



Safety

Towards
zero accidents

VOLVO

Driving progress

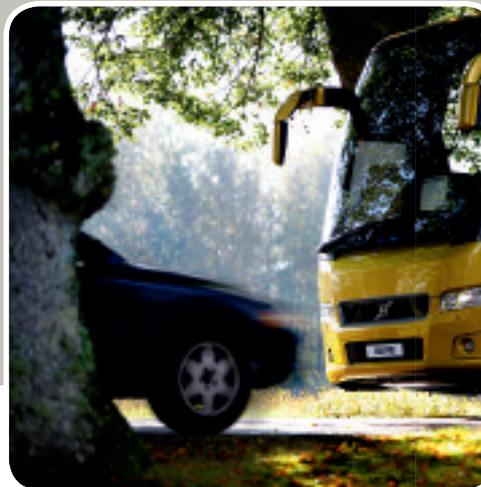


The Volvo Group's research and development has resulted in many innovative safety solutions. We are proud of these innovations from the truck and bus area

Driver alert support for the detection of inattention and drowsiness. **Adaptive cruise control** that makes it easier to maintain the speed limit and a safe distance to vehicles ahead. **Lane keeping and lane change support** for staying in lane as well as changing lanes safely. **Electronic stability systems** that also work for long vehicle combinations. The world's **strongest truck cab**. Trucks and bus safety cabs tested for **roll-over protection**. **Front under run protection system** to reduce consequences in collisions between heavy vehicles and cars.



Hidden under the bus is an advanced system that prevents passenger cars from ending up underneath the bus in the event of head-on collisions. Such systems are also available for trucks.



Increased safety for all – now and in the future

The Volvo Group's culture is very much about safety. In fact, safety has been our guiding principle ever since Volvo was founded in 1927. The founders stated back then that "Safety is, and must be, the basic principle in all design work."

The human perspective

In everything we do we focus on our core values: safety, quality and care for the environment. Careful attention to the health and welfare of people is the guiding principle for all safety work in the Group. Over the years, Volvo has developed many new safety innovations that reflect this principle. A classic example is the one item that is available in every motor vehicle worldwide – the three-point safety belt. Recent examples include advanced electronic systems to support truck and bus drivers. Regardless of the technology, our products are designed with the user at the centre and with a human perspective.

Safe solutions

Our business concept calls for the development of commercial transport solutions. It is our absolute conviction that no transport solutions can be ultimately successful unless they are safe.

Shaping the future

We conduct research to be prepared for what society and our customers will require from us in the future. Solutions need to be developed for a society in which not only a growing number of people but also products will be connected and communicate with each other. We believe that the future will bring previously unforeseen opportunities for vehicles to interact with each other and with the surroundings.

We welcome this form of development. Volvo even tries to shape the future by creating the solutions that the coming generations will seek. We do this independently but also in cooperation with, for example, universities, international organizations, public authorities, civil service departments and other businesses.

We are committed to helping reduce the number of accidents on roads and in other parts of the transport system. This brochure presents an overview of how we think and what we do.



Jan-Eric Sundgren
Senior Vice President, AB Volvo

OUR PHILOSOPHY

Understanding the full picture

The Volvo Group has a long tradition of developing technology that enhances safety in places where millions of people spend their time every day. Our solutions are found along motorways, on city streets, at construction sites and in manufacturing industry as well as onboard ships and airplanes.

Safety from a broader perspective

Safety is essential in our trucks, buses, construction equipment, marine engines and aircraft components. For us, safety work means developing solutions that make a difference. Consequently, we need to know all about where the product will be used. However, it is equally important to have knowledge of how the users are likely to handle the product in critical situations. Research has shown that human error is involved in a majority of accidents. The Volvo Group spends a large amount of time and resources studying accidents, their consequences and their causes. Then we start development work to prevent them.

The perspective can be expanded even further

Let's take a closer look at how a school bus is used. To ensure the children's safety, requirements range from safety belts and anti-lock brake systems to automatic fire extinguishers. We also offer systems that help the bus driver stay in the proper lane and maintain a safe distance from the vehicle ahead. Total safety, however, includes so much more – the design of school bus stops, road maintenance, driving skills, ensuring that the driver is well-rested and that there are no intoxicated drivers in traffic.

