ITC SA

www.itcsa.com

PERFECT SOLUTIONS FOR TUNNEL

ITC 125, 315, 320 & Superloader

AT THE HEART OF THE ACTION

Tunnelling is a ruthless job. Each project is unique and requires special attention. What is needed is a perfect match between man and machine. ITC SA provides you with the perfect machine for your use.

The power of ITC heading and loading machines lies in the know-how gained from 79 years of experience in tunnels around the world. Each element derives from this experience and thus offers the best efficiency. Thanks to a wide range of equipment and their modular design, our machines adapt perfectly to your needs, thus offering unparalleled efficiency. At the front of the tunnel, no pity. Only performance matters.

Section from 9 to 16 m2	**ITC 125**
Section from 16 to 30 m2	**ITC 315N**
Section from 16 to 50 m2	**ITC 315 SL**
Section over 30m2	**ITC 320**
Railway	**ITC Ballast Loader**

CONTENT OF THE CATALOG

A HERO AT THE FACE

Nothing stops an ITC. From the softest rocks to the hardest granites, only one goal counts: moving forward!

Whatever the task: we have the solution! The great versatility of our machines is at your service.

DOUBLE DRIVE

The double motorization allows work at the front without emission.

PURE LOADING

The two-element arm provides the fastest loading possible!

BUCKET EXCAVATION

With its tilt- and swivel console, the off-profile is minimized.

HAMMER EXCAVATION

Pre-configured on the machine, the use of a hammer up to 3 tons is possible

MADE IN GERMANY

AN INDISPUTABLE KNOW-HOW

For 40 years, Swabia in Baden-Württemberg has been producing high-quality machines that meet the most stringent requirements.

Our factory works only with safe and responsive partners, and only uses state-of-the-art techniques. Located in Hausen am Bach, it is in the centre of Germany, close to a major European road.

OUR MACHINES, EXAMPLE: THE “SL”

HIGH PRESSURE CYLINDERS
Bucket cylinder with protection

CABIN
High comfort closed cabin,
adjustable in height up to 800mm
AC & Heater
LCD machine display and CCTV

LOADING BUCKET
Width of 1200 mm for fast loading, with 5 interchangeable teeth to scale and clean the invert

AJUSTABLE WIDTH
Hydraulically adjustable loading apron width - compact for transport, and wide when mucking

AJUSTABLE CONVEYOR

Height adjustable hydraulically
Reinforced and armored work area

EXPANDABLE CONVEYOR

Extension of conveyor by 1016 or 2032mm elements
Double drive motor head

DRIVES

132kW electric drive
180kW Euro V engine

ELECTRICAL SYSTEM

Star-delta or soft starter, 220 volt and 24 Volt circuit, IFM controller

HEAVY-DUTY CHAIN

Reinforced chain, with steel scrappers and intermediate rubber plates

CRAWLER UNIT

Reinforced crawler track, with 3 grooves plates, maintenance-free system

TUNNEL HEADING AND LOADING MACHINE

ITC 125 F2

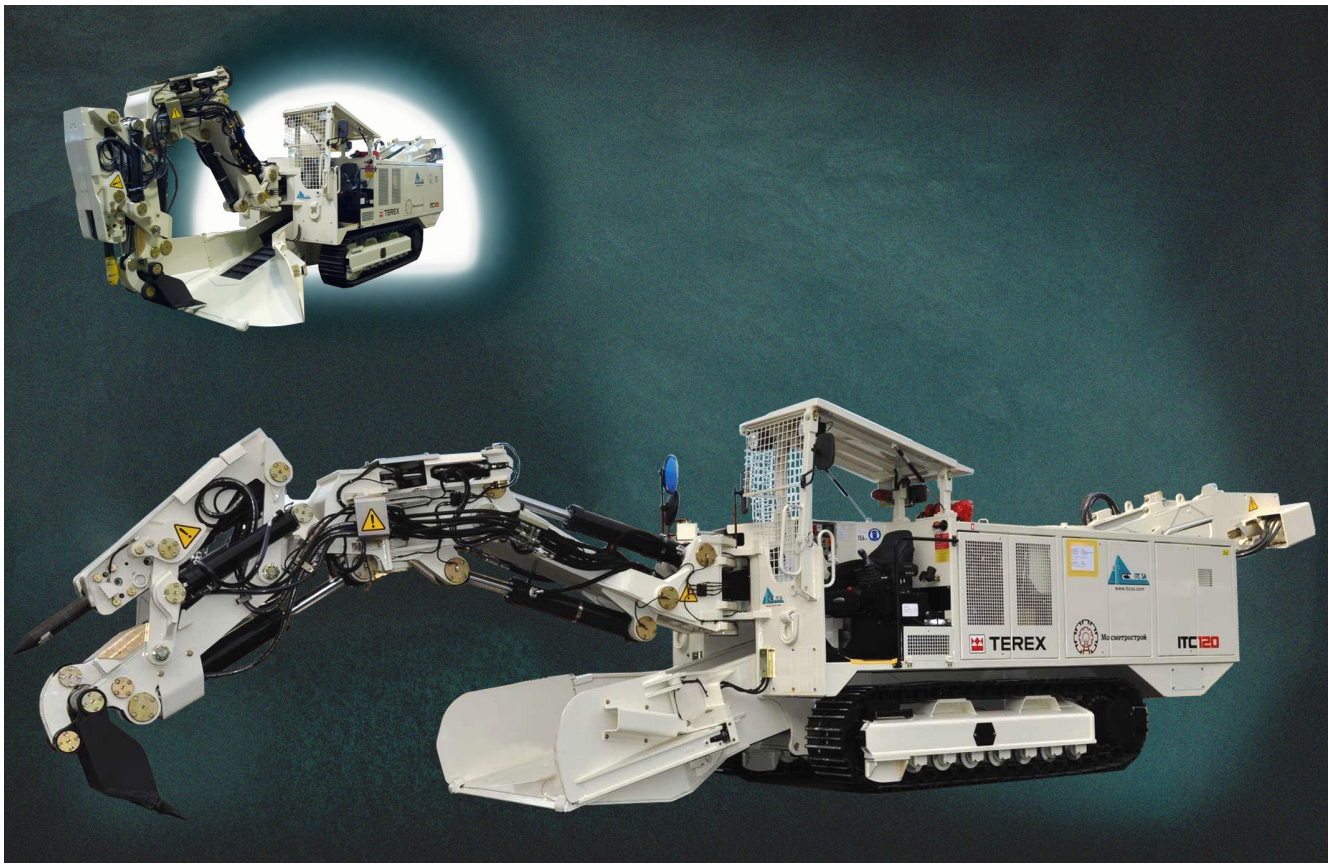
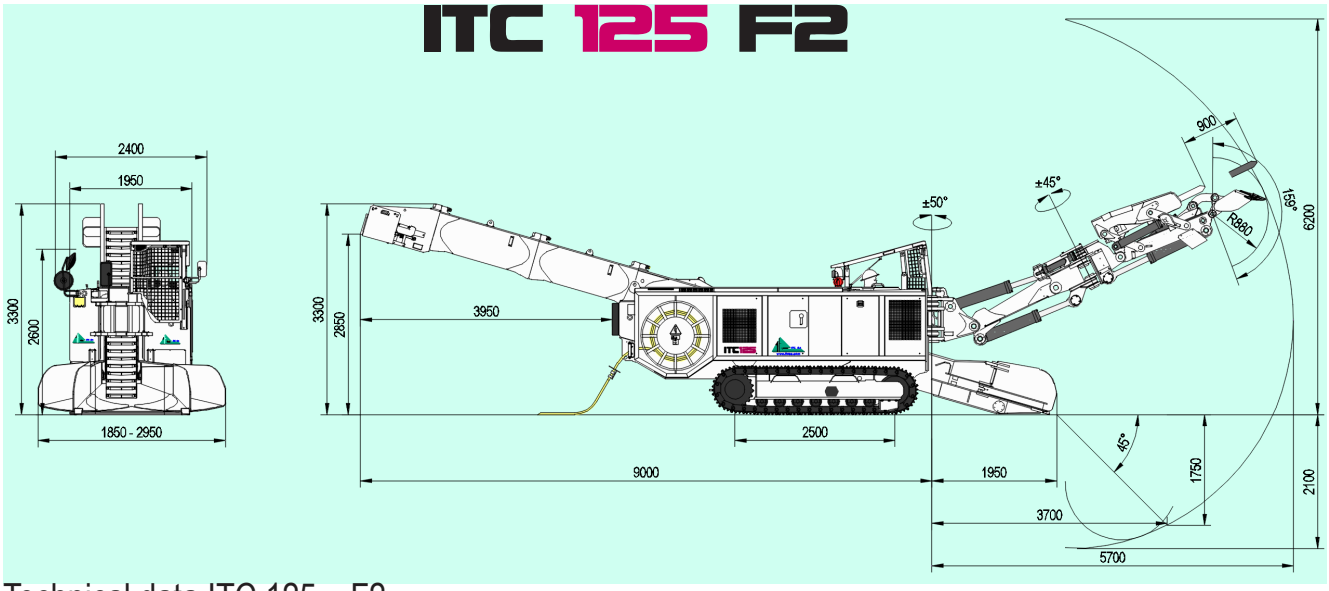


image not contractual, may contain optional equipment.

- Excavation boom equipment with rock breaker / bucket combination for tunnelling in soft and medium hard ground conditions by using bucket and hydr. hammer

• Minimal cross-section	abt. 10 m²
• Thermal drive	80 kW
• Electric drive	75 kW
• Operating weight	25 t

ITC 125 F2



Technical data ITC 125 – F2

Drive units

Electro-hydraulic and Diesel-hydraulic power packs each with a separate pump units
Electric drive for emission-free work at the face.

Air-cooled electric motor, Power at 400 Volt , 50 Hz	75 kW

Diesel drive for travelling and operation without electrical supply
Water-cooled diesel engine, Deutz TCD 3.6
Diesel engine complies with emission standard EU V, US T4f, EU IV, Option: ROW

Power rating at 2'000 r.p.m	80 kW
Fuel tank	160 l

Electrical system (other tension and frequency upon request)

Total installed power	60 / 80 kW
Voltage	400 V - 50 Hz CA
Pilot voltage	220 V CA
Control voltage thermic drive	24 V CC
Electrical system acc. to	EN 60529 (IP54)

Cable reel hydraulically driven with abt. 75 m cable capacity

Operator's stand

Open operator's stand gives all-round visibility, FOPS canopy and front protection grid.
Roof foldable for transport
Video monitoring system for the right and rear side with color display in the cab.

Hydraulic system 'Load Sensing'

Load Sense hydraulic system with combination of axial piston gear pump at each drive
Pilot control system for all working functions
Main operation by 2 joysticks in Euro standards
Thermostatic controlled hydr. driven oil cooler

Hydraulic pump flow rate	280 l/min
Max. hydraulic operating pressure	280/380 bar
Hydraulic oil capacity (incl. tank)	400 l
Hydraulic oil tank	300 l

Operating data

Machine width	1'950 mm
Maximal height	2'400 - 2'750 mm
Transport height	2'400 mm
Transport length with folded equipment	~10'000 mm

Conveyor system

Width of loading apron (adjust.)	1'850 - 2'950 mm
Width of conveyor (internal)	620 mm
Height of conveyor (internal)	650 mm
Conveyor capacity	approx. 150 m³/h
Conveyor discharge height	1'800-2'850 mm

Boom equipment F2

- Minimal cross section — approx. 10 m²

Excavation boom equipment for heading and loading, includes:

- King post with jib and swivel & tilt console
- Tool holder with a combination of hydraulic hammer and excavation / loading bucket
- Automatic lubrication system for the hammer
- Water spraying device (optional)
- Breakaway torque — 89 kN
- Tear-out force over dipper stick — 69 kN
- Operating weight — approx. 25 t

Options (different possibilities on order)

Enclosed cabin with heating and / or air conditioning, Conveyor extension elements, rubber plate conveyor, automatic grease central, automatic fire extinguisher system, quick couplers, other loading and / or excavation tools, water spraying system for dust reduction, Pony truck, etc.

Other details, executions (ATEX) and accessories on request.
Subject to change without notice.

Safety tunnel Cholfirst Tunnel (CH)

The changing geology and the proximity of the road tunnel make the ITC125 with the F2 arm the best solution for the excavation of this safety gallery.

The A4 section between Flurlingen (ZH) and the national border at Thayngen (SH) was opened in 1996. The two tunnels Cholfirst and Fäsenstaub as well as the Schönenberg tunnel are the most important structures on this section. More than 30,000 vehicles use this section of the freeway every day.

It is a key point for regional traffic as well as a transit route for north-south traffic.In recent years, the operating and safety equipment (OSE) of the Fäsenstaub and Cholfirst tunnels as well as the Schönenberg tunnel have already been renewed. The construction of the new safety gallery for the Cholfirst tunnel is a further step towards improving traffic safety.

