

VOLVO MOTOR GRADERS
G970, G976,
G990



VOLVO

MORE CARE: MORE THAN AN IDEA

All the value you expect from Volvo now comes through in the Volvo D9-powered G900 Motor Grader family.

More care. Built in.

Volvo Construction Equipment makes this promise to customers everywhere: every Volvo machine will satisfy your highest expectations for equipment that's productive, operator-friendly, reliable and easy to service. Now, Volvo introduces three new motor graders powered by the renowned D9 Volvo engine, all designed, built and tested to keep that same promise in every way.

The Volvo way

The complete family of seven G900 Motor Graders, includes four Volvo D7- and three Volvo D9-powered models. These machines deliver on the brand promise of "More care. Built in." through a combination of proven Volvo technologies and processes:

- bottom-line productivity on the job site
- a safe and comfortable operator environment
- long lasting reliability
- unmatched ease of serviceability with low maintenance demands

This Volvo Motor Grader offering includes three highly efficient and versatile models, all using the field-proven Volvo D9 engine. The result is a selection of graders with outstanding power, torque and fuel efficiency: the 39,000 lb (17 700 kg) G970 tandem drive, the 40,500 lb (18 370 kg) G976 All Wheel Drive (AWD) model and, at 46,300 lb (21 000 kg), the largest machine in the Volvo Motor Grader family: the G990 tandem drive.

Quality with confidence

No family of motor graders anywhere has been subject to more rigorous testing than Volvo G900 Motor Graders. By continuing to listen and respond to customer needs and by investing in new design innovations, the Volvo continuous improvement program will lead the G900 family to ongoing quality leadership.

At home in the Volvo fleet

From end-to-end, from the ground up, G900 Motor Graders are fit and finished to take their place in your fleet. Design details and styling provide a familiar work environment inside and out for owners and operators of any Volvo machine.

Care for the environment, one of the Volvo core values, is reflected in the environmental performance of the G900 Motor Graders. The G900 family meets EU Stage IIIA and US Tier 3 Emission Regulations as well as EU noise standards. Volvo engineering minimizes whole body vibration to maximize operator productivity.

For grader operators and owners everywhere, the G900 Motor Graders will mean a new standard in grading performance and productivity.

The Volvo standard.



Behind the scenes

The development of the G900 Motor Graders resulted in more than a new family of Volvo machines. It also created a new process for grader design and support, based on industry-leading production methods and refined by the Volvo commitment to best practices.

From fit and finish to familiar design detailing, the G900 family will leave no doubt in the minds of equipment owners and operators everywhere: It's a Volvo!



Volvo G900 Motor Graders

‡ With All Wheel Drive engaged

Model		G930	G940	G946	G960	G970	G976	G990
Base operating weight - approximate	lb (kg)	34,300 (15 560)	35,200 (15 970)	36,700 (16 645)	36,800 (16 690)	39,000 (17 700)	40,500 (18 370)	46,300 (21 000)
Engine model/displacement		D7/7.2 L	D7/7.2 L	D7/7.2 L	D7/7.2 L	D9/9.4 L	D9/9.4 L	D9/9.4 L
Low range net power	hp (kW)	155 (116)	175 (131)	195* (145*)	195 (145)	210 (157)	225* (168*)	225 (168)
Mid range net power	hp (kW)	175 (131)	195 (145)	215* (160*)	215 (160)	230 (171)	245* (183*)	245 (183)
High range net power	hp (kW)	195 (145)	215 (160)	235* (175*)	235 (175)	250 (186)	265* (198*)	265 (198)

BUILT-IN PRODUCTIVITY



G900 Motor Graders put power and precision at your fingertips, for smooth performance in every job.

Expect more

With the G900 Motor Graders, Volvo puts the keys to new levels of grader productivity in your hands.

What you'll notice first, is the power

Dig into the job and Volvo digs in with you. Volvo D9 engines are renowned for high torque at low RPMs, producing responsive, fuel-efficient performance under all operating conditions. When you call for power to muscle through heavy overburden or to hold and turn loads smoothly under power, your Volvo G900 Motor Grader comes through without hesitation.

Then there's the touch

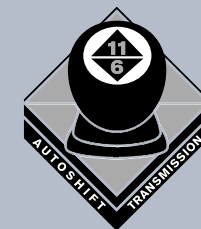
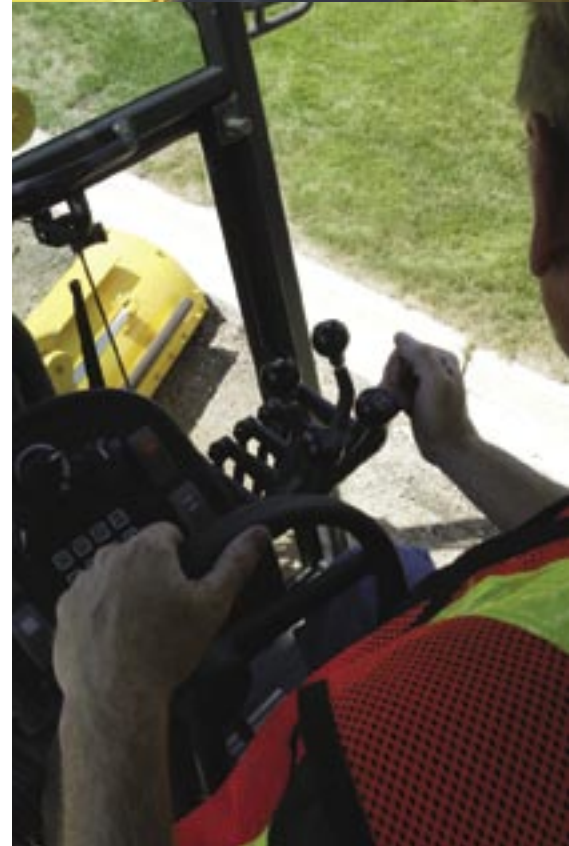
Wide stance blade lift cylinders coupled with the low angle side shift cylinder provide the most stable grading platform in the industry. Proportional Demand Flow (PDF) hydraulics, ideally suited for Automatic Blade Control systems, along with heavy-duty inching clutches and a powerful twin-gear direct-drive circle turn system result in a precise, instantly responsive earthmoving tool. You get more one-pass finishes with cost-saving accuracy.

Gearing up for the bottom line

Volvo HTE transmissions, including standard 8-speed and optional 11-speed models, translate engine output into intelligent power for faster, simpler duty cycles. With selectable Manual, optional Autoshift and Travel modes, Volvo Motor Graders offer power and speed the way you want it, when you want it.

With the Volvo Autoshift mode, you just select your gear and go. Your Volvo HTE transmission does the rest to get you up to speed in your working gear ranges quickly, economically and smoothly.

The innovative shuttle shift feature standard on all transmissions ensures the industry's quickest, simplest duty cycles ever. Shuttle between selected forward and reverse gears in a single smooth motion without clutching, without pausing, for easy effortless control and, best of all, less fatigue at the end of a long day.



HTE1160: the first 11-speed grader transmission

With 11 forward speeds and 6 reverse, the optional HTE1160 from Volvo expands the gear range of the grader to offer more control in the low-speed range, more efficient travel speed in the high range, more precision in the working range and exceptional fuel efficiency for every task. The HTE1160 comes standard with Volvo Autoshift, combining maximum control with ultimate simplicity of operation.

EVERY DAY BEGINS WITH SAFETY FIRST

To make your work environment more productive, Volvo starts by making it safe and comfortable.

