous design of all track components additionally increases the machine's availability at extended uptimes.

## LARGE-DISPLACEMENT ENGINE

Large displacement ensures a long life of the diesel engine, which results in high availability and reliable performance of the entire machine.

## HIGH-VOLUME HYDRAULIC PUMPS

Reliable machine operation on a permanent basis is ensured by the high-volume hydraulic pumps installed in the 220 SM/220 SMi. The large number of pressure filters additionally protects the hydraulic system against contamination by solid particles.

1 | *Sturdy design extends the service life of the track units.*

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2 | The cutting drum housing is manufactured from exceptionally wear-resistant materials.



# Reliable operation

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Nothing is more important in opencast mining than the reliable long-term availability of the machine. That is why we have designed the main components of the miner to ensure their extended service life even when exposed to extreme levels of stress and strain.

## PRE-PRESSURIZED HYDRAULIC TANK

The pre-pressurized hydraulic tank prevents dust and dirt from entering the hydraulic system. Filters installed in all hydraulic circuits keep the system clean to ensure reliable operation. Clean oil not only makes a significant contribution towards extending the service life of downstream components but also ensures optimum transmission of power.

## HIGH-CAPACITY FILTERS IN THE WATER SYSTEM

Well-cooled point-attack cutting tools offer improved resistance to wear and tear. Water of high quality and reliable cooling of the tools are therefore of vital importance. Clean water is, however, rarely found in opencast mining operations. Filter elements with an extra-large sieve surface have therefore been installed in the water system to ensure reliable operation of the system and minimize cutting tool wear and tear.

## HYDRAULIC SIDE PLATE CYLINDERS WITH HEAVY-DUTY DISPLACEMENT SENSORS

The ground is scanned by heavy-duty displacement sensors integrated into the hydraulic side plate cylinders. The measured results are used to produce bench floors and haulage roads of unrivalled evenness.

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## CENTRAL LUBRICATION SYSTEM WITH THREE LUBRICATING CIRCUITS

The central lubrication system with three separate lubricating circuits can be relied on to supply all lubrication points of the 220 SM/220 SMi. Lubrication is monitored in an automated process and ensures the optimal supply of all lubrication points and thus an extended uptime of the machine.



**1 | + 2 |** High machine availability ensures permanently high daily production rates in both soft and hard rock.

# Highlights in safety and operation

## **PUTTING THE FOCUS ON SAFETY**

OPERATOR SAFETY AND COMFORT DURING WORK IN OPENCAST MINING OPERATIONS: A GIVEN WITH THE 220 SM/220 SMi. COMPLYING WITH STRICT SAFETY REGULATIONS - YET REACHING THE GOAL FAST. CLEARLY STRUCTURED CONTROLS ARRANGED WITH ERGONOMIC PRINCIPLES IN MIND. PROVIDING THE OPERATOR WITH ALL RELEVANT INFORMATION AT A SINGLE GLANCE. AND THE INTELLIGENT STEERING CONCEPT COMES AS STANDARD. THE 220 SM/220 SMi IS IN FULL CONTROL.



# Effective safety concept

The safety of machine operators and maintenance staff is a top priority in opencast mining. The 220 SM/220 SMi is designed to fully comply even with strict mining regulations.

**1** | *The operator is protected from external hazards in the ROPS/FOPS cabin.*

**2** | *Easy installation of the lock preventing sudden inadvertent lowering of the machine.*

**3** | *The battery-operated hydraulic drum turning device enables cutting tools to be replaced with the engine switched off.*

## **ROPS/FOPS CABIN AS STANDARD**

The anti-vibration mounted, fully sound-proofed cabin enables the operator to work at ease for many hours.

## **TRAINER'S SEAT INSIDE THE CABIN**

The additional seat inside the cabin is certified to ROPS/FOPS standards, permitting operators to be trained under real-life conditions.

## **QUICK AND EASY REPLACEMENT OF CUTTING TOOLS**

The hydraulically opening scraper blade provides ready and safe access to the cutting drum from the rear. The cutting tools are replaced with the engine switched off. Ample room to move, hydraulic tool extractor and drum turning device are additional features which simplify the process.

## **LOCKOUT OF ELECTRICAL SYSTEM**

Accidental start-up of the machine can be prevented mechanically by locking the battery and starter isolators so that maintenance procedures can be safely performed while the machine is stationary.

