Hydraulic Excavator R 9250 Arctic

Operating Weight	
with Backhoe Attachment:	**250,000 kg / 551,155 lb**
with Shovel Attachment:	**253,500 kg / 558,870 lb**
Engine Output:	**960 kW / 1287 hp**
Bucket Capacity:	**13,00 – 17,00 m^3 / 17.0 – 22.2 yd^3**
Shovel Capacity:	**11,00 – 17,00 m^3 / 14.4 – 22.2 yd^3**
Operating Temperature:	**–40 °C to +40 °C / –40 °F to +104 °F**

LIEBHERR

Technical Data

Engine

1 Cummins diesel engine

Rating per SAE J 1995	960 kW (1287 hp) at 1800 rpm
Model	QSK45
Type	12 cylinder turbocharged V-engine after-cooler two separate water cooling circuits direct injection system
Displacement	45 l/2745 in³
Bore/Stroke	159/190 mm / 6.26/7.48 in
Engine cooling system	fans driven via hydraulic piston motor
Air cleaner	dry-type air cleaner with pre-cleaner, with automatic dust ejector, primary and safety elements
Fuel tank	5440 l/1434 gal
Electrical system	
Voltage	24 V
Batteries	6 x 170 Ah/12 V
Alternator	24 V/260 Amp
Engine idling	sensor controlled
Electronic engine control system	engine speed sensing over the entire engine RPM range. Provides integration of engine with other machine systems

Hydraulic System

Hydraulic pumps for attachment and travel drive	3 variable flow axial piston pumps
Max. flow	2 x 771 l/min. + 1 x 579 l/min./ 2 x 204 gpm + 1 x 153 gpm
Max. hydr. pressure	320 bar/4,640 psi
Hydraulic pump for swing drive	2 reversible swash plate pumps, closed-loop circuit
Max. flow	2 x 352 l/min./2 x 93 gpm
Max. hydr. pressure	320 bar/5,076 psi
Pump regulation	electro-hydraulic pressure compensation flow compensation automatic oil flow optimizer
Hydraulic tank capacity	2281 l/602 gal
Hydraulic system capacity	4050 l/1070 gal
Hydraulic oil filter	filtration of entire return flow, 1 high pressure filter for each main pump
Hydraulic oil cooler	cooler with temperature controlled fans driven via hydraulic piston motor

Hydraulic Controls

Servo circuit	independant, electric over hydraulic proportional controls of each function
Emergency control	via accumulator for all attachment functions with stopped engine
Power distribution	via monoblock control valves with integrated primary relief valves and flanged on secondary valves for travel
Flow summation	to attachment and travel drive
Control functions	
Attachment and swing	proportional via joystick levers
Travel	proportional via foot pedals or hand levers
Bottom dump bucket	proportional via foot pedals

Swing Drive

Hydraulic motor	2 Liebherr axial piston motors
Swing gear	2 Liebherr planetary reduction gears
Swing ring	Liebherr, sealed triple roller swing ring, internal teeth
Swing speed	0–4.1 rpm
Swing torque	800 kNm/59,004 lbf ft
Swing-Holding brake	hydraulically actuated, maintenance-free, multi-disc brakes integrated in each swing gear

Uppercarriage

Design	torque resistant designed upper frame in box type construction for superior strength and durability
Attachment mounting	parallel longitudinal main girders in box-section construction
Catwalks	on the left side of the uppercarriage

Service Flap

Design	hydraulically actuated service flap, easily accessible from ground level to allow: – fuel fast refill – engine oil quick change – swing ring teeth grease barrel refilling via grease filter – attachment/swing ring bearing grease barrel refilling via grease filter – hydraulic oil refill – hydraulic oil draining – splitterbox oil refill – windshield wash water refilling

