

Surface Fastener  
Bell-Touch

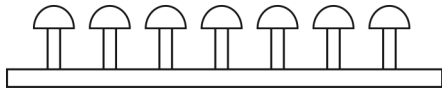
Product Information

Shinwa Co.

**伸和株式会社**

# Bell-Touch, a Surface Fastener

## 1. Mushroom Type (Side A)



Material

Mushroom - Polypropylene  
Foundation cloth - Nylon

### (1) Mushroom Type products

Product type	Product #	Characteristics
Standard type	1H2	Mushroom Type standard product
Standard type	HS2	Mushroom Type (PP200)
High-frequency adhesion type	1H2R	Can be attached to soft polyvinyl with high frequency waves, ultrasound and welders
Flame resisting type	1D2S	Complies with the FMVSS-302 (Federal Motor Vehicle Safety Standards) Passed the test of JIS D1201(Road vehicles: Determination of burning behaviour of interior materials)
Flame resisting type	1H2LD	Approved by the burning quality test for rolling stock (5-498K) Complies with the FMVSS-302 (Federal Motor Vehicle Safety Standards)
Chemical resistant type	1P2	Acid and alkaline resistant (PP 100%)
Special type	1H2HR-4	For civil construction
Special type	BL-600	Lining tape for artificial grass(PP thread 600D)
Special type	BL-1300	Lining tape for artificial grass(PP thread 1300D)
Special type	BL-3000-7	Lining tape for artificial grass(PP thread 3000D)
Special type	BL-3000-12	Lining tape for artificial grass for high pile
Special type	PPNR-1300	Mixed fabric of nylon and PP thread

(2) Product form

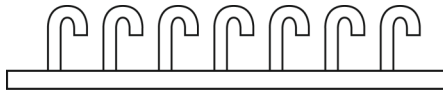
Width	Standard width	16, 20, 25, 50, 100, 250, 500 m/m
	Special width	Width adjustable by 1m/m from 16 to 500m/m Minimum lot(m)= $\frac{\text{Width of original piece goods (500)}}{\chi\text{m}} \times 40\text{M}$ $\chi\text{mm in width}$
Length	Standard length	40m Adhesive products: 20m Special products: 25m

**2. Hook Type (Side A)**

Material

Hook - Nylon

Foundation fabric - Nylon



(1) Hook Type products

Product type	Product number	Characteristics
Standard type	1K2L	Hook Type standard product Passed the test of JIS D1201(Road vehicles: Determination of burning behaviour of interior materials)
High-frequency adhesion type	1K2LR	Can be attached to soft polyvinyl with high frequency waves, ultrasound and welders
Flame resisting type	1K2LD	Complies with Federal Aviation Regulations FAR25-853(b) Appendix F Approved by the burning quality test for rolling stock (5-498K) Complies with the FMVSS-302 (Federal Motor Vehicle Safety Standards)
Soft type	1K2LX	Hook soft type

(2) Product form

Width	Standard width	16, 20, 25, 50, 100, 160 m/m
	Special width	30, 38, 120 m/m
Length	Standard length	20m (160m/m in width, 40m)

**3. Loop Type (Side B)**      Material: Nylon

(2) Loop Type products

Product type	Product number	Characteristics
Standard type	2W3L	Loop Type standard product Passed the test of JIS D1201(Road vehicles: Determination of burning behaviour of interior materials)
High-frequency adhesion type	2W3LR	Can be attached to soft polyvinyl with high frequency waves, ultrasound and welders
Flame resisting type	2W3LD	Complies with Federal Aviation Regulations FAR25-853(b) Appendix F Approved by the burning quality test for rolling stock (5-498K) Complies with the FMVSS-302 (Federal Motor Vehicle Safety Standards)

(2) Product form

Width	Standard width	16, 20, 25, 50, 100, m/m
	Special width	30, 38, m/m
Length	Standard length	20m

**4. Napping Type (Side B)**      Material: Nylon

(2) Napping Type products

Product type	Product number				Characteristics
Standard type	2A3	2W3LN	2K3	BF2	Can be attached to soft polyvinyl with high frequency waves, ultrasound and welders
Flame resisting type	2D3	-	-	-	Complies with the FMVSS-302 (Federal Motor Vehicle Safety Standards)
Chemical resistant type	2P3	-	-	-	Acid and alkaline resistant (PP 100%)

