

# SM-401

HYDRAULIC DRILLING RIG



**SOILMEC**   
Ground Engineering Equipment

# SM-401

## HYDRAULIC DRILLING RIG

### A new model

Soilmec SM-401 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-401 versatility is perfectly shown by the availability of a wide range of rotary heads designed to perform all known drilling technologies and to comply with the most stringent project requirements and to cope with all the geological conditions:

#### 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 1500 daNm and a maximum speed of 461 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.

#### Soilmec SM-401 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;
- 90° mast articulation for tie-back drilling;
- Mast rotation by motoreducer for  $\pm 180^\circ$ ;
- Mast for 1.5, 1.8, 3, 4 and 7 m stroke;
- Service crane for handling of drilling rods;
- Foam Pump;
- Dust collector;
- Radio operated remote control.

#### Technical Data

##### UNDERCARRIAGE WITH OSCILLATING TRACKS

Track shoe width	mm	400
Overall length	mm	2998
Overall width	mm	2300
Travelling speed	km/h	2.7
Average ground pressure	MPa	0,06

##### DIESEL ENGINE

Make and model		CUMMINS QSB 5.9-30-T Tier II
Max Diesel Engine power (SAE J1995)	kW (BHp)	119 (160) @ 2000 rpm
Fuel tank capacity	liter	200

##### ELECTRIC MOTOR (on request)

Make and model		SIEMENS 4 POLS 50Kz
Rated power	kW (BHp)	90 (121) @ 1485 rpm

##### HYDRAULIC SYSTEM

Hydraulic oil tank capacity	liter	400
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##### ROTARY HEADS

	HR 70 V	HT 70 G	HS 60 V	HR 60G	
Gear box type	Variable	3 speeds	Variable	3 speeds	
Max. nominal torque	daNm@rpm	1400	2000	230	1500
Maximum drilling speed	rpm	238	200	915	461

##### MAST HOIST & FEED SYSTEM

Feed Type		Jack	Gear motor
Feed stroke	mm	4000	7000
Maximum hoist pull	kN	89	61
Maximum feed force	kN	45	61
Maximum speed (fast operation)	rpm	28	26

##### CLAMP & HYDRAULIC JOINT BREAKER

Nominal size	mm	50-315	50-360	60-415	60-225	60-315
Maximum clamping force (28 MPa)	kN	266	266	266	159	159
Maximum breaking torque	daNm	5060	5060	5060	3830	4980

