

ITEM A

SM-14.3 – MICRO DRILLING RIG

Safety, flexibility, versatility, reduced consumption and high efficiency are the Soilmec designers' guidelines during the creation of the new SM-14.3.

New kinematic mechanism with articulation joint 90° in order to drill parallel to the track or with the sliding rotary on the mast during anchoring version.

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

The full radio control increases the drilling operations, visibility and safety.

The new SM-14.3 can be equipped with diesel engine TIER III or TIER IVi which allows reaching an engine power of 123 kW.

The rig can be equipped with a several types of drill guide and very large range of rotary head up to 2500 daNm.

Supported foundation technologies:

- Micropile
- Anchoring – Tie back
- Front of the wall
- Water well
- Jet grouting
- Soil investigation
- CFA / Predrilling

Supported drilling technologies:

- Single rotary head
- Double rotary head (Soilmec, Eurodrill or Krupp model)
- Top hammer (Eurodrill or Krupp model)
- DTH
- High speed rotary

Main options:

- Modular mast
- Wide rotary range until 2500 daNm
- Full radio remote control
- Extractor device
- Service winch
- Foam pump
- Mud/water pump
- Rod carousel 10 x 3 m
- Rod carousel 6 x 3 m
- Rod loader 3 x 3 m
- Double rotary kit
- Jet grouting kit





SM-14.3 - BASE MACHINE

NEW UNDERCARRIAGE FL6 CLASS

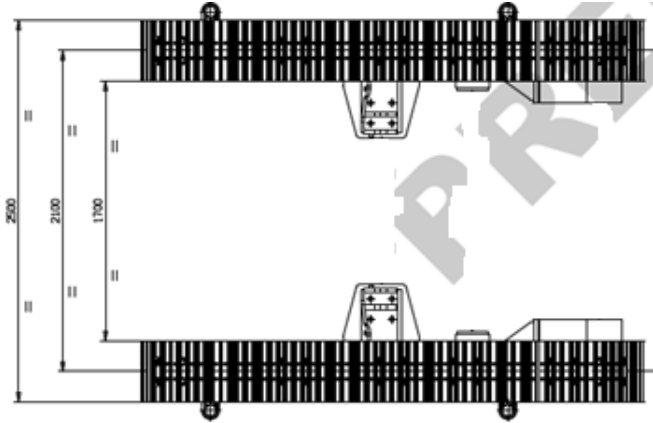
Assembled on steel crawler track complete with n° 2 rear outriggers in order to allow high performance in crowd system.

Track shoe width: 400 mm (15.7 in)

Overall length: 3315 mm (130,5 in)

Overall width: 2500 mm (98.5 in)

Main frame connection: Pivoting +/- 10°



POWER PACK UNIT

Sound proofed power pack composed by:

Diesel engine: **CUMMINS QSB 4.5**

Engine conforms to Exhaust emission standard: UE Stage IV, U.S. – EPA **Tier 4 FINAL**

Rated output: 119 kW @ 2200 rpm (160 BHp @ 2200 rpm)

Aspiration: turbocharged and charge air cooled

Fuel tank capacity: 200 lt (52.8 US gal)



HYDRAULIC SYSTEM

The hydraulic system of the machine is of “load-sensing” type and consists of a main double pump with axial pistons and an auxiliary gear pump. On the PTO of the diesel engine, an additional auxiliary pump can be installed for optional circuits.

Main pumps: double variable axial pumps LS: 156 + 156 l/min (41.2 US gal/min).

Set pressure main pumps: 28 MPa (280 bar)(4061psi)

Auxiliary pumps: gear pumps: 20 l/min (5.3 US gal)

Set pressure auxiliary pumps: 25 MPa (250 bar) (3626psi)

Hydraulic oil tank capacity: approx. 400 lt (105.7 US gal)



