



Volvo Construction Equipment

# ECR145E

Volvo Excavators 14.4-16.7 t 122 hp





# SHORT SWING RADIUS



An optimized compact design offers a short swing radius which allows safe operation in confined spaces. Perfect for maneuvering in and out of narrow areas with ease while increasing your uptime and productivity.



# Volvo ECR145E in detail

## Engine

The latest generation, Volvo engine Tier 4f / Stage IV 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.

## ECR145E

|                            |             |             |
|----------------------------|-------------|-------------|
| Engine                     | Volvo       | D4J         |
| Max power at               | r/s / r/min | 33 / 2 000  |
| Net, ISO 9249/SAE J1349    | kW / hp     | 89 / 121    |
| Gross, ISO 14396/SAE J1995 | kW / hp     | 90 / 122    |
| Max torque at              | Nm/ r/min   | 566 / 1 500 |
| No. of cylinders           |             | 4           |
| Displacement               | l           | 4.0         |
| Bore                       | mm          | 101         |
| Stroke                     | mm          | 126         |

## ECR235E

|                            |             |             |
|----------------------------|-------------|-------------|
| Engine                     | Volvo       | D6J         |
| Max power at               | r/s / r/min | 30 / 1 800  |
| Net, ISO 9249/SAE J1349    | kW / hp     | 128 / 174   |
| Gross, ISO 14396/SAE J1995 | kW / hp     | 129 / 175   |
| Max torque at              | Nm/ r/min   | 850 / 1 350 |
| No. of cylinders           |             | 6           |
| Displacement               | l           | 5.7         |
| Bore                       | mm          | 98          |
| Stroke                     | mm          | 126         |

## Electrical system ECR145E

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

|             |        |              |
|-------------|--------|--------------|
| Voltage     | V      | 24           |
| Batteries   | V / Ah | 2 x 12 / 100 |
| Alternator  | V / Ah | 28 / 110     |
| Start motor | V / kW | 24 x 5.5     |

## Swing system ECR145E

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 | 12.7 |
| Max. slew torque | kNm   | 41.9 |

## Drive ECR145E

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   | 119       |
| Max. travel speed | km/h | 3.0 / 5.5 |
| Gradeability      | °    | 35        |

## Undercarriage ECR145E

Robust X-shaped frame with greased and sealed track chains as standard.

|                                |    |                 |
|--------------------------------|----|-----------------|
| Track shoe                     |    | 2 x 46          |
| Link pitch                     | mm | 171             |
| Shoe width, triple grouser     | mm | 500 / 600 / 750 |
| Shoe width, triple grouser, HD | mm | 600 / 700       |
| Shoe width, double grouser     | mm | -               |
| Shoe width, rubber grouser     | mm | 500             |
| Bottom rollers                 |    | 2 x 7           |
| Top rollers                    |    | 2 x 1           |

## Hydraulic system ECR145E

The hydraulics system, combined with the fully electronic control system and advanced ECO mode, has been optimized to work in harmony with engine to match the engine power, reduce power loss and improve controllability and response time.

**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.

**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.

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

**Main pump:** Type 2 x variable displacement axial piston pumps

|              |       |         |
|--------------|-------|---------|
| Maximum flow | l/min | 2 x 124 |
|--------------|-------|---------|

**Pilot pump:** Type Gear pump

|              |       |        |
|--------------|-------|--------|
| Maximum flow | l/min | 1 x 20 |
|--------------|-------|--------|

**Relief valve setting:**

|                |     |             |
|----------------|-----|-------------|
| Implement      | MPa | 32.4 / 34.3 |
| Travel circuit | MPa | 34.3        |
| Slew circuit   | MPa | 26.5        |
| Pilot circuit  | MPa | 3.9         |

