



# SM-15HD MICROPILES

**soilmec**   
Drilling and Foundation Equipment

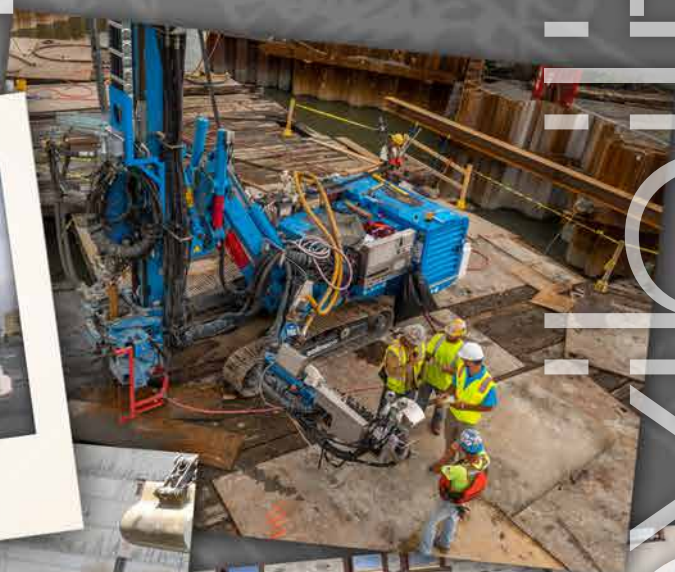
The brand new SM-15HD is a versatile and powerful machine.

A higher degree of flexibility, enhanced performance and low environmental impact are some of the key points of our best selling micropiling rig new design.



# SM-400 SM-401 SM-14

**1500**  
units sold



and

# High power, high efficiency & 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 & 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-15 HD. A single platform.

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

The SM-15 HD is equipped with a larger more powerful Diesel engine for heavy duty works and a special undercarriage to increase performance in anchoring and jet grouting technologies.

The SM-15 HD is particularly suitable to drill when using the double head system.



# Versatility

## Versatility & 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

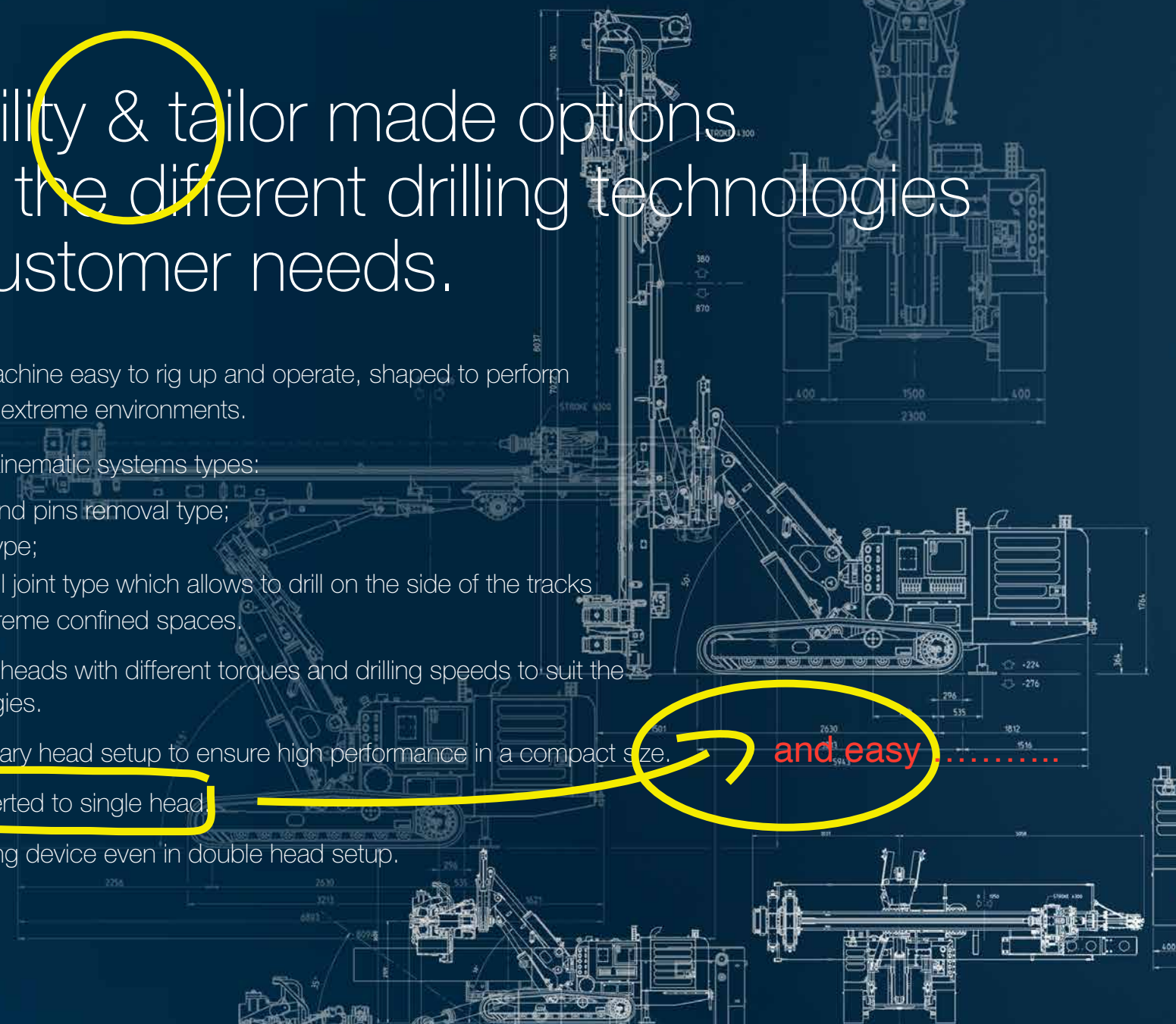
A range of rotary heads with different torques and drilling speeds to suit the various technologies.