ELECTRICAL SYSTEM

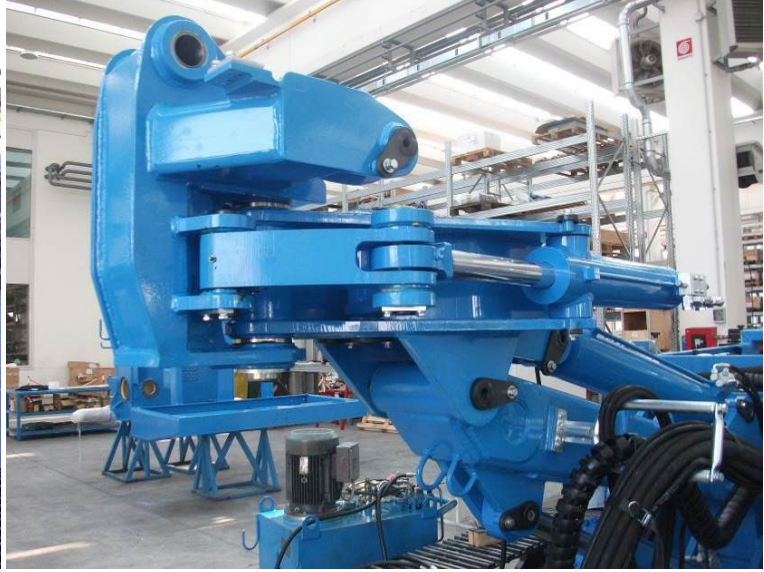
The machine is equipped with a 24 VDC electrical system. The two 12V batteries are connected in series and can be disconnected by the main disconnect switch on the machine. The electrical components are mainly installed in the electrical board on the machine body (pump compartment). The electrical panels house all specific components of the diesel engine, the main fuse valves, the relays of the solenoid valves and the connections with fuse or diode.

