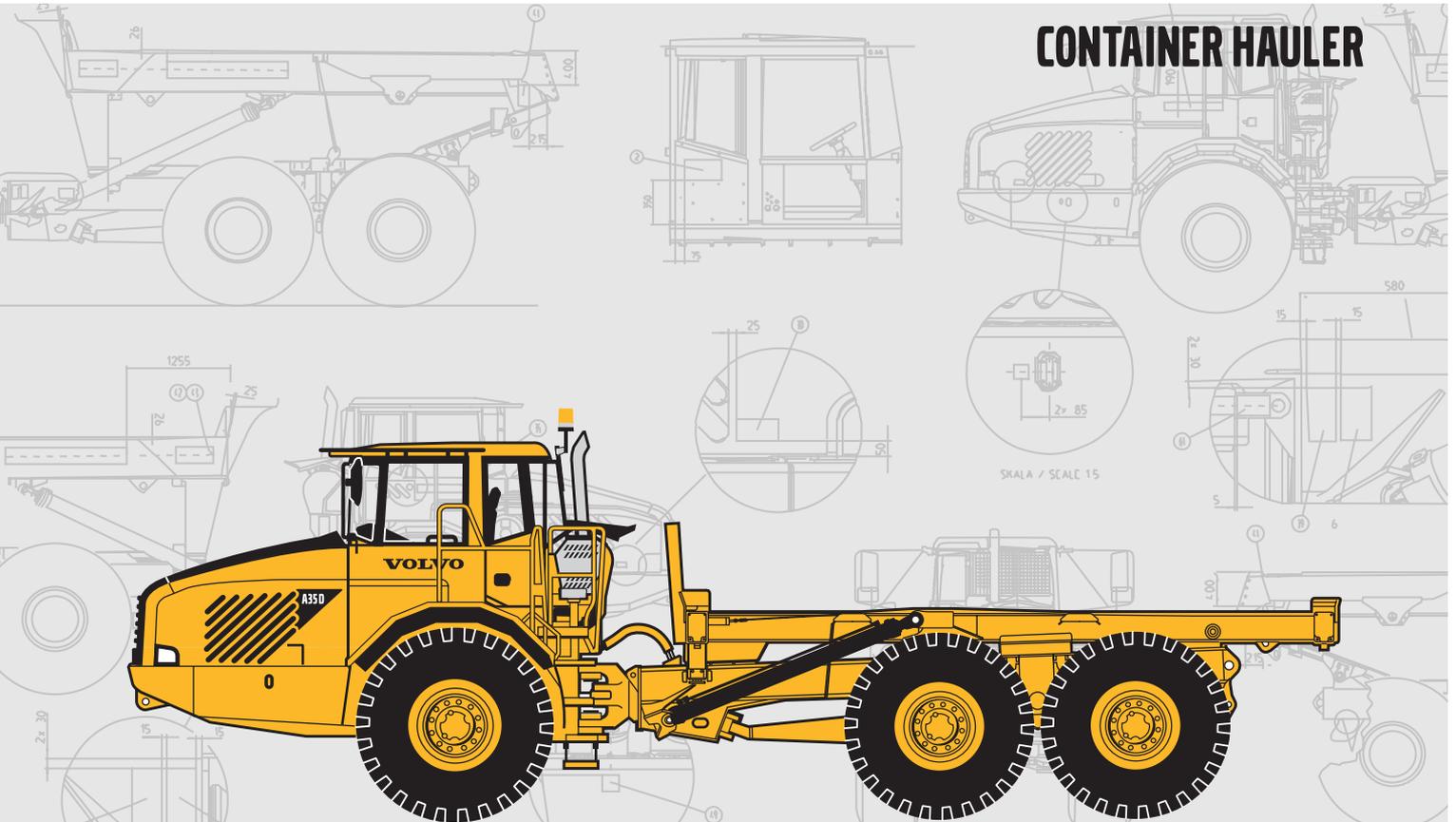


## VOLVO ARTICULATED HAULER

# A350

## CONTAINER HAULER



- **Engine output SAE J1349:**  
Net 285 kW (382 hp)  
Gross 289 kW (387 hp)
- **Load capacity:**  
32.5 t (36 sh tn)
- **Designed to handle 20 ft ISO container or equivalent load with twist locus.**
- **Dumping angle 49°.**
- **Cab operated container lock.**
- **Volvo cab designed** for high operator visibility, ergonomics and comfort.
- **Volvo high-performance low-emission**, electronically-controlled, direct injected, turbocharged, intercooled diesel engine.
- **Volvo Engine Brake, VEB**
- **Fully-automatic planetary transmission**, electronically-controlled.
- **Hydraulic retarder** integral in transmission.
- **Dropbox with high/low function** and longitudinal differential lock.
- **100% lock-up differentials.** One longitudinal and three transverse differential locks.
- **Front axle with three-point suspension.**
- **Volvo terrain bogie**, individually oscillating axles and high ground clearance.
- **Volvo Load & Dump Brake.**

# VOLVO



## ENGINE

Volvo in-line, 6-cylinder, direct-injected, electrically-controlled, turbocharged, intercooled, 4-cycle, low-emission, diesel engine with overhead camshaft and wet replaceable cylinder liners. Meets US (EPA) step 2, California (CARB) step 2 and Europe (EU) step 2.

**Fan:** Hydrostatically driven, thermostatically controlled variable speed radiator fan consuming power only when needed.

**Engine brake:** VEB (Volvo Engine Brake) includes compression and exhaust brake.

**Total weight/flywheel power:** 159.2 kg/hp.

**Flywheel power/total weight:** 6.28 hp/1000 kg.

Make, model . . . . .	Volvo D12C ABE2
Max power at . . . . .	30 r/s (1800 r/min)
SAE J1995 Gross . . . . .	289 kW (387 hp)
Flywheel power at . . . . .	30 r/s (1800 r/min)
SAE J1349 Net, DIN 6271* . . . . .	285 kW (382 hp)
