

GRADALL

XL 5100

HYDRAULIC EXCAVATOR



XL 5100

SPECIFICATIONS

Upperstructure Engine

Cummins 6BTA5.9 diesel, turbocharged and aftercooled, liquid cooled, 4 cycle, 6 cylinder, 359 cid (5.9L). 4.02" bore x 4.72" stroke (102mm x 120mm), 174:1 compression ratio.

174 hp (131kW) max. gross at 2100 rpm, 165 hp (123kW) gross at engine gov. speed of 2200 rpm, 163 hp (122kW) net at 2100 rpm, 512 ft.-lb. (694Nm) gross torque at 1500 rpm.

Altitude capability 10,000' (3050m). Derate 4% per 1000' (305m) above 10,000' (3050m).

Maximum slope: 45°

12 volt starter, 105 amp alternator, two SAE #C31-S 810 CCA batteries, two-stage dry type air cleaner with centrifugal precleaner, ejector valve and service indicator, spin-on oil filter, spin-on fuel filter/water separator.

Fuel tank capacity: 86 gallons (326L)

Hydraulic System

PUMPS

- Main** Two load-sensing axial piston pumps; 0-60 GPM (0-227 L/min) each.
- Swing** Axial piston pump; 0-16 GPM (0-61 L/min).
- Auxiliary** Tandem gear pump for pilot control and cooling circuits; 20.6 GPM (78 L/min).

SYSTEM MONITOR

Electronic monitor in cab indicates low hydraulic fluid level, high hydraulic fluid temperature, and condition of return and suction filters.

SYSTEM SPECIFICATIONS

Four double acting cylinders

- 2 boom hoist: 4.75" ID, 3.25" rod (121mm x 83mm), 36.25" (921mm) stroke.
- 1 tool: 5" ID, 3.25" rod (127mm x 83mm), 25.3" (643mm) stroke.
- 1 telescope: 4" ID, 2.75" rod (102mm x 70mm), 14' (4.27m) stroke.

Three hydraulic motors

Swing, 54 hp (40kW); tilt, 28 hp (21kW); remote drive, 146 hp (109kW).

Operating pressures

Hoist		4300 psi (29,627kPa)
Tilt		3000 psi (20,670kPa)
Swing		5800 psi (39,962kPa)
Tool		4300 psi (29,627kPa)
Telescope		3550 psi (24,460kPa)
Remote propel		4800 psi (33,072kPa)
Pilot system		480 psi (3,307kPa)

Rated bucket breakout force:

21,900 lbs. (975kN)

Rated boom force:

23,340 lbs. (103.9 kN)

Oil capacity

Reservoir 75 gallons (284L), system 100 gallons (379L). Pressurized reservoir with visual oil level gauges.

Filtration system

Combination of 8 micron and 10 micron in-line suction and return filters, plus 10 micron return filter, magnet and 100 mesh strainer in reservoir.

Fin and tube-type oil cooler, with thermal by-pass and relief valves.

Pressure compensated load-sensing valves with circuit reliefs in all valves.

Upperstructure Cab

All-weather cab with tinted safety glass windows, skylight, acoustical lining, four-way adjustable operator's seat, fire extinguisher, filtered fresh air heater and defroster. Front window rolls to overhead storage, sliding right hand side window, mirrors located on both sides of machine.

Control

Two hydraulic joysticks (hoist & bucket, telescope & swing), one rocker switch (tilt) control upperstructure. Hydraulic joysticks mounted on arm rests, independently adjustable for individual operator comfort and convenience.

Two foot pedals for hydraulic remote control of undercarriage steering, travel and digging brakes.

Joysticks and pedals are self-centering; when controls are released, power for movement disengages and swing and crawler brakes set automatically.

Emergency/parking brake control.

Engine controls

Key operated ignition/starter switch, throttle, hour meter and air cleaner condition indicator. Electronic monitor indicates fuel level, low battery charge, coolant level and lube oil pressure, high coolant temperature, and engine rpm.

Swing

Independent closed loop swing circuit with axial piston pump and motor. Planetary transmission.

Swing speed: 6.1 rpm.

Swing brake

Automatic swing parking brake, spring-set hydraulic release. Dynamic braking provided by hydraulic system.

