



TESMEC SURFACE MINING SOLUTIONS







MINING THE PATH TO THE FUTURE

We make it **faster**, thanks to our technology efficiency.

We make it **easier**, thanks to our people expertise.

We make it **cleaner**, containing noise levels and dust.

We reduce the overall **costs**, limiting people and machinery.

We make it **safer**.

We respect the **environment**.

TESMEC

9 – 12	<i>THE HISTORY</i>
13 – 16	<i>SURFACE MINERS ADVANTAGES VS TRADITIONAL METHODS</i>
17 – 20	<i>INTEGRATED VALUE PROPOSITION</i>
21 – 24	<i>OUR METHODOLOGY</i>
25 – 30	<i>THE ADDED VALUE</i>
31 – 58	<i>PRODUCTS OVERVIEW</i>
35 – 40	<i>975EVO</i>
41 – 46	<i>1150EVO DYNAMIC DRIVE</i>
47 – 52	<i>1150EVO</i>
53 – 58	<i>1475XL EVO DYNAMIC DRIVE</i>
59 – 64	<i>1475XL EVO</i>
65 – 68	<i>EXPERIENCES & APPLICATIONS</i>
69 – 72	<i>STATE OF THE ART TECHNOLOGY</i>
73 – 76	<i>CUSTOMER SERVICE</i>

Tesmec S.p.A.
Grassobbio (Italy)

Saudi Tesmec
Riyadh (Saudi Arabia)

Tesmec USA
Alvarado, TX (USA)

Marais Laying NZ
Wellington, New Zealand

Tesmec SA
Edenvale (South Africa)

Tesmec Guinea
Conakry (République de Guinée)

Groupe Marais
Durtal (France)

Tesmec Peninsula
Doha (Qatar)

Tesmec Australia
Mount Druitt, NSW (Australia)

Tesmec Energy
Algeri, Algeria

Tesmec Maroc
Casablanca (Morocco)

Marais Cote D'Ivoire
Bietry (Cote D'Ivoire)

**Tesmec New
Technology**
Beijing (China)






THE HISTORY



<p>1951-1960</p> <p>Pioneer in stringing solutions</p>	<p>Establishment of "CRF-Officina Meccanica di Precisione"</p> <p>Edison patent for the new tension stringing system</p>
<p>1984</p> <p>TRENCHER product line development</p>	<p>Establishment of Tesmec USA Inc. in Texas, USA</p>
<p>2010</p> <p>From family to public company</p>	<p>Entry in the Italian Stock Exchange (STAR segment)</p>
<p>2012</p> <p>Expansion strategy in the RAILWAY business</p>	<p>Leasing of AMC2 S.r.l (Monopoli - Italy)</p>
<p>2015</p> <p>Acquisition of the French Group Marais</p>	

<p>Tesmec Automation as a single Company</p>	<p>2017</p> <p>Investments & acquisitions to complete the portfolio for SMART GRIDS</p>
<p>Opening of the new Tesmec Rail s.r.l. production site (Monopoli – Italy)</p>	<p>2018</p> <p>Investments in R&D and DIAGNOSTICS</p>
<p>4Service, a Company dedicated to the rental business</p> <p>Share capital increase</p>	<p>2020</p> <p>Strengthening the Service and Rental Business</p>
<p></p>	<p>2021</p>
<p>ENERGY TRANSITION</p> <p>DIGITALIZATION</p> <p>SUSTAINABILITY</p>	<p>2024</p>



***SURFACE
MINERS
ADVANTAGES
VS
TRADITIONAL
METHODS***

Selective mining

Maximize productivity and deposit exploitation through improved stripping ratio and reduced processing requirements. Avoid the mix of material from different layers and control the depth of excavation, offering flexibility, precise operations and thin seam mining.

Increased output

Obtain a superior small and uniform mined material through a simplified process that combines excavation and crushing in one step, eliminating the need for primary crushing. Adjust the gradation of the excavated material to your specific requirements and handle it more easily.

Safe technology

Ensure safety in mining operations by avoiding the use of explosives, achieving smooth and stable benches and replacing several conventional machines, which reduce the number of personnel on site.



Environmental-friendly

Surface miners have minimal impact on the environment, with low levels of dust, noise, negligible vibration and shocks and less water wasted. Moreover, one surface miner replaces several conventional machines, leading to fuel savings and lower emissions.

Logistics and site management

Simplify your operations and reduce costs with our surface mining technology, eliminating several crushing steps from the process, reducing the number of machines and operators required and leading to lower logistics expenses, easier site management and safer operations.