Max torque at . . . . .	20 r/s (1200 r/min)
SAE J1995 Gross* . . . . .	1950 Nm (1438 lbf ft)
SAE J1349 Net, DIN 6271** . . . . .	1915 Nm (1413 lbf ft)
Displacement total . . . . .	12 l (732 in <sup>3</sup> )

\*) with fan at normal speed. With fan operating at full speed, the flywheel power is 277 kW (371 hp) which corresponds to DIN 70020.

\*) with fan at normal speed. With fan operating at full speed, the maximum torque is 1860 Nm (1372 lbf ft) which corresponds to DIN 70020.

The Volvo D12C engine is emission certified as a family engine with the following output data:

Rated power at . . . . .	31.7 r/s (1900 rpm)
SAE J1995 Gross . . . . .	280 kW (376 hp)
Max torque at . . . . .	20 r/s (1200 r/min)
SAE J1995 Gross . . . . .	2100 Nm (1549 lbf ft)



## SERVICE

The computerized information system monitors all fluid levels, minimizing daily and weekly service times. Time to next service and the status of vital vehicle systems is shown to the operator on a display in the instrument panel.

**Service accessibility:** Fold down front grille with access ladder to remote filter bank, located in front of engine. Large, 90° opening hood for total engine access. Remote drain hoses and swing out radiator for easy cleaning.

### Refill capacities

Crankcase . . . . .	50 l	(13.2 US gal)
Fuel tank . . . . .	480 l	(126.8 US gal)
Cooling system . . . . .	117 l	(30.9 US gal)
Transmission total . . . . .	48.5 l	(12.7 US gal)
Dropbox . . . . .	10.5 l	(2.6 US gal)
Hub . . . . .	3.5 l	(0.8 US gal)
Front axle . . . . .	48 l	(12.9 US gal)
First bogie axle . . . . .	49 l	(12.9 US gal)
Second bogie axle . . . . .	48 l	(12.7 US gal)
Hydraulics system . . . . .	400 l	(105.7 US gal)
Hydraulics tank . . . . .	250 l	(66.1 US gal)



## DRIVETRAIN

Volvo components, specifically designed for hauler applications.

