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UltraMax

A culture of innovative technical fabrics

**An architectural membrane with extraordinary flexural strength,
and a fluorine mixture surface that insures long-term dirt resistance**

UltraMax

Ultra Flexural Strength

UltraMax was created using a base fabric woven with spun yarn.
When the fuzzy surface of spun yarn is impregnated with a PVC Paste-Gel,
a three-dimensional bonding of the PVC resin occurs, resulting in an
architectural fabric that exhibits extraordinary flexural strength.

Main Features

- Remarkable weatherability
- Lasting aesthetic appearance
- Easy to clean
- Width (1.03m & 2.03m)
- REACH compliant
- 5 & 8 year warranty

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Application

- Tent warehouse
- Roof structures
- Tension structures
- Awning

Retractable Storage Facilities - Japan

in Korea

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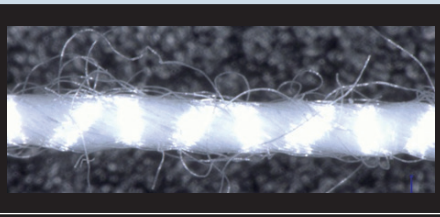
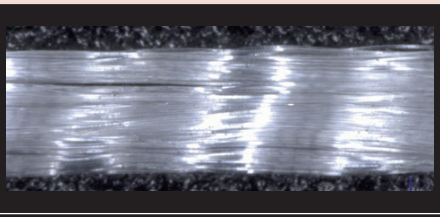
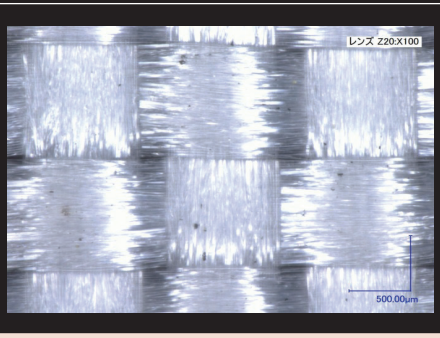
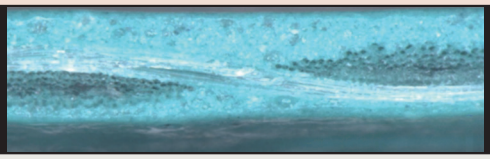
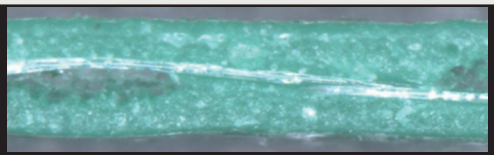
Magnified photograph of base fabric

100x Magnification

	Spun Yarn (UltraMax)	Filament Yarn (Conventional Fabric)
Base Fabric Magnified		
Base Fabric Surface		
	The base fabric surface is fuzzy	The base fabric surface is flat

Cross-sectional view of base fabrics

200x Magnification

	Dipped in PVC Paste (UltraMax)	Bonding Results
Spun yarn base fabric		The resin and fuzzy filaments on the base fabric inter-twine and bond securely
Filament yarn base fabric	Coated with PVC (Conventional Fabric)  Laminated with PVC film (Bonding result on other tarpaulin) 	The resin and base fabric are only bonded on the surface

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Flexibility Resistance Test Results

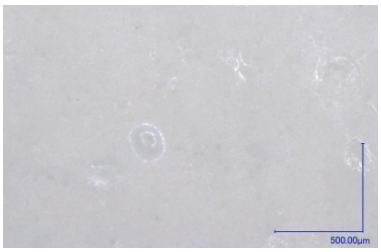
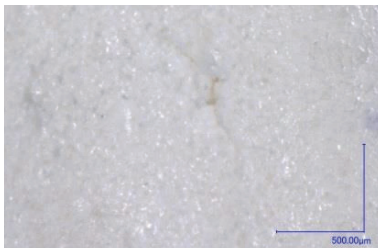
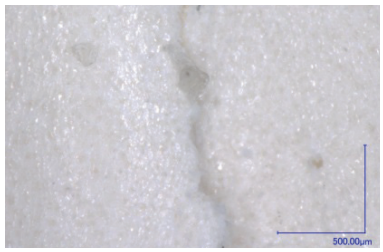
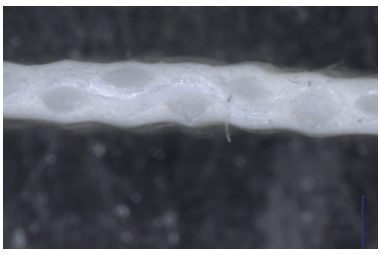
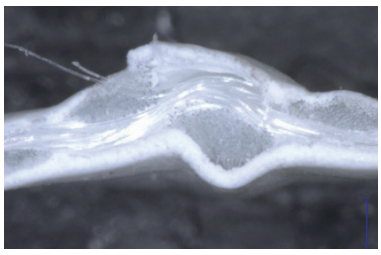
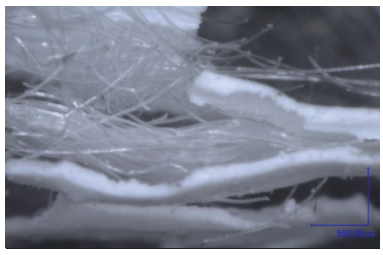
Comparative Test Results

