

ALKEX INTRODUCTION



ALKEX



creativity inspired **HYOSUNG**



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(STAPLE FIBER, SPUN YARN, AIR-TEXTURED YARN)

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1. YARN
2. TWISTED YARN
3. OTHER

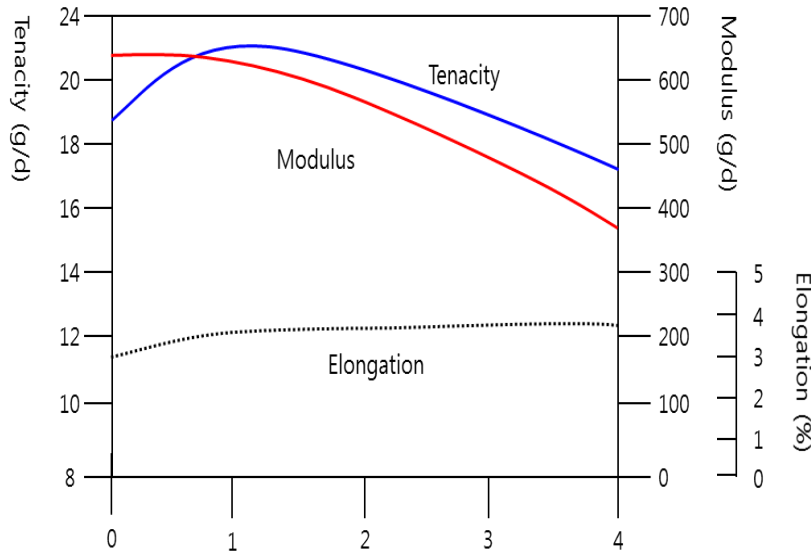
(STAPLE FIBER, SPUN YARN, AIR-TEXTURED YARN)

III. TEST CONDTION

Type			LOT	Linear Density	Filament count	Elongation at break	Breaking Tenacity		Breaking Strength		Modulus	
				Denier	fila.	%	MPa	g/d	N	kgf	GPa	g/d
AF 1000	200 Den	220dtex	A021	203±10	134	2.8±0.5	2923±254	23.0±2.0	45±3.9	4.6±0.4	102±19	800±150
	300 Den	330dtex	A031	304±15	134	3.0±0.5	2923±254	23.0±2.0	69±5.9	7.0±0.6	97±9	760±70
	400 Den	440dtex	A041	405±20	267	3.2±0.5	2923±254	23.0±2.0	91±7.8	9.3±0.8	93±9	730±70
	840 Den	930dtex	A081	850±40	665	3.4±0.5	2923±254	23.0±2.0	196±20	19.6±1.7	86±9	680±70
	1000 Den	1100dtex	A101	1010±50	665	3.5±0.5	2923±254	23.0±2.0	226±20	23.2±2.0	86±10	680±80
	1500 Den	1670dtex	A151	1520±60	1000	3.7±0.5	2923±254	23.0±2.0	343±29	35.0±3.0	70±7	550±50
	2250 Den	2500dtex	A221	2280±80	1000	3.8±0.5	2923±254	23.0±2.0	510±49	52.0±5.0	71±10	560±80
	3000 Den	3300dtex	A301	3040±100	2000	3.9±0.5	2923±254	23.0±2.0	686±59	70.0±6.0	74±11	580±90
AF 2000	400 Den	440dtex	H041	405±20	267	3.5±0.5	3432±254	27.0±2.0	108±10	10.9±0.8	92±9	720±70
	840 Den	930dtex	H081	850±40	665	3.5±0.5	3432±254	27.0±2.0	226±20	23.0±1.7	89±9	700±70
	1000 Den	1100dtex	H101	1010±50	665	3.6±0.5	3432±254	27.0±2.0	265±20	27.3±2.0	89±9	700±70
	1500 Den	1670dtex	H151	1520±60	1000	3.7±0.5	3432±254	27.0±2.0	402±20	41.0±3.0	89±9	700±70