**Torque converter:** Single stage with free wheeling stator and automatic lock up on all gears.

**Transmission:** Fully-automatic planetary transmission with six forward gears and two reverse gears, with an integral variable hydraulic retarder.

**Dropbox:** Volvo design with high and low function.

**Axles:** Volvo design with fully floating axle shafts and planetary type hub reductions.

**Differential locks:** One longitudinal and three transverse with 100% lock-up function, operator selectable on the move.

**Configuration:** 6x4 or 6x6 drive, operator selectable on the move.

Torque converter . . . . .	1,95:1
Transmission . . . . .	Volvo PT 1860
Dropbox . . . . .	Volvo FL 852
Axles . . . . .	Volvo AH 64

### Speeds

High gear forward		
1	9 km/h	(5.6 mile/h)
2	13 km/h	(8.1 mile/h)
3	23 km/h	(14.3 mile/h)
4	34 km/h	(21.1 mile/h)
5	43 km/h	(26.7 mile/h)
6	56 km/h	(34.8 mile/h)
Low gear forward		
1	5 km/h	(3.1 mile/h)
2	8 km/h	(5.0 mile/h)
3	15 km/h	(9.3 mile/h)
4	21 km/h	(13.0 mile/h)
5	27 km/h	(16.8 mile/h)
6	35 km/h	(21.7 mile/h)
High gear reverse		
1	8 km/h	(5.0 mile/h)
2	14 km/h	(8.7 mile/h)
Low gear reverse		
1	5 km/h	(3.1 mile/h)
2	9 km/h	(5.6 mile/h)



## ELECTRICAL SYSTEM

All cables, sockets and pins are identified. Cables are enclosed in plastic conduit and secured to main frame. Halogen lights. Prewired for options. Connectors meet IP67 standard for watertightness as necessary.

Voltage . . . . .	24 V
Battery capacity . . . . .	2x170 Ah
Alternator . . . . .	1,54 kW (55 A)
Starter motor . . . . .	7.2 kW (9.6 hp)



## SUSPENSION

**Front axle:** Volvo's unique three point suspension. One rubber spring with bottoming absorption on each side. Stabilizer. Three shock absorbers on each side. The front axle is suspended at three points, which results in oscillation needed in rough terrain. Requires no regular maintenance.

**Bogie:** Volvo's unique terrain bogie, which permits individual oscillation between the axles. High axle displacement keeps the body level, retaining the load.



## BRAKE SYSTEM

Dual circuit system with fully-hydraulic disc brakes. Complies with ISO 3450 and SAE J1473 at total machine weight.

**Circuit division:** One circuit for front axle and one for bogie axles.

**Parking brake:** Spring-applied on the propeller shaft, designed to hold a loaded machine on a grade up to 18%.

**Compressor:** Gear driven by engine.

**Retarder:** Hydraulic, infinitely variable, integral with transmission. Total retarding capability includes transmission retarder and VEB, see graph.



## HYDRAULIC SYSTEM

**Pumps:** Seven engine driven, variable displacement, load-sensing piston pumps driven by the flywheel PTO. Three pumps are tandem mounted. Load-sensing pumps consume power only when needed. One ground-dependent piston pump for supplemental steering mounted on the dropbox.

