



SR-90

LDP
CFA
CAP
TJ
TTJ

Hydraulic
Rotary Rig

Hydraulic Rotary Rig **SR-90**

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 3.4 m 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

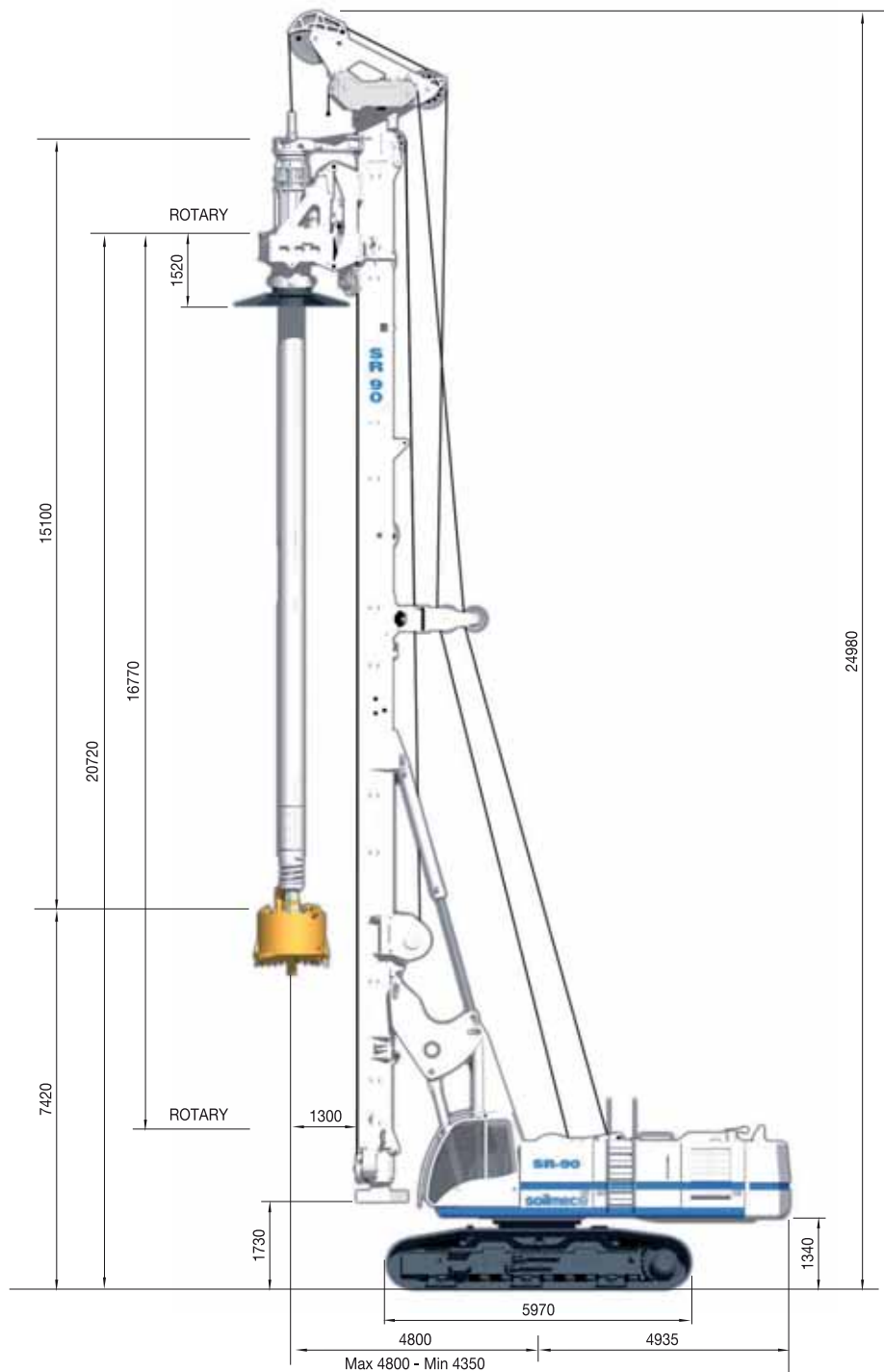
Deutz TCD 2015-V08		
Power @ 1900 rpm	400 kW	536 HP
Operating weight (approx) with kelly 4x13,5 m	116.400 kg	256615 lb
Torque	333 kNm	245604 lbfft
Max diameter	3000 mm	118.1 in
Max depth	81,4 m	267.1 ft

LDP - KELLY DRILLING SYSTEM

Crowd Winch Version

The hydraulic drilling rig SR-90 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;
- **Soil-mixing** - column soil consolidation *on demand*;
- **TTJ (Twin Shaft Turbojet)** - panel soil consolidation;
- **RCDS (Reverse Circulation Drilling System) on demand**;
- **DW** it can be converted into **Diaphragm Wall base machine** to work with an **hydraulic grab on demand**.



DMS - Drilling Mate System

The SR-30 in kelly version is equipped with the DRILLING MATE SYSTEM (DMS) on 12" touch screen to monitor and control of the operating parameters. The standard DMS equipment is composed of:

- **PLC** controller for all electrically actuated functions
- fault checking and reporting
- monitor unit designed to display:

- engine information and diagnostic capability
- pump pressures
- mast verticality
- drilling depth
- rotary speed and pressure
- crowd pressure
- graphics drilling charts

The following additional optional features are available:

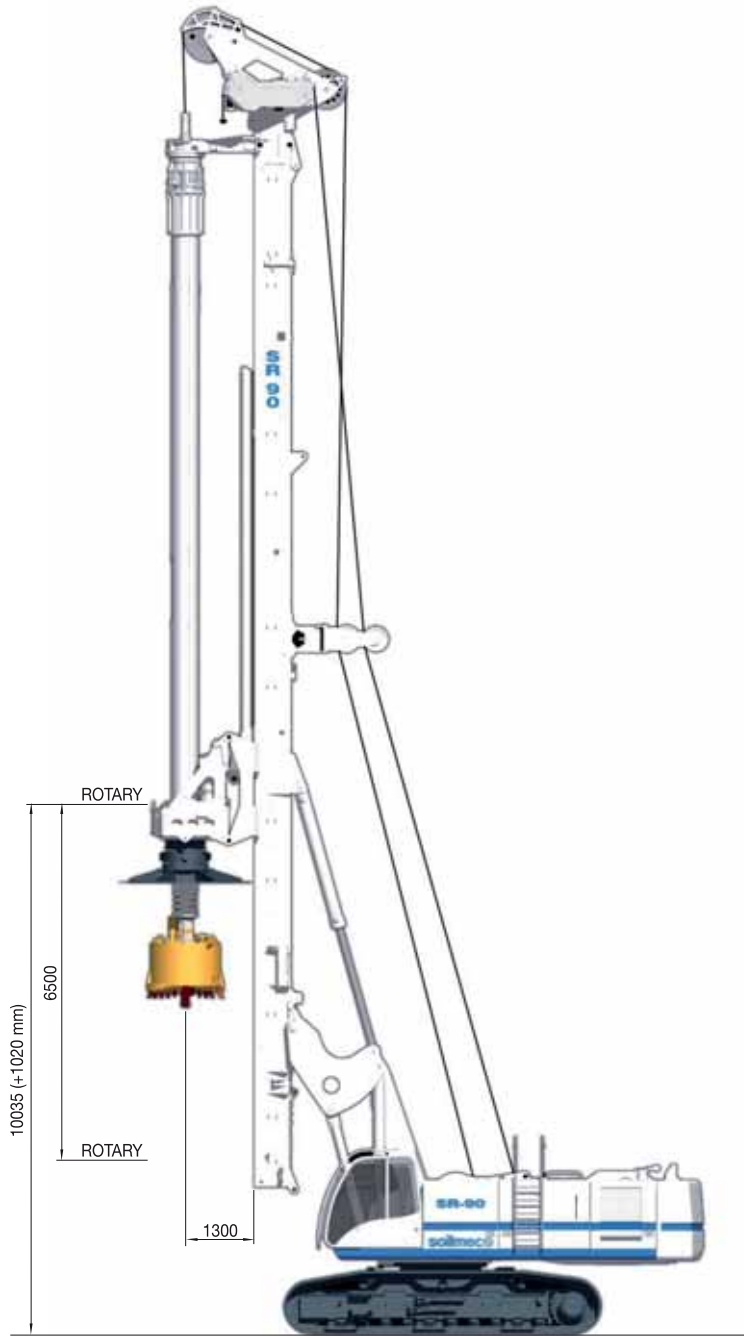
- automatic turret swinging for bored hole centering

