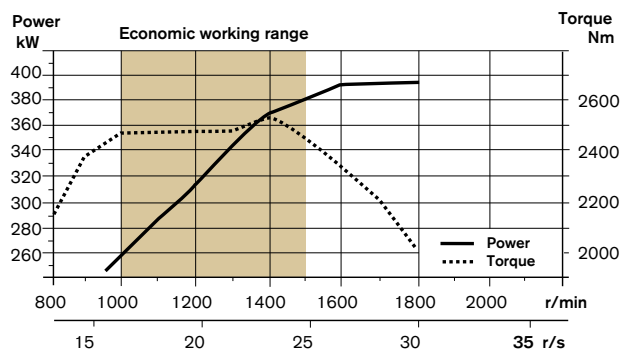


Volvo L350F in detail

Engine

Engine: V-ACT Stage III A/Tier 3, 16 liter, 6-cylinder in-line turbo-charged, air-to-air intercooler diesel engine with double rockers and Internal Exhaust Gas Recirculation (I-EGR). One-piece cylinder head with four valves per cylinder and one overhead camshaft. The engine has wet replaceable cylinder liners and replaceable valve guides and valve seats. Mechanically actuated electronically controlled unit injectors. The throttle application is transmitted electrically from the throttle pedal. **Air cleaning:** Three stage cyclone pre-cleaner - primary filter - secondary filter. **Cooling system:** Hydrostatic, electronically controlled fan and intercooler of the air-to-air type.

Engine	Volvo	Volvo D16
Max power at	r/s / r/min	28.3-30.0 / 1 700-1 800
SAE J1995 gross	kW / hp	397 / 540
ISO 9249, SAE J1349 net	kW / hp	394 / 535
Max torque at	r/s / r/min	23.3 / 1 400
SAE J1995 gross	Nm	2 550
ISO 9249, SAE J1349 net	Nm	2 532
Economic working range	r/min	1 000-1 500
Displacement	l	16.1



Drivetrain

Torque converter: 3-element, 1-stage, 1-phase torque converter with Lock-Up function and free-wheel stator. **Transmission:** Planetary Power Shift transmission with full modulated electronically controlled shifting of 4 gears forward and reverse. Volvo Automatic Power Shift (APS) gear shifting system with fully automatic shifting 1-4 (Lock-Up in 3-4) and mode selector with 4 different gear shifting programs, including AUTO mode. **Axes:** Fully floating axle shafts with planetary-type heavy-duty hub reductions. Fixed front axle and oscillating rear axle. **Optional:** Limited Slip differentials in front and rear axle

Transmission	Volvo HTE 400
Torque multiplication, stall ratio	2.65
Maximum speed, forward/reverse	
1st gear	km/h 6.8 / 7.5
2nd gear	km/h 12.1 / 13.2
3rd gear	km/h 21.0 / 22.9
4th gear	km/h 35.7 / 38.2
Measured with tires	35/65 R33 L4
Front axle/rear axle	Volvo AHW 90/AHW 90
Rear axle oscillation	±12°
Ground clearance at 12° osc.	mm 550

Electrical system

Central warning system: Contronic electrical system with central warning light and buzzer for following functions: - Serious engine malfunction - Low steering system pressure - Overspeed warning engine - Interruption in communication (computer error) Central warning light and buzzer with gear engaged for the following functions: - Low engine oil pressure - High engine oil temperature - High charge-air temperature - Low coolant level - High coolant temperature - High crankcase pressure - Low transmission oil pressure - High transmission oil temperature - Low brake pressure - Engaged parking brake - Brake charging failure - Low hydraulic oil level - High hydraulic oil temperature - Overspeeding in engaged gear - High brake cooling oil temperature front and rear axles.

Voltage	V	24
Batteries	V	2x12
Battery capacity	Ah	2x170
Cold cranking capacity, approx.	A	1 000
Reserve capacity	min	330
Alternator rating	W/A	2 280/80
Starter motor output	kW	7.0

Brake system

Service brake: Service brakes are dual circuit all-hydraulic multi-disc brakes with nitrogen-charged accumulators and automatic slack adjusters. Outboard-mounted oil-cooled, wet disc brakes at each wheel. Transmission disengagement during braking can be preselected in Contronic. **Parking brake:** Wet multi-disc type in transmission housing. Spring-applied, electro-hydraulically released with a switch on instrument panel. Applies automatically when the key is turned off. **Secondary brake:** Dual circuit axle-by-axle system. Actuated by service brake pedal. Low pressure alarm. Dead engine braking capability provided by three nitrogen-charged accumulators. **Standard:** The brake system complies with the requirements of ISO 3450:1996.

