

BID SUBMITTAL FORM
Alabama County Joint Bidding Program
Heavy Equipment – Bid Item: TRACK-MOUNTED HYDRAULIC EXCAVATOR
Option B-1

Company Name: Cowin Equipment Company Inc.

Address: 4325 Northern Blvd.

Montgomery Al 36110

Bid Submitted by: John Edwards

(Name of company representative)

Title: Governmental Sales Manager E-mail address: jedwards@cowin.com

Phone: 850-685-7055 Fax: 334-834-2272

By submitting this bid, we agree:

Initials

The equipment model number identified below meets the bid specs for this bid item

JE

That the bid price will be honored for all counties for the period from **January 1, 2026** to **June 30, 2026**.

JE

The equipment will be delivered at the bid price to all counties participating in the joint bid program

JE

The company representative listed above will be the contact person for purchasing this bid item under the joint bid program

JE

The bid is accompanied by a current catalog or model specification document for the model number identified below

JE

The bid is accompanied by a copy of the manufacturer's standard warranty as required in the bid specifications

JE

The bid includes the E-Verify documentation required by Alabama law

JE

We comply with, and if awarded the contract, we will comply with, the requirements of Section 41-16-50 and Sections 41-16-160 to -166, Code of Alabama 1975.

JE

If awarded the bid, a performance bond will be provided upon request

JE

The bid documents include the **Manufacturer's Suggested Retail Price Sheet (MSRP) for the Standard Machine**

JE

TRACK-MOUNTED HYDRAULIC EXCAVATOR Option B-1

Total Bid Price for Standard Machine: \$ \$208,783.00

(Total Bid Price for Standard Machine Includes Freight Preparation, Delivery and Standard Warranty Costs)*

Freight Preparation and Delivery: \$ \$1,500.00

(Included in Standard Machine Bid Price)

Manufacturer's Suggested Retail Price for Standard Machine: \$ \$295,547.00

Equipment Model #: Volvo EC230

Description: Track Mounted Excavator

Signature of company representative submitting bid: 

Title: Governmental Sales Manager

* **NOTE:** Award will be made based on the total cost of the **Standard Machine**. The total cost of the standard machine is to include the freight preparation, delivery and standard warranty cost. Freight preparation, delivery will be excluded from the total bid price of the standard machine in determining the percentage discount for any available options.

BID SUBMITTAL FORM: OPTION COST SHEET
TRACK-MOUNTED HYDRAULIC EXCAVATOR
Option B-1

By submitting this bid, we agree:

To offer any available options at the percent difference between the Manufacturer's Suggested Retail Price Sheet and the actual bid price on the Standard Machine*

JE

The bid documents include the Manufacturer's Suggested Retail Price Sheet (MSRP) with **any available Options** for the Standard Machine

JE

Equipment Model #: Volvo EC230

Description: Track Mounted Excavator

Signature of company representative submitting bid: John Edwards

Title: Governmental Sales Manager

***Note:** The percent difference between the **Manufacturer's Suggested Retail Price Sheet (MSRP)** for the standard machine as specified by these **Bid Specifications** and the actual price bid by the vendor will be calculated to determine the percentage discount to be applied to any available options. The bid price of the freight preparation, delivery cost shall be excluded in determining the percentage discount to be applied to available options. Any individual county may choose to add any available option to the standard machine at the percentage discount at the time of purchase.

BID SPECIFICATIONS FOR TRACK-MOUNTED HYDRAULIC EXCAVATOR Option B-1

GENERAL

These specifications shall be construed as the minimum acceptable standards for a track mounted hydraulic excavator with long undercarriage. Should the manufacturer's current published data or specifications exceed these standards, the manufacturer's standards shall be considered minimum and shall be furnished. All integral parts not specifically mentioned in the scope of these specifications that are necessary to provide a complete working unit shall be furnished. Additionally, the machine offered for bid shall include all standard manufacturers' equipment. The excavator must be a new current production model and shall meet all EPA and other applicable standards at the time of manufacture.

Use of specific names and numbers in the specifications is not intended to restrict the bidder or any seller or manufacturer, but is intended solely for the purpose of indicating the type, size and quality of equipment considered best adapted to the uses of the counties participating in this joint bid.

BID SUBMITTAL FORM

Each bidder must submit his or her bid on the bid submittal form included in the invitation to bid package. All written warranties to be submitted shall be attached to the bid submittal form.

BID PRICE

The price bid shall include all destination charges, delivery charges, title fees, rebates, and all other applicable costs and refunds.

MANUALS

Each unit shall be provided with one (1) copy of the operator's manual, one [1] repair manual, and one (1) copy of the current parts manual. Units will not be accepted for delivery until the manuals as outlined above are received by the purchaser.

REPLACEMENT PARTS AVAILABILITY

Parts must be available for 5 years or 7,500 hours of use for the piece of equipment. If any replacement parts are not delivered within three (3) working days of an order being placed, the bidder will deliver an equivalent machine for the county to use at no cost to the county until such time as the parts are delivered to the county so it can affect repairs to its machine.

WARRANTY

Bidders shall submit a copy of the manufacturer's standard warranty. Warranty shall include service response time of maximum of 36 hours within notification by county.

Yes ☒ No ☐

Page#

or

Attachment ☒

WEIGHT

Minimum **49,000 lbs.**

Yes ☒ No ☐

Page # **9**

minimum **348** cubic inch diesel engine with

minimum **170 net** flywheel horsepower, **(6) Cylinder.**

Yes ☒ No ☐

Page # **4**

Engine must be designed and manufactured by machine manufacturer

Yes ☒ No ☐

Page # 4

STARTING SYSTEM

Shall be equipped with a **24-volt** electrical system.

Yes ☒ No ☐

Page # 4

UNDERCARRIAGE

Track length shall be **minimum 14.5'**

Yes ☒ No ☐

Page # 6

Track shoe width shall be **minimum 31"**.

Yes ☒ No ☐

Page # 18

Minimum eight (8) track rollers per side.

Yes ☒ No ☐

Page # 4

Minimum two (2) carrier rollers per side.

Yes ☒ No ☐

Page # 4

CAPACITIES

Fuel Tank Capacity – **83-gallon minimum**

Yes ☒ No ☐

Page # 5

Hydraulic Tank Capacity – **27 gallon minimum**

Yes ☒ No ☐

Page # 5

Engine Coolant – **6.6-gallon minimum**

Yes ☒ No ☐

Page # 5

BOOM AND STICK

One-piece boom with **minimum 18'** length

Yes ☒ No ☐

Page # 7

Stick shall be a **minimum 9.5'** long

Yes ☒ No ☐

Page # 7

DIMENSIONS

Reach at ground level – **30' minimum**

Yes ☒ No ☐

Page # 8

Bucket breakout force – minimum **28,000 lbs.**

Yes ☒ No ☐

Page # 8

Stick digging force – minimum **22,500 lbs.**

Yes ☒ No ☐

Page # 8

HYDRAULICS

Hydraulic pump output shall be a minimum of **110 GPM**

Yes ☒ No ☐
Page # 5

CAB

Enclosed ROPS cab with Air Conditioner and heater

Yes ☒ No ☐
Page # 18

Factory installed air conditioning

Yes ☒ No ☐
Page # 18

Defroster

Yes ☒ No ☐
Page # 18

Bucket:

Standard with no bucket. Buckets will be considered optional attachment's.

INVITATION TO BID HEAVY EQUIPMENT

NOTICE OF BID OPENING

NOTICE IS HEREBY GIVEN that the Association of County Commissions of Alabama, which administers the Alabama County Joint Bid Program on behalf of Alabama's county governing bodies, shall receive and open bids for the purchase of zero (0) or more items of heavy road equipment at its office located at 2 North Jackson Street, Montgomery, Alabama, at **10:00 a.m. on Tuesday, November 18, 2025**. Bid specifications are available at <http://www.alabamacounties.org/heavy-equipment/> for each of the following items:

Track Mount Excavators
Compact Excavators
Mini Track Excavators
Wheeled Excavators
Highway Speed Truck Excavators
Motor Graders
Wheel Loaders
Heavy Duty Dump Chassis
Lowboy Tractors
Lowboy Trailers
Half Round End Dump
Skid Steer Loader and Attachments
Ride-on Industrial Boom Mowers
Rubber Tire Roller
Vibratory Roller

One-man Pothole Patchers
Trailer Mount Mastic Patcher/Crack Sealer
Trailer Mounted Patcher – Diesel
Trailer Mounted Patcher – Air Compressor/Tools
Chip Spreader
Asphalt Distributor
Asphalt Milling Attachments
Asphalt Storage Tanks
Backhoes
Bulldozers
Dump Bodies
Road Wideners
Ride On Industrial Boom Mowers

Time is of the essence in submitting bids and only bids received in the Association office by 10:00 a.m. Central Time on Tuesday, November 18, 2025 will be opened and considered. Bidders and any other interested individuals are invited to attend the bid opening.

NOTICE OF BID OPENING PROCEDURES

All bids for Heavy Equipment will be opened and the name(s) of the bidders read aloud on the morning of the bid opening on Tuesday, November 18, 2025 at 10:00 a.m. at 2 North Jackson Street, Montgomery, AL. The specifics of each bid submitted will be compiled by the Association staff thereafter and will be available, upon written or emailed request, one week after the bid opening. Requests should be emailed to jointbid@alabamacounties.org.

THE INVITATION PACKAGE

The invitation package for each item to be bid includes: this invitation to bid, the written bid specifications for the particular item of heavy road equipment, and a Bid Submittal Form to be used in submitting a bid for that particular item. Bidders should verify that they have received all pages of the invitation package. If there are any omissions, the bidder should contact Kenya Howard in the Association office by mail, fax, or e-mail (jointbid@alabamacounties.org) to request missing pages. It is the responsibility of the bidder to make this request in sufficient time to prepare and submit the bid in time for the bid opening. Bidders should carefully read and comply with all parts of the invitation package, including all attachments and/or any addendum.

PREPARING AND SUBMITTING BIDS

All bids must be typed or handwritten in ink on the attached Bid Submittal Form. **The completed Bid Submittal Form shall be placed in front of and separated from all other documents included in the bid packet, such that it will be the first document viewed upon opening the bid packet.**

Bids submitted in pencil and bids not submitted on the Bid Submittal Form **will not** be considered. All bids shall include a current catalog or model specification document for the equipment model number being offered for consideration. Bids submitted without such documentation **will not** be considered. Only information contained on the attached Bid Submittal Form and in the model specification document will be considered in evaluating bids.

Each separate requirement in the bid specification includes a block for indicating whether or not the item bid meets the specification. The bidder shall indicate compliance with each requirement by checking "Yes" or "No" in the block to the right of each bid specification. In addition, the bidder shall indicate the page number in the supplied manufacturer's equipment literature on which compliance with the specification can be verified. Failure to complete this portion of the bid form may result in the subject bid not being considered.

Each bid for one of the heavy equipment items included in the bid package must be submitted on the Bid Submittal Form for that item and forwarded in a separate envelope with the bid item and item number clearly identified on the outside of the envelope. Envelopes containing a "no bid" shall also include the words "NO BID" on the outside of the envelope. Facsimiles and e-mails will not be accepted. Bids submitted by "Express/Overnight" services must be in a separate inner envelope or package sealed and identified as stated above. All bids must be received in the Association office prior to the bid opening. Bids received after the deadline will be returned unopened.

The County Joint Bid Program reserves the right to require a performance bond from successful bidders as permitted under Alabama law. However, **no bid bond is required for this bid offering.**

All bids should be mailed or hand-delivered to:

ATTN: Patrick McDougald
Association of County Commissions of Alabama or ACCA
2 North Jackson Street, FL 7, Montgomery, Alabama 36104 (Physical Address)
P.O. Box 5040, Montgomery, Alabama 36103 (Mailing Address)

BID SPECIFICATIONS

Please note that each piece of heavy equipment available for bid may include several different sizes and categories of machines. You should read each set of specifications very carefully as the differences vary depending upon the piece and size of equipment.

The award will be based on the total cost of the **Standard Machine** bid by the lowest responsible bidder. Each Bid shall include a **Manufacturer's Suggested Retail Price Sheet (MSRP)** for each machine bid. The percent difference between the Manufacturer's Suggested Retail Price (MSRP) for the standard machine as specified by these bid specifications and the actual price bid by the vendor will be calculated and that percentage discount shall be applied to any options an individual county may choose to add to the machine.

Both parties agree that the Vendor SHALL extend to ALL counties purchasing this equipment any factory discounts, incentives or rebates that become available during the Contract Period; provided that there are no alterations from the bid specifications for this item required in order to receive the discount, incentive, or rebate. FURTHER, BOTH PARTIES AGREE THAT THE VENDOR SHALL EXTEND TO ALL COUNTIES PURCHASING THIS EQUIPMENT THE SAME PURCHASE PRICE AND DISCOUNTS AS THEY ARE AWARDED ON ANY OTHER NATIONAL PURCHASING COOPERATIVE APPROVED BY THE DEPARTMENT OF EXAMINERS OF PUBLIC ACCOUNTS FOR USE BY ALABAMA COUNTIES.

Once the bids have been awarded, any county participant purchasing under this program may, at its discretion, add any of the vendor's available options at the same discount off the Manufacturer's Suggested Retail Price Sheet as was applied to the Standard Machine Price Bid.

Any use of specific names and/or model numbers in the attached specifications is not intended to restrict the bidder or any seller or manufacturer but is included solely for the purpose of indicating the type, size, and quality of materials, product services, or equipment considered best adapted to the use of the counties participating in the joint bid program.

ACQUISITION AND FINANCING OPTIONS

The awarded Vendor will provide the equipment, including any options required by the purchaser, at the awarded price as contracted through the Joint Bid Program. The purchaser may secure its own financing to acquire the equipment or execute any financial options available under Alabama law with the awarded Vendor in order to acquire the equipment.

BIDDER QUALIFICATIONS

All bidders and all program participants must be in compliance with any applicable federal, state, county and municipal laws, regulations, resolutions and ordinances, including but not limited to, licensing, permitting, and taxation requirements. All bidders should be prepared to submit evidence or documentation as proof that they are properly licensed and permitted under any applicable laws upon request. Such evidence or documentation may be submitted with the bid. **Additionally, all bidders shall provide proof that they are in compliance with the E-Verify requirements of Alabama's Immigration Law (Ala. Code § 31-13-1 et seq.). All bidders shall also affirm that they are in compliance with, and will comply with, Alabama's anti-boycott law (Ala. Code § 41-16-5) and anti-economic boycott law (Ala. Code § 41-16-160 et seq.).**

BID AWARD

The Houston County Commission will serve as the awarding authority for all bids and will award all contracts at a regular meeting of the Houston County Commission. Any and all bids submitted in compliance with this invitation to bid shall be considered, and award will be made to the lowest responsible bidder meeting bid specifications as determined by the awarding authority in compliance with Alabama law. All bids will be reviewed and evaluated by a committee created for that purpose, which committee will make comments and recommendations to the awarding authority regarding the award. All factors contained in each invitation package will be evaluated in determining the successful bidder, and any omissions of the stated requirements may be cause for rejection of the bid submitted. The awarding authority reserves the right to reject any and all bids, to waive any informality in bids, and to accept in whole or in part such bid or bids solely at its discretion.

