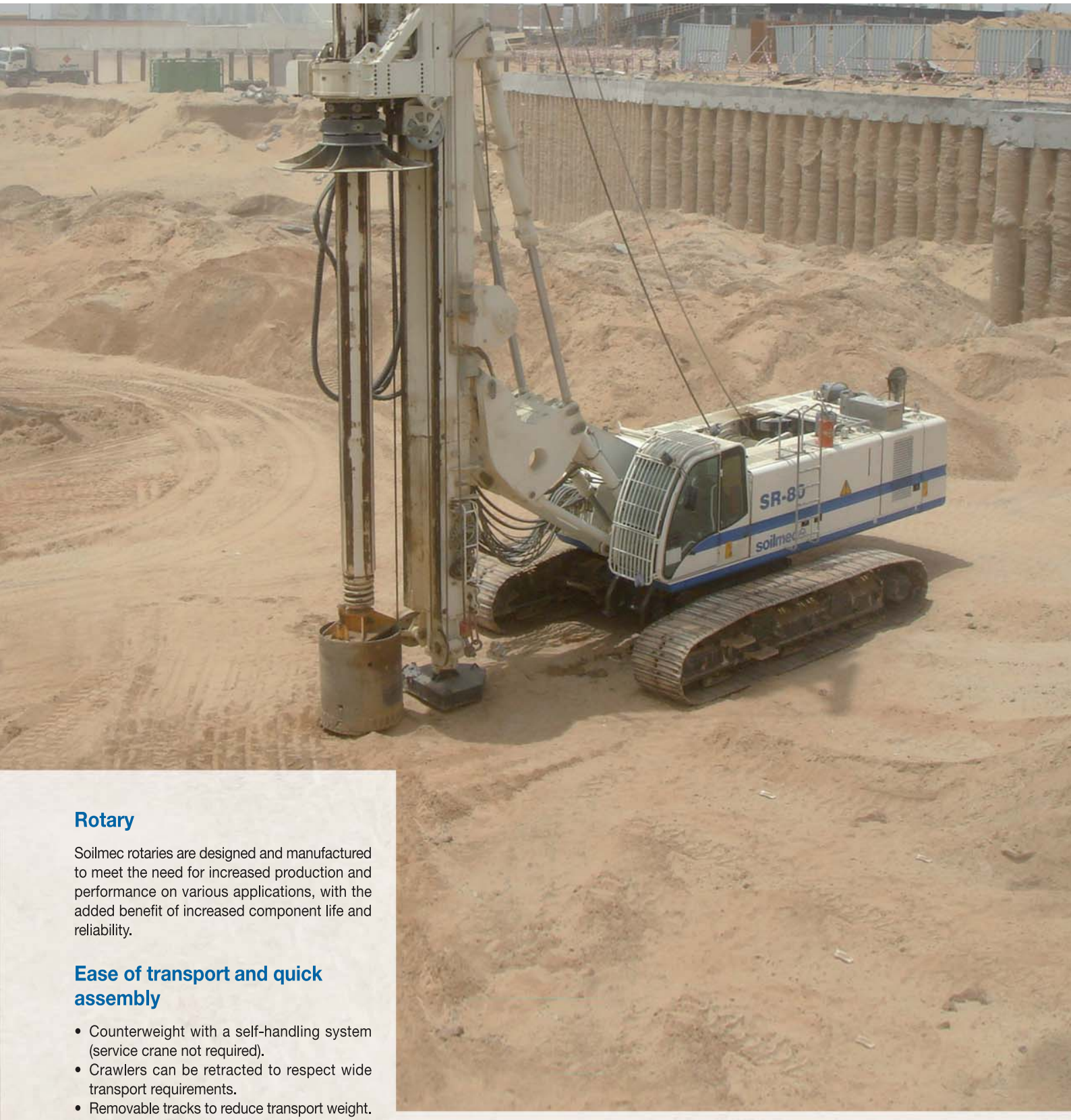
SR-80

Hydraulic
Rotary Rig

LDP
CFA
CAP
DP
TJ
RCDS
DW

Hydraulic Rotary Rig **SR-80**

soilmec
Drilling and Foundation Equipment



Rotary

Soilmec rotaries are designed and manufactured to meet the need for increased production and performance on various applications, with the added benefit of increased component life and reliability.

Ease of transport and quick assembly

- Counterweight with a self-handling system (service crane not required).
- Crawlers can be retracted to respect wide transport requirements.
- Removable tracks to reduce transport weight.

Compact powerful engine

Soilmec installs large displacement engines, providing exceptional performance and reliability.

- High performance, availability and reliability by using tried-and-tested technology with high power-to volume-ratio.
- The modern electronic injection system ensures low fuel consumption and therefore low operating costs.
- Low noise emissions, smooth running characteristics and durability.
- Meets exhaust emission regulations 2004/26/EU, Step III A and US-EPA Tier 3.

DMS control system

DMS is an innovative system, developed by Soilmec, which controls and monitors the operation of the machine. For ease of operation the system is controlled by a touch screen located in the cab. The system main function, is to enable the machine to perform different functions more efficiently.

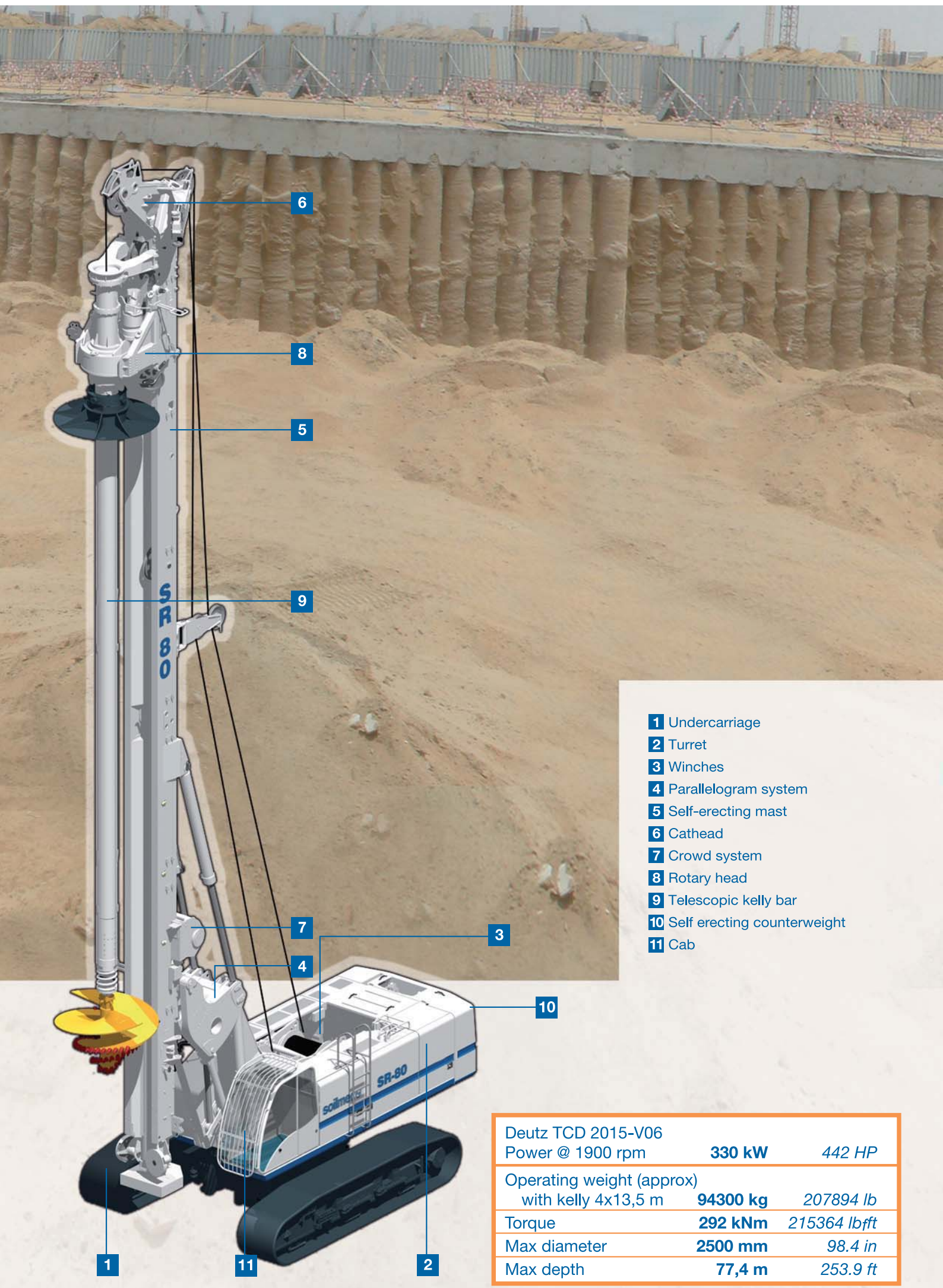
A dedicated power module electronic control system ensures the main pumps and Diesel engine to work at their most effective and productive levels.