Quick coupler upon request

Technical Data

Operator's Cab

Design	resiliently mounted, sound insulated, large windows for all around visibility, integrated falling object protection FOPS
Operator's seat	suspended, body-contoured with shock absorber, adjustable to operator's weight
Cabin windows	20,5 mm/0.8 in tinted armored glass for front window and right hand side windows, all other windows in tinted safety glass, high pressure windshield-washer system 75 l/20 gal watertank, sun louvers on all windows in heavy duty design
Heating system/ Air conditioning	heavy duty, high output air conditioner and heater unit
Cabin pressurization	ventilation with filter
Controls	joystick levers integrated into armrest of seat
Monitoring	via LCD-Display, data memory
Automatic engine shut off	engine self-controlled shut off
Destroking of main pumps	in case of low hydraulic oil level
Safety functions	aditional gauges with constant display for: engine speed, hourmeter, voltmeter, safety mode for engine speed control and pump regulation

Undercarriage

Design	3-piece undercarriage, box type structures for center piece and side frames, stress relieved
Hydraulic motor	2 axial piston motors per side frame
Travel gear	Liebherr planetery reduction gear
Travel speed	0–2,1–2,7 km/h / 0–1.30–1.68 mph
Parking brake	spring engaged, hydraulically pressure released wet multi-disc brakes for each travel motor, maintenance-free
Track components	D 12, maintenance-free
Track rollers/ Carrier rollers	9/2
Automatic track tensioner	hydraulic and grease tensioner
Transport	undercarriage side frames are removable

Central Lubrication System

Type	Lincoln Centromatic lubrication system, for the entire attachment and swing ring
Grease pumps	Lincoln Flowmaster pump plus separate pump for swing ring teeth
Capacity	80 l/21.1 gal bulk container for attachment and swing ring, separated 15 l/4.0 gal bulk container for swing ring teeth
Refill	via the service flap for both containers, fill line with grease filters
Option	200 l/53 gal grease bulk container for attachment and swing ring refilling via grease filter from service flap

Attachment

Design	box-type structure with large steel castings in all high-stress areas
Stick	wear protection underneath lower beam plate
Pivots	sealed and floating pins
Hydraulic cylinder	Liebherr design, sealed bearings, electronically controlled end-cushioning
Hydraulic connections	pipes and hoses equipped with SAE split-flange connections
Pivots bucket-to-stick bucket-to-link	O-ring sealed and completely enclosed
Lubrication	connected to the centralized lubrication system, each lubrication point independently lubricated

Arctic Kit

Electrical Preheating prior to Engine Start

The hydraulic excavator can be preheated with an external electric power supply (65 kW, 400 V, 50 Hz). The electric power supply must be connected to the excavator through a connector situated on the cab elevation. The following heating equipments are installed on the excavator and each heater is designed to heat a part of the machine:

Electrically driven water engine preheater units	2 preheaters from 4 kW automatic preheating/warm keeping (own thermostat) of coolant of diesel engine
Electrically driven warm air blowers	5 blowers from 3 kW automatic warm keeping (blowers with own thermostat) of the ambient air temperature in pumps compartment, main valves compartment, cab elevation and engine compartment, warm keeping of the hydraulic piloting units and electric boxes
Electrical oil heater units	
in the hydraulic tank	7 resistors from 2 kW automatic preheating/warm keeping (own thermostat) of hydraulic oil in the hydraulic tank
in the splitterbox	2 resistors from 500 W automatic preheating/warm keeping (own thermostat) of splitterbox oil
in the engine oil pan	4 resistors from 500 W automatic preheating/warm keeping (own thermostat) of engine oil
in the suction pipes	4 resistors from 500 W automatic preheating/warm keeping (own thermostat) of hydraulic oil in the suction pipes
Electrical heating cabin windows	filaments in the windshield and all the side windows automatic defrosting of the cabin windows
Electrical cabin preheater	1 preheater from 3 kW automatic preheating/warm keeping (own thermostat) of the cabin
Heating covers around the grease containers	automatic preheating/warm keeping (own thermostat) of the greasing tank
Heating covers around the batteries	automatic preheating/warm keeping (own thermostat) of batteries
24 V resistor heating	resistors from 20 W and 150 W automatic heating and drying of electric boxes and operator's seat
Two forced circulating heating system	1 preheaters from 9 kW automatic preheating/warm keeping of all working pumps, slew pumps, fan pumps, slew motors, drive motors and valves blocs
Fuel preheater	heat exchanger with warm engine coolant, preheated fuel at the entry of the engine

Electrical Heating After Engine Start (without Electrical Supply)

Continuous flushing of swing and travel motors with an additional gear pump, in order to supply oil at operating temperature even if travel or swing functions are not actuated.
Continuous preheating fuel with a warm engine coolant heat exchanger.

