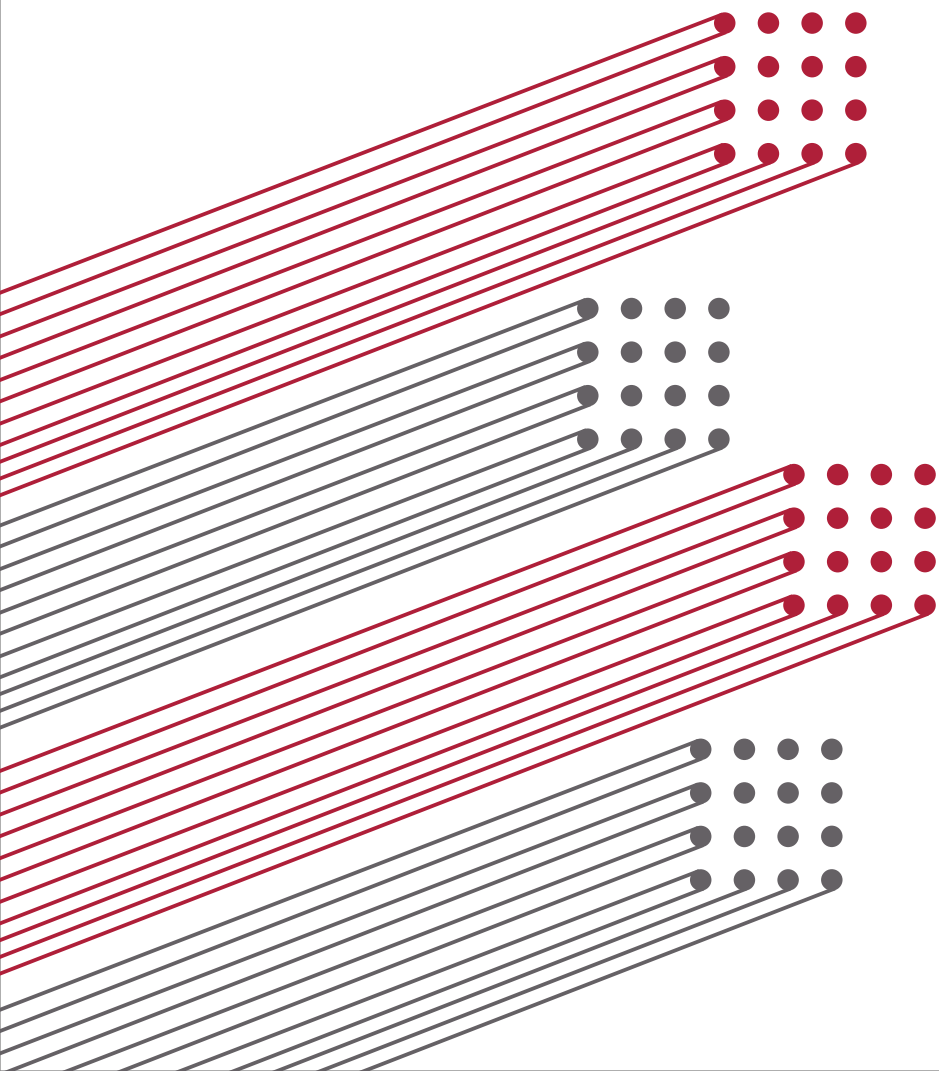




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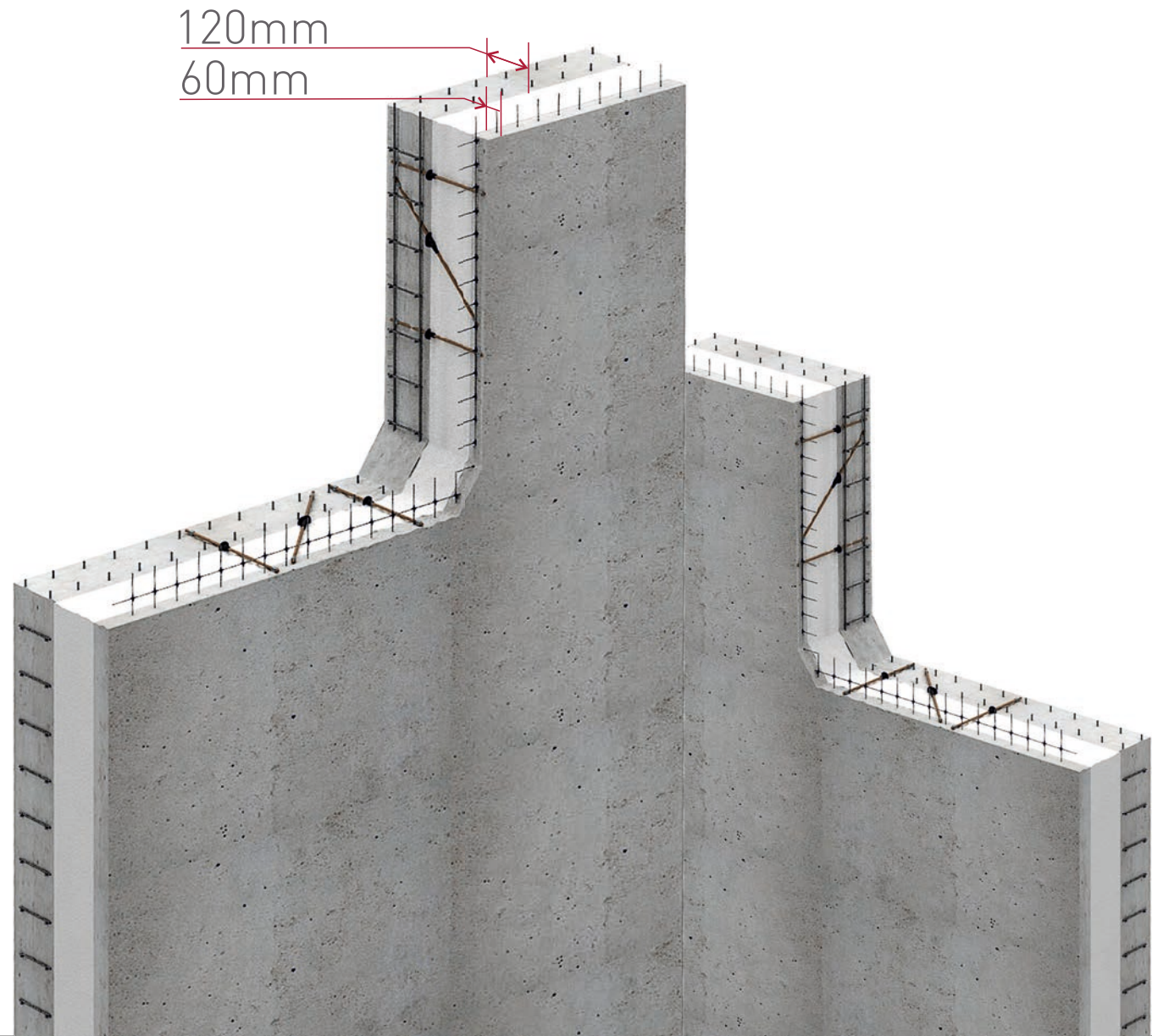
PRODUCT CATALOG

- 1/ WALL TIES FOR LARGE PANEL CONSTRUCTION
- 2/ ROCKMESH® COMPOSITE MESH





GALENTM
THE COMPOSITES OF THE FUTURE





Galen is a developer and producer of modern composite materials for industrial and civil construction, mining, highway and electric power industries. Holder of more than 20 patents and know-how. The company is a pioneer of basalt technologies in Russia and CIS.

The company was established in 2001. It has been manufacturing products with the use of nanotechnologies since 2009. Since 2011 Galen is a RUSNANO project company.

Products from a composite material – basalt fiber reinforced polymer developed and patented by Galen are know-how. The use of these high strength and corrosion resistant products instead of metal analogues allows for increase of quality of objects under construction and reduction of construction costs. Products manufactured by Galen are highly valued abroad; more than 20% of output is exported to Western Europe and CIS. Thousands of passive houses in the UK are built with the use of Galen wall ties.

Galen is located in Cheboksary (Chuvash Republic) and has operating facilities in Mogilev (Belarus), Kaluga Region. The manufacture is carried out on equipment developed and patented by the company.

Wide dealer network in Russia, CIS and Western Europe. Galen is a partner of the world leading companies engaged into the composite industry and a transfer of technologies to Russia.

1 / WALL TIES FOR LARGE PANEL CONSTRUCTION


Certificates

- Technical Approval TS № 4434-14.
- Certificate of conformance
№ POCC RU.И750.НХ02.000161
NANOCERTIFICA Certification.
- BBA Certificate [The British Board of Agrément] No.09/4697.