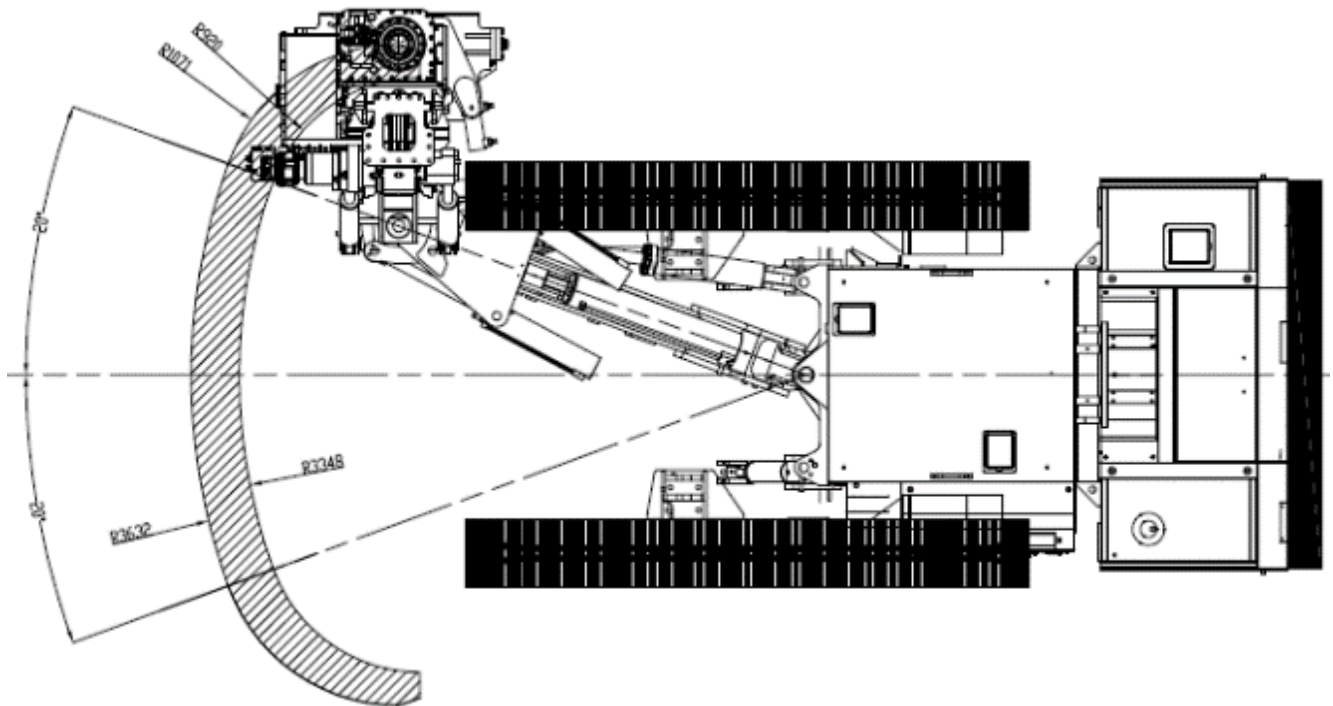
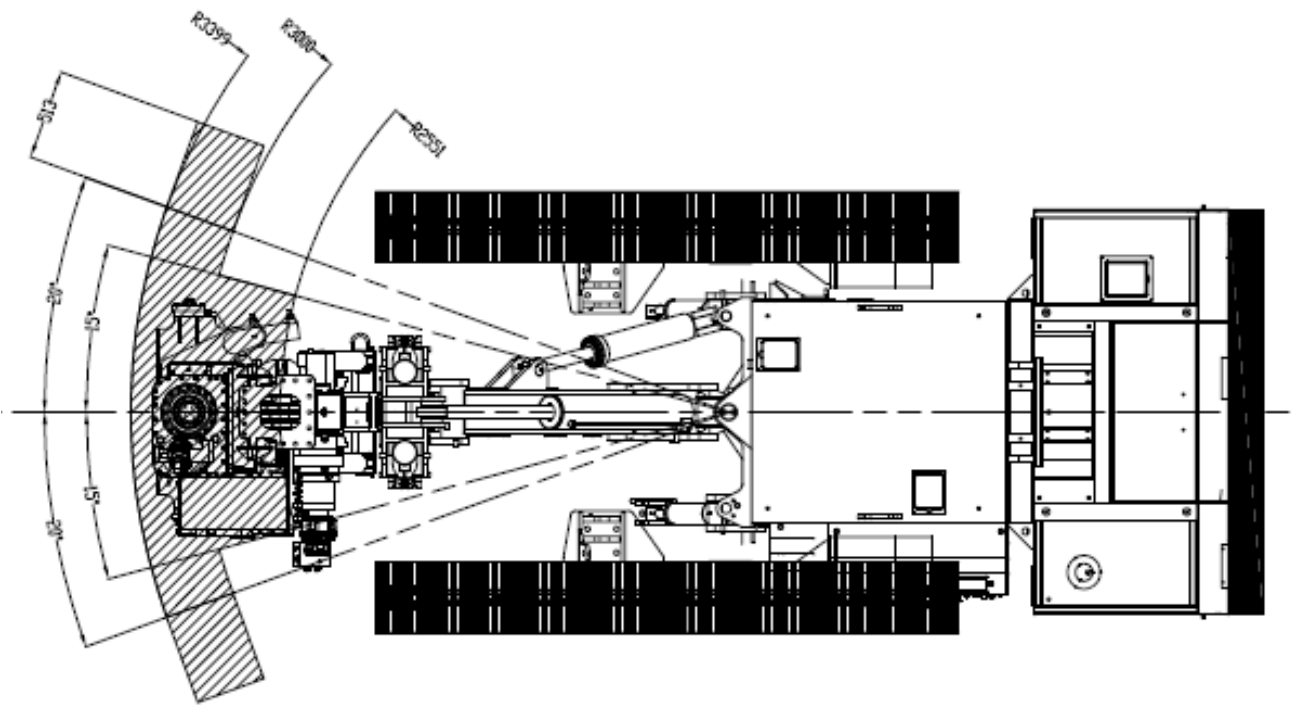


MOVEMENTS AND KINEMATIC MECHANISM

Articulated kinematic mechanism composed by:

- Swivelling boom: turret driven by cylinder: $\pm 35^\circ$
- Counter slide: Articulated joint on mast: $\pm 90^\circ$ without pins removed
- Sliding mast by cylinder with 1000 mm (379,4 in) stroke



