

# INTEGRA-pw

Modular safety  
barriers in car parks

Flexible solutions for  
maximum safety

projekt **w**  
Systeme aus Stahl





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## The modular safety barrier – an innovative solution for many areas of use

The patented **INTEGRA-pw** system, based on steel mesh mats, was originally developed as an all-in-one solution for the protection of people and vehicles against falling in multi-storey car parks.

Today, **INTEGRA-pw** is not only used in multi-storey car parks, but also in logistics centres, connecting bridges and wherever special demands are placed on safety.

This also includes the locking of buildings to protect the interior from unauthorised entry or vandalism.





# ADVANTAGES

## Why choose INTEGRA-pw?

### "Less is more"

Less use of materials,  
but greater safety!

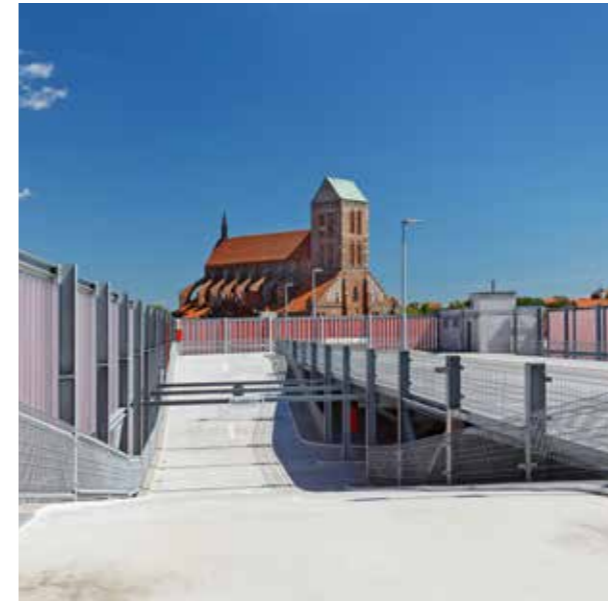
With over 1,500 multi-storey car parks equipped throughout Europe, we are setting new safety standards. Our certified quality, recognised by leading institutes throughout Europe, stands for the highest safety requirements and technological excellence.



## Certified safety

**INTEGRA-pw** provides tested safety through conformity with all European building codes, as well as a building authority approval from the German Institute of Building Technology (Z-14.7-882).

In the event of a vehicle collision, the system absorbs the energy by means of dynamic deformation, thus minimising damage to the car and protecting vehicle occupants from impact injuries as far as possible.



## Cost efficiency

**INTEGRA-pw** reduces material consumption compared to conventional static systems such as heavy steel structures or concrete balustrades, which enables significant cost savings.



## Flexible design

Enables the integration of façade elements such as solar panels, wood and aluminium slats, greening as well as coloured powder-coatings, handrails and glare protection for individual design.



## Expertise

Our designers offer flexible solutions for concrete, steel or timber structures, supported by extensive experience in engineering, to best meet all customer requirements.



# Product-specific advantages



## High aperture cross-section

makes it possible to dispense with expensive ventilation systems, thanks to the high air permeability of the INTEGRA-pw system



## High light transmission

optimises the use of daylight and reduces lighting costs



## No ladder effect

the INTEGRA-pw system eliminates the ladder effect on account of reduced horizontal profiles and thus prevents climbing over



## Closure

suitable for protection over entire storey heights as protection against vandalism and prevention of suicide



## Slope and ramp area

allows the use of INTEGRA-pw in the slope and ramp area, adaptable for different degrees of inclination



## Façade integration

makes it possible to dispense with costly façade substructures, as INTEGRA-pw is ideally suited for use for fastening





# MODULAR SYSTEM

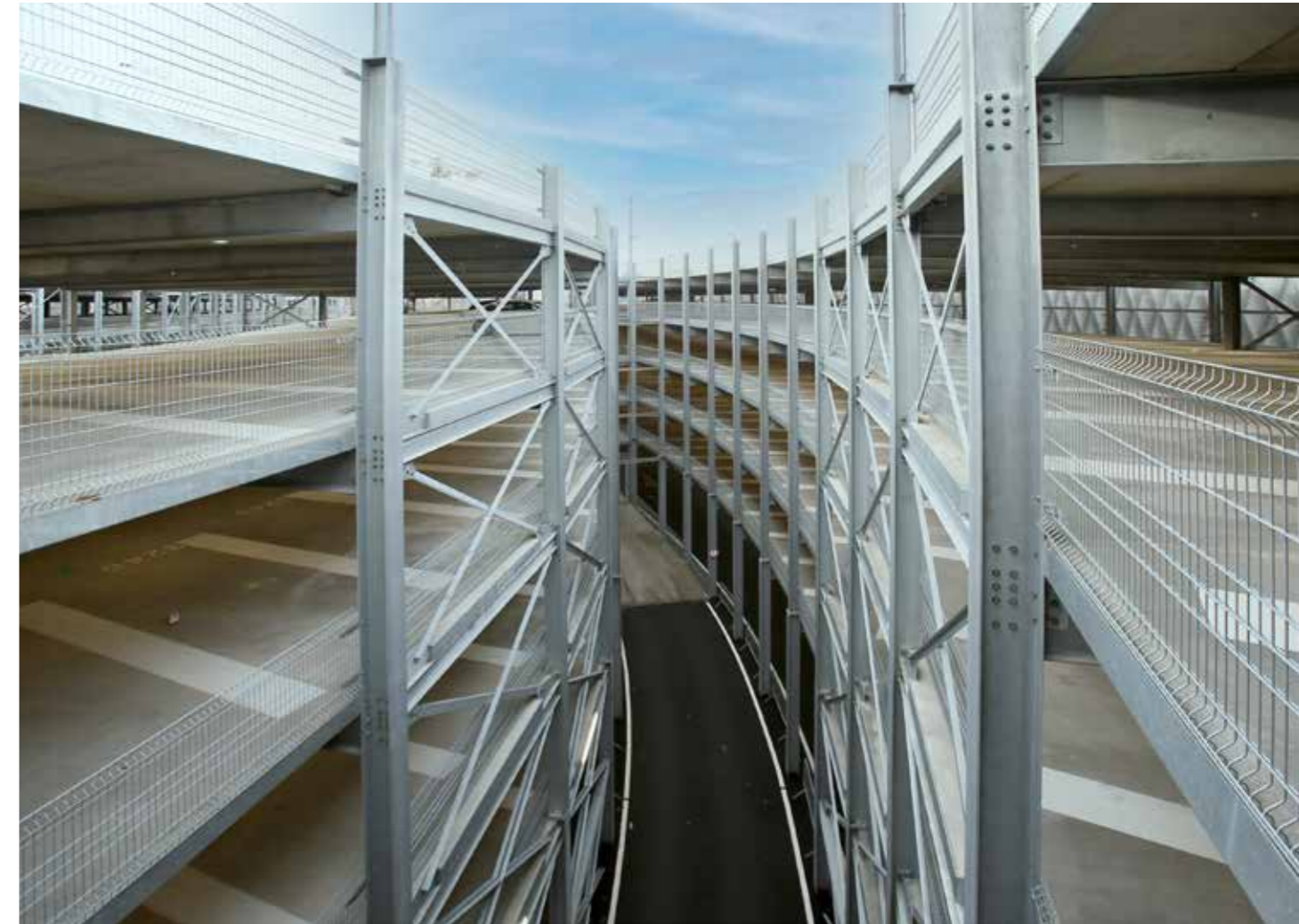
## The right system for all requirements