Traceability

Stay in control of your projects with real-time traceability and georeferenced data, and successfully manage your site operations

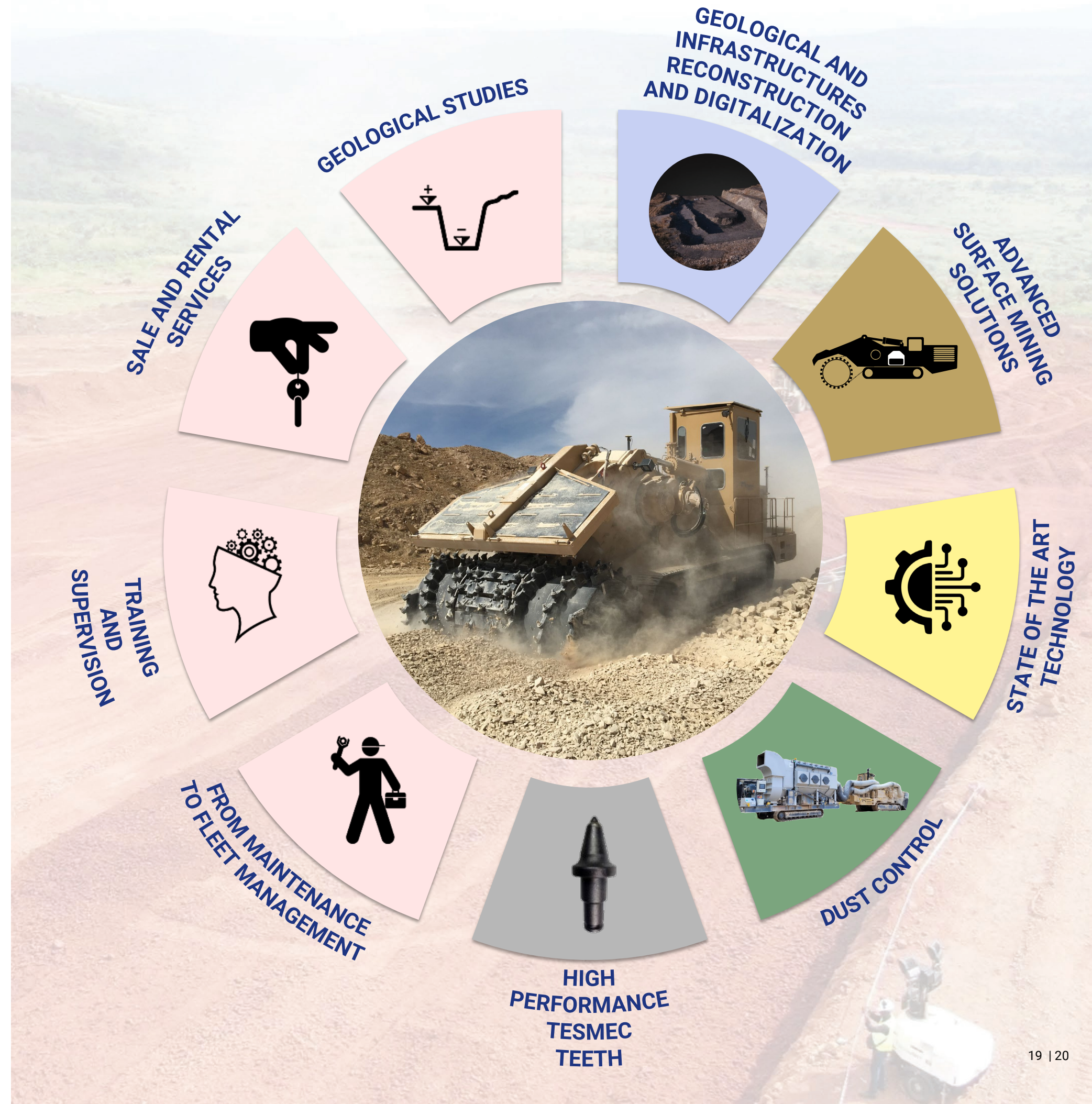


***INTEGRATED
VALUE
PROPOSITION***

Tesmec Surface Miners are **clean and fast solutions** designed to facilitate mining projects by replacing the use of explosives and traditional methods, increasing the output material quality, overcoming environmental and safety issues, improving the process and site management and saving costs.

