Technical Description
Hydraulic Excavator

R 995

ARCTIC Litronic®

Operating Weight with Backhoe Attachment 445,5 t/982,160 lb
Operating Weight with Shovel Attachment 454,5 t/1,002,000 lb
Engine Output 2140 HP (1600 kW)
Bucket Capacity 24,00 – 26,50 m³/31.4 – 34.7 cuyd
Shovel Capacity 24,00 – 26,50 m³/31.4 – 34.7 cuyd
Operating Temperature – 50 °C to + 40 °C/– 58 °F to + 104 °F

LIEBHERR

Technical Data

Engine

MTU diesel engine	
Rating per	
SAE J 1995	2140 HP (1600 kW) at 1800 RPM
Model	16 V 4000 E 20
Type	16 cylinder turbocharged V-engine, after-cooled, two separate water cooling circuits, common-rail direct injection system
Displacement	65 l/3967 cu.in
Bore/Stroke	165/190 mm/6.5/7.48 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	10 000 l/2640 gal
Electrical system	
Voltage	24 V
Batteries	8 (+ 2) x 170 Ah/12 V
Alternator	2 x 24 V/240 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
Option	alternate diesel engine or electric motor on request

Hydraulic System

Hydraulic pumps for attachment and travel drive	6 variable flow axial piston pumps
Max. flow	6 x 840 l/min./6 x 222 gpm
Max. hydr. pressure	320 bar/4640 PSI
Hydraulic pumps for swing drive	4 reversible swash plate pumps, closed-loop circuit
Max. flow	4 x 361 l/min./4 x 95.4 gpm
Max. hydr. pressure	350 bar/5076 PSI
Pump regulation	electro-hydraulic, pressure compensation, flow compensation, automatic oil flow optimizer
Hydraulic tank capacity	3030 l/800 gal
Hydraulic system capacity	6400 l/1690 gal
Hydraulic oil filter	filtration of entire return flow, 1 high pressure filter for each main pump
Hydraulic oil cooler	2 separate coolers, 3 temperature controlled fans driven via hydraulic piston motors

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	4 Liebherr axial piston motors
Swing gear	4 Liebherr planetary reduction gears
Swing ring	Liebherr, sealed triple roller swing ring, internal teeth
Swing speed	0–3.7 RPM
Swing-Holding brake	hydraulically released, 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 with a hydraulically driven access ladder, additional emergency ladder in front of the cab

Service Flap

Design	hydraulically actuated service flap, easily accessible from ground level to allow: – fuel fast refill – hydraulic oil refill – engine oil quick change – splitterbox oil quick change – swing gearbox oil quick change – swing ring gearing grease barrel refilling via grease filter – attachment/swing ring bearing grease barrel refilling via grease filter – windshield washer 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 with 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 unit with filters
Controls	joystick levers integrated into armrest of seat
Monitoring	via LCD-Display, data memory
Automatic engine shut off	in case of low engine oil pressure or low coolant level
Destroking of main pumps	in case of engine overheating or low hydraulic oil level
Safety functions	additional gauges with constant display for: engine speed, hourmeter, engine oil pressure, coolant temperature, hydraulic oil temperature

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 planetary reduction gear
Travel speed	0–2,7 km/h/0–1.67 mph
Parking brake	spring engaged, hydraulically released wet multi-disc brakes for each travel motor, maintenance-free
Track components	maintenance-free combined pad-link, shovel style double grouser pad
Track rollers/ Carrier rollers	7/3
Automatic track tensioner	pressurized hydraulic cylinder with accumulator, maintenance free
Transport	undercarriage side frames are removable

Central Lubrication System

Type	Lincoln Centromatic lubrication system for the entire attachment and swing ring
Grease pumps	2 Lincoln Powermaster pumps with switch over function, plus 1 separate pump for swing ring teeth
Capacity	600 l/158 gal bulk container for attachment and swing ring, separated 80 l/21 gal container for swing ring teeth
Refill	via the service flap for both containers with grease filters

