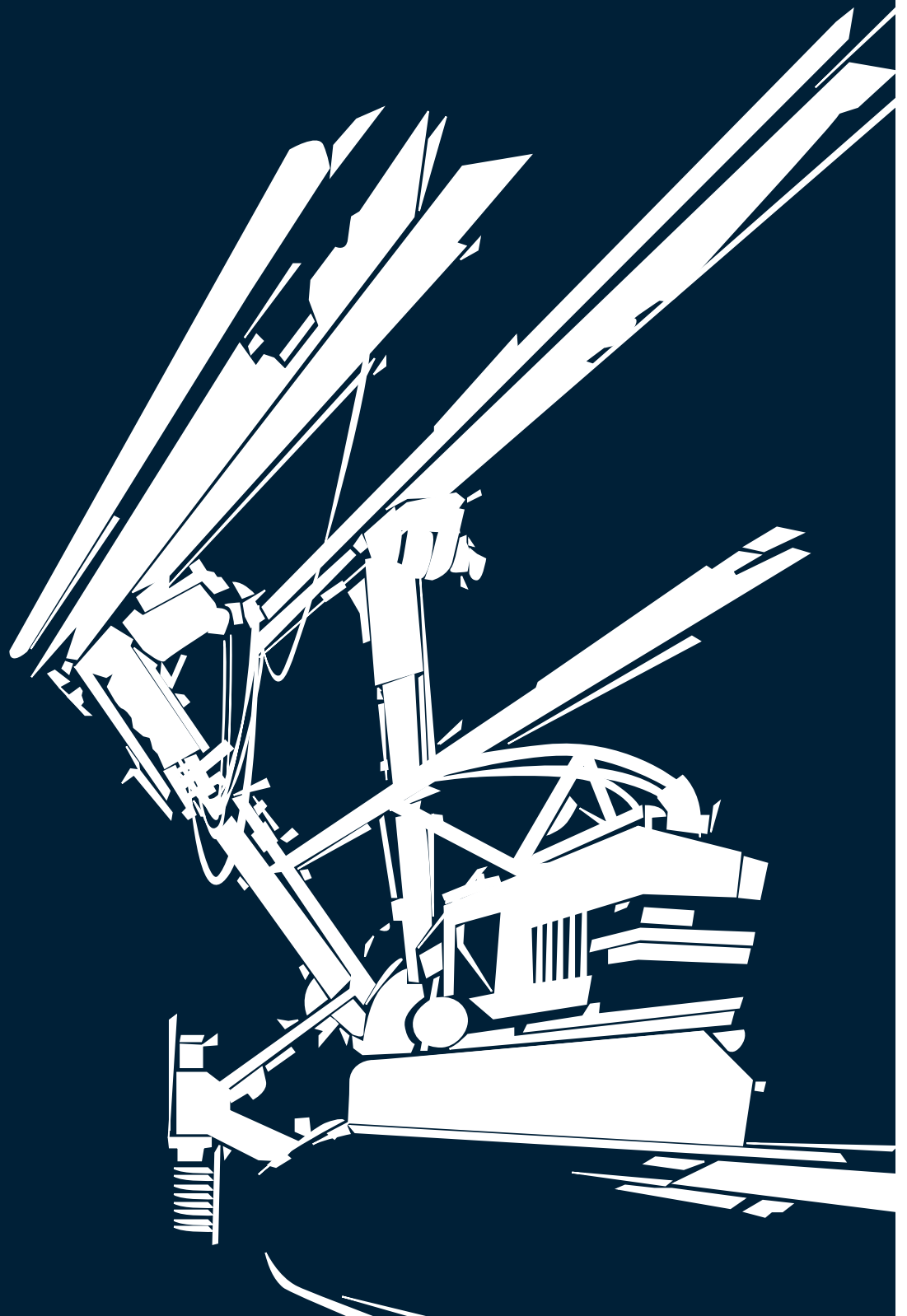


ST-120



ST-120

ROTARY EQUIPMENT FOR TUNNELLING

The main features of ST-120 is that there are 2 drilling guides, mounted and controlled independently of each other and supported by 2 telescoping rams, which are connected to the main frame by means of 2 slewing rings.

