

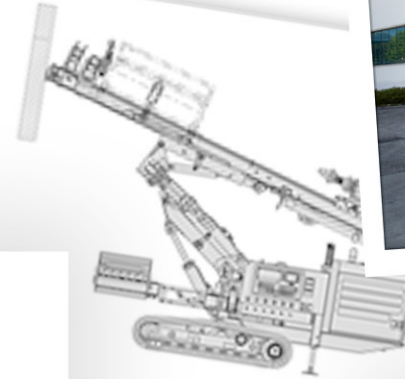
sm  
& tunnelling division

# SM-11 MICROPILES

**soilmec**  
Drilling and Foundation Equipment



The brand new SM-11.  
Versatile, compact  
and powerful.



Very high feeding force,  
easy to set for different working needs.

The Modular mast allows low headroom applications.  
Compact design for limited-access job sites.





# SM-11. Perfect combination of performance and design.

The brand new SM-11 is a medium-sized drilling rig that combines high performance and efficiency with compact dimensions.





## Flexibility

The SM-11 combines the front of the wall joint and telescopic boom kinematics which allow the machine to drill on the side of the tracks and reaching extreme and confined spaces easily and rapidly.

## Efficiency

At SM-11 heart lies a Cummins Diesel engine generates 115 kW (154 HP). The engine is equipped with low-idle system being able therefore to automatically adjust the speed according to the actual needs. The hydraulic flow is managed by the Full-Load Sensing control system which helps in reducing the operating costs and increasing the components' life by smartly managing the power demand.



## Excellent Performance

New feed system able to transfer up 96 kN and to reach a rotary cradle speed of 48 m/min. Wide range of rotary heads up to 3200 daNm torque or up to 926 rpm drilling rotation speed. Up to 12,5 m Jet Grouting treatment in a single passage. New carousel loading system capable of handling up to 5 rods



## Unparalleled Ergonomics

The rig can be fitted with the full radio remote controls for all movements and drilling operations or with the new hydraulic/proportional panel. The new hydraulic hoses design grants no-interference with undercarriage and ground ensuring therefore a longer life of the parts.

