



Volvo BM L70



- **Engine output:**
SAE J1349 net 81 kW (110 hp)
 - **Operating weight:**
9,4 t (20 660 lb)
 - **Buckets:**
1,5-4,3 m³ (2,0-5,6 yd³)
 - Direct-injected, turbocharged Volvo BM diesel
 - Volvo BM Automatic Power Shift
 - Precision steering and small turning radius
 - Unmatched operator comfort
 - Loader unit with parallel lift-arm action, high lift height and long reach
 - Pilot operated hydraulic system
 - Ample breakout and lifting forces
 - The largest family of attachments on the market
- Productivity-boosting options**
- Hydraulic attachment bracket
 - 8-speed transmission
 - Dual-circuit hydraulics
 - 3rd and 4th hydraulic control
 - Comfort Drive Control

VOLVO BM

ENGINE



The engine is a 4-cylinder, direct-injection, 4-stroke, turbocharged diesel engine with wet, replaceable cylinder liners.

Air cleaning:

1. Cyclone cleaner with automatic exhaust ejector.
2. Paper filter with indicator in cab.
3. Safety filter.

Make		Volvo BM	
Model		TD 45 B	
Output, gross, at	r/s (r/min)	36,7	(2200)
SAE J1349	kW (hp)	87	(118)
Flywheel output at	r/s (r/min)	36,7	(2200)
SAE J1349	kW (hp)	81	(110)
DIN 70020 / 6271	kW (hp)	81	(110)
Max. torque at	r/s (r/min)	23,3	(1400)
SAE J1349 Gross	Nm (lbf ft)	440	(325)
SAE J1349 Net	Nm (lbf ft)	425	(314)
DIN 70020 / 6271	Nm (lbf ft)	425	(314)
No. of cylinders		4	
Displacement, total	l (in ³)	4,48	(273)
Bore	mm (in)	105,57	(4,16)
Stroke	mm (in)	128	(5)
Compression ratio		15,6 : 1	

ELECTRICAL SYSTEM



The electrical system is well protected with fuses. Prewired for extra equipment.

Central warning: (standard on certain markets).

Central warning lamp for following functions: engine oil pressure, brake pressure, parking brake, engine temperature, transmission temperature.

Voltage	V	24	
Batteries	V	2x12	
Battery capacity	Ah	2x105	
Cranking capacity	A	2x575	
Reserve capacity	min	2x170	
Alternator rating	W/A	1540/55	
Starter motor output	kW (hp)	5,4	(7,3)

SERVICE REFILL CAPACITIES



Crankcase	l (US gal)	10,5	(2,8)
Fuel tank	l (US gal)	185	(48,9)
Cooling system	l (US gal)	27	(7,1)
Transmission, total	l (US gal)	22	(5,8)
Front axle, total	l (US gal)	26	(6,9)
Rear axle, total	l (US gal)	22,5	(6,0)
Hydraulic system	l (US gal)	130	(34,3)
Hydraulic tank	l (US gal)	85	(22,5)

DRIVE TRAIN



Torque converter: single-stage, single-phase.

Transmission: Volvo BM power shift transmission of countershaft type with directional clutch modulation. Single lever control.

Axes: fully floating half-shafts. One-piece axle housing of ductile iron. Rigid front axle and oscillating rear axle.

Hub reduction: Volvo BM manufacture with planetary type hub reduction gears. Low-friction roller bearings on each planetary wheel. The hub reduction gears can be removed without having to remove wheels and brakes.

Tires: Alternative tires are available for different working operations.

Torque multiplication ratio		2,91 : 1	
Transmission, make		Volvo BM	
Model		HT 90	
Running speeds			
Low range (optional)			
1, forward/reverse	km/h (mile/h)	1,8	(1,1)
2, forward/reverse	km/h (mile/h)	3,5	(2,2)
3, forward/reverse	km/h (mile/h)	7,0	(4,4)
4, forward/reverse	km/h (mile/h)	13,0	(8,1)
High range			
1, forward/reverse	km/h (mile/h)	6,6	(4,1)
2, forward/reverse	km/h (mile/h)	12,8	(8,0)
3, forward/reverse	km/h (mile/h)	23,4	(14,5)
4, forward/reverse	km/h (mile/h)	38,4	(23,9)
Measurement with tires		17.5 - 25	
Front axle, make		Volvo BM	
Model		AH 45 C	
Rear axle, make		Volvo BM	
Model		AH 31 F	
Oscillation	± °	13	
	mm (in)	400	(15,75)

BRAKE SYSTEM



The brake system meets requirements according to SAE J1473, EG 71/320 and ISO 3450.

