

FSE DX235LCR Tunnel Excavator



25t Tunnel Spec Excavator

At 24 tonne, our mid size tunnel excavator is considerably more compact than the 32 tonne machines traditionally used, but has almost the same break out power and working range, allowing customers to operate in smaller tunnels but with high production

Tunnel Specific Features

Zero tail swing

Hydraulic cylinder protection on dipper stick

Dozer blade with protected cylinders

Auto grease and fire suppression

Enclosed and pressurised cab with tunnel specification guards

Cameras and pedestrian detection system

Auxiliary hydraulic circuits to run high flow and rotating attachments

High Build Quality

Robot welding ending in fishtails and large diameter bosses spreads stress evenly and prevents cracks appearing over the



TECHNICAL SPECIFICATIONS

ENGINE

Designed to deliver superior performance and fuel efficiency, the Develon DLo6V diesel engine fully meets the latest Stage V emission regulations. To optimize machine performance, the engine uses high-pressure fuel injectors, air-to-air inter-cooler and electronic engine controls. 4-Cycle Water-Cooled, Wastegate Turbocharged, Diesel Oxidation Catalyst (DOC) & Selective Catalytic Reduction (SCR) and Diesel Particulate Filter (DPF).

Model

Develon DLo6V

No. of cylinders

6

Rated power at 1900 rpm

SAE J1995	141 kW (189 hp)
SAE J1349	127 kW (170 hp)

Max. torque at 1400 rpm

82 kgf·m

Idle (low - high)

800 [±10] - 2000 [±25] rpm

Displacement

5890 cm³

Bore × stroke

100 mm × 125 mm

Starter

24 V / 6 kW

Batteries - Alternator

2 × 12 V, 100 Ah – 24 V, 100 A

Air filter

Double element air cleaner

UNDERCARRIAGE

Extremely robust construction throughout - made of high-quality, durable materials, with all welded structures designed to limit stresses.

- Track rollers lubricated for life
- Idlers and sprockets fitted with floating seals
- Track shoes made of induction-hardened alloy with triple grouser
- Heat-treated connecting pins
- Hydraulic track adjuster with shock-absorbing tension mechanism

Upper rollers (standard shoe)

2

Lower rollers

8

Number of links & shoes per side

49

Link pitch

190 mm

HYDRAULIC SYSTEM

The e-EPOS (Electronic Power Optimising System) is the brain of the excavator – minimising fuel consumption and optimizing the efficiency of the hydraulic system for all working conditions. To harmonize the operation of the engine and the hydraulics, the e-EPOS is connected to the engine's electronic control unit (ECU) via a data transfer link.

- The hydraulic system enables independent or combined operations
- 2 travel speeds offer either increased torque or high speed
- Cross-sensing pump system for fuel savings
- Auto-deceleration system
- 4 operating modes, 4 power modes
- Flow and pressure control of auxiliary hydraulic circuits from control panel
- Computer-aided pump flow control

Main pump

1 × variable displacement tandem axial piston pump
Maximum flow at 1900 rpm 2 × 222.3 l/min

Pilot pump

Gear pump
Maximum flow at 1900 rpm 26 l/min

Relief valve settings

Implement	350/370 kgf/cm ²
Travel	350/365 kgf/cm ²
Swing	300 kgf/cm ²
Pilot	40 kgf/cm ²

TECHNICAL SPECIFICATIONS

CAB

The air-conditioning and heating systems are integrated for optimal climate control. An automatically-controlled fan supplies the pressurized and filtered cab air, which is distributed throughout the cab from multiple vents.

The heated air suspension, adjustable operator's seat includes a seat belt. The operator can adjust the ergonomic seat and joystick console separately according to his preferences.

A-weighted emission sound pressure level at the operator's position, LpAd (ISO 6396:2008)

Declared: 72 dB(A)

Measured: 71 dB(A)

A-weighted sound power level, LwAd (2000/14/EC)

Declared: 103 dB(A)

Measured: 102 dB(A)

SWING MECHANISM

The swing mechanism uses an axial piston motor, driving a 2-stage planetary reduction gear bathed in oil for maximum torque.

- Swing bearing: single-row, shear type ball bearing with induction hardened internal gear
- Internal gear and pinion immersed in lubricant

Maximum swing speed

11.5 rpm

Maximum swing torque

9626 kgf·m

WEIGHT

	Shoe width (mm)	Machine weight (t)
Triple grouser	600	30.3

COMPONENT WEIGHTS

Item	Unit	Weight	Remarks
Upper structure without front	kg	12421	With counterweight
Lower structure assembly	kg	7724	LC, 600 mm shoe
Counterweight	kg	6450	7466 (7.45 t option)

FLUID CAPACITIES

Fuel tank	310 l
Cooling system (radiator)	30.7 l
AdBlue® (DEF) tank	31.5 l
Hydraulic oil tank	190 l
Engine oil	27 l
Swing drive	5 l
Travel device	2 × 4 l

DRIVE

Each track is driven by an independent, high-torque axial piston motor through a planetary reduction gearbox. Two levers / foot pedals guarantee smooth travel with counter-rotation on demand. The track frame protects the travel motor, brake and planetary gears. The multi-disc track brakes are spring-applied and hydraulic released.

