

# SM-15 MICROPILES



**soilmec**   
Drilling and Foundation Equipment

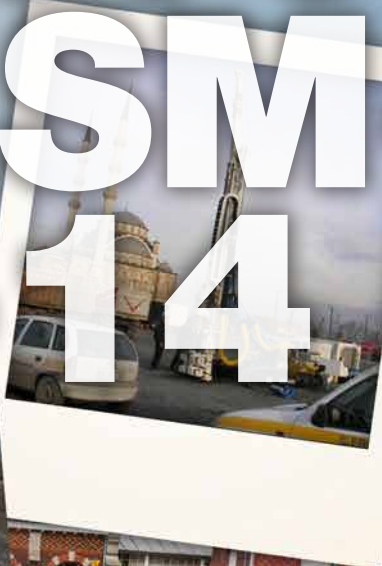
# SM-400

# SM-401

# SM-14

# 1500

units sold



# The brand new SM-15 is a compact and versatile machine.

The SM-15 design ensures rapid conversions through specific kits to get a variety of versions to be used in many kinds of drilling applications.

The SM-15 guarantees the best performance and stability in any position through a variety of movements and mast inclinations.



Vertical text on the right side of the page, partially obscured by a large white graphic element. The text is white and appears to be a stylized logo or brand name.

# High power, high efficiency and low environmental impact.

Powered by the most advanced Cummins Diesel engines which meet the required emission standards in the different markets (*both Stage III and Stage V versions are available*).

These engines are set up with an automatic power control and fan speed system for improved performance and productivity; this system also ensures a low environmental impact due to the reduced noise, fuel consumption and carbon emissions.

The new soundproofed canopies are designed to minimize the sound level and increase accessibility during inspection and maintenance operations.

The rig is fitted with proportional hydraulic servo-assisted controls for smooth operations. Lower running costs and a reduction in the wear and tear of components thanks to the smart Load Sensing System installed.



# SM-15 and SM-15HD. A single platform.

The platform design approach allows us to produce two different rigs using many components in common.

The SM-15 is equipped with with a compact advanced Diesel Engine for optimum performances while reducing fuel consumption.

The SM-15 is particularly suitable in urban construction sites and in confined spaces in general.



POWER

# Versatility and tailor made options to suit the different drilling technologies and customer needs.

A microdrilling machine easy to rig up and operate, shaped to perform even in the most extreme environments.

Nos. 3 different kinematic systems types:

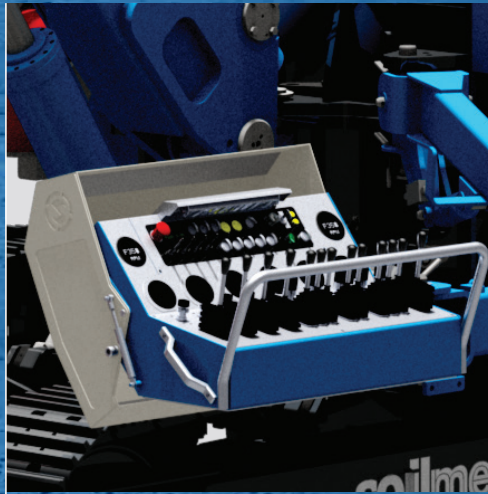
- The cylinders and pins removal type;
- The slew ring type;
- Front of the wall joint type which allows to drill on the side of the tracks and reaching extreme confined spaces.



A range of rotary heads with different torques and drilling speeds to suit the various technologies.

A new double rotary head setup to ensure high performance in a compact size and easy to be converted to single head.

Rotary side shifting device even in double head setup.



## Ergonomy

New hydraulic/proportional panel mounted on pivotal support arm for drilling operations: The controls are clearly laid out and located within easy reach to ensure smooth operations and enhanced safety.

The new layout design increases operating speed for a better efficiency being easy and intuitive to use due to the controls and gauges grouped based on their function.

Optionally a full radio remote control for drilling, positioning and tramming.



## Safety

The SM-15 is compliant with the latest international standards.

It is equipped with:

- Hydraulic openable cages;
- Additional trip wires devices;
- Emergency stop buttons ;
- ROM and SPM operation modes.

The rig can be fitted with the new carousel loading system or with the hydraulic arm to handle up rods & casings in total safety and with excellent stability.



## Connectivity

The rig is fitted with the DMS on Board. The LCD display set on the side of the base machine is used for:

- Monitoring rig parameters;
- Download rig parameters;
- Remote connection to the rig.