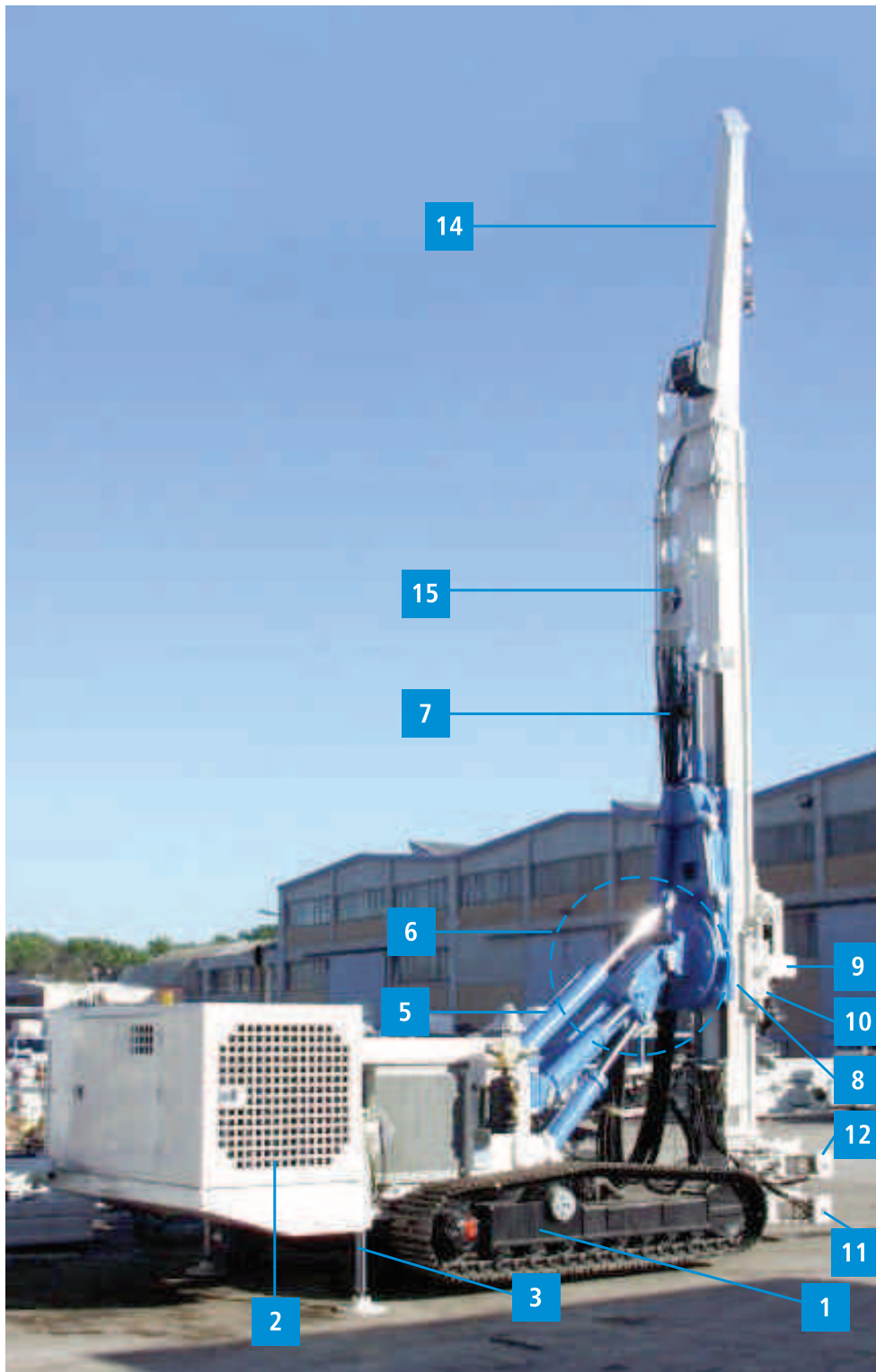
##### WINCH and JIB

Maximum line pull (1 <sup>st</sup> layer)	kN	25
Maximum rope speed (4 <sup>th</sup> or 5 <sup>th</sup> layer)	m/min	57
Rope diameter	mm	10
Rope capacity / Rope fitted	m	52/40

