

ST-30

ROTARY EQUIPMENT FOR TUNNELLING



ST-30

ROTARY EQUIPMENT FOR TUNNELLING

Thanks to the deep knowledge developed in the mechanic and hydraulic fields and the huge experience gathered from the various job-sites all around the world SOILMEC is always in a position to offer the most suitable equipment to meet with operational requirements.

New soil consolidation methods - focused on the vault and excavation front - to guarantee vault pre-consolidation as well as the highest safety while carrying on with excavation have been developed for the construction of large section tunnels in difficult soils. These methods forecast the execution of arches of consolidated soil by means of injected cement based grout, interlocked jet grouting columns, steel pipes or fiberglass bars and are often complemented by the tunnel face nailing by means of jet grouting columns or fiberglass bars.

Soilmec new **ST-30** has been specially designed and adapted to complete this type of work in a most efficient and effective way where speed and precision are the optimum requirement. This process allows easier and more cost effective treatment of either soft or fractured rocks. Compared to the SM Standard Tunnelling Machine, the **ST-30** is equipped with articulated rams allowing to achieve very short working radius consolidations. Thanks to its particular features, the equipment can easily be transformed in vertical version to perform micropiles and J.G. treatments.

Drilling techniques

The following techniques can be applied:

- **Rotation** (with or without casing).
- **Rotopercussion by means of Top Hammers** (with or without casing).
- **Rotopercussion by means of Down the Hole Hammers** (with Tubex system or without casing).

Main features

- Crawler width: **2500 mm.**
- Slew ring allowing: **360° rotation.**
- Front and rear articulated rams.
- Front and rear hydraulic slewing rings.
- Vault radius at 0°: **min. 1528 mm - max 5037 mm.**
- Min height from ground level at 0°: **3278 mm.**
- Max treatment depth: **13/14m by one step.**
- Easy transport.

Optionals

- Electronic data and visualizing system and consolidation treatment.
- Double powering (Diesel and Electric).
- Radio transmission remote control.
- Rod feeder (L=12 m rod).

Other optionals version

- **Double rotary** (Rotary - Rotary).
- **Double rotary** (Rotop - Rotary).
- **Top hammer.**
- **Jet Grouting kit.**
- **Foam Pump System.**

Rotary equipment anchors version

The equipment can be purposely equipped to achieve a max. working mast inclination of 40° make it suitable for anchoring jobs. In such a version the rear ram will be as a "fixed-type telescopic column".

Vertical version for Jet Grouting & Micropiles

The machine in vertical configuration can be equipped either for Jet Grouting consolidation or for Micropiles purpose. In Jet Grouting version the max rod-string-length which can be mounted is 28 m.

Visualizing System and Radio-transmission Remote Control



The ST-30 can be equipped with a special radio-transmission remote control system for the proportional control of the mast positioning, rams' cylinder sliding and slewing ring rotation. In order to assure the best safety working conditions, the mobile remote control board is equipped with an emergency button for automatic stopping. The same is also supplied with neck or waist belt in order to provide the operator with maximum freedom of movements. The mobile radio-transmission remote control board is able to operate in the most difficult locations like tunnels and mines.

ST-30

ROTARY EQUIPMENT FOR TUNNELLING

Working Features

Height from working level of slew ring rot. centers	mm	1750
Max. height of horiz. consolidation treatment	mm	6787
Horizontal consolidation treatment	mm	1528 (min) - 5037 (max)
Consolidation treatment radius @ 5°	mm	2550 (min) - 5447 (max)
Max. height of consolidation treatment @ 5°	mm	7197
Max. horizontal consolidation treatment width	mm	10074
Max. consolidation treatment width @ 5°	mm	10894

Diesel Engine

Type		CUMMINS QSB TIER II
Max power	kW	140 @ 1900 rpm
Fuel tank capacity	l	330
Max fuel consumption	g/kWhr	226 @ 2200 rpm
Hydraulic oil tank capacity	l	430

Electric Motor

Rated power	kW (BHP)	90 (121)
-------------	----------	----------

Crawler Undercarriage

Track pads width	mm	600
Extendable crawler (retracted/expanded) width	mm	2500 - 3400
Max. gradient		57% - 30°
Trimming speed	km/h	1.5
Ground pressure	MPa	0.09
Max traction force	kN	194

Drill Guide

		Horizontal	Vertical
Length	mm	16700/17700	9700
Rotary cradle stroke	mm	13000/14000	7000
Crowd force	kN		84
Hoist force	kN		84
Crowd speed	m/min		0 - 30
Hoist speed	m/min		0 - 30
Rope diameter	mm		19

