

# SM-4 MICROPILES

**soilmec**®  
Drilling and Foundation Equipment



# SM-4, Good things come in small packages!

Compact, powerful and technically advanced.  
Built to work in confined spaces with difficult access





## Safety First, No Compromise

Complies with the latest international Safety standards.

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



## Flexible and powerful

- CFA up to 610 mm (24 in) diameter, easily convertible in standard micropile version
- Powered by the most advanced Stage V Cummins Diesel engines that delivers 115 kW (154 HP).
- Range of rotary heads with different torques and speeds up to 3348 daNm

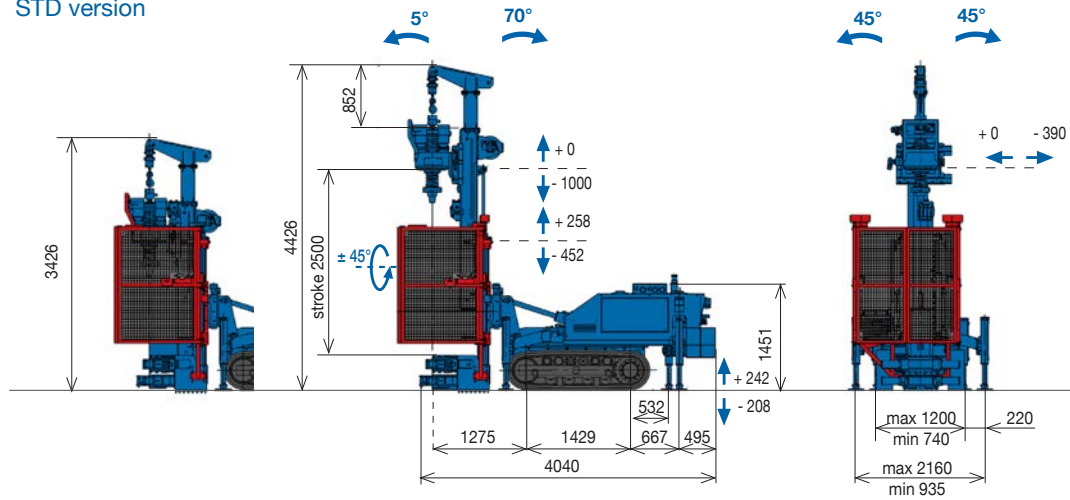
## Excellent handling

- Separate power pack with 20-150 m (65-164 ft) hydraulic hoses connections
- Radio remote control for drilling, positioning and tramming
- Rig minimum width 740 mm (29 in), 935 mm (36.8 in) with cages installed
- Telescopic mast for a minimum height < 3500 mm (137.8 in)

