

# SM-14

HYDRAULIC DRILLING RIG



# SM-14

## HYDRAULIC DRILLING RIG

### A new model

**Soilmec SM-14 is a multipurpose drilling rig.** Its modular design is engineered for the execution of: Micropiles, Tie-backs, Jet-Grouting, Coring, Drain, Water wells.

The rig is fitted with proportional, hydraulic servo-assisted controls that make the operations smooth and trouble free even in the hardest weather conditions. Featured with Load Sensing System, it has lower running costs and a reduced wear and tear on components.

**Soilmec SM-14 versatility unit that can be tailored to any customer need or geological conditions:**

- Variable speed or 3-speeds gear box;
- Hydraulic drifter;
- Vibrorotary;
- Rotop;
- Double Head.

**Soilmec SM-14 may be further tailored with a wide range of optional items such as:**

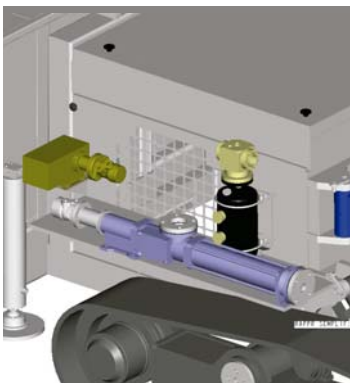
- Jet-Grouting kit for mono, bi or three fluids treatment and steeples lifting speed for  $\varnothing$  127 mm rods;
- 90° mast articulation for tie-back drilling;
- Mast rotation by motoreducer for  $\pm$  180°;
- Mast for 1.5, 1.8, 2.1, 3, 4 and 7 m stroke;
- Service crane for handling of drilling rods and for rods & casing;
- Foam Pump;
- Dust collector;
- Radio operated remote control.

BASE MACHINE			
<b>Undercarriage with oscillating tracks</b>			
Track shoe width	mm	400	
Overall length	mm	3062	
Overall width	mm	2300	
Travelling speed	km/h	2,7	
Average ground pressure	MPa	0,07	
<b>Diesel engine</b>			
Make and model		CUMMINS QSB 4.5 - Tier III	
Max Diesel Engine power (SAE J1995)	kW (BHp)	123 (165) @ 2000 rpm	
Fuel tank capacity	liter	200	
<b>Electric motor (on request)</b>			
Make and model		SIEMENS 4 POLS 50 Hz	
Rated power	kW (BHp)	90 (121) @ 1485 rpm	
<b>Hydraulic system</b>			
Oil tank capacity	liter	400	
<b>Mast hoist &amp; feed system</b>			
Feed Type		<b>Jack</b>	<b>Gear motor</b>
Feed stroke	mm	4000	7000
Maximum hoist pull	kN	89	87*
Maximum feed force	kN	45	87*
Maximum speed (fast operation)	rpm	28	28*
<b>Clamp &amp; hydraulic joint breaker</b>			
Nominal size	mm	50 - 315	50 - 360 60 - 415
Maximum clamping force (28 MPa)	kN	266	
Maximum breaking torque	daNm	5060	
<b>Winch and jib</b>			
Maximum line pull (1 <sup>st</sup> layer)	kN	20	
Maximum rope speed (4 <sup>st</sup> or 5 <sup>st</sup> layer)	m/min	60	
Rope diameter	mm	10	
Rope capacity / Rope fitted	m	46 / 40	
<b>JET GROUTING VERSION</b>			
Rod diameters	mm	90 - 114 - 127**	
Max treatment depth (T1/T1S-T2)	mn	15400 / 16000	
Std. Weight (w/o options)	kg	13400	
Noise level	LwA - LpA	105 - 81	

