Recycling and milling with a single machine

Cold Recycler 2200 CR
The 2200 CR –

top performance twofold

The 2200 CR also scores top marks as an efficient front loader with ample reserve capacity.

As a high-performance in-situ cold recycler, the 2200 CR recycles asphalt roads in a single pass.

The 2200 CR cold recycler with a working width of 2.2 m puts up a compelling performance on many construction projects in two different ways. On the one hand, it is the powerful prime candidate when it comes to repairing damaged asphalt pavements with added binding agents. For this purpose, various injection systems make it particularly flexible. On the other hand, the compact 2200 CR can be used as a highly efficient, high-end cold milling machine on large-scale construction projects. Here, the removal of pavements at full depth and high advance rates ensures unrivalled productivity.

The 2200 CR recycles asphalt pavements with added cement, water-cement slurry, bitumen emulsion or foamed bitumen. The integrated spreading auger and paving screed create high-quality, pre-compacted base layers.

The 2200 CR can be used as an enormously powerful cold milling machine capable of milling off layers at depths of up to 35 cm without requiring modification.
The cold recycling process in detail

Recycling train including the 2200 CR

Material processing with the 2200 CR

1. Damaged asphalt layer
2. Pre-spread cement
3. Injection bar for water
4. Injection bar for binding agents
5. Milling and mixing rotor
6. Material guide plate system
7. Spreading auger
8. Paving screed
Where specified, cement is pre-spread by a Streumaster binder spreader which is followed by a water tanker and binder tanker truck. Via hose connections, injection systems installed in the 2200 CR convey the liquid binding agents from the tanker trucks coupled to the machine for precise injection into the milling and mixing chamber.

Rotating against the direction of travel, the heavy-duty milling and mixing rotor granulates the existing damaged asphalt pavement to a depth of up to 25 cm. The granulated material is then mixed with the pre-spread cement and injected water and bitumen emulsion or foamed bitumen in the machine’s mixing chamber, thus creating a new homogeneous mix in an in-situ process.

In the next step, the recycled mix is deposited between the rear track units via a material guide plate system.

The spreading auger spreads the material evenly across the full working width, enabling the integrated Vögele paving screed to precisely pave and pre-compact it true to line and level at layer thicknesses of up to 25 cm.

Following final compaction by Hamm tandem and pneumatic-tyred rollers, the recycled layer serves as a high-quality base for the new road.
High milling and mixing performance

Intelligent functions come as a standard feature

The 2.2 m wide, robust milling and mixing rotor is based on the many decades of experience Wirtgen has gained in milling technology. Rotating against the recycler’s direction of travel, the powerful rotor mixes the different materials to produce a homogeneous construction material mix.

When in lowered position, the scraper blade enables complete loading of the material. When raised and locked, the material can either be partially loaded or remain in the cut. The scraper blade can be raised hydraulically to optimize the entire process: It provides easy access to the milling and mixing rotor for the replacement of cutting tools.

Point-attack cutting tools are replaced quickly and easily using the hydraulic tool extractor and automatic drum turning device. The extremely hard-wearing HT22 toolholder system is distinctive for its exceptionally high durability which pays off in everyday operation on site by significantly extended replacement intervals.

The effective hydraulic cutting tool extractor ensures extremely easy handling with only little effort required.
In lowered position, the side plates move over the surface.

In raised position, the side plates enable the road surface to be milled off accurately along kerbs.

Swing-open baffle plates conduct the recycled material between the rear track units.

The heavy-duty gradation control beam protects the conveyor belt and prevents the material from breaking into larger slabs.
Innovative injection systems for highly precise binder addition

As binders need to be added in precise quantities to produce perfect mixes and base layers of high quality, the 2200 CR is equipped with state-of-the-art injection systems.

Tanker trucks pushed by the 2200 CR deliver water and bitumen emulsion or hot bitumen to the recycler’s injection systems via coupled hose connections. Hot bitumen is foamed prior to injection. Foamed bitumen is produced by adding precisely metered quantities of water and compressed air to hot bitumen which has a temperature of 175°C. Production takes place in the recycler’s injection system. Foamed bitumen is distinctive for its economic efficiency and ease of handling. It is eminently suitable for mixing with cold and moist construction materials.

The binders are injected into the mixing chamber via special injection bars. Microprocessors ensure injection in precisely metered quantities across the recycler’s full working width and in accordance with the machine’s advance speed and recycling depth.

A great variety of mixing options

As binders need to be added in precise quantities to produce perfect mixes and base layers of high quality, the 2200 CR is equipped with state-of-the-art injection systems.