Number of brake discs per wheel	11
Accumulators	l 6 x 1.0
Accumulators for parking brake	l 1 x 0.5

Cab

Instrumentation: All important information is centrally located in the operator's field of vision. Display for Contronic monitoring system. Heater and defroster: Heater coil with filtered fresh air, fan with auto function and 11 manually selectable steps, defroster vents for all window areas. **Operator's seat:** Operator's seat with adjustable suspension and retractable seatbelt. The seat is mounted on a bracket on the rear wall and floor. The forces from the retractable seatbelt are absorbed by the seat rails. **Standard:** The cab is tested and approved according to ROPS (ISO 3471, SAE J1040), FOPS (ISO 3449). The cab meets with requirements according to ISO 6055 ("Operator overhead protection - Industrial trucks") and SAE J386 ("Operator Restraint System").

Sound level in cab according to ISO 6396 - LpA	dB(A)	72
External sound level according to ISO 6395 - LwA	dB(A)	111
Ventilation	m³/min	9
Heating capacity	kW	13
Air conditioning	kW	8

Lift arm system

Z-bar linkage system with high breakout forces. The lift arms are single plate construction with a high-strength steel cast cross tube. The single bell crank and bucket link are nodular iron castings.

Lift cylinders		2
Cylinder bore	mm	200
Piston rod diameter	mm	110
Stroke	mm	1 264
Tilt cylinder		1
Cylinder bore	mm	260
Piston rod diameter	mm	120
Stroke	mm	728

Hydraulic system

System supply: Two load-sensing axial piston pumps with variable displacement. The steering function always has priority from one of the pumps. **Valves:** Double-acting 2-spool valve. The main valve is controlled by an electric pilot. **Lift function:** The valve has four positions; lift, hold, lower, and float position. Inductive/magnetic automatic boom kickout can be switched on and off and is adjustable to any position between maximum reach and full lifting height. **Tilt function:** The valve has three functions; rollback, hold, and dump. Inductive/magnetic automatic bucket positioner can be switched on and off. **Cylinders:** Double-acting cylinders for all functions. **Filter:** Full-flow filtration through 20 micron (absolute) filter cartridge. Hydraulic oil cooler: Air-cooled oil cooler mounted on radiator.

Working pressure maximum, pump 1	MPa	25
Flow	l/min	256
at	MPa	10
engine speed	r/s / r/min	30 / 1 800
Working pressure maximum, pump 2	MPa	26
Flow	l/min	354
at	MPa	10
engine speed	r/s / r/min	30 / 1 800
Working pressure maximum, pump 3	MPa	26
Flow	l/min	84
at	MPa	10
engine speed	r/s / r/min	30 / 1 800

Cycle times

Raise*	s	8.0
Tilt*	s	1.9
Lower, empty	s	4.7
Total cycle time	s	14.6

* with load according to ISO 14397 and SAE J818

Steering system

Steering system: Load-sensing hydrostatic articulated steering with an accumulator system and a non-pressurized tank. **System supply:** The steering system has priority feed from a load-sensing axial pump with variable displacement. **CDC:** Speed-dependent electro-hydraulic power steering system with closed center hydrostatic back-up and end-stroke damping.

Steering cylinders		2
Cylinder bore	mm	110
Rod diameter	mm	70
Stroke	mm	586
Working pressure	Mpa	26
Maximum flow	l/min	354
Maximum articulation	°	±37

Service

Service accessibility: Large, easy-to-open service doors with gas struts. Swing-out radiator grill. Fluid filters and component breather filters promote long service intervals. Possibility to monitor, log, and analyze data to facilitate troubleshooting

