

SM-14

ANCHORING
TIE-BACKS
MICROPILES
JET GROUTING
CORING
WATER WELLS



Hydraulic Microdrilling Rig **SM-14**

soilmec 
Drilling and Foundation Equipment



Reliability

To date, SOILMEC have manufactured more than 1000 micropiling rigs working all over the world. The current SM14 is the result of experience gained from previous models throughout the years.

Safety

The SM-14 is designed in compliance with EN and ISO safety regulations to suit international market requirements.

- Manufactured, tested and certified, in order to secure full operator safety.
- The hydraulic control board, as well as remote control board (supplied on request), are designed for ease of operation ensuring driver comfort.
- The rig includes numerous safety devices preventing hazardous maneuvers.
- Wide driver's visibility ensures total operation safety.
- Easy and safe bonnet accessibility facilitates maintenance and inspection operations.
- Reduced environmental impact through low noise level and exhaust emissions; reduced fuel consumption.

Performance

SM-14 is fitted with one of the most powerful Diesel engines of its machine category. The feed-hoist system is very efficient and is powered by either a hydraulic cylinder or a gear motor. Various mast lengths and a large range of high performance rotaries are available. Due to these features, the SM-14 is a multipurpose rig that suits a wide range of civil engineering work requirements.

- High standard components and advanced hydraulic circuit design have enabled increased rig performance, preserving its reliability, even under extreme conditions.
- Its smart and compact design allows fast rig assembly and ease of transport (even in a container).

- Minimum operating costs.

Quality

The Soilmec manufacturing process is governed by the internal Quality Management System, which complies with ISO standards 9001:2000 and 14001:2004.

- Each micro drilling rig is subject to an extensive testing process prior to dispatch.