(2) Product form

Width	Standard width	16, 20, 25, 50,100 m/m
	Special width	Width adjustable by 1m/m from 16 to 1000m/m Minimum lot(m)= $\frac{\text{Width of original piece goods}}{\chi\text{m}} \times 40\text{M}$ $\chi\text{mm in width}$
Length	Standard length	20m (Loop type) (including 2W3LN and 2K3) 40m (others)

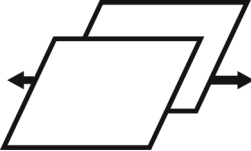
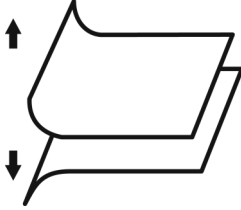
**5. Special products**

C Type	Coated on the back with acrylic-based adhesive (temporary adhesive)
NC Type	Coated on the back with rubber-based adhesive (regular type)
UC Type	Coated on the back with rubber-based adhesive (strong type)
UCUS	Slip resister with rubber-based adhesive coated on artificial leather
UCFR	Drip stopper with rubber-based adhesive coated on flock fabric
MGV	Binding band with sides A and B attached Width: 22m/m, 44m/m Length: 20m
HS Type	For adhesion with iron to textile products

\* Caution for use: Do not use rubber-based adhesives on soft polyvinyl.  
Temperatures for use of rubber-based adhesives are as follows.  
NC: ordinary temperature UC: 50°C or below

## References

### Adhesive strength according to JIS-L-3416-88

Type	Combination	Pull shear strength N/cm <sup>2</sup> 〈kgf/cm <sup>2</sup> 〉	Peel strength N/cm 〈kgf/cm〉	JIS symbols
25m/m in width				
Mushroom Effective width 〈25〉 〈L=25〉	1H2-2A3	33.7 〈3.44〉	6.00 〈0.61〉	MN2
	1H2-BF2	31.4 〈3.20〉	3.77 〈0.38〉	MN2
Hook type Effective width 〈21〉	1K2L - 2W3L	8.5 〈0.87〉	1.03 〈0.11〉	HL2
	1K2L - 2W3LN	11.1 〈1.13〉	1.87 〈0.19〉	HN2
	1K2L - 2K3	9.0 〈0.92〉	2.28 〈0.23〉	HN2
	1K2L - BF2	9.3 〈0.95〉	1.26 〈0.13〉	HN2
	1K2L - 2A3	10.5 〈1.07〉	1.49 〈0.15〉	HN2

### Retention rate of adhesive force (%)

Mushroom type	Number of repetition	Approx. 80% after 500 times
Hook type	Number of repetition	Approx. 80% after 3,000 times

## Color fastness

Items	JIS standard	Mushroom Type	Hook Type	Loop Type	Napping Type
Color fastness against sunlight	JIS-L-0842	Grade 4 and above	Grade 4 and above	Grade 4 and above	Grade 4 and above
Color fastness against friction	JIS-L-0849	Grade 4 and above	Grade 4 and above	Grade 4 and above	Grade 4 and above
Color fastness against hot water	JIS-L-0845	Grade 4 and above	Grade 4 and above	Grade 4 and above	Grade 4 and above
Color fastness against perspiration	JIS-L-0848	Grade 4 and above	Grade 4 and above	Grade 4 and above	Grade 4 and above
Color fastness against washing	JIS-L-0844A-2	Grade 4 and above	Grade 4 and above	Grade 4 and above	Grade 4 and above
Color fastness against dry-cleaning	JIS-L-0860	Grade 4 and above	Grade 4 and above	Grade 4 and above	Grade 4 and above

## Heat/Cold durability

Items		Mushroom Type	Hook Type	Loop Type	Napping Type
Heat durability	60 minutes in environmental temperature of 120°C	No abnormalities detected	No abnormalities detected	No abnormalities detected	No abnormalities detected
Cold durability	5 hours in environmental temperature of -30°C	No abnormalities detected	No abnormalities detected	No abnormalities detected	No abnormalities detected