Attachment

Design	box type structure with large steel castings in all high-stress areas
Pivots	sealed with double side centering with 1 single floating pin per side, all bearings with wear resistant, steel bushings, bolts hardened and chromium-plated
Hydraulic cylinders	Liebherr design, all cylinders located in well protected areas
Hydraulic connections	pipes and hoses equipped with SAE split flange connections
Kinematics	Liebherr parallel face shovel attachment geometry, backhoe bucket pivoting angle 160°

Low Temperature Package

Electrical Preheating prior to Engine Start

Power supply	integrated generator set, external alternative via socket
Electrically driven warm air blowers	engine compartment, main valve compartment
Electrically driven water heater units	engine block and radiator, fuel system and battery box, operator's cab, cab elevation, grease containers
Electrical oil heater units	main and slew pumps, suction tube for hydraulic oil
24 V resistor heating	electrical boxes, operator's seat and joysticks

Stand-by Heating Operation

Long-time shut down period of excavator	continuous heating to predefined temperature
Heated areas	operator's cab, cab elevation, valve bank compartment, engine compartment
Heated components	engine and splitter box, main pumps, batteries, 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, engine coolant expansion tank, generator compartment, battery compartment, cab roof, grease containers
Closed carbody openings	power pack inlet/outlet, oilcooler inlet/outlet

Central Lubrication System

Design	thermal insulated grease containers, large nominal width for all grease lines
Heated components	heat exchanger in both grease containers

Features of the Electrical Preheating System

Gen-set	low temperature version, installed in the machinery house
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

Hydraulic Circuit

Elements continuously flushed after engine start	main valves and piloting system, slewing motors, rotary connection, travel motors, track tensioning units
Low temperature materials	hoses, seals

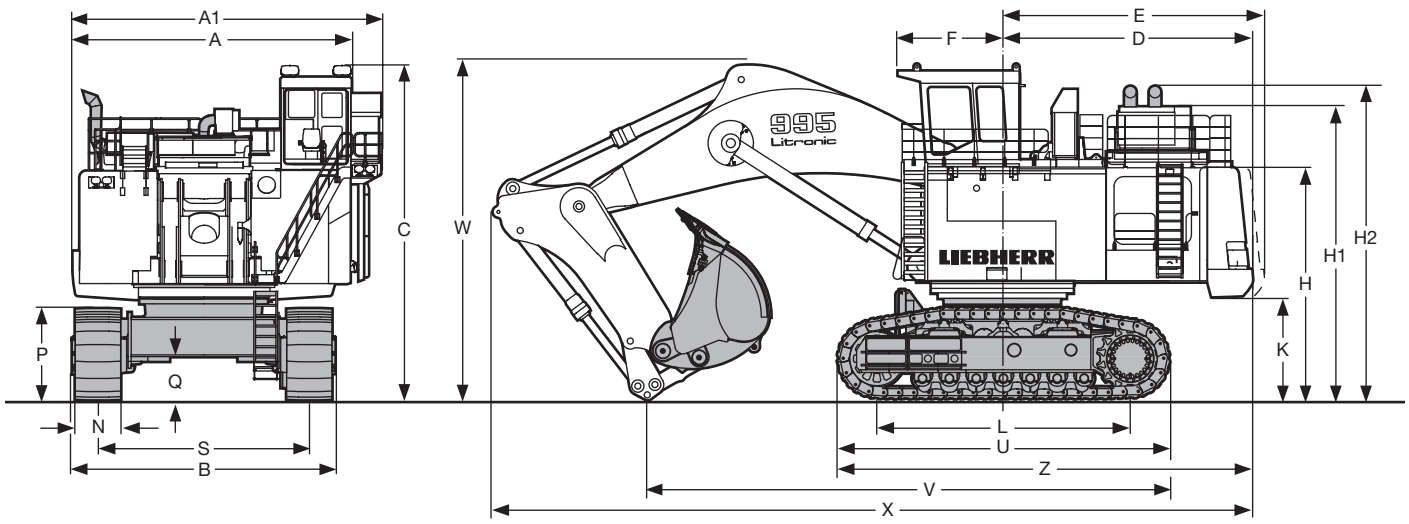
Steel Construction

Low temperature adaptation	cryogenic steel for structural components, threaded bolts for main steel structure connections

