

DIFENDER

For safety and security

Now approved according TL 2350-0000

DILLINGER 

DILLINGER – A PASSION FOR STEEL

We have a passion for steel. For more than 330 years, we have put our trust in a wealth of ideas and innovations coupled with a love of detail and perfection.

The better the steel, the greater our customers' success

Steel is a unique and fascinating material, and those who understand and master it are rewarded with outstanding properties. At Dillinger, the entire production process – starting with research, and proceeding via steelmaking, up to and including the rolling mill – is focussed exclusively on our heavy-plate product.

This specialisation has given rise to unparalleled know-how, exploited for the benefit of our customers. Knowledge, experience and the systematic use of ultra-modern AI applications enable Dillinger to produce even highly critical grades with certainty and to advance the development of challenging products. Whenever top quality, reliability and enhanced productivity are needed, Dillinger is there for you – and that's a promise!

Dillinger can supply an incomparable range of products, featuring more than 2,000 different grades of steel and an impressive spectrum of dimensions and formats. Carefully tailored advice for customers and, increasingly, a digital range of services provide an optimum conclusion to our products and activities.

Acclaimed throughout the world

The Øresund Bridge connecting Denmark and Sweden, Shanghai's World Financial Center, one of the world's tallest buildings, gigantic offshore wind-power facilities and drilling platforms, and the Louis Vuitton Museum in Paris, with its breathtaking architecture, are imposing examples of the diversity of the applications for Dillinger's high-tech steels, assuring the meeting of maximum standards and safety requirements.

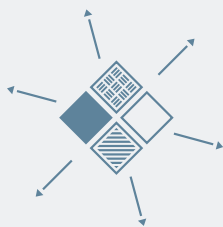
Our philosophy of sustainability

Steel is especially sustainable, like no other material, not least of all due to its extreme recyclability. Environmental protection, furthermore, is assigned special importance at Dillinger. The core feature of our sustainability structure consists of low-CO₂ steel production, environmentally safe products, continuous enhancement of energy-efficiency and resources conservation, the reduction of emissions and improvement of the environmental protection of water. Dillinger identifies with the aims of the Paris Climate Agreement. Our credo is: "Top-grade industrial technology coupled with sustainable management" – no more, no less.

DILLINGER AT A GLANCE

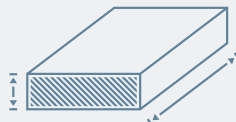
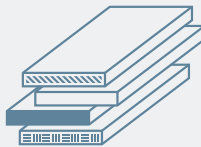