* Measured at twist level : 1.1 TM

Type			Twist	Linear Density	Filament count	Elongation at break	Breaking Tenacity		Breaking Strength		Modulus	
				Denier	fila.	%	MPa	g/d	N	kgf	GPa	g/d
AF 1000	1000 Den	1100dtex	Z90	1010±50	665	3.5±0.5	2859±254	22.5±2.0	223±20	22.7±2.0	86±10	680±80
	1000 Den	1100dtex	Z120	1010±50	665	3.5±0.5	2859±254	22.5±2.0	223±20	22.7±2.0	86±10	680±80
	1500 Den	1670dtex	Z90	1520±60	1000	3.8±0.5	2796±254	22.0±2.0	328±29	33.4±3.0	77±10	610±80
	1500 Den	1670dtex	Z120	1520±60	1000	3.8±0.5	2796±254	22.0±2.0	328±29	33.4±3.0	77±10	610±80
AF 2000	840 Den	930dtex	Z90	850±40	665	3.5±0.5	3368±254	26.5±2.0	221±20	22.5±2.0	89±9	700±70



$$TM = \frac{tpi \times \sqrt{denier}}{73}$$

** TM : Twist Multiplier

*** tpi : Twist per inch

* Effext of Twist on Properties of 1500den (1670dtex) ALKEX® Yarn

i . STAPLE FIBER

Type		Length	Linear Density	Breaking Tenacity		Breaking Strength		Elongation at break	Number of Crimp	Moisture Content
		mm	Denier	MPa	g/d	N	gf	%	ea/inch	%
1.5 Den (1.67dtex)	38mm	38±4	1.5±0.2	2160±381	17±3	255±39	26±4	3.3±0.5	6±2	< 9
	51mm	51±5	1.5±0.2	2160±381	17±3	255±39	26±4	3.3±0.5	6±2	< 9
	64mm	64±6	1.5±0.2	2160±381	17±3	255±39	26±4	3.3±0.5	6±2	< 9
2.25 Den (2.5dtex)	38mm	38±4	2.25±0.3	2542±381	20±3	441±69	45±7	3.8±0.5	6±2	< 9
	51mm	51±5	2.25±0.3	2542±381	20±3	441±69	45±7	3.8±0.5	6±2	< 9
	64mm	64±6	2.25±0.3	2542±381	20±3	441±69	45±7	3.8±0.5	6±2	< 9

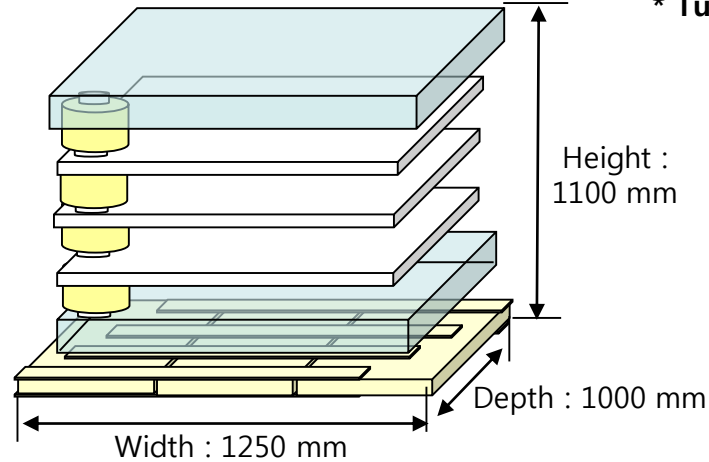
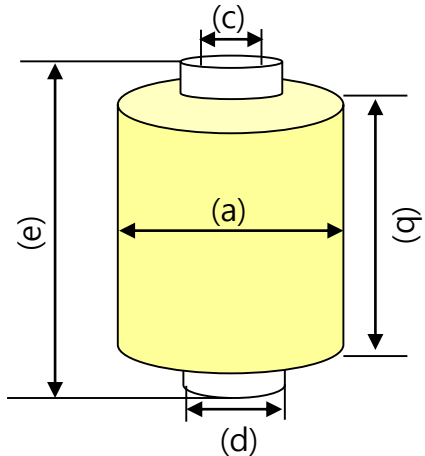
ii. SPUN YARN

