

## 1 kN Pneumatic Flat Grips for Foil

These 1 kN pneumatic flat grips are designed for tensile testing metal foils. Unique grip features include a very rigid structure, which reduces swivel of the grip faces during testing, and specially shaped flat grip faces. As with all pneumatic grips, these grips allow quick specimen clamping with a repeatable clamping force.

Grip sets include upper and lower grips with flat grip faces. Due to the targeted application for these grips, they accept specimens with narrow thickness, up to 4.5 mm (0.18 in). An air supply is required to operate the grips, which enables the grips to operate with an adjustable air pressure between 0.2 MPa (2 kgf/cm<sup>2</sup>, 29 psi) and 0.7 MPa (7 kgf/cm<sup>2</sup>, 102 psi).

Options for controlling the grip's pneumatic clamping mechanism are: a foot valve unit, an F-type crosshead-linked foot switch, and a hand-operated switching unit. The most common grip operator is the foot valve unit, which is compatible with all AG-X plus series and AGS-X series universal testers. For the other grip operators, grip kits, which include upper and lower grips, grip faces, and a grip controller tailored to a specific AG-X plus or AGS-X main unit, are available.

Please contact your local Shimadzu representative for further information about the F-type crosshead-linked foot switch and the hand-operated switching unit as grip operation options.

Additional items needed for operation:

- A 0.7 MPa (7 kgf/cm<sup>2</sup>, 102 psi) air compressor



### Relevant Materials

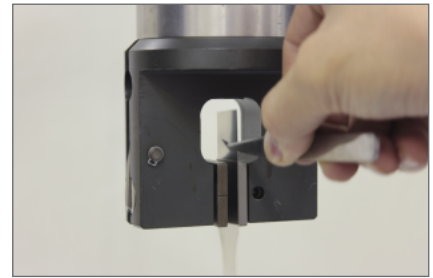
Metals

### Relevant Specimens

Films

## Operation

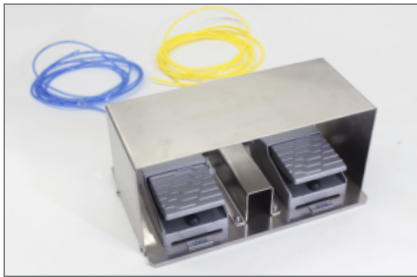
A clamping force is applied to specimens within the grip faces by operation of a grip controller. Both left and right grip faces apply force simultaneously. The clamping force is held constant, meaning the specimen is held in place, and can be tailored to specimen types. The large space between the grip body and grip faces allows the top of the specimen to be held while closing the grips. This enables better placement of the specimen, which can be difficult for foils.



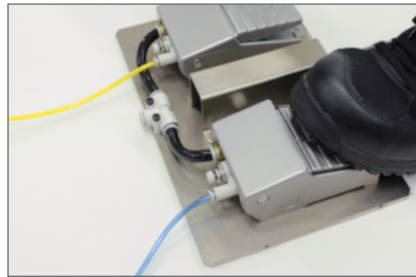
The rigid structure of the grip face and large gripping space

### • Foot Valve Unit

The foot valve unit is a switch for opening and closing pneumatic grips, and is compatible with various Shimadzu pneumatic grips. The left and right foot switches control the upper and lower grips, respectively. Once you activate a switch, pressurized air is continually supplied to close the grips and apply a constant clamping force. Stepping on the switch a second time deactivates it and opens the grips. The chucking force can be controlled by adjusting the air pressure using the adjusting screw, meaning the force can be adjusted for a particular material.



Foot valve unit with cover.  
Switches for upper and lower grips are separated



Open and close the grips by the foot switch  
(Alternate type switch)



Grip force is changeable  
by air pressure adjusting screw

### • Hand-operated Switching Unit

The hand-operated switching unit has two switches, one for the upper grip and another for the lower grip. Activating and deactivating the switches by hand closes and opens each grip, respectively.



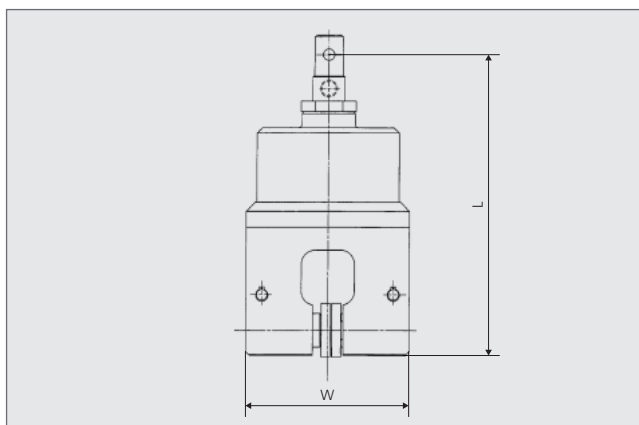
### • F-type Crosshead-linked Foot Switch

Using the F-type crosshead-linked foot switch, after you grip a specimen in the upper and lower grips, the test automatically starts after a few seconds. In addition, this function can be turned off so that it acts like a standard foot switch. The foot switch is divided into gripping and opening pedals. The pedal for gripping is two stage, one push closes the upper grip and another push closes the lower grip. Whereas, the grip opening peddle is a one stage switch. Pushing once opens the upper and lower grips together. Furthermore, it is possible to automate opening of the grips after the end of a test.



## Specification

Maximum Grip Capacity			Applicable Specimen Thickness	Grip Face Size		Temperature Range	Grip Size		Upper Grip Mass	Upper Grip Ø Fitting (Ø pin)	Lower Grip Ø Fitting (Ø pin)
				Width	Length		Width	Length Upper / Lower			
kN	kgf	lbf	mm (in)	mm (in)	mm (in)	°C (°F)	mm (in)	mm (in)	kg (lb)	mm	mm
1	100	220	0 to 4.5 (0 to 0.18)	30 (1.2)	30 (1.2)	-10 to 180 (14 to 356)	92 (3.6)	170 / 181 (6.7 / 7.1)	2.5 (5.5)	16 (6.5)	16 (6.5)



## Ordering Information

P/N	Description
346-53126-01	1 kN Pneumatic Flat Grip Set for Foil Includes: upper and lower grips and specially shaped flat grip faces
<b>Accessories</b>	
346-59687-01	Foot valve unit without cover to operate grips with air hoses to connect to grips (RoHS compliant)
346-59687-02	Foot valve unit with cover to operate grips with air hoses to connect to grips (RoHS compliant)
346-59687-51	Foot valve cover

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