TEREX | O&K

RH 120-E

Hydraulic Mining Excavator

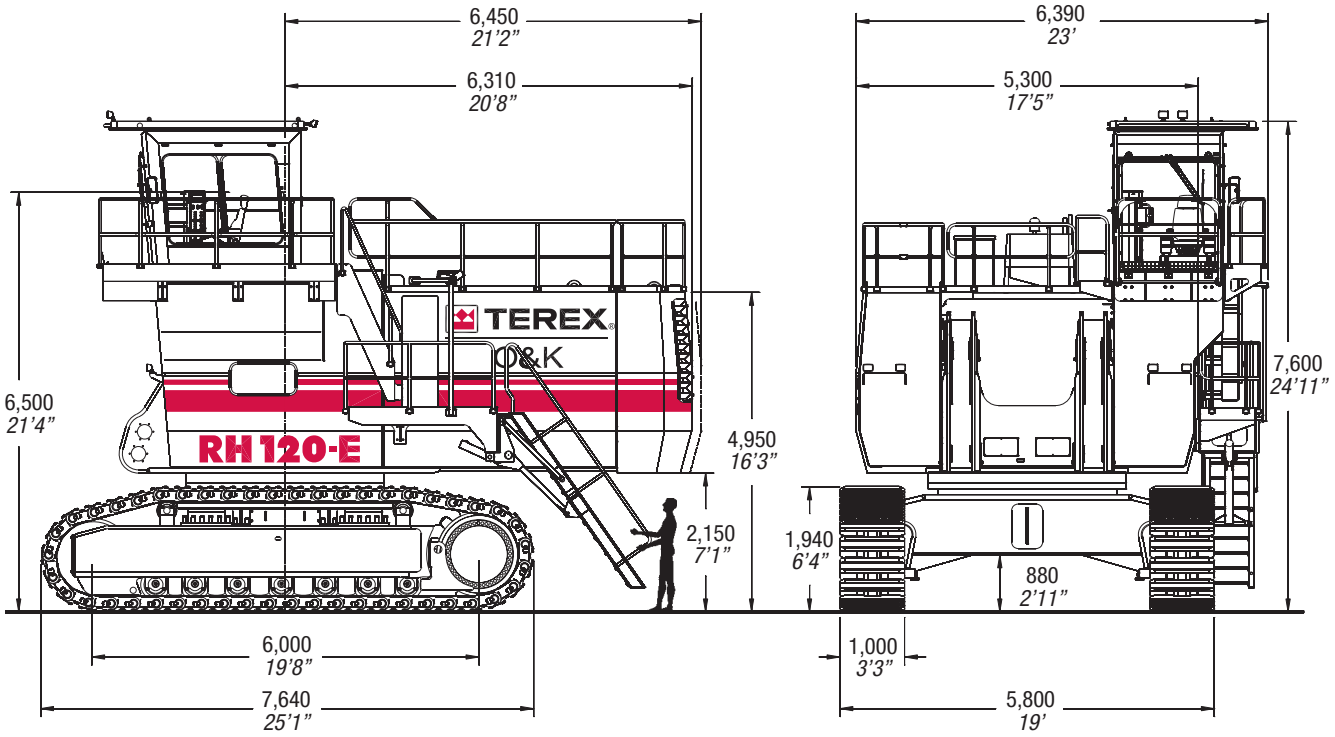
General Data

Operating weight		
Face shovel	284 t	*313 sht*
Backhoe	287 t	*316 sht*
Engine output SAE J 1995		
Caterpillar C18	1,044 kW	*1,400 HP*
Cummins QSK 19-C	1,008 kW	*1,350 HP*
Standard bucket capacity		
Face shovel (SAE 2:1)	16.5 m³	*21.6 yd³*
Backhoe (SAE 1:1)	17.0 m³	*22.2 yd³*

Features

- TriPower shovel attachment
- Independent oil cooling system
- Spacious walk-through machine house
- 5-circuit-hydraulic system
- Electronic-hydraulic servo control
- Board Control System (BCS)
- Torque control in closed-loop swing circuit
- Automatic central lubrication system
- Xenon working lights

General Dimensions



Operating Weight - Shovel

Standard track pads	1,000 mm	*3'3"*
Operating weight	284,100 kg	*626,330 lb*
Ground pressure	21.3 N/cm²	*30.9 psi*
Further track pads on request		

Operating Weight - Backhoe

Standard track pads	1,000 mm	*3'3"*
Operating weight	287,100 kg	*632,940 lb*
Ground pressure	21.5 N/cm²	*31.1 psi*
Further track pads on request		

Diesel Engines

Version 1 - Caterpillar	
Make and model	2 x Caterpillar C18
Total rated net power ISO 3046/1	1,044 kW *(1,400 HP)* 1,800 min^{-1}
Total rated net power SAE J1349	1,044 kW *(1,400 HP)* 1,800 min^{-1}
Total rated gross power SAE J1995	1,044 kW *(1,400 HP)* 1,800 min^{-1}
No. of cylinders (each engine)	6
Bore	145 mm *(5.7 in)*
Stroke	183 mm *(7.2 in)*
Displacement	18.1 l *(1,105 in^3)*
Aspiration	Turbocharged and charge air cooled
Max. altitude without deration	1,500 m *(4,900 ft)* a.s.l.
Emission certification	US EPA Tier 3; Europe NRMM Tier 3
Alternators	2 x 150 A
Fuel tank capacity	5,360 l *(1,416 US gal)*

