

2810 Series Flexure Fixture | Catalog Number 2810-400

The Instron® 2810 Series Flexure Fixture allows a variety of flexural tests to be performed, including determination of flexural modulus, flexural strength, and flexural yield strength. Easy to install, the three-point fixture can be modified with an optional conversion kit to provide a four-point bending conversion.

The fixture includes a 10 mm (0.4 in) diameter upper anvil and two 4 mm (0.16 in) or 10 mm (0.4 in) diameter lower anvils that are adjustable to accommodate specimens of different spans. Deflection of the specimen can be measured either through crosshead displacement or more precisely, through the mid-span direct measurement deflectometer plunger with a clip-on extensometer.

Features

- Rated capacity 5 kN (500 kgf, 1,125 lbf)
- Three-point flexure fixture with an optional conversion kit for four-point loading
- Conforms to ISO, ASTM, DIN, and many other standards
- Fully adjustable span distance to suit a wide range of specimen sizes
- Adjustable stops for specimen widths up to 50 mm (2 in) for precise alignment
- Optional deflectometer plunger assembly
- Rugged design for minimum maintenance
- Temperature range: -100 to +350 °C (-148 to +660 °F)

Accuracy

- Type of loading: Static flexure
- Specimen material: Plastics, composites, ceramics, thin metals and other materials
- Specimen shapes: Strip, bar, and components

Principle of Operation

The specimen is supported on two precision machine-fixed anvils of a defined radius. The force is applied either centrally (three-point) or at a defined distance on either side of the center (four-point). The support beam is graduated lengthwise in metric units for accurate positioning of the anvils and is equally spaced to the center line. This feature also applies to the four-point loading beam and anvils. Adjustable specimen stops are provided so that the specimen may be quickly and accurately positioned on the lower anvils.



Specifications

2810-400¹

Maximum Capacity	kN	5
	kgf	500
	lbf	1,125
Temperature Range ²	°C	-100 to +350
	°F	-148 to +660

Anvil Dimensions

Lower Support Anvils 2810-400A1 Diameter	mm	10
	in	0.39
Lower Support Anvils 2810-400A2 Diameter	mm	4
	in	0.16
Upper Loading Anvils Diameter	mm	10
	in	0.39
Anvil Depth (Maximum Specimen Width)	mm	50
	in	2

Span Distance (Adjustable)

Minimum	mm	10
	in	0.39
Minimum with Deflectometer 2810-403	mm	23 plus Anvil Diameter
	in	0.9 plus Anvil Diameter
Maximum	mm	200
	in	7.87

Mechanical Connection

Upper Fitting Clevis Pin (Type O)	mm	6
Lower Fitting Clevis Pin (Type D)	in	0.5

Overall Dimensions

Overall Width (A)	mm	234
	in	9.2
Lower Fixture (B)	mm	140
	in	5.51
Upper Anvil Height (C)	mm	73
	in	2.87
Lower Anvil Height (D)	mm	60
	in	2.36

Weight

Lower Support with No Anvils	kg	2.8
	lbs	6
Lower Anvils	kg	0.32 each
	lbs	0.7 each
Upper Anvil	kg	0.29
	lbs	1.6

Notes:

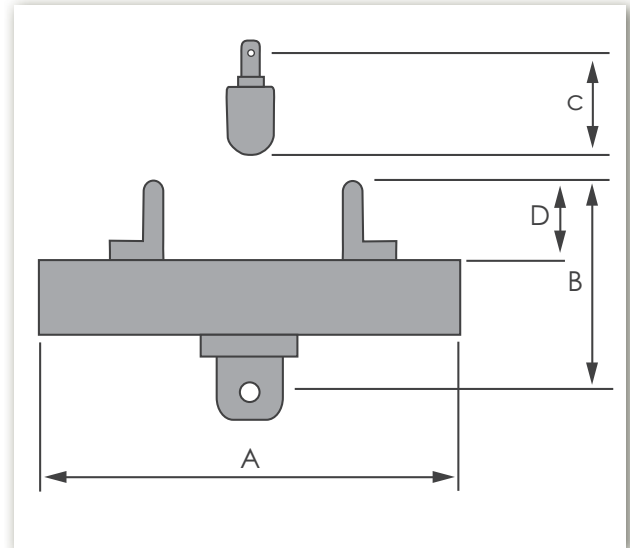
- Catalog number provides a support frame, one upper and two lower anvils
- Maximum temperature rating for plunger 2810-403 is 260 °C (500 °F)



Four-Point Flexure Fixture using
Midpoint Deflectometer



Deflectometer using Clip-On
Extensometer



Flexure fixture dimensions

Accessories

	Description
2810-401	Anvil ¹ set for 2810-401 has a diameter of 4 mm (0.16 in) and includes two lower anvils.
2810-402	Anvil set for 2810-402 has a diameter of 10 mm (0.39 in) and includes two lower anvils.
2810-405	Four-point bend upper anvil assembly used with 2810-400; Converts 2810-400 to four-point flexure (requires 2810-403 deflectometer) <ul style="list-style-type: none"> Span distance (adjustable): 10 to 100 mm (0.39 to 3.94 in) Weight Support (No anvils): 0.862 kg (1.9 lb) Weight of Anvil: 0.32 kg (0.7 lb)
2810-403 ¹	<ul style="list-style-type: none"> Deflectometer plunger for 2810-400 (requires suitable extensometer) Plunger clamping area: From 25 to 50 mm (1-2 in) Plunger deflection: 21 mm (0.82 in) (compressive) Limits the lower support anvil span to a minimum of 23 mm (0.9 in) plus the anvil diameter

Notes:

- Extensometer is used to determine actual deflection and is not included in the deflectometer package. The recommended extensometers are 2630-107 or 2630-110.
- The anvils comply to ATSM D 790 (three-point test), ASTM D 6272 (four-point test), and ISO 178.

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