Undercarriage

6 x 4 or 6 x 6

Wheelbase: 176" (4.47m)

Frame width: 48" (1.22m)

Gross vehicle axle weight rating:

6 x 4 - 66,000 lb. (29,938kg)

6 x 6 - 67,000 lb. (30,391kg)

Engine

Cummins 6CTA8.3 diesel, turbocharged and aftercooled, 4 cycle, 6 cylinder, 504 cid (8.3L), 4.49" bore x 5.32" stroke (114mm x 135mm), 245 hp (183kW) max. gross at 2000 rpm, 230 hp (172kW) gross at engine gov. speed of 2200 rpm, 230 hp (172kW) net at 2000 rpm, 720 ft.-lb. (976Nm) gross torque at 1500 rpm. Altitude capability 9850' (3000m). Derate 4% per 1000' (300m) above 9850' (3000m).

Electrical System

12 volt, 65 amp alternator with integral voltage regulator.

Batteries: 2 SAE #C31-S 810 CCA

Cooling System

Fin and tube-type radiator. 8-blade 24" (610mm) fan with shroud.

Fuel System

50 gallon (189L) fuel tank, spin-on fuel filter/water separator.

Air Filter

Dry type with service indicator.

Oil Filter

Full flow spin-on element.

Governor

Mechanical

Transmission

6 x 4 with Cummins 6CTA8.3 engine: Fuller RTO-11908LL Roadranger, 10 speeds forward, 3 speeds reverse, air controlled countershaft brake.
6 x 6 with Cummins 6CTA8.3 engine: Fuller RTO-11908LL Roadranger and Fabco 170 Series transfer case with air controlled front drive declutch.

Travel Speed, 6x4 or 6x6 mph (km/hr)

LoLo	Lo	1	2	3	4	5	6	7	8
3(5)	4(7)	7(11)	9(14)	12(19)	16(26)	22(36)	30(48)	41(66)	53(85)
R1	R2	R3							
3(5)	4(6)	14(23)							

- Clutch
14" (356mm) double plate, pull type.
- Drive Lines
Spicer 1760 series with needle bearing, universal joints.
- Axles
Front: 6 x 4-Eaton 22TS, 20,000 lb. (9,072kg) rating.
6 x 6 Rockwell RF-21-160, 21,000 lb. (9,526kg) rating.
6.83:1 ratio.
Rear: Meritor RT-46-160, 46,000 lb. (20,886kg) rating, single reduction, straight line drive, 6.83:1 ratio.
Cab controlled differential lock in forward-rear axle, cab controlled interaxle differential lock.

Frame

Wide-flange beam, 12" (310mm), 45 lb/ft (67kg/m).

Suspension

Front: 14 leaf spring, 41.38" x 3" (1.05m x 76mm), automatic lockout cylinders.
Rear: Hendrickson equalizer beam, 8" (203mm) oscillation.

Brakes, 6x4, 6x6

Meritor "P" Series Cam-Master cam brakes on rear.
Eaton "EB" standard cam brakes on front; 6 x 4
Meritor Q Series Cam-Master cam brakes on front; 6 x 6
Auto-slack adjusters on cam brakes.
Front drums: 16.5" x 6" (419mm x 152mm).
Rear drums: 16.5" x 7" (419mm x 178mm).

GRADALL XL 5100 6x4 & 6x6 Lift Capacity Over Side or Rear - LB. (KG.)

CAUTION: All rated loads are based on the machine being stationary and level on a firm supporting surface. For safe working loads, the user is expected to make due allowance for his particular job conditions, such as soft or uneven ground, out of level conditions, side loads, hazardous conditions, experience of personnel, etc. The operator and other personnel must fully acquaint themselves with the Operator's Manual furnished by the manufacturer before operating this machine, and rules for safe operation of equipment must be adhered to at all times.