※ All base fabric testing was conducted using the front side of the fabric

✓ : Good △ : Bad ✗ : Worst

Temperature	Samples	Flexing/Bending frequency			
		10,000 Times	20,000 Times	50,000 Times	100,000 Times
20℃	**UltraMax**	✓	✓	✓	✓
	Architectural Fabric "F"	✓	△	△	✗
	Other Tarpaulin	✓	△	△	✗
0℃	**UltraMax**	✓	✓		
	Architectural Fabric "F"	△	✗		
	Other Tarpaulin	✗	✗		
-5℃	**UltraMax**	✓	✓		
	Architectural Fabric "F"	✗	✗		
	Other Tarpaulin	✗	✗		

Magnified photograph of fabric after testing

	✓ : Good	△ : Bad	✗ : Worst
	UltraMax 20℃ 100,000 Times	Architectural Fabric"F" 20℃ 50,000 Times	Architectural Fabric"F" 20℃ 100,000 Times
Surface (150x Magnification)	No scratches or cracks	Small scratches visible to the naked eye	Large cracks visible to the naked eye
			
Cross-section (100x Magnification)	No scratches or cracks	Small warping visible	Considerable warping visible
			

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UltraMax Colors

Width 1.03m (24 Colors)


U-16 USUGAKI

U-31 USUKI

U-18 SHIRONERI


U-19 HAI


U-20 SUMI


U-21 GINNEZUMI


U-22 NAMARI


U-32 KACHI


U-01 KONJYO


U-02 RURI


U-03 SORA


U-26 YANAGINEZUMI


U-04 AOTAKE


U-06 TETSU


U-07 TOKUSA


U-08 SEIHEKI


U-09 MIDORO


U-10 NAE


U-11 NANOHANA


U-13 AKANE


U-12 SYOJYOHI


U-30 SHINSYO


U-27 EBICHA


U-28 KURENAI

Width 2.03m (5 Colors)

U-18 SHIRONERI


U-19 HAI


U-22 NAMARI


U-04 AOTAKE


U-07 TOKUSA

UltraMax Type C Colors

Width 1.03m (5 Colors)


U-01 KONJYO


U-09 MIDORO

U-18 SHIRONERI


U-19 HAI


U-21 GINNEZUMI

Width 2.03m (2 Colors)

U-18 SHIRONERI


U-19 HAI

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UltraMax Physical Properties

Test Items		Test Method	Unit	Measurement
Width		ASTM D 751	mm	1030 / 2030
Total Mass		ASTM D 751	g/m^2	560
Thickness		ASTM D 751	mm	0.47
Tensile Strength (Cut Strip)	Warp	ASTM D 751	N/5cm	2613
	Fill			2205
Tear Strength (Singletongue)	Warp	JIS L 1096 Method A	N	88
	Fill			98
Adhesion		ASTM D 751	N/5cm	50
Resistance to Water Absorption	Warp	MSAJ/M-03-2003	mm	0
	Fill			0
Resistance to Water Penetration		JIS L 1092	mm	≥1000
Temperature Resistance		MSAJ/M-03-2003	℃	-25 / +60
Flame Retardancy		JIS L 1091		Class3
		JIS A 1322		Class2

The above data reflects average measured values.

