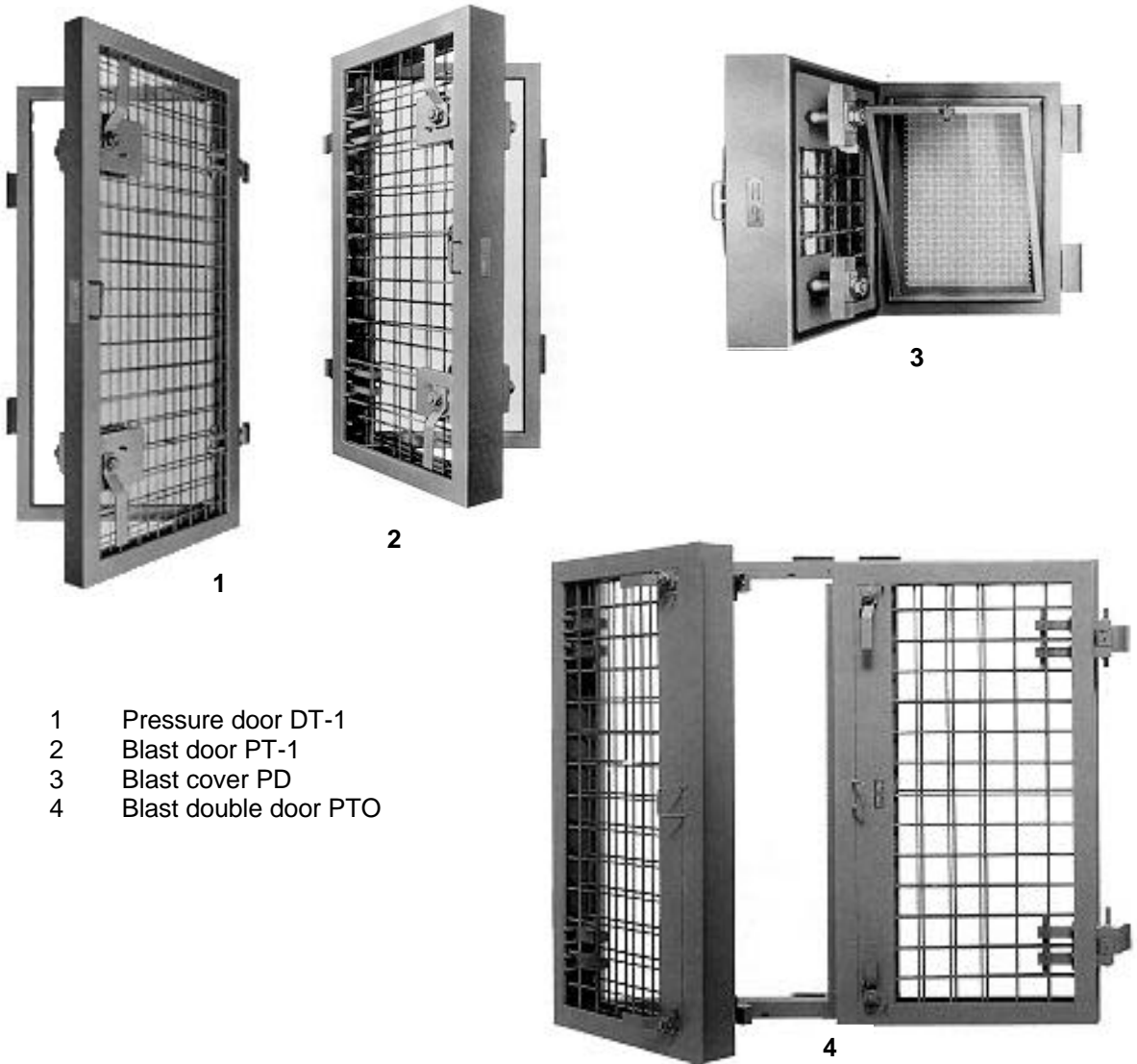


Shelter closures

According to the technical regulations
of the Swiss Federal Office of Civil Defence (BZS)



- 1 Pressure door DT-1
- 2 Blast door PT-1
- 3 Blast cover PD
- 4 Blast double door PTO

Why armoured concrete doors and covers ?