Tesmec provides, manages and supervises an **integrated value chain** to guarantee the ore quality, consisting of:

- Preliminary geotechnical survey, engineering and project study
- Ore excavation and crushing
 - Technology integration
 - Dust control
- Management and supervision of the site





**OUR
METHODOLOGY**

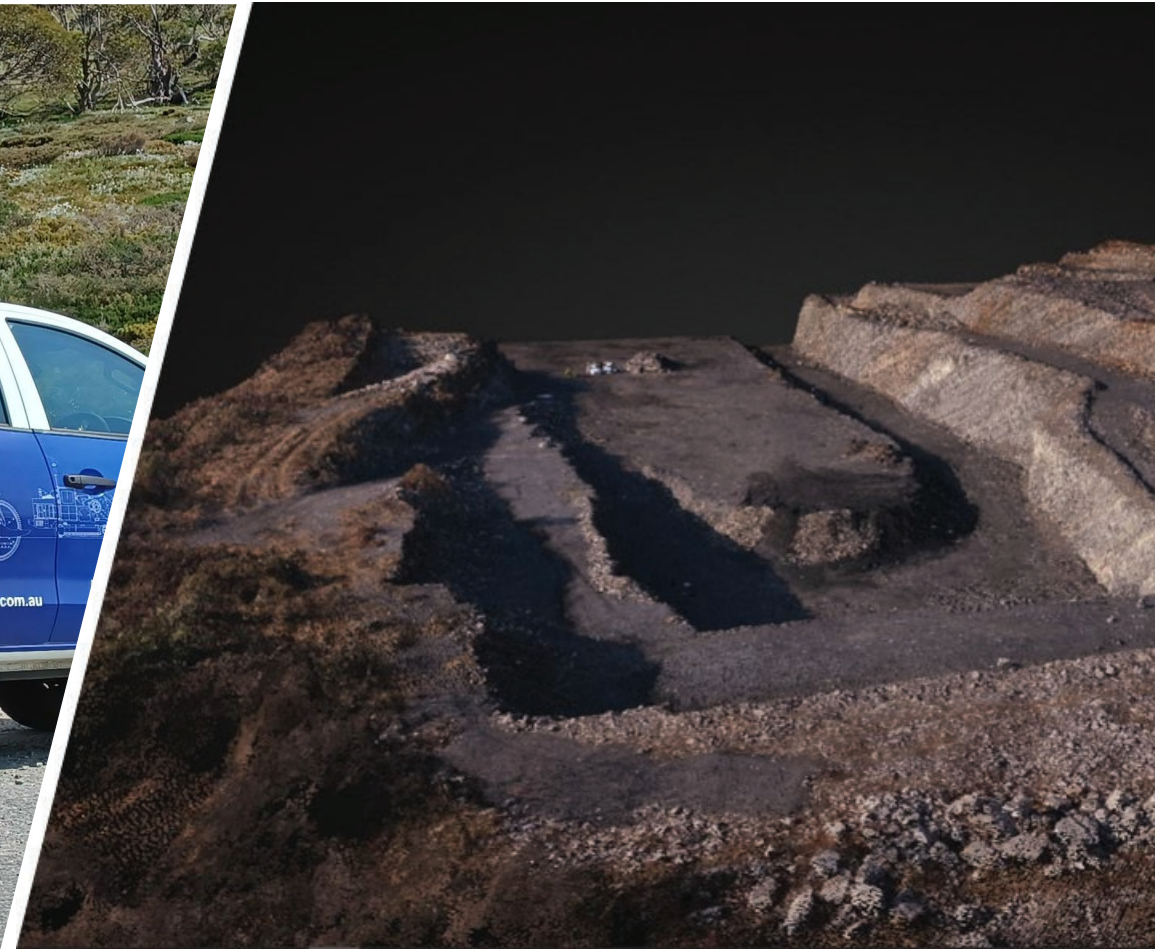
1. CONSULTANCY AND SITE SURVEY



2. GEOTECHNICAL ANALYSIS



3. DIGITAL SURFACE MODEL



4. ORE EXCAVATION



5. DUST CONTROL AND ASPIRATION



6. SITE MANAGEMENT





***THE
ADDED VALUE***

Dynamic Drive drum

Developed to disrupt the productivity in surface mining of easy to medium-hard assuring minimum cost per ton and maximum productivity

Patented flywheel gearboxes

Final drive of 100% hydraulic power system, protecting the hydrostatic circuit from shocks and overloads and releasing accumulated energy by delivering extra torque on the digging shaft, granting higher productivity in hard rock