A healthy workplace

Open the cab door to your Volvo Motor Grader – with automatic illumination set for the steps and handholds, you step up to the industry's easiest entry and exit. A sloped rear wall provides extra head-room and more side window visibility. A constant flow of fresh double-filtered air fills the cab from 10 well-placed outlets. Inflows of outside air can be adjusted for maximum cab pressurization or increased re-circulation for fast warm-ups or cool downs. High capacity air conditioning and heating systems keep temperatures comfortable in any weather. Windows to the front and sides open wide for natural ventilation. Spend the day in peace and quiet with extensive noise and vibration suppression designed into the cab and the quiet-running Volvo engine behind.

What you see

Expansive glass areas provide exceptional floor-to-roof visibility through the front of the grader, down to the moldboard and close in to the sides.

The rear view is equally clear with sculpted side posts opening the line of sight over the shoulder, complemented by a unique arrangement of interior and exterior mirrors. From the operator seat, all essential operational controls and displays are directly front and center on the pedestal. Environmental and service controls are also packaged together conveniently in the right-hand console.

What you get

A wide range of comfort amenities and ergonomic design features make G900 Motor Graders a great place to spend the working day. Long hours get easier with the low-effort levers, low-effort pedals, all controls within easy reach and a clear view to all displays. The spacious cab quickly adjusts to the individual preferences. Designed with extensive operator input to ensure a highly functional interior layout and lines of sight, you'll find all G900 controls and displays located right where you need and expect them.

The comforts of home:

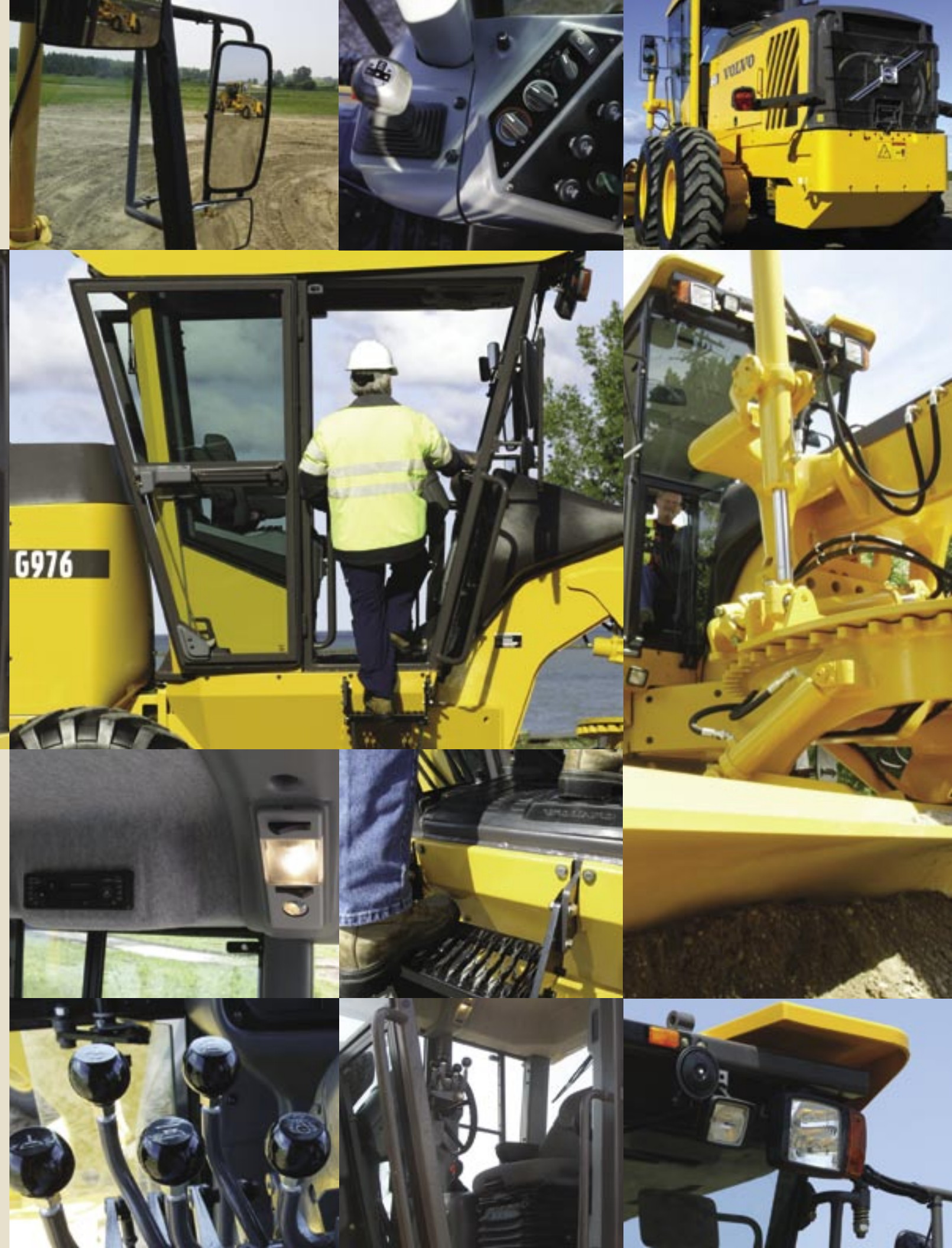
Standard:

- Contronics Monitoring System
- 50,000 BTU heater with 10 outlets
- Two high capacity air filters
- Interior lights
- Illuminated entry
- Non-skid steps
- Cup holder
- Coat hook
- Ashtray
- Storage compartments

Optional:

- 30,000 BTU air conditioner
- Wide-angle wiper pattern (for low profile cab)
- Air suspension seat
- Opening side windows
- Opening lower front windows
- Lunch box and thermos
- Radio/CD player

...and much more!



ASSURED QUALITY LIFELONG RELIABILITY

Volvo Motor Graders set the standard worldwide for performance you can bank on every day, for every job.

All in the family

Built on a solid foundation of field-proven Volvo components including the D9 engine, Volvo transmissions, the Contronics monitoring system and many service items, G900 Motor Graders have been engineered with years of reliable service already built in.

Keep on rolling

Trust Volvo G900 Motor Graders for a long life of hard work.

The modular Volvo assembly process and precise welding technology ensure uniform end-to-end strength in all structural components for lasting durability. Exclusive DURAMIDE™ circle support bearings prevent metal-to-metal contact to keep critical tolerances tight and the circle turning smoothly. Innovative design of the articulation joint achieves a robust assembly that simplifies and protects the routing for hydraulic lines.

Volvo APR planetary reduction axles with operator-controlled hydraulic clutch differential lock deliver power to the ground efficiently while ensuring dependable long-life service. In every detail, G900 Motor Graders reflect the Volvo commitment to lasting value.

Day after day

At Volvo, the details make the difference in day-to-day reliability: extra-strength four-wire hydraulic hoses; sealed electrical connectors; fuse panel connections kept clean and dry inside the cab; premium hydraulic couplings along with smart routing of wiring and hoses to resist wear and abrasion. Through every minute of operation, Volvo Contronics provides a three-level warning system on all vital functions for continuous monitoring including an engine protection feature as standard.

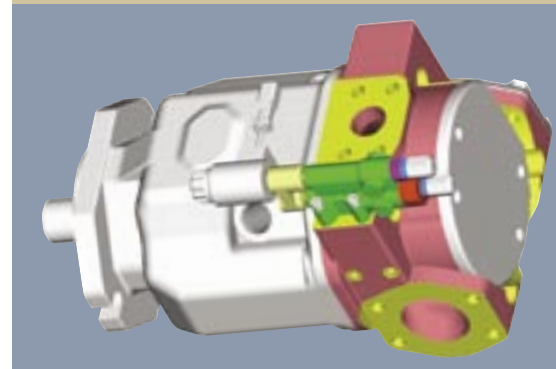
Year after year

Built for work in the real world and offering superb customer protection, the G900 frame is available with an optional first user lifetime warranty. This industry exclusive warranty also includes the maintenance-free articulation pins and bearings for continuous peace of mind. Ask for G900 warranty documentation. See the details!