The modular system consists of the steel mesh mat and various fastening sets. The number of fastening sets plays a significant role in the load dissipation. Therefore, INTEGRA-pw is configured exactly to meet the requirements. The decisive factor for this is primarily the load requirements!

## 1 Different load requirements

When planning a multi-storey car park, logistics centre or mobility hub, the initial focus is on the requirements for the building. The same applies to the necessary safety barrier!

First and foremost, the question of the load requirements for the safety barrier arises here. For example, in Europe there are different load categories for loads due to people and vehicle loads, as well as different standards for vehicle impacts.



In addition, it is important to determine in advance the further requirements that result, for example, from the individual building design or the desired performance limit:

- Clearance dimension between the supports
- Maximum fall height and thus the height of the safety barrier
- Surface (galvanised or powder-coated)
- Pre-assembly in the factory / assembly on the construction site
- Accessories desired, handrail and/or glare protection
- Building law requirements for parapet height



## Product-configurator

As with the steel mesh mats, the fastening sets are selected according to the requirements of the applicable standard and differ in their functionality and number.

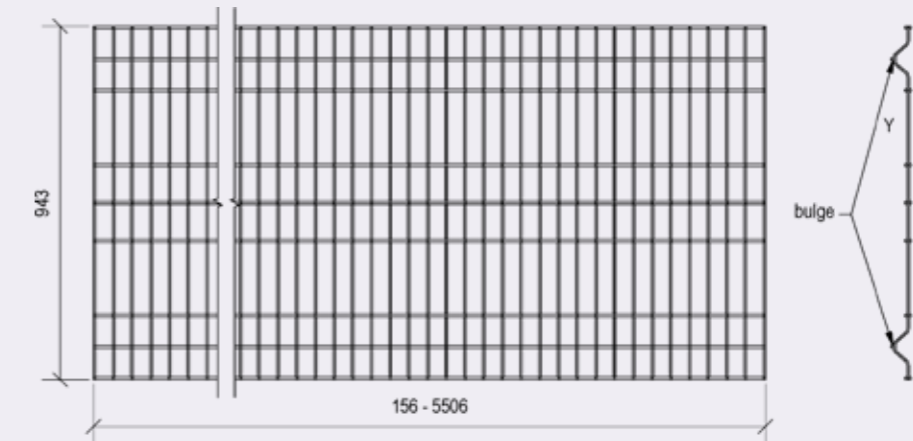
	INTEGRA-pw LOCK	INTEGRA-pw 0.1	INTEGRA-pw 2.5	INTEGRA-pw 3.0	INTEGRA-pw 3.5	INTEGRA-pw X-LONG
Closure / greening	●	●	●	●	●	●
Loads due to people		●	●	●	●	●
Vehicles up to 2,5 t			●	●	●	●
Vehicles up to 3,0 t				DE only ●	●	
Vehicles up to 3,5 t					●	
Fastening set	—	2	4	4	8	8
Fastening set LOCK	4	2	—	—	—	—
Fastening set X-LONG	—	—	—	—	—	4