<b>NOISE LEVEL</b>	LwA-LpA	105 - 81
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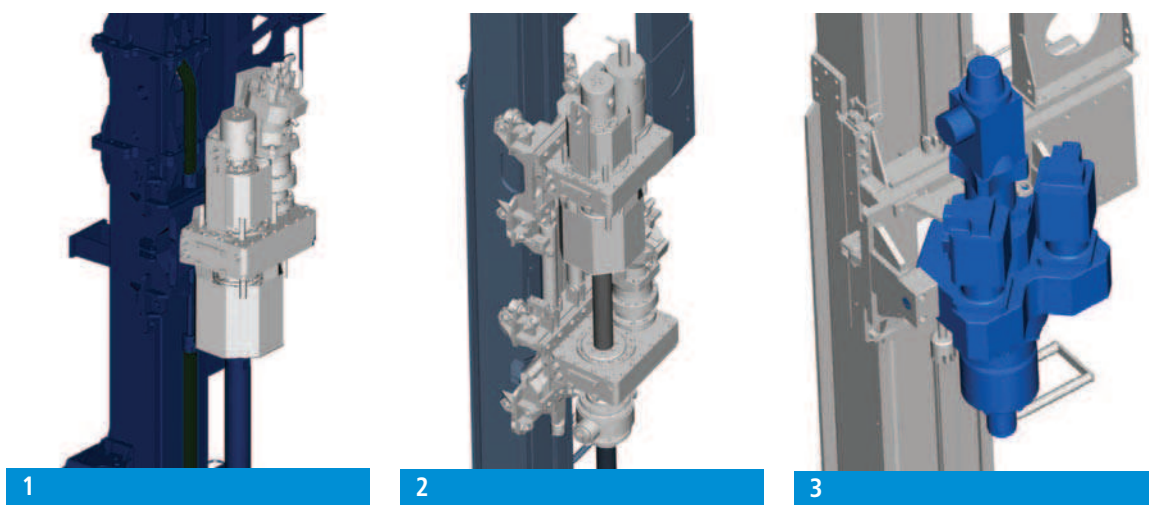
<b>WEIGHT</b>	kg	13400	13800
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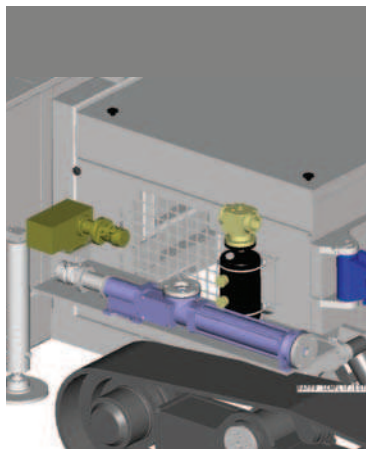
- 1 - Crawler undercarriage with +/- 10° oscillating tracks.
- 2 - Machine body including prime mover, hydraulic plant with load SENSING control and soundproof canopy.
- 3 - N° 2 hydraulic outriggers.
- 4 - Control levers for rig positioning.
- 5 - Articulated boom for mast positioning.
- 6 - 4 x 90° turntable for mast rotation.
- 7 - 1000 mm stroke cylinder for mast shoring.
- 8 - Rotary cradle with adjusting rollers and 400 mm side-shifting device.
- 9 - Variable speed rotary head with 1400 daNm max torque, 238 rpm max rotation.
- 10 - Floating system with standard rotary head.
- 11 - Clamp max. diam. 415 mm.
- 12 - Breaker max. diam. 415 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.



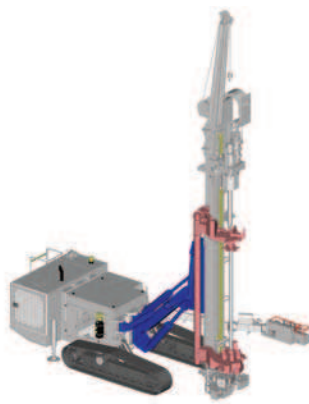
## OPTIONALS

- 1 - Variable Speed Rotary Heads.
- 2 - Double Head.
- 3 - Top hammer.
- 4 - Flushing Pump.
- 5 - Rod carousel for 6 or 2 rods depending on rig configurations.
- 6 - Lifting Crane.
- 7 - 90° mast articulation for tie back.