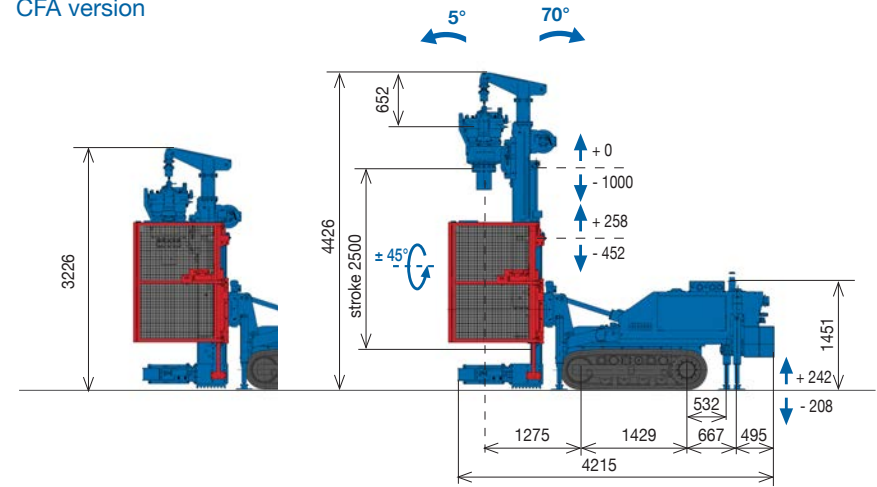


# Working Configuration

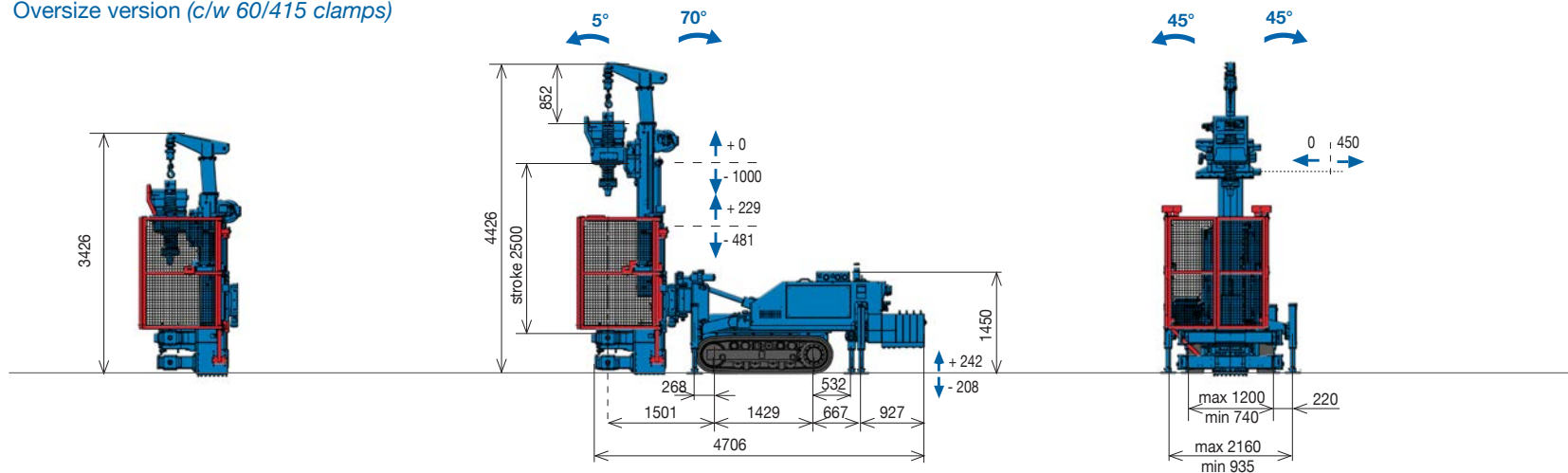
STD version



CFA version

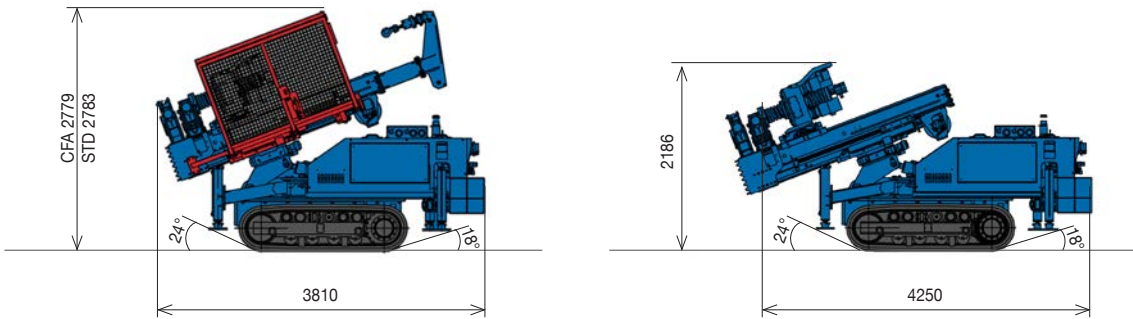


Oversize version (c/w 60/415 clamps)