\* Nominal \*\*Special kit



## Optionals



Flushing pump



Rod Carousel



Lifting crane

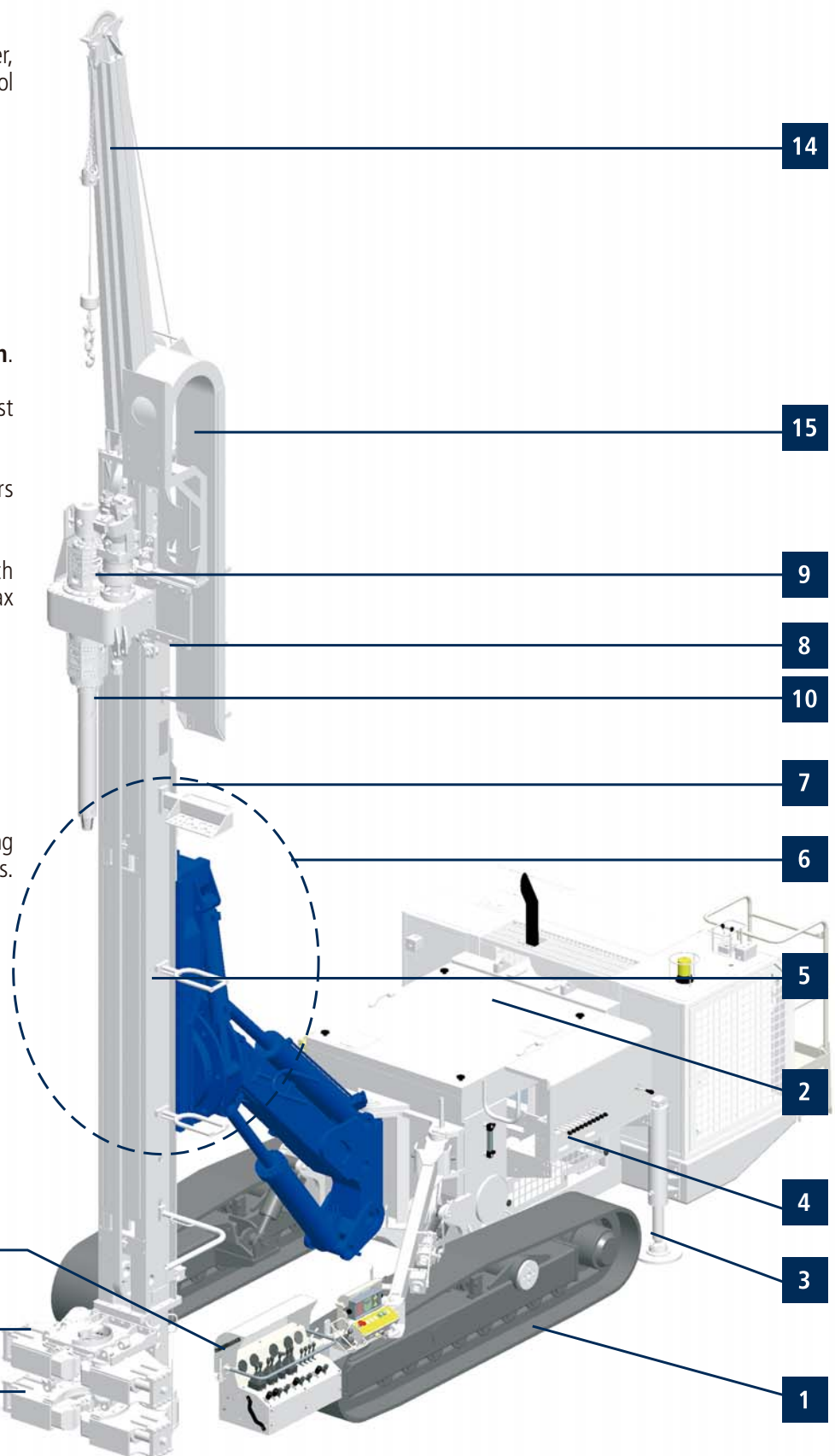


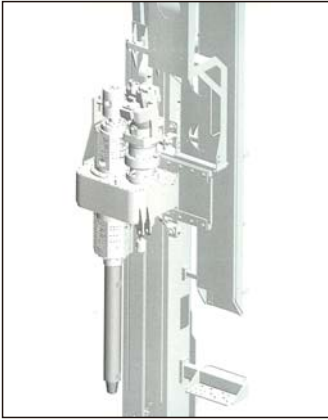
90° mast articulation

# SM-14

## DESCRIPTION

- 1 - **Crawler undercarriage** with +/- 10° oscillating tracks.
- 2 - **Machine body** including prime mover, hydraulic plant with load SENSING control and soundproof canopy.
- 3 - **N° 2 hydraulic outriggers.**
- 4 - **Control levers** for rig positioning.
- 5 - **Articulated boom** for mast positioning.
- 6 - **4 x 90° turntable** for mast rotation.
- 7 - **1000 mm stroke cylinder** for mast shoring.
- 8 - **Rotary cradle** with adjusting rollers and 450 mm side-shifting device.
- 9 - **Variable speed rotary head** with 1400 daNm max torque, 221 rpm max rotation.
- 10 - **Floating system.**
- 11 - **Clamp** max. diam. 415 mm.
- 12 - **Breaker** max. diam. 415 mm.
- 13 - **Control board** on rotating and pivoting arm for drilling and service functions.
- 14 - **Service winch** with jib.
- 15 - **Chain** for hydraulic hoses.





**Vibrorotary.** Is made up by combining one conventional rotary to a Vibro Hammer unit.

Advantages:

- Single or double drilling string for up to 219 mm o.d.;
- Lower skin friction of casing/rod (therefore less torque is needed);
- Higher efficiency compared to TH technology;