Concrete shelter walls are providing optimal protection against *Pressure, Radiation, Heat, Gases and Physical Impact*.

Lunor armoured doors provide these excellent characteristics and assure that shelter entrances are „no weak spots“.

Lunor armoured doors are set in place and poured with concrete simultaneously with the walls, thus forming a fully integral part of the shelter shell.

Protection against weapon effects:

- Airblast from conventional or nuclear weapons
- Impact from fragments and debris
- Ground shock, i.e. vibration of shelter which is subjected to pressure wave propagating through the ground
- Heat from fires and thermal radiation from atomic weapons.
- Nuclear radiation
- Chemical and biological warfare agents

Protection against effects from accidents in industrial plants.

- Airblast from bursting pressure vessels, vapor, dust, toxic releases, heat from fires

LUNOR doors are provided with durable rubber seals fitted into specially designed grooves. The protection against toxic gas or nuclear fallout is achieved by creating an overpressure of filtered air within the shelter.

The leakage through the PT-doors and PD-Covers by an inside overpressure of e.g. 250 N/m² is less than 20 m³/h. (PTO-doors 40m³/h)

Armoured door

PT-1, PT-2
PT-4

Outside closure with 1 and 3 bar protection

Specification:

Supplier: LUNOR, G.Kull AG
CH-8041 Zurich

Design and production according to technical regulations of the Swiss Federal Office of Civil Defence
Consisting of:
Door leaf in steel profile frame with rubber seal on all sides and welded-in reinforcement, removable lever locks on both sides. Internal levers with locking pin against accidental opening, air blast and ground shock vibration.
Door frame in angular profile with massive anchors and double hinges.
Steel parts not to be covered with concrete, coated with primer.

Armoured door, type PT-1

BZS-Nr. 74 PT-1

Frame dimensions:

Inner width: 80 cm
Inner height: 185 cm
Door thickness: 20 cm
Protection level: 3 bar
Weight without concrete: 205 kg

Armoured door, type PT-2

BZS-Nr. 74 PT-2

Frame dimensions:

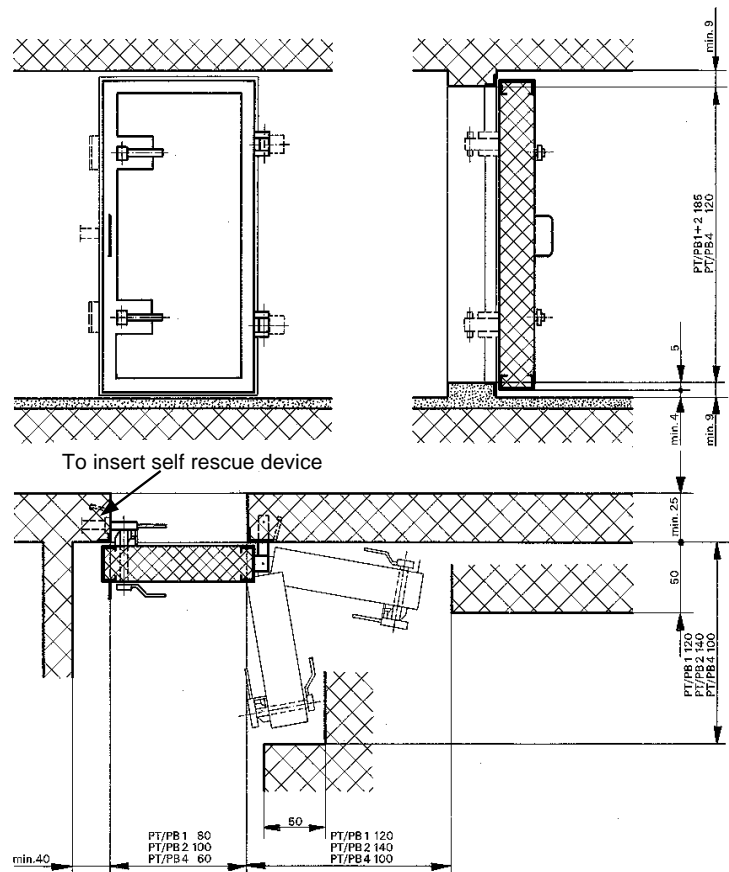
Inner width: 100 cm
Inner height: 185 cm
Door thickness: 20 cm
Protection level: 3 bar
Weight without concrete: 250 kg