The Cholfirst tunnel is located on the south bank of the Rhine between the Flurlingen exit and the Rhine bridge near the city of Schaffhausen. It consists of a three-lane tunnel (one lane towards Germany, two lanes towards Zurich) and is about 1260 meters long. To improve safety in the Cholfirst tunnel, the Federal Roads Office (FEDRO) is building an emergency tunnel parallel to the existing tunnel. It is located on the east side of the existing tube. It will be connected to the existing tube by six emergency exits that will allow users to safely leave the roadway in case of an incident.

The 14.5m2 section is narrow, but the ITC125 will work through it without any problems.

Construction began in September 2020 and is expected to last until 2024. An excavation was made near the south portal, which serves as access to the main part of the safety gallery, built by miners. Tunnel driving began in August 2021. The work will take about three years. It will be followed by interior construction and installation of technical safety equipment. The cost of the tunnel is approximately 30 million Swiss francs.

TUNNEL HEADING AND LOADING MACHINE

ITC 125 F3

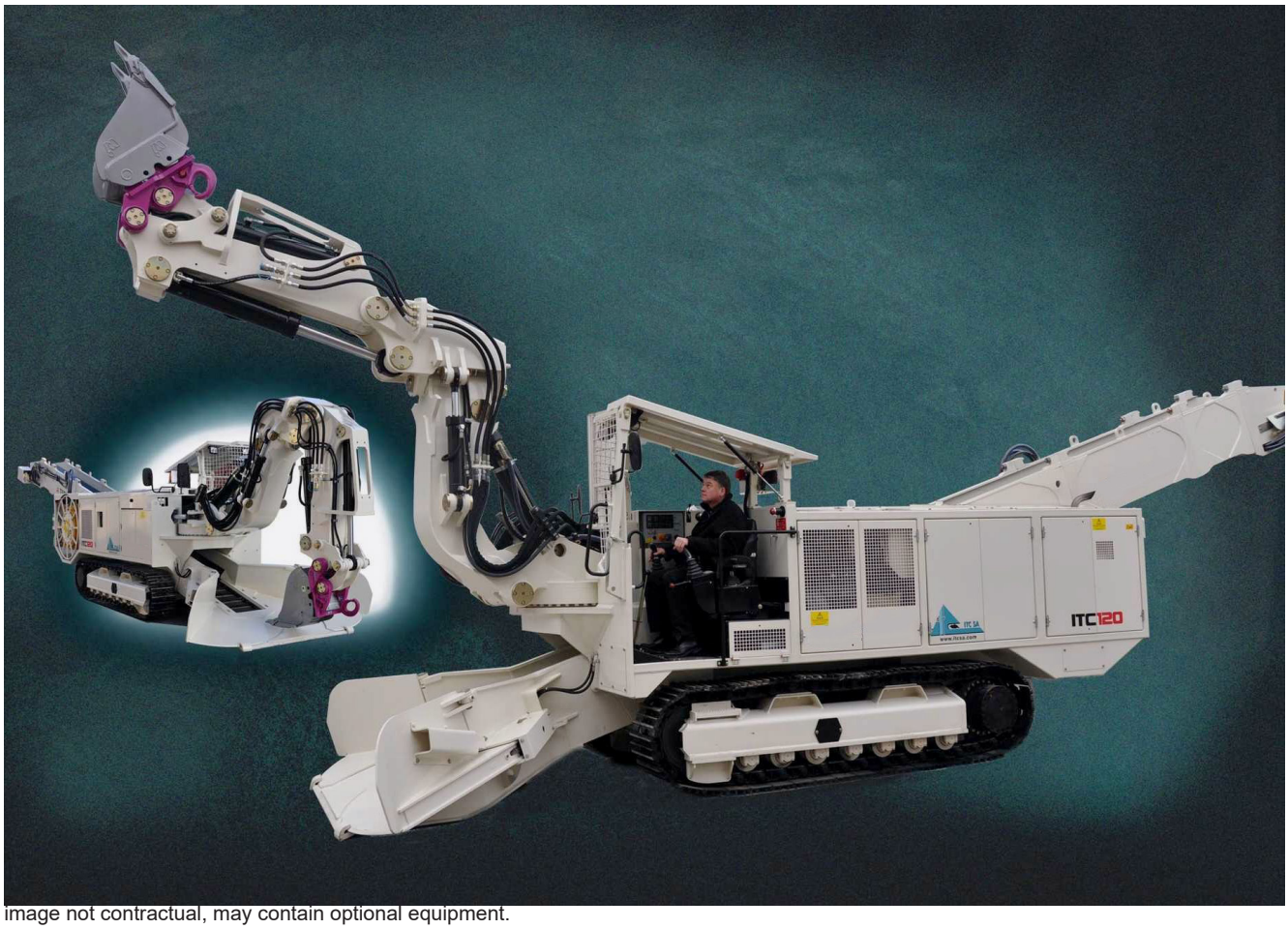
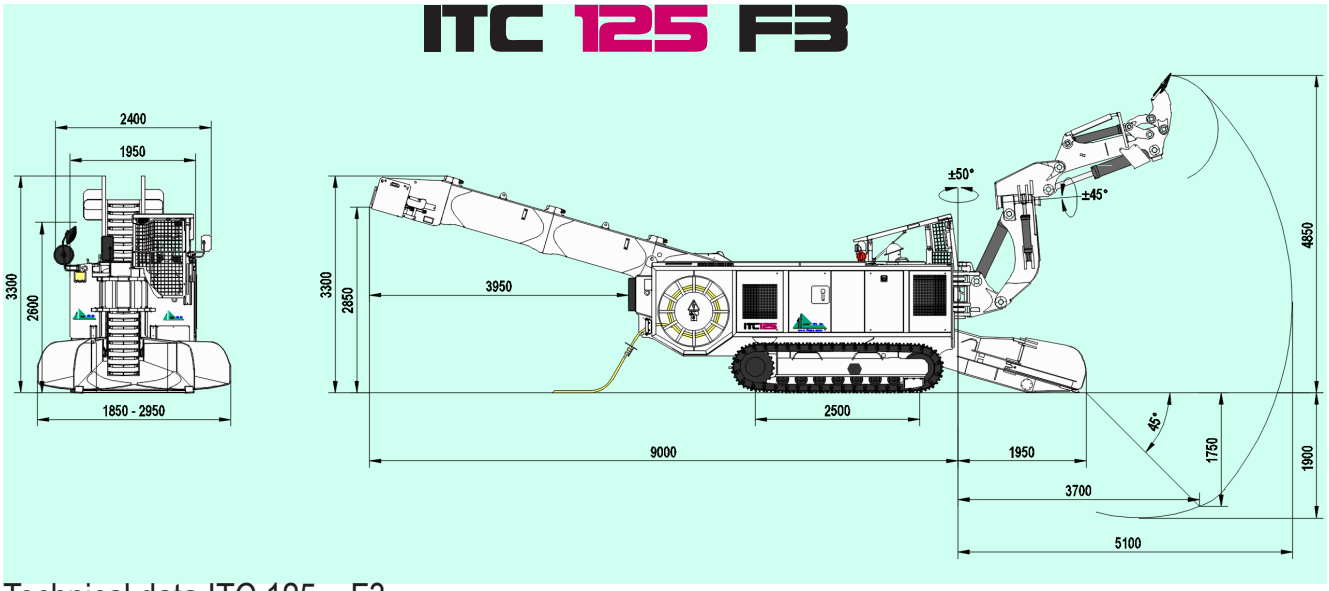


image not contractual, may contain optional equipment.

- For heading in soft ground, for scaling and high speed mucking of blasted rock

• Minimal cross-section	abt. 10 m²
• Thermal drive	80 kW
• Electric drive	75 kW
• Operating weight	24 t

ITC 125 F3



Technical data ITC 125 – F3

Drive units

Electro-hydraulic and Diesel-hydraulic power packs each with a separate pump units
Electric drive for emission-free work at the face.

Air-cooled electric motor, Power at 400 Volt , 50 Hz	75 kW

Diesel drive for travelling and operation without electrical supply
Water-cooled diesel engine, Deutz TCD 3.6
Diesel engine complies with emission standard EU V, US T4f, EU IV, Option: ROW

Power rating at 2'000 r.p.m	80 kW
Fuel tank	160 l

Electrical system (other tension and frequency upon request)

Total installed power	60 / 80 kW
Voltage	400 V - 50 Hz CA
Pilot voltage	220 V CA
Control voltage thermic drive	24 V CC
Electrical system acc. to	EN 60529 (IP54)

Cable reel hydraulically driven with abt. 75 m cable capacity

Operator's stand

Open operator's stand gives all-round visibility, FOPS canopy and front protection grid.
Roof foldable for transport
Video monitoring system for the right and rear side with color display in the cab.

Hydraulic system 'Load Sensing'

Load Sense hydraulic system with combination of axial piston gear pump at each drive
Pilot control system for all working functions
Main operation by 2 joysticks in Euro standards
Thermostatic controlled hydr. driven oil cooler

Hydraulic pump flow rate	280 l/min
Max. hydraulic operating pressure	280/380 bar
Hydraulic oil capacity (incl. tank)	400 l
Hydraulic oil tank	300 l

Operating data

Machine width	1'950 mm
Maximal height	2'400 - 2'750 mm
Transport height	2'400 mm
Transport length with folded equipment	~10'000 mm

Conveyor system

Width of loading apron (adjust.)	1'850 - 2'950 mm
Width of conveyor (internal)	620 mm
Height of conveyor (internal)	650 mm
Conveyor capacity	approx. 150 m³/h
Conveyor discharge height	1'800-2'850 mm

Boom equipment F3

- Minimal cross section approx10 m²

F3 Boom equipment for heading and loading, includes:

- King post with jib, swivel console (2x 45°) and dipper stick
- Excavation and mucking bucket, width 400-700 mm
- Hydraulic circuit for a hydraulic rock breaker
- Loading capacity acc. to rock conditions approx. 2,0 m³/min
- Breakaway torque 100 kN
- Tear-out over dipper stick 64 kN
- Lifting power (without working tool) 20 kN
- Operating weight approx. 24 t

Options (different possibilities on order)

Enclosed cabin with heating and / or air conditioning, intermediate stick (F8), Conveyor extension elements, rubber plate conveyor, automatic grease central, automatic fire extinguisher system, quick couplers, other loading and / or excavation tools, water spraying system for dust reduction, Pony truck, etc.

Other details, executions (ATEX) and accessories on request.
Subject to change without notice.

Bank Station Capacity Upgrade

The excavation of the tunnel linking the Northern Line with the Central Line was carried out with 1 ITC 120N and 1 ITC125 equipped with the F3 arm and its long variant F8, which are very comfortable in the London geology. In addition, the arm could be used to destroy the existing concrete structure.

The UK's Transport for London (TfL) subsidiary London Underground is reconstructing the Bank Tube station to substantially upgrade the station capacity and enable it to handle 40% more passengers. The station currently serves approximately 98 million passengers a year.

The £600m ($782.2m) project will involve the construction of a new tunnel, platforms, station entrance, escalators, ticket halls and passenger lifts. Construction began in 2016 and is scheduled to be completed by 2022.

The tunnelling work for the project was completed in October 2020 with more than 200,000t of material excavated in the City of London.

Details of the Bank Station

Built in 1900 in King William street, the Bank Station is the fourth busiest underground interchange station. It is served by the Central, Northern, Waterloo and City lines.The station is a key gateway into London and one of the world's most complicated subterranean railway stations. It features three ticket halls, six lifts, ten platforms and two 300ft moving walkways.

Bank Station capacity upgrade project details

London Underground and design and build contractor Dragados developed a plan that provides improved access for passengers and reduces congestion. The main objectives of the project are to meet the demand of the public by increasing the station capacity, decrease crowding, improve the quality of access, interchange, ambience and support the city's economic growth.

The project includes above ground works of constructing a new station entrance on the Cannon Street at the Nicholas Lane junction, which will provide direct access to northern line platforms.

It further includes the underground construction of a new 570m southbound tunnel to increase the circulation space at the station and to access the northern line.

The Northern and Central line platforms will be linked, incorporating two 94m moving walkways. Three new banks of escalators will be included to connect the Northern line with the Central line,

Docklands Light Railway (DLR) and the street level.

The new sections of the station will enter service in 2022. The escalators will make it simpler for passengers to navigate across the station and decrease congestion when the new, higher-capacity DLR trains begin operation in 2023.

The station also includes two new passenger lifts, which will improve accessibility to the Northern line and DLR platforms. The existing lift will also be upgraded as part of the project.

Benefits of the Bank Station capacity upgrade project

The proposed plan of upgrading the existing station will provide the public with benefits such as improved evacuation, direct and step-free access from the street to northern line and DLR, reduced congestion, increased circulation and waiting space.

When completed, the additional portions of the Bank Tube station will considerably expand the available space at the station and significantly reduce travel times.