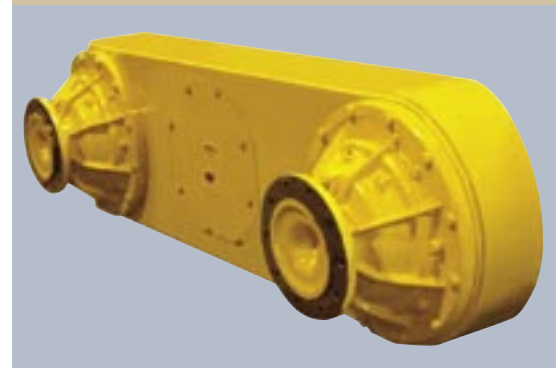
Volvo D9 engine



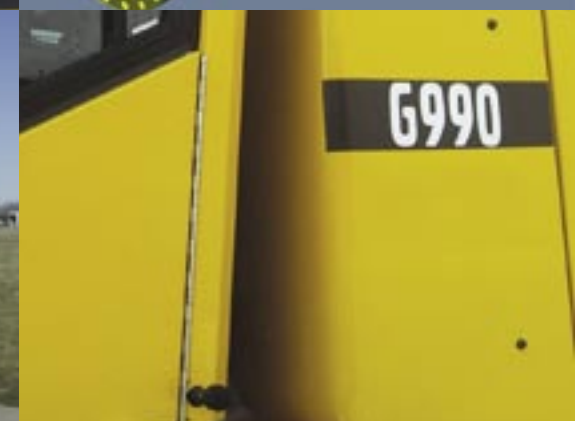
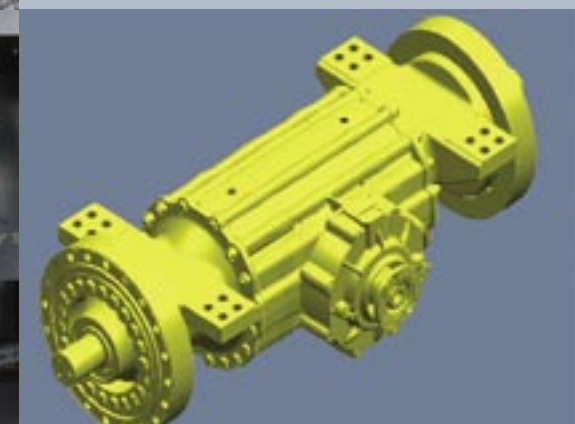
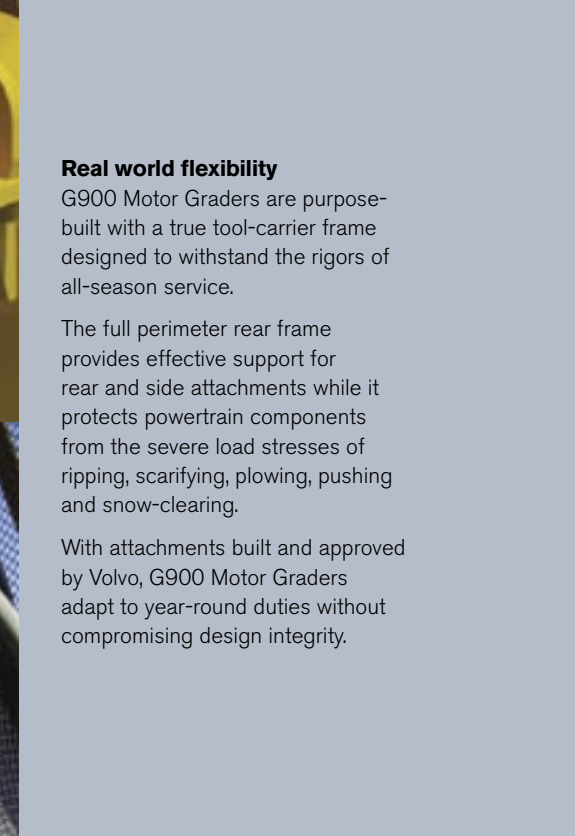
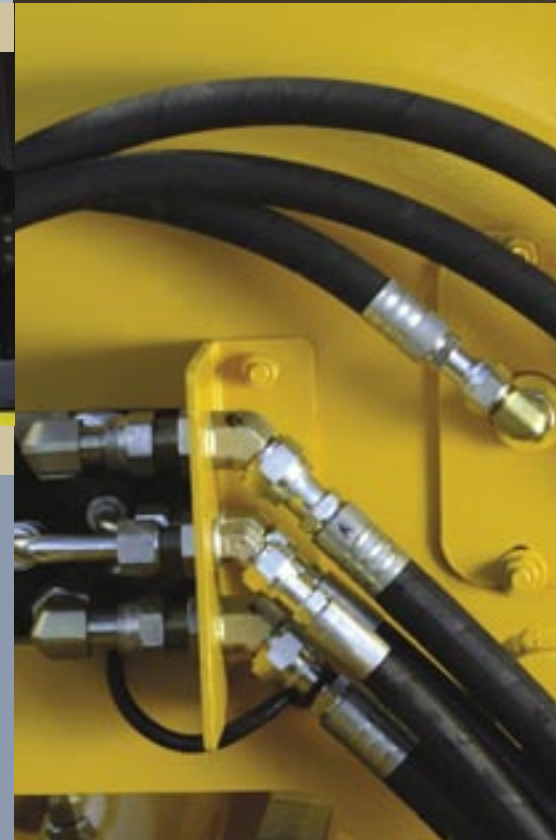
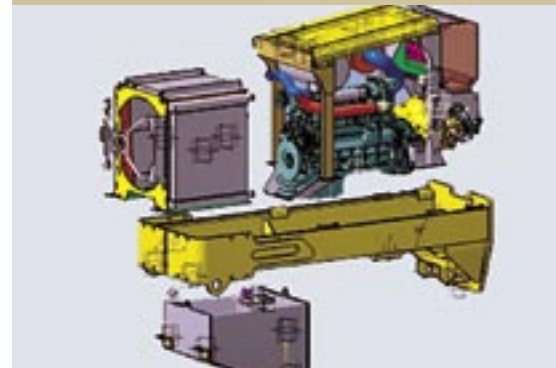
Axial piston pump



Tandem and final drive



Modular component design



Real world flexibility

G900 Motor Graders are purpose-built with a true tool-carrier frame designed to withstand the rigors of all-season service.

The full perimeter rear frame provides effective support for rear and side attachments while it protects powertrain components from the severe load stresses of ripping, scarifying, plowing, pushing and snow-clearing.

With attachments built and approved by Volvo, G900 Motor Graders adapt to year-round duties without compromising design integrity.

LESS WORK MORE PRODUCTION

The Volvo approach to servicing lets you spend more time working on the job, less time working on the machine.

Ease of service, low maintenance demands

G900 Motor Graders carry on the Volvo approach to maximum uptime: minimize the machine's need for service, then simplify the service tasks it does require.

Start every day easy. Sensible Volvo service design starts with fueling and all engine service points accessible from ground-level, with minimal grease points and no daily greasing required. Sight glasses and level sensors make daily checks virtually effortless.

