



Bullet Resistant Glass

Dellner Glass Solutions number one priority is safety. In a world where the requirement for security has increased to unprecedented levels as a result of terrorism and serious crime, protection is paramount.

We have been manufacturing military glazing for over seven decades, Our bullet resistant glass is designed to meet the precise threat levels specified by the client, including Government departments, NGO's and private companies. We provide high-quality security glass to a diverse range of markets. This glass serves a very simple purpose: to provide steadfast protection from external threats without hindering visibility. For the military, embassies, museums and architects around the world this can be a highly complicated requirement.

Our glazing is manufactured from a composite of glass and various grades of plastic interlayers. We work with architects, designers and specifiers to design and manufacture glazing to with a specific threat level and theatre of operation in mind, with solutions ranging from protection against non-ballistic physical attack to the ballistic threat of armour-piercing bullets and RPGs.

With our extensive technical expertise and over 70 years' global experience, there is nobody better equipped than Dellner Glass Solutions to engineer precise solutions on which you can depend upon when it comes to protecting people, protecting assets and protecting business.

Testing

All of our products are designed by our in-house ballistic engineers, and independently certified to BS EN 1063 by accredited test houses. We manufacture armoured glass for ballistic threat, from STANAG 1 to STANAG 3 according to STANAG 4569 for military armoured vehicles.

Specification

We continually update our products , if your requirements are not met by those detailed in the product sector below please contact our team who will be happy to provide further assistance.

Key Features

- Wide range of sizes
- Some of the thinnest bullet resistant glass on the market
- High level of optical clarity for unobstructed vision
- Suitable for architectural and transport constructions
- Suitable for curves
- Printing and tinting options

Typical Applications























- Military vehicles
- Armoured vehicles
- VIP transport
- Cash in Transit
- Airports and embassies
- Government buildings
- Museums and banks
- High value retail

Accepted test projectiles and characteristics

Level	Ammunitions	Name	Material	Projectile weight (g)	Comment
5	25 mm x 137 APDS-T, PMB 073	Oerlikon-Contraves	W alloy core	121.5 (150 with sabot)	Unique supplier
4	14.5 mm x 114 API/B32	Russian 14.5 mm API/B32	Steel core	64	Original ammunition design
		Barnaul AP-1 57-BZ-561S	Steel core	64	Specific manufacturer
		Chinese 14.5 mm Type 56	Steel core	64	Chinese designation
		ARL Drawing number 32000	Steel core	63.4	Surrogate without incendiary, Figure 1
3	7.62 mm x 51 AP (WC core)	Nammo AP8	W alloy core	8.4	Present day available product
		Bofors Cari Gustav FFV AP	W alloy core	8.4	Designation under previous supplier
		M993	W alloy core	8.4	US designation of the same round
	7.62 mm x 54R B32 API	Russian 7.62 x 54R B32 API	Steel core	10.4	Original ammunition design
		Chinese 7.62 x 54R B32 API	Steel core	10.4	Chinese equivalent
2	7.62 mm x 39 API BZ	Russian 7.62 x 39 API BZ	Steel core	7.77	Original ammunition design
		Chinese 7.62 x 39 Type 56	Steel core	7.67	Chinese designation
1	7.62 mm x 51 NATO ball	Ball M80	Lead core, copper jacket	9.65	US designation for the 6.62 x 51 NATO ball
		C21	Lead core, copper jacket	9.5	Canadian designation for the 6.62 x 51 NATO ball
		DM41	Lead core, copper jacket	9.45	German designation for the 6.62 x 51 NATO ball
	5.56 mm x 45 NATO SS109	SS109	Steel and lead core, copper jacket	4	Original ammunition design
		M855	Steel and lead core, copper jacket	4	US designation for the 5.56 x 45 NATO SS109
		DM11	Steel and lead core, copper jacket	4	German designation for the 5.56 x 45 NATO SS109
	5.56 mm x 45 M193	M193	Lead core, copper jacket	3.56	Original ammunition design

BS EN 1063 Product Selector

Test Classification

Ballistic Spec No Spall (NS) Spall Allowed (S)	Additional No Spall (NS) Spall Allowed (S)	Thickness (mm)	Type of weapon	Calibre	Ammunition
BR1 S (see note 3)		13.5	Pistol 	22LR	L/RN
BR2 NS		17.7	Hand Gun 	9mm Luger (see note 1)	FJ ¹ /RN/SC
BR2 S (see note 3)		21.8	Hand Gun 	9mm Luger (see note 1)	FJ ¹ /RN/SC
BR3 NS		17.9	Hand Gun 	.357 Mag (see note 1)	FJ ¹ /CB/SC
BR3 S (see note 3)		26.3	Hand Gun 	.357 Mag (see note 1)	FJ ¹ /CB/SC
BR4 S (see note 3)	SG1 S	31.0	Hand Gun 	.44 Rem Mag	FJ ² /FN/SC
BR4 NS	SG1 NS	22.0	Hand Gun 	.44 Rem Mag (see note 2)	FJ ² /FN/SC
BR4 NS	SG2 NS	30.7	Hand Gun 	.44 Rem Mag (see note 2)	FJ ² /FN/SC
BR4 NS	SG1 NS	24.7	Hand Gun 	.44 Rem Mag (see note 2)	FJ ² /FN/SC
BR5 NS	SG2 NS	35.7	Rifle 	5.56 x 45 (see note 2)	FJ ² /PB/SCP-1
BR5 S (see note 3)		38.8	Rifle 	5.56 x 45 (see note 2)	FJ ² /PB/SCP-1
BR6 S (see note 3)		52.0	Rifle 	7.62 x 51 (see note 1)	FJ ¹ /PB/SC
BR6 NS	SG2 NS	37.5	Rifle 	7.62 x 51 (see note 1)	FJ ¹ /PB/SC
BR6 NS (see note 3)		70.6	Rifle 	7.62 x 51 (see note 1)	FJ ¹ /PB/SC
BR7 NS		73.8	Rifle 	7.62 x 51 (see note 1)	FJ ² /PB/HC1
BR7 NS (see note 3)		83.3	Rifle 	7.62 x 51 (see note 1)	FJ ² /PB/HC1
SG1 NS	BR4 NS	22.0	Shot Gun 	12/70	Solid Slug
SG1 NS	BR4 NS	24.7	Shot Gun 	12/70	Solid Slug
SG2 NS	BR4 NS	30.7	Shot Gun 	12/70	Solid Slug
SG1 S (see note 3)	BR4 S	31.0	Shot Gun 	12/70	Solid Slug
SG2 NS	BR5 NS	35.7	Shot Gun 	12/70	Solid Slug
SG2 NS	BR5 NS	37.5	Shot Gun 	12/70	Solid Slug

Notes

- 1 Full steel jacket (plated)
- 2 Full copper alloy jacket
- 3 All glass

Ammunition Key

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|-----------|--|-------------|---|
| L | Lead | PB | Pointed bullet |
| CB | Coned bullet | RN | Round nose |
| FJ | Full metal jacket bullet | SC | Soft core (lead) |
| FN | Flat nose | SCP1 | Soft core (lead) and steel penetrator (type SS 109) |
| HC | 1 Steel hard core, mass 3.7g
0.1g hardnose more than 63 HRC | | |