A WIRTGEN GROUP COMPANY

WIRTGEN

Economical mining of hard rock.

Surface Miner 2500 SM

Outstanding features of the 2500 SM

1 | DISCHARGE CONVEYOR

Discharge conveyor including raising and slewing function for direct loading onto a transport vehicle.

2 | COUNTERWEIGHT

Counterweight including raising function for high machine stability and undisturbed operation along the edge of embankments.

9 | POWER UNIT WITH DIESEL ENGINE

Fuel-efficient, powerful diesel engine paired with a heavy-duty mechanical belt drive for high cutting performance.

8 | DRUM TOOLING

Extra-robust mining tools arranged in a helical pattern for high cutting performance, minimized tool wear and extended durability.

7 | CUTTING DRUM

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

3 | ACCESS

Wide, hydraulically adjustable access ladder for easy access to the machine.

4 | CABIN

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

5 | SAFETY EQUIPMENT

Comprehensive safety package ensuring compliance with international mining regulations.

6 | TRACK UNITS

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

A BIG IDEA. MINING VALUABLE USEFUL MINERALS SELECTIVELY NOT IN FOUR WORK STEPS BUT IN A SINGLE OPERATION. WITH THE WIRTGEN 2500 SM. A HIGH-PERFORMANCE SURFACE MINER IN HEAVY-DUTY DESIGN FOR RELIABLE, CONTINUOUS OPERATION AROUND THE CLOCK. EQUIPPED WITH OUR EXPERTISE IN STATE-OF-THE-ART CUTTING TECHNOLOGY. WITHOUT DRILLING AND BLASTING BUT IN A HIGHLY ENVIRONMENTALLY GENTLE PROCESS YIELDING MATERIAL OF THE PUREST QUALITY. WIRTGEN SURFACE MINING – EXPLOITING MINERAL DEPOSITS THE INTELLIGENT WAY.

Efficient.

A story of success: more than eighty WIRTGEN surface miners are in operation in the hard-rock mining industry around the globe.

Highly efficient mining of hard rock

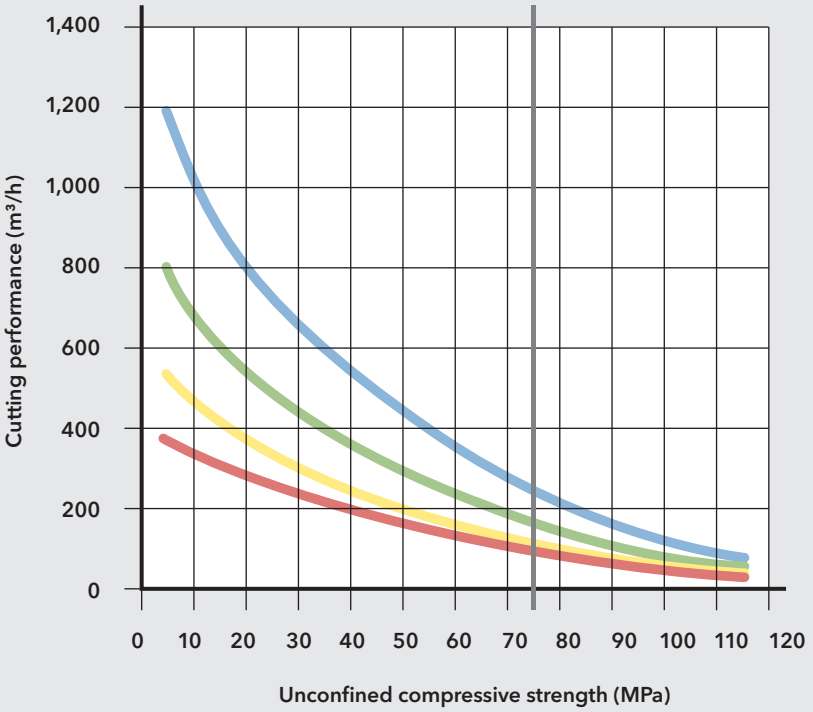
WITHOUT DRILLING AND BLASTING

The tried-and-tested 2500 SM surface miner is used for the selective mining of raw materials with unconfined compressive strengths 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 operating modes: the cut material can be directly loaded into trucks via the miner's conveyor system, discharged to the side of the machine by means of the slewing discharge conveyor, or deposited as a windrow between the machine's track units.

