

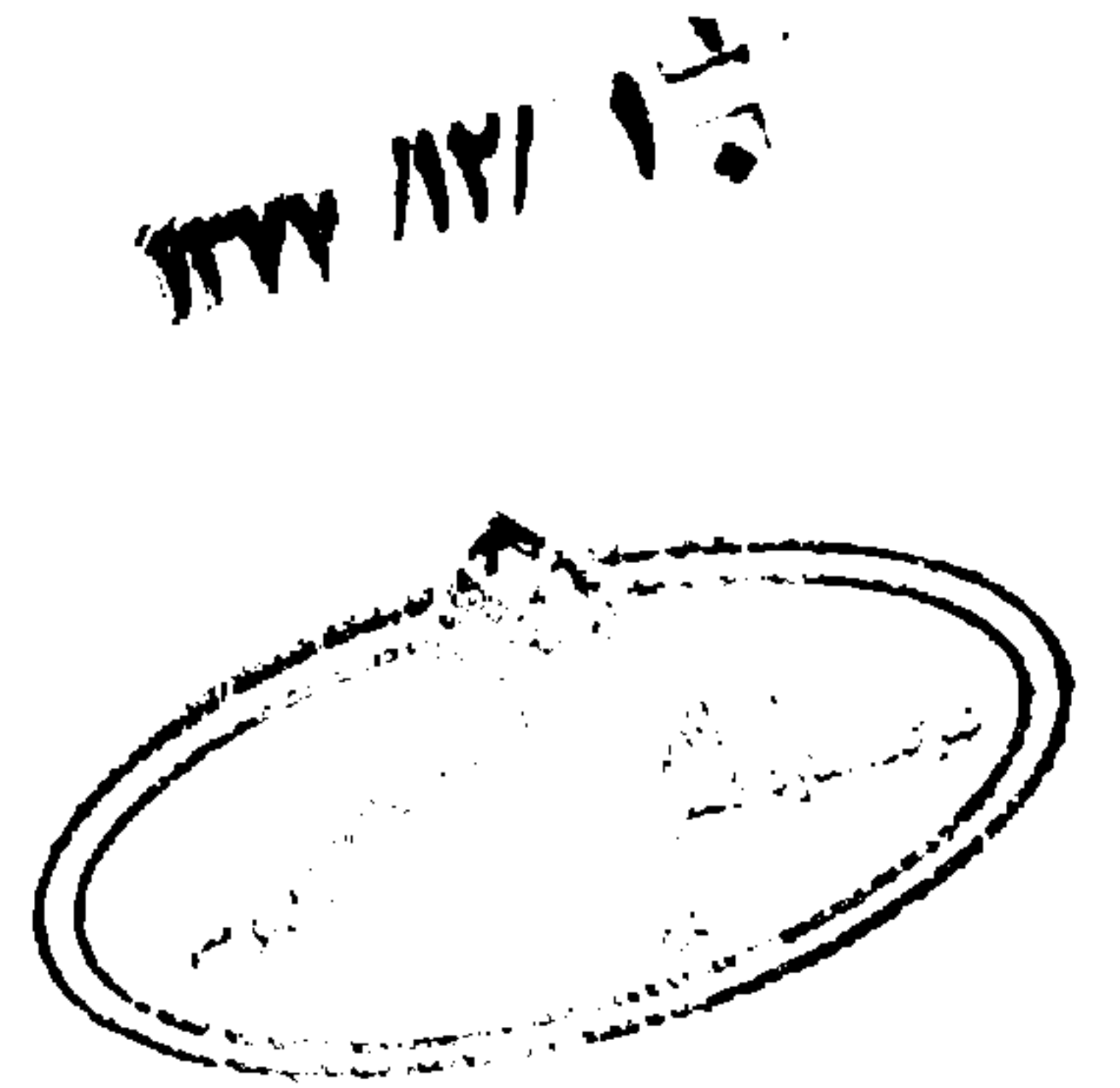
Resin Clip

KES

KES E-F004

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1. Scope of Application

This standard specifies the resin clip that is used for locating and suppressing the vibration of wiring and piping(non-metal) for automobiles (hereinafter called 'clip').

2. Type

The type of clip is as shown in Tables 1 and 3.

Table 1

Type	99277	99279	99289
Representative Configuration			
Usage	wiring	wiring, piping	wiring, piping

3. Quality

3.1 External Appearance

On the clips there shall be no such harmful defects in usage as damage, discoloration, burrs, weld marks, mismatch due to die shift and intrusion of foreign matter.

3.2 Performance

The performance of the clip shall be satisfy the performance requirements as outlined in Table 2 in the state of a complete product.

