



Chongqing Dujiang Composites Co., Ltd.

PRODUCT BROCHURE

COOPERATION WIN-WIN INNOVATION DEVELOPMENT

ABOUT US

Chongqing Dujiang Composites Co., Ltd. is a high-tech enterprise that combines R&D, manufacturing, and sales.

Going through decades of development, our company has gained a worldwide reputation as a professional enterprise for advanced composite materials. Now, mainly we have 2 series of products. **1. QUARTZ FIBER SERIES PRODUCTS** (including quartz fiber yarn/roving, quartz fiber chopped strands, sewing thread, fabric/cloth, braided sleeve and tape, quartz fiber wool and Felt, Quartz Fiber Wet-aid mat, etc.); **2. GLASS FIBER SERIES PRODUCTS** (including glass fiber roving, chopped strands, Chopped Strand Mat, Knitted Mat, Woven Roving, Surface Tissue, etc.), Realization of products serialization, diversity, quality standardization meets well the demands of various productions with high quality.

With the location of Tianjin City and 60 km away from Tianjin Sea Port, our company gains an obvious advantage in transportation.

In the HexiJinnan/Jinghai districts of Tianjin city and Shandong and Liaoning provinces, we have 60000 square meters of land where located with 8 standard factories, 2 R&D centers, and 1000 units of advanced machines are located. Annual output for glass fiber series products is up to 30000 tons; design production capacity for Quartz Fiber Series Products even reaches 300 tons a year. This will guarantee our customers continuously receive sufficient products with stable quality.

We adhere to the core philosophy of HONESTY, INNOVATION, COOPERATION, and PASSION, and persist in the principle of "**HIGH-TECH DIRECTION, QUALITY FOREMOST, CUSTOMERS FIRST**". Continuously improve our technical and service consciousness level to make high-quality products at the most reasonable price and provide excellent service to serve customers and society.

CHONGQING DUJIANG

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CHONGQING DUJIANG

QUARTZ
FIBER
SERIES



CHONGQING DUJIANG

Introduction

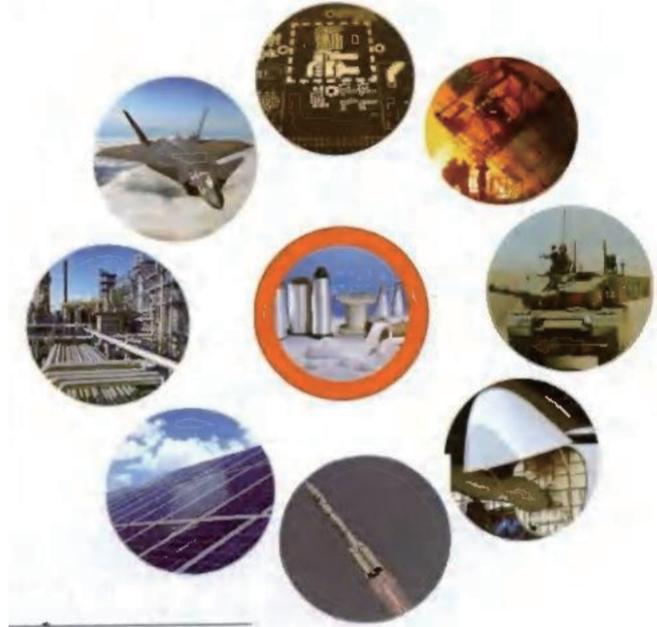
CHONGQING DUJIANG is recognized as a professional enterprise in the production of quartz fibers, which are commercialized under the brand name AmproQuartz®.

AmproQuartz® The fiber is made from heating high-purity quartz rods with an oxyhydrogen flame. Then, filaments are drawn out of the quartz rod, creating homogeneous, non-porous, continuous, amorphous, ultra-pure quartz fibers.

AmproQuartz" series is composed of various products. It mainly consists of yarns, rovings, fabrics, sleeves, wools, and felts. In addition to these common textile presentations, CHONGQING DUJIANG offers products for more specific use, such as quartz fiber thread, quartz fiber filter, and several others.

