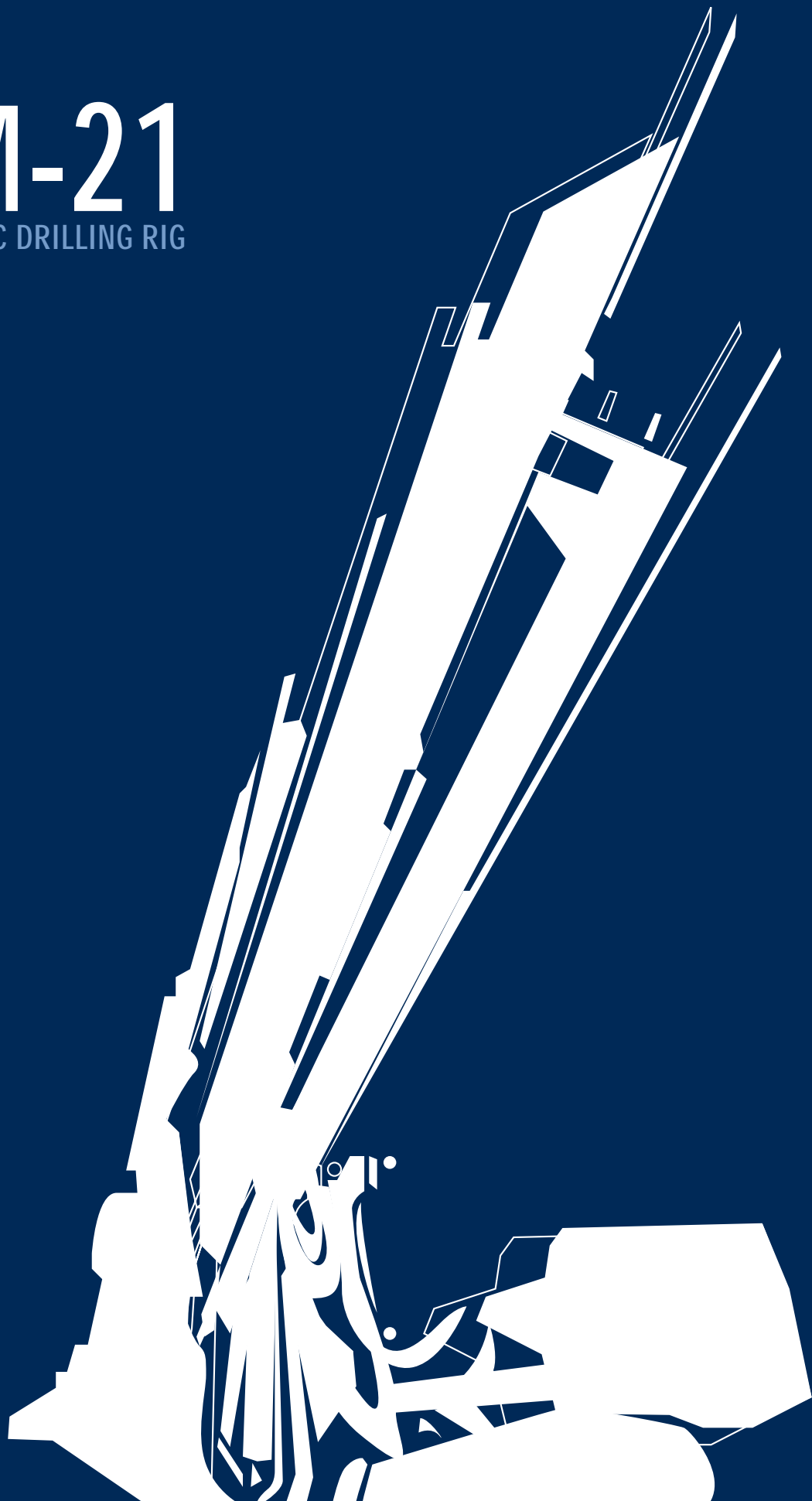


# SM-21

HYDRAULIC DRILLING RIG



# SM-21

## HYDRAULIC DRILLING RIG

### A new model

Once again Soilmec introduces a modern, powerful and multipurpose rig for the top end segment of the market. The new SM-21 is engineered to perform micropiling, tie-back, jet-grouting and water well drilling. Like SM-14, the Soilmec SM-21 is fitted with proportional, hydraulic servo-assisted controls so that drilling and positioning operations become easy, precise and smooth. The new hydraulic design optimizes the usage of the rig keeping the running cost down and powering any utility as and when required.