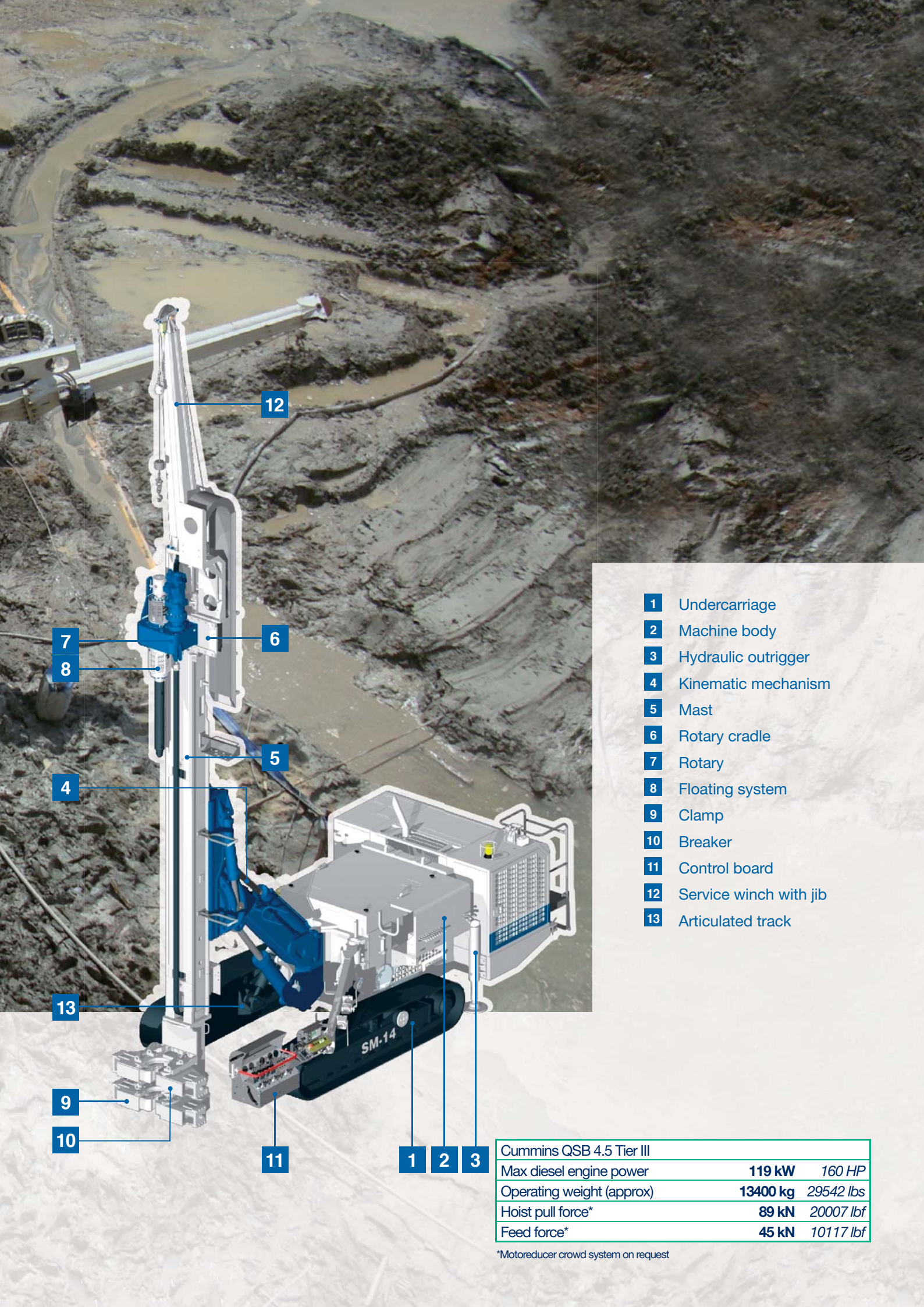
Running costs

- The large, low speed rated Diesel engine, ensures limited fuel consumption and a long life span, offering substantial power availability to suit various drilling technologies.

- Low maintenance requirements due to the use of high quality components.
- Manufacturer constant support given through the SOILMEC after sales service. The fast responding reliable customer care, together with efficient spare parts delivery service, secure the continuous operation of the rig.

Soilmec advantages

- A real multi-purpose machine designed to offer the best drilling solution.
- Long life expectancy with a high residual value.
 - Best price/performance ratio.
 - Built with customer in mind.



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- 1 Undercarriage
- 2 Machine body
- 3 Hydraulic outrigger
- 4 Kinematic mechanism
- 5 Mast
- 6 Rotary cradle
- 7 Rotary
- 8 Floating system
- 9 Clamp
- 10 Breaker
- 11 Control board
- 12 Service winch with jib
- 13 Articulated track

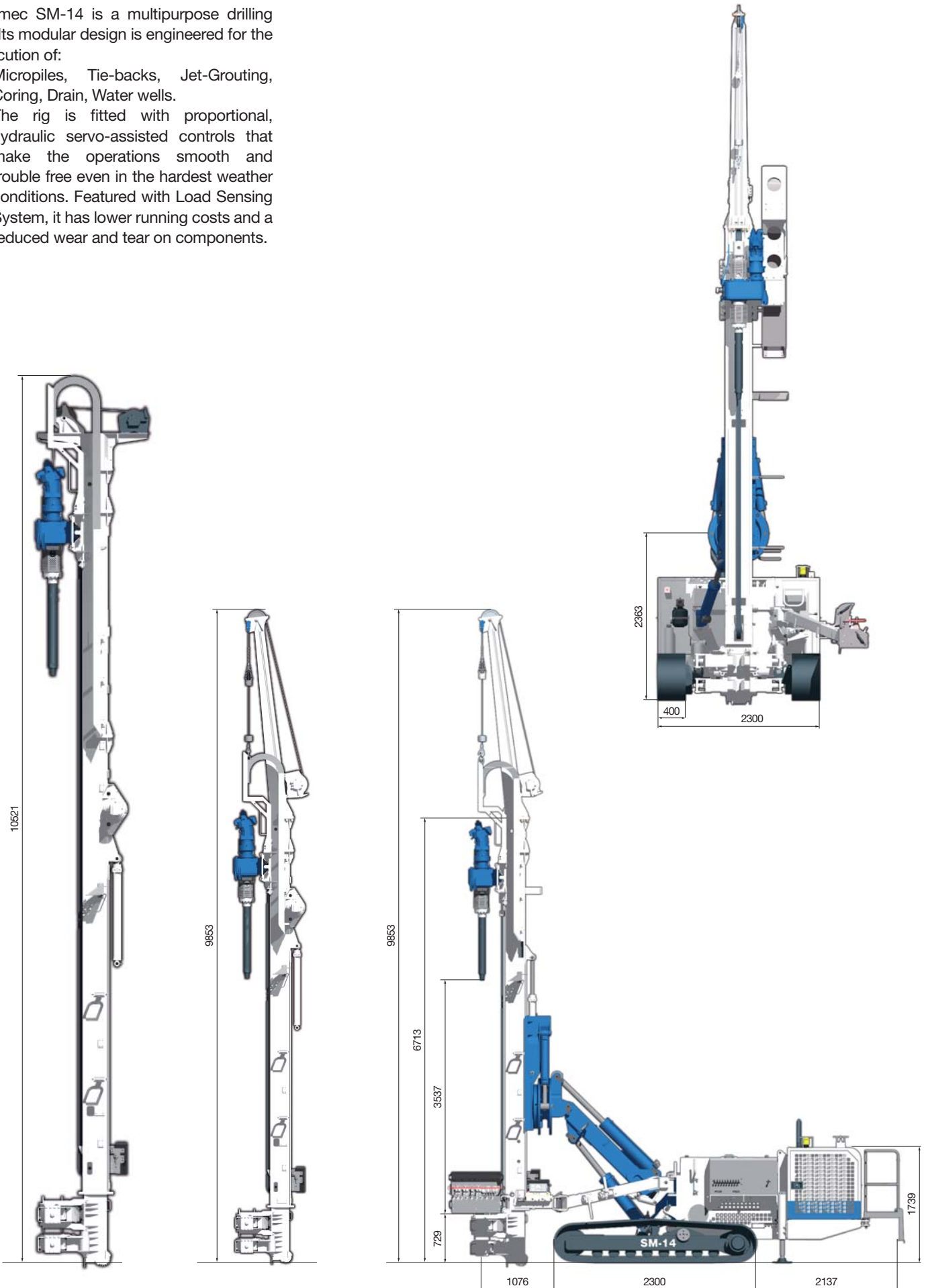
Cummins QSB 4.5 Tier III		
Max diesel engine power	119 kW	160 HP
Operating weight (approx)	13400 kg	29542 lbs
Hoist pull force*	89 kN	20007 lbf
Feed force*	45 kN	10117 lbf