Service brakes: fully hydraulically operated power disc brakes. Transmission disengagement when braking pre-selected with a switch on the instrument panel.

Secondary: dual-circuit system, divided between axles. One circuit, or parking brake, fulfills the requirements.

Parking brake: disc brake on front axle pinion drive flange. A warning lamp indicates when the parking brake is applied and gear lever is in forward or reverse.

Brake friction area			
front/wheel ea.	cm ² (in ²)	405	(62,8)
rear/wheel ea.	cm ² (in ²)	405	(62,8)
Accumulator		3	
volume, total	l (in ³)	1,5	(91,5)
Parking brake			
area, total	cm ² (in ²)	70	(10,85)

STEERING SYSTEM



Load-sensing hydrostatic articulated steering.

Pump: variable flow axial piston pump fitted to a power take-off on transmission.

System supply: steering system supplied from separate steering pump.

Cylinders: two double-acting cylinders.

Steering cylinder			2	
Bore	mm	(in)	70	(2,75)
Piston rod diameter	mm	(in)	36	(1,41)
Stroke	mm	(in)	390	(15,35)
Relief pressure	MPa	(psi)	14	(2030)
Flow	l/min		97	
		(US gal/min)		(25,6)
at	MPa	(psi)	10	(1450)
and engine speed	r/s	(r/min)	36,7	(2200)

CAB



Tested and approved as safety cab according to the Swedish Working Environment Act section 3, sub-section 8, and meets

standards according to ISO 3471-1980, ROPS (SAE J1040c), ISO 3449-1980 FOPS (SAE J231), SS/ISO 6055 "Overhead guards for fork lift trucks" and SAE J386 Operator Restraint System.

The cab is mounted on four rubber pads and is well insulated.

The windshield is of laminated safety glass, all other windows being of tempered safety glass.

Heater and defroster: heating element with filtered fresh air and 3-speed fan with defroster outlets for all windows. Pressurized cab.

Operator's seat: spring suspended, fully adjustable operator's seat.

Emergency exits			3	
Ventilation	m ³ /min	(cfm)	9,5	(335)
Heating capacity	kW	(Btu/h)	11,6	(39600)
Operator's seat			ISRI 6000/575	
Noise in cab max	dB (A)		74	

HYDRAULIC SYSTEM



Open center system pilot operated, and filtered breather on reservoir.

Pump: vane pump fitted to a power take-off on transmission.

System supply: system supplied from a separate pump. Pilot system supplied from a separate pilot pump.

Valve: double-acting 3 spool valve. The control valve is governed by a 3-spool pilot valve.

Lifting function: the valve has four positions: lifting, neutral, lowering and floating.

Tilting function: the valve has three positions: rollback, neutral and forward tilting.

Cylinders: double-acting.

Filter: full-flow filtering through 10 µm filter cartridge in combination with magnetic core.

Load unit: hydraulic cylinders fitted in line with lifting arms. Extremely good dump angle, good carrying angle and parallel arm action.

Main pump				
Relief pressure	MPa	(psi)	20,5	(2970)
Flow	l/min		170	
		(US gal/min)		(44,9)
at	MPa	(psi)	10	(1450)
and engine speed	r/s	(r/min)	36,7	(2200)
Pilot pump				
Relief pressure	MPa	(psi)	3,5	
Lifting cylinder			2	
Bore	mm	(in)	100	(3,9)
Piston rod diameter	mm	(in)	60	(2,4)
Stroke	mm	(in)	950	(37,4)
Tilting cylinder			2	
Bore	mm	(in)	100	(3,9)
Piston rod diameter	mm	(in)	50	(2)
Stroke	mm	(in)	985	(38,8)
Lifting time *	s		5,1	
Tipping time *	s		1,7	
Lowering time (empty)	s		2,4	
Total cycle time	s		9,2	