1 |



### MANUAL VALVES FOR EMERGENCY OPERATION

Manual valves enable the machine to be safely manoeuvred to a parking area in emergency operation.

### LOCK PREVENTING SUDDEN INADVERTENT LOWERING OF THE MACHINE

The simple mechanical lock installed at the lifting columns for maintenance purposes safely prevents the machine from lowering suddenly and inadvertently in the event of pressure drops.



# Ease of operation paired with operator comfort

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Ease of operation, ergonomic design and operator comfort are key efficiency drivers. Taken together, they translate into greater productivity and profitability in every job.

## LEVEL PRO PLUS LEVELLING SYSTEM

The **LEVEL PRO PLUS** levelling system, which has proven its worth in both road construction and mining operations, offers easy, intuitive operation. Sensors installed at the side plates and an additional slope sensor can be used to produce a precisely defined horizontal or inclined surface. The machine is pre-fitted for GPS or laser-based control or for levelling by means of Multiplex ultrasonic sensors.

1 | *The clearly structured, ergonomically designed cabin is paired with ease of operation to reduce stress and increase productivity.*

## ERGONOMICALLY OPTIMIZED OPERATING CONCEPT

The ergonomically designed controls have been integrated into the armrest of the driver's seat. All important machine features have been intelligently combined in the multifunctional joysticks. The driver's seat with spring and air cushioning can be fully adjusted to the operator's personal preferences. In addition, the spacious cabin offers heating and air-conditioning as well as ample room to move.



### **AUTOMATED LOWERING AND RAISING OF THE CUTTING DRUM**

This innovative complementary feature enables the 220 SM/220 SMi to produce the ramps needed in opencast mining accurately in an automated process and within an extremely short period of time.

### **PARALLEL HEIGHT ADJUSTMENT**

Parallel height adjustment of the miner at the front and rear can be performed conveniently at the mere push of a button.

### **5-V USB PORT AND 12-V and 24-V SOCKETS**

Separate ancillary equipment can be connected via a 5-V USB port and 12-V and 24-V sockets installed in the operator's cabin.

**2 |** *Ergonomically designed controls integrated into the armrests contribute to intuitive operation.*



# Quick manoeuvring

Experience has shown that the terrain of opencast mining operations often holds unexpected challenges. This is where maximum traction, manoeuvrability and high ground clearance are needed. The 220 SM/220 SMi meets these requirements effortlessly.

## HYDRAULIC ALL-TRACK STEERING SYSTEM

The miner's hydraulic all-track steering system with Ackermann steering geometry minimizes wear during turning manoeuvres. In combination with the machine's compact dimensions, excellent manoeuvrability is ensured even in tight working conditions. As a result, the 220 SM/220 SMi is repositioned quickly to keep interruptions of the productive cutting process as brief as possible.

1 | Small turning radii and large ground clearance are hallmarks of the 220 SM/220 SMi.

## OPTIMIZATION OF TRACTIVE POWER

Electronic optimization of the machine's tractive power guarantees maximum traction of all four track units to ensure high advance rates and cutting performance.

## LARGE GROUND CLEARANCE

The separately height-adjustable track units offering large ground clearance and integrated stroke measurement systems enable effortless manoeuvring of the machine even on uneven ground.

## REVERSING CAMERA

The reversing camera offers a good view towards the rear, thus allowing for the quick and safe manoeuvring of the machine. The reverse assist system provides additional support to the machine operator.





2 | Quick manoeuvring using the reversing camera improves the overall productivity of the machine.



**COMPELLING FEATURES DESIGNED WITH EFFICIENCY IN MIND**

EASE OF MAINTENANCE. INTELLIGENT REPAIR CONCEPTS. STATE-OF-THE-ART TELEMATICS. FEATURES COMBINING INTO ONE HALLMARK OF THE 220 SM / 220 SMi: HIGH MACHINE AVAILABILITY. MORE IS REQUIRED, HOWEVER, TO ENSURE EFFICIENT 24 / 7 OPERATION. THE WIRTGEN GROUP IS OPERATING ON A GLOBAL SCALE AND YOUR RELIABLE PARTNER - ALWAYS AT YOUR SERVICE. PROVIDING CUSTOMER-SPECIFIC SUPPORT AND SUSTAINABLE SERVICE CONCEPTS: DON'T WORRY: IT'S A WIRTGEN.