- Lower noise emission compared to DTH and TH technologies.

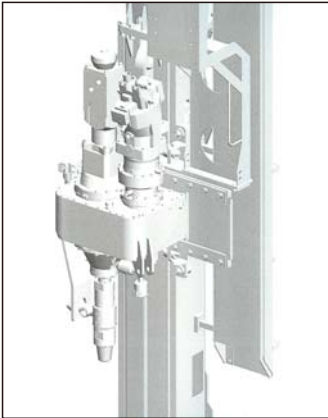
**Variable speed rotary head.** Any combination of torque and speed can be set from operator's console to get the most suited ratio for your drilling technology. Standard rotary may be easily modified on site, by fitting purposely-designed kits, to get either higher torque or higher speed versions.

**Rotary head with Rollstar gear box.** It provides a maximum torque of 1300 daNm and a maximum speed of 429 rpm.

**Rotop.** It combines Soilmec main reduction gear with one commercial brand hammering device.

**Hydraulic Top Hammer.** The rig design allows the assembling of any available top hammer brand with a maximum frequency of 2400 blow/minute and a maximum energy of 840 Nm.

**Double head.** Hydraulic system is sized to feed any options such as Rotary/Rotary, Rotary/Rotop and Rotary/Top Hammer without compromising in power.



#### ROTARY HEAD RH-120V

Gear box type		variable
Max. nominal torque	daNm	1400
Maximum drilling speed	rpm	221
Passage	mm	114 / 127**

#### ROTARY HEAD RH-130G

Gear box type		3 speeds
Max. nominal torque	daNm	1300
Maximum drilling speed	rpm	429
Passage	mm	114 / 127**

#### ROTARY HEAD RH-20V

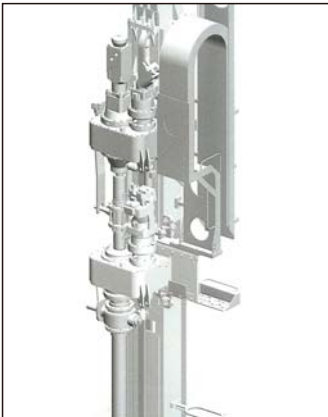
Gear box type		variable
Max. nominal torque	daNm	195
Maximum drilling speed	rpm	915
Passage	mm	114 / 127**