Features

- High-temperature resistant.
- Ablation resistance.
- Low thermal conductivity.
- Anti-heating vibration.
- Low dielectric property.
- Excellent chemical stability.
- Ultra pure, SiO₂ content not less than 99.95%.



Appication

Heat insulation at elevated temperature

- High temperature seals.
- Satellite thermal protection
- High temperature cables.
- Fire protection layer of aircraft.
- Fabrics for furnace lining in industrial applications and Semicon.
- Filtration at elevated temperature and/or in aggressive environment.
- Thermal protection systems (TPS) of space launchers.
- Insulation in automotive exhausts.
- Protective casing of fuse and thermocouple.
- Thermal insulation material for optical fiber making
- Replacement of ceramic and asbestos

Reinforcement material in composite industry

- Radome (weather radome, fighter radome, Satcom, DBS)
- Electromagnetic window (interference and anti-jamming equipments).
- Stealth materials with structural performance for Unmanned Aerial Vehicles, Uninhabited Aerial Vehicles, fighters, bombers, ships, submarines, tanks.
- Used for high-frequency circuit board of supercomputer and low expansion rate circuit board.
- Ablative materials.

Technical Data

Properties	Item	Comments	Data
Physical Properties	SiO ₂ Content	exclusive of yarn binder	≥99.99%
	Fiber Filament diameter	/	7/9/14 μm
	Density	/	2.2g/cm ³ (0.0795 lb/in ³)
Mechanical Properties	Hardness(Mohs Scale)	/	7
	Young's Modulus	/	72 GPa(10 msi)
	Poisson's Ratio	/	0.16
	Elongation at Break	/	7.70%
	Tensile strength	Virgin single filament	6.0 GPa (870 ksi)
Impregnated strand on 20 End Roving		3.6 GPa(530 ksi)	
Electrical Properties	Electrical Resistivity	@800°C(1470°F)	6.00e+10 ohm-cm
	Dielectric constant	@1 MHz	3.7
		@10 gHZ	3.74
	Dielectric strength	/	37.0 kV/mm(940 kV/in)
Dissipation factor	@1 MHz	0.0001	
	@10 gHZ	0.0002	
Thermal Properties	Linear Expansion Coefficient	@20°C(68°F)	0.54μm/m-°C (0.30μin/in-°F)
	Specific Heat Capacity	@20°C(68°F)	7.5X10 ² J/gK (0.179 BTU/lb-°F)
	Thermal Conductivity	/	1.38W/m-K (9.58 BTU-in/hr-ft ² -°F)
	Strain Point	Log10 n=14.6,n=Viscosity in Poise	1070°C(1958°F)
	Annealing Point	Log10 n=13,n=Viscosity in Poise	1220°C(2084°F)
	Softening Point	Log10 n=7.6,n=Viscosity in Poise	1700°C(3092°F)
Optical Properties	Refractive Index	@15°C	1.4585
	Dispersion	/	67
	Field of Transparency(m)	/	0.2~4.0
Chemical properties	Acid resistance Good corrosion resistance of alkali and salt to quartz fiber at normal temperature.		

Introduction

Quartz Fiber Twisted Yarn is assemblies of continuous high purity (SiO₂ content >99.95%) quartz filaments (filament diameter 7-9 μm) gathered into strands (forming packaged) then processed with varying levels of twist and ply. Quartz fiber yarn has many superb properties: High purity, high temperature resistance, ablation resistance, low heat-conduction, anti-thermal shocks, excellent dielectrical property and chemical stability.



Application

- Make fabrics for furnishing in industrial applications and semiconductors.
- High-temperature seals.
- High-temperature cables.
- Filtration at elevated temperature and/or in an aggressive environment.
- Thermocouple insulation.
- Satellite thermal protection.
- Insulation in automotive exhausts.
- Radome (weather radome, fighter radome, Satcom, DBS)
- Electromagnetic window.
- Stealth materials with structural performance for unmanned aerial vehicles, uninhabited aerial vehicles, fighters, bombers, ships, submarines, and tanks.
- Ablative materials.



