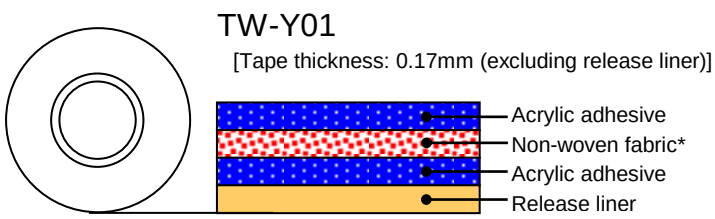
Double coated adhesive tape

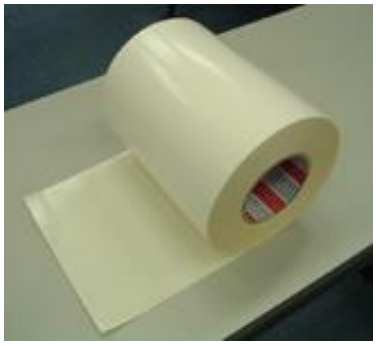
TW-Y01

Outline

Nitto TW-Y01 is a double-coated adhesive tape consisting of acrylic adhesive that has superior initial adhesion with a flexible non-woven fabric.
TW-Y01 is ideal for bonding of various substrates such as metal, plastic, foam and vinyl leather.

Structure





* "Non-woven fabric" is classified under a law called Customs Act of Fixed Rate Chapter 48 "Paper and paperboard; articles of paper pulp, of paper or of paperboard".

Features

- Excellent bonding performance to metal, various plastic material such as polypropylene, and foam such as polyurethane and polyethylene.
- High tack and superior initial adhesion.
- 10 restricted substances by RoHS are not contained.

Application

- Bonding of sealing tape and cushioning foam.
- Bonding of automobile interior material such as leather.

Standards Size

Tape thickness (mm)	Widths (mm)	Length (m)
0.17	3 － 1,200	50

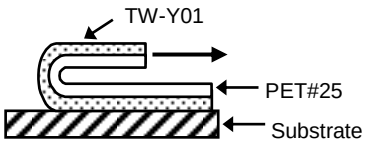
※For details, please contact one of our sales representative.

Properties

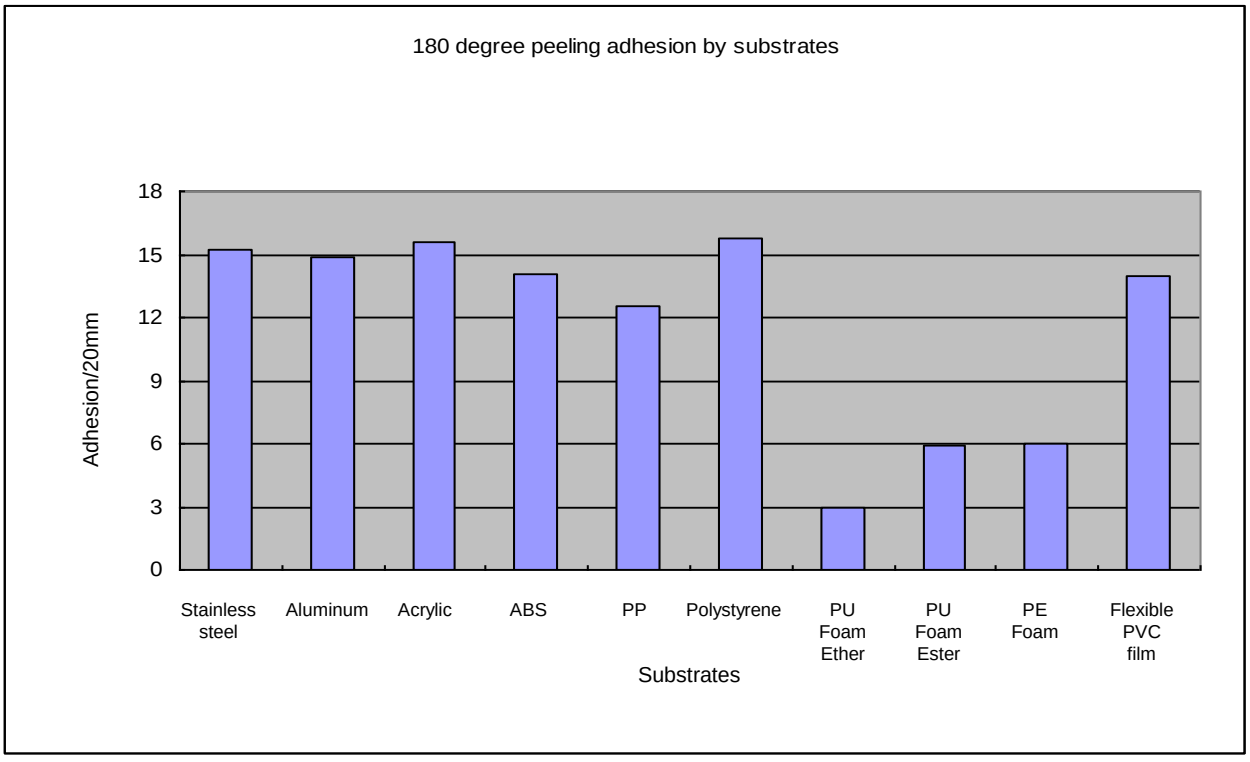
- 180 degree peeling adhesive strength by substrates

