

High Strength Glass Fiber



HS2 & HS4 high strength glass fibers made from the magnesium alumina silicate glass system meeting the needs of military application have been developed and put into volume production Since 70's & 90's last century respectively. Compared with E glass fiber, they exhibit 30-40% higher tensile strength, 16-20% higher modulus of elasticity, 10 folds higher fatigue resistance, 100-150 °C higher temperature endure, also they have excellent impact resistance because of high elongation to break, high ageing & corrosion resistance, quick resin wet-out properties. HS4 glass has reached the standard of S-2 & R glass.

High strength glass fiber Properties

Physics properties	HS2	HS4	E
Virgin fiber tensile strength(MPa)	4020	4600	3140
Modulus of elasticity (GPa)	82.9	86.4	73
Density (g/cm ³)	2.54	2.53	2.54
Elongation to break	4.9%	5.3%	4.8%

Textile yarns

Style No.	Tex no.	Twist turns(TPM)	breaking strength
SC8—12X1	12±1.2	55	≥7 N
SC8—24X1	24±2.4	55	≥14N
SC8—24 1X2	48±4.8	55	≥26N
SC8-24 1X3	72±7.2	55	≥45N
SC8-28 1X4	110±11	100	≥70N

Multi-ends Roving

Style no.	Breaking strength	Compatible resins
SC8-240	>120 N	Epoxy, polyester, Vinly ester , phenolic. etc
SC8-480	>200 N	
SC-660	>297 N	
SC-960	>350 N	
SC-1200	>540 N	
SC-2400	>1080 N	



S-glass (HS2 & HS4 & HS6) Roving Technical Data Sheet

DESCRIPTION & SPECIFICATION : S-glass Roving with Epoxy Bases Sizing Technical Data Sheet			
S-GLASS FIBER MODEL	S-GLASS (R-GLASS)		
S-GLASS FIBER SPECIFIC	HS2	HS4	HS6
S-GLASS ROVING DENSITY (g/cm ³)	2.54	2.53	2.52
S-GLASS LINEAR DENSITY (tex)	400, 600, 660, 800, 1200, 2400	400, 600, 660, 800, 1200, 2400	400, 600, 660, 800, 1200, 2400
S-GLASS FILAMENT DIAMETER (um)	11-24	11-24	11-24
ORIGINAL S-GLASS ROVING TENSILE STRENGTH (MPa)	>4100	>4600	>4800
EPOXY PREPREG S-GLASS ROVING TENSILE STRENGTH (MPa) ASTM 2343	3000 ~ 3400	3200 ~ 3600	3600 ~ 4000
TENSILE MODULUS (GPa) ASTM 2343	87-91	90-94	92-96
BREAKING ELONGATION (%)	5.3	5.3	5.7
SOFTENING POINT (°C)	910	940	960
THERMAL EXPANSION COEFFICIENT	3.4	3.3	3.3
LOSS ON IGNITION (%)	0.5-1.1	0.5-1.1	0.5-1.1
MOISTURE CONTENT (%)	<0.2	<0.2	<0.2
COMPATIBLE RESIN SYSTEM	Epoxy, Phenolic	Epoxy, Phenolic	Epoxy, Phenolic
BOBBIN NET WEIGHT (KG)	6	6	6
LENGTH PER BOBBIN (M)	5000	5000	5000
PALLET NET WEIGHT (KG)	880	880	880

High Strength Fiberglass Fabric

we can provide the high strength fiberglass direct-sized fabrics which can be compatible with epoxy, polyester resins.

Typical specifications of the fabrics.

Style no.	thickness (mm)	Breaking strength (N/25mm)		weight (g/m ²)	Compatible resins	Weave style
		longitudinal	latitude			
SW80B-90b	0.08	500	500	80	polyester	2/2twill
SW100A-90a	0.10	550	550	100	epoxy	plain
SW100A-100a	0.10	550	550	100	epoxy	plain
SW110C-90a	0.11	600	600	110	epoxy	4H satin
SW140B-90a	0.14	900	900	140	epoxy	2/2twill
SW140C-90a	0.14	900	900	140	epoxy	4Hsatin
SW180D-90a	0.18	1200	1200	180	epoxy	\
SW200C-90a	0.20	2300	400	200	epoxy	4HSsatin
SW210B-92a	0.21	1600	1350	210	epoxy	2/2twill
SW210A-92a	0.21	1600	1350	210	epoxy	plain
SW220B-90a	0.22	1900	1600	240	epoxy	2/2twill
SW220C-90a	0.22	2000	1600	240	epoxy	4HSsatin
SW220D-90a	0.22	2000	1600	240	epoxy	5HSatin
SW220B-90b	0.21	1900	1600	240	polyester	2/2twill
SW220C-90b	0.21	1900	1600	240	polyester	4HSsatin
SW280F-90a	0.25	2000	1700	280	epoxy	8HS
SWR260-100	0.24	1850	1400	260	epoxy	Woven roving
SWR480-100	0.48	3000	3000	480	epoxy	Woven roving
SA120-100	0.34	>2800Mpa		414	epoxy	Uni directional
SA083-100	0.24	>2800 Mpa		288	epoxy	Uni directional

