

Good design pays off!



Svensk Form (Swedish Design) is an organization that gives out an annual award for the year's best Swedish design.

In the spring of 1992, VME's new wheel-loader, Volvo BM L150, became the first Swedish construction machine to receive an honourable mention for its exterior styling as well as the thoughtful design of the operator's environment.

Read what the jury had to say about the award as well as an interview with the two designers behind the L150 in the accompanying special reprint of an article on the prize.

HONOURABLE MENTION



The Volvo BM L150 wheel-loader is a comprehensive redesign of an extremely specialized machine. Both the exterior and the interior have been reworked to form an ergonomically and aesthetically harmonious design, which places equal emphasis on driver care and machine function and quality. Read more on page 3!

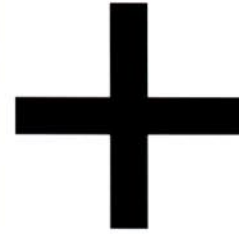
Wheel-loader: Volvo BM L150

Design: Hans Philip Zachau (exterior) and Inese Ljunggren (interior)

Manufacturer: VME Industries Sweden AB

Jury's verdict: A powerful product with considerable design qualities. The exterior has benefited from a strong, forceful shape with a pronounced feeling of precision. The driver's cab is well-planned, offering excellent ergonomics and raising driver care to new levels. The large, curved windows and the wedgeshaped engine casing combine to offer a commanding view over the operational area. The instrument panel features easy-to-read gauges, and the carefully designed controls make for a comfortable working environment. A specialist product of the very highest quality.

MUSCLES



BRAINS

That epitome of brute force, the construction site workhorse, takes on the 'nineties with a combination of brains and design. VME's flagship wheel-loader received an honourable mention in this year's Swedish Design Excellence award, for combining advanced technology with ergonomics, product profile and design. But what kind of design philosophy lies behind a heavyweight, functional product such as construction site machinery? *Form* met two designers who worked on the Volvo BM L150 – a woman and a man.

BY SARA ILSTEDT

THE FLAGSHIP among construction site machinery is the Volvo BM L150, a machine well suited to this day and age. It has a reputation for both muscle and brains. In fact, it may well be typical in another way too: the interior was designed by a woman and the exterior by a man, a phenomenon which is repeated throughout many aspects of our life today. Man's world is the exterior, woman's the interior; street-planning is in the hands of men, while women are reaching new pinnacles of achievement in interior design. In this particular case, moreover, the two designers worked independently of each other, with little or no mutual contact during the design phase.

So what kind of design philosophy lies behind such a massive, functional product as a construction site machine? How do the designers approach their task, and what guides their choice of design? How significant a role does a machine like this play, and how can we better appreciate it?

The powerful exterior is the design of Hans Philip Zachau of Nya Perspektiv in Göteborg, Sweden, while the interior is the work of Inese Ljunggren from ESITE Design outside Stockholm. Both these designers have professional backgrounds in the automobile industry, Hans Philip Zachau at Volvo and Inese Ljunggren at Volvo and Saab.

It appears that VME's intention was to make the wheel-loader more like a car.

"Many designed products hark back to the automobile as the ideal", says Hans Philip Zachau. "Vacuum cleaners look like miniature cars, a typical example of this trend. The car represents design and quality, and all sorts of vehicles use cars as a sort of template not only for appearance, but also for

the design of controls and other details. Mass-transit and construction site vehicles both obtain much of their inspiration from car design."

"We wanted to create the sort of quality aura normally associated with a car, in such matters as choice of material and choice of production method. But this is not to say that the finished machine was to be regarded as a car."

"THE MOST interesting aspect of this project is that we have roughly the same production setup as the automobile industry. At the same time, there are enormous differences. We have neither the time nor the funds to do as fundamental a design job as we would for a car, but on the other hand it is vital that we keep a constant eye on design integrity, ensuring that design plays the part it has to play."

"For me, design is a matter of teamwork. We have to work together and listen to one another. In this project, my work benefited immensely from close cooperation with VME's development engineers. They showed an impressive grasp of design principles."

"The best part of my job is working with the modeller, sculpting the shape. I adore organic shapes, which is why I enjoyed my years at Saab so much. I had a tougher time at Volvo, where design principles tend more to the angular; I didn't see any way of advancing there."

Inese Ljunggren has left her mark on the interior, which enfolds the driver with soft, rounded curves.

"I've never worked with the exterior and I never want to either. I simply cannot relate to the exterior. I don't know if it has anything



SARA ILSTEDT

Inese Ljunggren, above, has left her mark on the interior, which sweeps gracefully around the driver (right). All essential information is gathered on a new instrument and control panel, which can be conveniently reached without having to stretch. The sweeping curves reveal Inese Ljunggren's love of organic shape.