TUNNEL LOADING MACHINE

ITC 125 F4

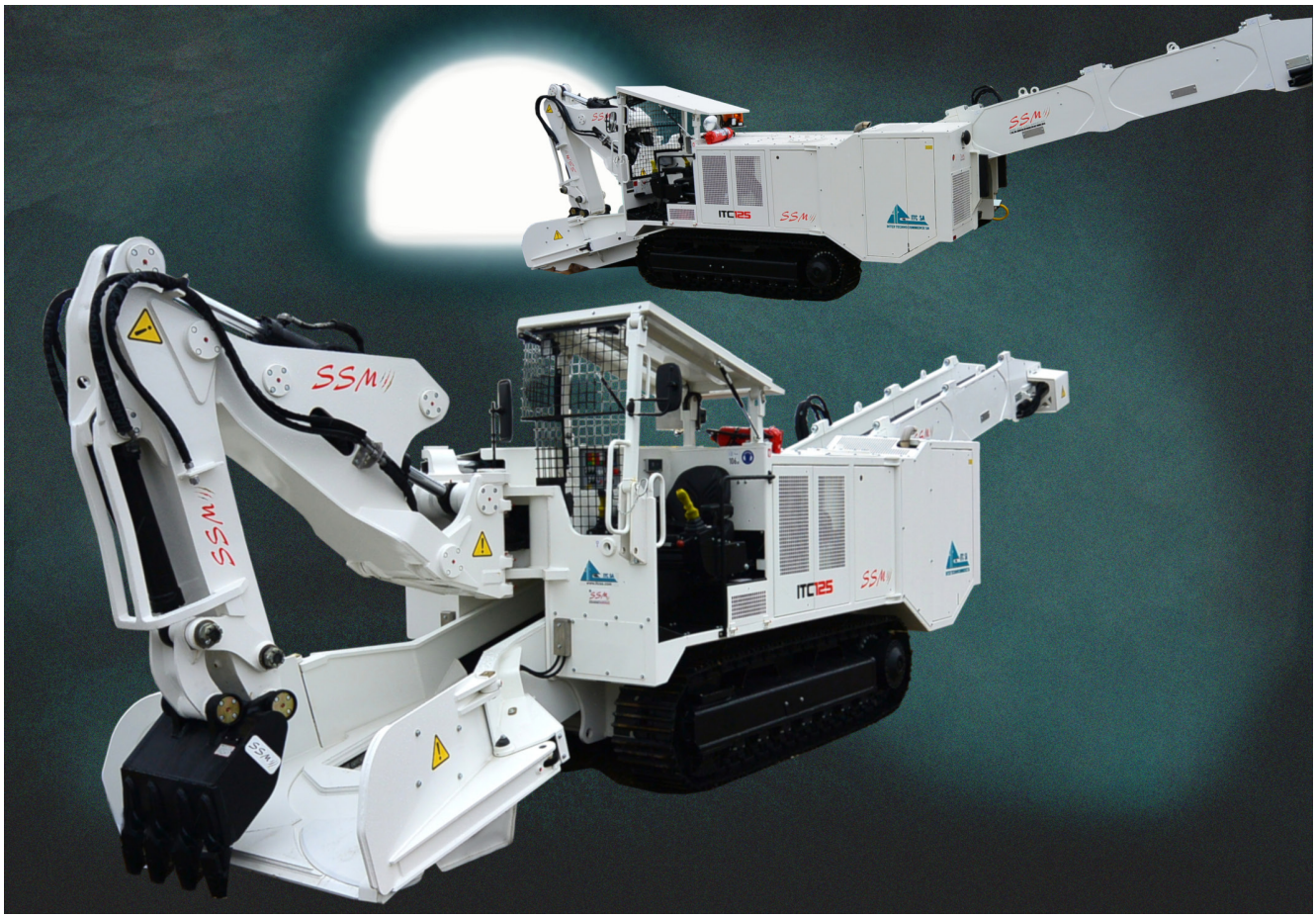
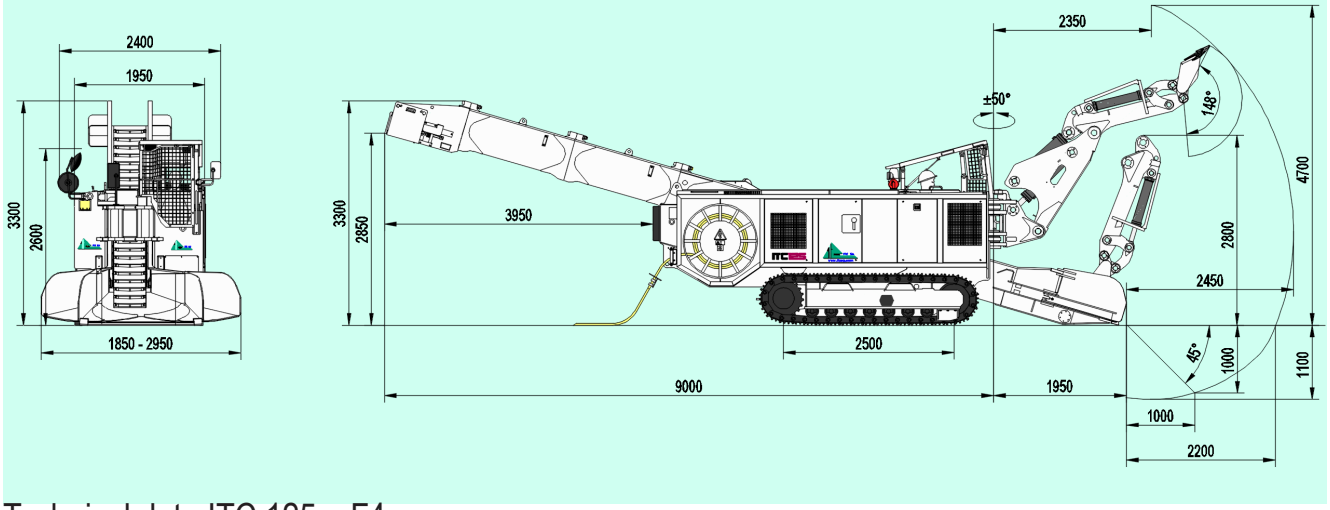


image not contractual, may contain optional equipment.

- For heading in soft ground and high speed mucking of blasted rock

• Minimal cross-section	env. 9 m²
• Thermal drive	80 kW
• Electric drive	75 kW
• Operating weight	23 t

ITC 125 F4



Technical data ITC 125 – F4

Drive units

Electro-hydraulic and Diesel-hydraulic power packs each with a separate pump units
Electric drive for emission-free work at the face.

Air-cooled electric motor, Power at 400 Volt , 50 Hz	75 kW

Diesel drive for travelling and operation without electrical supply
Water-cooled diesel engine, Deutz TCD 3.6
Diesel engine complies with emission standard EU V, US T4f, EU IV, Option: ROW

Power rating at 2’000 r.p.m	80 kW
Fuel tank	160 l

Electrical system (other tension and frequency upon request)

Total installed power	60 / 80 kW
Voltage	400 V - 50 Hz CA
Pilot voltage	220 V CA
Control voltage thermic drive	24 V CC
Electrical system acc. to	EN 60529 (IP54)

Cable reel hydraulically driven with abt. 75 m cable capacity

Operator’s stand

Open operator’s stand gives all-round visibility, FOPS canopy and front protection grid.
Roof foldable for transport
Video monitoring system for the right and rear side with color display in the cab.

Hydraulic system ‘Load Sensing’

Load Sense hydraulic system with combination of axial piston gear pump at each drive
Pilot control system for all working functions
Main operation by 2 joysticks in Euro standards
Thermostatic controlled hydr. driven oil cooler

Hydraulic pump flow rate	280 l/min
Max. hydraulic operating pressure	280/380 bar
Hydraulic oil capacity (incl. tank)	400 l
Hydraulic oil tank	300 l

Operating data

Machine width	1’950 mm
Maximal height	2’400 - 2’750 mm
Transport height	2’400 mm
Transport length with folded equipment	~10’000 mm

Conveyor system

Width of loading apron (adjust.)	1’850 - 2’950 mm
Width of conveyor (internal)	620 mm
Height of conveyor (internal)	650 mm
Conveyor capacity	approx. 150 m³/h
Conveyor discharge height	1’800-2’850 mm

Boom equipment F4

- Minimal cross-section approx.. 9 m²

F4 Boom equipment for scaling and loading, includes:

- King post with jib and dipper stick
- Excavation and/or mucking bucket, width 400-700 mm
- Hydraulic circuit for a hydraulic rock breaker
- Loading capacity acc. to rock conditions approx. 2,5 m³/min
- Breakaway torque 80 kN
- Tear-out force over dipper stick 80 kN
- Operating weight approx. 23 t

Options (different possibilities on order)

Enclosed cabin with heating and / or air conditioning, Conveyor extension elements, rubber plate conveyor, automatic grease central, automatic fire extinguisher system, quick couplers, other loading and / or excavation tools, water spraying system for dust reduction, Pony truck, etc.

Other details, executions (ATEX) and accessories on request.
Subject to change without notice.

TUNNEL HEADING AND LOADING MACHINE

ITC 315 H1

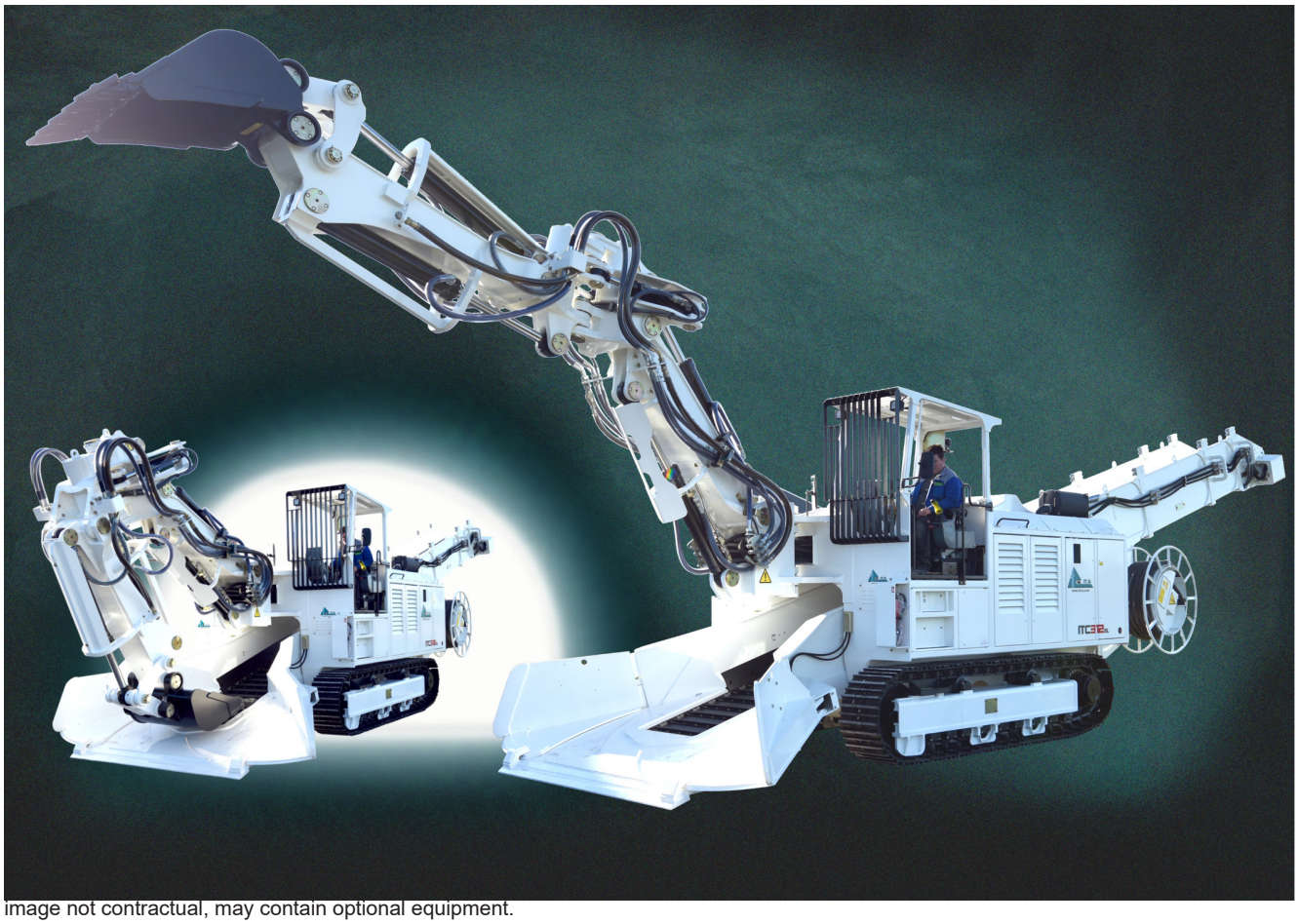
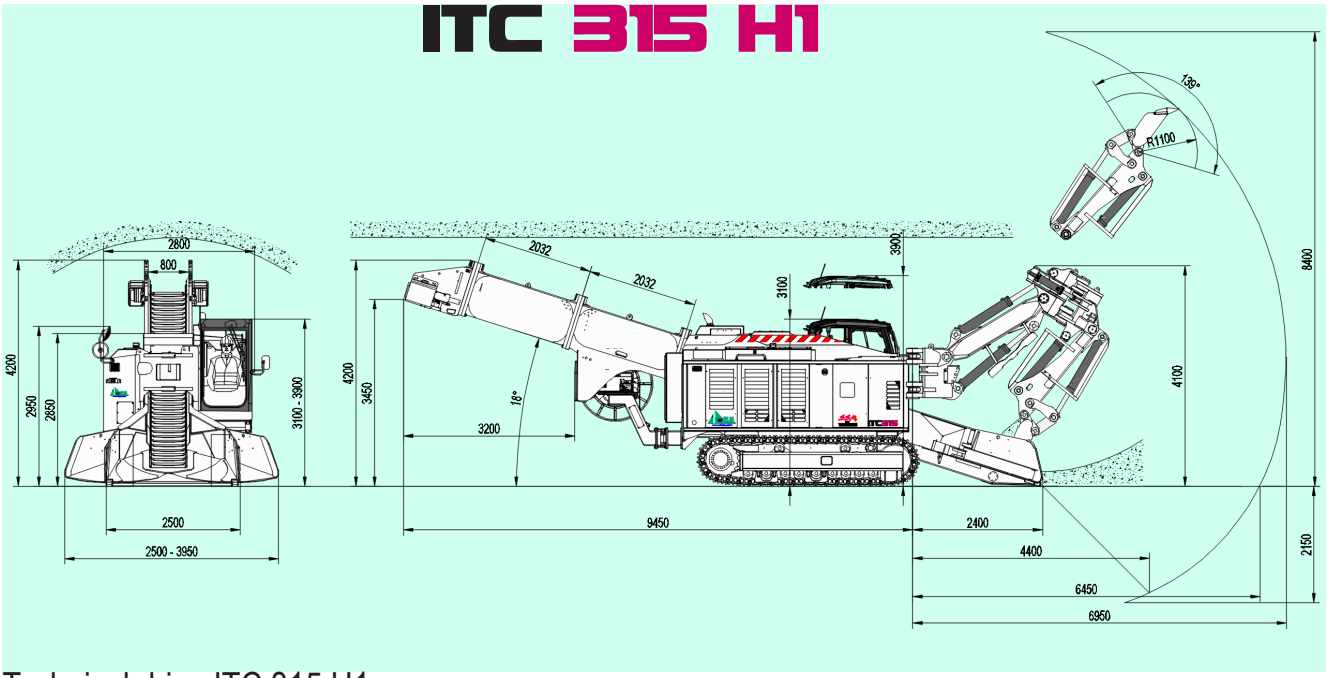