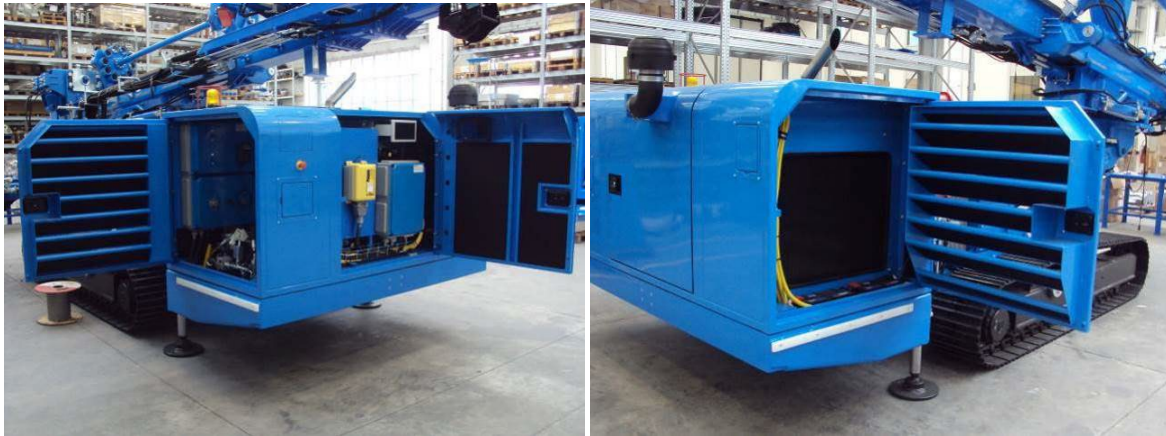


SOUND PROOFED OPEN ABLE CANOPIES

Pressure acoustic level: $L_pA = 79 \text{ dB (A)}$

Power acoustic level: $L_wA = 106 \text{ dB (A)}$

Measurement uncertainty: $\pm 1 \text{ dB}$



SM-14.3 – MAST & HOIST SYSTEM ASSEMBLY

MODULAR MAST with 4300mm stroke complete crowd system, hydraulic hoses, steel guide for hydraulic hoses and chain for hoist system.

Rod length: 3m (118,1 in)

Feed type: **motoreducer**

Feed stroke: 4300mm (169,3 in)

Maximum effective hoist pull (effective): 72 kN (16186,3 lbf)

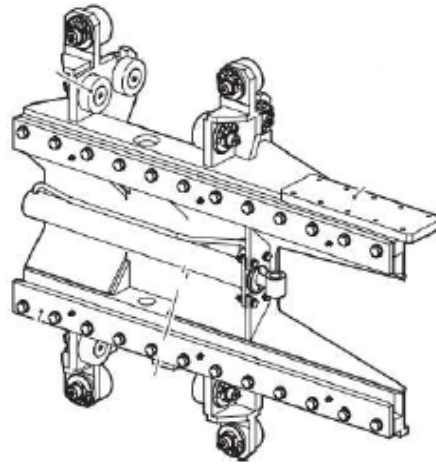
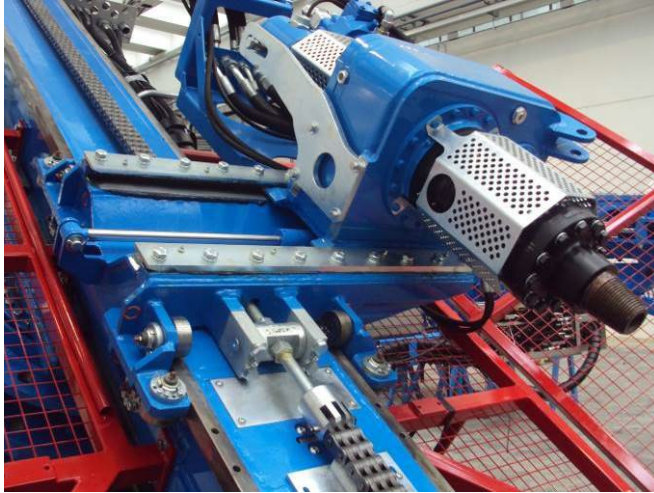
Maximum effective feed force (effective): 72 kN (16186,3 lbf)



SM14 - CRADLE FOR DRILLING ATTACHMENT

ROTARY CRADLE WITH ROLLERS C/W SIDE SHIFTING

The rotary cradle, complete with 12 rollers, can be shifted by a hydraulic cylinder: 450 mm (17.7 in) stroke.