* with load, SAE

ATTACHMENTS *(for further information please contact your local dealer)*

Buckets

Straight bucket without teeth	1,5/1,65/1,8 m ³	(2,0/2,2/2,4 yd ³)
Straight bucket with teeth	1,5/1,65 m ³	(2,0/2,2 yd ³)
V-lip bucket without teeth	1,5 m ³	(2,0 yd ³)
Spade nose bucket with teeth	1,5 m ³	(2,0 yd ³)
Light materials bucket	3,0/3,6 m ³	(3,9/4,7 yd ³)
High-dump light materials bucket	2,2/4,3 m ³	(2,9/5,6 yd ³)
Grading bucket	1,6 m ³	(2,1 yd ³)
Sand spreading bucket	2,0 m ³	(2,6 yd ³)
Multi-purpose bucket	1,3 m ³	(1,7 yd ³)

Timber grapples

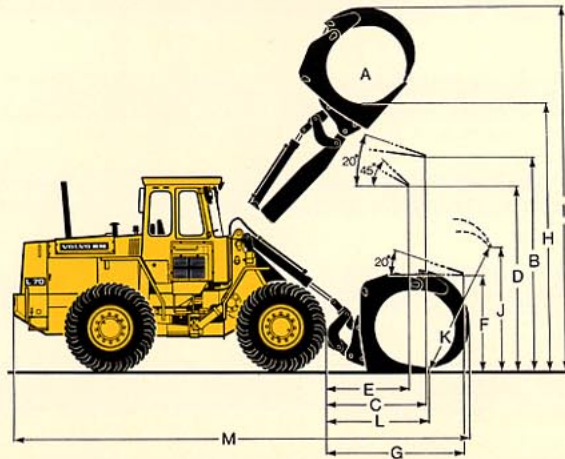
Sorting/unloading grapple	1,2 m ²	(12,9 ft ²)
Sorting grapple	0,9/1,2 m ²	(9,7/12,9 ft ²)
Tree length grapple	0,7 m ²	(7,5 ft ²)
Log pusher		
Heel kickout		

Examples of other attachments

Pallet forks	Combination forks
Breakout forks	Material handling arms
Fork tine extension	Hydraulic clamping grapple
Pallet fork with fork positioner	Asphalt cutter
	Diagonal snow blade
	Broom

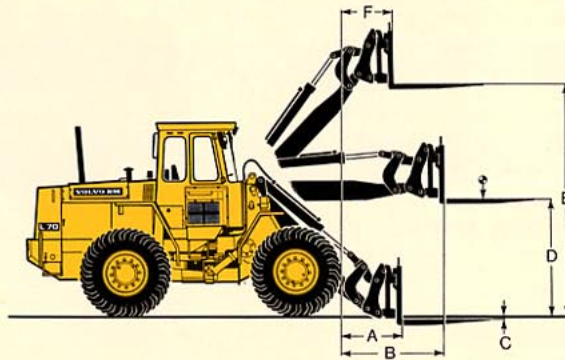
Sorting Grapple (90257 Hook-On)

Operating weight	kg (lb)	9850 (21710)
Operating load	kg (lb)	3000 (6610)
A	m ² (ft ²)	1,2 (12,9)
B	mm (ft in)	3300 (10'10")
C	mm (ft in)	1570 (5'2")
D	mm (ft in)	2850 (9'4")
E	mm (ft in)	1290 (4'3")
F	mm (ft in)	1500 (4'11")
G	mm (ft in)	2340 (7'8")
H	mm (ft in)	4120 (13'6")
I	mm (ft in)	5630 (18'6")
J	mm (ft in)	1980 (6'6")
K	mm (ft in)	2150 (7'6")
L	mm (ft in)	1730 (5'8")
M	mm (ft in)	7090 (23'3")



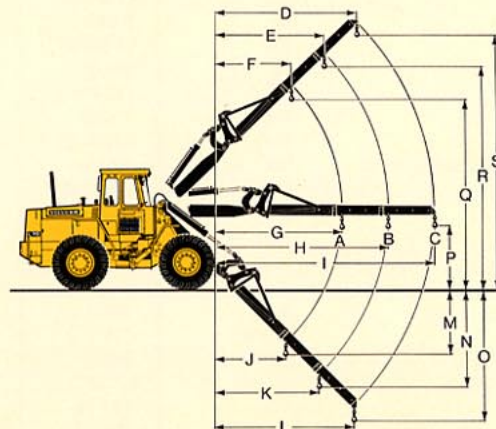
Pallet Fork (Hook-On)