Main features of the rigs are:

- **Variable speed rotary head:** the operator can set the best combination of torque and speed so as to suit the soil hardness.
- **Hydraulic top hammer:** the design allows the fitting of most brands of top hammers for up to 2500 blow frequency and up to 835 Nm impact energy.
- **Mast and hoist system:** SM-21 mast handle either 4500 mm long rods (standard) or 6000-9000 mm long rods (optional) and hoist/crowd system is by hydraulic cylinder or by motoreducer.
- **Rod-handler:** We have several options : one for No. 6 x 3000 mm long rods N° 10 x 3000 mm, N° 10 x 4500 mm and one for No. 2 x 6000 mm long rods. As a further alternative a handy service crane is available as well.
- **Jet-grouting:** Soilmec SM-21 is able to reach 38 m of treatment with the rod-handler and up to 20 m in single passage with a fully guided feed swivel. The rotary hollow passage has now been increased to suit up to 140 mm o.d. rods.

Several other options and configuration are available so to have a tailor made rig for your needs. To mention some of them:

- Double head;
- Reverse circulation;
- Foam pump;
- Top-hammer;
- Radio remote control;
- Dust collector.

### Undercarriage

Track shoe width	mm	500
Overall length	mm	3631
Overall width	mm	2500
Travelling speed	km/h	2.48
Average ground pressure	MPa	0.07

### Diesel engine

Diesel engine make and model	DEUTZ - TCD 2013 L06 2V tier III	
Diesel engine installed power (SAE J1995)	kW (BHp)	200 (272) @ 2400 rpm
Fuel tank capacity	l	255

### Hydraulic System

Hydraulic oil tank capacity	l	450
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### Standard rotary head

		RH 2000V	HH 3700 V	
Gear box ratios		Variable	variable	Variabile
Max. nominal torque (28 Mpa)	daNm@rpm	2025	1740@67	3659
Maximum drilling speed	rpm	179	208	127

### Hoist & feed system

		HD	STD	LS
Rod lenght type (c/w one rotary head)	m	4.5	4.5/6	9
Feed type		Cylinder	gear motor	gear motor
Feed stroke	mm	4800	4800/7000	10000
Maximum hois pull	kN	141/141	113/113	91
Maximum feed force	kN	79/79	113/113	91
Maximum speed	m/min	24	29	29

### Clamp & hydraulic joint breaker

Nominal size	mm	50-315	60-415
Maximum clamping force (28 Mpa)	kN	266	
Maximum breaking torque	daNm	5060 (7900)	

### Service winch

Maximum line pull (1 <sup>st</sup> layer)	kN	20
Maximum rope speed (5 <sup>th</sup> layer)	m/min	60
Rope diameter	mm	10
Rope capacity/Rope fitted	m	46/40