Armoured door, type PT-4

BZS-Nr. 74 PT-4

Frame dimensions:

Inner width: 60 cm
Inner height: 120 cm
Door thickness: 20 cm
Protection level: 3 bar
Weight without concrete: 170 kg



Installation requirements:

PT and PTO-doors always open towards the outside (against air blast)

All doors should have a 4 cm free space both above the floor and under the ceiling

The doors and covers with their frames and anchors are to be placed in the forms in such a way that they are securely in place. Cast wall first. Only when the wall concrete has sufficiently set may the door leaf be filled with concrete and it is important that the door and cover leaves are closed and underpinned during the pouring of concrete. The distal pieces fixed to the locking device near the rubber seal guarantee the proper closing function.

Modifications reserved

Further details are given in the technical directives for installation, which are included with each delivery.

Armoured door

PT-3

Outside closure with 1 and 3 bar protection

Specification:

Supplier: LUNOR, G.Kull AG
CH-8041 Zurich

Design and production according to technical regulations of the Swiss Federal Office of Civil Defence..

Consisting of:

Door leaf in steel profile frame with rubber seal on all sides and welded-in reinforcement, removable lever locks on both sides. Internal levers with locking pin against accidental opening, air blast and ground shock vibration. Door frame in angular profile with massive anchors and double hinges. Steel parts not to be covered with concrete, coated with primer.

Armoured door, type PT-3

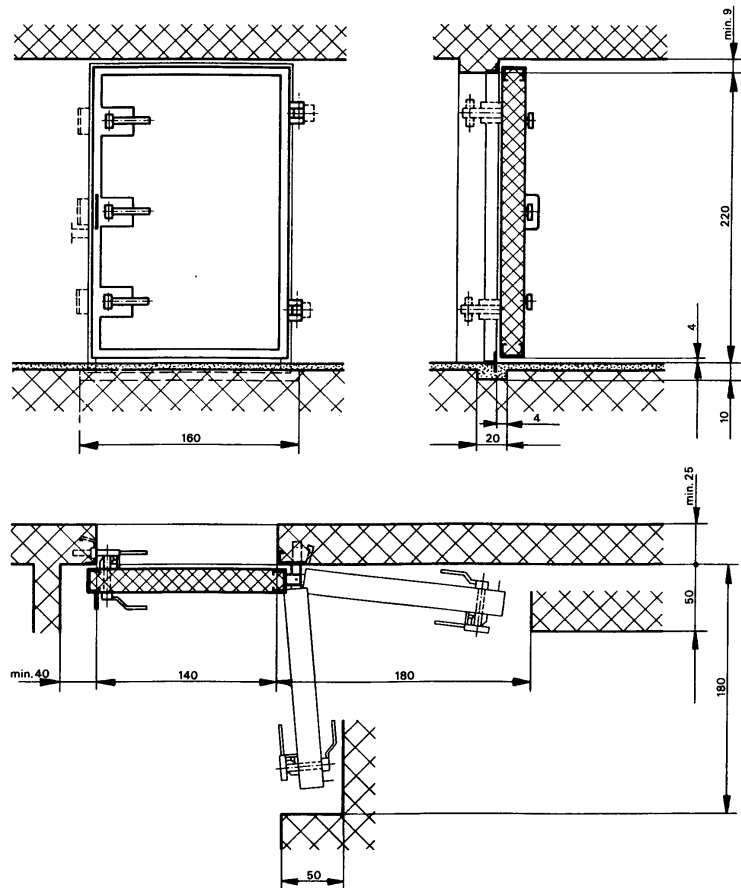
BZS-Nr. 74 PT-3

With removable door sill.

Frame dimensions:

Inner width:	140 cm
Inner height: ¹⁾	220 cm
Door thickness:	20 cm
Protection level:	3 bar
Weight without concrete:	480 kg

¹⁾ Dimension if door sill is removed



Installation requirements:

PT and PTO-doors always open towards the outside (against air blast)

All doors should have a 4 cm free space both above the floor and under the ceiling

The doors and covers with their frames and anchors are to be placed in the forms in such a way that they are securely in place. Cast wall first. Only when the wall concrete has sufficiently set may the door leaf be filled with concrete and it is important that the door and cover leaves are closed and underpinned during the pouring of concrete. The distal pieces fixed to the locking device near the rubber seal guarantee the proper closing function.

