

Radiation Shielding Nuclear Medicine, Radiation Therapy

Radiographic Testing, Industrial and R&D Laboratory

Overview

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PLUS FOUR Radiation Shielded Doors, Gates and Cabins

Radiation Shielded Doors and Gates are dependent on the radiation source and the resultant shielding requirements. Absorber materials, design and substructure are selected to guarantee safety, easy handling and long-time use.

Various customized design are available paying attention to the relevant radiation emission.

Within medical application in radiation therapy (Oncology) and industrial facilities typically the below mentioned radiation sources are used.

Cat. (a) Co60, Ir-192, low energy LINAC (Linear Accelerator, i.g. 6 MeV)
Emission and shielding requirements: Gamma emission

Cat. (b) High-energy LINAC
Emission and shielding requirements: Gamma and Neutron emission

General design guidelines:

In terms of design and construction attention will be paid to the relevant directions in conformity with DIN 18360 as well as the observance of the guidelines for power operated windows, doors and gates ZH - I - 494, the guidelines for the prevention of accidents as well as the radiation-protection-ordiance in accordance with DIN 6834 page 1 and DIN 6847.

Additional guidelines as fire prevention, etc. apply dependent on project details.

Door Type KW101-AL (Swing Door)



- Application: Medicine: Afterloading, Co-60, Low Energy LINAC
Industry/Laboratory: Irradiation facilities for industry and agriculture,
Irradiation facilities for research and specific fields of application
- Leaf: Steel frame design with heavy substructure
- Leaf dimension: approx. (LxW) 1,50 x 2,30 m, depending on site requirements
- Frame: Customized steel frame with absorber inlay
- Absorber material: Specific St/Pb, Gamma Absorber Inlay, customized up on radiation calculation.
- Substructure: Heavy special designed bearings
- Drive: Electromotive drive paying attention to the leaf weight (up to 3.000 kg)
- Frame: Customized steel frame with absorber inlay
- Safety: Various safety features guarantee max. active safety prevention.

Door Type KW105-NA (Swing Door)



- Application: Medicine: LINAC
Industry/Laboratory: Irradiation facilities for industry and agriculture,
Irradiation facilities for research and specific fields of application
- Leaf: Steel frame design with heavy substructure
- Leaf dimension: approx. (LxW) 1,50 x 2,30 m, depending on site requirements
- Frame: Customized steel frame with absorber inlay
- Absorber material: Specific St/Pb, Gamma/Neutron Absorber Inlay, customized up on radiation calculation. Specific solid and fluid absorbers are available up on fire prevention requirements.
- Substructure: Heavy special designed bearings
- Drive: Electromotive drive paying attention to the leaf weight (up to 3.000 kg)
- Frame: Customized steel frame with absorber inlay
- Safety: Various safety features guarantee max. active safety prevention.

Gate Type KW110-AL (Sliding Door)



- Application: Medicine: LINAC
Industry/Laboratory: Irradiation facilities for industry and agriculture,
Irradiation facilities for research and specific fields of application
- Leaf: Steel frame design with heavy substructure
- Leaf dimension: approx. (LxW) 1,80 x 2,45 m, depending on site requirements
- Substructure: Fastening of the gate suspension will take place in the trussing area, fixed to the wall by supervisory licensed heavy lift thread bolts and designed brackets.
- Frame: Customized steel frame with absorber inlay
- Absorber material: Specific St/Pb, Gamma/Neutron (KW115-NA) Absorber Inlay, customized up on radiation calculation. Specific solid and fluid absorbers are available up on fire prevention requirements (KW115-NA-Alternate).
- Substructure: The door leaf hangs on a rolling meter, beared running gear units (linear motion technology) and will be guided below.
- Drive: Electromotive drive paying attention to the leaf weight (up to 5.000 kg); variable sliding speed
- Frame: Customized steel frame with absorber inlay
- Safety: Various safety features guarantee max. active safety prevention.

Gate Type KW120-NA-Composite (Sliding Door)



- Application: Medicine: LINAC
 Industry/Laboratory: Irradiation facilities for industry and agriculture,
 Irradiation facilities for research and specific fields of application
- Leaf: Steel frame design with heavy substructure
- Leaf dimension: approx. (LxW) 1,80 – 4,0 x 2,45-10 m, depending on site requirements
- Frame: Customized steel frame with absorber inlay
- Absorber material: Specific composite, combined Gamma/Neutron absorber, customized up on
 radiation calculation.
- Substructure: The door leaf is bottom mounted on rolling meter, beared running gear units
 (linear motion technology) and will be top guided.
- Drive: Electromotive drive paying attention to the leaf weight (up to 50.000 kg)
- Frame: Customized steel frame with absorber inlay
- Safety: Various safety features guarantee max. active safety prevention.

Radiation shielded windows, accessories



PLUS FOUR delivers lead shielded glass, windows, material handling ports, absorber elements depending on site requirements, special minerals for radiation shielding etc.

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