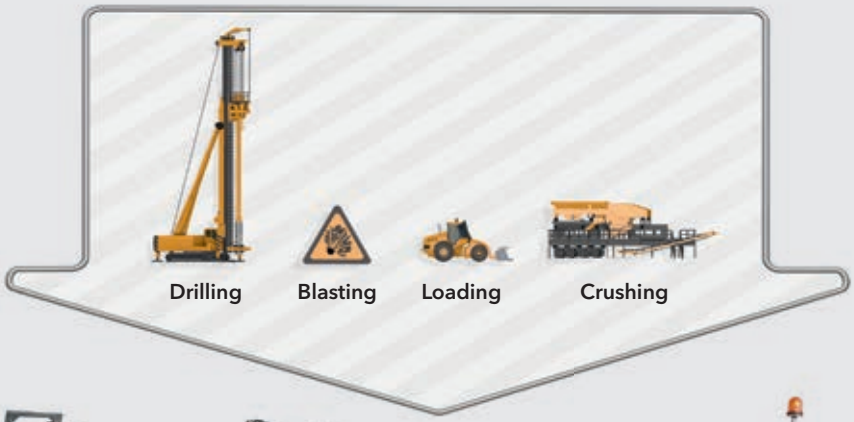
The surface miner cuts, crushes and loads rock in a single working pass. The economical and environmentally friendly process dispenses with the need for drilling and blasting, creating stable, precise cross-sections that allow immediate trafficking by trucks.

The miner's compact dimensions ensure easy transport and quick setup on site. A few hours only are needed to get the 2500 SM ready for the next job, making it the ideal candidate also for routing operations in earthworks and rock construction.

CUTTING PERFORMANCE OF THE WIRTGEN 2500 SM SURFACE MINER



- Loose rock
- Fine-grained rock
- Coarse-grained rock
- Solid rock



A single operation instead of four – 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

AN APPROVED METHOD – A TRIED-AND-TESTED MACHINE

Surface mining has made a name for itself around the globe as a successful mining process. The 2500 SM has employed this process successfully for many years in an extensive variety of different applications. Ideal fields of application for the rear loader are to be found, above all, in the selective mining of medium-hard to hard mineral deposits. To maximize exploitation of the deposit, the high-powered 2500 SM cuts and loads valuable raw materials, such as limestone, kimberlite, bauxite, iron ore, phosphate or oil shale, in a single operation, producing an even and easily trafficable surface in the process.

2 | *The high-performance 2500 SM is mining bauxite in a single operation.*

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

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

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

5 | *Biting its way through extremely hard rock: this 2500 SM is employed in routing operations.*

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 SPECIFIC 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.

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 90 minutes to only 15 minutes compared to conventional, welded toolholder systems.*

Highly economical Wirtgen cutting technology

APPLICATION-SPECIFIC DRUM DESIGN

Following an in-depth analysis of customer requirements by our mining experts, the 2.5 m wide cutting drum is designed to precisely fit the application it is intended for, which includes selection of the toolholder system and type of mining tool, definition of the most suitable tool spacing and positioning of the toolholders. Specially designed tools are used depending on the type and hardness of the rock to be mined.

The cutting drum and drum housing are equipped with special wearing elements in armoured design to allow the cutting of highly abrasive rock. Tailored precisely to the specified application, the cutting drum achieves top production rates at extremely low tool wear and tear.

Closure of the drum housing on the left and right is ensured by two hydraulically lifting side plates. An integrated water spray system reduces dust development when cutting dry materials.

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

HT15 QUICK-CHANGE TOOLHOLDER SYSTEM

The innovative HT15 quick-change toolholder system ensures maximum tool utilization while minimizing breaks in operation.

1 | **Specially heat-treated holder shank for increased strength**

2 | **Heavy-duty shank mounting for the use of WIRTGEN point-attack cutting tools**

3 | **Precise contact surfaces between upper part and bottom part for transfer of the cutting forces**

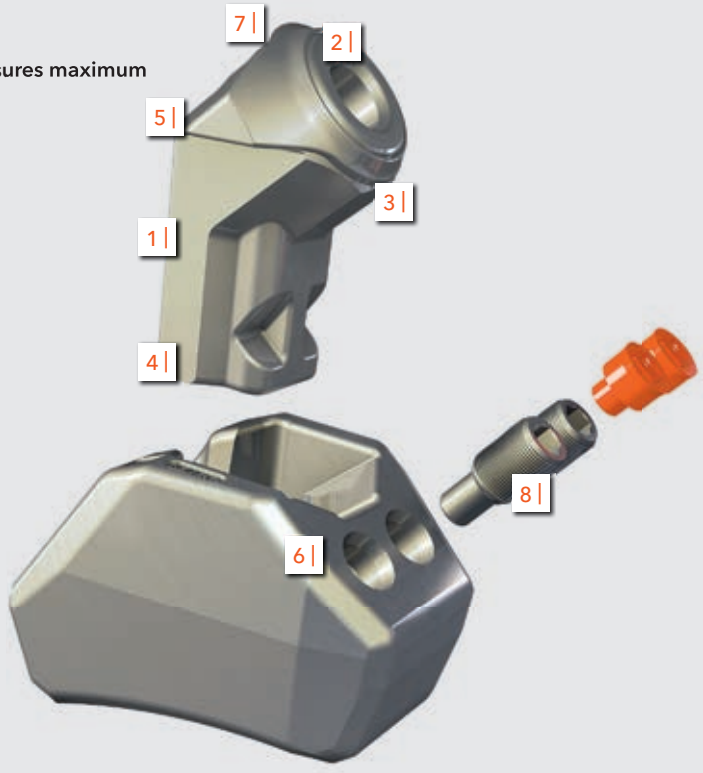
4 | **Double prism for optimal seating and supporting action of upper part in bottom part**

5 | **Material guides to protect the bottom part from abrasive wear**

6 | **Pronounced recesses in bottom part to protect internal threads and bolts from damage**

7 | **Large opening in upper part to ensure optimum access during tool replacement**

8 | **Solid mounting bolts and flexible silicone plugs to protect the fine thread from moisture and dirt**



Technically mature loading.