*Motoreducer crowd system on request

VERTICAL WORKING CONDITION

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.











VERTICAL WORKING CONDITION



JET GROUTING



TECHNICAL DATA - ROTARY DRIVE

Operating weight		13400 kg			29542 lb		
	Diesel Engine						
	Model	Cummins QSB 4.5 Tier III			Cummins QSB 4.5 Tier III		
	Rated output	119 kW @ 2300 rpm			160 HP @ 2000 rpm		
	Engine conforms to Exhaust emission Standard	UE 2004/26/CE Stage IIIA - US EPA nonroad Tier 3			UE 2004/26/CE Stage IIIA - US EPA nonroad Tier 3		
	Diesel tank capacity	200 l			53 US gal		
Sound power level & Sound pressure level		LWA 105 - LpA 81 dB(A)			LWA 105 - LpA 81 dB(A)		
Hydraulic system - Load sensing							
	Main pumps: variable displacement axial pumps	156+156 l/min			41+41 US gal/min		
	Auxiliary pumps: gear pumps	20 l/min			5 US gal/min		
	Hydraulic oil tank capacity	400 l/min			106 US gal/min		
Undercarriage							
	Type	± tilting gauge			± tilting gauge		
	Track shoe width	400 mm			15.7 in		
	Overall length	3062 mm			120.6 in		
	Overall width	2300 mm			90.6 in		
	Average ground pressure	0,07 MPa			0.7 bar		
Hoist & Feed system							
	Feed type	Jack	Gear motors	Gear motors	Jack	Gear motors	Gear motors
	Feed stroke	4000 mm	4350 mm	7000 mm	157 in	171 in	275.5 in
	Maximum hoist pull	89 kN	87 kN	87 kN	20007 lbf	19559 lbf	19559 lbf
	Maximum feed force	45 kN	87 kN	87 kN	10117 lbf	19559 lbf	19559 lbf
Service winch							
	Line pull (1st layer)	40 kN	40 kN	40 kN	8993 lbf	8993 lbf	8993 lbf
	Rope diameter	10 mm	10 mm	10 mm	0.4 in	0.4 in	0.4 in
Rotary heads							
		HR12	HR14	HR15.1	HR12	HR14	HR15.1
	Gear box ratio**	Variable	Variable	Variable+II ratios	Variable	Variable	Variable+II ratios
	Max torque	1207 daNm	1356 daNm	1356 daNm	890222 lbf*ft	1000117 lbf*ft	1000117 lbf*ft
	Hollow shaft	114 mm	114 mm	90 mm	4.5 in	4.5 in	3.5 in
Clamp & hydraulic joint breaker							
	Nominal size	50-315 mm	50-360 mm	60-415 mm	2-12.4 in	2-14 in	2.4-16 in
	Maximum clamping force	266 kN	266 kN	266 kN	59799 lbf	59799 lbf	59799 lbf
	Maximum breaking torque	5060 daNm	5060 daNm	5060 daNm	37321 lbf.ft	37321 lbf.ft	37321 lbf.ft
Jet grouting							
	Rod diameter	127*-114-90 mm	127*-114-90 mm	127*-114-90 mm	5-4.5-3.5 in	5-4.5-3.5 in	5-4.5-3.5 in
	Max treatment depth w single pass	16 m	16 m	14,9 m	52.5 ft	52.5 ft	48.8 ft
	Drill guide extension	2 + 10 m	2 + 10 m	2 + 8 m	6.5 + 32.8 ft	6.5 + 32.8 ft	6.5 + 26.2 ft