Fork tine, order no.		97789
Length	mm (ft in)	1225 (48")
Fork frame, order no.		97792
Width	mm (ft in)	1500 (4'11")
Max permissible load according to SS 3462 at load center distance	kg (lb)	4000 (8800)
Operating weight	kg (lb)	9300 (20500)
A	mm (ft in)	740 (2'5")
B	mm (ft in)	1560 (5'1")
C	mm (ft in)	65 (2,5")
D	mm (ft in)	1780 (5'10")
E	mm (ft in)	3580 (11'9")
F	mm (ft in)	790 (2'7")



Material Handling Arm (97824 Hook-On)

Operating weight	kg (lb)	9260 (20410)
A	kg (lb)	1480 (3260)
B	kg (lb)	1260 (2780)
C	kg (lb)	1000 (2200)
D	mm (ft in)	2940 (9'8")
E	mm (ft in)	2290 (7'6")
F	mm (ft in)	1670 (5'6")
G	mm (ft in)	3270 (12'3")
H	mm (ft in)	4340 (14'3")
I	mm (ft in)	5470 (17'11")
J	mm (ft in)	1780 (5'10")
K	mm (ft in)	2530 (8'4")
L	mm (ft in)	3330 (10'11")
M	mm (ft in)	1760 (5'9")
N	mm (ft in)	2510 (8'3")
O	mm (ft in)	3310 (10'10")
P	mm (ft in)	1540 (5'1")
Q	mm (ft in)	5070 (16'8")
R	mm (ft in)	5940 (19'6")
S	mm (ft in)	6870 (22'6")



ALTERATION OF DIMENSIONAL DATA

Tires		17.5-25	17.5 R 25 *			
Liquid ballast in rear tires		75 % CaCl ₂	-			
Width over wheels	mm (in)	-	±0			
Ground clearance	mm (in)	-	±0			
Tipping load						
at full turn	kg (lb)	560 (1230)	200 (440)			
Operating weight	kg (lb)	550 (1210)	100 (220)			

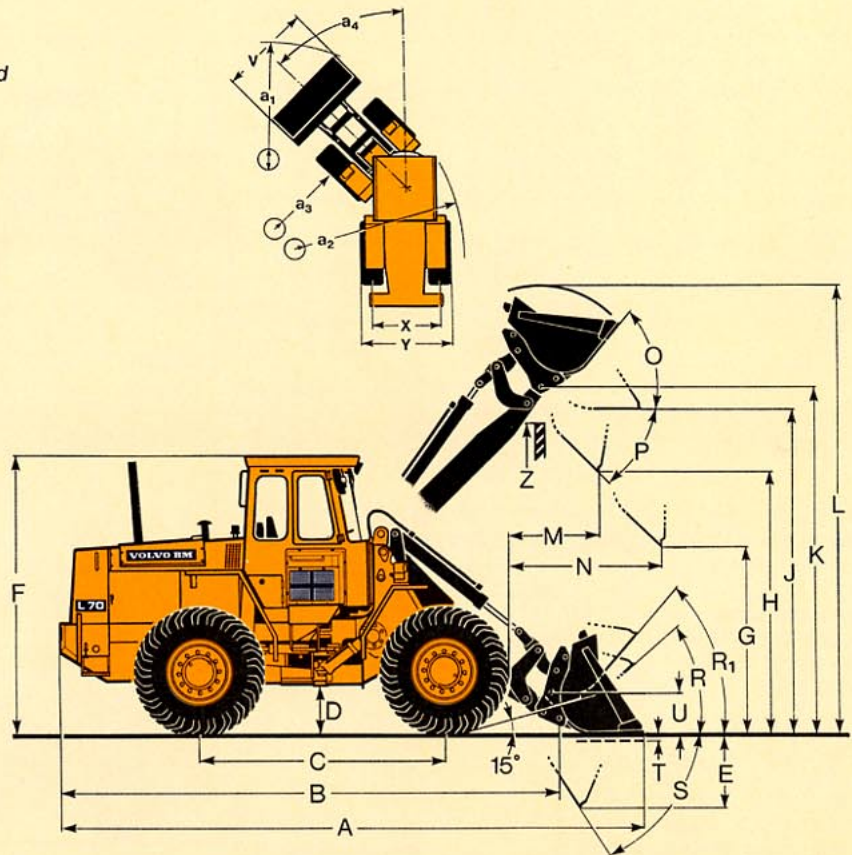
DIMENSIONAL DATA VOLVO BM L70

Tires: 17.5 - 25 SGL

Where applicable, specifications and dimensions are in accordance with SAE Standard J732c, J742b and J818b.
Liquid ballast in rear tires only recommended for stabilizing purposes in timber and pallet handling on hard and level ground.