WIRTGEN SURFACE MINERS ARE EXPECTED TO DELIVER TOP PERFORMANCE CONTINUOUSLY AND IN EVERY REGARD. MATERIAL LOADING INCLUDED. THE LOADING CONVEYOR OF THE 2500 SM IS READY TO TAKE ON EVERY CHALLENGE. TO 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 VARIABLE CONVEYING SPEED. COMBINING PIONEERING POWER AND TECHNOLOGY – MADE BY WIRTGEN.

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 various options for loading the mining material. Depending on application requirements, the material is either loaded on heavy-duty dump 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 machine.

The discharge conveyor is distinctive for its high conveying capacity. It can be adjusted in height hydraulically and slewed about 90° to the left and right, enabling the dump trucks to simply drive next to the surface miner during the loading operation. A water spray system installed at the discharge conveyor reduces the development of dust when loading dry materials. In addition, the operator can adjust the conveyor belt speed continuously and independent of the engine speed. Changing the discharge pattern enables him to fully adapt the loading process to the position of the dump truck or to discharge the material to the side of the miner.

2 | ...and to the right.

3 | The counterweight can be folded up hydraulically when cutting along steep embankment walls.

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

The benchmark in operation.

BE RELAXED AND COMFORTABLE DURING WORK WHILE KEEPING EVERYTHING IN FULL VIEW – A GIVEN WITH THE 2500 SM. CLEARLY STRUCTURED CONTROLS ARRANGED IN LINE WITH ERGONOMIC PRINCIPLES. PROVIDING THE OPERATOR WITH ALL RELEVANT PARAMETERS AT A SINGLE GLANCE. THE INTELLIGENT VISIBILITY CONCEPT COMES AS STANDARD. WITH THE 2500 SM, YOU ARE IN FULL CONTROL. EASE OF HANDLING AND HIGH PRODUCTIVITY BECOME ONE.

Operation of the 2500 SM is simple and logical via two multifunctional joysticks integrated in the armrests.

True operator comfort

THE OPERATOR IS IN FULL CONTROL

Fitted with large glass windows, the operator's cabin offers good visibility, perfect ergonomic design and ease of operation to ensure full control of the entire mining process. A camera system comprising two cameras plus screen can additionally be installed in the cabin at the customer's request to allow full monitoring of the area at the rear of the machine. The air-sprung comfort driver's seat can be fully adjusted to suit the operator's needs and rotated about 270°, enabling the operator to monitor the loading process. All important controls are integrated in the armrests for intuitive operation. The soundproof, anti-vibration mounted cabin is equipped with air-conditioning and heating systems for relaxed working regardless of weather conditions.

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

The operator's cabin offers a perfect view of the space between the front track units ...

... and of the loading process.

More control

in off-road operation.

EXPERIENCE HAS SHOWN THAT THE TERRAIN OF LARGE-SCALE MINING OPERATIONS HOLDS UNEXPECTED DIFFICULTIES, SOME OF THEM PRESENTING A TRUE CHALLENGE. GOOD TO BE PREPARED FOR JUST SUCH A SITUATION. THE WIRTGEN 2500 SM SURFACE MINER FEATURES MANY TECHNICAL INNOVATIONS HELPING YOU TO REACH YOUR GOAL SAFELY AND QUICKLY. MORE TRACTION, MORE MANOEUVRABILITY, MORE GROUND CLEARANCE. GIVING YOU MORE CONTROL AND MORE PRODUCTIVITY.

Three different steering modes optimize manoeuvrability in restricted space conditions.

Fully equipped for operations in difficult terrain

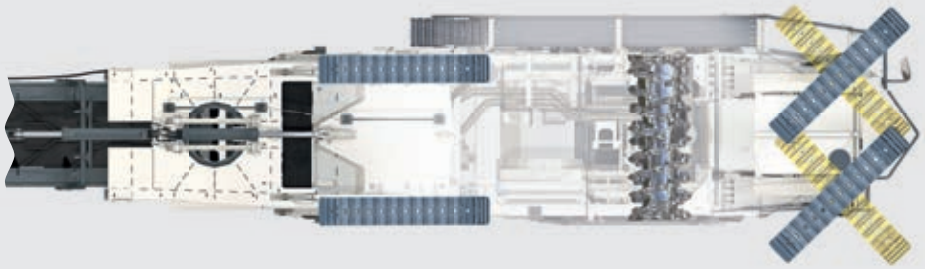
GAINING GROUND EASILY

The 2500 SM makes good headway even on difficult ground and in restricted space conditions. An all-track steering system offering three selectable steering modes gives the miner exceptional manoeuvrability.