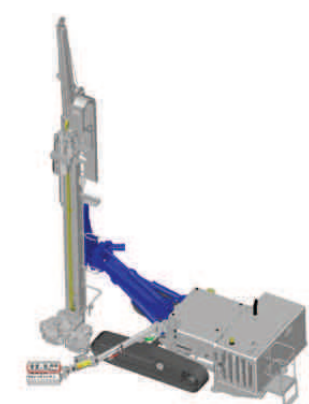
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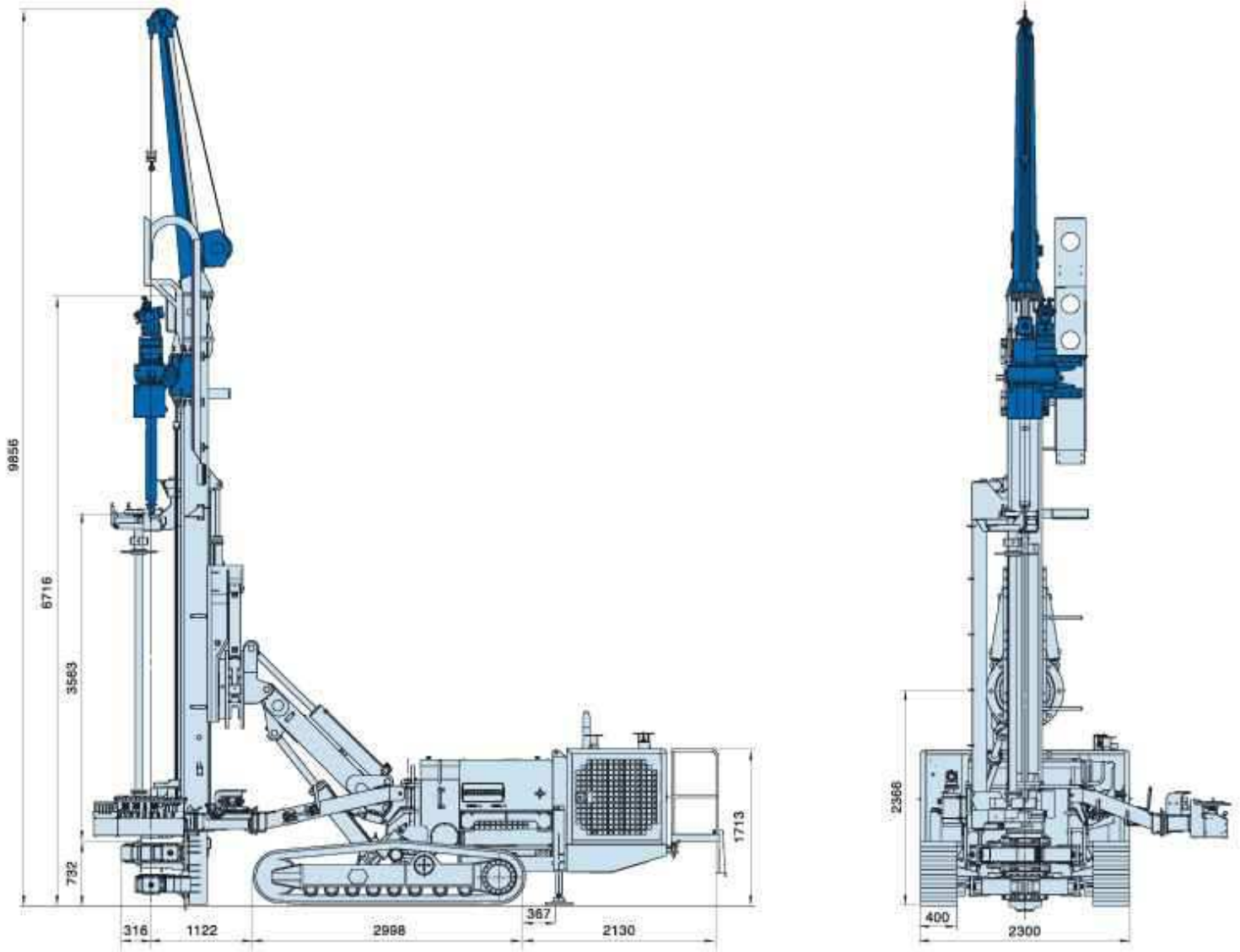