The main frame of the rig is of crawler type complete with 4 outriggers and sliding frame for positioning slew rings at different heights and levels to meet the requirements of the tunnel to be excavated. The mast is equipped with an hydraulic telescoping foot pad which can be placed against the excavating face. This allows the use of rope operated crowd system/pull back to be applied to drill string. Once the mast has been positioned as required, the consolidation treatment can be completed. Connected to the slew rings are the supports for the mast. This configuration allows drilling to be carried out through 180°.

This allows for the drill guides to be positioned at different heights and levels to meet the requirements of the tunnel to be excavated. The drilling guides are equipped with hydraulic telescoping foot pads which can be placed against the face of the excavation. This allows the use of a rope operated crowd system/pull back to be applied to drill string. Once the drill guides have been positioned as required, the consolidation treatment can be completed.

The following drilling techniques can be applied using the SM-605DT/AV:

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

In addition to the ST-120 development the 605 series has a new interesting features, which is:

- Increased ability to work up to 12m away from the tunnel face.
- Can be manufactured in explosion proof version, to meet stringent legislation.
- The design of the machines allows for a working platform to be fitted in addition to the shorter boom which facilitates operation of the machine on inclines from 16° to a maximum of 37°.

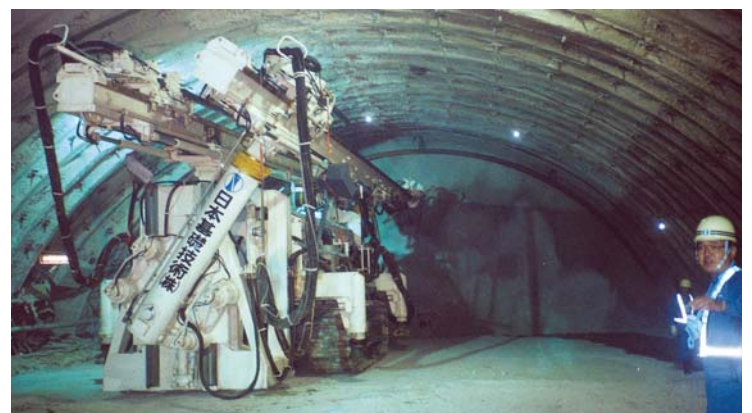
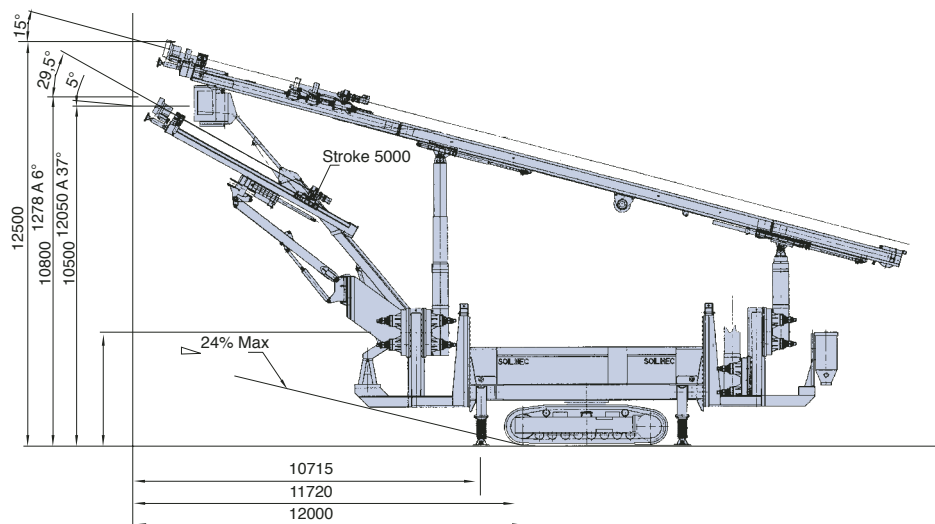
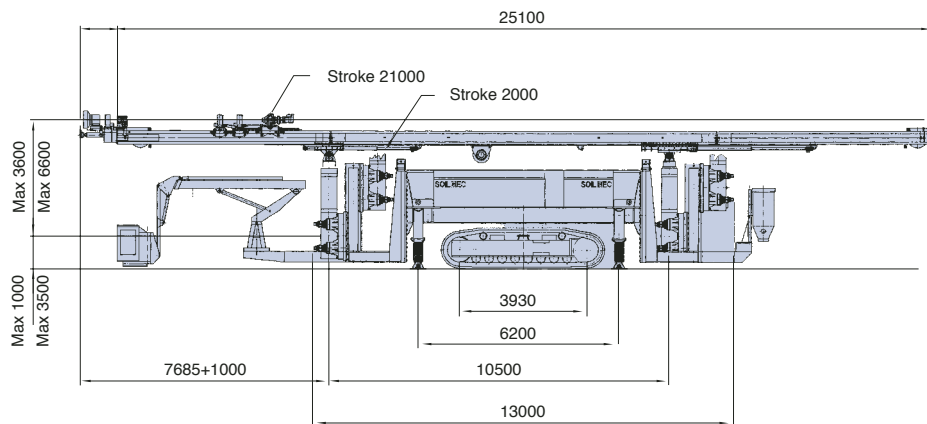
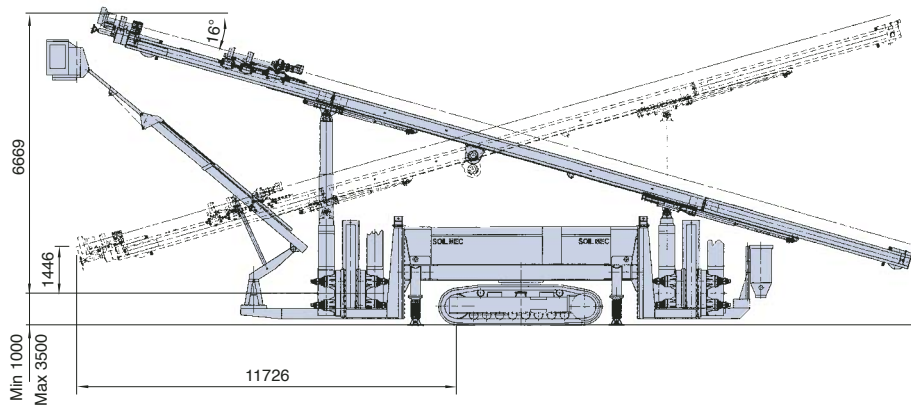
The DT model, i.e. Double Boom, has been specially designed to work with 2 drilling units, which can be operated complete independently of each other, as they are powered and controlled by two separate control boards and power packs. Each drill guide can cover the whole tunnel vault to consolidate.