The contract period will be six (6) months with an option to renew each six (6) months not to exceed a period of three (3) years under identical price, terms, and conditions upon the mutual consent of the vendor and the awarding authority. Any renewal contract shall be approved in writing by the vendor and the awarding authority no later than **60 days** prior to the expiration of the existing contract.

CONTACT REGARDING BIDS AND INVITATION

Contact initiated by a potential bidder with any county official, county employee, or member of the Association staff shall only be as specifically set out in this Invitation to Bid. Any questions related to the bid or the County Joint Bid Program shall be directed to Association staff in writing under the procedures set out in this Invitation to Bid. Additionally, a bidder may contact the Association in writing to request an appointment to review bid specifications following the bid opening. However, there shall be no communication with any county official or county employee regarding this bid between the date of this invitation and the date of bid award. Any contact other than as set out here shall be deemed as an attempt to unduly influence the bid award and shall be grounds for rejection of the bid submitted by the bidder initiating such other contact.

Any questions or problems related to downloading or obtaining copies of this Invitation to Bid should be directed to **Kenya Howard** at jointbid@alabamacounties.org or **334-263-7594**.

Any other questions or requests for additional information regarding this invitation or the bid specifications shall be submitted **in writing** no later than five (5) days prior to bid opening to:

ATTN: Patrick McDougald
Association of County Commissions of Alabama
P.O. Box 5040
Montgomery, Alabama 36104

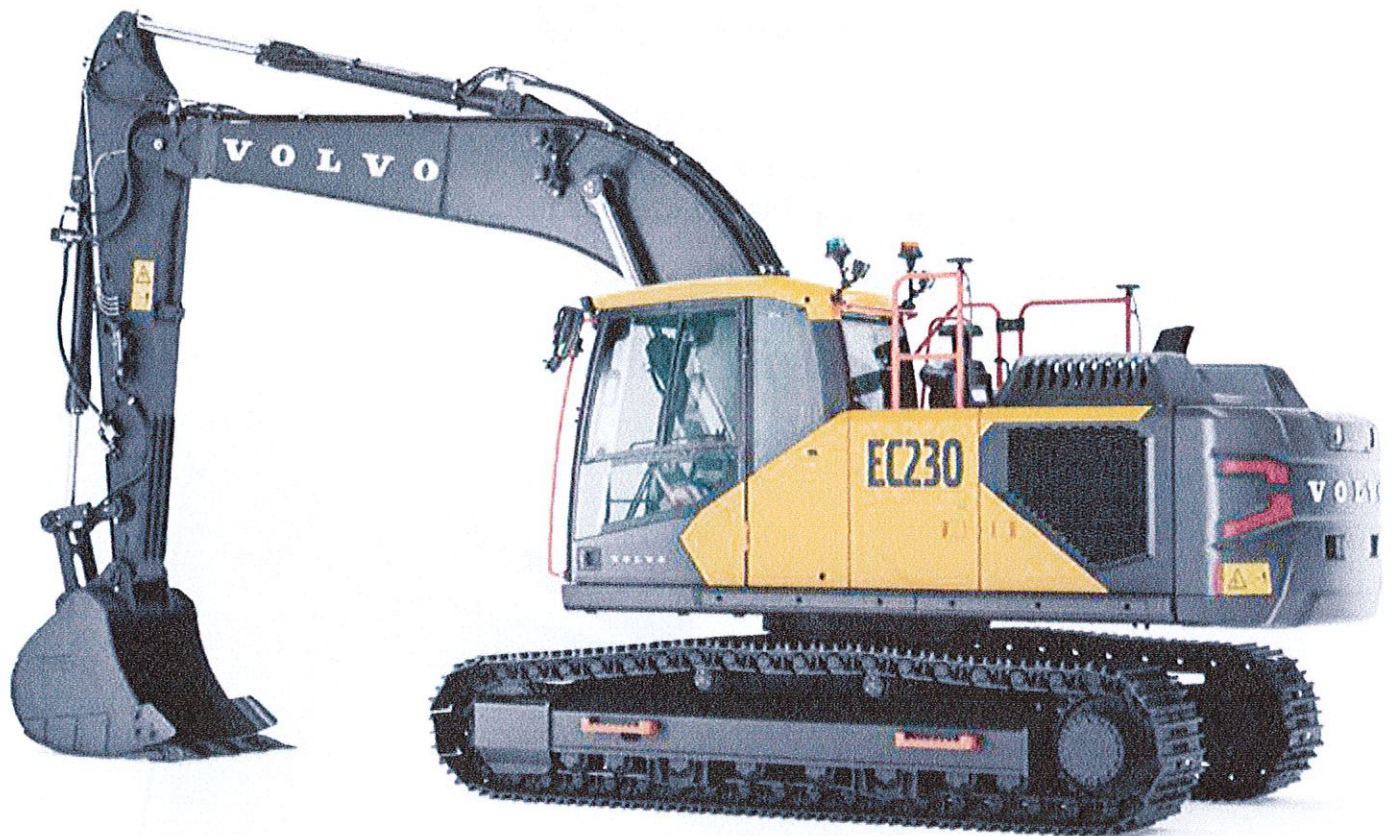
OR

Patrick McDougald
Email: pattymackdaddy@gmail.com

EC230F MSRP

Sales Code	Description	
EC230FL5	Volvo EC230FL5 Crawler Excavator	\$209,478
XC10116	Boom, 18' 8" (5.7m), GP	\$19,302
XC10222	Arm, 9' 6" (2.9m), HD	\$11,191
XC10403	Linkage with lifting eye, GP	\$635
XC10503	Decal Kit NA	\$0
XC10756	Oil sampling ports	\$456
XC20106	Track Pads, 32" (800mm) Triple Grouser	\$13,555
XC20201	Roller guard STD	\$549
XC20302	Lower frame - foldable steps	\$0
XC20402	Belly Cover HD, 10mm	\$383
XC30101	Engine NA	\$0
XC30801	Standard fan drive	\$0
XC30352	Fuel tank for Guardrail	\$0
XC30401	Engine Air precleaner, Cyclone	\$137
XC30408	Engine Air filter, std	\$0
XC30606	Water separator without heater	\$328
XC30910	Quick Hyd Oil Fill connection	\$0
XC30911	Quick Engine Oil Change	\$0
XC30902	Delayed engine Shutdown	\$191
XC40103	CareCab w/ Opening Hatch	\$555
XC40141	Cabin large mirror	\$62
XC40215	Premium seat	\$2,105
XC41202	Seat belt, 3 inch	\$0
XC40302	DigAssist, Boundary Limit	\$2,374
XC40409	Joystick, 4 switch & 1 prop	\$0
XC40502	Air conditioning, ACC (automatic climate control)	\$3,096
XC40602	Universal key	\$0
XC40809	Foot rest, High mount	\$0
XC40810	Sun screen, front/roof/rear/right	\$266
XC50051	Advanced light package	\$807
XC50102	Travel alarm	\$0
XC50153	Kinematic sensor package	\$5,771
XC50154	Co-Pilot 2nd gen display, w/ digital radio	\$1,574
XC50155	Dig Assist Start	\$3,709
XC50159	Dig Assist, Laser Receiver	\$686
XC50162	Preparation for Obstacle detection	\$0
XC50163	HD VSV(Volvo Smart View)	\$0
XC50401	Caretrack,4G GSM,Telenor	\$0
XC50808	Platform guardrail,foldable	\$0
XC60102	Hydraulic oil ISO VG46	\$756
XC61301	Pre-setting for hyd. pressure (piping not installed for long reach boom and arm)	\$229
XC60203	X1 2 pump double acting piping (piping not installed for long reach boom and arm)	\$4,559
XC60220	X1 3 way valve on arm	\$278
XC60301	X1 additional return filter (piping not installed for long reach boom and arm)	\$471
XC60602	X1 Roll switch control, proportional, double acting (piping not installed for long reach boom and ar	\$368
XC60605	X1 Pedal control, Proportional (piping not installed for long reach boom and arm)	\$182
XC60805	Quick fit piping, UQF (piping not installed for long reach boom and arm)	\$1,674
XC60904	Straight travel pedal	\$1,567
XC60906	Boom float function	\$1,192
XC60914	Pattern change	\$1,739
XC60917	Creep mode	\$0
XC70302	Manual, English	\$0
XC80119	CWT 4600kg, Fabrication	\$5,326
XC80202	Under cover HD	\$0
XC70501	Frame lifetime guarantee	\$0
XC8291357	Less bucket with pins	\$0
	MSRP Total	\$295,547

V O L V O



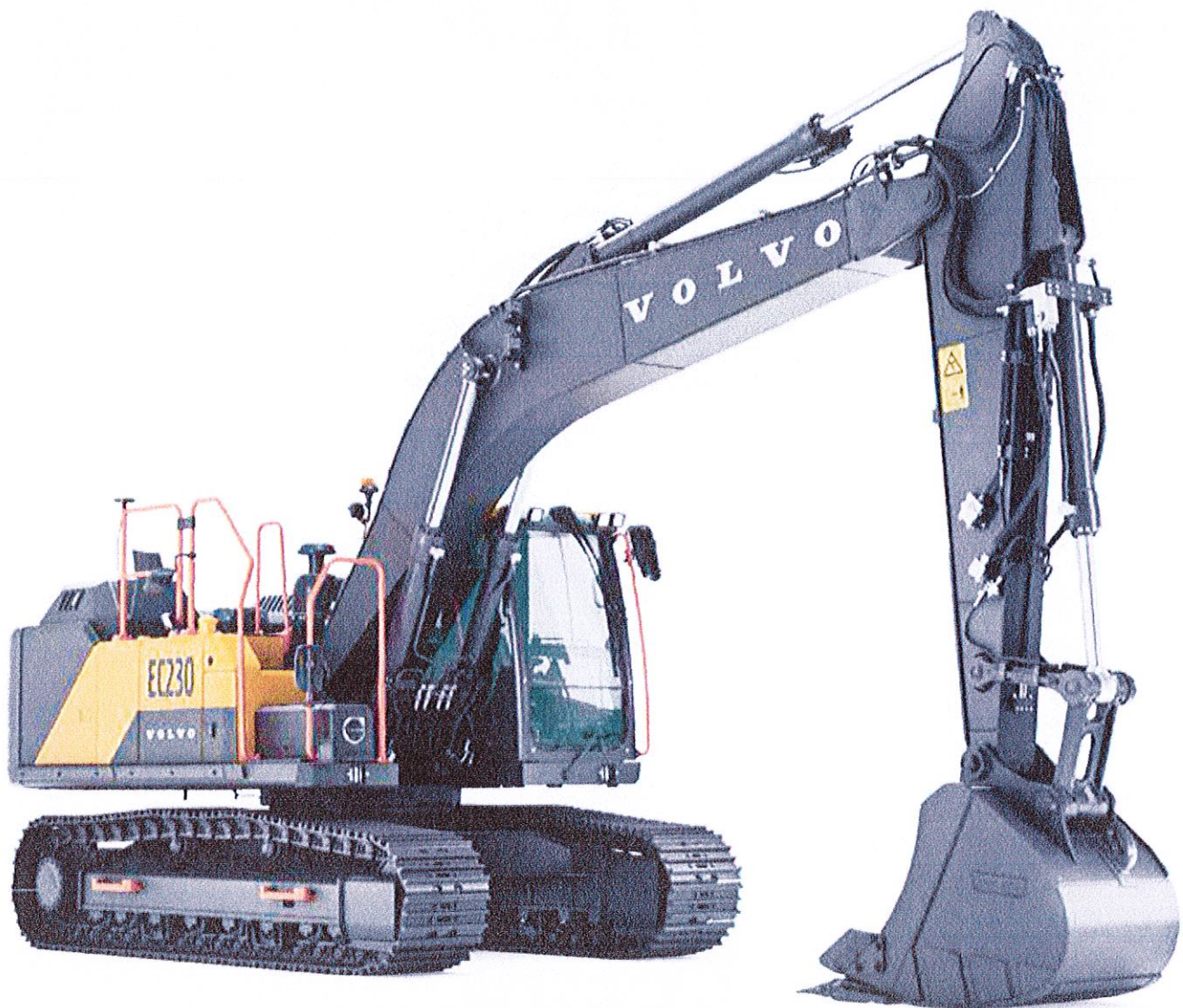
Volvo Excavators 49.0-52.3 t / 46,220-58,250 lb 173-175 hp

EC230

Volvo Construction Equipment

EC230

For general construction, road building or something more specialist, this is a versatile machine designed to help you achieve outstanding results



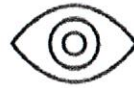
An edge in versatility

With its cutting-edge technology, outstanding efficiency and robust design, the EC230 effortlessly handles heavy loads, tackles tough terrain, and ensures exceptional productivity across a wide range of tasks and applications. Whether you're working in general construction, road building or something more specialist, the Volvo EC230 is a versatile and high performing machine designed to help you achieve outstanding results.



Operator comfort

- More precise controls
- Quieter cab
- Personalized settings for greater comfort
- ROPS cab as standard



Smart View with Obstacle Detection

- Increased safety onsite and for the operator
- Radar warns for items outside the screen
- HD screen
- Human identifying alarm separate from other obstacles



Serviceability

- Ground level access for service
- Long service intervals
- Grouped filters and lubrication points
- Quick and easy oil changes



Fuel Efficiency

- Up to 15% improvement
- Engine pump optimization with engine speeds as low as 1,600 pm
- Smart MCV



Productivity

- Volvo Active Control
- Dig Assist with On-Board Weighing
- Electro-hydraulic system
- Boom/Swing & Boom/Travel priority functions

Volvo EC230 in detail

Engine

The latest generation, Volvo engine Tier 4f emissions compliant diesel engine fully meets the demands of the latest, emissions regulations. Featuring Volvo Advanced Combustion Technology (V-ACT), it is designed to deliver superior performance and fuel efficiency. The engine uses precise, high pressure fuel injectors, turbo charger and air-to-air intercooler, and electronic engine controls to optimize machine performance.