image not contractual, may contain optional equipment.

- Excavation boom with swivel dipper stick for heading in soft ground

• Minimal cross-section	approx. 18 m²
• Thermal drive	180 kW
• Electric drive	90 / 110 kW
• Operating drive	36 t

ITC 315 H1



Technical drive ITC 315 H1

Drive units

Electro-hydraulic and Diesel hydraulic power packs each with a separate pump unit with variable flow rate
Electric drive for emission-free work at the face

Air-cooled electric motor, power at 400 Volt , 50 Hz	90 / 110 kW

Diesel drive for travelling and operation without electric supply.
Water-cooled diesel engine, Deutz TCD 6.1
Diesel engine complies with emission standard: EU V ready, US T4f, Option : ROW

Power rating at 2'000 r.p.m	180 kW
Fuel tank capacity	420 l

Electrical system (other tension and frequency upon request)

Total installed power	95 / 115 kW
Voltage (standard)	400 V - 50 Hz AC
Pilot voltage	220 V CA
Control voltage thermic drive	24 V CC
Electrical system acc. to	EN 60529 (IP54)

Cable reel hydraulically driven with abt 75 m cable capacity

Operator's stand

Open operator's stand gives all-round visibility, FOPS canopy and front protection grid. Roof removable for transport
CE conformity incl. video monitoring system for the right and rear side with color LCD in the cab.

Hydraulic system

Load Sense hydraulic system with combination of a double axial piston pump and gear pump
Hydr. pilot control for travelling and main working functions
Boom control with 2 joysticks in Euro standards
Thermostatic controlled hydr. driven oil/air cooler

Max. hydraulic operating pressure	250-350 bar
Hydraulic oil tank capacity	400 l
Pump delivery Diesel engine	440 l/min
Pump delivery Electric motor	500 l/min
Hydraulic oil system capacity	450 l

Operating data

Machine width	2'400 mm
Maximal height	3'600 mm
Transport height	2'700 mm
Transport length with folded equipment	~12'000 mm

Conveyor system

Width of loading apron (adjust.)	2'350 - 3'700 mm
Width of conveyor (internal)	800 mm
Height of conveyor (internal)	800 mm
Conveyor capacity	approx. 300 m³/h
Conveyor discharge height	2'500-3'500 mm

Boom equipment H1

- Minimal cross-section approx. 18 m²

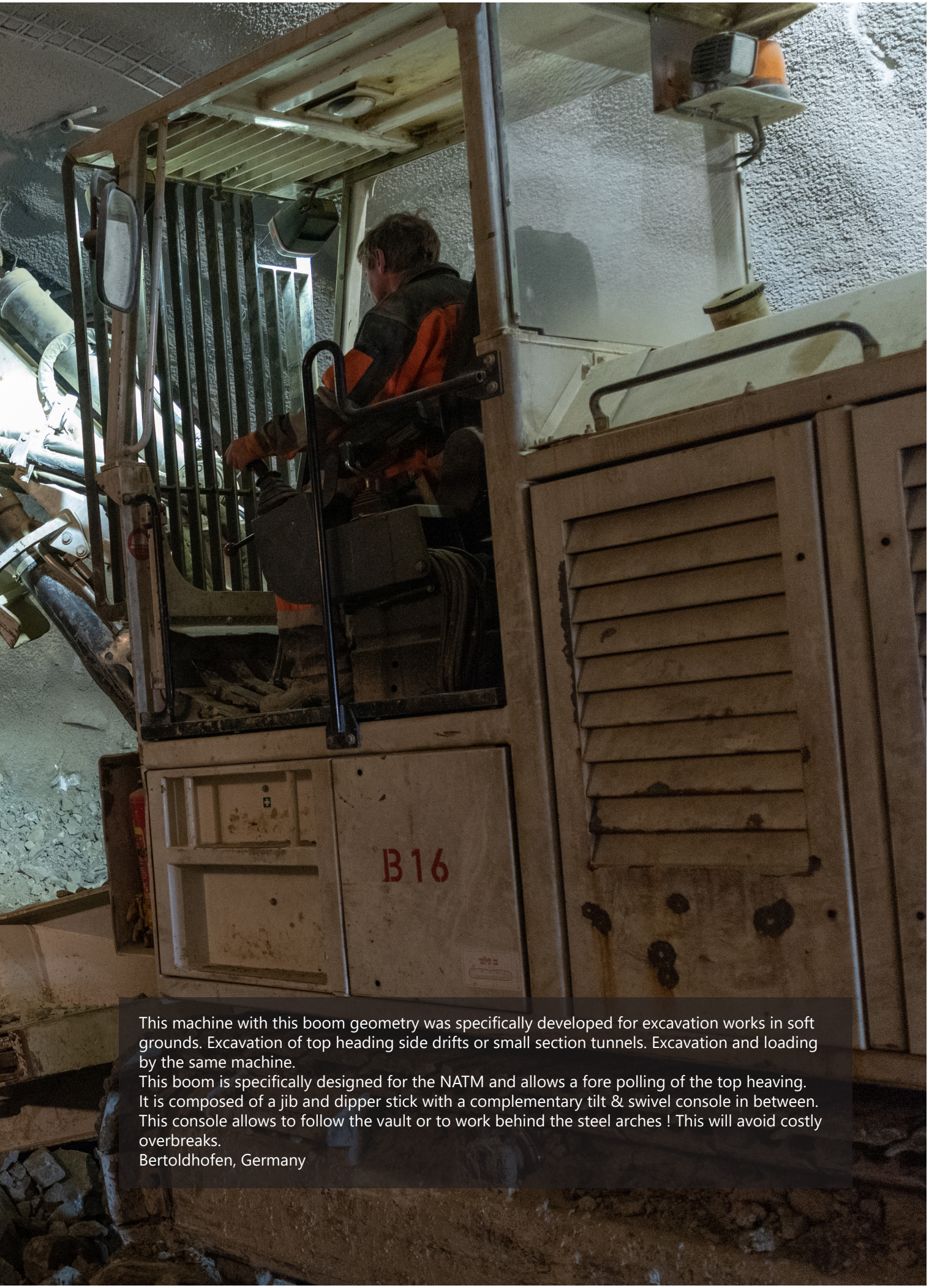
H1 Boom equipment for excavation and loading of soft ground or blasted material, includes:

- King post with jib, tilt-swivel console and dipper stick
- Excavation and mucking bucket, width 400-900 mm
- Hydraulic circuit for a hydraulic rock breaker
- Loading capacity acc. to rock conditions approx. 3 m³/min
- Operating weight approx. 36 t

Options (different possibilities on order)

Enclosed cabin with heating and / or air conditioning, Conveyor extension elements, rubber plate conveyor, automatic grease central, automatic fire extinguisher system, quick couplers, other loading and / or excavation tools, water spraying system for dust reduction with hose reel, Pony truck, etc.

Other details, executions (ATEX) and accessories on request.
Subject to change without notice.



This machine with this boom geometry was specifically developed for excavation works in soft grounds. Excavation of top heading side drifts or small section tunnels. Excavation and loading by the same machine.
This boom is specifically designed for the NATM and allows a fore polling of the top heaving.
It is composed of a jib and dipper stick with a complementary tilt & swivel console in between.
This console allows to follow the vault or to work behind the steel arches ! This will avoid costly overbreaks.
Bertoldhofen, Germany