Substrate	TW-Y01
Stainless steel plate	15.2
Aluminum plate	14.9
Acrylic plate	15.6
ABS plate	14.1
PP plate	12.5
Polystyrene plate	15.8
Polyurethane foam (Ether)	3.0*
Polyurethane foam (Ester)	5.9*
Polyethylene foam	6.0
Flexible PVC film	14.0

(Unit: N/20mm)
Tape area: 20mm
Lining material: PET#25
Pressing condition:
1 pass back and forth with 2 kg roller at 23degreeC/50%RH
Applying condition:
23degreeC/50%RH x 30 min
Peeling speed: 300mm/min
Peeling angle: 180 degree
Measurement temperature: 23 degree C/50%RH



* Foam destruction



- 180 degree peeling adhesion by temperatures

Temperature	TW-Y01
0 degree C	16.9
10 degree C	15.8
23 degree C	15.2
40 degree C	13.7
60 degree C	12.2
80 degree C	11.6

(Unit: N/20 mm)
Substrate: Stainless steel plate
Sample width: 20mm
Lining material: PET #25
Pressing condition:
1 pass back and forth with a 2 kg roller at 23degreeC/50%RH
Applying condition:
Measurement temperature x 30min
Peeling speed: 300 mm/min
Peeling angle: 180 degree
Measurement temperature:
0, 10, 23, 40, 60, 80 degree C

- 180 degree peeling adhesion by pressure

Pressing bonding	TW-Y01
0.1 kg roller	14.0
0.5 kg roller	14.6
2 kg roller	15.2
5 kg roller	15.5

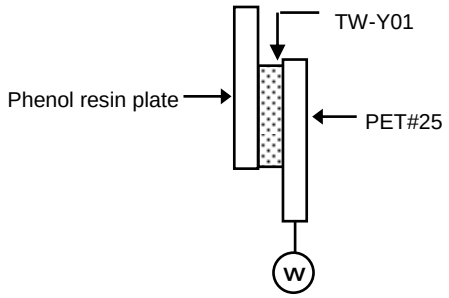
(Unit: N/20 mm)
Substrate: Stainless steel plate
Lining material: PET #25
Pressing condition:
1 pass back and forth with a 0.1kg, 0.5kg, 2kg, 5kg roller at 23degreeC/50%RH
Applying condition:
23 degree C/50%RH x 30min
Peeling speed: 300 mm/min
Peeling angle: 180 degree
Measurement temperature: 23 degree C/50%RH

- Holding power

Temperature	TW-Y01
40 degree C	1.0
80 degree C	1.8

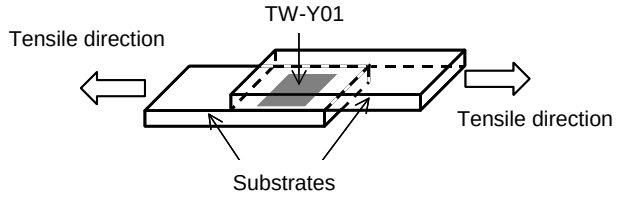
(Unit: mm/hr)
Substrate: Phenolic resin plate
Pressing temperature: 23 degree C/50%RH
Applying condition:
Measurement temperature x 30min
Measurement temperature: 40, 80 degree C
Application area: 20 mm x 10 mm
Load: 4.9N(500g)
Loading time: One hour