- **Air Filter:** 3-stage with precleaner

- **Automatic Idling System:** Reduces engine speed to idle when the levers and pedals are not activated resulting in less fuel consumption and low cab noise levels.

Engine	Volvo	D6J
Max power at	r/min (r/s)	1,800 (30)
Net, ISO 9249/SAE J1349	kW (hp)	128 (172)
Gross, ISO 14396/SAE J1995	kW (hp)	129 (173)
Power output at		
Operating max	r/min (r/s)	1,600 (27)
Travel max	r/min (r/s)	1,800 (30)
Max torque	Nm (ft lbf)	849 (626)
at engine speed	r/min (r/s)	1,350 (22.5)
No. of cylinders		6
Displacement	l (in ³)	5.7 (348)
Bore	mm (in)	98 (3.86)
Stroke	mm (in)	126 (4.96)

Electrical System

High-capacity electrical system that is well protected. Waterproof double-lock harness plugs are used to secure corrosion-free connections. The main relays and solenoid valves are shielded to prevent damage. Contronics provides advanced monitoring of machine functions and important diagnostic information.

Voltage	V	24
Batteries	V	2 x 12
Battery capacity	Ah	140
Alternator	V/A	28 V / 180 A
Start motor	V - kW	24 / 5.5

Undercarriage

The undercarriage has a robust X-shaped frame. Greased and sealed track chains are standard.

EC230F L		
Track shoe		2 x 49
Link pitch	mm (in)	190 (7.5)
Shoe width	mm (in)	600 (24)
Shoe width, triple grouser	mm (in)	500 / 600 / 700 / 800 / 900 (20 / 24 / 28 / 32 / 36)
Shoe width, triple grouser (HD)	mm (in)	600 (24)
Shoe width, double grouser	mm (in)	700 (28)
Bottom rollers		2 x 8
Top rollers		2 x 2

Swing system

The swing system uses an axial piston motors, driving a planetary gearbox for maximum torque. An automatic holding brake and antirebound valve are standard.

Max. slew speed	r/min	11.5
Max. slew torque	kNm (ft lbf)	83.3 (61,430)

Travel System

Each track is powered by an automatic two-speed shift travel motor. The track brakes are multi-disc, spring-applied and hydraulic released. The travel motor, brake and planetary gears are well protected within the track frame.

Max. drawbar pull	kN (lbf)	178 (40,016)
Max. travel speed (low)	km/h (mi/h)	3.4 (2.1)
Max. travel speed (high)	km/h (mi/h)	5.6 (3.5)
Gradeability	°	35

Cab

The operator's cab has easy access via a wide door opening. The cab is supported on hydraulic dampening mounts to reduce shock and vibration levels. These along with sound absorbing lining provide low noise levels. The cab has excellent all-round visibility. The front windshield can easily slide up into the ceiling, and the lower front glass can be removed and stored in the side door.

Integrated air-conditioning and heating system: The pressurized and filtered cab air is supplied by an automatically controlled fan. The air is distributed throughout the cab from 10 vents.

Ergonomic operator's seat: The adjustable seat and joystick console move independently to accommodate the operator. The seat has 12 different adjustments plus a seat belt for the operator's comfort and safety.

Sound Level

Sound level in cab according to ISO 6396

L _{pA}	dB	70
External sound level according to ISO 6395, EU Noise Directive (2000/14/EC)		
L _{WA}	dB	99

Hydraulic system

The new electro-hydraulic system and new MCV (main control valve) use intelligent technology to control on-demand flow for high productivity, high-digging capacity and excellent fuel consumption.

The following important functions are included in the system:

Summation system: Combines the flow of both hydraulic pumps to ensure quick cycle times and high productivity.

Boom priority: Gives priority to the boom operation for faster raising when loading or performing deep excavations.

Arm priority: Gives priority to the arm operation for faster cycle times in leveling and for increased bucket filling when digging.

Swing priority: Gives priority to swing functions for faster simultaneous operations.

Regeneration system: Prevents cavitation and provides flow to other movements during simultaneous operations for maximum productivity.

Power boost: All digging and lifting forces are increased.

Auto warm up: Hydraulic oil temperature can be set below the threshold that has been set.

Creep mode: Lower travel speed (10%~50% of 1st full speed) can be set by creep switch on.

Holding valves: Boom and arm holding valves prevent the digging equipment from creeping.

Main pump: 2 x Variable displacement axial piston pumps

Maximum flow	l/min (gal/min)	2 x 208 (2 x 55)
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Pilot pump: Gear pump

Maximum flow	l/min (gal/min)	1 x 16 (1 x 4)
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Max. pressure

Implement	MPa (psi)	34.3 / 36.3 (4,975 / 5,265)
Travel circuit	MPa (psi)	34.3 (4,975)
Slew circuit	MPa (psi)	29.5 (4,279)
Pilot circuit	MPa (psi)	3.9 (570)

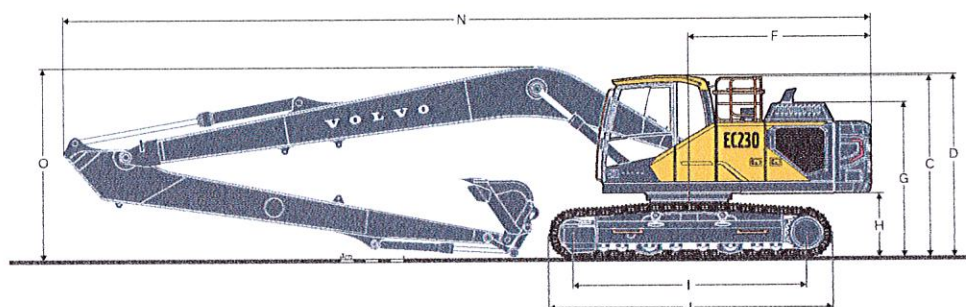
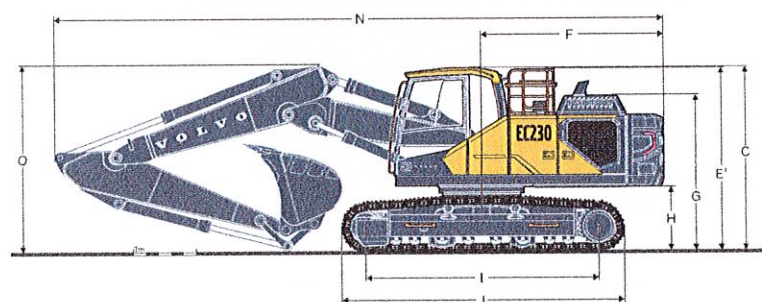
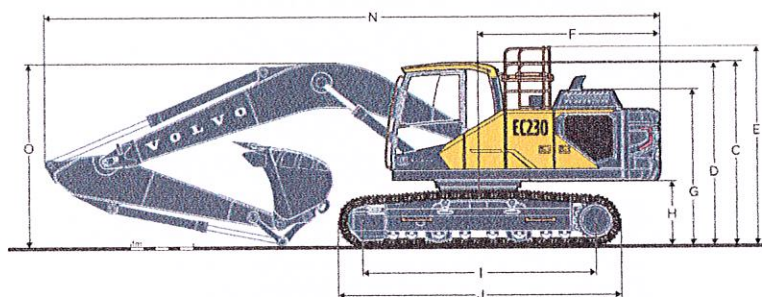
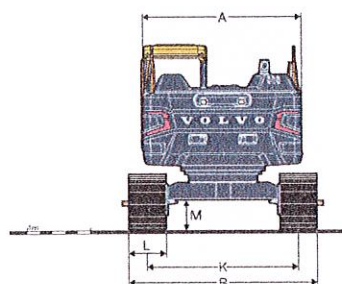
Hydraulic Cylinders

Boom		2
Bore x Stroke	ø x mm (ø x in)	125 x 1,235 (4.9 x 48.6)
2 piece boom		1
Bore x Stroke	ø x mm (ø x in)	160 x 1,070 (6.3 x 42.1)
Arm		1
Bore x Stroke	ø x mm (ø x in)	135 x 1,540 (5.3 x 60.6)
Bucket		1
Bore x Stroke	ø x mm (ø x in)	120 x 1,065 (4.7 x 41.9)
Bucket for LR boom		1
Bore x Stroke	ø x mm (ø x in)	100 x 865 (3.9 x 34.1)

Service Refill

Fuel tank	l (gal)	315 (83)
DEF/AdBlue® tank	l (gal)	27 (7)
Hydraulic system, total	l (gal)	215 (57)
Hydraulic tank	l (gal)	98 (26)
Engine oil	l (gal)	25 (7)
Engine coolant	l (gal)	35 (9)
Slew reduction unit	l (gal)	4 (1)
Travel reduction unit	l (gal)	2 x 3.5 (2 x 1)

Specifications

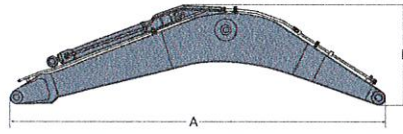


DIMENSIONS

	Unit		EC230F L										EC230F LR	
	m (ft in)		5.7 (18'8") / 5.57 (18'3")										8.85 (29'0")	
Boom	m	ft in	2.0	6'7"	2.5	8'2"	2.9	9'6"	3.5	11'6"	6.25	20'6"		
Arm	m	ft in												
A. Overall width of upper structure	mm	ft in	2,500	8'2"	2,500	8'2"	2,500	8'2"	2,500	8'2"	2,500	8'2"		
B. Overall width	mm	ft in	2,990	9'10"	2,990	9'10"	2,990	9'10"	2,990	9'10"	3,190	10'6"		
C. Overall height of cab	mm	ft in	2,900	9'6"	2,900	9'6"	2,900	9'6"	2,900	9'6"	2,900	9'6"		
D. Overall height of handrail	mm	ft in	2,875	9'5"	2,875	9'5"	2,875	9'5"	2,875	9'5"	2,875	9'5"		
E. Overall height of guardrail	mm	ft in	3,120	10'3"	3,120	10'3"	3,120	10'3"	3,120	10'3"	3,120	10'3"		
F. Tail swing radius	mm	ft in	2,870	9'5"	2,870	9'5"	2,870	9'5"	2,870	9'5"	2,870	9'5"		
G. Overall height of engine hood	mm	ft in	2,450	8'0"	2,450	8'0"	2,450	8'0"	2,450	8'0"	2,450	8'0"		
H. Counterweight clearance *	mm	ft in	1,005	3'4"	1,005	3'4"	1,005	3'4"	1,005	3'4"	1,005	3'4"		
I. Tumbler length	mm	ft in	3,660	12'0"	3,660	12'0"	3,660	12'0"	3,660	12'0"	3,660	12'0"		
J. Track length	mm	ft in	4,460	14'8"	4,460	14'8"	4,460	14'8"	4,460	14'8"	4,460	14'8"		
K. Track gauge	mm	ft in	2,390	7'10"	2,390	7'10"	2,390	7'10"	2,390	7'10"	2,390	7'10"		
L. Shoe width	mm	ft in	600	2'0"	600	2'0"	600	2'0"	600	2'0"	800	2'7"		
M. Min. ground clearance *	mm	ft in	455	1'6"	455	1'6"	455	1'6"	455	1'6"	455	1'6"		
N. Overall length	mm	ft in	9,830	32'3"	9,770	32'1"	9,715	31'10"	9,765	32'0"	12,900	42'4"		
N'. Overall length	mm	ft in	9,675	31'9"	9,630	31'7"	9,575	31'5"	9,595	31'6"				
O. Overall height of boom	mm	ft in	3,155	10'4"	3,175	10'5"	3,035	9'11"	3,170	10'5"	3,090	10'2"		
O'. Overall height of boom	mm	ft in	3,065	10'1"	3,050	10'0"	2,955	9'8"	3,285	10'9"				

* Without shoe grouser

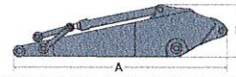
1 2-piece boom



DIMENSIONS

Description	Unit		Boom							
	m (ft in)		5.7 (18'8") GP		5.7 (18'8") HD		5.57 (18'3") 2-piece		8.85 (29'0") LR	
A. Length	mm	ft in	5,915	19'5"	5,915	19'5"	5,785	19'0"	9,065	29'9"
B. Height	mm	ft in	1,600	5'3"	1,600	5'3"	1,420	4'8"	1,460	4'9"
Width	mm	ft in	670	2'2"	670	2'2"	670	2'2"	670	2'2"
Weight	kg	lb	2,010	4,430	2,155	4,750	2,640	5,820	2,560	5,640

* Includes cylinder, piping and pin, excludes boom cyl. Pin

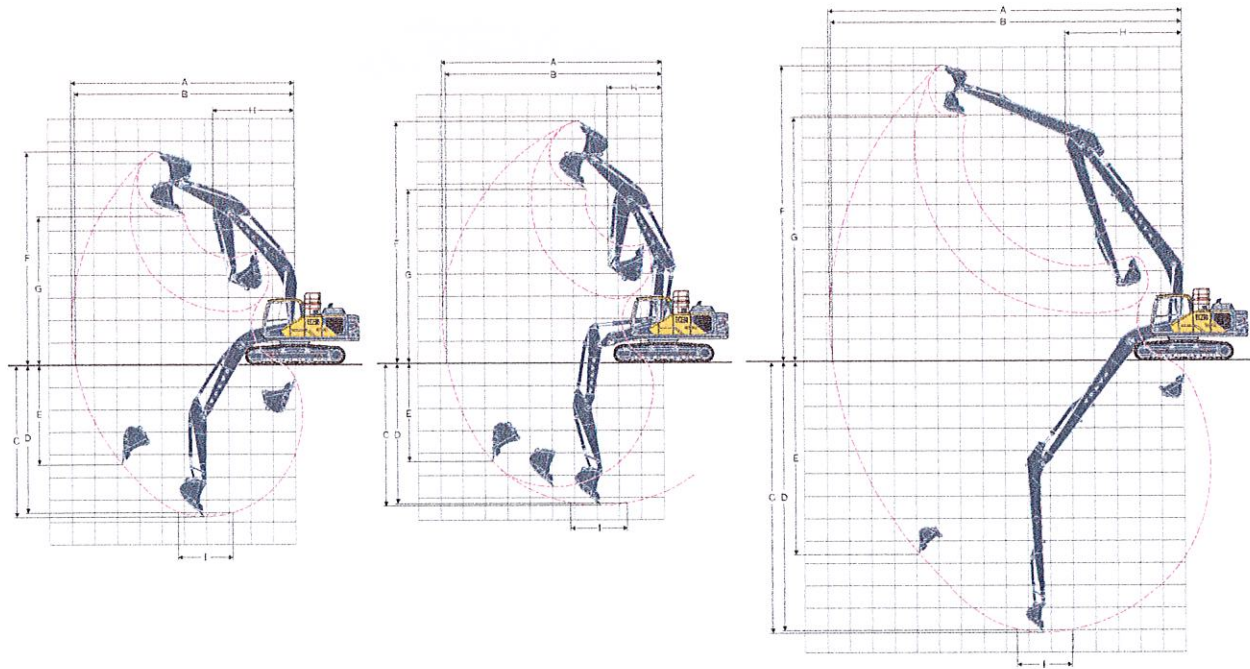


DIMENSIONS

Description	Unit		Arm											
	m (ft in)		2.0 (6'7") ME		2.5 (8'2") HD		2.9 (9'6") GP		2.9 (9'6") HD		3.5 (11'6") GP		6.25 (20'6") LR	
A. Length	mm	ft in	3,070	10'1"	3,530	11'7"	3,895	12'9"	3,895	12'9"	4,540	14'11"	7,310	24'0"
B. Height	mm	ft in	980	3'3"	865	2'10"	865	2'10"	865	2'10"	865	2'10"	945	3'1"
Width	mm	ft in	440	1'5"	440	1'5"	440	1'5"	440	1'5"	440	1'5"	385	1'3"
Weight	kg	lb	1,080	2,380	1,135	2,500	1,140	2,510	1,190	2,620	1,165	2,570	1,255	2,770