CQDJ	QUARTZ FIBER TWISTED YARN	LINER DENSITY (TEX)
C	QC	27-670

Designation	Process Parameters	Linear Density (tex)	LOI (%)	Twist (T/M)	Direction of twist	Filament diameter (μm)
Z/QC51	25×2	51	1.0±0.2	70/140	S	(7.5-13.0)±1.0
Z/QC67	33×2	67				
Z/QC95	32×3	95				
Z/QC133	33×4	133				
Z/QC190	33×6	190				
Z/QC220	55×4	220				
Z/QC267	33×8	267				

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Introduction

Hollow Quartz Fiber Yarn is same as quartz fiber yarn except its hollow filaments. With the hollow filaments, quartz fiber yarn gains much better properties in lower density, higher electrical conductivity, better wave permeability, more excellent dielectrical property and heat insulation.

HOLLOW QUARTZ FIBER YARN



Cross Section View of hollow quartz fiber yarn under electron microscope.

CQDJ	QUARTZ HOLLOW YARN	LINER DENSITY (TEX)
C	QCH	95-495

Designation	Process Parameters	Linear Density (TEX)	LOI (%)	Hollowness (%)	Hollow ratio (%)	Filament diameter (μm)	Twist (T/M)
Z/HQC95	33×3	95	1.0±0.2	≥30	≥98	9-12	70/140
Z/HQC195	33×6	195	1.0±0.2				
Z/HQC495	165×3	495	1.0±0.2				

Introduction

Quartz Fiber Twistless Roving is assemblies of fused quartz continuous filaments combined into strands/ends, then assembled without intentional twist.

Appication

- Weaving fabric (woven or stitched)
- Filament winding.
- Pultrusion
- Unidirectional prepegging
- Texturizing



CQDJ	QUARTZ FIBER TWISTLESS ROVING	LINER DENSITY(TEX)
C	QCR	40-2400

Product Designation	Linear Density	Process Parameters	Filament diameter (μm)
Z/QCR267	267	33×8	(7.5-13.0)±1.0
Z/QCR400	400	33×12	
Z/QCR667	667	33×20	
Z/QCR640	640	80×8	
Z/QCR960	960	80×12	
Z/QCR1600	1600	80×20	

Introduction

Quartz Fiber Chopped Strands are produced by cutting continuous filaments of high purity, extremely fine pure quartz fibers to a predetermined length.



Application

- Blending with elastomeric resins such as rubber, silicon or phenolics for ablative materials.
- Compounding with thermoplastic resins for injection moulding or compression moulding.
- Veils production.

CQDJ	QUARTZ FIBER CHOPPED STRANDS	LENGTH(mm)
C	QCD	3-125

Product Designation	Length (mm)	Linear Density (TEX)	Filament diameter (μm)
Z/QCD3	3	33/80	7.5±1.0
Z/QCD6	6	33/80	
Z/QCD12	12	33/80	

Note: Cutting lengths may vary slightly, due to the nature of the cutting process.

Introduction

Quartz Fiber Sewing Thread is made from high purity, extremely fine continuous filaments of pure fused quartz which is capable of exposure to 1070°C. Fiber composition is 99.95%SiO₂ exclusive of binder. It has excellent abrasion performance and soft characteristic, widely used as high temperature filter material and sew up braided fabrics.