She says that she didn't reflect too much on the fact that the machine will be used predominantly by men. From the aesthetic and functional points of view, it should be as pleasant and comfortable to use for everyone, whether man or woman.





Above: Standing under the machine is a very daunting experience indeed. On the other hand, climb into the cab and you feel like the master of the universe, say designers Hans Philip Zachau and Inese Ljunggren. Below: The driver doesn't have to let go of the steering wheel to control the BM L150. The hydraulic systems operate with the lightest of touches. The levers and controls fall comfortably within reach, as do the instrument panel and other information.



◀ to do with my being a woman, perhaps it's because my attitude to design is different to that of men. The fact is, I don't know of a single woman in the automobile industry who works with exterior design."

"When I studied at Art School, car design was a swear-word! It dealt with styling, which was regarded as particularly unsavoury. But I am adamant that car design is one of the best-developed professions in this country. I got off to such a marvellous start in this industry by sitting beside incredibly skilful American designers at Volvo."

She shows me glossy sketches of cars. "You don't always have to impress, the first real work is done with the clay models, and that is the best part of the job."

In many ways, Inese Ljunggren reflects the classical designer role. The American automobile industry gave birth to a whole generation of designers who worked with clay models much as an artist or sculptor worked his or her models.

THE ANGULAR profile of the exterior is now more rounded than it was on the previous generation of wheel-loaders, while nevertheless retaining a strictly functional design.

"The reason is that the sheet-metal is bent", says Hans Philip Zachau. The biggest difference between building a construction site vehicle and a passenger car is the size of the production run. For construction site vehicles, we simply don't have the financial resources for compression-moulding sheet-metal into rounded shapes or indulging in expensive design detail.

"We have tried to tone down the profile of the vehicle by using gentler shapes wherever possible. This "friendly" design is a trend I feel we'll see more of in the '90s. People are fed up with the aggression and coldness of the '80s. We can expect to use existing materials in new ways and also see the use of new materials such as composites and plastics."

Hans Philip Zachau's colleague at Nya Perspektiv, Lasse Petterson, agrees:

"I think we're going to see an explosion of organic shape in coming years. When we designed the Göteborg car (see *Form no. 2/90*) we were after a shape which people would take to heart and soul. With a constant watch on the classic Volkswagen Beetle, we designed a chubby, friendly-looking little car with a round profile." ▶

◀ Braun is an excellent example of design which is hard, technical and inanimate. Compare their products with Japanese electronics products such as cameras and freestyle radio/cassette players, with their gentle, organic profiles, made to be held and inviting to use. Talk about three-dimensional design!

Despite the very best design intentions, it is extremely doubtful if the exterior of the wheel-loader radiates friendliness to any great degree. And isn't a construction site vehicle by definition a muscular throwback to the dinosaurs, the very epitome of brute strength and muscle? Can it really be good taste to hide Mr. Universe's bulging muscles in shapeless, baggy flannel trousers?

"Men too can be soft, friendly, approachable!" exclaims Zachau. "What's more, rounded shapes are not the sole property of women – the burliest of muscles are rounded, after all. In fact, a straight, angular shape can be interpreted as weak, characterless. And interpretation is something which is regarded with the greatest respect in this industry. The fact is that some of VME's older machines were felt to be rather feminine in profile. We wanted a more sculpted shape."

"This is part of an overall identity we have created for VME, an identity which is echoed in all their products, in the colour schemes, the radiator grille and the vehicle's round counterweight."

At Nya Perspective, nobody gets their hands dirty with clay models. All the work here is done on computers.

"We make very few models. We either sketch by hand or work on our Alias workstation. Here we can build up any environment or design you care to name. A scale model, after all, says very little about what it will feel like to sit inside a car or train."

CARE FOR the user is brought into sharper relief through attention to ergonomics, visibility and detail solutions. We see constantly increasing demands for better ergonomics and comfort in this type of vehicle. Work-related injury, wear, noise and dust have become a prime concern for employers, so it is vital that expensive machines like these offer a suitable, well-functioning work environment.

How much thought has been given to the people who actually use these machines? For example, is this an interior designed for men?

"Certainly not!" exclaims Inese Ljunggren. "I just heard that petite Japanese women use these machines every day. But apparently they've got to put a box under their feet so they can reach the floor, that's something we've got to change. I design an interior which suits everyone, just as for a car. The interior trim should be soft, comfortable and cosy."

But isn't this a masculine product, Hans Philip Zachau? Majestic and brutally strong like a bull, with the driver as the masterful matador?

"Well, standing under the machine is a very daunting experience indeed. On the other hand, climb into the cab and you feel like the master of the universe!"

