INSTITUTE OF BLAST & IMPACT PROOF CONCRETE

CIVIL DEFENCE Made to save you

















Europaisches Patentamt European Patent Office Office europée des brevets





ABOUT US

- Development of specific protective elements.
- Including test protocols and certifications by the Military Research Institute (MRI) of the Czech Republic.
- State Testing Laboratory of the Czech Technical University in Prague.
- Our elements are made from patented Ultra High Performance Fiber Reinforced Concrete - UHPFRC.
- They provide protection for **Defence Industry**, **Critical Infrastructure** and Civil Defence.
- Potential to use unique know-how and hi-tech products through licence - FRANCHISE.



SUMMARY OF THE EU COUNCIL DIRECTIVE

EUROPEAN PARLIAMENT AND COUNCIL DIRECTIVE (EU) 2022/2557

- Addresses providers of critical services.
- Defines resistance/resilience of critical assets to all types of threats (uniform rules across the EU).
- Critical entities will be monitored on their compliance with a **Resilience Plan** based on a risk assessment that is updated periodically or as required.
- Critical entities will strengthen their capabilities to prevent, protect themselves, respond to and withstand incidents, mitigate, absorb, adapt and recover from the consequences.
- Possible support from the State or the EU.

Implementation plan for the new directive



1			

Preparation for the implementation of the Directive. 2023

- 2. Acceptance of the measures of the Directive. 2024
- 3. Strategy to strengthen the resilience of critical infrastructure. 2025
- 4. Submission of a report to the European Parliament. 2026

INSTITUTE OF BLAST & IMPACT PROOF CONCRETE

- Prepared an analysis on the implementation of the Directive.
- Has a capacity of scientists, experts and specialists. Β.
- Has developed unique security features to protect CI.
- It is ready to participate in the CI solutions of European countries. D.





Our elements are developed in accordance with the guidelines of the European Commission's Joint Research Centre for Scientists, Experts and Academics <u>"Security by Design: Protecting Public</u> <u>Spaces from Terrorist Attacks"</u>, which introduces the concept and practical implementation of building security in the design.



 $\begin{array}{c} \star & \star \\ \star & \star \\ \star & \star \\ \star & \star \\ \star & \star \end{array}$

European

Commission



Security by Design:

Protection of public spaces from terrorist attacks



NATO **STANAG STANDARD**



- Made of patented salinity-resistant UHPFRC.
- According to the military standard **NATO STANAG** 2280, used for all protective structures built during military missions.







		А	В	С	D	Е
		Projectiles ¹	Direct Fire Warheads ^{,3}	Indirect Fire Munitions ^{3,4}	High Explosives (TNT Eqvt)	Mo [.] Veł
	9				≤ 5,000kg	
everity of Effect (level) ⁷	8	120/125mm SABOT Anti tank	Anti-tank 120/125mm HESH / HEAT	Scud	≤ 1,000kg	
	7	Automatic cannon 40mm APDS		333mm Rocket	≤ 250kg	
	6	Automatic cannon 30mm APDS	Advanced ASM Anti Structure Munitions	240mm Rocket	≤ 50kg	Tra Vel
	5	HMG 14.5mm (0.57)	Tandem ASM	155mm Artillery 122mm Rocket	≤ 10kg	Lar ≤ 32
	4	HMG 12.7mm (0.50)	Anti-personnel Thermobaric or conventional charge <2.5kg	120mm Mortar 107mm Rocket	≤ 2kg	Tru ≤ 7,
Ň	3	Assault /Sniper Rifle 7.62mm AP	Anti-tank Shaped charge	82mm Mortar	≤ 1kg	Sm ≤2,
	2	Assault Rifle 5.56 - 7.62mm Ball	40mm Rifle grenade shaped charge	60mm Mortar	≤ 0.5kg	Pas ≤1,
	1	Pistol	(reserved)	Hand grenade	≤ 0.1kg	Mot





PROTOCOLS AND CERTIFICATIONS



- Fulfillment of the principle of legitimate expectations.
- Ballistic, blast and shrapnel resistance.
- Tested and certificated by the Military Research Institute s.e.



ODBORNÁ LABORATOŘ OL 133 224 354 627 telefon: josef.fladr@fsv.cvut.cz email:

Zakázkové číslo: 8602152A000

PROTOKOL číslo: 1

o zkoušce:

STANOVENÍ PEVNOSTI BETONU V TLAKU 133/3

Jméno a adresa zákazníka:

JEAN-PAUL WHITECASTLE, spol. s.r.o. Kaprova 42/14 110 00 Praha 1 IČ: 48041866

Schvalil:



Vojenský výzkumný ústav, s. p.

Ballistic resistance Shrapnel resistance Blast resistance

Počet výtisků:	- 5
Výtisk č.:	L
Počet listů:	3
List číslo:	L
Počet příloh:	đ
Počet listů příloh:	0

33	003/202	1



doc. Ing. Josef Flådr, PhD., technický vedoucí OL 133





Vojenský výzkumný ústav, s. p.