LOAD POINT HEIGHT		LOAD RADIUS												
		10' (3.0m)		15' (4.6m)		16' 7" (5.1m)		20' (6.1m)		25' (7.6m)		Maximum Radius		
		Over End	Over Side	Over End	Over Side	Over End	Over Side	Over End	Over Side	Over End	Over Side			
Above Ground Level	20' (6.1m)									5320 (2413)	5320 (2413)	27' 4" (8.3m)	4620 (2096)	4620 (2096)
	15' (4.6m)			12735 (5777)	12735 (5777)			8680 (3937)	8680 (3937)	6175 (2801)	6175 (2801)	29' 4" (8.9m)	4660 (2114)	4660 (2114)
	10' (3.0m)							9835 (4461)	*9835 (4348)	6840 (3103)	*6525 (2960)	30' 5" (9.3m)	4765 (2161)	*4490 (2037)
	Boom Level 9' (2.7m)					13340 (6051)	*12980 (5888)	10000 (4536)	*9525 (4346)	6935 (3146)	*6490 (2944)	30' 7" (9.3m)	4795 (2175)	4440 (2014)
	5' (1.5m)							10000 (4658)	*9280 (4209)	7145 (3241)	*6345 (2878)	30' 7" (9.3m)	4930 (2236)	*4330 (1964)
At Ground Level								9770 (4432)	*8945 (4057)	6995 (3173)	*6145 (2787)	29' 11" (9.1m)	5125 (2325)	*4405 (1998)
Below Ground Level	5' (1.5m)			11195 (5078)	11195 (5078)			8600 (3901)	8600 (3901)	6460 (2930)	*5955 (2701)	28' 3" (8.6m)	5355 (2429)	*4775 (2166)
	10' (3.0m)	8210 (3724)	8210 (3724)	8555 (3881)	8555 (3881)			7185 (3259)	7185 (3259)	5685 (2579)	5685 (2579)	25' 5" (7.7m)	5575 (2529)	5575 (2529)
	15' (4.6m)	5380 (2440)	5380 (2440)	6415 (2910)	6415 (2910)			5810 (2635)	5810 (2635)			20' 11" (6.4m)	5635 (2556)	5635 (2556)
	20' (6.1m)	3455 (1567)	3455 (1567)									13' 0" (4.0m)	4510 (2046)	4510 (2046)

The above loads are in compliance with SAE Standard J-1097 Nov88. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity. All loads with an asterisk (*) indicate the load is limited by tipping rather than hydraulic capacity. The rated lift capacity is based on the machine being equipped with 7000 lbs. (3175kg) counter-weight, standard tires, and 8095-6080 48" (122mm) excavating bucket weighing 1290 lbs. (585kg). For other buckets adjust the listed capacities as follows:

- 8095-6002 72" (1.83m) ditching - subtract 90 lbs. (41kg)
- 8095-6079 36" (914mm) excavating - add 250 lbs. (113kg)
- 8095-6006 72" (1.83m) ditching - add 5 lbs. (2kg)
- 8095-6078 28" (711mm) excavating - add 410 lbs. (186 kg)
- 8095-6003 48" (1.22m) pavement removal - subtract 170 lbs. (77kg)

The load point is located on the bucket pivot point, including loads listed for maximum radius. Do not attempt to lift or hold any load greater than these rated values at specified load radii and heights. The weight of slings and any auxiliary lifting devices must be deducted from the rated load to determine the net load that may be lifted.

Spring brake system incorporates emergency and parking brakes on both rear axles. Desiccant-type air dryer with automatic purge valve and thermostatically controlled heater. 15.2 cfm (72L/sec) air compressor.

Wheels

Disc, 10 stud. 11.25" (285mm) bolt circle.

Steering

Ross, integral hydraulic power steering.

Tires

- Single front: 6 x 4-15:00 x 22.5-16PR, highway tread
6 x 6-15:00 x 22.5-16PR, traction tread
- Dual rear: 6 x 4-11:00 x 20-14PR, traction tread
6 x 6-11:00 x 20-14PR, traction tread
- Optional: Single front, 6 x 4 or 6 x 6, 11:00 x 20 - 14 PR

Undercarriage Cab

One man, left hand mounted, isolated from frame on rubber mounts. Bostrom T-Bar seat, adjustable front and back. Tinted safety glass windows, sliding windows left and right. Cowl ventilator, acoustical lining, sun visor, fire extinguisher, seat belt, heater and defroster.