TUNNEL LOADING MACHINE

ITC 315 H3

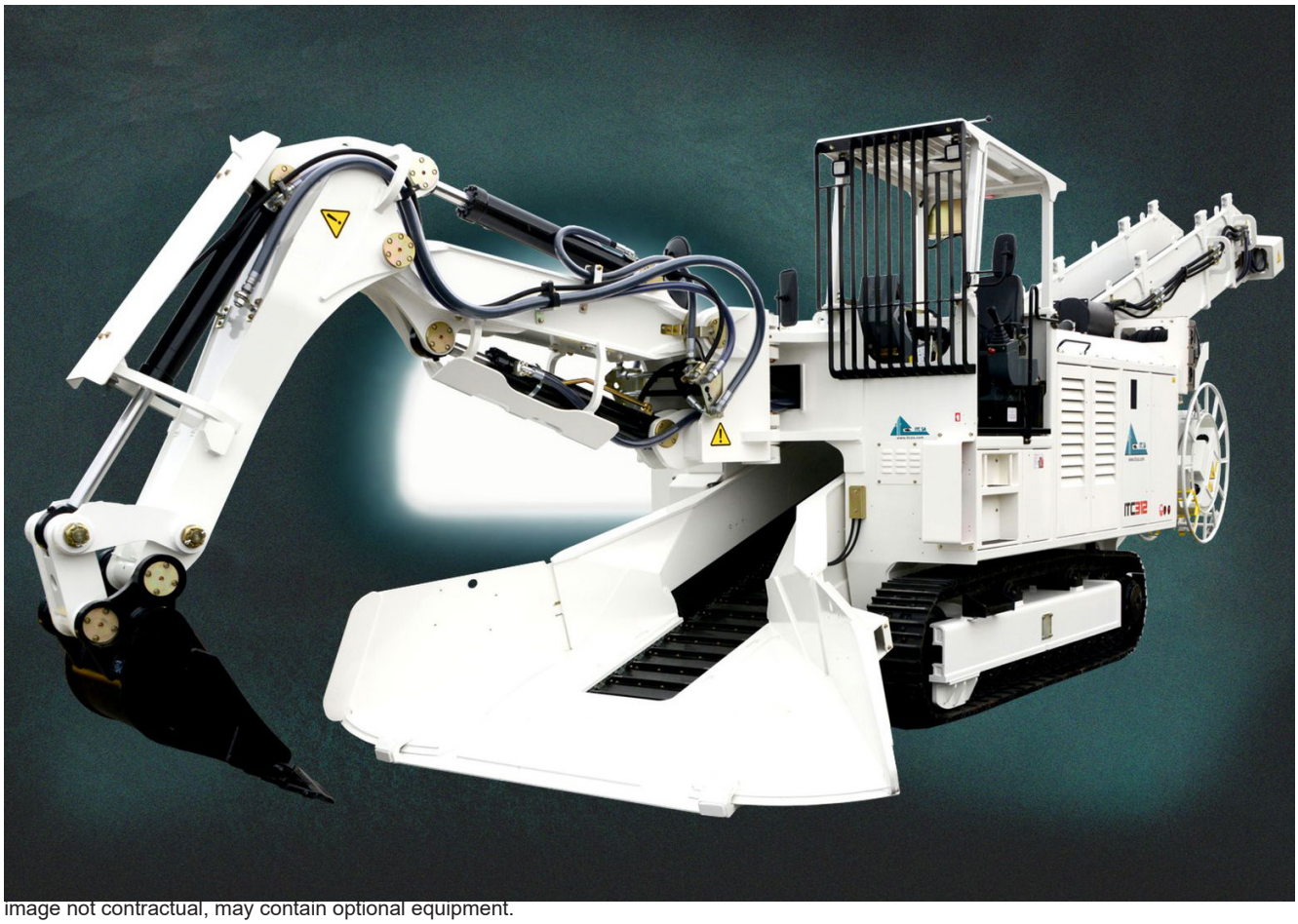
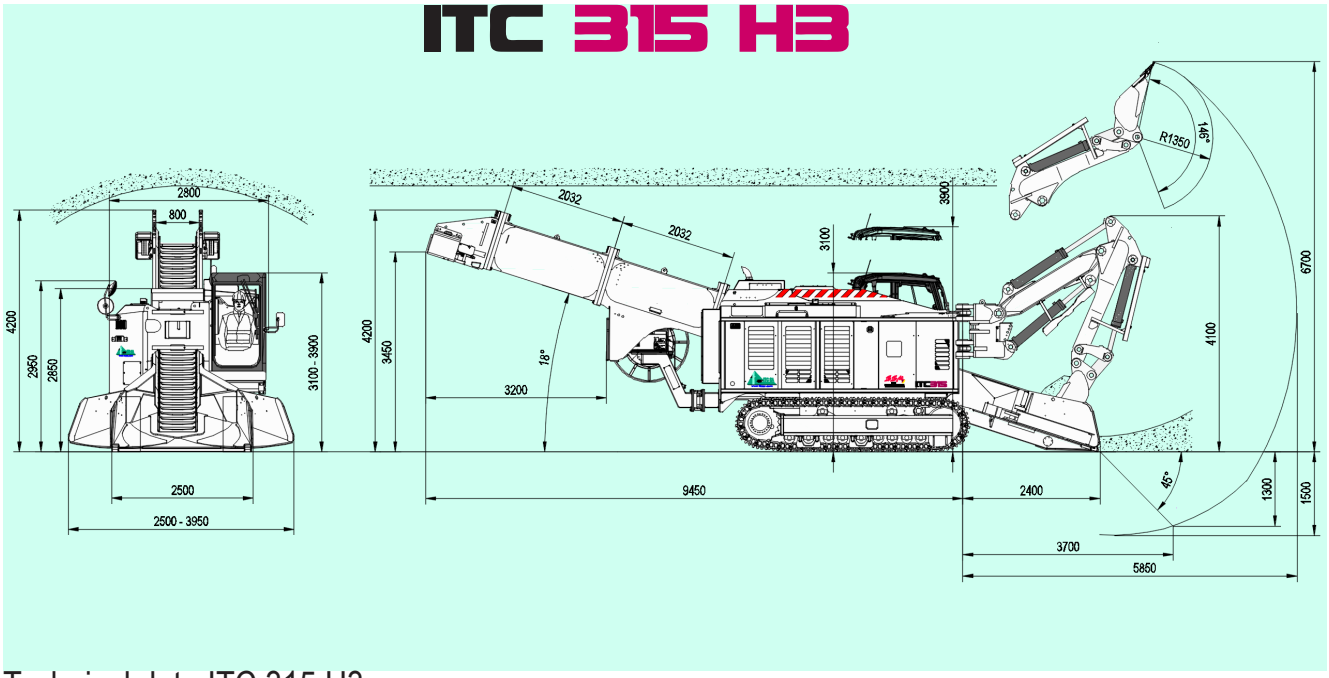


image not contractual, may contain optional equipment.

- For heading in soft ground and high speed mucking of blasted rock

• Minimal cross-section	abt. 15 m²
• Thermal drive	180 kW
• Electric drive	90 / 110 kW
• Operating weight	36 t

ITC 315 H3



Technical data ITC 315 H3

Drive units

Electro-hydraulic and Diesel hydraulic power packs each with a separate pump unit with variable flow rate
Electric drive for emission-free work at the face

Air-cooled electric motor, power at 400 Volt , 50 Hz	90 / 110 kW

Diesel drive for travelling and operation without electric supply.
Water-cooled diesel engine, Deutz TCD 6.1
Diesel engine complies with emission standard: EU V ready, US T4f, Option : ROW

Power rating at 2'000 r.p.m	180 kW
Fuel tank capacity	420 l

Electrical system (other tension and frequency upon request)

Total installed power	95 / 115 kW
Voltage (standard)	400 V - 50 Hz AC
Pilot voltage	220 V CA
Control voltage thermic drive	24 V CC
Electrical system acc. to	EN 60529 (IP54)

Cable reel hydraulically driven with abt 75 m cable capacity

Operator's stand

Open operator's stand gives all-round visibility, FOPS canopy and front protection grid. Roof removable for transport
CE conformity incl. video monitoring system for the right and rear side with color LCD in the cab.

Hydraulic system

Load Sense hydraulic system with combination of a double axial piston pump and gear pump
Hydr. pilot control for travelling and main working functions
Boom control with 2 joysticks in Euro standards
Thermostatic controlled hydr. driven oil/air cooler

Max. hydraulic operating pressure	250-350 bar
Hydraulic oil tank capacity	400 l
Pump delivery Diesel engine	440 l/min
Pump delivery Electric motor	500 l/min
Hydraulic oil system capacity	450 l

Operating data

Machine width	2'400 mm
Maximal height	3'600 mm
Transport height	2'700 mm
Transport length with folded equipment	~12'000 mm

Conveyor system

Width of loading apron (adjust.)	2'350 - 3'700 mm
Width of conveyor (internal)	800 mm
Height of conveyor (internal)	800 mm
Conveyor capacity	approx. 300 m³/h
Conveyor discharge height	2'500-3'500 mm

Boom equipment H3

- Minimal cross-section approx. 15 m²

H3 Boom equipment for loading of soft ground or blasted material, includes:

- King post with jib and dipper stick
- Excavation and mucking bucket, width 400-900 mm
- Hydraulic circuit for a hydraulic rock breaker
- Loading capacity acc. to rock conditions approx. 3 - 5 m³/min
- Operating weight approx. 34 t

Options (different possibilities on order)

Enclosed cabin with heating and / or air conditioning, Conveyor extension elements, rubber plate conveyor, automatic grease central, automatic fire extinguisher system, quick couplers, other loading and / or excavation tools, water spraying system for dust reduction with hose reel, Pony truck, etc.

Other details, executions (ATEX) and accessories on request.
Subject to change without notice.

TUNNEL HEADING AND LOADING MACHINE

ITC 315 H6

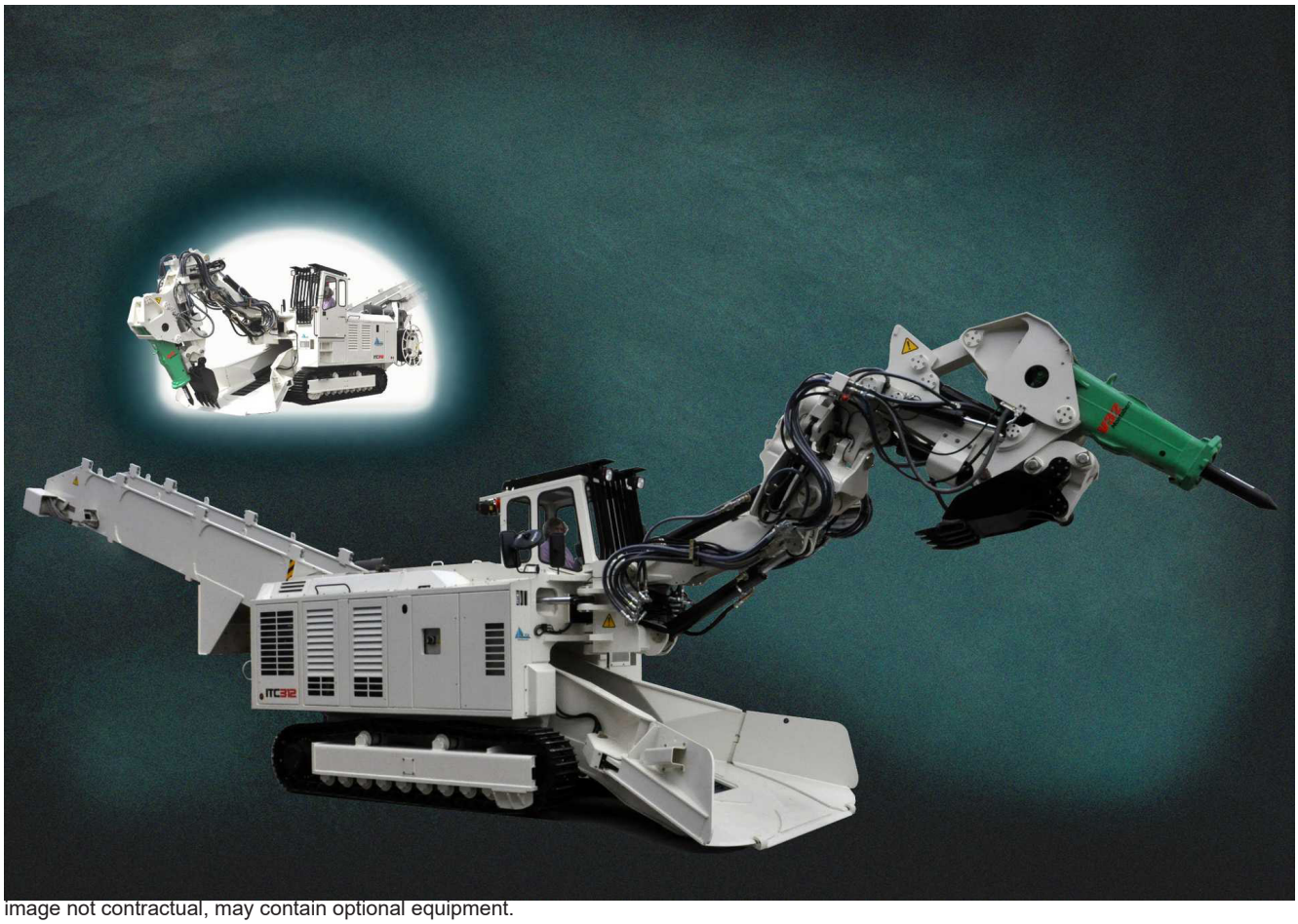
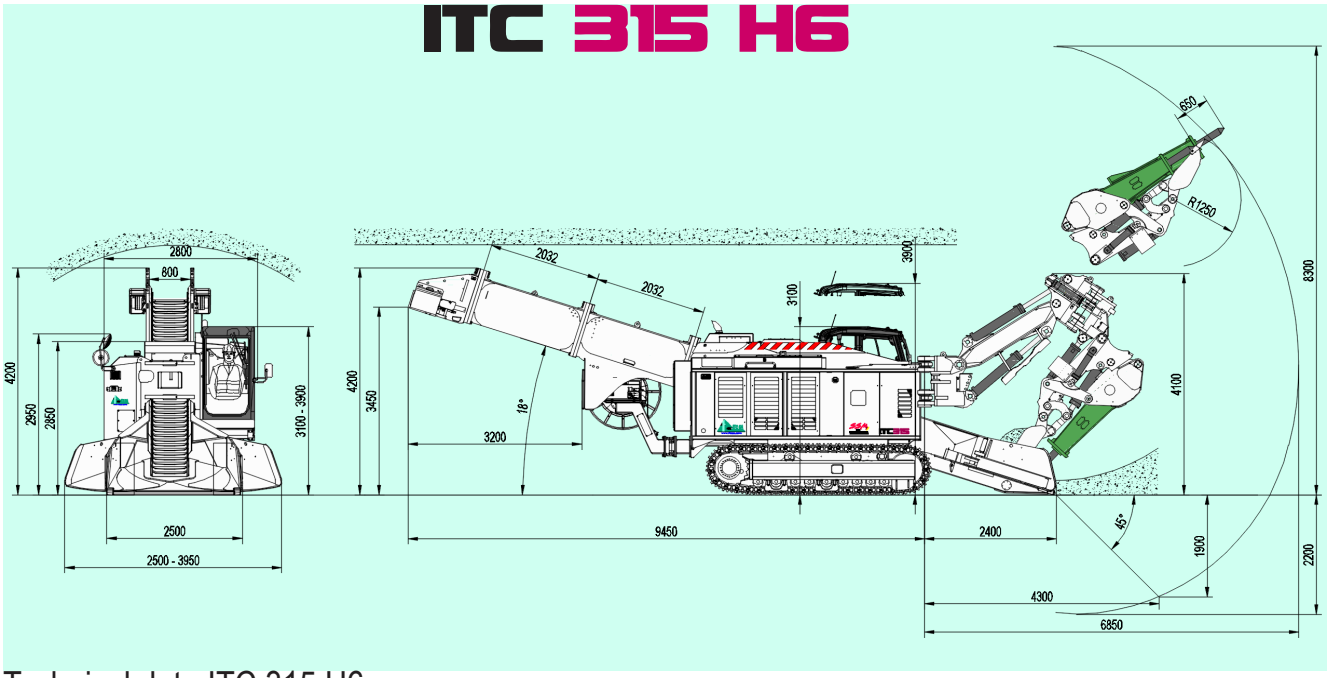


image not contractual, may contain optional equipment.