## Hydraulic motors

**Travel:** Variable displacement axial piston motor with mechanical brake

**Slew:** Fixed displacement axial piston motor with mechanical brake

## Hydraulic cylinders ECR145E

|                          |        |             |
|--------------------------|--------|-------------|
| Mono boom                |        | 2           |
| Bore x Stroke            | ø x mm | 105 x 1 055 |
| 1st boom of 2 piece boom |        | 2           |
| Bore x Stroke            | ø x mm | 110 x 980   |
| 2nd boom of 2 piece boom |        | 1           |
| Bore x Stroke            | ø x mm | 160 x 765   |
| Arm                      |        | 1           |
| Bore x Stroke            | ø x mm | 120 x 1 028 |
| Bucket                   |        | 1           |
| Bore x Stroke            | ø x mm | 100 x 865   |
| Dozer blade              |        | 2           |
| Bore x Stroke            | ø x mm | 130 x 270   |

## Service refill capacities ECR145E

|                         |   |         |
|-------------------------|---|---------|
| Fuel tank               | l | 200     |
| Hydraulic system, total | l | 200     |
| Hydraulic tank          | l | 59      |
| AdBlue tank             | l | 15.5    |
| Engine oil              | l | 15.5    |
| Engine coolant          | l | 26      |
| Swing reduction unit    | l | 3.9     |
| Travel reduction unit   | l | 2 x 2.2 |

## 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 14 vents.

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

## Sound Level ECR145E

|  |       |     |
|--|-------|-----|
| Sound level in cab according to ISO 6396                       |       |     |
| LpA (standard)   | dB(A) | 71  |
| LpA (tropical)   | dB(A) | 72  |
| External sound level according to ISO 6395, EU Noise Directive |       |     |
| LwA (standard)   | dB(A) | 100 |
| LwA (tropical)   | dB(A) | 101 |

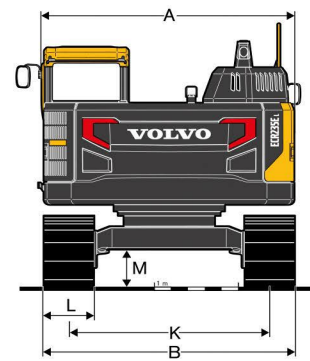
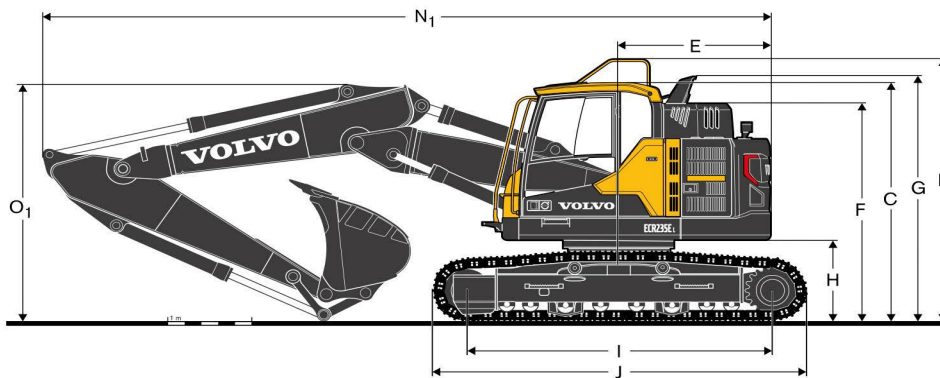
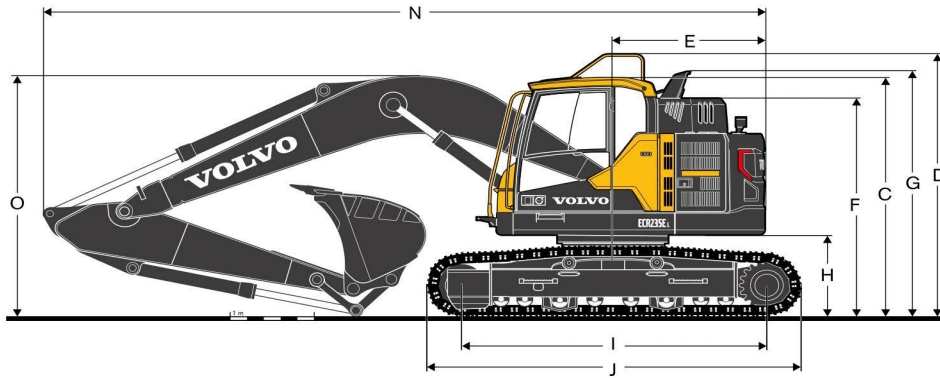