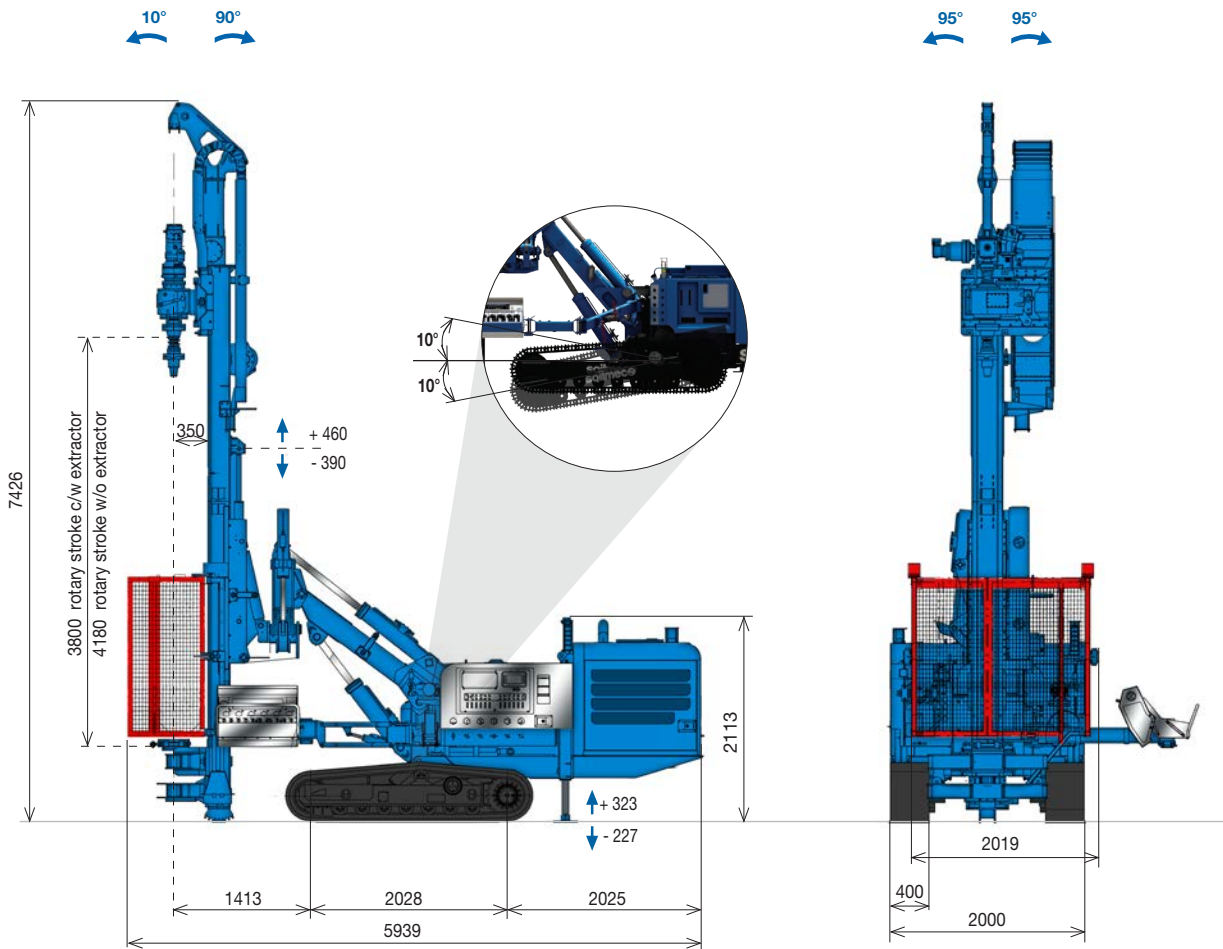


## Functional Connectivity

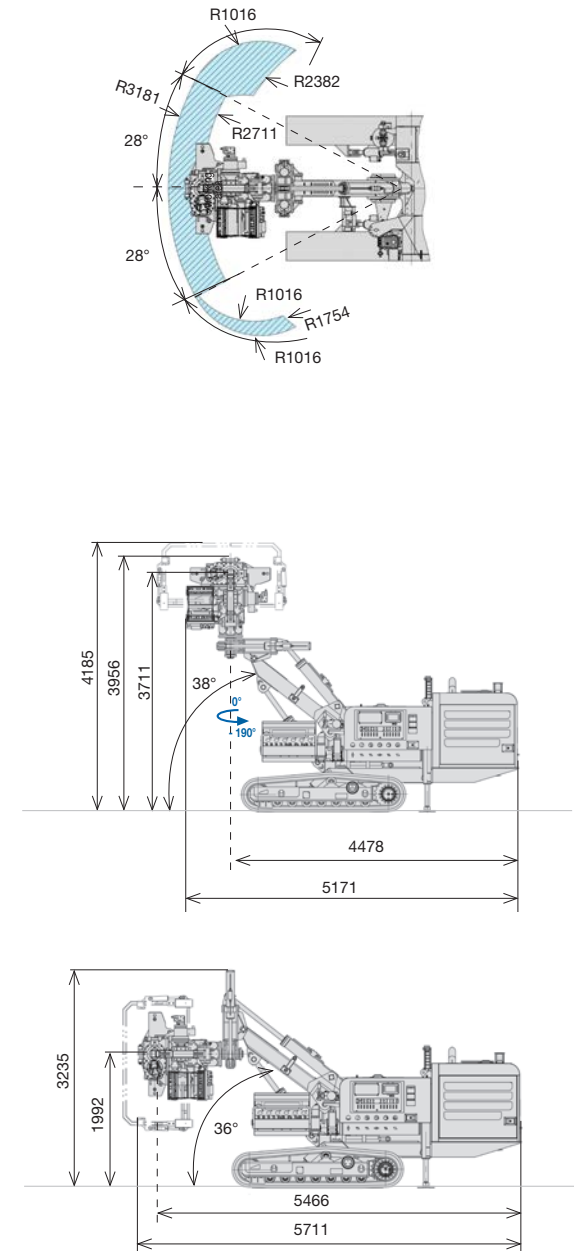
The SM-11 is fitted with the DMS on board. The LCD display set on the side of the base machine is used for monitoring and downloading the rig parameters and remotely connecting to the rig.