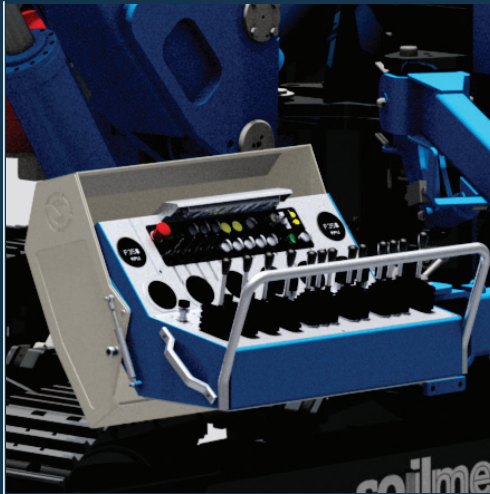
A new double rotary head setup to ensure high performance in a compact size.

Easy to be converted to single head.

Rotary side shifting device even in double head setup.

and easy





## 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 HD are compliant with the latest international standards

~~It is~~ **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:

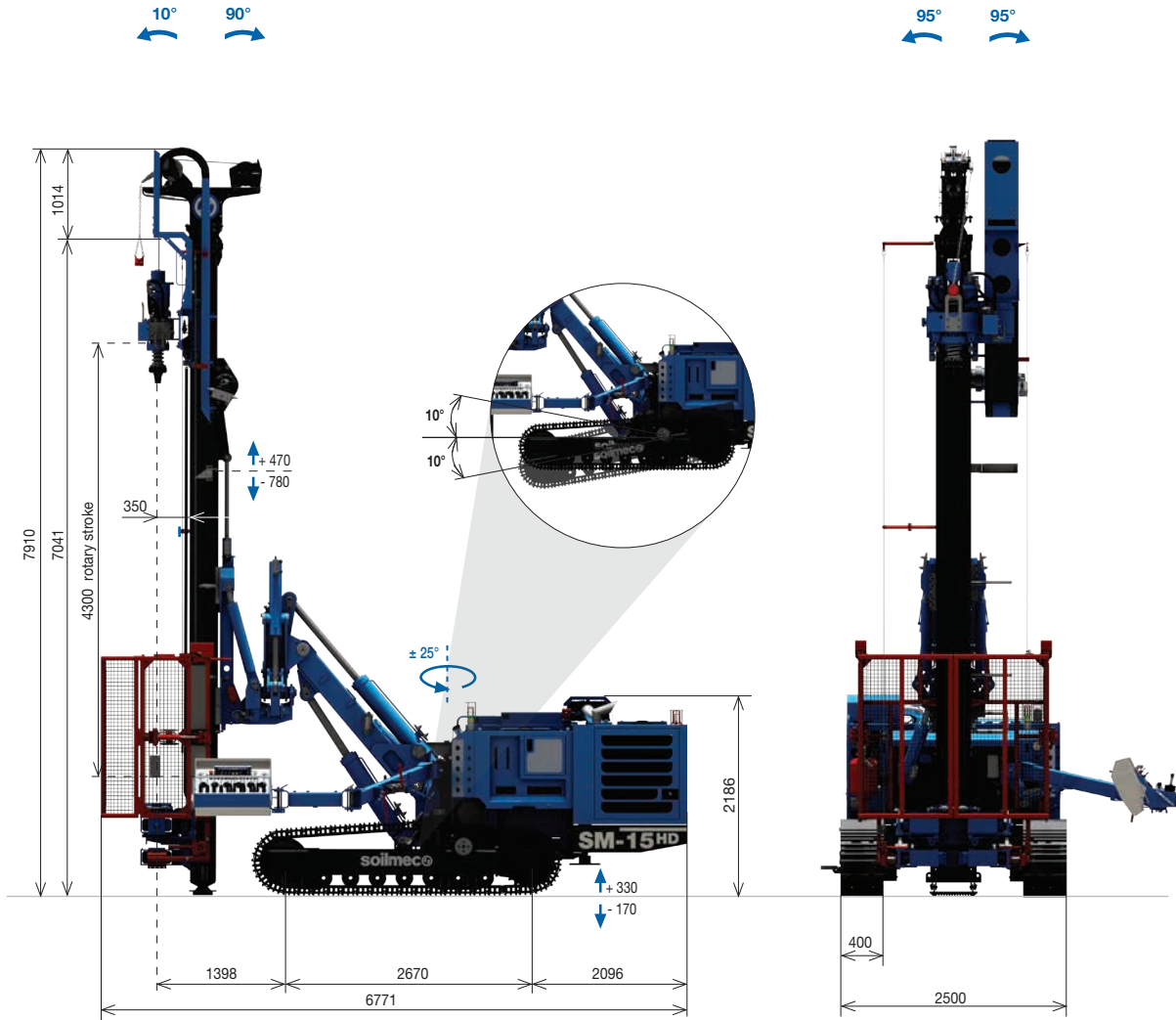
- Monitoring rig parameters;
- Download rig parameters ;
- Remote connection to the rig.

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

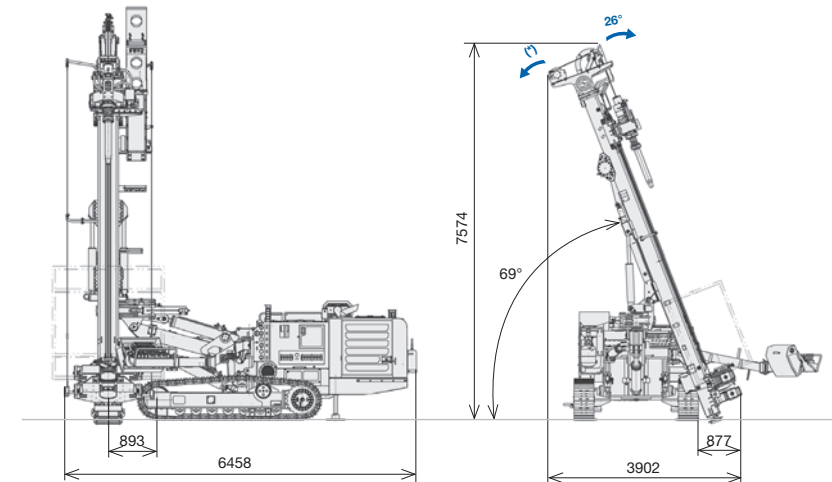
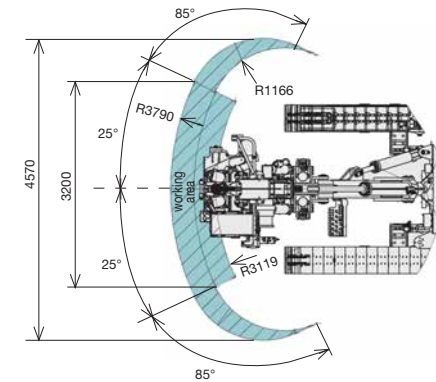
# Standard Configuration

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.