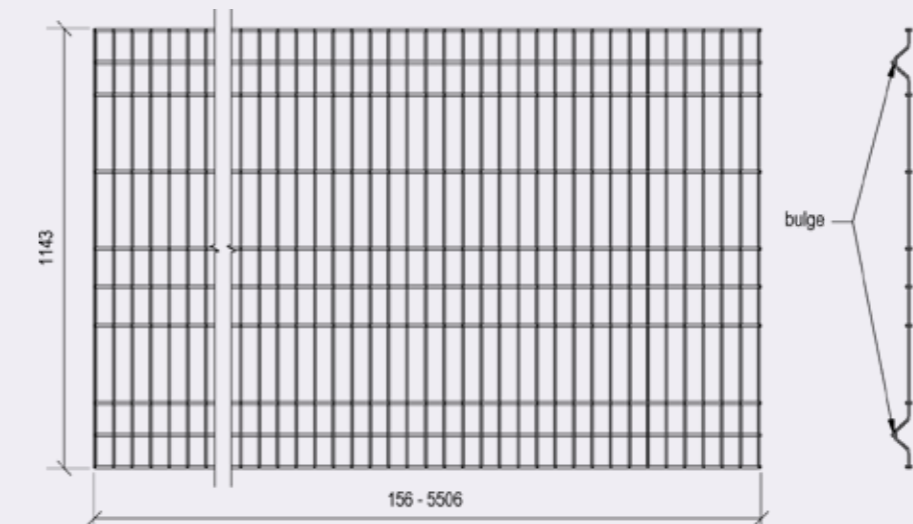
## 2 Steel mesh mats

The **system heights** of the **steel mesh mats** are based on the normative requirements of the national state building regulations as well as international building regulations and measure **943 mm** or **1143 mm**. The steel wire used in the production process meets the highest quality standards (certified according to DIN 1090).

### Steel mesh mat 943 mm



### Steel mesh mat 1143 mm





# 3 Fastening sets

The different combination options of the steel mesh mats and fastening sets result in individual variants for almost every requirement.



### INTEGRA-pw fastening set (0.1/2.5/3.0/3.5)

- 1x hexagon bolt ISO 4017 - M10 - 8.8 - galvanised
- 3x washer ISO 7093 - ø10.5 - galvanised
- 1x hexagon nut ISO 4032 - M10 - galvanised
- 1x hexagon bolt ISO 4017 - M16 - 8.8 - galvanised
- 2x washer ISO 7093 - ø17 - galvanised
- 1x hexagon nut ISO 4032 - M16 - galvanised

### INTEGRA-pw fastening set LOCK (0.1/ LOCK)

- 1x hexagonal bolt ISO 4017 - M16 - 8.8 - galvanised
- 2x washer ISO 7093 - 17 - galvanised
- 1x hexagon nut ISO 4032 - M16 - galvanised
- 1x hexagon bolt ISO 4017 - M10 - 8.8 - galvanised
- 2x washer ISO 7093 - ø10.5 - galvanised
- 1x hexagon nut ISO 4032 - M10 - galvanised

### INTEGRA-pw fastening set X-LONG

- 1x hexagon bolt ISO 4017 M10 - 8.8 - galvanised
- 3x washer ISO 7093 ø10.5 - galvanised
- 1x hexagon nut ISO4032 M10 - galvanised
- 1x hexagon bolt ISO 4017 M16 - 8.8 - galvanised
- 2x washer ISO 7093 ø17 - galvanised
- 1x hexagon nut ISO4032 M16 - galvanised





## The modular solution

The areas of use are diverse and are based in principle on the load requirements. Criteria such as span width and limited deformation possibilities in the case of façades are also a decision criterion for the use of the product.

System products for different load requirements

- **INTEGRA-pw 0.1**
- **INTEGRA-pw 2.5**
- **INTEGRA-pw 3.0**
- **INTEGRA-pw 3.5**
- **INTEGRA-pw X-LONG**
- **INTEGRA-pw LOCK**