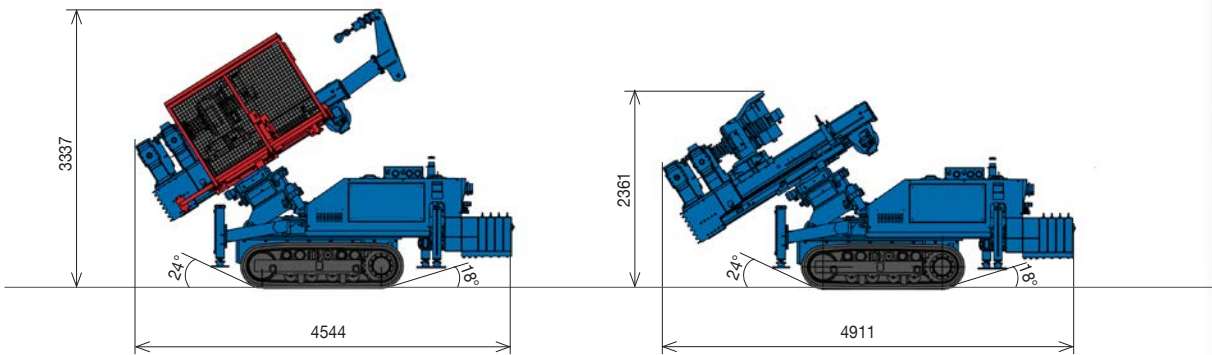


# Transport

## STD / CFA version



## Oversize version (c/w 60-415 clamps)



Transport	standard <sup>1</sup>		oversize <sup>2</sup>	
Transport width <sup>3</sup>	1572 mm	61.9 in	1716 mm	67.5 in
Transport weight <sup>4</sup>	6550 kg	14440 lb	8200 kg	18078 lb
Safety guards weight	230 kg	507 lb	230 kg	507 lb
Cathead weight	65 kg	143 lb	65 kg	143 lb

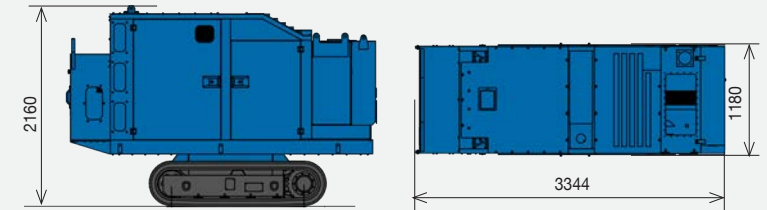
<sup>1</sup> c/w winch & safety cage, same data for CFA version

<sup>2</sup> c/w winch, safety cage & aux cwt

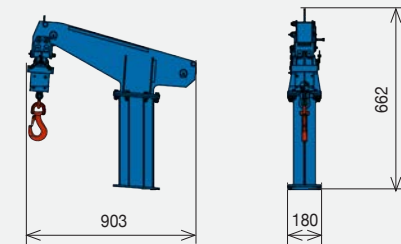
<sup>3</sup> Compact version width is 740 mm (29 in)

<sup>4</sup> Compact version weight should be reduced by cat head & safety cage

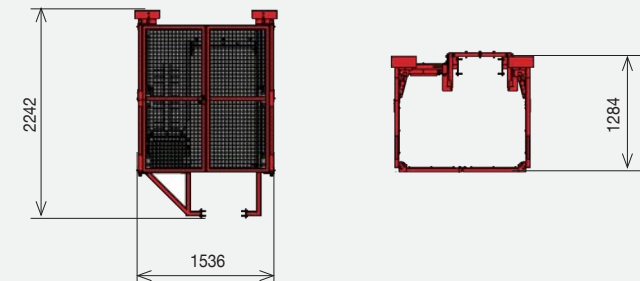
## Power Pack



## Cathead



## Safety cage

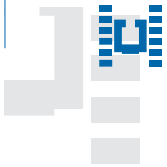


Transport	Power Pack <sup>1</sup>	
Transport width	1180 mm	46.5 in
Transport height	2160 mm	85 in
Transport length	3344 mm	131.7 in
Transport weight	4000 kg	8818 lb

<sup>1</sup> Stage V Cummins version

# Technical data

## Undercarriage



POWER PACK		
Flexible hoses length & electrical wire	30 - 50 m	98 - 164 ft
Undercarriage		
Type	fixed gauge	fixed gauge
Triple grouse track shoe width	250 mm	9.8 in
Wheel base (centre idler to centre sprocket)	1460 mm	57.5 in
Overall length	1940 mm	76.4 in
Overall width (not extendable crawler)	1180 mm	46 in
Travelling speed	2,0 km/h	1.2 mph
Average ground pressure	0,050 MPa	7.3 psi

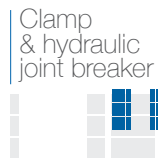
## Diesel engine



Diesel Engine	Option 1	
Make and model	Cummins F3.8	Cummins F3.8
Emission certification	EU stage V - US EPA Tier 4f	EU stage V - US EPA Tier 4f
Diesel engine power rating	115 kW @ 2200 rpm	57.5 in
Fuel tank capacity	200 l	46 in
AD Blue tank capacity	38 l	1.2 mph