Yarn Type	Yarn Count	Breaking tenacity		Breaking strength		Elongation at break	Single-Twist ('s/1)	Multi-Twist ('s/n)
	Ne	MPa	g/d	N	kgf	%	Twist/inch	Twist/inch
20's/2	10±1.5	Min. 1144	Min. 9.0	Min. 47	Min. 4.8	3.6±0.5	13.0±0.9	7.3±0.7
30's/3	10±1.5	Min. 953	Min. 7.5	Min. 39	Min. 4.0	4.7±0.5	9.2±0.7	11.2±1.1

iii. AIR-TEXTURE YARN

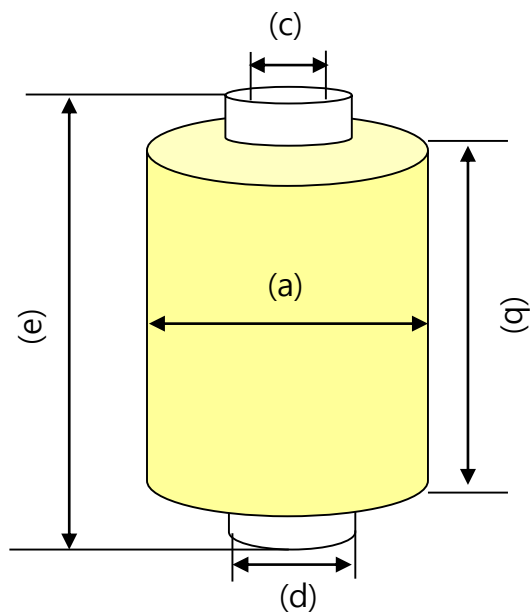
Yarn Type		Linear density	Breaking strength		Elongation at break	Modulus	
		Denier	N	kgf	%	GPa	g/d
840 Den	930dtex	890±25	98±10	10.0±1.0	3.6±0.5	42±6	330±50

Yarn			LOT	Bobbin			Tube			Number of Bobbins	Net Weight
Type	Linear Density			Weight	Diameter (a)	Stroke (b)	I.D (c)	O.D (d)	Length (e)		
				(kg)	(mm)	(mm)	(mm)	(mm)	(mm)		
AF-1000	200 Den	220dtex	A021	2	154	194	94	104	216	100	200
	300 Den	330dtex	A031	2	154	194	94	104	216	100	200
	400 Den	440dtex	A041	3.2	182	194	94	104	216	100	320
	840 Den	930dtex	A081	5	210	194	94	104	216	80	400
	1000 Den	1100dtex	A101	5	215	194	94	104	216	80	400
				7	244	194	94	104	216	64	448
				9	270	194	94	104	216	48	432
	1500 Den	1670dtex	A151	5	216	194	94	104	216	80	400
				7	244	194	94	104	216	64	448
2250 Den	2500dtex	A221	5	217	194	94	104	216	80	400	
3000 Den	3300dtex	A301	7	253	194	94	104	216	64	448	
AF-2000	400 Den	440dtex	H041	2	160	194	94	104	216	100	200
	840 Den	930dtex	H081	5	210	194	94	104	216	80	400
	1000 Den	1100dtex	H101	5	215	194	94	104	216	80	400
	1500 Den	1670dtex	H151	5	216	194	94	104	216	80	400