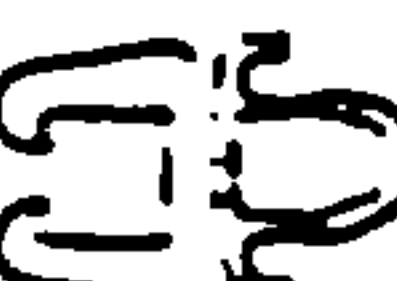
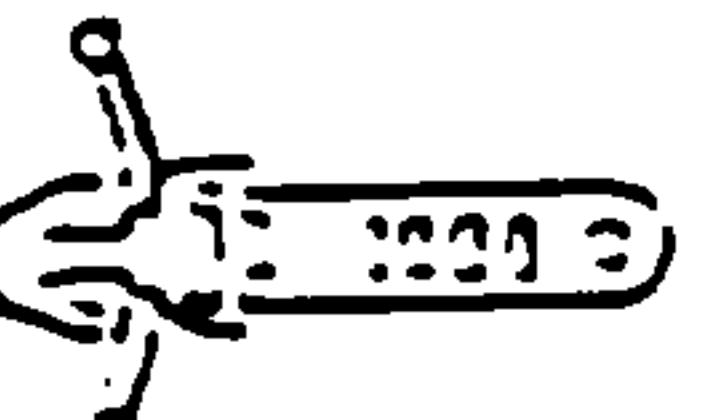
3.3 Testing Conditions

In conducting the heat resistance test, cold resistance test and heat resistance cycle test, after applying the temperatures shown in Table 2 to the clip in a fitting condition as shown in Fig. 1, the retaining force test as shown in Fig. 3 shall be carried out.

Table 2

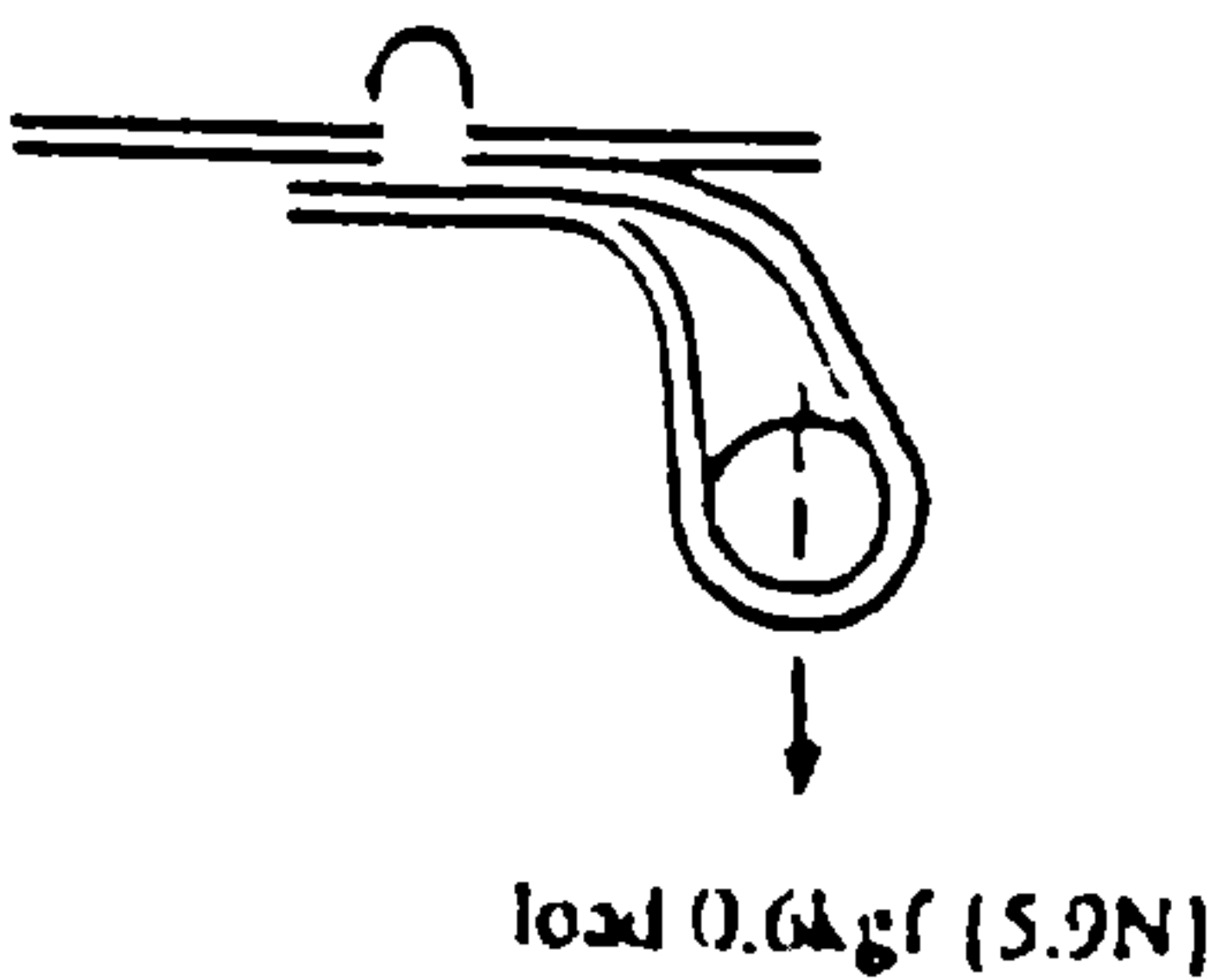
Item		Performance
Heat resistance	P-ET	After heating it at 70 ℃ for 48 hours, the clip shall be left at a normal temperature for 1 hour and then still possess a required retaining force.
	Except for P-ET	After heating it at 90 ℃ for 48 hours or 120 ℃ for 3 hours, the clip shall be left at a normal temperature for 1 hour and still possess a required retaining force.
Cold resistance		After cooling it at -40 ℃ for 48 hours, the clip shall be left at a normal temperature for 1 hour and still possess a required retaining force.
Heat resistance cycle test	P-ET	After subjecting it to 4 heat resistance cycles whereby a cycle consists of 60 ℃ x 4 hours → normal temperature x 0.5 hour → 40 ℃ x 4 hours → normal temperature x 15.5 hours, the clip shall possess a required retaining force.
	Except for P-ET	After subjecting it to 4 heat resistance cycles whereby a cycle consists of 80 ℃ x 4 hours → normal temperature x 0.5 hours → 40 ℃ x 4 hours → normal temperature x 15.5 hours, the clip shall possess a required retaining force.
Anti-chemicals		After soaking it in the following chemicals at a normal temperature for 5 hours, the clip shall not suffer from such harmful faults in usage as resolution, expansion and cracks and shall still satisfy a required retaining force level. brake fluid: category 2 class 2 of JIS K2233 (brake fluid for automotive use) gasoline for fuel and lubrication oil: fuel oil B and lubrication oil No. 3 that are specified in 12.3.1 of JIS K6301 (physical test method of vulcanized rubber) anti-freeze: JIS K2234 (anti-freeze)

