



FFT *lasertec*
Protection Cabin

one step ahead in **INTELLIGENT** production systems



FFT*lasertec* Protection Cabin

Safety for all Laser applications from standard to highly flexible production systems

1

LASER SAFETY

Minimize the risk of laser accidents by complying global safety standards

2

LASER APPLICATIONS

FFT*lasertec* Protection Cabins are suitable for various laser related applications

3

FFT*lasertec* Protection Cabin

The FFT standard product for the most common applications and options

4

REFERENCES

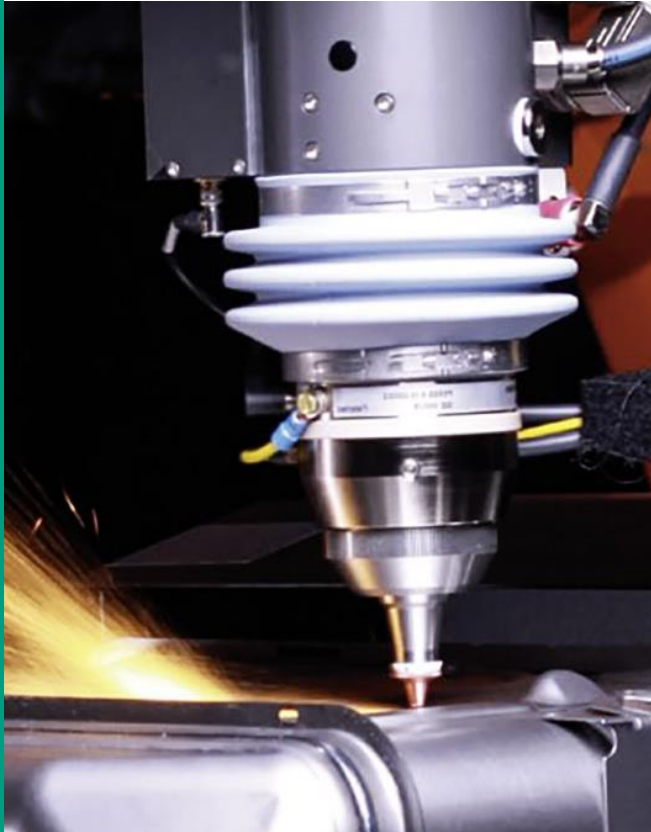
Many references worldwide

1

LASER SAFETY

Minimize the risk of laser accidents by complying global safety standards

one step ahead in **INTELLIGENT** production systems



LASER SAFETY

global standards

Machinery Directive 2006/42/EC
Danger prevention
Safety and health protection

DIN EN 60825-1:2022-07
Safety of laser equipment
Classification of equipment and requirements

DIN EN 60825-4:2011-12
Safety of laser equipment
Laser protection walls

DIN EN ISO 11553-1:2021-01
Safety of laser processing machines

LASER SAFETY

Official Laser Safety Certification

Gutachterbüro Erwin M. Heberer

Von der Industrie- und Handelskammer Offenbach am Main öffentlich bestellt und vereidigter Sachverständiger für das Sachgebiet Lasersicherheit bei Lasern der Materialbearbeitung



Zertifikat für Laserschutzwandelemente

Die hier nachfolgend bezeichneten Laserschutzwände wurden von mir am 5. März 2013 und am 3. September 2014 im IVB München gemäß der aufgeführten Norm geprüft und im Sachverständigen Gutachten dokumentiert.

Gutachten Prüfung von Laserschutzwandelementen der Firma FFT Produktionssysteme GmbH & Co.KG

Produkt Laserschutzwand Systembezeichnung I-01
Laserschutzwand Systembezeichnung II-01

Hersteller FFT Produktionssysteme GmbH & Co.KG
Schleyerstraße 1
36041 Fulda

Prüfstätte IVB
Institut für Werkzeugmaschinen und Betriebswissenschaften
Technische Universität München
Boltzmannstr. 15
85748 Garching

Norm DIN EN 60825-4
Prüfanordnung gemäß Abschnitt 3.2.3
Abweichend zu den Vorgaben der Norm die Versuche mit 6 gleichen Elementen durchzuführen, wurden 10 Elemente beschossen um eine bessere Aussagefähigkeit zu $\sigma 3$ zu erhalten.

Technische Daten

Laser YLR - 8000 Ytterbium Faserlaser IPG
Laserleistung 5000 Watt
LLK 200 μm
Strahlparameter It Primes 8.906 mm²mrad
Brennweite Optik 460 mm (Highyag Bimo)
Focusabstand 3 fach, ab Focus 1371 mm
Leistungsdichte VMB 1,687 x10⁶ Wm⁻²

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Gutachterbüro Erwin M. Heberer

Von der Industrie- und Handelskammer Offenbach am Main öffentlich bestellt und vereidigter Sachverständiger für das Sachgebiet Lasersicherheit bei Lasern der Materialbearbeitung



Laserschutzwand Systembezeichnung I-01

Vertrauensniveau / Sicherheit %	Ist Zeit / Maximale Standzeit sec	Schutz- Sicherheitsfaktor 0,7 sec
$\sigma 3 = 99,7\%$	17,3	12,16
$\sigma 2 = 95,4\%$	18,03	12,66
$\sigma 1 = 68,3\%$	18,79	13,15

Laserschutzwand Systembezeichnung II-01

Vertrauensniveau / Sicherheit %	Ist Zeit / Maximale Standzeit sec	Schutz- Sicherheitsfaktor 0,7 sec
$\sigma 3 = 99,7\%$	75,25	52,67
$\sigma 2 = 95,4\%$	81,08	56,75
$\sigma 1 = 68,3\%$	86,92	60,84

Die Elemente des Laserschutzwand Systems sind auf der dem Laser zugewandten Seite schwarz beschichtet, wodurch auch mögliche negative Veränderungen der Schutzzeiten durch Alterung bei der Prüfung berücksichtigt wurden.