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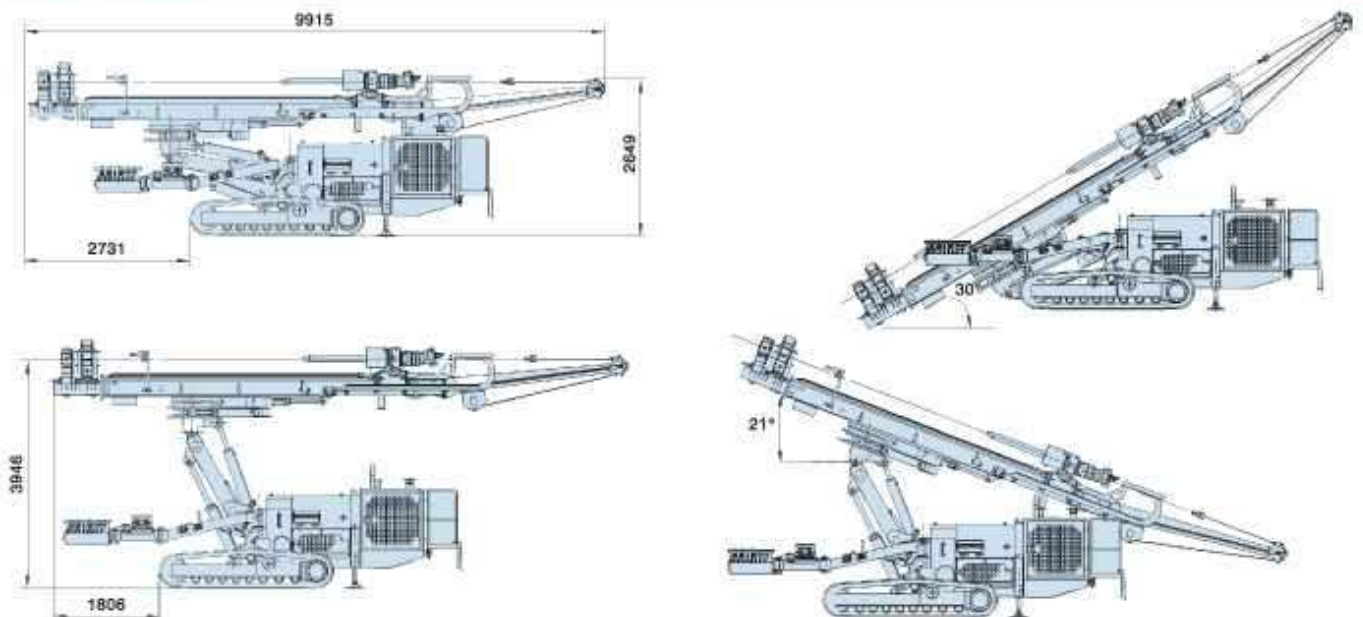
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## STANDARD VERSION



