

VOLVO ECR 235-T TUNNEL EXCAVATOR

SSM
SCHÖLLER SPECIAL MACHINES

- OPERATING WEIGHT 31 – 35 T
- ENGINE POWER 129 KW – TIER 4F (STAGE V)
- FOR TUNNEL HEIGHTS FROM 4,7 M TO 8,0 M
- BREAKOUT FORCE 190 KN
- TEAROUT FORCE 133 KN
- HIGH HYDRAULIC PERFORMANCE FOR ATTACHMENT TOOLS
- FOR TUNNEL HEADING IN SOFT TO MEDIUM HARD GROUND CONDITIONS
- OPTIONAL ALSO WITH ELECTRIC DRIVE



ENGINE

The latest generation, Volvo engine Stage V emissions compliant diesel engine fully meets the demands of the latest, emission regulations. Featuring Volvo Advanced Combustion Technology (V-ACT), it's designed to deliver superior performance and fuel efficiency. The engine uses precise, high pressure fuel injectors, turbo charger and air-to-air intercooler, and electronic engine controls to optimize machine performance. The exhaust gas emission control system with continuous passive regeneration essentially comprises a combination of externally cooled exhaust gas recirculation (E-EGR), a diesel oxidation catalytic converter (DOC) with a downstream diesel particle filter (DPF) and a selective catalytic reduction of nitrogen oxides (SCR, with reducing agent AdBlue).

- Air Filter: 3-stage with pre-cleaner
- Automatic Idling System: Reduces engine speed to idle when the levers and pedals are not activated resulting in less fuel consumption and low cab noise levels

Engine type	Volvo	D6J
No. of cylinders		6
Displacement	l	15,7
Max. power at	rpm	1 800
Power gross, ISO 14396/SAE J1995	kW/hp	129/175
Max. torque at engine speed	Nm / rpm	850/1 350

ELECTRICAL SYSTEM

Well protected high-capacity electrical system. Waterproof double-lock harness plugs are used to secure corrosion-free connections. The main relays and solenoid valves are shielded to prevent damage. The master switch is standard. Contronics provides advanced monitoring of machine functions and important diagnostic information. The LCD colour monitor in the cabin enables central monitoring of the operating status and setting of the various functions.

Voltage	V	24
Batteries	V/Ah	2 x 12/150
Alternator	V/Ah	28/110

SWING SYSTEM

The swing system uses an axial piston motors, driving a planetary gearbox for maximum torque. An automatic holding brake and anti-rebound valve are standard.

Max. slew speed	rpm	12
Max. slew torque	kNm	83

TRAVEL SYSTEM

Each track is powered by an automatic two-speed shift travel motor. The track brakes are multi-disc, spring-applied and hydraulic released. The travel motor, brake and planetary gears are well protected within the track frame.

Max. drawbar pull	kN	208,9
Max. travel speed (low / high)	km/h	3,0/5,5
Max. gradeability	°	35

UNDERCARRIAGE

Robust X-shaped frame with permanently greased and sealed track chains as standard. Dozer blade on the undercarriage.

Track shoe		2 x 49
Shoe width, triple grouser	mm	600
Bottom rollers		2 x 8
Top rollers		2 x 2

CABIN

The operator's cab has easy access via a wide door opening. The cab is supported on hydraulic dampening mounts to reduce shock and vibration levels. These along with sound absorbing lining provide low noise levels. The cab has excellent allround visibility. The front windshield can easily slide up into the ceiling, and the lower front glass can be removed and stored in the side door.

The ergonomic, air-suspended and heated comfort driver's seat and the joystick console can be adjusted independently of each other. The seat has different adjustments plus a seat belt for the operator's comfort and safety. Beside the multifunctional LCD colour monitor, also a radio with CD player, MP3, Bluetooth and a hands-free system is installed.

The cabin has an integrated heating and air-conditioning system (working with coolant of type R134a). The pressurized and filtered cab air is supplied by an automatically-controlled fan.

Further details upon request.