Rotary Head

Max. torque	daNm	1350
Max. speed	rpm	461

Clamps and Joint Breakers

Diameter range	mm	60 - 225
Clamping force	kN	159
Breaking out torque	daNm	3830

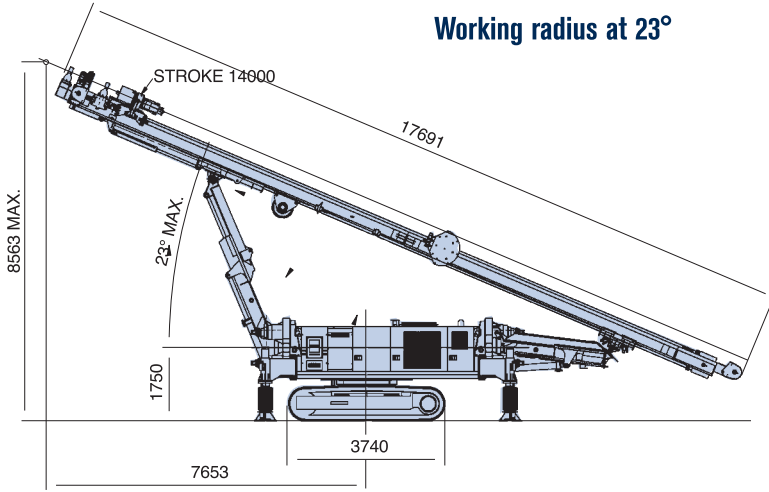
Weight

		Horizontal	Vertical
Weight in working condition	ton	30/32	28
Weight in double head	ton	32/33	-

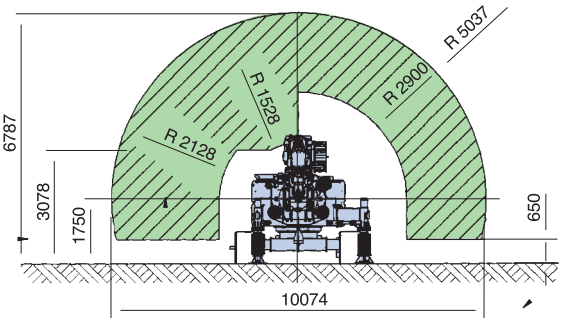
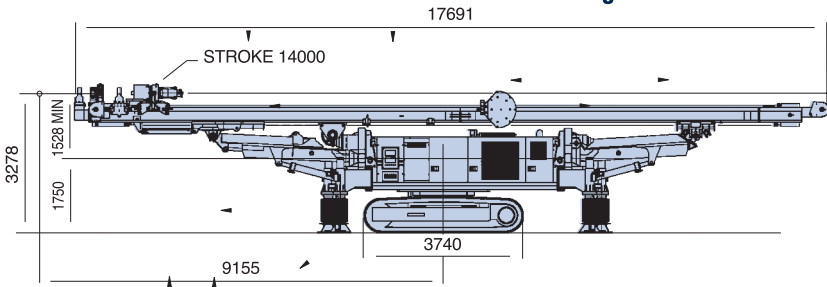
ST-30

ROTARY EQUIPMENT FOR TUNNELLING

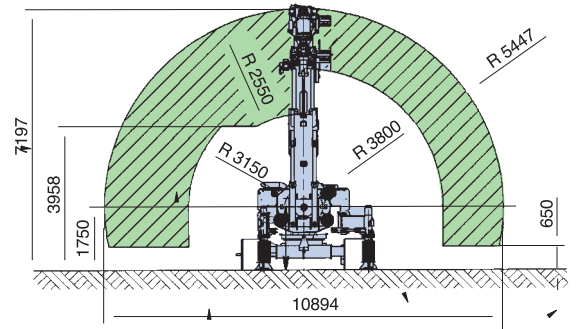
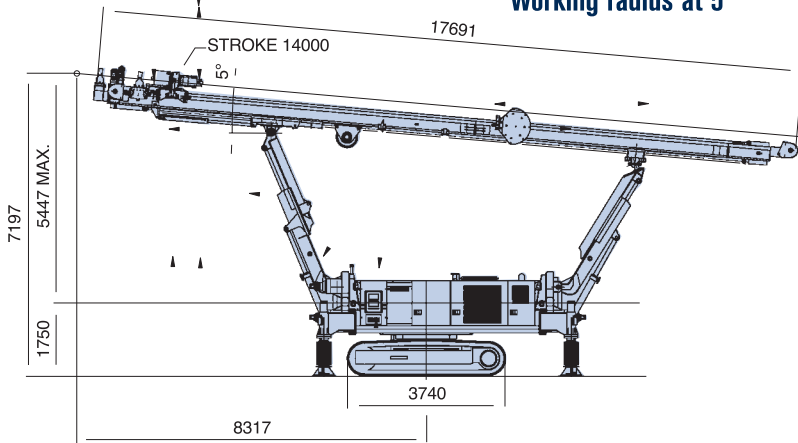
Working radius at 23°