Table 3 Type of Clip

Applica- ble table	Part No.	Simplified sketch	Configuration: Dimension	Part No.	Simplified sketch
Attached table 1	99277 0901		Attached table 10	99289 0401	
Attached table 2	99277 1202			99289 0701	
	99277 2002			99289 1001	
Attached table 3	99279 0401			99289 1202	
	99279 0502		Attached table 11	99289 0753	
Attached table 4	99279 0803			99289 1053	
	99279 1303			99289 1353	
Attached table 5	99279 0804			99289 1753	
	99279 1104			99289 1004	
Attached table 6	99279 1105		Attached table 12	(99289 0105)	
	99279 1206			99289 0165	
Attached table 7	99279 0807				
	99279 0608				
Attached table 8	99279 2010				
	99279 1112				
Attached table 9	99279 0713				

Since the clip shown in parentheses is not currently in use, it is desirable that the usage of such clip should be avoided as much as possible.

Fig. 1



4. Configuration: Dimension

The configuration, dimension and specifications of the clip are as shown in attached tables 1-12.

5. Material

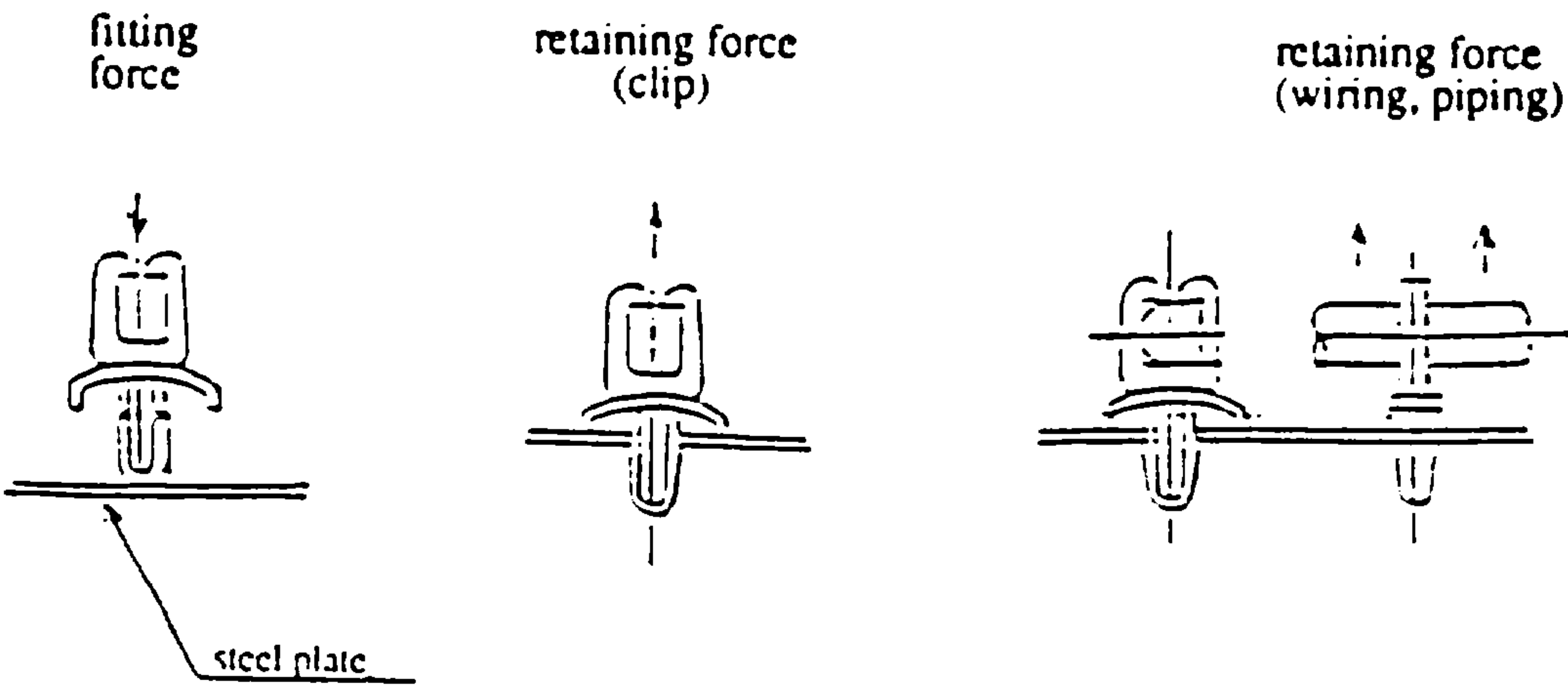
The materials of the clip shall be P-PR (polypropylene resin), P-AM (polyamide resin), P-ET (polyethylene resin) and P-AC (polyacetal resin). And the characteristics of the materials shall be in accordance with KES B-N004 (plastic materials).