Application

Wall ties for large panel construction are intended for connecting the internal and external wythes of insulated sandwich wall panels.

 Wall ties with a restrainer installed at 45°

Designed to transfer vertical loads from an external concrete wythe and thermal insulation to a reinforced wythe of a panel.

 Wall ties with a restrainer installed at 90°

Designed for fixing reinforced concrete wythes and thermal insulation against each other as well as for taking compressive and tensile loads caused by wind and other impacts acting perpendicularly to a facade surface.

Structure

The wall tie for large panel construction comprises the following elements:

For the use in a bearing panel:

- BFRP bar with a uniform sand coating;
- Plastic restrainer;
- Stainless steel collar.

For the use in a non-bearing panel:

- BFRP bar with a uniform sand coating;
- Plastic restrainer.



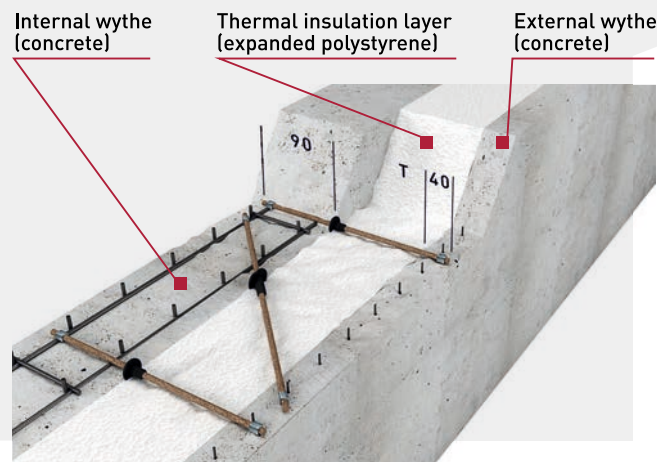
Advantages

LOW THERMAL CONDUCTIVITY of composite material prevents thermal bridges forming between building's walls and outdoor environment, retains moisture conditions of the structure;

CORROSION AND CHEMICAL RESISTANCE of composite material allows the wall ties to retain their physical and mechanical properties in alkali, thermal and moisture conditions;

STRENGTH of composite material ensures increased reliability of the entire structure.

Scheme of wall ties use



Technical characteristics of wall ties with collars

Wall tie length	120-500 mm
Diameter	6 mm
Minimal anchorage length	30-35 mm
Ultimate tensile strength, not less than	1000 MPa
Ultimate bending strength, not less than	1000 MPa
Tensile modulus, not less than	50 GPa
Collar-wall tie bond strength, not less than	15 MPa
Compressive modulus	30 GPa
Pull-out strength from concrete, not less than	4000 N
Tensile strain, not more than	3 %
Thermal conductivity coefficient	0,46 W/M*°C

Pull out strength from concrete

Test conditions	Pull-out strength from concrete, kN	
	BFRP wall ties with steel collars (TU 5714-022-13101102-2014)	Standard BFRP wall ties (TU 5714-006-13101102-2009)
Diagonally installed wall ties		
B 15 (anchorage depth 80 mm)	5,45	Not less than 6 kN in standard conditions (B25 concrete grade, anchorage depth 80 mm)
B 20 (anchorage depth 80 mm)	6,43	
B 25 (anchorage depth 80 mm)	7,3	
Vertically installed wall ties		
B 30 (anchorage depth 40 mm)	4,95	Not less than 5 kN in standard conditions (B25 concrete grade, anchorage depth 80 mm)
B 30 (anchorage depth 60 mm)	7,18	