CQDJ	QUARTZ FIBER SEWING THREAD	TYPE
C	QST QSTP	UNCOATED PTFE COATED

Product	Diameter(mm)	Linear Density(TEX)	Breaking strength(daN)	Binder content(%)
Z/QST12	0.36	133(33X2X2 Z160)	8	0.5
Z/QST18	0.43	205(33X2X3 Z160)	13	
Z/QST24	0.51	272(33X2X4Z160)	18	
Z/QSTP12	0.36	168(33X2X2Z160)	6.8	PTFE:20%
Z/QSTP18	0.43	250(33X2X3 Z160)	11.2	
Z/QSTP24	0.51	340(33X2X4 Z160)	15.6	

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Introduction

Quartz Fiber Wool is made from pure fused quartz fibers which are amorphous, continuous, tangled, white, odorless, without volatile component and no shot. Length, shape and arrangement of fibers give the wool its curly appearance preventing compression of the padding and improves its desired insulating properties.

QUARTZ FIBER WOOL



Properties

- High temperature use(1050°C long term, higher temperature possible in case of short term exposure)
- Resistance to thermal shocks
- Low thermal conductivity
- High electrical resistivity
- Low dielectric constant
- Good chemical resistance

Application

- Thermal protection systems for launchers
- Ablative material for military and aerospace markets(rocket nozzles, space reentry vehicles)
- Filtration of hot acidic liquids and gases.
- Furnace closures and insulation
- Asbestos replacement
- High temperature insulation for semiconductor industry.
- Catalytic support for heavy duty vehicles catalytic converters.
- Raw material for quartz fiber felt.

CQDJ	QUARTZ FIBER WOOL	FILAMENT DIAMETER(μm)
C	QWL	3-14

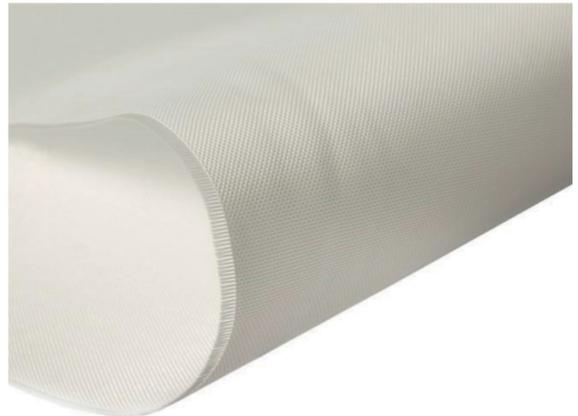
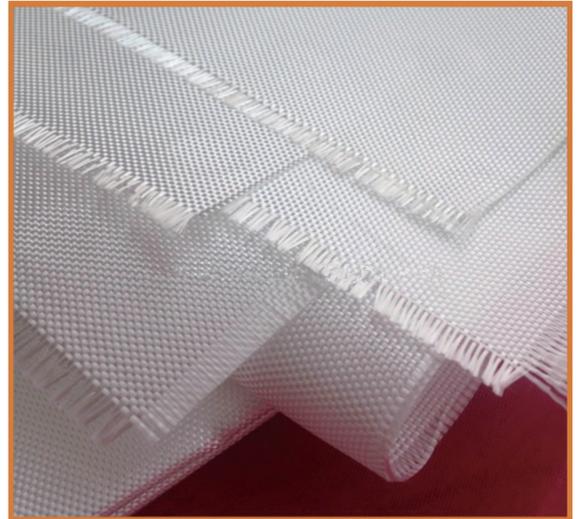
Product Designation	Filament Diameter(μm)	SiO ₂ Content(%)	Packing(g/bag)	Slag ball content(%)
Z/QWL3	1-3	99.95	10/50/100/250	≤ 1.0
Z/QWL5	3-5			≤ 1.0
Z/QWL9	5-9			≤ 4.0
Z/QWL14	9-14			≤ 4.0

Introduction

Quartz Fiber Fabric is made by quartz fiber yarn woven into a fabric with predetermined woven structures, such as plain, satin, twill and leno.

Properties

- High temperature use (1050°C long term, higher temperature possible in case of short term exposure)
- Resistance to corrosion.
- Flexibility, dimensional stability.
- High temperature strength retention rate.
- Thermal shock resistance.
- Chemical stability.
- High electrical resistivity.
- Excellent wave penetration.