Die von mir geprüften Laserschutzwand Systeme I-01 und II-02 können in Abhängigkeit zu dem jeweiligen Ergebnis der gemäß MRL 2006/42 EG zwingend durchzuführenden Risikobeurteilung und der VMB / SGB Berechnung gemäß DIN EN 60825-4 Anhang C, für T1 mit einem Wartungsintervall von 30000 sec verwendet werden.

Erwin M. Heberer
öffentlich bestellt und vereidigter Sachverständiger
für das Sachgebiet Lasersicherheit bei Lasern
der Materialbearbeitung



12. November 2014

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Successfully passed tests at the Fraunhofer Institute and proof of conformity by the laser safety advisor of FFT Laser Protection Cabins with DIN EN 60825-4

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LASER APPLICATIONS

FFT *lasertec* **Protection Cabins** are suitable for various laser related applications

The background image shows a close-up of a laser welding process. An orange robotic arm is positioned above a workpiece, with a bright yellow laser beam focused on the metal. Sparks and a bright light are visible at the point of contact. The scene is set in an industrial environment with various mechanical components and cables visible.

one step ahead in **INTELLIGENT** production systems

LASER APPLICATIONS

FFT*lasertec* **Protection Cabins** are suitable for various laser related applications



LASER PROCESS

Continuous and pulsed laser process



LOADING SYSTEM

Automatic and manual loading systems



LASER SOURCES

High power solid state, diode and gas laser



LASER TASK

Laser cutting, welding, brazing, cleaning, etc.



PRODUCTION

Independent and inline production

3

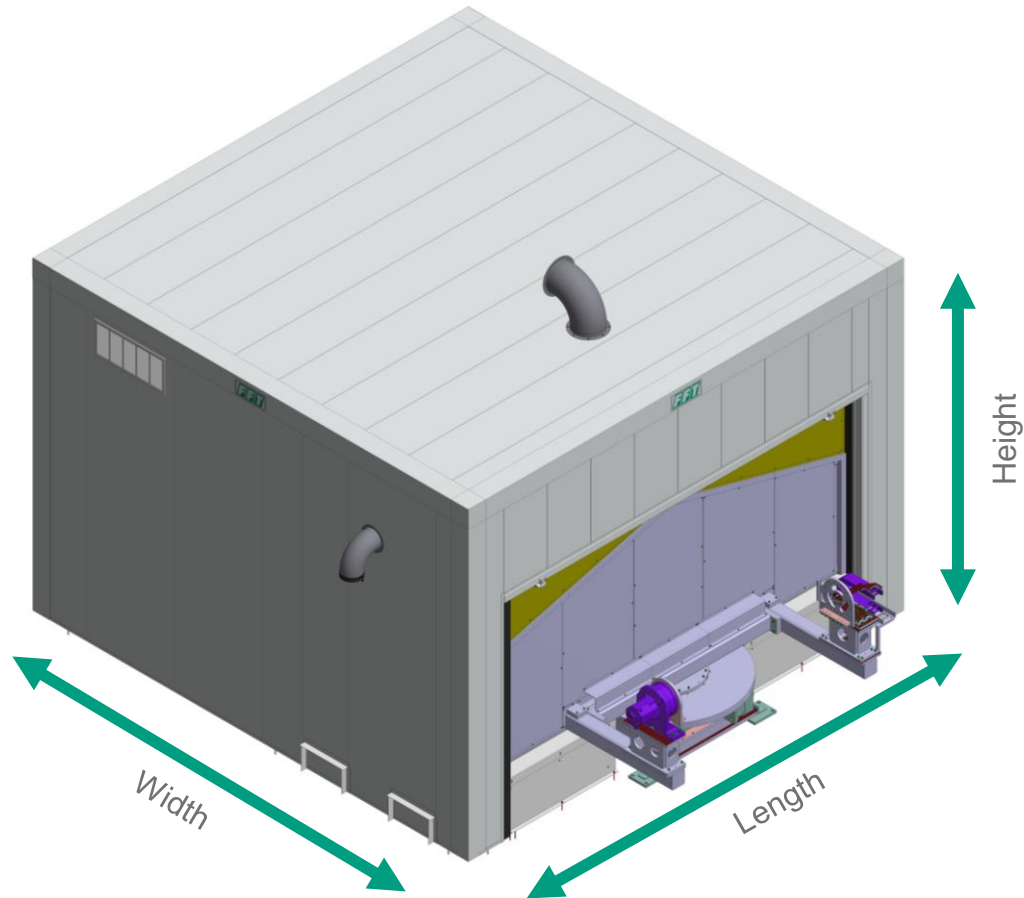
FFT*lasertec* Protection Cabin

The FFT standard product for the most common applications and options

one step ahead in **INTELLIGENT** production systems

FFT*lasertec* Protection Cabin

FFT Standard Laser Protection Cabin – SAFE + COST EFFICIENT + FAST



Ready for your
production in only 6
weeks (incl. assembly)

FFT special price:
40.000€
incl. service and all equipment!