Travel speed (low - high)

3.2 - 5.8 km/h

Maximum traction

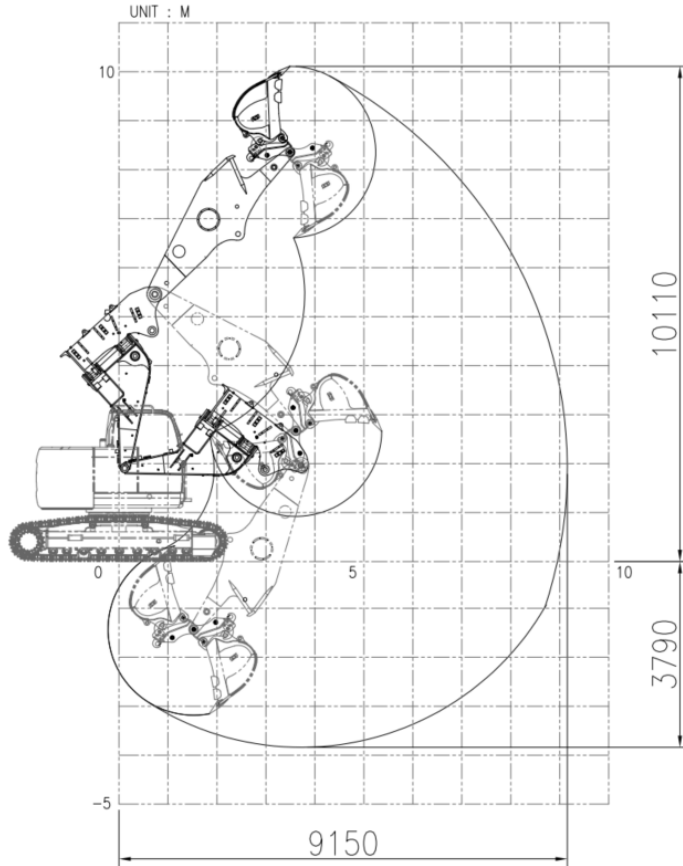
29.2 t

Maximum gradeability

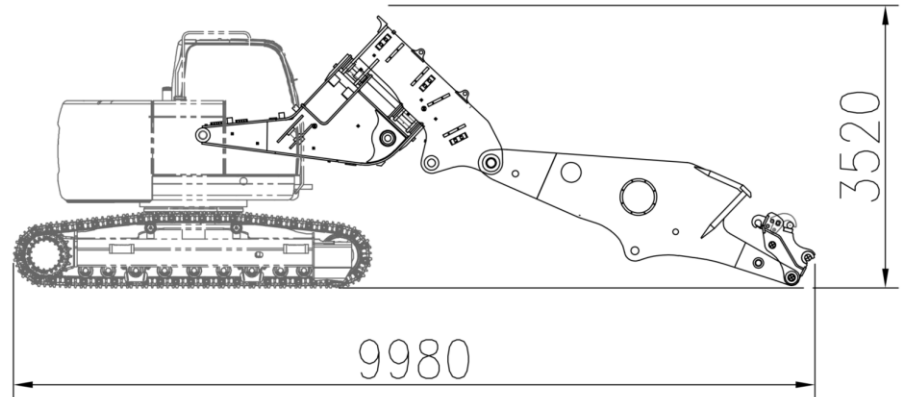
35° / 70%

FSE DX235LCR Tunnel

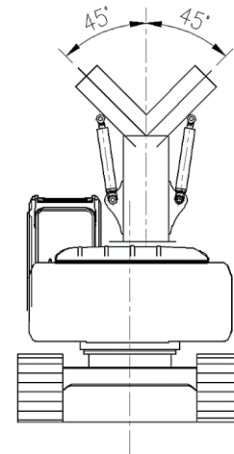
Working range



Dimension