Further details are given in the technical directives for installation, which are included with each delivery.

Important !

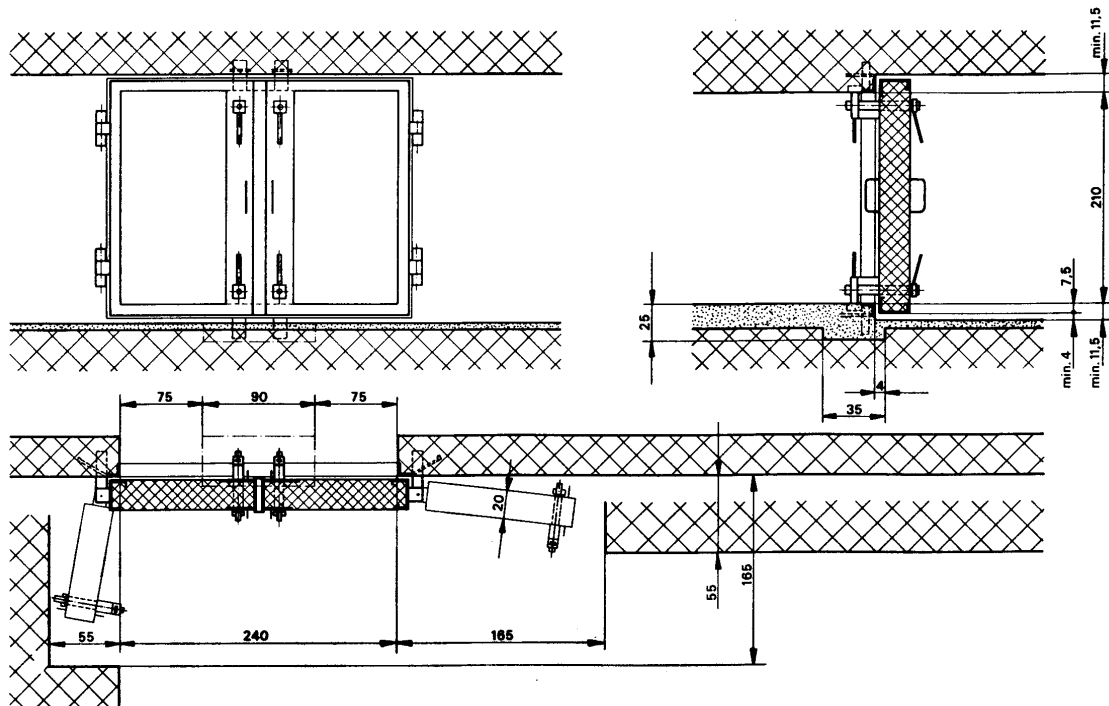
When ordering please state hinged side (left or right when viewed from outside)

Modifications reserved

Armoured double-door

PTO

Outside closure with 1 bar protection



Specification:

Supplier: LUNOR, G.Kull AG
CH-8003 Zurich

Design and production according to technical regulations of the Swiss Federal Office of Civil Defence..

Consisting of:

Door leaf in steel profile frame with rubber seal on all sides and welded-in reinforcement, removable lever locks on both sides. Internal levers with locking pin against accidental opening, air blast and ground shock vibration. Door frame in angular profile with massive anchors and double hinges. Steel parts not to be covered with concrete, coated with primer.

Armoured door, type PTO BZS-Nr. 74 PTO

Frame dimensions:

Inner width:	240 cm
Inner height:	210 cm
Door thickness:	20 cm
Protection level:	1 bar
Weight without concrete:	800 kg

Installation requirements:

PT and PTO-doors always open towards the outside (against air blast)
All doors should have a 4 cm free space both above the floor and under the ceiling
The doors and covers with their frames and anchors are to be placed in the forms in such a way that they are securely in place. Cast wall first. Only when the wall concrete has sufficiently set may the door leaf be filled with concrete and it is important that the door and cover leaves are closed and underpinned during the pouring of concrete. The distal pieces fixed to the locking device near the rubber seal guarantee the proper closing function.