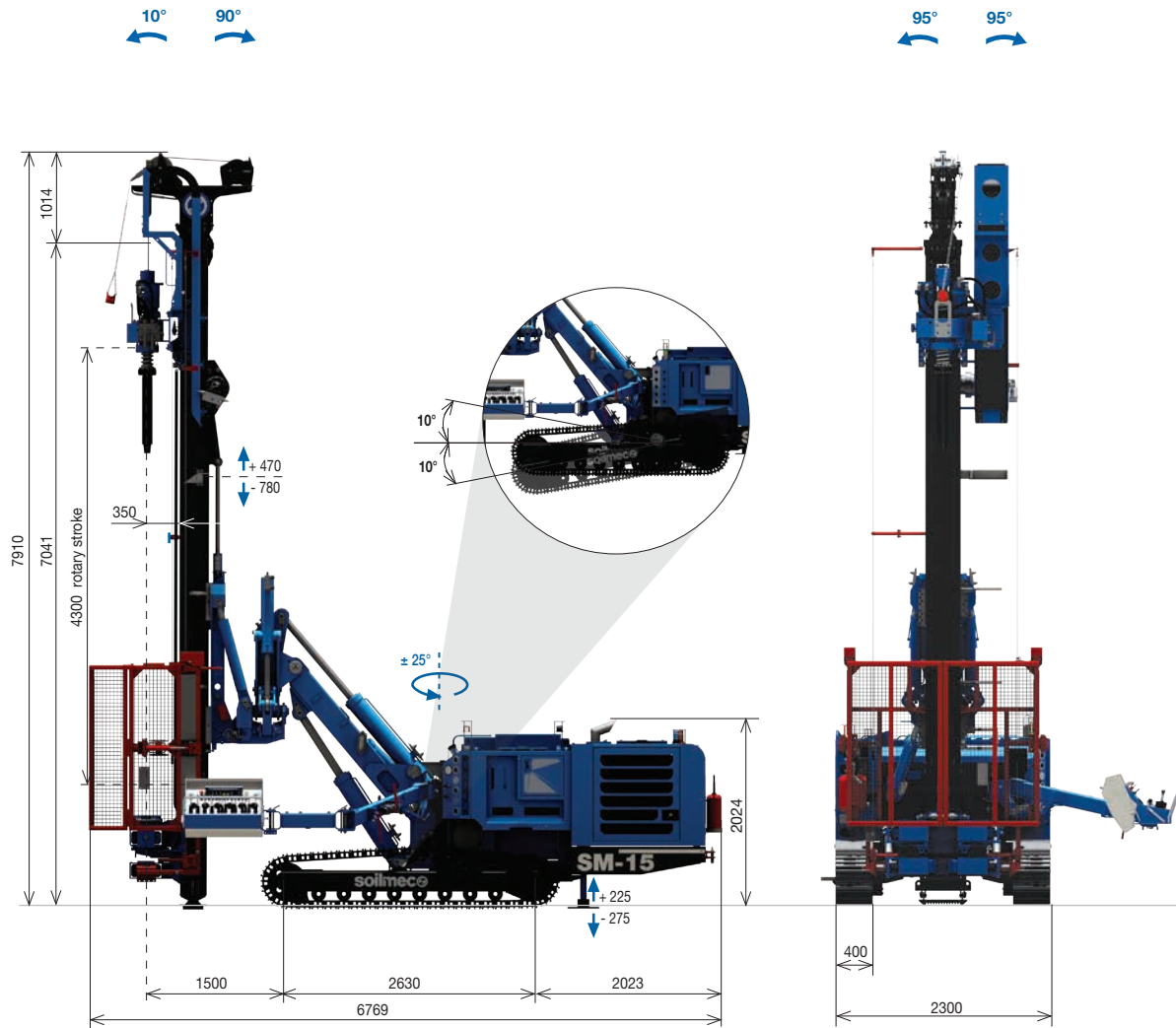
The machine is also connected to DMS Manager 4.0, the cloud running app for asset, fleet and site management.

Versatility

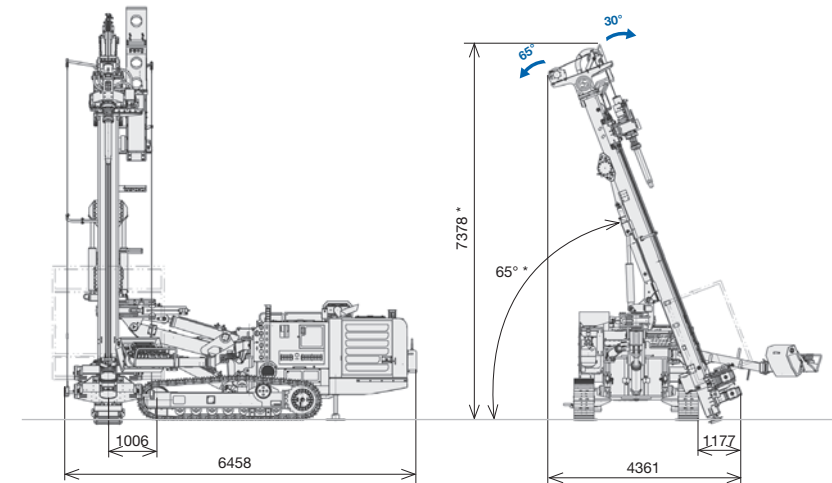
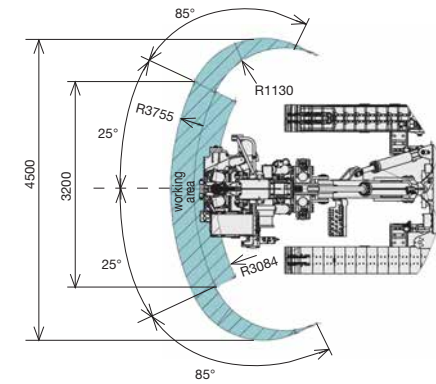
# Standard Configuration

All drawings are referred to 4300 mm (169 in) stroke mast.

Available 5300 mm (208.7 in) / 7000 mm (275.6 in) / 4000 mm (157.5 in) stroke mast.