# Specifications

## MACHINE WEIGHTS AND GROUND PRESSURE

| Description                  | Shoe width | Operating weight   | Ground pressure | Overall width | Operating weight  | Ground pressure | Overall width |
|------------------------------|------------|--|-----------------|---------------|---|-----------------|---------------|
|                              | mm         | kg   | kPa             | mm            | kg  | kPa             | mm            |
|                              |            | <b>ECR145EL</b>  |                 |               |   |                 |               |
|                              |            | <b>4.6m boom, 2.5m arm,<br/>443kg / 660l bucket,<br/>3 200kg counterweight</b> |                 |               | <b>4.72m 2-piece boom, 2.5m arm,<br/>443kg / 660l bucket,<br/>3 200kg counterweight</b> |                 |               |
| <b>Triple grouser</b>        | 500        | 14 920   | 44.1            | 2 490         | 15 310  | 45.1            | 2 490         |
|                              | 600        | 15 120   | 37.3            | 2 590         | 15 510  | 38.2            | 2 590         |
|                              | 750        | 15 500   | 30.4            | 2 740         | 15 890  | 31.4            | 2 740         |
| <b>Triple grouser, HD</b>    | 600        | 15 185   | 37.3            | 2 590         | 15 570  | 38.2            | 2 590         |
|                              | 700        | 15 400   | 32.4            | 2 690         | 15 785  | 33.3            | 2 690         |
| <b>Rubber grouser</b>        | 500        | 14 955   | 44.1            | 2 490         | 15 340  | 46.1            | 2 490         |
| <b>Add on rubber grouser</b> | 500        | 15 370   | 46.1            | 2 490         | 15 760  | 47.1            | 2 490         |

# Specifications



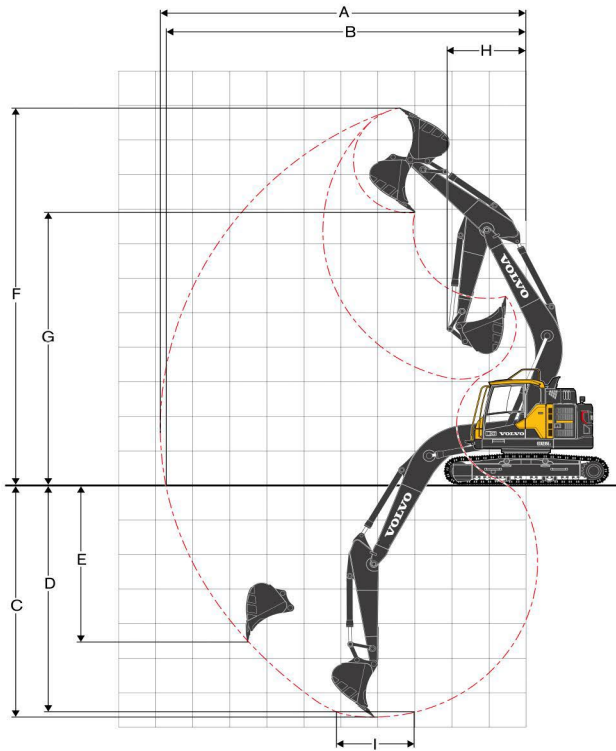
| Description                             | Unit     | ECR145EL        |
|---|----------|-----------------|
| <b>Boom</b>                             | <b>m</b> | <b>4.6 mono</b> |
| <b>Arm</b>                              | <b>m</b> | <b>2.5</b>      |
| A Overall width of upper structure      | mm       | 2 490           |
| B Overall width                         | mm       | 2 690           |
| C Overall height of cab                 | mm       | 2 895           |
| D Overall height of guardrail(unfolded) | mm       | 3 075           |
| D' Overall height of guardrail(folded)  | mm       | -               |
| E Tail swing radius                     | mm       | 1 494           |
| F Overall height of engine hood         | mm       | 2 545           |
| G Overall height of diffuser            | mm       | 2 775           |
| H Counterweight clearance *             | mm       | 900             |
| I Tumbler length                        | mm       | 3 040           |
| J Track length                          | mm       | 3 750           |
| K Track gauge                           | mm       | 1 990           |
| L Shoe width                            | mm       | 500             |
| M Min. ground clearance *               | mm       | 430             |
| N Overall length                        | mm       | 7 405           |
| N <sub>1</sub> Overall length           | mm       | 7 470           |
| O Overall height of boom                | mm       | 2 900           |
| O <sub>1</sub> Overall height of boom   | mm       | 2 910           |

\* Without shoe grouser.

