

Volvo EC20D in detail.

| Engine | | | | |
|---|---------------------------------|----------------------|--|--|
| Engine | Volvo | D0.9A | | |
| Rated speed | r/s (r/min) | 40.3 (2,420) | | |
| Maximum Gross power, ISO 14396/SAE J1995 | kW hp | 12 16.1 | | |
| Max torque at | Nm / r/min | 51 / 2,000 | | |
| No. of cylinders | | 3 | | |
| Displacement | cm ³ in ³ | 898 54.8 | | |
| Bore | mm in | 72 2.83 | | |
| Stroke | mm in | 73.6 2.9 | | |
| Compression ratio | | 29 | | |
| Electrical system | | | | |
| Rated voltage | V | 12 | | |
| Batteries | V | 1 x 12 | | |
| Battery capacity | Ah | 64 | | |
| Alternator | V / Ah | 12 / 40 | | |
| Swing system | | | | |
| Max, slew speed | r/min | 9.5 | | |
| Max, slew torque | daN.m lb ft | 304 2,242 | | |
| Undercarriage | | | | |
| Bottom/top rollers per side | | 4 / 0 | | |
| Track tension | | by grease piston | | |
| Blade (width x height) | mm in | 1 356x 53.4x 248 9.8 | | |
| Digging performances | | | | |
| Standard bucket width (blade, W/O side cutter) | mm in | 500 20 | | |
| Standard bucket mass | kg lb | 48 106 | | |
| Standard bucket rated capacity | l ft ³ | 63 2.22 | | |
| Bucket rotation | deg | 199 | | |
| Bucket breakout force (ISO) | daN lbf | 1 827 4,107 | | |
| Short arm tearout force (ISO) | daN lbf | 1 229 2,763 | | |
| Long arm tearout force (ISO) | daN lbf | 1 033 2,322 | | |
| Weight and ground pressure | | | | |
| Operating weight according to ISO 6016 | kg lb | 1 950 4,300 | | |
| Ground pressure | kg/cm ² | 0.31 | | |
| | kPa psi | 30.4 4.4 | | |
| Transport weight (Heated cab, rubber tracks, short arm, standard direct-fit bucket, 10% fuel tank capacity) | kg lb | 1 890 4,167 | | |
| With canopy | kg lb | -78 - 172 | | |
| With long arm | kg lb | +4 + 8.8 | | |

| Hydraulic system | | | | | | |
|--|-------|-------|-----------|-----------------|--------|-----|
| Maximum system flow | l/min | gpm | 48 | 12.7 | | |
| Maximum flow for accessories | l/min | gpm | 43 | 11.3 | | |
| Maximum flow for 2nd accessory circuit (option) | l/min | gpm | 19 | 5 | | |
| Maximum operating pressure | Mpa | psi | 21 | 3,045 | | |
| | | bar | | 210 | | |
| Drive | | | | | | |
| Max, drawbar pull | daN | lbf | 1 440 | 3 | | |
| Max. travel speed (low / high) | km/h | mph | 2.5 / 4.7 | 1.55 / 2.9 | | |
| Gradeability | | deg | | 30 | | |
| Service refill capacities | | | | | | |
| Fuel tank | l | gal | 20 | 5.28 | | |
| Hydraulic system, total | l | gal | 21 | 5.55 | | |
| Hydraulic tank | l | gal | 15 | 3.96 | | |
| Engine oil | l | gal | 3.7 | 0.98 | | |
| Engine coolant | l | gal | 4 | 1 | | |
| Travel reduction unit | l | gal | 2 x 0.33 | 2 x 0.09 | | |
| Sound Level | | | | | | |
| Interior sound level according to ISO 6396 (LpA) | | dB(A) | | 78 | | |
| External sound level according to ISO 6395 and EU Noise Directive (2000/14/EC) and 474-1:2006 +A1:2009 (LwA) | | dB(A) | | 93 | | |
| Attachments | | | | | | |
| Type | Width | | Capacity | | Weight | |
| | mm | in | l | ft ³ | kg | lb |
| General purpose buckets | 250 | 10 | 28 | 1 | 32 | 71 |
| | 300 | 12 | 32 | 1.13 | 34 | 75 |
| | 400 | 16 | 47 | 1.66 | 41 | 90 |
| | 500 | 20 | 63 | 2.22 | 48 | 106 |
| | 600 | 24 | 78 | 2.75 | 53 | 117 |
| Fix-ditching buckets | 1 000 | 39 | 76 | 2.68 | 57 | 125 |
| 2 X 45° Tilttable-ditching buckets | 850 | 33 | 59 | 2.08 | 83 | 183 |

LIFTING CAPACITY EC20D

These capacities are given for a machine equipped with heated cab, rubber tracks and without a bucket or quick-coupler.