Operator's Cab

Design	increased thermal insulation
Heating system	heating capacity adapted to arctic conditions, warm air blowers for front and side windows, 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

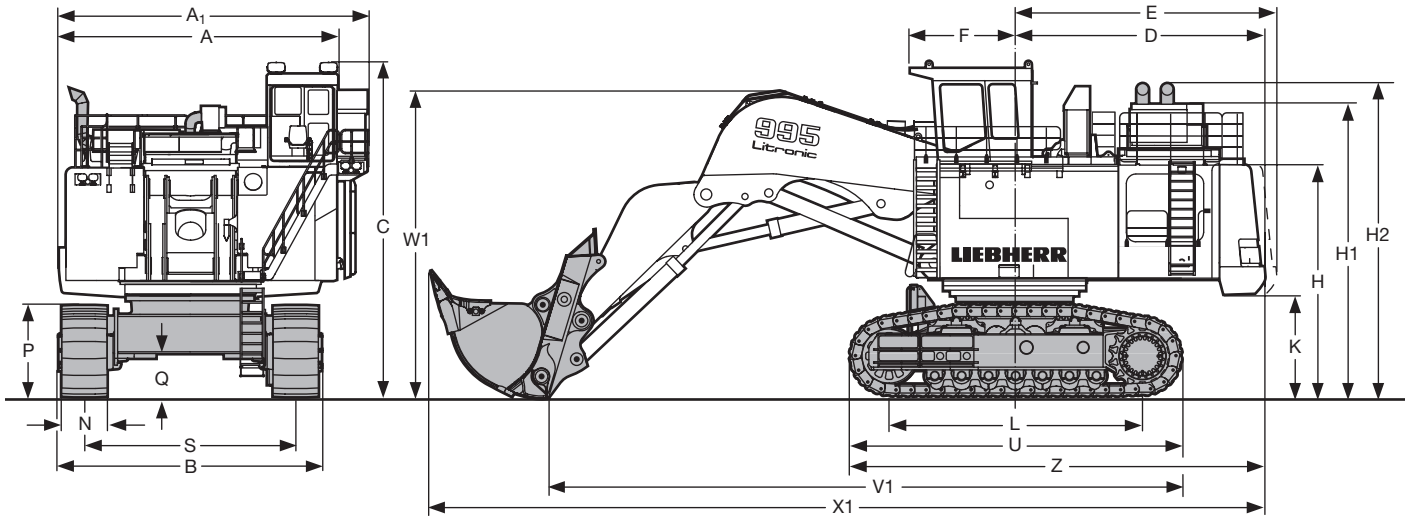
Dimensions



	mm/ft-in
A	7400/24’ 3”
A1	8230/27’ 0”
C	8820/28’11”
D	6590/21’ 7”
E	6900/22’ 7”
F	2810/ 9’ 3”
H	6025/19’ 9”
H1	7620/25’ 0”
H2	8170/26’ 9”
K	2600/ 8’ 6”
L	6700/22’ 0”
U	8800/28’10”

	mm/ft-in
P	2420/ 7’11”
Q	1145/ 3’ 9”
S	5600/18’ 4”
N	1200/ 47”
B	6960/22’10”
Z	11000/36’ 1”

	Gooseneck Boom 32’10” mm/ft-in	Gooseneck Boom 34’5” mm/ft-in
V	13200/43’ 4”	13900/45’ 7”
W	9100/29’10”	9000/29’ 6”
X	19600/64’ 4”	20100/65’11”