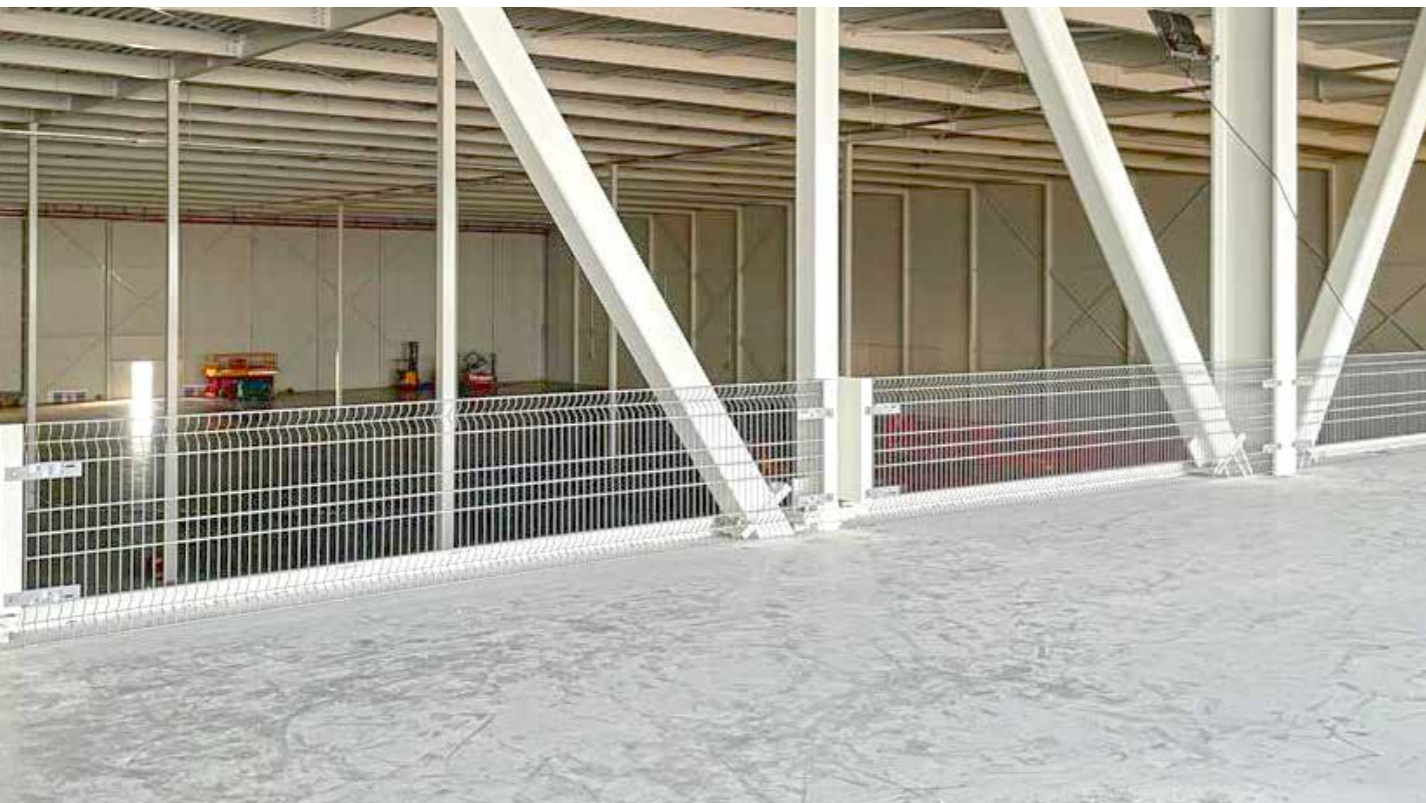
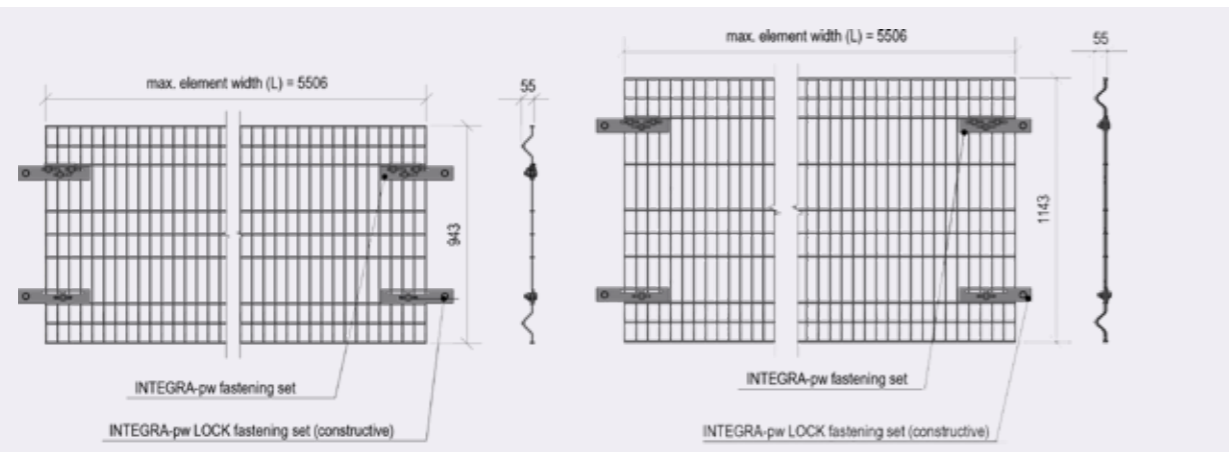
# PRODUCTS





## INTEGRA-pw 0.1

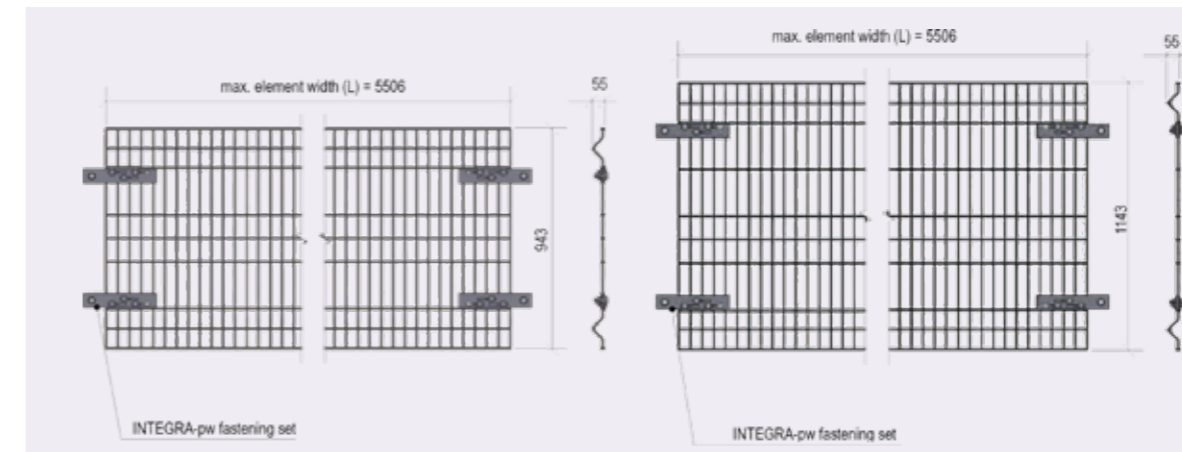
- Load requirement: **Loads due to people** up to **1.0 kN/m** according to EN 1991-1-1
- Area of use: safety barrier for people in buildings, mezzanines, connecting bridges between buildings and wherever people need to be protected against falling
- Parapet barrier for **loads due to people** up to **100 kg**
- Column-free span widths up to **5506 mm**



INTEGRA-pw 0.1– Lutten, Mezzanine Jarola

## INTEGRA-pw 2.5

- Load requirement: **Loads due to people** up to **1.0 kN/m** according to EN 1991-1-1
- **Vehicle loads** up to **2.5 t** according to EN 1991-1-1, Annex B or EN 1991-1-7, Annex C
- Area of use: multi-storey car parks
- Safety barrier for people and **cars** with a **total weight** of up to **2.5 t**
- Column-free span widths up to **5506 mm**