1 2-piece boom

# Specifications

## WORKING RANGES



| Description                               | Unit        | ECR145E         |         |
|---|-------------|-----------------|---------|
| <b>Boom</b>                               | <b>m</b>    | <b>4.6 mono</b> |         |
| <b>Arm</b>                                | <b>m</b>    | <b>2.5</b>      |         |
| A Max. digging reach                      | mm          | 8 360           |         |
| B Max. digging reach on ground            | mm          | 8 215           |         |
| C Max. digging depth                      | mm          | 5 530           |         |
| D Max. digging depth (l = 2.44m level)    | mm          | 5 310           |         |
| E Max. vertical wall digging depth        | mm          | 4 325           |         |
| F Max. cutting height                     | mm          | 9 415           |         |
| G Max. dumping height                     | mm          | 6 875           |         |
| H Min. front swing radius                 | mm          | 2 130           |         |
| <b>DIGGING FORCES WITH DIRECT FIT BUC</b> |             |                 |         |
| Bucket radius                             | mm          | 1 274           |         |
| Breakout force - bucket                   | Normal      | SAE J1179       | kN 80.5 |
|   | Power boost | SAE J1179       | kN 85.4 |
|   | Normal      | ISO 6015        | kN 91.1 |
|   | Power boost | ISO 6015        | kN 96.6 |
| Tearout force - dipper arm                | Normal      | SAE J1179       | kN 62.1 |
|   | Power boost | SAE J1179       | kN 65.8 |
|   | Normal      | ISO 6015        | kN 63.5 |
|   | Power boost | ISO 6015        | kN 67.3 |
| Rotation angle, bucket                    | °           | 175             |         |



# Specifications

## LIFTING CAPACITY ECR145EL

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    |           | 3.0 m    |           | 4.5 m    |           | 6.0 m    |           | 7.5 m    |           | Max. reach |           |     |
|---------------|--------------------------------------|----|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|------------|-----------|-----|
|               |                                      |    | Along UC | Across UC | Along UC | Across UC | Along UC | Across UC | Along UC | Across UC | Along UC | Across UC | Along UC   | Across UC | m   |
| Boom : 4.6m   | 7.5m                                 | kg | -        | -         | *4 380   | *4 380    | -        | -         | -        | -         | -        | -         | *4 270     | *4 270    | 3.7 |
| Arm : 2.5m    | 6.0m                                 | kg | -        | -         | -        | -         | *3 750   | *3 750    | -        | -         | -        | -         | *3 440     | 2 810     | 5.5 |
| Shoe : 500mm  | 4.5m                                 | kg | -        | -         | *4 420   | *4 420    | *4 000   | 3 800     | *3 710   | 2 400     | -        | -         | *3 220     | 2 140     | 6.4 |
| CWT : 3 200kg | 3.0m                                 | kg | -        | -         | *6 780   | 6 770     | *4 770   | 3 610     | 3 750    | 2 330     | -        | -         | 2 980      | 1 850     | 6.9 |
|               | 1.5m                                 | kg | -        | -         | -        | -         | *5 630   | 3 380     | 3 640    | 2 240     | -        | -         | 2 840      | 1 750     | 7.1 |
|               | 0.0m                                 | kg | -        | -         | *6 130   | 5 840     | 5 480    | 3 220     | 3 560    | 2 160     | -        | -         | 2 910      | 1 780     | 6.9 |
|               | -1.5m                                | kg | *4 770   | *4 770    | *8 600   | 5 820     | 5 420    | 3 170     | 3 530    | 2 140     | -        | -         | 3 260      | 1 980     | 6.4 |
|               | -3.0m                                | kg | *9 220   | *9 220    | *6 790   | 5 920     | *4 680   | 3 210     | -        | -         | -        | -         | *3 560     | 2 550     | 5.3 |