Excavation of vertical walls and square corners

With Rockhawg attachment you have a rear mounted drum, wider than the machine and supported in the center, which enables 100% extraction of material and facilitates maintenance and picks replacement

Flexible cutting drum pattern

Easy and reversible modification of picks positions and spacing to adapt the machine to site conditions and control gradation, percentage of fines and shape of excavated material

State of the art technology

Rely on Tesmec's state-of-the-art technologies, which enables automatic excavation and self-diagnosis, extreme precise 3D-GPS automatic guidance system, remote monitoring and reporting, and as built data recorder

Reduced steering radius

Rock Hawg can turn 360° on its central axes, maximizing maneuverability in very tight spaces, site efficiency and flexibility



VERTICAL WALL & SQUARE CORNER



FLYWHEEL GEARBOXES



STATE OF THE ART TECHNOLOGY



MANEUVRABILITY

Down cutting working mode

In this configuration picks hit the rock from the top downward increasing the excavation efficiency in brittle rock (highly fracturable), fractured rock mass and from weak to medium strong rock (in the 125 Mpa range)

Excavated material is left on the ground behind the machine, and it is not mixed.

Different materials can be separated during the loading phase, stockpiled or removed immediately.

No material loading or handling, therefore all the available power of the Rock Hawg is used for excavating the rock.

Excavation without conveyor belt, allowing to cut vertical sidewalls, reducing the width of the machine and resulting in increased efficiency, lower costs and no need for maintenance.



Up cutting working mode

In this configuration picks hit the rock from the bottom upward. **The excavated material is conveyed toward the center of the drum, then loaded** by the digging chains / baseplates onto the transverse conveyor, and finally discharged and stockpiled beside the excavated area, leaving a clean and fast surface.

This working mode is designed to maximize the excavation efficiency in tough rock, unfractured rock and from medium strong up to very strong rock (in the 140+Mpa range). The total cutting force is increased by crawler pull.

The penetration depth of the pick into the rock increases from zero to the maximum during the excavation process. This means reduced impact, less vibrations and increased capability to excavate solid, harder rock.



***PRODUCTS
OVERVIEW***



975 EVO Rock Hawg

Pag. 35 - 40

1475XL EVO Dynamic Drive

Pag. 53 - 58



1150 EVO Dynamic Drive

Pag. 41 - 46

1475XL EVO Rock Hawg

Pag. 59 - 64



1150 EVO Rock Hawg

Pag. 47 - 52



975 EVO RH

- + **SMALLEST TESMEC SURFACE MINER**
- + **EXCELLENT MANOEUVRABILITY**
- + **EASY TO TRANSPORT**
- + **IDEAL ALSO FOR TUNNELING APPLICATION AND CIVIL ROAD WORKS**
- + **MODULARITY: CHAINSAW AND ROCKSAW ATTACHMENTS**



290 cm wide rear mounted, chain driven drum

Pressurized, elevating cab with ROPS and FOPS protection

Tier 4/stage V and Tier 3 CAT C9.3B engine – 375 HP (280 kW)

TESMEC
Trencher

975 EVO

Vertical wall and square corners capability

Two fully counter steering crawlers

Cross conveyor system



TECHNICAL DATA

Engine	Tier 4 Stage V	CAT C9.3B	Digging depth	35 cm 1'2"
	Tier 3	CAT C9.3B	Digging width	290 cm 9' 6"
Max Power	375 Hp (280 kW)			
Weight	44.000 kg 97.000 lbs			

975 EVO is the smallest Tesmec Surface Miner. The manoeuvrability, ease of transport and compactness make it suitable for surface mining and special bulk excavation projects, tunneling applications and civil road works. The up – cutting excavation mode, designed for hard/solid, not brittle rock, allows the excavated material to be loaded and laterally cast. Moreover, the face excavation mode makes 975 EVO RH suitable for underground face walls special applications. Thanks to the rear mounted drum larger than the track, benches, vertical walls and square corners can be excavated. 975 EVO is equipped with elevating cab module, to improve the operator visibility. The last generation laser system allows accurate and inclined surface/contrast excavation depth. The TrenchTronic 5.0, TrenchIntel and Laser system systems maximize trenching efficiency.