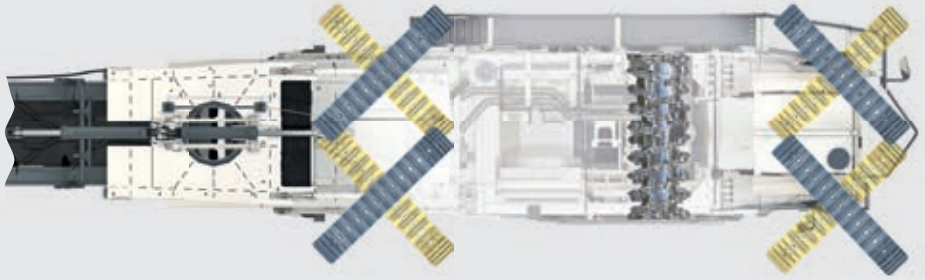
The rear and front tracks are steered in opposite directions when moving into position; the front tracks are steered to produce long, straight cuts; and all four track units are steered in the same direction in crab mode to enable lateral repositioning of the miner. A hydraulic flow divider acts as a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

The miner's high ground clearance and individually height-adjustable track units enable the miner operator to fully adjust their position to ground conditions.

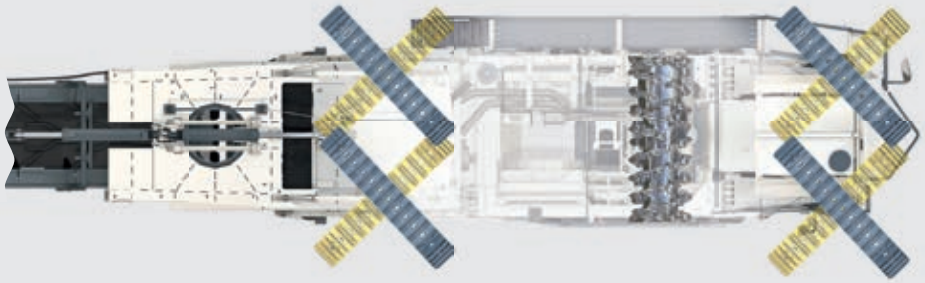
THREE STEERING MODES



Steering the front track units



All-track steering



Crab steering

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

2 | *All four track units can be adjusted in height separately via hydraulic cylinders to allow setting of the cutting depth and cross slope.*

ROBUST DESIGN. EXTENDED SERVICING INTERVALS. INTELLIGENT MAINTENANCE. FEATURES COMBINING INTO ONE HALLMARK OF YOUR 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 AND ALWAYS AT YOUR SERVICE. PROVIDING CUSTOMER-SPECIFIC SUPPORT AND SUSTAINABLE SERVICE CONCEPTS, WE SUPPORT YOU ON YOUR ROAD TO SUCCESS.

Ready to deliver

full performance – always.

The hydraulically operated tool extractor ensures the quick and effortless replacement of cutting tools.

Quick maintenance boosts productivity

The battery-operated drum turning device moves the cutting drum into the ideal position quickly to facilitate tool replacement for the machine operator.

HIGH AVAILABILITY

The 2500 SM is often operated on a 24-hour basis – minimizing maintenance requirements is therefore of vital importance. The miner has been designed to allow the quick replacement of wearing parts and to ensure ready access to all points of maintenance, such as the diesel engine or cutting drum. Replacing cutting tools and toolholders is easy thanks to the hydraulic tool extractor, drum turning device and innovative HT15 quick-change toolholder system. Combined, these features significantly increase machine availability.

The engine, cooler and hydraulic system offer full soundproofing to reduce noise emission levels. In tough opencast mining operations, the miner's mechanical cutting drum drive with multiple V-belts is distinctive for its high efficiency and ease of maintenance. The drum speed can be adjusted to the job at hand by exchanging the V-belt pulleys.

There can be no compromises on safety

STRICT MINING REGULATIONS IN FOCUS

WIRTGEN is first and foremost concerned with the safety of operators and maintenance staff. The extremely strict mining regulations are fully complied with: the miner's access ladders and walkways have been produced from non-slip materials and are brightly illuminated – as are all of the servicing points. Grated walkways and standardized railings are provided wherever regular checks and servicing work need to be carried out on machine components. Starting the machine by accident during maintenance procedures is prevented by the battery master switch. Cutting tools are also replaced safely with the machine's engine switched off.

A powerful lighting system permits safe operation of the miner in darkness. To avoid any risk of burns, the turbocharger is lined with special metal plates and the exhaust gas lines are provided with high-temperature insulation. Emergency stop switches at the front left, front right, rear left and rear right, in the engine compartment, at 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 descent allows the operator to exit the machine safely in the rare event that the regular descent should prove to be impassable. A FOPS or FOPS-ROPS cabin roof can be installed at the customer's request.