**Filtration:** Two glass fiber filters with magnetic cores.

Pump capacity per pump:	
engine dependent	143 l/min (37.8 US gal/min)
ground dependent	202 l/min (53.4 US gal/min)
at shaft speed . . . . .	47.5 r/s (2850 r/min)
Working pressure . . . . .	25 MPa (3628.4 psi)



## CAB

**Volvo cab:** Tested and approved according to ROPS (ISO 3471 and SAE J1040) and FOPS (ISO 3449 and SAE J231) standards. Mounted on rubber pads which effectively reduces vibrations. Tilt/telescopic steering wheel. Overhead console for radio and storage. Dash-mounted operator information display.

**Heater and defroster:** Filtered air and pressurized cab.

**Operator's seat:** Air suspended with flameproof upholstery. Extra seat for trainer.

Number of exits . . . . .	2
Internal sound level, ISO 6394 dB (A)	72
and at max. speed . . . . .	76
dB (A)	



## STEERING SYSTEM

Hydromechanical self-compensating articulated steering for safe and accurate high speed hauling. Fast acting, low effort steering with 3.4 turns lock-to-lock for low speed maneuverability.

**Cylinders:** Two double-acting steering cylinders.

**Supplementary steering:** Complies with ISO 5010 at total machine weight.



## CONTAINER FRAME

Each corner of the container frame is equipped with air operated container locks that are maneuvered from the cab.

**Cylinders:** Two single stage double acting cylinders.

Dumping angle . . . . .	49°
Dumping time with load . . . . .	8 s
Lowering time . . . . .	6 s



## WEIGHTS

Operating weight includes all fluids and operator. Standard machine. If equipped with 800/65R29 add 100 kg (220 lb) per axle.

**Operating weight** with tires 26.5 R 25:

Unloaded	
Front	15 120 kg (33 333 lb)
Rear	10 830 kg (23 876 lb)
Total	25 950 kg (57 210 lb)
Payload . . . . .	32 500 kg (71 649 lb)

**Total weight**

Front	16 440 kg (36 244 lb)
Rear	42 000 kg (92 594 lb)
Total	58 440 kg (128 838 lb)