Further details are given in the technical directives for installation, which are included with each delivery.

Pressure door

DT-1, DT-2

Specification:

Supplier: LUNOR, G.Kull AG
CH-8041 Zurich

Design and production according to technical regulations of the Swiss Federal Office of Civil Defence..

Consisting of:

Door leaf in steel profile frame with rubber seal on all sides and welded-in reinforcement, removable lever locks on both sides. Internal levers with locking pin against accidental opening, air blast and ground shock vibration. Door frame in angular profile with massive anchors and double hinges. Steel parts not to be covered with concrete, coated with primer.

Armoured door, type DT-1

BZS-Nr. 74 DT-1

Frame dimensions:

Inner width: 80 cm
Inner height: 185 cm
Door thickness: 10 cm

Intermediate closure (inside shelter) for shelters with 1 and 3 bar protection

Weight without concrete: 115 kg

Armoured door, type DT-2

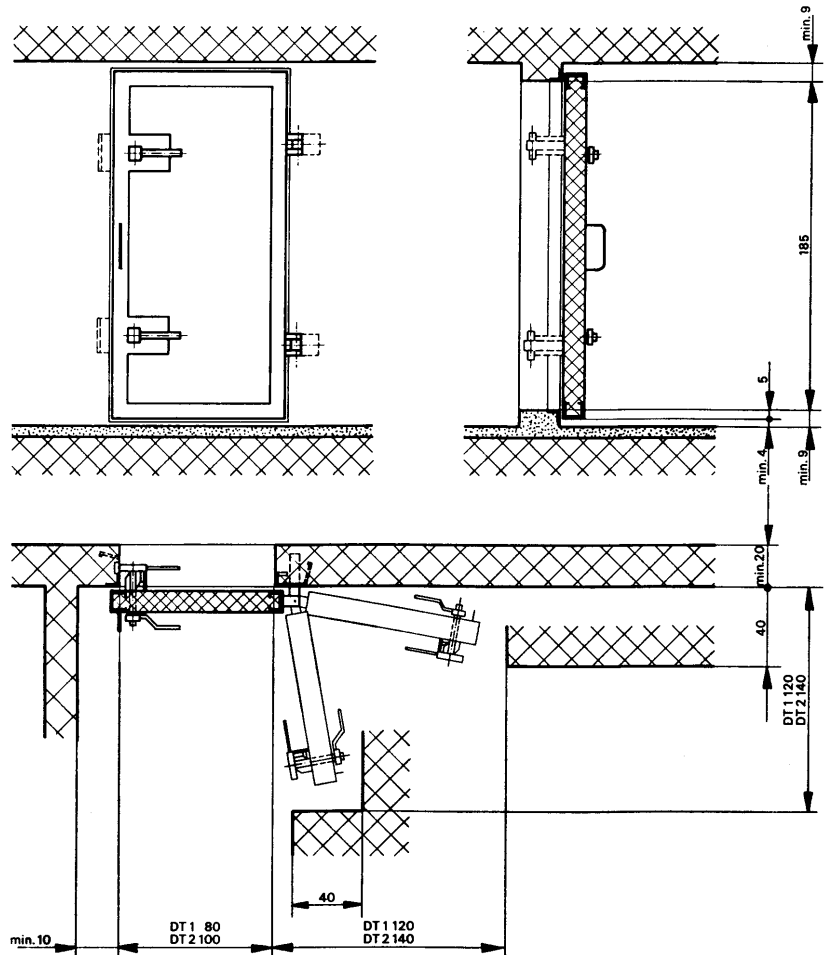
BZS-Nr. 74 DT-2

Frame dimensions:

Inner width: 100 cm
Inner height: 185 cm
Door thickness: 20 cm

Intermediate closure (inside shelter) for shelters with 1 and 3 bar protection

Weight without concrete: 125 kg



Installation requirements:

DT-doors open in either direction

All doors should have a 4 cm free space both above the floor and under the ceiling

The doors and covers with their frames and anchors are to be placed in the forms in such a way that they are securely in place. Cast wall first. Only when the wall concrete has sufficiently set may the door leaf be filled with concrete and it is important that the door and cover leaves are closed and underpinned during the pouring of concrete. The distal pieces fixed to the locking device near the rubber seal guarantee the proper closing function.