Standard size

Length = 4000 mm
Width = 3500 mm
Height = 3500 mm

Safety data

Max. Power density:
 $1,687 \times 10^6 \text{ W/m}^2$

Equipment

Connection for supply
and exhaust air

Double door with
safety switch

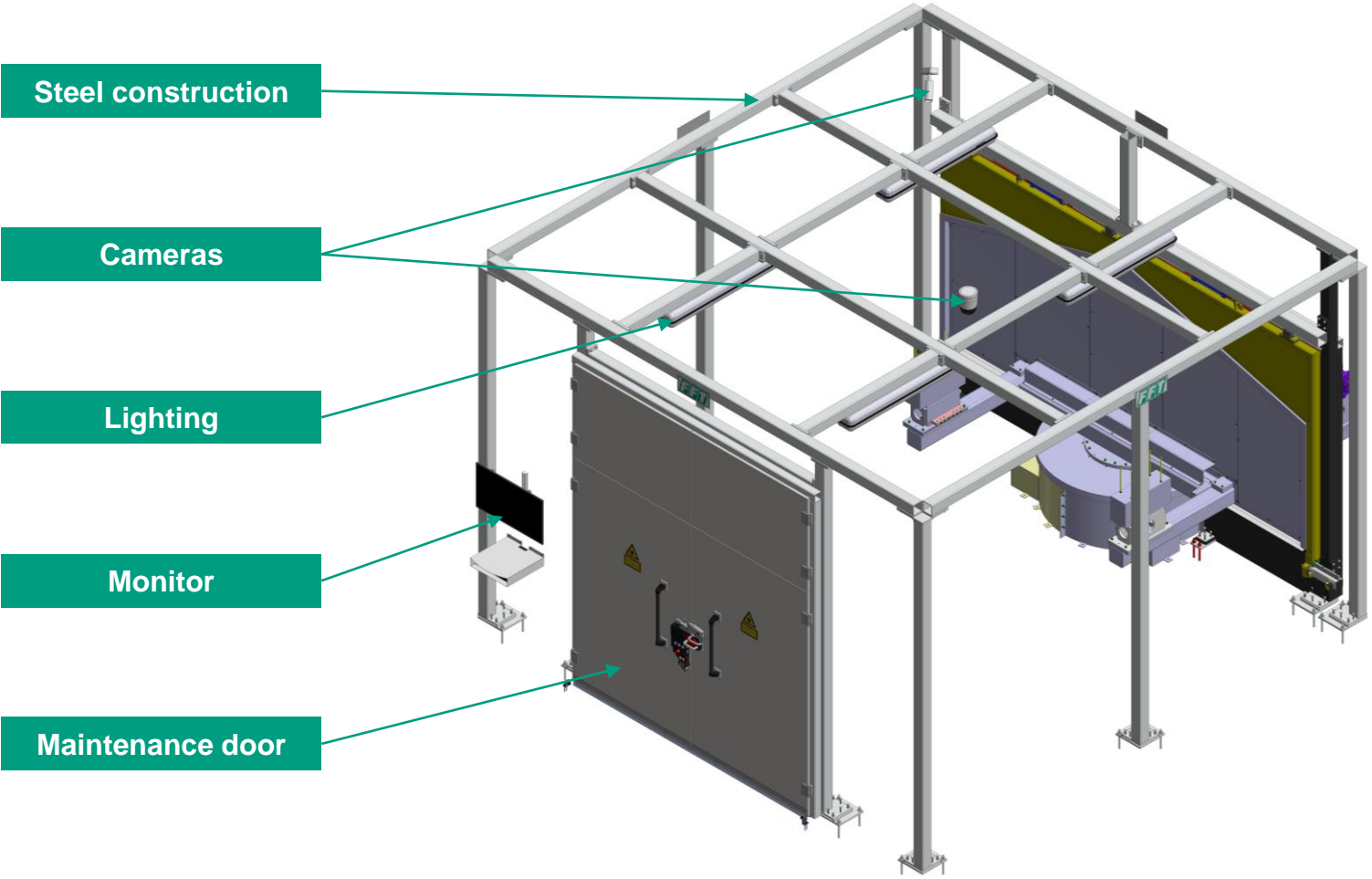
Service

Construction, logistics
and assembly by FFT

After sales service by