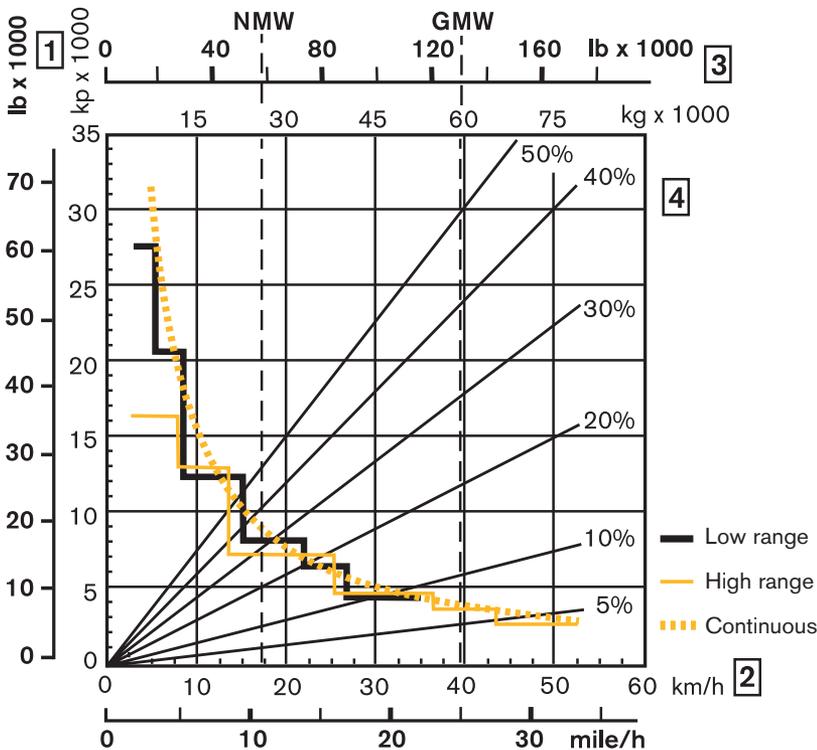
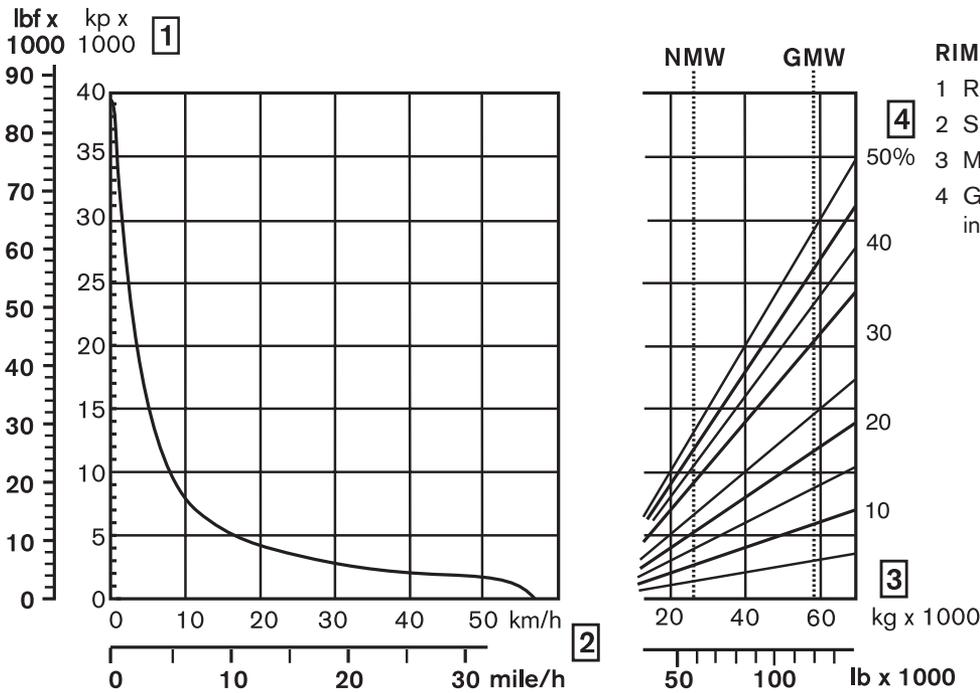


## GROUND PRESSURE

At 15% sinkage of unloaded radius and specified weights.

With tires	26.5 R25	800/65R29
Unloaded		
Front	128 kPa (18.6 psi)	107 kPa (15.5 psi)
Rear	46 kPa (6.7 psi)	38 kPa (5.5 psi)
Loaded		
Front	139 kPa (20.2 psi)	116 kPa (16.8 psi)
Rear	178 kPa (25.8 psi)	148 kPa (21.5 psi)