	mm/ft-in
A	7400/24’ 3”
A1	8850/29’ 0”
C	8820/28’11”
D	6590/21’ 7”
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F	2810/ 9’ 3”
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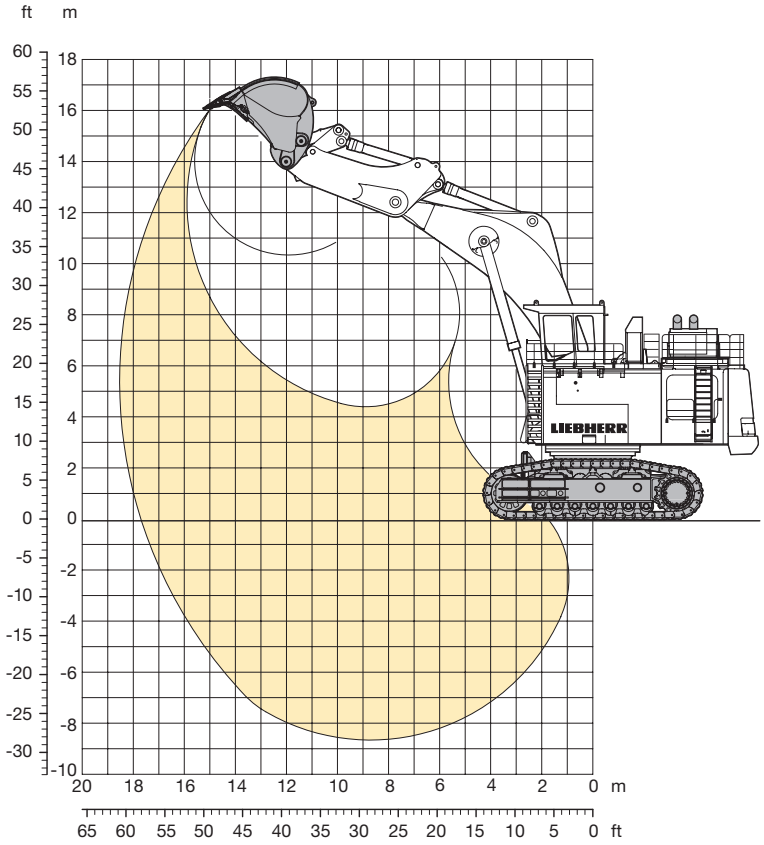
K	2600/ 8’ 6”
L	6700/22’ 0”

	mm/ft-in
U	8800/28’10”
P	2420/ 7’11”
Q	1145/ 3’ 9”
S	5600/18’ 4”
N	1200/ 47”
B	6960/22’10”
W1	8000/26’ 3”
V1	17000/55’ 9”
X1	22100/72’ 6”
Z	11000/36’ 1”

Backhoe Attachment

with Gooseneck Boom 10,00 m/32’10”



Digging Envelope

Max. reach at ground level	17,80 m/58’5”
Max. teeth height	16,30 m/53’6”
Max. dump height	10,50 m/34’5”
Max. digging depth	8,60 m/28’3”
Max. digging force	1150 kN (117,3 t)/258,530 lbf
Max. breakout force	1400 kN (142,7 t)/314,730 lbf

Operating Weight and Ground Pressure

The operation weight includes the basic machine with backhoe attachment and bucket 26,50 m³/34.7 cuyd.

Pad width	mm/in	1200/47
Weight	kg/lb	445500/982,160
Ground pressure	kg/cm²/PSI	2,50/35.56