Note: The testing method to check the performance of the materials shall be in accordance with KES T-K001 (Testing method of plastic materials).

6. Testing Method

The testing of the clip shall be conducted pursuant to the testing methods as shown in Figs. 2 and 3. Also with regard to the fitting force and retaining force of the clip, when the clip is tested according to the testing methods shown in Figs. 1 and 2, it shall satisfy the performance requirements as specified in attached tables 1-12.

Fig. 2 Testing method of clip (in case of 99277 and 99279)



Fitting force:

Read out the maximum load when fitting the clip by fitting the anchor section of the clip onto a steel plate and then exerting a load vertically.

Retaining force (clip):

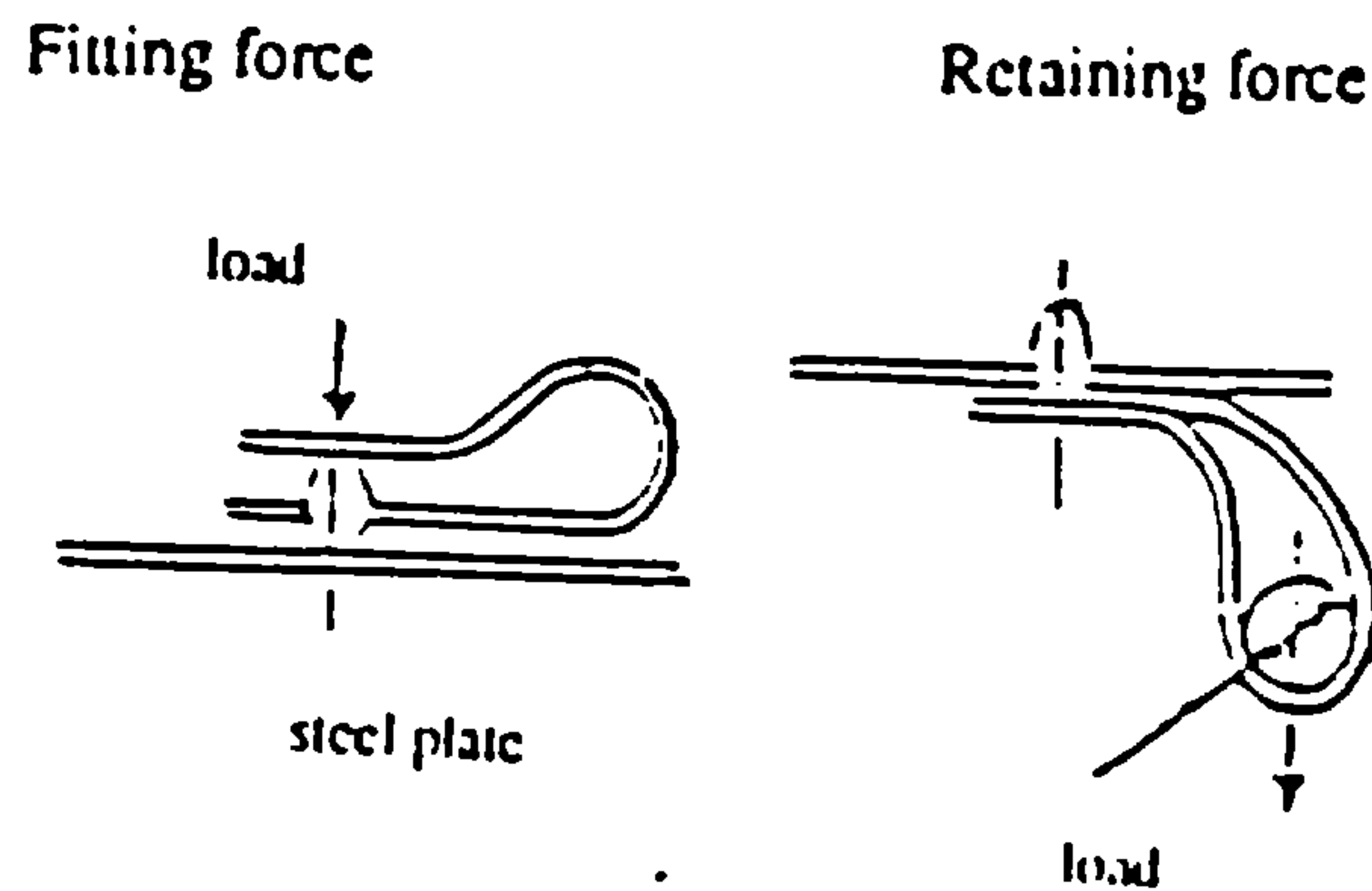
Read out the load when the clip is pulled off from the steel plate.