- Excavation boom equipment with rock breaker / bucket combination for tunnelling in soft and medium hard ground conditions by using bucket and hydr. hammer

• Minimal cross-section	approx. 18 m²
• Thermal drive	180 kW
• Electric drive	90 / 110 kW
• OPerating weight	38 t

ITC 315 H6



Technical data ITC 315 H6

Drive units

Electro-hydraulic and Diesel hydraulic power packs each with a separate pump unit with variable flow rate
Electric drive for emission-free work at the face

Air-cooled electric motor, power at 400 Volt , 50 Hz	90 / 110 kW

Diesel drive for travelling and operation without electric supply.
Water-cooled diesel engine, Deutz TCD 6.1
Diesel engine complies with emission standard: EU V ready, US T4f, Option : ROW

Power rating at 2'000 r.p.m	180 kW
Fuel tank capacity	420 l

Electrical system (other tension and frequency upon request)

Total installed power	95 / 115 kW
Voltage (standard)	400 V - 50 Hz AC
Pilot voltage	220 V CA
Control voltage thermic drive	24 V CC
Electrical system acc. to	EN 60529 (IP54)

Cable reel hydraulically driven with abt 75 m cable capacity

Operator's stand

Open operator's stand gives all-round visibility, FOPS canopy and front protection grid. Roof removable for transport
CE conformity incl. video monitoring system for the right and rear side with color LCD in the cab.

Hydraulic system

Load Sense hydraulic system with combination of a double axial piston pump and gear pump
Hydr. pilot control for travelling and main working functions
Boom control with 2 joysticks in Euro standards
Thermostatic controlled hydr. driven oil/air cooler

Max. hydraulic operating pressure	250-350 bar
Hydraulic oil tank capacity	400 l
Pump delivery Diesel engine	440 l/min
Pump delivery Electric motor	500 l/min
Hydraulic oil system capacity	450 l

Operating data

Machine width	2'400 mm
Maximal height	3'600 mm
Transport height	2'700 mm
Transport length with folded equipment	~12'000 mm

Conveyor system

Width of loading apron (adjust.)	2'350 - 3'700 mm
Width of conveyor (internal)	800 mm
Height of conveyor (internal)	800 mm
Conveyor capacity	approx. 300 m³/h
Conveyor discharge height	2'500-3'500 mm

Boom equipment H6

- Minimal cross-section approx. 18 m²

Excavation boom equipment with rock breaker / bucket combination for tunnelling in soft and medium hard ground conditions by using bucket and hydr. hammer, including:

- King post with jib and tilt-swivel console
- Tool holder with a combination of hydraulic hammer and excavation / loading bucket
- Automatic lubrication system for the hammer
- Water spraying device
- Operating weight approx. 38 t

Options (different possibilities on order)

Enclosed cabin with heating and / or air conditioning, Conveyor extension elements, rubber plate conveyor, automatic grease central, automatic fire extinguisher system, quick couplers, other loading and / or excavation tools, water spraying system for dust reduction with hose reel, Pony truck, etc.

Other details, executions (ATEX) and accessories on request.
Subject to change without notice.

Metro do Porto

The Ferrovial / ACA consortium has chosen an ITC312 with the H6 arm to excavate the tunnels of the pink line of the Porto Metro.

The project, which is the subject of two contracts, includes the extension of the yellow line and a new circular line, called the pink line. The yellow line, with a new 3.15 kilometre section of double-track light rail, starts at Santo Olvido station and serves the districts of Vila Nova de Gaia, Mafamude and Vilar do Paraiso, Oliveira do Duero and Vilar do Andorinho. The work also includes the construction of a viaduct, a 770-metre tunnel and three stations, among other tasks.

In the second project, Ferrovial will build a new circular line, the Pink Line, which will be 3.1 kilometres long and will connect Liberdade Square to the Casa da Música. The work on the Pink Line includes the construction of four new stations, three ventilation shafts, and the installation of the track and catenary.

The ITC 312 H6 is equipped with a combination of hammer and bucket, allowing the operator to switch from excavation to loading within seconds, without a quick coupler and without leaving the cab, increasing both efficiency and safety.

The machine is equipped with an closed cab, air conditioning and heating, all mounted on a platform that allows the cab to be moved to the right side of the machine, so that accurate work can be done on both sides of the boom.

The hammer is mounted on a lever system which gives it a stroke of approximately 600 mm with a constant thrust of 4 tonnes in all directions. The bucket has full geometry, i.e. full breakout force, and can be used for excavation in soft ground and for loading material onto the on-board conveyor.


SSM

TUNNEL HEADING AND LOADING MACHINE

ITC 315 N1

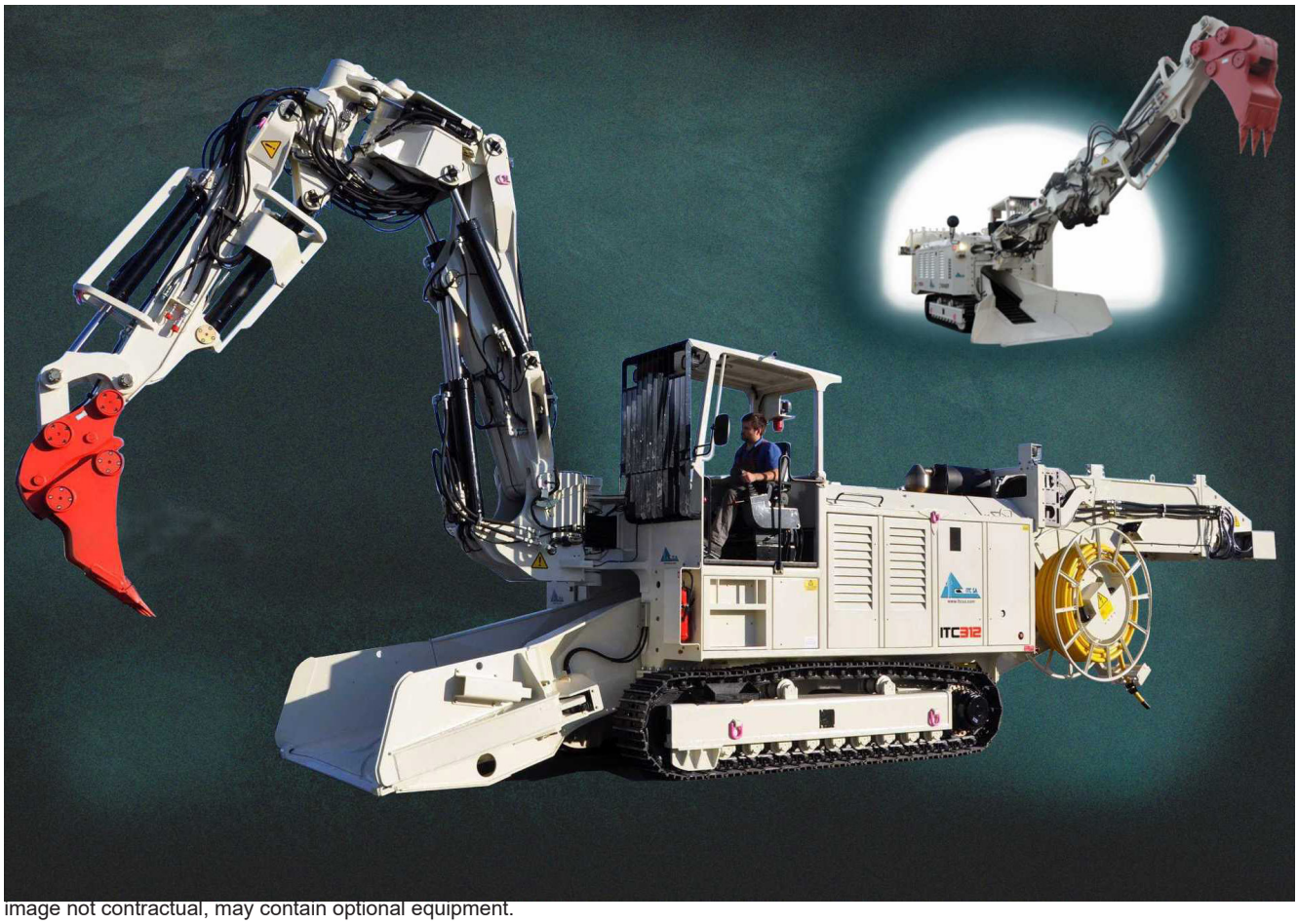
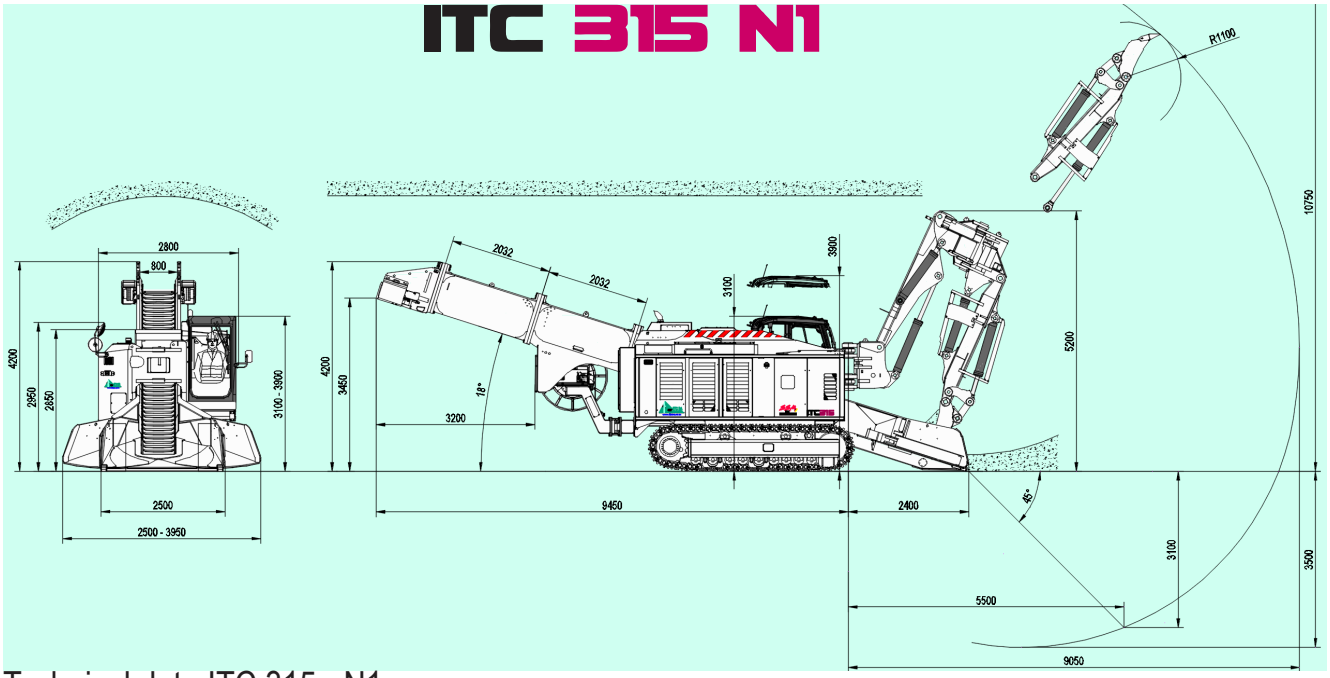


Image not contractual, may contain optional equipment.

- Long excavation boom with swivel dipper stick for heading in soft ground

• Minimal cross-section	approx. 25 m²
• Thermal drive	180 kW
• Electrique drive	90 / 110 kW
• Operating weight	40 t

ITC 315 N1



Technical data ITC 315 - N1

Drive units

Electro-hydraulic and Diesel hydraulic power packs each with a separate pump unit with variable flow rate
Electric drive for emission-free work at the face

Air-cooled electric motor, power at 400 Volt , 50 Hz	90 / 110 kW

Diesel drive for travelling and operation without electric supply.
Water-cooled diesel engine, Deutz TCD 6.1
Diesel engine complies with emission standard: EU V ready, US T4f, Option : ROW

Power rating at 2'000 r.p.m	180 kW
Fuel tank capacity	420 l

Electrical system (other tension and frequency upon request)

Total installed power	95 / 115 kW
Voltage (standard)	400 V - 50 Hz AC
Pilot voltage	220 V CA
Control voltage thermic drive	24 V CC
Electrical system acc. to	EN 60529 (IP54)

Cable reel hydraulically driven with abt 75 m cable capacity

Operator's stand

Open operator's stand gives all-round visibility, FOPS canopy and front protection grid. Roof removable for transport
CE conformity incl. video monitoring system for the right and rear side with color LCD in the cab.