Bucket

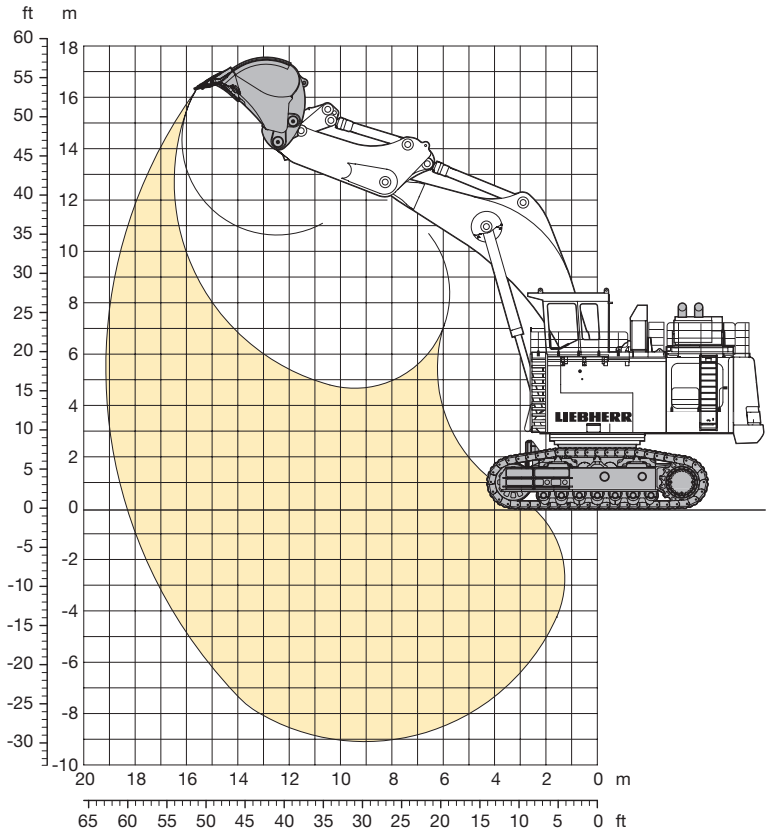
Cutting width SAE	mm/in	4300/169”[1)]	4300/169”[1)]
Capacity SAE heaped	m³/cuyd	24,00/31.4	26,50/34.7
Weight	kg/lb	28300/62,390	30220/66,620
Suitable for material up to a specific weight of	t/m³/lb/cuyd	2,00/3400	1,80/3000
Wear kit level		II	II

[1)] Bucket with delta cutting edge and tooth system Posilok size S 110.
Wear kit level II: For heavy rock, not deteriorated or cracked. Has to be shot to be dug.

Additional buckets on request.

Backhoe Attachment

with Gooseneck Boom 10,50 m/34’5”



Digging Envelope

Max. reach at ground level	18,25 m/59’11”
Max. teeth height	16,50 m/54’ 2”
Max. dump height	10,70 m/35’ 1”
Max. digging depth	9,00 m/29’ 6”
Max. digging force	1150 kN (117,3 t)/258,530 lbf
Max. breakout force	1400 kN (142,7 t)/314,730 lbf

Operating Weight and Ground Pressure

The operation weight includes the basic machine with backhoe attachment and bucket 24,00 m³/31.4 cuyd.

Pad width	mm/in	1200/47
Weight	kg/lb	445500/982,160
Ground pressure	kg/cm²/PSI	2,50/35.56