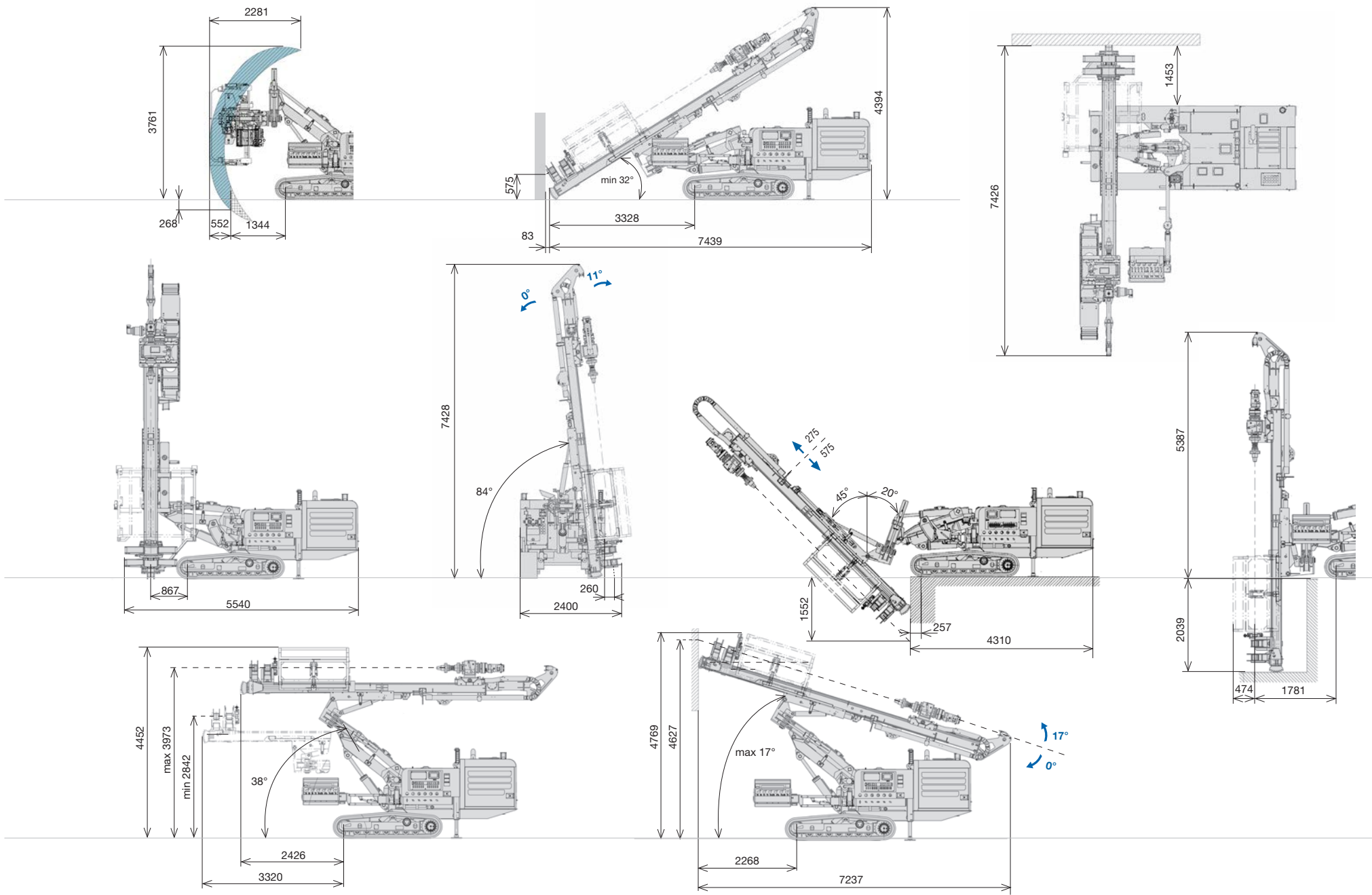


# Standard Configuration



# Movements





# Technical data

## Undercarriage



Undercarriage		Option 1	
Type	$\pm 10^\circ$ tilting gauge	$\pm 10^\circ$ tilting gauge	
Triple grouse track shoe width	400 mm	15.7 in	
Wheel base (centre idler to centre sprocket)	2028 mm	79.8 in	
Overall length	2550 mm	100.4 in	
Overall width (not extendable crawler)	2000 mm	79 in	
Travelling speed	1.6 km/h	1.0 mph	
Average ground pressure	0.068 MPa	9.9 psi	
Ground stabilizers	N°2 fixed on rear	N°2 fixed on rear	
Undercarriage		Option 2	
Type	400 mm	15.7 in	
Triple grouse track shoe width	1902 mm	74.9 in	
Wheel base (centre idler to centre sprocket)	2425 mm	95.5 in	
Overall length	2000 mm	79 in	
Overall width (not extendable crawler)	1.6 km/h	1.0 mph	
Travelling speed	0.072 MPa	10.4 psi	
Average ground pressure	0.072 MPa	10.4 psi	
Ground stabilizers	N°2 pivoting on front + N°2 fixed on rear	N°2 pivoting on front + N°2 fixed on rear	

## Diesel engine



Diesel engine		Option 1	
Make and model	CUMMINS F 3.8	CUMMINS F 3.8	
Emission certification	EU Stage V - US EPA Tier 4f	EU Stage V - US EPA Tier 4f	
Diesel engine power rating	115 kW @ 2200 rpm	154 HP @ 2200 rpm	
Fuel tank capacity	200 l	53 US gal	
AD Blue tank capacity	38 l	10 US gal	
Diesel engine		Option 2	
Make and model	DEUTZ TCD 2013	DEUTZ TCD 2013	
Emission certification	EU Stage III - US EPA Tier 3	EU Stage III - US EPA Tier 3	