* Includes cylinder, linkage and pin

Specifications



WORKING RANGES WITH DIRECT FIT BUCKET

Description	Unit	EC230F L																EC230F LR
Boom	m (ft in)	5.7 (18'8")								5.57 (18'3")								8.85 (29'0")
Arm	m ft in	2.0	6'7"	2.5	8'2"	2.9	9'6"	3.5	11'6"	2.0	6'7"	2.5	8'2"	2.9	9'6"	3.5	11'6"	6.25 (20'6")
A. Max. digging reach	mm ft in	9,145	30'0"	9,605	31'6"	9,995	32'10"	10,450	34'3"	9,040	29'8"	9,505	31'2"	9,900	32'6"	10,365	34'0"	15,805 51'10"
B. Max. digging reach on ground	mm ft in	8,975	29'5"	9,445	31'0"	9,835	32'3"	10,305	33'10"	8,870	29'1"	9,345	30'8"	9,740	31'11"	10,215	33'6"	15,705 51'6"
C. Max. digging depth	mm ft in	5,925	19'5"	6,425	21'1"	6,825	22'5"	7,425	24'4"	5,505	18'1"	5,995	19'8"	6,400	21'0"	6,945	22'9"	12,140 39'10"
D. Max. digging depth (I=2.44 m / 8'0" level)	mm ft in	5,670	18'7"	6,205	20'4"	6,635	21'9"	7,235	23'9"	5,385	17'8"	5,885	19'4"	6,295	20'8"	6,845	22'5"	12,035 39'6"
E. Max. vertical wall digging depth	mm ft in	4,315	14'2"	5,070	16'8"	5,535	18'2"	5,885	19'4"	4,125	13'6"	4,735	15'6"	5,150	16'11"	5,645	18'6"	10,860 35'8"
F. Max. cutting height	mm ft in	8,925	29'3"	9,205	30'2"	9,445	31'0"	9,450	31'0"	10,015	32'10"	10,395	34'1"	10,715	35'2"	10,930	35'10"	13,260 43'6"
G. Max. dumping height	mm ft in	6,090	20'0"	6,330	20'9"	6,555	21'6"	6,600	21'8"	7,005	23'0"	7,365	24'2"	7,680	25'2"	7,910	25'11"	10,905 35'9"
H. Min. front swing radius	mm ft in	3,660	12'0"	3,670	12'0"	3,645	12'0"	3,630	11'11"	2,895	9'6"	2,735	8'12"	2,465	8'1"	2,740	8'12"	5,205 17'1"

DIGGING FORCES WITH DIRECT FIT BUCKET

Bucket radius	mm ft in	1,528	5'0"	1,528	5'0"	1,528	5'0"	1,528	5'0"	1,528	5'0"	1,528	5'0"	1,528	5'0"	1,528	5'0"	1,250 4'1"
Normal	SAE J1179 kN lb	146	32,820	125	28,100	125	28,100	125	28,100	146	32,820	125	28,100	125	28,100	125	28,100	68 15,290
Power boost	SAE J1179 kN lb	154	34,620	132	29,670	132	29,670	132	29,670	154	34,620	132	29,670	132	29,670	132	29,670	-
Normal	ISO 6015 kN lb	165	37,090	141	31,700	141	31,700	141	31,700	165	37,090	141	31,700	141	31,700	141	31,700	77 17,310
Power boost	ISO 6015 kN lb	174	39,120	149	33,500	149	33,500	149	33,500	174	39,120	149	33,500	149	33,500	149	33,500	-
Normal	SAE J1179 kN lb	144	32,370	117	26,300	101	22,710	92	20,680	144	32,370	117	26,300	101	22,710	92	20,680	44 9,890
Power boost	SAE J1179 kN lb	153	34,400	124	27,880	107	24,050	97	21,810	153	34,400	124	27,880	107	24,050	97	21,810	-
Normal	ISO 6015 kN lb	149	33,500	121	27,200	104	23,380	94	21,130	149	33,500	121	27,200	104	23,380	94	21,130	45 10,120
Power boost	ISO 6015 kN lb	158	35,520	128	28,780	110	24,730	99	22,260	158	35,520	128	28,780	110	24,730	99	22,260	-
Rotation angle, bucket	°	166		175		175		175		166		175		175		175		178

GROUND PRESSURE

Description	Shoe width		Operating weight		Ground pressure		Overall width		Operating weight		Ground pressure		Overall width	
	mm	in	kg	lb	kPa	psi	mm	ft in	kg	lb	kPa	psi	mm	ft in
Triple grouser	500	20	23,090	50,910	57.9	8.4	2,890	9'6"	23,090	50,910	57.9	8.4	2,890	9'6"
	600	24	23,350	51,490	48.0	7.0	2,990	9'10"	23,350	51,490	48.0	7.0	2,990	9'10"
	600	24 (HD)	23,480	51,770	49.0	7.1	2,990	9'10"	23,480	51,770	49.0	7.1	2,990	9'10"
	700	28	23,760	52,390	42.2	6.1	3,090	10'2"	23,770	52,410	42.2	6.1	3,090	10'2"
	800	32	24,050	53,030	37.3	5.4	3,190	10'6"	24,050	53,030	37.3	5.4	3,190	10'6"
Single grouser	900	36	24,330	53,650	33.3	4.8	3,290	10'10"	24,330	53,650	33.3	4.8	3,290	10'10"
	600	24	23,550	51,930	49.0	7.1	2,990	9'10"	23,560	51,950	49.0	7.1	2,990	9'10"
Double grouser	700	28	24,070	53,070	43.1	6.3	3,090	10'2"	24,070	53,070	43.1	6.3	3,090	10'2"
EC230F L, 5.7 m / 18'8" GP boom, 2.5 m / 8'2" HD arm, 1,036 kg / 2,280 lb bucket, 4,600 kg / 10,140 lb counterweight														
Description	Shoe width		Operating weight		Ground pressure		Overall width		Operating weight		Ground pressure		Overall width	
	mm	in	kg	lb	kPa	psi	mm	ft in	kg	lb	kPa	psi	mm	ft in
Triple grouser	500	20	23,140	51,020	57.9	8.4	2,890	9'6"	23,220	51,200	57.9	8.4	2,890	9'6"
	600	24	23,400	51,600	48.0	7.0	2,990	9'10"	23,480	51,770	49.0	7.1	2,990	9'10"
	600	24 (HD)	23,530	51,880	49.0	7.1	2,990	9'10"	23,610	52,060	49.0	7.1	2,990	9'10"
	700	28	23,820	52,520	42.2	6.1	3,090	10'2"	23,890	52,680	42.2	6.1	3,090	10'2"
	800	32	24,100	53,140	37.3	5.4	3,190	10'6"	24,180	53,320	37.3	5.4	3,190	10'6"
Single grouser	900	36	24,380	53,760	33.3	4.8	3,290	10'10"	24,460	53,930	33.3	4.8	3,290	10'10"
	600	24	23,610	52,060	49.0	7.1	2,990	9'10"	23,680	52,210	49.0	7.1	2,990	9'10"
Double grouser	700	28	24,120	53,180	43.1	6.3	3,090	10'2"	24,200	53,360	43.1	6.3	3,090	10'2"
EC230F L, 5.7 m / 18'8" GP boom, 2.9 m / 9'6" HD arm, 1,036 kg / 2,280 lb bucket, 4,600 kg / 10,140 lb counterweight														
EC230F L, 5.7 m / 18'8" GP boom, 3.5 m / 11'6" GP arm, 1,036 kg / 2,280 lb bucket, 4,600 kg / 10,140 lb counterweight														
Description	Shoe width		Operating weight		Ground pressure		Overall width		Operating weight		Ground pressure		Overall width	
	mm	in	kg	lb	kPa	psi	mm	ft in	kg	lb	kPa	psi	mm	ft in
Triple grouser	500	20	23,210	51,180	57.9	8.4	2,890	9'6"	23,210	51,180	57.9	8.4	2,890	9'6"
	600	24	23,470	51,750	49.0	7.1	2,990	9'10"	23,470	51,750	49.0	7.1	2,990	9'10"
	600	24 (HD)	23,600	52,040	49.0	7.1	2,990	9'10"	23,600	52,040	49.0	7.1	2,990	9'10"
	700	28	23,890	52,680	42.2	6.1	3,090	10'2"	23,880	52,660	42.2	6.1	3,090	10'2"
	800	32	24,170	53,290	37.3	5.4	3,190	10'6"	24,160	53,270	37.3	5.4	3,190	10'6"
Single grouser	900	36	24,450	53,910	33.3	4.8	3,290	10'10"	24,450	53,910	33.3	4.8	3,290	10'10"
	600	24	23,680	52,210	49.0	7.1	2,990	9'10"	23,670	52,190	49.0	7.1	2,990	9'10"
Double grouser	700	28	24,190	53,340	43.1	6.3	3,090	10'2"	24,190	53,340	43.1	6.3	3,090	10'2"
EC230F L, 5.7 m / 18'8" HD boom, 2.0 m / 6'7" ME arm, 1,036 kg / 2,280 lb bucket, 4,600 kg / 10,140 lb counterweight														
EC230F L, 5.7 m / 18'8" HD boom, 2.5 m / 8'2" HD arm, 1,036 kg / 2,280 lb bucket, 4,600 kg / 10,140 lb counterweight														
Description	Shoe width		Operating weight		Ground pressure		Overall width		Operating weight		Ground pressure		Overall width	
	mm	in	kg	lb	kPa	psi	mm	ft in	kg	lb	kPa	psi	mm	ft in
Triple grouser	500	20	23,210	51,180	57.9	8.4	2,890	9'6"	23,260	51,290	57.9	8.4	2,890	9'6"
	600	24	23,470	51,750	49.0	7.1	2,990	9'10"	23,520	51,860	49.0	7.1	2,990	9'10"
	600	24 (HD)	23,600	52,040	49.0	7.1	2,990	9'10"	23,650	52,150	49.0	7.1	2,990	9'10"
	700	28	23,890	52,680	42.2	6.1	3,090	10'2"	23,940	52,790	42.2	6.1	3,090	10'2"
	800	32	24,170	53,290	37.3	5.4	3,190	10'6"	24,220	53,410	37.3	5.4	3,190	10'6"
Single grouser	900	36	24,450	53,910	33.3	4.8	3,290	10'10"	24,500	54,020	33.3	4.8	3,290	10'10"
	600	24	23,680	52,210	49.0	7.1	2,990	9'10"	23,730	52,320	49.0	7.1	2,990	9'10"
Double grouser	700	28	24,190	53,340	43.1	6.3	3,090	10'2"	24,240	53,450	43.1	6.3	3,090	10'2"
EC230F L, 5.7 m / 18'8" HD boom, 2.9 m / 9'6" GP arm, 1,036 kg / 2,280 lb bucket, 4,600 kg / 10,140 lb counterweight														
EC230F L, 5.7 m / 18'8" HD boom, 2.9 m / 9'6" HD arm, 1,036 kg / 2,280 lb bucket, 4,600 kg / 10,140 lb counterweight														