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 EQUIPMENT

|  | ECR145E |
|--|---------|
| <b>Engine</b>  |         |
| Turbocharged, 4 stroke diesel engine with water cooling, direct injection and charged air cooler that meets Tier 4f EU (Stage IV) requirements | •       |
| Air filter with indicator  | •       |
| Air intake heater  | •       |
| Electric engine shut-off   | •       |
| Fuel filter and water separator  | •       |
| Standard cooling system  | •       |
| Fuel filler pump: 30 l/min with auto stop  | •       |
| Alternator, 110 A  | •       |
| <b>Electric/Electronic control system</b>  |         |
| Contronics   |         |
| Advanced mode control system   | •       |
| Self-diagnostic system   | •       |
| Machine status indication  | •       |
| GSM/GPS Caretrack and 3yr-Caretrack subscription   | •       |
| Engine speed sensing power control   | •       |
| Automatic idling system  | •       |
| One-touch power boost  | •       |
| Safety stop/start function   | •       |
| Adjustable LCD color monitor   | •       |
| Master electrical disconnect switch  | •       |
| Engine restart prevention circuit  | •       |
| High-capacity halogen or LED lights:   |         |
| Halogen  |         |
| Frame-mounted: 1, Boom-mounted: 2  | •       |
| LED  |         |
| Frame-mounted: 1, Boom-mounted: 2  | •       |
| Batteries, 2 x 12 V / 100 Ah   | •       |
| Batteries, 2 x 12 V / 150 Ah   | •       |
| Start motor, 24 V / 5.5 kW   | •       |
| <b>Hydraulic system</b>  |         |
| Boom hose rupture valve with overload warning device   | •       |
| Arm hose rupture valve   | •       |
| Automatic sensing hydraulic system   |         |
| Summation system   | •       |
| Boom priority  | •       |
| Arm priority   | •       |
| ECO mode fuel saving technology  | •       |
| Boom, arm and bucket regeneration valves   | •       |
| Swing anti-rebound valves  | •       |
| Boom and arm holding valves  | •       |
| Multi-stage filtering system   | •       |
| Boom cylinders (x2)  | •       |
| Cylinder cushioning  | •       |
| Cylinder contamination seals   | •       |
| Auxiliary hydraulic valve  | •       |
| Automatic two-speed travel motors  | •       |
| Hydraulic oil, longlife oil 46   | •       |
| <b>Frame</b>   |         |
| Access way with handrail   | •       |
| Tool storage area  | •       |
| Punched metal anti-slip plates   | •       |
| Under cover (heavy duty)   | •       |
| 3 200kg counterweight  | •       |
| 6 200kg counterweight  |         |

|   | ECR145E |
|---|---------|
| <b>Cab and interior</b>   |         |
| ROPS (ISO12117-2) certified cab with openable roof hatch          | •       |
| Silicon oil and rubber mounts with spring                         | •       |
| Control lock out lever  | •       |
| Travel pedals and hand levers                                     | •       |
| Adjustable operator seat with heater and joystick control console | •       |
| Control joysticks with 4 switches each                            | •       |
| Heater & air-conditioner, automatic                               | •       |
| Flexible antenna  | •       |
| Radio with AUX, USB Jack and Bluetooth                            | •       |
| Cab, all-weather sound suppressed, includes:                      |         |
| Cup holders   | •       |
| Door locks  | •       |
| Tinted glass  | •       |
| Floor mat   | •       |
| Horn  | •       |
| Large storage area  | •       |
| Pull-up type front window   | •       |
| Removable lower windshield  | •       |
| Seat belt   | •       |
| Safety glass  | •       |
| Sun screens, front, roof, rear                                    | •       |
| Windshield wiper with intermittent feature                        | •       |
| Rear view camera  | •       |
| Master key  | •       |
| <b>Undercarriage</b>  |         |
| Under cover   | •       |
| Hydraulic track adjusters   | •       |
| Greased and sealed track link                                     | •       |
| Track Guard   | •       |
| <b>Digging equipment</b>  |         |
| 4.6m mono boom  | •       |
| 5.7m mono boom  |         |
| 2.5m arm  | •       |
| 2.9m arm  |         |
| Linkage   | •       |
| Manual centralized lubrication                                    | •       |
| <b>Service</b>  |         |
| Tool kit, daily maintenance                                       | •       |