FFT

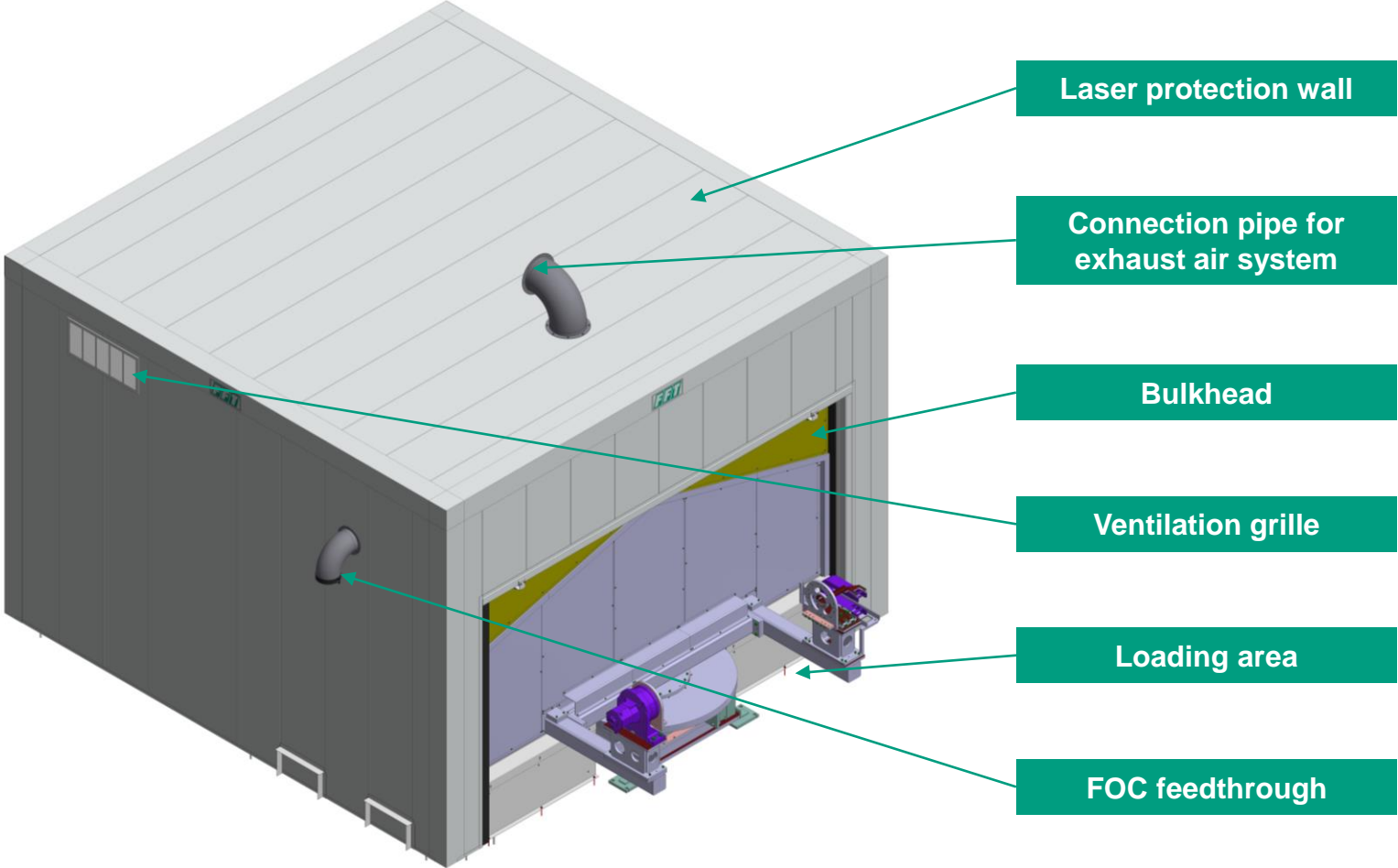
CABIN OPTIONS

Access and Monitoring Modules



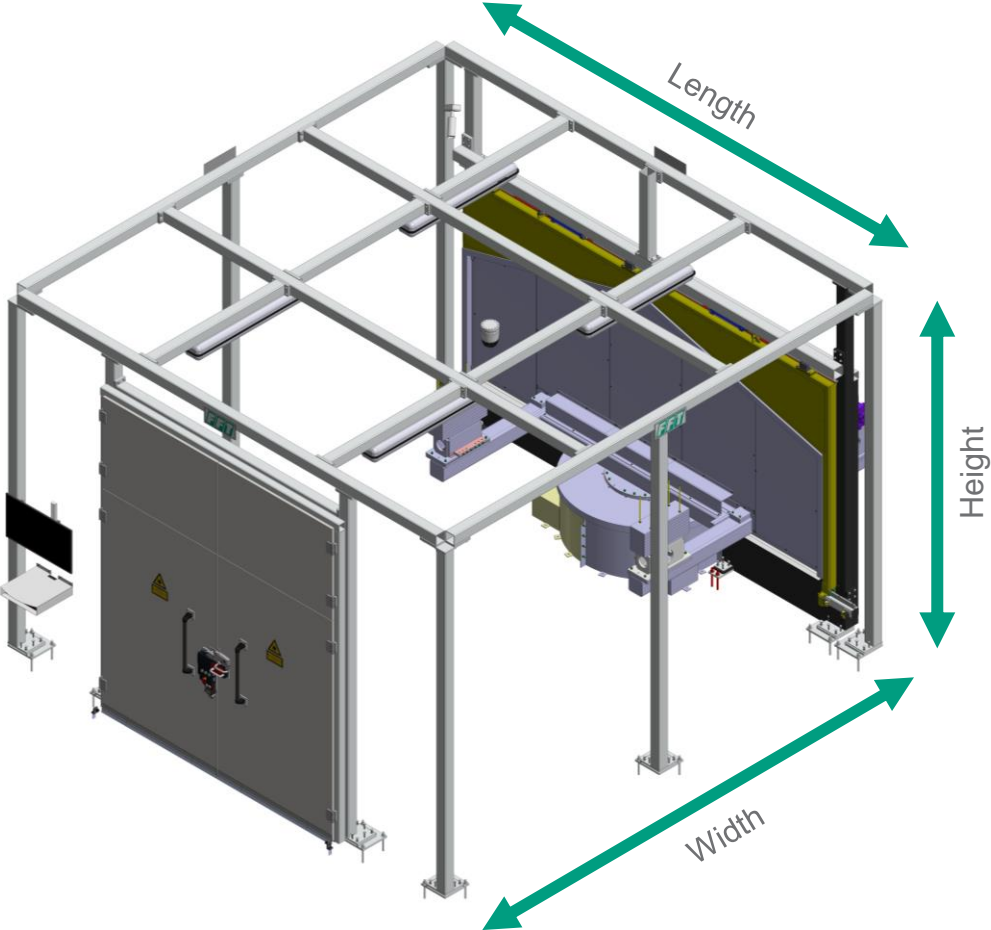
CABIN OPTIONS

Process and Functionality Modules



CABIN OPTIONS

Cabin Size Variations



Standard size

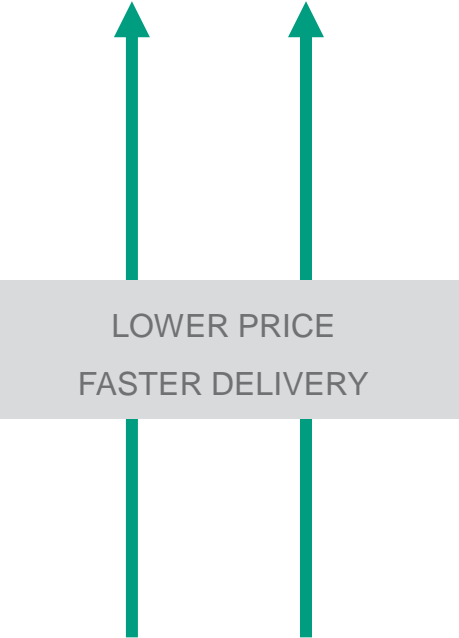
Length = 4000 mm
Width = 3500 mm
Height = 3500 mm