Crawler undercarriage			
Track shoe width	mm	800	
Wheel base	mm	3930	
Overall length	mm	5041	
Overall width (not extendable crawler)	mm	-	
Retracted crawler width (extendable crawler)	mm	2900	
Extended crawler width (extendable crawler)	mm	4000	
Traction force	kN	905 (max)	
Travelling speed	km/h	1.36 (max)	
Average ground pressure	MPa	0.17	
Turret			
Crawler undercarriage rotation degree	deg	360°	
Crawler rotation speed	rpm	1.3	
Counterweight	kg	-	
Radius of consolidation treatment at 0°: min/max	mm	3600	6600
Radius of consolidation treatment at 5°: min/max	mm	5266	7216
Max radius of consolidation of 15°	mm	8916	
Max consolidation height	mm	12416	
Max consolidation width at 0° (face area)	mm	13200 (115 m ²)	
Max consolidation width at 15° (face area)	mm	17832 (165 m ²)	
Height from working level of slew ring rotation axis	mm	1000 - 3500	
Diesel engine			
Diesel Engine make and model		CUMMINS 6CTAA8.3	
Diesel Engine power rating (SAE J1995)	kW (BHp)	153 (205) @ 2000 rpm	
Fuel tank capacity	l	1175	
Electric motor			
Number of motor		2	
Make and model		SIEMENS 4 POLS 50 HZ	
Rated power	kW (BHp)	90 @ 1485	
Hydraulic system			
Main pumps: variable displacement axial pumps	l/min	(214+214) + 142 / 2 x (158+158) + 2 x 158	
Set pressure main pumps	MPa	30/28	
Auxiliary pumps: gear pumps	l/min	47 / 2 x (46+24)	
Set pressure auxiliary pumps	MPa	10 / 3	
Hydraulic oil tank capacity	l	456	
Standard rotary head			
Gear box ratios		3	
Max. nominal torque (31.5 MPa)	daNm	1363 @ 47 rpm	
Maximum drilling speed	rpm	457	
Double rotary head			
Gear box ratios		1	
Max. nominal torque (31.5 MPa)	daNm	852 @ 76 rpm	
Hoist & feed system			
Rod length type (c/w one rotary head)	m	12	
Feed type		Winch type	
Feed stroke	mm	16000 - 18000 - 21000	
Maximum hoist pull	kN	84	
Maximum feed force	kN	84	
Maximum speed (fast/low operation)	m/min	30 - 5	
Clamp & hydraulic joint breaker			
Nominal size	mm	60-225	
Maximum clamping force (28 MPa)	kN	159	
Maximum breaking torque	daNm	3830	
Mass			
Total weight (theoretical)	kg	110000 - 120000	

