A WIRTGEN GROUP COMPANY

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Economical mining of hard rock.

Surface Miner 2500 SM

At a glance: outstanding features of the 2500 SM

1 | DISCHARGE CONVEYOR

Discharge conveyor with 90° slewing angle to the left and right for flexible loading into haul trucks or for sidecasting.

2 | COUNTERWEIGHT

Lifting counterweight for undisturbed operation along the edge of a slope.

9 | POWER UNIT WITH DIESEL ENGINE

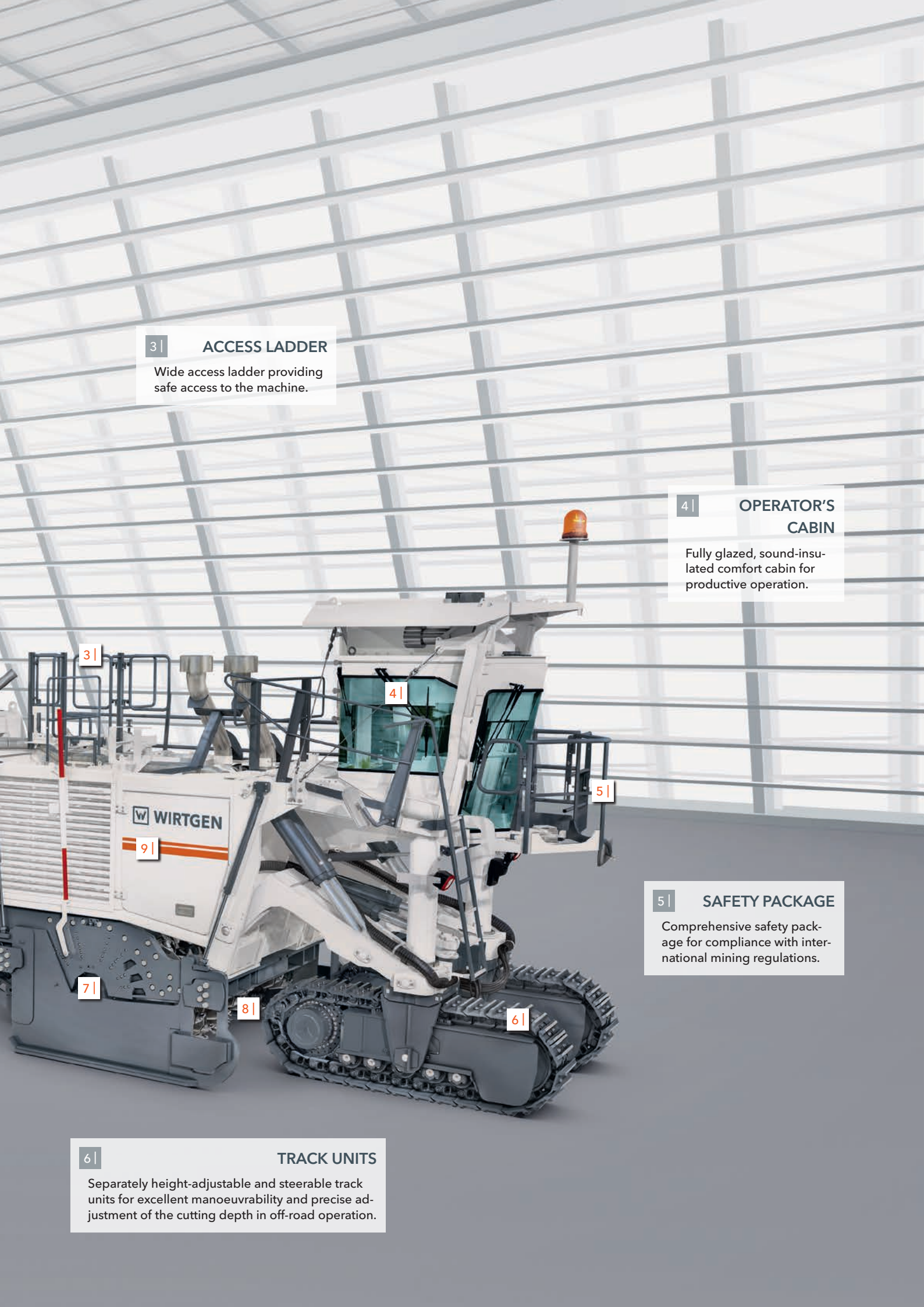
High-powered, fuel-efficient diesel engine paired with a heavy-duty mechanical belt drive. Excellent efficiency ensures high cutting performance.

8 | DRUM TOOLING

Extremely durable mining picks arranged in a helical pattern for high cutting performance, minimized wear and extended pick life.

7 | CUTTING DRUM

Mechanically driven, wear-resistant cutting drum rotating in up-cut mode for efficient operation.



3 | ACCESS LADDER

Wide access ladder providing safe access to the machine.

4 | OPERATOR'S CABIN

Fully glazed, sound-insulated comfort cabin for productive operation.

5 | SAFETY PACKAGE

Comprehensive safety package for compliance with international mining regulations.

6 | TRACK UNITS

Separately height-adjustable and steerable track units for excellent manoeuvrability and precise adjustment of the cutting depth in off-road operation.

A big idea. Selective mining of valuable useful minerals not in four separate steps but in a single operation: with the WIRTGEN surface miner 2500 SM. The sturdy top performer for reliable continuous operation around the clock. Equipped with WIRTGEN expertise in state-of-the-art cutting technology. Without drilling and blasting but in an environmentally sustainable process yielding material of the purest quality. WIRTGEN surface mining – exploiting mineral deposits the intelligent way.

Efficient.