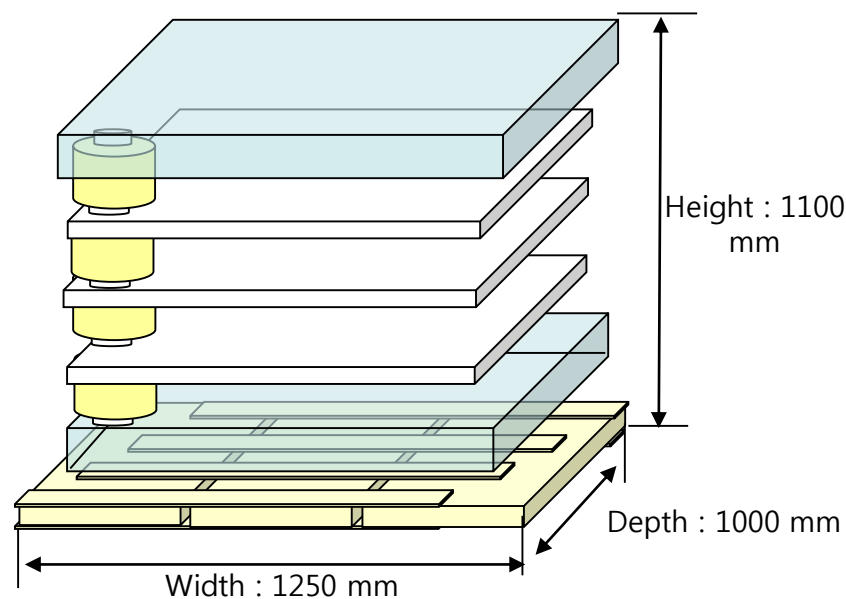


* Tube : Cylindrical Paper Tube

Yarn			Bobbin			Tube			Number of Bobbins	Net Weight
Type	Linear Density		Weight	Diameter (a)	Stroke (b)	I.D (c)	O.D (d)	Length (e)		
			(kg)	(mm)	(mm)	(mm)	(mm)	(mm)		
AF-1000	1000 Den	1100dtex	5	204	250	94	104	290	60	300
			7	230	250	94	104	290	60	420
	1500 Den	1670dtex	5	204	250	94	104	290	60	300
			7	230	250	94	104	290	60	420
AF-2000	840 Den	930dtex	5	198	250	94	104	290	75	375

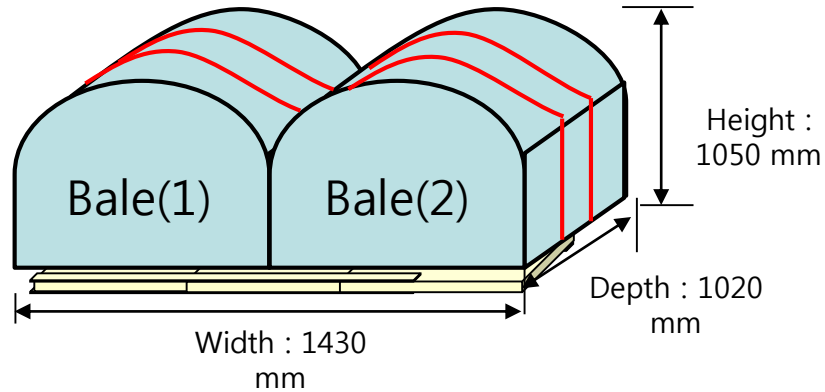


* Tube : Cylindrical Paper Tube



i. STAPLE FIBER

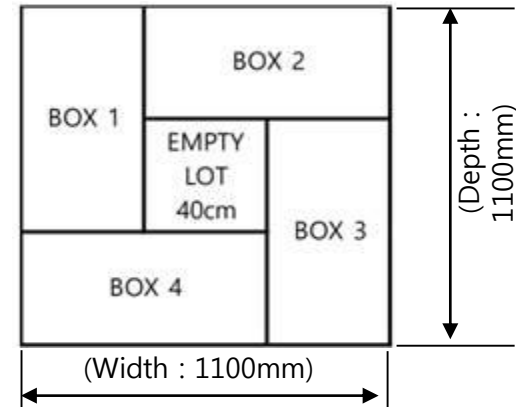
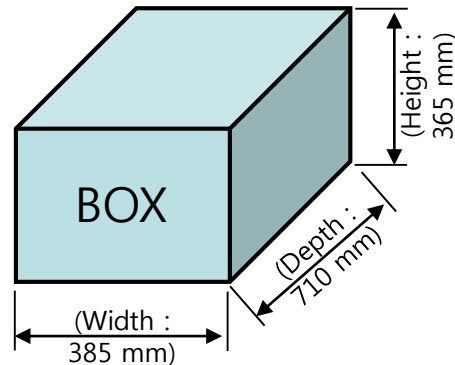
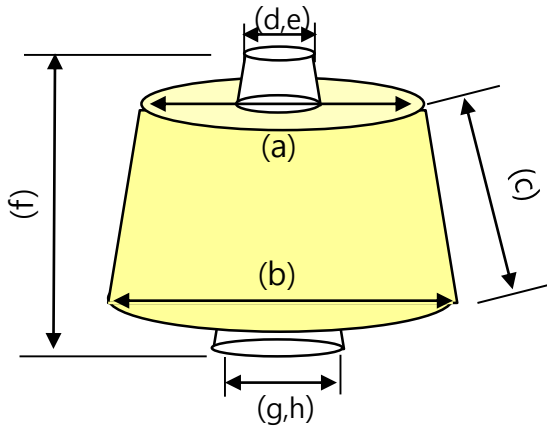
Type	Number of Bale	Net Weight (per bale)
	(EA)	(kg)
1.5, 2.25 Den	2	250~256



ii. SPUN YARN

* Tube : Conical Paper Tube

Type	Bobbin				Tube (Top)			Tube (Bottom)		Box		Pallet	
	Weight	Diameter (Top) (a)	Diameter (Bottom) (b)	Stroke (c)	I.D (d)	O.D (e)	Length (f)	I.D (g)	O.D (h)	Number of Bobbins	Net Weight (per Box)	Number of Box	Net Weight (per pallet)
	(kg)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(EA)	(kg)	(EA)	(kg)
20'/2, 30'/3	1.4175	165	190	155	30	38	175	60	66	8	11.34	20	226.8