Stand-by Heating Operation

If the machine is turned off for more than one hour and the ambient air temperature is below –10 °C, connect the external generator set to start the heaters (auto-regulated) in order to maintain the excavator in predefined temperature and to be able to restart quickly.

Heated areas	operator's cab, cab elevation, valve bank compartment, engine compartment
Heated components	engine and splitter box, main, slew, oilcooler, watercooler pumps, batteries, travel, swing motors, main valves blocks, electrical boxes and joysticks, grease pumps and control valves

Insulation

Thermal insulated components	complete power pack, main control valve compartment, hydraulic tank module, fuel tank and cab elevation, battery compartment, cab roof, floor and walls, grease containers
Closed carbody openings	mechanically adjustable louvers to isolate the excavator – in front of engine radiator – in front of hydraulic radiator
Snow protection for engine air filter intake	optional air intake from the engine compartment is possible

Central Lubrication System

Design	thermal insulated grease containers, large nominal width for all grease lines, special injector for cold climate
Heated components	electro thermal wrap around, both grease containers

Features of the Electrical Preheating System

Electrical system is designed corresponding to europeen standards 400 V/230 V/50 Hz. Optionally the system can be delivered corresponding to CSA standards.
– Different components with CSA approval
– Different tension and frequency 440 V/254 V/60 Hz

Safety IT-System	isolated ground, monitoring of: short circuit, overload, isolation; system reactions: warning (acoustical/optical), shut down
Battery charge	continuously during standstill
24 V board network	continuous power supply
Accessory parts	additional alternator to ensure 100 % lighting and heating, additional battery pack for emergency lighting

Steel Construction

The steel structures of the Liebherr standard excavators are good for –40 °C. Minimum required are Charpy impact values of 27 joule at minimum ambient temperature.
Liebherr requirements:

for steel plates LH 380	36 Joule at –40 °C
for casting parts for mining	AOD (Argon Oxygen Decarburizing) or VLS (Very Low Sufur) steel > 60 Joule at –20 °C