Retaining force(wiring, piping):

Read out the load when the wiring and piping are pulled off from the clip.

Note: The testing conditions shall be at a normal temperature and at the water absorption rate of the product being at equilibrium.

Fig. 3 Testing method of clip (in case of 99289)



Retaining force:

Read out the maximum load required until the clip gets broken or its anchor section comes off by applying the load onto the clip.

Note: The direction in which the clip is fitted onto a test piece shall be the same as that of drilling a hole.

7. Inspection

The inspection of the clip shall be carried out with respect to the above items 3-6, and each of the said requirements shall be satisfied.

8. Alteration of Specifications

The Alteration of the specifications of the clip can be effected only by making an amendment to the relevant standard. The amendment to the standard shall be made in accordance with the KMS proposal system and by taking a prescribed procedure.

9. Strucfure of Part Number

The part number of the clip shall consist of type No. and size No.

(c.g.)	clip	for class 1 nominal ϕ 4
	99279	0401
		(1)
	(type No.)	(size No.)

Note 1. The size No. shall consist of the following:

xxx	x
nominal	additional number

The additional number shall be used as required to distinguish the differences in the configuration, materials and other specifications of the clip.

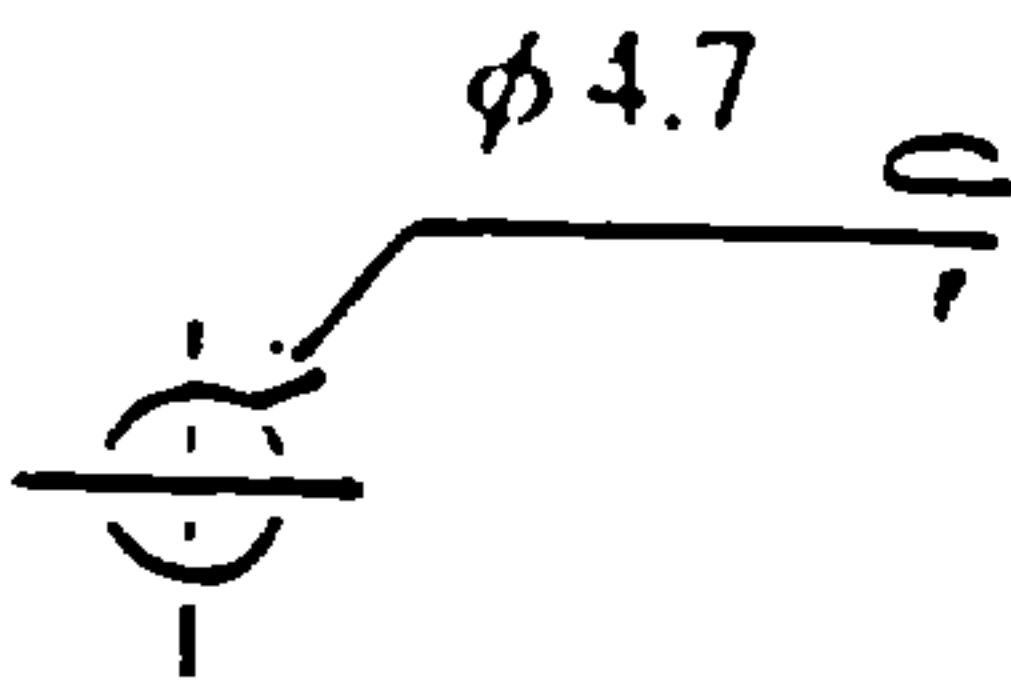
10. Part Name

The part name of the clip shall be CLIP.