## OPTIONAL EQUIPMENT

|                                     | ECR145E |
|-------------------------------------|---------|
| <b>Engine</b>                       |         |
| Block heater: 120 V or 240 V        | •       |
| Diesel coolant heater, 5 kW         | •       |
| Water separator with heater         | •       |
| Auto engine shutdown                | •       |
| Tropical cooling system             | •       |
| Reversible cooling fan              | •       |
| <b>Electric</b>                     |         |
| Extra work lights (Halogen or LED): |         |
| Cab-mounted 2 (front 1, rear 1)     | •       |
| Counterweight-mounted 1             | •       |
| Travel alarm                        | •       |
| Anti-theft system                   | •       |
| Rotating warning beacon             | •       |





**OPTIONAL EQUIPMENT**

|  | ECR145E |
|--|---------|
| <b>Hydraulic system</b>                                      |         |
| Boom float function with HRV                                 | •       |
| Boom float function without HRV                              | •       |
| Pilot control pattern change                                 | •       |
| Hydraulic piping:  |         |
| Work tool management system (up to 20 programmable memories) | •       |
| Breaker & shear, 1 or 2 pump flow                            | •       |
| Slope & rotator (40lpm or 60lpm)                             | •       |
| Extra for slope & rotator                                    | •       |
| Grapple  | •       |
| Oil leak (drain) line  | •       |
| Quick coupler  | •       |
| Breaker & shear pressure pre-setting                         | •       |
| Volvo hydraulic quick coupler S1 with hook / S1 without hook |         |
| Volvo hydraulic quick coupler S6 with hook / S6 without hook | •       |
| Volvo hydraulic quick coupler Universal U22                  |         |
| Volvo hydraulic quick coupler Universal U14                  | •       |
| Hydraulic oil, biodegradable 46                              | •       |
| Hydraulic oil, ISO VG 46, 68                                 | •       |
| Hydraulic oil, longlife oil 32, 68                           | •       |
| <b>Cab and interior</b>                                      |         |
| ROPS (ISO12117-2) certified cab with fixed hatch             | •       |
| Fabric seat without heater                                   | •       |
| Fabric seat with heater and air suspension                   | •       |
| Control joysticks with semi-long                             | •       |

|  | ECR145E |
|--|---------|
| <b>Cab and interior</b>                                |         |
| Control joysticks with 3 switch & 1 propotional        | •       |
| Straight travel pedal                                  | •       |
| Cab-mounted falling object guard (FOG)                 | •       |
| Cab-mounted falling object protective structure (FOPS) | •       |
| Anti-vandalism kit                                     | •       |
| Safety net for front window                            | •       |
| Side view camera                                       | •       |
| Smoker kit (ashtray and lighter)                       | •       |
| Sunlight protection, roof (steel)                      | •       |
| Rain shield  | •       |
| Specific key   | •       |
| <b>Undercarriage</b>                                   |         |
| Dozer blade  | •       |
| 500/600/600 HD/700 HD/750mm shoe with triple grousers  | •       |
| 500mm shoe with rubber grousers                        | •       |
| 600/600 HD/700/800/900mm shoe with triple grousers     |         |
| 700mm shoe with double grousers                        |         |
| 600mm shoe with rubber grousers                        |         |
| Full track guard                                       |         |
| <b>Digging equipment</b>                               |         |
| 4.72 m 2-piece boom                                    | •       |
| 5.57 m 2-piece boom                                    |         |
| 2.1 m, 3.0 m arm                                       | •       |
| 2.5 m arm  |         |
| Linkage with lifting eye                               | •       |
| <b>Service</b>   |         |
| Tool kit, compact                                      | •       |