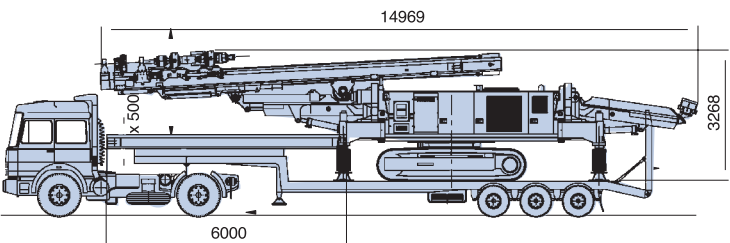
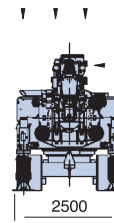
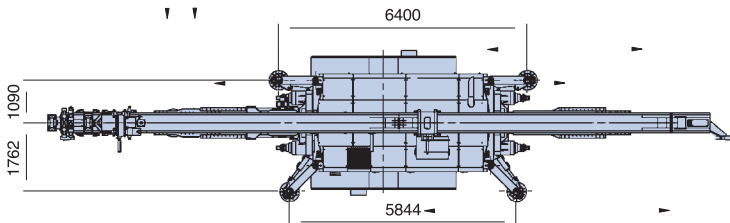
Working radius at 0°



Working radius at 5°



Transport Conditions Tunnelling (Version A)

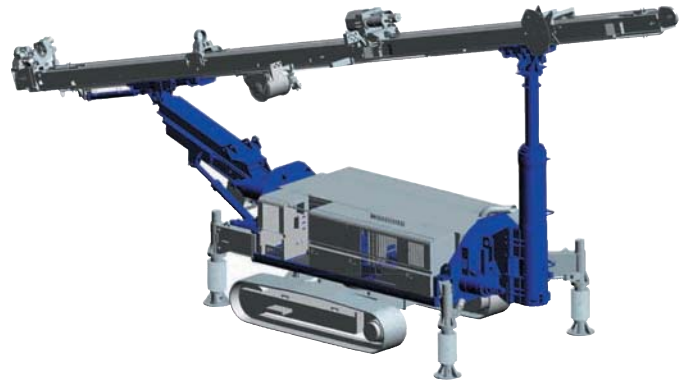
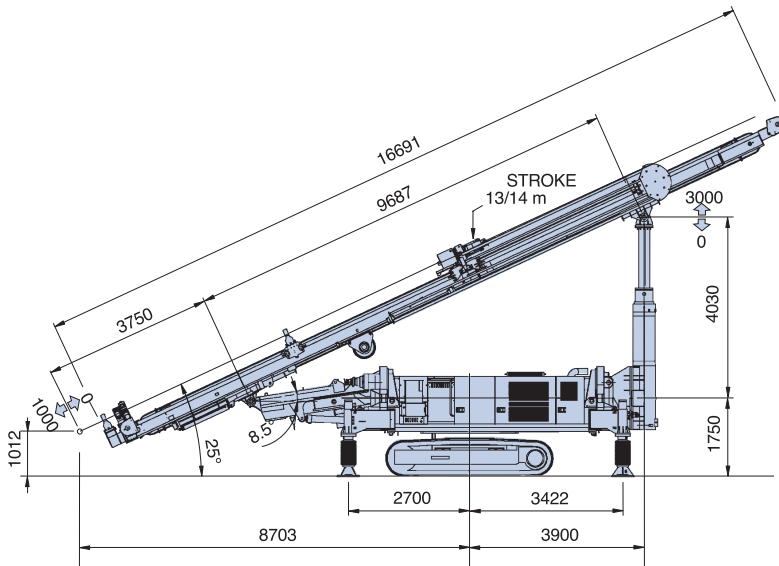
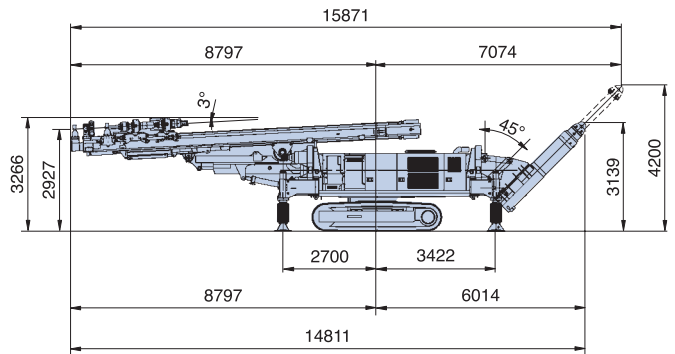
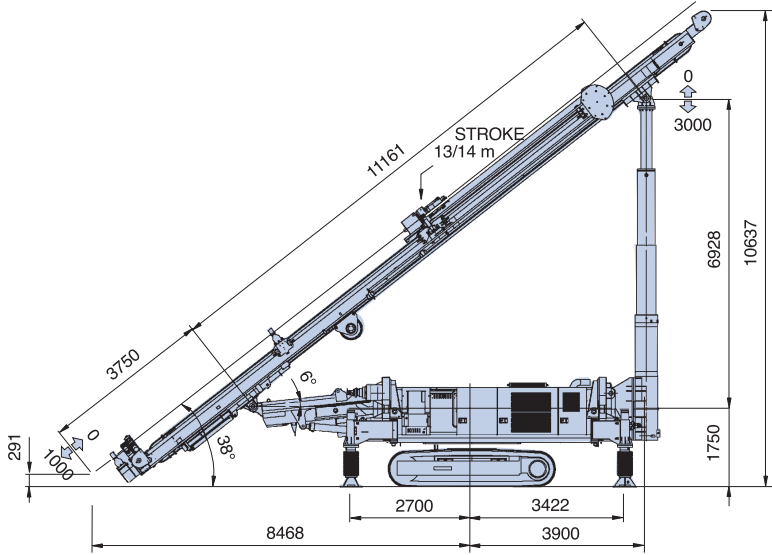