**Highlights in maintenance**

**and telematics**



# Intelligent maintenance concept

Operations in opencast mining require machine availability around the clock – minimizing maintenance requirements is therefore of vital importance. The intelligent maintenance concept of the 220 SM/220 SMi increases production time, extends the life of machine components and optimizes machine availability.

## READILY ACCESSIBLE POINTS OF MAINTENANCE

All points of maintenance and servicing are readily accessible from the ground or from inside the machine. They enable maintenance procedures on the machine to be completed safely and quickly without the need for extended setup times.

## WALK-IN ENGINE COMPARTMENT

Reliable maintenance of the diesel engine is ensured by the walk-in engine compartment. Air, fuel and hydraulic fluid filters offer direct access.

1 | Quick access to the engine and cooling system.



### QUICK TROUBLESHOOTING

Central power supply and plain text displays on the control screen enable quick, effective troubleshooting to ensure high machine reliability in operation.

### EASY CLEANING OF COOLING SYSTEM

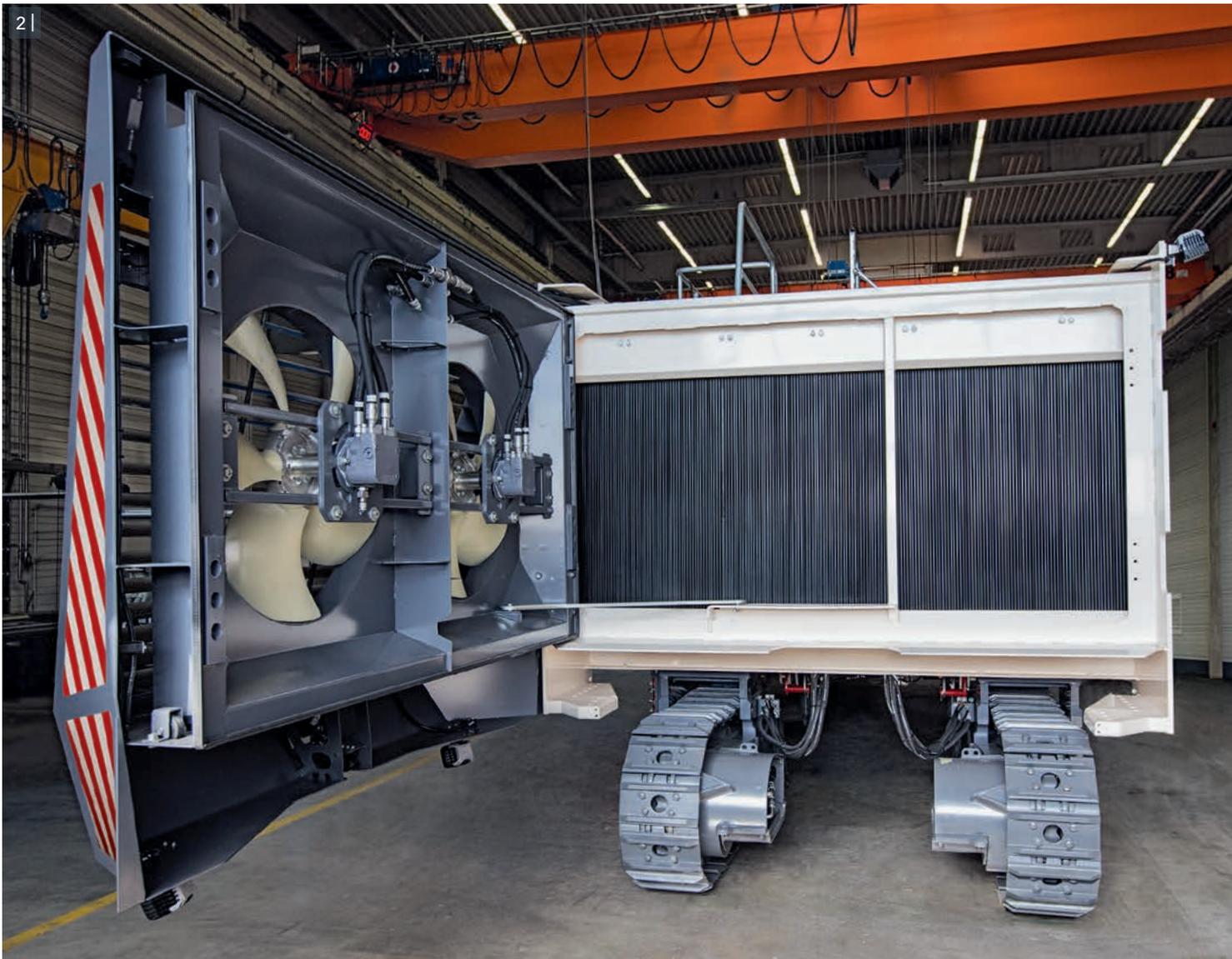
The cooling system including fan is located at the rear of the machine and engine room. It offers quick access to ensure quick and easy cleaning.