Technical specification

Cutting drum	
Cutting width max.	2,500 mm
Cutting depth *[1]	0 to 650 mm
Drum diameter with tools	1,500 mm
Number of cutting tools	depending on operating conditions
Engine	
Manufacturer	CUMMINS
Type	QST 30
Cooling	water
Number of cylinders	12
Rated power	783 kW / 1,050 HP / 1,065 PS
Fuel consumption, full load	192 l / h
Fuel consumption in field operation	96 l / h
Emission standard USA / Canada	Tier 2
Emission standard outside USA / Canada	Tier 1
Electrical system	
Electrical power supply	24 V
Tank capacities	
Fuel tank	2,400 l
Hydraulic oil tank	500 l
Water tank	2,800 l
Driving properties	
Operating speed	0 to 25 m / min
Travel speed	0 to 3.9 km / h
Theoretical gradeability	20%
Max. cross slope	8%
Crawler units	
Crawler 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

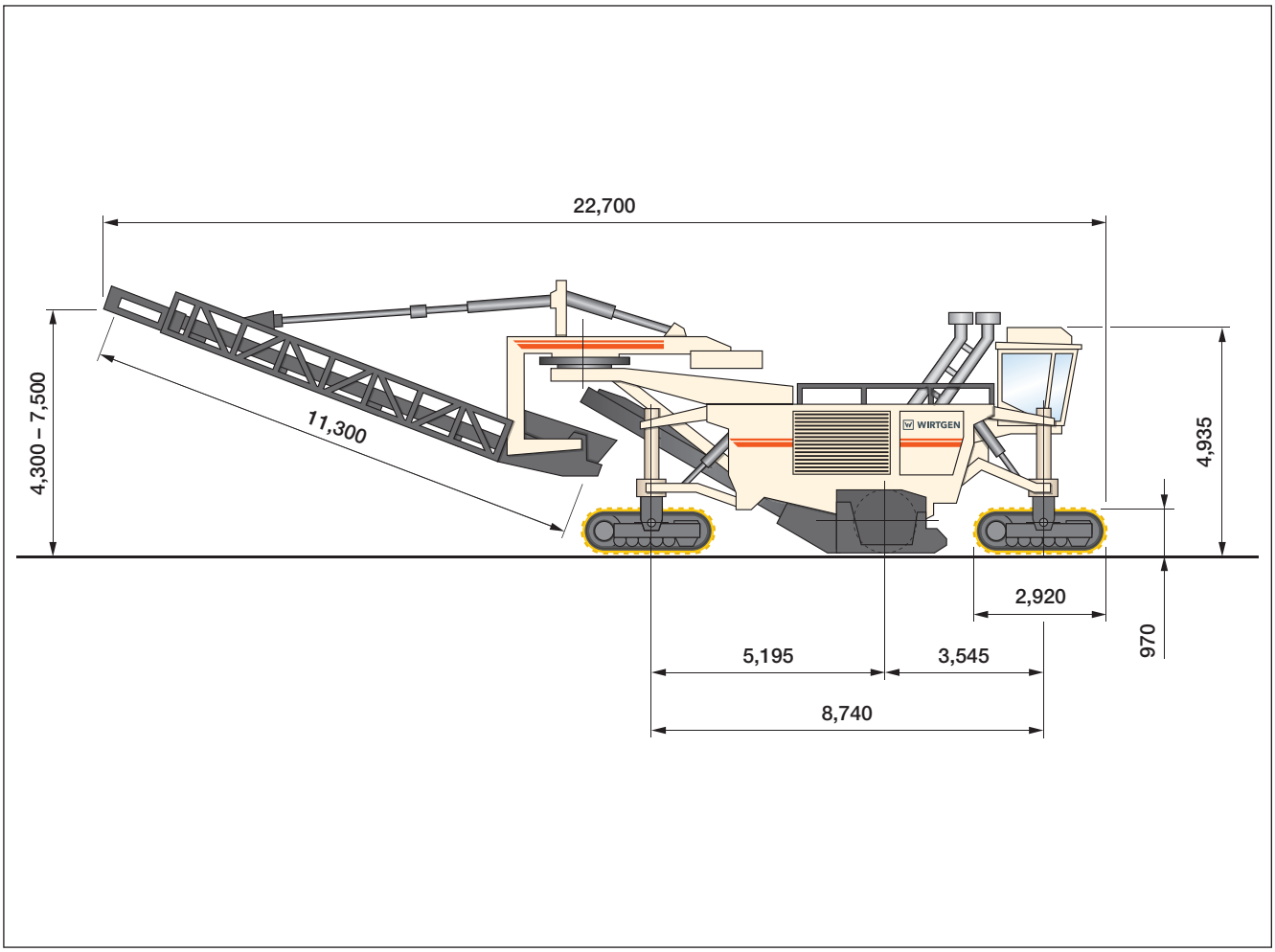
*[1] = The maximum cutting depth may deviate from the value indicated due to tolerances and wear