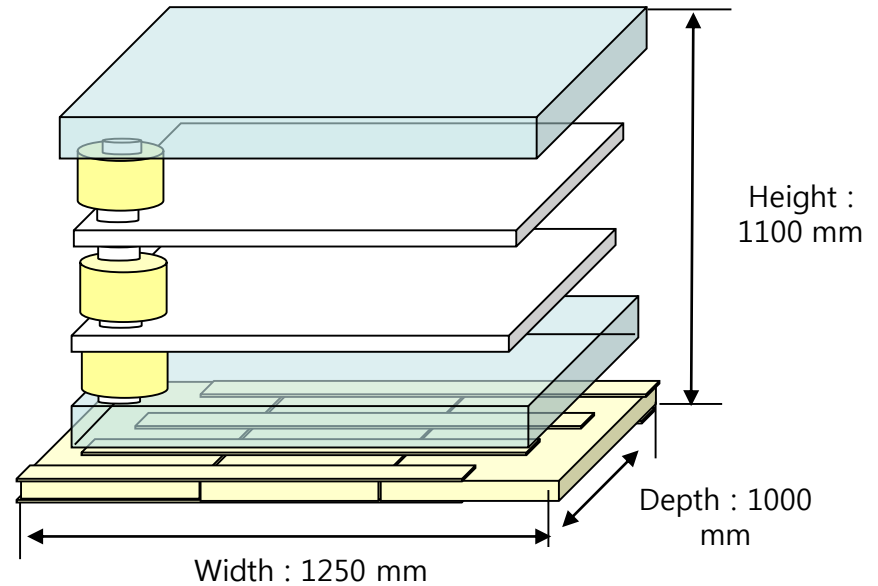
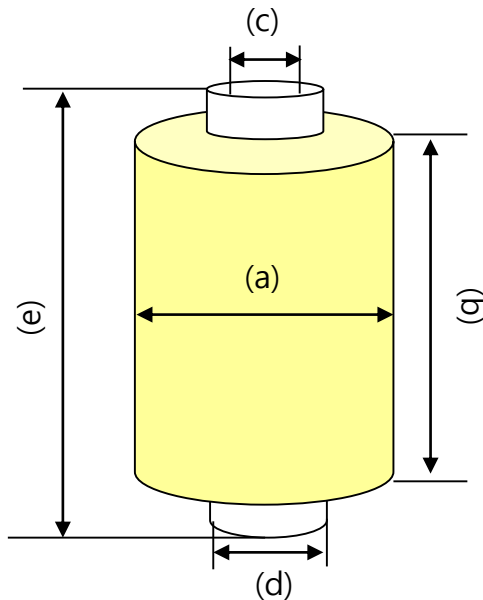


*Height : 1950 mm
(5 Layers)

iii. AIR-TEXTURE YARN

Type		Bobbin			Tube			Number of Bobbins	Net Weight
		Weight	Diameter(a)	Stroke (b)	I.D (c)	O.D (d)	Length (e)		
		(kg)	(mm)	(mm)	(mm)	(mm)	(mm)	(EA)	(kg)
840 Den	930dtex	2.5	180	250	68	75	280	100	250

* Tube : Cylindrical Paper Tube



[Hyosung Tensile Test Condition]

- (1) Equipment : Instron 5566 (Load cell Capa. : 5kN)
- (2) Method : ASTM D7269
- (3) Test condition
 - Gauge length : 250mm
 - Test speed : 200mm/min
 - Pre-Load : 0.2gf/d
 - Atmosphere → Temp. : 20±2°C, RH : 65±5%
 - Twist condition (ASTM D7269)

Linear density	Twist
dtex	tpm
180-240	230
240-380	190
380-500	160
500-650	140
650-775	125
775-1050	110
1050-1400	95
1400-2100	80
2100-4500	60
4500-7000	45
7000-9500	35
9500->	30

Instron 5566



Pneumatic Cord and Yarn Grips 2714-040



- Bollard type
- Rated capacity: 2 kN (200 kgf, 450 lbf)
- Selection of clamping surfaces for conventional, **Aramid** or UHMWPE materials



Thank you !