

> PROTECTION INDUSTRY

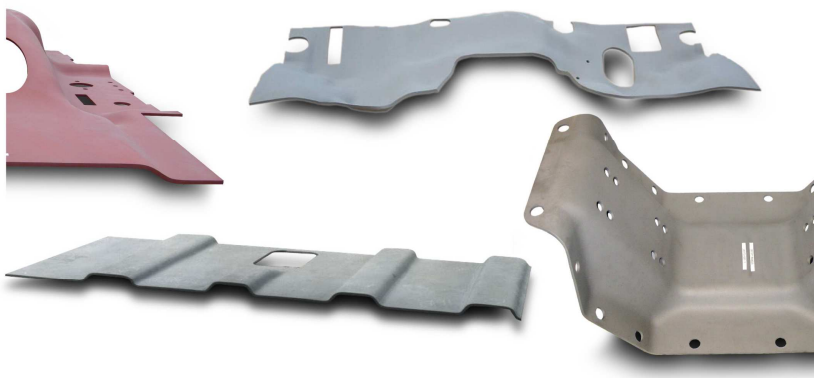
Quite some years ago, Deform developed a technique for the hot forming of quenched and tempered steels. Our special expertise makes it possible to hot form a plate and then restore the steel's properties without the product losing its shape.

The benefits of this technique are considerable. Welding is avoided, strength is improved, weight/money is saved and tougher steel can be used than is the case for welded designs. On many occasions, ballistic tests have shown that our formed solutions are far superior to welded and overlapping designs.

We now have lots of satisfied customers worldwide and are manufacturing both vehicle and personal protection.

We hot form and restore the properties of all the armor steels on the market and have several references.

The forming of complementary, adhesive protective materials such as aluminum, kevlar/aramid and titanium is also part of our services. To make final assembly as easy and streamlined as possible, we also provide welding and part assembly of components.



▲ Deform hot form, quench and temper armor plates to many different customers around the world.



▲ Customers are found in both the military and the civilian sector. The focus is to provide protection against bullets, mines and IEDs.



▲ Deform provides scanning at customer site and can then develop test models, bringing out adjustment (shape / hole pattern / outer contour) and finally produce tools. The picture shows a fire wall for mounting on a Nissan Patrol.

> DEFORM:METHOD™ – UNIQUE BENEFITS!

Deform:Method™ provides for several unique advantages!

Welded, two-dimensional overlapping solutions are always worse than deforms three-dimensionally shaped protection.

The benefits of Deform:Method™ are several:

1. Better ballistic protection

The heat affected zone in welded areas weakens the plate properties. The weld seam is always the weakest point; not least in the protection against mines and IEDs.

2. Perfect fit and easy assembly

To weld several overlapping plates with minimal heat affect and acceptable shape results is very difficult. Deform:Method™ on the other hand, gives the same perfect results every time.

3. Cost efficient

Shaping a one piece solution gives the lowest landed cost.

4. Less weight

Welded two-dimensional overlapping solutions cause unnecessary weight to the vehicle. Deform:Method™ providing the opportunity to save weight while improving the performance - a synergy that is worth a lot for our customers!



▲ A customer unique solution on a floor and firewall. Notice how well the sheet follows the shape of the vehicle and the minimal remaining welding.



▲ Picture above shows a traditionally manufactured firewall in multiple, overlapping and welded plates.

Picture below shows a single piece firewall manufactured by Deform. The result is better ballistic protection, better repeatability, less weight and lower landed cost!



> FIREWALLS TO CUSTOMERS WORLDWIDE

Deform delivers firewalls to several vehicles.

We have Deform owned tools, and are able to produce firewalls for both right and left hand drive Toyota LC200 in different thicknesses and armor steels. We also offer a variety of unique cutting files relating to the outer contour and the hole pattern.

Similarly, we also have firewalls for VW T6, Nissan Patrol and Isuzu D-Max.

After agreement we keep ready firewalls in stock and offer very short delivery time.

In some cases, our customers have exclusive rights to certain tools. We are flexible and always seeking business model that fits each client best.

We are constantly seeking new products to shape with our uniquely developed Deform:Method™.

For new products Deform provides scanning at customer site and then develop test models, bringing out adjustments and finally produce tools that gives the optimal, desired shape.

The forming of complementary, adhesive protective materials such as aluminum, kevlar/aramid and titanium is also part of our services.

Contact us about your approach and we will find a solution!



▲ Above shows a small selection of all torpedo plates we today manufacture for customers and vehicles throughout the world.