Shipping dimensions	
Ground transport	
Packing unit No. 1: module 1 (machine frame, Crawlwe units, engine station, primary conveyor, operator's cabin) (L x W x H)	12,800 x 3,470 x 3,400 mm
Packing unit No. 2: module 2 (slewing ring, conveyor suspension, counterweight, transport box 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	
Packing unit No. 1: module 1 (machine frame, Crawlwe units, engine station, primary conveyor, operator's cabin) (L x W x H)	12,800 x 3,470 x 3,400 mm
Packing unit No. 2: module 2 (slewing ring, conveyor suspension, counterweight, transport box with various attachment parts) (L x W x H)	6,400 x 2,700 x 3,350 mm
Packing unit No. 3: module 3 (discharge conveyor) (L x W x H)	12,300 x 2,300 x 1,700 mm

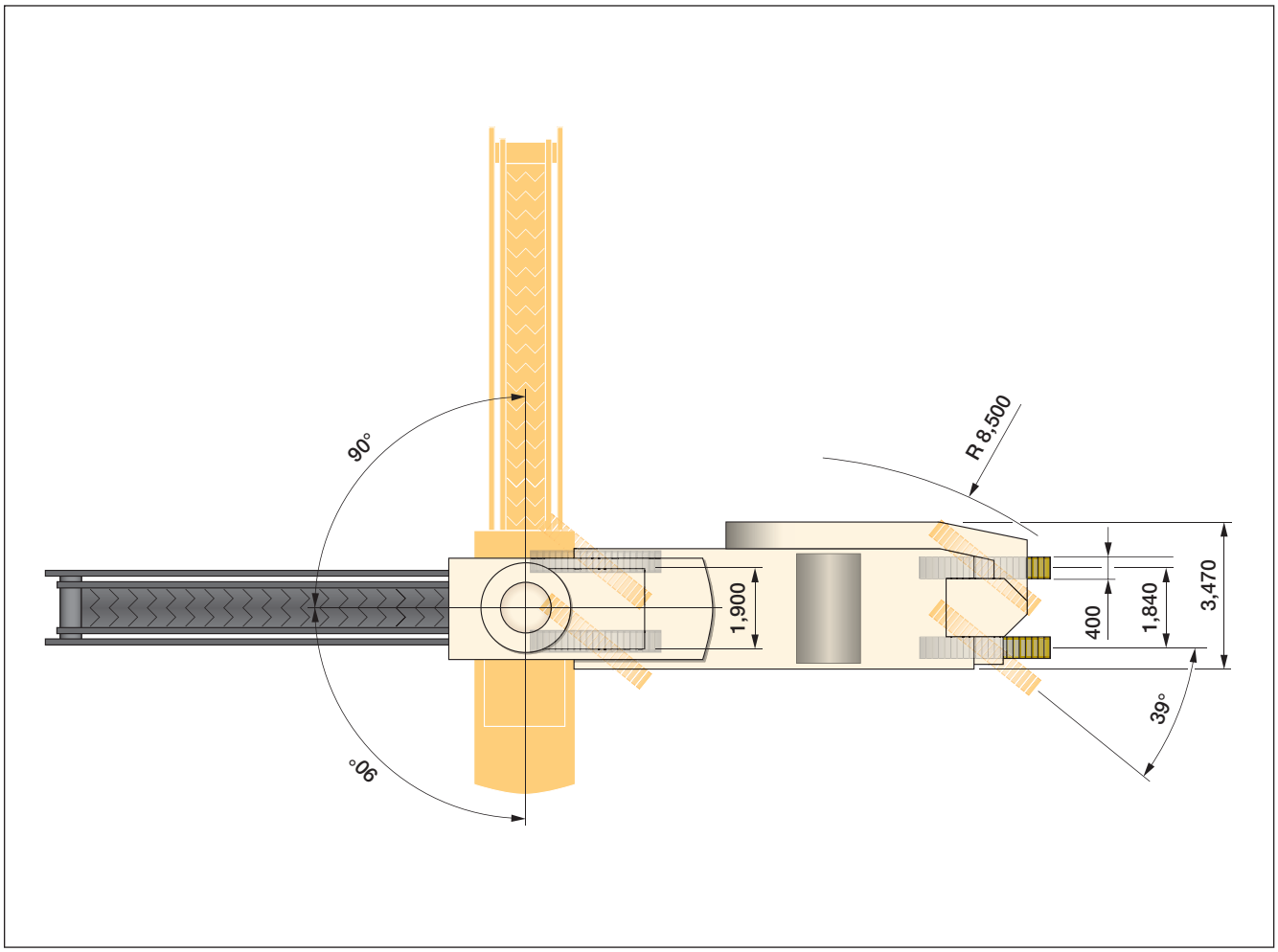
Weight of base machine	
Empty weight	109,100 kg
Operating weight, CE*[2]	111,600 kg
Maximum operating weight, full tanks	118,000 kg
Transport weights of individual components	
Ground transport	
Weight of packing unit No. 1: module 1 (machine frame, Crawlwe units, engine station, primary conveyor, operator's cabin)	82,850 kg
Weight of packing unit No. 2: module 2 (slewing ring, conveyor suspension, counterweight, transport box with various attachment parts) and module 3 (discharge conveyor)	28,450 kg
Sea transport	
Weight of packing unit No. 1: module 1 (machine frame, Crawlwe units, engine station, primary conveyor, operator's cabin)	82,850 kg
Weight of packing unit No. 2: module 2 (slewing ring, conveyor suspension, counterweight, transport box with various attachment parts)	23,800 kg
Weight of packing unit No. 3: module 3 (discharge conveyor)	4,650 kg
Weights of operating agents	
Water tank filling in kg	2,800 kg
Diesel tank filling in kg (0.83 kg / l)	1,992 kg
Optional equipment features increasing / reducing empty weight	
Driver	75 kg
On-board tools	30 kg