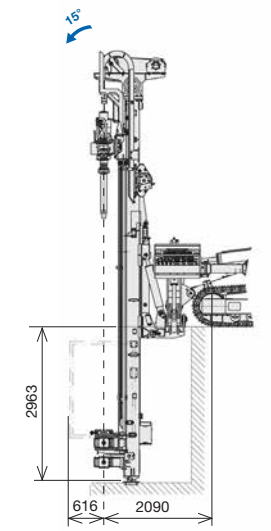
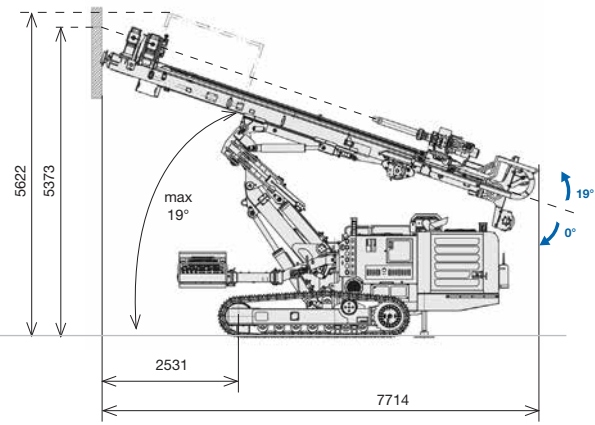
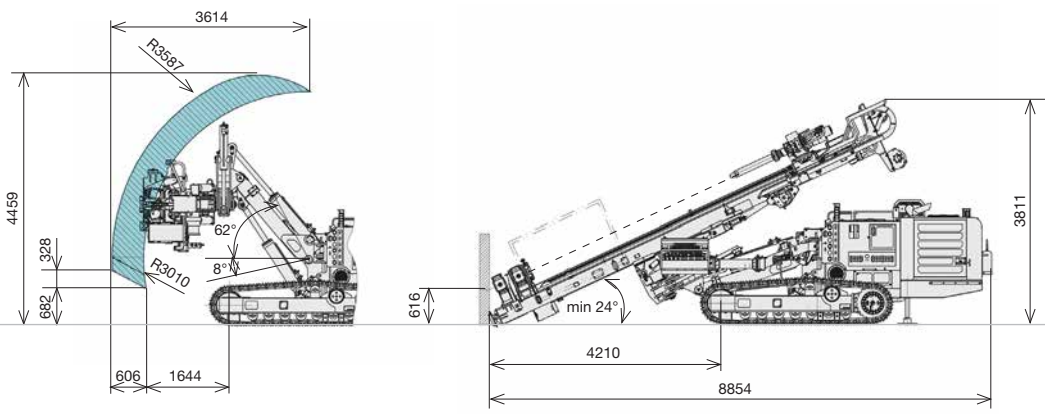
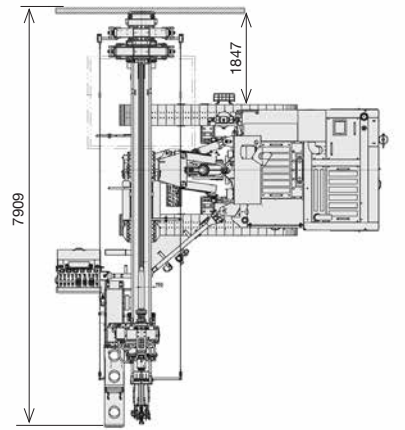
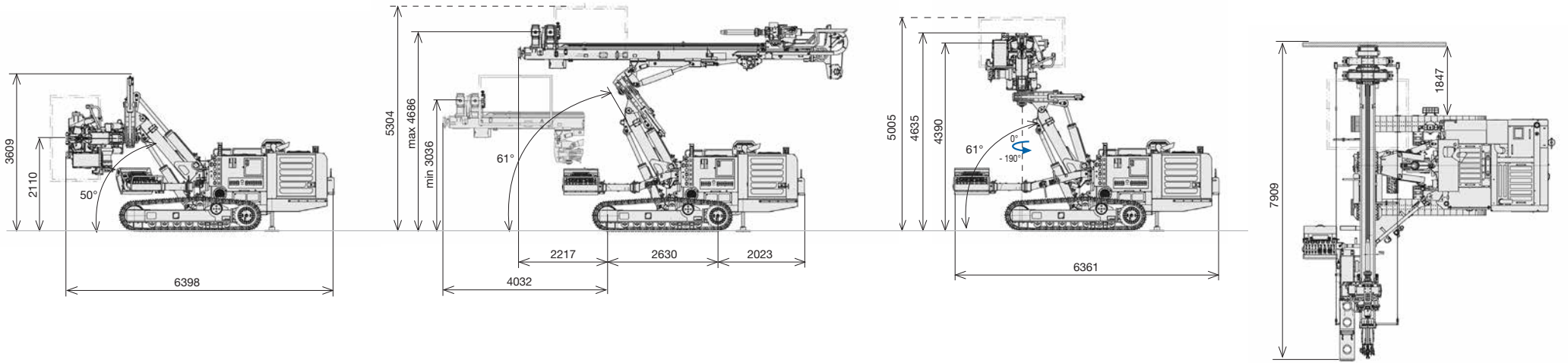