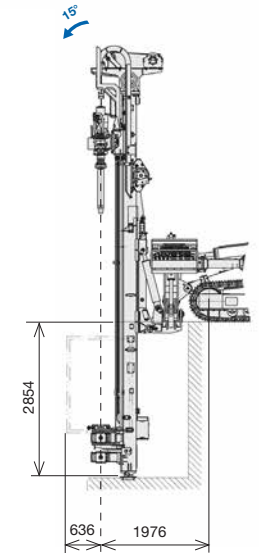
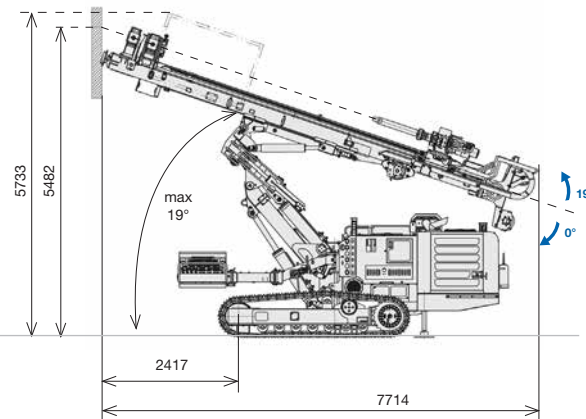
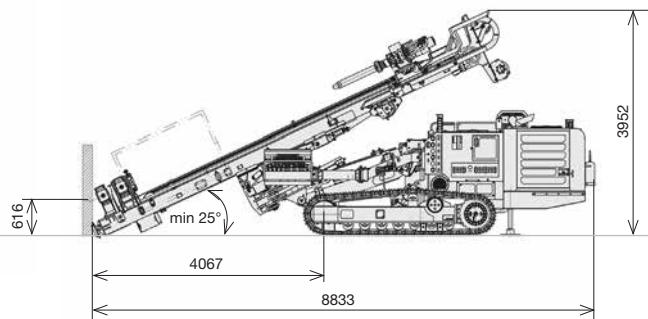
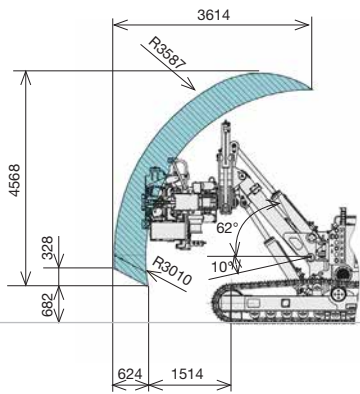
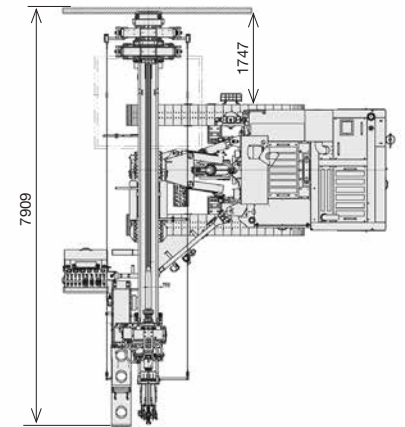
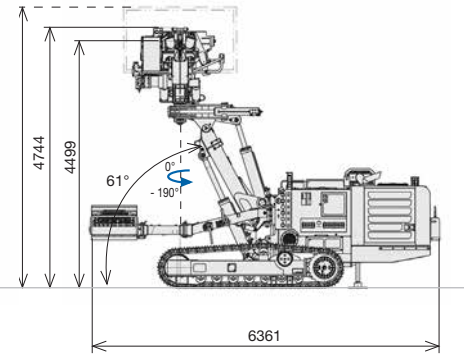
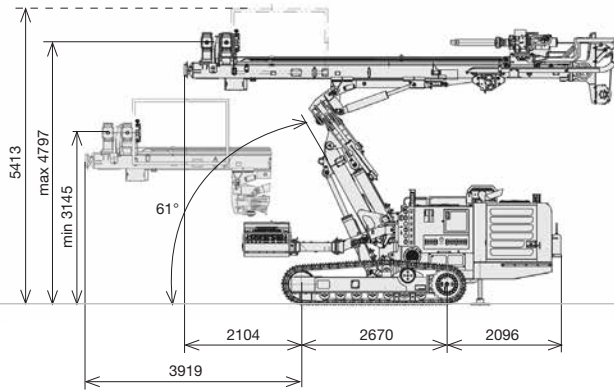
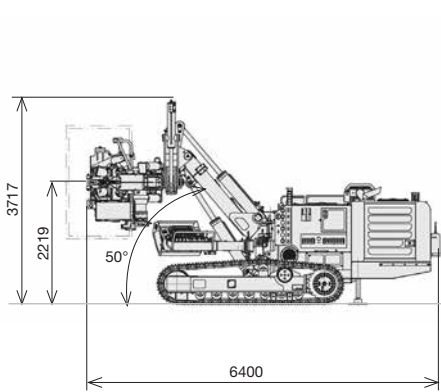