- 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 cylinder version



Crowd winch version

TECHNICAL DATA

	CROWD CYLINDER		CROWD WINCH		
Overall height	24980 mm	983 in	24980 mm	983 in	
Operating weight (approx) with kelly 4x13.5	112800 kg	248680 lb	116800 kg	257500 lb	
	Rotary Drive - Spin-off type	RD-330	RD-330		
	-Torque (nominal)	333 kNm	245604 lb _f ft	333 kNm	245604 lb _f ft
	-Speed of rotation (max)	25,6 rpm	25.6 rpm	25,6 rpm	25.6 rpm
	-Spinoff speed	120 rpm	120 rpm	120 rpm	120 rpm
	Rotary Drive - Shifting gear type	RD-330 G	RD-330 G		
	-Torque (nominal)	333 kNm	245604 lb _f ft	333 kNm	245604 lb _f ft
	-Speed of rotation (max)	43,7 rpm	43.7 rpm	43,7 rpm	43.7 rpm
	-Spinoff speed	89 rpm	89 rpm	89 rpm	89 rpm
	Crowd system				
	-Crowd force (pull down/up)	318/322 kN	71480/72380 lb _f	400/400 kN	89922/89922 lb _f
	-Stroke (kelly system)	6500 mm	256 in	16760 mm	660 in
	-Stroke (CFA system)	23300 mm	917 in	17545 mm	691 in
	-Speed (down/up)	3,5/10,8 m/min	11.4/35.4 ft/min	6/20 m/min	19.6/65.6 ft/min
	-Fast speed (down/up)	11/10,8 m/min	36/35.4 ft/min	20/20 m/min	65.6/65.6 ft/min
	Main winch SW-320	controlled descent	controlled descent	controlled descent	controlled descent
	-Line pull (1st layer) effective/nominal	269/320 kN	60472/71938 lb _f	269/320 kN	60472/71938 lb _f
	-Rope diameter/length	32 mm/159 m	1.25 in/521 ft	32 mm/159 m	1.25 in/521 ft
	-Line speed (max.)	78 m/min	256 ft/min	78 m/min	256 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/length	26 mm	1.02 in	26 mm	1.02 in
	-Line speed (max.)	90 m/min	295.3 ft/min	90 m/min	295.3 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.)	61,2 m/min	200.8 ft/min	61,2 m/min	200.8 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 rope
- Swivel for main rope
- Crowd in fast or slow mode
- Pivoted anchor points for main and auxiliary ropes

Measuring and control equipment

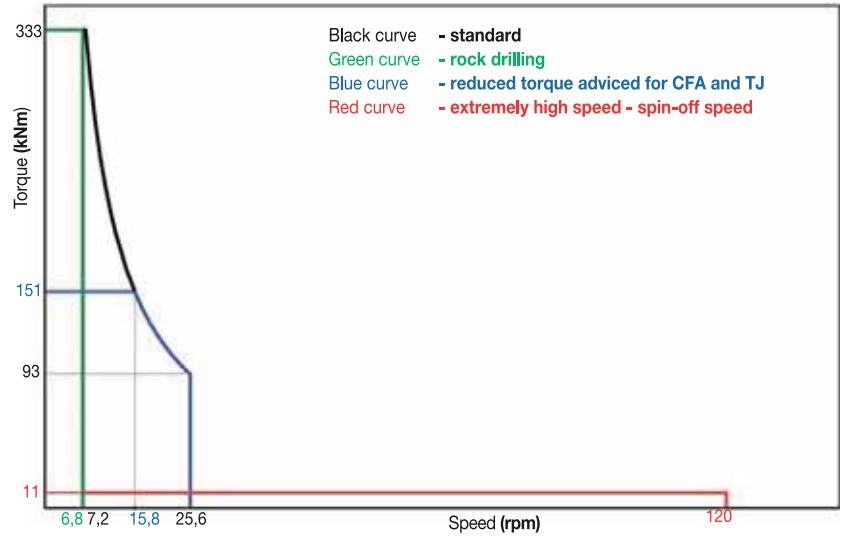
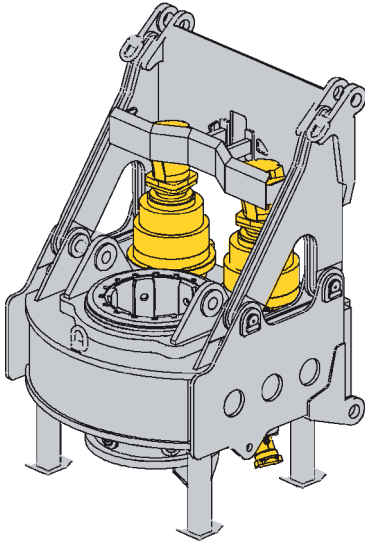
- PLC processor for all electrically actuated functions
- DMS system electronic monitoring and visualization system
- Mast inclination measurement on X/Y axes (*digital/analog display*)
- Automatic vertical mast alignment
- Depth measuring device on main winch
- Speed measuring device on rotary
- Crowd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



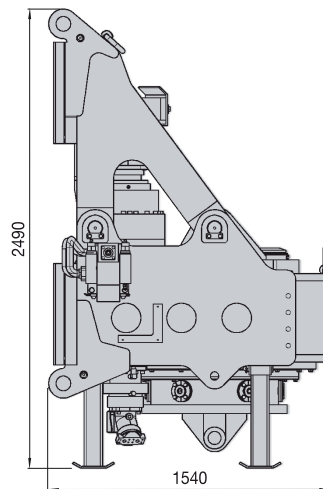
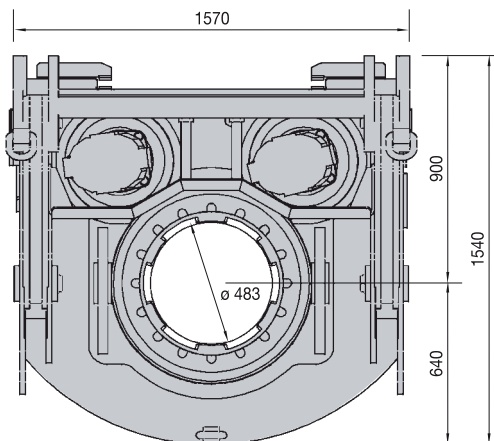
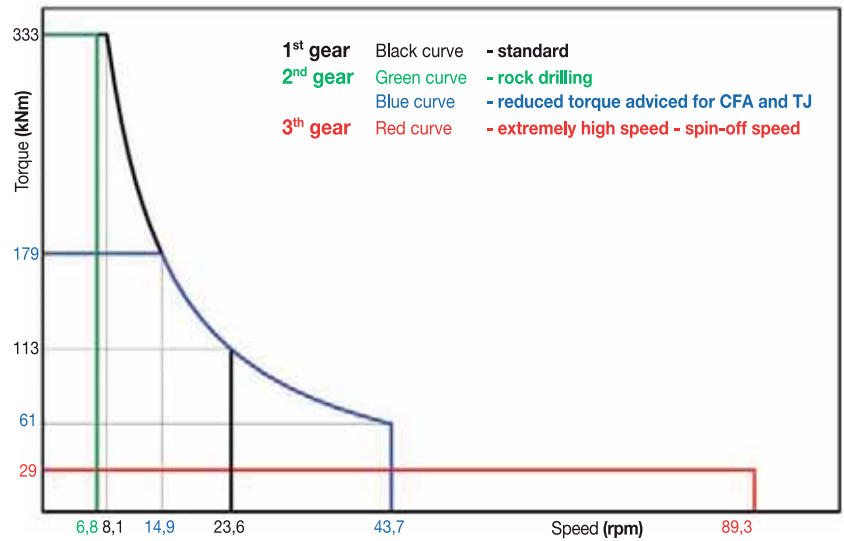
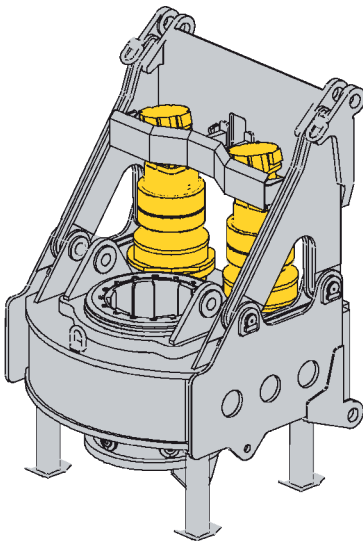
TTJ version