Version 2 - Cummins	
Make and model	2 x Cummins QSK 19-C
Total rated net power ISO 3046/1	1,008 kW *(1,350 HP)* 1,800 min^{-1}
Total rated net power SAE J1349	1,008 kW *(1,350 HP)* 1,800 min^{-1}
Total rated gross power SAE J1995	1,008 kW *(1,350 HP)* 1,800 min^{-1}
No. of cylinders (each engine)	6
Bore	159 mm *(6.25 in)*
Stroke	159 mm *(6.25 in)*
Displacement	19 l *(1,159 in^3)*
Aspiration	Turbocharged and charge air cooled
Max. altitude without deration	2,438 m *(8,000 ft)* a.s.l.
Emission certification	US EPA Tier 3; Europe NRMM Tier 3
Alternators	2 x 175 A
Fuel tank capacity	5,360 l *(1,416 US gal)*

- Hydraulically driven radiator fan with electronically controlled fan speed
- Microprocessed engine management
- Automatic rev. reduction
- Heavy duty air-filters, STRATA 1 with automatic dust evacuation
- Two-stage fuel filter incl. water separator
- Additional high capacity water separator
- Pre-lube starting system (Cummins engines only)

Electric Motor (optional)

Type	Squirrel cage induction motor
Output	1,000 kW
Voltage	6.3 kV ± 10 % (other on request)
Rated current I_N	109 A
Frequency	50 Hz (or 60 Hz optional)
Revolutions	1,500 min^{-1} (or 1,800 min^{-1} optional)
Starting current	450% of I_N (350% of I_N optional)

- Custom-made electric motor with increased gap between rotor and stator to withstand severe mining conditions
- Power limit control by Pump Management System

Electrical System (diesel drive)

System voltage	24 V
Batteries (12 V each)	4 x 244 Ah
in series/parallel installation	488 Ah - 24 V
Working spot lights	8 x high brightness Xenon lights

- Battery isolation relays
- Emergency stop switches accessible from ground level, in engine module and in operator's cab

Hydraulic System with PMS

Main pumps	4 x variable swash plate pumps
Max. oil flow	4 x 552 l/min *(4 x 146 US gal/min)*
Max. pressure, attachment	31 MPa = 310 bar *(4,495 psi)*
Max. pressure, travel	37 MPa = 370 bar *(5,365 psi)*
Swing pumps	4 x reversible swash plate pumps
Max. oil flow	4 x 197 l/min *(4 x 52 US gal/min)*
Max. pressure, swing circuit	35 MPa = 350 bar *(5,080 psi)*
Total volume of hydraulic oil	approx. 3,500 l *(925 US gal)*
Hydraulic tank capacity	approx. 2,500 l *(660 US gal)*

- **Pump Managing System (PMS)** contains:
  - Electronic load limit control
  - Flow on demand from main pumps depending on joystick position
  - Automatic regulation of main pumps to zero flow without demand
  - Automatic rpm reduction of engine speed during working breaks
  - Reduced oil flow of main pumps at high hydraulic oil temperature or at high engine temperature
- Pressure cut-off for main pumps
- **Filters:**
  - Full-flow high-pressure filters (100 µm) for the main pumps, installed directly behind each pump
  - High pressure filters (100 µm) for the closed swing circuit
  - Full-flow filters (10 µm) for the complete return circuit
  - Full-flow filters (10 µm) for the cooling return circuit
  - Pressure filters (40 µm and 6 µm) for servo circuit
  - Transmission oil filters (40 µm)

Hydraulic Oil Cooling

Oil flow of cooling pumps	2 x 467 l/min *(2 x 123 US gal/min)*
Diameter of fans	2 x 1,220 mm *(2 x 48")*

- Cooling system is fully independent of all main circuits, i.e. controlled cooling capacity is available whenever engine is running
- Gear type cooling pumps supplying high volume low pressure oil to aluminium coolers
- Variable axial piston pumps supplying low volume high pressure oil to fans
- Fan speed is thermostatically controlled
- Extremely high cooling efficiency to ensure optimum oil temperature

Undercarriage

Travel speeds (2 stages):	Max. 2.7 km/h (1.68 mph) Max. 1.4 km/h (0.87 mph)
Max. tractive force:	1,680 kN (171 t = 377,770 lb)
Gradability:	Approximately 72 %
Track pads (each side)	47
Bottom rollers (each side)	7
Support rollers (each side)	2 plus a skid plate in between
Travel drives (each side)	1 planetary transmission with 2 two-stage axial piston motors
Parking brakes	Wet multiple disc brake, spring-loaded / hydraulically released

- Cast double-grouser combined pad-links with bushings connected by hardened full floating pins
- All running surfaces of sprockets, idlers, rollers and pad links as well as teeth contact areas of sprocket and pad links are hardened
- Fully hydraulic self-adjusting track tensioning system with membrane accumulator
- Automatic hydraulic retarder valve to prevent overspeed on downhill travel
- Acoustic travel alarm

Swing System

Swing drives	2 compact planetary transmissions with axial piston motors
Parking brakes	Wet multiple disc brake, spring loaded / hydraulically released
Max. swing speed	4.7 rpm
Swing ring	Triple race roller bearing with sealed internal gearing