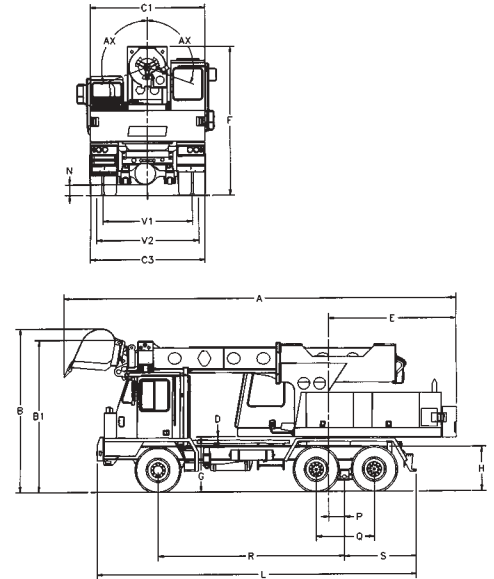
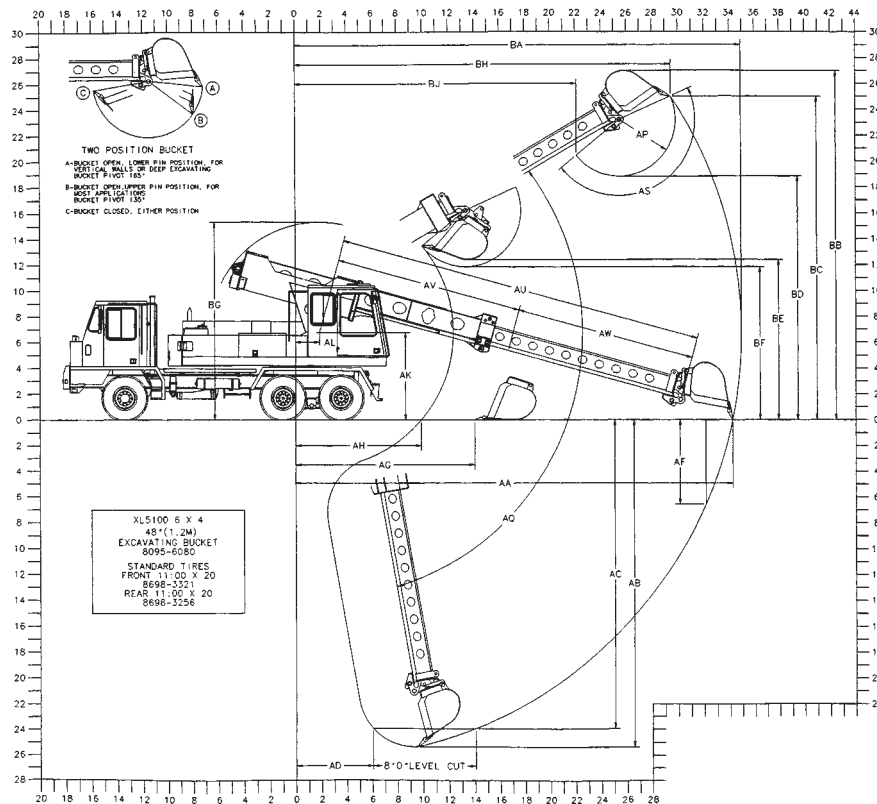
Standard Equipment (Undercarriage)

Sealed beam headlights, tail lights, back-up lights, stop lights, neutral start switch, identification light clusters front & rear, direction signals, 4-way hazard lights, clearance lights, instrument lights, dome light. Oil pressure, water temperature, dual air tank pressure and fuel gauges; voltmeter, tachometer, hour meter, speedometer and odometer. Windshield washer and wiper. Wide angle rear view mirror system with plane and convex mirrors left and right. Wheel and axle wrenches. Left rear fender step.

Hydraulic Remote Control

Undercarriage powered by upperstructure engine through hydraulic motor and PTO on transmission. Travel and steering pedals in upperstructure cab. Digging brakes and front axle lockout cylinders set automatically with travel pedal in neutral. Emergency/parking brakes controlled by toggle. Undercarriage engine off when hydraulic remote control is in use.

Electrically operated alarms mounted on undercarriage signal remote control movement in either direction, reverse movement when driven from undercarriage cab. Alarms meet SAE-J-994b type B classification.



Shown with 8095-6080 48" (1.22m) excavating bucket
Metric units m unless otherwise noted.