Specifications

GROUND PRESSURE

Description	Shoe width		Operating weight		Ground pressure		Overall width		Operating weight		Ground pressure		Overall width	
	mm	in	kg	lb	kPa	psi	mm	ft in	kg	lb	kPa	psi	mm	ft in
Triple grouser	500	20	23,340	51,460	57.9	8.4	2,890	9'6"	23,720	52,300	58.8	8.5	2,890	9'6"
	600	24	23,600	52,040	49.0	7.1	2,990	9'10"	23,980	52,880	50.0	7.3	2,990	9'10"
	600 (HD)	24 (HD)	23,730	52,320	49.0	7.1	2,990	9'10"	24,120	53,180	50.0	7.3	2,990	9'10"
	700	28	24,010	52,940	43.1	6.3	3,090	10'2"	24,400	53,800	43.1	6.3	3,090	10'2"
	800	32	24,290	53,560	38.2	5.5	3,190	10'6"	24,680	54,420	38.2	5.5	3,190	10'6"
	900	36	24,580	54,200	33.3	4.8	3,290	10'10"	24,960	55,040	34.3	5.0	3,290	10'10"
Single grouser	600	24	23,800	52,480	49.0	7.1	2,990	9'10"	24,190	53,340	50.0	7.3	2,990	9'10"
Double grouser	700	28	24,320	53,630	43.1	6.3	3,090	10'2"	24,710	54,490	44.1	6.4	3,090	10'2"
EC230F L, 5.7 m / 18'8" HD boom, 3.5 m / 11'6" GP arm, 1,036 kg / 2,280 lb bucket, 4,600 kg / 10,140 lb counterweight														
EC230F L, 5.57 m / 18'3" 2-pieces boom, 2.9 m / 9'6" GP arm, 1,036 kg / 2,280 lb bucket, 4,600 kg / 10,140 lb counterweight														
Description	Shoe width		Operating weight		Ground pressure		Overall width		Operating weight		Ground pressure		Overall width	
	mm	in	kg	lb	kPa	psi	mm	ft in	kg	lb	kPa	psi	mm	ft in
Triple grouser	500	20	23,770	52,410	58.8	8.5	2,890	9'6"	23,850	52,590	59.8	8.7	2,890	9'6"
	600	24	24,030	52,990	50.0	7.3	2,990	9'10"	24,110	53,160	50.0	7.3	2,990	9'10"
	600 (HD)	24 (HD)	24,170	53,290	50.0	7.3	2,990	9'10"	24,240	53,450	50.0	7.3	2,990	9'10"
	700	28	24,450	53,910	43.1	6.3	3,090	10'2"	24,530	54,090	43.1	6.3	3,090	10'2"
	800	32	24,730	54,530	38.2	5.5	3,190	10'6"	24,810	54,710	38.2	5.5	3,190	10'6"
	900	36	25,010	55,150	34.3	5.0	3,290	10'10"	25,090	55,320	34.3	5.0	3,290	10'10"
Single grouser	600	24	24,240	53,450	50.0	7.3	2,990	9'10"	24,320	53,630	50.0	7.3	2,990	9'10"
Double grouser	700	28	24,760	54,600	44.1	6.4	3,090	10'2"	24,830	54,750	44.1	6.4	3,090	10'2"
EC230F L, 5.57 m / 18'3" 2-pieces boom, 2.9 m / 9'6" HD arm, 1,036 kg / 2,280 lb bucket, 4,600 kg / 10,140 lb counterweight														
EC230F L, 5.57 m / 18'3" 2-pieces boom, 3.5 m / 11'6" GP arm, 1,036 kg / 2,280 lb bucket, 4,600 kg / 10,140 lb counterweight														
Description	Shoe width		Operating weight		Ground pressure		Overall width		Operating weight		Ground pressure		Overall width	
	mm	in	kg	lb	kPa	psi	mm	ft in	kg	lb	kPa	psi	mm	ft in
Triple grouser	500	20	23,960	52,830	59.8	8.7	2,890	9'6"	23,970	52,850	59.8	8.7	2,890	9'6"
	600	24	24,220	53,410	50.0	7.3	2,990	9'10"	24,220	53,410	50.0	7.3	2,990	9'10"
	600 (HD)	24 (HD)	24,390	53,780	51.0	7.4	2,990	9'10"	24,390	53,780	51.0	7.4	2,990	9'10"
	700	28	24,560	54,150	44.1	6.4	3,090	10'2"	24,570	54,180	44.1	6.4	3,090	10'2"
	800	32	24,960	55,040	39.2	5.7	3,190	10'6"	24,970	55,060	39.2	5.7	3,190	10'6"
	900	36	25,250	55,680	35.3	5.1	3,290	10'10"	25,250	55,680	35.3	5.1	3,290	10'10"
Single grouser	600	24	24,350	53,690	50.0	7.3	2,990	9'10"	24,360	53,710	51.0	7.4	2,990	9'10"
Double grouser	700	28	24,940	54,990	44.1	6.4	3,090	10'2"	24,940	54,990	44.1	6.4	3,090	10'2"
EC230F L, 5.7 m / 18'8" GP boom, 2.5 m / 8'2" HD arm, 1,036 kg / 2,280 lb bucket, 5,400 kg / 11,910 lb counterweight														
EC230F L, 5.7 m / 18'8" GP boom, 2.9 m / 9'6" GP arm, 1,036 kg / 2,280 lb bucket, 5,400 kg / 11,910 lb counterweight														
Description	Shoe width		Operating weight		Ground pressure		Overall width		Operating weight		Ground pressure		Overall width	
	mm	in	kg	lb	kPa	psi	mm	ft in	kg	lb	kPa	psi	mm	ft in
Triple grouser	500	20	24,020	52,960	59.8	8.7	2,890	9'6"	24,090	53,120	59.8	8.7	2,890	9'6"
	600	24	24,280	53,540	50.0	7.3	2,990	9'10"	24,350	53,690	50.0	7.3	2,990	9'10"
	600 (HD)	24 (HD)	24,440	53,890	51.0	7.4	2,990	9'10"	24,520	54,070	51.0	7.4	2,990	9'10"
	700	28	24,620	54,290	44.1	6.4	3,090	10'2"	24,690	54,440	44.1	6.4	3,090	10'2"
	800	32	25,020	55,170	39.2	5.7	3,190	10'6"	25,090	55,320	39.2	5.7	3,190	10'6"
	900	36	25,300	55,790	35.3	5.1	3,290	10'10"	25,380	55,960	35.3	5.1	3,290	10'10"
Single grouser	600	24	24,410	53,820	51.0	7.4	2,990	9'10"	24,480	53,980	51.0	7.4	2,990	9'10"
Double grouser	700	28	24,990	55,100	44.1	6.4	3,090	10'2"	25,070	55,280	44.1	6.4	3,090	10'2"
EC230F L, 5.7 m / 18'8" GP boom, 2.9 m / 9'6" HD arm, 1,036 kg / 2,280 lb bucket, 5,400 kg / 11,910 lb counterweight														
EC230F L, 5.7 m / 18'8" GP boom, 3.5 m / 11'6" GP arm, 1,036 kg / 2,280 lb bucket, 5,400 kg / 11,910 lb counterweight														

GROUND PRESSURE

Description	Shoe width		Operating weight		Ground pressure		Overall width		Operating weight		Ground pressure		Overall width	
	mm	in	kg	lb	kPa	psi	mm	ft in	kg	lb	kPa	psi	mm	ft in
Triple grouser	500	20	24,080	53,100	59.8	8.7	2,890	9'6"	24,080	53,100	59.8	8.7	2,890	9'6"
	600	24	24,340	53,670	50.0	7.3	2,990	9'10"	24,340	53,670	50.0	7.3	2,990	9'10"
	600 (HD)	24 (HD)	24,510	54,040	51.0	7.4	2,990	9'10"	24,510	54,040	51.0	7.4	2,990	9'10"
	700	28	24,690	54,440	44.1	6.4	3,090	10'2"	24,680	54,420	44.1	6.4	3,090	10'2"
	800	32	25,080	55,300	39.2	5.7	3,190	10'6"	25,080	55,300	39.2	5.7	3,190	10'6"
	900	36	25,370	55,940	35.3	5.1	3,290	10'10"	25,370	55,940	35.3	5.1	3,290	10'10"
Single grouser	600	24	24,480	53,980	51.0	7.4	2,990	9'10"	24,470	53,960	51.0	7.4	2,990	9'10"
Double grouser	700	28	25,060	55,260	44.1	6.4	3,090	10'2"	25,060	55,260	44.1	6.4	3,090	10'2"
			EC230F L, 5.7 m / 18'8" HD boom, 2.0 m / 6'7" ME arm, 1,036 kg / 2,280 lb bucket, 5,400 kg / 11,910 lb counterweight						EC230F L, 5.7 m / 18'8" HD boom, 2.5 m / 8'2" HD arm, 1,036 kg / 2,280 lb bucket, 5,400 kg / 11,910 lb counterweight					
Description	Shoe width		Operating weight		Ground pressure		Overall width		Operating weight		Ground pressure		Overall width	
	mm	in	kg	lb	kPa	psi	mm	ft in	kg	lb	kPa	psi	mm	ft in
Triple grouser	500	20	24,090	53,120	59.8	8.7	2,890	9'6"	24,140	53,230	59.8	8.7	2,890	9'6"
	600	24	24,340	53,670	50.0	7.3	2,990	9'10"	24,390	53,780	51.0	7.4	2,990	9'10"
	600 (HD)	24 (HD)	24,510	54,040	51.0	7.4	2,990	9'10"	24,560	54,150	51.0	7.4	2,990	9'10"
	700	28	24,690	54,440	44.1	6.4	3,090	10'2"	24,740	54,550	44.1	6.4	3,090	10'2"
	800	32	25,090	55,320	39.2	5.7	3,190	10'6"	25,140	55,430	39.2	5.7	3,190	10'6"
	900	36	25,370	55,940	35.3	5.1	3,290	10'10"	25,420	56,050	35.3	5.1	3,290	10'10"
Single grouser	600	24	24,480	53,980	51.0	7.4	2,990	9'10"	24,530	54,090	51.0	7.4	2,990	9'10"
Double grouser	700	28	25,060	55,260	44.1	6.4	3,090	10'2"	25,110	55,370	45.1	6.5	3,090	10'2"
			EC230F L, 5.7 m / 18'8" HD boom, 2.9 m / 9'6" GP arm, 1,036 kg / 2,280 lb bucket, 5,400 kg / 11,910 lb counterweight						EC230F L, 5.7 m / 18'8" HD boom, 2.9 m / 9'6" HD arm, 1,036 kg / 2,280 lb bucket, 5,400 kg / 11,910 lb counterweight					
Description	Shoe width		Operating weight		Ground pressure		Overall width		Operating weight		Ground pressure		Overall width	
	mm	in	kg	lb	kPa	psi	mm	ft in	kg	lb	kPa	psi	mm	ft in
Triple grouser	500	20	24,210	53,380	59.8	8.7	2,890	9'6"	24,600	54,240	60.8	8.8	2,890	9'6"
	600	24	24,470	53,960	51.0	7.4	2,990	9'10"	24,860	54,820	52.0	7.5	2,990	9'10"
	600 (HD)	24 (HD)	24,640	54,330	51.0	7.4	2,990	9'10"	25,030	55,190	52.0	7.5	2,990	9'10"
	700	28	24,810	54,710	44.1	6.4	3,090	10'2"	25,200	55,570	45.1	6.5	3,090	10'2"
	800	32	25,210	55,590	39.2	5.7	3,190	10'6"	25,600	56,450	40.2	5.8	3,190	10'6"
	900	36	25,500	56,230	35.3	5.1	3,290	10'10"	25,880	57,070	35.3	5.1	3,290	10'10"
Single grouser	600	24	24,600	54,240	51.0	7.4	2,990	9'10"	24,990	55,100	52.0	7.5	2,990	9'10"
Double grouser	700	28	25,190	55,540	45.1	6.5	3,090	10'2"	25,580	56,400	45.1	6.5	3,090	10'2"
			EC230F L, 5.7 m / 18'8" HD boom, 3.5 m / 11'6" GP arm, 1,036 kg / 2,280 lb bucket, 5,400 kg / 11,910 lb counterweight						EC230F L, 5.57 m / 18'3" 2-pieces boom, 2.9 m / 9'6" GP arm, 1,036 kg / 2,280 lb bucket, 5,400 kg / 11,910 lb counterweight					
Description	Shoe width		Operating weight		Ground pressure		Overall width		Operating weight		Ground pressure		Overall width	
	mm	in	kg	lb	kPa	psi	mm	ft in	kg	lb	kPa	psi	mm	ft in
Triple grouser	500	20	24,650	54,350	61.8	9.0	2,890	9'6"	24,720	54,510	61.8	9.0	2,890	9'6"
	600	24	24,910	54,930	52.0	7.5	2,990	9'10"	24,980	55,080	52.0	7.5	2,990	9'10"
	600 (HD)	24 (HD)	25,080	55,300	52.0	7.5	2,990	9'10"	25,150	55,460	52.0	7.5	2,990	9'10"
	700	28	25,250	55,680	45.1	6.5	3,090	10'2"	25,330	55,850	45.1	6.5	3,090	10'2"
	800	32	25,650	56,560	40.2	5.8	3,190	10'6"	25,720	56,710	40.2	5.8	3,190	10'6"
	900	36	25,930	57,180	36.3	5.3	3,290	10'10"	26,010	57,350	36.3	5.3	3,290	10'10"
Single grouser	600	24	25,040	55,210	52.0	7.5	2,990	9'10"	25,120	55,390	52.0	7.5	2,990	9'10"
Double grouser	700	28	25,630	56,510	45.1	6.5	3,090	10'2"	25,670	56,670	46.1	6.7	3,090	10'2"
			EC230F L, 5.57 m / 18'3" 2-pieces boom, 2.9 m / 9'6" HD arm, 1,036 kg / 2,280 lb bucket, 5,400 kg / 11,910 lb counterweight						EC230F L, 5.57 m / 18'3" 2-pieces boom, 3.5 m / 11'6" GP arm, 1,036 kg / 2,280 lb bucket, 5,400 kg / 11,910 lb counterweight					
Description	Shoe width		Operating weight		Ground pressure		Overall width		Operating weight		Ground pressure		Overall width	
	mm	in	kg	lb	kPa	psi	mm	ft in	kg	lb	kPa	psi	mm	ft in
Triple grouser	800	32	24,950	55,010	39.2	5.7	3,190	10'6"	EC230F LR, 8.85 m / 29'0" LR, 6.25 m / 20'6" LR arm, 452 kg / 1,000 lb bucket, 5,400 kg / 11,910 lb counterweight					
	900	36	25,230	55,630	35.3	5.1	3,290	10'10"						