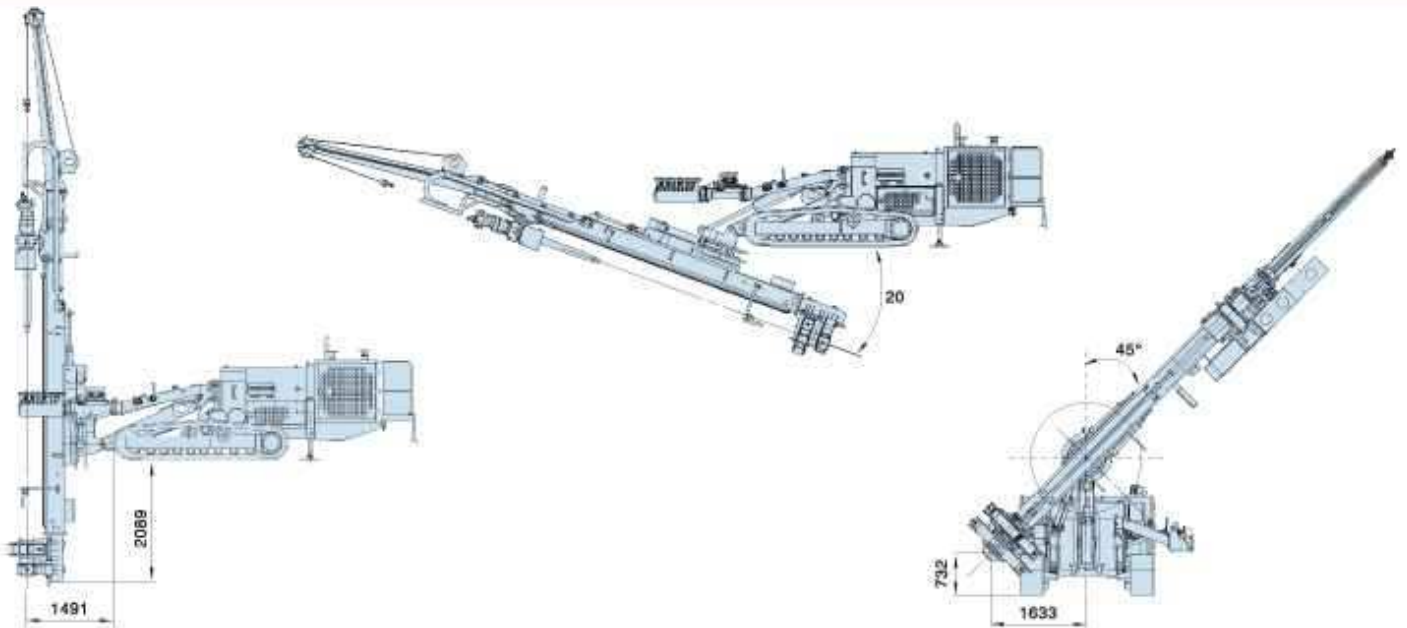
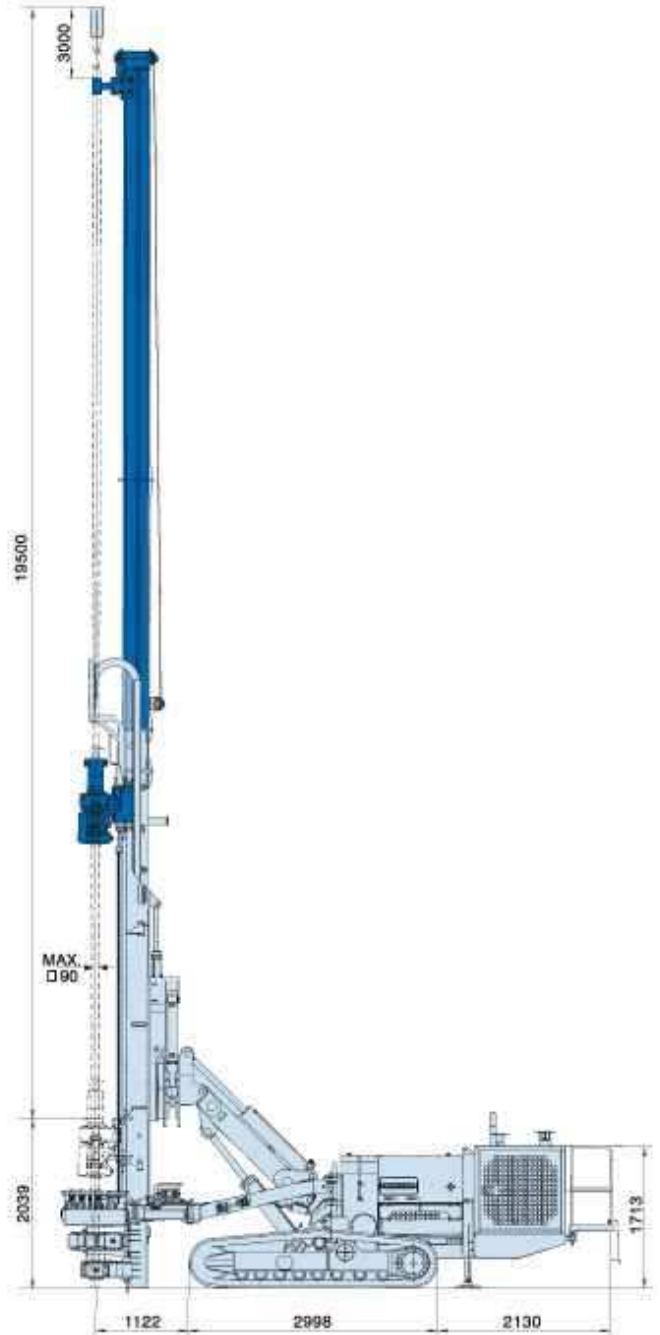
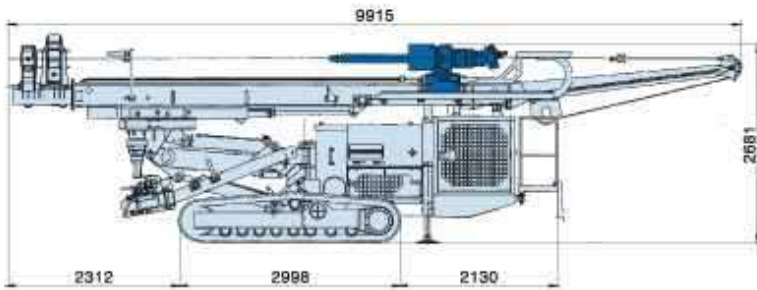
## Mast movements