More than **330** years of experience in steel



Expert advice for more than
10 diverse fields of application

Over **2,000**
different grades



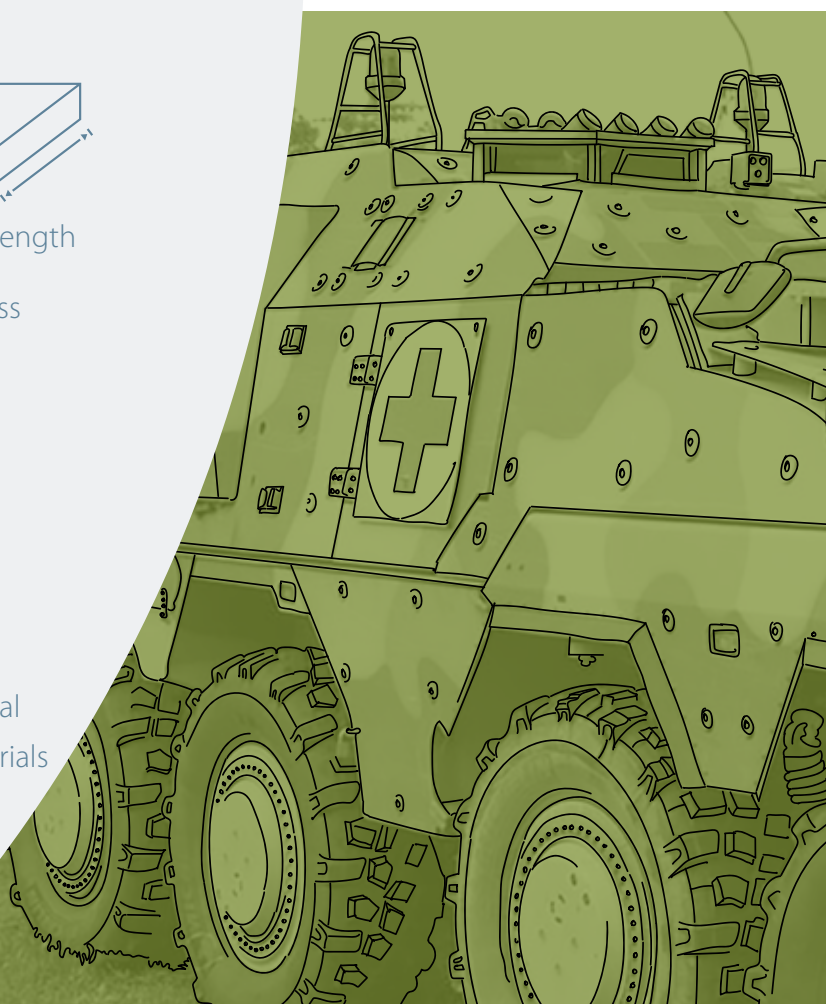
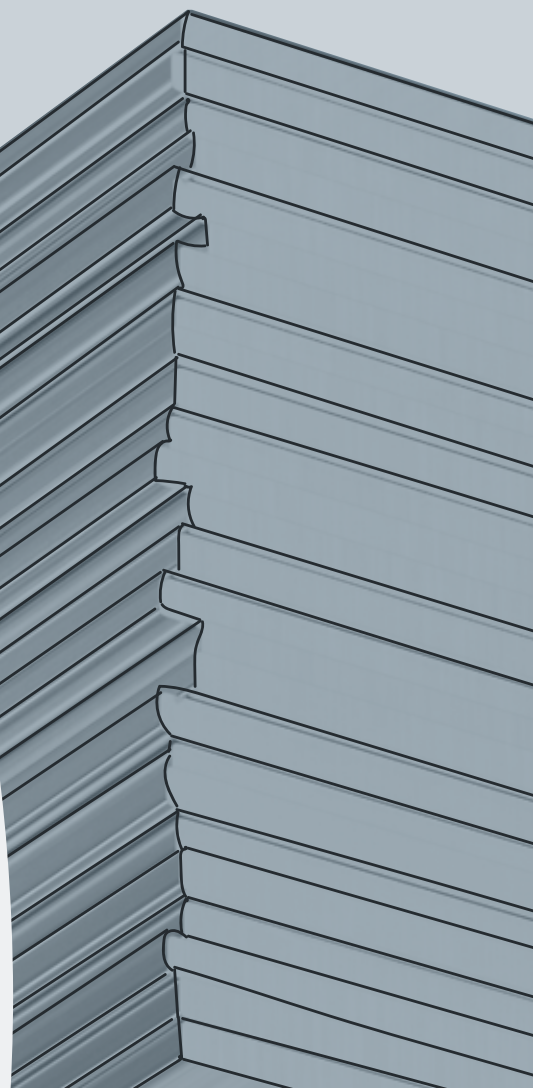
Heavy plates up to **28 m** length
and **500 mm** thickness