- Closed-loop swing circuit with torque control
- Hydraulic braking of the swing motion by counteracting control
- All race ways of swing ring as well as grease bath for internal gearing supplied by automatic central lubrication system

Operator's Cab

Operator's eye level	6.5 m *(21'4")* approx.
Internal dimensions of cab	
Length	2,200 mm *(7'3")*
Width	1,600 mm *(5'3")*
Height	2,150 mm *(7'1")*

- Pneumatically cushioned and multi-adjustable comfort seat with lumbar support, safety belt, head and arm rests
- Switch in seat cushion to neutralize automatically the hydraulic controls when operator leaves the seat
- Joystick controls integrated in independently adjustable seat consoles
- Fold-away auxilliary seat
- FOPS (rock guard; approved acc. to DIN ISO 3449) integrated into cab structure
- All-round tinted safety glass, armoured windshield and sliding side window
- Windshield with parallel intermittent wiper/washer
- Roller blind at windshield
- Robust instrument panel incl. large colored BCS screen with transflective technology
- TEREX O&K Board Control System (BCS) electronic monitoring and data logging system for vital signs and service data of engines, hydraulic system and lubrication system
- Machine access via retractable boarding ladder, hydraulically operated
- Emergency exit harness kit

Retractable Service Station

- Retractable service station installed underneath the engine module and easily accessible from ground. Equipped with:
- Quick couplings for:
  - Diesel fuel
  - Engine coolant - left/right
  - Pump transmission gear oil - left/right
  - Engine oil (oil pan) - left/right
  - Engine oil (additional tank - optional) - left/right
  - Hydraulic oil tank
  - Grease container
- CAT jump start socket
- Indicator lights for "fuel tanks left / right full" and "grease container full"

Automatic Lubrication System

Capacity of grease container	450 l *(120 US gal)*

- Dual-circuit system with hydraulically driven heavy-duty pump and electronic time relay control to adjust the pause/lube times
- Connected to the lubrication system are the swing roller bearing with internal gearing and all pivot points of attachment, bucket and cylinders
- System failures displayed by Board Control System
- Grease filters (200 µm) between service station and container as well as directly behind grease pump

Attachments

- Booms and sticks are torsion resistant, welded box design of high tensile steel with solid steel castings at pivot areas
- Welding procedures allow for internal counter-welding (double prep weld) wherever possible
- Booms and sticks are stress relieved after welding
- Catwalks with rails at boom (FS and BH)
- "Pressure-free lowering" of boom (FS and BH) and stick (FS) by means of a float valve
- Shovel attachment with TEREX O&K's patented TriPower kinematics ensuring the following main features:
  - Horizontal automatic constant-angle bucket guidance
  - Vertical automatic constant-angle bucket guidance
  - Automatic roll-back limiter to prevent material spillage
  - Kinematic assistance to hydraulic forces
  - Constant boom momentum throughout the whole lift arc
  - Crowd force assistance
- All buckets (FS and BH) are equipped with a universal wear package suitable for all standard applications, which consists of:
  - Special liner material covering main wear areas inside and outside of bucket
  - Lip shrouds between teeth
  - Wing shrouds on side walls
  - Heel shrouds at bottom edges

Special wear packages for highly abrasive materials on request

Optional Equipment

General

- Export crating
- Finishing other than TEREX O&K std. colours (TEREX O&K colour quality)
- Customizing of logos as per customer's specification

Superstructure

- Mechanical service crane on superstructure
- Hydraulic service crane on superstructure with auxilliary engine
- Oil change interval extension for engine oil up to 1,000 hrs (Cummins engines only)
- Engine oil burn system (Cummins engines only)
- Centrifuges for engine oil filtration (Cummins engines only)
- Folding access stairway, stairway angle approx. 45°
- Grease barrel 200 l (instead of grease container)
- Lubricated pinion for greasing of internal gearing of swing ring
- Various cold weather packages

Cab

- Various heating and airconditioning systems
- Roller blinds at all windows
- Rear windscreeen wiper
- BCS data-transfer-system via radio
- Additional instrumentation

