



Volvo Construction Equipment

ADVANCED TRAINING SIMULATORS

FOR VOLVO EXCAVATORS, VOLVO WHEEL LOADERS AND VOLVO ARTICULATED HAULERS



Trained operators perform

At Volvo Construction Equipment, we understand that today's customers do not buy machines – they buy productivity. While the Volvo machine is the enabler, it's up to the skills of the operator to get the job done safely, efficiently and cost effectively. This is why we have developed advanced training simulators for Volvo Construction Equipment. Helping you to train your operators for a more productive and profitable machine ownership.

Advanced training simulators for Volvo Construction Equipment

- Volvo Excavators
- Volvo Wheel Loaders
- Volvo Articulated Haulers
- Volvo Demolition

With our advanced training simulators, if used in combination with theoretical and regular training, your operators can reach new levels of expertise and professionalism. This is important since having well-trained operators is a key to maximizing machine performance and on-the-job productivity. Simply put, everybody wins.

Advanced and realistic training

Our advanced training simulators for Volvo Construction Equipment offers training so realistic that it can be compared to traditional training*. The combination of several realistic exercises with realistic sounds and movements trains the operator in situations where all senses are needed – just like in the real machines. What's more, our simulators provide pedagogic step-by-step training with evaluation and follow up.

Safety training – safely

Experience matters. Simulators enable training in high-risk scenarios and uncommon situations without risking the safety of the operator and trainer or damage to the real machines. With our advanced training simulators, the scenarios and the feedback from the simulator create a very realistic setting that prepares the operator in the best possible way.

Imagine being able to expose your excavator operators, for example, to a slippery slope using the simulator. After rolling the machine once they will have learned to protect themselves with the arm and bucket. The simulators offer relevant and realistic training setups like this for operators of excavators, wheel loaders and articulated haulers.

The cost-effective way to train

Keep your machines at work – and not in school. With our simulators, you can give your operators advanced, realistic training without having to take your machines out of operation or risk downtime due to training-related machine damage. Simply put, the cost for running simulators is a fraction of the operating cost of using a real machine in training.

One single trainer can give high quality training to a larger group without losing track of the progress of each individual – saving both man-hours and costs. The simulator provides operators with regular follow up so that they can improve skills like fuel and load efficiency, economy in operation as well as tire wear, which will help reduce operational and maintenance cost in the real situations down the road.

With simulator-based training, there is no risk of having to postpone training sessions due to weather conditions, availability of equipment or job site freedom. So no excuses.

Environmental care

Make a big impact with a small footprint. Our advanced training simulators sound and move like real machines but the environmental impact is minimal in comparison. In addition, operators are trained in how to operate the machine in the most fuel efficient way. Saving even a small amount of fuel every day can add up to a big reduction in harmful emissions and fuel costs in the long run.

* Based on studies at University of North Carolina, 2008





An empowering opportunity

Our advanced training simulators for Volvo Construction Equipment give operators the opportunity to inspect the impact of their operating techniques via a third person view – without having to leave their seats. This helps them to understand why and how their operating techniques impact the work of others and overall performance at the site.

Operating in a virtual environment is less stressful for new operators and helps experienced operators to optimize their performance. Certain things can be emphasized, making it easier for the operator to understand how to perform a specific task more safely and efficiently.



Exercises and training programs

Our advanced training simulators for Volvo Construction Equipment feature a multitude of different exercises, each handcrafted to focus on a certain operator skill or ability. The training instructor can either use one of the predefined Volvo Training Packages or create tailor made exercise packs for different student groups.

Basic training program

Our simulator-based training for Volvo Excavators, Volvo Wheel Loaders and Volvo Articulated Haulers and Volvo Demolition includes a basic training program. It familiarizes operators with the controls and functions of the relevant machine, with particular focus on basic operating methods and skills.

Training program Volvo Excavators

Rock handling

Operators learn how to work with rocks in a safe and efficient manner, and are able to practice day-to-day tasks such as how to work with large rocks and how to load a hauler.

Earth moving

Operators are able to learn about and practice tasks such as loading trucks with dirt and digging various types of ditches. It includes step-by-step instructions on how to perform these tasks safely and efficiently.

Tilt rotator

Here, operators practice highly skilled operating tasks performed with a tilt rotator. It begins by teaching the fundamentals and making sure that the operator knows how to operate the tilt rotator properly. After achieving a certain skill level, the operator moves on to a more advanced task, such as grading, leveling or pallet handling.

Training program Volvo Wheel Loaders

Rock handling

Operators learn how to work with rocks in a safe and efficient manner, and are able to practice day-to-day tasks such as how to work with large rocks and how to load a hauler.

Earth moving

Operators are taught how to use a Volvo Wheel Loader for earth moving tasks correctly and efficiently. Simply put, how to utilize the machine to the fullest.

Pallet handling

Operators learn how to use pallet forks with a particular focus on safe practices and correct work methods.

Forestry applications

The wheel loader is a multiplepurpose machine, which is reflected in the training package that comes with it. Here, we focus on handling of cut-to-length material with grapples.

Training program Volvo Articulated Haulers

Rock handling

As an option, the Volvo Wheel Loader Simulator can be converted to a full-scale Volvo Articulated Hauler Simulator in a matter of minutes – complete with authentic controls and a comprehensive training program.

Safe loading and unloading

Learning and practicing safe and efficient loading techniques, such as enforcing correct usage of the load and dump brake, enables operators to perform at top levels in terms of both safety and productivity. Fine tuning details, such as angle of approach, truck exchange time and optimal truck spacing, prepares operators for a high demand environment where operating skills are crucial.