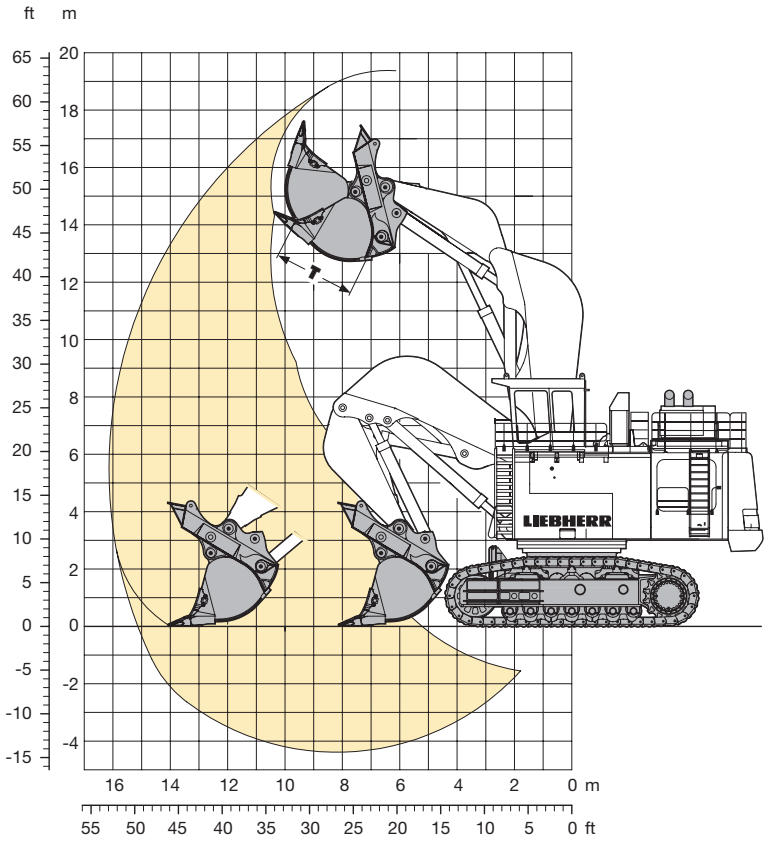
Bucket

Cutting width SAE	mm/in	4300/169”[1)]	4300/169”[1)]
Capacity SAE heaped	m³/cuyd	24,00/31.4	26,50/34.7
Weight	kg/lb	28300/62,390	30220/66,620
Suitable for material up to a specific weight of	t/m³/lb/cuyd	1,80/3000	1,60/2720
Wear kit level		II	II

[1)] Bucket with delta cutting edge and tooth system Posilok size S 110.
Wear kit level II: For heavy rock, not deteriorated or cracked. Has to be shot to be dug.

Additional buckets on request.

Shovel Attachment



Digging Envelope

Max. reach at ground level	15,15 m/49’8”
Max. dump height	12,80 m/42’0”
Max. crowd length	6,00 m/19’8”
Bucket opening width T	2800 mm/110”
Crowd force at ground level	1400 kN (142,7 t)/314,730 lbf
Max. crowd force	1800 kN (183,5 t)/404,660 lbf
Max. breakout force	1400 kN (142,7 t)/314,730 lbf

Operating Weight and Ground Pressure

The operation weight includes the basic machine with shovel attachment and bottom dump bucket 26,50 m³/34.7 cuyd.

Pad width	mm/in	1200/47
Weight	kg/lb	454500/1,002,000
Ground pressure	kg/cm²/PSI	2,55/36.27

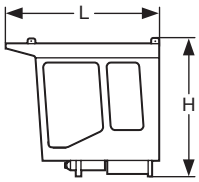
Bottom Dump Bucket

Cutting width SAE	mm/in	4300/169”[1)]	4300/169”[1)]
Capacity SAE heaped	m³/cuyd	24,00/31.4	26,50/34.7
Weight	kg/lb	41500/91,490	42600/93,920
Suitable for material up to a specific weight of	t/m³/lb/cuyd	2,00/3400	1,80/3000
Wear kit level		II	II

[1)] Bottom dump bucket with delta cutting edge and tooth system Posilok size S 110.
Wear kit level II: For heavy rock, not deteriorated or cracked. Has to be shot to be dug.

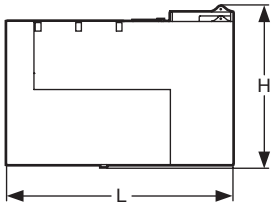
Additional bottom dump buckets on request.

Component Dimensions and Weights



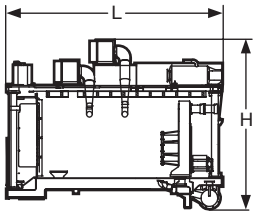
Cab

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	2600/5,750



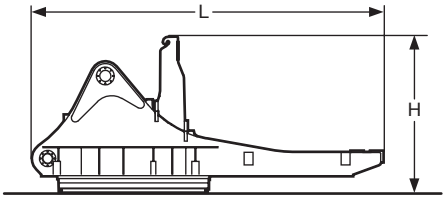
Cab Elevation with Fuel Tank

L	Length	mm/ft-in	4755/15’ 7”
H	Height	mm/ft-in	3400/11’ 2”
	Width	mm/ft-in	3015/ 9’11”
	Weight	kg/lb	10250/22,600



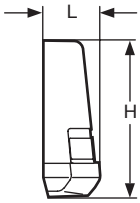
Powerpack Module

L	Length	mm/ft-in	5720/18’9”
H	Height	mm/ft-in	4500/14’9”
	Width	mm/ft-in	2650/ 8’8”
	Weight	kg/lb	24250/53,460



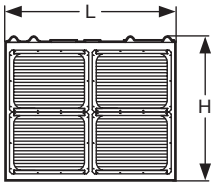
Rotation Deck (with swing ring, swing gears and control valve bracket)