(*) All technical data are purely indicative and subject to change without notice. Nominal value is referred to total efficiency 100%.

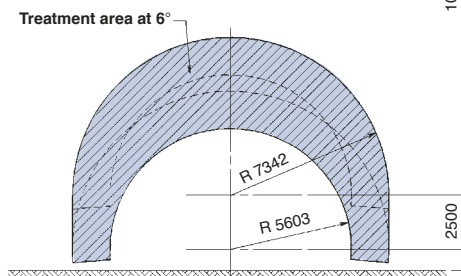
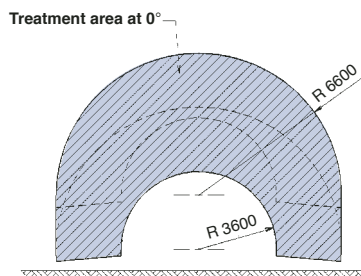
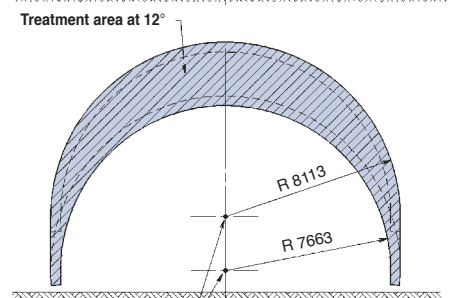
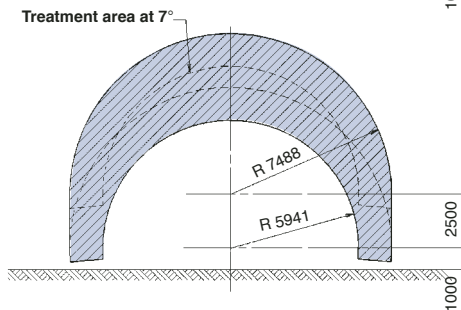
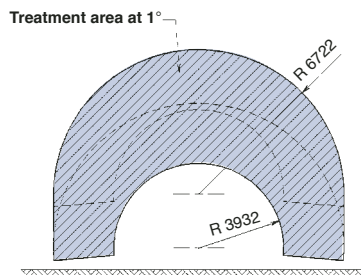
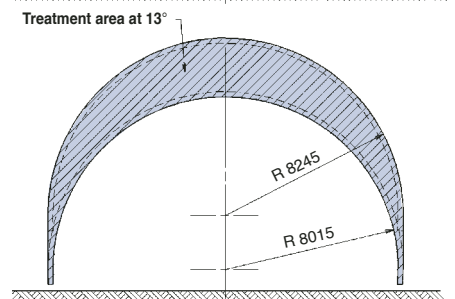
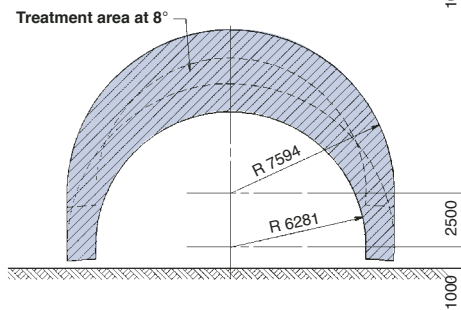
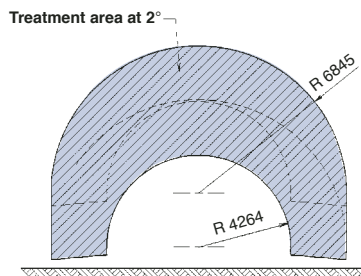