### REMOVABLE HYDRAULIC TANK

The hydraulic tank can be easily removed for cleaning purposes so that cleaning is completed within a short period of time.

*2 | The 220 SM/220 SMi offers quick access for maintenance procedures - both in the workshop and in the field.*

2 |



# Efficient machine management

Telematics systems offer customers online access to operating parameters of the 220 SM/220 SMi independent of the machine's current location.

## **DATA INTERFACE FOR CUSTOMER SYSTEMS**

The standardized data interface enables easy integration of the 220 SM/220 SMi into the customer's own telematics and dispatch system. The scope of data supplied by the interface is variable and based on the WIRTGEN GROUP's FMS standard.

Numbers such as productive times and operating hours can be precisely documented via the data interface, thus providing a reliable record of machine times and machine parameters.





# Technical specification

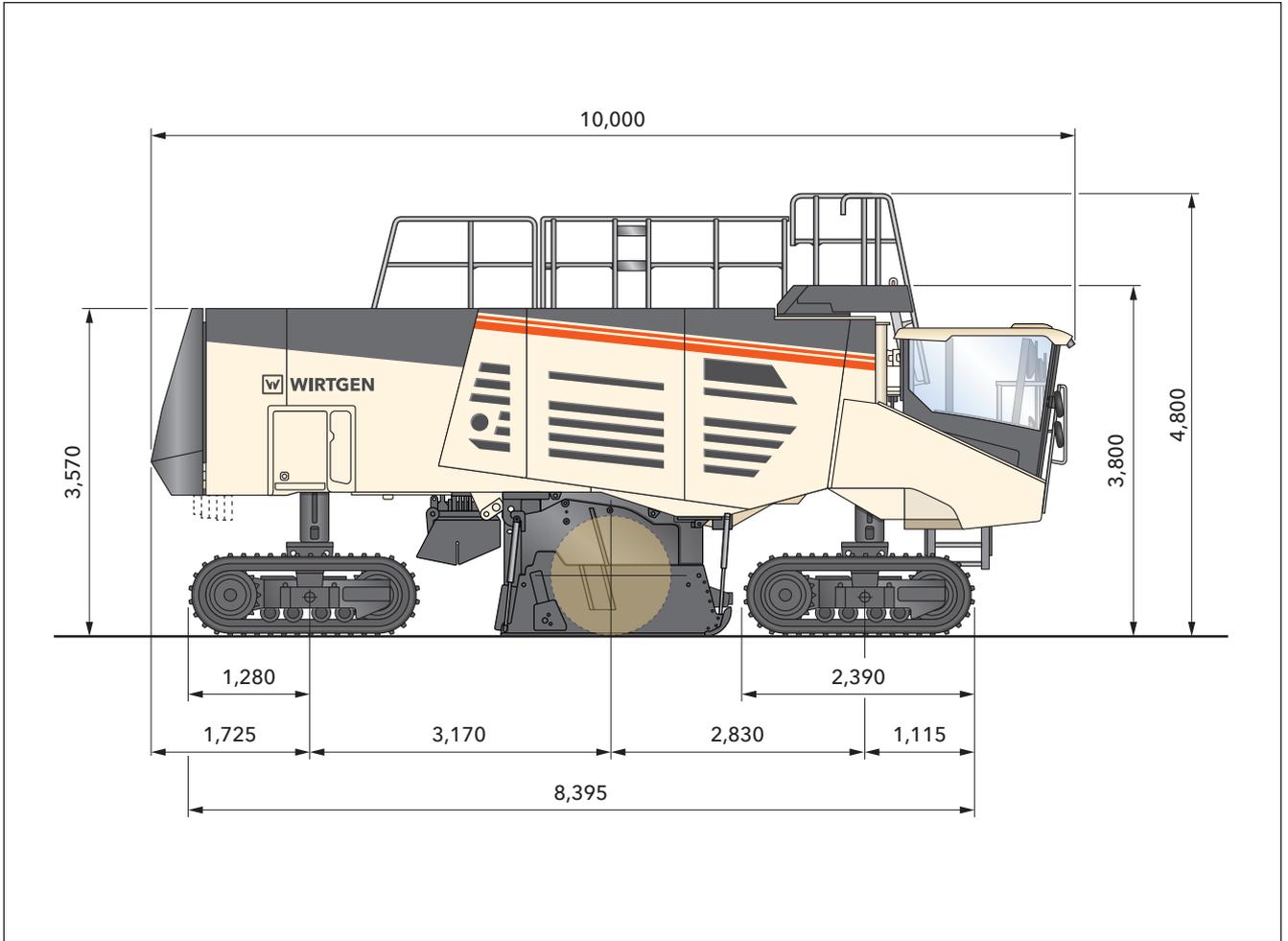
	220 SM	220 SMi
<b>Cutting drum</b>		
Cutting width	2,200 mm	
Cutting depth	0 to 300 mm	
Drum diameter with tools	1,300 mm	
<b>Engine</b>		
Manufacturer	Cummins	Cummins
Type	QST30	QST30
Cooling	Water	Water
Number of cylinders	12	12
Rated power at 2,100 rpm	708 kW/950 HP/963 PS	708 kW/950 HP/963 PS
Displacement	30.5 l	30.5 l
Fuel consumption, full load	187 l/h	187 l/h
Fuel consumption, <sup>2</sup> / <sub>3</sub> load	126 l/h	126 l/h
Emission standards	No EU regulation / US Tier 2	EU Stage 4 / US Tier 4f
<b>Electrical system</b>		
Electrical power supply	24 V	
<b>Tank capacities</b>		
Fuel tank	2,300 l	
AdBlue® / DEF tank	-	300 l
Hydraulic fluid tank	290 l	
Water tank	4,000 l	
<b>Driving properties</b>		
Operating and travel speed	0 to 84 m / min (0 to 5 km / h)	
<b>Crawler units</b>		
Crawler units front and rear (L x W x H)	2,375 x 360 x 843 mm	
<b>Shipping dimensions</b>		
Machine without cutting drum assembly (L x W x H)	10,000 x 3,000 x 3,000 mm	
Machine with cutting drum assembly (L x W x H)	10,000 x 3,000 x 3,570 mm	