Subject to changes

HYDRAULIC SYSTEM

The hydraulics system, combined with the fully electronic control system and advanced ECO mode, has been optimized to work in harmony with engine to match the engine power, reduce power loss and improve controllability and response time. The following important functions are included in the system: Summation system: Combines the flow of both hydraulic pumps to ensure quick cycle times and high productivity.

Arm priority: Gives priority to the arm operation for faster cycle times in leveling and for increased bucket filling when digging.

Swing priority: Gives priority to swing functions for faster simultaneous Operations.

Regeneration system: Prevents cavitation and provides flow to other movements during simultaneous operations for maximum productivity.

Power boost: All digging and lifting forces are increased.

Holding valves: Boom and arm holding valves prevent the digging equipment from creeping.

Main pump, type 2 x variable displacement axial piston pumps		
Maximum flow	l/min	2 x 207
Pilot pump, type gear pump		
Maximum flow	l/min	1 x 18
Relief value setting pressure		
Implement	bar	343/363
Travel circuit	bar	343
Slew circuit	bar	279
Pilot circuit	bar	39

TUNNELING BOOM EQUIPMENT

- Heavy-duty tunnel boom with swivel mechanism 2x45 °
- All main bearing points with exchangeable bushings and floating bolts
- Basic boom with double lifting cylinders including hose burst protection valves
- Swivel bracket (2x45 °) with 2 swivel cylinders
- Dipper arm with double lifting cylinders including hose burst protection valves and integrated, reinforced bucket cylinder
- Hydraulic hose line installation on the boom (hydraulic hoses for easy maintenance and exchangeability)
- Additional hydraulic control circuits for hammer / demolition shear / drum cutter, incl. rotary drive and drain oil line as well as additional compressed air line for hammer flushing or water spray