〈Test method〉



- Shear strength

Substrate	TW-Y01
23 degree C	480

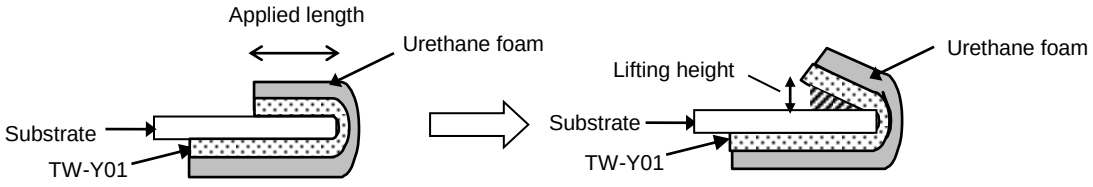


(Unit: N/20mmx20mm)
Tape area: 20mm x 20mm
Substrate:
Stainless steel plate / Stainless steel plate
Pressing method: 49N load x 10 sec.
Pressing temperature: 23 degree C/50%RH
Applying condition:
23 degree C/50%RH x 30min
Measurement condition: 23 degree C/50%RH
Peeling speed: 50mm/min

- Repelling resistance to urethane foam

	Substrate	Applied length	TW-Y01
Polyurethane foam (Ether)	ABS plate	10mm	1.2
		20mm	0.9
	PP plate	10mm	1.3
		20mm	1.0
Polyurethane foam (Ester)	ABS plate	10mm	2.2
		20mm	0.9
	PP plate	10mm	1.7
		20mm	1.3

(Unit: mm)
Urethane foam: Ether, Ester
Urethane foam thickness: 10mm
Substrate: ABS plate, PP plate
Pressing condition:
Bond one side of the tape to foam at room temperature and press firmly with a hand roller. And bond the other side of the tape to each substrate one pass back and forth with a 2kg roller.
Measurement method:
After pressing, leave the sample for 24 hrs at 23 degree C, measure the lifting height after putting it into an oven at 70 degree C for 2 hrs.



- 180 degree peeling adhesive strength after applying
  - Initial increasing performance (1)

Temperature	Time	TW-Y01
23degreeC	30 min	15.2
	4 hours	15.5
	12 hours	16.6
	24 hours	17.1
	72 hours	17.2

(Unit: N/20mm)
Substrate: Stainless steel plate
Sample width: 20mm
Lining material: PET #25
Pressing condition:
1 pass back and forth with a 2 kg roller at 23degreeC/50%RH
Applying condition:
23 degreeC/50%RH x 30 min, 4 hrs, 12 hrs, 24 hrs, 72 hrs
Peeling speed: 300 mm/min
Peeling angle: 180 degree
Measurement temperature: 23degreeC/50%RH

- 180 degree peeling adhesive strength after applying
  - Aging for a long period（2）

Conditions		TW-Y01
Initial (23degreeC/50%RH x 30 min)		15.2
-30 degree C x 30 days		31.3
80 degree C	1 day	20.9
	7 days	24.8
	14 days	25.0
	30 days	25.4
40 degree C /92%RH	14 days	15.6
	30 days	15.8
60 degree C/90 %RH x 30 days		29.8
Heat shock [100 cycles]*1		30.5
Heat cycle [40 cycles]*2		25.2

(Unit: N/20mm)
Substrate: Stainless steel plate
Backing material: PET#25
Pressing condition:
1 pass back and forth with a 2kg roller at 23 degree C/50%RH
Application condition: See the left table
Peeling speed: 300 mm/min
Peeling angle: 180 degree
Measurement temperature: 23degreeC/50%RH

*1: Heat shock condition

[-40 degreeC x 30min <->90 degreeC x 30min] x 100 cycles

*2: Heat cycle condition

[-20degreeCx6hr->(1hr)->60degreeC/95%RHx6hr->(1hr)->] x 40 cycles

Precautions when using

- Remove all oil, moisture and dirt from the surface of the substrate before applying.
- Since the tape is pressure-sensitive adhesive, be sure to apply enough pressure with a roller or press when applying. Otherwise it might be affected to its properties and appearance.
- The tape may not adhere well to extremely uneven or distorted surfaces. Enough Leveling off the surface should be required before applying.
- It takes certain time to get full adhesive strength after applying, keep away the tape from any stress for a several hours after applying.

Precautions when storing

- Please be sure to keep the tape in its box when not using.
- Please keep in a cool and dark place away from direct sunlight.

Safety precautions

● Make sure the product is suitable for the application (objective and conditions) before attempting to use. The tape may come off depending on the substrate to which it is applied or conditions under which it is applied. ● Use in combination with another method of joining if there is possibility of an accident.

Published in March 2019