Transport Conditions Tunnelling (Version A)

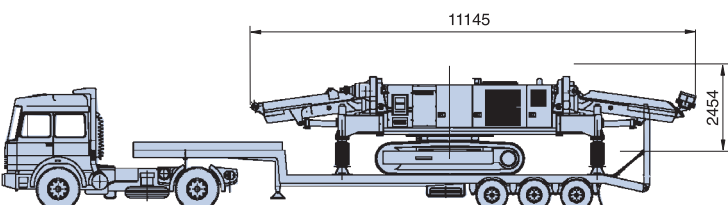
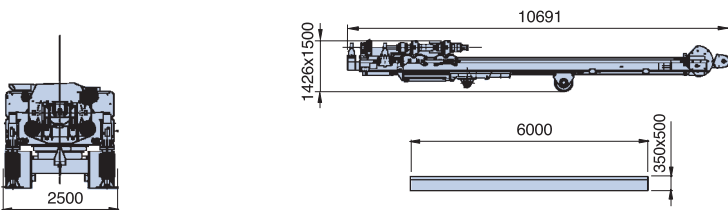
Transport dim. w/o drill guide ext.	mm	14969
Weight in transport condition	ton	29
Drill guide extension length	mm	6000 - 350x500
Drill guide extension weight	kg	700

ST-30

ROTARY EQUIPMENT ANCHORS VERSION



Transport Conditions Tunnelling (Version B)