Open for business

With an Easy Lift rear hood, gull-wing side panels and removable hydraulic tank cover, G900 Motor Graders are unrivaled for easy routine service. The complete rear cowling opens wide to allow quick, thorough service checks, then back to work quickly.

Keep it simple, smart

With their modular powertrain design concept, G900 Motor Graders simplify maintenance on major components and allow new levels of flexibility for optimal service scheduling.

The hydraulic system is designed for fast manual or pressure fills through the top of the tank. All added fluids must pass through a large, full flow return filter to prevent accidental contamination in the reservoir that could lead to down time. Hoses are routed over the surface of the frame for simple inspections.

The Volvo cooling module eliminates stacked cores. Instead, multiple cooling cores are positioned to receive fresh, cool ambient air continuously. A thermostatically controlled, hydraulically driven fan maximizes available power and fuel savings. An auto-reversing cooling fan option allows continuous self-cleaning to further improve cooling performance and reduce service needs.

Everything you want to know

The G900 electronic monitoring system provides a familiar window to the standard Volvo Contronics system, providing a complete record of grader functions to help operators, owners and service technicians achieve optimum machine performance.



V-ACT

The new generation of D9 engines with Volvo Advanced Combustion Technology (V-ACT) is tailored for grader applications, designed to run cleanly and efficiently without the extra service requirements of additional equipment or after-treatment of exhaust gases.

ALL-PURPOSE ALL WHEEL DRIVE



Discover more ways to get more production: the G976 All Wheel Drive Motor Grader.

The drive to succeed

When you're looking for excellence in every grader task, Volvo All Wheel Drive is the grader that gets you there. Having a Volvo AWD is like having three drive systems in one: a highly efficient 4-wheel tandem drive, a powerful 6-wheel drive plus the exclusive front-wheel Creep Mode for exceptional fine-grading control.

When the going gets tough

Volvo All Wheel Drive can deliver up to 8,500 lb (3 855 kg) of additional rim pull at the front wheels for increased blade loads. With 16 selectable levels of aggression, operators can match traction to any operating conditions, from highways to haul roads. Now with advanced inching capability, Volvo AWD performance raises the bar industry-wide for starting with high blade loads from a full stop.

Reaching a top speed up to 23.0 mph (36,8 km/h) with the optional* HTE1160 transmission in AWD mode, the G976 is today's top-of-the-line for optimum snow-clearing operations or any high speed AWD application.

* 19.6 mph (31,4 km/h) with standard HTE840 transmission

When fine-grading deadlines are tight, G976 Creep Mode gets you to the finish line first with ultimate precision and effortless control.

Biggest is best

The G976 Motor Grader stands out as the largest AWD machine in its class. With a base weight of 40,500 lb (18 370 kg) and its Volvo D9 engine generating up to 265 hp (198 kW), the G976 gives you the most of what you're looking for to get maximum AWD performance.

A firm footing for AWD

The Volvo AWD system is built around two variable displacement axial piston pumps feeding direct drive wheel motors: no planetary gear reductions, no clutch packs. Displacement is controlled in response to the aggression switch setting for precise wheel power control. The system requires no flow divider valve, providing efficient transmission of power from the pumps to the motors with minimal pressure drops. Hydraulic hoses for the front wheel drive are positioned safely out of harm's way. AWD monitoring is integrated with the Contronics system, ensuring extensive safeguards for lasting reliability.



Ultimate precision

Operating at speeds under 2.5 mph (4,0 km/h), the exclusive Volvo Creep Mode allows the operator to grade using only the hydrostatic front-wheel drive; the rear tandems roll freely behind to minimize scuffing and rework.

Creep Mode is easily selected via the transmission controller. Ground speed is controlled simply by pressing the accelerator pedal. Creep Mode allows extremely smooth starts and stops, eliminating ridges often left by the moldboard in a conventional grader. The result is more precise passes in less time to complete the job.

G900 MOTOR GRADERS FROM THE GROUND UP

“The Voice of the Customer” is evident in every element of the G900 design, from the manufacturing process that builds it to the styling details that say “It’s a Volvo”.

1 Productivity

The complete structural design of G900 Motor Graders is balanced to focus their weight and power for optimum blade down force and drawbar pull values.

2 Heavy-duty front axle

Purpose-built axle with high center ground clearance; a minimum of components ensures long life with minimum maintenance; achieves sharp steering angle for tight turning radius.

3 AWD

G976 models are equipped with three easy-to-use operating modes: efficient standard tandem drive, rugged All Wheel Drive or Volvo exclusive Creep Mode for the industry’s best fine-grading control.

4 Frame

Rugged front and rear frames, designed for quick installation of a full range of attachments.

5 Blade Lift System

Twin-gear direct-drive circle turn system provides maximum strength to either hold or to turn the moldboard smoothly while moving under full load; wide-stance blade lift cylinders provide fine grading stability with the full range of mobility for any application.

6 Service access

Easy Lift rear hood opens wide for easy cleaning access to the radiator; cover panels for the engine, hydraulic centre and battery pack all open up fully for ease of service; ground-level access to all engine service points.

7 Volvo engine

Volvo D9 Tier 3/Stage IIIA engine with V-ACT technology matched to the powertrain with three power levels as standard for optimum performance and fuel efficiency.

8 Planetary rear axle with clutched differential lock

Volvo APR90 axles with planetary reduction final drives reduce loading on tandem chains for maximum service life; purpose-built differential with hydraulic clutch lockup ensures maximum tractive effort at the flick of a switch.

9 High capacity cooling system

Hydraulically driven, variable-speed fan draws power only when needed; optional auto-reversing feature reduces maintenance, improves efficiency.

10 Serviceability

No daily greasing or weekly servicing is required; optional 500-hour engine oil change interval. Tandem and final drive sight glasses make level checks fast and easy. Large capacity hydraulic filter extends change intervals and prevents re-fill contamination as all top-up oils must pass through the filter prior to entering the hydraulic tank.

11 Contronics

Contronics display provides detailed system status to the operator in real time; records up to 25 points of interest for service analysis through the exclusive Matris system from Volvo.

12 Volvo transmission

The full power shift HTE840 and optional HTE1160 transmissions were developed expressly for motor graders. Manual, optional Autoshift and Travel modes optimize performance and fuel economy. Standard shuttle shift feature enables smooth shifting between forward and reverse gears without using the inching pedal.



13 Autoshift

Just select a target gear in the working range and the transmission shifts automatically through turns and grades, as needed. Optional for HTE840 transmission, standard with HTE1160.

14 Operator-friendly cab

ROPS/FOPS enclosed operator compartment lives up to every expectation for a Volvo cab with industry-leading comfort, safety and efficiency. Ergonomic design includes low-effort, short-throw levers; adjustable pedestal with all most frequently used operating controls centered in front of the operator; unobstructed wide-angle views to reduce operator fatigue, increase productivity and maximize safety.

15 Rear-view visibility

Interior and exterior mirrors combine for a clear wide-angle view to the sides and rear of the grader. Rear cab posts are positioned to optimize operator visibility.

16 Fast refueling

Two-stage pop-up rear hood allows quick, convenient access for ground level refueling; lockable panels provide added security on the job site or in the yard.

17 PDF Hydraulics

Proportional Demand Flow (PDF) is an intelligent closed center, load-sensing hydraulic system that delivers the exact amount of hydraulic oil flow when and where it is needed; variable displacement axial piston pump provides excellent multi-function control while conserving fuel; minimal connections for high reliability and low service requirements.

Go big with G990

The G990 Motor Grader is the largest model in the Volvo family, offering extra size and power. These key features translate into maximum strength and control for your toughest jobs.