SM14 - ROTARY HEAD ASSEMBLY

ROTARY HEAD HT1400V MODEL

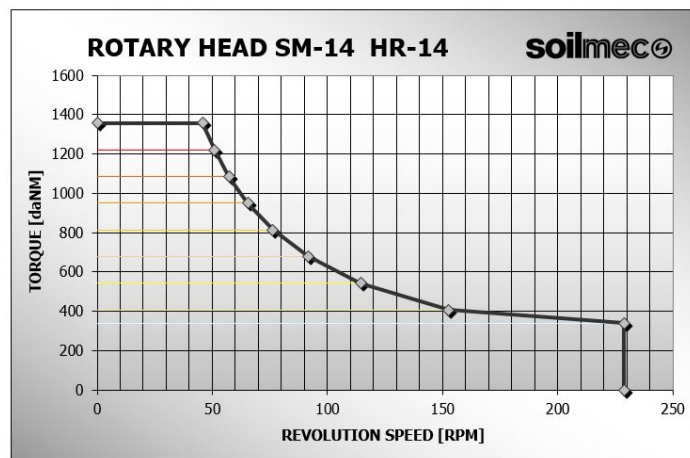
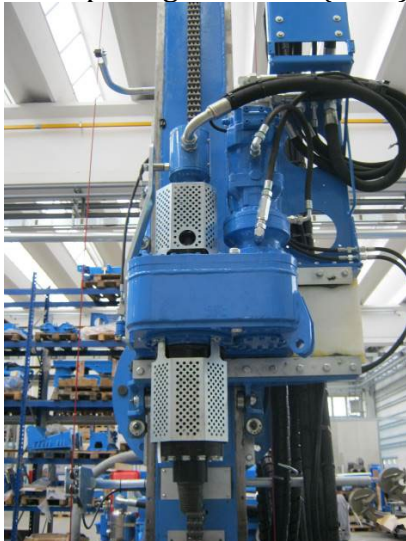
Type: Variable displacement hydraulic motor and variable speed

Max torque: 1356 daNm @ 46rpm (10001,3 lbf*ft @ 46rpm)

Max working pressure: 26MPa (260bar) (3771 psi)

Max drilling speed: 229rpm

Inner passage: 124mm (4.9in)



FLOATING SYSTEM FOR SINGLE ROTARY HEAD

Shaft shock absorber by two springs.

Output with flange

Not suitable with jet grouting kit



ROD ACCESSORIES

Rod accessories for 3" ½ A.R. – D.114mm (4,5in)

Not suitable with jet grouting kit

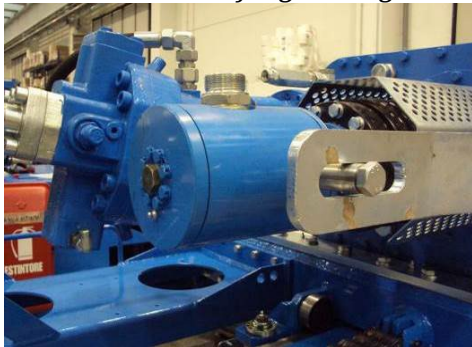


AIR/WATER SWIVEL

Max water flow rate: 1000 l/min (264,2 USgal/min)

Max air flow rate: 30.000 l/min (7925,2 USgal/min)

Not suitable with jet grouting kit



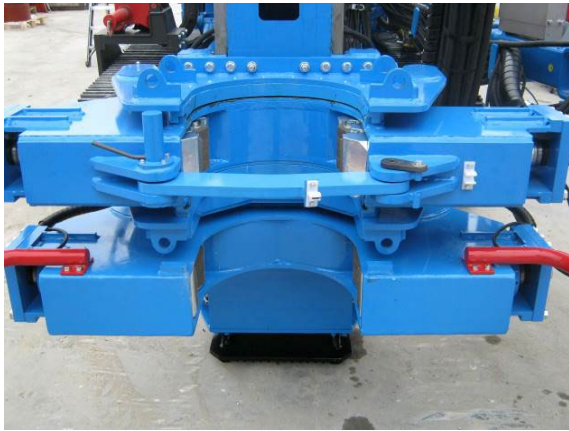
SM-14.3 – CLAMPING ASSEMBLY

CLAMP ASSEMBLY RANGE 60-415 MM (2,3 – 16,3 in)

Max clamping force: 266 kN (59800lbf)

BREAKER ASSEMBLY RANGE 60-415 MM

Max breaking torque: 5060 daNm (37320.6 lbf*ft)



CLAMPS REDUCTION GUIDE KIT FOR CASING WITH DIAM 133-152 MM (5,2 – 6IN)

REDUCTION GUIDE KIT FOR RODS WITH DIAM 76-90-114-140MM (3 – 3,5 – 4,5 – 5,5IN)

CENTERING DEVICE



SM-14.3 – CONTROL BOARD

FULL RADIO REMOTE CONTROL FOR ALL OPERATIONS

The modern and innovative radio control installed on the SM-14 allows controlling all machine operations safely, it ensures reliability, maneuvers speed and excellent visibility for the operator.