1 | *A story of success: more than 100 WIRTGEN surface miners are in operation in hard-rock mining around the globe.*

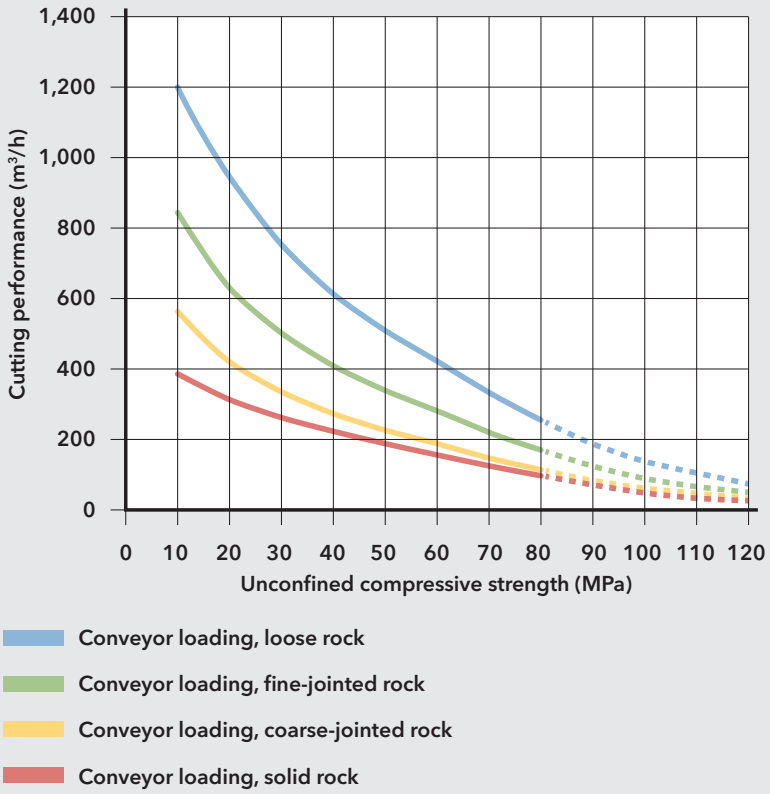
Powerful machine for hard rock mining

NO DRILLING AND BLASTING

The tried-and-tested 2500 SM surface miner is used for the selective mining of primary resources with an unconfined compressive strength of up to 80 MPa. Efficient continuous operation is ensured by heavy-duty components such as the 2.5 m wide mechanically driven cutting drum, separately height-adjustable track units and direct material loading system. The 2500 SM offers three different modes of operation: direct loading into trucks via the miner's conveyor system, sidecasting via the slewing discharge conveyor, or windrowing between the rear track units.

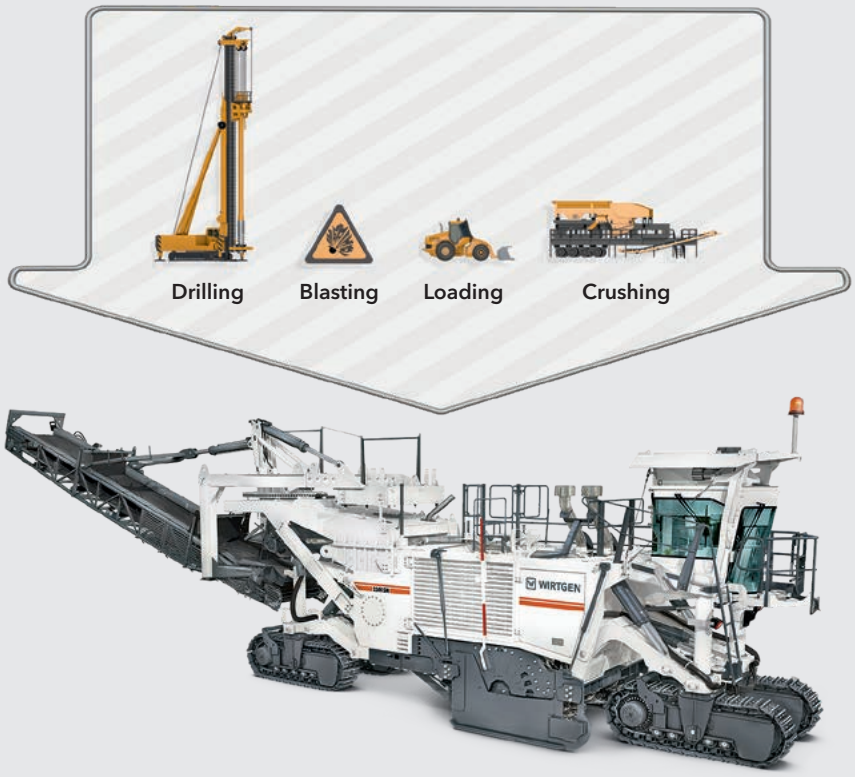
The surface miner cuts, crushes and loads rock in a single operation. The cost-effective and environmentally sustainable process dispenses with the need for drilling and blasting, creating a stable, highly precise cross-section which can be immediately used by haul trucks. The miner's compact dimensions ensure ease of transport and quick setup on site. It takes no more than a few hours to get the 2500 SM ready for the next job, which makes it the ideal choice also for cutting foundations in earthwork and rock construction.

CUTTING PERFORMANCE OF THE WIRTGEN 2500 SM SURFACE MINER



Note:
In addition to the compressive strength and type of jointing, other material properties such as tensile strength / plasticity or separating layers and their orientation have an influence on the cutting performance. The values are therefore suitable for an initial estimate but should not be understood as an assured property. Rock with an unconfined compressive strength in excess of 80 MPa can only be cut under specific conditions. Please consult WIRTGEN for further information.

2 |



2 | *A single operation instead of four separate steps – with the WIRTGEN 2500 SM surface miner.*

1 | *Selective mining enables the 2500 SM to mine oil shale in separate layers.*

2500 SM – a winning model for many years

APPROVED METHOD – TRIED-AND-TESTED MACHINE

Surface mining has made a name for itself around the globe as a successful mining method. The 2500 SM has been successfully using the continuously improved process for many years in a wide variety of applications. The rear loader is the ideal choice, above all, for the selective mining of medium-hard to hard mineral deposits. To maximize the exploitation of the deposit, the 2500 SM cuts and loads valuable primary resources such as limestone, kimberlite, bauxite, iron ore, phosphate or oil shale efficiently in a single operation, producing an even surface suitable for use by haul trucks.