The G990 combines power with a wide range of special features to make light work of mining, forestry and haul road projects, highway construction and heavy-duty snow-clearing plus the most demanding fine-grade applications.

- Larger tires standard
- Taller moldboard standard
- Heavy duty circle support system with DURAMIDE™
- Extra length in front frame
- Long bladebase for more cutting capability
- High blade pull
- Three engine power curves

SPECIFICATIONS

		G970	G976	G990
Base operating weight - approximate				
Weights shown include full cab with ROPS, all operating fluids, operator and standard equipment.				
Base - Total	lb (kg)	39,000 (17 700)	40,500 (18 370)	46,300 (21 000)
On front wheels	lb (kg)	12,300 (5 580)	12,750 (5 785)	14,350 (6 500)
On rear wheels	lb (kg)	26,700 (12 120)	27,750 (12 585)	31,950 (14 500)
Maximum combined capacity	lb (kg)	50,000 (22 680)	51,500 (23 360)	60,000 (27 216)
Maximum weight - front	lb (kg)	18,500 (8 391)	18,500 (8 391)	18,500 (8 391)
Maximum weight - rear	lb (kg)	34,100 (15 468)	35,000 (15 876)	42,000 (19 051)

Note that adding weight and attachments to the base grader may necessitate a tire upgrade as maximum weight capacity of tire may be exceeded.

		G970	G976	G990
Productivity (Standard equipment)				
Blade pull at base weight (0.9 traction co-efficient)	lb (kg)	24,030 (10 908)	33,475 (15 183)	28,755 (13 050)
Blade pull at maximum base weight (0.9 traction co-efficient)	lb (kg)	30,690 (13 921)	40,000 (18 144)	37,800 (17 146)
Blade down force capability	lb (kg)	21,074 (9 558)	21,845 (9 909)	25,160 (11 395)

Blade down force is the maximum downward force which may be applied at the cutting edge.

		G970	G976	G990
Engine data				
Model		Volvo D9	Volvo D9	Volvo D9
Type		Turbocharged, Aftercooled	Turbocharged, Aftercooled	Turbocharged, Aftercooled
No. of cylinders		In Line 6	In Line 6	In Line 6
Bore & stroke	in (mm)	4.76 x 5.51 (120 x 138)	4.76 x 5.51 (120 x 138)	4.76 x 5.51 (120 x 138)
Displacement	cu in (l)	573 (9,4)	573 (9,4)	573 (9,4)

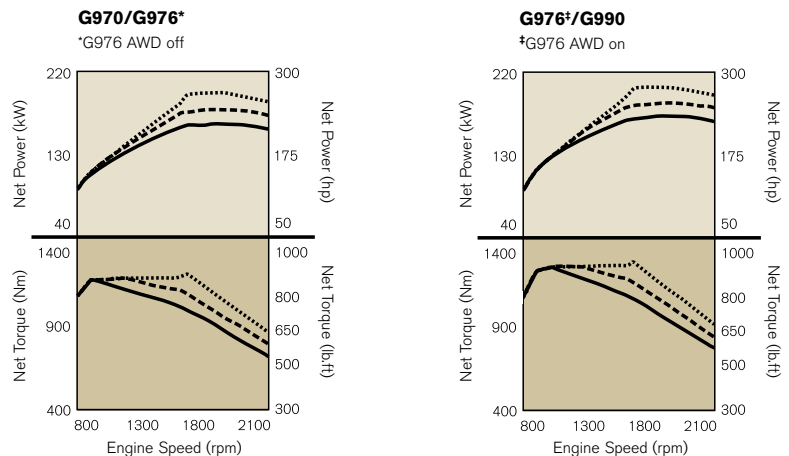
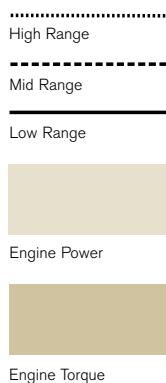
Engine complies to EPA Tier 3, EU Stage IIIA exhaust emission standards.

Electrical system		24 volt - 80 amp (1920 watt) alternator	24 volt - 80 amp (1920 watt) alternator	24 volt - 80 amp (1920 watt) alternator
Batteries (two 12 volt) SAE J537 @ 0° F (-18° C)		950 Cold cranking amps	950 Cold cranking amps	950 Cold cranking amps

1300 CCA batteries available optionally

Engine performance curve

Legend



3 Range engine power control		G970	G976 AWD on	G990
		G976 AWD off		
Low range power				
Rated net brake horsepower @ 2100 RPM [§]	hp (kW)	210 (157)	225 (168)	225 (168)
Torque @1200 RPM	lb.ft (N.m)	857 (1 162)	910 (1 234)	910 (1 234)
Mid range power				
Rated net brake horsepower @ 2100 RPM [§]	hp (kW)	230 (171)	245 (183)	245 (183)
Torque @1400 RPM	lb.ft (N.m)	860 (1 165)	913 (1 237)	913 (1 237)
High range power				
Rated net brake horsepower @ 2100 RPM [§]	hp (kW)	250 (186)	265 (198)	265 (198)
Torque @1550 RPM	lb.ft (N.m)	876 (1 188)	929 (1 260)	929 (1 260)

No engine derating required up to 9,800 ft (3 000 m) altitude. Rated net horsepower SAE J1349/ISO 9249.

[§]Rating is @ 2100 RPM except for EU which is rated @ 1900 RPM in low and mid ranges.

Transmission

Fully sequential, direct drive, Volvo powershift transmission. Engine cannot be started if transmission is in gear. Single lever electronic transmission controller provides self-diagnostics and overspeed protection. Optional HTE1160 has automatic shifting and travel mode as standard equipment.

Ground speeds at 2100 RPM with 14:00 tires. G990 ground speeds with 16:00 tires.

Transmission model		G970		G976		G990	
		HTE840	HTE1160	HTE840	HTE1160	HTE840	HTE1160
Gear							
F1	mph (km/h)	2.6 (4,1)	2.0 (3,2)	2.6 (4,1)	2.0 (3,2)	2.6 (4,2)	2.1 (3,3)
F2	mph (km/h)	3.6 (5,8)	2.6 (4,2)	3.6 (5,8)	2.6 (4,2)	3.7 (5,9)	2.7 (4,3)
F3	mph (km/h)	5.1 (8,1)	3.5 (5,6)	5.1 (8,1)	3.5 (5,6)	5.2 (8,3)	3.6 (5,7)
F4	mph (km/h)	7.1 (11,3)	4.5 (7,2)	7.1 (11,3)	4.5 (7,2)	7.2 (11,6)	4.6 (7,4)
F5	mph (km/h)	10.0 (16,0)	6.0 (9,5)	10.0 (16,0)	6.0 (9,5)	10.3 (16,4)	6.1 (9,7)
F6	mph (km/h)	14.0 (22,4)	7.7 (12,3)	14.0 (22,4)	7.7 (12,3)	14.3 (22,9)	7.8 (12,6)
F7	mph (km/h)	19.6 (31,4)	10.2 (16,2)	19.6 (31,4)	10.2 (16,2)	20.1 (32,2)	10.4 (16,6)
F8	mph (km/h)	27.4 (43,8)	13.5 (21,6)	27.4 (43,8)	13.5 (21,6)	28.1 (44,9)	13.9 (22,2)
F9	mph (km/h)		17.5 (28,1)		17.5 (28,1)		18.0 (28,7)
F10	mph (km/h)		23.0 (36,8)		23.0 (36,8)		23.5 (37,7)
F11	mph (km/h)		29.8 (47,6)		29.8 (47,6)		30.5 (48,8)
R1	mph (km/h)	2.5 (4,1)	2.0 (3,2)	2.5 (4,1)	2.0 (3,2)	2.6 (4,2)	2.0 (3,2)
R2	mph (km/h)	5.0 (7,9)	3.4 (5,5)	5.0 (7,9)	3.4 (5,5)	5.1 (8,1)	3.5 (5,6)
R3	mph (km/h)	9.9 (15,8)	5.8 (9,3)	9.9 (15,8)	5.8 (9,3)	10.1 (16,1)	6.0 (9,5)
R4	mph (km/h)	19.3 (30,1)	7.7 (12,3)	19.3 (30,1)	7.7 (12,3)	19.8 (31,6)	7.9 (12,6)
R5	mph (km/h)		13.3 (21,3)		13.3 (21,3)		13.6 (21,8)
R6	mph (km/h)		22.6 (36,2)		22.6 (36,2)		23.2 (37,1)