Refill capacities

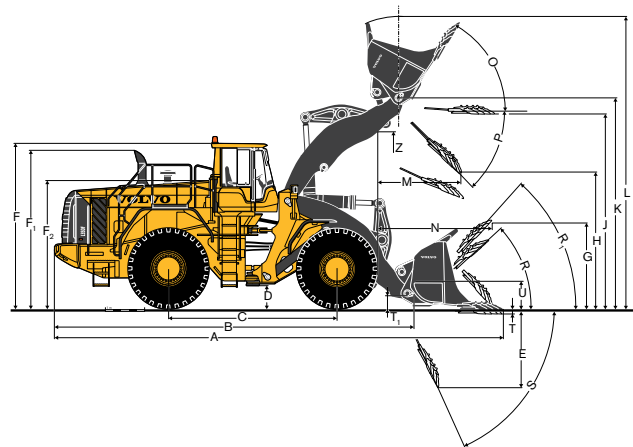
Fuel tank (total)	l	660
Fuel, usable	l	620
Engine oil	l	40
Engine coolant	l	68
Transmission oil	l	79
Axle oil front/rear	l	155
Hydraulic oil tank	l	365

Specifications

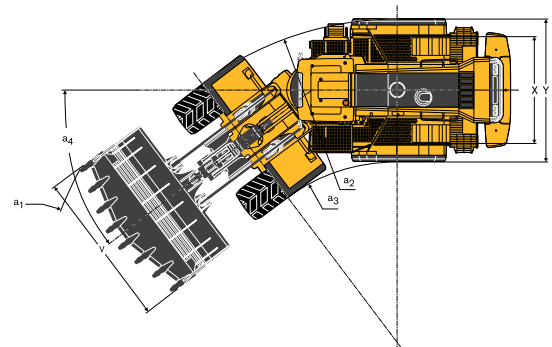
Tires: 35/65 R33 RL5K L5 Goodyear

		Standard boom	Long boom
B	mm	9 130	9 560
C	mm	4 300	-
D	mm	550	-
F	mm	4 180	-
F ₁	mm	3 980	-
F ₂	mm	3 220	-
G	mm	2 130	-
J	mm	4 920	5 400
K	mm	5 340	5 810
O	°	60	58
P _{max}	°	46	-
R	°	43	45
R1*	°	49	50
S	°	66	72
T	mm	120	130
U	mm	660	770
V	mm	3 970	-
X	mm	2 720	-
Y	mm	3 630	-
Z	mm	4 230	4 650
a ₂	mm	8 240	-
a ₃	mm	4 610	-
a ₄	±°	±37	-

* Carry position SAE



Where applicable, specifications and dimensions are according to ISO 7131, SAE J732, ISO 7546, SAE J742, ISO 14397, SAE J818.



Type of boom	Type of bucket	ISO/SAE Bucket volume	Material density (t/m ³)						
			0.8	1.0	1.2	1.4	1.6	1.8	2.0
Standard boom	General purpose	8.4 m ³							
	Rock	STE 6.9 m ³							
		SPN 6.9 m ³							
		SPN 7.7 m ³							
	Light mtrl	12.7 m ³							
Long boom	Side dump	SIT P T 6.4m ³							
	General purpose	7.7 m ³							
	Rock	STE 6.9 m ³							
		SPN 6.5 m ³							
		SPN 6.9 m ³							
	Light mtrl	12.7 m ³							
	Side dump	SIT P T 6.4m ³							
Bucket fill 110% 105% 100% 95%									

How to read bucket fill factor

Bucket Selection Chart












The volume handled varies with the bucket fill and is often greater than indicated by the bucket's ISO/SAE volume. The table shows optimum bucket choice with regard to the material density.

Material	Bucket fill, %	Material density, t/m ³
Earth	110-115	1.4-1.6
Clay	110-120	1.4-1.6
Sand	100-110	1.6-1.9
Gravel	100-110	1.7-1.9
Rock	75-100	1.5-1.9

The size of rock buckets is optimized for optimal penetration and filling capability rather than the density of the material.