# RIMPULL & RETARDATION Volvo A35D Container Hauler



## INSTRUCTIONS

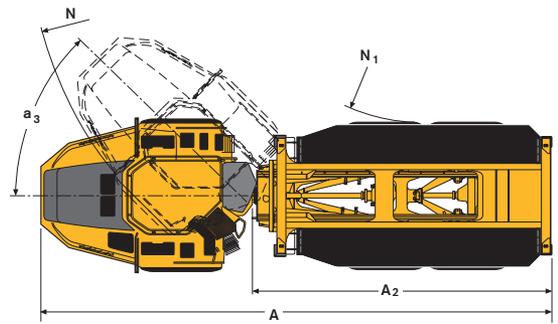
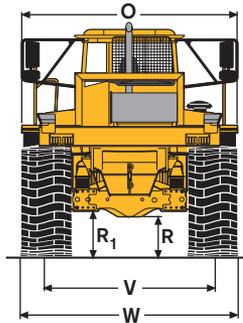
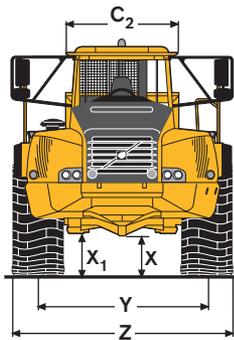
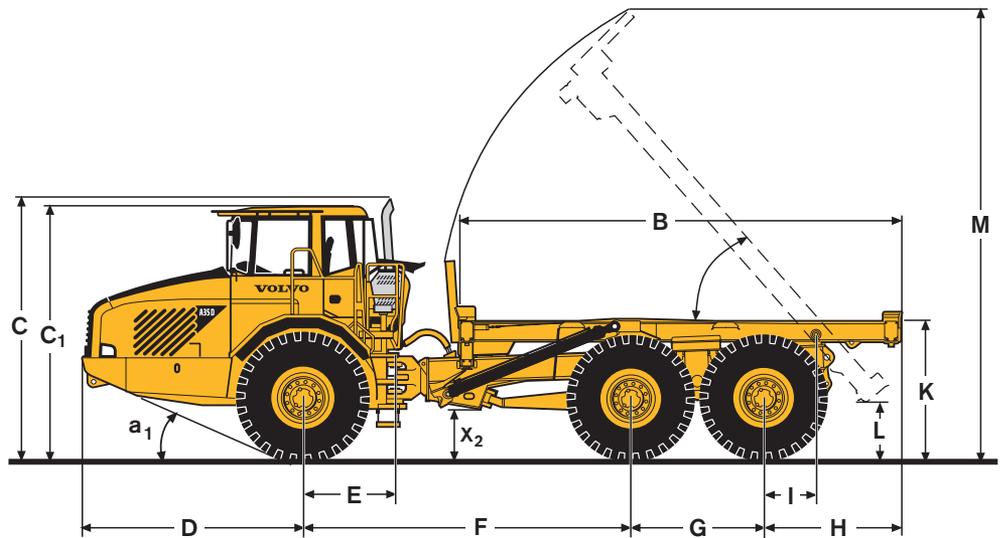
Diagonal lines represent total resistance (grade % **plus** rolling resistance %).

Charts based on 0% rolling resistance, standard tires and gearing, unless otherwise stated.

In the retardation chart the diagonal lines represent the "total resistance" as well, which is the grade in % **minus** the rolling resistance in %.

- Find the diagonal line with the appropriate total resistance on the right-hand edge of the chart.
- Follow the diagonal line downward until it intersects the actual machine weight line, NMW or GMW.
- Draw a new line horizontally to the left from the point of intersection until the new line intersects the rimpull or retardation curve.
- Read down for vehicle speed.

## DIMENSIONS Volvo A35D Container Hauler (with 26.5R25 tires, unloaded machine)



A	111670 mm (36'8")	F	4501 mm (14'9")	O	3103 mm (10'2")	a <sub>1</sub>	23°
A <sub>2</sub>	6224 mm (20'5")	G	1820 mm (6'0")	R	584 mm (1'11")	a <sub>2</sub>	70°
B	5527 mm (18'2")	H	1757 mm (5'9")	R <sub>1</sub>	670 mm (2'2")	a <sub>3</sub>	45°
C	3681 mm (12'1")	I	728 mm (2'5")	V	2515 mm (8'3")	* Dimensions with 800/65R29	
C <sub>1</sub>	3560 mm (11'8")	K	2302 mm (7'7")	V*	2625 mm (8'7")		
C <sub>2</sub>	1768 mm (5'10")	L	915 mm (3'0")	W	3208 mm (10'6")		
D	3101 mm (10'2")	M	7242 mm (23'9")	W*	3410 mm (11'2")		
E	1276 mm (4'2")	N	8720 mm (28'7")	X	572 mm (1'11")		
		N <sub>1</sub>	4397 mm (14'5")	X <sub>1</sub>	606 mm (2'0")		
				X <sub>2</sub>	720 mm (2'4")		
				Y	2515 mm (8'3")		
				Y*	2625 mm (8'7")		
				Z	3208 mm (10'6")		
				Z*	3410 mm (11'2")		

## LOAD CAPACITY

Load capacity . . . . . 32 500 kg (36 sh tn)\*

ISO Container 20 ft

\* Total weight of container and payload.