# Movements

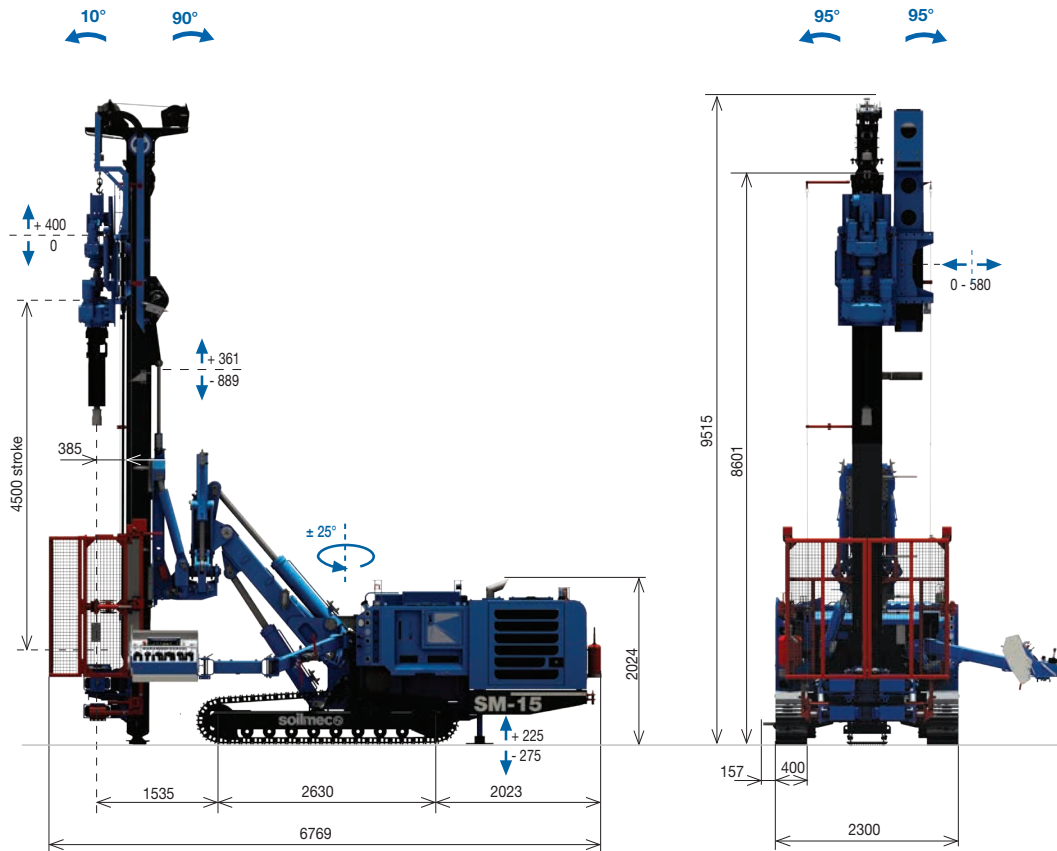


(\*) >65° mast foot on ground / <65° foot not supported



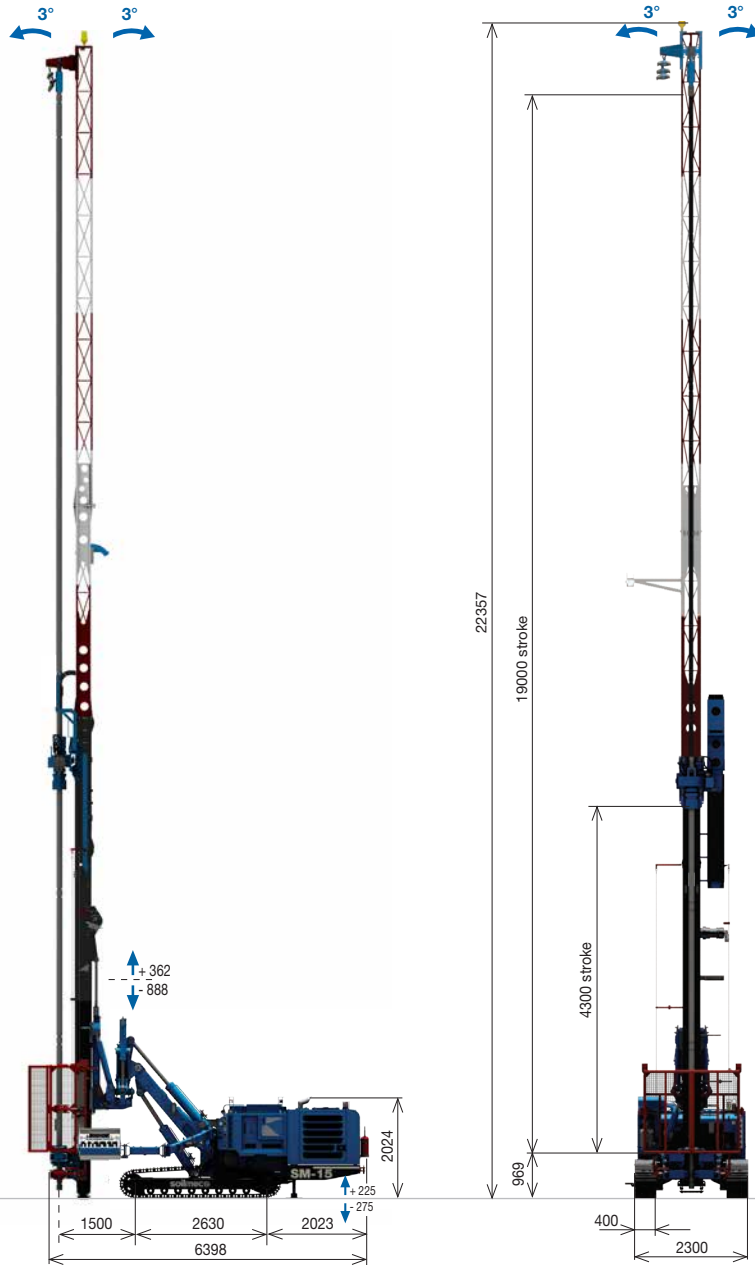


# Double rotary



<b>Hoist &amp; Feed system</b>	<b>Motoreducer</b>	<i>Motoreducer</i>
<b>Feed Stroke</b>	<b>5300 mm</b>	208.7 in
<b>Maximum Hoist pull</b>	<b>121 kN</b>	27201 lbf
<b>Maximum Feed force</b>	<b>121 kN</b>	27201 lbf
<b>Rotary head</b>	<b>Option 1</b>	
<b>Model</b>	<b>HD1200V</b>	HD1200V
<b>Rotary type</b>	<b>Upper rotary for rods</b>	Upper rotary for rods
<b>Gear box type</b>	<b>Variable</b>	Variable
<b>Maximum torque</b>	<b>1207 daNm</b>	8902 lbf*ft
<b>Maximum rotation speed</b>	<b>277 rpm</b>	277 rpm
<b>Model</b>	<b>HT1400V</b>	HT1400V
<b>Rotary type</b>	<b>Lower rotary for casing</b>	Lower rotary for casing
<b>Gear box type</b>	<b>Variable</b>	Variable
<b>Maximum torque</b>	<b>1356 daNm</b>	10001 lbf*ft
<b>Maximum rotation speed</b>	<b>214 rpm</b>	214 rpm
<b>Rotary cradle side shifting (single cradle for both rotaries)</b>	<b>580 mm</b>	22.8 in
<b>Rotary relative shifting stroke</b>	<b>400 mm</b>	15.7 in
<b>Operating Weight (w/o rod and casing)</b>	<b>17800 kg</b>	39242 lb
<b>Rotary head</b>	<b>Option 2</b>	
<b>Model</b>	<b>RH10X</b>	RH10X
<b>Rotary type</b>	<b>Upper rotary for rods</b>	Upper rotary for rods
<b>Gear box type</b>	<b>II gears</b>	II gears
<b>Maximum torque</b>	<b>1100 daNm</b>	8113 lbf*ft
<b>Maximum rotation speed</b>	<b>86 rpm</b>	86 rpm
<b>Model</b>	<b>RH24X</b>	RH24X
<b>Rotary type</b>	<b>Lower rotary for casing</b>	Lower rotary for casing
<b>Gear box type</b>	<b>II gears</b>	II gears
<b>Maximum torque</b>	<b>2400 daNm</b>	17701 lbf*ft
<b>Maximum rotation speed</b>	<b>51 rpm</b>	51 rpm