# Movements

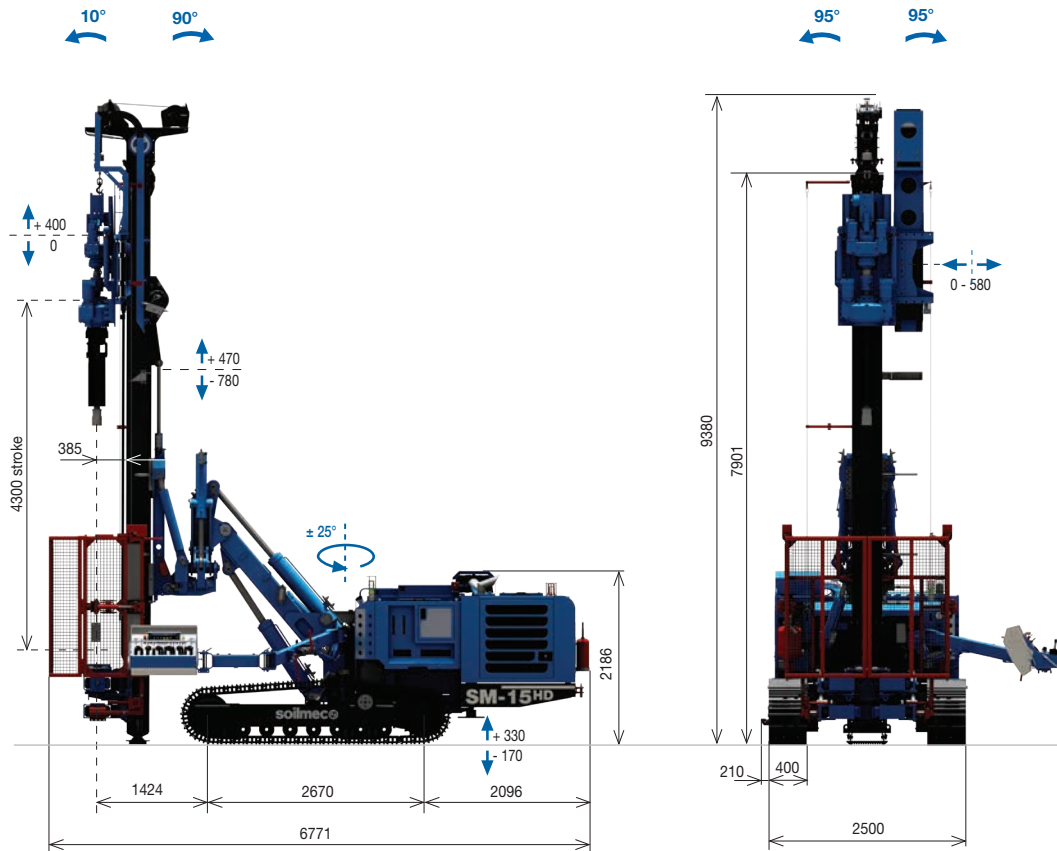


(\*) 0° foot on ground / 69° foot not supported





# Double rotary



Hoist & Feed system	Motoreducer	Motoreducer
Feed Stroke	5300 mm	208.7 in
Maximum Hoist pull	121 kN	27201 lbf
Maximum Feed force	121 kN	27201 lbf
Rotary head	Option 1	
Model	HT1700	HT1700
Rotary type	Upper rotary for rods	Upper rotary for rods
Gear box type	Variable	Variable
Maximum torque	1953 daNm	14405 lbf*ft
Maximum rotation speed	116 rpm	116 rpm
Model	HT3400	HT3400
Rotary type	Lower rotary for casing	Lower rotary for casing
Gear box type	Variable	Variable
Maximum torque	3348 daNm	24694 lbf*ft
Maximum rotation speed	58 rpm	58 rpm
Rotary cradle side shifting (single cradle for both rotaries)	580 mm	22.8 in
Rotary relative shifting stroke	400 mm	15.7 in
Operating Weight (w/o rod and casing)	19770 kg	43585 lb
Rotary head	Option 2	
Model	RH 10X	RH 10X
Rotary type	Upper rotary for rods	Upper rotary for rods
Gear box type	II gears	II gears
Maximum torque	1100 daNm	8113 lbf*ft
Maximum rotation speed	86 rpm	86 rpm
Model	RH 32X	RH 32X
Rotary type	Lower rotary for casing	Lower rotary for casing
Gear box type	II gears	II gears
Maximum torque	3200 daNm	23602 lbf*ft
Maximum rotation speed	44 rpm	44 rpm
Rotary cradle side shifting (single cradle for both rotaries)	580 mm	22.8 in
Rotary relative shifting stroke	400 mm	15.7 in
Operating Weight (w/o rod and casing)	19350 kg	42659 lb

# Jet grouting



<b>Operating Weight (w/o rod and casing)</b>	<b>21 100 kg</b>	<b>46518 lb</b>
<b>Max treatment depth in a single passage</b> <i>c/w 7000 mm (275.6 in) stroke mast</i>	<b>20 m</b>	<b>65.6 ft</b>
<b>Telescopic mast extensions</b>	<b>11,8 + 2,2 m</b>	<b>39 + 7 ft</b>
<b>Hydraulic chuck max handing diameter</b>	<b>114 mm</b>	<b>4.49 in</b>
<b>Rotary head</b>	<b>HT3700</b>	<b>HT3700</b>
