



DESIGNED FOR REFLECTED
BLAST PRESSURE **28 bar**



HEAVY STEEL DOOR FRAME
CONSTRUCTED WITH **80 mm** BOLTS



DOOR THICKNESS: **500 mm**
STEEL CONCRETE SLAB THICKNESS: **300 mm**



MASSIVE HINGES:
HEAVY DUTY BEARINGS



BT 3

BLAST PROOF DOOR

data sheet



BT 3

double leaf

BLAST PROOF DOOR

DATA SHEET

Blast Proof Door type BT3, double leaf

Blast Effects

The door is designed for blast pressure on door surface up to **28 bar (2,8 MPa; 406 psi)**; up to 9 bar blast overpressure is tested with prototype door BT1-2424 at **German Army Test Laboratory WTD 52** (certificate-no: WTD52GF210-04/2018-Z); blast pressure up to 28 bar (406 psi) is calculated by **FEM Analysis**.

Overpressure direction:

The overpressure wave direction is tested direct to the front.

Product Data

Blast resistant door in a high efficient construction of steel and reinforced concrete.
The mounting combines surface mounting and in wall mounting; sided hinged; swinging type; the door can be operated from inside and outside, manual operation of the door for opening and closing;
door thickness: **500 mm**
concrete slab thickness: **300 mm**
with 3 side bolt work and wheel handle – inside and outside; opening from inside as well as outside

Description of latching

Door locked with round pin (dia 80 mm) and central bolt work, locking 50 mm; each leaf is hinged with 2 strong hinges in vault style, which allows door opening 180°, hinge pins are machined and polished from 80 mm diameter steel, rotating in sinter bushing.

Blast door operation

Force required to set the door in motion from the 90-degree open position app. 120 N, optional opening from inside and outside by electronic, lifting cylinder is available.

Door frame

The heavy steel frame is constructed from 500 mm by 500 mm L-shaped angle and prepared with anchoring studs.

Gasket seals are provided as recommended for reinforced concrete doors; the seals are typically used for reinforced concrete doors to improve the weather seal and provide door silencer; sealed doors have full door perimeter and all door penetrations sealed; perimeter seals are rubber gasket type; gaskets are removable, capable of sealing the mating surfaces and resistant to the atmospheric environment; the gaskets cushion the impact of the door against the frame so that steel to steel contact is not made during closing.

Door finish: door painted with primer resisting corrosion

Static material strength: steel plate according:

- EN 10025-2/2004,
- EN 10029 A/N
- EN 10163-2 A/1
- AD-2000 W1
- quality: S235JR+M
- minimum static yield strength 300 N/mm² (Mpa)
- maximum static yield strength 412 N/mm² (Mpa)
- minimum tensile strength 410 N/mm² (Mpa)
- minimum tensile strength 566 N/mm² (Mpa)
- elongation at rupture: 27% - 37%
- concrete C45/55:
- minimum static yield strength 60 N/mm² (Mpa)
- break load min.: 1500 kN test acc. DIN EN 12390

Dynamic analysis and deformation

Dynamic finite element analysis by calculation software LS-Dyna Version 970-3535 maximum deformation in door leaf = 2.1mm (BT3-3439, BT3-4545)) 100 % function of door (BT3-3439, BT3-4545) after blast with 5 bar.

Model art. no.	Outer dimensions		Clear opening		Weight with concrete (kg)	Weight steel only (kg)	Door thickness (mm)
	height (mm)	width (mm)	height (mm)	width (mm)			
BT3-2330	3000	4000	2300	3000	9700	5500	500
BT3-2439	3100	4900	2400	3900	12650	7500	500
BT3-3325	4000	3500	3300	2500	11400	6600	500
BT3-3942	4500	5000	3900	4200	19700	12600	500
BT3-4040	4600	4800	4000	4000	19700	12400	500
BT3-4045	4650	5300	4000	4500	22000	13800	500
BT3-4240	5000	5000	4200	4000	22200	13100	500
BT3-4250	5000	6000	4200	5000	26800	16200	500
BT3-4945	5650	5500	4900	4500	26000	16800	500
BT3-4950	5650	6000	4900	5000	28500	18500	500
BT3-6565	7250	7500	6500	6500	47300	31350	500



BT 3
double leaf
BLAST PROOF DOOR





ROBUR



PAINTING

Primer resisting corrosion



GASKETS

Gaskets of rubber type at full door perimeter

Gasket seals are resistant to atmospheric environment

HANDLES

Black wheel-handle

OPERATING

All the locks are operated from outside and inside

LEAF

Strong gear bolt work

Very strong hinges



BT 3

double leaf
BLAST PROOF DOOR

ADDITIONAL OPTIONS:

A) ONLY BOLTWORK WITHOUT ANY LOCKING



outside



inside

B) LOCKING FROM OUTSIDE BY PADLOCK



outside



inside

C) LOCKING WITH 2 CYLINDER LOCKS (STANDARD HATCH DOOR)



outside



inside

D) LOCKING WITH ELECTRONIC LOCK, OPERATING FROM INSIDE AND OUTSIDE



outside



inside

E) SAME AS D) BUT ADDITIONAL MANUAL OVERRIDE BY 2 CYLINDER LOCKS WITH 2 LONG SPECIAL KEYS (STANDARD FOR WIDTH ≥ 900 MM)



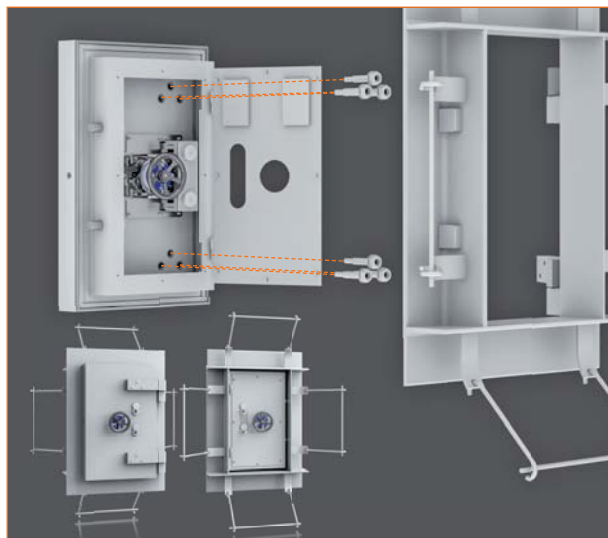
outside



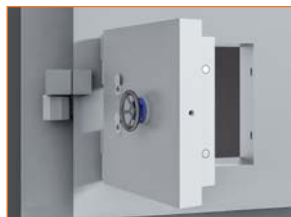
inside

F) ONE SIDE LOCKING

G) DETACHABLE HINGES



H) HATCH DOOR FOR MAIN DOOR



outside



inside

I) ELECTRICAL DOOR OPERATION



inside

J) FIRE SECURITY



FIRE SECURITY
(according EI₂-120)
EN 1634-1
EN 1363-1