<b>Rotary cradle side shifting (single cradle for both rotaries)</b>	<b>580 mm</b>	22.8 in
<b>Rotary relative shifting stroke</b>	<b>400 mm</b>	15.7 in
<b>Operating Weight (w/o rod and casing)</b>	<b>17450 kg</b>	38470 lb

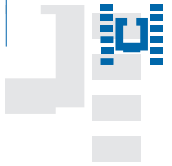
# Jet grouting



<b>Operating Weight (w/o rod)</b>	<b>17600 kg</b>	<b>38801 lb</b>
<b>Max treatment depth in a single passage</b> <i>c/w 4300 mm (169 in) stroke mast</i>	<b>19 m</b>	<b>62.3 ft</b>
<b>Fixed mast extensions</b>	<b>4,9 + 10 m</b>	<b>16 + 33 ft</b>
<b>Hydraulic chuck max handing diameter</b>	<b>114 mm</b>	<b>4.49 in</b>
<b>Rotary head</b>	<b>HD1200V</b>	<b>HD1200V</b>
<b>Gear box type</b>	<b>Variable</b>	<b>Variable</b>
<b>Maximum torque</b>	<b>1207 daNm</b>	<b>8902 lbf*ft</b>
<b>Maximum rotation speed</b>	<b>277 rpm</b>	<b>277 rpm</b>
<b>Inner passage</b>	<b>124 mm</b>	<b>4.9 in</b>
<b>Drilling axis</b>	<b>350 mm</b>	<b>13.8 in</b>
<b>Available rotary for JG:</b>	<b>HD1200V, HT1400V, HR16, HT1300G</b>	
<b>Transport data</b>		
<b>Transport length</b>	<b>10966 mm</b>	<b>431.7 in</b>
<b>Transport width</b>	<b>2300 mm</b>	<b>90.6 in</b>
<b>Transport height (c/w guard)</b>	<b>3155 mm</b>	<b>124.2 in</b>
<b>Transport height (guard partially dismantled)</b>	<b>2782 mm</b>	<b>109.5 in</b>
<b>Transport height (min for container)</b>	<b>2708 mm</b>	<b>106.6 in</b>

# Technical data

## Undercarriage



Undercarriage	±10° tilting gauge	±10° tilting gauge
Track shoe width	400 mm	15.7 in
Wheel base (centre idler to centre sprocket)	2630 mm	103.5 in
Overall length	3215 mm	126.6 in
Overall width (not extendable crawler)	2300 mm	91 in
Travelling speed	2,0 km/h	1.2 mph
Average ground pressure	0,080 MPa	11.6 psi
Ground stabilizers	n°2 rear	n°2 rear