DEFORM:METHOD™

> PROTECTION FOR BAE HÄGGLUNDS

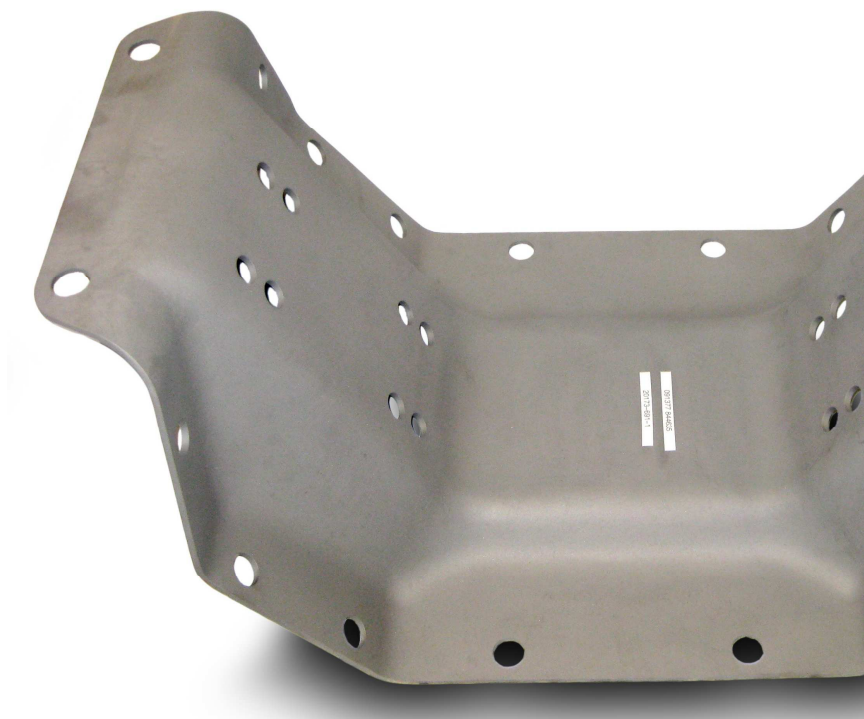
BAE Systems Hägglunds AB is a Swedish manufacturer of protection vehicles with a worldwide reputation for excellence.

In collaboration with Hägglunds, Deform has developed a number of 3 dimensionally formed protective plates that replace earlier welded designs. Welded solutions do not offer the same resistance as our formed products and anti-mine & IED requirements have become more demanding.

That is why Deform now has protective plates mounted on Hägglunds' BVS10 and CV90 vehicles.

Deform's special expertise makes it possible to hot form a plate and then restore the steel's properties without the product losing its shape. This saves welding, weight and costs.

Furthermore, a correctly formed protective plate is stronger than the equivalent welded design!



▲ One of several three-dimensionally formed products in high strength steel, replacing welded components.



▲ Hägglunds has many customers all over the world for its BVS10 tracked vehicle.



▲ CV90 - an armoured combat vehicle and one of Hägglunds' famous products.

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> DEFORM COLLABORATES WITH KMW

Krauss-Maffei Wegmann (KMW), one of the world's leading manufacturers of armoured vehicles, is a very important customer for Deform.

In an extremely successful collaboration that has stretched over many years, Deform has manufactured formed plates for a large number of KMW's vehicles and projects. This close collaboration began early in the 1990s when Deform was commissioned to manufacture all 3-dimensionally formed armour plates for the Leopard battle tank.

We now also manufacture a large number of other plates/modules in varying hardness's and thicknesses for various developed KMW vehicles.

For the above reasons, Deform is tested and approved by Bundesamt für Wehrtechnik und Beschaffung (BWB). BWB approval is required for supplying armour products to Germany. It is also proof of our know-how.

Our special expertise makes it possible to hot form a plate and then restore the steel's properties without the product losing its shape. This saves welding, weight and costs. Furthermore, a correctly formed protective plate is stronger than the equivalent welded design. Deform and KMW have together proved this many times in various ballistic tests.



▲ Deform manufactures a bottom plate and a front plate for all Leopard tanks.



▲ The Leopard battle tank at Eurosatory exhibition.

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▲ Deform manufactures several shaped plates to the flexible vehicle Boxer.



▲ Deform manufactures several shaped plates to the tracked vehicle Puma.

> DEFORM HELPS IN BOMB DESTRUCTION

Dynasafe is a prominent Swedish company specializing in the handling and destruction of munitions.

In a long collaboration with Dynasafe, Deform serves as a sub-contractor for formed, quenched and tempered pressure vessel heads and hemispheres. The hemispheres are hot formed in quenched and tempered steel. Our expertise means that we can manufacture these as two halves rather than as segments with a crown (which was previously standard for Dynasafe).