The radio control comes with a multipolar electrical plug so that it can be used in any situation, included the most challenging, or in case of emergency.

Radio remote control by Autec® technology for all drilling operations, kinematic positioning and tracks movements. Diesel engine parameters displayed on LCD display on radio control, rotary rotation speed and working pressure.



Safety hydraulic controls for **ONLY** emergency conditions are fitted on board.
Hi-tech touch screen LCD on board for monitoring of diesel engine and alarms.



Rig tracking operated by **wired remote control** for **ONLY** emergency conditions



SM-14.3 – ACCESSORIES INCLUDED

air / water assembly

Line lubricator system for DTH

Tank capacity: 24 lt (6,34 US gal)

Working pressure: 30 bar (435 psi)

Connecting nipple: GAS 2"



HYDRAULIC Prearrangement FOR AUX PUMP

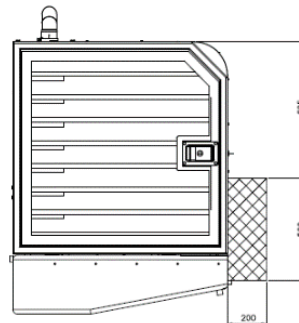
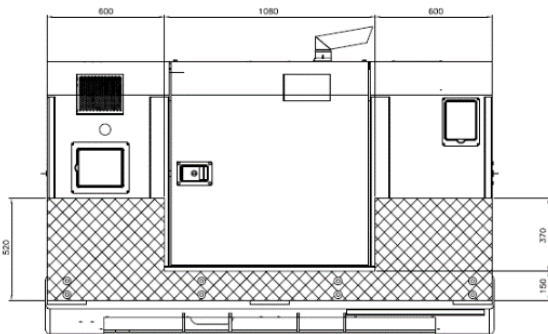
LIFTING KIT AND CONTAINER SHIPPING ACCESSORIES

PAINTING WITH STD SOILMEC COLOR

USE AND MAINTANANCE MANUAL IN ENGLISH LANGUAGE

SHORT EMERGENCY ROPES KIT

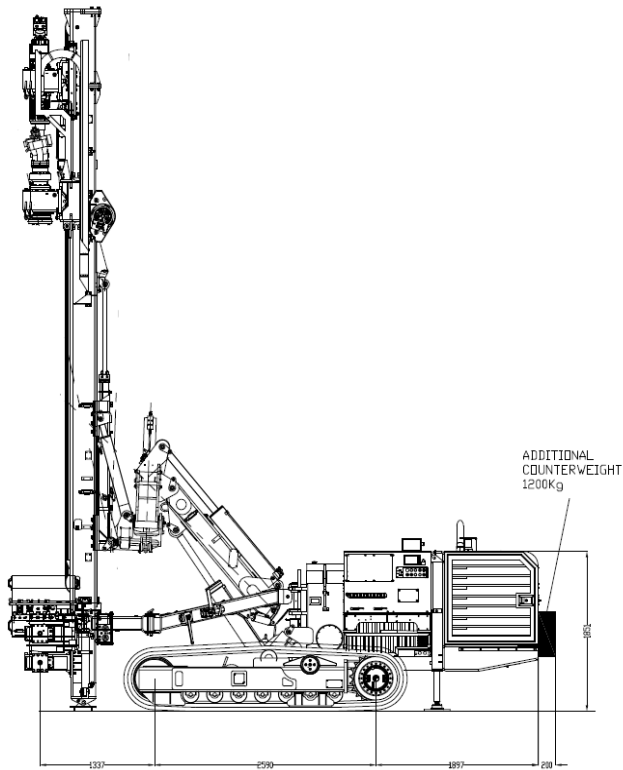
SKID PLATE UNDER THE MAIN RIG BODY ADDITIONAL COUNTERWEIGHT 1,200 KG



ITEM B

B1 - DOUBLE HEAD

MAST TRANSFORMATION KIT FROM 4300mm (169,3in) TO 5300mm (208,7in) STROKE
(To be used in double head configuration).