## Engine



Diesel Engine		Option 1	
Make and model	CUMMINS QSB 4.5		
Emission certification	EU Stage V - US EPA Tier 4f		
Diesel engine power rating	142 kW @ 2000 rpm	190 HP @ 2000 rpm	
Fuel tank capacity	330 l	87 US gal	

Diesel Engine		Option 2	
Make and model	CUMMINS B 6.7		
Emission certification	EU Stage III - US EPA Tier 3		
Diesel engine power rating	119 kW @ 2200 rpm	159 HP @ 2200 rpm	
Max diesel engine power available	123 kW @ 2000 rpm	165 HP @ 2000 rpm	
Fuel tank capacity	330 l	87 US gal	

## Hydraulic system



Hydraulic system	
Main pumps: variable axial pumps	290 l/min 77 US gal/min
Auxiliary pumps: gear pumps	140 + 52 + 22 l/min 137 + 13.7 + 6 US gal/min
Hydraulic oil tank capacity	510 l 135 US gal

## Rotary



Rotary head	HD1200V		HD1400V	
	Variable	Variable	Variable	Variable
Gear box type				
Maximum torque	1207 daNm	8902 lbf*ft	1356 daNm	10001 lbf*ft
Maximum rotation speed	277 rpm	277 rpm	229 rpm	229 rpm
Inner passage	124 mm	4.9 in	124 mm	4.9 in

Rotary head	HT1300G		HR16	
	III Gears	III Gears	II Gears	II Gears
Gear box type				
Maximum torque	1280 daNm	9441 lbf*ft	1570 daNm	11580 lbf*ft
Maximum rotation speed	433 rpm	433 rpm	145 rpm	145 rpm
Inner passage	124 mm	4.9 in	117 mm	4.6 in

Rotary head	HR21GV		HT3700	
	II Gears + Variable	II Gears + Variable	Variable	Variable
Gear box type				
Maximum torque	1140 daNm	8408 lbf*ft	3390 daNm	25003 lbf*ft
Maximum rotation speed	446 rpm	446 rpm	122 rpm	122 rpm
Inner passage	130 mm	5.1 in	144 mm	5.7 in

## Clamp & breaker



Clamp & hydraulic joint breaker		Option 1	
Nominal size	50 - 315 mm	2 - 12.4 in	
Maximum clamping force	266 kN	59798 lbf	
Maximum breaking torque	5060 daNm	37321 lbf*ft	
Extractor device stroke	600 mm	24 in	
Extractor device force	100 kN	22481 lbf	

Clamp & hydraulic joint breaker		Option 2	
Nominal size	60 - 415 mm	2.4 - 16.3 in	
Maximum clamping force	266 kN	59798 lbf	
Maximum breaking torque	5060 daNm	37321 lbf*ft	
Extractor device stroke	600 mm	24 in	
Extractor device force	100 kN	22481 lbf	

Clamp & hydraulic joint breaker		Option 3	
Nominal size No.2 set jaws	45-415 / 180-520 mm	1.8-16.5 / 7.1-20.5 in	
Maximum clamping force	266 kN	59798 lbf	
Maximum breaking torque	6740 daNm	49712 lbf*ft	

## Service winch



Service winch	controlled descent	controlled descent
1°layer line pull	20 kN	4496 lbf
Rope diameter	10 mm	0.4 in
Rope speed	47 m/min	154 ft/min

## Rod carousel



Rod carousel		Option 1	
N°of rods	10	10	
Rod diameters	114 mm	4 in	
Rod length	3000 mm	118 in	

Rod carousel		Option 2	
N°of rods	5	5	
Rod diameters	140 mm	6 in	
Rod length	3000 mm	118 in	

Rod carousel		Option 3	
N°of rods	3	3	
Rod diameters	114 mm	4 in	
Rod length	3000 mm	118 in	



Hoist & Feed

Hoist & Feed system		Option 1
Type	<b>Monolithic mast Cylinder Crowd System</b>	<i>Monolithic mast Cylinder Crowd System</i>
Feed stroke	4000 mm	157.5 in
Maximum hoist pull	89 kN	20008 lbf
Maximum feed force	45 kN	10116 lbf
Hoist & Feed system		Option 2
Type	<b>Modular Mast Motoreducer Crowd System</b>	<i>Modular Mast Motoreducer Crowd System</i>
Feed stroke	4300 mm	169.3 in
Maximum hoist pull	121 kN	27201 lbf
Maximum feed force	121 kN	27201 lbf
Hoist & Feed system		Option 3
Type	<b>Modular Mast Motoreducer Crowd System</b>	<i>Modular Mast Motoreducer Crowd System</i>
Feed stroke	5300 mm	208.7 in
Maximum hoist pull	121 kN	27201 lbf
Maximum feed force	121 kN	27201 lbf
Hoist & Feed system		Option 4
Type	<b>Modular Mast Motoreducer Crowd System</b>	<i>Modular Mast Motoreducer Crowd System</i>
Feed stroke	7000 mm	275.6 in
Maximum hoist pull	121 kN	27201 lbf
Maximum feed force	121 kN	27201 lbf