Ergonomic design

The cab is designed to be spacious, quiet and comfortable for the operator, assuring high productivity throughout the working day. Controls are conveniently located for easy operation.

The Soilmec advantage

- A real multifunctional machine, designed from scratch to give you the best drilling solution.
- Long life expectancy with a high residual value.
- Best price/performance ratio.
- Built with the customer in mind.



1 Undercarriage
2 Turret
3 Winches
4 Parallelogram system
5 Self-erecting mast
6 Cathead
7 Crowd system
8 Rotary head
9 Telescopic kelly bar
10 Self erecting counterweight
11 Cab

Deutz TCD 2015-V06 Power @ 1900 rpm	**330 kW**	*442 HP*
Operating weight (approx) with kelly 4x13,5 m	**94300 kg**	*207894 lb*
Torque	**292 kNm**	*215364 lbfft*
Max diameter	**2500 mm**	*98.4 in*
Max depth	**77,4 m**	*253.9 ft*

LDP - KELLY DRILLING SYSTEM

Crowd Winch Version

The hydraulic drilling rig SR-80 has been specially designed to suit the following applications:

- **cased bored piles** with casing driven directly by rotary head or optionally by casing oscillator powered by the base carrier itself;
- **deep uncased bored piles** stabilized by drilling fluid or dry hole;
- **CFA (Continuous Flight Auger) piles** by means of long auger string;
- **CAP (Cased Auger Piles) piles** with double rotary system;
- **DP** (**Displacement Piles**) *on demand*;
- **TJ** (**Turbojet**) - column soil consolidation *on demand*;
- **Soil-mixing** - column soil consolidation *on demand*;
- **RCDS** (**Reverse Circulation Drilling System**) *on demand*;
- **DW** it can be converted into **Diaphragm Wall base machine** to work with an **hydraulic grab**.

DMS - Drilling Mate System

The SR-80 in kelly version is equipped with the DRILLING MATE SYSTEM (DMS) on 12" touch screen to monitor and control the operating parameters.
The standard DMS system includes:

- **PLC** controller for all electrically actuated functions
- fault checking and reporting
- monitor unit designed to display:
  - engine information and diagnostic capability
  - pump pressures
  - mast vertical alignment
  - drilling depth
  - rotary speed and pressure
  - crowd pressure
  - graphics drilling charts.

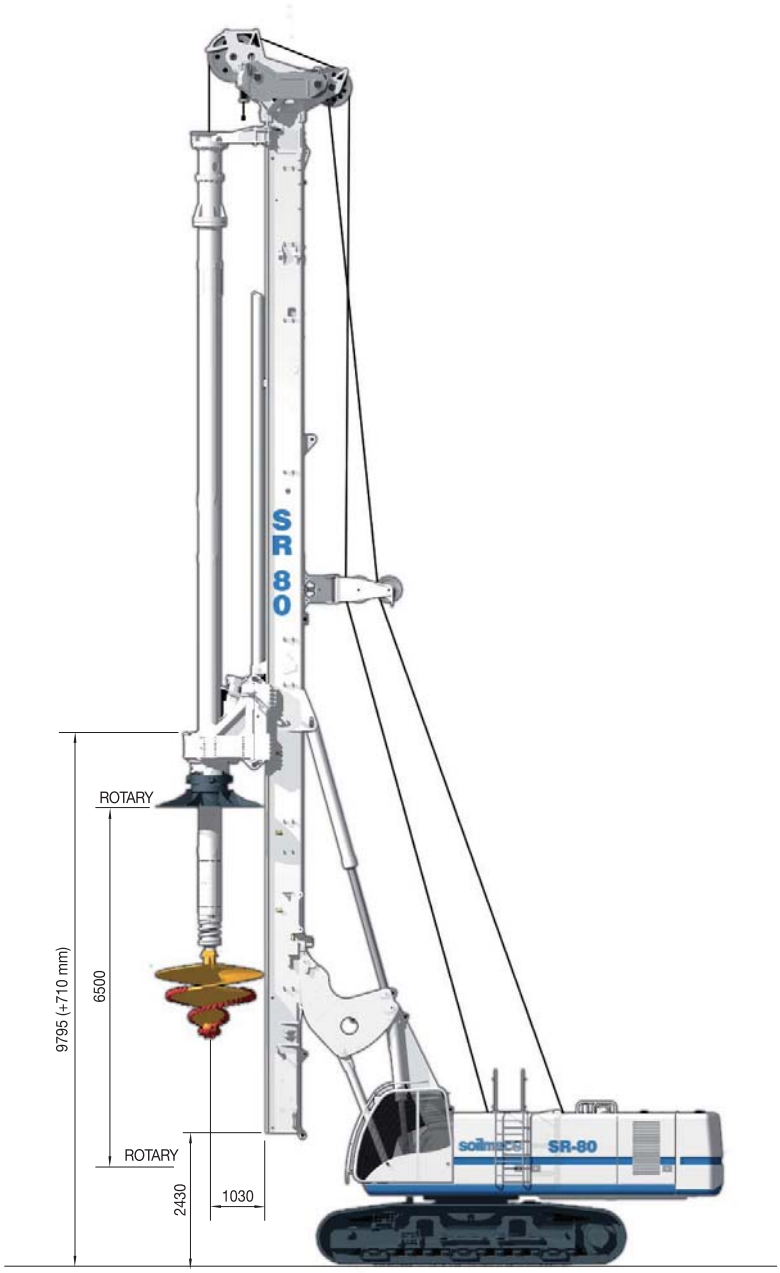
The following additional optional features are available:

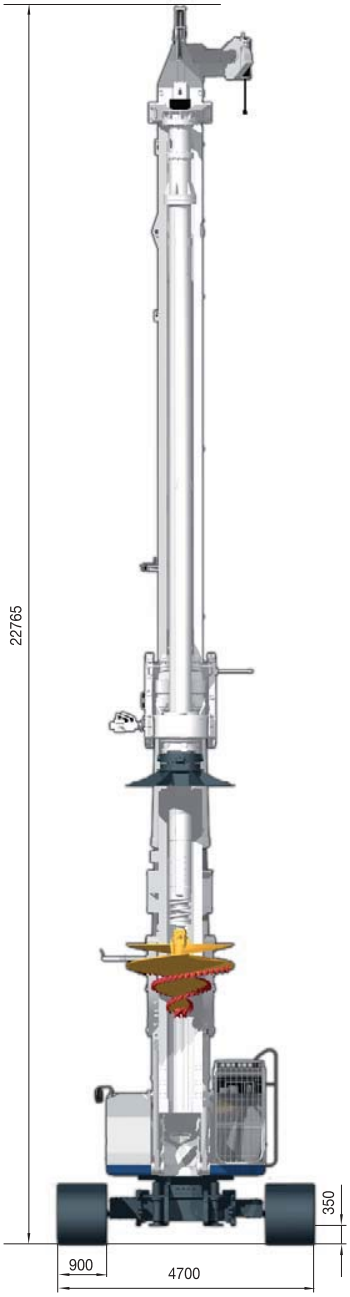
- automatic turret swinging for bored hole centering
- automatic mast vertical alignment
- recording of operating data on memory card
- DMS PC software package to analyze and print production data and job site daily reports
- DMS MANAGER for remote control, transmission of process and operating data, tele assistance.