Tanker trucks pushed by the 2200 CR deliver water and bitumen emulsion or hot bitumen to the recycler’s injection systems via coupled hose connections. Hot bitumen is foamed prior to injection. Foamed bitumen is produced by adding precisely metered quantities of water and compressed air to hot bitumen which has a temperature of 175°C. Production takes place in the recycler’s injection system. Foamed bitumen is distinctive for its economic efficiency and ease of handling. It is eminently suitable for mixing with cold and moist construction materials.

The binders are injected into the mixing chamber via special injection bars. Microprocessors ensure injection in precisely metered quantities across the recycler’s full working width and in accordance with the machine’s advance speed and recycling depth.
All components of the foamed bitumen system transporting hot bitumen are heated.

The binder quantities to be added are keyed in at the control panel – the system is governed by microprocessors.
State-of-the-art screed for high-quality paving

The 2200 CR relies on tried-and-tested Vögele technology to guarantee perfect paving of the mix true to line and level. The continuously adjustable AB 375 T screed makes paving easy even in bends or when having to navigate permanent fixtures. A spreading auger installed in front of the screed distributes the mix across the full working width. The centrally divided auger is operated in clockwise or counter-clockwise direction, the conveying speed of both sections being continuously adjustable. The screed’s hydraulic tamper ensures reliable pre-compaction of the recycled pavement layer.

The integrated automatic levelling system ensures paving of the recycled mix precisely to the specified level. The resulting base layer provides an ideal base for the subsequent construction of a new asphalt surfacing.

The screed’s hydraulically moveable side plate is yet another useful feature as it is capable, for example, of redirecting excess material for shoulder reinforcement.
The 2200 CR as a high-performance milling machine

To ensure full machine utilization, the 2200 CR can be operated not only as a recycler but also as an efficient high-performance milling machine. An ultra-strong engine and high conveying capacity make it the ideal choice for milling jobs involving extremely high outputs such as the removal of asphalt pavements at full depth. The high-performance conveyor can be slewed by 55 degrees to the right and 45 degrees to the left to ensure full loading flexibility. High advance rates and milling depths of up to 35 cm ensure the quick completion of large construction projects, such as the replacement of surface courses on motorways or airport runways. The machine can also be used to mill off thin pavement layers prior to recycling in order to retain the previous level after construction of a new surface course on top of the recycled layer.

The variable discharge conveyor belt speed enables even large articulated trucks to be loaded to full capacity. Wide slewing angles allow trucks to change “on the fly”, enabling the milling operation to continue non-stop.
Ease of operation enables productive working

Ideal working conditions

In its double role as a cold recycler and cold milling machine, the 2200 CR completes highly complex jobs – yet it can be operated with just a few simple flicks of the wrist. In line with this approach, the clearly arranged controls ensure easy and intuitive operation. The WIDIS 32 multi-functional screen is installed in the centre of the clearly structured operator’s platform. It provides comprehensive information on all relevant parameters pertaining to the machine, engine and hydraulic system. The user-friendly LEVEL PRO levelling system is yet another very useful feature. Highly precise results are guaranteed – whatever the job.

The operator enjoys ample leg-room on the walk-through operator’s platform in both standing and seated position. In addition, he can adjust the control panels on the left and right side individually in height and tilt to suit his personal preferences. Anti-vibration mounted treads minimize the impact of machine vibrations on the operator.
The LEVEL PRO panel is located within easy reach and in the direct field of view of the operator.

Just like the two seats, the panels can be moved to project over the outer machine edge.

The simple control panel design enables the operator to remain fully focused on the job.

Crew members on the ground can set or modify key machine parameters via additional control panels mounted on both sides.
Intelligent power control

Unrivalled engine performance reserves

The powerful diesel engine offers technology designed for top performance. In addition, an intelligent machine management system controls the machine’s advance rate in accordance with the engine load.

In addition, the mechanical milling and mixing rotor drive enables permanently high output rates while ensuring highly efficient operation at the same time. Additional benefits of the smooth power belt drive in tough everyday operation on site are low fuel consumption, high wear resistance and ease of maintenance. An automatic belt tensioner ensures uniform power transmission at all times.

All points of maintenance are arranged in a clear pattern and can be conveniently accessed. Replacing the hydraulic, air, fuel, return line and bitumen filters poses no problem at all. To simplify maintenance procedures, lubrication and servicing points have also been grouped together intelligently.

In the operating range of the 2200 CR, the engine output remains constant even in case of extreme engine lugging.

Mechanical milling drum drive provides maximum efficiency.

Maintenance is made totally easy as the entire machine offers ready access.
Not a single minute wasted during transport

Arriving on the next job in no time at all

The machine is easily transported on a flatbed truck. Ample ground clearance simplifies the loading procedure. Sturdy conveyor support legs are on offer as an optional feature.

In order to not exceed the permissible transport height, the protective canopy is folded down for transport hydraulically at the mere flick of a switch.