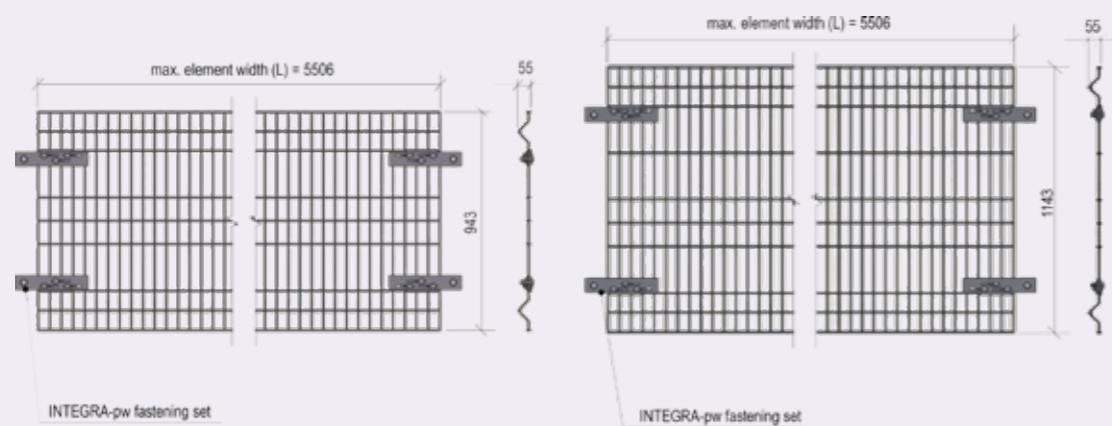
INTEGRA-pw 2.5 – Eindhoven, multi-storey car park Arsenal





## INTEGRA-pw 3.0

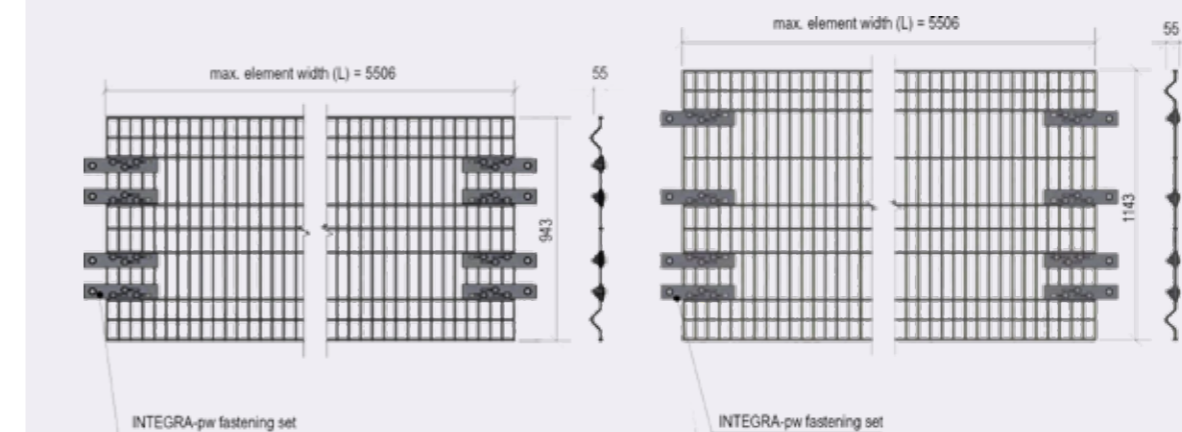
- Load requirement: **Loads due to people** up to **1.0 kN/m** according to EN 1991-1-1/NA
- **Vehicle loads** up to **3.0 t** according to EN 1991-1-7/NA
- General building authority approval **no. Z-14.7-882**
- Area of use: multi-storey car parks
- Safety barrier for people and **cars** with a **total weight** of up to **3.0 t**
- Column-free span widths up to **5506 mm**



INTEGRA-pw 3.0 – Eckernförde, multi-storey car park Noorstraße

## INTEGRA-pw 3.5

- Load requirement: **Loads due to people** up to **1.0 kN/m** according to EN 1991-1-1
- **Vehicle loads** up to **3.5 t** according to EN 1991-1-1, Annex B or EN 1991-1-7, Annex C
- General building authority approval **no. Z-14.7-882**
- Area of use: multi-storey car parks
- Safety barrier for people and **cars** and **vans** with a **total weight** of up to **3.5 t**
- Column-free span widths up to **5506 mm**