Noise level	LwA-dB	110
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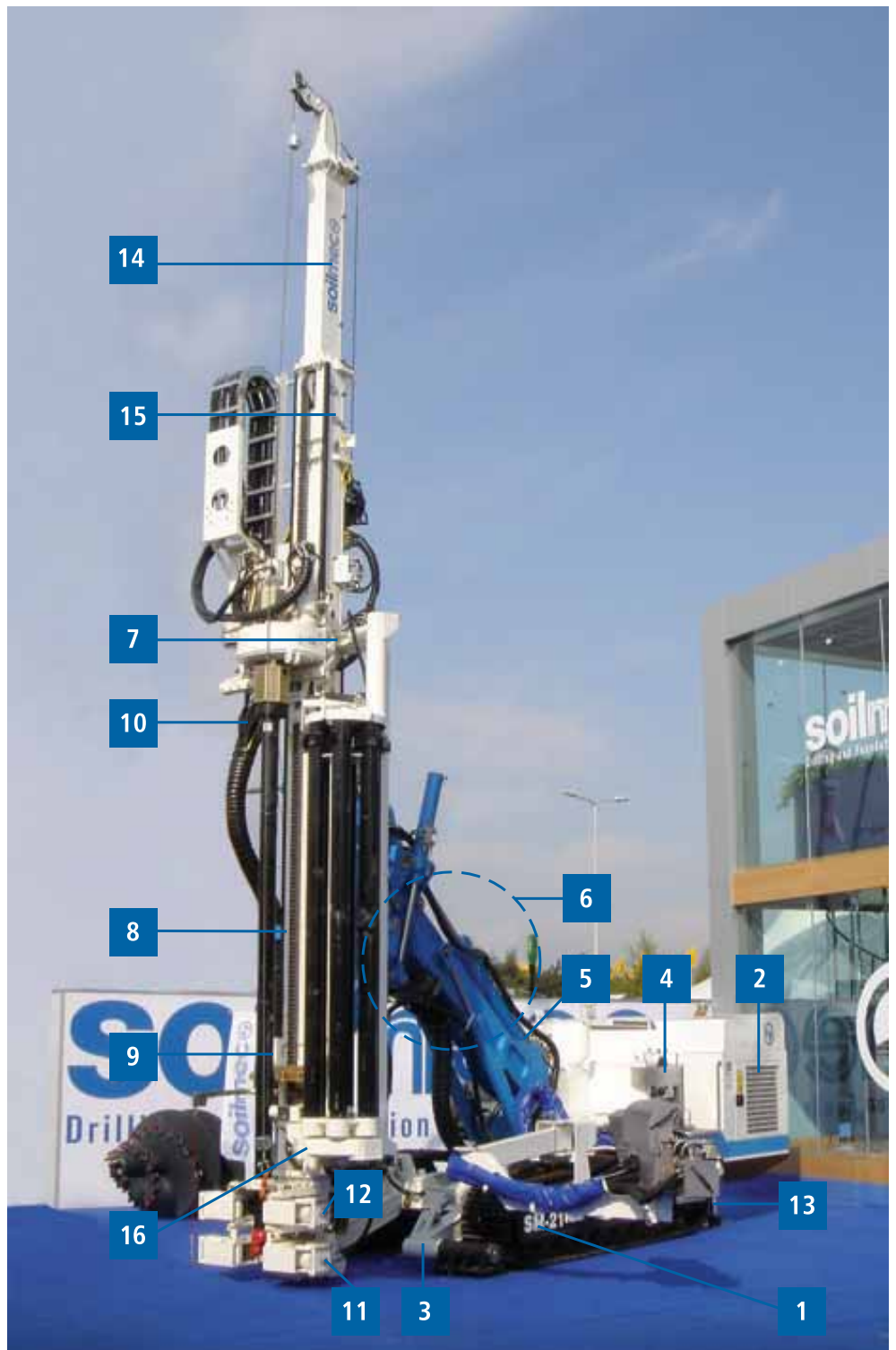
Weight	kg	21000÷23500	22000
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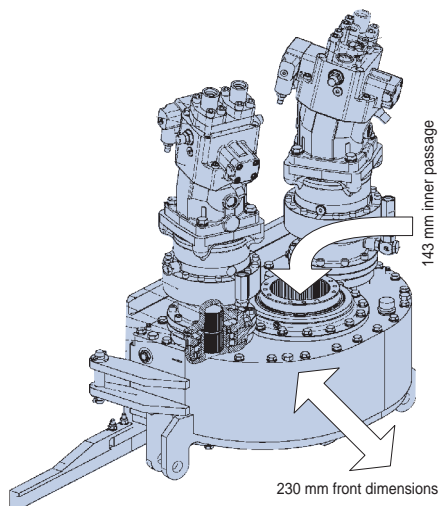
DRILLING CONTROL BOARD



- 1 - Crawler undercarriage fixed.
- 2 - Machine body including prime mover, hydraulic plant soundproof canopy.
- 3 - N° 2 hydraulic outriggers + N° 2 front.
- 4 - Control levers for rig positioning.
- 5 - Articulated boom for mast positioning.
- 6 - 90° side turntable for mast rotation.
- 7 - 1590 mm stroke cylinder for mast shoring.
- 8 - Rotary cradle with adjusting rollers and 600 mm side-shifting device.
- 9 - Variable speed rotary head with 2025 daNm max torque, 179 rpm max rotation.
- 10 - Floating system with standard rotary head.
- 11 - Clamp max. diam. 315 mm.
- 12 - Breaker max. diam. 315 mm.
- 13 - Control board on rotating arm for drilling and service functions.
- 14 - Service winch with jib.
- 15 - Guiding and lay-out device for hydraulic hoses.
- 16 - Rod carousel.