#### VIBROROTARY VR-1

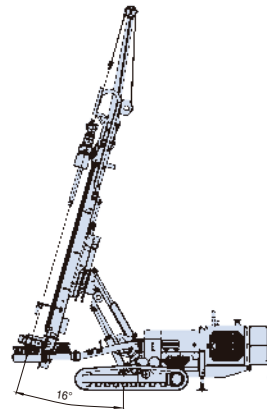
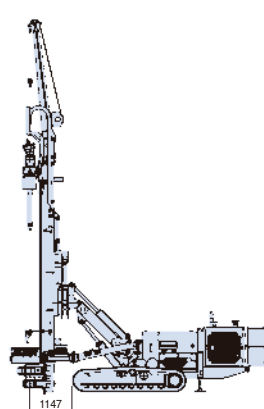
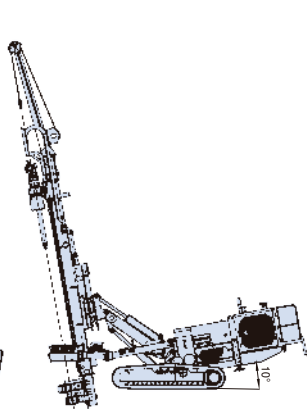
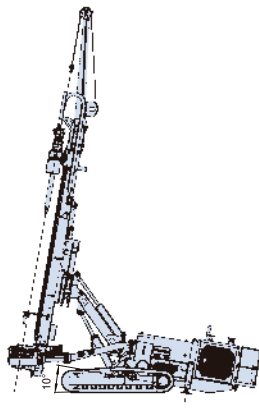
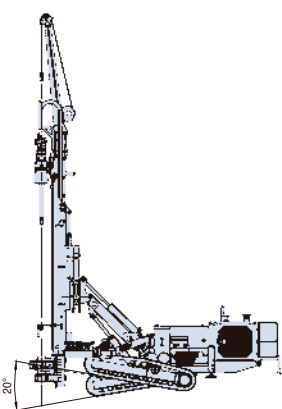
Gear box type		2 speeds
Max. nominal torque	daNm	785
Maximum drilling speed	rpm	80
Vibration frequency	bpm (Hz)	2460 (41)
Vibrating force	kN	70
Single blow energy	Nm	769

#### DRIFTER

Weight up to	kg	700
Blow frequency and impact energy		2400 / 840 shank up to C112
Max. Nominal torque	daNm	1800