Application

- Rockets thermal protection system
- Ablatives in military and aerospace (rockets nozzle, aerospace reentry aircraft)
- Radomes of missile, airplane, satellite, ship.
- Electromagnetic windows (jamming and anti-jamming equipment)
- Structural material for stealth technology (aircraft, naval ship, submarine)
- Wave penetration materials

CQDJ	QUARTZ FIBER FABRIC	WIDTH(cm)
C	QW	100

Product Designation	Thickness(mm)	Weaving Style	Process Parameters		Unit Weight(g/m ²)
			Linear Density-Twist	Warp×Weft(count/cm)	
Z/QW80-100	0.08	Plain	20T-70T/M	20×20	80
Z/QW100-100	0.1	Plain	28T-70T/M	18×18	100
Z/QW120-100	0.12	2/2 Twill	51T-70T/M	12×12	122
Z/QW130-100	0.13	Plain	33T-70T/M	20×18	125
Z/QW140-100	0.14	Plain/Twill	51T-70T/M	16×14	155
Z/QW200-100	0.2	Plain	95T-70T/M	12×10	210
Z/QW220-100	0.23	8 Satin	72T-70T/M	16×16	230
Z/QW280-100	0.28	8 Satin	51T-70T/M	36×20	285
Z/QW500-100	0.4	Plain	190T-70T/M	10×10	380
Z/QW700-100	0.7	Twill	267T-140T/M	12×10	585

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QUARTZ FIBER SLEEVING

Introduction

Quartz Fiber Sleevings are braided by quartz fiber yarn.

Properties

- Soft.
- High temperature resistance
- Anti corrosion.
- Good electrical insulation.
- Good flame retardance
- Aging-resistance.

Application

- Asbestos replacement
- Packing and thermal insulation
- High temperature seals and gaskets
- Pipe and exhaust system wrappings
- Electrical insulation
- Special cable.



CQDJ	QUARTZ FIBER SLEEVING	INNER DIAMETER(mm)
C	QSL	0.5-70

Product Designation	Inner Diameter (m m)	Process Parameters		Unit Weight(g/m)
		Linear Density-Twist	Warp×Weft(count/cm)	
Z/QSL0.5	0.5	57T-70T/M	1×16	0.85
Z/QSL1	1	95T-70T/M	1×16	1.7
Z/QSL3	3	95T-70T/M	1×32	3.4
Z/QSL8	8	95T-70T/M	1×64	7.1
Z/QSL10	10	140T-70T/M	1×64	10.5
Z/QSL20	20	267T-70T/M	1×64	30
Z/QSL30	30	133T-140T/M	3×96	45.5
Z/QSL60	60	133T-140T/M	5×120	95

QUARTZ FIBER TAPE

Introduction

Quartz Fiber Tape is made by quartz fiber yarn woven into a tape with woven structure of plain. Mainly used as heat and electrical insulation material.



CQDJ	QUARTZ FIBER TAPE	WIDTH (mm)
C	QT	15-60

Product Designation	Thickness(m m)	Weaving Style	Process Parameters		Unit Weight(g/m)
			Linear Density-Twist	Warp×Weft (count/cm)	
Z/QT110-5	0.11	Plain	23T-70T/M	20×16	3.8
Z/QT140-5	0.14		51T-70T/M	10×9.3	7.86
Z/QT200-4	0.2		51T-70T/M	18×9.3	4.15
Z/QT280-5	0.28		95T-70T/M	9×9.3	13.5
Z/QT500-5	0.5		190T-70T/M	9×7.2	23.3

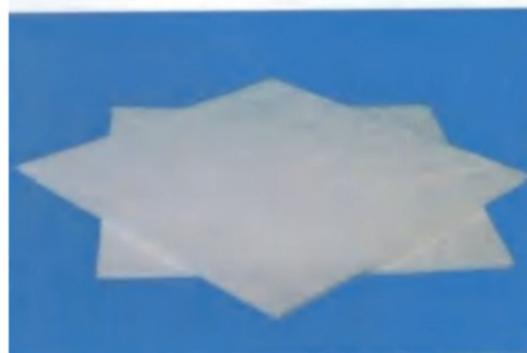
Introduction

Quartz Fiber Felt is produced from 3-5 or 9-14 microns quartz fiber wool that is impregnated with an organic binder.

