



 **NITTO DENKO**  
**PRODUCT INFORMATION**

Ref. No.

**DOUBLE-COATED ADHESIVE TAPE No.554**  
- For Industrial Use -

1. Outline

NITTO industrial double-coated adhesive tape No.554 consists of a special flexible foam uniformly coated on both faces with a high adhesion pressure-sensitive adhesive. This tape is best useful for fixing large mirrors and plates.

2. Construction

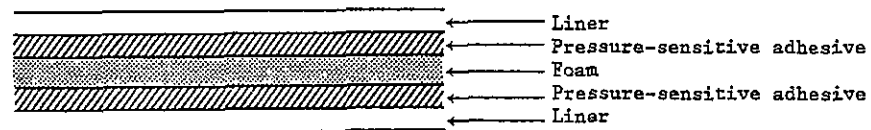


Fig. 1

3. Features

- (1) The special foam ensures higher interlaminar strength than conventional urethane foam.
- (2) Since the foam has high flexibility, the tape fits well to the insignificantly warped or rough surface.
- (3) The tape has high holding capacity and high adhesion as well as high stability.

4. Applications

- (1) Fixing of mirrors
- (2) Mounting of plates



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## 5. Standard Sizes

Table 1

Thickness (mm)	Width (mm)	Length (m)	Color	Sheets/corrugated box
3	450	1	Grey	50
5				25

\* For other sizes, please consult us.

## 6. Properties

### 6.1 Adhesion to Various Substrates

Table 2

(Unit: g/15 mm wide)

Substrate (plate)	No. 554	Competitive Item	Testing method
Stainless steel	830	410	Measurement temperature: 20°C Testing equipment: Pendulum type Schopper tensile tester Testing method: 90° peeling method Peeling speed: 300 mm/min.
Polyvinyl chloride	1,400	720	
ABS	1,220	610	
Polyester decorative laminate	980	700	
Cedar board	680	400	
Plywood	550	290	
Slate	630	380	

## 6.2 Change of Adhesion with Time

Figure 2 shows the change of adhesion when the bonded specimen is stored in condition of 20°C (normal temperature), 70°C (high temperature) and 40°C × 90%RH (high humidity). As is evident from Fig. 2, the adhesion changes least with the lapse of time during storing, and it is stable.

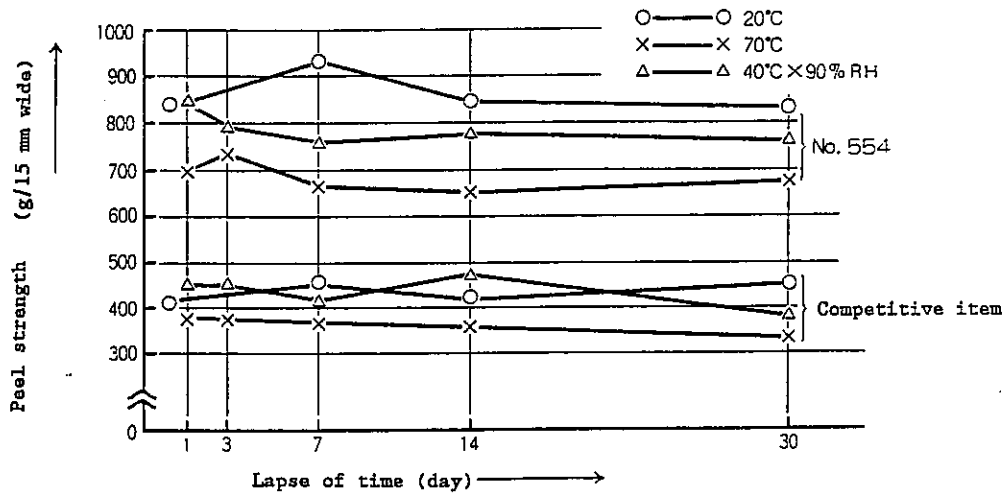


Fig. 2

Substrate:	Stainless steel plate
Storing conditions:	20°C (normal temperature), 70°C (high temperature) and 40°C × 90%RH (high humidity)
Measurement temperature:	20°C
Testing equipment:	Pendulum type Schopper tensile tester
Testing method:	90° peeling method
Peeling speed:	300 mm/min.

## 6.3 Horizontal Adhesion and Shear Strength

### (1) Horizontal adhesion

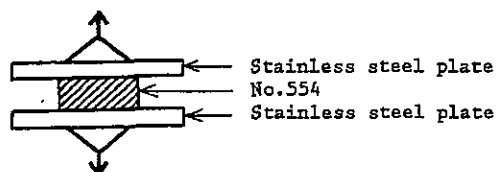


Fig. 3

### (2) Shear strength

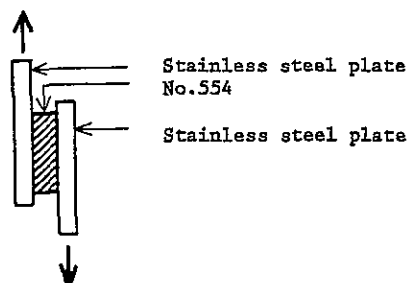


Fig. 4

Table 3

(Unit: kg/4 cm<sup>2</sup>)

Item	Sample	No. 554	Competitive item
Horizontal adhesion		10.0 <sup>a)</sup>	6.4 <sup>a)</sup>
Shear strength		9.9 <sup>a)</sup>	6.0

a) Foam fracture

Measurement temperature: 20°C  
 Sample bonding area: 4 cm<sup>2</sup>  
 Testing equipment: Pendulum type Schopper tensile tester  
 Tension speed: 250 mm/min.