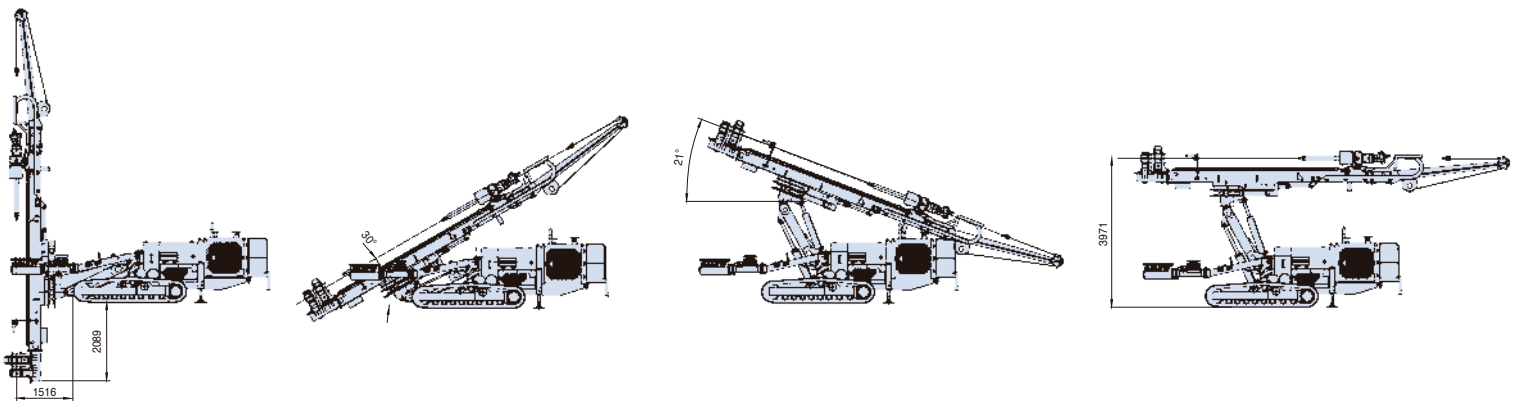
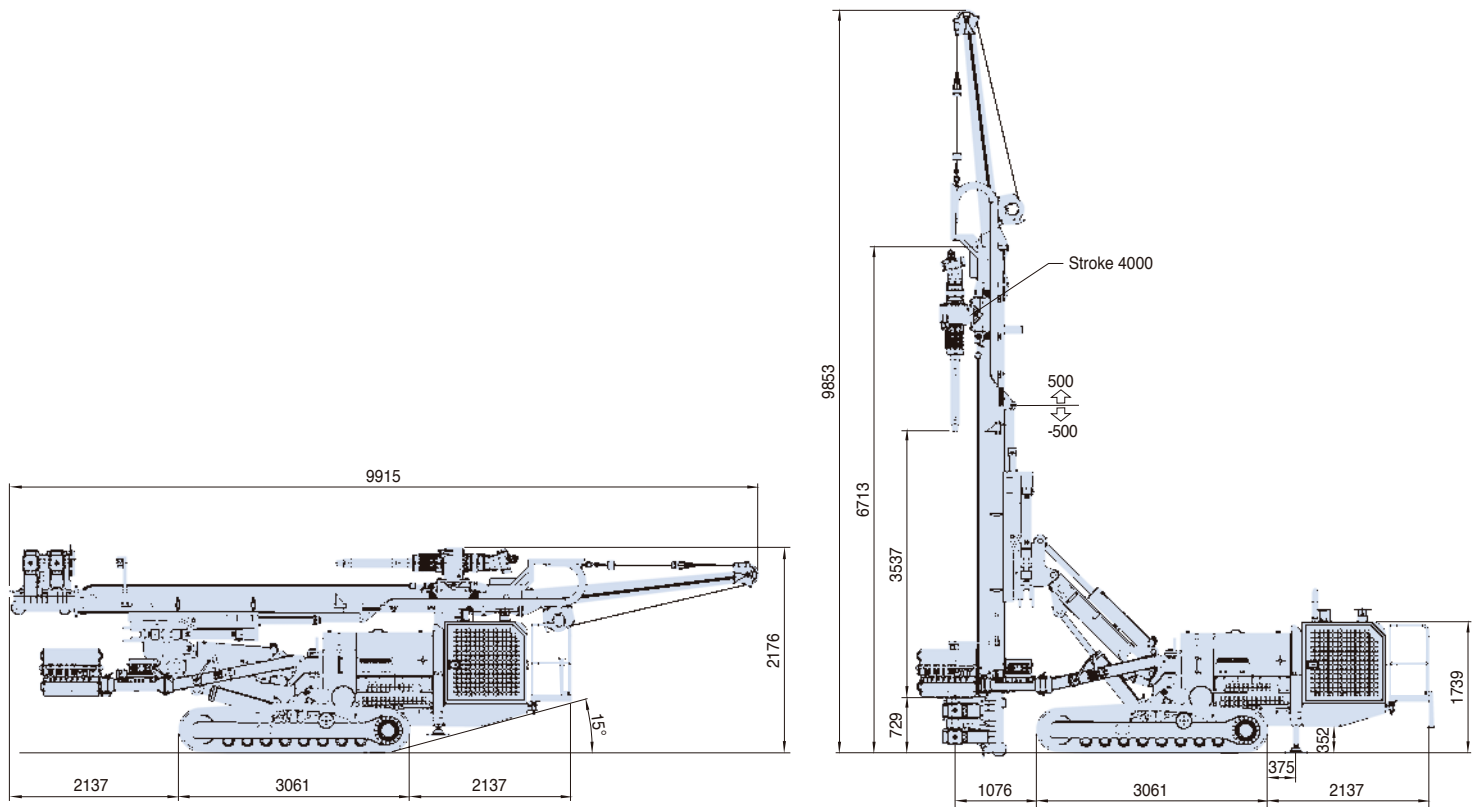
## MAST MOVEMENTS