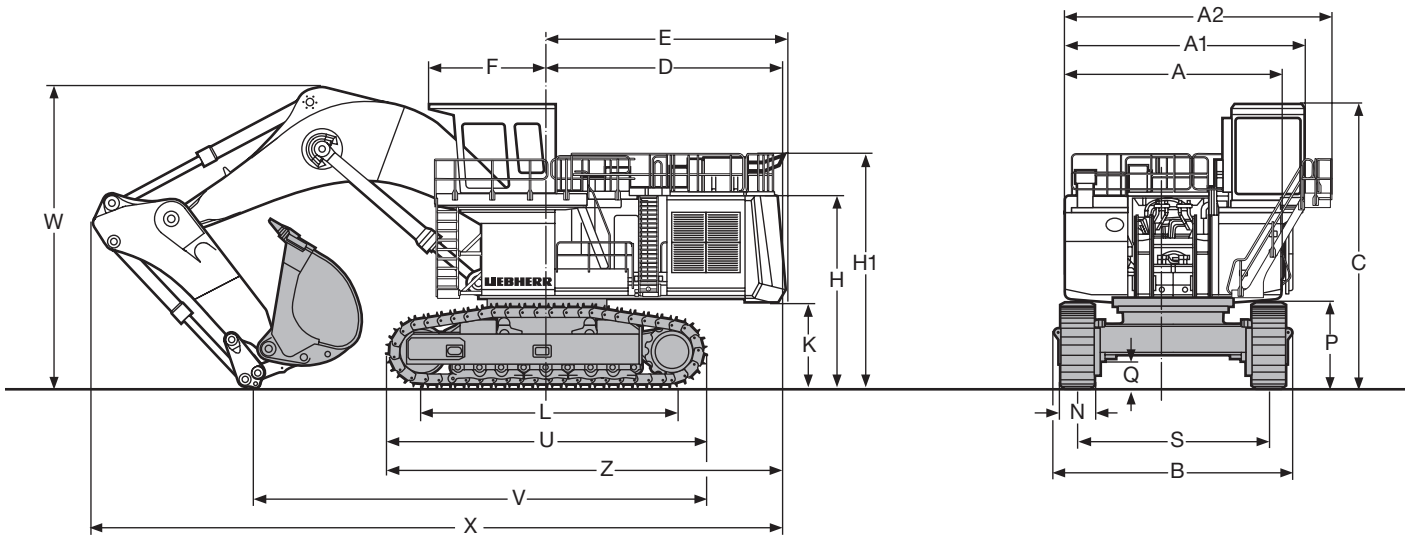
Operator's Cab

Design	increased thermal insulation at walls, roofs and cab floor
Heating system	heating capacity adapted to arctic conditions, windshield and front side windows preheated to defrost, and also insulation glass, heated operator's seat (minimum temperature inside the operator's cab during standstill +15 °C/ +59 °F)
Controls	electrical boxes and joysticks equipped with 24 V electrical heating elements

Additionnal Measures

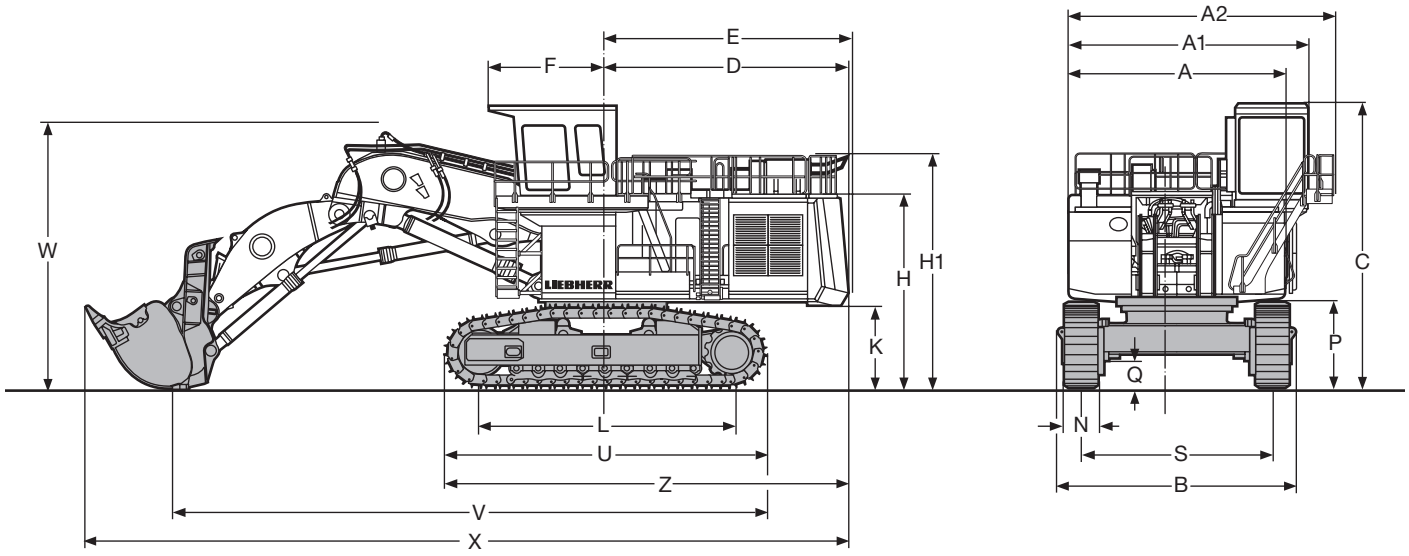
Low temperature adapted lubricants	for uppercarriage, for undercarriage
Undercarriage components in –40 °C version	track tensioning, track roller, idler wheel
Uppercarriage components in –40 °C version	splitter box, gear pumps, accumulators, fan drive motors
Attachment	use of special low temperature hoses for uppercarriage to attachment and attachment hoses