SM-14.3 - CRADLE FOR DRILLING ATTACHMENT FOR DOUBLE ROTARY

Rotary cradle with rollers for upper rotary **HT1200V**, can be shifted by a hydraulic cylinder: 400 mm stroke.



Prearrangement for double rotary kit

DOUBLE HEAD KIT

ROTARY HEAD HD1200V MODEL (UPPER ROTARY)

Type: variable displacement hydraulic motor and variable speed

Max torque: 1207 daNm @ 55rpm @ 280bar (8902.3lb**ft* @ 55rpm @ 4061psi)

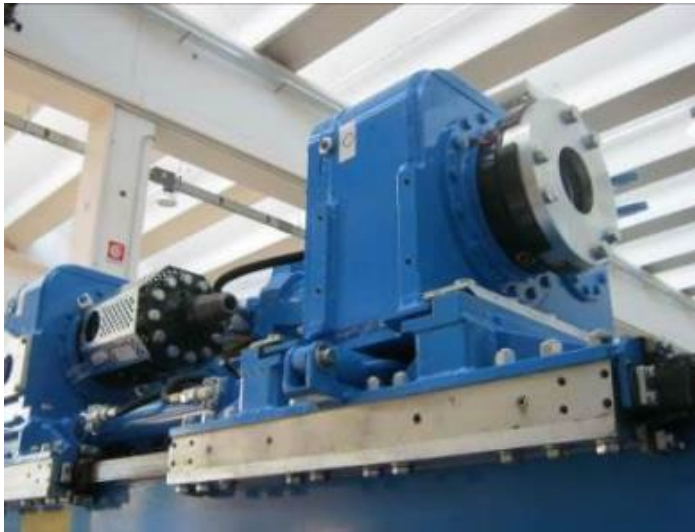
Max drilling speed: 277 rpm

Inner passage: 124mm (4.9in)



LOCKING KIT FOR FLOATING SYSTEM

CASING ADAPTOR FLANGE KIT



ROD ACCESSORIES

Rod accessories for 2" 7/8 A.R. – D.90mm (3,5in)

EMERGENCY ROPES KIT FOR DOUBLE ROTARY

B2 – PREVENTER

DIVERTER HEAD



CASING ADAPTOR FLANGE KIT

B3 – AUXILIARY WINCH

SERVICE WINCH WITH EXTENSION L=200MM (8,7in)

Nominal Line pull in 1st layer: 24 kN (5395,5 lbf)

Rope diameter: 10 mm (0,4in)

Max rope speed: 46 mt/min (151ft/min)

Not suitable with jet grouting kit



SWIVEL HEAD FOR SERVICE WINCH

(SUITABLE WITH SERVICE WINCH)

Swivel head for lifting rods 3"1/2 API diam 114mm

Not suitable with jet grouting kit



B4 – PREARRANGEMENT FOR SAFETY CAGES

KIT SLOW ROTATION (EN16228)

PREARRANGMENT FOR CAGE KIT

B6 – ROTARY HEAD ASSEMBLY HD2000

ROTARY CRADLE WITH PADS C/W SIDE SHIFTING

The rotary cradle, complete with pads, can be shifted by a hydraulic cylinder: 450 mm (17.7in) stroke.