Specifications

BUCKET SELECTION GUIDE

EC230F L with 600 mm (24") shoe, 4,600 kg (10,140 lb) counterweight

Bucket Type		Capacity		Cutting width		Weight		Teeth	Recommended maximum material density (kg/m ³ / lb/yd ³)							
									5.7 m (18'8") GP Boom							
		L	yd ³	mm	ft in	kg	lb	EA	H2.5 m (8'2") Arm		G2.9 m (9'6") Arm		H2.9 m (9'6") Arm		G3.5 m (11'6") Arm	
Direct fit Buckets	GP	480	0.63	600	2'0"	666	1,468	3	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		590	0.77	750	2'6"	711	1,567	3	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		630	0.82	800	2'7"	703	1,550	4	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		750	0.98	900	2'11"	749	1,651	4	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		750	0.98	900	2'11"	792	1,746	4	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		920	1.2	1,050	3'5"	862	1,900	4	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		920	1.2	1,050	3'5"	819	1,806	4	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		1,090	1.43	1,200	3'11"	908	2,002	5	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		1,090	1.43	1,200	3'11"	951	2,097	5	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		1,270	1.66	1,350	4'5"	1,038	2,288	5	1,800	3,034	1,800	3,034	1,800	3,034	1,700	2,865
		1,270	1.66	1,350	4'5"	995	2,194	5	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		1,440	1.88	1,500	4'11"	1,085	2,392	6	1,800	3,034	1,700	2,865	1,700	2,865	1,500	2,528
	1,320	1.73	1,420	4'8"	999	2,202	5	1,800	3,034	1,800	3,034	1,800	3,034	1,700	2,865	
	1,320	1.73	1,420	4'8"	1,041	2,295	5	1,800	3,034	1,800	3,034	1,800	3,034	1,700	2,865	
	HD	480	0.63	600	2'0"	738	1,627	3	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		480	0.63	600	2'0"	675	1,488	3	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		750	0.98	900	2'11"	872	1,922	4	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		750	0.98	900	2'11"	808	1,781	4	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		920	1.2	1,050	3'5"	951	2,097	4	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		920	1.2	1,050	3'5"	888	1,958	4	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		1,090	1.43	1,200	3'11"	1,046	2,306	5	2,100	3,540	2,100	3,540	2,100	3,540	2,000	3,371
		1,090	1.43	1,200	3'11"	983	2,167	5	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		1,270	1.66	1,380	4'6"	1,045	2,304	5	2,100	3,540	2,000	3,371	2,000	3,371	1,700	2,865
		1,270	1.66	1,380	4'6"	1,108	2,443	5	2,100	3,540	1,900	3,203	1,900	3,203	1,700	2,865
Bucket Type		Capacity		Cutting width		Weight		Teeth	Recommended maximum material density (kg/m ³ / lb/yd ³)							
									5.7 m (18'8") HD Boom							
L	yd ³	mm	ft in	kg	lb	EA	H2.5 m (8'2") Arm		G2.9 m (9'6") Arm		H2.9 m (9'6") Arm		G3.5 m (11'6") Arm			
Direct fit Buckets	GP	480	0.63	600	2'0"	666	1,468	3	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		590	0.77	750	2'6"	711	1,567	3	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		630	0.82	800	2'7"	703	1,550	4	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		750	0.98	900	2'11"	749	1,651	4	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		750	0.98	900	2'11"	792	1,746	4	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		920	1.2	1,050	3'5"	862	1,900	4	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		920	1.2	1,050	3'5"	819	1,806	4	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		1,090	1.43	1,200	3'11"	908	2,002	5	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		1,090	1.43	1,200	3'11"	951	2,097	5	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		1,270	1.66	1,350	4'5"	1,038	2,288	5	1,800	3,034	1,800	3,034	1,800	3,034	1,700	2,865
		1,270	1.66	1,350	4'5"	995	2,194	5	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		1,440	1.88	1,500	4'11"	1,085	2,392	6	1,800	3,034	1,700	2,865	1,700	2,865	1,500	2,528
	1,320	1.73	1,420	4'8"	999	2,202	5	1,800	3,034	1,800	3,034	1,800	3,034	1,700	2,865	
	1,320	1.73	1,420	4'8"	1,041	2,295	5	1,800	3,034	1,800	3,034	1,800	3,034	1,600	2,697	
	HD	480	0.63	600	2'0"	738	1,627	3	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		480	0.63	600	2'0"	675	1,488	3	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		750	0.98	900	2'11"	872	1,922	4	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		750	0.98	900	2'11"	808	1,781	4	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		920	1.2	1,050	3'5"	951	2,097	4	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		920	1.2	1,050	3'5"	888	1,958	4	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		1,090	1.43	1,200	3'11"	1,046	2,306	5	2,100	3,540	2,100	3,540	2,100	3,540	2,000	3,371
		1,090	1.43	1,200	3'11"	983	2,167	5	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		1,270	1.66	1,380	4'6"	1,045	2,304	5	2,100	3,540	2,000	3,371	1,900	3,203	1,700	2,865
		1,270	1.66	1,380	4'6"	1,108	2,443	5	2,100	3,540	1,900	3,203	1,900	3,203	1,700	2,865

BUCKET SELECTION GUIDE
EC230F L with 600 mm (24") shoe, 4,600 kg (10,140 lb) counterweight

Bucket Type		Capacity		Cutting width		Weight		Teeth	Recommended maximum material density (kg/m ³ / lb/yd ³)							
		L	yd ³	mm	ft in	kg	lb	EA	5.57 m (18'3") VA Boom							
									H2.5 m (8'2") Arm		G2.9 m (9'6") Arm		H2.9 m (9'6") Arm		G3.5 m (11'6") Arm	
Direct fit Buckets	GP	480	0.63	600	2'0"	666	1,468	3	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		590	0.77	750	2'6"	711	1,567	3	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		630	0.82	800	2'7"	703	1,550	4	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		750	0.98	900	2'11"	749	1,651	4	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		750	0.98	900	2'11"	792	1,746	4	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		920	1.2	1,050	3'5"	862	1,900	4	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		920	1.2	1,050	3'5"	819	1,806	4	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		1,090	1.43	1,200	3'11"	908	2,002	5	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		1,090	1.43	1,200	3'11"	951	2,097	5	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		1,270	1.66	1,350	4'5"	1,038	2,288	5	1,800	3,034	1,800	3,034	1,800	3,034	1,700	2,865
		1,270	1.66	1,350	4'5"	995	2,194	5	1,800	3,034	1,800	3,034	1,800	3,034	1,800	3,034
		1,440	1.88	1,500	4'11"	1,085	2,392	6	1,800	3,034	1,700	2,865	1,700	2,865	1,500	2,528
		1,320	1.73	1,420	4'8"	999	2,202	5	1,800	3,034	1,800	3,034	1,800	3,034	1,700	2,865
		1,320	1.73	1,420	4'8"	1,041	2,295	5	1,800	3,034	1,800	3,034	1,800	3,034	1,700	2,865
	HD	480	0.63	600	2'0"	738	1,627	3	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		480	0.63	600	2'0"	675	1,488	3	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		750	0.98	900	2'11"	872	1,922	4	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		750	0.98	900	2'11"	808	1,781	4	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		920	1.2	1,050	3'5"	951	2,097	4	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		920	1.2	1,050	3'5"	888	1,958	4	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		1,090	1.43	1,200	3'11"	1,046	2,306	5	2,100	3,540	2,100	3,540	2,100	3,540	2,000	3,371
		1,090	1.43	1,200	3'11"	983	2,167	5	2,100	3,540	2,100	3,540	2,100	3,540	2,100	3,540
		1,270	1.66	1,380	4'6"	1,045	2,304	5	2,100	3,540	2,000	3,371	2,000	3,371	1,700	2,865
		1,270	1.66	1,380	4'6"	1,108	2,443	5	2,100	3,540	1,900	3,203	1,900	3,203	1,700	2,865

Please consult with your Volvo dealer for the proper match of buckets and attachments to suit the application.

(In case of using bigger bucket than regional standard MRS, consultation with R&D is highly recommended)

The recommendations are given as a guide only, based on typical operation conditions.

Bucket capacity based on ISO 7451, heaped material with a 1:1 angle of repose.

Maximum load : Payload, bucket and additional tools such as quick coupler, rotator,

VA Boom : Variable angle boom or two-piece boom

Specifications

LIFTING CAPACITY EC230F L

Lifting capacity at the arm end without bucket. For lifting capacity including bucket, simply subtract actual weight of the direct fit bucket or the bucket with quick coupler from the following values.

Quick coupler from the following values.																
	Lifting hook related to ground level		1.5 m / 5 ft		3.0 m / 10 ft		4.5 m / 15 ft		6.0 m / 20 ft		7.5 m / 25 ft		Max. reach		Max.	
			Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC		
Boom : 5.7 m GP 18'8" GP Arm : 2.5 m HD 8'2" HD Shoe : 800 mm 32" CWT : 4,600 kg 10,140 lb	7.5 m	kg												*5,680	*5,680	5.6 m
	25 ft	lb												*12,560	*12,560	18.0 ft
	6.0 m	kg							*5,500	*5,500				*5,600	4,770	6.8 m
	20 ft	lb							*12,110	*12,110				*12,360	10,670	22.3 ft
	4.5 m	kg					*6,970	*6,970	*6,010	5,760	*5,680	4,070		*5,690	3,990	7.6 m
	15 ft	lb					*15,040	*15,040	*13,090	12,420				*12,530	8,850	24.8 ft
	3.0 m	kg					*8,970	8,340	*6,880	5,510	*5,980	3,970		5,530	3,610	8.0 m
	10 ft	lb					*19,310	18,010	*14,940	11,890	*13,080	8,560		12,230	7,990	26.2 ft
	1.5 m	kg					*10,730	7,850	*7,780	5,270	5,970	3,860		5,360	3,480	8.1 m
	5 ft	lb					*23,160	16,930	*16,860	11,370	12,870	8,330		11,820	7,670	26.5 ft
	0 m	kg					*11,530	7,620	8,140	5,110	5,890	3,790		5,500	3,550	7.9 m
	0 ft	lb					*24,980	16,440	17,540	11,040	12,700	8,180		12,130	7,830	25.8 ft
	-1.5 m	kg			*10,800	*10,800	*11,460	7,590	8,090	5,070				6,030	3,870	7.4 m
	-5 ft	lb			*24,670	*24,670	*24,840	16,360	17,430	10,940				13,330	8,560	24.1 ft
	-3.0 m	kg			*14,740	*14,740	*10,550	7,700	*7,780	5,140				*6,990	4,670	6.5 m
	-10 ft	lb			*31,960	*31,960	*22,810	16,590	*16,720	11,120				*15,440	10,380	21.1 ft
-4.5 m	kg			*11,410	*11,410	*8,150	7,990						*7,140	6,930	5.0 m	
-15 ft	lb			*24,390	*24,390	*17,220	*17,220						*15,720	*15,720	16.0 ft	
Boom : 5.7 m GP 18'8" GP Arm : 2.9 m HD 9'6" HD Shoe : 800 mm 32" CWT : 4,600 kg 10,140 lb	7.5 m	kg							*5,180	*5,180				*4,960	*4,960	6.2 m
	25 ft	lb												*11,040	*11,040	19.8 ft
	6.0 m	kg							*5,070	*5,070				*4,630	4,340	7.3 m
	20 ft	lb							*11,160	*11,160				*10,230	9,710	23.8 ft
	4.5 m	kg							*5,640	*5,640	*5,330	4,120		*4,570	3,700	8.0 m
	15 ft	lb							*12,290	*12,290	*11,730	8,860		*10,060	8,200	26.2 ft
	3.0 m	kg					*8,390	*8,390	*6,560	5,570	*5,730	4,010		*4,690	3,380	8.4 m
	10 ft	lb					*18,060	*18,060	*14,240	12,030	*12,510	8,640		*10,320	7,460	27.4 ft
	1.5 m	kg					*10,290	7,930	*7,520	5,310	5,990	3,880		*5,010	3,260	8.5 m
	5 ft	lb					*22,200	17,110	*16,310	11,460	12,920	8,370		*11,010	7,190	27.8 ft
	0 m	kg			*5,420	*5,420	*11,350	7,630	8,160	5,120	5,890	3,780		5,120	3,310	8.3 m
	0 ft	lb			*12,560	*12,560	*24,560	16,450	17,570	11,050	12,690	8,170		11,300	7,310	27.1 ft
	-1.5 m	kg	*6,270	*6,270	*10,310	*10,310	*11,510	7,550	8,070	5,040	5,860	3,750		5,560	3,580	7.8 m
	-5 ft	lb	*14,060	*14,060	*23,460	*23,460	*24,960	16,270	17,380	10,890	12,640	8,120		12,290	7,910	25.5 ft
	-3.0 m	kg	*11,370	*11,370	*15,560	14,800	*10,870	7,620	*8,050	5,080				6,580	4,210	7.0 m
	-10 ft	lb	*25,560	*25,560	*33,730	31,720	*23,520	16,430	*17,370	10,980				14,620	9,350	22.7 ft
-4.5 m	kg			*12,680	*12,680	*9,020	7,860						*6,890	5,810	5.6 m	
-15 ft	lb			*27,220	*27,220	*19,270	16,970						*15,200	13,120	18.1 ft	
Boom : 5.7 m GP 18'8" GP Arm : 2.9 m GP 9'6" GP Shoe : 800 mm 32" CWT : 4,600 kg 10,140 lb	7.5 m	kg							*5,210	*5,210				*4,970	*4,970	6.2 m
	25 ft	lb												*11,060	*11,060	19.8 ft
	6.0 m	kg							*5,100	*5,100				*4,630	4,370	7.3 m
	20 ft	lb							*11,220	*11,220				*10,250	9,760	23.8 ft
	4.5 m	kg							*5,670	*5,670	*5,360	4,140		*4,580	3,720	8.0 m
	15 ft	lb							*12,360	*12,360	*11,800	8,920		*10,080	8,260	26.2 ft
	3.0 m	kg					*8,430	*8,430	*6,590	5,600	*5,760	4,030		*4,700	3,400	8.4 m
	10 ft	lb					*18,150	*18,150	*14,310	12,090	*12,580	8,690		*10,350	7,520	27.4 ft
	1.5 m	kg					*10,340	7,970	*7,560	5,340	6,020	3,910		*5,020	3,280	8.5 m
	5 ft	lb					*22,320	17,210	*16,400	11,530	12,980	8,430		*11,030	7,250	27.8 ft
	0 m	kg			*5,430	*5,430	*11,400	7,680	8,200	5,160	5,920	3,810		5,150	3,340	8.3 m
	0 ft	lb			*12,580	*12,580	*24,680	16,560	17,650	11,130	12,760	8,230		11,360	7,370	27.1 ft
	-1.5 m	kg	*6,280	*6,280	*10,320	*10,320	*11,570	7,600	8,110	5,080	5,880	3,780		5,590	3,610	7.8 m
	-5 ft	lb	*14,080	*14,080	*23,480	*23,480	*25,080	16,380	17,460	10,970	12,700	8,180		12,350	7,970	25.5 ft
	-3.0 m	kg	*11,380	*11,380	*15,630	14,880	*10,920	7,670	*8,090	5,120				6,610	4,240	7.0 m
	-10 ft	lb	*25,580	*25,580	*33,880	31,890	*23,640	16,530	*17,460	11,060				14,690	9,410	22.7 ft
-4.5 m	kg			*12,740	*12,740	*9,070	7,900									
-15 ft	lb			*27,350	*27,350	*19,370	17,060									

Notes: 1. Machine in "Fine Mode-F" (Power Boost) for lifting capacities. 2. The above loads are in compliance with SAE J1097 and ISO 10567 Hydraulic Excavator Lifting Capacity Standards. 3. Rated loads do not exceed 87% of hydraulic lifting capacity or 75% of tipping load. 4. Rated loads marked with an asterisk (*) are limited by hydraulic capacity rather than tipping load.

LIFTING CAPACITY EC230F L

Lifting capacity at the arm end without bucket. For lifting capacity including bucket, simply subtract actual weight of the direct fit bucket or the bucket with quick coupler from the following values.