**Adhesive strength (tested according to JIS-L-3416-88)**

9.81N = 1kgf  
N = 0.102kg f = 102gf

Combination	Width (Effective width)	Pull shear strength			Peel strength			JIS
		Kg	N/cm <sup>2</sup>	Kgf/cm <sup>2</sup>	Kg	N/cm	Kgf/cm	Type
1H2 - 2A3 (L=2.5cm)	16(16)	14.7	36.1	3.68	1.03	6.32	0.64	MN2
	20(20)	18.1	35.5	3.62	1.26	6.18	0.63	
	25(25)	21.5	33.7	3.44	1.53	6.00	0.61	
1H2 - BF2 (L=2.5cm)	16(16)	13.7	33.6	3.43	0.67	4.11	0.42	MN2
	20(20)	16.8	33.0	3.36	0.82	4.02	0.41	
	25(25)	20.0	31.4	3.20	0.96	3.77	0.38	
1K2L - 2W3L	16(12)	6.5	10.6	1.08	0.18	1.47	0.15	HL2
	20(16)	8.4	10.3	1.05	0.19	1.16	0.12	
	25(21)	9.1	8.5	0.87	0.22	1.03	0.11	
	50(46)	19.3	8.2	0.84	0.39	0.83	0.09	
	100(95)	45.3	9.4	0.96	0.96	0.99	0.10	
1K2L - 2W3LN	16(12)	8.7	14.2	1.45	0.27	2.21	0.23	HN2
	20(16)	9.8	12.0	1.23	0.34	2.08	0.21	
	25(21)	11.9	11.1	1.13	0.40	1.87	0.19	
	50(46)	23.9	10.2	1.04	0.81	1.73	0.18	
	100(95)	50.2	10.3	1.05	1.69	1.75	0.18	
1K2L - 2K3	16(12)	7.8	12.8	1.30	0.36	2.94	0.30	NH2
	20(16)	8.7	10.7	1.09	0.44	2.70	0.28	
	25(21)	9.6	9.0	0.92	0.49	2.28	0.23	
	50(46)	21.5	9.2	0.94	0.99	2.11	0.22	
	100(95)	45.0	9.3	0.95	2.31	2.38	0.24	
	160(153)	72.9	9.3	0.95	3.78	2.42	0.25	
1K2L - BF2	16(12)	7.9	12.9	1.32	0.20	1.63	0.17	HN2
	20(16)	9.8	12.0	1.22	0.24	1.47	0.15	
	25(21)	10.0	9.3	0.95	0.27	1.26	0.13	
	50(46)	20.8	8.9	0.90	0.46	0.98	0.10	
	100(95)	41.0	8.5	0.86	0.95	0.98	0.10	
	160(153)	63.9	8.2	0.84	1.45	0.93	0.10	
1K2L - 2A3	16(12)	7.6	12.4	1.26	0.23	1.88	0.19	HN2
	20(16)	8.9	10.9	1.11	0.26	1.59	0.16	
	25(21)	11.2	10.5	1.07	0.32	1.49	0.15	
	50(46)	19.8	8.5	0.87	0.53	1.13	0.12	
	100(95)	40.5	8.4	0.86	1.01	1.04	0.11	
	160(153)	61.0	7.7	0.79	1.57	1.00	0.10	



Durability (25m/m in width 1Shear strength, tested according to JIS-L-3416-88)

Combination	1K2L-2W3L		1K2L-2K3		1K2L-BF2	
	①	②	①	②	①	②
1000	8.0	0.81	7.6	0.79	8.5	0.87
2000	7.6	0.77	7.4	0.75	7.8	0.79
3000	7.3	0.75	7.2	0.73	7.8	0.79

Unit  
 ① N/cm<sup>2</sup>  
 ② kgf/cm<sup>2</sup>  
 ③ L=2.5cm

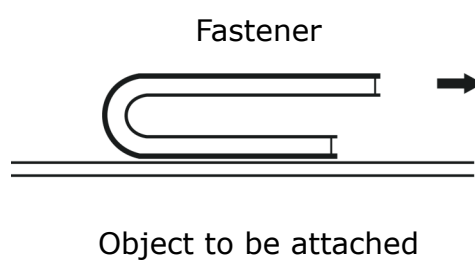
Combination	1K2L-2A3		1H2-2A3 ③		1H2-BF2 ③		1K2L-2W3LN	
	①	②	①	②	①	②	①	②
500	-	-	32.7	3.34	30.5	3.11	-	-
1000	9.9	1.01	30.7	3.13	28.6	2.92	8.9	0.89
2000	9.5	0.97	-	-	-	-	8.1	0.83
3000	9.3	0.95	-	-	-	-	7.2	0.74