DMS
DRILLING MATE SYSTEM

LDP - KELLY DRILLING SYSTEM

Crowd Cylinder Version





Crowd winch version

Crowd cylinder version

TECHNICAL DATA

		Crowd cylinder		Crowd winch	
	Overall height	**22765 mm**	*896.2 in*	**22765 mm**	*896.2 in*
	Operating weight (approx) with kelly 4x13.5	**90400 kg**	*199295 lb*	**94300 kg**	*207894 lb*
	Rotary Drive - Spin-off type				
	-Torque (nominal)	**272 kNm**	*200613 lb_fft*	**272 kNm**	*200613 lb_fft*
	-Speed of rotation (max)	**24,9 rpm**	*24.9 rpm*	**24,9 rpm**	*24.9 rpm*
	-Spin-off speed	**117 rpm**	*117 rpm*	**117 rpm**	*117 rpm*
	Rotary Drive - Shifting gear type				
	-Torque (nominal)	**292 kNm**	*215364 lb_fft*	**292 kNm**	*215364 lb_fft*
	-Speed of rotation (max)	**50,6 rpm**	*50.6 rpm*	**50,6 rpm**	*50.6 rpm*
	-Spinoff speed	**107 rpm**	*107 rpm*	**107 rpm**	*107 rpm*
	Crowd system				
	-Crowd force (pull down/up)	**201/280 kN**	*45186/62945 lb_f*	**350/350 kN**	*78682/78682 lb_f*
	-Stroke (kelly system)	**6500 mm**	*256 in*	**15555 mm**	*612 in*
	-Stroke (CFA system)	**21650 mm**	*852 in*	**15790 mm**	*622 in*
	-Speed (down/up)	**4,5/10 m/min**	*14.7/32.8 ft/min*	**8,4/18,8 m/min**	*27.5/61.6 ft/min*
	-Fast speed (down/up)	**11,4/10 m/min**	*37.4/32.8 ft/min*	**18,8/18,8 m/min**	*61.6/61.6 ft/min*
	Main winch SW-280	**controlled descent**	*controlled descent*	**controlled descent**	*controlled descent*
	-Line pull (1st layer) effective/nominal	**235/280 kN**	*52829/62945 lb_f*	**235/280 kN**	*52829/62945 lb_f*
	-Rope diameter/length	**30 mm/159 m**	*1.18 in / 521 ft*	**30 mm/159 m**	*1.18 in / 521 ft*
	-Line speed (max.)	**76m/min**	*249.3 ft/min*	**76m/min**	*249.3 ft/min*
	Auxiliary winch SF-240	**free fall**	*free fall*	**free fall**	*free fall*
	-Line pull (1st layer) effective/nominal	**198/235 kN**	*44511/52899 lb_f*	**198/235 kN**	*44511/52899 lb_f*
	-Rope diameter/length	**30 mm/156 m**	*1.18 in / 511 ft*	**30 mm/156 m**	*1.18 in / 511 ft*
	-Line speed (max.)	**76 m/min**	*249.3 ft/min*	**76 m/min**	*249.3 ft/min*
	Auxiliary winch SW-140	**controlled descent**	*controlled descent*	**controlled descent**	*controlled descent*
	-Line pull (1st layer) effective/nominal	**122/145 kN**	*27426 /32597 lb_f*	**122/145 kN**	*27426 /32597 lb_f*
	-Rope diameter	**26 mm**	*1.02 in*	**26 mm**	*1.02 in*
	-Line speed (max.)	**86 m/min**	*282.1 ft/min*	**86 m/min**	*282.1 ft/min*
	Auxiliary winch SF-140	**free fall**	*free fall*	**free fall**	*free fall*
	-Line pull (1st layer) effective/nominal	**123/147 kN**	*27651/33046 lb_f*	**123/147 kN**	*27651/33046 lb_f*
	-Rope diameter/length	**26 mm**	*1.02 in*	**26 mm**	*1.02 in*
	-Line speed (max.)	**122 m/min**	*400.2 ft/min*	**122 m/min**	*400.2 ft/min*
	Mast inclination				
	-Backward/forward/lateral	**10/4/3 °**	*10/4/3 °*	**10/4/3 °**	*10/4/3 °*

Soilmec integrates high quality level components: Gearmatic, Hydromatic, Lohmann, Rothe erde, Trasmital, Zollern.

Standard equipment

- Rotary drive spin-off type
- Main winch controlled descend type
- Main and auxiliary winch with special grooving
- Hoist limit switch on main and auxiliary winches
- Swivel for main rope
- Crowd in fast or slow mode
- Pivoted anchor points for main rope

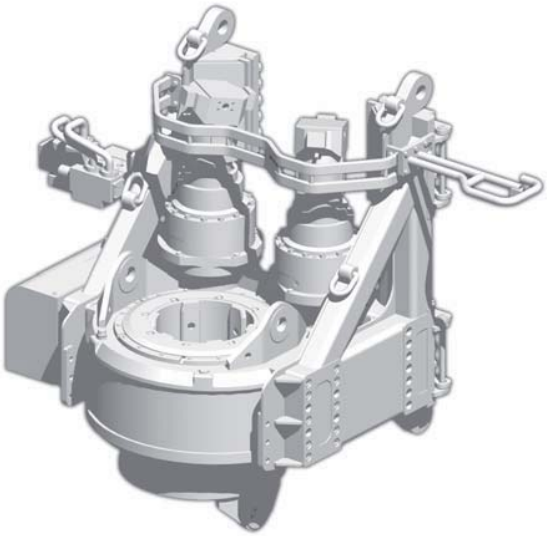
Measuring and control equipment

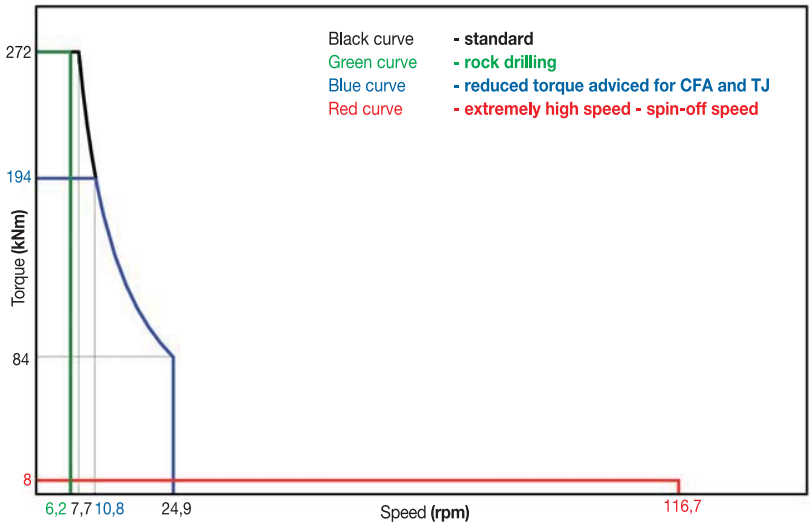
- PLC processor for all electrically actuated functions
- DMS system electronic monitoring and visualization system
  Display of fault messages as plain text
- Mast inclination measurement on X/Y axes *(digital/analog display)*
- Automatic vertical alignment of mast
- Depth measuring device on main winch
- Speed measuring device on rotary
- Crowd pressure setting