*[2] = Weight of machine, half-full water tank, half-full fuel tank, driver, on-board tools, excluding equipment options

Dimensions



Dimensions in mm

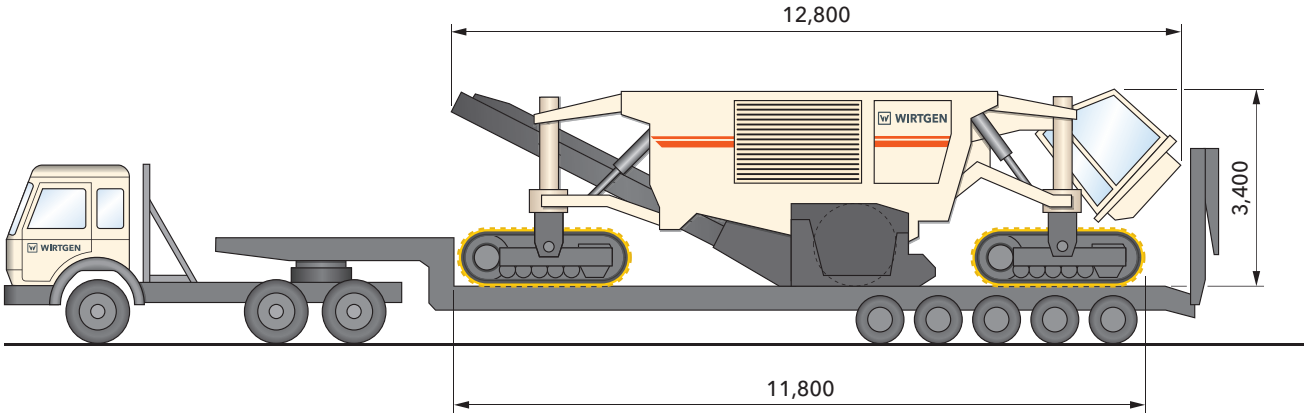


Dimensions in mm

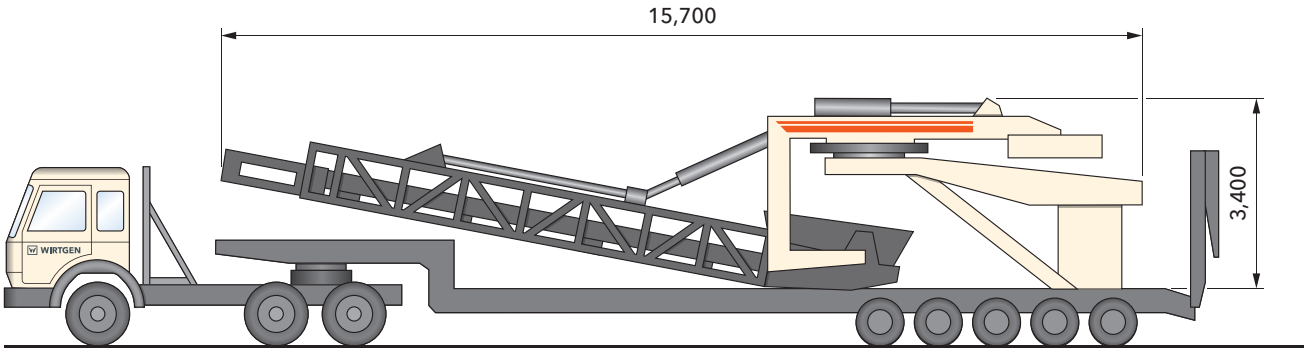
Dimensions

Transport modules of surface miner 2500 SM for ground transport

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



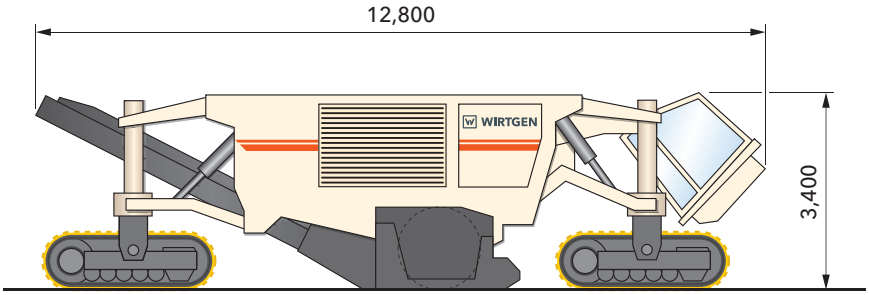
Packing unit No. 2: module 2 (slewing ring, conveyor suspension, counterweight, transport box with various attachment parts)
and module 3 (discharge conveyor)



