

BFCMTD is a research-and-production company, which specializes in development of technologies, manufacturing of equipment, organization of industrial production. The Company offers the following equipment:

- Industrial equipment for manufacturing of continuous basalt fiber (CBF);
- Industrial equipment for manufacturing of CBF materials and composite materials; industrial equipment for manufacturing of super thin basalt fiber (STBF), staple thin basalt fiber (TBF), basalt scale & materials, made on their basis; energy saving technologies, high temperature composites.



SERVICES PROVIDED BY BFCMTD

- Selection of basalt raw material from local rock deposits;
- Delivery, installation & launching of equipment;
- Control during beginning of production;
- Training in operating equipment for technical workers;
- Full organization of basalt fibers and materials industrial production;
- Technological support of industrial production under terms of BFCMTD’s patents;
- Legal protection of production, including patented technologies & equipment.

BASALTS

Basalt is an environment-friendly natural material; it is used for basalt fibers production. 1/3 of the Earth’s crust consists of basalts and eruptive rock, so this material is easily found worldwide. Primary fusion, enrichment and homogenization of basalt breeds are made by nature. Basalts have being laying on the surface of the Earth for many millions years. Basalt breeds are one of the strongest natural silicate breeds. Safe and abundant, basalt rock has long been known for its thermal properties, strength & durability. Cost of extraction of basalt raw material is very low. The technology of production process is not hazardous for environment; it does not produce any emission or waste. Experts of BFCMTD can selection of basalt raw material from local rock deposits.



Comparative Characteristics between Glass Fiber & CBF Fiber

Capability	CBF (Continuous Basalt Fiber)	E-glass fiber	S-glass fiber	Carbon fiber	Aramid fiber
Tensile strength, mPa	3000~4840	3100~3800	4020~4650	3500~6000	2900~3400
Elastic modulus, gPa	79.3~93.1	72.5~75.5	83~86	230~600	70~140
Elongation at break, %	3.1	4.7	5.3	1.5~2.0	2.8~3.6
Diameter of filament, mp	6~21	6~21	6~21	5~15	
tex	60~4200	40~4200	400~4200		
Temperature of application, °C	-260~+500	-50~+380	-50+300	-50~+700	-50~+290
Price, USD/kg	2,5~3,5	1,4	1,8	30	25

High durability

Strength-to-weight ratio of a basalt fiber exceeds strength of alloyed steel 2.5 times, strength of fiber glass – 1.5 times.

Breaking strength-to-weight ratio for CBF various diameters					
Continuous Filaments' diameter, μm		5.0	6.0	8.0	9.0 11.0
Breaking strength-to-weight ratio of elementary fibers,kg/mm²		215	210	208	214 212
Breaking strength of CBF roving type RB-10					
Diameter of elementary fibers, μm		Tex	Breaking strength, N		
10		600	400		
10		1200	700		

High chemical durability to impacts of water, salts, alkalis and acids

Unlike metal, CBF is not affected by corrosion. Unlike fiber glass, CBF is not affected by acids. CBF possess high corrosion and chemical durability qualities towards corrosive mediums, such as salts & acids solutions and, especially, alkalis.

Chemical durability of CBF				
Diameter of elementary fibers , μm	H2O	0.5 n NaOH	2 n NaOH	2 n HCl
17	99.63	98.3	92.8	76.9
12	99.7	98.9	90.7	49.9
9	99.6	94.6	83.3	38.8

High thermal resistance

A range of temperatures for CBF long-time application is 200~600 C. Short-term impact of temperatures – up to 700 C. Single impact of temperatures – up to 1000 C.

Compatibility of CBF with other materials

High compatibility of CBF with other materials (metals, plastic, glues) during producing process
Materials made on CBF basis can be processed with application of different “cold” technologies, such as moulding, winding, pultrusion, sputtering, etc.


BASALT FIBER MATERIALS & PRODUCTS



TECHNOLOGICAL EQUIPMENT FOR CBF PRODUCTION

TE BCF 1000-1500 technological line, which is developed on the basis of new series BCF installations

TE BCF 1000-1500 technological production line

No.	Technical Data	Unit	TE BCF 1 000 line	TE BCF 1 500 line	
1	Production capacity	Tons/year	1080	1500	
2	Number of module unites (bushing)	Pcs.	17	25	
3	Bushing’s holes quantity, not less than		200	200	
4	Operating mode: night-and-day, day/year, stop for repair	D/Y	345-350	345-350	
5	Consumption of gas	m³/ hour	130	160	
6	Consumption of electric power(220 / 380.50 Hz), not less	kWt	270-280	350	
7	Consumption of technical water (in grader)	m³/hour	3.5-4.5	4.5-6.0	
8	One basalt spool ’s of thread, weight	kg	2.5–3.5	2.5–3.5	
9	CBF production line overall dimension width / length / height with a recuperator	m	6.5/26/7.5	6.5 /40 /7.5	

TE CBF 1000-1500 lines are the core of CBF production plants with output capacities of 3 000/5 000/10 000/15 000 tons a year.

TECHNOLOGICAL PROCESS OF CBF MANUFACTURING