2 | *The powerful 2500 SM is mining bauxite in a single operation.*

The 2500 SM is also eminently suitable for operations in earthwork, rock and road construction: the surface miner cuts foundations in existing rock to produce a stable base for road and railway construction, creates defined surfaces, or cuts trenches, channels and slopes without the need for drilling and blasting.

3 | *The 2500 SM is mining phosphate, producing small-sized material in the process.*

4 | *The 2500 SM is loading limestone directly into trucks via a conveyor system.*

5 | *The 2500 SM is biting through extremely hard rock while cutting foundations for road construction.*

Feel the power.

High cutting power is a feature of WIRTGEN cutting drums that can not only be seen. It can literally be felt. Because the heavy-duty cutting drums are designed in line with performance requirements. Made of extremely wear-resistant materials. Based on specialized expertise gained in several decades of experience in cutting technology. Cost-optimized. So that we not only meet but exceed your requirements in efficiency and productivity.

1 | *The cutting drum is tailored to performance requirements to enable high cutting performance.*

2 | *HT15 reduces the time required to replace a single toolholder from approx. 90 min to no more than approx. 15 min compared to conventionally welded systems.*

Cost-efficient WIRTGEN cutting technology

APPLICATION-SPECIFIC DESIGN

Following an in-depth analysis of the customer's requirements by our mining experts, the 2.5-m wide cutting drum is designed to precisely match the application it is intended for, including selection of the toolholder system and type of mining pick, definition of the most suitable pick spacing, and positioning of the toolholders. Specially designed picks are used in accordance with the hardness and type of rock to be mined.

Designed to precisely match the specific application, the cutting drum and drum housing are additionally armoured with special wear elements for cutting highly abrasive rock. High production rates can thus be achieved at extremely low pick wear.

Two hydraulically lifting side plates provide effective closure of the drum housing on the left and right. An integrated water spray system reduces dust development when cutting dry materials.

3 | *When operated in windrowing mode, the adjustable scraper blade permits the track units to travel on even ground.*

HT15 QUICK-CHANGE TOOLHOLDER SYSTEM

The innovative HT15 quick-change toolholder system maximizes pick utilization while minimizing breaks in operation.

1 | Holder shank heat-treated in a special process for increased strength

2 | Heavy-duty shank mounting for the use of WIRTGEN picks

3 | Precise contact surfaces between upper part and bottom part for deflecting the cutting forces

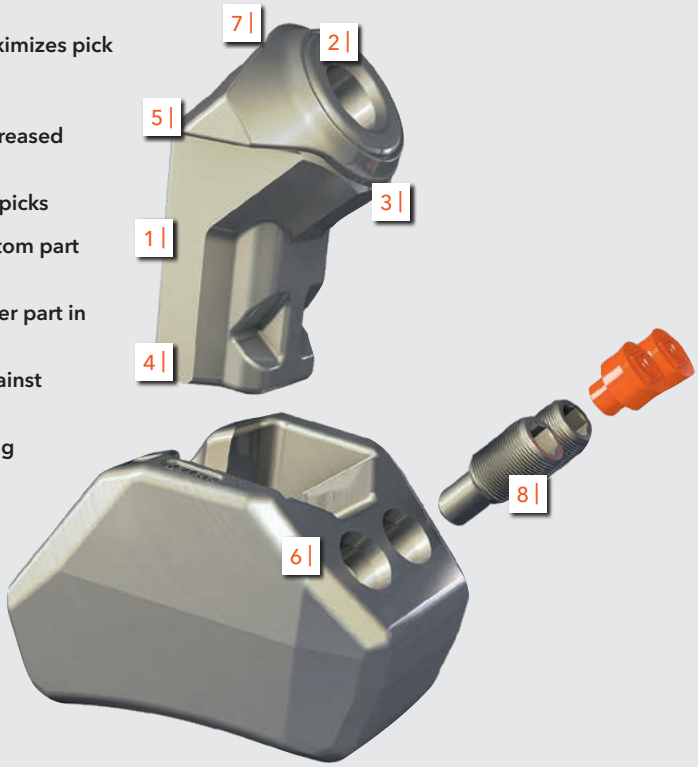
4 | Double prism for optimum fit and support of the upper part in the bottom part

5 | Material deflectors for protecting the bottom part against abrasive wear

6 | Pronounced recesses in the bottom part for preventing damage to the internal threads and bolts

7 | Large opening on upper part for optimum access during pick replacement

8 | Solid mounting bolts and flexible silicone plugs for protecting the fine-pitch thread from moisture and dirt



Flexible, high-capacity conveyor system.

WIRTGEN surface miners are expected to deliver top performance continuously and in every regard. Material loading included. The conveyor system installed in the 2500 SM takes on every challenge. Up to 1,200 solid cubic metres per hour. With application-specific flexibility coming as a standard feature. Thanks to tremendous slewing angles, height-adjustable loading conveyor and adjustable conveying speed. A ground-breaking combination of power and technology – made by WIRTGEN.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1 | *The high-capacity discharge conveyor can be slewed about 90° to the left ...*

Reliable loading of large quantities of rock

FLEXIBLE LOADING

The 2500 SM offers exceptional flexibility for loading the mining material: depending on application requirements, the material can either be loaded into heavy-duty haul trucks via the 11.3 m long discharge conveyor, discharged to the side of the miner by means of the slewable discharge conveyor, or deposited in a windrow behind the cutting drum.

The discharge conveyor impresses with high conveying capacity. It can be adjusted in height hydraulically and slewed about 90° to the left and right. This feature enables the heavy-duty haul trucks to simply drive next to the surface miner during the loading operation. A water spray system installed on the discharge conveyor reduces dust development when loading dry materials. In addition, the operator can adjust the belt speed continuously independent of the engine speed to minimize belt wear in accordance with the volume and particle size of the mining material.