TECHNICAL DATA - ROTARY DRIVE

Rotary RD-330






Rotary RD-330 G



Rotary	Weight	
Crowd cylinder version	7200 kg	15880 lbs
Crowd winch version	7700 kg	16980 lbs

TECHNICAL DATA - BASE CARRIER



	Engine	Deutz TCD2015-V08	<i>Deutz TCD2015-V08</i>
	-Rated output ISO 3046-I	400kW @ 1900 rpm	<i>536 HP @ 1900 rpm</i>
	-Engine conforms to Exhaust emission Standard	EU stage III A, EPA CARB Tier 3	<i>EU stage III A, EPA CARB Tier 3</i>
	-Diesel tank capacity	840 l	<i>222 US gal</i>
	-Sound pressure level in cabin (EN791 Annex A)	80 dB (A)	<i>80 dB (A)</i>
	-Sound power level (2000/14EG u. EN791, Annex A)	117 dB (A)	<i>117 dB (A)</i>
	Hydraulic system*		
	-Hydraulic power output (measured at inlet to rotary drive)	280 kW	<i>375 HP</i>
	-Hydraulic pressure	300 bar	<i>4351 psi</i>
	-Flow rates (main circuits)	2 x 405 l/min	<i>2 x 107 US gal/min</i>
	-Hydraulic oil tank capacity	1.065 l	<i>281 US gal</i>
	Undercarriage* (retractable crawler frames)		
	-Crawler type	D7F	<i>D7F</i>
	-Overall width (removed side frames)	2960 mm	<i>116.5 in</i>
	-Overall width of crawlers (retracted/extended)	3400/5000 mm	<i>133.8/196.8 in</i>
	-Width of triple grouser track shoes	900 mm	<i>35.4 in</i>
	-Overall length of crawlers	5970 mm	<i>234.9 in</i>
	-Traction force effective/nominal	624/742,8 kN	<i>140278/166985 lb_f</i>
	-Travel speed	2,1 km/h	<i>1.3 mph</i>

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

Standard equipment

- Oscillator attachment
- Central lubrication system
- 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
- Videocamera attachment

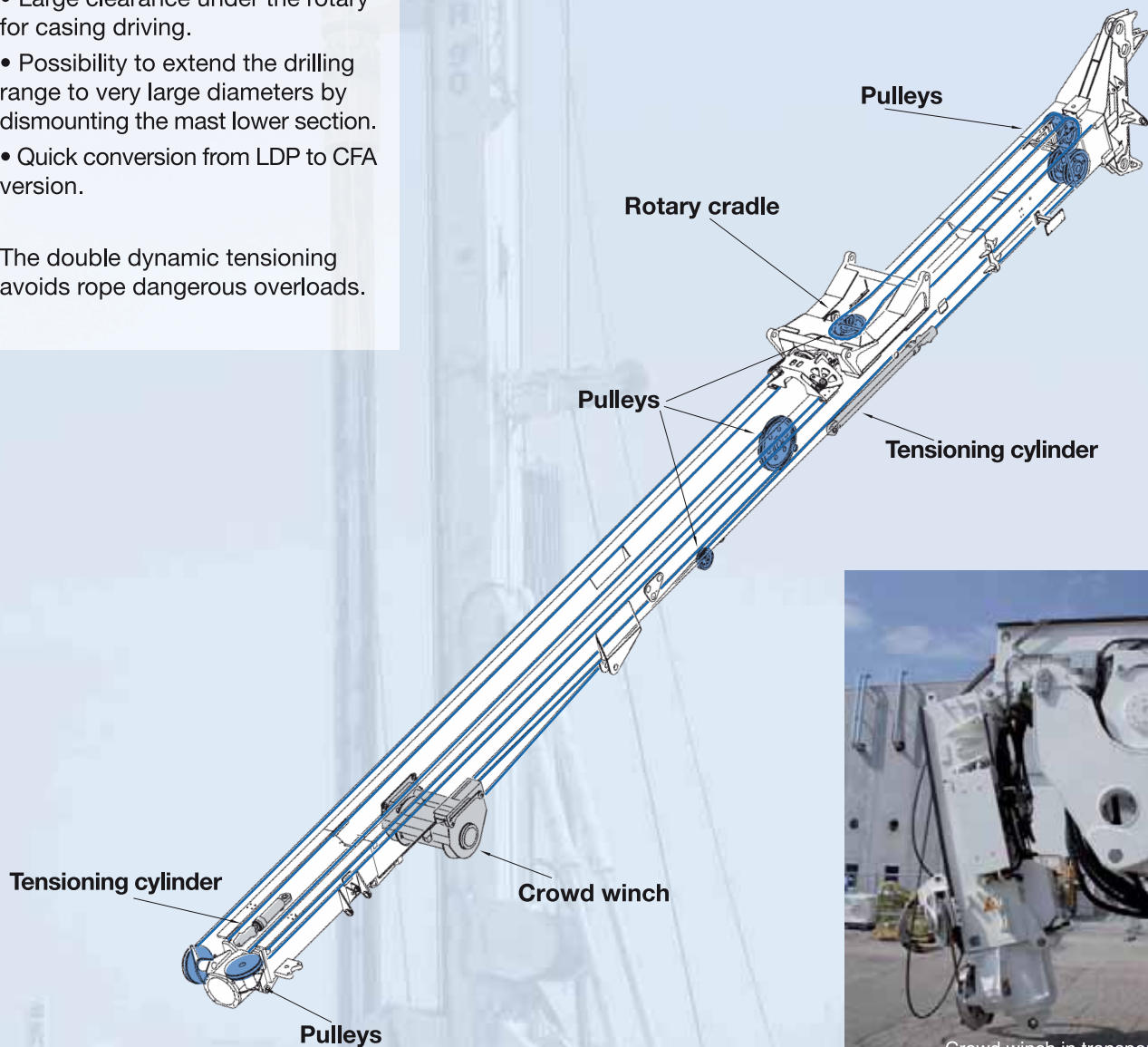
Alternative equipment options

- Wider triple grouser track shoes
- Lattice mast extension (for CFA and DP)

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.