\*1 = The maximum cutting depth may deviate from the value indicated, due to tolerances and wear

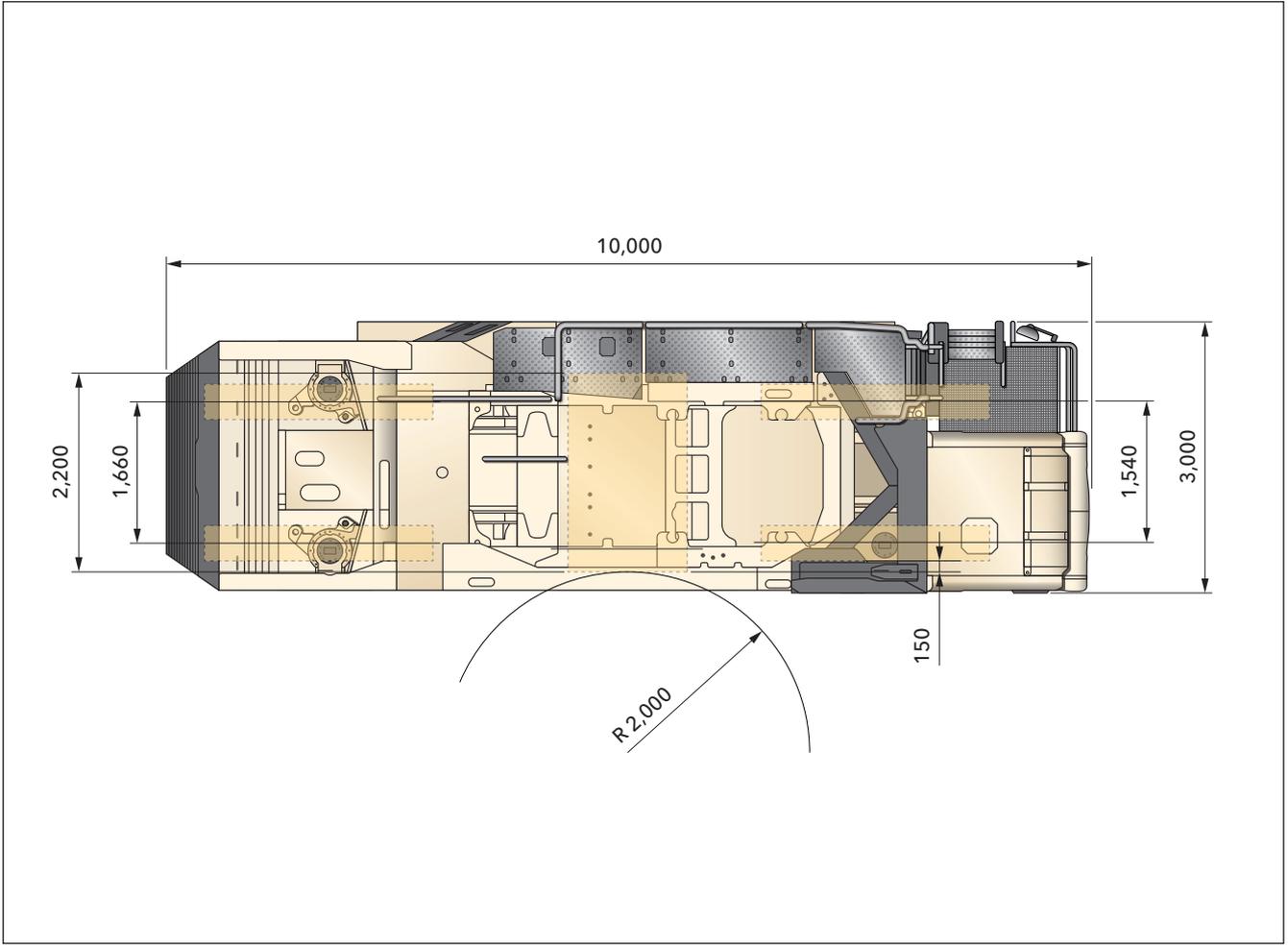
	220 SM	220 SMi
<b>Weight of base machine</b>		
Empty weight of machine without filling media	50,100 kg	50,950 kg
Operating weight, CE* <sup>2</sup>	53,150 kg	54,000 kg
Operating weight, max. (full tanks)	60,250 kg	61,100 kg
<b>Transport weights of individual components</b>		
Weight of cutting drum assembly	11,150 kg	
<b>Weights of operating agents</b>		
Water tank filling in kg	4,000 kg	
Diesel tank filling in kg (0.83 kg/l)	1,900 kg	
AdBlue®/DEF tank filling (1.1 kg/l)	-	330 kg

\*<sup>2</sup> = Weight of machine with half-full water tank, half-full fuel tank, driver (75 kg) and on-board tools, excluding optional equipment

# Dimensions



Dimensions in mm



Dimensions in mm

# Standard equipment

	220 SM	220 SMi
<b>Base machine</b>		
Basic machine with engine	■	■
Engine-air-intake with highly efficient pre-separator	■	■
Reduced diesel consumption and low noise emissions as a result of temperature-controlled fan speed	■	■
Separate battery main switch for disconnecting the starter	■	■
Automatic central lubrication system	■	■
<b>Cutting drum unit</b>		
Robust and efficient mechanical milling drum drive via power belts (total of 18 grooves) with automatic belt tensioner	■	■
Variable cutting speed by a combination of 3 selectable engine speeds and adjustable drive belt pulley arrangements to achieve optimum working results	■	■