1150 EVO Dynamic Drive

- + IDEAL FOR SURFACE MINING OF EASY TO MEDIUM-HARD MINERALS**
- + HIGH SPEED CUTTING DRUM**
- + PLANETARY GEARBOX INTEGRATED IN THE CUTTING DRUM**
- + REDUCED OPEX: NO WEAR IN DIGGING CHAINS AND SPROCKETS**
- + COMPACT DIMENSIONS**



Pressurized, elevating cab with ROPS and FOPS protection

Compatible with Grydale dust suppression system

Dynamic Drive backend, compatible with standard 1150EVO tractor

451 HP (336 kW) tier 4 stage V engine – Cummins X12
440 HP (328 kW) tier 3 engine – CAT C13 ACERT

Two fully counter steering crawlers

Planetary Gearbox integrated in the cutting drum



TECHNICAL DATA

Engine	Tier 4 Stage V	Cummins X12	Digging depth	35 cm 1' 2"
	Tier 3	CAT C13 ACERT		Digging width
Max Power	Tier 4	451 Hp (336 kW)		
	Tier 3	440 Hp (328 kW)		
Max Weight	52.000 - 54.000 Kg 114.600 - 119.000 lbs			

The 1150 EVO Dynamic Drive is an ideal surface miner to increase the productivity in easy to medium-hard minerals up to 50 MPa (coal, bauxite and industrial minerals like gypsum, potash, phosphates, salt and soft limestone). The planetary gearbox integrated in the cutting drum guarantees a final drive of a 100% hydraulic power system. The Dynamic Drive drum is directly actuated by the gearbox, therefore there is no wear of sprockets, digging chains and baseplates, leading to higher efficiency and no power losses, reduced cost for wear parts and no limitation to the max cutting speed (RPM) of the drum. It is equipped with TrenchTronic 5.0, TrenchIntel, laser system and Re.m, to maximize excavation efficiency, fleet monitoring and ensure orderly and safe quarrying for other vehicles.



1150 EVO RH

- + **ADAPTED TO MANY APPLICATIONS**
- + **LOW LEVELS OF NOISE, VIBRATIONS AND DUST**
- + **THE WIDTH OF THE DRUM CAN BE REDUCED TO FACILITATE TRANSPORT**
- + **MODULARITY: DYNAMIC DRIVE DRUM, CHAINSAW AND ROCKSAW**
- + **UP-CUTTING AND DOWN-CUTTING CONFIGURATION**



Smart tracker system

Flywheel gearboxes

Pressurized, elevating cab with ROPS and FOPS protection

Vertical wall and square corners capability

Tier 4/Stage V Cummins X12 – 451 hp (336 kW)
Tier 3 CAT C13 ACERT – 440 hp (328 kW)

Removable drum sides from 320 cm to 300 cm

Two fully counter steering crawlers



TECHNICAL DATA

Engine	Tier 4/Stage V	Cummins X12	Digging depth Downcutting	50 cm 1' 8"
	Tier 3	CAT C13 ACERT	Digging depth Upcutting	35 cm 1' 2"
Max Power	Tier 4	451 Hp (336 kW)	Digging width	320 cm 10' 6"
	Tier 3	440 Hp (328 kW)		
Max Weight	58.000 - 59.700 Kg 127.800 - 131.600 lbs			