Engine Power Range	Transmission Gear	
	Volvo HTE840	Volvo HTE1160
Low	F1, F2 R1	F1, F2, F3 R1, R2
Mid	F3, F4, F5 R2, R3	F4, F5, F6, F7 R3, R4
High	F6, F7, F8 R4	F8, F9, F10, F11 R5, R6

		G970	G976	G990
Tandems				
Depth	in (mm)	8.9 (226,5)	8.9 (226,5)	8.9 (226,5)
Height	in (mm)	24.25 (616)	24.25 (616)	24.25 (616)
Thickness				
inner wall	in (mm)	1 (25)	1 (25)	1 (25)
outer wall	in (mm)	.78 (20)	.78 (20)	.78 (20)
Center distance	in (mm)	61 (1 550)	61 (1 550)	66 (1 675)
Drive chain pitch	in (mm)	2 (51)	2 (51)	2 (51)
Oscillation	degrees ±	15°	15°	15°
Differential / Final drive				
Model		Volvo APR90	Volvo APR90	Volvo APR90
Planetary final reduction with an operator controlled lock/unlock differential.				
Wheels & tires (Standard equipment)				
Tire size		14:00 x 24, G-2	14:00 x 24, G-2	16:00 x 24, G-2
Ply rating (PR)		12	12	12
Rim size	in (mm)	10 (254) One piece rim	10 (254) Three piece rim	10 (254) One piece rim
Bolt-on rims interchangeable between front and rear		Yes	No	Yes
Front axle and articulation				
Wheel lean	degrees R & L	18°	18°	18°
Oscillation	degrees up & down	16°	16°	16°
Ground clearance	in (mm)	22 (551)	22 (551)	23.5 (596)
Minimum turning radius using front axle steering, articulation, wheel lean and unlocked differential	in (mm)	312 (7 925)	312 (7 925)	321 (8 150)
Steering arc	degrees	50°	50°	50°
Frame articulation angle	degrees	21°	21°	21°
Anti-drift lock valve ensures stable operation. Articulation lock standard.				
Hydrostatic power steering of front wheels incorporating two steering cylinders. Meets SAE J1511 FEB. 94, ISO 5010:1992 with optional secondary steering.				
Brakes				
Service Brakes: Foot operated				
Fade resistant, hydraulically actuated, wet multiple disc service brakes located at the 4 tandem drive wheels are fully sealed and maintenance free.				
System features crossover dual braking circuits for uniform braking on both sides of the grader. Includes reserve power assist and operator warning system (visual and audible).				
Parking Brake				
Spring applied hydraulically released enclosed wet multiple disc type parking brake in final drive. Effective on all 4 tandem drive wheels.				
Transmission cannot be engaged with park brake on.				
Braking systems comply to SAE J/EN ISO 3450:1996.				
Volvo uses asbestos free brake components.				

		G970	G976	G990
Frame				
Front				
Minimum dimensions of box section	in (mm)	10.5 x 13.4 (267 x 340)	10.5 x 13.4 (267 x 340)	10.5 x 13.4 (267 x 340)
Plate thickness	in (mm)	1 & 1.2 (25 & 30)	1 & 1.2 (25 & 30)	1.2 & 1.6 (30 & 40)
Vertical section modulus at arch	cu in (cm ³)	163 (2 671)	163 (2 671)	185 (3 032)
minimum	cu in (cm ³)	137.7 (2 256)	137.7 (2 256)	157.9 (2 588)
maximum	cu in (cm ³)	283.9 (4 652)	283.9 (4 652)	324.3 (5 626)
Rear				
Minimum dimensions	in (mm)	11 x 4 (280 x 102)	11 x 4 (280 x 102)	11 x 4 (280 x 102)
Optional first user lifetime warranty on frame and articulation joint.				
Moldboard				
Standard moldboard with replaceable end bits	in (mm)	1.0 x 29 x 144 (25 x 737 x 3 658)	1.0 x 29 x 144 (25 x 737 x 3 658)	1.0 x 31 x 168 (25 x 787 x 4 267)
Moldboard material		SAE 1050 high carbon steel	SAE 1050 high carbon steel	SAE 1050 high carbon steel
Edge: through hardened	in (mm)	6 x 5/8 (152 x 16) boron steel	6 x 5/8 (152 x 16) boron steel	8 x 1 (203 x 25) boron steel
Bolt spacing	in (mm)	6 (152)	6 (152)	6 (152)
Bolt size	in (mm)	5/8 (16)	5/8 (16)	3/4 (19)
Slide rails supported by DURAMIDE™ bearings		Yes	Yes	
Slide rails supported with adjustable metallic bearings				Yes
Moldboard range: Moveable Blade Control System				
(Dimensions shown with standard tires and moldboard)		Left/Right	Left/Right	Left/Right
Reach outside tires - articulated frame	in (mm)	118/117.5 (2 997/2 985)	118/117.5 (2 997/2 985)	121.5/121 (3 086/3 073)
Reach outside tires - straight frame	in (mm)	77.5/77 (1 969/1 956)	77.5/77 (1 969/1 956)	89/88.5 (2 261/2 248)
Moldboard slide	in (mm)	26.5/26.5 (673/673)	26.5/26.5 (673/673)	26.5/26.5 (673/673)
Circle side shift	in (mm)	30.5/29.5 (775/749)	30.5/29.5 (775/749)	30/29.5 (762/749)
Maximum bank sloping angle, left - right	degrees	90°	90°	90°
Moldboard ground clearance	in (mm)	17.5 (445)	17.5 (445)	17 (432)
Moldboard cutting depth	in (mm)	31 (787)	31 (787)	32 (813)
Moldboard tilt range	degrees forward	44°	44°	46°
	degrees back	6.5°	6.5°	13°
Superior moldboard mobility permits steep ditch cutting angles and back sloping outside overall machine width.				

		G970	G976	G990
Circle				
Pitch diameter	in (mm)	64 (1 626)	64 (1 626)	64 (1 626)
Thickness	in (mm)	1.25 (32)	1.25 (32)	2.0 (51)
Adjustable guide shoes - standard / optional		3 / 5	3 / 5	5 / -
Adjustable clamp plates - standard / optional		3 / 5	3 / 5	5 / -
Upper circle wear plates - standard / optional		3 / 5	3 / 5	5 / -

Circle to drawbar support is provided by DURAMIDE™ wear plates and bearings at the clamp and guide shoes. DURAMIDE™ prevents metal-to-metal contact and provides maximum service life.

Circle drive

The Volvo dual gear Circle Drive System uses direct acting hydraulic power for exceptional turning and holding capability under full load. Circle Drive System uses two hardened drive pinions and is protected against impact damage by an overload relief valve as standard equipment.