Water sprinkling strip on the cutting drum unit	■	■
Cutting drum housing FB2200	□	□
<b>Cutting drums</b>		
Cutting drum FB2200 HT6 LA50 with 68 picks	□	□
<b>Machine control and levelling system</b>		
Advance control across the entire speed range via an ergonomic joystick with proportional control characteristics	■	■
Traction control system reduces wear on chassis components at maximum traction	■	■
Automatic feed control designed to assist the operator maintains the engine's ideal operating point	■	■
Cutting depth regulation with integrated levelling system over the side plates and <b>LEVEL PRO PLUS</b> levelling system, fully integrated with the operating display	■	■
The standard transverse slope control maintains the machine's transverse tilt regardless of the terrain. This means exact surface levels, either horizontal or slanted, can be created.	■	■
<b>Cabin</b>		
Comfortable, high-quality, fully glazed, elastically mounted cabin with roof hatch	■	■
Equipped with an air-cushioned seat and all the necessary control instruments integrated into the armrests	■	■
Includes 12-V and 24-V sockets and a 5-V USB port	■	■
Multi-function control colour display showing important machine operating conditions	■	■
Extensive machine diagnosis in the control display	■	■
Large air conditioner for cooling and heating	■	■
Provides machine operator with roll-over protection system (ROPS) and falling-object protection system (FOPS)	■	■