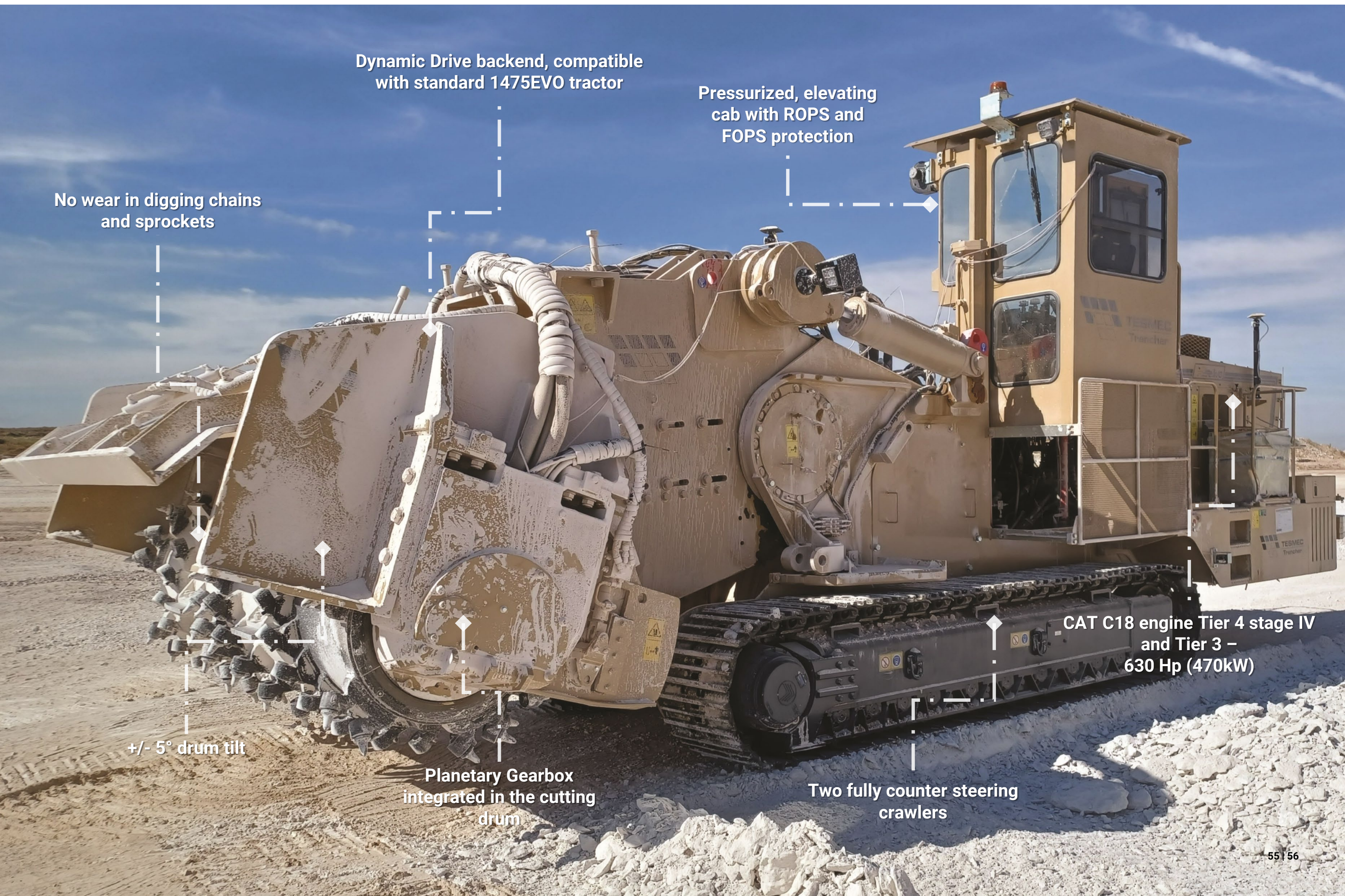
The 1150 EVO Rock Hawg is a versatile Surface Miner, used in a variety of mining conditions, that provides the best performance on hard and abrasive rocks, increasing productivity and decreasing teeth consumption and maintenance costs. The ends of the digging drum are bolted on and, if necessary, the drum width can be reduced to 3.00 m for easier transport.

1150 EVO allows vertical walls and square corners cutting, thanks to the rear mounted drum wider than the machine and supported in the center, it enables 100% extraction of material and facilitates maintenance and picks replacement. Elevating cab equipped, this versatile trencher can work up-cutting or down-cutting for adaptability to soil conditions. The last generation laser system allows accurate and inclined surface / constant excavation depth. TrenchTronic 5.0, TrenchIntel, laser system and Re.m maximize excavation efficiency, fleet monitoring and ensure orderly and safe quarrying for other vehicles. .



1475XL EVO Dynamic Drive

- + THE SOLUTION FOR SURFACE MINING OF EASY TO MEDIUM-HARD MINERALS**
- + HIGH SPEED CUTTING DRUM**
- + PLANETARY GEARBOX INTEGRATED IN THE CUTTING DRUM**
- + REDUCED OPEX: NO WEAR IN DIGGING CHAINS AND SPROCKETS**
- + EASY MAINTENANCE**



Dynamic Drive backend, compatible with standard 1475EVO tractor

Pressurized, elevating cab with ROPS and FOPS protection

No wear in digging chains and sprockets

CAT C18 engine Tier 4 stage IV and Tier 3 – 630 Hp (470kW)