2/ ROCKMESH[®] COMPOSITE MESH

Certificates

- POCC RU.АГ98.Н12469
- POCC RU.И750.НЖ02.000154

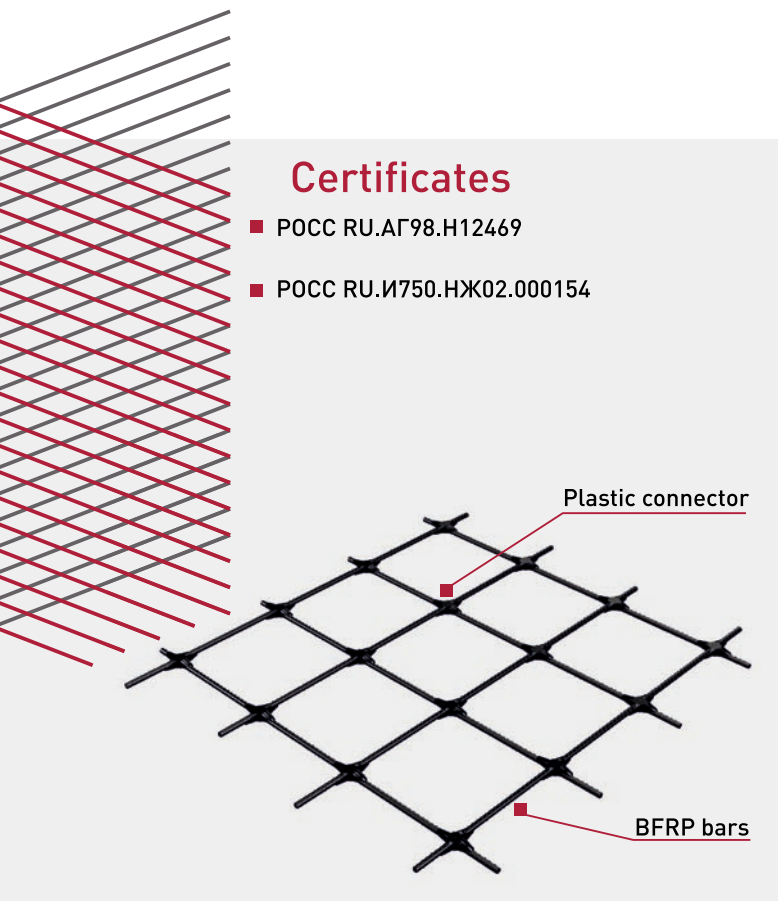
Intended use

ROCKMESH[®] is intended for reinforcement of a facing layer in concrete wall panels.

Structure

ROCKMESH[®] comprises the following elements:

- BFRP bars arranged perpendicularly to each other;
- plastic connectors at cross points





Advantages

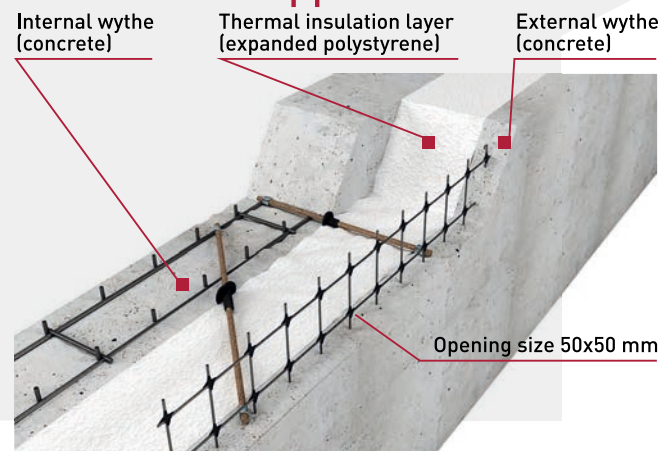
LOW THERMAL CONDUCTIVITY of composite material retains moisture conditions of structures;

CORROSION AND CHEMICAL RESISTANCE of composite material prevents from rust stains appearing on a panel and from destruction of integrity of an external layer;

STRENGTH of composite material ensures increased reliability of the entire structure;

LIGHT WEIGHT of composite material reduces load on building's foundation.

Scheme of application



Technical characteristics

Comparison of ROCKMESH[®] with metal analogue:

Characteristics	Mesh			
	ROCKMESH		Metal mesh from wire Bp-1 GOST 23279	
Opening size, mm	50x50			
Bar diameter, mm	2.0	2.2	3.0	4.0
Tensile strength, MPa	1000		550	570
Bar tensile force, N	6000	7600	4000	7200
Elongation, %	2.50		2.00	2.50
Thermal conductivity coefficient, W/(m*0C)	0.46		56.00	
Weight per unit area, g/m2	360		2220	
Mesh width, mm	up to 2000		-	
Conductivity	non-conductive		conductive	
Corrosion and chemical resistance	very high		low	
Magnetic characteristics	non-magnetic		magnetic	
Delivery in standard sheets	no deformation		possible deformation	
Delivery in rolls	No deformation. Unrolled mesh retains its initial form.		Severe deformation. Unrolled mesh requires straightening.	



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