Supplemental Operating Data

	Width over tires	Ground clearance	Operating weight	Static tipping load, full turn	
	mm	mm	kg	Standard boom	Long boom
35/65 R33 XLD D1 L4 Michelin	10	-20	-1 140	-1 030	-910
35/65 R33 XLD D2 L5 Michelin	10	-20	-440	-580	-510
35/65 R33 X-Mine D2 L5 Michelin	20	-20	260	-50	-40

STANDARD BOOM		ROCK							GENERAL PURPOSE	LIGHT MATERIAL	SIDE DUMP ROCK	
Tires 875/65 R33 RL5K L5 GY Pin-on buckets												
		Teeth	Teeth & Segments	Bolt-on edges	Teeth	Teeth & Segments	Bolt-on edges	Teeth & Segments	Bolt-on edges	Bolt-on edges	Bolt-on edges	Teeth & Segments
Volume, heaped ISO/SAE	m³	6.6	6.9	6.9	6.8	6.9	6.9	7.7	7.7	8.4	12.7	6.4
Static tipping load, straight	kg	40 030	39 060	39 340	38 920	38 230	38 730	37 810	38 330	38 810	37 830	31 640
at 35°	kg	35 710	34 780	35 060	34 640	33 950	34 460	33 550	34 070	34 550	33 560	27 590
at full turn	kg	35 220	34 290	34 580	34 150	33 470	33 980	33 060	33 590	34 070	33 080	27 130
Breakout force	kN	504.7	472.8	474.8	392.6	372.3	373.9	356.8	358.3	419.1	376.4	348.8
A	mm	10 990	11 070	10 740	11 430	11 500	11 180	11 600	11 270	10 970	11 160	11 750
E	mm	1 620	1 670	1 390	2 000	2 050	1 770	2 130	1 850	1 590	1 760	2 270
H*)	mm	3 790	3 720	3 940	3 500	3 430	3 650	3 370	3 590	3 790	3 640	3 290
L	mm	7 460	7 460	7 460	7 430	7 430	7 430	7 550	7 550	7 280	7 730	7 210
M*)	mm	1 830	1 790	1 590	2 160	2 120	1 920	2 180	1 980	1 740	1 890	2 290
N*)	mm	2 730	2 680	2 530	2 980	2 920	2 790	2 960	2 830	2 640	2 700	3 030
V	mm	3 970	3 970	3 970	3 970	3 970	3 970	3 970	3 970	3 970	4 500	3 970
a ₁ clearance circle	mm	18 090	18 100	17 960	18 310	18 320	18 170	18 370	18 210	18 060	18 650	18 450
Operating weight	kg	49 810	50 230	50 020	50 280	50 700	50 550	50 940	50 790	50 130	51 030	54 920

*) Measured to the tip of the bucket teeth or bolt-on edge. Dump height to bucket edge.

Note: This only applies to genuine Volvo attachments. Measured at 45° dump angle. (Spade nose buckets at 42°.)

LONG BOOM		ROCK							GENERAL PURPOSE	LIGHT MATERIAL	SIDE DUMP ROCK	
Tires 875/65 R33 RL5K L5 GY Pin-on buckets												
		Teeth	Teeth & Segments	Bolt-on edges	Teeth	Teeth & Segments	Bolt-on edges	Teeth & Segments	Bolt-on edges	Bolt-on edges	Bolt-on edges	Teeth & Segments
Volume, heaped ISO/SAE	m³	6.2	6.5	6.5	6.4	6.5	6.5	6.9	6.9	7.7	12.7	6.4
Static tipping load, straight	kg	37 810	36 950	37 220	36 860	36 210	36 670	35 960	36 420	36 810	35 590	27 080
at 35°	kg	33 620	32 800	33 070	32 700	32 050	32 520	31 810	32 280	32 660	31 450	23 440
at full turn	kg	33 150	32 320	32 600	32 230	31 580	32 050	31 340	31 810	32 180	30 980	23 030
Breakout force	kN	471.7	442.4	443.6	365.9	347.6	348.5	338.1	339.1	396.8	341.2	317.9
A	mm	11 370	11 430	11 110	11 790	11 860	11 540	11 920	11 600	11 300	11 580	12 160
E	mm	1 640	1 690	1 400	2 040	2 080	1 790	2 140	1 850	1 570	1 830	2 360
H*)	mm	4 290	4 220	4 440	4 010	3 940	4 160	3 900	4 120	4 310	4 130	3 760
L	mm	7 870	7 870	7 870	7 850	7 840	7 840	7 900	7 900	7 650	8 200	7 690
M*)	mm	1 800	1 770	1 560	2 120	2 090	1 890	2 130	1 930	1 690	1 910	2 300
N*)	mm	3 060	3 010	2 850	3 310	3 250	3 110	3 280	3 140	2 950	3 050	3 390
V	mm	3 970	3 970	3 970	3 970	3 970	3 970	3 970	3 970	3 970	4 500	3 970
a ₁ clearance circle	mm	18 380	18 390	18 240	18 600	18 610	18 450	18 640	18 480	18 330	18 960	18 770
Operating weight	kg	51 320	51 740	51 530	51 790	52 210	52 060	52 330	52 180	51 580	52 660	55 160

*) Measured to the tip of the bucket teeth or bolt-on edge. Dump height to bucket edge.