HS glass fiber woven roving

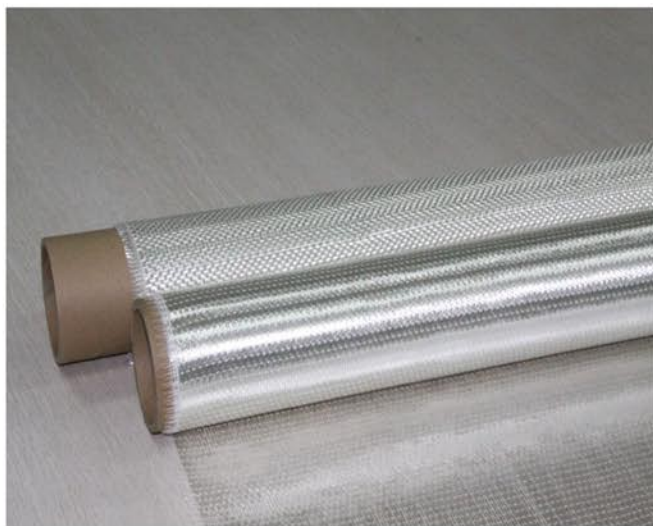
High strength fiberglass roving by hot-set ,weaving or stitching process can be fabricated to unidirectional fabric, woven roving or stitched fabric.

Unidirectional fabrics

Style no.	Type of yarns		Count (End/cm)		Weight g/m ²	Thickness mm
	Warp	Fill				
SWU414	660	Heat set	W 6.1	F 1.6	414	0.34
SWU288	660		W 4.1	F 1.6	288	0.24
SWU220	400		W 5.1	F 1.6	220	0.18
SWU173	400		W 3.9	F 1.6	173	0.14

Woven fabric for Ballistic application

Style	Yarn TEX	Count Ends/cm(in)		Breaking strength (N/25mm)	Weight	Thickness mm
SWR400	660	W3.0	F 3.0	W 2700 F2700	400g/m2	0.40
SWR800	1980	W 2.0	F2.0	W 4950 F4950	800g/m2	0.75



High Modulus Glass Fiber

High elastic modulus glass fiber(M glass fiber) made from high elastic modulus glass which has the advantage of high elastic modulus, compared with E glass fiber, the modulus is increased by 20-30%,and the tensile strength by 20-40%.

Items	M	HS4	E
(MPa) Virgin tensile strength	3700	4600	3140
(GPa) Modulus of elasticity	9160	86400	73000
Density (g/cm ³)	2.77	2.53	2.54

Specifications of M glass fiber fabric

Style	Count (ends/cm)		Thickness (mm)	width (cm)	Breaking strength N(25×200mm)		woven
	Warp	Fill			T	W	
MW-100	20	20	0.01	90	550	550	Plain
MW-100A	20	20	0.01	90	550	550	Twill
MW-150	16	12	0.15	90	1000	850	Plain
MW-160	18	14	0.16	90	1200	1000	Satin
MW-160A	16	16	0.16	90	1050	1050	Twill
MW-180	18	18	0.18	90	1200	1200	Satin
MW-180A	18	16	0.18	90	1800	1050	Plain
MW-200	16	16	0.20	90	1600	1600	Twill
MW-200C	16	16	0.20	90	2000	450	Twill
MW-210C	16	12	0.21	90	1500	1200	Plain
MW-210	20	10	0.21	90	2450	350	Twill
MW-220	18	14	0.22	90	1800	1500	Twill
MW-280	28	10	0.28	90	3400	350	Satin

Application :

Aerospace aviation defense : radome, antenna

Sport and recreation : pole vaulter; racing boats, parallel bars, rackets

Power industry : operable pole

High Silica Glass Fiber

High silica fiberglass yarns & cordage

High silica glass fiber is the high temperature endure inorganic material fiber which composition made of 96% SiO_2 , it has good temperature & corrosion resistance, insulation, dielectric properties. long term working temperature reach more than 900°C ,

Specification of high silica glass fiber

Linear density	90	220	380	475	570	760	855
	10	15	19	24	29	38	43
Breaking strength $\geq$ N	15	35	40	50	60	80	90
nominal diameter(mm)	0.2	0.4	0.6	0.7	0.8	1.0	1.1

Low Dielectric Loss Glass Fiber

Low dielectric fiber(D glass fiber)has low density,low dielectric constant and low dielectric loss.It is an ideal reinforcement for making light weight and high performance radar masks with high wave permeability and wide frequency band and Print Circuit Board.

Specification of the low dielectric loss glass fiber

Items	D_3	D_K
Density g/cm^3	2.30	2.30
Strength of virgin filament(MPa)	≥ 2600	≥ 2600
Elastic modulus(GPa)	>55	>55
Dielectric constant $22^\circ\text{C } 1010\text{Hz}$	≤ 4.5	≤ 5.0
Dielectric loss $22^\circ\text{C } 1010\text{Hz}$	<0.0035	<0.0035

Low Dielectric Loss fiberglass fabric

Specification		D ₃	D _K
Thickness mm		0.21	0.21
Weight g/cm ²		200	200
Breaking strength N/100X25	warp	>=1350	>=1450
	Fill.	>=1000	>=1050