Size Up +

500 mm grid
Optional cost-efficient enlargement of the standard cabin

Individual dimensions

Maximum flexibility through customised steel constructions and laser protection walls



CABIN OPTIONS

Door and Gate Options – Access and Maintenance Doors



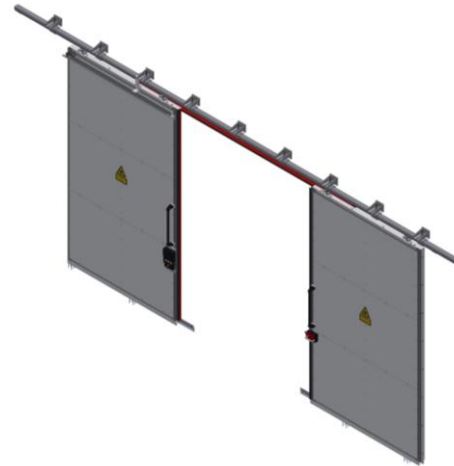
Access door

Swing door for personnel access



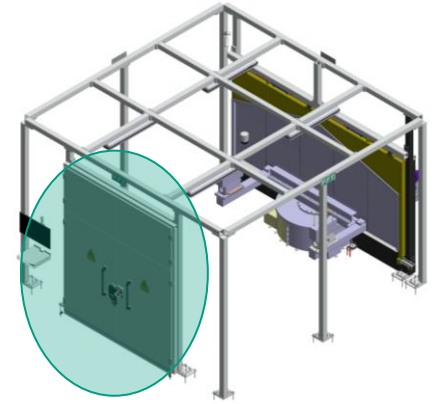
Maintenance door

Double swing door for maintenance or equipment change



Manual sliding door

Sliding door for narrow environments

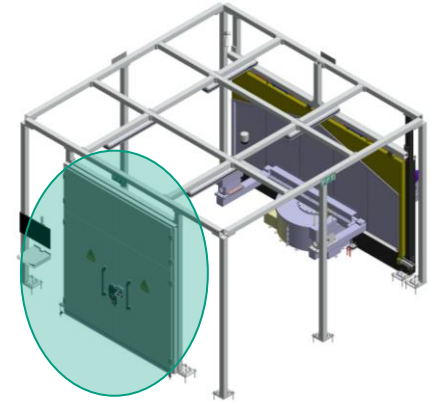


CABIN OPTIONS

Door and Gate Options – Access Door



- Type: Access door
- Swing door for people access
- Size:
 - W = 980 mm
 - H = 2100 mm
- Same level of protection as the cabin wall
- Equipped with Euchner safety switch

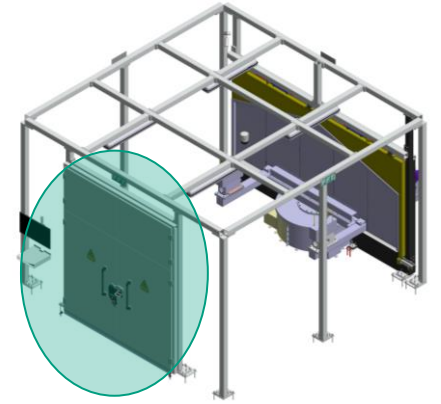


CABIN OPTIONS

Door and Gate Options – Maintenance Door

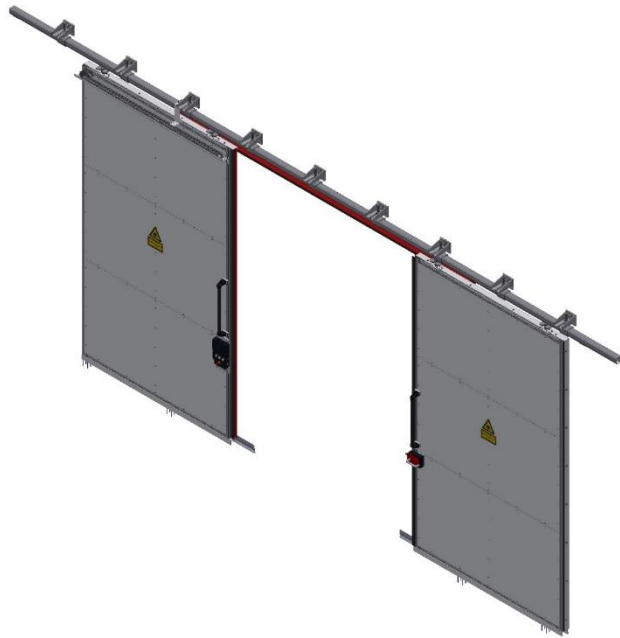


- Type: Maintenance door
- Double swing door for maintenance or equipment replacement
- Size:
 - W = 2500 mm
 - H = 2500 mm
 - Different sizes available
- Same level of protection as the cabin wall
- Equipped with Euchner safety switch