CAP version

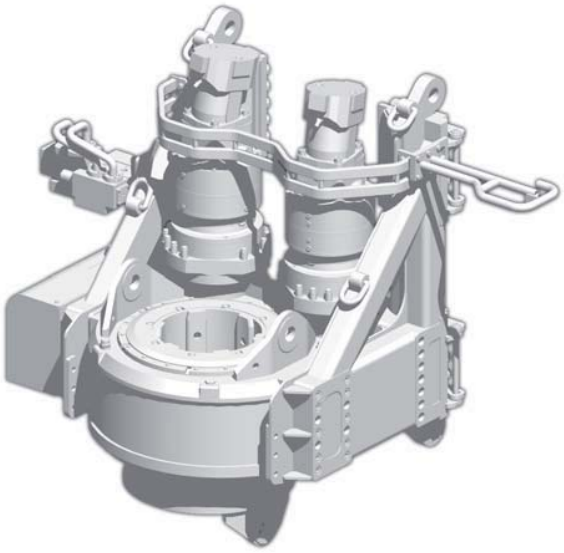
TECHNICAL DATA - ROTARY DRIVE

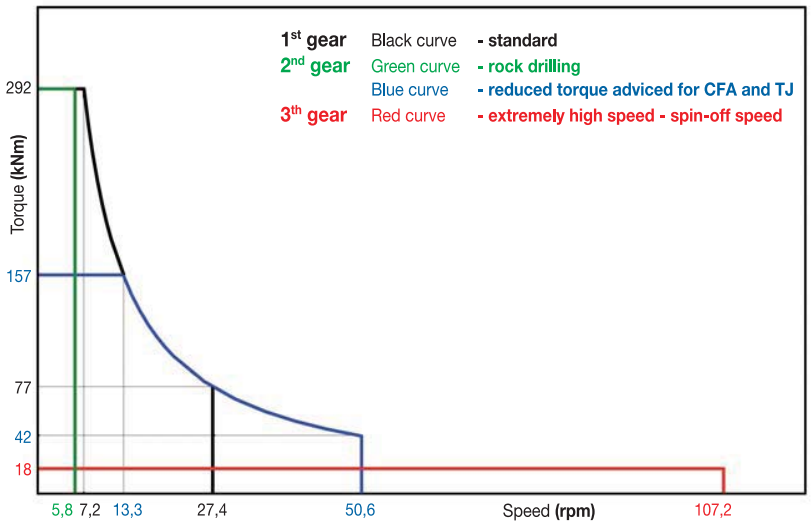
Rotary RD-270

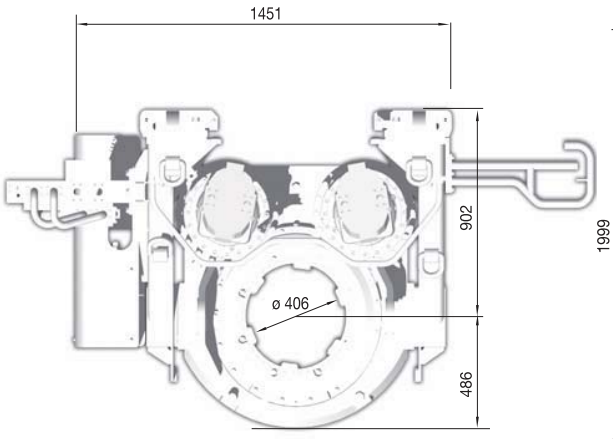


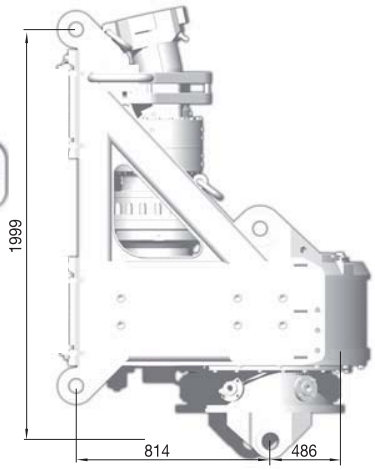


Rotary RD-290 G









Rotary	Weight	
Crowd cylinder version	**5200 kg**	*11464 lbs*
Crowd winch version	**5700 kg**	*12566 lbs*

TECHNICAL DATA - BASE CARRIER

Engine	**Deutz TCD2015-V06**	*Deutz TCD2015-V06*
-Rated output ISO 3046-I	**330kW @ 1900 rpm**	*442 HP @ 1900 rpm*
-Engine conforms to Exhaust emission Standard	**EU stage III, EPA CARB Tier 3**	*EU stage III, EPA CARB Tier 3*
-Diesel tank capacity	**565 l**	*149.2 US gal*
-Sound pressure level in cabin (EN791 Annex A)	**80 dB (A)**	*80 dB (A)*
-Sound power level (2000/14EG u. EN791, Annex A)	**110 dB (A)**	*110 dB (A)*
Hydraulic system*		
-Hydraulic power output (measured at inlet to rotary drive)	**220 kW**	*295 HP*
-Hydraulic pressure	**300 bar**	*4786 psi*
-Flow rates (main circuits)	**2 x 304 l/min**	*2 x 80.3 US gal/min*
-Hydraulic oil tank capacity	**800 l**	*211 US gal*
Undercarriage* (retractable crawler frames)		
-Crawler type	**D7F**	*D7F*
-Overall width (removed side frames)	**2810 mm**	*110.6 in*
-Overall width of crawlers (retracted/extended)	**3200/4700 mm**	*125.9/185 in*
-Width of triple grouser track shoes	**900 mm**	*35.4 in*
-Overall length of crawlers	**5680 mm**	*223.6 in*
-Traction force effective/nominal	**561.3/668.2 kN**	*126138/150215 lb_f*
-Travel speed	**1,9 km/h**	*1.18 mph*

*** Soilmec integrates high quality level components: Berco, Rexroth, Trasmital.**

Standard equipment

- Oscillator attachment
- Emergency mode of operation for engine
- Engine diagnostic system
- Diagnostic panel for hydraulic functions
- Removable counterweight
- Removable crawler side frames
- Transport securing lugs on crawler units
- Access ladder on upper carriage
- On-board lighting set
- On-board tool set
- Electric refuelling pump
- High-comfort operator's cab *(width: 950 mm)*
- Protective roof grate *(FOPS compliant)*
- Air conditioning system
- Radio and CD player

Optional equipment

Base carrier
- Biodegradable oil
- Pressurized air conditioning system

Drilling Equipment
- Freefall main winch
- Freefall auxiliary winch
- Swivel for auxiliary rope
- Central lubrication system
- Videocamera attachment

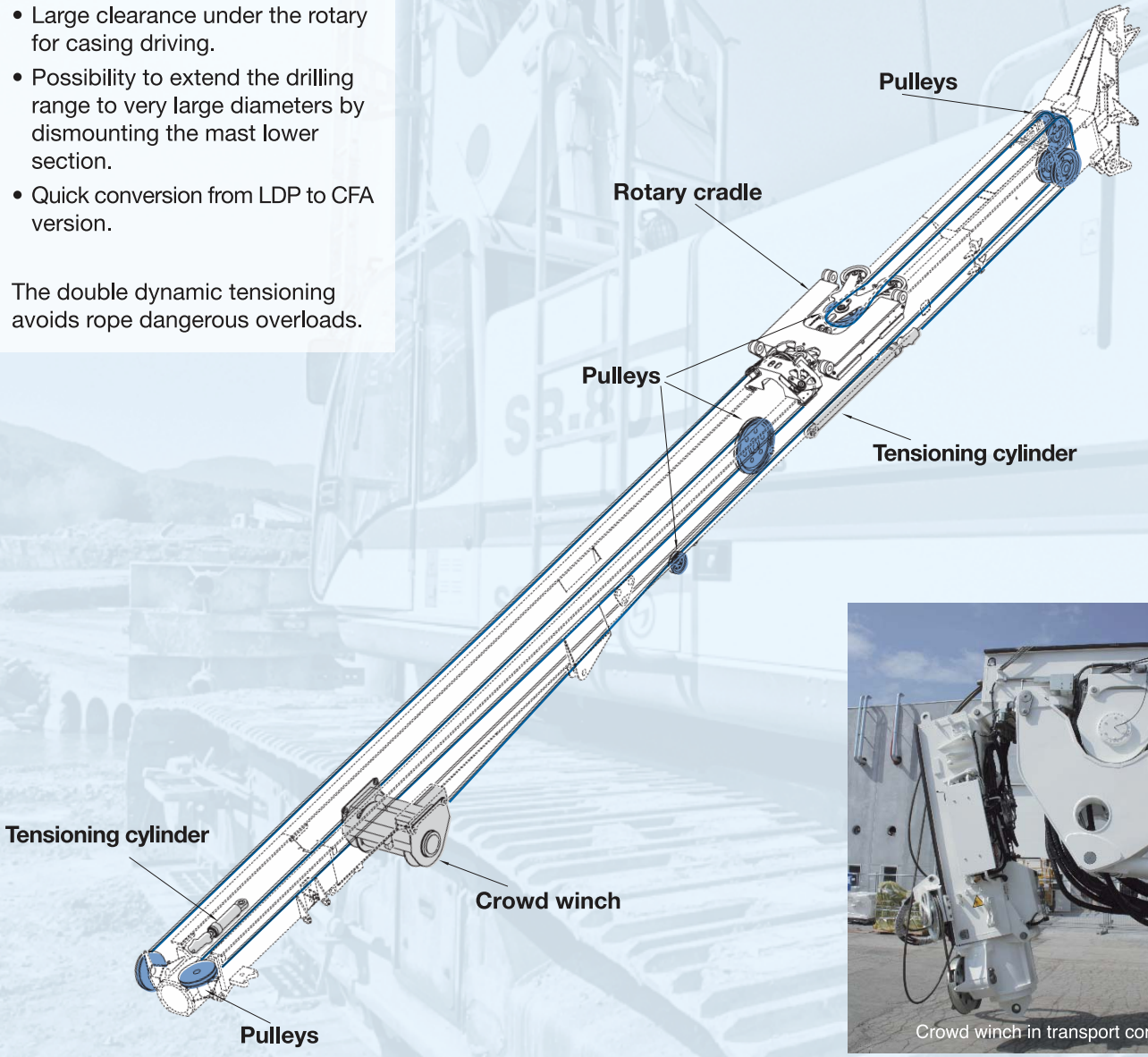
Alternative equipment options
- Wider triple grouser track shoes

FOCUS - CROWD WINCH SYSTEM

The crowd winch system allows the best versatility of use:

- Large clearance under the rotary for casing driving.
- Possibility to extend the drilling range to very large diameters by dismounting the mast lower section.
- Quick conversion from LDP to CFA version.

The double dynamic tensioning avoids rope dangerous overloads.