2 | ... and to the right.

3 | The counterweight can be raised hydraulically when cutting along steep slopes.

4 | The counterweight provides stability, for example, when discharging the mining material to the side of the machine.

Be relaxed and comfortable during work while keeping everything in full view – a given with the 2500 SM. Clearly structured controls arranged with ergonomic principles in mind. Providing the operator with all the relevant information at a single glance. The intelligent visibility concept comes as a standard feature. With the 2500 SM, you are in full control. Ease of operation and high productivity become one.

The benchmark in operation.

1 | *Two multifunctional joysticks integrated into the armrests permit easy and intuitive operation of the 2500 SM.*

Ease of operation

THE OPERATOR IS IN FULL CONTROL

The fully glazed operator's cabin offers good visibility, perfect ergonomics and ease of operation giving the operator full control of the entire mining process. A camera system comprising two cameras and two screens can additionally be installed in the cabin in accordance with customer requirements to allow full monitoring of the area at the rear of the machine. The air-sprung comfort seat can be rotated about 270° and fully adjusted to the operator's personal preferences, providing him with an unobstructed view of the loading process. All important controls are integrated into the armrests to allow intuitive operation. And to allow relaxed working regardless of weather conditions, the soundproof, anti-vibration mounted cabin is equipped with an air-conditioning and heating system.

The user-friendly **LEVEL PRO** levelling system is part of the miner's on-board equipment. The clearly structured control panel installed in the operator's cabin, controller and different sensors guarantee precise cutting depth results.

3 | *The operator's cabin offers an unobstructed view of the ground around the front track units.*

2 | *The cabin provides the operator with a perfect view of the loading process.*


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More control

in off-road operation.

Experience has shown that the terrain of large-scale opencast mining operations often holds unexpected difficulties, some of which present a true challenge. Good to be prepared for just such a situation. The WIRTGEN 2500 SM surface miner features numerous technical innovations helping you to reach your goal quickly and without fail. More traction, more manoeuvrability, more ground clearance. Giving you more control and more productivity.

1 | *Three different steering modes optimize manoeuvrability in restricted space conditions.*

Fully equipped for operation in difficult terrain

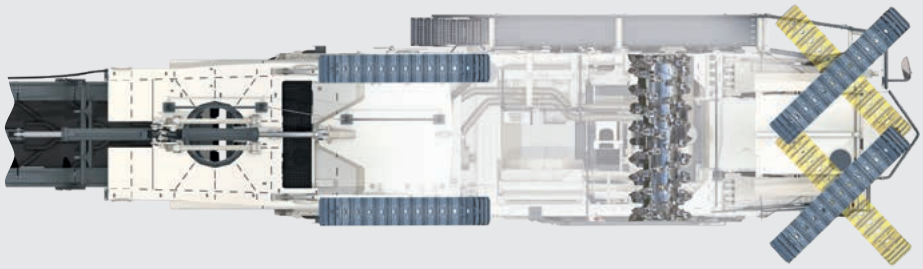
GAINING GROUND EASILY

The 2500 SM makes good headway even on difficult ground and in restricted space conditions. Three different selectable steering modes for the hydraulic all-track steering system give the miner considerable manoeuvrability.

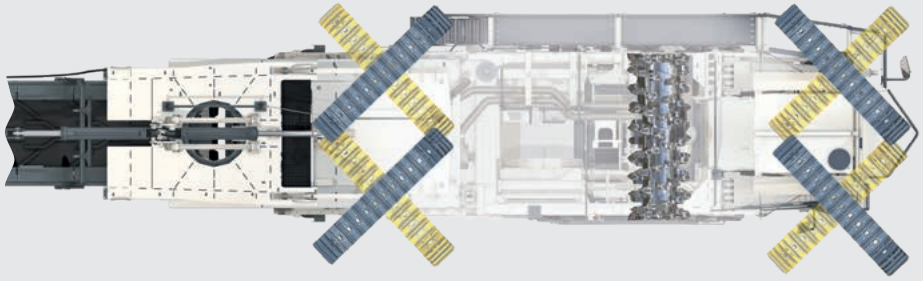
The front and rear track units are steered in opposite directions for positioning, while only the front track units are steered to produce long, straight cuts. All four track units are steered in the same direction in crab mode to enable lateral repositioning of the miner. A hydraulic flow divider acts as a differential lock, guaranteeing consistently high traction of all four track units. The machine's advance speed is continuously adjustable from zero to maximum speed in both travel and operating gear.

The individually height-adjustable track units offer high ground clearance, enabling the operator to fully adjust their position to ground conditions.

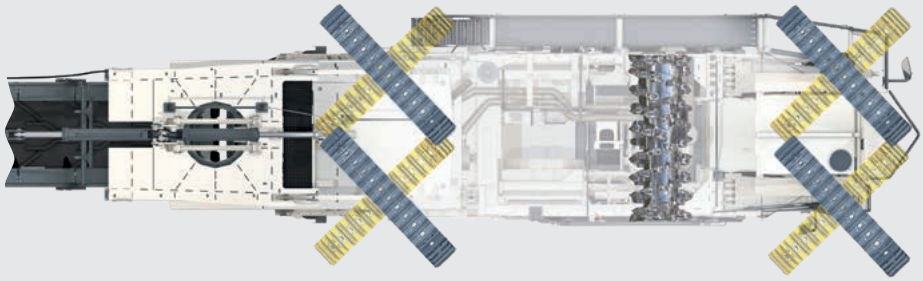
THREE STEERING MODES



Steering the front track units



All-track steering



Crab steering

2 | *Driving in crab mode or steering all four track units at extreme angles – no problem at all for the 2500 SM.*

3 | *All four track units are individually height-adjustable via hydraulic cylinders to allow setting of the cutting depth and cross slope.*

Heavy-duty design. Extended service intervals. Intelligent maintenance. Features combining into one hallmark of the 2500 SM: high operational availability. More is required, however, to ensure efficient 24/7 operation: operating on a global scale, the WIRTGEN GROUP is your reliable partner – always at your service. Providing customer-specific support and sustainable service concepts. This is how we support you on your road to success.