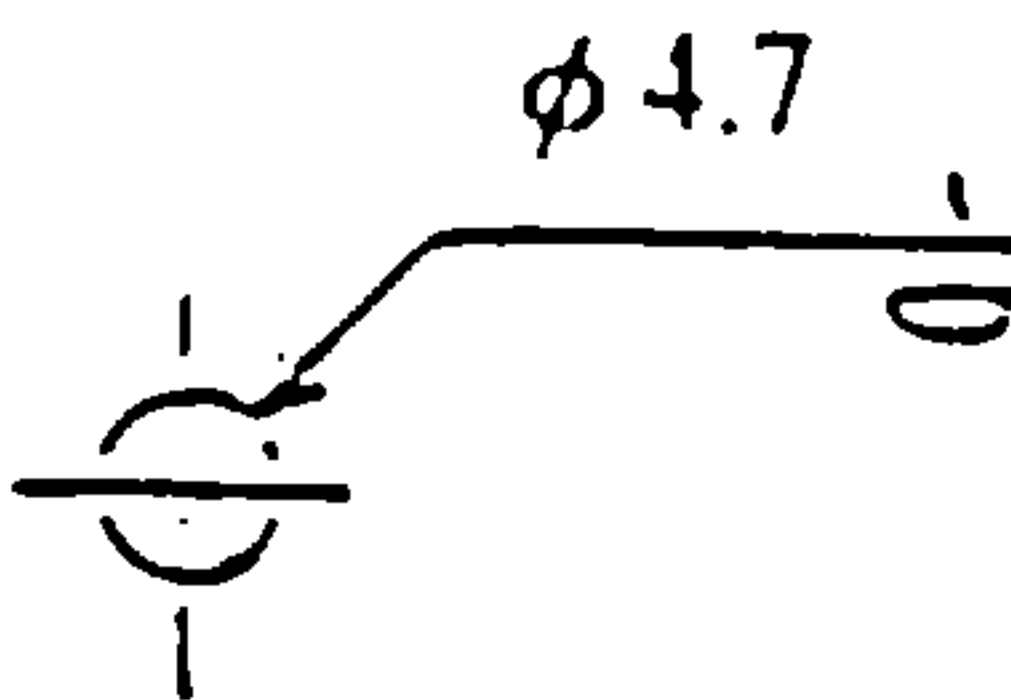
11. Instruction in Drawings as to Direction of Fitting Clip

To satisfy the performance requirements of the fitting force and removing force of the clip, the direction in which the clip is fitted shall be specified in the drawings as shown in Fig. 4.