Undercarriage

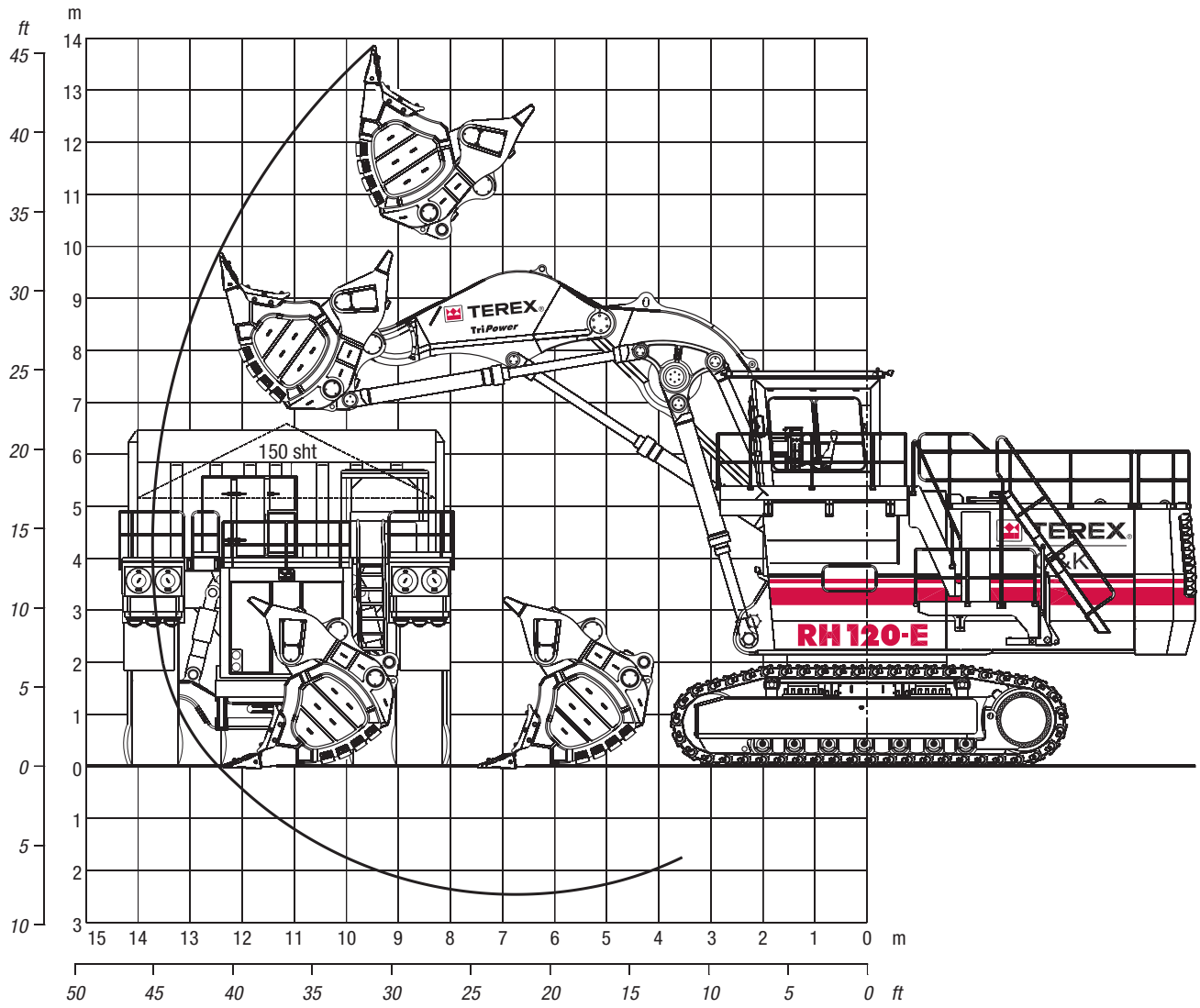
- Track pad width 800 mm or 1,200 mm
- Automatic lubrication of rollers by central lube system

Attachment

- Guards for shovel cylinders of FS-attachment
- Xenon lighting on boom
- Special wear packages

Further optional equipment on request

Working Diagram - Face Shovel (FS) - Boom 6.2 m (20'4") - Stick 4.4 m (14'5")



Digging Forces

Max. crowd force	1,370 kN	*307,880 lb*
Max. crowd force at ground level	1,210 kN	*271,920 lb*
Max. breakout force	920 kN	*206,750 lb*