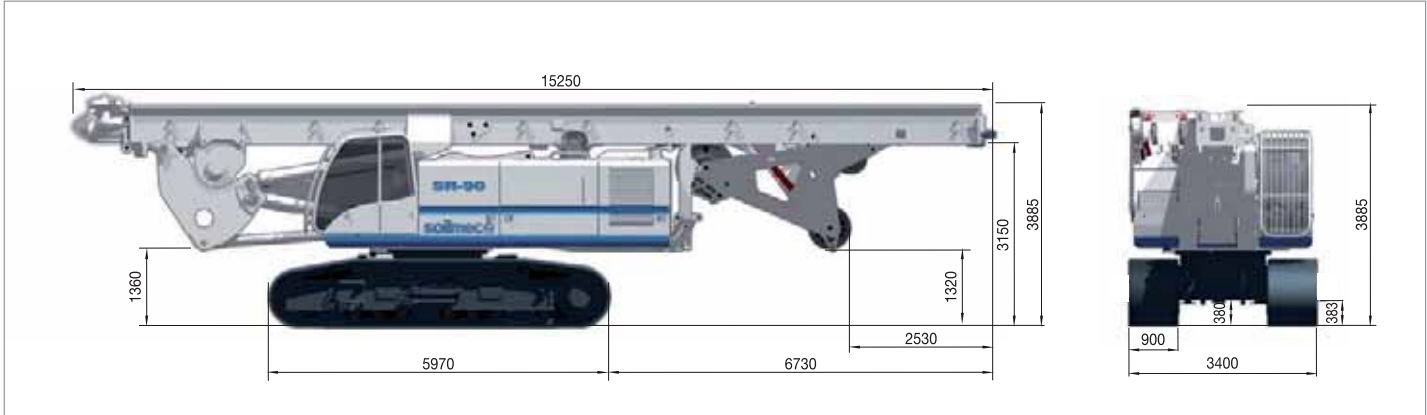


FOCUS - Self erecting counterweight system

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.

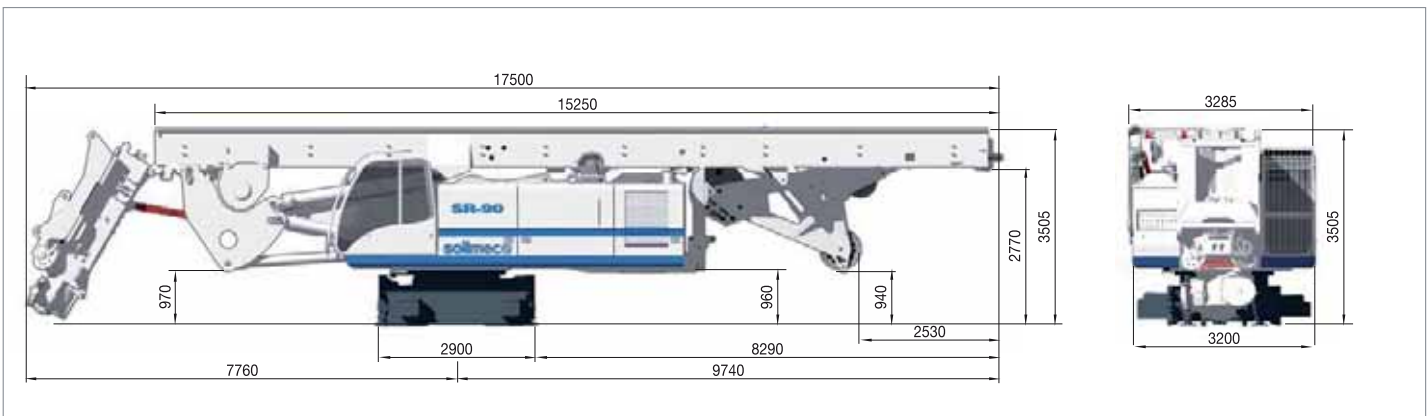


TRANSPORT DATA



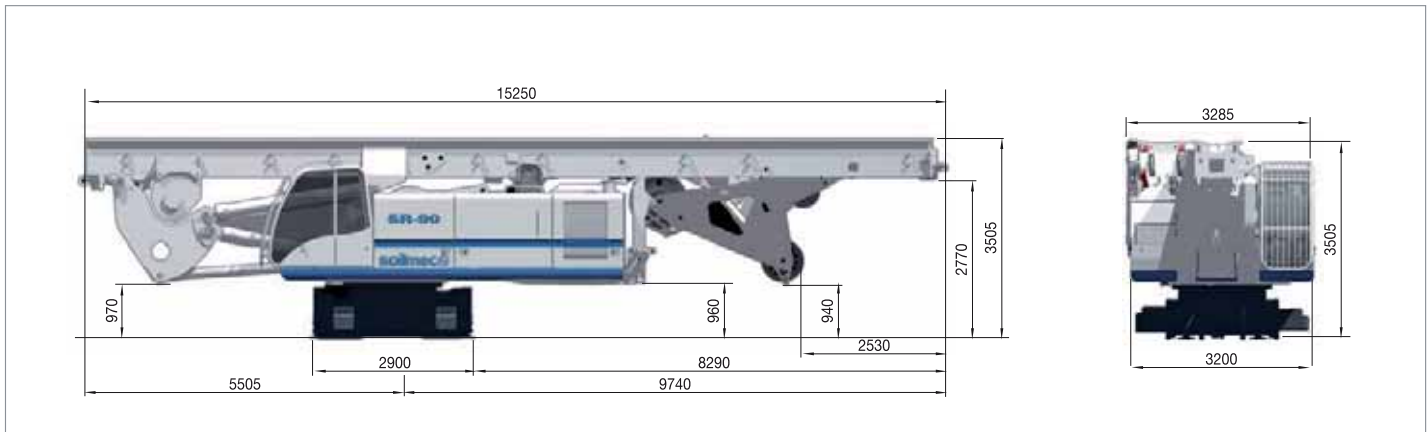
Transport w/o lower mast element

Weight **80400 kg** 177251 lb



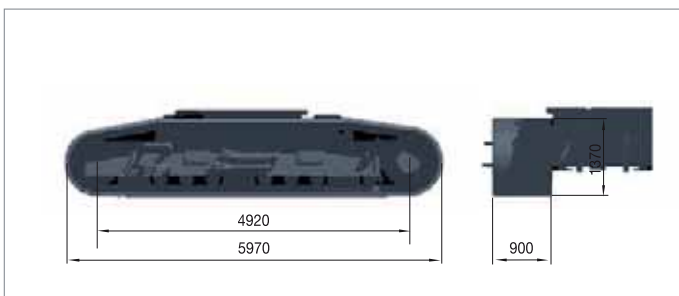
Transport w/o side frames

Weight **66800 kg** 147268 lb

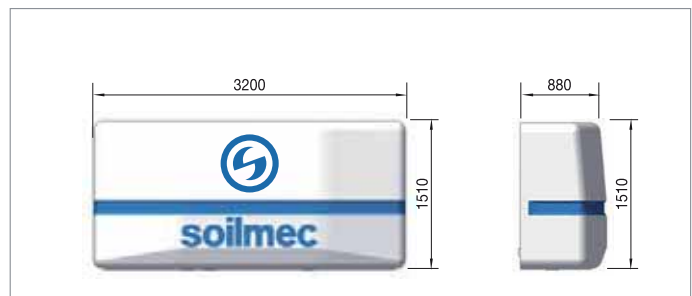


Transport w/o lower mast element and side frames

Weight **62390 kg** 137568 lb



Side frames Weight **9000 kg** 19841 lb



Counterweight Weight **15000 kg** 33069 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

DMS is a standard device on all Soilmec machines. Its main characteristics are:

- interface with Diesel engine
- programmed rig maintenance schedule
- troubleshooting - helping the operator to locate the fault
- production and operation data storage on CF card or USB flash drive for their processing on DMS PC
- connection to modem (GPRS, EDGE or SATELLITE) to send out alarms/data to customer/ Soilmec Control Center (DMS Manager) or to an e-mail address.