<b>Gear box type</b>	<b>Variable</b>	<b>Variable</b>
<b>Maximum torque</b>	<b>3390 daNm</b>	<b>25003 lb*ft</b>
<b>Maximum rotation speed</b>	<b>122 rpm</b>	<b>122 rpm</b>
<b>Inner passage</b>	<b>144 mm</b>	<b>5.7 in</b>
<b>Special drilling axis</b>	<b>385 mm</b>	<b>15.2 in</b>
<b>Transport data</b>		
<b>Transport length</b>	<b>11800 mm</b>	<b>464.6 in</b>
<b>Transport width</b>	<b>2500 mm</b>	<b>98.4 in</b>
<b>Transport height (c/w guard)</b>	<b>3270 mm</b>	<b>128.7 in</b>
<b>Transport height (guard partially dismounted)</b>	<b>2900 mm</b>	<b>114.2 in</b>
<b>Transport height (min for container)</b>	<b>2500 mm</b>	<b>98.4 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)	2670 mm	105.1 in
Overall length	3396 mm	133.7 in
Overall width (not extendable crawler)	2500 mm	98 in
Travelling speed	1,6 km/h	1.0 mph
Average ground pressure	0,080 MPa	11.6 psi
Ground stabilizers	n°2 rear	
Special transport width	2300 mm	90.6 in

## Engine



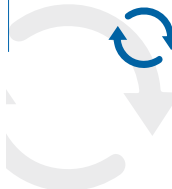
Diesel Engine		Option 1	
Make and model	CUMMINS B 6.7		
Emission certification	EU Stage V - US EPA Tier 4f		
Diesel engine power rating	186 kW @ 2000 rpm	249 HP @ 2000 rpm	
Max Diesel engine power	330 l	87 US gal	
Diesel Engine		Option 2	
Make and model	CUMMINS B 6.7		
Emission certification	EU Stage III - US EPA Tier 3		
Diesel engine power rating	179 kW @ 2000 rpm	240 HP @ 2000 rpm	
Fuel tank capacity	330 l	87 US gal	

## Hydraulic system



Hydraulic system			
Main pumps: variable axial pumps	214 + 214 l/min		57 + 57 US gal/min
Auxiliary pumps: gear pumps	52 + 22 x 2 + 126 + 108 l/min	13.7 + 6 x 2 + 33 + 29 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		HR-16	
	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	HR-21G		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