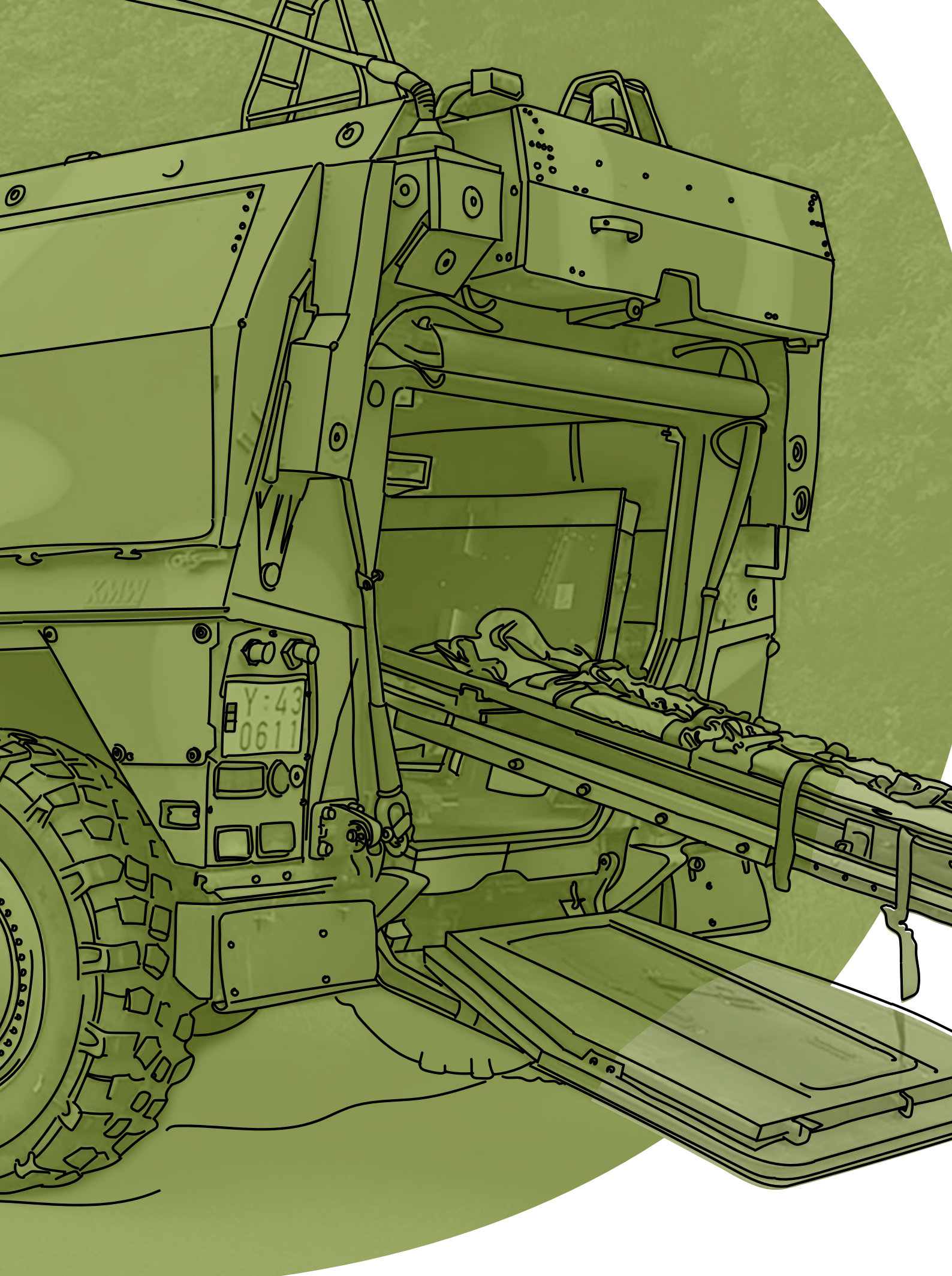


Plate weight up to **52 t**



More than **200** international
approvals, certificates and materials
qualifications





DIFENDER THE NEW GENERATION OF STEELS

It's a basic human need like freedom from hunger and thirst – the need for safety. In its DIFENDER grades, Dillinger supplies a material that convinces security experts around the entire globe.