Technologies currently available on DMS:

- **LDP / CFA / DP / RCDS**
- **CAP / CSP**
- **GRAB**
- **HYDROMILL**
- **JET / DRILLING / ANCHORS**
- **TTM1-TTM2 / SOILMIXING**

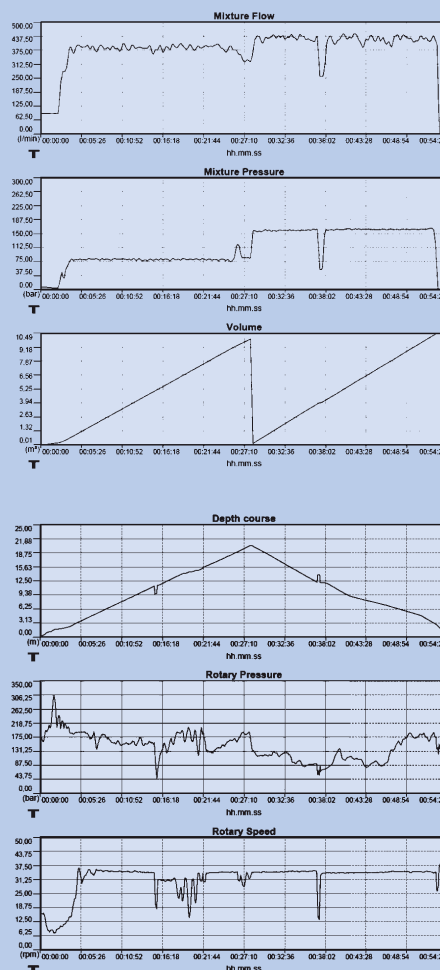
According to technology, DMS can also be complemented with:

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

DMS PC

DMS software enables "visualization and processing" of data either stored on CF/USB flash drive or received remotely via radio/GPS/wifi/satellite.

With the use of DMS PC daily and production reports are easily available.



DMS MANAGER

Enables full remote control of the machine operations and processing of drilling data sent by modem (wifi/satellite/GPRS).

DMS MANAGER allows to fully use the DMS potential for a truly comprehensive service to customer/jobsite.



SPARE PART ONLINE CENTER (SPOC)

The innovative technical web site of Soilmec S.p.A. has been published with the aim to give Soilmec Dealer Network **continuous updated information** regarding products and equipments, for a better interaction with the Customers. Infact, SPOC offers the following online features:

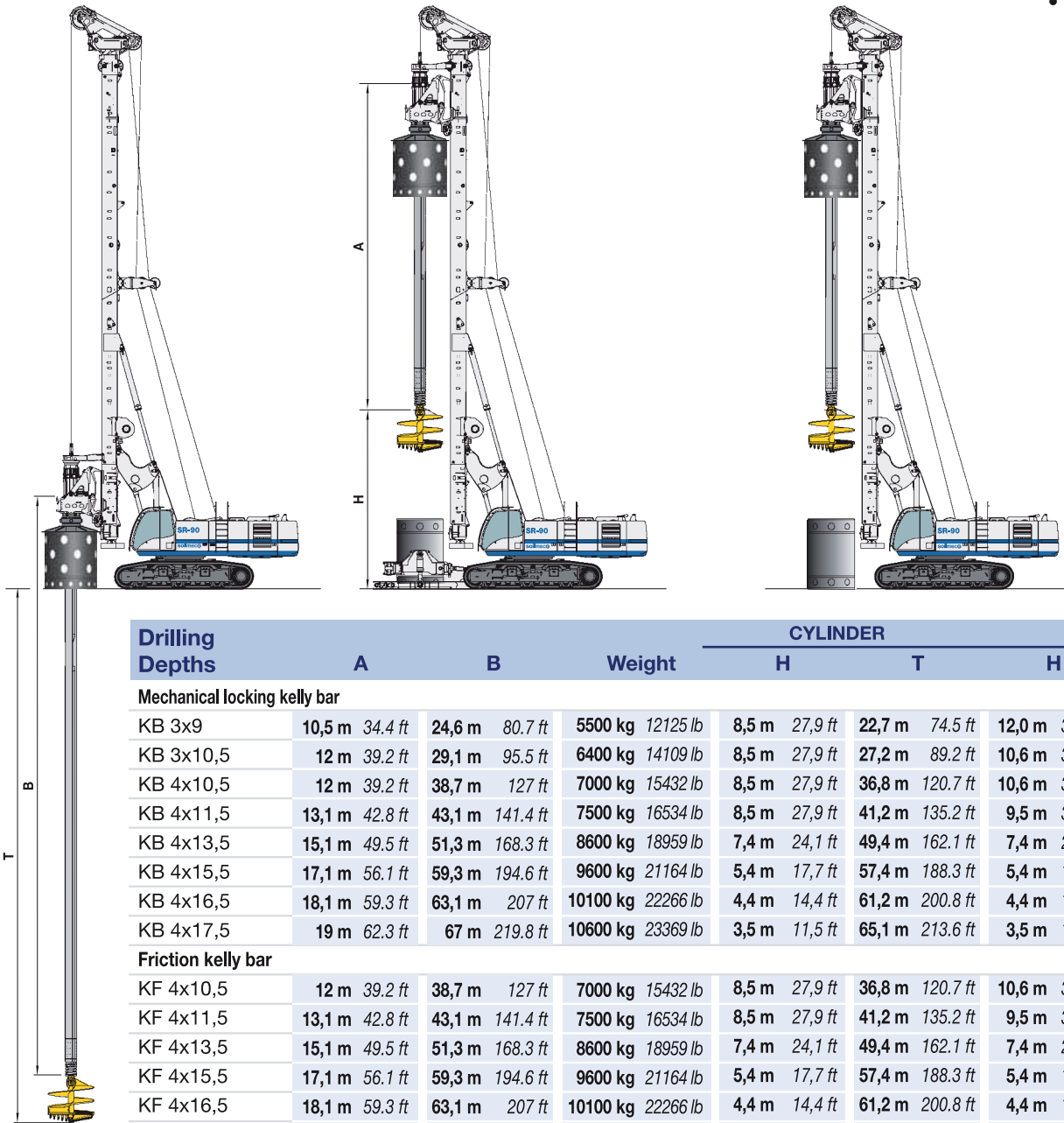
- consultation and downloading of rig documentation, e.g. user and maintenance manuals electrical / hydraulic drawings, DMS manuals, technical documentation, etc
- placement and management of purchase orders for spare parts
- real time availability of components of spare parts.

APPLICATIONS

LDP - Kelly Drilling System

Optional equipment:

- Hydraulic oscillator
VRM 200 KL



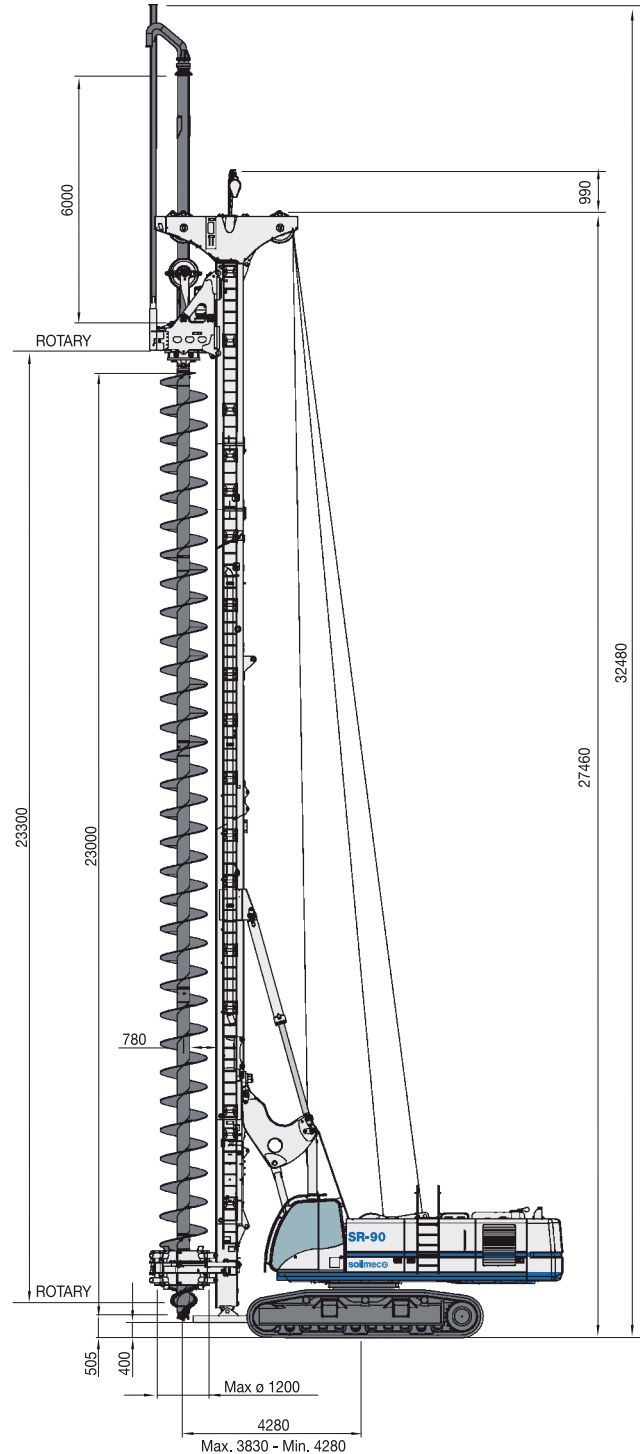
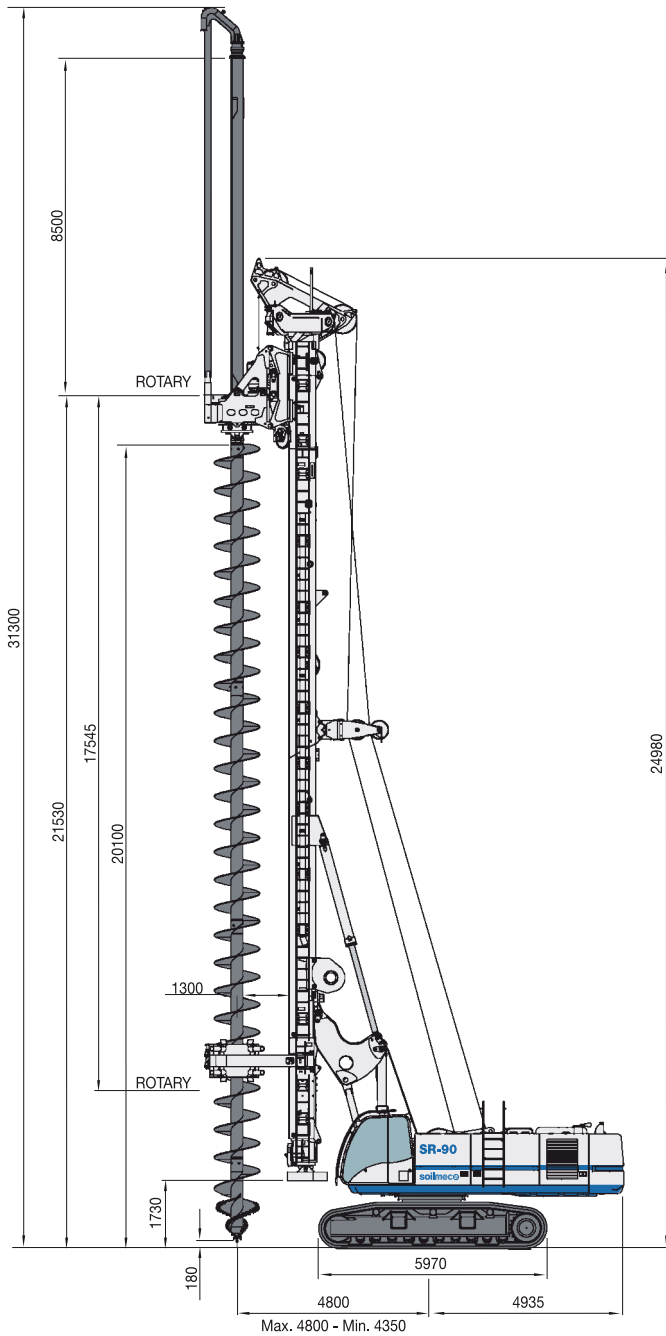
Drilling Depths	A		B		Weight	CYLINDER				WINCH				
						H	T	H	T	H	T			
Mechanical locking kelly bar														
KB 3x9	10,5 m	34.4 ft	24,6 m	80.7 ft	5500 kg	12125 lb	8,5 m	27,9 ft	22,7 m	74.5 ft	12,0 m	39,4 ft	22,3 m	73.2 ft
KB 3x10,5	12 m	39.2 ft	29,1 m	95.5 ft	6400 kg	14109 lb	8,5 m	27,9 ft	27,2 m	89.2 ft	10,6 m	34,6 ft	26,8 m	87.9 ft
KB 4x10,5	12 m	39.2 ft	38,7 m	127 ft	7000 kg	15432 lb	8,5 m	27,9 ft	36,8 m	120.7 ft	10,6 m	34,6 ft	36,4 m	119.4 ft
KB 4x11,5	13,1 m	42.8 ft	43,1 m	141.4 ft	7500 kg	16534 lb	8,5 m	27,9 ft	41,2 m	135.2 ft	9,5 m	31,0 ft	40,8 m	133.9 ft
KB 4x13,5	15,1 m	49.5 ft	51,3 m	168.3 ft	8600 kg	18959 lb	7,4 m	24,1 ft	49,4 m	162.1 ft	7,4 m	24,3 ft	49 m	160.8 ft
KB 4x15,5	17,1 m	56.1 ft	59,3 m	194.6 ft	9600 kg	21164 lb	5,4 m	17,7 ft	57,4 m	188.3 ft	5,4 m	17,7 ft	57 m	187 ft
KB 4x16,5	18,1 m	59.3 ft	63,1 m	207 ft	10100 kg	22266 lb	4,4 m	14,4 ft	61,2 m	200.8 ft	4,4 m	14,4 ft	60,8 m	199.5 ft
KB 4x17,5	19 m	62.3 ft	67 m	219.8 ft	10600 kg	23369 lb	3,5 m	11,5 ft	65,1 m	213.6 ft	3,5 m	11,5 ft	64,7 m	212.3 ft
Friction kelly bar														
KF 4x10,5	12 m	39.2 ft	38,7 m	127 ft	7000 kg	15432 lb	8,5 m	27,9 ft	36,8 m	120.7 ft	10,6 m	34,6 ft	36,4 m	119.4 ft
KF 4x11,5	13,1 m	42.8 ft	43,1 m	141.4 ft	7500 kg	16534 lb	8,5 m	27,9 ft	41,2 m	135.2 ft	9,5 m	31,0 ft	40,8 m	133.9 ft
KF 4x13,5	15,1 m	49.5 ft	51,3 m	168.3 ft	8600 kg	18959 lb	7,4 m	24,1 ft	49,4 m	162.1 ft	7,4 m	24,3 ft	49 m	160.8 ft
KF 4x15,5	17,1 m	56.1 ft	59,3 m	194.6 ft	9600 kg	21164 lb	5,4 m	17,7 ft	57,4 m	188.3 ft	5,4 m	17,7 ft	57 m	187 ft
KF 4x16,5	18,1 m	59.3 ft	63,1 m	207 ft	10100 kg	22266 lb	4,4 m	14,4 ft	61,2 m	200.8 ft	4,4 m	14,4 ft	60,8 m	199.5 ft
KF 4x17,5	19 m	62.3 ft	67 m	219.8 ft	10600 kg	23369 lb	3,5 m	11,5 ft	65,1 m	213.6 ft	3,5 m	11,5 ft	64,7 m	212.3 ft
KF 5x10,5	12 m	39.2 ft	48 m	157.5 ft	7800 kg	17196 lb	8,5 m	27,9 ft	46,1 m	115.2 ft	10,6 m	34,6 ft	45,7 m	149.9 ft
KF 5x11,5	13,1 m	42.8 ft	53,4 m	175.2 ft	8400 kg	18519 lb	8,5 m	27,9 ft	51,5 m	169 ft	9,5 m	31,0 ft	51,1 m	167.7 ft
KF 5x13,5	15,1 m	49.5 ft	63,8 m	209.3 ft	9700 kg	21384 lb	7,4 m	24,1 ft	61,9 m	203.1 ft	7,4 m	24,3 ft	61,5 m	201.8 ft
KF 5x15,5	17,1 m	56.1 ft	73,7 m	241.8 ft	10900 kg	24030 lb	5,4 m	17,7 ft	71,8 m	235.6 ft	5,4 m	17,7 ft	71,4 m	234.3 ft
KF 5x16,5	18,1 m	59.3 ft	78,5 m	257.5 ft	11600 kg	25573 lb	4,4 m	14,4 ft	76,6 m	251.3 ft	4,4 m	14,4 ft	76,2 m	250 ft
KF 5x17,5	19 m	62.3 ft	83,3 m	273.3 ft	12200 kg	26896 lb	3,5 m	11,5 ft	81,4 m	267.1 ft	3,5 m	11,5 ft	81 m	265.7 ft