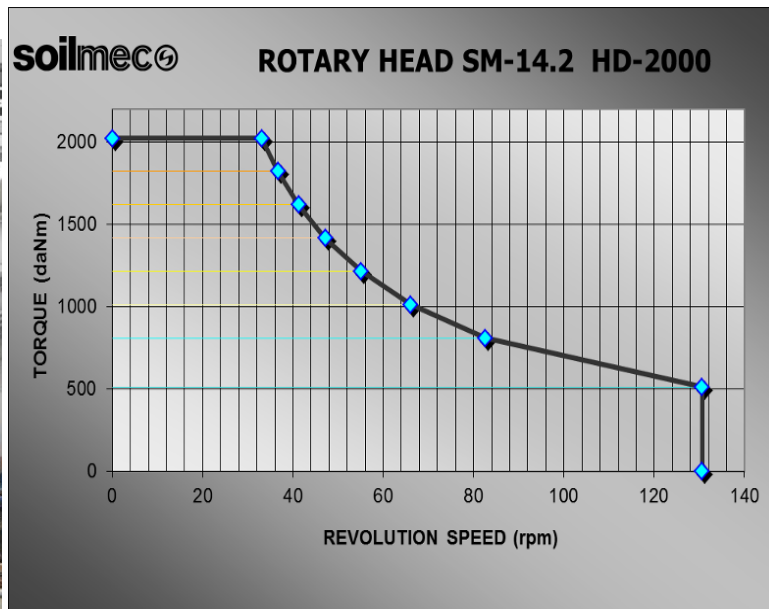
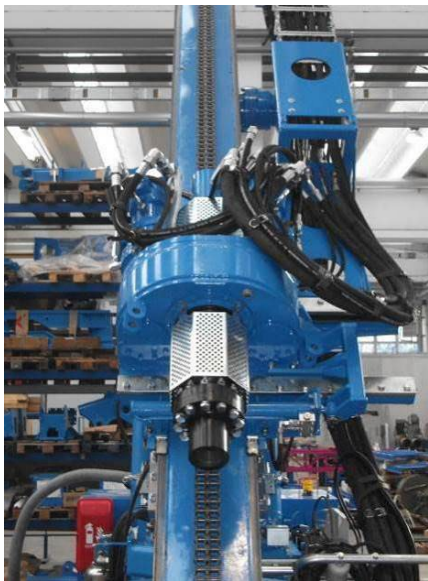
ROTARY HEAD HD2000 MODEL

Type: variable displacement by two hydraulic motors

Max torque : 2023 daNm @ 33 rpm @ 280bar (14921 lb*ft @ 33rpm @ 4061psi)

Max rotation speed: 511 daNm @ 130rpm (3769 lb*ft @ 130rpm)

Inner passage: 144 mm (5,7in)



FLOATING SYSTEM FOR SINGLE ROTARY HEAD

Shaft shock absorber by two springs.

Output with flange

Not suitable with jet grouting kit

ROD ACCESSORIES

Rod accessories for 3" ½ A.R. – D.114mm (4,5in)

Not suitable with jet grouting kit

AIR/WATER SWIVEL

Max water flow rate: 1000 l/min (264,2 USgal/min)

Max air flow rate: 30.000 l/min (7925,2 USgal/min)

Not suitable with jet grouting kit

B7 – AIR-WATER SWIVEL 2”

COMPLETION KIT FOR AIR/SWIVEL 2”

AIR/WATER SWIVEL

Max water flow rate: 1000 l/min (264,2 USgal/min)

Max air flow rate: 30.000 l/min (7925,2 USgal/min)

Not suitable with jet grouting kit

B8 – EXTRACTOR DEVICE

TELESCOPIC EXTRACTOR DEVICE

Extraction force: 100kN (22481lbf)

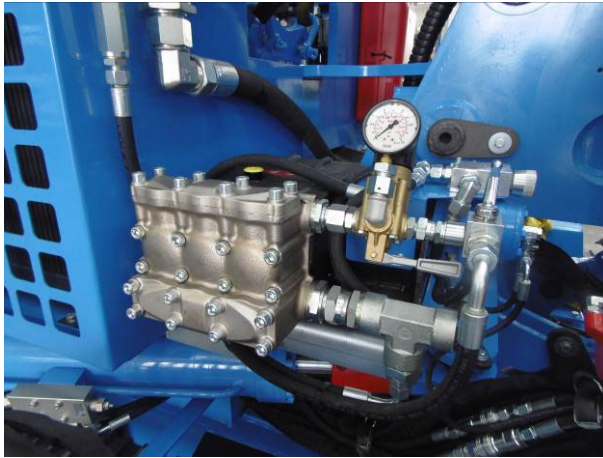
Stroke: 1000 mm by cylinder (379,4 in)



B9 – FOAM PUMP AB80 MODEL

FOAM PUMP AB80 TYPE

Easily accessible and high-performance foam pump: 75 l/min @ 60bar (20 USgal/min @ 870 psi), complete with gauge pressure and safety valve.



B10 – SPARE REMOTE CONTROL

B11 – CRANE PREARRANGEMENT

B12 – LED LIGHTS

B13 - BALANCING ROD FOR DOUBLE HEAD VERSION D.90MM (3,5IN) 2"7/8 A.R.

SM-14.3 – TRANSPORT CONDITION



Transport weight (5.3m stroke version & Double rotary): 19Ton (41888 lbf)