## Rotary heads



### Double head

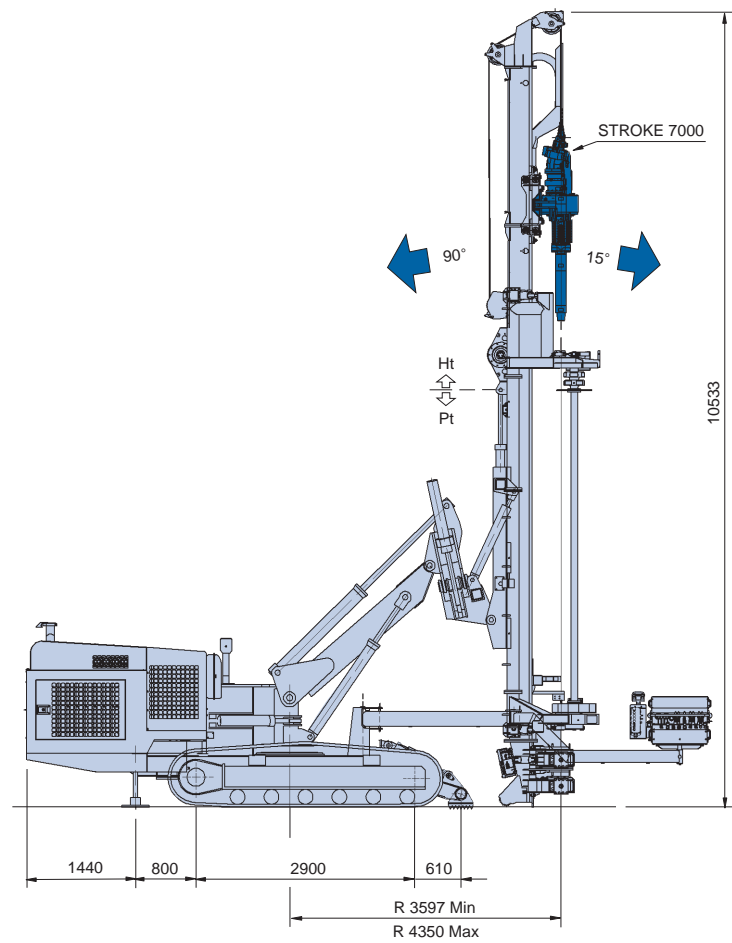
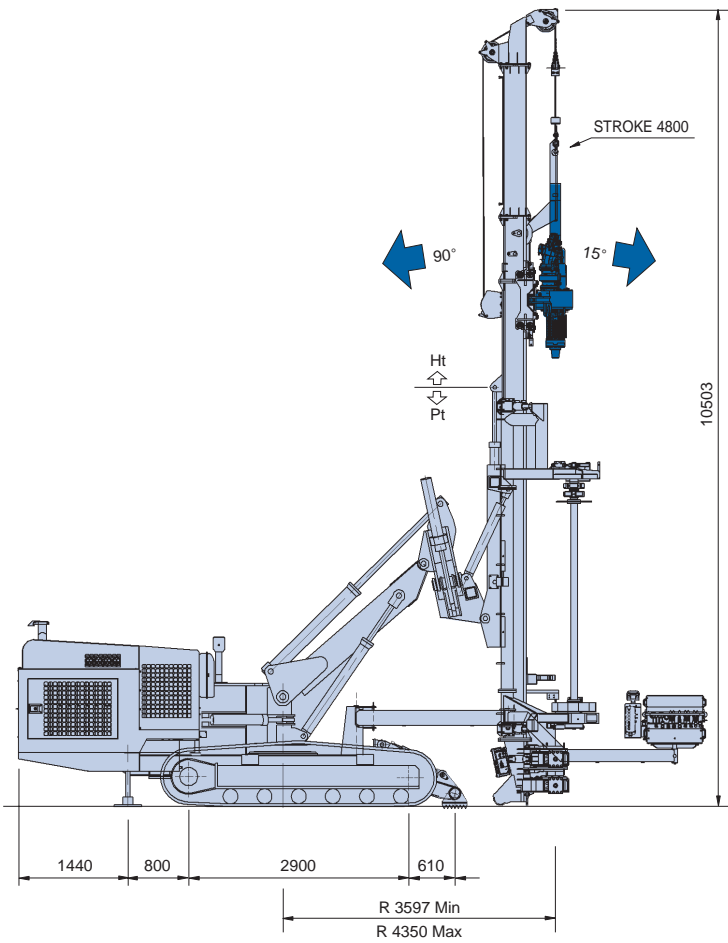
UPPER ROTARY		RH 1200V
Gear box ratios		variable
Max. nominal torque	daNm@rpm	1207
Maximum drilling speed	rpm	192
LOWER ROTARY		RH 2000V
Gear box ratios		variable
Max. nominal torque	daNm@rpm	2025
Maximum drilling speed	rpm	90
Rod length	mm	3000