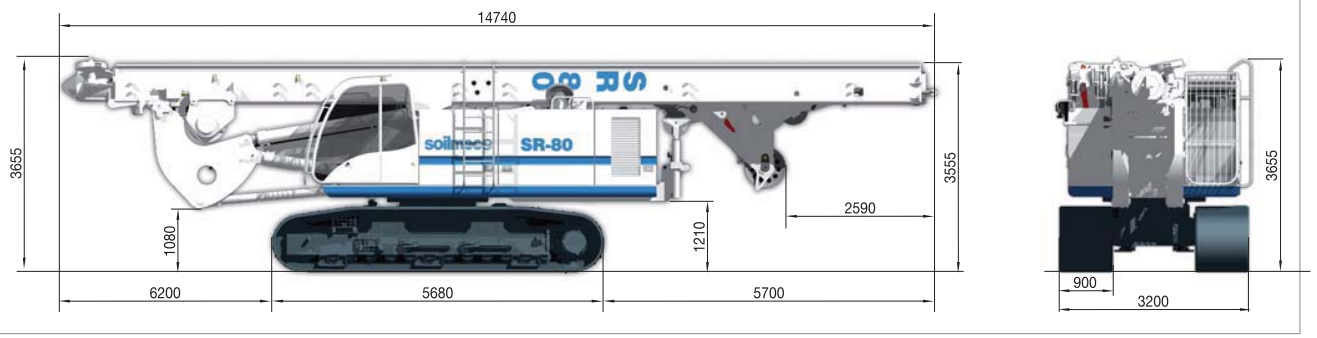



Crowd winch in transport conditions

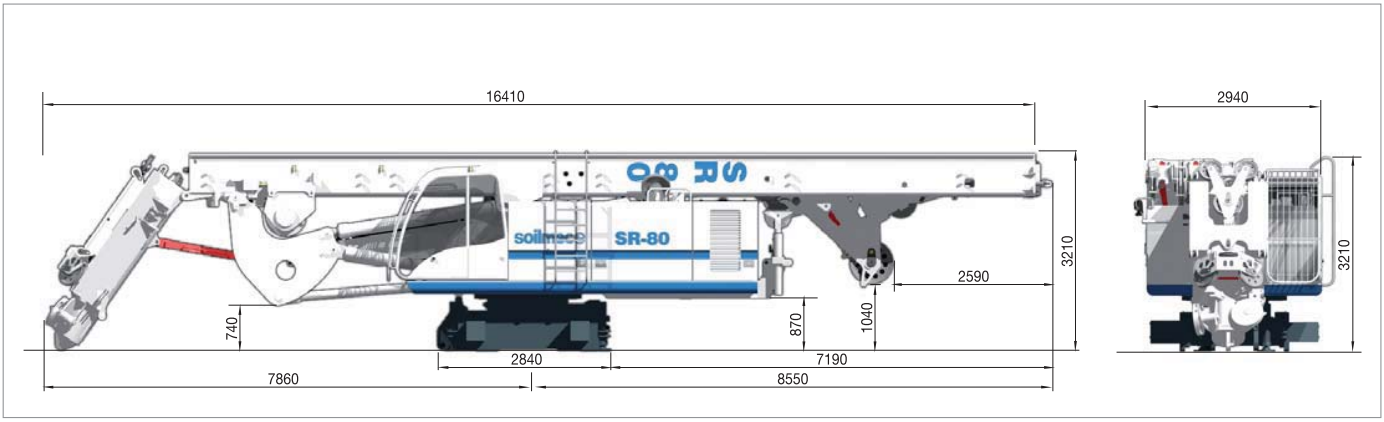
FOCUS - Self-handling counterweight system

The rig is equipped with an autonomous counterweight assembling system which is based on hydraulic cylinders allowing the lifting and the proper adjustment of the counterweight before the final stop. Easy and comfortable lever-operated controls placed on the rig side allow working with maximum visibility and safety.

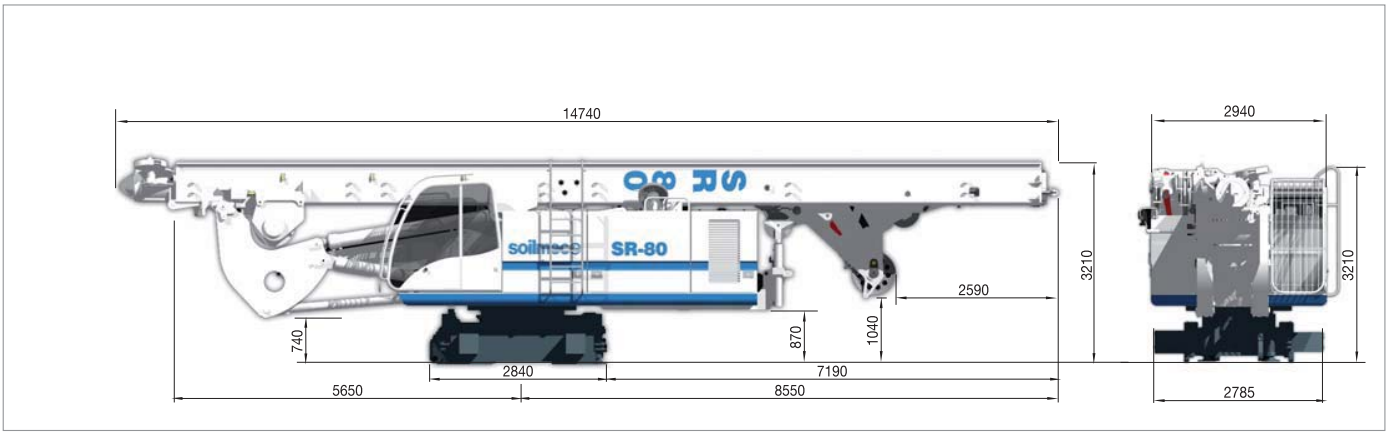
TRANSPORT DATA



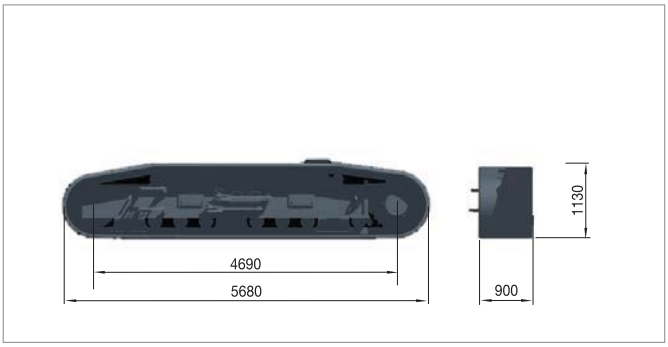
Transport LDP w/o lower mast element Weight **64773 kg** *142799 lb*



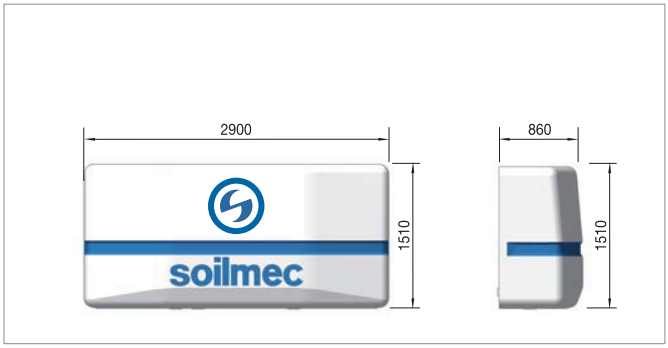
Transport LDP w/o side frames Weight **52500 kg** *115741 lb*



Transport LDP w/o lower mast element and side frames Weight **48773 kg** *107525 lb*



Side frames Weight **8000 kg** *17636 lb*



Counterweight Weight **10500 kg** *23148 lb*

DMS

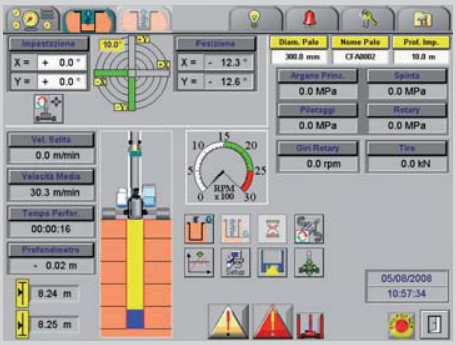
DRILLING MATE SYSTEM

Soilmec innovative DMS - Drilling Mate System - has been designed to incorporate:

- CAN OPEN bus system
- colour touch screen suitable for the drilling field

DMS consists of 3 items:

- **DMS**
- **DMS PC**
- **DMS MANAGER**



DMS Drilling Mate System

As a standard, DMS device is fitted on all Soilmec machines. Its main features are the following:

- DMS constitutes an interface between Diesel engine and operator displaying main engine working parameters as instantaneous fuel consumption or engine instantaneous load.
- DMS allows monitoring the overall machine operations displaying and recording alarms.
- DMS offers a troubleshooting instrument helping the operator to locate the fault.
- DMS evidences the rig programmed maintenance schedule.
- DMS displays in real time the production parameters to let the operator follow and survey the production process. Production data are stored on USB key for further processing with DMS-PC software.
- DMS send out, on operator's request, through modem (GPRS, EDGE SATELLITE) connection, production data to customer e-mail address and, if permanent connection is enable, rig functioning parameters to SOILMEC CONTROL CENTER server.