The handling capacity is 75% of the tipping load or 87% of the hydraulic limit.

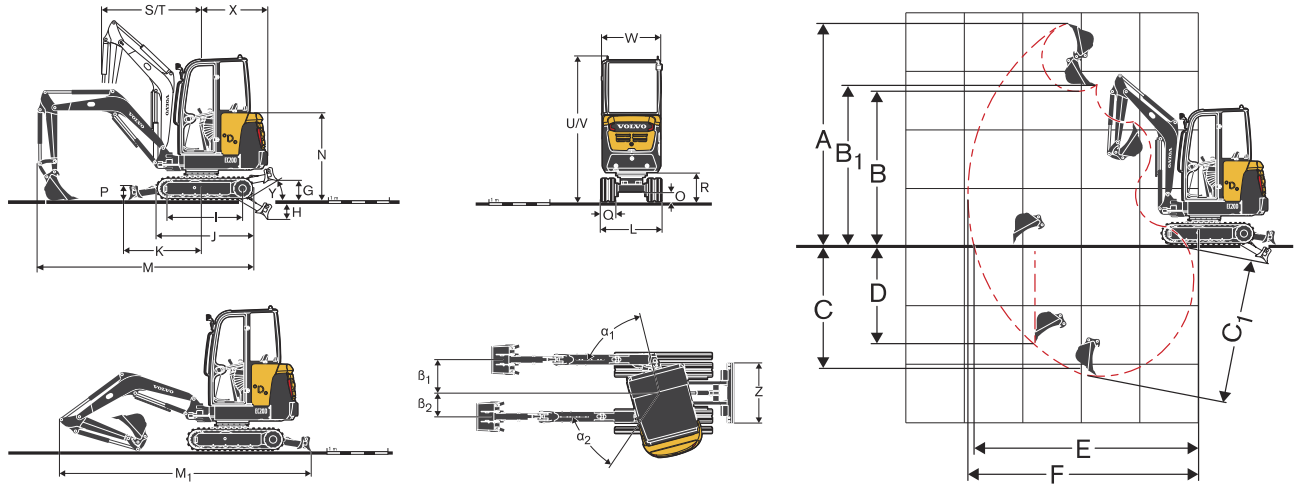
Caution: In accordance with standard EN 474-5, the machine must be equipped with safety valves and an overload indicator (available as options) to carry out handling operations.