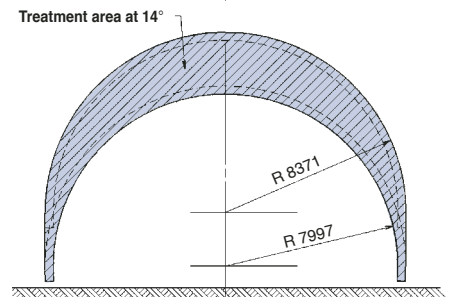
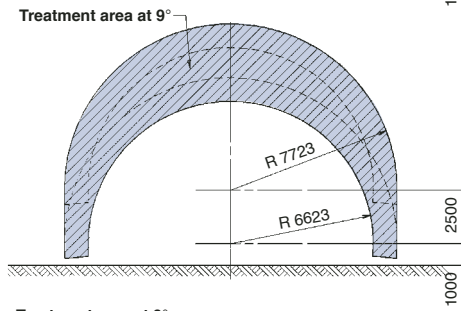
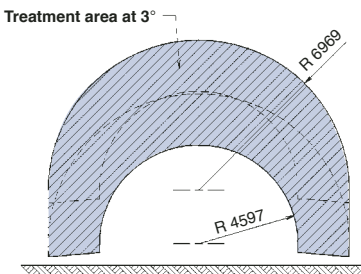
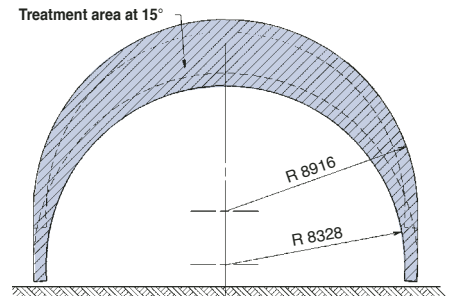
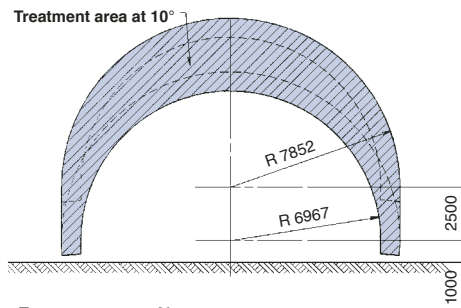
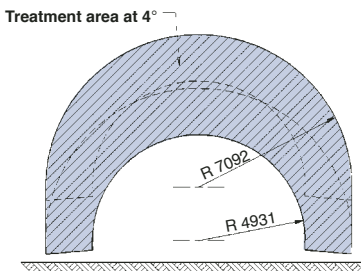
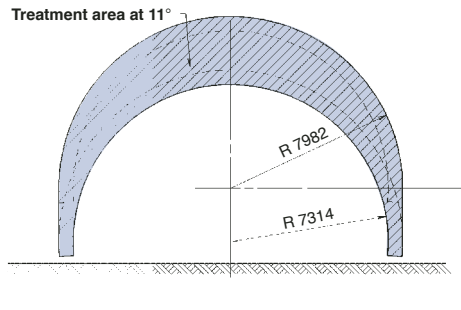
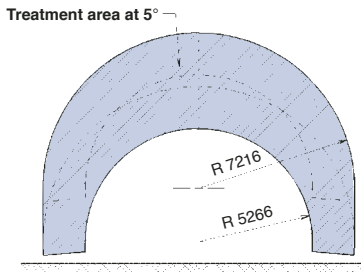
ST-120

ROTARY EQUIPMENT FOR TUNNELLING



ST-120

ROTARY EQUIPMENT FOR TUNNELLING





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