Ready to deliver

full performance – always.

1 | *The hydraulically operated pick extractor enables picks to be replaced quickly and with little effort.*

Quick maintenance boosts productivity

HIGH OPERATIONAL AVAILABILITY

The 2500 SM is frequently operated around the clock – minimizing maintenance requirements is therefore a must. The miner's design provides easy access to maintenance points such as the diesel engine or cutting drum, allowing wearing parts to be replaced quickly and easily. Features such as the hydraulic pick extractor, electrohydraulically operated cutting drum rotation device and innovative HT15 quick-change toolholder system make easy work of pick and toolholder replacement, which results in significantly increased machine uptimes.

2 | *The battery-operated drum rotation device quickly moves the cutting drum into the ideal position for pick replacement.*

Full soundproofing of the engine, cooler and hydraulic system reduces noise emission levels. The miner's mechanical cutting drum drive via high-power V-belts impresses with high efficiency and ease of maintenance in tough opencast mining operations. The drum speed can be adjusted to application requirements by exchanging the V-belt pulleys.

No compromises on safety

STRICT MINING REGULATIONS IN FOCUS
WIRTGEN is first and foremost concerned with the safety of operators and maintenance staff: the miner fully complies with extremely strict mining regulations. The miner's access ladders and walkways are made of non-slip material and fully illuminated – as are all of the service points. Grated catwalks and railings complying with applicable standards are provided wherever regular inspections and service work need to be carried out on machine components. The battery master switch prevents the machine from being started up inadvertently during maintenance procedures. Picks are also replaced safely with the engine switched off.

High-performance lighting permits safe operation of the surface miner in darkness. To prevent the risk of burns, the turbocharger is clad with special metal plates, and the exhaust pipes are provided with high-temperature insulation. Emergency stop switches at the front left, front right, rear left and rear right, on the electrical cabinet and in the operator's cabin of the 2500 SM provide quick and easy access. All rotating parts are provided with covers. An emergency exit enables the operator to make a safe exit from the machine in the event that the regular exit is impassable. A FOPS cabin roof can be installed in accordance with customer requirements.

Technical specification

Cutting drum	
Cutting width max.	2,500 mm
Cutting depth *[1]	0 to 650 mm
Cutting diameter	1,500 mm
Number of picks	depending on operating conditions
Engine	
Manufacturer	CUMMINS
Type	QST 30
Cooling	Water
Number of cylinders	12
Power	783 kW / 1,050 HP / 1,065 PS
Fuel consumption, full load	192 l / h
Fuel consumption, field operation	96 l / h
Exhaust emission standards	US Tier 1 / US Tier 2
Electrical system	
Voltage supply	24 V
Filling capacities	
Fuel	2,400 l
Hydraulic oil	500 l
Water	2,800 l
Driving performance	
Operating speed	0 to 25 m / min
Travel speed	0 to 3.9 km / h
Theoretical gradeability	20%
Max. cross slope	8%
Track units	
Track units, front and rear (L x W x H)	2,920 x 400 x 970 mm
Conveyor system	
Belt width of primary conveyor	1,400 mm
Length of primary conveyor	5,800 mm
Belt width of discharge conveyor	1,400 mm
Length of discharge conveyor	11,300 mm

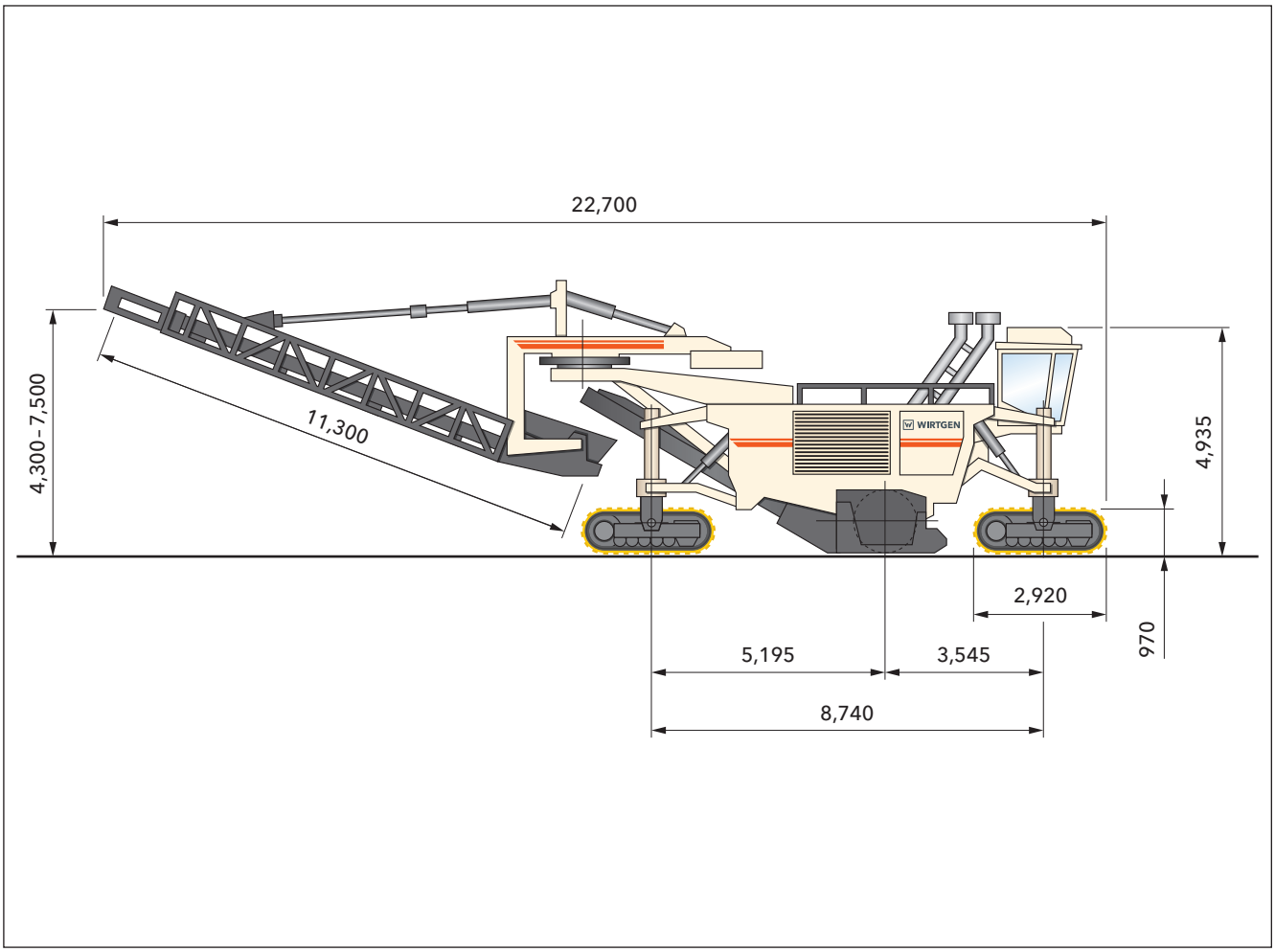
*[1] = The maximum cutting depth may deviate from the value indicated due to tolerances and wear