Hydraulic system

Load Sense hydraulic system with combination of a double axial piston pump and gear pump
Hydr. pilot control for travelling and main working functions
Boom control with 2 joysticks in Euro standards
Thermostatic controlled hydr. driven oil/air cooler

Max. hydraulic operating pressure	250-350 bar
Hydraulic oil tank capacity	400 l
Pump delivery Diesel engine	440 l/min
Pump delivery Electric motor	500 l/min
Hydraulic oil system capacity	450 l

Operating data

Machine width	2'400 mm
Maximal height	3'600 mm
Transport height	2'700 mm
Transport length with folded equipment	~12'000 mm

Conveyor system

Width of loading apron (adjust.)	2'350 - 3'700 mm
Width of conveyor (internal)	800 mm
Height of conveyor (internal)	800 mm
Conveyor capacity	approx. 300 m³/h
Conveyor discharge height	2'500-3'500 mm

Boom equipment N1

- Minimal cross-section approx. 25 m²

Long boom equipment for excavation and loading of soft ground or blasted material, includes:

- King post with jib, tilt-swivel console and dipper stick
- Excavation and mucking bucket, width 400-900 mm
- Hydraulic circuit for a hydraulic rock breaker
- Loading capacity acc. to rock conditions approx. 3 m³/min
- Operating weight approx. 37 t

Options (different possibilities on order)

Enclosed cabin with heating and / or air conditioning, Conveyor extension elements, rubber plate conveyor, automatic grease central, automatic fire extinguisher system, quick couplers, other loading and / or excavation tools, water spraying system for dust reduction with hose reel, Pony truck, etc.

Other details, executions (ATEX) and accessories on request.
Subject to change without notice.

Our N1s boom on an ITC312N excavating in Toronto's clay, at Laird's station.
The machine has a quick attach with a rotator so it can precisely excavate between the side walls without damaging them. As seen on the picutre, the swivel cabin helps the operator by giving him a clear sight of it's working zone.

RAPID BALLAST LOADING MACHINE

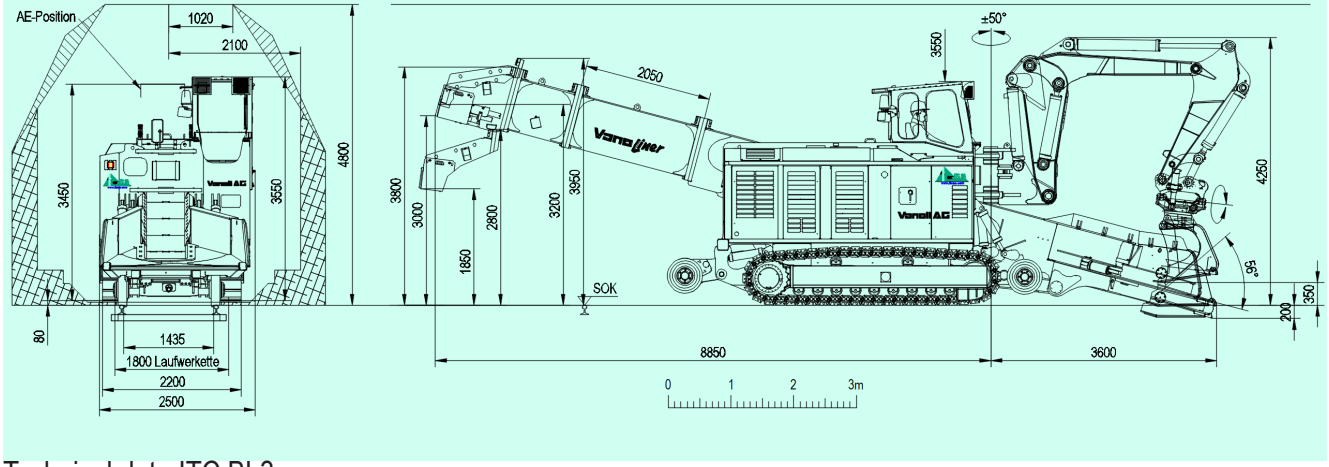
ITC BL3

image not contractual, may contain optional equipment.

- For excavation and loading ballast without interfering with the profile
- Loading boom with long reach
- Flexible mounting for a wide range of attachments
- Rail axle for 1435 mm gauge

• High loading capacity up to	300 m³/h
• Engine Power	240 kW
• Operating weight	38 t

ITC BL3



Technical data ITC BL3

Operating data

Machine width (Transport)	2'500 mm
Maximal height (over cab)	3'550 mm
Transport height	3'200 mm
Transport length with folded equipment	~14'000 mm
Operating weight	approx. 34 t

Drive unit

- Type DEUTZ TCD 7.8, turbo-charged with intercooled, 240 kW at 2'000 RPM
- Automatic engine cut off
- Dry air filter with TOP-Air pre-filter
- Emission standard EU V, US T4f, EU IV, Option : ROW
- Fuel tank 600 l
- Electrical system 24 Volt

Operator's stand

Noise insulated steel cab with allround visibility. Safety windows with roof window, cab heating through hot water heat exchanger.

Hydraulic system

Load Sense hydraulic system with triple axial piston pump
Hydr. pilot control for travelling and main working functions
Boom control with 2 joysticks in Euro standards
Thermostatic controlled hydr. driven oil/air cooler

Max. hydraulic operating pressure	230-330 bar
Max. pump flow	1x600l/min + 2x200 l/min
Hydraulic oil capacity (incl. tank)	600 l
Hydraulic oil tank	500 l

Bio hydraulic oil (Panolin)

Conveyor system

Width of loading apron (adjust.)	2'350 - 3'670 mm
Width of conveyor (internal)	800 mm
Height of conveyor (internal)	800 mm
Conveyor capacity	approx. 300 m³/h
Chain with variable speed	0 - 1,1 m/s
Conveyor discharge height	3'000 - 3'200 mm

Boom Equipment

Boom equipment for loading the ballast, includes:

- King post with jib, intermediate jib and dipper stick
- Rototilt, to rotate and swing the bucket
- Mechanical quick hitch (Option)
- Loading and levelling bucket 1'600 mm
- Hydraulic circuit for a hydraulic rock breaker and cutting unit
- Loading capacity of loose ballast approx. 3-5 m³/min
- Depending on material and excavation depth

Included Equipment

The following equipment is included:

- Crawler chain with vulcanized rubber pad to protect the rail
- Central lubrication system for the entire machine
- Rail road axles for rail haulage in front and back, hydraulic operation, rail gauge 1435 mm rear swivel axle with hydraulic locking device
- Camera system for monitoring the area at the rear

Options (different possibilities on order)

Enclosed cabin with heating and / or air conditioning, Conveyor extension elements, rubber plate conveyor, automatic grease central, automatic fire extinguisher system, quick couplers, other loading and / or excavation tools, water spraying system for dust reduction with hose reel, Height and swivel limiter, emergency drive for the main components, limitation of the working height and width, etc.

Other details, executions (ATEX) and accessories on request.
Subject to change without notice.

TUNNEL LOADING MACHINE

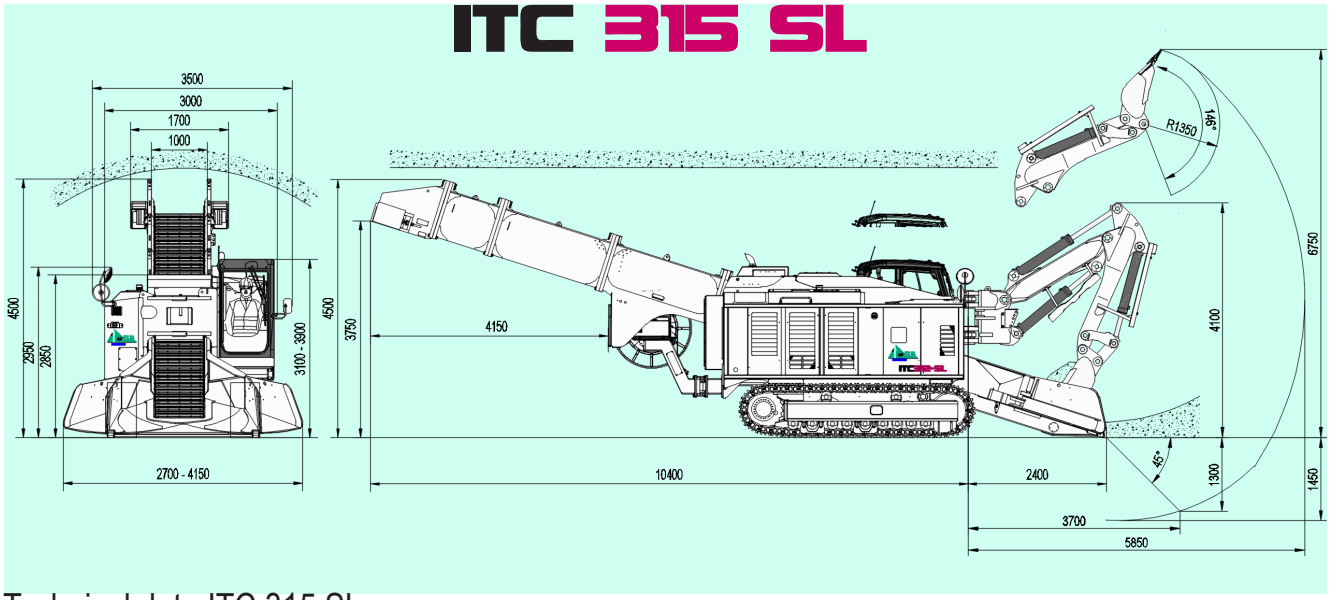
ITC 315 SL

image not contractual, may contain optional equipment.

- For heading in soft ground and high speed mucking of blasted rock

• Minimal cross-section	approx. 20 m²
• Thermal drive	180 kW
• Electric drive	132 kW
• Operating weight	40 t

ITC 315 SL



Technical data ITC 315 SL

Drive units

Electro-hydraulic and Diesel hydraulic power packs each with a separate pump unit with variable flow rate
Electric drive for emission-free work at the face

Air-cooled electric motor, power at 400 Volt , 50 Hz	132 kW

Diesel drive for travelling and operation without electric supply.
Water-cooled diesel engine, Deutz TCD 6.1
Diesel engine complies with emission standard: EU V ready, US T4f, Option : ROW

Power rating at 2'000 r.p.m	180 kW
Fuel tank	420 l

Electrical system (other tension and frequency upon request)

Total installed power	140 kW
Voltage (standard)	400 V - 50 Hz AC
Pilot voltage	220 V CA
Control voltage thermic drive	24 V CC
Electrical system acc. to	EN 60529 (IP54)

Cable reel hydraulically driven with abt 75 m cable capacity

Operator's stand

Comfortable Volvo closed cab gives all-round visibility, FOPS canopy and front protection grid.
Air conditionning.
CE conformity incl. video monitoring system for the right and rear side with color LCD in the cab.

Hydraulic system

Load Sense hydraulic system with combination of a double axial piston pump and gear pump
Hydr. pilot control for travelling and main working functions
Boom control with 2 joysticks in Euro standards
Thermostatic controlled hydr. driven oil/air cooler

Max. hydraulic operating pressure	250-350 bar
Hydraulic oil tank capacity	400 l
Pump delivery Diesel engine	520 l/min
Pump delivery Electric motor	540 l/min
Hydraulic oil capacity (incl. tank)	500 l

Operating data

Machine width	2'750 mm
Maximal height	3'650 mm
Transport height	3'350 mm
Transport length with folded equipment	~13'000 mm

Conveyor system

Width of loading apron (adjust.)	2'700 - 4'100 mm
Width of conveyor (internal)	1000 mm
Height of conveyor (internal)	800 mm
Conveyor capacity	approx. 600 m³/h
Conveyor discharge height	2'500-3'500 mm

Boom SL

- Minimal cross section approx. 20 m²

Boom equipment for loading of soft ground or blasted material, includes:

- King post with jib and dipper stick
- Excavation and mucking bucket, width 400-1200 mm
- Hydraulic circuit for a hydraulic rock breaker
- Loading capacity acc. to rock conditions approx. 5-12 m³/min
- Operating weight approx. 40 t

Options (different possibilities on order)

Elevator cabin, conveyor extension elements, rubber plate conveyor, automatic grease central, automatic fire extinguisher system, quick couplers, other loading and / or excavation tools, water spraying system for dust reduction with hose reel, etc.

Other details, executions (ATEX) and accessories on request.
Subject to change without notice.

