



TG-BR™ Bullet Resistant Glass

TG-BR is a range of specialist multi laminate available with or without spool shield and certified from BR1 all the way up to BR7 and even SG1 and SG2.

Toughglaze' Bullet Resistant glass was formulated for the security industry, specifically and especially when other products in the market proved to be inefficient or failed to achieve the required performance levels.

A handful select of highly specialized scientists formulated the structures and tested the final product to guaranty the alignment and conformity of our scientific theories with the actual and practical field conditions.

Bullet Resistant Solutions

TG-BR product range is proven to deliver the lightest and thinnest transparent armor solutions for the security market. Our full range of TG-BR confirms that we have an answer for all your security requirements. Be it indoors or exterior, be it a harsh environment with unforgiving thermal and humidity fluctuations or just within the comfort of your home, TG-BR is the ultimate solution for your security concerns.

Applications

TG-BR™ bullet resistant glass is the best candidate for applications including military installations, government buildings and other secure institutions, personnel protection screens in banks, building societies, airports, post offices, betting shops, petrol filling stations and cash desks; as well as in armored, cash transfer and private vehicles.

No Spall / Spall Allowed

TG-BR™ bullet resistant glass is available in both No Spall and Spall Allowed options. Spall is flakes of a material that are broken off a larger solid body and can be produced by a variety of mechanisms, including as a result of projectile impact, corrosion, weathering, cavitation, or excessive rolling pressure (as in a ball bearing). Spalling and spallation both describe the process of surface failure in which spall is shed.

No Spall has the added safety measure of containing all fragments to the panel and hence reducing any injury risk.



Secured Security

It is possible to combine the different ToughGlaze product range and to provide additional options and possibilities.

Hybrid products such as **TG-BR/FR™** provide not only security but also satisfy Fire Protection requirements.

Where acoustic and sound load levels are an obstacle to the actions, ToughGlaze may suggest **TG-BR/AG™** to address the problem.

In most cases, security and privacy go hand in hand. The perfect product is our wide range of **TG-BR/Switch™** not only you are secured from adversaries harm, but you are also protected from all spying eyes



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Reg. in England 3193221

Technical Specification

Class Threat Level	Type of Weapon	Calibre	Ammunition		No Spall (mm/Kgm ²)	Fire Resistant No Spall (mm/Kgm ²)	Spall Allowed (mm/Kgm ²)	Fire Resistant Spall Allowed (mm/Kgm ²)
BR1	Rifle	0.22 LR	L/RN		19 / 38	27 / 53	23 / 54	3 / 84
BR2	Hand Gun	9mm Luger	FJ ¹ /RN/SC		19 / 38	27 / 53	23 / 54	3 / 84
BR3	Hand Gun	0.357 Magnum	FJ ¹ /CB/SC		19 / 38	27 / 53	27 / 64	41 / 95
BR4	Hand Gun	0.44 Rem Magnum	FJ ² /FN/SC		23 / 47 26 / 55	33 / 62	32 / 75	4 / 105
BR5	Rifle	5.56x45	FJ ² /PB/SCP1		34 / 72 38 / 73	42 / 88	36 / 85	5 / 115
BR6	Rifle	7.62x51	FJ ¹ /PB/SC		42 / 92	50 / 107	52 / 122	67 / 153
BR7	Rifle	7.62x51	FJ ² /PB/HC 1		68 / 157	7 / 172	77 / 183	92 / 214
SG1	Shot Gun	12/70	Solid Slug3		25 / 52	33 / 67	35 / 78	50 / 109
SG2	Shot Gun	12/70	Solid Slug3		34 / 72	42 / 87	47 / 112	61 / 142
AK47 DGU	Rifle	7.62 X 39	FJ ¹ /PB/SC		—	—	44 / 78	51 / 94

Notes:

- 1) Full steel |Jacket (plated)
- 2) Full Copper Alloy Jacket
- 3) Brenneke

Ammunition Legend:

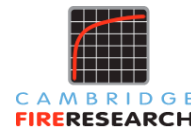
- L** - lead
- CB** - coned bullet
- FJ** - full metal jacket bullet

- FN** - flat nose
- HC1** - steel hard core
- PB** - pointed bullet
- RN** - round nose

- SC** - soft core (lead)
- SCP1** - soft core (lead) and steel penetrator (type SS109)

Applicable Standards:

- ToughGlaze (UK) Ltd has adapted the ISO9001-2015 and all our administration, production as well as deliveries are not only traceable but guaranteed to provide the optimum quality system
- Kite Mark Licenses are always observed and random inspections are carried out internally as well as externally by authorities such as BSI to ensure absolute adherence of the implemented standards:
 - BS EN 12150 -1 (Thermally Toughened Glass)
 - BS EN 14179 -1 (Heat Soaked Tested Glass)
 - BS EN 14449 (Laminated Glass)
 - EN 1063 (Ballistic and Bullet Proof Glass)
 - EN 356 (Enhanced Security Glass / Manual Attack)
 - LPS1270 (Loss Prevention Standard)
 - ISO16933 (Blast and Bomb Resistant Glass)
 - ...



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