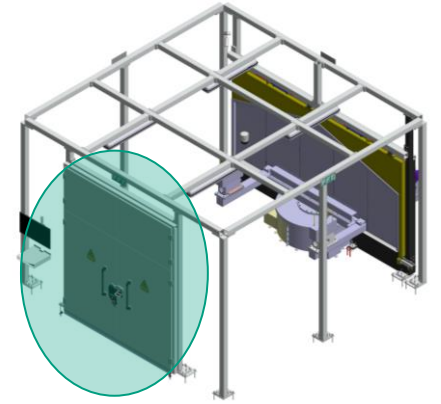


CABIN OPTIONS

Door and Gate Options – Manual Sliding Door

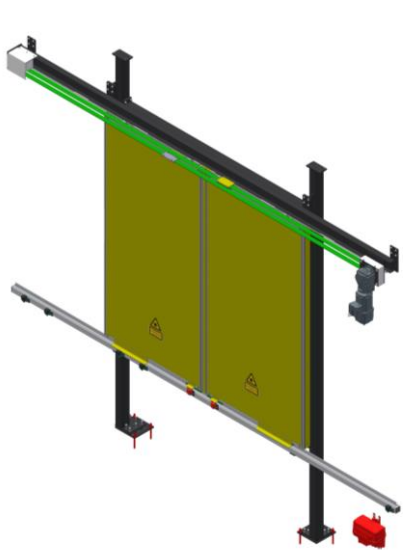


- Type: Manual sliding door
- Sliding door for narrow environments
- Available in various sizes in single and double versions
- Same level of protection as the cabin wall
- Equipped with Euchner safety switch



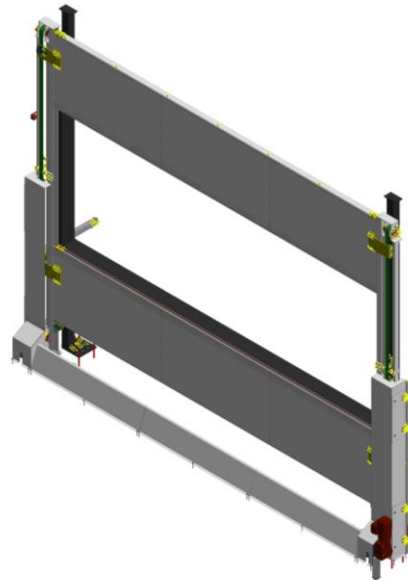
CABIN OPTIONS

Door and Gate Options – Loading Gates



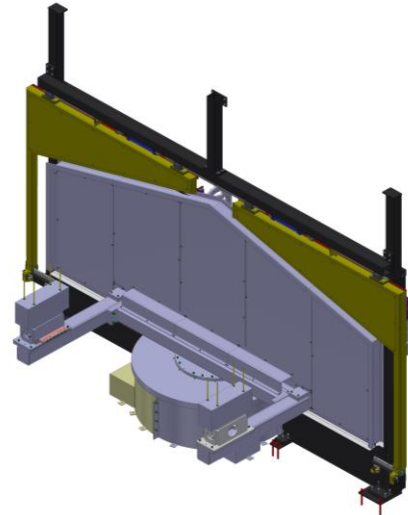
Automatic sliding doors

Available in different sizes
in single and double
version
W = 2500 mm
H = 2000 mm