B	mm (ft in)	5440	(17'10")
C	mm (ft in)	2840	(9'4")
D	mm (ft in)	370	(1'2")
F	mm (ft in)	2930	(9'7")
G	mm (ft in)	2000	(6'7")
J	mm (ft in)	3490	(11'6")
K	mm (ft in)	3710	(12'2")
O	°	51	
P	°	44	
R	°	43	
R ₁ *	°	47	
**	°	52	
S	°	95	
T	mm (ft in)	150	(6")
U	mm (ft in)	360	(1'2")
**	mm (ft in)	540	(1'9")
X	mm (ft in)	1860	(6'1")
Y	mm (ft in)	2320	(7'7")
Z	mm (ft in)	3430	(11'3")
a ₂	mm (ft in)	5060	(16'7")
a ₃	mm (ft in)	2750	(9')
a ₄	± °	40	

* Carrying position SAE
** In practical carry position



Bucket type

- 1 = Straight without teeth
- R = Hook-On
- D = Pin-On

Order No.		90044	90041	99780	99784	99782	99786
Mounting / Bucket type		D / 1	R / 1	D / 1	R / 1	D / 1	R / 1
Volume, heaped	m ³ (yd ³)	1,5 (2,0)	1,5 (2,0)	1,65 (2,2)	1,65 (2,2)	1,8 (2,35)	1,8 (2,35)
Volumetric weight	kg/m ³ (lb/yd ³)	1800 (3000)	1800 (3000)	1600 (2700)	1600 (2700)	1500 (2500)	1500 (2500)
Static tipping load, straight	kg (lb)	6550 (14440)	6270 (13820)	6530 (14370)	6200 (13640)	6410 (14130)	6200 (13640)
at 35° turn	kg (lb)	5840 (12880)	5580 (12300)	5820 (12830)	5510 (12150)	5710 (12590)	5510 (12150)
at full turn	kg (lb)	5640 (12410)	5400 (12000)	5620 (12360)	5390 (11880)	5500 (12130)	5400 (11750)
Breakout force	kN (lbf)	113,6 (25540)	104,5 (23490)	113,2 (25450)	104,5 (23490)	103,6 (23290)	94,0 (21130)
Hydraulic lifting force at ground level	kN (lbf)	113,3 (25470)	114,3 (25690)	114,4 (25720)	114,5 (25740)	114,8 (25810)	114,8 (25810)
at max. height	kN (lbf)	43,6 (9800)	41,3 (9280)	42,8 (9620)	41,0 (9220)	42,4 (9530)	40,5 (9100)
A	mm (ft in)	6550 (21'6")	6620 (21'8")	6550 (21'6")	6620 (21'8")	6640 (21'9")	6730 (22'1")
L	mm (ft in)	4690 (15'5")	4680 (15'4")	4780 (15'8")	4780 (15'8")	4780 (15'8")	4780 (15'8")
V	mm (ft in)	2430 (7'12")	2430 (7'12")	2430 (7'12")	2430 (7'12")	2430 (7'12")	2430 (7'12")
a ₁ clearance circle	mm (ft in)	11110 (36'5")	11150 (36'7")	11110 (36'5")	11150 (36'7")	11160 (36'7")	11210 (36'9")
E	mm (ft in)	940 (3'1")	1000 (3'3")	940 (3'1")	1000 (3'3")	1030 (3'4")	1110 (3'8")
H	mm (ft in)	2840 (9'4")	2790 (9'2")	2840 (9'4")	2790 (9'2")	2780 (9'1")	2720 (8'11")
M	mm (ft in)	1000 (3'3")	1050 (3'5")	1000 (3'3")	1050 (3'5")	1070 (3'6")	1130 (3'8")
N	mm (ft in)	1560 (5'1")	1580 (5'2")	1560 (5'1")	1580 (5'2")	1590 (5'3")	1620 (5'4")
Weight distribution, front	kg (lb)	4070 (8980)	4330 (9540)	4120 (9080)	4370 (9630)	4160 (9170)	4430 (9770)
Weight distribution, rear	kg (lb)	5300 (11680)	5200 (11460)	5280 (11640)	5180 (11420)	5270 (11620)	5160 (11370)
Operating weight	kg (lb)	9370 (20660)	9530 (21000)	9400 (20720)	9550 (21050)	9430 (20790)	9590 (21140)