+/- 5° drum tilt

Planetary Gearbox integrated in the cutting drum

Two fully counter steering crawlers



TECHNICAL DATA

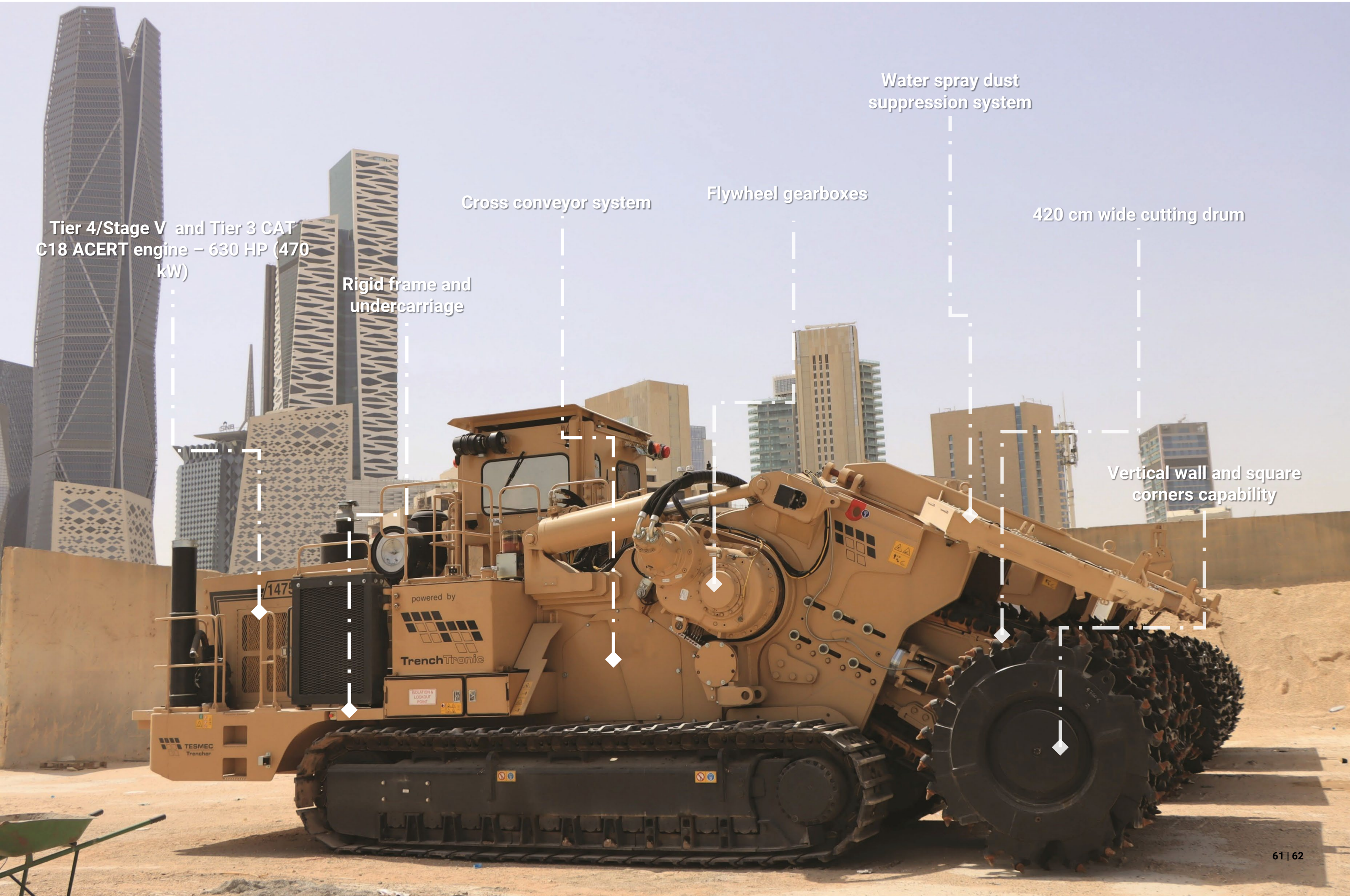
Engine	Tier 4 Stage IV	CAT C18 ACERT	Digging depth	45 cm 18"
	Tier 3	CAT C18 ACERT		Digging width
Max Power	Tier 4	630 Hp (470 kW)		
	Tier 3	630 Hp (470 kW)		
Max Weight	97.000 - 102.000 Kg 213.700 - 224.800 lbs			

The 1475XL EVO Dynamic Drive is the solution for the surface mining of easy to medium-hard minerals (coal, bauxite and industrial minerals like gypsum, potash, phosphates, salt and soft limestone). Based on 1475XL EVO tractor, this is the largest and most powerful Dynamic Drive surface miner, designed to maximize the productivity and reduce OPEX, minimizing excavation costs per m³. The planetary gearbox integrated in the cutting drum guarantees a final drive of a 100% hydraulic power system. The Dynamic Drive drum is directly actuated by the gearbox, therefore there is no wear of sprockets, digging chains and baseplates, leading to higher efficiency and no power losses, reduced cost for wear parts and no limitation to the max cutting speed (RPM) of the drum. It is equipped with TrenchTronic 5.0, TrenchIntel, laser system and Re.m, to maximize excavation efficiency, fleet monitoring and ensure orderly and safe quarrying for other vehicles.