That is why we support the driver with more than state-of-the-art technology. We also share our road safety experiences by offering driver training and taking part in road safety campaigns, everything to create increased safety in the transport system on which we all depend. We strive to understand the full picture – and act accordingly. Our specialists actually devote more than one hundred thousand hours every year to the creation of enhanced safety solutions.



OUR SAFETY VISION

Zero accidents with Volvo Group Products

The number of accidents during transport, at construction sites and in industrial operations must be reduced. Most governments throughout the world completely agree on this point. The Volvo Group wants to contribute whatever we can offer to accelerate this development.

Accordingly, we have formulated a vision that provides a distinct direction for all safety work, in all areas of our business activities and in all markets. It reads:

“Zero accidents with Volvo Group Products”

We are well-aware of the fact that our products cannot prevent all accidents by themselves, regardless of how safe the products may be. Accidents can happen nevertheless, due to human error and the environment in which the products are used. Therefore, we work in many different ways to reduce risk. One is to provide important information to everyone who uses our products. Another is to cooperate with other stakeholders in society who also work to create safer roads and transport systems.

We believe the greatest step toward our Safety Vision is taken together with others.



OUR ROLE IN SOCIETY



Moving the world – safely



The Volvo Group supplies products and services that meet our customers' transport requirements and ensure that people get to work on time, goods reach store shelves and roads and bridges are built.

Without our trucks, buses, construction equipment, engines and drive systems for marine and industrial applications, as well as aircraft engine components, the societies in which most of us live would not function. This is true no matter where you are in the world.

Volvo Group products make a difference

One in seven meals eaten in Europe reaches consumers thanks to transports by trucks from the Volvo Group.

Buses are the most common means of public transport in today's world, and they help many people get to work, go on vacation or visit families and friends. If all the Volvo buses in the world were loaded at the same time, they would be able to transport more than 10 million passengers.

Every year, the world's population creates several billion tons of garbage. In the US alone, the garbage removed in just a few weeks by refuse trucks manufactured by the Volvo Group could form a line of full garbage cans that would reach the moon.

Industrial engines from Volvo Penta contribute to reliable electrical supplies in hospitals, airports and other environments.

Volvo Aero delivers components for more than 90% of all engines used in larger commercial aircraft.

The Volvo Group is involved in many of the functions that most people rely on every day.

OUR PRODUCTS



Effective safety systems in trucks Volvo Trucks' FH model has one of the world's most advanced safety systems. Certain solutions, such as the Volvo Driver Alert Support, are unique for Volvo. If a degraded driving behavior is recognized, the system warns the driver, with both an acoustic warning and a warning in the instrument panel.

Safe ride for passengers and other people Safety in and around the bus is a priority area for Volvo Buses. The electronic stability system that helps the bus remain on the road in critical situations is one of the most important safety features in a long-distance coach. Another vital attribute is the comfortable three-point safety belt.

Safety and efficiency – hand in hand



Most of the Volvo Group's customers are other companies. They need our products to conduct their business operations – safely and efficiently. Safety and efficiency have thus been two interacting cornerstones of our product development work since the company was established.

Safety from the customer's perspectives

In all development work, it is important to remember that safety has different meanings, depending on the specific customer. The personnel who develop marine engines and propellers at Volvo Penta know that customers want to maneuver their craft simply and safely, thereby reducing the risk of collisions. This must be made possible without requiring customers to make any sacrifices in overall operating reliability and efficiency.

The development departments at Volvo Construction Equipment realize that their products are operated in complex situations where a safe work environment is a key factor for the customer. We also have customers in the aviation and aerospace industries that place extremely rigorous safety demands on the smallest details when they choose components. Volvo Aero addresses these issues in its comprehensive and structured development process.

Within the Volvo Group's truck and bus operations, we have many years of experience in the production of vehicles that protect drivers and passengers should an accident occur. At the same time, we are convinced that accidents can be prevented. Taking action before an accident occurs is not only good from a human perspective – it also enhances the productivity of our customers.

Safe work environment in operator's cab The cab in a construction machine is an important part of the machine operator's work environment. Safety, functionality and comfort go hand in hand in Volvo CE's product development.

FOCUS ON PEOPLE



Traffic interaction program Mack Trucks in the US is participating in a program called "Share the Road." The program is focused on teaching the motoring public how to safely drive around large trucks. A car driver, for example, should be aware that certain areas around a truck may be difficult to see, so-called blind spots.