Production data are expressed according to the drilling technology in use.

The numerous drilling technologies that can be carried out with Soilmec rigs are available after specific activation:

- **LDP/CFA/DP/RCDS**
- **CAP**
- **GRAB**
- **HYDROMILL**
- **JET/DRILLING/ANCHORS**
- **TTM1-TM2/SOILMIXING**

Some technologies may be completed with:

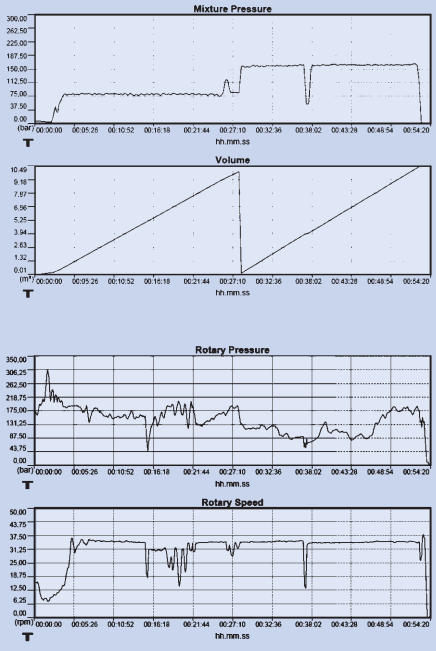
- APS (Automatic Positioning System) for rig pile spotting.
- DPS (Drilling Positioning System) to check drilling vertical deviation.

DMS PC

DMS PC is the software dedicated to DMS data computing. It has to be installed on customer's PC. It allows the customer to read and process the piling data files stored on USB key (or attached to e-mail sent by the DMS unit) after execution, in order to edit documents as diagrams and reports concerning the produced piles including all the parameters registered during each pile execution. In other words, while DMS displays data during the pile execution to let the operator control his work, DMS-PC allows to edit documents.

DMS PC allows for example establishing daily pile production reports to document the compliance of executed piles specifications.

DMS PC allows also to make statistical analysis of fuel consumption.



DMS MANAGER

A system designed for remotely surveying a machines fleet. It includes a dedicated server and software to be located at the control place. Through internet, it enables, the permanent contact with the rig, receiving in real time, alarms, as well as production data, sent by the machine through its modem (GPRS EDGE, SATELLITE).

DMS manager allows to use the whole DMS capability.

SPARE PART ONLINE CENTER (SPOC)

Although not specifically engineered for DMS, the package enhances the instrumentation since customers can optimize the management of their rigs.

In fact this online system offers:

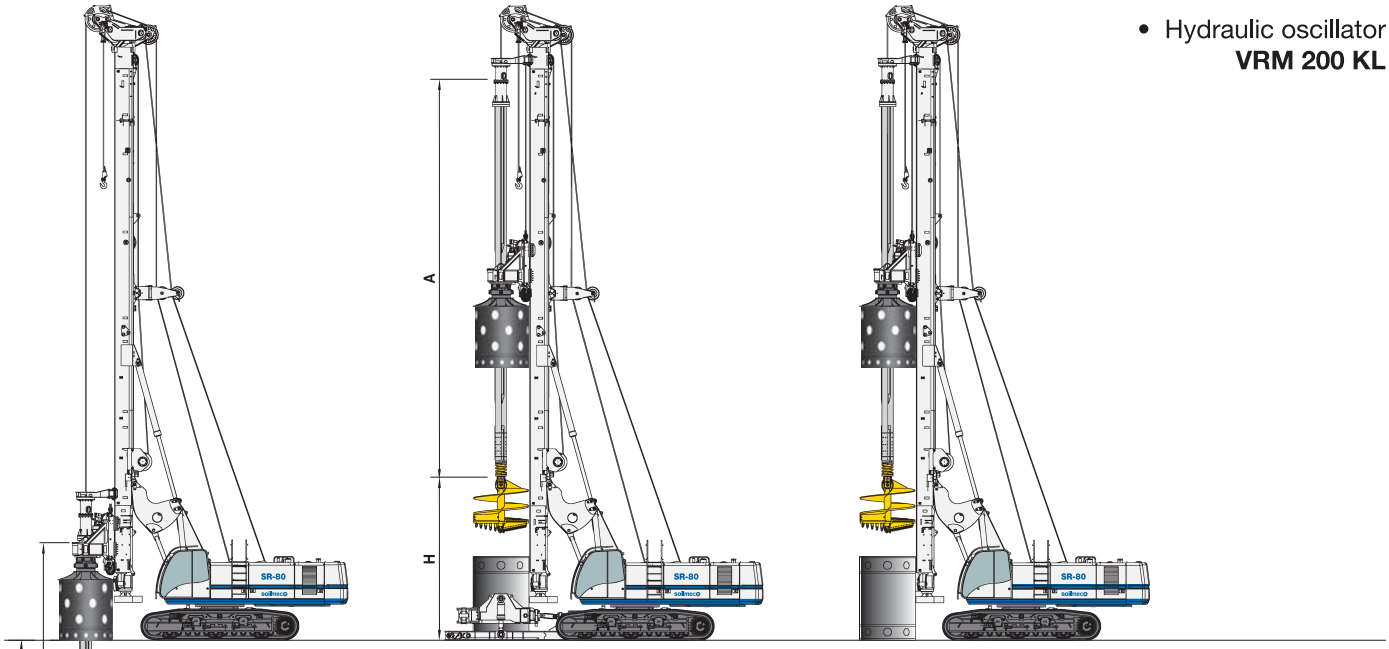
- consultation and downloading of rig documentation, e.g. user and maintenance manuals electrical/hydraulic drawings, DMS manuals, technical documentation, etc.
- placement and management of purchase orders for spare parts.
- real time availability of components of spare parts.

APPLICATIONS

LDP - Kelly Drilling System

Optional equipment:

- Hydraulic oscillator **VRM 200 KL**



Drilling Depths	A	B	Weight	CYLINDER H	CYLINDER T	WINCH H	WINCH T
Mechanical locking kelly bar							
3x9	**9,9 m** *32.5 ft*	**24,6 m** *80.7 ft*	**4100 kg** *9039 lb*	**8,4 m** *27,6 ft*	**23,0 m** *75.5 ft*	**10,3 m** *33,8 ft*	**22,7 m** *74.5. ft*
3x13,5	**14,6 m** *47.8 ft*	**38,6 m** *126.6 ft*	**5700 kg** *12566 lb*	**5,7 m** *18,5 ft*	**37,0 m** *121.4 ft*	**5,7 m** *18,5 ft*	**36,7 m** *120.4 ft*
4x10,5	**11,4 m** *37.5 ft*	**38,6 m** *126.6 ft*	**5800 kg** *12787 lb*	**8,4 m** *27,6 ft*	**37,0 m** *121.4 ft*	**8,8 m** *28,7 ft*	**36,7 m** *120.4 ft*
4x11,5	**12,5 m** *41.1 ft*	**42,6 m** *139.8 ft*	**6300 kg** *13889 lb*	**7,7 m** *25,1 ft*	**41,0 m** *134.5 ft*	**7,7 m** *25,1 ft*	**40,7 m** *133.5 ft*
4x13,5	**14,6 m** *47.8 ft*	**50,9 m** *167.0 ft*	**7300 kg** *16093 lb*	**5,7 m** *18,5 ft*	**49,3 m** *161.7 ft*	**5,7 m** *18,5 ft*	**49,0 m** *160.8 ft*
4x15,5	**16,6 m** *54.4 ft*	**59,4 m** *194.9 ft*	**8200 kg** *18078 lb*	**3,6 m** *11,8 ft*	**57,8 m** *189.6 ft*	**3,6 m** *11,8 ft*	**57,5 m** *188.6 ft*
4x16,5	**17,7 m** *58.1 ft*	**63,6 m** *208.7 ft*	**8700 kg** *19180 lb*	**2,5 m** *8,2 ft*	**62,0 m** *203.4 ft*	**2,5 m** *8,2 ft*	**61,7 m** *202.4 ft*
Friction kelly bar							
4x10,5	**11,4 m** *37.5 ft*	**38,6 m** *126.6 ft*	**5800 kg** *12787 lb*	**8,4 m** *27,6 ft*	**37,0 m** *121.4 ft*	**8,8 m** *28,7 ft*	**36,7 m** *120.4 ft*
4x11,5	**12,5 m** *41.1 ft*	**42,6 m** *139.8 ft*	**6300 kg** *13889 lb*	**7,7 m** *25,1 ft*	**41,0 m** *134.5 ft*	**7,7 m** *25,1 ft*	**40,7 m** *133.5 ft*
4x13,5	**14,6 m** *47.8 ft*	**50,9 m** *167.0 ft*	**7300 kg** *16093 lb*	**5,7 m** *18,5 ft*	**49,3 m** *161.7 ft*	**5,7 m** *18,5 ft*	**49,0 m** *160.8 ft*
4x15,5	**16,6 m** *54.4 ft*	**59,4 m** *194.9 ft*	**8200 kg** *18078 lb*	**3,6 m** *11,8 ft*	**57,8 m** *189.6 ft*	**3,6 m** *11,8 ft*	**57,5 m** *188.6 ft*
4x16,5	**17,7 m** *58.1 ft*	**63,6 m** *208.7 ft*	**8700 kg** *19180 lb*	**2,5 m** *8,2 ft*	**62,0 m** *203.4 ft*	**2,5 m** *8,2 ft*	**61,7 m** *202.4 ft*
5x10,5	**11,3 m** *37.1 ft*	**47,7 m** *156.5 ft*	**6100 kg** *13448 lb*	**8,4 m** *27,6 ft*	**46,1 m** *151.2 ft*	**8,9 m** *29,2 ft*	**45,8 m** *150.3 ft*
5x11,5	**12,4 m** *40.8 ft*	**53,1 m** *174.2 ft*	**6600 kg** *14550 lb*	**7,8 m** *25,4 ft*	**51,5 m** *169.0 ft*	**7,8 m** *25,4 ft*	**51,2 m** *168.0 ft*
5x13,5	**14,4 m** *47.4 ft*	**63,5 m** *208.3 ft*	**7600 kg** *16755 lb*	**5,8 m** *18,9 ft*	**61,9 m** *203.1 ft*	**5,8 m** *18,9 ft*	**61,6 m** *202.1 ft*
5x15,5	**16,7 m** *54.6 ft*	**73,8 m** *242.1 ft*	**8500 kg** *18739 lb*	**3,6 m** *11,6 ft*	**72,2 m** *236.9 ft*	**3,6 m** *11,6 ft*	**71,9 m** *235.9 ft*
5x16,5	**17,6 m** *57.7 ft*	**79,0 m** *259.2 ft*	**9000 kg** *19841 lb*	**2,7 m** *8,7 ft*	**77,4 m** *253.9 ft*	**2,7 m** *8,7 ft*	**77,1 m** *253.0 ft*