Note: This only applies to genuine Volvo attachments. Measured at 45° dump angle. (Spade nose buckets at 42°.)

Equipment

STANDARD EQUIPMENT

Service and maintenance

Engine oil remote drain and fill
Transmission oil remote drain and fill
Grouped lubrication points, ground accessible
Pressure check connections: transmission and hydraulic, quick-connect, grouped on console for easy access
Tool box, lockable
Wheel nut wrench kit

Engine

Three stage air cleaner, pre-cleaner, primary and secondary filter
Indicator glass for coolant level
Preheating of induction air
Fuel pre-filter with water trap
Fuel filter
Crankcase breather oil trap

Electrical system

24 V, pre-wired for optional accessories
Alternator 24V/ 80A
Battery disconnect switch with removable key
Fuel gauge
Hour meter
Electric horn
Instrument cluster:
Fuel level
Transmission temperature
Coolant temperature
Instrument lighting
Reverse alarm
Lighting:
Twin halogen front headlights with high and low beams
Parking lights
Double brake and tail lights
Turn signals with flashing hazard light function
Halogen work lights (4 front and 4 rear)

Contronic monitoring system

Monitoring and logging of machine data
Contronic display
Fuel consumption
Ambient temperature
Clock
Brake test
Test function for warning and indicator lights
Warning and indicator lights:
Battery charging
Parking brake
Warning and display message:
Engine coolant temperature
Charge-air temperature
Engine oil temperature
Engine oil pressure
Transmission oil temperature
Transmission oil pressure
Hydraulic oil temperature
Brake pressure
Parking brake applied
Parking brake NOT applied
Brake charging
Overspeed at direction change
Axle oil temperature
Steering pressure
Crankcase pressure
Attachment lock open

Level warnings:

Fuel level
Engine oil level
Engine coolant level
Transmission oil level
Hydraulic oil level
Washer fluid level

Engine torque reduction in case of malfunction indication:

High engine coolant temperature
High engine oil temperature
Low engine oil pressure
High crankcase pressure
High charge-air temperature

Engine shutdown to idle in case of malfunction indication:

High transmission oil temperature
Slip in transmission clutches
Keypad, background lit
Start interlock when gear is engaged

Drivetrain

Automatic Power Shift (APS) with operator controlled transmission disengagement when braking and mode selector with AUTO mode
Fully automatic gear shifting, 1-4
Pulse Width Modulation (PWM) controlled gear shifting
Torque converter with Lock-Up
Automatic Lock-Up shifting, 3-4 (gear selector in 4) and 2 (gear selector in 2)
Forward and reverse switch by hydraulic lever console
Indicator glass for transmission oil level

Brake system

Wet oil circulation-cooled disc brakes on all four wheels
Dual brake circuits
Dual brake pedals
Secondary brake system
Parking brake, electric-hydraulic
Brake wear indicators

Cab

ROPS (ISO 3471), FOPS (ISO 3449)
Acoustic inner lining
Ashtray
Cigarette lighter, 24 V power outlet
Lockable door
Cab heating with fresh air inlet and defroster
Fresh air inlet with two filters
Automatic climate control (ACC)
Floor mat
Dual interior lights
Dual interior rear-view mirrors
Dual exterior rear-view mirrors
Sliding window, right side
Tinted safety glass
Operator's seat, KAB, air-suspended, heavy-duty
Lap-type retractable seatbelt (SAE J386)
Ergonomic heavy-duty operator's seat with adjustable position and suspension
Seat-mounted adjustable lever console, working hydraulics
Adjustable steering wheel
Storage compartment
Document pocket
Sun visor
Beverage holder
Windshield washer front and rear
Windshield wipers front and rear
Interval function for front and rear wipers
Service platforms with slip protected surfaces on front and rear fenders
Comfort Drive Control (CDC)