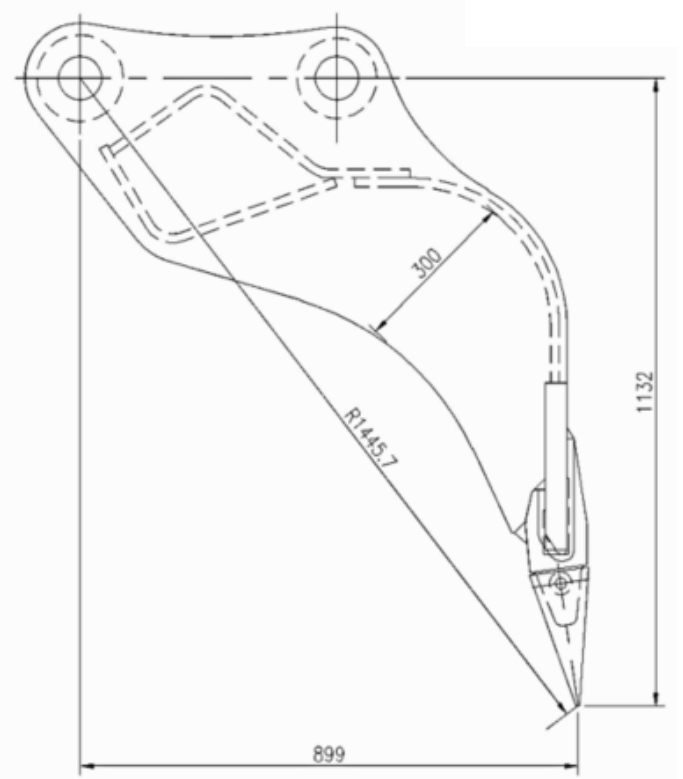
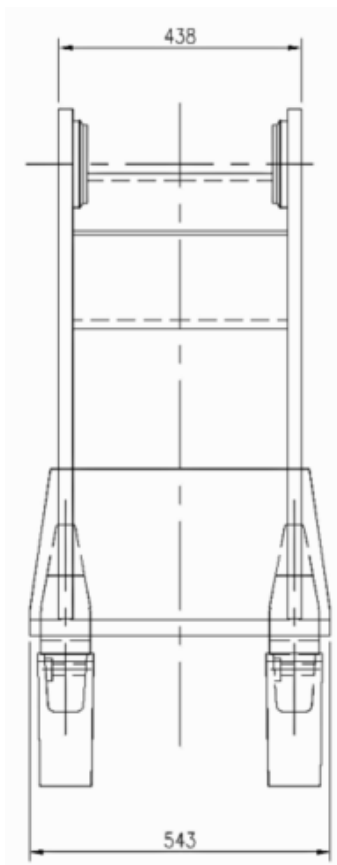
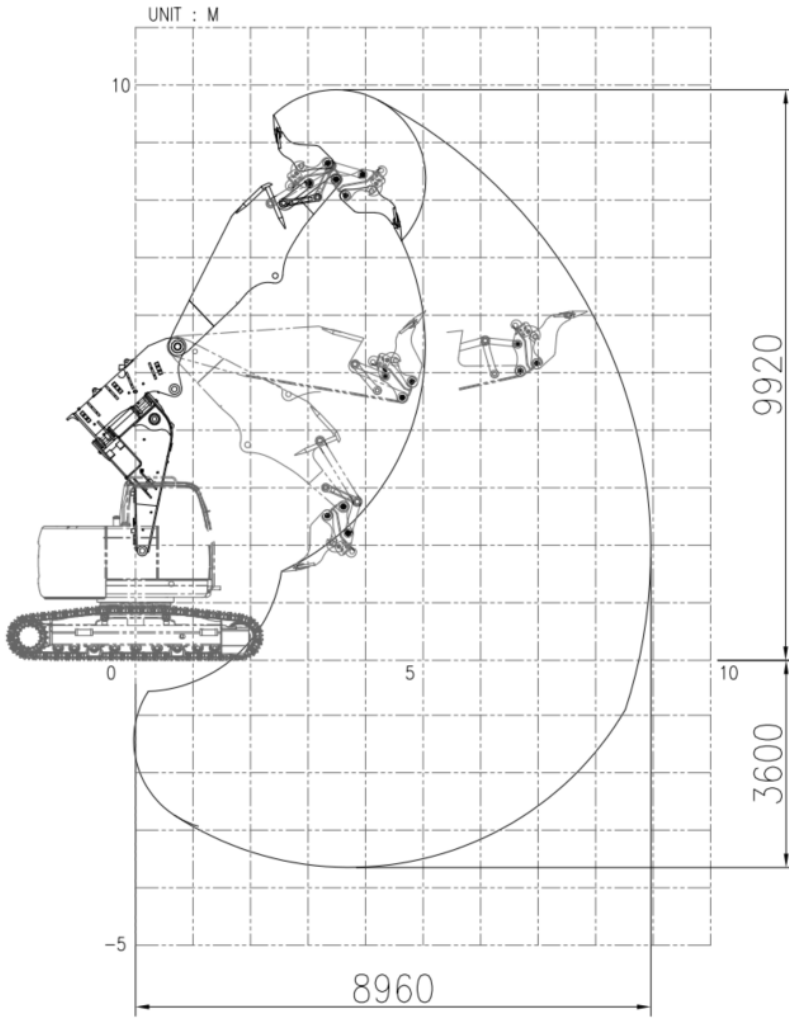
Boom Tilting Angle



Tunneling Front Kit	Boom length	m	3.6
	Arm Length	m	4.0

* These details are for guidance only and may be changed for improvement without prior notice.