	Lifting hook related to ground level		1.5 m / 5 ft		3.0 m / 10 ft		4.5 m / 15 ft		6.0 m / 20 ft		7.5 m / 25 ft		Max. reach		Max.
			Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	
Boom : 5.7 m GP 18'8" GP Arm : 3.5 m GP 11'6" GP Shoe : 800 mm 32" CWT : 4,600 kg 10,140 lb	7.5 m	kg											*4,250	*4,250	6.8 m
	25 ft	lb											*9,440	*9,440	21.9 ft
	6.0 m	kg									*4,610	4,220	*4,040	3,910	7.8 m
	20 ft	lb									*9,980	9,060	*8,920	8,730	25.5 ft
	4.5 m	kg						*5,010	*5,010	*4,820	4,150	*4,020	3,380		8.5 m
	15 ft	lb						*10,920	*10,920	*10,580	8,940	*8,860	7,490		27.8 ft
	3.0 m	kg			*11,270	*11,270	*7,410	*7,410	*5,980	5,630	*5,300	4,020	*4,150	3,100	8.8 m
	10 ft	lb			*23,950	*23,950	*15,980	*15,980	*12,990	12,140	*11,560	8,660	*9,150	6,850	29.0 ft
	1.5 m	kg					*9,520	8,060	*7,050	5,340	*5,860	3,870	*4,450	2,980	8.9 m
	5 ft	lb					*20,550	17,380	*15,290	11,520	*12,760	8,350	*9,790	6,590	29.3 ft
	0 m	kg			*7,050	*7,050	*10,940	7,660	*7,910	5,110	5,850	3,750	4,690	3,020	8.7 m
	0 ft	lb			*16,140	*16,140	*23,670	16,520	*17,150	11,030	12,620	8,090	10,340	6,660	28.7 ft
	-1.5 m	kg	*6,210	*6,210	*10,310	*10,310	*11,470	7,500	8,020	4,990	5,780	3,680	5,030	3,220	8.3 m
	-5 ft	lb	*13,880	*13,880	*23,400	*23,400	*24,860	16,160	17,270	10,770	12,470	7,950	11,110	7,120	27.2 ft
	-3.0 m	kg	*10,120	*10,120	*15,210	14,590	*11,190	7,510	8,010	4,980	5,810	3,710	5,800	3,700	7.5 m
Boom : 5.7 m HD 18'8" HD Arm : 2.0 m ME 6'7" ME Shoe : 800 mm 32" CWT : 4,600 kg 10,140 lb	-10 ft	lb	*22,720	*22,720	*34,600	31,280	*24,220	16,180	17,250	10,760			12,870	8,210	24.5 ft
	-4.5 m	kg	*15,160	*15,160	*14,260	*14,260	*9,910	7,670	*7,170	5,110			*6,700	4,820	6.3 m
	-15 ft	lb	*34,230	*34,230	*30,700	*30,700	*21,310	16,540	*15,230	11,060			*14,830	10,820	20.3 ft
	7.5 m	kg											*6,290	*6,290	4.9 m
	25 ft	lb											*13,960	*13,960	15.6 ft
	6.0 m	kg							*6,030	5,800			*6,070	5,350	6.3 m
	20 ft	lb							*13,330	12,460			*13,390	12,020	20.4 ft
	4.5 m	kg					*7,640	*7,640	*6,410	5,650			*6,110	4,350	7.1 m
	15 ft	lb					*16,470	*16,470	*13,970	12,190			*13,460	9,660	23.2 ft
	3.0 m	kg					*9,600	8,120	*7,210	5,410	6,030	3,900	6,010	3,890	7.5 m
	10 ft	lb					*20,650	17,550	*15,640	11,680			13,280	8,610	24.6 ft
	1.5 m	kg							*7,990	5,180	5,930	3,820	5,800	3,740	7.6 m
	5 ft	lb							*17,310	11,200			12,800	8,250	25.0 ft
	0 m	kg					*11,520	7,540	8,090	5,060			5,980	3,830	7.4 m
	0 ft	lb					*24,980	16,250	17,440	10,920			13,200	8,450	24.3 ft
Boom : 5.7 m HD 18'8" HD Arm : 2.5 m HD 8'2" HD Shoe : 800 mm 32" CWT : 4,600 kg 10,140 lb	-1.5 m	kg					*11,140	7,570	8,080	5,050			6,680	4,250	6.9 m
	-5 ft	lb					*24,180	16,300	17,410	10,900			14,770	9,400	22.5 ft
	-3.0 m	kg			*13,310	*13,310	*9,900	7,720					*7,330	5,330	5.9 m
	-10 ft	lb			*28,900	*28,900	*21,390	16,660					*16,170	11,870	19.2 ft
	7.5 m	kg											*5,660	*5,660	5.6 m
	25 ft	lb											*12,530	*12,530	18.0 ft
	6.0 m	kg							*5,480	*5,480			*5,580	4,760	6.8 m
	20 ft	lb							*12,070	*12,070			*12,300	10,660	22.3 ft
	4.5 m	kg					*6,950	*6,950	*5,980	5,750	*5,650	4,050	*5,660	3,970	7.6 m
	15 ft	lb					*14,990	*14,990	*13,040	12,400			*12,470	8,820	24.8 ft
	3.0 m	kg					*8,930	8,320	*6,850	5,490	*5,950	3,960	5,520	3,600	8.0 m
	10 ft	lb					*19,230	17,980	*14,870	11,860	*13,010	8,530	12,210	7,950	26.2 ft
	1.5 m	kg					*10,680	7,810	*7,740	5,250	5,960	3,840	5,350	3,460	8.1 m
	5 ft	lb					*23,040	16,870	*16,770	11,330	12,840	8,290	11,790	7,630	26.5 ft
	0 m	kg					*11,470	7,580	8,130	5,090	5,870	3,770	5,480	3,530	7.9 m
	0 ft	lb					*24,840	16,350	17,500	10,980	12,670	8,130	12,090	7,780	25.8 ft
Boom : 5.7 m HD 18'8" HD Arm : 2.5 m HD 8'2" HD Shoe : 800 mm 32" CWT : 4,600 kg 10,140 lb	-1.5 m	kg			*10,800	*10,800	*11,390	7,550	8,070	5,040			6,020	3,850	7.4 m
	-5 ft	lb			*24,670	*24,670	*24,700	16,270	17,380	10,870			13,300	8,510	24.1 ft
	-3.0 m	kg			*14,650	*14,650	*10,480	7,660	*7,740	5,110			*6,950	4,640	6.5 m
	-10 ft	lb			*31,770	*31,770	*22,680	16,500	*16,620	11,050			*15,340	10,320	21.1 ft
	-4.5 m	kg			*11,320	*11,320	*8,100	7,950					*7,090	6,900	5.0 m
	-15 ft	lb			*24,210	*24,210	*17,100	*17,100					*15,600	*15,600	16.0 ft

Notes: 1. Machine in "Fine Mode-F" (Power Boost) for lifting capacities. 2. The above loads are in compliance with SAE J1097 and ISO 10567 Hydraulic Excavator Lifting Capacity Standards. 3. Rated loads do not exceed 87% of hydraulic lifting capacity or 75% of tipping load. 4. Rated loads marked with an asterisk (*) are limited by hydraulic capacity rather than tipping load.

Specifications

LIFTING CAPACITY EC230F L

Lifting capacity at the arm end without bucket. For lifting capacity including bucket, simply subtract actual weight of the direct fit bucket or the bucket with quick coupler from the following values.

	Lifting hook related to ground level		1.5 m / 5 ft		3.0 m / 10 ft		4.5 m / 15 ft		6.0 m / 20 ft		7.5 m / 25 ft		Max. reach		Max.
			Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	
Boom : 5.7 m HD 18'8" HD Arm : 2.9 m HD 9'6" HD Shoe : 800 mm 32" CWT : 4,600 kg 10,140 lb	7.5 m	kg							*5,170	*5,170			*4,960	*4,960	6.2 m
	25 ft	lb											*11,040	*11,040	19.8 ft
	6.0 m	kg							*5,060	*5,060			*4,630	4,340	7.3 m
	20 ft	lb							*11,130	*11,130			*10,230	9,700	23.8 ft
	4.5 m	kg							*5,620	*5,620	*5,310	4,110	*4,570	3,690	8.0 m
	15 ft	lb							*12,250	*12,250	*11,680	8,840	*10,060	8,180	26.2 ft
	3.0 m	kg					*8,350	*8,350	*6,530	5,560	*5,700	3,990	*4,690	3,360	8.4 m
	10 ft	lb					*17,990	*17,990	*14,170	12,010	*12,450	8,610	*10,320	7,430	27.4 ft
	1.5 m	kg					*10,240	7,900	*7,480	5,290	5,980	3,860	5,000	3,240	8.5 m
	5 ft	lb					*22,100	17,050	*16,230	11,420	12,890	8,330	*11,010	7,150	27.8 ft
	0 m	kg			*5,420	*5,420	*11,290	7,590	8,140	5,100	5,870	3,760	5,110	3,290	8.3 m
	0 ft	lb			*12,560	*12,560	*24,430	16,360	17,530	11,000	12,660	8,120	11,270	7,260	27.1 ft
	-1.5 m	kg	*6,270	*6,270	*10,310	*10,310	*11,450	7,510	8,050	5,010	5,840	3,730	5,540	3,560	7.8 m
	-5 ft	lb	*14,060	*14,060	*23,460	*23,460	*24,830	16,170	17,340	10,820	12,600	8,070	12,250	7,860	25.5 ft
	-3.0 m	kg	*11,370	*11,370	*15,470	14,720	*10,810	7,580	*8,010	5,050			6,560	4,180	7.0 m
-10 ft	lb	*25,560	*25,560	*33,520	31,560	*23,380	16,340	*17,270	10,920			*14,550	9,290	22.7 ft	
-4.5 m	kg			*12,600	*12,600	*8,970	7,820					*6,840	5,780	5.6 m	
-15 ft	lb			*27,030	*27,030	*19,150	16,890					*15,100	13,060	18.1 ft	
Boom : 5.7 m HD 18'8" HD Arm : 2.9 m GP 9'6" GP Shoe : 800 mm 32" CWT : 4,600 kg 10,140 lb	7.5 m	kg							*5,190	*5,190			*4,970	*4,970	6.2 m
	25 ft	lb											*11,060	*11,060	19.8 ft
	6.0 m	kg							*5,080	*5,080			*4,630	4,360	7.3 m
	20 ft	lb							*11,190	*11,190			*10,250	9,750	23.8 ft
	4.5 m	kg							*5,650	*5,650	*5,340	4,130	*4,580	3,710	8.0 m
	15 ft	lb							*12,310	*12,310	*11,740	8,890	*10,080	8,230	26.2 ft
	3.0 m	kg					*8,390	*8,390	*6,570	5,590	*5,730	4,020	*4,700	3,390	8.4 m
	10 ft	lb					*18,080	*18,080	*14,250	12,070	*12,520	8,670	*10,350	7,490	27.4 ft
	1.5 m	kg					*10,290	7,950	*7,520	5,320	6,010	3,890	*5,020	3,270	8.5 m
	5 ft	lb					*22,210	17,150	*16,310	11,490	12,950	8,390	*11,030	7,210	27.8 ft
	0 m	kg			*5,430	*5,430	*11,340	7,640	8,180	5,130	5,900	3,790	5,140	3,320	8.3 m
	0 ft	lb			*12,580	*12,580	*24,550	16,470	17,610	11,080	12,730	8,190	11,330	7,320	27.1 ft
	-1.5 m	kg	*6,280	*6,280	*10,320	*10,320	*11,510	7,560	8,090	5,050	5,870	3,760	5,570	3,580	7.8 m
	-5 ft	lb	*14,080	*14,080	*23,480	*23,480	*24,950	16,280	17,420	10,910	12,670	8,130	12,310	7,920	25.5 ft
	-3.0 m	kg	*11,380	*11,380	*15,540	14,800	*10,860	7,630	*8,050	5,090			6,590	4,210	7.0 m
-10 ft	lb	*25,580	*25,580	*33,680	31,720	*23,500	16,440	*17,360	11,000			*14,630	9,360	22.7 ft	
-4.5 m	kg			*12,660	*12,660	*9,010	7,860					*6,880	5,820	5.6 m	
-15 ft	lb			*27,170	*27,170	*19,250	16,980					*15,180	13,130	18.1 ft	
Boom : 5.7 m HD 18'8" HD Arm : 3.5 m GP 11'6" GP Shoe : 800 mm 32" CWT : 4,600 kg 10,140 lb	7.5 m	kg											*4,250	*4,250	6.8 m
	25 ft	lb											*9,440	*9,440	21.9 ft
	6.0 m	kg									*4,590	4,220	*4,040	3,910	7.8 m
	20 ft	lb									*9,980	9,050	*8,920	8,720	25.5 ft
	4.5 m	kg							*4,990	*4,990	*4,800	4,150	*4,020	3,370	8.5 m
	15 ft	lb							*10,890	*10,890	*10,530	8,920	*8,860	7,470	27.8 ft
	3.0 m	kg			*11,230	*11,230	*7,390	*7,390	*5,960	5,620	*5,270	4,010	*4,150	3,080	8.8 m
	10 ft	lb			*23,880	*23,880	*15,920	*15,920	*12,940	12,130	*11,510	8,640	*9,150	6,820	29.0 ft
	1.5 m	kg					*9,480	8,040	*7,010	5,320	*5,830	3,860	*4,450	2,970	8.9 m
	5 ft	lb					*20,450	17,340	*15,210	11,490	*12,700	8,310	*9,790	6,550	29.3 ft
	0 m	kg			*7,050	*7,050	*10,880	7,630	*7,870	5,090	5,840	3,730	4,680	3,000	8.7 m
	0 ft	lb			*16,140	*16,140	*23,550	16,440	*17,060	10,980	12,590	8,040	10,310	6,620	28.7 ft
	-1.5 m	kg	*6,210	*6,210	*10,310	*10,310	*11,410	7,460	8,000	4,960	5,770	3,660	5,010	3,200	8.3 m
	-5 ft	lb	*13,880	*13,880	*23,400	*23,400	*24,720	16,070	17,220	10,710	12,440	7,900	11,070	7,080	27.2 ft
	-3.0 m	kg	*10,120	*10,120	*15,210	14,510	*11,120	7,470	7,990	4,950	5,790	3,680	5,780	3,680	7.5 m
-10 ft	lb	*22,720	*22,720	*34,600	31,100	*24,080	16,090	17,200	10,690			12,840	8,160	24.5 ft	
-4.5 m	kg	*15,160	*15,160	*14,170	*14,170	*9,850	7,630	*7,120	5,080			*6,660	4,790	6.3 m	
-15 ft	lb	*34,230	*34,230	*30,500	*30,500	*21,170	16,460	*15,130	11,000			*14,740	10,770	20.3 ft	

Notes: 1. Machine in "Fine Mode-F" (Power Boost) for lifting capacities. 2. The above loads are in compliance with SAE J1097 and ISO 10567 Hydraulic Excavator Lifting Capacity Standards. 3. Rated loads do not exceed 87% of hydraulic lifting capacity or 75% of tipping load. 4. Rated loads marked with an asterisk (*) are limited by hydraulic capacity rather than tipping load.