# SM-401

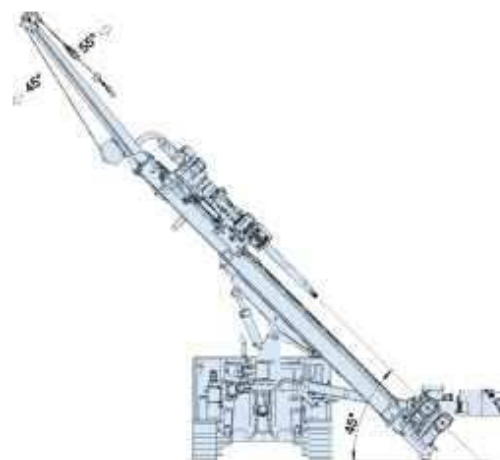
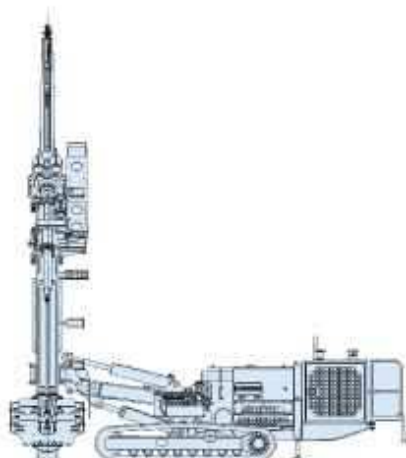
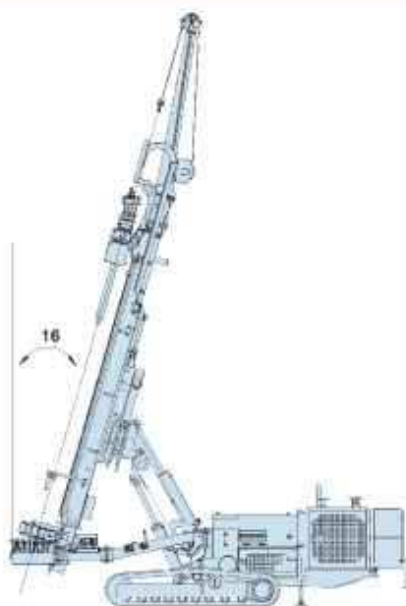
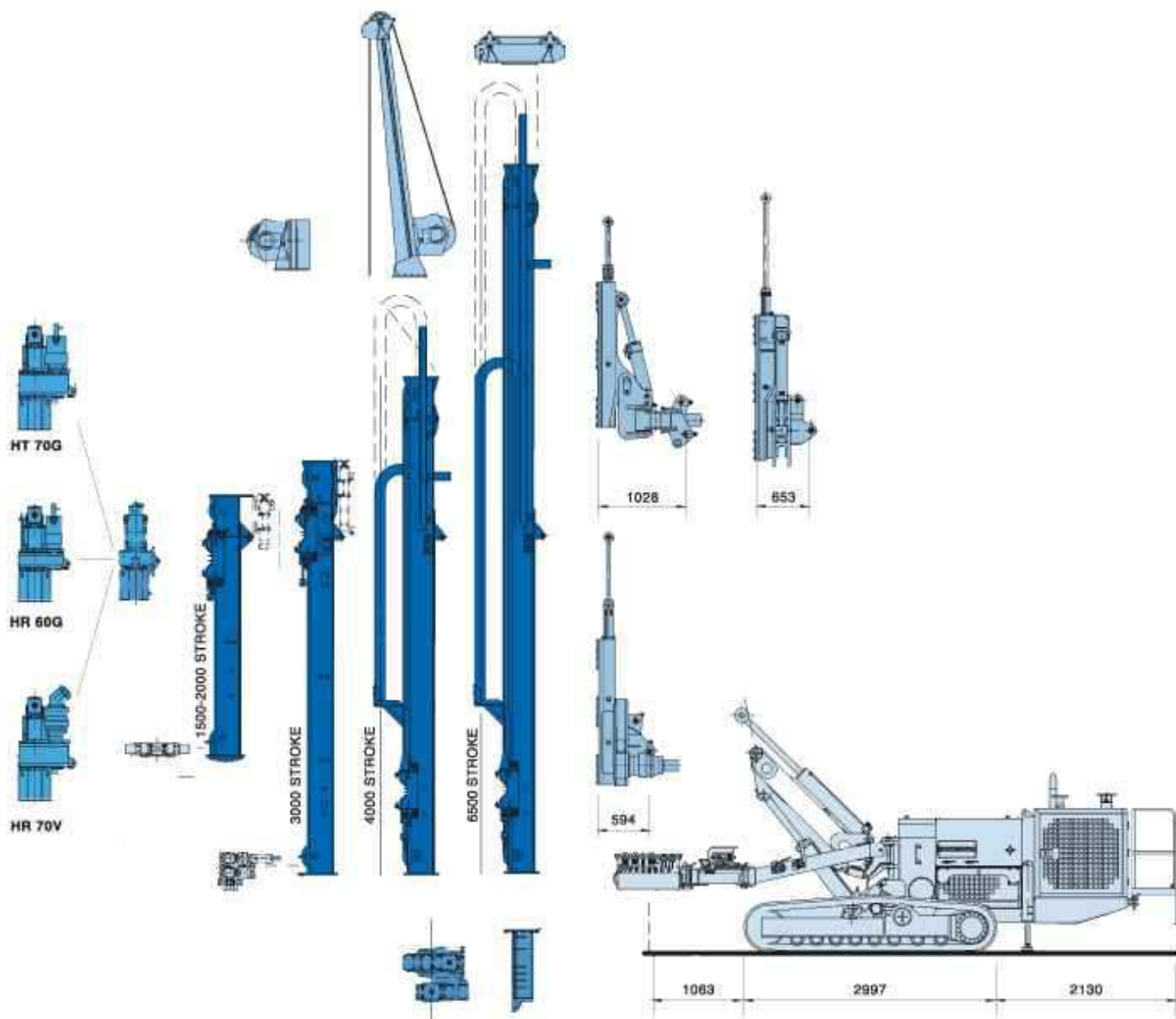
JET GROUTING VERSION

## Transport Condition



# SM-401

MULTIPURPOSE SYSTEM



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 EMIRATES** - U.A.E.

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

## CERTIFIED QUALITY SYSTEM

In 1990 Soilmec was awarded the certification of its own Quality System to ISO 9001/UNI 29001 series standards.



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