UltraMax TypeC Physical Properties

Test Items		Test Method	Unit	Measurement
Width		ASTM D 751	mm	1030 / 2030
Total Mass		ASTM D 751	g/m^2	680
Thickness		ASTM D 751	mm	0.55
Tensile Strength (Cut Strip)	Warp	ASTM D 751	N/5cm	2613
	Fill			2205
Tear Strength (Trapezold)	Warp	ASTM D 751	N	137
	Fill			147
Adhesion		ASTM D 751	N/5cm	50
Resistance to Water Absorption	Warp	MSAJ/M-03-2003	mm	0
	Fill			0
Resistance to Water Penetration		JIS L 1092	mm	≥1000
Temperature Resistance		MSAJ/M-03-2003	℃	-25 / +60
Flame Retardancy		JIS L 1091		Class3
		JIS A 1322		Class2

The above data reflects average measured values.

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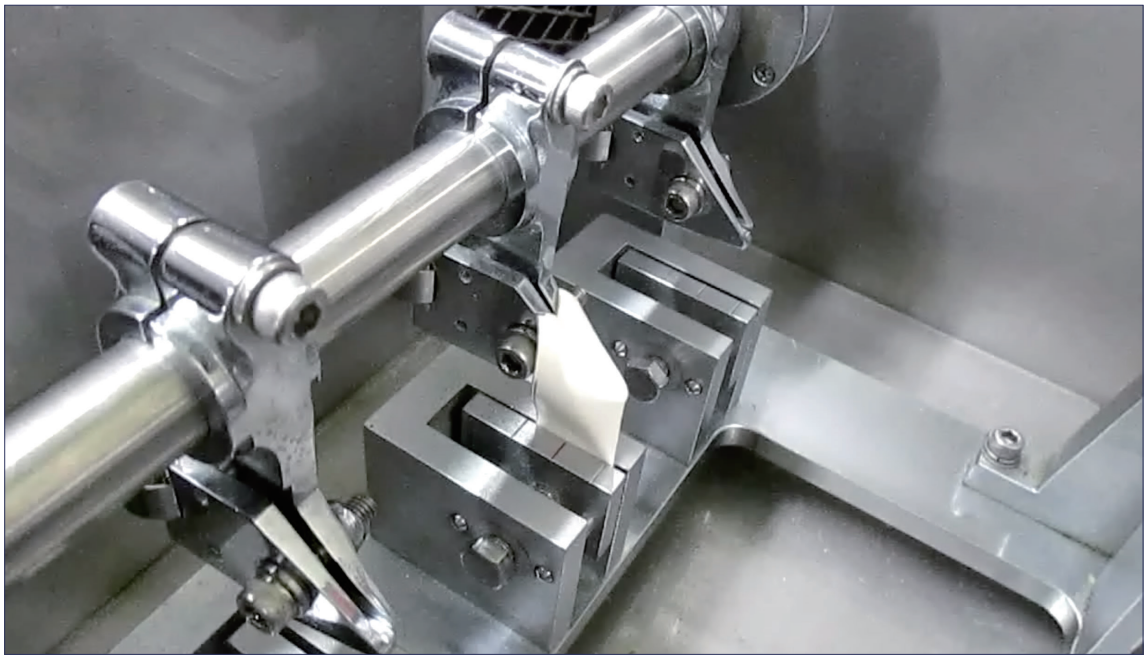
FLEXOMETER – Testing equipment



Test Method: JIS K 6545-1994

Hiraoka... the *Pioneer of Tent Fabrics since* 1902

Hiraoka's innovative production techniques and processing technology have elevated the level of Tent Fabric standards worldwide. Our application of high quality polymer coatings to various textiles has created specialized membranes for countless applications. Years of expertise, research and experience have enabled us to meet the ongoing demands of our consumers and the global community.

When Hiraoka commenced business in 1902, we scoured and dyed cotton and hemp products. Today, our mission is to design and develop an extensive range of products that reflect our customer's changing demands and the environments in which we live. Currently, we supply a wide range of creative membrane fabrics, including specialized materials for architectural structures, to clients all over the world.

ACCREDITATION

Our ISO 9001 compliant Quality Management System ensures absolute quality, consistency and customer satisfaction. Our business systems are accredited by the United Kingdom Accreditation Service (UKAS).

ISO 9001 JQA-QMA14551 UKAS MANAGEMENT SYSTEMS 091

CERTIFICATION

We offer clients the professional services of an in-house team of registered, practising engineers. This certification of quality ensures that all international standards are met.

SUSTAINABILITY

We proudly support many ecological initiatives. Our Research & Development Division continues to produce newer and greener products.

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