LIFTING CAPACITY EC230F LR

Lifting capacity at the arm end without bucket. For lifting capacity including bucket, simply subtract actual weight of the direct fit bucket or the bucket with quick coupler from the following values.

	Lifting hook related to ground level	1.5 m / 5 ft		3.0 m / 10 ft		4.5 m / 15 ft		6.0 m / 20 ft		7.5 m / 25 ft		9.0 m / 30 ft		10.5 m / 35 ft		12.0 m / 40 ft		13.5 m / 45 ft		Max. reach		Max.
		Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	Along UC	Across UC	
Boom : 8.85 m LR 29'0" LR Arm : 6.25 m LR 20'6" LR Shoe : 800 mm 32" CWT : 5,400 kg 11,910 lb	12.0 m kg																					
	40 ft lb																					
	10.5 m kg																					
	35 ft lb																					
	9.0 m kg																					
	30 ft lb																					
	7.5 m kg																					
	25 ft lb																					
	6.0 m kg																					
	20 ft lb																					
	4.5 m kg																					
	15 ft lb																					
	3.0 m kg																					
	10 ft lb																					
	1.5 m kg																					
	5 ft lb																					
	0 m kg																					
	0 ft lb																					
	-1.5 m kg																					
	-5 ft lb																					
	-3.0 m kg																					
	-10 ft lb																					
	-4.5 m kg																					
	-15 ft lb																					
	-6.0 m kg																					
	-20 ft lb																					
	-7.5 m kg																					
	-25 ft lb																					
	-9.0 m kg																					
	-30 ft lb																					
	-10.5 m kg																					
	-35 ft lb																					

Notes: 1. Machine in "Fine Mode-F" (Power Boost) for lifting capacities. 2. The above loads are in compliance with SAE J1097 and ISO 10567 Hydraulic Excavator Lifting Capacity Standards. 3. Rated loads do not exceed 87% of hydraulic lifting capacity or 75% of tipping load. 4. Rated loads marked with an asterisk (*) are limited by hydraulic capacity rather than tipping load.

Equipment

STANDARD AND OPTIONAL EQUIPMENT

• = Standard / o = Optional

Engine

Turbocharged, 4 stroke diesel engine with water cooling, direct injection and charged air cooler that meets Tier 4f requirements	•
Electric cooling fan system	•
New work mode with 10 steps	•
Cyclone pre-cleaner	•
Fuel shut off valve	•
Engine block heater	o
Coolant heater by diesel	o
Reversible fan drive	o
Precleaner, oil bath	o
Air filter, High efficiency	o
Delayed engine shutdown	•
Automatic engine shutdown	o
Water separator with heater	o
Arctic regeneration	o
Regeneration control	o
Oil sampling port for engine oil	o

Electric / Electronic control system

Anti-theft with code lock system	•
Alternator, 180 A	•
Automatic idling system	•
Lock Out / Tag Out function on battery main switch	•
Standard light	•
Basic light package	o
Advanced light package	o
Deluxe light package	o
Arm light	o
LH light	o

Undercarriage and structures

3-point side access	•
Link 600 mm (24") single grouser shoe	o
Link 600 mm (24") add rubber pad shoe	o
Direct filling DEF (AdBlue) / Sight gauge and splash guard	•
Openable 1 piece hood	•
Link 700 mm (28") double grouser shoe	o
Platform handrail fixed & Guardrail, foldable	•
Full track guard	o
Counterweight 5,400 kg (10,900 lb)	o
Inner rail	•
SIPS (Side Impact Protection Steel)	o
HD Side door & hood with screen	o
Without lower structure	o
Lower frame NL, N, NH, High walker	o
Link 500/600/700/800/900 mm (20/24/28/32/36") triple grouser shoe	o
Link 600 mm (24") triple grouser shoe, HD	o

STANDARD AND OPTIONAL EQUIPMENT

• = Standard / o = Optional

Hydraulic system

EH-positive (Electro-Hydraulic) control system	•
Boom up & swing priority	•
Auto warm up	•
Auto power boost	•
One touch power boost	•
Priority Adjustment	•
Boom down speed control	•
Shock reduction function	•
Joystick, 4 switch / 4 switch & 1 proportional / Simple L8 / L8	o
Hydraulic oil mineral, 32 / 46 / 68	o
Longlife hyd oil mineral, 32 / 46 / 68	o
Hydraulic oil bio 46	o
Pattern change	•
Boom float function	•
Straight travel pedal	o
Comfort driving control	o
Creep mode	•
Dedicated drain line	o
Variable X3 P-Q control	o
Hose rupture valve for boom	o
Hose rupture valve for arm	o
X1/X3/QF Piping on Long Reach Boom & Arm	o

Cab and interior

Keyless engine start and stop	•
8" HD display	•
ROPS certified cab	•
Tilttable left console	•
Digital hour meter	•
Wireless mobile charger with Kinematic sensor package option	•
Various storage space with cool/heated	•
Cleaning air gun preparation	o
1 piece wind shield cab	o
High visibility cab	o
Cabin large mirror	o
Cabin large mirror, Heated	o
Basic / Premium / Deluxe seat	o
Seat belt, 2 inch 2 point / 3 inch 2 point / 3 inch 3 point	o
Climate control-HEPA filter	o
Radio with MP3/USB/Bluetooth	o
Front rain shield	o
Sun screen	•
Lower wiper	o
Sun shield, roof hatch	o
Foot rest, High mount	o
FOG (Falling Object Guard)	o
FOPS (Falling Object Protection Structure)	o
Safety net	o

STANDARD AND OPTIONAL EQUIPMENT

• = Standard / o = Optional

Digging equipment

GP 5.7 m (18'8") boom	•
HD 5.7 m (18'8") boom / VA 5.57 m (18'3") boom / LR 8.85 m (29'0") boom	o
HD 2.9 m (9'6") arm	•
GP 2.9 m (9'6") arm/ ME 2.0 m (6'7") arm/ HD 2.5 m (8'2") arm/ GP 3.5 m (11'6") arm	o

Machine controls

Kinematic sensor package	•
Volvo Co-Pilot 2nd display, 12.8" touchable Full HD	•
Dig Assist, Start	•
Dig Assist, 2D	o
Dig Assist, In-Field Design	o
Dig Assist, Topcon 3D-MC	o
Dig Assist, Trimble Earthworks	o
Dig Assist, Infield-Design Advanced	o
Dig Assist, On-Board Weighing	o
Dig Assist, Laser Receiver	•
Volvo Active Control	o
Dig Assist, Boundary Limit	•

Service and maintenance

Fuel level gauge	•
Swing out A/C condenser	•
Fuel filler pump	o
Quick Hydraulic Oil Fill connection	o
Quick Engine Oil Change	o
Jump start connector	o
Auto lubrication system	o
Tool kit	o

Safety and security

Travel alarm, beep / white noise	o
Flashing beacon, LED	o
Green light beacon	o
Rear view camera	•
Side view camera	o
HD VSV(Volvo Smart View)	o
HD VSV with obstacle detection	o
Provision, HD VSV with obstacle detection	•

V O L V O

VOLVO

Volvo Construction Equipment North America

Warranty – Disclaimers – Limitations

Limited Warranty

Volvo Construction Equipment North America ("Volvo CE") hereby extends to its authorized dealers ("Dealer") and the Dealer's end-use customers ("Customer", and both Dealer and Customer are referred to herein as a "Buyer"), who purchase a new Volvo construction equipment machine ("Machine") or new Volvo part ("Part", both of which are referred to herein as a "Product") from Volvo the following limited warranty:

Subject to the exceptions and limitations set forth below, Volvo CE or Dealer will repair or replace any part of a new Machine or new Part which proves to be defective in material or workmanship during the following periods (the "Warranty Period"):

Volvo Wheel Loaders

- 12 months/2500 hours

Volvo Articulated Haulers

- 12 months/2500 hours

Volvo Rigid Haulers

- 12 months/5000 hours

Volvo Hydraulic Excavators

- 12 months/2500 hours

Volvo Pavers (ABG)

- 12 months/2500 hours

Volvo Landfill Compactors

- 12 months/2500 hours

Volvo Compact Diesel Excavators (less than 11 metric tons)

- 12 months/2500 hours

Volvo Compact Electric Excavators (less than 11 metric tons)

- 12 months/2500 hours

Volvo Compact Diesel Wheel Loaders (up to 100 net hp.)

- 12 months/2500 hours

Volvo Compact Electric Wheel Loaders

- 12 months/2500 hours

Volvo Compactors

- 12 months/2500 hours

Volvo Attachments

- 12 months

Volvo Parts

- 12 months/2500 hours from the original purchase date from an authorized Volvo CE Dealer

Volvo Remanufactured Components

- 12 months/2500 hours from purchase date or install date if a VCE dealer completed the install.

The Warranty Period commences immediately following the delivery of said Product to the Buyer who first puts said Product into use, or twelve (12) months from the shipping date (as listed in UCHP), whichever first occurs. The foregoing limited warranty shall include the labor cost to accomplish the repair or replacement of the defective part provided that the repair or replacement was performed by a Dealer.

The foregoing warranty does not cover: (i) any Product found to have been damaged by abuse, accident, other casualty or a failure to maintain or use the warranted Product in accordance with the applicable manuals or instructions (Buyer is required to use only original equipment manufacturer filters during the Warranty Period);

(ii) the labor costs to repair or replace defective Parts after the expiration of the Warranty Period of the Machine in which such Part is located; (iii) overtime labor premiums; (iv) costs and expenses associated with the transportation of Dealer's service personnel to and from the location of the warranted Product; (v) any parts, components, attachments or accessories for which Buyer receives a separate warranty by the manufacturer or producer thereof (in specified cases said warranty may be administered by Volvo CE); (vi) maintenance items or ground engaging parts that have achieved their normal service life.

INFORMATION SYSTEMS

The customer/machine owner is aware that the Volvo CE machine is equipped with one or more systems which may gather and store information about the Volvo CE machine (the "Information Systems"), including but not limited to information relating to machine condition and performance, and information relating to the operation of the machine (together, the "Machine Data"). The customer/machine owner agrees not to interfere with the operation of the Information Systems in any way.

Notwithstanding any termination or expiry of this agreement, the customer/machine owner acknowledges and agrees that Volvo CE may: (i) access the Information Systems at any time (including remote access); (ii) gather the Machine Data; (iii) store the Machine Data on AB Volvo Group systems; (iv) use the Machine Data in order to provide services to the customer/machine owner, as well as for its own internal and other reasonable business purposes; and (v) share the Machine Data within the AB Volvo Group and with selected third parties.

This standard warranty is conditional upon Volvo CE being able to gather and access the Machine Data at any time.

DISCLAIMER OF IMPLIED WARRANTIES AND LIMITATION OF REMEDIES

THE FOREGOING WARRANTY TO BUYER IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, AND THERE IS NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

REMEDIES AVAILABLE TO BUYER ARE LIMITED TO MAKING A CLAIM UNDER THE FOREGOING WARRANTY AND ARE EXCLUSIVE AND EXPRESSLY LIMITED TO OBTAINING THE PARTS AND LABOR IN ACCORDANCE WITH THE TERMS OF SAID WARRANTY.

Warranty – Disclaimers – Limitations

LIMITATIONS OF LIABILITY AND DAMAGES

Regardless of whether a claim against Volvo CE or Dealer is based on the foregoing warranty or is an action in contract, tort (negligence or strict liability) or otherwise, their respective liability for losses, damages or expenses of any kind arising from the design, manufacture, repair or sale of the Products is limited, unless otherwise prohibited by law, to an amount not exceeding the cost performing the obligations contained in the foregoing warranty, and in no event shall their respective or joint liability exceed the value of the Product or part thereof giving rise to such liability.

CONSEQUENTIAL AND SIMILAR DAMAGES NOT RECOVERABLE

Except for performing the obligations of the foregoing warranty in accordance with its terms, Volvo CE and Dealer shall have no liability for loss, damage, or expense, directly or indirectly, attributable to a loss of use of a Product, loss or damage to property other than the Product, loss or damage to the Product or any part thereof or any other economic or commercial loss, including, without limitation, lost profits or special or consequential damages (except liability for any type of consequential damages which by law may not be disclaimed). The parties intend that this prohibition against consequential and similar damages will survive and be effective even if the limitation of remedies in the foregoing sections is found to fail of its essential purpose under section 2-719 of the Uniform Commercial Code.

ALLOCATION OF RISK

The foregoing warranty disclaimers, limitations of liability and limitation of remedies are bargained allocations of risks among (i) the Customer who purchased the Product; (ii) the Dealer who sold the Product, and (iii) Volvo CE, which is a third party beneficiary of the contract of sale between the Customer and the Dealer. The Buyer of the Product accepts the foregoing warranty and the other bargained for allocations of risk as part of the agreed price for the purchase of the Product to which the foregoing warranty applies. Volvo CE is prepared to offer different warranties and other allocations of risk for other prices. However, any such change in the warranty or the allocation of risks must be confirmed in writing by Volvo CE.

STATUTE OF LIMITATIONS

Any action by a Buyer of a Product for breach of contract, for breach of warranty arising under, or for a cause of action arising out of the sale of a Product, whether based on contract, tort (negligence or strict liability) or otherwise, shall be commenced within one (1) year after the cause of action has accrued. Any such cause of action shall be deemed to have accrued at the earlier of (i) the discovery of the defect or breach, or (ii) the expiration of the applicable Warranty Period.



Company ID Number: 505216

To be accepted as a participant in E-Verify, you should only sign the Employer's Section of the signature page. If you have any questions, contact E-Verify at 888-464-4218.

Employer Cowin Equipment Co Inc

Tracy Womack

Name (Please Type or Print)

Title

Electronically Signed

02/15/2012

Signature

Date

Department of Homeland Security – Verification Division

USCIS Verification Division

Name (Please Type or Print)

Title

Electronically Signed

02/15/2012

Signature

Date

Information Required for the E-Verify Program

Information relating to your Company:

Company Name:	Cowin Equipment Co Inc
Company Facility Address:	2238 Pinson Valley Parkway
	Birmingham, AL 35217
Company Alternate Address:	PO Box 10624
	Birmingham, AL 35202
County or Parish:	JEFFERSON
Employer Identification Number:	630141942