Modifications reserved

Further details are given in the technical directives for installation, which are included with each delivery.

Pressure door

DT-3

Specification:

Supplier: LUNOR, G.Kull AG
CH-8041 Zurich

Design and production according to technical regulations of the Swiss Federal Office of Civil Defence.

Consisting of:

Door leaf in steel profile frame with rubber seal on all sides and welded-in reinforcement, removable lever locks on both sides. Internal levers with locking pin against accidental opening, air blast and ground shock vibration. Door frame in angular profile with massive anchors and double hinges. Steel parts not to be covered with concrete, coated with primer.

Armoured door, type DT-3

BZS-Nr. 74 DT-3

Frame dimensions:

Inner width: 140 cm

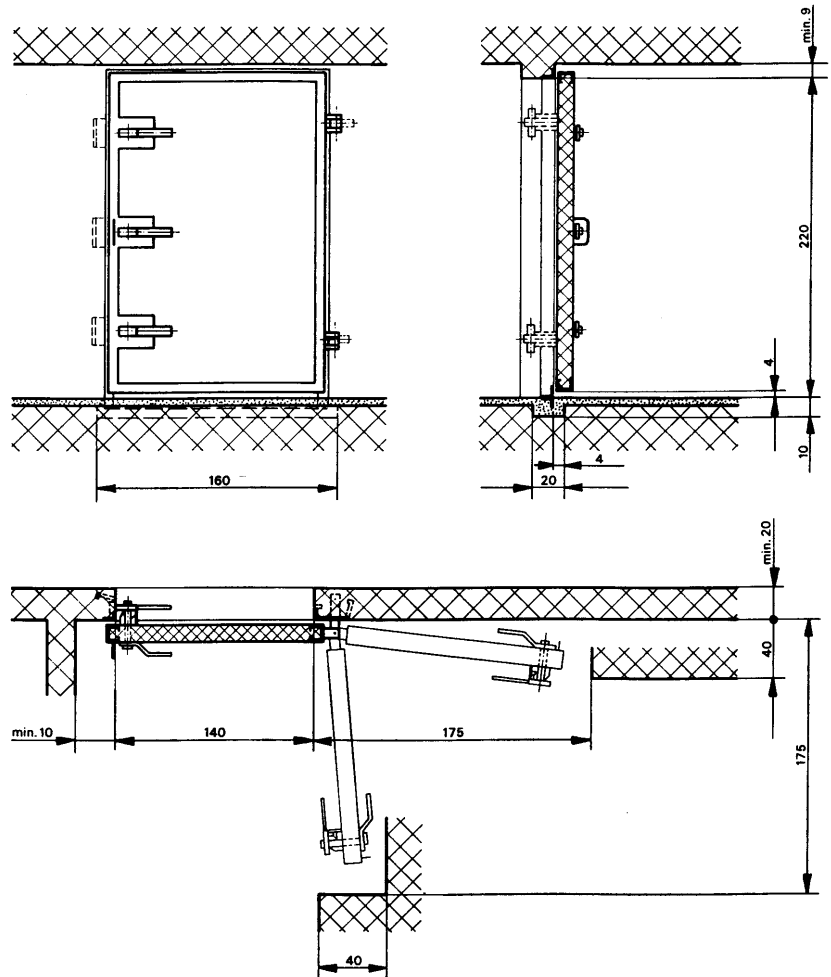
Inner height: ¹⁾ 220 cm

Door thickness: 10 cm

Intermediate closure (inside shelter) for shelters with 1 and 3 bar protection, in peacetime used as warehouse etc. (passing of fork-lifts etc. possible).

Weight without concrete: 170 kg

¹⁾ Dimension if door sill is removed



Installation requirements:

DT-doors open in either direction

All doors should have a 4 cm free space both above the floor and under the ceiling

The doors and covers with their frames and anchors are to be placed in the forms in such a way that they are securely in place. Cast wall first. Only when the wall concrete has sufficiently set may the door leaf be filled with concrete and it is important that the door and cover leaves are closed and underpinned during the pouring of concrete. The distal pieces fixed to the locking device near the rubber seal guarantee the proper closing function.

Further details are given in the technical directives for installation, which are included with each delivery.