Rotation	degrees	360°	360°	360°
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Drawbar

Dimensions of box section	in (mm)	6.5 x 6.5 (165 x 165)	6.5 x 6.5 (165 x 165)	6.5 x 6.5 (165 x 165)
Plate thickness	in (mm)	1 & .75 (25 & 19)	1 & .75 (25 & 19)	1.5 & .75 (38 & 19)

Cab & controls

Low profile cab with ROPS/FOPS

Interior height	in (mm)	64 (1 625)	64 (1 625)	64 (1 625)
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An optional full height cab is available with an inside height of 72.5" (1 842 mm).

All Volvo Grader cabs and canopies are designed to meet or exceed SAE J/ISO 3471-1:2004 and EN 13510:2000 ROPS requirements and SAE J/pr EN ISO 3449:2002 Level 2 FOPS requirements.

The retractable seatbelt is 3" (76 mm) wide and meets SAE J386 NOV. 97 and EN ISO 6683:1999. Industry standardized control lever arrangement.

Interior operator noise levels average 75 dB(A) per ISO 6394:1998 (enclosed cab).

Implement hydraulics

Circuit type: Closed center, load sense Proportional Demand Flow (PDF) Hydraulic System, with O-ring face seal hose connections.

Main implement pump type		Axial piston type	Axial piston type	Axial piston type
Maximum pressure	psi (Bar)	3,000 (207)	3,000 (207)	3,000 (207)
Output 2100 RPM	gpm (lpm)	55 (208)	55 (208)	55 (208)
Stand by pressure	psi (Bar)	350 (24)	350 (24)	350 (24)

Filtration

Large capacity, replaceable in-tank filter. Filters both system and re-fill oil. With low level and high temperature operator warning.

Hydraulic fan drive pump

Type

Axial piston pump dedicated to the variable speed cooling fan. Reversible cooling fan optionally available.

		G970	G976	G990
Capacities				
Fuel tank	U.S. Gal. (l)	125 (473)	125 (473)	125 (473)
Transmission	U.S. Gal. (l)	15.9 (60)	15.9 (60)	15.9 (60)
Final drive	U.S. Gal. (l)	6 (23)	6 (23)	6 (23)
Tandems (each)	U.S. Gal. (l)	26.4 (100)	26.4 (100)	27.7 (105)
Hydraulic oil tank	U.S. Gal. (l)	28 (106)	42 (159)	28 (106)
Coolant antifreeze protection to -58° F (-50° C) approx	U.S. Gal. (l)	12.4 (47)	12.4 (47)	12.4 (47)
Engine oil	U.S. Gal. (l)	10 (39,1)	10 (39,1)	10 (39,1)

Attachments

(Optional unless otherwise stated as standard equipment)

Push Block	lb (kg)	1,050 (475)	1,050 (475)	1,050 (475)
Ripper includes rear frame arch support and links	lb (kg)	3,200 (1 450)	3,200 (1 450)	3,200 (1 450)
Mid Mount Scarifier	lb (kg)	1,900 (850)		
Front Mount Scarifier	lb (kg)	1,552 (704)	1,552 (704)	
Dozer: 9' (2,7 m)	lb (kg)	2,360 (1 070)	2,360 (1 070)	2,360 (1 070)
10' (3,0 m)	lb (kg)	2,415 (1 095)	2,415 (1 095)	2,415 (1 095)

All Wheel Drive

Typical operating pressure	psi (Bar)		2,500 (172)	
Maximum operating pressure	psi (Bar)		5,000 (345)	
Minimum operating pressure	psi (Bar)		500 (34)	
Top speed	mph (km/h)		20.4 (33)	
Creep Mode speed	mph (km/h)		0 - 2.5 (0 - 4)	
Maximum rim pull	lb (kg)		8,500 (3 855)	

When equipped with the HTE840 transmission, the Volvo high torque All Wheel Drive System operates in forward gears 1-7 and reverse gears 1-4.

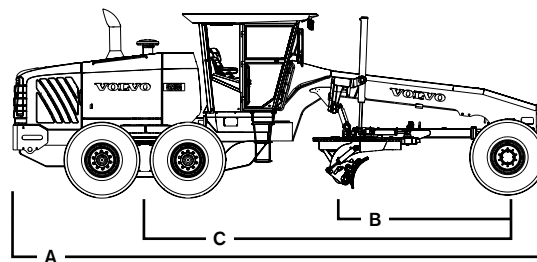
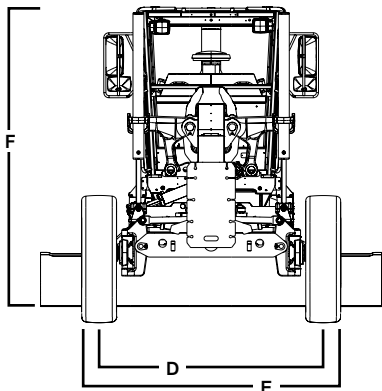
When equipped with the HTE1160 transmission, the Volvo high torque All Wheel Drive System operates in forward gears 1-10 and reverse gears 1-6.

In addition, the Volvo system provides the operator with the ability to fine grade in Creep Mode using only hydrostatic front wheel drive, between 0 - 2.5 mph (0 - 4 km/h).

Dimensions

All dimensions are approximate.

A	in (mm)	377 (9 578)	377 (9 578)	386 (9 800)
B	in (mm)	107 (2 718)	107 (2 718)	113 (2 870)
C	in (mm)	257 (6 531)	257 (6 531)	263 (6 681)
D	in (mm)	88 (2 239)	88 (2 239)	92 (2 340)
E	in (mm)	104 (2 657)	104 (2 657)	111 (2 809)
F	in (mm)	127 (3 220)	127 (3 220)	129 (3 260)



Legend

- A = Overall length
- B = Bladebase
- C = Wheelbase
- D = Width - Tire center lines
- E = Width - Outside tires
- F = Overall height with Low Profile Cab