Application

- High temperature insulation in aircraft engine environment. Quartz fiberfelt is very often used between two welded foils of refractory alloys, due to its superior insulation performance/weight ratio, good resistance to vibrations, high life cycle.
- Domestic and industrial catalytic heaters. Quartz fiber felt is used as a support for the catalyst. Good mechanical integrity after long term exposure in high temperature; Quick start-up due to its excellent oxidation; Easy to cut; Suitable with low quality gases; Homogeneous product from one sheet to another.
- Furnace closures and insulation. Used widely for industrial furnaces and silicon wafer treatment.

QUARTZ FIBER FELT



CQDJ	QUARTZ FIBER FELT	THICKNESS (mm)	ORGANIC BINDER
C	QF	2-10	PVA(Polyvinyl Alcohol)

Product Designation	Thickness (mm)	Areal Weight(g/m ²)	Density (kg/m ³)	Filament Diameter (μm)	Dimension: length×width	LOI(%)
Z/QF2	2	25	10-20	3-5 9-14	300×300 450×450 600×600 500×1000	4.0±1.0
Z/QF4	4	40				
Z/QF6	6	65				
Z/QF8	8	80				
Z/QF10	10	95				

Introduction

Quartz Fiber Needle Punched Mat is needled together of quartz fiber carding wool mat that is composed of chopped strands (filament diameter 7 μ m).

Application

- Industrial furnace insulation.
- Aircraft engine insulation.
- Glass furnace heating up and repairs.
- Ceramic fibers or asbestos replacement
- Thermal insulation in optical fiber manufacturing.

QARTZ FIBER NEEDLE PUNCHED MAT



CQDJ	QUARTZ FIBER NEEDLE PUNCHED MAT	THICKNESS (mm)
C	QMN	2-25

Product Designation	Thickness (mm)	Areal Weight(g/m ²)	Density (kg/m ³)	Filament Diameter (μ m)	Dimension: length×width	Air permeability (m/s)
Z/QMN	2-25	(200-1000) \pm 10%	100-180	7-9	25X1050	15.0-40.0

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QUARTZ FIBER WET-LAID MAT

Introduction

Quartz Fiber Wet-laid Mat is made of randomly distributed wet quartz fiber chopped strands held together by designed binders into mat. Except same properties as glass fiber wet-laid mat, quartz fiber wet-laid mat also have the typical the quartz fiber properties, such as heat insulation, wave transmission, etc. Mainly used in composite for surface moulding and polishing.



CQDJ	QUARTZ FIBER WET-LAID MAT	THICKNESS(mm)	WIDTH(mm)
C	QMW	0.03-0.12	50-2500

Designation	Data	Areal weight (g/m ²)	Thickness(mm)	Tensile strength(N/50m m)	Wetting out speed(s)	Water content (%)	LOI (%)	Comment
Z/QMWH30		30	0.03	≥20	≤10	≤0.50	≤10	Hand lay up
Z/QMWH50		50	0.05	≥30	≤20			
Z/QMWF30		30	0.03	≥25	≤10			Filament winding
Z/QMWF50		50	0.05	≥40	≤16			
Z/QMWP90		90	0.09	≥100	/			Pultrusion
Z/QMWP105		105	0.11	≥110	/			

Introduction

Quartz Fiber Filter is made by high purity fine quartz fiber.