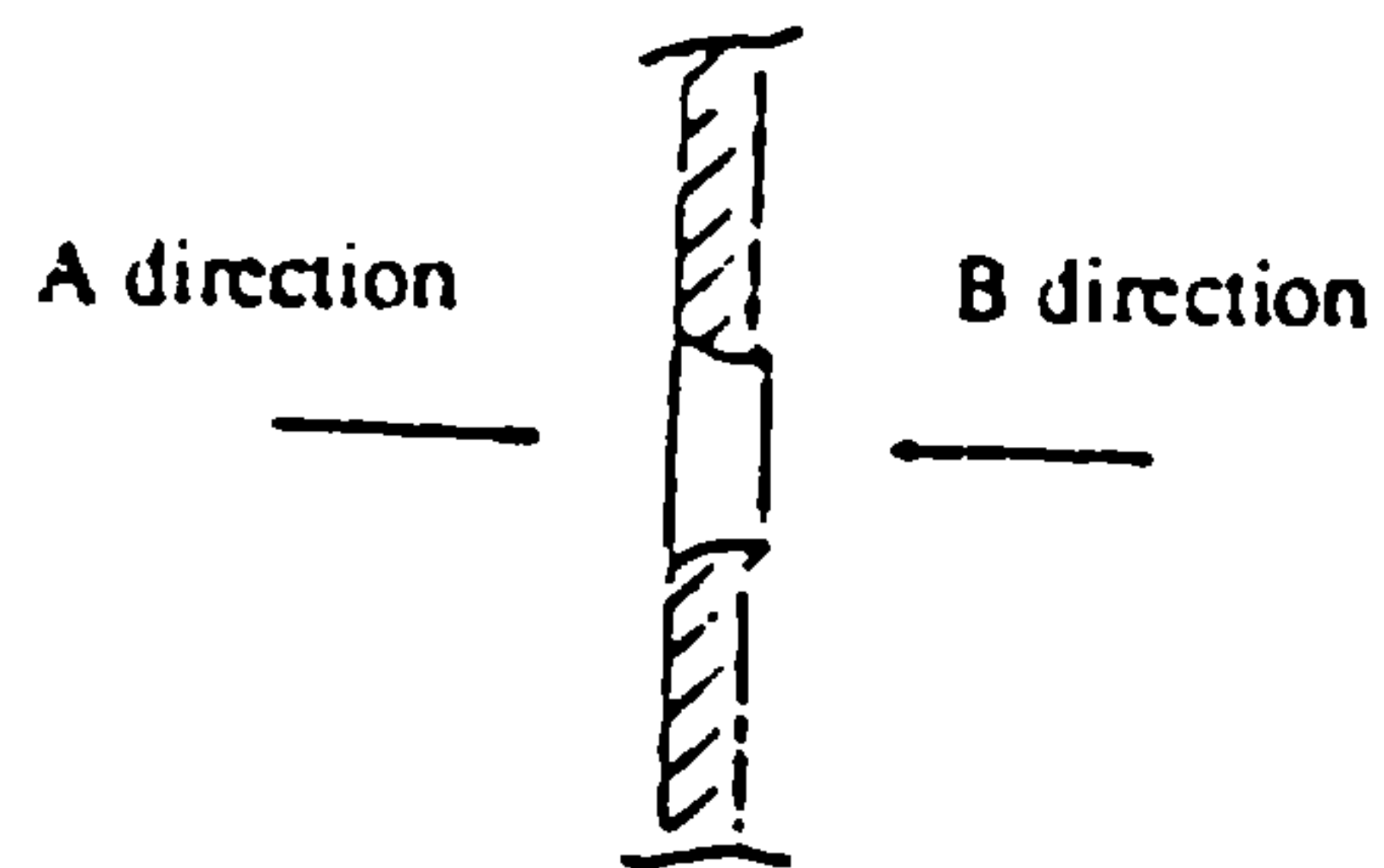
Fig. 4



instruction to fit clip
from face of drawings



instruction to fit clip from
back face of drawings

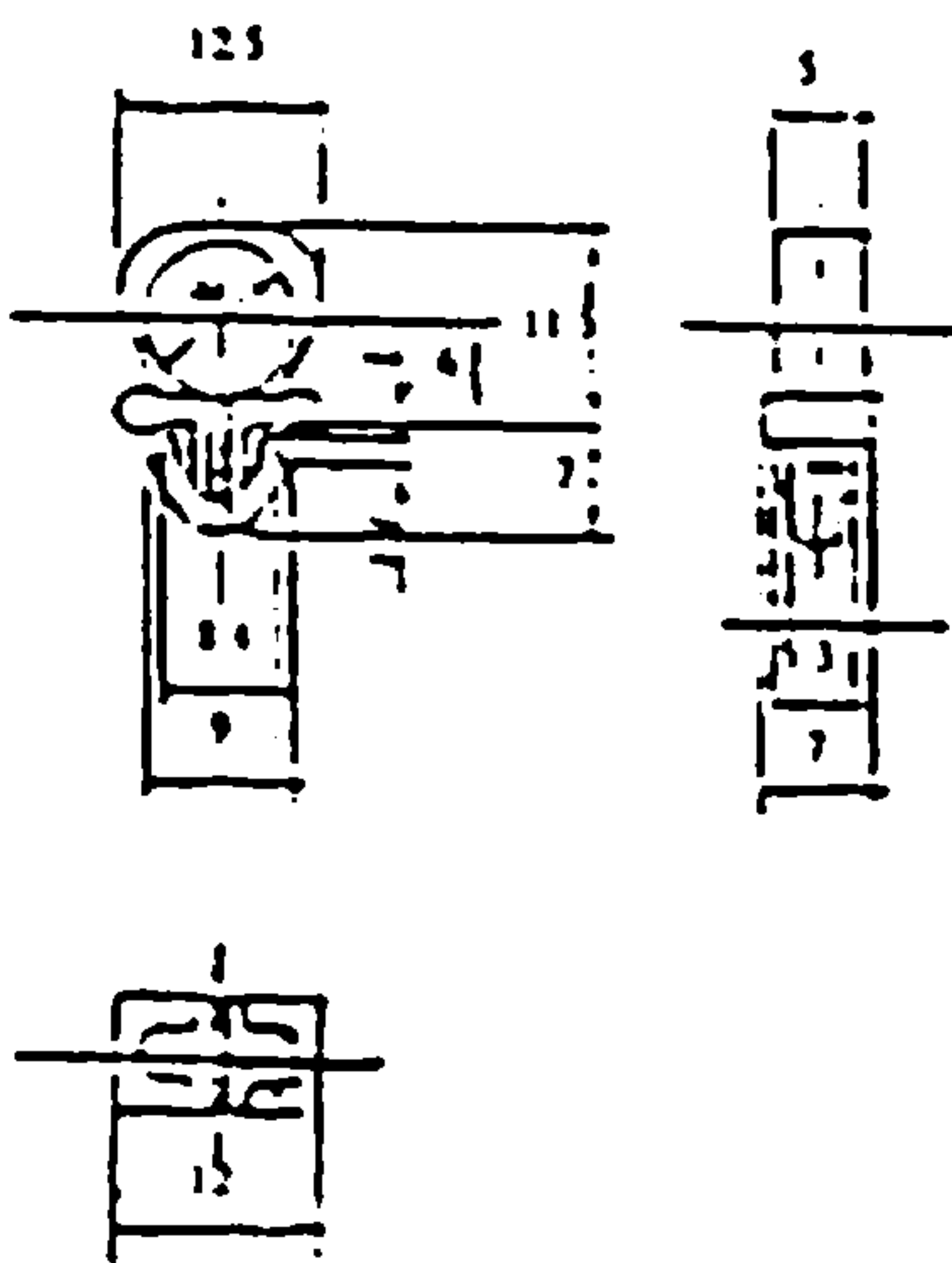


To retain the sufficient installation function, a lower hole shall be machined so as to suit the conditions in which the clip is fitted from the A direction.

However, in case the clip can only be fitted from the B direction due to the production process requirements, it is necessary to consult with our production Engineering Div. on this matter because there is a fault in which the clip is difficult to be fitted and tends to easily come off.