Dimensions



	mm/ft in
A	5500/18’ 1”
A1	6100/20’
A2	6800/22’ 4”
C	7250/23’ 9”
D	6100/20’
E	6140/20’ 2”
F	2993/ 9’10”
H	4905/16’ 1”
H1	6000/19’ 8”
K	2205/ 7’ 3”
L	6400/20’12”

	mm/ft in
P	2180/ 7’ 2”
Q	625/ 2’ 1”
S	4900/16’ 1”
U	8240/27’
Z	10240/33’ 7”
N	850/ 2’ 9”
B	6040/19’10”
V	11600/38’ 1”
W	7800/25’ 7”
X	17800/58’ 5”



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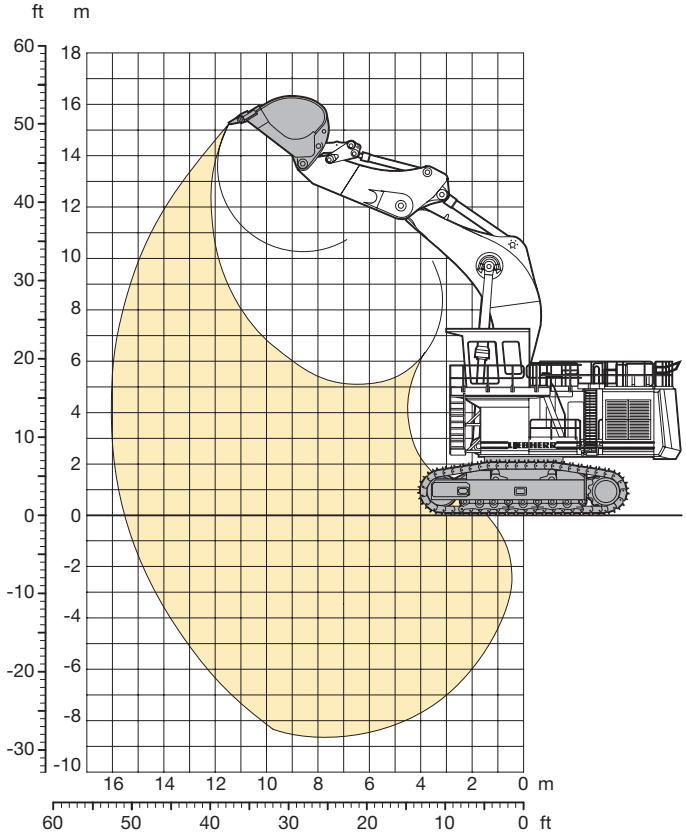
P	2180/ 7’ 2”
Q	625/ 2’ 1”
S	4900/16’ 1”
U	8240/27’
Z	10240/33’ 7”
N	850/ 2’ 9”
B	6040/19’10”
V	17400/57’
W	6700/21’ 9”
X	19600/64’ 3”

Backhoe Attachment

with Gooseneck Boom 9,00 m/29’6” and Stick 4,00 m/13’1”



Digging Envelope

Max. reach at ground level	15,50 m/50’10”
Max. teeth height	15,20 m/49’10”
Max. dump height	10,30 m/33’10”
Max. digging depth	8,70 m/28’ 7”
Max. digging force	780 kN (79,5 t)/175,350 lbf (175,267 lb)
Max. breakout force	859 kN (87,5 t)/193,111 lbf (192,904 lb)

Operating Weight and Ground Pressure

The operating weight includes the basic machine with backhoe attachment and a 15,00 m³/19.6 yd³ bucket.

Pad width	mm/in	850/34
Weight	kg/lb	250000/551,155
Ground pressure	kg/cm²/psi	2,08/29.58