Shipping dimensions	
Land transport	
Shipping unit No. 1: module 1 (machine frame, track units, engine station, primary conveyor, operator's cabin) (L x W x H)	12,800 x 3,470 x 3,400 mm
Shipping unit No. 2: module 2 (slewing ring, conveyor suspension, counterweight, shipping crate with various attachment parts) and module 3 (discharge conveyor) (L x W x H)	15,700 x 2,750 x 3,400 mm
Sea transport	
Shipping unit No. 1: module 1 (machine frame, track units, engine station, primary conveyor, operator's cabin) (L x W x H)	12,800 x 3,470 x 3,400 mm
Shipping unit No. 2: module 2 (slewing ring, conveyor suspension, counterweight, shipping crate with various attachment parts) (L x W x H)	6,400 x 2,700 x 3,350 mm
Shipping unit No. 3: module 3 (discharge conveyor) (L x W x H)	12,300 x 2,300 x 1,700 mm

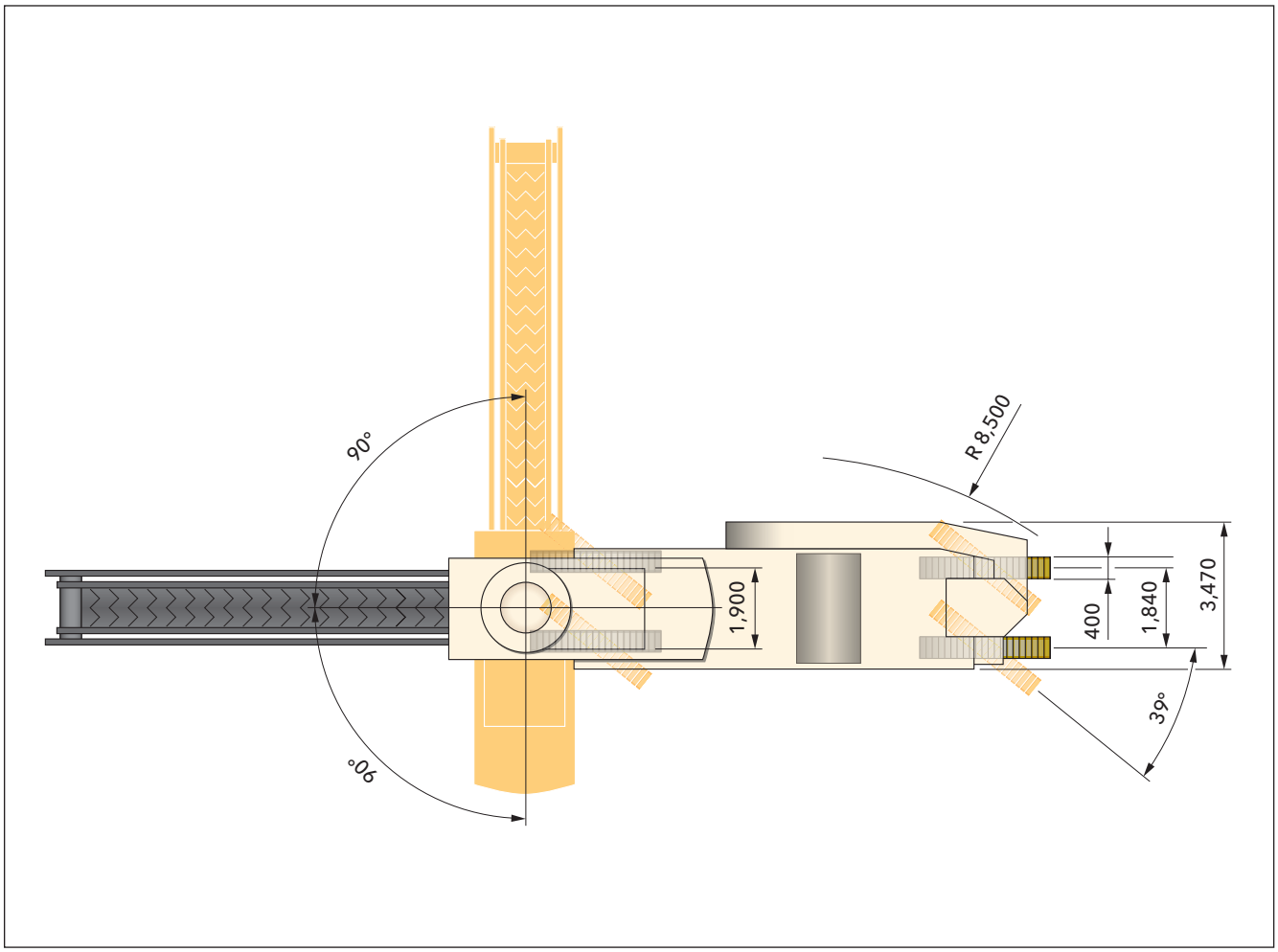
Weight of basic machine	
Empty weight	109,100 kg
Operating weight, CE *[2]	111,600 kg
Maximum operating weight, full tanks	118,000 kg
Transport weights of single components	
Land transport	
Weight of shipping unit No. 1: module 1 (machine frame, track units, engine station, primary conveyor, operator's cabin)	82,850 kg
Weight of shipping unit No. 2: module 2 (slewing ring, conveyor suspension, counter-weight, shipping crate with various attachment parts) and module 3 (discharge conveyor)	28,450 kg
Sea transport	
Weight of shipping unit No. 1: module 1 (machine frame, track units, engine station, primary conveyor, operator's cabin)	82,850 kg
Weight of shipping unit No. 2: module 2 (slewing ring, conveyor suspension, counterweight, shipping crate with various attachment parts)	23,800 kg
Weight of shipping unit No. 3: module 3 (discharge conveyor)	4,650 kg
Weights of operating materials	
Water	2,800 kg
Fuel (0.83 kg / l)	1,992 kg
Additional add-on weights	
Machine operator and tools	
Machine operator	75 kg
On-board tools	30 kg