*special kit - ** a large range of rotary heads is available on request

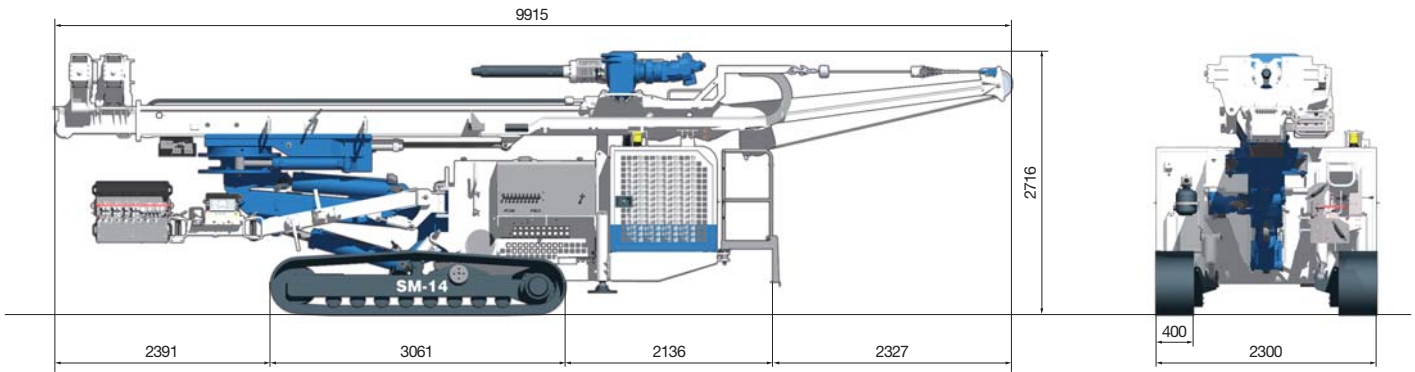
Standard Equipment

- Crawler undercarriage with ± 10° tilting gauge
- Diesel Engine Cummins
- Rotary head HR12 type complete with floating system
- Drill mast with cylinder crowd system for 4000 mm stroke
- Clamp and breaker 50-315 mm
- Service winch with jib extension
- Drilling controls by means of assembled panel on pivotal support arm

Optional Equipment

- Electrical engine (90 kW @ 1485 rpm – 121 BHP)
- Modular mast for 4 m or 7 m stroke complete with motoreducer crowd system
- Wide range of rotary head up to 2500 daNm
- Rod carousel up to 10 rods
- Hydraulic lifting crane: 400 kg @ 6 m
- Foam pump
- Mud / water pump
- Clamp and breaker up to 60-415 mm
- Slew ring on the mast
- Double rotary
- Jet grouting kit for T1/T1S and T2 type
- CFA kit for special technologies
- Top hammer

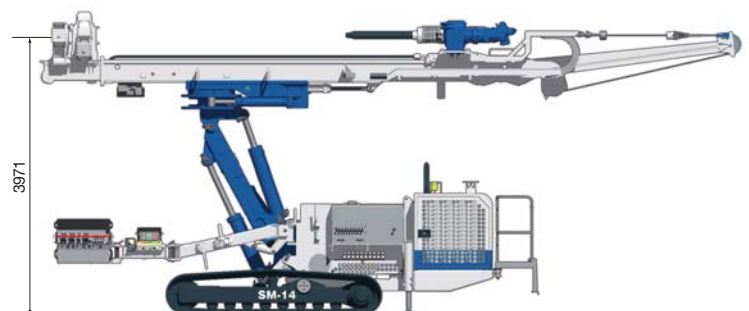
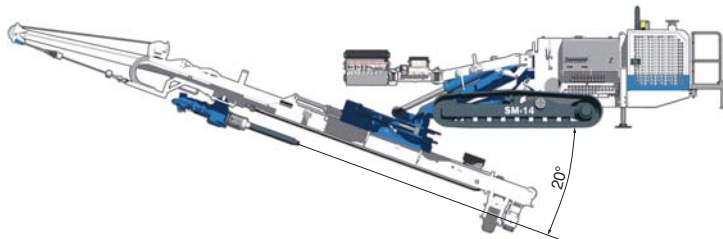
TRANSPORT DATA



Mass & Transport			
Transport width	2300 mm	90.5 in	
Transport height	2716 mm	107 in	
Transport length	9915 mm	390.5 in	
Transport weight	13400 kg	29542 lb	



WORKING MOVEMENTS



RIG FEATURES



Clamp and breaker

Clamp and breaker assembly complete with new high-quality flow divider. Hydraulic clamping and breaking device for drill tubes up to 415 mm (8.66 in). Maximum clamping force kN 266 (lbs 31473) Maximum breaking torque daNm 5060 (lb/ft 22126).