Attached table 1. CONFIGURATION, DIMENSION AND SPECIFICATIONS OF CLIP

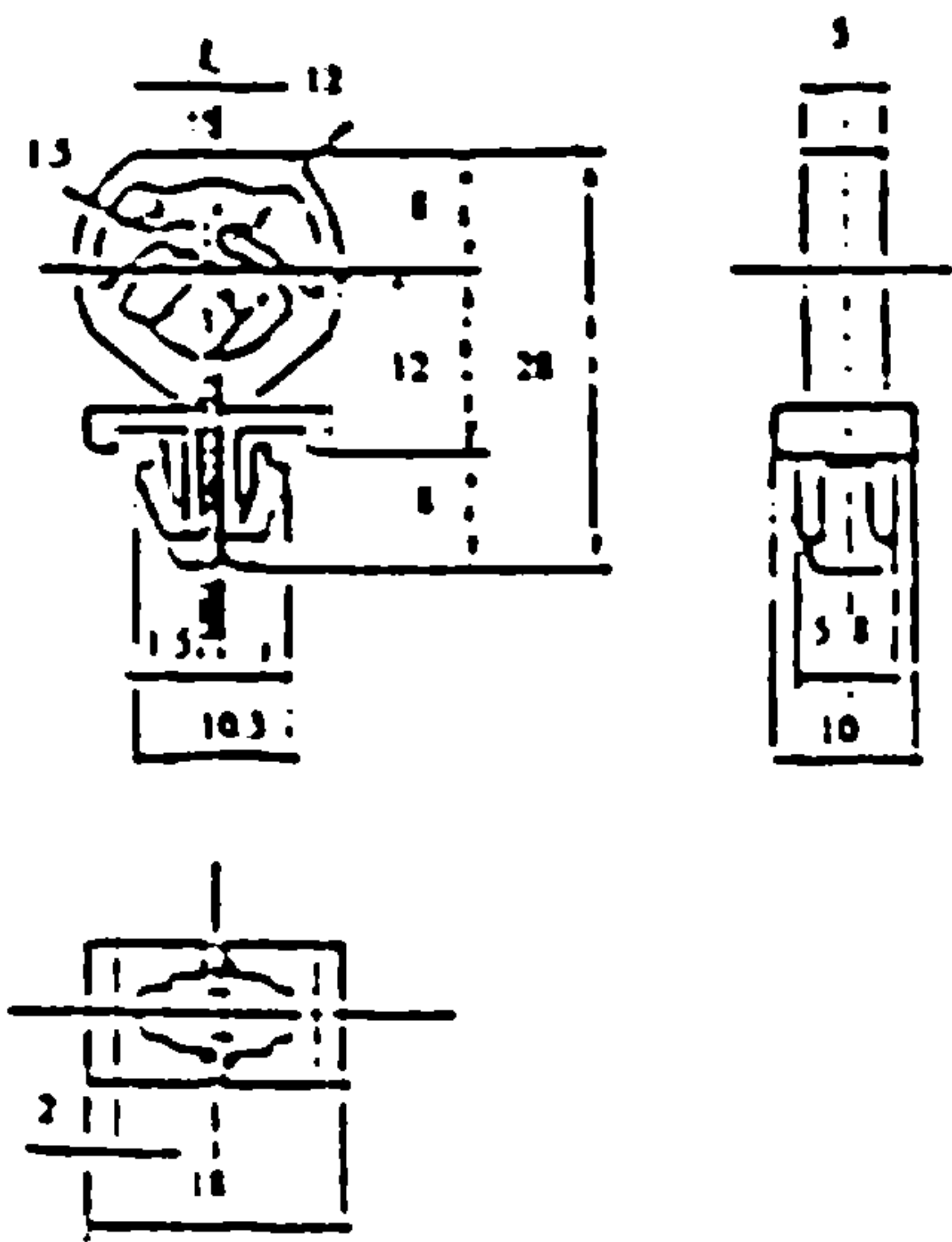
unit: ■



Part No.		99277 0901
Material	Material code	P-AM
	Color tone	natural color
Product Performance	Fitting force	5kg f (49N)
	Retaining force (clip)	5kg f (49N)
	_____	_____
Conditions of usage	Diameter of wiring. piping	φ9
	Diameter of lower hole	φ5.9 ~ φ6.1
	Wall thickness	0.6
Mass (g)		0.6

Attached table 2. CONFIGURATION, DIMENSION AND SPECIFICATIONS OF CLIP

unit: mm



Part No.		99277 1202
Material	Material code	P-PR
	Color tone	black
Product Performance	Fitting force	8kg f {78.5N}
	Retaining force (clip)	10kg f {98.1N}
	_____	_____
Conditions of usage	Diameter of wiring, piping	φ 8 - φ 12
	Diameter of lower hole	φ 6.9 - φ 7.1
	Wall thickness	0.8 - 1.2
Mass (g)		1.0

Note: With regard to the heat resistance performance, the testing conditions of 120℃ x 3 hours as shown in Table 2 shall be applied.