TUNNEL HEADING AND LOADING MACHINE

ITC 320 V45

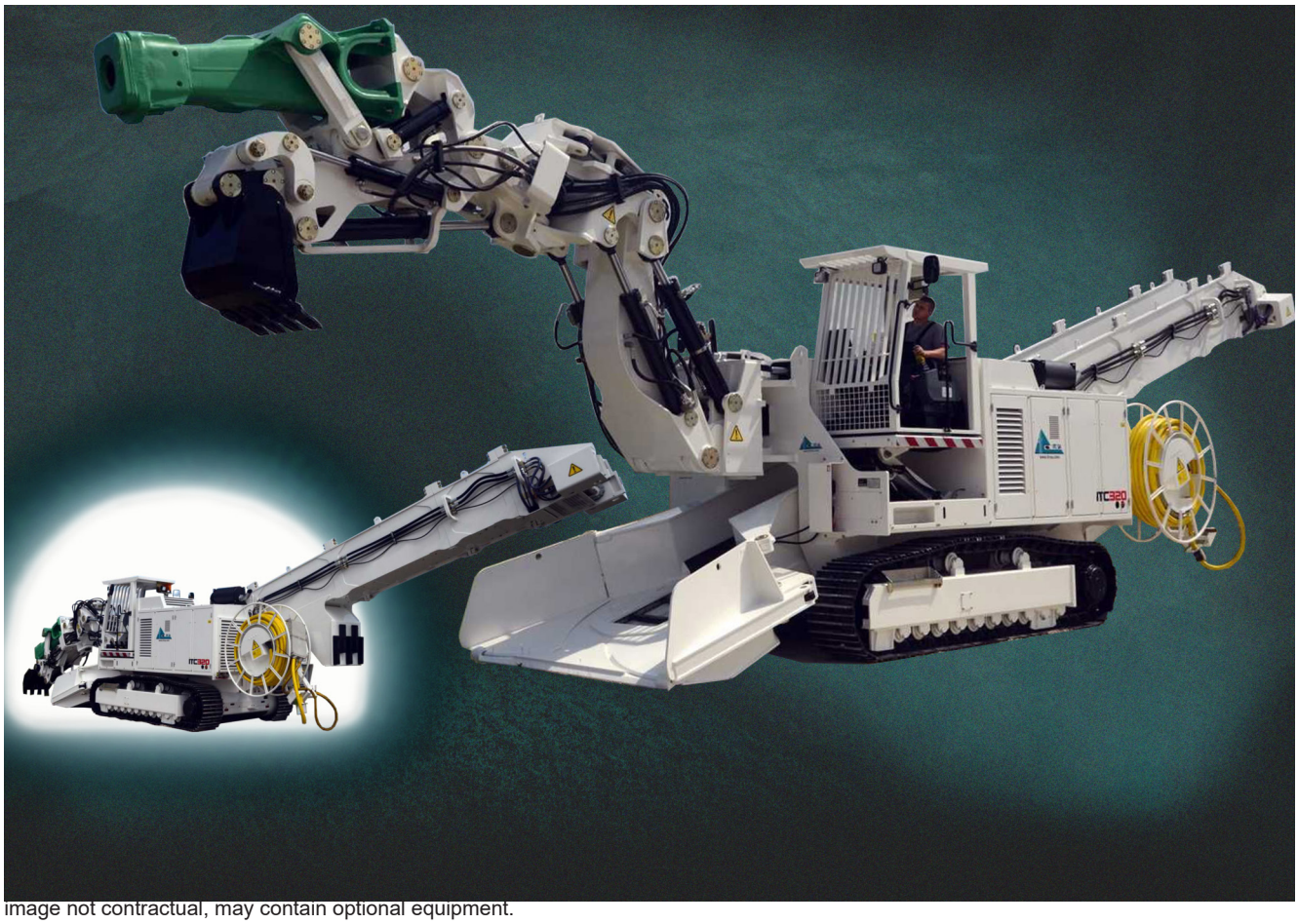
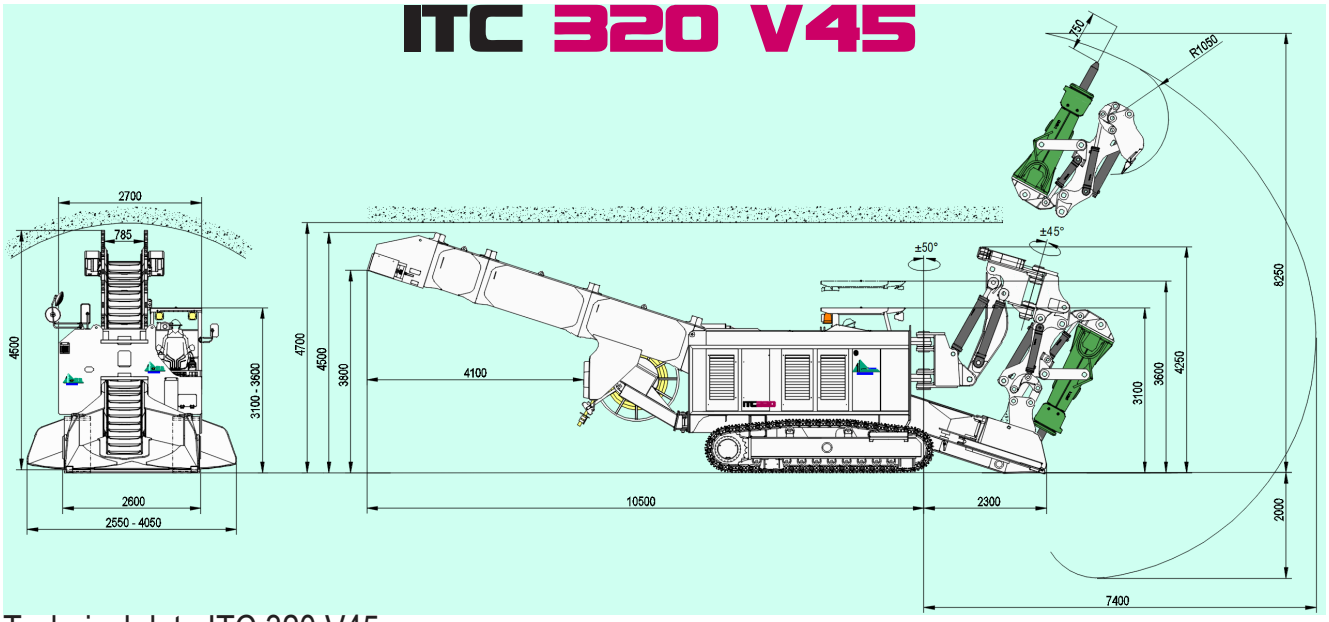


image not contractual, may contain optional equipment.

- Excavation boom equipment with rock breaker / bucket combination for tunnelling in soft and medium hard ground conditions by using bucket and hydr. hammer

• Minimal cross-section	abt. 20 m²
• Thermal drive	180 kW
• Electric drive	132 kW
• Operating weight	45 t

ITC 320 V45



Technical data ITC 320 V45

Drive units

Electro-hydraulic and Diesel hydraulic power packs each with a separate pump unit with variable flow rate
Electric drive for emission-free work at the face

Air-cooled electric motor, power at 400 Volt , 50 Hz	132 kW

Diesel drive for travelling and operation without electric supply.
Water-cooled diesel engine, Deutz TCD 6.1
Diesel engine complies with emission standard: EU V ready, US T4f, Option : ROW

Power rating at 2'000 r.p.m	180 kW
Fuel tank	400 l

Electrical system (other tension and frequency upon request)

Total installed power	140 kW
Voltage (standard)	400 V - 50 Hz AC
Pilot voltage	220 V CA
Control voltage thermic drive	24 V CC
Electrical system acc. to	EN 60529 (IP54)

Cable reel hydraulically driven with abt 75 m cable capacity

Operator's stand

The operator stand with hydraulic vertical adjustment (500 mm) permit optimal all-round visibility. Alternatively open FOPS canopy with frontguard or optionally closed cab.
Video monitoring system for the right and rear side with color LCD in the cab.

Hydraulic system

Load Sense hydraulic system with twin axial piston pumps.
Hydr. pilot control for travelling and main working functions
Boom control with 2 joysticks in Euro standards
Thermostatic controlled hydr. driven oil/air cooler

Max. hydraulic operating pressure	250-350 bar
Pump oil flow	540 l/min
Hydraulic oil capacity (incl. tank)	600 l
Hydraulic oil tank	450 l

Operating data

Minimal operation height	4'800 mm
Machine width	2'700 mm
Maximal height over raised cab	3'650 mm
Transport height	3'150 mm
Transport length with folded equipment	~ 16'000 mm

Conveyor system

Width of loading apron (adjust.)	2'500 - 4'000 mm
Width of conveyor (internal)	785 mm
Height of conveyor (internal)	875 mm
Conveyor capacity	approx. 250 m³/h
Conveyor discharge height	2'500-3'500 mm

Boom Equipment V45

- Minimal cross section approx. 20 m²

Excavation boom equipment with rock breaker / bucket combination for tunnelling in soft and medium hard ground conditions by using bucket and hydr. hammer, composed of:

- King post with jib and tilt-swivel console
- Tool holder with a combination of hydraulic hammer and excavation / loading bucket
- Automatic lubrication system and flushing device for the hammer
- Water spraying device
- Operating weight env. 45 t

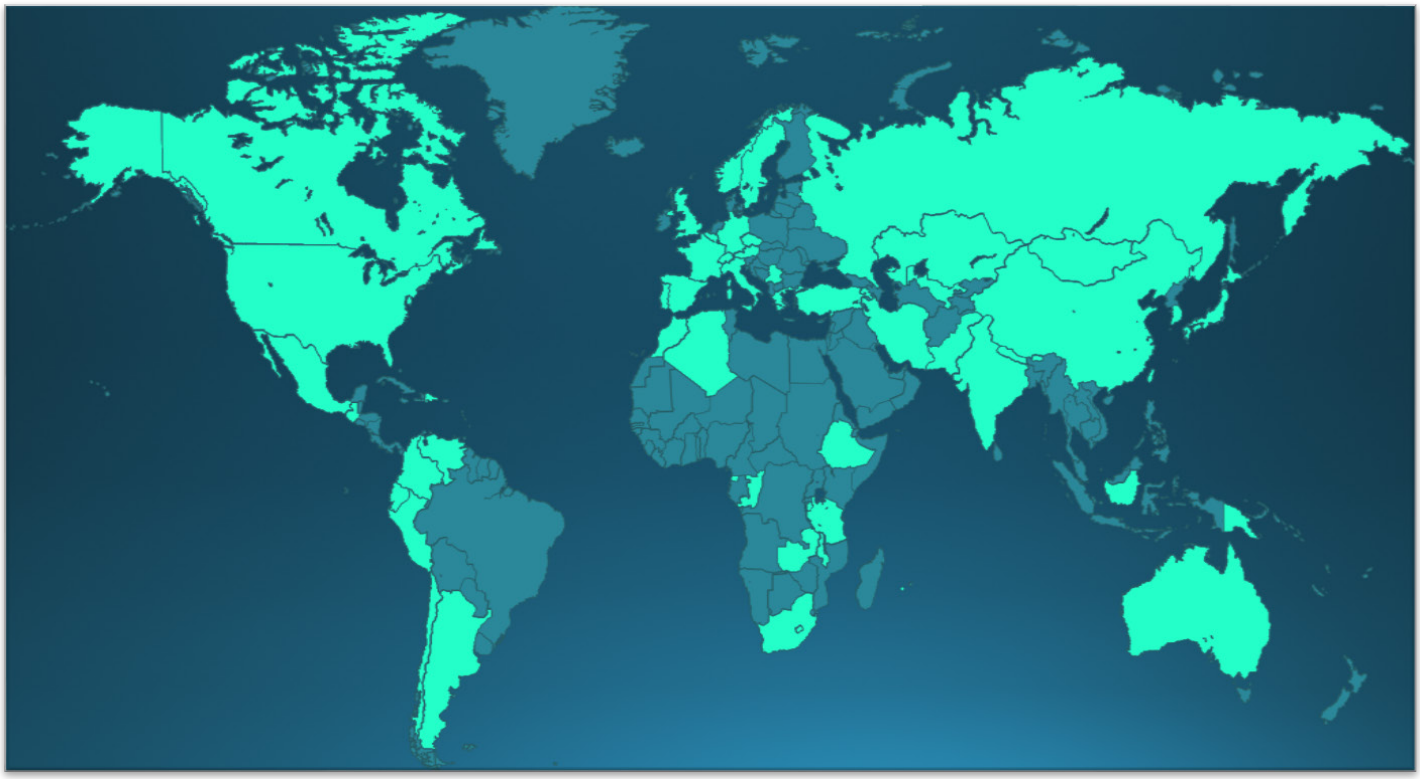
Options (different possibilities on order)

Enclosed cabin with heating and / or air conditioning, Conveyor extension elements, rubber plate conveyor, automatic grease central, automatic fire extinguisher system, quick couplers, other loading and / or excavation tools, water spraying system for dust reduction with hose reel, etc.

Other details, executions (ATEX) and accessories on request.
Subject to change without notice.

Future operators taking turn at trying our largest machine, the ITC320, before it goes inside Lyon-Torino access tunnel to lower the invert.
Due to unexpected geological condition, the work previously done by a very large road milling machine couldn't be carried out safely. The use of the ITC solved that in less than two weeks.
Lyon-Torino, March 2022

ITC AROUND THE WORLD



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