

## **HAMMERGLASS BALLISTIC GLAZING UNITS**

**HAMMERGLASS AB has obtained certification within ballistic glazing for 2 of the main standard levels : threats BR4NS and BR6NS according to EN 1063.**

**EN 1063**, or CEN 1063, is a security glazing standard created by the European Committee for Standardization for measuring the protective strength of bullet-resistant glass. It is commonly used in conjunction with EN 1522 (Euronorm standard for Bullet Resistance in Windows, Doors, Shutters and Blinds) to form a ballistic classification system by which armored vehicles and structures are tested and rated. A similar classification system primarily used in the United States is NIJ Standard 0108, the U.S. National Institute of Justice's Standard for Ballistic Resistant Protective Materials which includes glass and armor plate.

### **Threat levels**

The protective strength of a glazed shielding is rated based on the type of munitions, or threat level, it is capable of withstanding. There are 7 main standard threat levels: BR1-BR7 (also written as B1-B7). To be given a particular rating, the glazing must stop the bullet for the specified number of strikes, with multiple strikes placed within 120mm of each other. The glazing should also be shatterproof and produce no spalls after each strike. Lastly, the classification levels are numbered in order of increasing protective strength. Thus any sample complying with the requirements of one class also complies with the requirements of previous classes.

The precise test requirements and bullet types used are as follows:

### Euronorm Standard For Security Glazing

Class	Weapon	Caliber	Type	Weight (g)	Range (m)	Velocity (m/s)	Impact Energy	Shots
BR1	Handgun/Rifle	.22 LR	LB/RN	2,6 ± 0,1	10,00 ± 0,5	360 ± 10	170 J	3
BR2	Handgun	9×19mm Parabellum	FJ/RN/SC	8,0 ± 0,1	5,00 ± 0,5	400 ± 10	640 J	3
BR3	Handgun	.357 Magnum	FJ/CB/SC	10,2 ± 0,1	5,00 ± 0,5	430 ± 10	940 J	3
<b>BR4</b>	<b>Handgun</b>	<b>.44 Magnum</b>	<b>FJ/FN/SC</b>	<b>15,6 ± 0,1</b>	<b>5,00 ± 0,5</b>	<b>440 ± 10</b>	<b>1510 J</b>	<b>3</b>
BR5	Rifle	5.56×45mm NATO	FJ/PB/SCP	4,0 ± 0,1	10,00 ± 0,5	950 ± 10	1800 J	3
<b>BR6</b>	<b>Rifle</b>	<b>7.62×51mm NATO</b>	<b>FJ/PB/SC</b>	<b>9,5 ± 0,1</b>	<b>10,00 ± 0,5</b>	<b>830 ± 10</b>	<b>3270 J</b>	<b>3</b>
BR7	Rifle	7.62×51mm NATO	FJ/PB/HC	9,8 ± 0,1	10,00 ± 0,5	820 ± 10	3290 J	3

LB - Lead Bullet

FJ - Full Metal Jacket

FN - Flat Nose

RN - Round Nose

CB - Cone Bullet

PB - Pointed Bullet

SC - Soft Core (lead)

SCP - Soft Core (lead) & Steel Penetrator

HC - Hard core, steel hardness > 63 HRC

## **Composition of the bulletproof glass units**

All glass units combine multiple layers of glass with abrasion-resistant and NS (No Spall) Hammerglass Polycarbonate for personal protection. The softer layer of Hammerglass PC makes the glass more elastic so it can flex instead of shatter. Its unique coating also resists abrasion. This option provides a lightweight solution while offering high levels of ballistic resistance.

Ballistic attack relates to glazing AND the accompanying framework.

Hammerglass AB offers customized ballistic steel systems for a variety of applications.

Also these reinforced steel/stainless systems are certified and obtained the FB4(NS) and FB6(NS) classification in accordance with EN1522 standard, to provide a complete defense against ballistic attacks.