Diesel Engine	Option 2	
Make and model	Deutz TCD2013 L04 2V	Deutz TCD2013 L04 2V
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 @ 2200 rpm
Fuel tank capacity	200 l	53 US gal

BASE MACHINE		
Undercarriage		
Type	variable gauge	variable gauge
Triple grouse track shoe width	220 mm	8.7 in
Wheel base (centre idler to centre sprocket)	1430 mm	56.3 in
Overall length	1952 mm	76.9 in
Overall width (retracted/extended)	740 - 1200 mm	29.1 - 47.2 in
Travelling speed	2,0 km/h	1.2 mph
Average ground pressure	0,110 MPa	16.0 psi
Ground stabilizers	N°2 rotable on front + N°2 ext. on rear	N°2 rotable on front + N°2 ext. on rear



Hydraulic System		
Main pumps: variable axial pumps	200 l/min	53 US gal/min
Auxiliary pumps: gear pumps	86 + 32 l/min	23 + 8 US gal/min
Hydraulic oil tank capacity	403 l	106 US gal

Rotary CFA version	HT3400	HT3400
Gear box type	3 gears/variable	3 gears/variable
Maximum torque	3348 daNm	24694 lbf*ft
Maximum rotation	58 rpm	58 rpm
Inner passage	134 mm	5.3 in
Rotary STD version	HT1700	HT1700
Gear box type	3 gears/variable	3 gears/variable
Maximum torque	1675 daNm	12354 lbf*ft
Maximum rotation	116 rpm	116 rpm
Inner passage	134 mm	5.3 in
Rotary STD version	HR9F	HR9F
Gear box type	2 gears/variable	2 gears/variable
Maximum torque	700 daNm	5163 lbf*ft
Maximum rotation	136 rpm	136 rpm
Inner passage	117 mm	4.6 in

Clamp & Hydraulic joint breaker	Option 1	
Nominal size	50 - 320 mm	2.0 - 12.6 in
Maximum clamping force	141 kN	31698 lbf
Maximum breaking torque	4111 daNm	30321 lbf*ft
Clamp & Hydraulic joint breaker	Option 2	
Nominal size	50 - 320 mm	2.0 - 12.6 in
Maximum clamping force	196 kN	44062 lbf
Maximum breaking torque	4680 daNm	34518 lbf*ft
Clamp & Hydraulic joint breaker	Option 3	
Nominal size	60 - 415 mm	2.4 - 16.3 in
Maximum clamping force	237 kN	53279 lbf
Maximum breaking torque	4660 daNm	34370 lbf*ft



Service winch		Option 1	
Type	<b>controlled descent</b>	<i>controlled descent</i>	
1 <sup>st</sup> layer line pull	<b>15 kN</b>	<i>3372 lbf</i>	
Rope diameter	<b>8 mm</b>	<i>0.3 in</i>	
Rope speed	<b>43 m/min</b>	<i>141 ft/min</i>	
Service winch		Option 2	
Type	<b>controlled descent</b>	<i>controlled descent</i>	
1 <sup>st</sup> layer line pull	<b>20 kN</b>	<i>4496 lbf</i>	
Rope diameter	<b>10 mm</b>	<i>0.4 in</i>	
Rope speed	<b>46 m/min</b>	<i>151 ft/min</i>	



Hoist & Feed System		Option 1	
Type	<b>cylinder</b>	<i>cylinder</i>	
Feed Stroke <sup>1</sup>	<b>1500 mm</b>	<i>59 in</i>	
Maximum Hoist pull	<b>70 kN</b>	<i>15736 lbf</i>	
Maximum Feed force	<b>47 kN</b>	<i>10566 lbf</i>	
Side shifting movement <sup>2</sup>	<b>390 mm</b>	<i>15.4 in</i>	

<sup>1</sup> rotary stroke: 2500 mm (98.4 in), using 1500 mm (59 in) Hoist and Feed cylinder + 1000 mm (39.4 in) mast stroke  
<sup>2</sup> 450 mm (17.7 in) option for oversize version