Customers' demanding requirements

Security systems are intended to protect people and property and must operate with total dependability at all times. The requirements made on design and material are correspondingly high, and the applications correspondingly diverse, ranging from civilian and military armoured land vehicles and water craft, via secure cash transporters, up to and including building security.

Experienced specialists

Dillinger, Europe's leading producer of heavy plate, has for decades supplied the security industry with the appropriate steel products: special steels that not only make the products in their respective spheres of application the safest on their particular market, but also offer optimum processing behaviour even in difficult installation situations.

Steel you can entrust your safety to

Dillinger has now developed, in the form of "DIFENDER", a totally new generation of high-strength armour steels which assure, via the combination of their various functionalities, a very special benefit: maximum protection combined with minimum weight.

Product benefits at a glance

- Unparalleled protection against ballistic attack, explosives and fragments,
- Suitability for use in both civilian and military applications: numerous customer, project, and official approvals,
- Even ultra-low thicknesses meet ultra-high security requirements,
- Conformant to multiple national standards,
- Assurance of outstanding working and processing properties.
- Approved according TL 2350-0000

Service benefits at a glance

- Comprehensive individual advisory service by our experienced experts
- Detailed advice and recommendations on all working processes
- Available ex stock in full plates and semi-fabricated
- Even small orders available ex-works
- E-Connect App permits mobile plate identification and displays plate certificate data



Discover our **E-Service area** with various tools, important information and the **E-Connect App** for the identification of plates and the download of certificate data.

BOOSTING YOUR SECURITY

The DIFENDER range portfolio now includes:

- DIFENDER 600
- Thicknesses up to 150 mm
- Approval according TL 2350-0000

DIFENDER steels are exceptionally versatile

DIFENDER is defined as a high-strength alloyed quenched and tempered steel possessing special resistance to ballistic attack, explosives and the effects of fragmentation. It is mainly used in applications in which the lowest possible armouring weight is needed. These steels' performance against the threats mentioned above permits their use in both civilian and military applications.

Our extended offer at a glance

DIFENDER grades can be offered in the thickness range from 6 up to maximum 150 mm. All DIFENDER grades meet the requirements of the important relevant standards. Selection of the best grade for your application ultimately depends on the necessary level of security. Verification of ballistic properties, in conformity to VPAM and STANAG, inter alia, is performed, of course, in accredited laboratories. Equally a matter of course are the DIFENDER steels' excellent working properties in terms of cutting,

bending and welding, which are documented by means of corresponding series of tests. These tests are used to generate practice-proven recommendations for working of the steels by the customer.