### Top hammer

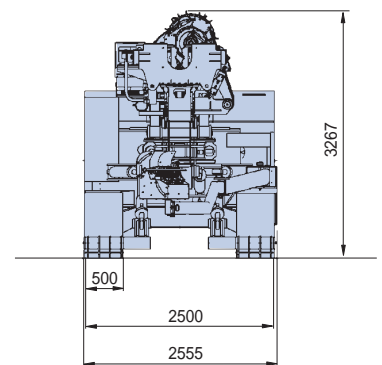
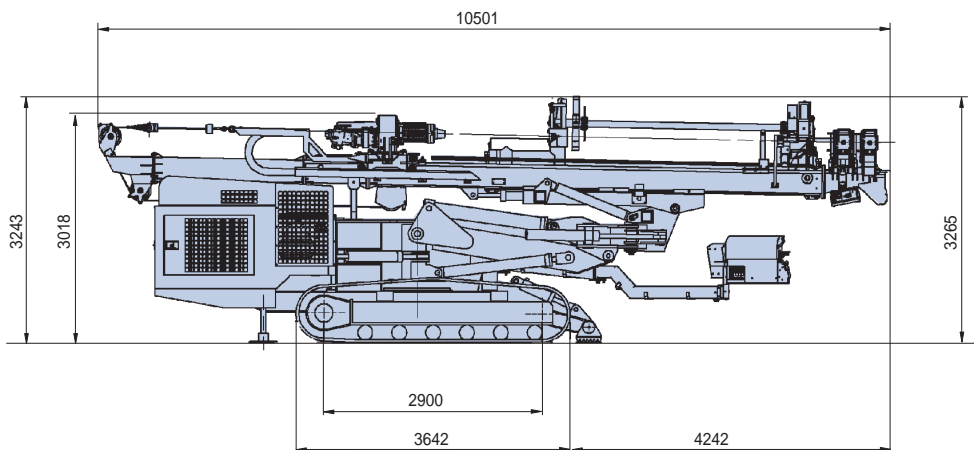
Weight	kg	up to 1000
Blow frequency@impact energy	1/min@Nm	up to 2400
Shank type		C112