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Tunnel Ripper Bucket
TR30-21
Capa. : 0.4 cu. m
Weight : 700kg

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STANDARD AND OPTIONAL EQUIPMENT

● Standard ○ Optional

Engine

- Develon DLo6V, Stage V compliant, SCR, DOC and DPF post treatment, water-cooled diesel engine with Wastegate Turbocharger and air-to-air intercooler
- Auto-idle function
- Auto shut-off
- No EGR

Hydraulic system

- Boom and arm flow regeneration
- Fine swing mode, on or off from cab
- Swing anti-rebound valves
- Spare ports (valve)
- 1-touch power boost function
- Double way line high flow + Breaker piping (PE3C)
- Smart Power Control (SPC)
- Cylinder cushioning & contamination seals
- Clamshell piping (diverter valve from bucket cylinder)
- Hydraulic piping low flow for rotating or tilting tool (joystick control)
- Hydraulic piping for quick-coupler

Cab & interior

- Pressurized sound-insulated and CabSus mounted cab
- Fully adjustable air suspension seat with heater
- Air conditioning with climate control
- Pull-up type front window sun roller blind and removable lower front window
- Sliding left window
- Intermittent upper and lower windshield parallel wiper
- Rain visor
- Rear window defroster switch
- Adjustable PPC wrist control levers for arm boom bucket and swing
- Joysticks & pedal provide proportional control of auxiliary hydraulic lines
- Pedal for auxiliary control 1 & 2 ways
- Jog shuttle switch
- DEVELON Smart Touch – 8" touch screen, all-in-one
- Attachment management system
- Engine speed (RPM) control dial
- Automatic travel speed
- 4 operating modes & 4 working modes
- Electric horn
- Cigarette lighter
- Ceiling light
- Cup holder
- Multiple storage compartments (e.g. document holder under seat)
- Storage area (tools etc.)
- Heating and cooling lunch box
- Flat spacious easy-to-clean floor
- Keyless start (Develon Smart Key) & remote door lock/unlock
- Anti-theft protection
- 12 V spare power socket
- Serial communication port for laptop PC interface
- Remote radio ON/OFF switch
- Loudspeakers and connections for radio
- Radio + MP3 (stereo) with Bluetooth streaming and handsfree call system
- Rear and side view camera
- 360° all-around view camera (AVM)
- Fully adjustable air suspension seat (heating & cooling)

Safety

- Roll Over Protective Structure (ROPS)
- Boom and arm cylinder safety valves
- Overload warning device
- Large guard rails on upper structure and steps
- Rotating beacon
- Punched metal anti-slip plates
- Hydraulic safety lock lever
- Safety glass
- Hammer for emergency escape
- Right and left rear-view mirrors
- Lockable fuel cap and covers
- Battery cut-off switch
- Engine restart prevention system
- Emergency engine stop switch and hydraulic pump control switch
- Guard rails (ISO 2867:2011)
- Parking brake
- LED work lights (boom lamp, body lamps & additional lamps on cab)
- Falling Objects Guard System – top and front cab guards
- Front window upper and lower guards

Other

- 6450 kg counterweight
- DEVELON Fleet Management Web (telematic system)
- Auto shut-off fuel filler pump
- Double element air cleaner and pre-filtered Turbo dust separator
- Fuel pre-filter with water separator sensor
- Dust screen for radiator/oil cooler
- Self-diagnostic function
- Alternator (24 V 100 A) – Battery (2 × 12 V 150 Ah)
- Hydrostatic drive with 2-speed power shift transmission
- Remote greasing for swing circle and work group pivot points
- Arms: 2400 mm, 2900 mm for articulated and mono boom
- Boom: 5850 mm articulated boom
- 7450 kg counterweight
- Buckets: full range of GP HD & rock buckets
- Quick couplers, breakers & rock wheels: full range available
- Automatic lubrication system

Undercarriage

- Standard fixed undercarriage 2990 mm with 600 mm shoes
- 600 mm triple grouser shoes
- Dozer blade for 600 mm shoes only