Buckets

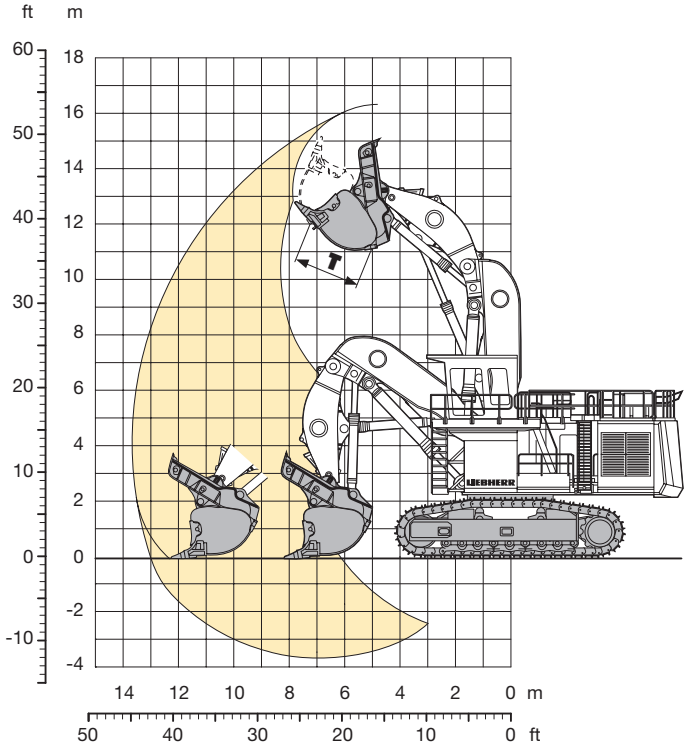
Cutting width	mm/in	2950/116[1)]	3300/130[1)]	3500/138[1)]	3700/145[1)]
Capacity ISO 7451	m³/yd³	13,00/17.00	15,00/19.62	16,00/20.93	17,00/22.24
Weight	kg/lb	14100/31,090	14500/31,970	15000/33,070	15900/35,060
Suitable for material up to a specific weight of	t/m³/lb/yd³	2,00/3,400	1,80/3,060	1,65/2,800	1,50/2,550

[1)] Heavy duty rock bucket with teeth size 85 SV 2

Additional buckets on request

Shovel Attachment

with Shovel Boom 6,37 m/20’9” and Stick 4,20 m/13’8”



Digging Envelope

Max. reach at ground level	13,00 m/42’8”
Max. dump height	11,00 m/36’
Max. crowd length	4,00 m/13’
Bucket opening width T	2,15 m/ 7’1”
Crowd force at ground level	1050 kN (107,2 t)/236,336 lbf (236,050 lb)
Max. crowd force	1210 kN (123,5 t)/272,271 lbf (272,019 lb)
Max. breakout force	935 kN (95,4 t)/210,321 lbf (210,197 lb)

Operating Weight and Ground Pressure

The operating weight includes the basic machine with front shovel attachment and a 15,00 m³/19.6 yd³ bucket.

Pad width	mm/in	850/33
Weight	kg/lb	253500/558,870
Ground pressure	kg/cm²/psi	2,12/30.15

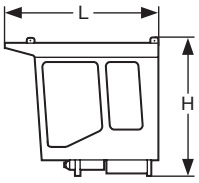
Buckets

Cutting width	mm/in	3700/145[1)]	3700/145[1)]	3700/145[1)]	3700/145[1)]
Capacity ISO 7451	m³/yd³	11,00/14.3	13,00/17.0	15,00/19.6	17,00/22.2
Weight	kg/lb	27000/59,520	27500/60,630	27000/59,520	27200/59,970
Suitable for material up to a specific weight of	t/m³/lb/yd³	2,40/4,000	2,00/3,400	1,80/3,000	1,50/2,500

[1)] Bottom dump bucket with Delta cutting edge and teeth size 85 SV 2

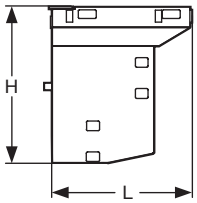
Additional bottom dump buckets on request

Component Dimensions and Weights



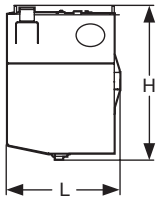
Cab

L	Length	mm/ft in	3215/10’6”
H	Height	mm/ft in	2885/ 9’6”
	Width	mm/ft in	1900/ 6’3”
	Weight	kg/lb	3400/7,500