Strong loading and lashing lugs enable the machine to be safely lashed down on a flatbed truck or loaded by crane. The transport length of the 2200 CR is reduced significantly by the folding conveyor design.
Technical specification 2200 CR

Dimensions in mm

Optional equipment: spreading auger and paving screed

Optional equipment: protective canopy

* = Dimensions for transport on a flatbed truck
** = Paving screed and spreading auger
*** = Spreading auger

R 4,800 with paving screed
R 2,500 without paving screed
### Machine weights

<table>
<thead>
<tr>
<th>Description</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empty weight of machine without tank contents</td>
<td>42,970</td>
</tr>
<tr>
<td>Operating weight, CE*</td>
<td>46,200</td>
</tr>
<tr>
<td>Maximum operating weight</td>
<td>52,800</td>
</tr>
</tbody>
</table>

### Transport weights of individual components

<table>
<thead>
<tr>
<th>Description</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight of machine</td>
<td>41,170</td>
</tr>
<tr>
<td>Weight of discharge conveyor</td>
<td>1,800</td>
</tr>
</tbody>
</table>

### Weights of tank contents

<table>
<thead>
<tr>
<th>Description</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water tank filling in kg</td>
<td>5,000</td>
</tr>
<tr>
<td>Diesel tank filling in kg (0.83 kg/l)</td>
<td>1,160</td>
</tr>
</tbody>
</table>

### Optional equipment features increasing/reducing empty weight

#### Driver and tools

<table>
<thead>
<tr>
<th>Description</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver</td>
<td>75</td>
</tr>
<tr>
<td>On-board tools</td>
<td>30</td>
</tr>
</tbody>
</table>

#### Optional additional equipment

<table>
<thead>
<tr>
<th>Description</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spreading auger and paving screed</td>
<td>4,000</td>
</tr>
<tr>
<td>Protective canopy</td>
<td>280</td>
</tr>
<tr>
<td>Folding conveyor in lieu of standard</td>
<td>800</td>
</tr>
</tbody>
</table>

* = Weight of machine, half-full water tank, half-full fuel tank, driver, on-board tools, excluding optional equipment features

---

### Optional equipment: folding discharge conveyor

**Dimensions in mm**

- Length: 16,900 mm
- Width: 16,400 mm
- Height: 4,000 mm
- Height: 3,000 mm

* = Dimensions for transport on a flatbed truck
Equipment features 2200 CR

Standard equipment features

**Basic machine**
- Hydraulically opening, soundproof engine cowling
- Engine cooling system with temperature-governed fan speed
- Storage compartments for cutting tool containers
- Standard painting in Wirtgen white with orange stripes
- Air intake with cyclonic pre-cleaner

**Milling drum assembly**
- Mechanical milling drum drive via multiple V-belts with automatic belt tensioner
- Milling drum housing of wear-resistant material
- Hydraulically lifting side plates
- Hydraulic gradation control beam with conveyor lift function
- Hydraulically adjustable scraper blade with manual locking mechanism
- Electrically engageable water spray system in milling drum assembly

**Milling drum**
- Milling drum, working width 2,200 mm, HT22 quick-change toolholder system, tool spacing 15 mm

**Loading of the milled material**
- Conveyor system with manually or automatically adjustable conveying speed
- Hydraulically lifting primary conveyor
- Material guide plate system with hydraulically operated closing panel to primary conveyor

**Cold recycling system**
- Injection system including one pump and one injection bar for water or bitumen emulsion

**Machine and levelling control**
- Clearly structured main control panel with functional switches
- Multifunctional control screen displaying all major machine operation parameters
- Engageable, automatic milling power control unit
- Engageable, automatic traction control
- Two exterior control panels for operation by ground staff
- Digital height indicator
- LEVEL PRO automatic levelling system with hydraulic milling depth sensors at the side plates, left and right
- Milling depth measurement via sensor package and display on LEVEL PRO screen
- Wirtgen WIDIS 32 information and diagnostic system

**Operator’s platform**
- Anti-vibration mounted, walk-through operator’s platform
- Individually adjustable comfort control panels
- Individually adjustable comfort driver’s seats, left and right
- Dual access to operator’s platform
- Two mirrors at the front, one mirror at the rear

**Chassis and height adjustment**
- All-track steering system with freely selectable steering modes
- Double grouser track pads
- Inner material guide plates at the rear track units
- Intelligent track speed control with hydraulic all-track drive
- Extremely wear-resistant polyurethane track pads