STANDARD FEATURES / OPTIONAL EQUIPMENT

Model (S - Standard / O - Optional)	G930	G940	G946	G960	G970	G976	G990
Powertrain							
Volvo engines meets off-road Tier 3 / Stage IIIA emission criteria - 3 power curves	S	S	S	S	S	S	S
Rear axle, operator controlled, lock/unlock differential with planetary final reduction	S	S	S	S	S	S	S
4 wheel wet disc braking system with crossover dual circuits and reserve power assist	S	S	S	S	S	S	S
Spring applied wet multiple disc park brake with operator warning alarm and indicator	S	S	S	S	S	S	S
Electronic hand throttle with RPM hold and resume functions	S	S	S	S	S	S	S
Operator controlled Power/Speed engine mode	S	S	S	S	S	S	S
Direct drive, power shift Volvo HTE840 transmission with 8 forward and 4 reverse gears	S	S	S	S	S	S	S
Transmission guard	S	S	S	S	S	S	S
Single transmission control lever, with electronic over speed protection, advanced memory shift and park position lockout	S	S	S	S	S	S	S
Transmission Autoshift and Travel functions	O	O	O	O	O	O	O
Direct Forward to Reverse shuttle shift capability without using the Inching pedal	S	S	S	S	S	S	S
Volvo HTE1160 Transmission - 11 speeds forward 6 speeds reverse includes Autoshift and travel functions	O	O	O	O	O	O	O
Reversible cooling fan - manual or automatic modes	O	O	O	O	O	O	O
Engine protection feature - return to idle	S	S	S	S	S	S	S
Electrical							
Cab mounted headlights with dimmer switch	S	S	S	S	S	S	S
Lights; backup, tail, stop and directional	S	S	S	S	S	S	S
Backup alarm with automatic volume levels	S	S	S	S	S	S	S
Moldboards work lights - 2 or 4	O	O	O	O	O	O	O
Rear work lights - 2 or 4	O	O	O	O	O	O	O
Corner cab work lights - left or right - 2	O	O	O	O	O	O	O
Maintenance free batteries	S	S	S	S	S	S	S
100 amp (2400 watt) alternator	O	O	O	O	O	O	O
24 volt to 12 volt converter - 25 or 60 amp (600 or 1440 watt)	O	O	O	O	O	O	O
Productivity							
7 position Blade Control System for optimum blade mobility	S	S	S	S	S	S	S
Twin gear direct drive circle turn system with impact protection	S	S	S	S	S	S	S
DURAMIDE™ wear strips prevent metal-to-metal contact for maximum service life	S	S	S	S	S	S	S
Heavy duty circle support system	O	O	O	O	O	O	S
Hinged cooling module fan door for easy trash clean out	S	S	S	S	S	S	S
Ground level fueling	S	S	S	S	S	S	S
Lockable tool box with storage space for scarifier shanks	S	S	S	S	S	S	S
Moldboards: 12' x 25" x 7/8" (3 658 x 635 x 22 mm)	S	S	S	S			
13' x 25" x 7/8" (3 962 x 635 x 22 mm)	O	O	O	O			
14' x 25" x 7/8" (4 267 x 635 x 22 mm)	O	O	O	O			
12' x 29" x 1" (3 658 x 737 x 25 mm)					S	S	
13' x 29" x 1" (3 962 x 737 x 25 mm)					O	O	
14' x 29" x 1" (4 267 x 737 x 25 mm)					O	O	
14' x 31" x 1" (4 267 x 787 x 25 mm)							S
16' x 31" x 1" (4 877 x 787 x 25 mm)							O
Moldboard extensions RIGHT or LEFT - 2' (610 mm)	O	O	O	O	O	O	O
Moldboard edges - carbide 3/4" x 5" (19 x 127 mm) or 1" x 8" (25 x 203 mm) harden steel	O	O	O	O	O	O	O
Brackets for Automatic Blade Control System installation	O	O	O	O	O	O	O
Metallic lower slide bearing	O	O	O	O	O	O	S
Tires							
Consult your Volvo dealer for full offering							
Tires: 14:00 X 24 - G2	S	S	S	S	S	S	
17:5 x 25, 12 PR, G-2	O	O	O	O	O	O	
16:00 X 25					O	O	S
20:5 X 25					O		O

Model (S - Standard / O - Optional)	G930	G940	G946	G960	G970	G976	G990
Hydraulics							
Proportional Demand Flow hydraulic system with short throw, low effort control levers	S	S	S	S	S	S	S
10 section hydraulic control valve - includes two spare sections	S	S	S	S	S	S	S
Circle turn relief located integral with main manifold	S	S	S	S	S	S	S
Hydraulic oil level monitor via Contronics	S	S	S	S	S	S	S
Blade Lift Float Control, right and left detent style	O	O	O	O	O	O	O
Front attachment float control, detent style, independent of other float valves	O	O	O	O	O	O	O
Several remote valve locations for attachments	O	O	O	O	O	O	O
Secondary steering (power assisted)	O	O	O	O	O	O	O
Operator Cab							
Illuminated entry when cab doors are opened - enclosed cab only	S	S	S	S	S	S	S
Adjustable steering control pedestal with tilt head for maximum operator comfort	S	S	S	S	S	S	S
Gauges include: coolant temperature, engine oil pressure, fuel level, hourmeter, articulation angle indicator	S	S	S	S	S	S	S
Multi-function Volvo Contronic Monitoring System with visual and audible warnings	S	S	S	S	S	S	S
Deluxe, cloth covered, fully adjustable suspension seat when grader is equipped with an enclosed cab - 3" (75 mm) retractable seatbelt	S	S	S	S	S	S	S
Deluxe air suspension, cloth covered, fully adjustable suspension seat - 3" (75 mm) retractable seatbelt	O	O	O	O	O	O	O
Left and right outside dual rear view mirrors	S	S	S	S	S	S	S
Fold-away left and right outside dual rear view mirrors	O	O	O	O	O	O	O
Dual interior rear view mirrors	S	S	S	S	S	S	S
Enclosed Low Profile Cab with ROPS and FOPS	S	S	S	S	S	S	S
Enclosed High Profile Cab with ROPS and FOPS	O	O	O	O	O	O	O
Low Profile Cab (SPLIT) with ROPS and FOPS	O	O	O	O			
Low Profile canopy shell (SPLIT) with ROPS	O	O	O	O			
Cab heater - 50,000 BTU with cab pressurizer and replaceable filters	S	S	S	S	S	S	S
Air conditioner - 35,000 BTU • HFC-134a (non-CFC refrigerant)	O	O	O	O	O	O	O
Defroster fan with multiple outlets	O	O	O	O	O	O	O
Radio/CD player with 4 speakers	O	O	O	O	O	O	O
Single arm front cab wiper and washer, enclosed cab	S	S	S	S	S	S	S
Single arm wiper and washer - rear window	O	O	O	O	O	O	O
Single arm wiper and washer - lower windows front left & right	O	O	O	O	O	O	O
Dual arm front windshield, Low Profile Cab only	O	O	O	O	O	O	O
Intermittent wipers	O	O	O	O	O	O	O
Window - lower front - opening	O	O	O	O	O	O	O
Window - left/rightside - opening sliders	O	O	O	O	O	O	O
Lower cab shield, encloses bottom of cab to frame	O	O	O	O	O	O	O
Attachments							
Fenders front or rear	O	O	O	O	O	O	
Dozer Blade: 8' (2 438 mm)	O	O	O	O			
9' (2 743 mm)	O	O	O	O			
10' (3 048 mm)					O	O	O
Front Mounted Scarifier with 5 scarifier teeth	O	O	O	O	O	O	
Mid Mount Scarifier with 5 scarifier teeth	O	O		O	O		
Push Block	O	O	O	O	O	O	O
Ripper/Scarifier, rear with 3 ripper shanks	O	O	O	O	O	O	O
Other							
Painted high gloss Volvo yellow and grey	S	S	S	S	S	S	S
First user lifetime frame warranty	O	O	O	O	O	O	O
Paint - custom colors	O	O	O	O	O	O	O
Low ambient fluids for extreme cold conditions below -14° F (-10° C)	O	O	O	O	O	O	O
Tool kit	O	O	O	O	O	O	O
Sound reduction packages (Standard in EU markets)	O	O	O	O	O	O	O
Rear licence plate bracket	O	O	O	O	O	O	O
Air compressor - engine driven with tank	O	O	O	O	O	O	O

Partial listing of available options. Certain features may be standard or not available within specific market. Consult your Volvo Motor Grader distributor for more information.



Volvo Construction Equipment is different. It's designed, built and supported in a different way. That difference comes from an engineering heritage of over 170 years. A heritage of thinking first about the people who actually use the machines. About how to help them be safer, more comfortable, more productive. About the environment we all share. The result of that thinking is a growing range of machines and a global support network dedicated to helping you do more. People around the world are proud to use Volvo. And we're proud of what makes Volvo different – **More care. Built in.**



All products are not 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.

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Construction Equipment
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Ref. No. VOE 21 A 100 2235
Printed in Canada 2005.11-5,0
Volvo, Goderich

English
GRD