# SM-21

STANDARD VERSION

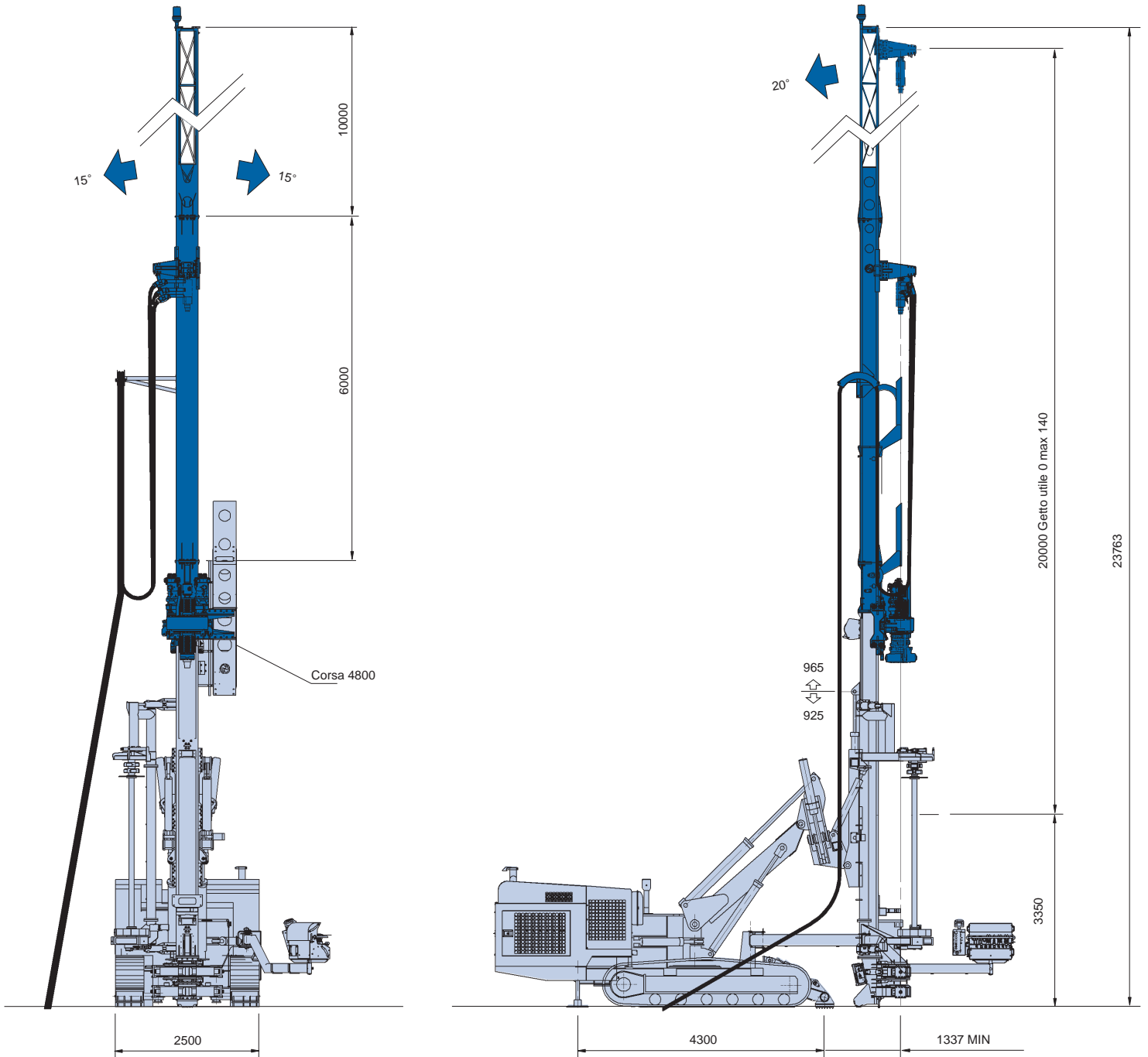


## Transport Condition



# SM-21

JET GROUTING VERSION

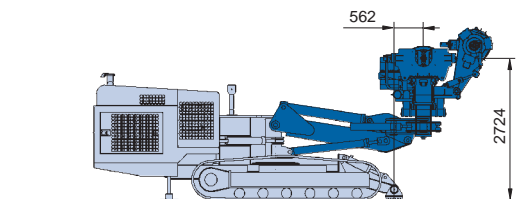
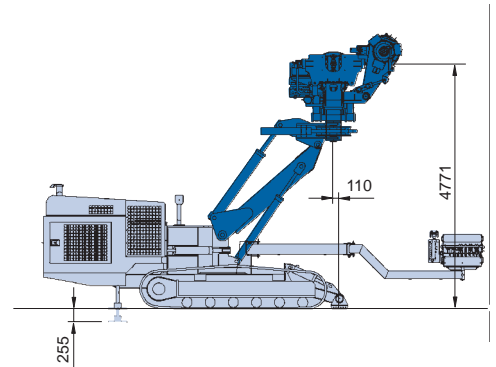
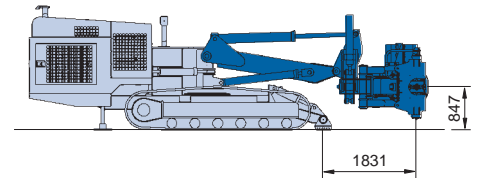
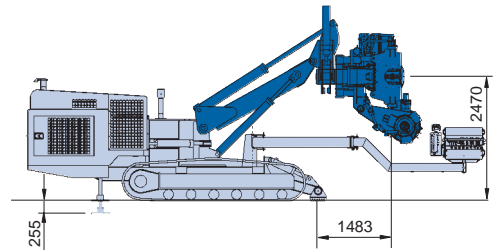
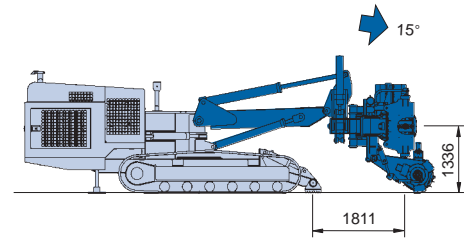
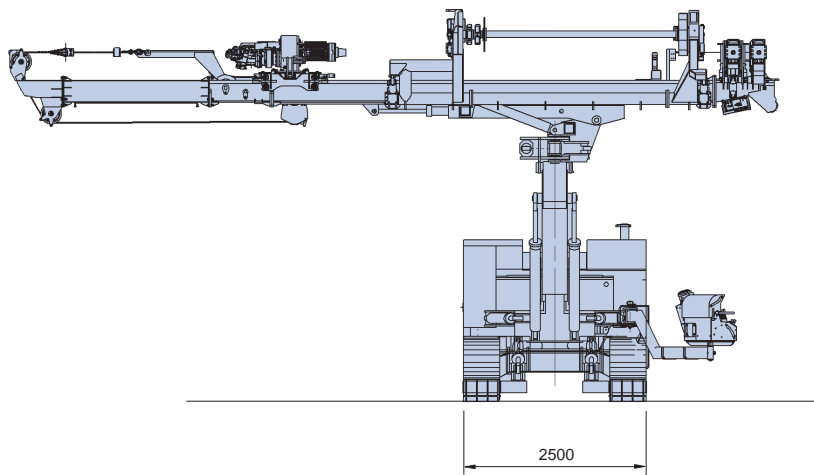
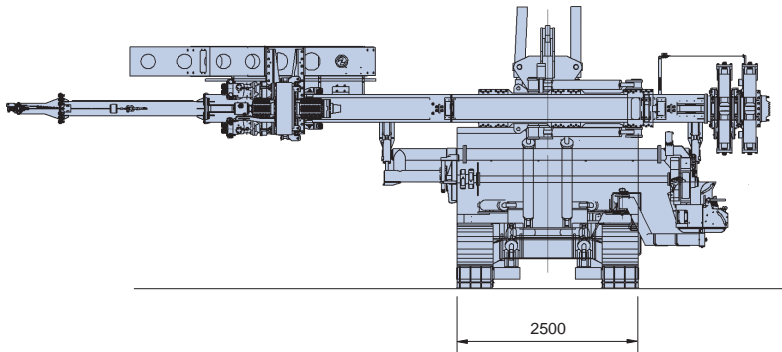


## Figures



# SM-21

ANCHORS VERSION





SOILMEC distributes machinery and structures all over the world, supported by SOILMEC subsidiary companies and representative offices as:

**SOILMEC LTD** - U.K.

**SOILMEC MISR S.A.E. Co.** - Egypt

**SOILMEC (H.K.) Limited** - Hong Kong

**SOILMEC JAPAN CO LTD** - Japan

**SOILMEC S.P.A. - Beijing Repr. Office** - P.R. China

**SOILMEC FAR EAST PTE.LTD** - Singapore

**SOILMEC ARABIA LLC** - Saudi Arabia

**SOILMEC EMIRATES** - U.A.E.

**SOILMEC GULF** - U.A.E.

**SOILMEC FRANCE S.A.S.** - France

**SOILMEC INDIA** - India

**SOILMEC S.P.A. - Moscow Repr. Office** - Russia

**SOILMEC DEUTSCHLAND GmbH** - Deutschland

**SOILMEC NORTH AMERICA - Boston** - USA

## CERTIFIED QUALITY SYSTEM

In 1990 Soilmec was awarded with the certification of its Quality System complying with ISO 9001:2000 and ISO 14001:2004 standards.



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All technical data are purely indicative and subject to change without notice

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