Together we're strong

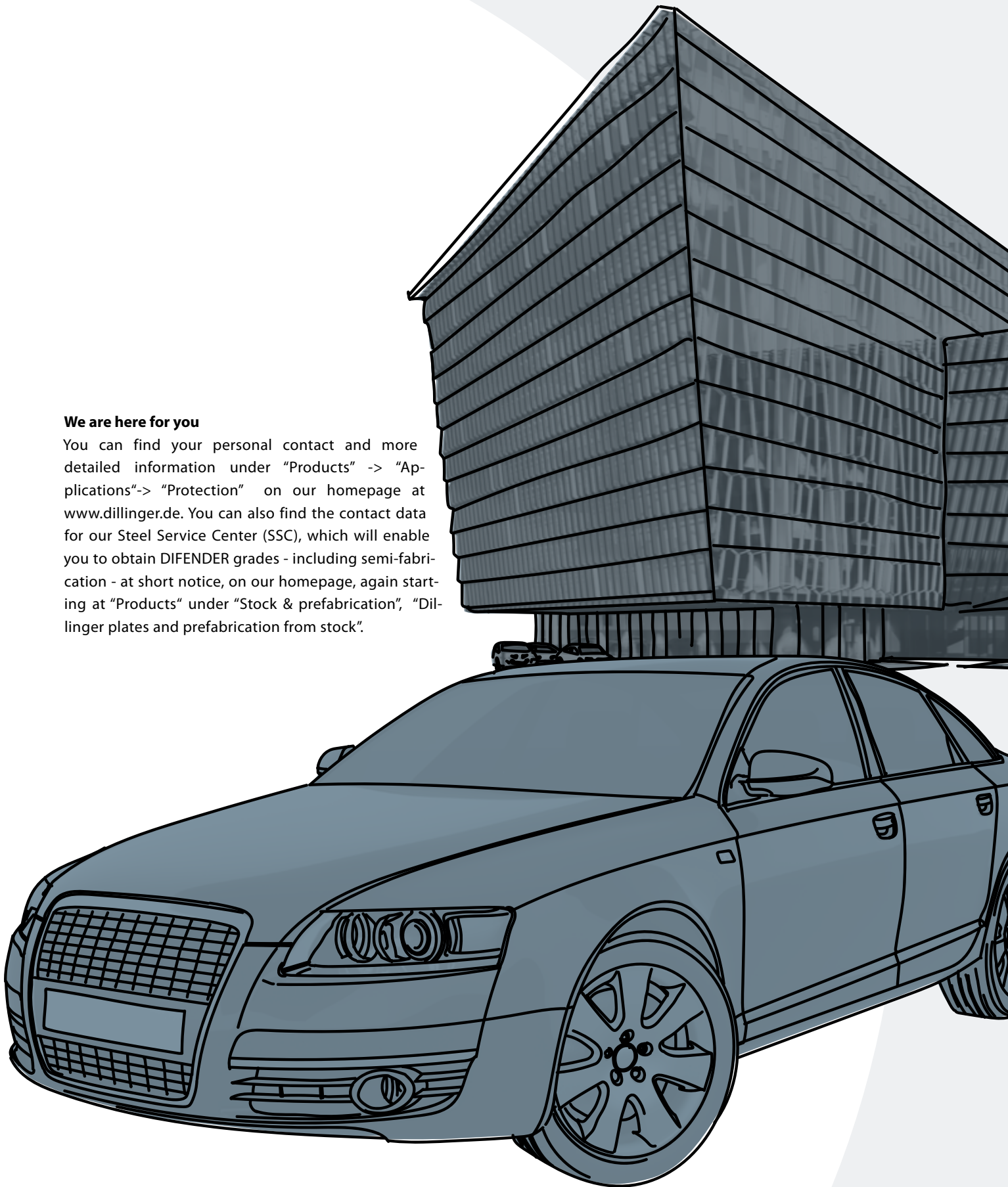
Extra security is never simply the result of a single technical detail but instead is achieved via precise coordination of functions, applications, design and the use of specialized materials. For this reason, individual consulting services for every customer by our experienced experts is where each and every order starts. Thanks to the profound knowledge available in metallurgical models and to highly developed production processes, heavy-plate expert Dillinger is best equipped for the development of specialized solutions in steel.

Grade	Brinell hardness [HBW]	Min. yield strength Rp0.2 [MPa]	Min. tensile strength Rm [MPa]	Min. elongation A5 [%]	Min. Charpy V-notch impact energy - 40°C [J]
DIFENDER 400	380 – 430	950	1150	10	27
DIFENDER 450	420 – 480	1100	1250	10	35
DIFENDER 500*	480 – 530	1300	1500	8	24
DIFENDER 600	570 – 640	1350	1650	6	10

* thickness up to 40 mm

We are here for you

You can find your personal contact and more detailed information under "Products" -> "Applications"-> "Protection" on our homepage at www.dillinger.de. You can also find the contact data for our Steel Service Center (SSC), which will enable you to obtain DIFENDER grades - including semi-fabrication - at short notice, on our homepage, again starting at "Products" under "Stock & prefabrication", "Dillinger plates and prefabrication from stock".





Please contact one of our partners for individual advice,
both technical or commercial.

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