| | Lifting point height (B) | | Lifting point radius (A) | | | | | | | | | | | | | | Max. | |
|--|--------------------------|-------|--------------------------|-------|-----|-------|---------------|-------|-----|-----|-----------|-------|-----|-----|------|-------|------|--|
| | | | 2.0 m, 78.7" | | | | 3.0 m, 118.1" | | | | Max reach | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | m | in | kg | lb | kg | lb | kg | lb | kg | lb | kg | lb | kg | lb | m | in | | |
| Arm: 1 050 mm, 41.3" + Dozer blade up | 2 | 78.7 | - | - | - | - | 295 | 650 | 330 | 728 | 259 | 571 | 289 | 637 | 3.25 | 128 | | |
| | 1 | 39.4 | 506 | 1,115 | 567 | 1,250 | 281 | 619 | 316 | 697 | 225 | 496 | 253 | 558 | 3.48 | 137 | | |
| | 0 | 0 | 475 | 1,047 | 536 | 1,182 | 270 | 595 | 304 | 670 | 232 | 551 | 262 | 578 | 3.35 | 131.9 | | |
| | -1 | -39.4 | 479 | 1,056 | 540 | 1,190 | | | | | 302 | 666 | 340 | 750 | 2.79 | 109.8 | | |
| Arm: 1 050 mm, 41.3" + Dozer blade down | 2 | 78.7 | - | - | - | - | 399* | 880 | 330 | 728 | 407* | 897 | 289 | 637 | 3.25 | 128 | | |
| | 1 | 39.4 | 776* | 1,711 | 567 | 1,250 | 476* | 1,049 | 316 | 697 | 431* | 950 | 253 | 558 | 3.48 | 137 | | |
| | 0 | 0 | 965* | 2,127 | 536 | 1,182 | 542* | 1,195 | 304 | 670 | 468* | 1,031 | 262 | 578 | 3.35 | 131.9 | | |
| | -1 | -39.4 | 851* | 1,876 | 540 | 1,190 | - | - | - | - | 514* | 1,133 | 340 | 750 | 2.79 | 109.8 | | |
| Arm: 1 350 mm, 53.1" + Dozer blade up | 2 | 78.7 | - | - | - | - | 298 | 657 | 332 | 732 | 223 | 492 | 250 | 551 | 3.55 | 139.8 | | |
| | 1 | 39.4 | 517 | 1,140 | 578 | 1,274 | 281 | 619 | 315 | 694 | 197 | 434 | 222 | 489 | 3.76 | 148 | | |
| | 0 | 0 | 471 | 1,038 | 532 | 1,173 | 265 | 584 | 299 | 659 | 201 | 443 | 227 | 500 | 3.64 | 143.3 | | |
| | -1 | -39.4 | 466 | 1,027 | 527 | 1,162 | 262 | 578 | 297 | 655 | 247 | 545 | 279 | 615 | 3.15 | 124 | | |
| Arm: 1 350 mm, 53.1" + Dozer blade down | 2 | 78.7 | - | - | - | - | 334* | 736 | 332 | 732 | 354* | 780 | 250 | 551 | 3.55 | 139.8 | | |
| | 1 | 39.4 | 648* | 1,429 | 578 | 1,274 | 427* | 941 | 315 | 694 | 379* | 836 | 222 | 489 | 3.76 | 148 | | |
| | 0 | 0 | 931* | 2,052 | 532 | 1,173 | 520* | 1,146 | 299 | 659 | 413* | 910 | 227 | 500 | 3.64 | 143.3 | | |
| | -1 | -39.4 | 910* | 2,006 | 527 | 1,162 | 503* | 1,109 | 297 | 655 | 459* | 1,012 | 279 | 615 | 3.15 | 124 | | |

*hydraulic limit

Specifications.

DIMENSIONS EC20D



| Description | | Unit | | EC20D | | | |
|----------------|--|--------|----|-----------------|-------|-----------------|-------|
| Arm length | | mm, in | | 1 050 mm, 41.3" | | 1 350 mm, 53.1" | |
| A | Maximum cutting height | mm | in | 3 807 | 149.9 | 3 982 | 156.8 |
| B | Maximum dumping height | mm | in | 2 635 | 103.7 | 2 810 | 110.6 |
| B ₁ | Maximum bucket clearance | mm | in | 2 746 | 108.1 | 2 920 | 115 |
| C | Digging depth | mm | in | 2 257 | 88.9 | 2 557 | 100.7 |
| C ₁ | Maximum digging depth | mm | in | 2 482 | 97.7 | 2 781 | 109.5 |
| D | Maximum vertical wall digging depth | mm | in | 1 692 | 66.6 | 1 978 | 77.9 |
| E | Maximum digging reach at ground level | mm | in | 3 971 | 156.3 | 4 261 | 167.8 |
| F | Maximum digging reach | mm | in | 4 080 | 160.6 | 4 362 | 171.7 |
| G | Highest position dozer blade | mm | in | | 326 | | 12.8 |
| H | Lowest position dozer blade | mm | in | | 311 | | 12.2 |
| I | Tumbler length | mm | in | | 1 240 | | 48.8 |
| J | Track length | mm | in | | 1 620 | | 63.8 |
| K | Dozer blade, maximum reach at ground level | mm | in | | 1 215 | | 47.8 |
| L | Overall track width | min | mm | in | 1 014 | | 39.9 |
| | | max | mm | in | 1 356 | | 53.4 |
| M | Overall length | mm | in | | 3 746 | | 147.5 |
| M ₁ | Transport length | mm | in | 2 850 | 112.2 | 2 880 | 113.4 |
| N | Overall height of engine hood | mm | in | | 1 423 | | 56 |
| O | Minimum ground clearance | mm | in | | 159 | | 6.3 |
| P | Dozer blade height | mm | in | | 248 | | 9.8 |
| Q | Shoe width | mm | in | | 250 | | 9.8 |
| R | Ground clearance to superstructure | mm | in | | 481 | | 18.9 |
| S | Front slew radius | mm | in | | 1 683 | | 66.3 |
| T | Front slew radius with maximum offset | mm | in | | 1 383 | | 54.5 |
| U | Overall height (canopy) | mm | in | | 2 318 | | 91.3 |
| V | Overall height (cab) | mm | in | | 2 395 | | 94.3 |
| W | Overall width of superstructure | mm | in | | 993 | | 39.1 |
| X | Tail slew radius | mm | in | | 1 090 | | 42.9 |
| Y | Angle of approach | deg | | | 28 | | |
| Z | Dozer blade width | min | mm | in | 1 014 | | 39.9 |
| | | max | mm | in | 1 356 | | 53.4 |
| α ₁ | Maximum boom swing angle to the left | deg | | | 75 | | |
| β ₁ | Maximum boom offset to the right | mm | in | | 547 | | 21.5 |
| α ₂ | Maximum boom swing angle to the right | deg | | | 55 | | |
| β ₂ | Maximum boom offset to the left | mm | in | | 392 | | 15.4 |