Rotary

Soilmec rotaries, designed and manufactured to meet the need for increased production and performance on various applications, with the added benefit of increased component life and reliability.



Drilling control board

Control board on rotating and pivoting arm for drilling and service functions.

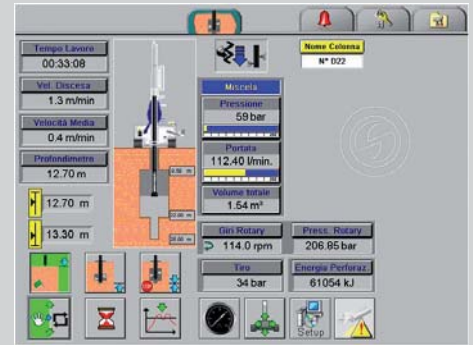


DMS

DRILLING MATE SYSTEM

Soilmec innovative DMS - Drilling Mate System - has been designed to incorporate:

- CAN OPEN bus system
 - colour touch screen suitable for the drilling field
- DMS consists of 3 items:
- DMS
 - DMS PC
 - DMS MANAGER



DMS Drilling Mate System

For jet grouting works monitoring, Soilmec micro drilling rigs are provided (on demand) with DMS-jet which is an optional package including sensors to be fitted on the rig, PLC and touch screen.

The system follows the main process parameters:

- drilling depth
- drilling head revolution speed
- drilling head torque
- crowd force
- extraction force
- drilling energy
- feed speed
- hoist speed
- grout pressure
- grout delivery
- air pressure
- air delivery
- working time
- drilling mast position

During the treatment, most significant data are displayed on monitor allowing the driller to operate and follow the consolidation job. For each column, complete data are stored on a USB key. They also can be sent (on driver request) by e-mail in the form of attached file, through the DMS modem, (GSM/GPRS EDGE) to customer office.

DMS send also alarms concerning groups involved in the process.

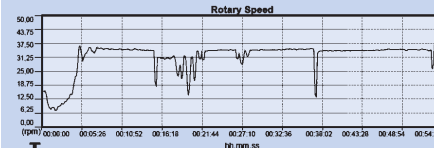
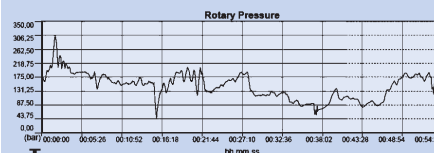
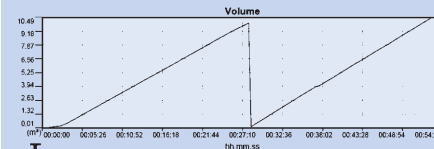
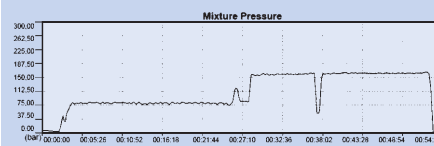
Data are raw and machine language formatted, they have therefore to be converted for PC use.

DMS PC

DMS PC is soilmec specific software to be installed on customer's PC for raw data conversion. It allows the customer to read, edit and compute the treatment data by means of the most usual softwares.

DMS PC allows editing daily production reports under the form of diagrams and daily report, to document compliance of execution works with job specifications.

DMS PC allows also establishing statistical analysis to follow day by day the job site return.



DMS Manager

A system designed for surveying a machines fleet. It includes a dedicated server and software. It enables access to, through internet, permanent contact with the rig, receiving in real time, alarms as well as production data sent by the machines (GPRS modem, satellite).



Spare Part Online Center (SPOC)

Although not specifically engineered for DMS, the package enhances the instrumentation since customers can optimize the management of their rigs.

In fact this online system offers:

- consultation and downloading of rig documentation, e.g. user and maintenance manuals, electrical/hydraulic drawings, DMS manuals, technical documentation, etc.
- placement and management of purchase orders for spare parts.
- real time availability of components of spare parts.



SOILMEC distributes machinery and structures all over the world, supported by SOILMEC subsidiary companies and dealers. The complete Soilmec network list is available on the webpage www.soilmec.it