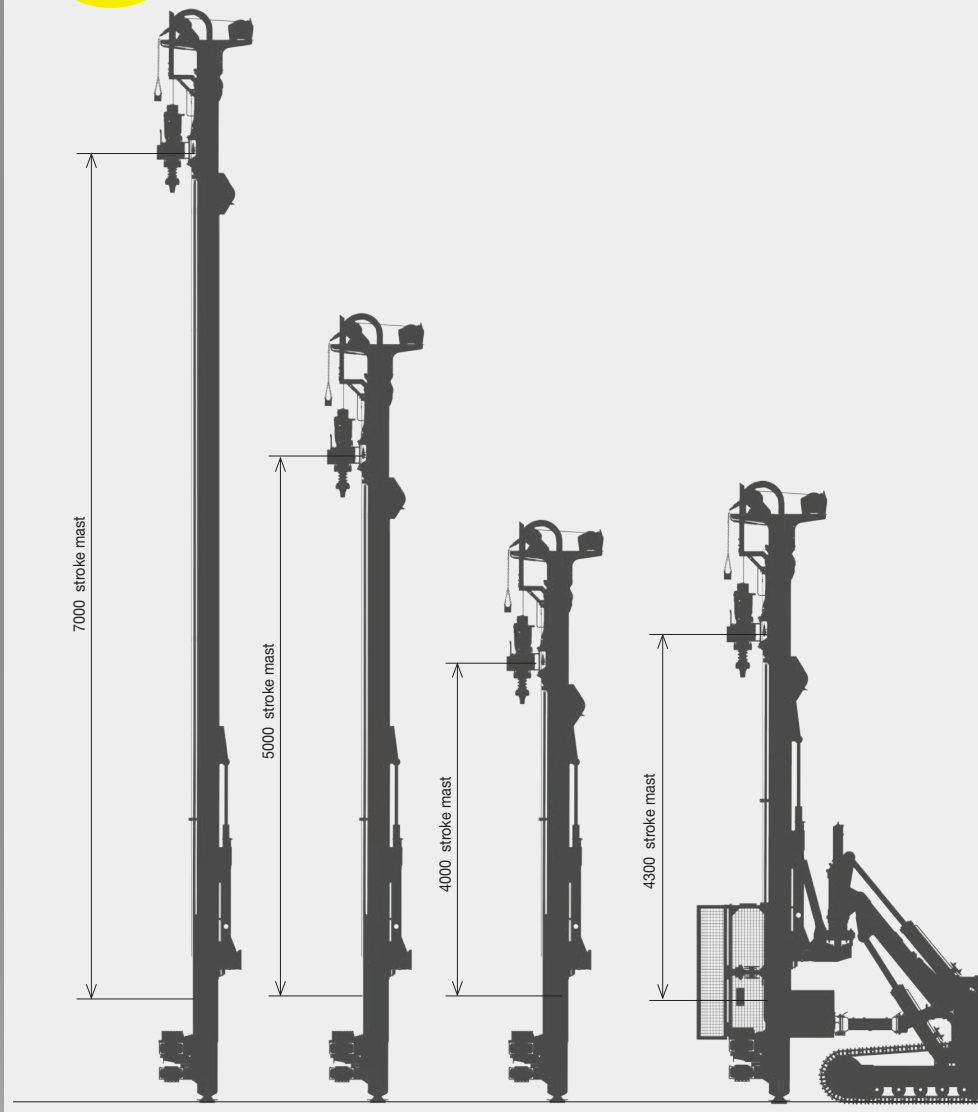
four

Modular mast allowing for different lengths and strokes.