"It's like reliving your childhood. Even though this is such a huge machine, it is in-

credibly easy to drive – it reacts to your lightest touch. You rule completely from your throne high up in the cab."

ANALYZING THE meaning of design is all about finding out how a product works in its social context. What does it mean to work in a construction site vehicle, and how does the machine work in society and its various structures?

"It is important to define the context in which the product is to work", says Mats Hjelm, a former Cranbrook student who has held several talks on the meaning of design.

"What is the work to be done, who orders it and who performs it? The user and the tool – the wheel-loader – together form a unit whose job it is to carry out the task, for instance to move a large boulder. The purpose, the intention to move the boulder, is in the hands of the person requesting the work."

So what part does the machine's shape, design and structure play when the task is tackled? How precise is the machine?

"If the machine is huge, it will affect the sort of work requested of it. If the driver sits high up, he will feel that the machine moves slowly; if he sits closer to ground level, he will feel as though it moves quickly."

"The appearance of the machine colours our environment: the larger the machine, the greater the impact on the environment. It may turn out to be more expensive to remove a whole hill in order to build a straight road, than it is to build the road around the hill!"

"This is only a hypothetical question. My point is that it is important to work with the entire context surrounding the product in a design process. The result is that less importance is attached to whether the machine is yellow or red or rounded or angular. What is important is the way in which it functions as a tool for carrying out the work requested by the customer."

But is this really the realm of the designer?

"The job of the designer is to find out the meaning of the machine; the engineer's job is deal with the technical issues. The designer is a tool to be used by the construction site engineer, the designer must be totally familiar with the construction site engineer's intentions and translate them into form and shape."

"The operator's interface is a typical design area which should increase his understanding of the work he is doing. How can we stimulate the operator to understand what he is doing? Maybe he needs to feel that he is shifting a heavy boulder instead of a light one?"

Here we see an interior rather similar to that of a car. What is the significance?

"In terms of significance, cars and construction site machinery are at totally different levels. A car is somewhere in the twilight zone between work and recreation. A car seat fits snugly around the occupant, while a workstation seat should radiate possibilities and activity, not comfort. The car is a sort of recreational tool which cuts off the occupants from the world outside."

"In a digger, the operator does someone else's work. The operator has to be able to

communicate with the work supervisor, to see what others are doing and maintain a measure of physical contact with the work he himself is doing. The work should be made more meaningful in that the machine offers several advanced user levels which are not discovered immediately; it should offer potential for fine adjustment and precision which develop through interaction with the product. This interaction is a learning process which stimulates the professional skill of the operator. Awareness of this potential can lead to the professional development of experts who can take more responsibility for their work.

"The need for responsibility, care and feeling grow with the size of the machine. Otherwise we might lose touch with the work actually being carried out. The more difficult a task is, the more time there is to reflect on whether it is really necessary", says Mats Hjelm.

MAN HAS ALWAYS had a longing to dominate, to be strong, and there are innumerable myths on the subject. Examining some of them may be a good way of analyzing one's own associations with the meaning of a product.

The bull has traditionally symbolized strength, brute force; the digger is regarded as a sort of artificial bull, one which can be controlled by man, who is a weakling in the company of the real thing. There are several examples of people taking on the guise of bulls. One such example is Zeus, who changed into a bull to conquer the nymph Europa. Quite a suitable parallel to the way in which Volvo BM is approaching the European market.

A discussion about a product's meaning and design intention can be conducted at several levels. It is often limited to a superficial discussion about round/angular, complex/simple, light/heavy.

Does a giant machine like a wheel-loader seem more friendly and approachable if its muscularity and power are accented through rounded shapes, or does it on the contrary give a more menacing impression? Is the round stomach of a pregnant woman the ultimate symbol of a soft, cosy interior, or does it signify blood and frightening female self-sufficiency? The answers are not obvious, and will undoubtedly depend equally on personal experience and local convention.

Another discussion can be carried out on the place of the product in a larger perspective. On its function as seen by the customer requesting the work, by the operator and by social development. And in an even wider associated perspective, it can also be seen as part of the world of mythology. □

Right: Rear view of a construction site vehicle. The rear axle can move 15 degrees without altering the centre of gravity. This in turn means that all the wheels maintain contact with the ground in the roughest and most uneven terrain.

Special Reprint of FORM 3/92.



PRESS STOP!

Gold medal for best technology.

Not only has the Volvo BM L150 received an honourable mention for design, the L150 has also been awarded a gold medal for its pioneering new technology.

The medal was presented at the seventh International Public Works, Construction and Mining Machinery Show (SMOPYC) in Zaragoza, Spain.

The Volvo BM L150 received the top award, in competition with 31 competing machines, for its new loader unit, TP-linkage, the new Care Cab, its electronic monitoring system, Contronic, and for its unique service-friendly design.