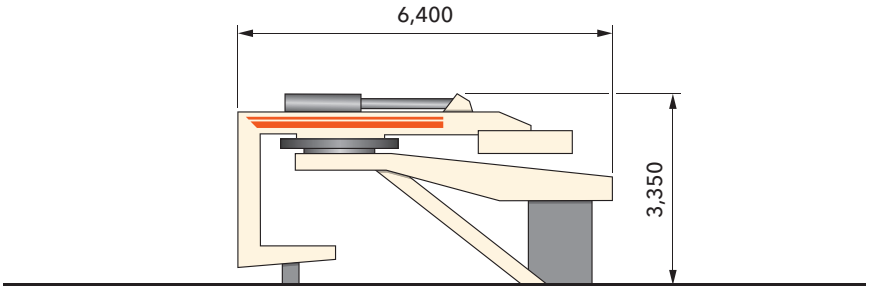
Dimensions in mm

Transport modules of surface miner 2500 SM for sea transport

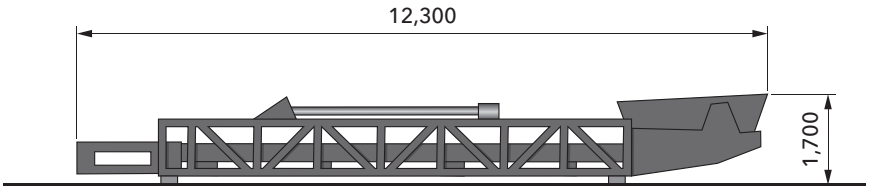
Packing unit No. 1: module 1 (machine frame, Crawlwe units, engine station, primary conveyor, operator's cabin)



Packing unit No. 2: module 2 (slewing ring, conveyor suspension, counterweight, transport box with various attachment parts)



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



Dimensions in mm

Standard equipment

Base machine	
Basic machine with engine	■
Separate battery main switch for disconnecting the starter	■
Sound attenuation package for radiator and hydraulic system	■
Mechanical Cutting drum drive with drive belts	■
Hydraulically depressurised scraper plate behind the drum	■
Cutting drum unit	
Cutting drum housing completely made from wear-resistant material (HB400)	■
Cutting drum housing FB2500	□
Cutting drums	
Cutting drum FB2500 HT15 LA45 SK1500 with picks	□
Material loading	
Two-part discharge conveyor, 11,300 mm long, 1,400 mm wide	□
Machine control and levelling system	
Four height settings for the entire machine, consisting of two hydraulic cylinders each front and rear, cutting depth display, cutting depth control with a wire-rope sensor on each machine side, transverse slope control	■
Operator's stand	
Operators stand glazed all round and acoustically insulated	■
Equipped with rotating seat with all important control instruments in the armrests	■
With air conditioner for cooling and heating	■
Footstep and walkway to the cabin illuminated	■
Emergency exit with ladder over the front right track	■

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

Chassis and height adjustment	
Crawler units with particularly robust 2-web track pads in heavy-duty version for mining applications	■
Infinitely variable, hydraulic four-track drive with two speed ranges	■
Four-track steering	■
The following steering types can be preselected: Crab and coordinated steering as well as straight ahead for the rear crawler units	■
Others	
Water spraying system for drum sprinkling	■
Water high-pressure cleaner (40 bar) with washing lance	■
Lighting system with 14 xenon spotlights 24V	■
Total of 5 EMERGENCY STOP switches at sensible positions on the machine	■
Cutting drum rotation device, electrohydraulically driven. For the fast and simple pick change. An electrohydraulic unit permits operation with the diesel engine switched off.	■
Paint standard cream white RAL 9001	□
Lubrication unit manual	□

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

Optional equipment

Cutting drums	
Cutting drum FB2500 HT14 LA45 with picks	☐
Cutting drum FB2500 HT15 LA45 SK1500 armoured with picks	☐
Material loading	
Equipment for cut material depositing in the windrow process	☐
Machine control and levelling system	
Preliminary equipment 3D laser levelling	☐
Monitor system 2 camera and 2 monitor	☐
Operator's stand	
FOPS cabin canopy	☐
Railing sideways behind the cabin and railing for engine compartment	☐

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

Others	
Paint in one special colour (RAL)	☐
Central lubrication system	☐
Cold start aid 400 V without generator	☐
Petrol generator 400 V for cold start aid	☐
Water filling hydraulic	☐
Hydraulic pick ejector drift	☐
Wiggins device for fast filling of the diesel tank	☐
Wiggins device for filling fuels / lubricants	☐
Electrical diesel suction and pressure pump (100 l / min) with 7.50 m suction hose	☐
Electrical power supply 12 V	☐
Rear lights	☐
2 additional LED working lights on the discharge conveyor	☐
Workshop container 20 foot incl. workshop equipment	☐

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

WIRTGEN

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