Equipment.

STANDARD EQUIPMENT

Engine

| |
|--|
| Low emission, water-cooled, Volvo 3-cylinder diesel engine, meeting EPA Tier 4 environmental regulations |
| Starter motor protected against ignition when engine is already running |
| Dry-type single element air filter |
| Water separator |
| Translucent fuel filter |

Electric/Electronic control system

| |
|--|
| Maintenance free battery |
| IP67 protected electrical system and high quality connectors |
| Removable breaker switch |
| Two working lights on cab version |
| Working light on the canopy frame |
| 12V power socket in cab / canopy |

Hydraulic system

| |
|--|
| Flow-sharing main control valve |
| Boom cylinder cushioning at end stroke (up) |
| Patented filtering and filling element |
| Large tiltable oil cooler |
| Double-acting hydraulic circuit for accessories |
| On digging unit, the hydraulic hoses are routed inside the boom for increased protection |
| Plastic tank with drain plug |

Swing system

| |
|---|
| Radial piston hydraulic motor with integrated shockless valve |
| Automatic multi-disc spring applied hydraulic released slew brake |
| Centralized and remote lubrication of crown wheel & ball bearing |

Drivetrain

| |
|--|
| Axial piston hydraulic motors equipped with an epicyclic reduction gears |
| Inner flange bottom rollers lubricated for life |
| Grease tensioning wheel lubricated for life |

Undercarriage and dozer blade

| |
|--|
| Box welded fabricated frame |
| 4 Integrated tie-down points |
| Sturdy removeable protecting covers for track motors and slew system |
| Weld-on edge on dozer blade |

Digging Equipment

| |
|---|
| Monobloc box welded fabricated boom with integrated lifting eye |
| Boom cylinder protection |
| Monobloc box welded arms with casted ends |
| Long-life steel bushings |
| Hardened, pre-lubricated and corrosion resistant pins |
| 50H hours greasing intervals |

Canopy

| |
|---|
| FOPS level 1 (Falling Objects Protective Structure) |
| TOPS (Tip-Over Protective Structure) |
| ROPS (Roll-Over Protective Structure) |
| Cushioned operator station |
| Toolbox with integrated storage for operator's manual and lockable door |
| Large and roomy uncluttered floor |
| Left hand-rail access |
| Seat-belt with warning indicator |
| Right rear-view mirror |
| 2 Integrated lifting points |

Cab

| |
|--|
| FOPS level 1 (Falling Objects Protective Structure) |
| TOPS (Tip-Over Protective Structure) |
| ROPS (Roll-Over Protective Structure) |
| OPG1 on top (Operator Protective Guard) |
| Cushioned operator station |
| Large door access |
| Large and roomy uncluttered floor |
| Flat toughened glass |
| Gas-strut assisted front window opening |
| Front windscreen wiper and washer nozzle |
| Right hand side sliding window |
| Heating systems with in-cab adjustment of temperature and air flow level |
| Multiple adjustable air vents |
| Filtered air inlet |
| Toolbox with integrated storage for operator's manual and lockable door |
| Seat-belt with warning indicator |
| Right rear-view mirror |
| 2 Integrated lifting points |

Machine controls

| |
|---|
| Finger tip control for boom offset |
| Finger tip control for auxiliary circuit |
| Breaker toggle switch on right joystick |
| Automatic locking device for pilot controls and travel levers when the left console is raised |
| Engine starting safety device: the left console must be raised to operate the starter |
| Pressure accumulator to lower the equipment on the ground if the engine is switched off |
| Two speed travel switch on the dozer blade lever |

Instrumentation and monitoring

| |
|---|
| Permanent digital hour meter |
| Warning lights for hydraulic filter and air filter restriction |
| Water temperature and fuel level gauges |
| Several warning lights, coupled to an audible signal, in the event of malfunction (overheating, drop in oil pressure, low battery voltage...) |

