Technical Data Sheet
TDS-288-01985

UBW™

Unidirectional Basalt Wrap

Building & Transportation | Oil, Gas & Industrial | Offshore & Onshore | Water & Wastewater

PRODUCT DESCRIPTION

CTech-LLC® UBW™ is unidirectional basalt wrap manufactured from basalt roving, an environmentally friendly product made from continuous basalt fiber.

UBW™ unidirectional basalt wrap is similar to carbon fiber and fiberglass, but basalt fabric has better mechanical properties than fiberglass and is lower in cost than carbon fiber.

The UBW™ is compatible with many resins - unsaturated polyester, vinyl ester, epoxy, phenolic, etc. The product is environment friendly and can be recycled

ADVANTAGES

- Compatible with many resins - unsaturated polyester, vinyl ester, epoxy, phenolic, etc.
- Corrosion resistant
- Chemical durability
- Low heat conductivity
- High electrical resistance
- Durability
- Handling with conventional cutting tools
- Shock resistance
- Easy recyclability

TYPICAL USES

UBW™ unidirectional basalt wrap is used as reinforcing materials in the manufacture of various structures in aircraft, shipbuilding, auto- and other industries, containers for aggressive environments, manufacture of fireproof curtains and products for heat-insulation.

Also UBW™ unidirectional basalt wrap is the best alternative to carbon fiber applied in the bridge, construction reinforcement and repair.

DESIGN

Design calculations shall be made and sealed by a licensed, independent engineer knowledgeable with the design of FRP strengthening systems.

INSTALLATION PROCEDURE

Installation of CTech-LLC® basalt fabrics should be performed by licensed and specially trained groups of installers. The Installation must be compatible with existing relevant international codes. This section outlines the procedure to install CTech-LLC® Uniidirectional Basalt Wrap (UBW™).

PREPARATION OF SUBSTRATE

- Substrate preparation can highly effect on the quality of the performance of BFRP systems.
- All the surfaces must be cleaned from dirt, grime, dust, curing compounds, oils, grease, waxes and all the other contaminated materials which may cause voids behind the CTech-LLC® composites.
- Repair mortar must be used to repair all the eroded or damaged concrete surfaces.
- An industrial vacuum cleaner must be used to remove dust and dirt.
- All the surfaces need grinding, Sandblasting, shot blasting, pressure wash or other common mechanical methods to reach an even Substrate.
- The sharp edges must be smooth and rounded to a minimum radius of 30 mm.
- Note that concrete surfaces must be fully dried or cured so adhesive can properly dry.

MIXING

Epoxy resins (or other resins) are required to make BFRP systems. Epoxy compounds are usually supplied in two different containers. Before pouring the contents of component B into contents of component A, each part should be stirred separately to avoid deposit in container. Then part A and B should be mixed together depending on the required

quantity. Process of mixing should take 3-5 minutes with a low speed mixer.

TECHNICAL DATA

	Unit	UBW™300	UBW™400	UBW™600
Area Weight	g/cm^2	300	400	600
Tensile Strength	MPa	2100	2100	2100
Modulus	GPa	91	91	91
Elongation	%	2.6	2.6	2.6
Thickness	mm	0.17	0.226	0.340
Diameter	µm	10	10	10

TREATMENT

Basalt fabrics can be cut with knives, commercial quality heavy-duty scissors, and rulers. These are proper tools for cutting BFRP systems to obtain an ideal length and width. Any of the other cutting instruments can damage the fabrics.

APPLICATION

The substrate must be clean and eroded or damaged concrete surfaces must be repaired by CTech-LLC® epoxy mortar. Cover the substrate with suitable form of ERP™ epoxy primer. Saturate the fabrics by a mechanical saturator. The saturator controls fiber-resin ratio in operation and converts basalt and fibers into prepreg fabrics, so they can be used instantly on the surface of different elements. Installation of all the layers of saturated fabrics must be done according to the design requirements. If required, additional fabrics can be used on top of previous layers. Using a roller can ensure all pockets are removed between fabric and substrate and there is a good bonding between them. This process should be performed by licensed and specially trained groups of installers.

PROTECTIVE COATINGS

A protective coating must be applied on the surface of FRP system. The coating should be non-vapor-barrier and complies with the FRP system. Plaster final coating, paint final coating and fireproofing coating are three common methods witch can be used to make barrier between damaging environment and structures. Painting should be done between 24 to 72 hours after final application of epoxy. The protective coating can protect surface against corrosion, decaying, cracking, chipping, fading and other typical problems which may happen for the structure.

STORAGE & SHELF LIFE

UBW™ uniidirectional basalt wrap should be stored in a dry, cool and rain-proof area.

CAUTION

All components of FRP systems may cause skin irritation and sensitization. Use of chemical resistant gloves is recommended. Avoid breathing vapors and dust. Get medical attention if you are breathing with difficulty. Resins products can cause strong eye irritation. Avoiding eye contact and Using safety goggles is necessary.

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