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

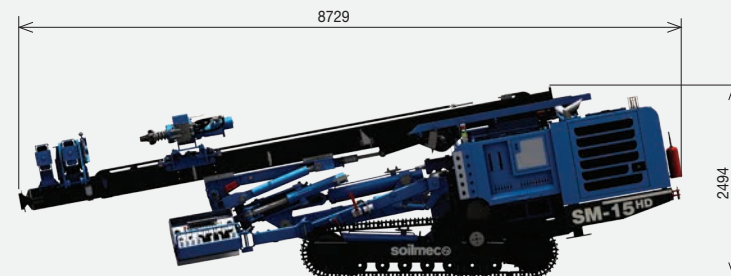
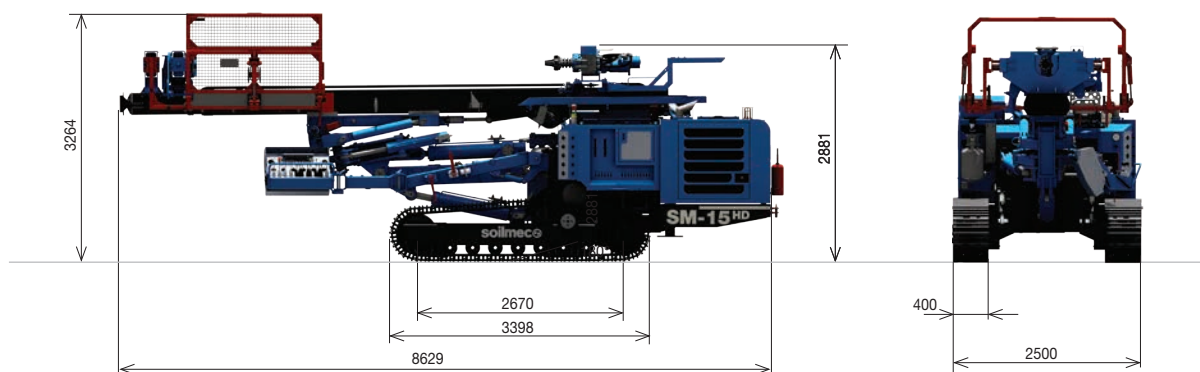
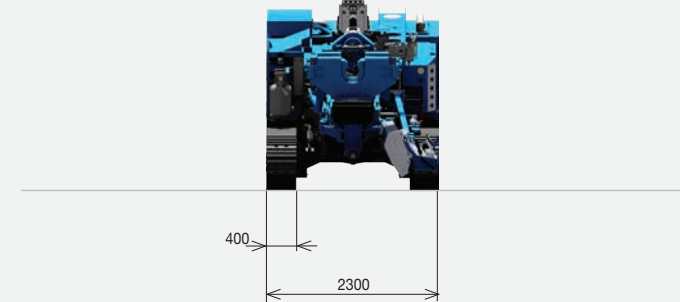
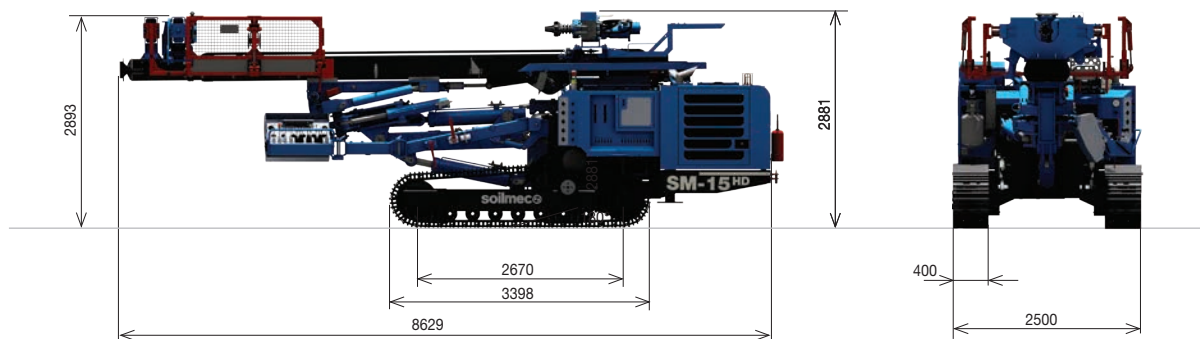
(for vertical drilling application)



# Transport

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

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



Transport	c/w guard		partial guard		compact	
Transport width	2500 / 2300 mm	98.4 / 90.6 in	2500 / 2300 mm	98,4 / 90.6 in	2500 / 2300 mm	98.4 / 90.6 in
Transport height	3270 mm	128.7 in	2893 mm	113.9 in	2881 mm	113.4 in
Transport weight	18400 kg	40565 lb	18325 kg	40400 lb	18000 kg	39683 lb

# Configurations

Upper frame complete with slew ring for 360° rotation	●
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	○
Telescopic extension for jet grouting	○
Transport kit for telescopic mast	○
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