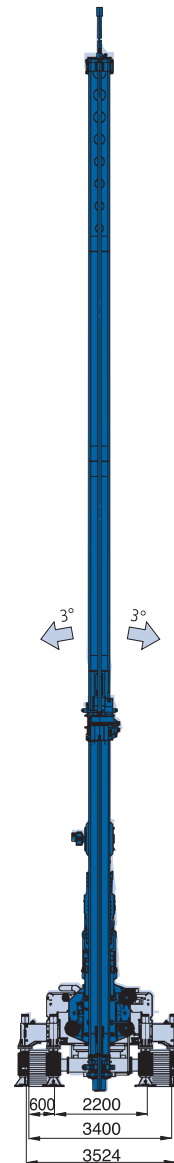
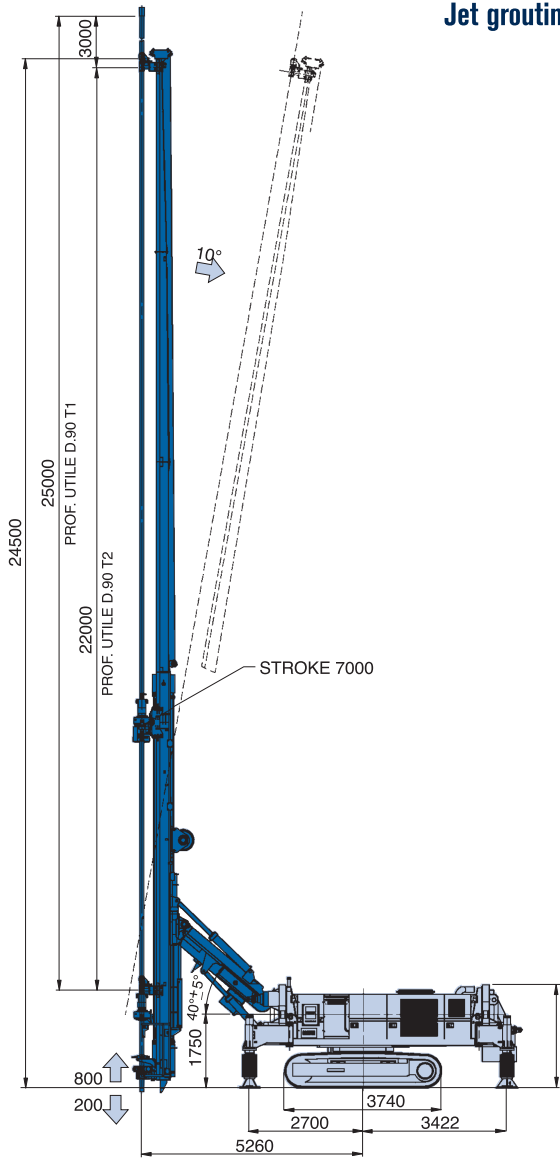
Transport Conditions Tunnelling (Version B)

Transport dim. w/o drill guide	mm	11145
Weight in transport condition	ton	25.7
Drill guide extension length	mm	6000 - 350x500
Drill guide extension weight	kg	700
Base drill guide length	mm	10691 - 1426x1500
Base drill guide weight	ton	5,6

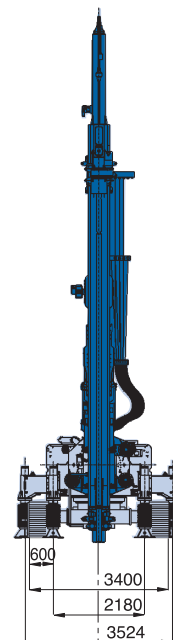
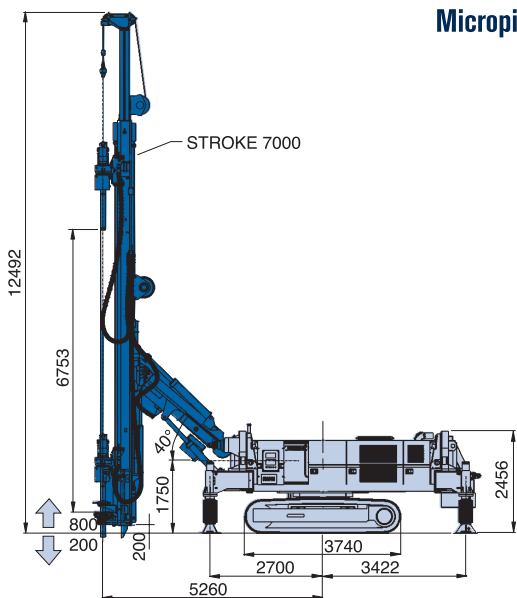
ST-30

VERTICAL VERSION FOR JET GROUTING & MICROPILES

Jet grouting version



Micropiles version





SOILMEC distributes machinery and structures all over the world, supported by SOILMEC subsidiary companies and representative offices as:

SOILMEC LTD - U.K.

SOILMEC MISR S.A.E. Co. - Egypt

SOILMEC (H.K.) Limited - Hong Kong

SOILMEC JAPAN CO LTD - Japan

SOILMEC S.P.A. - Beijing Repr. Office - P.R. China

SOILMEC FAR EAST PTE.LTD - Singapore

SOILMEC EMIRATES - U.A.E.

SOILMEC GULF - U.A.E.

SOILMEC FRANCE S.A.S. - FRANCE

In 1990 Soilmec was awarded with the certification of its Quality System complying with ISO 9001:2000 standards.



SOILMEC S.p.A.

Drilling and Foundation Equipment

5819, via Dismano

47023 Cesena (FC) - Italy

tel. +39-0547-319111

fax +39-0547-318548

[http:// www.soilmec.it](http://www.soilmec.it)

e-mail: soilmec@soilmec.it

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

soilmec 
Drilling and Foundation Equipment