## Technologies

TOP HAMMER		
Model	<b>RH4X</b>	<i>RH4X</i>
Weight	<b>200 kg</b>	<i>441 lb</i>
Maximum torque	<b>500 daNm</b>	<i>3688 lbf*ft</i>
Blow frequency @ Impact energy	<b>2500/min @ 320 Nm</b>	<i>2500/min @ 236 lb*ft</i>

# Configurations

Power Pack	
Diesel engine EU Stage V - US EPA Tier 4f	<input checked="" type="checkbox"/>
Diesel engine EU S tage III - US EPA Tier 3	<input type="checkbox"/>
Fixed undercarriage	<input checked="" type="checkbox"/>
2 grouse track shoes	<input checked="" type="checkbox"/>
Rubber track shoes	<input type="checkbox"/>
Wired remote control for tramming only	<input checked="" type="checkbox"/>
Hydraulic hoses and electrical cable 30 m (98.4 ft)	<input checked="" type="checkbox"/>
Hydraulic hoses and electrical cable 50 m (164 ft)	<input type="checkbox"/>
Hydraulic bio-oil	<input type="checkbox"/>
RH4X top hammer - percussion kit	<input type="checkbox"/>
Fire extinguisher	<input checked="" type="checkbox"/>
Washing kit including with hose rewiner & washing lance	<input type="checkbox"/>
Base Machine	
Variable gauge undercarriage	<input checked="" type="checkbox"/>
3 grouse track shoes	<input checked="" type="checkbox"/>
Rubber track shoes	<input checked="" type="checkbox"/>
Ground stabilizers: 2 rotatable on front + 2 manually extendable on rear	<input checked="" type="checkbox"/>
Ground stabilizers foot oversized	<input type="checkbox"/>
Full radio remote control	<input type="checkbox"/>
Hydraulic controls on machine sides for emergency mode	<input checked="" type="checkbox"/>
Upper frame complete with slew ring for 360° rotation	<input checked="" type="checkbox"/>
Auxiliary winch 15 kN (3372 lbf)	<input checked="" type="checkbox"/>
Rotating jib kit	<input type="checkbox"/>
Auxiliary winch 20 kN (4496 lbf)	<input type="checkbox"/>
Clamp & breaker 50-320 mm (1.96 - 12.6 in)	<input type="checkbox"/>
Clamp & breaker 50-320 mm (1.96 - 12.6 in) heavy version	<input checked="" type="checkbox"/>
Clamp & breaker 60-415 mm (2.4 - 16.3 in)	<input type="checkbox"/>
Centering reductions ranging from D76 to D274 (3 in to 10.8 in)	<input type="checkbox"/>
Kinematic mechanism - Fixed swiveling boom	<input type="checkbox"/>
Kinematic mechanism - ± 50° joint swiveling boom	<input type="checkbox"/>
Kinematic mechanism - Counter slide with slew ring for ± 45° mast rotate in CFA	<input checked="" type="checkbox"/>
Rollers kit for concrete pipe	<input type="checkbox"/>
Load sensing hydraulic system	<input checked="" type="checkbox"/>
Hydraulic prearrangement for auxiliary pumps	<input checked="" type="checkbox"/>
Rotary cradle, complete with pads, wich can be shifted by an hydraulic cylinder, 390 mm (15.3 in) stroke	<input checked="" type="checkbox"/>
Rotary cradle 450 mm (17.7 in) stroke	<input type="checkbox"/>
Floating system for rotary head	<input type="checkbox"/>
Air/water system and line lubricator for DTH	<input type="checkbox"/>
Prearrangement for "Lutz dialog"	<input type="checkbox"/>
Inclinometer kit	<input type="checkbox"/>
Foam pump c/w gauge pressure and safety valve	<input checked="" type="checkbox"/>
Washing kit c/w hose rewiner & washing lance	<input type="checkbox"/>
Water & mud pumps	<input type="checkbox"/>
Centering device	<input type="checkbox"/>
Slow rotation kit and special protective mode	<input checked="" type="checkbox"/>
Machine lifting kit	<input type="checkbox"/>
Hydraulic safety cage kit driven by cylinder	<input checked="" type="checkbox"/>
Lighting system on mast	<input checked="" type="checkbox"/>
Start & Slow engine control for radio remote version	<input checked="" type="checkbox"/>
Rod connection types ranging from 2" 3/8 A.R. to 4" 1/2 A.R.	<input type="checkbox"/>

standard     optional



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