Hydraulic system

Main valve, double-acting 2-spool with electric pilots
Variable displacement axial piston pumps (3) for:
Steering system, working hydraulics
Working hydraulics, brakes
Cooling fan, brakes
Electric-hydraulic servo control
Electric level lock
Boom kick-out, automatic, adjustable from cab
Return-to-dig, automatic, adjustable from cab
Bucket positioner, automatic, adjustable from cab
Double-acting hydraulic cylinders with end-damping
Indicator glass for hydraulic oil level
Hydraulic oil cooler

External equipment

Fenders, front with rubber extensions
Viscous cab mounts
Rubber engine and transmission mounts
Lifting eyes
Easy-to-open side panels with gas struts
Frame, joint lock
Vandalism lock prepared for
Batteries
Engine compartment
Radiator
Tie-down eyes
Recovery eyes
Tow hitch

OPTIONAL EQUIPMENT

Service and maintenance

Tool kit
Automatic lubrication system
Automatic lubrication system for long boom
Refill pump for automatic lubrication system
Oil sampling valve

Engine

Air pre-cleaner, oil-bath type
Air pre-cleaner, cyclone type
Cooling package: Radiator and charge air cooler, corrosion-protected
Engine block heater, 230 V
Engine auto shutdown
ESW, increased engine protection
ESW, disabled engine protection
Hand throttle control
Fuel fill strainer
Fast fill fuel system
Fuel heater
Reversible cooling fan
Max. fan speed, hot climate

OPTIONAL EQUIPMENT

Electrical system

Alternator, 80 A with air filter

Alternator, 110 A

Battery, high capacity

Anti-theft device

Work lights front, high intensity discharge (HID)

Work lights front, on cab, dual

Work lights rear, on cab

Work lights rear, on cab, dual

Warning beacon, rotating

Cab

Radio with CD player

Radio installation kit incl. 11 A, 12 V outlet, left side

Radio installation kit incl. 11 A, 12 V outlet, right side

Rear-view camera incl. monitor, colour

Rear-view mirrors, electrically adjustable and heated

Asbestos dust protection filter

Carbon filter

Automatic climate control panel, with Fahrenheit scale

Lunchbox holder

Seatbelt, 3", (width 75 mm)

Steering wheel knob

Sun blind, rear window

Sun blind, side windows

Timer cab heating

Window sliding, door

Universal door/ignition key

Anchorage for Operator's manual

Drivetrain

Limited Slip differential, rear axle

Limited Slip differential, front and rear axle

Speed limiter, 20 km/h

Speed limiter, 30 km/h

Brake system

Oil coolers for front and rear axles

Hydraulic system

Boom suspension system with single-acting lift function

Arctic kit, pilot hoses, brake accumulators and hydraulic oil

3rd electro-hydraulic function

3rd electro-hydraulic function for long boom

Hydraulic oil cooler, corrosion-protected

Hydraulic attachment bracket

Separate attachment locking

Biodegradable hydraulic fluid

Fire-resistant hydraulic fluid

Hot climate hydraulic fluid

External equipment

Long boom

Protective equipment

Guards for front headlights

Guards for tail lights

Guards for tail lights, heavy-duty

Guards for rear work lights

Guards for radiator grill

Windows, side and rear guards

Windshield guard

Belly guard, front

Belly guard, rear

Mudguards fixed front and swing out rear, mudguards wideners incl.

Other equipment

Secondary steering with automatic test function

Logger version

Block handler kit

Block handler kit, heavy-duty

CE-marking

Sound decal, EU

CareTrack, GSM (Europe and North America)

CareTrack, GSM/Satellite (Europe and North America)

Tires and Rims

35/65 R33 (875/65 R33):

L4

L5

Rims, 33-28.00/3.5:

Five piece

Five piece, wood protected

Five piece, heavy-duty

Attachments

Buckets (pin-on):

Rock, straight edge

Rock, spade nose

Rock, side-dump, spade nose

General purpose, straight edge

Light material

Wear parts:

Adapters for teeth, weld-on

Teeth

Segments, bolt-on

Edge savers, bolt-on

Block handling equipment (hook-on):

Rock bucket

Stone fork

Breaker tine

Rake

Log grapples

SELECTION OF VOLVO OPTIONAL EQUIPMENT

Boom suspension system



Cab entrance light



LED lights



Central lubrication



Axle oil cooler



Oil bath pre-cleaner



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.