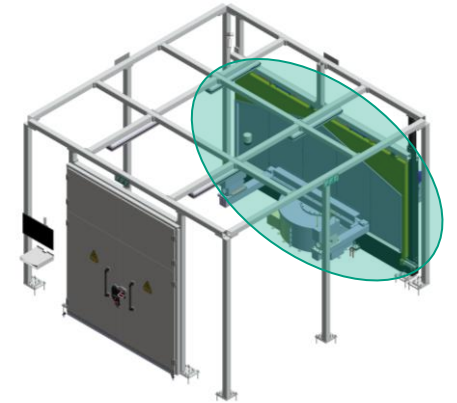
Lifting gates

Automatic lifting gates in
various sizes and designs



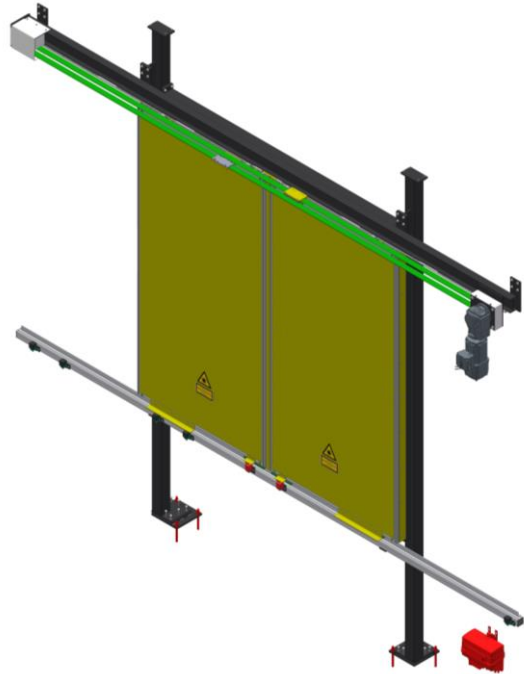
Turntables

FFT offers an individual
laser safety barrier for
mounting on turntables

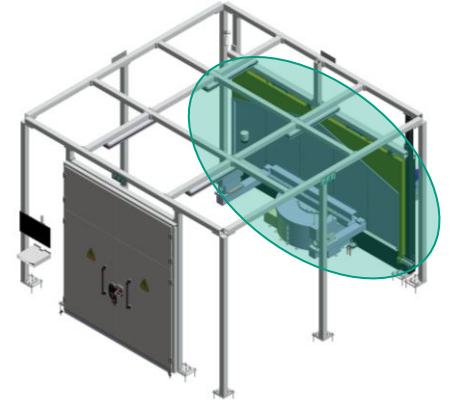


CABIN OPTIONS

Door and Gate Options – Automatic Sliding Door

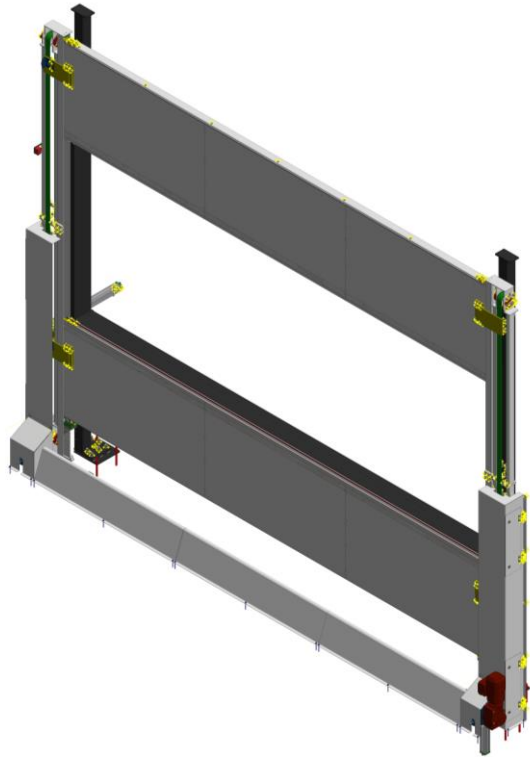


- Type: Sliding door
- Single and double version
- Size:
 - W = 2500 mm
 - H = 2000 mm
 - Available in different sizes
- Same level of protection as the cabin wall

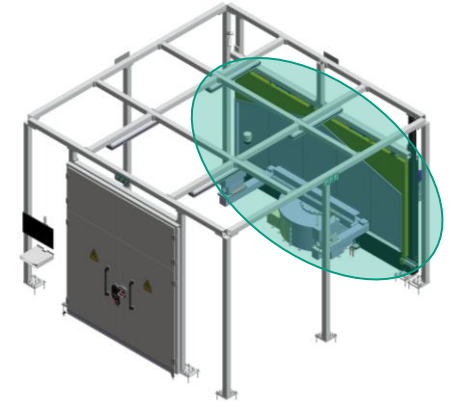


CABIN OPTIONS

Door and Gate Options – Lifting Gate

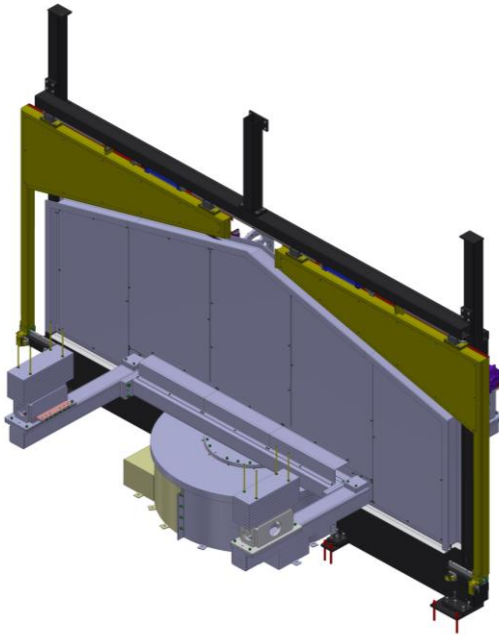


- Type: Lifting gate
- Automatic lifting gates in various sizes and designs
- Same level of protection as the cabin wall

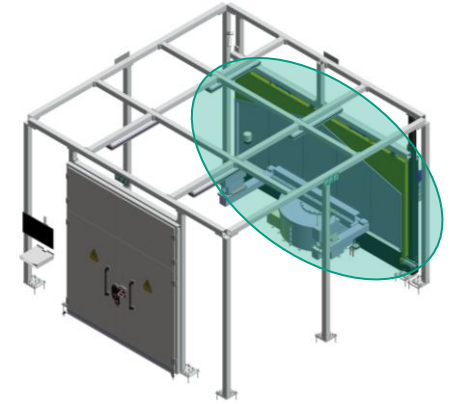


CABIN OPTIONS

Door and Gate Options – Turntable



- Type: Turntable
- FFT offers an individual laser safety barrier for mounting on turntables
- Same level of protection as the cabin wall



CABIN OPTIONS

Additional Options – Additional features and safety systems



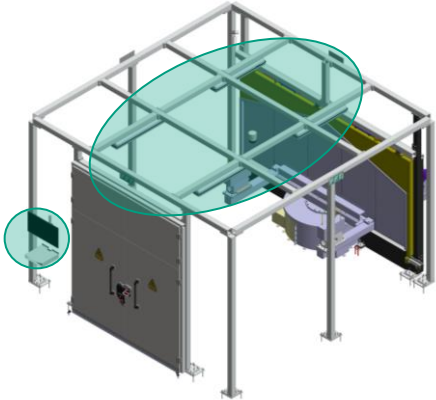
LED tubes
500 LUX LED lamps for optimised cabin lighting



Various cameras
Simple monitoring cameras or infinitely adjustable dome cameras



Monitors and recorders
Optional monitors, recorders and equipment



4

REFERENCES

Many references worldwide

A woman with long brown hair and glasses, wearing a light blue blazer, is writing on a whiteboard with a white marker. The whiteboard has some handwritten notes and diagrams. A man in a blue shirt is partially visible on the left side of the frame, looking towards the whiteboard.