Diesel engine power rating	116 kW @ 2000 rpm	155 HP @ 2000 rpm	
Fuel tank capacity	200 l	53 US gal	

## Hydraulic system



Hydraulic system			
Main pumps: variable axial pumps	200 l/min	53 US gal/min	
Auxiliary pumps: gear pumps	86 x 2 + 32 l/min	23 x 2 + 8 US gal/min	
Hydraulic oil tank capacity	300 l	79 US gal	

## Rotary head



Rotary head		HR 9C	
Gear box type	6 Speed	6 Speed	
Maximum torque	892 daNm	6579 lbf*ft	
Maximum rotation	926 rpm	926 rpm	
Inner passage	92 mm	3.6 in	
Rotary head		HR 10L	
Gear box type	Variable + 2 shift	Variable + 2 shift	
Maximum torque	1057 daNm	7796 lbf*ft	
Maximum rotation	384 rpm	384 rpm	
Inner passage	92 mm	3.6 in	
Rotary head		ZF 11S	
Gear box type	Variable + 2 shift	Variable + 2 shift	
Maximum torque	1538 daNm	11344 lbf*ft	
Maximum rotation	431 rpm	431 rpm	
Inner passage	100 mm	3.9 in	
Rotary head		HR 16	
Gear box type	Double speed	Double speed	
Maximum torque	1570 daNm	11580 lbf*ft	
Maximum rotation	136 rpm	136 rpm	
Inner passage	117 mm	4.6 in	
Rotary head		HT 3400	
Gear box type	Double speed	Double speed	
Maximum torque	3200 daNm	23602 lbf*ft	
Maximum rotation	55 rpm	55 rpm	
Inner passage	134 mm	5.3 in	
Clamp & hydraulic joint breaker			
Nominal size	50 - 320 mm	2.0 - 12.6 in	
Maximum clamping force	196 kN	44062 lbf	
Maximum breaking torque	4679 daNm	34511 lbf*ft	
Extractor Device stroke	480 mm	19 in	
Extractor Device force	141 kN	31698 lbf	