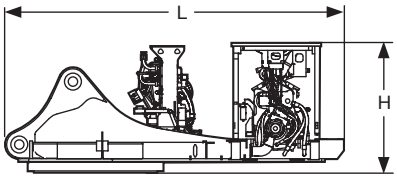
Cab Elevation

L	Length	mm/ft in	2315/7’ 6”
H	Height	mm/ft in	2457/8’
	Width	mm/ft in	1496/8’19”
	Weight	kg/lb	3060/6,746



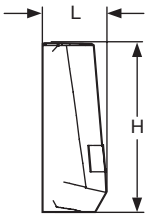
Fuel Tank

L	Length	mm/ft in	2550/ 8’3”
H	Height	mm/ft in	3450/11’3”
	Width	mm/ft in	3045/10’
	Weight	kg/lb	1950/4,300



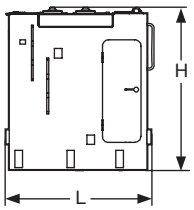
Rotation Deck (with swing ring, swing gears, control valve bracket and engine with pumps)

L	Length	mm/ft in	7670/25’ 2”
H	Height	mm/ft in	2855/ 9’ 4”
	Width	mm/ft in	4099/13’44”
	Weight	kg/lb	39500/87,082



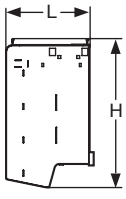
Counterweight

L	Length	mm/ft in	1025/ 3’3”
H	Height	mm/ft in	2730/ 8’9”
	Width	mm/ft in	6000/19’7”
	Weight	kg/lb	25320/55,820



Hydraulic Tank

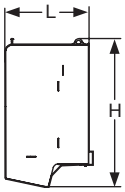
L	Length	mm/ft in	2325/7’6”
H	Height	mm/ft in	2582/8’5”
	Width	mm/ft in	1354/4’4”
	Weight	kg/lb	5390/11,883



Oil Radiator Installation

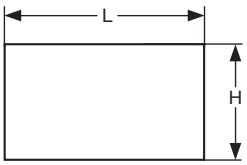
L	Length	mm/ft in	1595/5’2”
H	Height	mm/ft in	2660/8’7”
	Width	mm/ft in	2070/6’8”
	Weight	kg/lb	1750/3,858

Component Dimensions and Weights



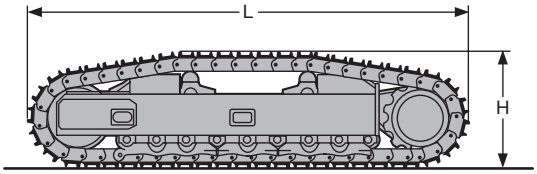
Water Radiator Installation

L	Length	mm/ft in	1565/5'1"
H	Height	mm/ft in	2660/8'7"
	Width	mm/ft in	2430/7'9"
	Weight	kg/lb	2980/6,569



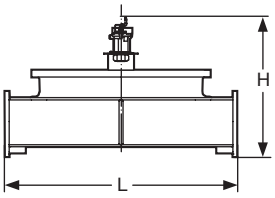
Small Pieces

L	Length	mm/ft in	4500/14'7"
H	Height	mm/ft in	2600/ 8'5"
	Width	mm/ft in	2000/ 6'5"
	Weight	kg/lb	4500/9,920



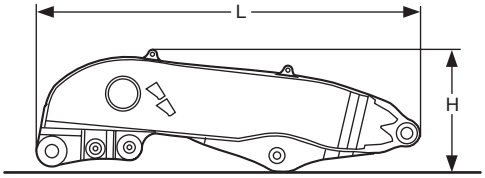
Side Frame (two)

L	Length	mm/ft in	8240/27'
H	Height	mm/ft in	2180/ 7'1"
	Width over travel drive	mm/ft in	2190/ 7'2"
	Width without travel drive	mm/ft in	1335/ 4'4"
	Weight	kg/lb	2 x 37000/2 x 81,570



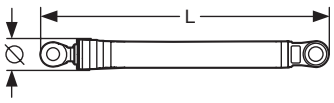
Undercarriage Central Girder

L	Length	mm/ft in	3650/12'
H	Height	mm/ft in	2190/ 7'2"
	Width	mm/ft in	4420/ 4'5"
	Weight	kg/lb	18500/40,785