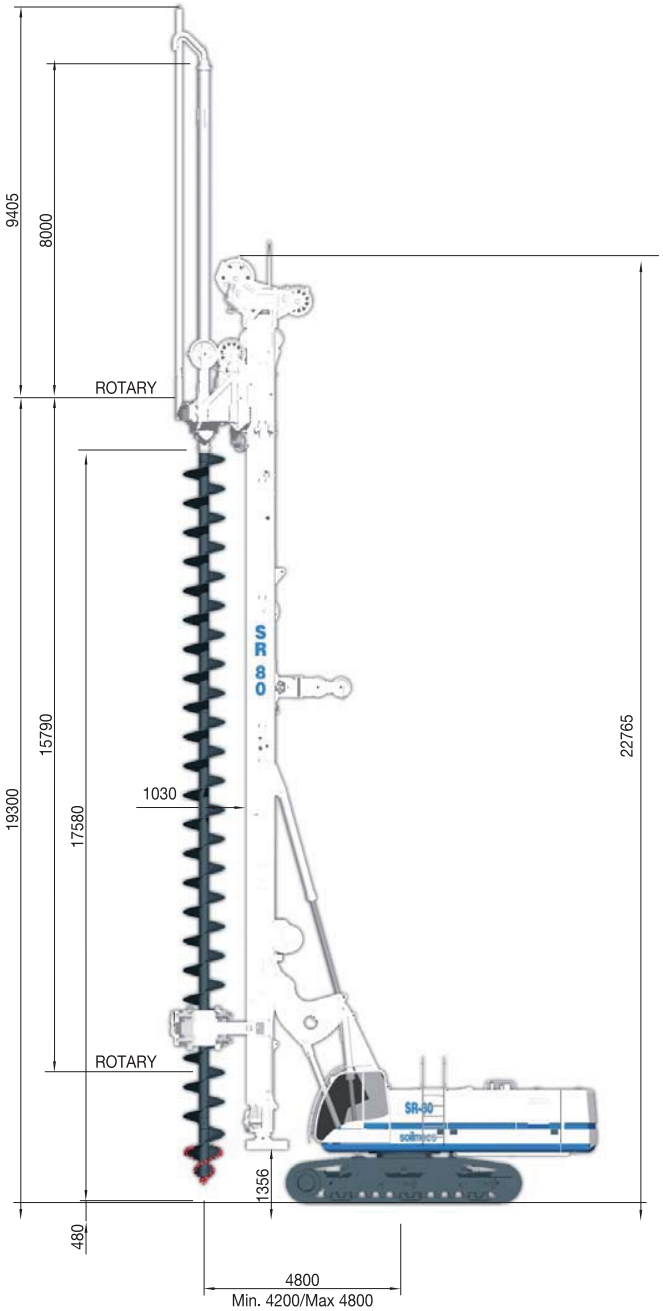
Drilling Diameters	CYLINDER		WINCH	
Uncased	**2000 (2500) mm**	*78.7 (98.4) in*	**2000 (2.500) mm**	*78.7 (98.4) in*
Cased	**2000 mm**	*78.7 in*	**2.000 mm**	*78.7 in*