	6 x 4	6 x 6			6 x 4	6 x 6	
A	30' 10" (9.4)	30' 10" (9.4)	Overall length (boom in rack) with bucket	AV	14' 8" (4.5)	14' 8" (4.5)	Minimum telescoping boom length (boom pivot to bucket pivot)
B	12' 8" (3.9)	13' 0" (4.0)	Overall height (boom in rack) with bucket				
B1	11' 9" (3.6)	12' 1" (3.7)	Overall height (boom in rack) without bucket	AW	14' 0" (4.3)	14' 0" (4.3)	Telescoping boom travel
C1	9'0" (2.7)	9'0" (2.7)	Width of upperstructure	AX	110°	120°	Boom tilt angle (both sides of center)
C3	9'0" (2.7)	9'0" (2.7)	Width of undercarriage	BA	34' 11" (10.6)	34' 11" (10.6)	Maximum radius of working equipment (165° pivot)
D	3" (.08)	3" (76mm)	Minimum clearance, upperstructure to undercarriage	BB	27' 0" (8.2)	27' 4" (8.3)	Maximum height of working equipment
E	10' 0" (3)	10' 0" (3)	Swing clearance, rear of upperstructure	BC	25' 0" (7.6)	25' 4" (7.7)	Maximum bucket tooth height
F	11' 6" (3.5)	11' 10" (3.6)	Top of cradle to groundline	BD	18' 10" (5.7)	19' 2" (5.8)	Minimum clearance of bucket teeth with bucket pivot at maximum height
G	51" (1.3)	55" (1.4)	Clearance, upperstructure to groundline				
H	42" (1.1)	46" (1.2)	Top of undercarriage frame to groundline	BE	12' 4" (3.8)	12' 8" (3.9)	Minimum clearance of fully curled bucket at maximum boom height (165° pivot)
L	25' 0" (7.6)	25' 0" (7.6)	Overall length of undercarriage	BF	11' 10" (3.6)	12' 2" (3.7)	Minimum clearance of bucket teeth at maximum boom height
N	10" (.25)	10" (254mm)	Ground clearance (per SAE J1234)	BG	15' 4" (4.7)	15' 8" (4.8)	Maximum height of working equipment with bucket below groundline
P	15" (0.4)	15" (381mm)	Center of rear tandem to axis of rotation				
Q	54" (1.4)	54" (1.4)	Distance between centers of tandem axles	BH	29' 5" (4.7)	29' 5" (4.7)	Radius of bucket teeth at maximum height (165° pivot)
R	14' 8" (4.5)	14' 8" (4.5)	Wheelbase	BJ	22' 1" (6.7)	22' 1" (6.7)	Minimum radius of bucket teeth at maximum height (165° pivot)
S	5' 7" (1.7)	5' 7" (1.7)	Center of tandem axles to rear of frame (step)				
V1	7' 0" (2.1)	7' 0" (2.1)	Tread, rear axles				
V2	8'0" (2.4)	8'0" (2.4)	Tread, front axle				
AA	34' 3" (10.4)	34' 2" (10.4)	Maximum radius at groundline (165° pivot)				
AB	25' 4" (7.7)	25' 0" (7.6)	Maximum digging depth (165°pivot) – rear				
AC	23' 11" (7.3)	23' 7" (7.2)	Maximum depth for 8' level cut – rear				
AD	6' 1" (1.8)	6' 1" (1.8)	Minimum radius of 8' level cut at depth "AC"– rear				
AF	7' 7" (2.3)	7' 3" (2.2)	Maximum depth of vertical wall which can be excavated				
AG	14' 0" (4.3)	13' 11" (4.2)	Minimum level cut radius with bucket flat on groundline				
AH	9' 11" (3.0)	9' 7" (2.9)	Minimum radius at groundline				
AK	6' 9" (2.1)	7' 1" (2.2)	Boom pivot to groundline				
AL	22.5" (0.6)	22.5" (571mm)	Boom pivot to axis of rotation				
AP	52" (1.3)	52" (1.3)	Bucket tooth radius				
AQ	30° Up & 80° Down	30° Up & 80° Down	Boom pivot angle				
AS	135° & 165°	135° & 165°	Bucket pivot angle				
AU	28' 8" (8.7)	28' 8" (8.7)	Maximum telescoping boom length (boom pivot to bucket pivot)				
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TRAVEL DIMENSIONS
Boom in rack, without bucket -
Overall length:
28'2" (8.6m)

Overall width:
9'0" (2.7m)

WEIGHT

Approximate working weight, including 48" (1.22m) bucket, fuel tanks half full -
6 x 4: 55,275 lb. (25,073kg)
6 x 6: 57,025 lb. (25,867kg)

Specifications subject to change without notice.

Optional Equipment

Work lights: 2 floodlights on boom cradle, 4 floodlights on upperstructure cab, 2 floodlights on left front upperstructure shrouding.