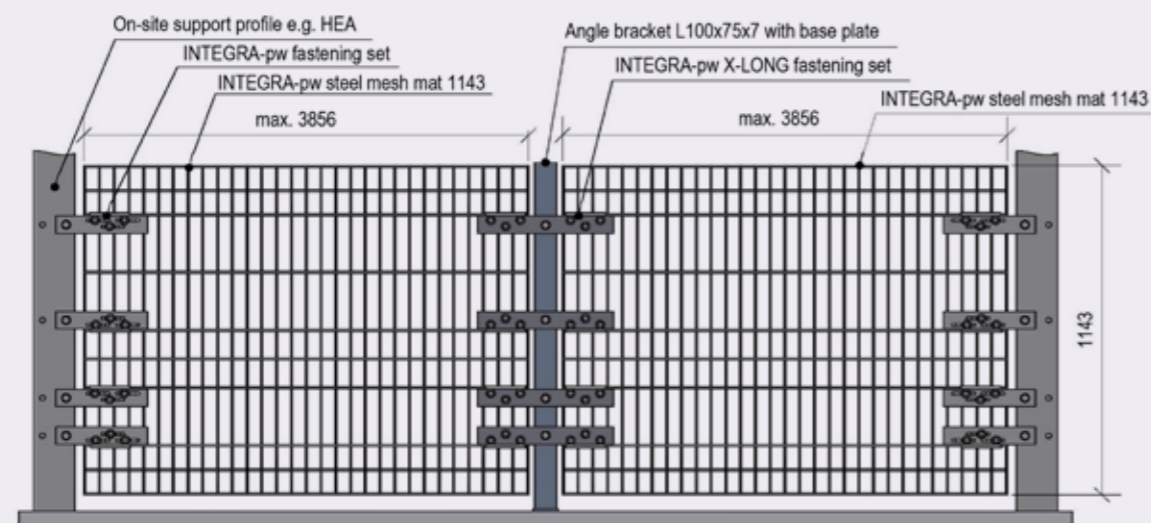
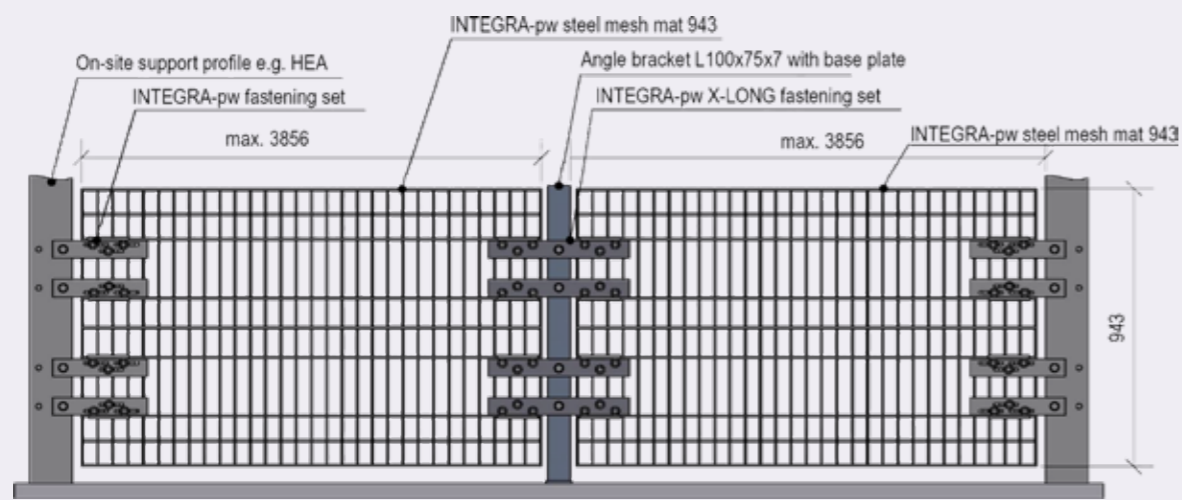
INTEGRA-pw 3.5 – multi-storey car park Furniture store





## INTEGRA-pw X-LONG

- Load requirement: **Loads due to people** up to 1.0 kN/m according to EN 1991-1-1
- **Vehicle loads** up to **2.5 t** according to EN 1991-1-1, Annex B or EN 1991-1-7, Annex C
- Area of use: multi-storey car parks
- Safety barrier for people and cars with a **total weight** of up to **2.5 t**
- Column-free span widths up to **7806 mm**
- 2 mesh bodies with additional steel support (bracket with base plate)
- Visually similar to **INTEGRA-pw 3.5**, however with a lower load capacity, but larger span



INTEGRA-pw X-LONG – Birmingham, MSCP City Hospital



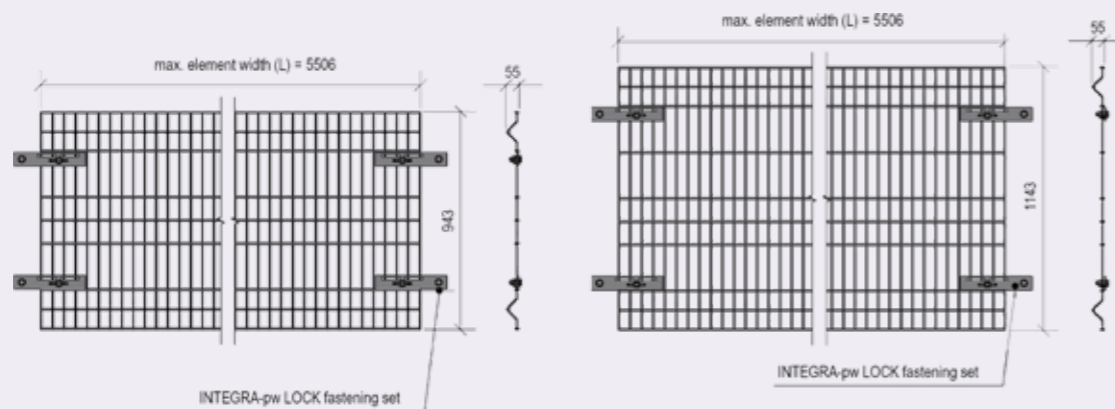
INTEGRA-pw X-LONG – Birmingham, MSCP City Hospital