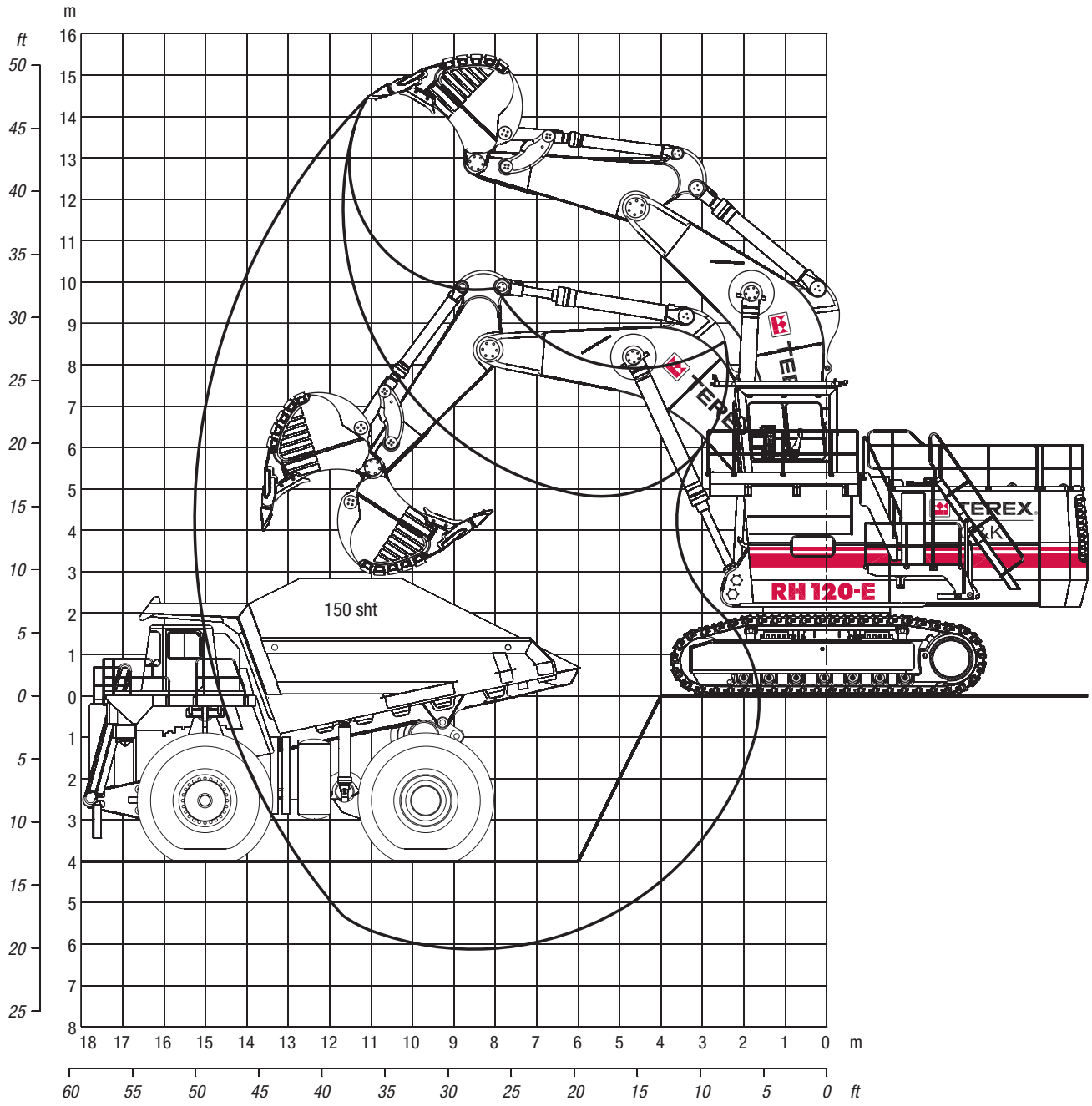
Working Range

Max. digging height	13.9 m	*45'7"*
Max. digging reach	13.7 m	*44'11"*
Max. digging depth	2.5 m	*8'2'*
Max. dumping height	10.7 m	*35'1"*
Crowd distance on level	4.9 m	*16'1"*

Face Shovels

Type			Heavy rock shovel		Heavy rock shovel		**Standard rock shovel**	
Tooth system			ESCO S 95		ESCO S 95		ESCO S 95	
Capacity SAE / PCSA 1:1	m^3	*cuyd*	15.4	*20.1*	17.0	*22.2*	19.0	24.9
Capacity SAE / CECE 2:1	**m^3**	***cuyd***	**13.5**	***17.7***	**15.0**	***19.6***	**16.5**	***21.6***
Total width	mm	*ft:in*	3,900	*12'10"*	3,900	*12'10"*	3,900	*12'10"*
Inner width	mm	*ft:in*	3,500	*11'6"*	3,500	*11'6"*	3,500	*11'6"*
Opening width	mm	*ft:in*	1,870	*6'2"*	1,870	*6'2"*	1,890	*6'2"*
No. of teeth			6		6		6	
Weight incl. universal wear kit	kg	*lb*	27,500	*60,630*	27,800	*61,290*	28,200	*62,170*
Max. material density (loose)	t/m^3	*lb/cuyd*	2.2	*3,710*	2.0	*3,370*	1.8	*3,030*

Working Diagram - Backhoe (BH) - Boom 8.5 m (27'11") - Stick 4.0 m (13'9")



Digging Forces

Max. crowd force	880 kN	*197,760 lb*
Max. breakout force	870 kN	*195,520 lb*

Working Range

Max. digging depth	6.1 m	*20'0"*
Max. digging reach	15.3 m	*50'2"*
Max. digging height	14.4 m	*47'3"*

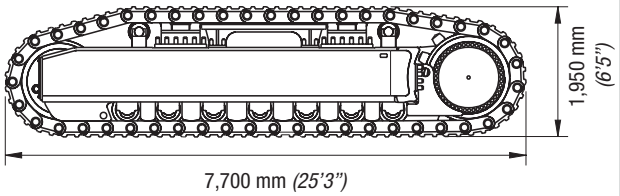
Backhoes

Type			Heavy rock bucket		**Standard rock bucket**	
Tooth system			ESCO V 81		ESCO V 81	
Capacity SAE 1:1	**m³**	***cuyd***	**15.0**	***19.6***	**17.0**	***22.2***
Capacity CECE 2:1	m³	*cuyd*	13.6	*17.8*	15.3	*20.0*
Capacity struck	m³	*cuyd*	12.3	*16.1*	13.5	*17.7*
Total width	mm	*ft:in*	3,700	*12'2"*	4,080	*13'5"*
Inner width	mm	*ft:in*	3,310	*10'10"*	3,690	*12'1"*
No. of teeth			5		6	
Weight incl. universal wear kit	kg	*lb*	16,600	*36,600*	17,900	*39,460*
Max. material density (loose)	t/m³	*lb/cuyd*	2.0	*3,030*	1.8	*3,030*

General Packing List (approx. values; details may vary depending on scope of supply and destination)