Tearout force (arm)	kN	133
Breakout force (bucket)	kN	190

MODIFICATIONS AND OPTIMIZATIONS

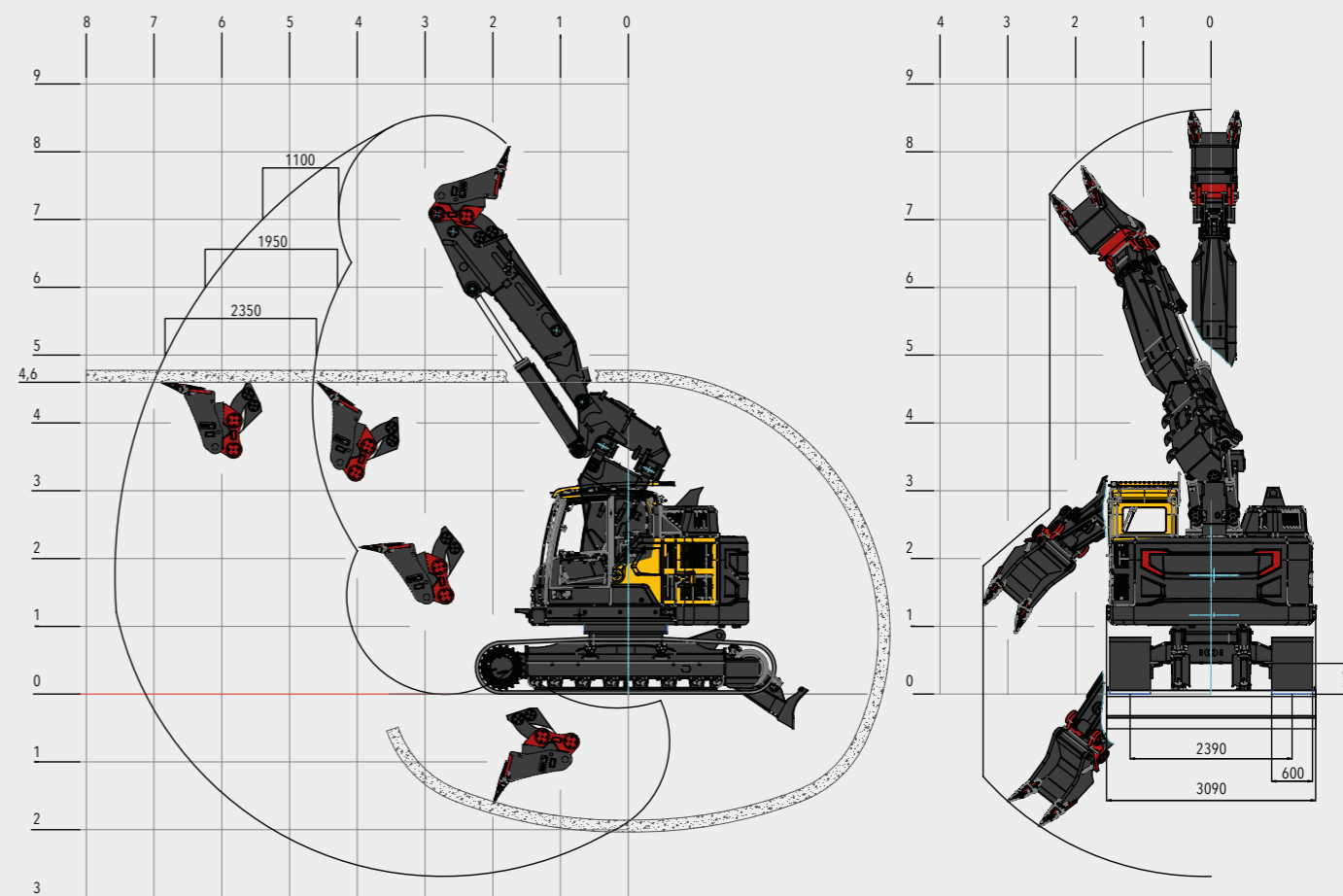
- Reinforcements on the excavator superstructure frame including side ram protection (tunnel protection cladding) and cover plates with screw protection on the underside of the superstructure
- Reinforcement of the dozer blade incl. additional protection via support shield cylinder and central lubrication strip for relevant lubrication points on the support blade
- Additional guides for drive chains
- Reinforced front and roof protection grid FGPS, (FOPS level 2)
- Hand operated fire extinguisher in protective box on the front upper structure
- LED headlights on the upper front and rear of the cab as well as driving warning lights (flashing lights) on the front and rear of the chassis
- Emergency stop switch on the superstructure (1 x cabin and 2 x rear of the superstructure)
- Additional compressed air line for optional drill or hammer flushing
- Optional: quick coupler, various buckets, central lubrication system, fire extinguishing equipment, etc.

SERVICE REFILL

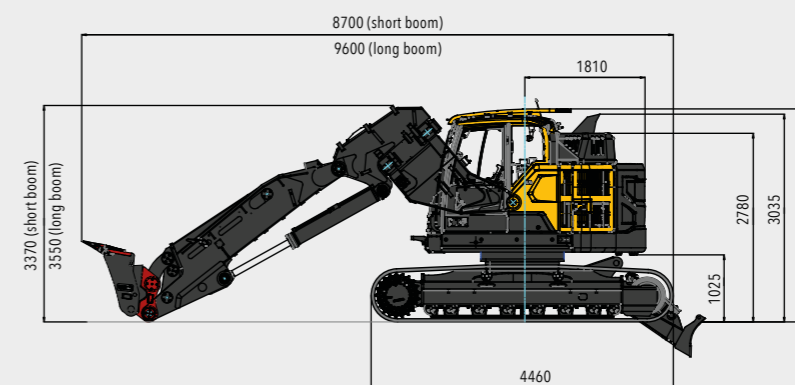
Fuel tank	l	286
DEF/AdBlue® tank	l	24,9
Hydraulic system, total	l	280
Hydraulic tank	l	126
Engine oil	l	25
Engine coolant	l	30
Slew reduction unit	l	7
Travel reduction unit	l	2 x 5

SOUND LEVEL

Sound pressure level in cab according to ISO 6396		
LpA (Standard)	dB	71
External sound level according to ISO 6395 and EU Noise Directive 2000/14/EC		
LWA (Standard)	dB	101



Digging curve for short standard boom version: recommended tunnel heights 4.7 to 8.0 m (optional long boom version: recommended tunnel heights 5.1 to 8.7 m)





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