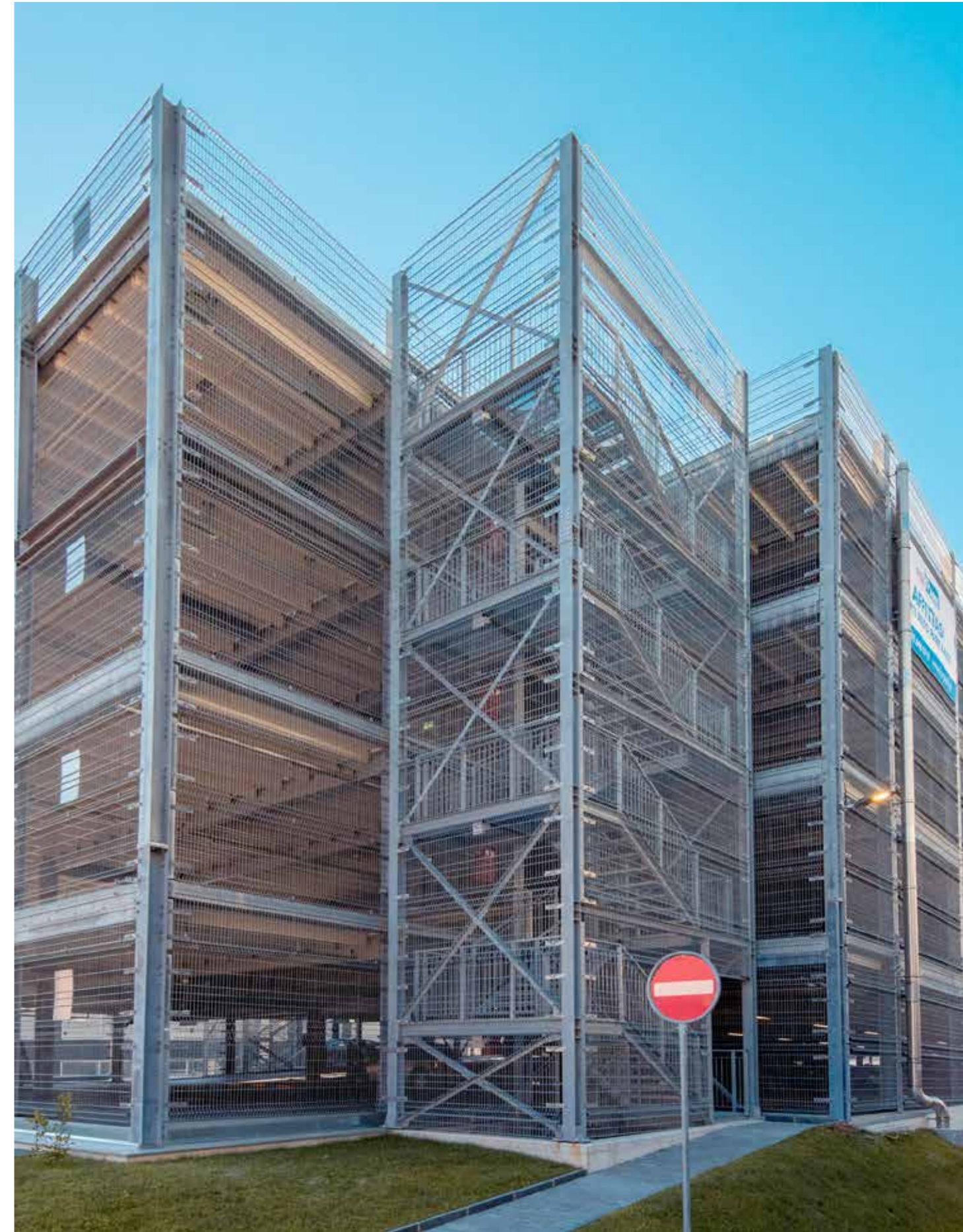


## INTEGRA-pw LOCK

- No load requirement
- Area of use: for the closure of complete storey heights in multi-storey car parks
- Protection against vandalism
- Basis for different façades
- Column-free span widths up to **5506 mm**



INTEGRA-pw LOCK, multi-storey car park Brüder-Grimm-Straße, Hanau



INTEGRA-pw LOCK – Swiss, multi-storey car park Mendrisio





# SYSTEMATIC GRADIENT ADJUSTMENT



## Application example of INTEGRA-pw 2.5

This example impressively illustrates how versatile and flexible the INTEGRA-pw 2.5 system can be adapted to individual requirements.

Here we see the continuous use at the parking levels, with specially factory-made slope adjustments for the ramp areas and a seamless transition at the end of the ramp.

The slope adjustments are made in the system grid of the mesh size and are predefined for different slope areas.

This makes the system an optimum solution even for challenging structural conditions.





# ATTACHED PARTS

## INTEGRA-pw EXTRA

The INTEGRA-pw Extra product series is a useful addition. It includes the additional equipment of the steel mesh mat with a handrail and / or glare protection.

### Handrail

An additional handrail is particularly useful in multi-storey car parks with a high level of pedestrian traffic and offers additional safety and comfort.

#### Product features steel S235

Round tube d=42,4 mm

Surface: galvanised according DIN EN ISO 1461

Optionally powder-coated in a RAL colour

#### Product features stainless steel 1.4301

Round tube d=42,4 mm

Surface: polished, grit 240



INTEGRA-pw EXTRA – Stainless steel handrail



INTEGRA-pw EXTRA – Glare protection smooth sheet metal

### Glare protection

The **glare protection** is optionally made of smooth or perforated sheet metal. It is manufactured in several parts in widths based on the dimensions of the steel mesh mat. A special feature is the fastening, which is done directly and without any further substructure to the steel mesh mats, thus significantly reducing construction costs. Especially in the case of residential buildings adjacent to the multi-storey car park without an additional outer façade, the **glare protection** is able to curb light emissions from the car headlights. In addition, the **glare protection** has a particularly classy look and significantly enhances the appearance of the multi-storey car park.