Driver education in Brazil About 37,000 people die in traffic accidents in Brazil every year. Volvo do Brasil has introduced TransForm, an information and educational program. To date, hundreds of trucking companies have sent drivers to TransForm's one-week driver training program, which teaches drivers how to cope with dangerous situations in everyday traffic. The program also includes a theoretical segment that deals with proper attitudes in traffic.

Solutions that go beyond technology



The Volvo Group's safety work is very much about making life easier and safer for everyone who uses our products on a daily basis. For this reason, we study the factors that cause accidents in great detail. In this area, statistics speak loud and clear. The products are often used in busy and complex environments and nine of ten accidents are fully or partly due to human error and incorrect assessments of situations. Actions to support the user in complex and critical situations are therefore of high priority.

We are proud of our technology. However, at the same time, we realize that technology is not the entire solution. People's knowledge, values and behavioral patterns are equally important.

This is why the Volvo Group is active in encouraging everyone to take responsibility for their own safety and the safety of others. All over the world, we initiate safety activities, for example, to counteract drunk driving in traffic. In fact, Volvo Trucks was the first company in the market to offer factory-assembled alcohol locks in their trucks.

Man, machine and workplace Construction equipment from Volvo CE is used at tens of thousands of building sites in all parts of the world. The company has developed safety concepts based on the interaction between man, machines and the workplace. Accidents that take place when workers slip are common in the contracting and construction industry and Volvo CE's response has been to develop cabs that are easy to get in and out of. In addition, customers are offered driver education that includes training in the field and the support of sophisticated simulators.

PART OF A SYSTEM



Collaboration that results in safe bus rides Every day, billions of people have to get to and from work. Volvo Buses collaborates closely with public authorities and bus companies worldwide to create specially designed systems with separate bus lanes in such countries as Brazil, Colombia, Chile, Peru, Mexico and Angola. The buses themselves, but also the roads and the bus stops, are designed to be safe. When authorities in Bangalore, India, needed to decongest the streets and reduce the environmental impact, buses from Volvo were part of the solution.

Life-critical supply of electricity If a hospital's electricity supply were to fail, the result would be catastrophic. So a reliable back-up system, consisting of a combination of an engine and generator, is vital. The same applies to operations in large industries, at airports or electricity supplies at indoor shopping centers. For Volvo Penta, one of the world's largest suppliers of industrial engines, safety and reliability go hand in hand.

We put safety in a wider context



The use of Volvo Group products and services is always a part of a greater whole. A city bus, for example, is one part of a city's public transport system. The public transport system, in turn, is part of a larger system that enables people to arrive at their destinations on time. The entire community depends on the overall transport system's safe and efficient functionality.

The importance of this functionality is growing in parallel with growth in metropolitan areas. Two hundred years ago, between 80 and 90% of the world's population lived in rural areas. The situation is different today. In some parts of the world, more than 80% of populations live in cities. Urbanization is progressing most rapidly in Africa and Asia.

In many cases, today's rapid growth of cities is creating problems for transport systems, which could lead to the risk of lower traffic safety. There is also a risk that traffic jams and delays will result in socio-economic consequences and problems for transport relying on higher speeds, such as transport to hospitals.

We want to help change all this. We study the entire transport system to determine how we can provide the greatest value – making the “whole” as efficient and safe as possible.

Comprehensive traceability for multiple purposes Volvo Aero provides extensive traceability for every product and service it produces. The company knows how a product was developed, when, where and how it was produced or maintained, tested, its usage and much more. Volvo Aero not only supplies safe products but is also able to proactively offer support services long before safety issues occur.

THE FUTURE

More than 1.2 million reasons to continue our work



Engaged in research programs Volvo is a very active participant in national and international research programs that contribute to significant progress with regard to safety issues. For Volvo's own purposes, we see this type of involvement as another step toward achieving our zero vision with regard to traffic accidents.

The Volvo Group wants to participate in the creation of a safer world for the future. It is simply not acceptable for 1.2 million people worldwide to lose their lives in road traffic accidents during the course of a year – a statistic compiled by the World Health Organization. Unfortunately, all accidents are not reported, so the actual number of fatalities is probably much higher. Add the even greater number of injured or disabled people to this and the amount of human suffering and economic impact on society becomes enormous. Regardless of how they are counted, the number of people killed and injured in traffic is one of our most serious public health problems. We must act to control this problem.