Windshield washer and wiper, upperstructure cab.

Vandalism protection kit: Lexan upperstructure cab windows, locking reservoir cap and sight gauge cover; metal window covers for undercarriage cab, locking engine hood, fuel cap and battery box.

Spark arrestor for upperstructure or undercarriage engine.

105 amp alternator, undercarriage. Revolving beacon.

Cold start package for upperstructure engine: includes ether start kit and additional battery.

Cold start package for undercarriage engine: includes ether start kit and additional battery.

Air conditioning for upperstructure or undercarriage cab.

Inside hose trough with additional hosing and piping for pneumatic or hydraulic powered attachments.

Engine shutdown.

Auxiliary hydraulic valves.

360° continuous boom tilt.

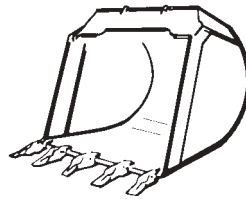
Auxiliary oil cooler.

Air circulation fan in cab.

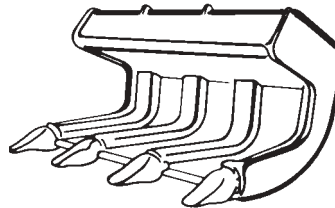
Roof hatch.

Seat belts (upper).

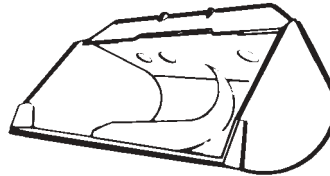
Suspension seat (upper).



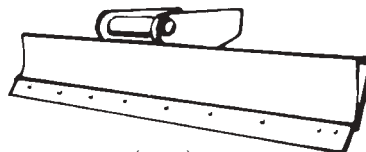
	Cu. yd.	m3
8095-6024 15" (381mm) Excavating bucket	1/4	.19
8095-6078 28" (710mm) Excavating bucket	5/8	.47
8095-6079 36" (914mm) Excavating bucket	7/8	.66
8095-6080 48" (1.22m) Excavating bucket	1 1/4	.96



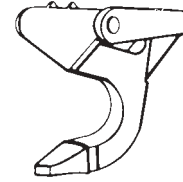
	Cu. yd.	m3
8095-6003 48" (1.22m) Pavement removal bucket	—	—
8095-6017 60" (1.52m) Rock bucket	1 3/8	1.04



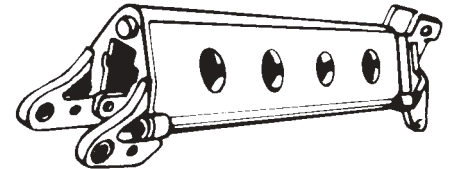
	Cu. yd.	m3
8095-6025 24" (610mm) Ditching bucket	1/2	.38
8095-6036 66" (1.68m) Ditching bucket	1 1/2	1.14
8095-6002 72" (1.83m) Ditching bucket	1 3/4	1.34
8095-6006 72" (1.83m) Ditching bucket	1 7/16	1.09



8095-6023 96" (2.4m) Grading blade



8095-6009 Single-tooth ripper



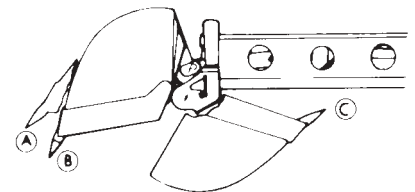
8095-5012 6' (1.8m) Boom extension
8095-5013 8' (2.4m) Boom extension
8095-5014 12' (3.7m) Boom extension

Telestick package provides 48'-7" (14.8m) surface reach – contact factory for details.

ATTACHMENTS

Buckets fabricated of steel plate, with high strength, low alloy cutting edges and wear strips. Standard attachments available for wide range of applications. Capacities shown are SAE heaped. All digging attachments are reversible.

TWO POSITION BUCKET



A - Bucket open, lower pin position, for vertical walls or deep excavating. Bucket pivot 165°.

B - Bucket open, upper pin position, for most applications. Bucket pivot 135°.

C - Bucket closed, either pin position.

Certified ISO 9001

Use only Gradall approved attachments with the proper material handler model/attachment load capacity chart displayed in the operator's cab.

OSHA requires all rough terrain forklift operators to be trained according to OSHA 29 CFR 1910.178 (I).

GRADALL®
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