Drilling Diameters	CYLINDER		WINCH	
Uncased	2500 (3000) mm	98.4 (118.1) in	2500 (3000) mm	98.4 (118.1) in
Cased	2500 mm	98.4 in	2500 mm	98.4 in

() removing the mast bottom section

**Quick Conversion Model
combined line pull**

**Traditional CFA
4-part line pull**



	combined line pull		4-part line pull	
Kelly extension	8,5 m	27.8 ft	6 m	19.6 ft
Drilling depth with auger cleaner	25,5 m (17+8,5)	83.6 ft (55.8+27.8)	28,5 m (22,5+6)	93.5 ft (73.9+19.6)
Drilling depth without auger cleaner	24 m (15,5+8,5)	78.7 ft (50.9+27.8)	27 m (21+6)	88.5 ft (68.9+19.6)
Max drilling diameter	1200 mm	47.2 in	1200 mm	47.2 in
Max extraction force	940 kN	211317 lb _f	1280 kN	287750 lb _f
Max crowd force	360 kN	80930 lb _f	410 kN*	92170 lb _f *
Continuous flight auger length including starter auger	20000 mm	787.4 in	23000 mm	905.5 in
Operating weight (approx. w/o augers)	109000 kg	240301 lb	110000 kg	242500 lb

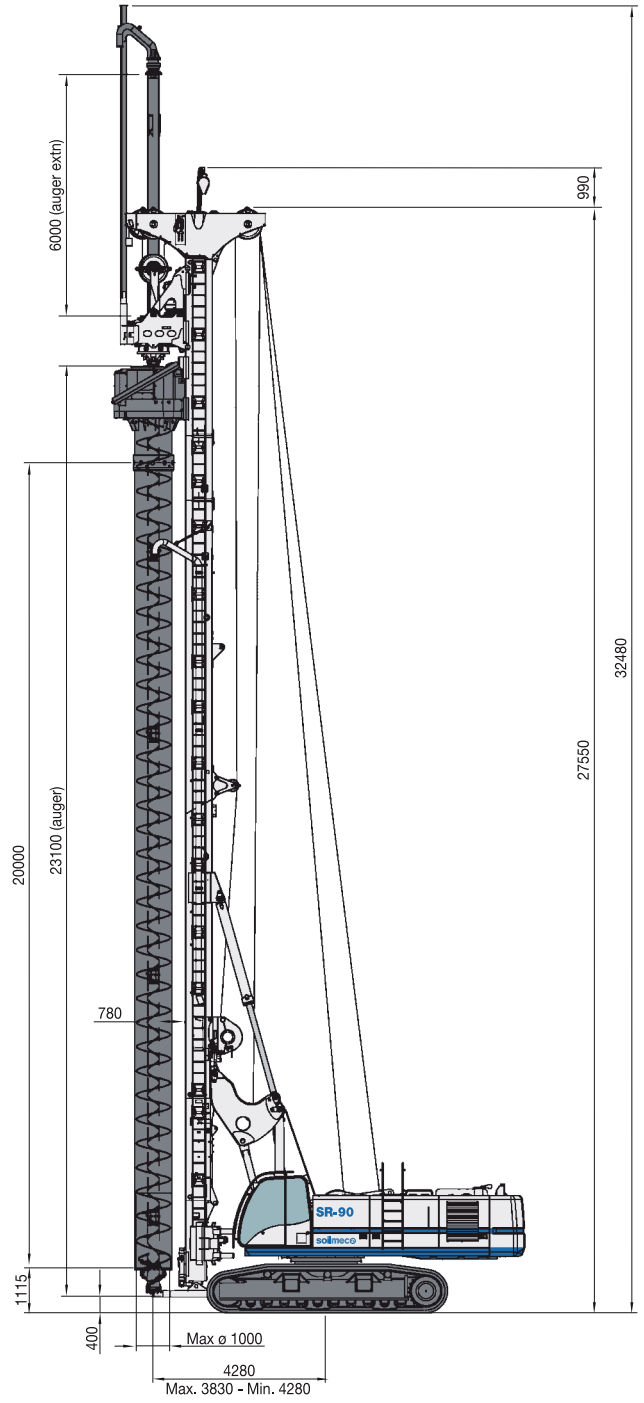
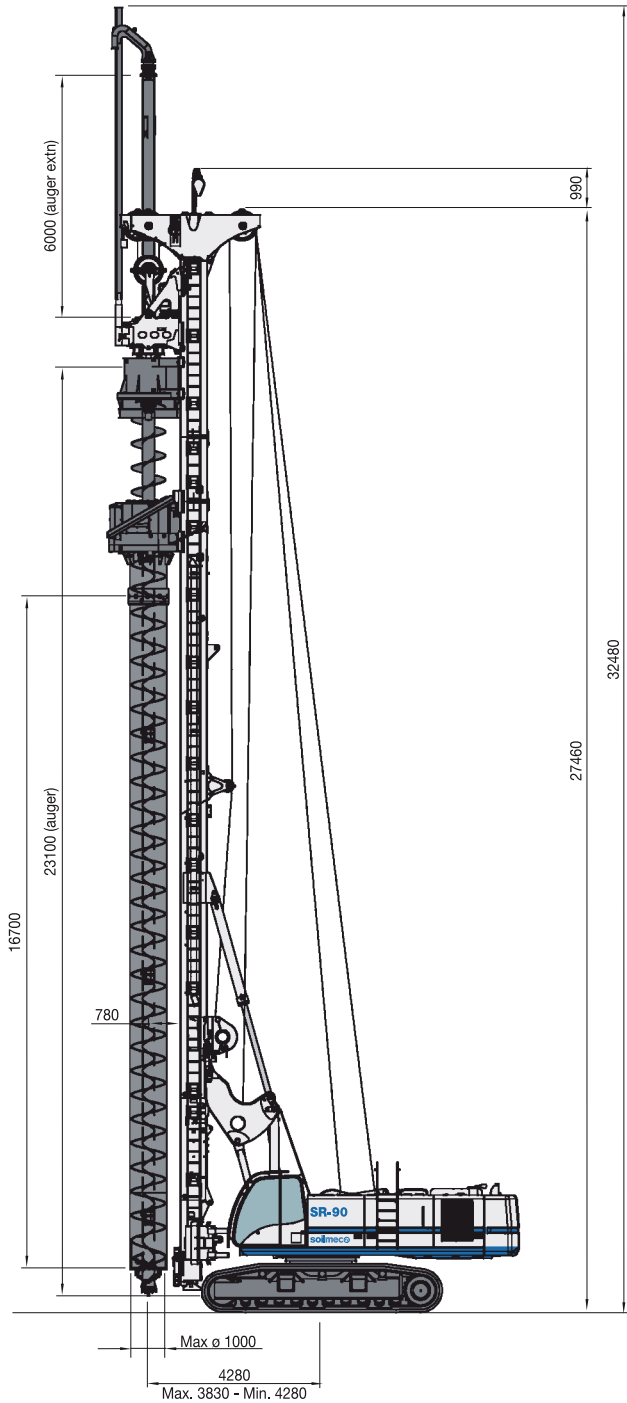
* Option: max depth reduced by 1.5 m