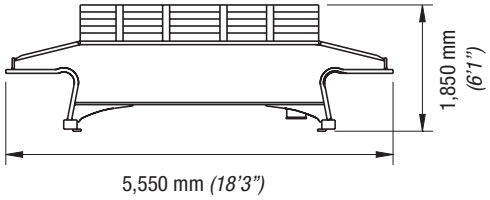
Crawler side frame with track pads (2 units)

Width 1,550 mm *(5'1")* Gross weight 36,800 kg *(81,130 lb)*



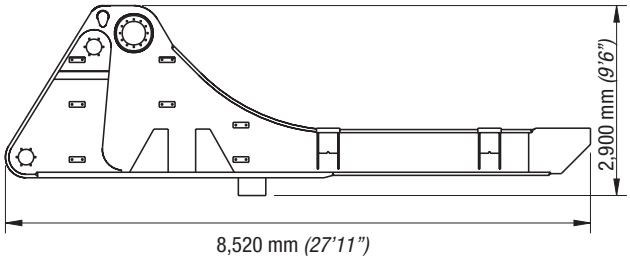
Undercarriage centre frame with swing roller bearing

Width 3,800 mm *(12'6")* Gross weight 25,000 kg *(55,120 lb)*



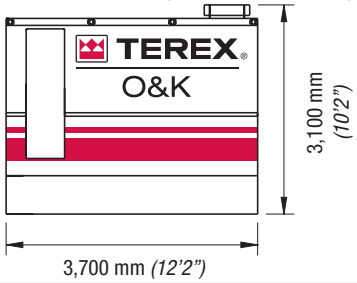
Superstructure centre frame

Width 3,120 mm *(10'3")* Gross weight 37,300 kg *(82,230 lb)*



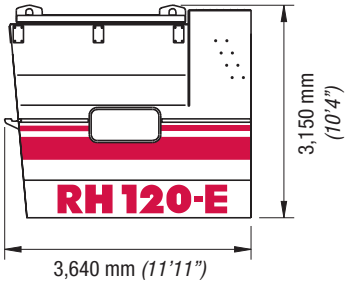
Engine module with diesel engines

Width 5,300 mm *(17'5")* Gross weight C32 22,300 kg *(49,160 lb)*
Gross weight QSK 19 23,500 kg *(51,810 lb)*



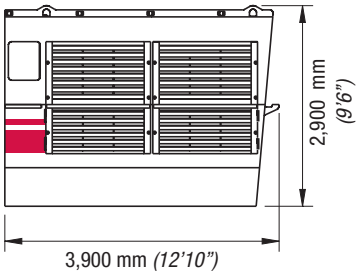
Cab pedestal module

Width 2,000 mm *(6'7")* Gross weight 4,830 kg *(10,650 lb)*



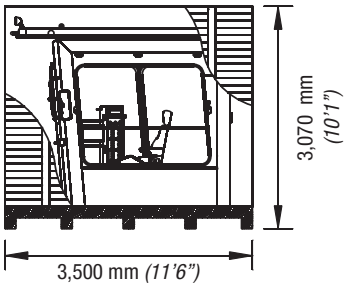
Oil cooler module

Width 1,550 mm *(5'1")* Gross weight 4,600 kg *(9,480 lb)*



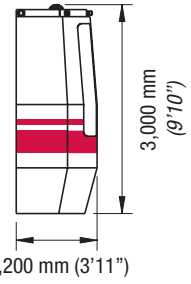
Crate with cabin and FOPS

Width 2,610 mm *(8'7")* Gross weight 3,800 kg *(8,380 lb)*



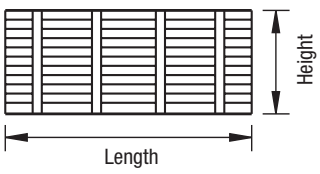
Counterweight incl. radiators

Width 5,300 mm *(17'5")* Gross weight 33,500 *kg (73,850 lb)*



Crates

Content	Length mm *(ft:in)*	Width mm *(ft:in)*	Height mm *(ft:in)*	Gross weight kg *(lb)*
Grease container with pump	1,600 *(5'3")*	1,100 *(3'7")*	2,070 *(6'9")*	930 *(2,050)*
Barrels (hydraulic oil; grease; antifreeze)	2,700 *(8'10')*	1,400 *(4'7")*	1,120 *(4')*	1,500 *(3,310)*
Swing ring cover	2,200 *(7'3")*	1,300 *(4'3")*	1,020 *(3'4")*	370 *(820)*
Retractable ladder	4,500 *(14'9")*	1,200 *(3'11")*	2,070 *(6'9")*	1,140 *(2,510)*

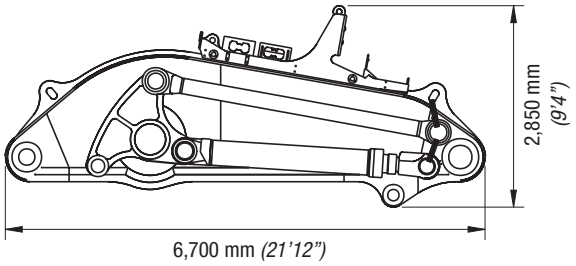


All details provided are for general information only. Exact dimensions subject to selected machine configuration and final packing list.