## Clamp & hydraulic joint breaker





Service winch



Service winch		Option 1
Type	<b>Controlled descent</b>	<i>Controlled descent</i>
1°layer line pull	<b>16 kN</b>	<i>3597 lbf</i>
Rope diameter	<b>10 mm</b>	<i>0.4 in</i>
Rope speed	<b>30 m/min</b>	<i>98 ft/min</i>
Service winch		Option 2
Type	<b>Controlled descent</b>	<i>Controlled descent</i>
1°layer line pull	<b>5 kN</b>	<i>1124 lbf</i>
Rope diameter	<b>10 mm</b>	<i>0.4 in</i>
Rope speed	<b>42 m/min</b>	<i>138 ft/min</i>

Rod carousel



Rod carousel		Option 1
N°of rods	<b>3</b>	<i>3</i>
Max diameters	<b>114 mm</b>	<i>4 in</i>
Rod length	<b>3000 mm</b>	<i>118 in</i>
Rod carousel		Option 2
N°of rods	<b>5</b>	<i>5</i>
Max diameters	<b>89 mm</b>	<i>3 in</i>
Rod length	<b>3000 mm</b>	<i>118 in</i>

Hoist & Feed system

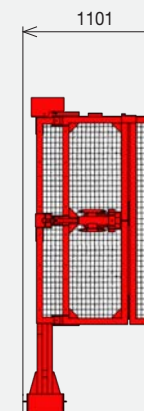
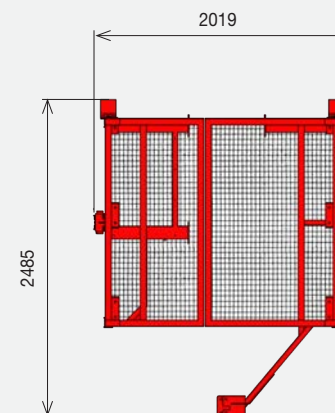
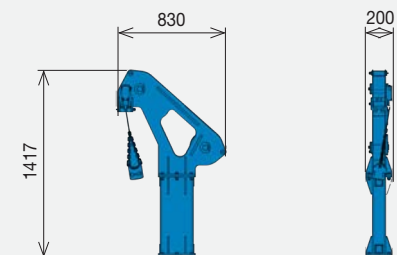
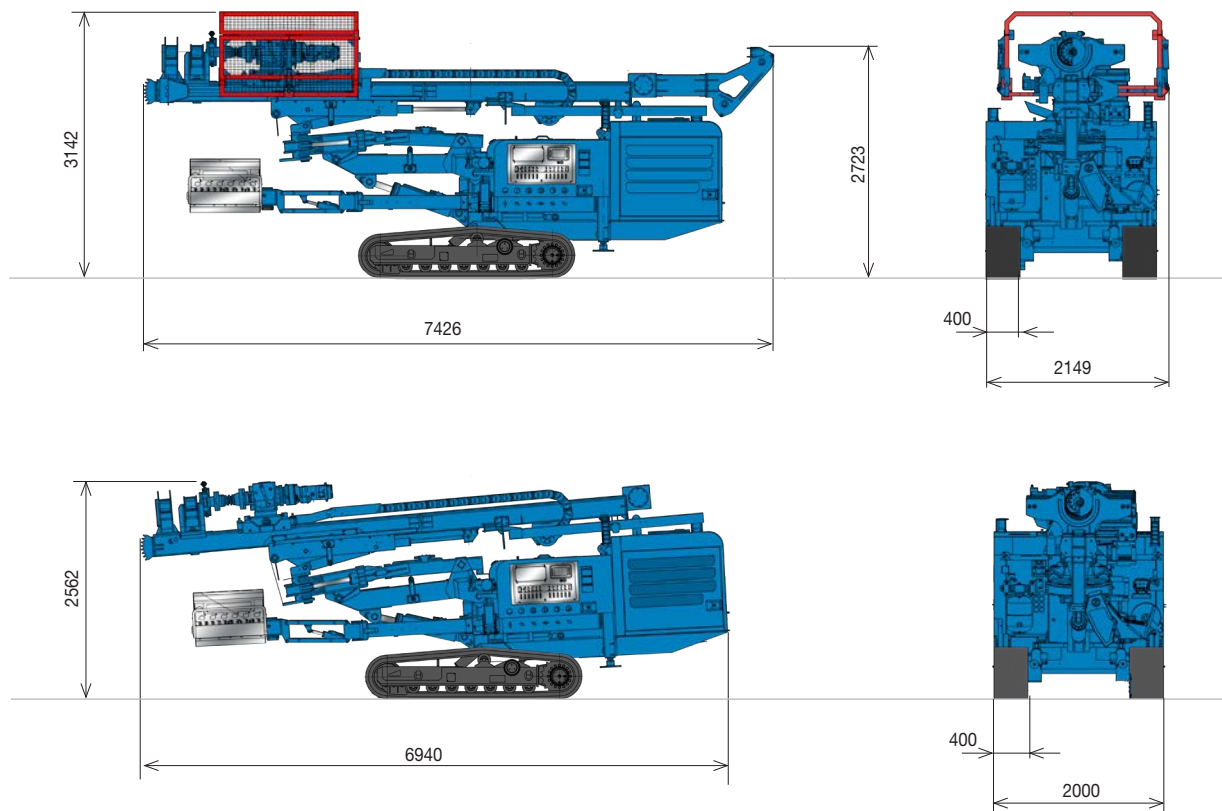
Hoist & Feed system		Option 1
Type	<b>Motoreducer Crowd System</b>	<i>Motoreducer Crowd System</i>