L	Length	mm/ft-in	8700/28’6”
H	Height	mm/ft-in	3900/12’9”
	Width	mm/ft-in	4000/13’1”
	Weight	kg/lb	56800/125,220



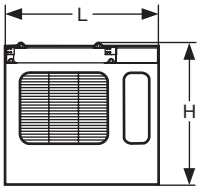
Counterweight

L	Length	mm/ft-in	1250/ 4’ 1”
H	Height	mm/ft-in	3430/11’ 3”
	Width	mm/ft-in	6970/22’10”
	Weight	kg/lb	44000/97,000



Hydraulic Oil Cooling

L	Length	mm/ft-in	3650/12’ 0”
H	Height	mm/ft-in	3150/10’ 4”
	Width	mm/ft-in	2100/ 6’11”
	Weight	kg/lb	7700/17,000



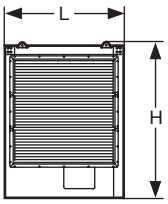
Compartment Panel Right

L	Length	mm/ft-in	3800/12’6”
H	Height	mm/ft-in	3500/11’6”
	Width	mm/ft-in	830/ 2’9”
	Weight	kg/lb	1500/3,300

Arctic Kit

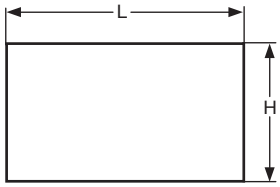
	Weight	kg/lb	6000/264,550

Component Dimensions and Weights



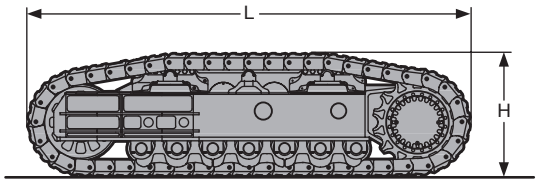
Compartment Panel Left with Rotary Ladder

L	Length	mm/ft-in	2650/ 8’ 8”
H	Height	mm/ft-in	3500/11’ 6”
	Width	mm/ft-in	860/ 2’10”
	Weight	kg/lb	1800/3,970



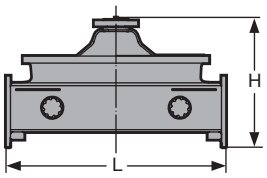
Miscellaneous

L	Length	mm/ft-in	4500/14’9”
H	Height	mm/ft-in	2600/ 8’6”
	Width	mm/ft-in	2000/ 6’7”
	Weight	kg/lb	5000/11,000



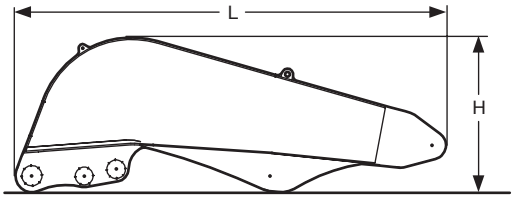
Side Frame (two)

L	Length	mm/ft-in	8800/28’10”
H	Height	mm/ft-in	2500/ 8’ 3”
	Width over travel drive	mm/ft-in	1800/ 5’11”
	Width without travel drive	mm/ft-in	1650/ 5’ 5”
	Weight	kg/lb	2 x 67000/2 x 147,700



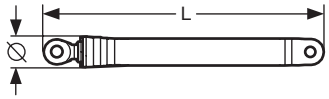
Undercarriage Central Girder

L	Length	mm/ft-in	4020/13’2”
H	Height	mm/ft-in	2540/ 8’4”
	Width	mm/ft-in	4440/14’7”
	Weight	kg/lb	34200/75,400



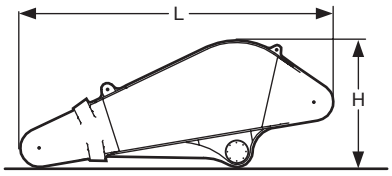
Shovel Boom

L	Length	mm/ft-in	8200/26’11”
H	Height	mm/ft-in	3000/ 9’10”
	Width	mm/ft-in	2750/ 9’ 0”
	Weight	kg/lb	38000/83,800



Hoist Cylinder (two)