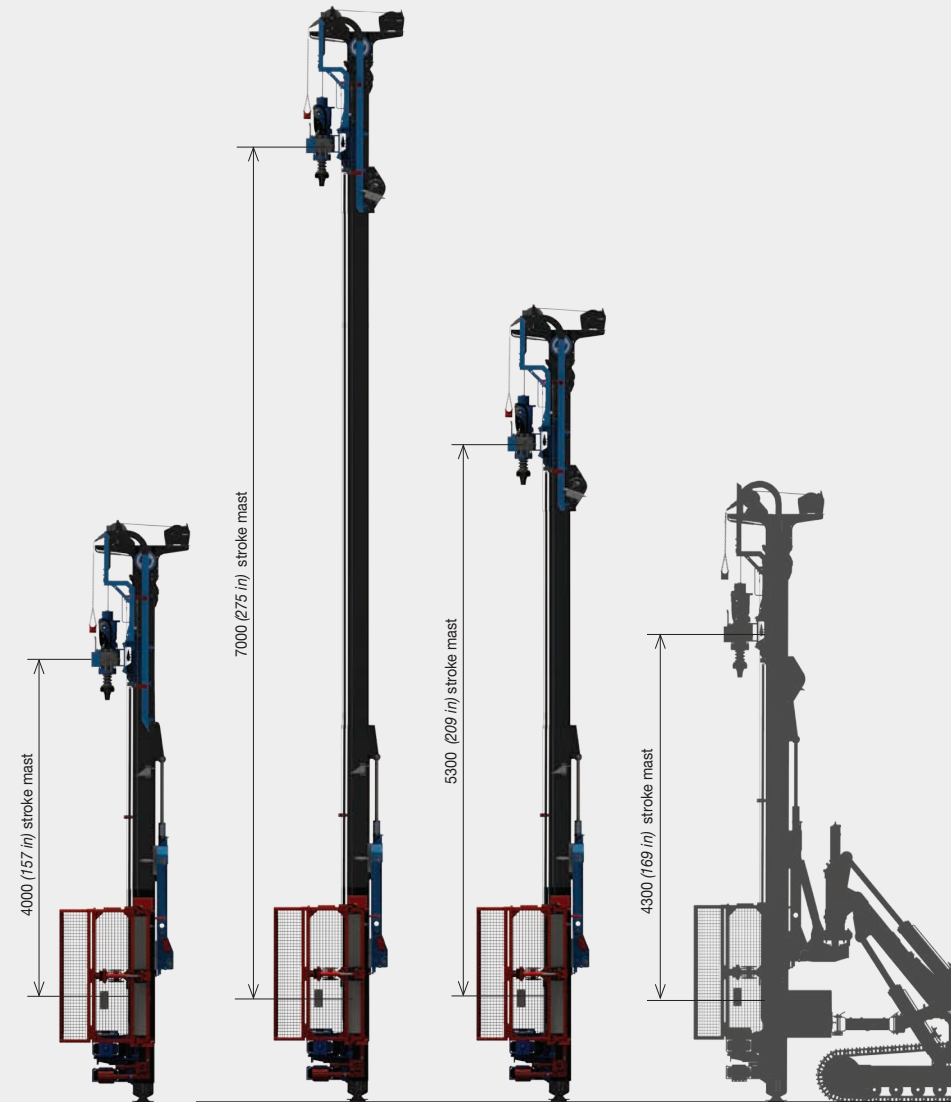
(for vertical drilling application)

Modular mast allowing four different lengths and strokes.

Available:

**Monolithic mast** 4000 mm (157.5 in) stroke

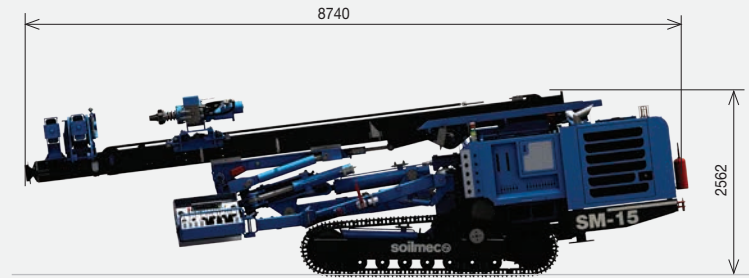
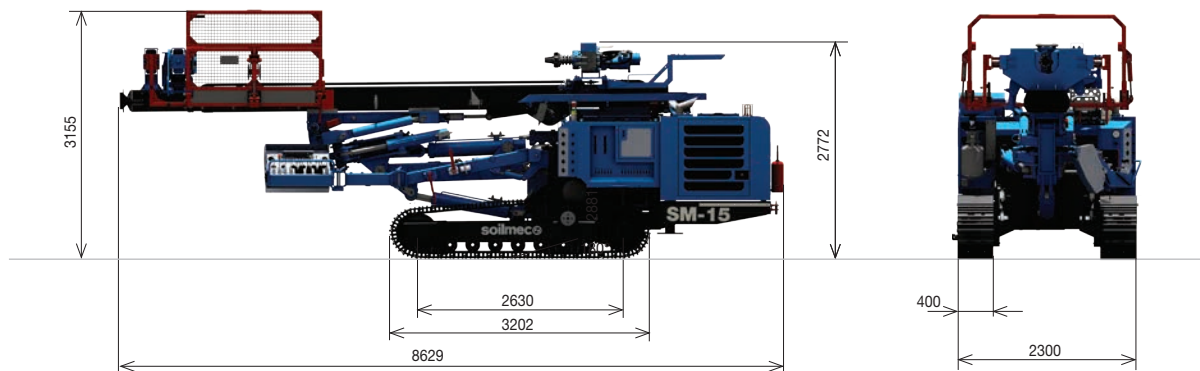
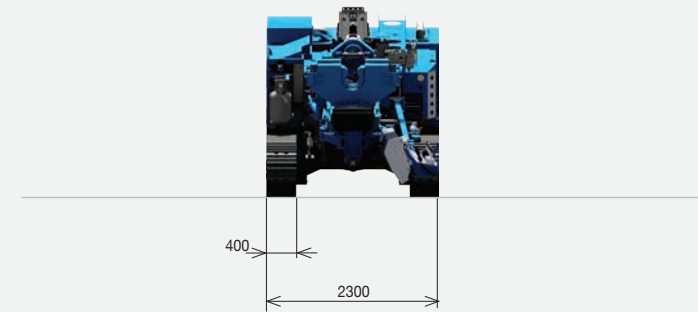
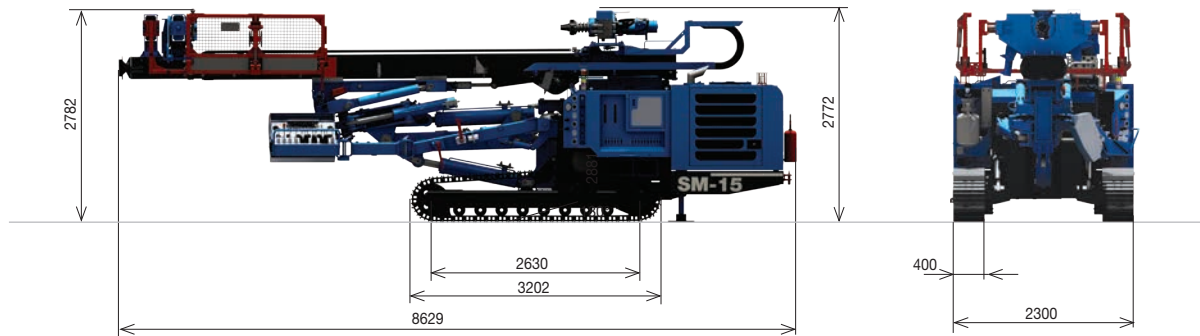
**Segmental mast:** 5300 mm (208.7 in) / 7000 mm (275.6 in) / 4300 (169 in) stroke



# Transport

**standard version**  
4300 mm / 169 in stroke

**compact version**  
4300 mm / 169 in stroke



Transport kit for container shipment

Transport	c/w guard		partial guard		compact	
Transport width	2300 mm	90.6 in	2300 mm	90.6 in	2300 mm	90.6 in
Transport height	3155 mm	124.2 in	2782 mm	109.5 in	2562 mm	100.9 in
Transport weight	16600 kg	36597 lb	16525 kg	36431 lb	16200 kg	35715 lb

# Configurations

Radio remote control for traming and positioning	●
Wired remote control for traming only	●
Full radio remote control	○
7" LCD monitor for alarms & diesel engine control and DMS connectivity	●
Hydraulic and proportional controls for all operations	●
Modular mast with 4300 mm (169.3 in) stroke	●
Mast extension kits for 5,3 -7 m stroke (208.7 - 286.6 in)	○
Auxiliary winch, 20 kN (4469 lbf)	○
Clamp & breaker 50-315 mm (1.96 - 12.4 in)	○
Clamp & breaker 60-415 mm (2.4 - 16.4 in)	○
Kinematic mechanism - Sliding mast with 1250 mm (49 in) stroke	●
Kinematic mechanism - 90° joint	●
Kinematic mechanism - Cylinder & pin removal	○
Kinematic mechanism - ± 180° motoreducer	○
Diesel engine EU Stage V - US EPA Tier 4f	●
Diesel engine EU S tage III - US EPA Tier 3	○
Load sensing hydraulic system	●
Hydraulic prearrangement for auxiliary pumps	●
Rotary cradle, complete with pads, wich can be shifted by an hydraulic cylinder, 600 mm (23.6 in) stroke	○
Rotary cradle, complete with pads, wich can be shifted by an hydraulic cylinder, 450 mm (18 in) stroke	●
Floating system for rotary head	○
Air/water system and line lubricator for DTH	○
Foam pump c/w gauge pressure and safety valve	●
Water & mud pumps	○
Centering device	○
Slow rotation kit and special protective mode	●
Hydraulic safety cage kit driven by cylinder	●
Lighting system on mast	●
Washing kit including with hose rewinder & washing lance	○
Fire extinguisher	●
Rod carousel (3 rods)	○
Rod carousel (5-10 rods)	○
Hydraulic crane 200 kg @ 6 m ( 441 lb @ 20 ft)	○
Double rotary kit	○
Jet grouting kit, single fluid	○
Jet grouting kit, double fluid	○

Hydraulic chuck complete with gauge pressure and safety device	○
Extension for jet grouting	○
Hydraulic prearrangement for Jet Grouting	○
Wedge kit for hydraulic chuck for 114-90-76 mm	○

● standard    ○ optional    n.a. not available

A close-up photograph of a muddy tire tread on a dirt surface. The tire is on the left side of the frame, and the mud is dark brown and textured. The background is a blurred dirt surface.

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#muddyboots