Important !

When ordering please state hinged side (left or right when viewed from outside)

Modifications reserved



LUNOR, G. Kull AG - Allmendstrasse 127—CH-8041 Zürich
Tel. 0041 1 488 66 00 Fax 0041 1 488 66 00
email: info@lunor.ch

Armoured cover

PD

Inside closure with 1 and 3 bar protection

Specification:

Supplier: LUNOR, G.Kull AG
CH-8041 Zurich

Design and production according to technical regulations of the Swiss Federal Office of Civil Defence.

Consisting of:

Door leaf in steel profile frame with rubber seal on all sides and welded-in reinforcement, removable lever locks on both sides. Internal levers with locking pin against accidental opening, air blast and ground shock vibration. Door frame in angular profile with massive anchors and double hinges. Steel parts not to be covered with concrete, coated with primer.

Armoured door, type PD

BZS-Nr. 74 PD

Frame dimensions:

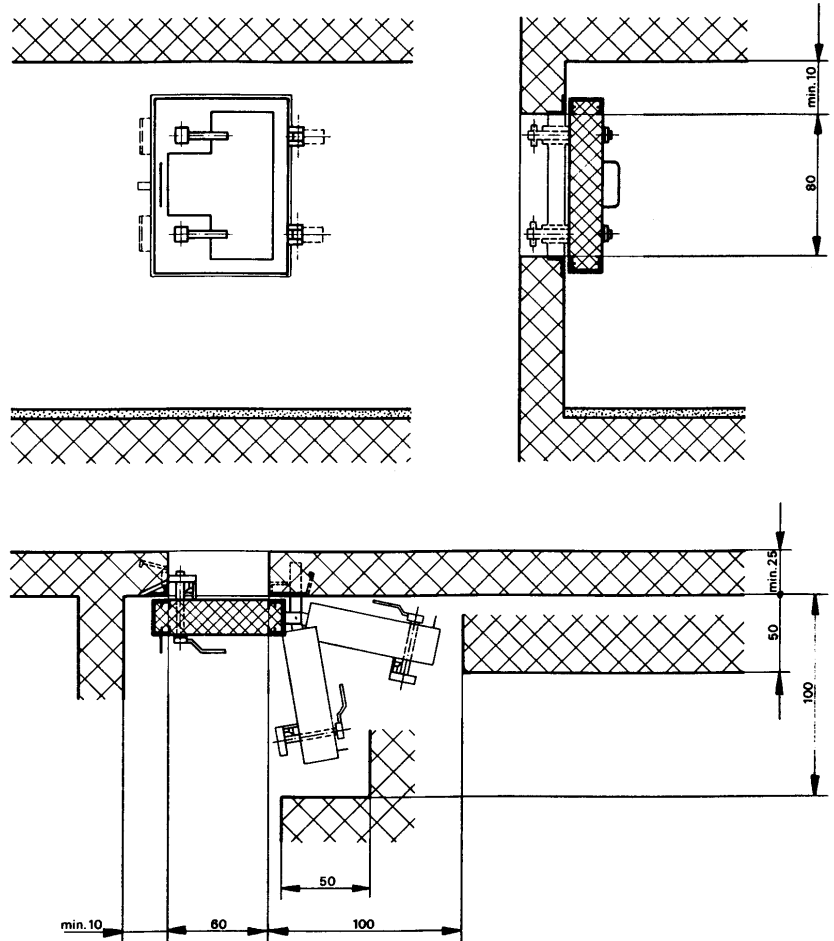
Inner width: 60 cm

Inner height: 80 cm

Door thickness: 20 cm

Protection level: 3 bar

Weight without concrete: 140 kg



Installation requirements:

PD-covers generally open towards the inside (outside in special cases)

All doors should have a 4 cm free space both above the floor and under the ceiling

The doors and covers with their frames and anchors are to be placed in the forms in such a way that they are securely in place. Cast wall first. Only when the wall concrete has sufficiently set may the door leaf be filled with concrete and it is important that the door and cover leaves are closed and underpinned during the pouring of concrete. The distal pieces fixed to the locking device near the rubber seal guarantee the proper closing function.

Further details are given in the technical directives for installation, which are included with each delivery.

Modifications reserved