TriPower Shovel Attachment

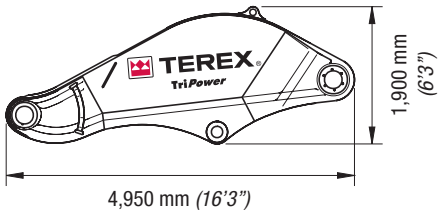
Boom with main valve block, TriPower linkages and rods

Width 2,600 mm *(8’6’)* Gross weight 26,400 kg *(58,200 lb)*



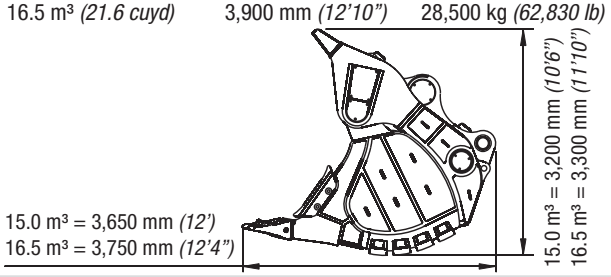
Stick

Width 1,840 mm *(6’)* Gross weight 9,000 kg *(19,840 lb)*



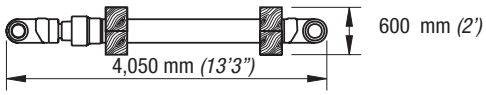
Face shovel incl. pin for stick

Capacity (2:1)	Width	Gross weight
15.0 m³ *(19.6 cuyd)*	3,900 mm *(12’10”)*	28,100 kg *(61,950 lb)*
16.5 m³ *(21.6 cuyd)*	3,900 mm *(12’10”)*	28,500 kg *(62,830 lb)*



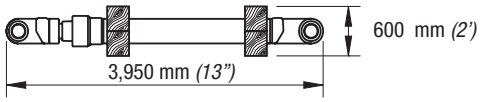
Bundle with 2 stick cylinders

Width 1,100 mm *(3’7”)* Gross weight 3,800 kg *(8,380 lb)*



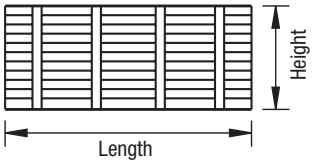
Bundle with 2 bucket cylinders

Width 1,100 mm *(3’7”)* Gross weight 3,800 kg *(8,380 lb)*



Crates with catwalks, railings and other parts

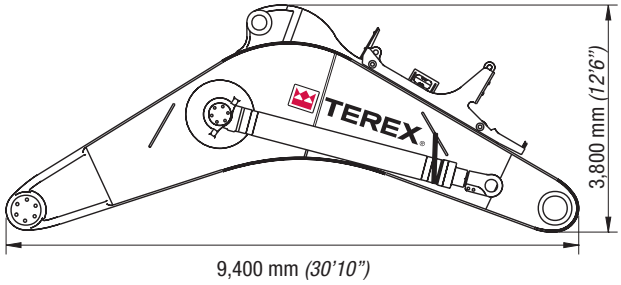
Length mm *(ft:in)*	Width mm *(ft:in)*	Height mm *(ft:in)*	Gross weight kg *(lb)*
3,900 *(12’10”)*	1,600 *(5’3”)*	1,250 *(4’1”)*	1,300 *(2,870)*
4,500 *(14’9”)*	1,900 *(6’3’)*	1,740 *(5’9”)*	2,400 *(5,290)*



Backhoe Attachment

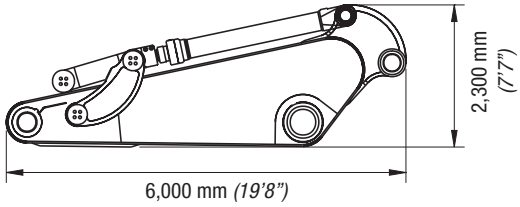
Monoboom with main valve block and boom cylinders

Width 2,700 mm *(8’10”)* Gross weight 32,700 kg *(72,090 lb)*



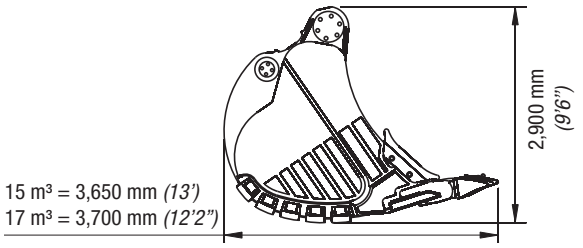
Stick with linkage and bucket cylinders

Width 2,100 mm *(6’11”)* Gross weight 16,200 kg *(35,710 lb)*



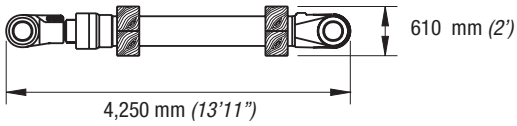
Backhoe bucket incl. pins for stick and linkage

Capacity (1:1)	Width	Gross weight
15.0 m³ *(19.6 cuyd)*	3,700 mm *(12’2”)*	18,000 kg *(39,680 lb)*
17.0 m³ *(22.2 cuyd)*	4,100 mm *(13’5’)*	19,300 kg *(42,550 lb)*