Properties

- High purity:use pure fine quartz fiber as raw material.
- No adhesive and additive content.
- Resistance to acidic gases and used in high temperature environment.
- Gas retention ratio not less than 99.95%.
- Extremely low heavy metal content and background values

CQDJ	QUARTZ FIBER FILTER	SHAPE
C	QFP	ROUND RECTANGLE



Application

- Emission control in industrial smokestacks with isokinetic probes
- Gravimetric calculations in gases
- Suitable for sampling of different flows and collection of pollutant from air in higher temperature, humidity and acidic condition, such as sulphate, nitrate and phosphate, etc.
- Trace element analysis
- Air sampling and monitoring of exhaust fumes
- Used as ideal filter for measurement of PM2.5, PM10 and TSP sampling such as mass concentration of PM2.5 and PM10, heavy metal, PAH, PCB, Dioxin, etc.

Designation	Dimension(mm)	Shape	Package(p/box)	Thermal Resistance	Remark
Z/QFP25	φ:25	ROUND	25/100	500-900	Other dimensions are available.
Z/QFP47	Φ:47				
Z/QFP90	φ:90				
Z/QFP102	φ:102				
Z/QFP110	φ:110				
Z/QFP150	φ:150				
Z/QFP250X200	250X200	RECTANGLE			
Z/QFP400X300	400X300				

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Introduction

Quartz Fiber Filter Cartridge is made by high purity fine quartz fiber. Quartz fiber cartridge can be applied up to 900°C high temperature, and its conical shape matched much better with opium pipe. With the property of wear resistance, quartz fiber filter cartridge is able to avoid negative values during gas sampling process, suitable well for sampling of stationary source, solvent extraction and high temperature digestion. Quartz fiber filter cartridge is also used for collection of heavy metal, sulphate and toxicant in the exhaust fumes, such as Pd, Cd, As, PAH, BaP, Dioxin, Asphalt smoke, etc..

QUARTZ FIBER FILTER CARTRIDGE



CQDJ	QUARTZ FIBER FILTER CARTRIDGE
C	QFC

Designation	Z/QFCφ32x120mm		Z/QFCφ25x90mm			Z/QFCφ28x70mm	
Weight	2.0±0.2g		1.2±0.1g			1.0±0.2g	
Applying temperature	500°C—900°C						
Background values	SiO ₂	Fe ₂ O ₃	Al ₂ O ₃	CaO	MgO	K ₂ O	Na ₂ O
	57.12	0.36	14.66	16.53	3.36	0.16	0.36
Drag force (air flow rate: 20L/min)	14-16mmHg		16-18mmHg			18-20mmHg	
RWL	The ratio of weight loss is not more than 0.2%, baking from 60 minutes to 120 minutes at the actual temperature.						
Collection efficiency	>99.99% (Oil Mist: to 0.3μm Oil Mist Particle)						

Introduction

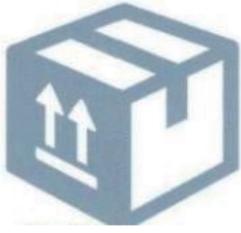
Quartz Fiber Textile&Combination Products are designed specially for professional application. Mainly used for thermal protection system (Air craft engine nozzle, nose cone and wing of vehicle, engine hot components) and wave transmission system (antenna window).

Textile type	Fiber Volume Fraction	Textile Thickness	Combination Textile Density	Normal Spacing	Thread count(cm)	Strength
3D Orthogonality Textile	45%(Adjustable)	Custom-made	1.60-1.75g/cm ³	4-5mm	8-15/(Adjustable)	Different for different factories.
Sutured multilayered textile	45%(Adjustable)		1.60-1.75g/cm ³	4-5mm	Same as the original fabric	





PACKAGE
&
STORAGE



QUARTZ FIBER SERIES

Quartz Fiber Series production, is designed specially for different customers, please contact us for more information



STORAGE

Unless otherwise specified, glass fiber and quartz fiber series products should be stored in cool and dry area. The products must be remained in packaging material until just prior to use. It is suggested to keep the temperature (15-35 °C) and humidity (35-65%) stable.

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