**Miscellaneous**
- Lighting package with 6 halogen working lights and 3 halogen flashing beacons
- Compressed air system
- Water tank filling, front and rear
- Comprehensive toolkit in lockable toolbox
- Safety package with 6 emergency stop switches
- European design type certification, GS mark (Geprüfte Sicherheit = Tested Safety) and CE conformity
- Standard warranty of 12 months or 1,000 engine operating hours
- Machine commissioning by qualified personnel
- Comprehensive operating manual and machine documentation
## Optional equipment features

### Basic machine
- Special painting, one or several colours

### Milling drum assembly
- Drum turning device for cutting tool replacement
- Pneumatic cutting tool extractor

### Loading of the milled material
- Conveyor support legs for transport on a flatbed truck
- Hydraulically folding discharge conveyor

### Cold recycling system
- Injection system including two pumps and two injection bars for water and bitumen emulsion
- Injection system including two pumps and two injection bars for foamed bitumen and for water or bitumen emulsion
- Injection bar (excluding pump, for use with WM 1000)
- Hot-bitumen hose for connection to bitumen tanker truck, various lengths
- Hose for transport of water-cement slurry (excluding pump)

### Paving screed
- Spreading auger including scraper
- Vario paving screed including tamping system
- Hydraulically opening side plates
- Ultrasonic sensors for vario screed control on one or both sides, including digital controller
- Cross slope controller for vario screed control

### Machine and levelling control
- RAPID SLOPE cross slope sensor
- Sonic ski sensor for scanning a stringline
- Multiplex sensors with two additional ultrasonic sensors including bracket and cable in 3-fold or 7-fold Multiplex system package, left

### Operator’s platform
- Hydraulically fold-down protective canopy

### Miscellaneous
- Screen system including display
- Lighting system including 6 LED working lights and 3 LED flashing beacons
- High-pressure cleaner
- Electrically operated diesel tank filling pump
- Hydraulically operated water tank filling pump, front
# Technical specification 2200 CR

<table>
<thead>
<tr>
<th>Milling drum</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Working width</td>
<td>2,200 mm</td>
</tr>
<tr>
<td>Milling depth/recycling depth (^{*1})</td>
<td>0–350 mm/0–250 mm</td>
</tr>
<tr>
<td>Tool spacing</td>
<td>15 mm</td>
</tr>
<tr>
<td>Number of cutting tools</td>
<td>188</td>
</tr>
<tr>
<td>Drum diameter with tools</td>
<td>1,140 mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Engine</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine manufacturer</td>
<td>Caterpillar</td>
</tr>
<tr>
<td>Type</td>
<td>C27 ATAAC</td>
</tr>
<tr>
<td>Cooling</td>
<td>Water</td>
</tr>
<tr>
<td>Number of cylinders</td>
<td>12</td>
</tr>
<tr>
<td>Rated power at 2,100 min(^{-1})</td>
<td>708 kW/950 HP/963 PS</td>
</tr>
<tr>
<td>Fuel consumption at rated power</td>
<td>187 l/h</td>
</tr>
<tr>
<td>Fuel consumption, field mix</td>
<td>75 l/h</td>
</tr>
<tr>
<td>Emission standards</td>
<td>EC not regulated/US EPA Tier 2</td>
</tr>
<tr>
<td>Electrical system</td>
<td>24 V</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tank capacities</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel tank</td>
<td>1,400 l</td>
</tr>
<tr>
<td>Hydraulic oil tank</td>
<td>550 l</td>
</tr>
<tr>
<td>Water tank</td>
<td>5,000 l</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Driving properties</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Working and travel speed</td>
<td>0 to 84 m/min (0 to 5 km/h)</td>
</tr>
<tr>
<td>Theoretical gradeability</td>
<td>90%</td>
</tr>
<tr>
<td>Ground clearance</td>
<td>370 mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Track units</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Track units (L x W x H)</td>
<td>2,200 x 370 x 790 mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conveyor system</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Belt width of primary conveyor</td>
<td>1,100 mm</td>
</tr>
<tr>
<td>Belt width of discharge conveyor</td>
<td>1,100 mm</td>
</tr>
<tr>
<td>Theoretical capacity of discharge conveyor</td>
<td>668 m³/h</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shipping dimensions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine (L x W x H)</td>
<td>9,700 x 2,800 x 3,000 mm</td>
</tr>
<tr>
<td>Machine including spreading auger and paving screed (L x W x H)</td>
<td>12,000 x 3,000 x 3,000 mm</td>
</tr>
<tr>
<td>Discharge conveyor (L x W x H)</td>
<td>8,700 x 1,700 x 1,300 mm</td>
</tr>
<tr>
<td>Paving screed including screed arms (L x W x H)</td>
<td>3,600 x 2,850 x 1,900 mm</td>
</tr>
</tbody>
</table>

\(^{*1}\) = The maximum milling depth may deviate from the value indicated, due to tolerances and wear.