Počet stran / Number of pages: Datum vydání / Date of issue: 31. 5. 2022

PROTOKOL O ZKOUŠCE BALISTICKÉ ODOLNOSTI TEST REPORT BALISTIC RESISTANCE

VVÚ – SMI-22-101

	JEAN PAUL WHITECASTLE, spol. s r.o.		
adavatel	Kaprova 42/14		
Contractor	110 00 Praha 1 – Staré Město		
	INSTITUT BLAST & IMPACT PROOF		
/ýrobce	CONCRETE, s. r. o. (IBIPC)		
Manufacturer	Jihlavská 2512/34,		
	591 01 Žďár nad Sázavou		
ředmět zkoušky	UHPFRC vzorky 01 a 02		
est specimen	UHPFRC samples 01 and 02		
)atum a misto zkoušky	10. 5. 2022 Prototypa-ZM, s. r. o., Brno		
ate and place of the test			
Aetoda zkoušení Jest method	STANAG 2280, Edition 1		
koušku provedl iest staff	Petr Pěchouček		
)dpovědný pracovník eoder of the test	Petr Pěchouček		
třestelsí skoužku	Pavel Čalkovský	VMÚ, s. p.	
articicants	Tomáš Holik	VVÚ, s. p.	
ur culpurito	Pavel Bělohradský	CEO JPW GROUP	
rotokol o zkoušce nesmí být bez pisem: he test report shall not be reproduced e aboratory.	ného souhlasu zkušebny repro xcept in full, without written o	dukován jinak než celý. approval of the test	

Veslařská 230, 63700 Brno, Česká republika CERTIFIKAT č. VVÚ 2280-001-2022 JEAN PAUL WHITECASTLE, spol. s r.o. Objednatel: Kaprova 42/14 110.00 Praha 1 - Staré Město INSTITUT BLAST & IMPACT PROOF Výrobce: CONCRETE, s. r. o. (IBIPC) Jihlavská 2512/34, 591 01 Žďár nad Sázavou Výrobek: UHPFRC Materiálové složení vzorků je v souladu Patentem ČVUT v Praze - fakulta stavební č. 304 478 a s Evropským Patentem ČVUT v Praze č. EP 3 351 518 1 ks vzorku (500 x 500 x 200 mm) Zkušebni sestava: 1 ks základní díl bunkru (2400 x 2400 x 200 mm) A4, C4 a D5 dle STANAG 2280 ed.2 / ATP-3.12.1.8, Hroven ochrany: vydání L., verze 1 Platnost certifikátu souvisí se Zkušebními protokoly z testů vzorků UHPFRC č. VVU-SMI-22-101, VVU-SMI-22-102 a VVU-SMI-22-103, kde jsou specifikovány testované vzorky UHPFRC. Zkušební sestava vyhověla požadavkům pro zařazení do úrovně ochrany A4, C4 a D5 dle STANAG 2280 ed.2 / ATP-3.12.1.8, vydání 1., verze 1. Brno, 30. května 2022 Ing. Pavel CUDA, Ph.D. reditel

Protokol vyhotovil: Pavel Čalkovský The test report was written by Pavel Čalkovský







1. SAFETY BENCH

DISTRIBUTION • LIGHT • HEAVY

- Designed to be placed in outdoor and indoor public spaces.
- It serves to protect people, cover from flying shrapnel, projectiles and explosions of charges.
- Custom bench cladding.
- Anchored into the ground can stop a regular car.



By NATO standard









2. FLOWER BOX

DISTRIBUTION • LIGHT • HEAVY

- Stops a moving truck, catches shrapnel from the explosion and projectiles from small arms.
- Protective element and mobile barrier for short-term and permanent installation.
- High ability to absorb kinetic energy caused by impact or explosion.
- Cover for intervening troops to reload and return fire.





By NATO standard











6. COMPOSITE SHIELDSDISTRIBUTION • LIGHT• HEAVY

- Shields to protect buildings and objects.
- Designed for buildings that are important from a political, military or economic point of view for ensuring the protection for basic functions of the state and the security of the armed forces.











4. WIRING TUNNEL DISTRIBUTION • LIGHT HEAVY

- UHPFRC tunnel used to protect high priority cables and IOT technology systems.
- The board is fitted with an internal tongue fitting into the groove to secure the position of the board.
- It folds behind itself usually below the surface.
- The connection of the elements is provided by a tongue at one end and a groove at the opposite end.







7. CHECKPOINT

- Used to control the interest perimeter.
- The base structure can be equipped according to the **client's requirements** (beds, benches, chemical toilet, cartridge traps, ammunition and food storage boxes, fitting with guns or cabling).
- Ability to react quickly to defined threats in case of national emergency and war.





By NATO standard









5. MOBILE ROADBLOCK

- DISTRIBUTION LIGHT 0.6m
 - MEDIUM 1.0m
 - HEAVY 1.35m
- Connected by marine chains to make difficult passage and removing individual elements.
- Used for operational positioning in multiple lines in the direction of the enemy's expected approach and to stop tracked or wheeled combat vehicles.
- Known as "DRAGON TEETH".







INSTITUTE OF BLAST & IMPACT PROOF CONCRETE Made to save you







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