Feed Stroke	<b>1850 mm</b>	<i>72.8 in</i>
Maximum Hoist pull	<b>60 (96)* kN</b>	<i>13488 (21581)* lbf</i>
Maximum Feed force	<b>60 (96)* kN</b>	<i>13488 (21581)* lbf</i>
Hoist & Feed system		Option 2
Type	<b>Motoreducer Crowd System</b>	<i>Motoreducer Crowd System</i>
Feed Stroke	<b>2500 mm</b>	<i>98.4 in</i>
Maximum Hoist pull	<b>60 (96)* kN</b>	<i>13488 (21581)* lbf</i>
Maximum Feed force	<b>60 (96)* kN</b>	<i>13488 (21581)* lbf</i>
Hoist & Feed system		Option 3
Type	<b>Motoreducer Crowd System</b>	<i>Motoreducer Crowd System</i>
Feed Stroke	<b>3800 mm</b>	<i>149.6 in</i>
Maximum Hoist pull	<b>60 (96)* kN</b>	<i>13488 (21581)* lbf</i>
Maximum Feed force	<b>60 (96)* kN</b>	<i>13488 (21581)* lbf</i>
Hoist & Feed system		Option 4
Type	<b>Motoreducer Crowd System</b>	<i>Motoreducer Crowd System</i>
Feed Stroke	<b>4200 mm</b>	<i>165.4 in</i>
Maximum Hoist pull	<b>60 (96)* kN</b>	<i>13488 (21581)* lbf</i>
Maximum Feed force	<b>60 (96)* kN</b>	<i>13488 (21581)* lbf</i>