APPLICATIONS

CAP - Cased Auger Piles

with auger cleaner

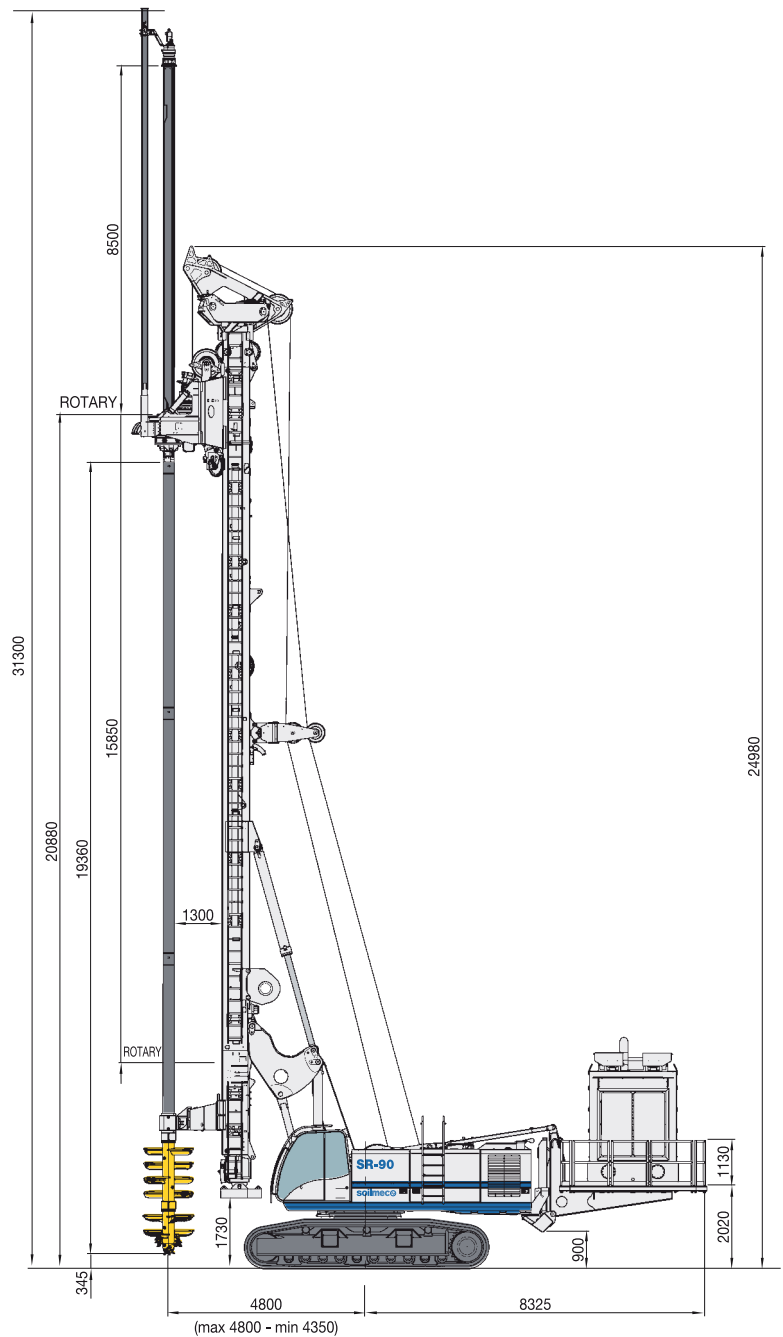
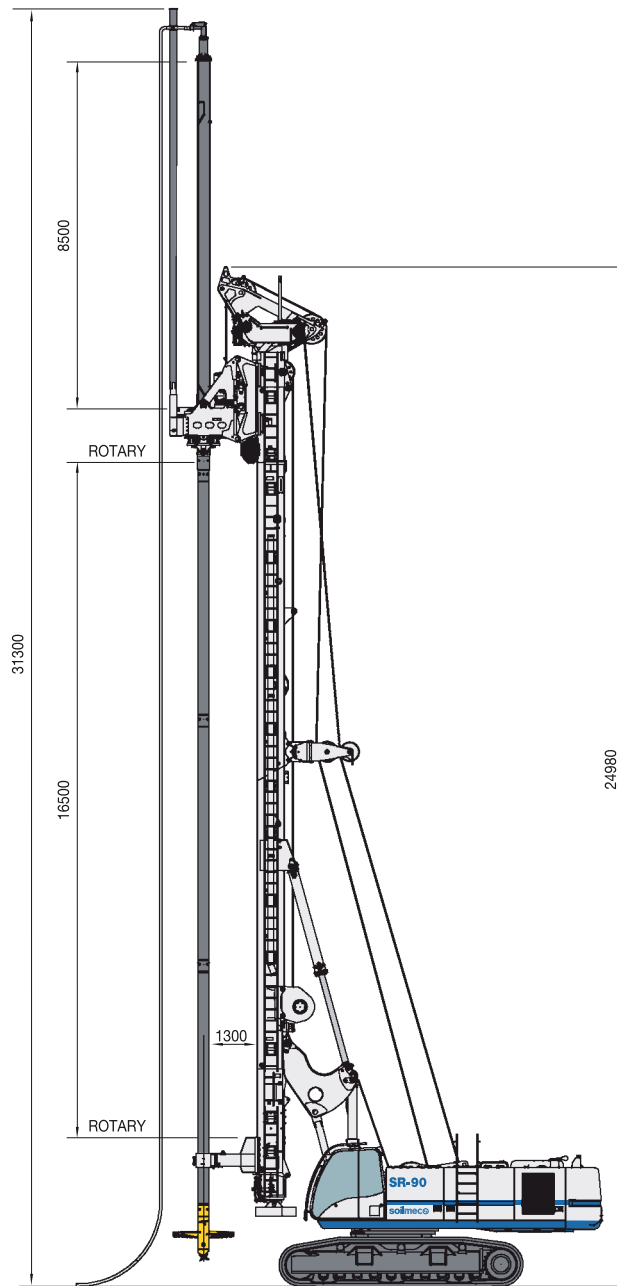
w/o auger cleaner



Rotary drive for casing	350 kNm	258142 lb_f ft
Max speed of casing rotary	5 rpm	5 rpm
Max drilling diameter	1000 mm	39.4 in
Max pile depth	25 m	82 ft
Max cased depth	19 m	62.3 ft
Casing extraction force	410 kN	92170 lb_f
Relative movement between rotaries	20570 mm	810 in
Operating weight (w/o auger, w/o casing)	116000 kg	255700 lb

Single Turbojet Version

Twin Turbojet Version



	TJ	
	single	
Extension	8,5 m	27.8 ft
Drilling depth	24,4 m	80 ft
Torque	179 kNm	132021 lb _f ft
Speed	43,7 rpm	43.7 rpm
Extraction force	940 kN	211317 lb _f
Drilling diameter	1600 mm	63 in
External power pack	-	-
Operating weight (approx.)	109000 kg	240301 lb

	TTJ	
	twin with ext. power pack	
Extension	8,5 m	27.8 ft
Drilling depth	24,4 m	80 ft
Torque	179 kNm	132021 lb _f ft
Speed	54,4 rpm	54.4 rpm
Extraction force	940 kN	211317 lb _f
Drilling diameter	1600 mm	63 in
External power pack	560 kW	750 HP
Operating weight (approx.)	122000 kg	268961 lb

	TTJ	
	twin w/out ext. power pack	
Extension	8,5 m	27.8 ft
Drilling depth	24,4 m	80 ft
Torque	179 kNm	132021 lb _f ft
Speed	47,6 rpm	47.6 rpm
Extraction force	940 kN	211317 lb _f
Drilling diameter	1200 mm	47 in
External power pack	-	-
Operating weight (approx.)	117000 kg	257938 lb

All technical data are purely indicative and subject to change without notice



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