1475XL EVO RH

- + LARGEST TESMEC SURFACE MINER**
- + HIGH PRODUCTIVITY**
- + ADAPTED TO DIFFERENT SOIL CONDITIONS**
- + SUPERIOR PERFORMANCES IN HARD AND ABRASIVE ROCK CONDITIONS**
- + UP-CUTTING AND DOWN-CUTTING CONFIGURATION**



Tier 4/Stage V and Tier 3 CAT
C18 ACERT engine – 630 HP (470
kW)

Rigid frame and
undercarriage

Cross conveyor system

Flywheel gearboxes

Water spray dust
suppression system

420 cm wide cutting drum

Vertical wall and square
corners capability



TECHNICAL DATA

Engine	Tier 4 Stage IV	CAT C18 ACERT	Digging depth	50 cm 1' 8"
	Tier 3	CAT C18 ACERT		Digging width
Max Power	Tier 4	630 Hp (470 kW)		
	Tier 3	630 Hp (470 kW)		
Max Weight	108.861 - 115.665 Kg 240.000 - 255.000 lbs			

1475XL EVO is the largest Tesmec Surface Miner. With its 420 cm wide drum and 630 HP, this model is employed in a variety of surface mining applications to guarantee the maximum productivity, decreasing teeth consumption and reduce maintenance costs. To meet the different ground conditions, it can work both up cutting and down cutting, and the drum and baseplates allow five different picks lacing by replacing picks with blanks in specified positions. In addition, a four spirals special configuration is designed when the excavated material is very soft and the required size is very little. 1475XL EVO RH allows vertical walls and square corners cutting, thanks to the rear mounted drum wider than the machine and supported in the center, which enables 100% extraction of material and facilitates maintenance and picks replacement. It is equipped with TrenchTronic 5.0, TrenchIntel, laser system and Re.m, to maximize excavation efficiency, fleet monitoring and ensure orderly and safe quarrying for other vehicles. The last generation laser system allows accurate and inclined surface / constant excavation depth.



***EXPERIENCE
&
APPLICATIONS***

GYPSUM



MARLY LIMESTONE



HEAVY CIVIL BUILDINGS FOUNDATIONS



LIMESTONE



BAUXITE



COAL (OVERBURDEN)



LIMESTONE



GOLD





**STATE OF THE
ART
TECHNOLOGY**

TrenchTronic

The automatic trenching and self diagnostic technology. It is an electronic control system designed to improve the ease of use of the trencher and increase productivity by making it less dependent on operator skills

TrenchIntel

The 3D-GPS automatic guidance system. It is the satellite guidance system capable to automatically control machine steering, trajectory and trenching depth with extreme precision

Re.M

The remote monitoring and reporting technology. It provides on-demand retrieval of operating, maintenance and troubleshooting information to help improving each machine's bottom-line performance

Laser system

The Surface miner automatically adjust boom position. It allows to keep a constant excavation depth, even if the ground is not properly leveled, working on a graded area, increasing productivity and reducing vibrations.

TRC

The trencher radio control system. It enables the operator to control the machine remotely through a radio contro, increasing the safety in site, the visibility on the trenching area and tool





***CUSTOMER
SERVICE***

After sales and customer service

- Inspections and machine Start-up
- Machine operation and repair
- Worldwide fleet remote monitoring and assistance
- Technological support, monitoring and analysis of machine data to optimize utilization
- Jobsite management
- Machine data monitoring

Consultancy and studies

- Expertise
- Know-how
- Feasibility studies
- Technical advice and consultancies
- Geotechnical analysis

Project management

- Services and solutions for all digging projects
- Work site control and experienced operators
- Spare parts management
- Specialized Tesmec team for mechanical assistance

Spare parts service

- Worldwide reaching
- Support in defining jobsite spare parts assortment
- Mobile workshops and mobile warehouses
- Interparts portal for original Tesmec spare parts

*** SCAN TO ACCESS TESMEC AFTER SALES AND SPARE PARTS SERVICE**



TESMEC

Discover Tesmec unique Customer Experience