Hoist & Feed system		Option 5
Type	<b>Cylinder Crowd System</b>	<i>Cylinder Crowd System</i>
Feed Stroke	<b>4000 mm</b>	<i>157.5 in</i>
Maximum Hoist pull	<b>46 kN</b>	<i>10341 lbf</i>
Maximum Feed force	<b>90 kN</b>	<i>20232 lbf</i>

# Technologies

Double Rotary		
Model	<b>RH 4X</b>	<i>RH 4X</i>
Rotary type	<b>Double speed</b>	<i>Double speed</i>
Gear box type	<b>500 daNm</b>	<i>3688 lbf*ft</i>
Maximum torque	<b>115 rpm</b>	<i>115 rpm</i>
Maximum rotation	<b>115 rpm</b>	<i>115 rpm</i>
Double Rotary		
Model	<b>RH 10X</b>	<i>RH 10X</i>
Rotary type	<b>Lower rotary for casing</b>	<i>Lower rotary for casing</i>
Gear box type	<b>Double speed</b>	<i>Double speed</i>
Maximum torque	<b>1100 daNm</b>	<i>8113 lbf*ft</i>
Maximum rotation	<b>57 rpm</b>	<i>57 rpm</i>
Rotary cradle side shifting	<b>450 mm</b>	<i>17.7 in</i>
Rotary relative shifting stroke	<b>200 mm</b>	<i>7.9 in</i>
Jet Grouting		
Max treatment depth in a single passage (min - max)	<b>9,8 - 12,5 m</b>	<i>32.2 - 41 ft</i>
Drillguide extensions	<b>8,4 m</b>	<i>28 ft</i>
Rod diameter	<b>90 mm</b>	<i>3.54 in</i>
Top Hammer		
Model	<b>RH 4X</b>	<i>RH 4X</i>
Weight	<b>200 kg</b>	<i>441 lb</i>
Maximum torque	<b>330 daNm</b>	<i>2434 lbf*ft</i>
Blow frequency @ Impact energy	<b>2500/min @ 320 Nm</b>	<i>2500/min @ 236 lbf*ft</i>
Top Hammer		
Model	<b>RH 10X</b>	<i>RH 10X</i>
Weight	<b>Double speed</b>	<i>Double speed</i>
Maximum torque	<b>1100 daNm</b>	<i>8113 lbf*ft</i>
Blow frequency @ Impact energy	<b>2400/min @ 500 Nm</b>	<i>2400/min @ 369 lbf*ft</i>
Top Hammer		
Model	<b>HB 35</b>	<i>HB 35</i>
Weight	<b>Double speed</b>	<i>Double speed</i>
Maximum torque	<b>650 daNm</b>	<i>4794 lbf*ft</i>
Blow frequency @ Impact energy	<b>2500/min @ 340 Nm</b>	<i>2500/min @ 251 lbf*ft</i>

# Transport



## Transport

<b>Transport width</b>	<b>2000 mm</b>	<b>78,7 in</b>
<b>Transport height <sup>1</sup></b>	<b>2915 mm</b>	<b>114.8 in</b>
<b>Transport length (min - max)</b>	<b>6470 - 7815 mm</b>	<b>254.7 - 307.7 in</b>
<b>Transport weight (min - max) <sup>2</sup></b>	<b>10700 - 11250 kg</b>	<b>23589 - 24802 lb</b>

<sup>1</sup> c/w fixed undercarriage height is reduced of 52 mm (2 in)  
<sup>2</sup> c/w fixed undercarriage weight is reduced of 270 kg (595 lb)