one step ahead in **INTELLIGENT** production systems

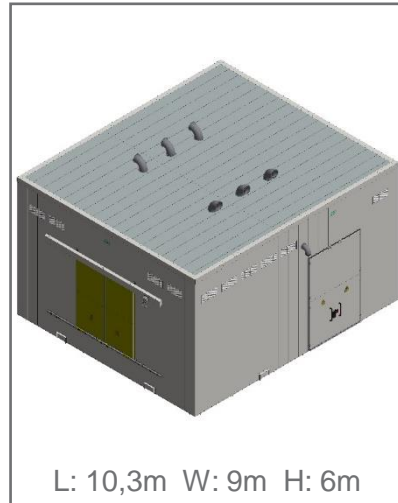
REFERENCES

Our expertise is based on years of experience



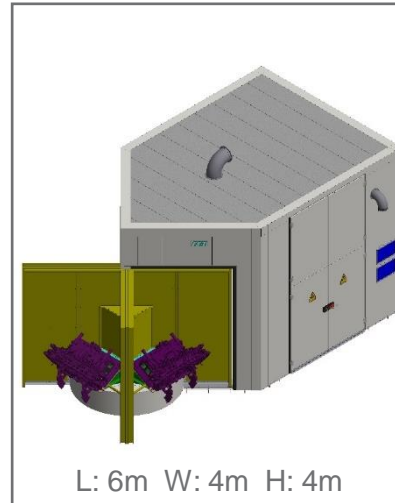
Project: B03330

Standard cabin
Customer: AFPT
Year: 2017
Production:
Thermoplastic
composite parts



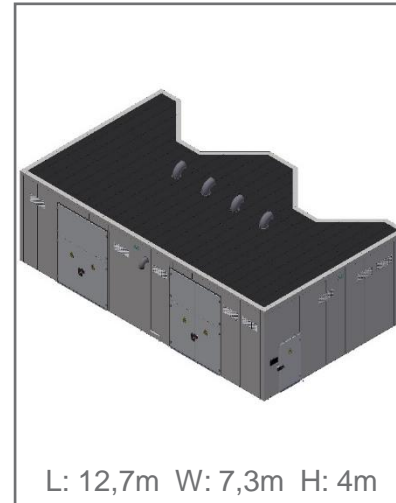
Project: B03202

Enlargement + cabin
Customer: KUKA
Year: 2017
Production: Automotive
parts



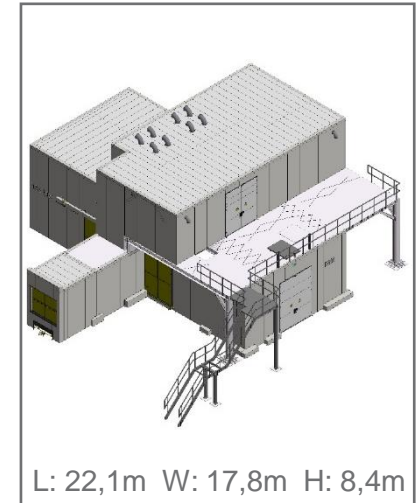
Project: B03587

Individual design
Customer: Skoda
Year: 2018
Production:
Automotive parts



Project: B02777

Individual design
Customer: MAGNA
Year: 2016
Production:
Automotive parts

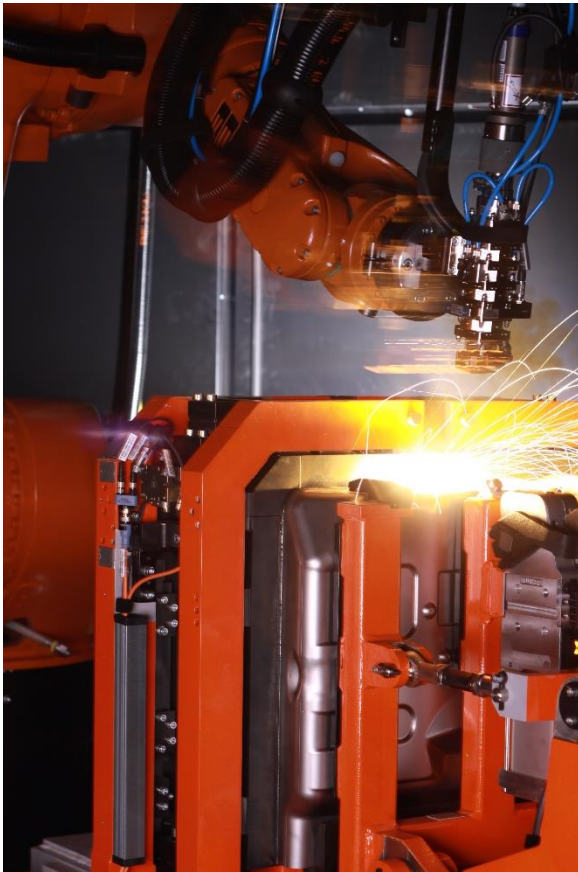


Project: B03303

Individual design
Customer: Daimler
Year: 2018
Production:
Automotive parts

REFERENCES

Some of the many customers who have already trusted us.



BMW



voestalpine
ONE STEP AHEAD.

sitech



AEG
Electrolux

faurecia

Gestamp

ALLGAIER WERKE GmbH

 **MAGNA STEYR**

SERVICE OPTIONS

We support your project from the idea to the realization and gladly beyond.



We take into account quality and deadline requirements and we assume the responsibility for the project until turnkey handover.



Consulting

Use our experience for your tasks



Project Management

Support from the idea to the start of production



Risk Analysis

Identification of risks in the process



Custom design

Creation of individual solutions



Manufacturing

Successful manufacturing with modern technologies



Documentation

Clear and logical




Conformity

Compliance with standards and regulations



After Sales

Competent service through FFT

A photograph of a glowing lightbulb floating above an open hand, set against a light blue background with a white diagonal stripe.

We support our customers in efficiently implementing their production systems according to their specifications.

“

DO YOU NEED AN
INDIVIDUAL SOLUTION
FOR YOUR TASK?



CONTACT

Your personal contact person

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THANK YOU

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