*[2] = Weight of machine, half weight of all operating materials, on-board tools, machine operator, no optional equipment features

Dimensions



Dimensions in mm

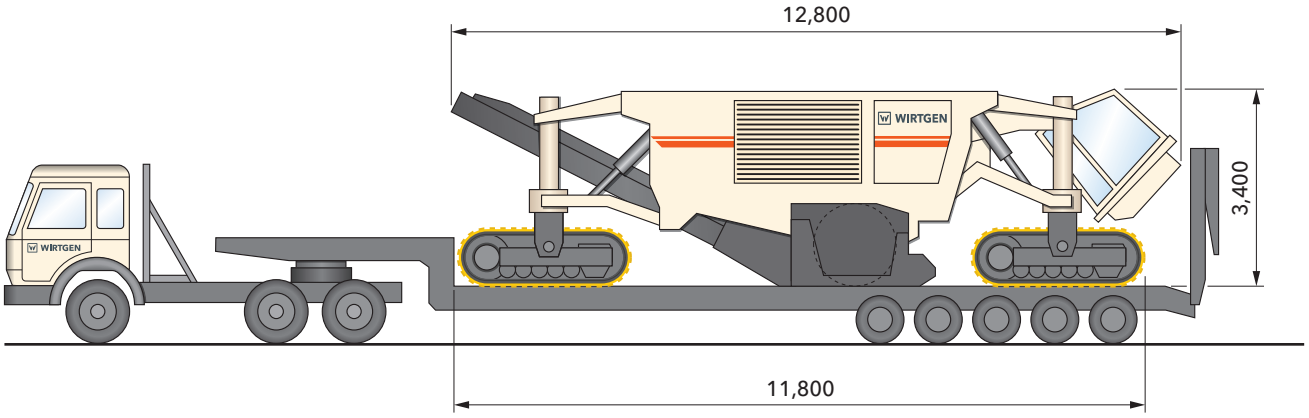


Dimensions in mm

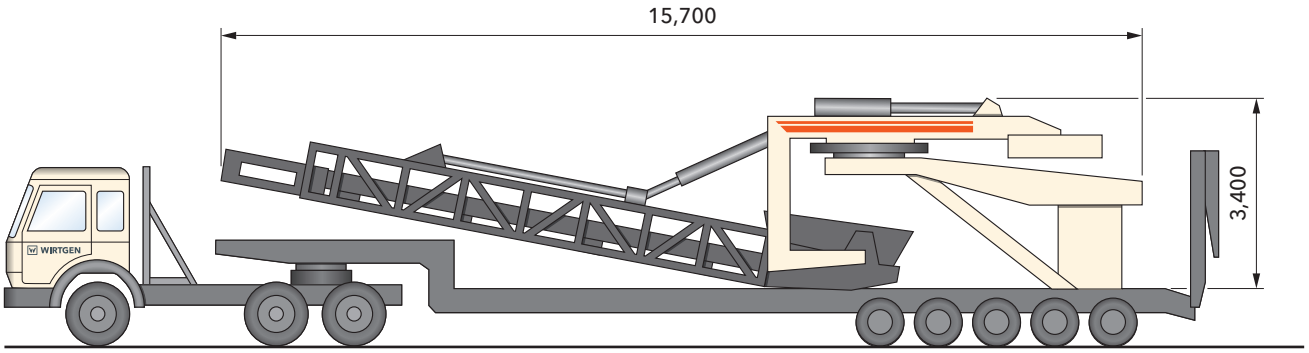
Dimensions

Transport modules of the 2500 SM surface miner for land transport

Shipping unit No. 1: module 1 (machine frame, track units, engine station, primary conveyor, operator's cabin)



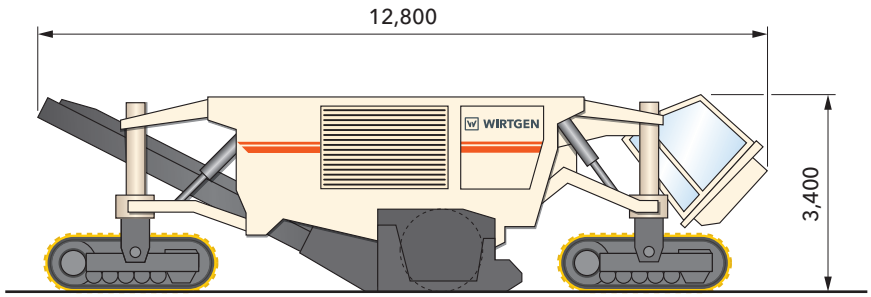
Shipping unit No. 2: module 2 (slewing ring, conveyor suspension, counterweight, shipping crate with various attachment parts) and module 3 (discharge conveyor)