- = Standard equipment
- = Standard equipment, replaceable with optional equipment
- = Optional equipment

	220 SM	220 SMi
<b>Chassis and height adjustment</b>		
Crawler units with particularly robust 2-web track pads in heavy-duty version for mining applications	■	■
Infinitely variable, hydraulic four-track drive	■	■
Four-track steering. The following steering types can be preselected: Crab and coordinated steering as well as straight ahead for the rear crawler units	■	■
<b>Others</b>		
Reversing camera with graphical reversing assistant	■	■
"Welcome-and-go-home light" function with LED lighting in the ladder area	■	■
High-pressure water cleaner (40 bar and a large quantity of water) with washing lance for cleaning the machine	■	■
Lighting package with LED headlights	■	■
Set of tools for maintenance and servicing	■	■
Extensive safety package including an easily accessible emergency stop circuit, an integrated machine safety feature, protecting it from unintended transverse tilts, large non-slip walkways, a lockable main switch and starting switch and position lights.	■	■
Filling water from above - without a machine filling pump	□	□
Paint standard cream white RAL 9001	□	□
LED lighting package 24 V	□	□

■ = Standard equipment  
 ■ = Standard equipment, replaceable with optional equipment  
 □ = Optional equipment

# Optional equipment

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	220 SM	220 SMi
<b>Cutting Drums</b>		
Cutting drum FB2200 HT14 LA75 with 44 picks	<input type="checkbox"/>	<input type="checkbox"/>
<b>Machine control and levelling system</b>		
Operating display <b>LEVEL PRO PLUS</b> additionally	<input type="checkbox"/>	<input type="checkbox"/>
Level control 3D levelling pre-equipment	<input type="checkbox"/>	<input type="checkbox"/>
<b>Cabin</b>		
Radio system with two loudspeakers and aerial	<input type="checkbox"/>	<input type="checkbox"/>
Auxiliary heating for cabin	<input type="checkbox"/>	<input type="checkbox"/>

- = Standard equipment
- = Standard equipment, replaceable with optional equipment
- = Optional equipment

	220 SM	220 SMi
<b>Others</b>		
Water tank filling with hydraulic filling pump	<input type="checkbox"/>	<input type="checkbox"/>
Paint in one special colour (RAL)	<input type="checkbox"/>	<input type="checkbox"/>
Powerful LED lighting package 24 V	<input type="checkbox"/>	<input type="checkbox"/>
Additional weight 4,500 kg on the rear of the machine	<input type="checkbox"/>	<input type="checkbox"/>
Additional monitor brackets	<input type="checkbox"/>	<input type="checkbox"/>
Mobile coolbox 24 V	<input type="checkbox"/>	<input type="checkbox"/>
Cold start aid 400 V without generator	<input type="checkbox"/>	<input type="checkbox"/>
Hydraulic pick ejector drift	<input type="checkbox"/>	<input type="checkbox"/>
Wiggins device for fast filling of the diesel tank	<input type="checkbox"/>	<input type="checkbox"/>
Additional monitor system with 4 cameras and monitor	<input type="checkbox"/>	<input type="checkbox"/>
Heavy-duty rollers for the transport support	<input type="checkbox"/>	<input type="checkbox"/>
Rotary beacon LED 24 V with magnet base	<input type="checkbox"/>	<input type="checkbox"/>
Workshop equipment - hoses for emergency repair	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance kit for first oil change after 50h	<input type="checkbox"/>	<input type="checkbox"/>

- = Standard equipment
- = Standard equipment, replaceable with optional equipment
- = Optional equipment



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