## Bell-Touch Adhesive Type

### 1. 180°Peel strength (JIS-Z-1524)

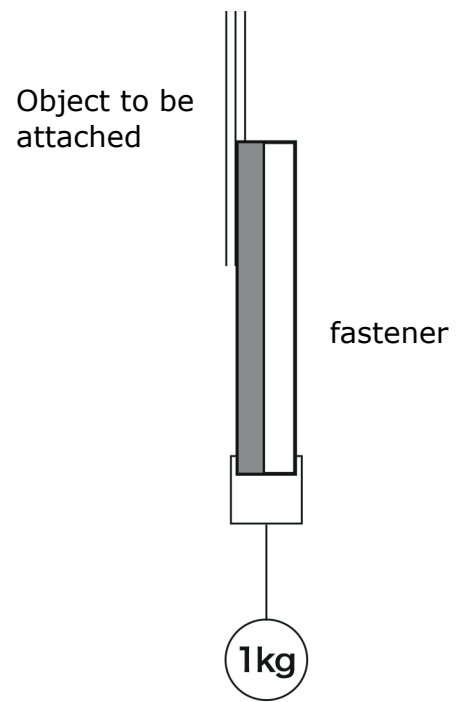
Bell-Touch Object to be attached	1C2 1K2LCA	2C3 2W3LCA	1H2NC	2A3NC	1K2LUC	2W3LUC
stainless steel	1.9	1.8	3.0	3.2	5.9	5.2
polyethylene	0.5	0.6	2.0	2.1	3.7	3.0
polypropylene	0.5	0.6	2.2	2.2	5.2	4.3
hard polyvinyl	1.8	1.6	3.3	3.9	5.4	4.6
aluminum	1.7	1.4	2.9	3.3	5.8	5.0
polyester	0.9	1.2	2.9	2.9	5.5	4.8
polystyrene	1.1	1.4	3.1	3.8	5.8	5.0
ABS resin	0.8	1.0	2.8	2.7	4.1	3.2
acryl	1.6	1.6	3.5	3.7	6.3	5.4

(Unit: kg 25mm in width)



## 2. Holding power

Measured temperature	5°C	20°C	40°C
Bell-Touch			
1C2, 1K2LCA	1.5	(7)	(5)
2C3, 2W3LCA	0	0	(12)
1H2NC	0	0	0
2A3NC	0	0	0
1K2LUC	0	0	0
2W3LUC	0	0	0



(Area of adhesive surface: 25×25mm) Unit: mm

Inside the parenthesis: infall velocity/minute

(The values are measured figures, not guaranteed figures.)

## Bell-Touch HS Assembly type

### 1. Peel strength (JIS-L-3416)

(9.81N=1Kgf)

Item number	1K2LHS(25mm in width)			2W3LHS(25mm in width)		
	Kg	N/cm	gf/cm	Kg	N/cm	gf/cm
Cotton	3.0	11.8	1200	3.0	11.8	1200
Wool	2.0	7.8	800	2.0	7.8	800
Nylon	4.0	15.7	1600	4.0	15.7	1600
Polyester	2.5	9.8	1000	2.5	9.8	1000

### Note

1. Peel strength varies according to the processing methods of textiles onto which Bell-Touch is attached. (Ex: water repellent finish)
2. When attaching with an iron, the temperature and the time required varies according to the type of fibers, thickness, etc. of the textiles. Please make sure to attach under appropriate conditions.
3. Do not dry-clean with perchloroethylene solvent  
(Washing test JIS-L-0217)

## **Instructions for Use of UC Type Bell-Touch with Adhesive**

### How to store

1. Put them in cardboard boxes etc. and store in a place where direct sunlight can be avoided.
2. The UC type is for use in areas with high temperatures; do not store in cold places, but in a room with a temperature of 15°C or above. (Please note that if left in a place with temperature of 10°C or below for 1 to 2 days, the surface tack (adhesiveness) will weaken, and it will take time to revitalize even if the room temperature is raised.)

### Caution for use

1. Do not attach UC Type to soft polyvinyl, rubber, or objects that contain plasticizers.
2. Please wipe away oil, moisture, mold release agents and dusty particles etc. from the surface of the objects with dry cloth etc.
3. The adhesive is pressure-sensitive, so please apply adequate pressure when attaching UC Type to objects.
4. It takes some time before the true adhesive force of the adhesive is brought out. After adhesion, please refrain from storing/using in a way that exerts strong pressure for a few hours.
5. The attachment procedure of Bell-Touch with adhesives can be best conducted in a room temperature of 20°C or above.
6. During winter, temperatures drop; depending on the place of storage and work environment, the adhesive force will largely decrease. In such a case, leave the product in an environmental temperature of 20°C or more for a long time, or warm them quickly with hot plates, dryers, infrared lamps etc. in order to recover the adhesive force before further use.