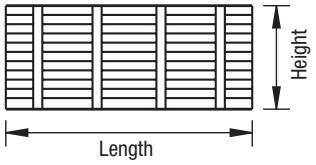
Bundle with 2 stick cylinders

Width 1,200 mm *(3’11”)* Gross weight 6,350 kg *(14,000 lb)*



Crates with catwalks, railings and other parts

Length mm *(ft:in)*	Width mm *(ft:in)*	Height mm *(ft:in)*	Gross weight kg *(lb)*
4,950 *(16’3”)*	1,900 *(6’3”)*	1,900 *(6’3”)*	2,500 *(7,050)*
3,000 *(9’10”)*	1,250 *(4’1’)*	1,350 *(4’5”)*	1,550 *(3,420)*



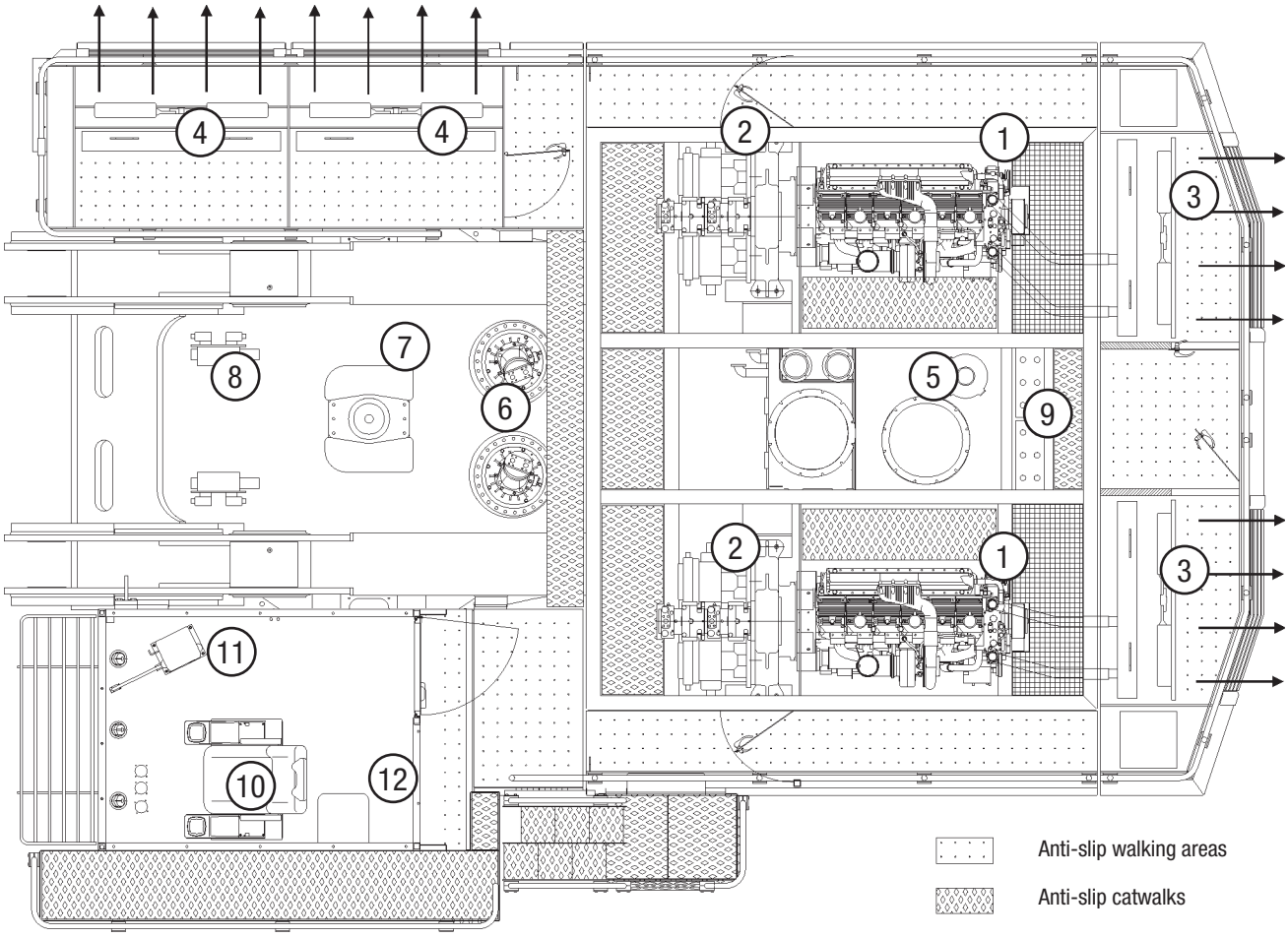
All details provided are for general information only. Exact dimensions subject to selected machine configuration and final packing list.

Hydraulic Mining Excavator

RH 120-E

Component accessibility on superstructure

1 Diesel engines
2 Gearboxes with hydraulic pumps
3 Engine radiators with hydraulically driven fan
4 Oil coolers
5 Hydraulic tank
6 Swing drives
7 Rotary distributor
8 Travel valves
9 Batteries
10 Operator's seat
11 BCS tower
12 Auxilliary seat



The technical specifications mentioned in this data sheet may vary according to the specific equipment/options installed.

TEREX | O&K

Terex GmbH

Karl-Funke-Str. 36
D-44149 Dortmund
Germany

TEL ++49 (0) 231 / 922-3
FAX ++49 (0) 231 / 922-5800
EMAIL info@terex-ok.de
WEB terex-ok.com terex.com

M 121.3 e / PDF-0507