# Configurations

Tilting gauge undercarriage	<input checked="" type="radio"/>	Rod carousel (3 rods)	<input type="radio"/>
Fixed undercarriage	<input type="radio"/>	Rod carousel (5 rods)	<input type="radio"/>
Upper frame complete with slew ring for 360° rotation	<input checked="" type="radio"/>	Double rotary kit	<input type="radio"/>
Wired remote control for tramming only	<input type="radio"/>	Jet grouting kit, single fluid	<input type="radio"/>
Full radio remote control	<input checked="" type="radio"/>	Jet grouting kit, double fluid	<input type="radio"/>
7" LCD monitor for alarms & diesel engine control and DMS connectivity	<input checked="" type="radio"/>	Hydraulic chuck complete with gauge pressure and safety device	<input type="radio"/>
Hydraulic and proportional controls for all operations	<input type="radio"/>	Extension for jet grouting	<input type="radio"/>
Mast extension kits	<input checked="" type="radio"/>	Fully hydraulic version prearrangement for Jet Grouting	<input type="radio"/>
Auxiliary winch, 16 kN (3597 lbf)	<input type="radio"/>	Full radio version prearrangement for Jet Grouting	<input type="radio"/>
Auxiliary winch, 5 kN (1124 lbf)	<input type="radio"/>	Hydraulic pump for foam 30 l/min @ 150 bar (7.9 gallon @ 2176 psi)	<input type="radio"/>
Clamp & breaker 50-320 mm (1.96 - 12.6 in)	<input checked="" type="radio"/>	Triplex pump for water flushing 200 l/min @ 80 bar (52.8 gallon @ 1160 psi)	<input type="radio"/>
Clamp & breaker 60-415 mm (2.36 - 16.34 in)	<input type="radio"/>	Triplex pump for water flushing 90 l/min @ 45 bar (23.8 gallon @ 653 psi)	<input type="radio"/>
Fixed boom	<input checked="" type="radio"/>	Triplex pump for water flushing 200 l/min @ 45 bar (52.8 gallon @ 653 psi)	<input type="radio"/>
Telescopic boom 400 mm (15.7 in) stroke	<input type="radio"/>	Screw pump for water flushing 185 l/min @ 24 bar (48.9 gallon @ 348 psi)	<input type="radio"/>
Kinematic mechanism - 90° joint	<input checked="" type="radio"/>	Double piston pump 150 l/min @ 60 bar (39.6 gallon @ 870 psi)	<input type="radio"/>
Kinematic mechanism - ± 180° motoreducer	<input checked="" type="radio"/>	HB35A Top Hammer Kit and prearrangement	<input type="radio"/>
Diesel engine EU Stage V - US EPA Tier 4f	<input type="radio"/>	HB45A Top hammer Kit and prearrangement	<input type="radio"/>
Diesel engine EU S tage III - US EPA Tier 3	<input type="radio"/>	RH4x Top Hammer Kit and prearrangement	<input type="radio"/>
Load sensing hydraulic system	<input checked="" type="radio"/>	RH10x Top Hammer Kit and prearrangement	<input type="radio"/>
Hydraulic prearrangement for auxiliary pumps	<input checked="" type="radio"/>	Start & Slow engine control for radio remote version	<input checked="" type="radio"/>
Rotary cradle, complete with pads, wich can be shifted by an hydraulic cylinder, 450 mm (18 in) stroke	<input checked="" type="radio"/>	Start & Slow engine control for hydraulic version	<input type="radio"/>
Floating system for rotary head	<input type="radio"/>		
Air/water system and line lubricator for DTH	<input type="radio"/>		
Foam pump c/w gauge pressure and safety valve	<input type="radio"/>		
Water & mud pumps	<input type="radio"/>		
Centering device	<input type="radio"/>		
Slow rotation kit and special protective mode	<input type="radio"/>		
Hydraulic safety cage kit driven by cylinder	<input type="radio"/>		
Lighting system on mast	<input type="radio"/>		
Washing kit including with hose rewiner & washing lance	<input checked="" type="radio"/>		
Fire extinguisher	<input checked="" type="radio"/>		

standard     optional

A close-up photograph of a muddy tire tread on a dirt surface. The tire is in the foreground, showing deep grooves filled with dark brown mud. The background is a blurred dirt surface with some green grass visible in the distance.

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#muddyboots