( ) removing the mast bottom section

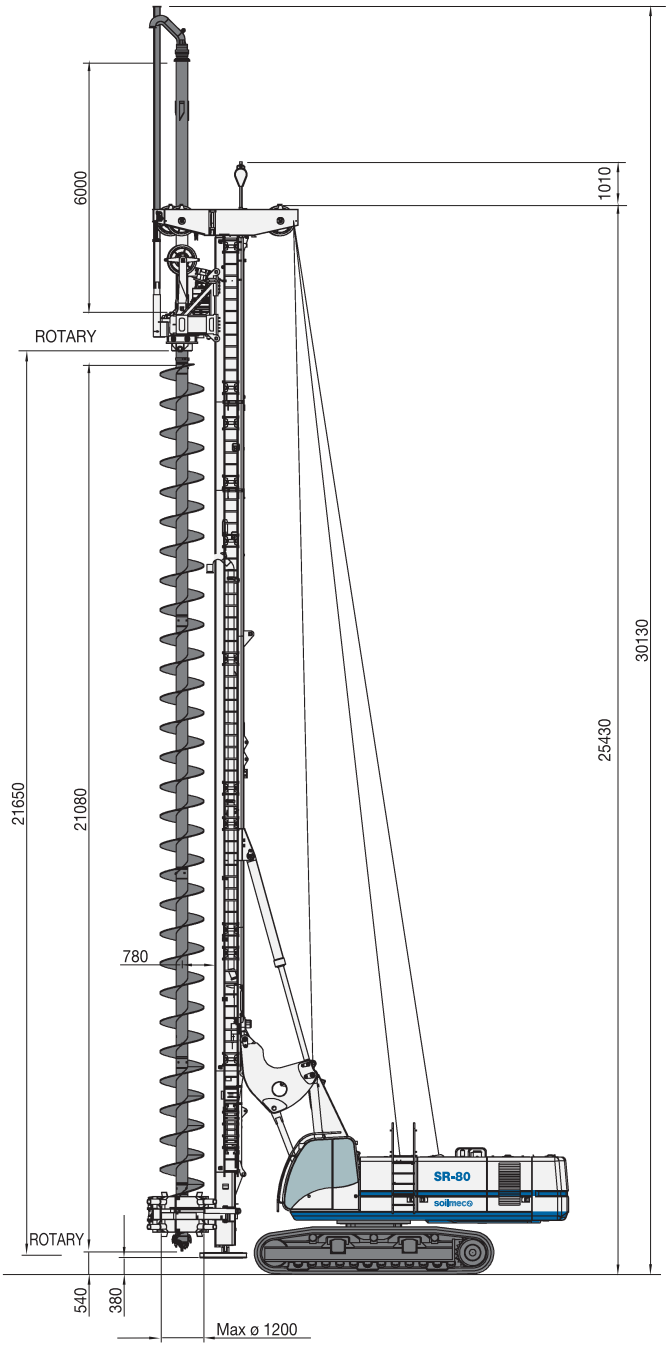
APPLICATIONS

CFA - Continuous Flight Auger

Quick Conversion Model combined line pull



Traditional CFA 4-part line pull

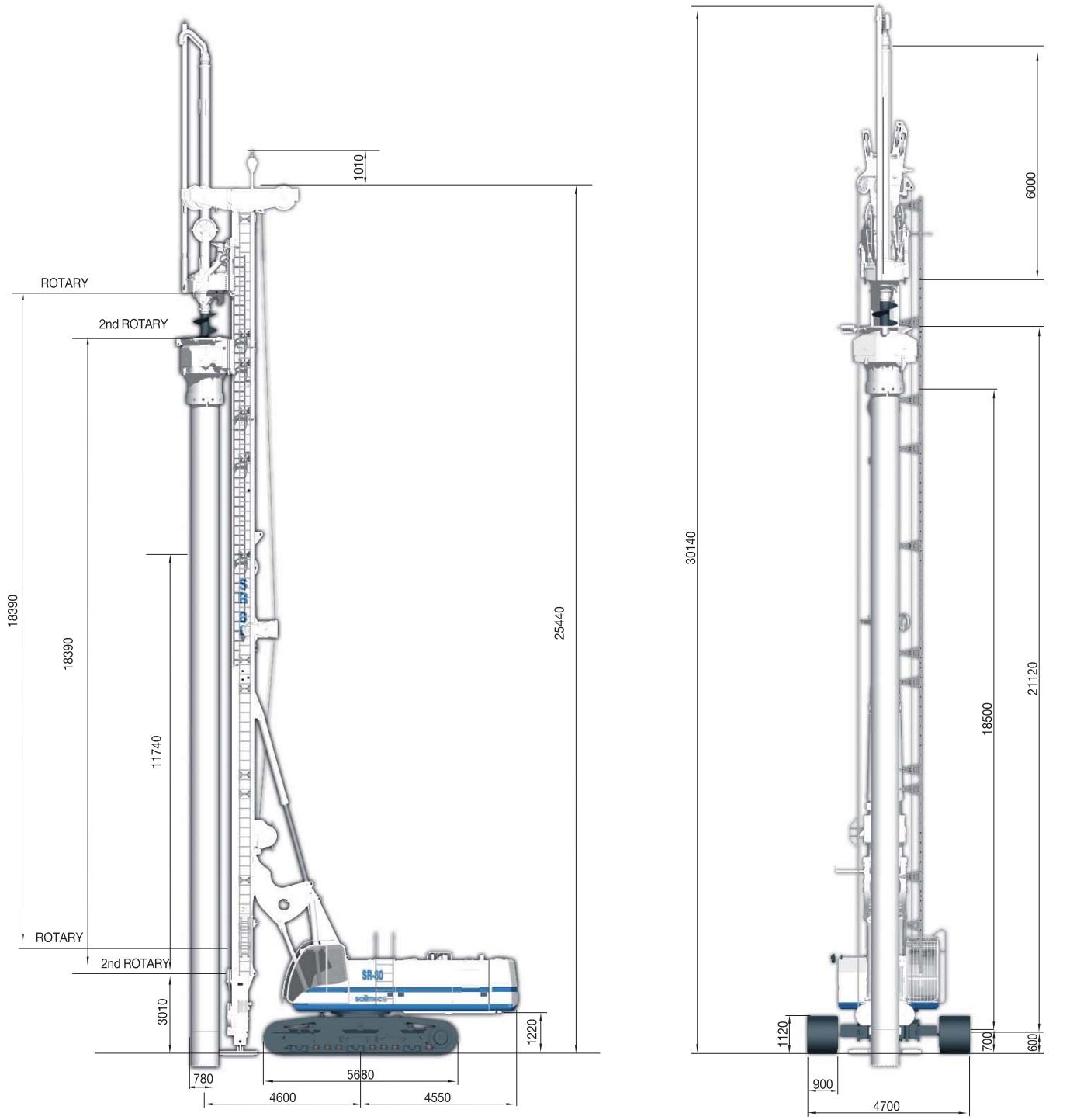


	combined line pull		4-part line pull	
Auger extension	**8 m**	*26.3 ft*	**6 m**	*19.6 ft*
Drilling depth with auger cleaner	**22 m (14+8)**	*72.2 ft (45.9+26.3)*	**25,5 m (19,5+6)**	*83.6 ft (63.9+19.7)*
Drilling depth without auger cleaner	**23,5 m (15,5+8)**	*77.1 ft (50.8+26.3)*	**27 m (21+6)**	*88.6 ft (68.9+19.7)*
Max drilling diameter	**1200 mm**	*47.2 in*	**1200 mm**	*47.2 in*
Max extraction force	**740 kN**	*166356 lb_f*	**740 kN**	*166356 lb_f*
Max crowd force	**320 kN**	*71938 lb_f*	**370 kN***	*83188 lb_f **
Continuous flight auger length including starter auger	**17500 mm**	*689 in*	**21000 mm**	*827 in*
Operating weight (approx. w/o augers)	**86500 kg**	*214948 lb*	**90700 kg**	*186289 lb*

* Option: max depth reduced by 1.5 m

APPLICATIONS

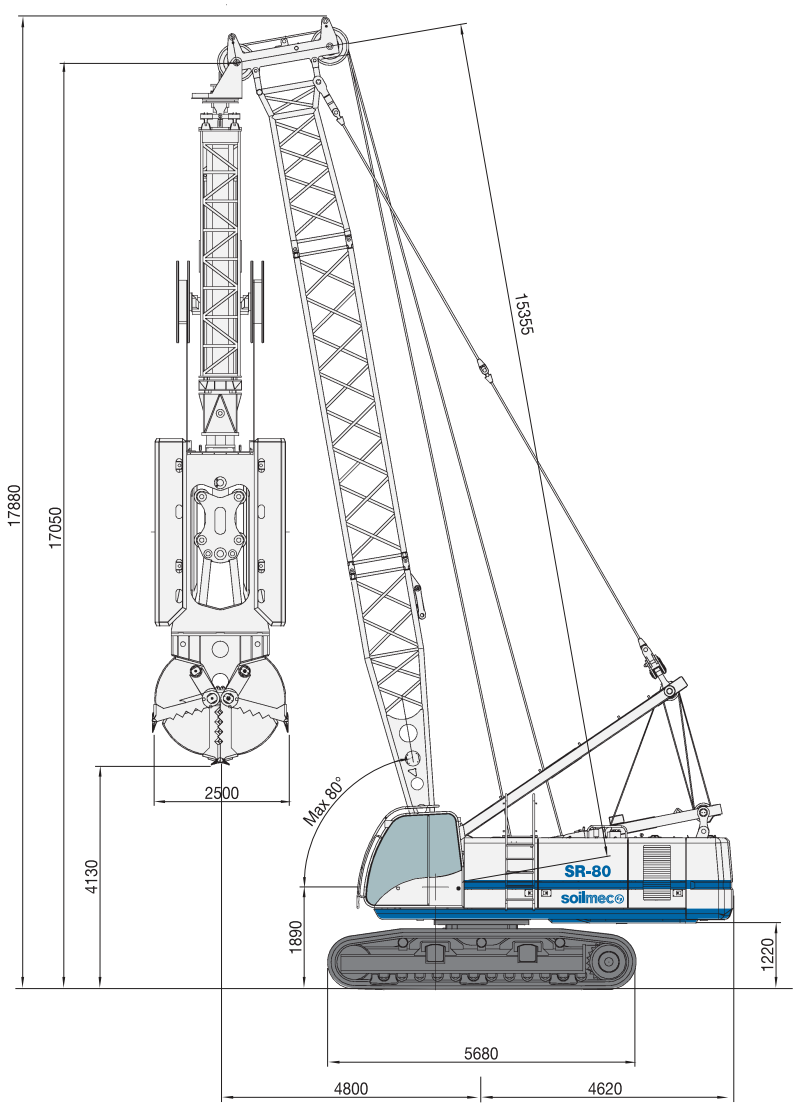
CAP - Cased Auger Piles



Rotary drive for casing	**189 kNm**	*119483 lb_f ft*
Max speed of casing rotary	**6,1 rpm**	*6.1 rpm*
Max drilling diameter	**800 mm**	*31.5 in*
Max pile depth	**23,5 m**	*77.1 ft*
Max cased depth	**17,5 m**	*57.4 ft*
Casing extraction force	**370 kN**	*83188 lb_f*
Relative movement between rotaries	**18860 mm**	*742.5 in*
Operating weight (w/o auger, w/o casing)	**91500 kg**	*201720 lb*

APPLICATIONS

HYDRAULIC GRAB - DIAPHRAGM WALL



	DIAPHRAGM WALL	
Grab type	**BH-12**	
Grab weight (c/w kelly) approx	**16000 kg**	*35270 lbs*
Panel thickness	**500-1000 mm**	*19.6-39.3 in*
Panel width	**2000-3000 mm**	*78.7-118.1 in*
Max diaphragm depth	**70 m**	*229.6 ft*

10/2011 - 500 - D/F - Litografia CILS Cesena - Il Digitale

SOILMEC distributes machinery and structures all over the world, supported by SOILMEC subsidiary companies and dealers.
The complete Soilmec network list is available on the webpage www.soilmec.it

www.soilmec.it

soilmec
Drilling and Foundation Equipment