Official approval

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|---|
| Machine conforming to European directive 2006/42/EC |
| Noise emissions in the environment conforming to directive 2000/14/EC |
| Hand Arm Vibrations - Whole Body Vibrations compliant with directive 2002/44/EC |
| Electromagnetic compatibility (EMC) conforming to European directive 2004/108/EC and its amendments |
| Object handling device conforming to EN 474-1 and EN 474-5 standards |
| FOPS 1 conforming to ISO 3449 standard |
| ROPS conforming to ISO 3471-1 and / SAE J1040 standards |
| TOPS conforming to ISO 12117 and EN 13531 standards |
| OPG 1 conforming to ISO 10262 standard (when equipped) |

STANDARD AND OPTIONAL EQUIPMENT

- = Standard
- ° = Option

Operator environment

| | |
|--|---|
| Canopy | ° |
| Heated cab | ° |
| Vinyl seat, low-back seat and 2" standard seat belt | ° |
| Vinyl seat with mechanical suspension, low-back seat and 2" standard seat belt | ° |
| Vinyl seat with mechanical suspension, extended-back seat and 2" retractable seat belt | ° |
| Vinyl seat with mechanical suspension, extended-back seat and 3" retractable seat belt | ° |
| Fabric seat with mechanical suspension, extended- back seat and 2" retractable seat belt | ° |
| Fabric seat with mechanical suspension, extended-back seat and 3" retractable seat belt | ° |
| ISO / SAE control pattern change | ° |
| Travel alarm | ° |
| Radio preparation (Antenna, wire harness) | • |
| Radio, CD, MP3 | ° |
| Anti-theft device | ° |
| Front guard OPG1 | ° |

Machine exterior

| | |
|---|---|
| Left rearview mirror | ° |
| One protected worklight on the boom | ° |
| One rear worklight | ° |
| Rotating beacon | ° |
| Several level of customization (RAL specifications) to match with your corporate identity | ° |

STANDARD AND OPTIONAL EQUIPMENT

- = Standard
- = Option

Digging equipment

| | |
|-----------|---|
| Short arm | ◦ |
| Long arm | ◦ |

Undercarriage equipment

| | |
|-----------------------------|---|
| Automatic two speed travel | • |
| 250 mm / 9.8" rubber tracks | • |
| Dozer blade | • |

Hydraulic equipment

| | |
|---|---|
| Variable displacement piston pump | • |
| Finger tip control for boom offset | • |
| Finger tip control for accessories | • |
| Proportional controls for boom offset and accessories | • |
| Maximum accessory flow adjustment | • |
| Relief valve for auxiliaries | ◦ |
| Breaker / Shear valve | ◦ |
| Hydraulic drain for accessories | ◦ |
| Breaker and clamshell auxiliaries | ◦ |
| Second accessory circuit | ◦ |
| Kit 2 flat face hydraulic couplings | ◦ |
| Kit 4 flat face hydraulic quick couplings | ◦ |
| Boom & arm safety lifting valves | ◦ |
| Safety lifting valves on boom, arm & dozer blade | ◦ |
| Safety valve certification | ◦ |
| Mineral hydraulic oil VG46 | ◦ |
| Bio hydraulic oil VG46 | ◦ |
| Mineral hydraulic oil VG68 | ◦ |
| Mineral hydraulic oil VG32 | ◦ |
| Bio hydraulic oil VG32 | ◦ |

- = Standard
- = Option

Engine

| | |
|-----------------------|---|
| Dual stage air filter | ◦ |
| Auto idling system | ◦ |
| Auto engine shutdown | ◦ |

Service and maintenance

| | |
|----------|---|
| Tool kit | ◦ |
|----------|---|

Telematics

| | |
|------------|---|
| Care Track | ◦ |
|------------|---|

Attachments

| | |
|---|---|
| Volvo quick coupler mechanical (pin-on) | ◦ |
| General purpose buckets | ◦ |
| Fix ditching buckets | ◦ |
| Tiltable ditching buckets | ◦ |

Above mentioned features and options might be available independently or through packs.

Selection of Volvo optional equipment

Auto idle



Auto engine shutdown

Breaker / shear valve



Second auxiliary circuit (X3)



OPG1 guards



Specific colour machine



Not all products are available in all markets. Under our policy of continuous improvement, we reserve the right to change specifications and design without prior notice. The illustrations do not necessarily show the standard version of the machine.