

## Compact Tension Grips

These compact tension grips are for plane-strain fracture toughness tests of metallic materials. Fracture toughness testing involves applying static loads to a notched sample to investigate brittle crack propagation and fracture conditions.

Compact tension grip sets include upper and lower grips and two 12 mm (0.47 in) diameter pins. The grips have a maximum capacity of 50 kN (11,000 lbf) but are available with different size grip fittings to attach to different capacity load cells. In addition, a crack-opening displacement gauge is available to support the evaluation of crack propagation.

### Relevant Materials

Metals

### Relevant Specimens

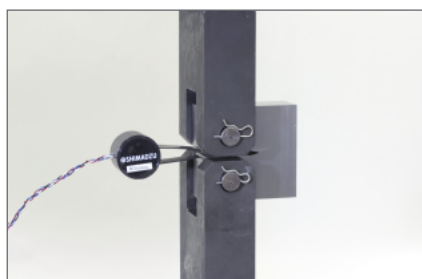
Plates

### Relevant Standards

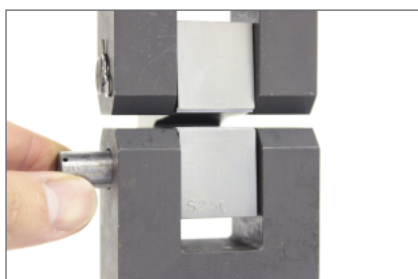
ASTM E399

### Operation

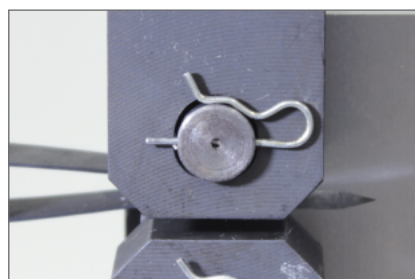
Specimens for plane-strain fracture toughness tests have two pin holes on one side of the specimen, along with a notch in the middle. The specimen is inserted into the grip opening and the specimen pin holes are aligned with the pin holes in the grips. To secure the specimen in place, pins are inserted through the grip-specimen-grip. If a crack-opening displacement gauge is used, this is inserted into the notch in the specimen.



Crack-opening displacement gauge



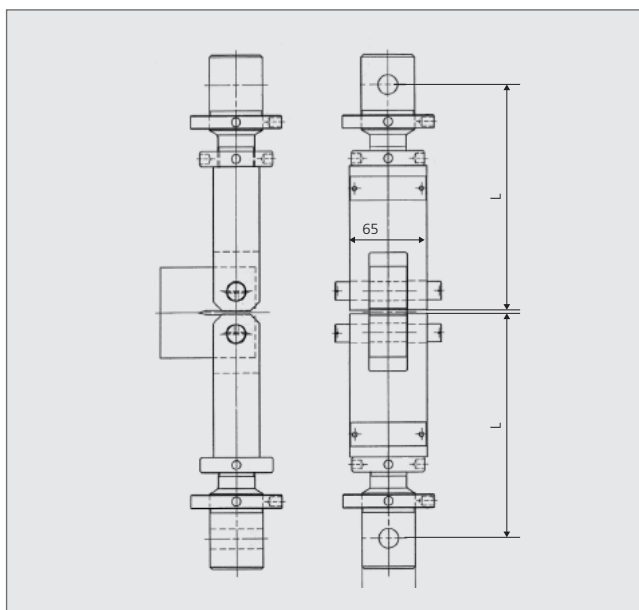
Pins are inserted through the grip-specimen-grip



Clips avoid drop out of the pins

## Specification

Maximum Grip Capacity			Applicable Specimen Thickness	Pin Diameter	Temperature Range	Grip Size		Upper Grip Mass	Upper Grip Ø Fitting (Ø pin)	Lower Grip Ø Fitting (Ø pin)
						Width	Length			
kN	kgf	lbf	mm (in)	mm (in)	°C (°F)	mm (in)	mm (in)	kg (lb)	mm	mm
50 kN Compact Tension Grips for 250 kN Load Cells										
50	5,000	11,000	25.4 (1.0)	12 (0.47)	-10 to 60 (14 to 140)	65 (2.6)	180 (7.1)	2.4 (5.3)	70 (35)	70 (35)
50 kN Compact Tension Grips for 100 kN Load Cells										
50	5,000	11,000	25.4 (1.0)	12 (0.47)	-10 to 60 (14 to 140)	65 (2.6)	160 (6.3)	2.4 (5.3)	50 (17.5)	50 (17.5)
50 kN Compact Tension Grips for 50 kN Load Cells										
50	5,000	11,000	25.4 (1.0)	12 (0.47)	-10 to 60 (14 to 140)	65 (2.6)	150 (5.9)	2.4 (5.3)	35 (13)	35 (13)



## Ordering Information

P/N	Description
<b>Compact Tension Grip Sets</b> Includes: upper and lower compact tension grips	
343-07385-08	50 kN compact tension grip set for 250 and 300 kN load cells
343-07385-04	50 kN compact tension grip set for 100 kN load cells
343-07385-03	50 kN compact tension grip set for 50 kN load cells
<b>Accessories</b>	
343-08984-01	Crack-opening displacement gauge for compact tension grips Other required item: amplifier for displacement gauge

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