#### Product features

Height 670 mm

Material: aluminium

Made from smooth or perforated sheet metal Rg 10-21 (Lo=18,2%)

Surface: natural aluminium

Optionally powder-coated in a RAL colour





# SAFETY CERTIFICATES & PLANNING AIDS

## Our commitment to the highest safety standards

Through practical tests on our special test bench, we ensure that our products meet the highest safety requirements.

The tests simulate real load scenarios caused by people and car impacts in order to prove the limit load capacity of our systems.

Our tests deliberately go beyond the requirements of European standards in order to ensure maximum safety.

With more than 140 impact tests performed and the "general building authority approval" (DIBt), the following has been confirmed: **INTEGRA-pw** sets new standards in safety technology for multi-storey car parks.

	INTEGRA-pw LOCK	INTEGRA-pw 0.1	INTEGRA-pw 2.5	INTEGRA-pw 3.0	INTEGRA-pw 3.5	INTEGRA-pw X-LONG
Closure / greening without load requirements	●	●	●	●	●	●
Horizontal forces due to people according to EN 1991-1-1 (STA), according to BS 6399-1 (STA) and according to SIA 261 (STA)		●	●		●	●
Horizontal forces due to people according to EN 1991-1-1 (general building authority approval)				●	●	
Cars up to 2.5 t and 4.5 m/s according to EN 1991-1-1, Annex B (STA) or according to BS 6399-1 (STA)			●		●	●
Cars up to 2.5 t and 10 km/h according to EN 1991-1-7 (STA)			●		●	●
Cars up to 3.0 t according to EN 1991-1-7 / NA (general building authority approval)				●	●	
Cars up to 3.5 t and 4.5 m/s according to EN 1991-1-1, Annex B (STA) or according to BS 6399-1 (STA)					●	
Cars up to 3.5 t and 10 km/h according to EN 1991-1-7 (STA)					●	
Cars up to 3.5 t according to SIA 261 (STA)					●	
Cars up to 3.5 t according to EN 1991-1-7 / NA (general building authority approval)					●	



Test station with PV modules

## Service & planning Excellence through expertise

Our planning guide contains all relevant details and digital order lists – a time-saving and cost-efficient solution that optimises the use of our safety systems.

We provide comprehensive data sheets and guidelines on how to integrate the INTEGRA-pw, including technical specifications and installation instructions. Our team is at your disposal for further advice.

For quality assurance, we provide training for assembly teams and certify them in order to guarantee the highest standards on the construction site. On request, we can also train your planning team for the optimal use of the **INTEGRA-pw**.





# PRODUCTION

## Fully automatic mesh welding machine

**INTEGRA-pw** is manufactured exclusively in our plant in Salzkotten in Germany. We started using our **fully automatic mesh welding machine** called "Patricia" in November 2019, since then manually applied weld spots for load dissipation have been things of the past.

For production we mainly use steel wire coils with a diameter of 6 or 8 mm. The steel wires are simultaneously fed from the coil to the welding machine and processed there.

The finished mats are cut to size and provided with the corrugations that are typical for **INTEGRA-pw** safety barriers. Depending on the customer's requirements, the surface is finished by galvanizing or powder-coating.

The **INTEGRA-pw 943** in the galvanised state weighs approx. **10 kg/m** and the **INTEGRA-pw 1143** weighs approx. **12 kg/m**. The aperture cross-section is approx. 80%.



Coils



Mesh welding machine „Patricia“



Automated removal of the finished steel mesh mat





## Sustainable construction with projekt w

One of the main goals of sustainable construction is to save as much energy as possible right from the selection and production of the building materials, because: sustainable construction begins with the manufacturing process! Furthermore, from our point of view, ecological building materials are used as far as possible.

**Steel** has excellent sustainability. It is one of the few building materials that can be recycled easily and as often as desired. According to a study by the Fraunhofer Institute, the use of 1,000 kg of steel scrap saves 1,670 kg of CO<sub>2</sub>. Of the total world consumption of steel of 800 million tons, almost 50% is produced from scrap metal.



Our **INTEGRA-pw** multi-storey car park safety barrier is another good example of sustainability in construction. The steel safety barrier is not only durable, it can even be easily reinstalled elsewhere and thus reused without further ado by simply dismantling it. This has proven to be an unbeatable ecological and efficient advantage in the use of temporary multi-storey system car parks.

### Other benefits of using steel in construction

- Reduction of material use
- Extreme durability and longevity (= maximum conservation of resources)

Sustainable and responsible action is an integral part of our corporate culture. We live this in practice.

# SUSTAIN- ABILITY





# ASSEMBLY

## Pre-assembly & digitisation

### Efficient implementation

On request, we can deliver **INTEGRA-pw** pre-assembled directly to the building site. We recommend that you use our digital order lists for ordering – this saves time in the order process and thus enables shorter delivery times.

# AFTER SALES

Another decisive quality criterion for us is customer service. In order to clarify your request in the quickest and simplest way, our contacts are available to you during our business hours.

**We are at your disposal to support you with:**

- the planning phase
- the assembly and/or installation
- the entire service life of the building

# CONTACTS

## We advise you personally

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**projekt w is a specialist and European market leader**  
in safety barriers for stationary traffic!

All production steps take place on our 12,000 sq. metre factory premises in Salzkotten. Thus, we offer our customers 100% production "**Made in Germany**". Experienced managers, competent specialists and clear organisational structures ensure fast and smooth decisions and processes.

We attach great importance to a close relationship with customers and employees – always with the aim of building long-term relationships!

With the "**family-friendly company**" award, we regard it as our responsibility towards society to introduce young people to working life, among other things. That is why we are strongly committed as a recognised training company.



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