Training program Volvo Demolition

Sorting

Operator is to sort debris with a grapple. The debris is to be sorted into three containers according to material.

Processing area

Train to cut steel beams with shears and munch concrete with a crusher. When munching concrete the re-bar should be left intact and placed in the container.

Breaking area

The operator will practice using a hammer to break concrete.

High reach training

Practice safe high reach demolition methodology. Apply the shears at the green markers to remove a beam. New beams become available according to the prescribed cut order.

Tilting the cabin

The cabin tilt is controlled using the two lower buttons on numpad. The left buttons lowers the cabin the right button raises the cabin. Keep the button depressed while adjusting the tilt.





The muscle memory

When a movement is repeated over time, a long-term muscle memory is created for that task. Eventually it can be performed without conscious effort. This frees up the operator to concentrate and focus more on the bigger picture. How should I plan my work? Where is the optimal placement of the next truck?

Helping operators reach this level of confidence increases their chances of performing well and understanding the work site properly. After all, a calm and skilled operator knows how to plan the work ahead and knows how to perform his or her tasks in a safe manner.



Supporting the instructor

Meeting the high demands on today's operators requires competent instructors. At Volvo, we are committed to doing everything we can to support instructors by providing the very best tools. Our goal is clear: to make training as effective, efficient and enjoyable as possible – for instructors and operators alike.

External views open new perspectives

Our advanced training simulators can come equipped with an extra screen that can be used either as an overview screen showing a third person view or a rear view camera. Switching between the two views is done in an instant so that the simulator can be easily adapted to the training need at hand.



Simulator Management System

Instructors usually want their operators to follow a defined exercise path. Only after attaining a certain skill level are they allowed to continue training on new techniques. Our simulators come with a web interface that offers all the necessary tools for this. It provides a quick and easy overview so that you can track the progress of each individual or even an entire group of operators. Specific exercises and individual progress is seamlessly shared between all of your simulators so that operators can continue where they left off on another unit.

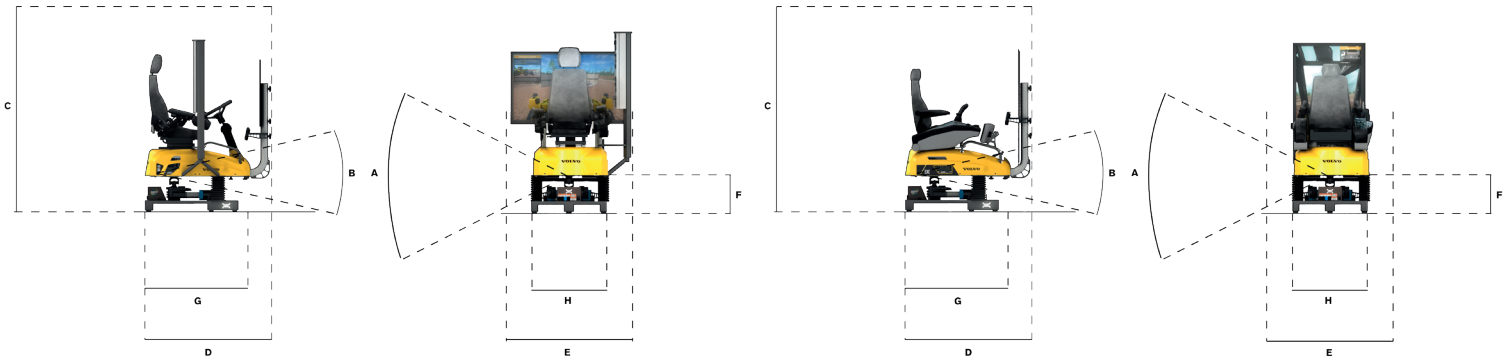
Statistics and Evaluation

After each completed exercise, the system produces a report containing multiple facts about the performance of the operator. The statistics that are collected vary between exercises but examples include fuel consumption, rpm modes, use of power boost and use of quick fit.



Hardware Specifications

All advanced training simulators for Volvo Construction Equipment are equipped with authentic Volvo controls. Using real machine hardware guarantees full performance and durability of the simulator, while at the same time providing the operator with maximum realism.



Specifications

Tilting angles		
A	Maximum roll:	23 degrees
B	Maximum pitch:	15 degrees
	Velocity:	pitch 30 degrees/s roll 46 degrees/s

Measurements: WLO/ART		
C	Height:	1992 mm (WLO) 1419 mm (ART)
D	Length:	1419 mm
E	Width:	1052 mm (WLO) 1096 mm (ART)
	Weight:	273 kg (including motion base) ART add on +10 kg

Measurements: EXC/DEMOLITION		
C	Height:	1839 mm
D	Length:	1421 mm
E	Width:	800 mm
	Weight:	277 kg (including motion base)

Measurements: motion base		
F	Height:	410 mm
G	Length:	1 050 mm
H	Width:	800 mm
	Weight:	120 kg
Power supply: simulator		
		115 VAC, 50 – 60 Hz, 20 Amps
		230 VAC, 50 – 60 Hz, 10 Amps
Internet for remote support		
		Ethernet RJ45
Extra video/audio out		
		HDMI

Motion and feedback from the machine

Operators use all their senses when operating a real machine. That is why we equip all of our simulators with state-of-the-art motion bases. Being able to feel the machine and experience correct feedback from the material you are working with greatly improves the training value of a simulator.

Ideal for new and experienced operators

After completing our simulator-based training, new operators are much less anxious when they get into a real machine for the first time. After all, they are now accustomed to the motions and behavior of the machine – and know what to expect. The simulator gives experienced operators the opportunity to practice dangerous scenarios and learn how to react instinctively in a critical situation.

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.



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