## STANDARD EQUIPMENT

### Safety

ROPS/FOPS cab  
 Service platform for ease of service  
 Anti-slip material on fenders and hood  
 Hazard lights  
 Horn  
 Protective grille for rear window  
 Rearview mirrors  
 Retractable 3 inch seat belt  
 Secondary steering  
 Steering joint locking assembly  
 Dump body lock  
 Windshield wipers with intermittent  
 Windshield washers

### Comfort

Tilt/telescopic steering wheel  
 Air suspended, electrically heated operator's seat  
 Cab heater with filtered fresh air and defroster  
 Instructor seat with backrest and safety belt  
 Overhead console for radio and storage  
 Sun visor  
 Tinted glass  
 Can holder/storage tray  
 Cigarette lighter  
 Ashtray  
 Space for lunch cooler  
 Storage box

### Engine

Direct injected, electronically-controlled  
 Turbocharged, intercooled  
 Volvo Engine Brake (VEB)  
 Remote oil drainage plug  
 Remote oil filters ease of access  
 Preheater for easier cold starts

### Electrical system

Alternator  
 Battery disconnect switch  
 Electrical outlets, 24V socket for lunch cooler

#### Lights:

- Headlights
- Parking lights
- Direction indicators
- Rear lights
- Reverse lights
- Brake lights
- Cab lighting
- Instrument lighting

### Operator information interface

Gauges:  
 • Speedometer  
 • Tachometer  
 • Brake pressure  
 • Fuel  
 • Transmission oil temperature

Pilot lamps for all switches

Warning lamps grouped and easy to read

Central warning (3 levels) for vital functions

Central positioned information display:

- Automatic pre-start checks
- Operating information, easy-to-find menu
- Trouble shooting diagnostics
- Hour meter
- Clock
- Machine settings

### Drivetrain

Automatic transmission  
 Torque converter with automatic lock-up  
 Drop box with high/low gear  
 Hydraulic variable retarder  
 6x4 or 6x6 operator selectable drive modes  
 Longitudinal differential lock  
 100% differential locks in all axles

### Brakes

Fully-hydraulic disc brakes  
 Two circuit brake system  
 Parking brake on prop shaft

### Container frame

Container frame for 20' ISO container with remote controlled container locks  
 Headboard for container frame  
 Container corner guidings  
 Side-mounted dumping cylinders  
 Tail light mounted in the back of the container frame  
 Roof-mounted beacon (red) indicating "container lock open"  
 Hydraulic lock to prevent dumping container if not all container locks are engaged

### Tires

26.5R25

### Other

Air drier  
 Tool box

## OPTIONAL EQUIPMENT

### Service and Maintenance

Tool kit with tire inflation unit  
 Electrical hood opening

### Engine

Extra air cleaner  
 Engine engine heater (120V or 240V)  
 External emergency engine stop  
 Delayed engine stop

### Electrical

Work lights, roof-mounted  
 Work lights, reverse, fender-mounted  
 Rotating beacon, collapsible mount  
 Anti-theft system (prevents engine start)  
 Head lights for left hand side traffic

### Cab

Electrically heated rearview mirrors  
 Air-conditioning  
 Radio installation kit  
 Radio  
 Cable kit for cab heater (120V or 240V)  
 Solar guard film, side windows

### Safety

Fire extinguisher and first aid kit  
 Reverse alarm  
 Rear vision system

### External

Belly plates for trailer A-stay  
 Rear mudflaps

### Container frame

Dumping angle limitation (hydraulic)  
 Unlocking mechanism for tailgate (air) including controls

### Tires

800/65R29

### Other

Synthetic hydraulic oil (biologically degradable)  
 Arctic oil kit

*Under our policy of continual 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.*

# VOLVO

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