## 6.4 Distortion Absorption of Substrate Surface

Table 4

Tape thickness (mm)	Sample	4-point mounting	5-point mounting	⊞-shaped mounting	⊞-shaped mounting
3	No. 554	⊙	⊙ - ○	○ - △	○ - △
	Competitive item	○ - △	⊙	△ - ×	○ - △
5	No. 554	⊙	⊙	⊙ - ○	⊙ - △
	Competitive item	⊙ - ○	○ - △	⊙ - ○	⊙ - △

Criterion:

- ⊙: No disbondment
- : Insignificant disbondment
- △: More remarkable disbondment
- ×: Most remarkable disbondment (disbondment of more than 1/3 of bonding area)

Testing method

A mirror is mounting with No.554 to the convex surface as shown in Fig. 5 (4-point mounting, 5-point mounting ⊞-shaped mounting and ⊞-shaped mounting), and mirror falling-down is observed for each type of mounting.

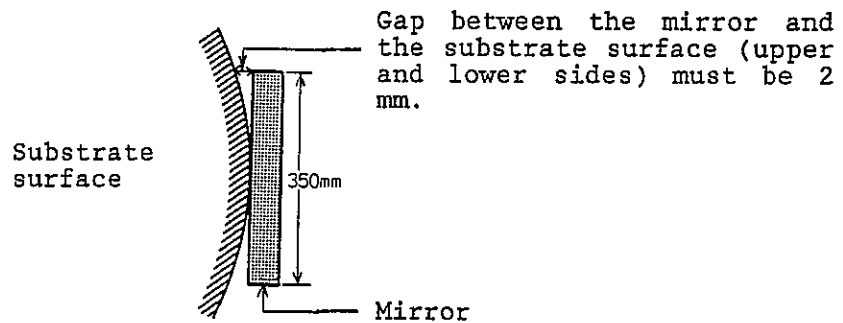


Fig. 5

Mirror size: 5 mm (thickness) × 350 mm (length) × 300 mm (width)  
 Weight of mirror: Approx. 1.3 kg  
 Thickness of sample: 3 mm, 5 mm  
 Bonding area: 1/10 of mirror, 105 cm<sup>2</sup>  
 Hatched area shown below  
 Mounting method: 4 types

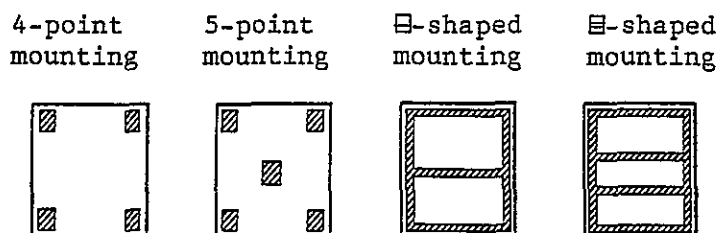


Fig. 6

### 6.5 Holding Strength

The tape No.554 has high holding capacity. For, example, in model test as shown in Fig. 7, where two stainless steel plates are bonded, the theoretical estimate formula deduced from our experiment data proves that the tape can hold a load of 160 g/cm<sup>2</sup> for one year.

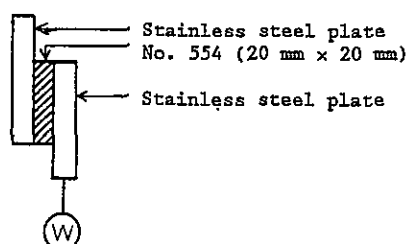


Fig. 7

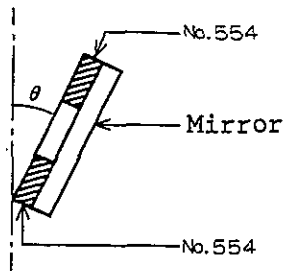
However, in practical use the mirror size, disbondment due to warp or unevenness of the substrate surface must be taken into consideration. Therefore, please refer to Table 5 showing the most important conditions when you decide the bonding area.

Table 5

Mirror thickness (mm)	Required tape area/mirror area (ratio)
5 or less	1/10
6 to 10	1/5

7. Cares when using

- (1) Remove thoroughly oil, moisture, and dust from the substrate surface.
- (2) Flatten the rough surface as far as possible.
- (3) Apply the printed surface of liner to the substrate, and apply the nonprinted surface to the mirror.
- (4) If the substrate surface is warped, it is better to use the tape of 5 mm thick.
- (5) If the substrate surface is aslant as shown in Fig. 8, the tape's holding capacity reduces remarkably.



For example; assuming that the holding capacity in condition of  $\theta = 0^\circ$  is 1, it reduces to about 1/2 at  $\theta = 5^\circ$  or to about 1/4 at  $\theta = 20^\circ$ .

Fig. 8

- (6) The tape is not applicable to rough surfaces, such as mortar, scraped-off surface, or spray-coated surface. Do not use the tape for these surfaces.
- (7) Do not use the tape for mounting to the ceiling. (However, if proper metal fixture is used to fix stably, the tape can be used for a while to hold tentatively.)

9. Cares when storing

- (1) Be sure to store the tape in the box.
- (2) Store the box in a dark cool place where direct sunlight does not affect.  
The foam color may be changed under the influence of ultraviolet rays, but its properties are not changed.

Note:

The technical data figures presented herein are typical and should not be used for any specification purposes.