STANDARD EQUIPMENT

Safety & comfort

ROPS and FOPS cab
Cab heating with filtered fresh air intake and defroster
Tinted glass
Ergonomically designed and adjustable operator's seat with seat belt
Rear-view mirrors, external, two
Rear-view mirror, internal, one
Lighting:
main headlamps, full-dipped beam/asym. (halogen)
parking lights
working lights, front (two, halogen)
working lights, rear (two, halogen)
side marker lights

brake lights
rear lights
cab lighting
instrument lighting
direction indicators
Instrument panel with symbols
Sun visor
Safety start
Mudguards
Hazard warning flashers
Windscreen wipers, front and rear
Horn
Ashtray
Cigarette lighter
Lifting eyes
Lockable tool box
Pressure gauge, brake system
Opening window
Wrist support

Engine & electrical system

Fuel gauge
Electric socket 24 V
Battery disconnection switch
Hour recorder
Alternator
Air cleaner with ejector emptying
Engine temperature gauge
Hydraulic transmission temperature gauge
Control and warning lamps for:
working lights, front/rear charging
full-beam headlights
direction indicators
engine oil pressure
hydraulic transmission oil pressure
parking brake
brake pressure
hazard warning flashers
air cleaner

Central warning: (standard on certain markets)

Engine oil pressure, brake pressure, parking brake, engine temperature, transmission temperature

Drivetrain

Power Shift transmission
Single-lever shift control
Tires 17.5-25 SGL diagonal

Hydraulic system

Control valve (3-spool)
Pilot valve (3-spool)
Tilt position indicator
Vane pump

OPTIONAL EQUIPMENT (Standard on certain markets)

Service and maintenance equipment

Tool kit
Wheel nut wrench kit
Air pressure equipment

Engine equipment

Low emission version
Oil-bath pre-cleaner
Radiator, corrosion protected
Engine block heater
Preheating coil
High altitude version
Coolant filter
Speed limiter

Electrical equipment

Rotating beacon
Asymmetrical headlights, left
Back-up alarm
Extra working lights, front (two, halogen)
Extra working lights, rear (two, halogen)
Alternator, sealed

Working light dependent parking light
Trailer contact
Central warning with buzzer
Registration plate lighting
High tone horn
Voltmeter
Engine oil pressure gauge
Transmission oil pressure gauge

Drivetrain equipment

Automatic Power Shift (4F/3R)
Transmission, 8 speeds
Differential lock 100 %, front axle

Cab equipment

File pocket
Heated seat
Air conditioner
Condenser, corrosive environment
Tiltable steering wheel
Dual brake pedals
Windscreen washer, front/rear

Intermittent wiper, front
Radio panel without radio
Speedometer and tachometer
Lever lock for hydraulic levers
Sliding window
Instructor's seat
Parking-brake alarm, acoustic
Extra air outlet

Hydraulic equipment

3rd hydraulic control
3rd and 4th hydraulic control
Hydraulic oil cooler
Single-acting lifting function
Dual-circuit hydraulic
Separate attachment locking
Automatic hose coupler
Boom lowering system
Lift detent
Parking brake, spring applied, hydraulically released
Boom kick-out
Bucket positioner

External equipment

Extended mudguards
Slow Moving Vehicle sign
Towing hitch

Protective equipment

Protection guards for headlights
Protection guards for rear working lights
Protection guards for tail lights
Guard for silencer
Underbody protection plate, transmission
External noise reduction
Antiskid tape
Vandalism protection kit
Exhaust deflector

Other equipment

German version
Secondary steering
Hydraulic attachment bracket
Comfort Drive Control (CDC)

Under our policy of continuous product 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.

VME Industries Sweden AB

S-631 85 ESKILSTUNA SWEDEN