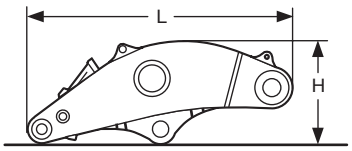
Shovel Boom

L	Length	mm/ft in	7000/23'
H	Height	mm/ft in	2600/ 8'5"
	Width	mm/ft in	3300/10'8"
	Weight	kg/lb	19240/42,417



Hoist Cylinder (two) for Shovel Attachment

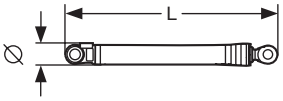
L	Length	mm/ft in	4300/14'1"
Ø	Diameter	mm/ft in	500/ 1'6"
	Weight	kg/lb	2 x 3088/2 x 6,807



Shovel Stick

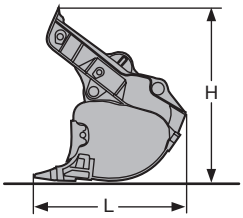
L	Length	mm/ft in	4800/15'7"
H	Height	mm/ft in	2000/ 6'5"
	Width	mm/ft in	3100/10'1"
	Weight	kg/lb	11750/25,904

Component Dimensions and Weights



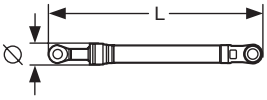
Crowd Cylinder (two)

L	Length	mm/ft in	3640/12’
Ø	Diameter	mm/ft in	365/ 1’2”
	Weight	kg/lb	2 x 1340/2 x 2,954



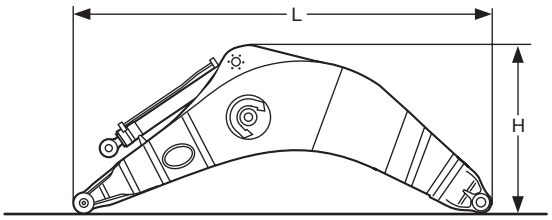
Bottom Dump Bucket 15,00 m³/19.6 yd³

L	Length	mm/ft in	3600/11’8”
H	Height	mm/ft in	3900/12’8”
	Width	mm/ft in	3800/12’5”
	Weight	kg/lb	27000/59,524



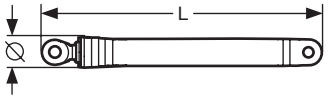
Bucket Tilt Cylinder (two)

L	Length	mm/ft in	3830/12’5”
Ø	Diameter	mm/ft in	365/ 1’2”
	Weight	kg/lb	2 x 1545/2 x 3,406



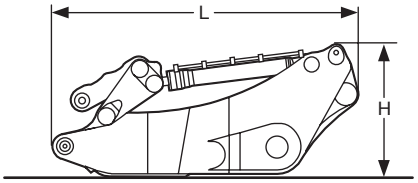
Gooseneck Boom with Stick Cylinders

L	Length	mm/ft in	9600/31’5”
H	Height	mm/ft in	3900/12’8”
	Width	mm/ft in	2200/ 7’2”
	Weight	kg/lb	24500/54,013



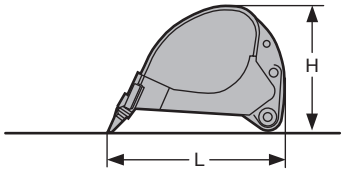
Hoist Cylinders (two) for Backhoe Attachment

L	Length	mm/ft in	4580/15’
Ø	Diameter	mm/ft in	500/ 1’6”
	Weight	kg/lb	2 x 3140/2 x 6,922



Stick with Bucket Cylinders

L	Length	mm/ft in	5900/19’3”
H	Height	mm/ft in	2600/ 8’5”
	Width	mm/ft in	2000/ 6’5”
	Weight	kg/lb	16020/35,318



Backhoe Bucket 15,00 m³/19.6 yd³

L	Length	mm/ft in	3900/12’8”
H	Height	mm/ft in	2900/ 9’5”
	Width	mm/ft in	3400/11’1”
	Weight	kg/lb	13150/28,990

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