# SM-14

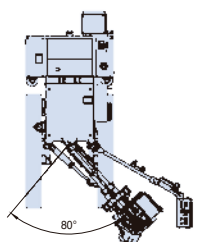
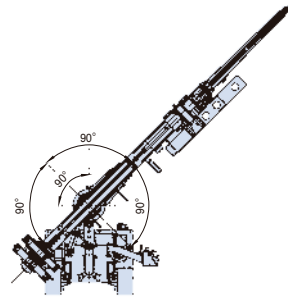
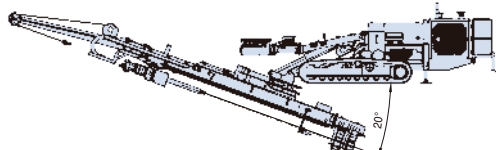
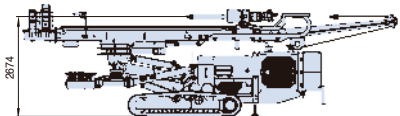
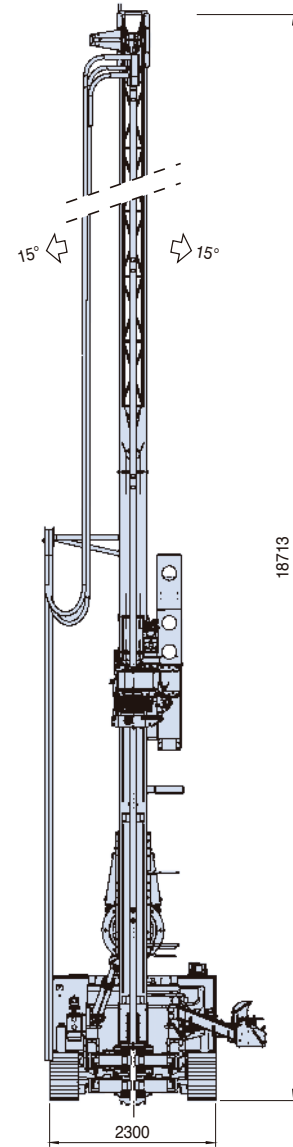
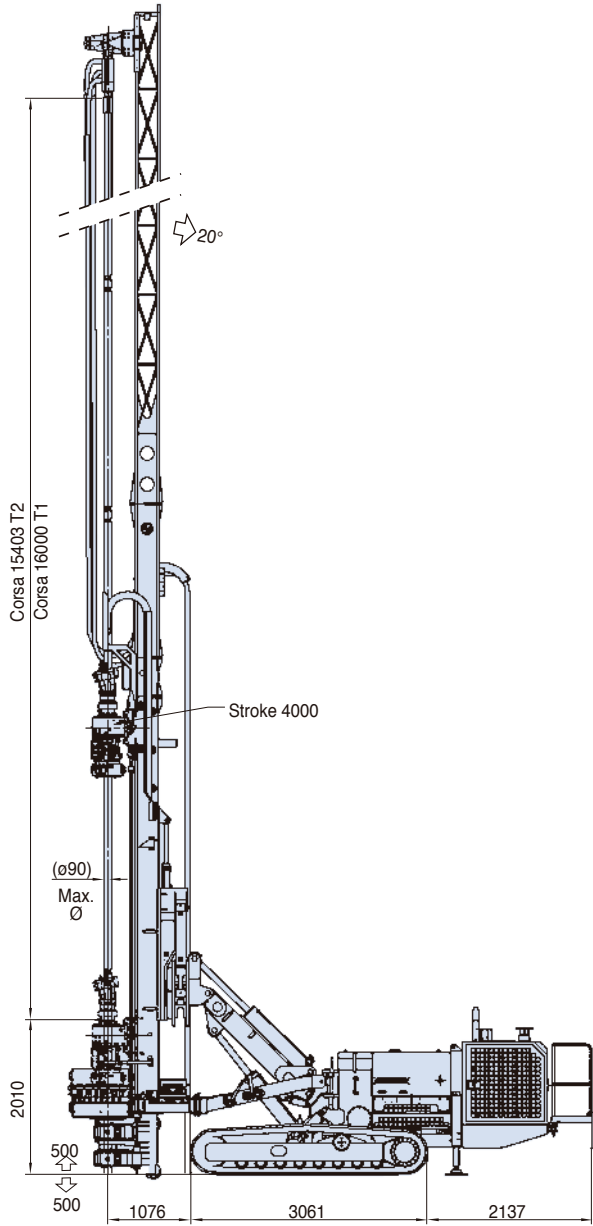
## STANDARD VERSION

### Working condition



# SM-14

JET GROUTING 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

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## 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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