The above components are used in mobile detonation chambers for the safe transport of munitions to destruction sites. Deform has also manufactured bomb suppression litter bins for Dynasafe.

The secret of our success here is how we hot form a plate and then restore the steel's properties without the product losing its shape. This saves welding, weight and costs. The reduction in welding is extremely important – detonation chambers must guarantee the ability to withstand bomb explosion during transport. A single formed plate is always stronger than an equivalent construction made from welded plates!



▲ We hot form, quench and temper parts for bomb destruction chambers. In addition we perform complementary welding



▲ Model with a bayonet locking and 180 degree opening.



▲ Sealed bomb handling.



◀ We hot form, quench and tempered. Our unique approach eliminates welds, thereby making our customers products lighter, stronger and safer.

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> PROTECTION PLATES FOR RHEINMETALL

Rheinmetall Landsysteme GmbH, a major manufacturer of armoured vehicles, is one of Deform's customers.

Deform manufactures several different types of formed protective plates for Rheinmetall. Our special expertise makes it possible to hot form a plate and then restore the steel's properties without the product losing its shape. This saves welding, weight and costs. Furthermore, a correctly formed protective plate is stronger than the equivalent welded design.

We feel there is great potential for further developing such collaborations. The possibilities include not only individual, 3-dimensionally formed plates, but also complete system deliveries that may even involve welding and assembly.



▲ One of the many different hatches made with Deform:Method™.

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▲ Deform hot form, quench and temper several protection plates for Boxer.



◀ Deform produce a hatch for the vehicle Wiesel.

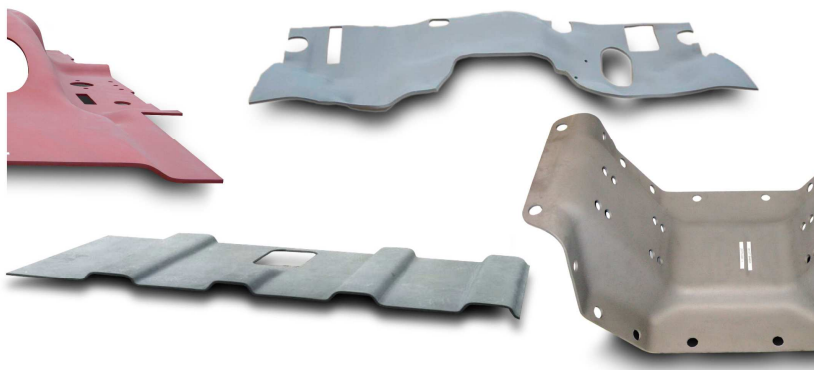
> RESEARCH AND DEVELOPMENT

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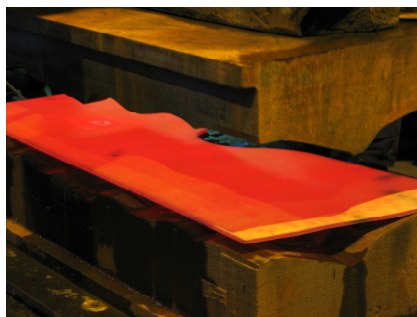
Our special expertise makes it possible to hot form a plate and then restore the steel's properties without the product losing its shape.

Using a variety of designs, tight radii, thicknesses and steel grades, we have carried out a host of different tests. To verify product properties (ballistic resistance, etc.), we have had plate suppliers, customers and independent test bodies carry out destructive testing. All of this provides every assurance that our products perform to specifications.

We are keen to continue working in this way. We like to offer our services at an early stage and work closely with our customers' development and design departments. We are highly experienced in both design and production. Thus, the earlier we are allowed to actively contribute to a project, the greater the potential for creating benefits for all parties!



DEFORM:METHOD™



Deform is working intensively with research and development. We test and validate new methods, materials and combinations. Our goal is to find better and cheaper protection!

> PRESSURE VESSEL HEADS FOR SUBMARINES

Deform has established itself as a recognized expert in the manufacture of pressure vessel heads for the submarine industry. The reference list now includes several well known global players.

The requirements imposed by the submarine industry are frequently extreme. Tack welding is often forbidden, forming requirements are stringent and the materials that are used are very tough.

Deform has extensive experience of both stainless steel submarines and submarines where the pressure vessels are made of quenched and tempered steel.

In view of the above, Deform's specialist know-how in metallurgy, hot forming and temper hardening is particularly important in this segment.

Requirements are becoming ever more severe. Producing tougher, larger and thicker pressure vessel heads is a challenge we willingly face!



▲ We are producing both single piece heads as well as pressure vessel heads in segment!



▲ Submarines where Deform has been a vital subcontractor can now be found all around the world!



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