Among the world's largest in safety research

It must be possible to use our products in all parts of the world, in many different situations and always in a safe manner. Comprehensive efforts are required to achieve this objective. We have already come a long way. The Volvo Group is one of the world's largest companies in terms of safety research related to commercial vehicles.

Tomorrow's solutions are being tested today

Research provides good results. Today, for example, we already have products that can scan their immediate surroundings and recognize threats well in advance of imminent danger. The products of tomorrow will perform these same tasks even faster and more precisely. It will also be possible for a truck, for example, to communicate with other vehicles. This will enable the vehicles to warn each other of traffic jams, pedestrians on the road and slippery road surfaces. Such vehicles will also have the capacity to brake and steer automatically. In fact, Volvo already has test vehicles operating that are equipped with such new and promising features. This is one concrete example of our ambition to maintain our leading position in safety by persistently striving "towards zero accidents."

VOLVO GROUP

A global leader in commercial transport solutions

Organizational structure that creates advantages

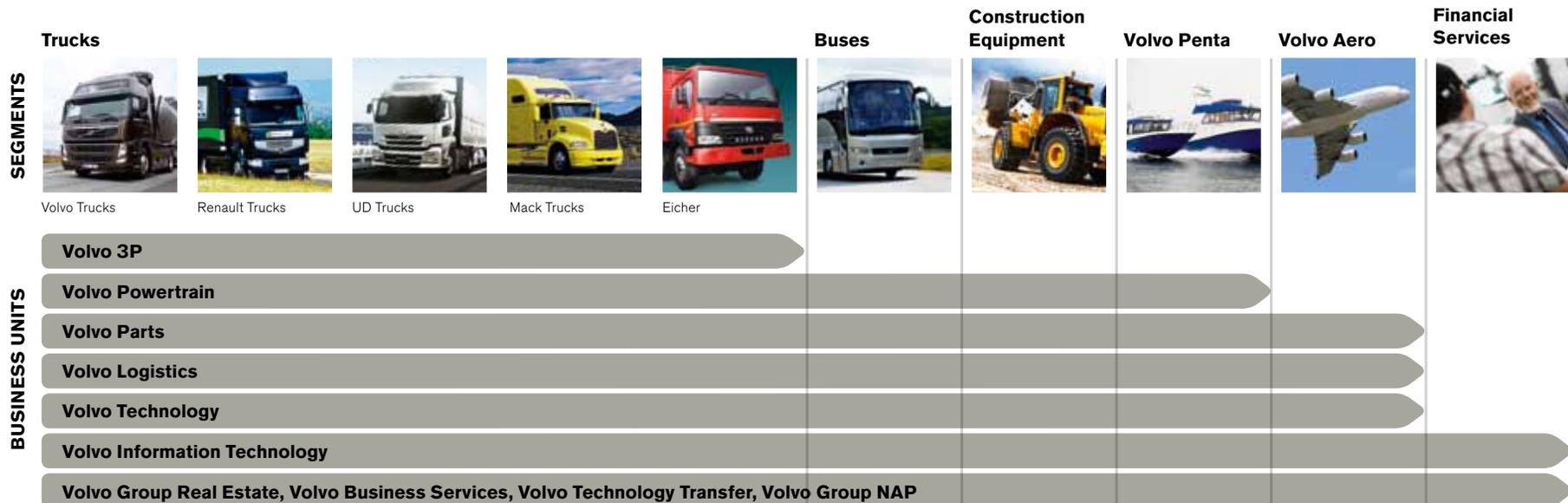
The Volvo Group is one of the world's leading suppliers of commercial transport solutions. The Group's activities are conducted in product-related business areas that focus on our customers, while the business support units ensure that our corporate resources are used effectively.

Volvo Technology is a center for innovation, research and development in the Volvo Group that operates at the forefront of science and technology. When new and sophisticated technology is to be introduced on the market, Volvo Trucks often takes the lead within the Group

The Group has around 100,000 employees, production plants in 19 countries and sales in about 180 countries. The employees work primarily in Sweden, France, Japan, the US, China, India, Brazil and South Korea.

Strength to invest in the future

Our overall strategy is based on customer needs and focused on profitable growth, product renewal and internal operating efficiency. We strive to maintain our financial strength and freedom of action. This is important, not least in our efforts to continue to invest in increasingly safer products. We see safety as a precondition for sustainable business.



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