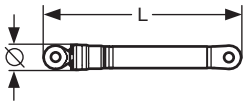
L	Length	mm/ft-in	5100/16’ 9”
Ø	Diameter	mm/in	550/ 22”
	Weight	kg/lb	2 x 5000/2 x 11,020



Shovel Stick

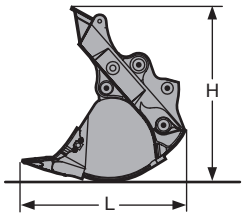
L	Length	mm/ft-in	5200/17’ 1”
H	Height	mm/ft-in	2100/ 6’11”
	Width	mm/ft-in	2300/ 7’ 6”
	Weight	kg/lb	20300/44,750

Component Dimensions and Weights



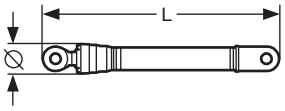
Crowd Cylinder (two)

L	Length	mm/ft-in	3600/11’10”
Ø	Diameter	mm/in	450/ 18”
	Weight	kg/lb	2 x 2000/2 x 4,400



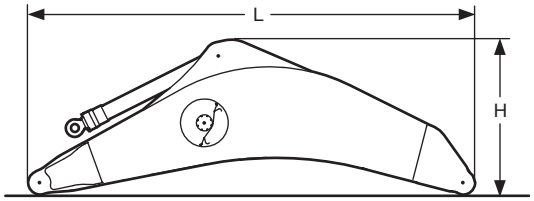
Bottom Dump Bucket (including clam cylinders)

			24,00 m³/ 31.4 cuyd	26,50m³/ 34.7 cuyd
L	Length	mm/ft-in	4350/14’3”	4650/15’3”
H	Height	mm/ft-in	4800/15’9”	4800/15’9”
	Width	mm/ft-in	4300/14’1”	4300/14’1”
	Weight	kg/lb	41500/91,490	42600/93,920



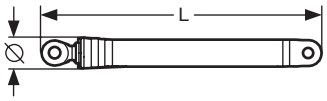
Bucket Tilt Cylinder (two)

L	Length	mm/ft-in	4300/14’ 1”
Ø	Diameter	mm/in	520/ 20”
	Weight	kg/lb	2 x 3000/2 x 6,600



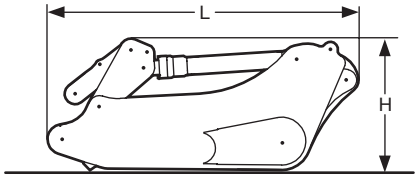
Gooseneck Boom with Two Stick Cylinders

			10,00 m/ 32’10”	10,50 m/ 34’ 5”
L	Length	mm/ft-in	10600/34’ 9”	11100/36’ 5”
H	Height	mm/ft-in	4100/13’ 5”	4100/13’ 5”
	Width	mm/ft-in	2700/ 8’10”	2700/ 8’10”
	Weight	kg/lb	44300/97,660	46200/101,850



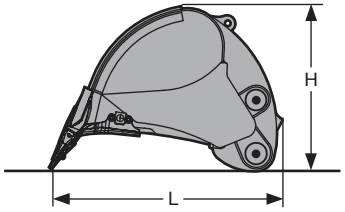
Hoist Cylinders (two)

L	Length	mm/ft-in	5100/16’ 9”
Ø	Diameter	mm/in	550/ 22”
	Weight	kg/lb	2 x 4900/2 x 10,800



Stick with Two Bucket Cylinders

L	Length	mm/ft-in	6400/20’8”
H	Height	mm/ft-in	2200/ 7’3”
	Width	mm/ft-in	2150/ 7’1”
	Weight	kg/lb	27500/60,600



Backhoe Bucket

			24,00 m³/ 31.4 cuyd	26,50 m³/ 34.7 cuyd
L	Length	mm/ft-in	4300/14’ 1”	4300/14’1”
H	Height	mm/ft-in	3000/ 9’10”	3200/10’6”
	Width	mm/ft-in	4300/14’ 1”	4300/14’1”
	Weight	kg/lb	28300/62,390	30220/66,620

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