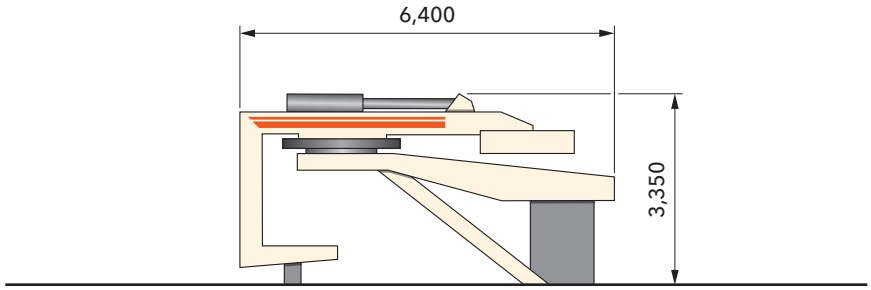
Dimensions in mm

Transport modules of the 2500 SM surface miner for sea transport

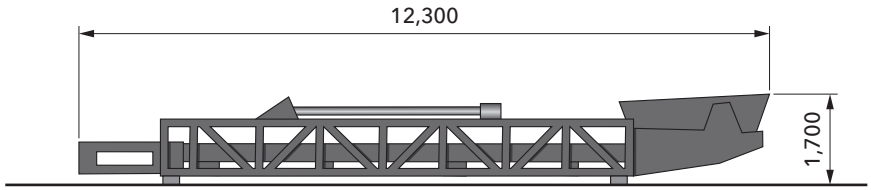
Shipping unit No. 1: module 1 (machine frame, track units, engine station, primary conveyor, operator's cabin)



Shipping unit No. 2: module 2 (slewing ring, conveyor suspension, counterweight, shipping crate with various attachment parts)



Shipping unit No. 3: module 3 (discharge conveyor)



Dimensions in mm

Standard equipment features

Basic machine	
Basic machine with engine	■
Separate battery master switch for disconnecting the starter	■
Soundproofing for cooler and hydraulic system	■
Hydraulically released scraper blade behind the cutting drum	■
Cutting drum unit	
Mechanical cutting drum drive via high-power V-belts	■
Cutting drum housing incorporating wear-resistant material (HB400)	■
Cutting drum housing FB2500	■
Cutting drums	
Cutting drum FB2500 HT14 LA45 with 76 picks	▣
Loading of the mining material	
Discharge conveyor 11,300 mm long, 1,400 mm wide	▣
Machine control and levelling system	
Four height adjustment units for the entire machine comprising two hydraulic cylinders each front and rear, cutting depth indicator, cutting depth control including one wire-rope sensor each left and right, cross slope control	■
Operator's platform	
Fully glazed, soundproof operator's cabin	■
Equipped with rotating driver's seat and all important controls integrated into the seat's armrests	■
Air-conditioning system with cooling and heating functions	■
Illuminated access ladder and walkway to the operator's cabin	■
Emergency exit with ladder via the front right track unit	■

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

Chassis and height adjustment	
Track units with exceptionally sturdy double-grouser track pads in heavy-duty design for mining applications	■
Continuously adjustable, hydraulic four-track drive with two speed ranges	■
Four-track steering system offering the following steering modes: crab, cornering or straight-ahead mode	■
Miscellaneous	
Water spray system for the cutting drum	■
High-pressure water cleaning system (40 bar) including cleaning lance	■
Lighting system including 13 LED working lights, 24 V	■
A total of five EMERGENCY STOP switches in appropriate positions on the machine	■
Electrohydraulically driven cutting drum rotation device for quick and safe pick replacement; an electrohydraulic unit permits operation with the diesel engine switched off	■
Comprehensive toolkit comprising high-quality tools for general rough and precision metalworking and repair work, ratchet, socket wrench, spanner, threading tools for M6 – M36 or spanner sizes of 10 – 50 mm	■
Standard painting in RAL 9001 (cream)	▢
Manual lubrication system	▢

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

Optional equipment features

Cutting drums	
Cutting drum FB2500 HT15 LA45 SK1500 with 68 picks	☐
Cutting drum FB2500 HT15 LA45 SK1500 in armoured design with 68 picks	☐
Loading of the mining material	
Equipment for depositing the mining material using the windrowing process	☐
Machine control and levelling system	
Pre-fitting for 3D laser levelling	☐
Operator's platform	
Monitor system including two cameras and two monitors	☐
FOPS cabin roof	☐
Transverse railing behind the operator's cabin and railing for engine compartment	☐

■ = Standard equipment
▣ = Standard equipment, replaceable with optional equipment
☐ = Optional equipment

Miscellaneous	
Painting in one special colour (RAL)	☐
Central lubrication system	☐
Cold-start aid, 400 V, without generator	☐
Petrol-operated generator, 400 V, for cold-start aid	☐
Hydraulic filling pump for water tank	☐
Hydraulic pick extractor	☐
Wiggins fast-fill system for diesel refuelling	☐
Wiggins fast-fill system for refilling operating materials	☐
Electrical diesel suction and pressure pump (100 l/min) including 7.50-m suction hose	☐
Voltage supply 12 V	☐
Rear lights	☐
Workshop container 20' including workshop equipment	☐
Workshop equipment – tools	☐
Workshop equipment – auxiliary equipment and consumables	☐
Workshop equipment – metric fastening elements	☐
Workshop equipment – electrical repairs	☐
Workshop equipment – hydraulic components	☐
Workshop equipment – hydraulic press	☐
Workshop equipment – hoses for emergency repairs	☐
Reduction of transport weight by dismantling the machine	☐

■ = Standard equipment
▩ = Standard equipment, replaceable with optional equipment
☐ = Optional equipment

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