

250 kN High Temperature Extended Hydraulic Wedge Grips

Catalog Number CP107291

The Instron® 250 kN high temperature extended hydraulic wedge grips provide reliable gripping and excellent alignment over a wide temperature range on both servohydraulic and electromechanical testing systems.

PRINCIPLE OF OPERATION

The grips consist of a moving wedge head operated by a hydraulic cylinder via an integrated extender tube. The grip head has a horizontal opening with tapered sides that move the grip faces toward or away from each other. A pair of side plates hold the faces in place. Four springs attach the jaw faces to the extender bearing surface.

The center of the grip head has a vertical bore that ends at the opening containing the jaw faces. One end of the piston extender passes through the bore, contacting the jaw faces. Depending on the driver's position, the grip head is raised or lowered against the stationary piston extender. Its tapered sides move the jaw faces together or apart.

The high-temperature hydraulic wedge grips incorporate water cooling to eliminate the possibility of the hydraulic system overheating when testing at high temperatures.

An anti-rotation pin within the driver prevents rotation of the grip. A specimen guide attaches to one of the jaw faces to help center the specimen in the jaws and to provide repeatable positioning for a series of specimens.

To meet the demands of testing to specific alignment criteria, such as Nadcap, the grips are combined with an AlignPRO fixture system, which allows operators to measure and adjust the load string alignment.

FEATURES

- Fully-automatic hydraulic actuation with adjustable gripping force provides consistent results
- Temperature range: -70 to +350 °C (-94 to +662 °F)
- Symmetrical moving body design provides accurate and repeatable specimen alignment
- Adjustable specimen stops ensure accurate specimen alignment
- When used in conjunction with a suitable system and an AlignPRO alignment fixture, the grips meet the alignment criteria of Nadcap AC7101 and AC7122
- All hydraulic components are located outside the temperature chamber for reliable and safe operation
- Front loading of flat specimens improves productivity
- Interchangeable jaw faces for flat and cylindrical specimens
- Optional "piggyback" adapters are available for test fixtures (e.g., compression platens) to be installed on the grips, allowing additional tests to be performed without the need to remove and re-install the grips



APPLICATION RANGE

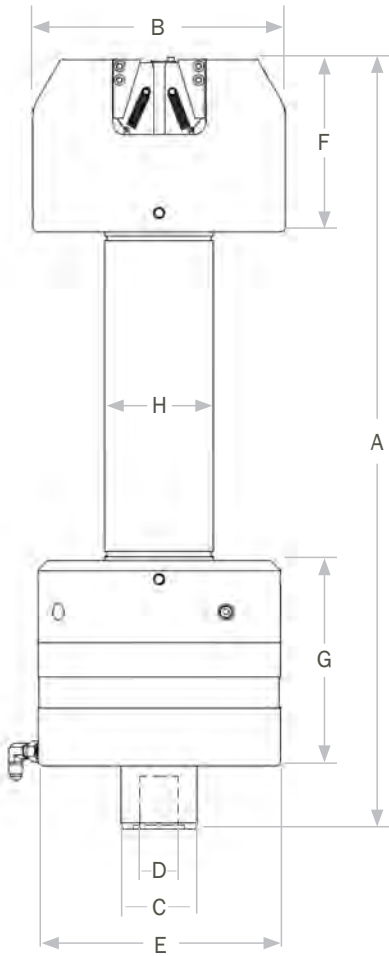
- Static and dynamic tensile tests on a wide range of materials including composites, metals, and plastics¹
- Range of additional tests possible using optional test fixtures

Note:

1. Compression tests on specimens clamped directly in the grips are not recommended due to the relatively low lateral stiffness of the load string, which results from the extended grip length. However, guided test fixtures commonly used for composites compression testing provide a suitable alternative for these grips.

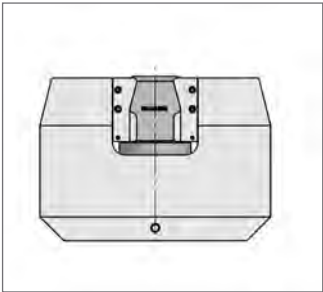
SPECIFICATIONS

Upper Grip Height (A)	mm	1064
	in	41.89
Lower Grip Height (A)	mm	545
	in	21.46
Grip Head Diameter (B)	mm	200
	in	7.87
Piston Diameter (C)	mm	120
	in	4.72
Internal Thread (D)		M48 × 2
Driver Diameter (E)	mm	290
	in	11.42
Head Height (F)	mm	205
	in	8.07
Driver Height (G)	mm	190
	in	7.48
Extender Diameter (H)	mm	130
	in	5.12
Upper Grip Weight	kg	215
	lbs	473.9
Lower Grip Weight	kg	180
	lbs	396.8

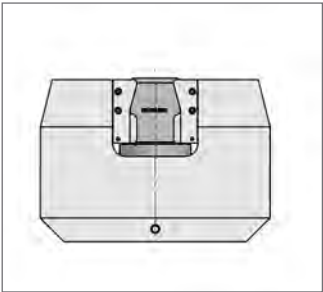


WEDGE ADAPTERS

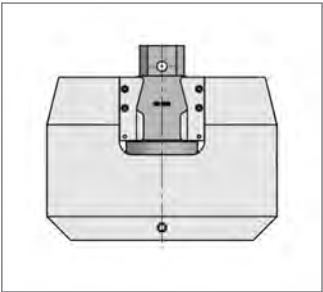
		2501-255	CP109391	2501-256	CP110016
Fitting		M48 LH, Low Profile	Accessories Placed Directly on Top Face of the Lower Grip	Df (1.25 in Connection with 1/2 in Clevis Pin)	Df (1.25 in Connection with 1/2 in Clevis Pin), Low Profile
Static Load Capacity	kN	312	312	100	100
	lbf	70,140	70,140	22,480	22,480
Dynamic Load Capacity	kN	250	250	-	-
	lbf	56,202	56,202	-	-
Temperature Range	°C	-70 to +350	-70 to +350	-70 to +350	-70 to +350
	°F	-94 to +662	-94 to +662	-94 to +662	-94 to +662



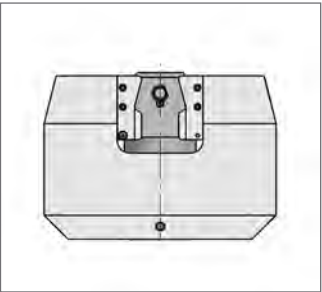
Adapter 2501-255



Adapter CP109391



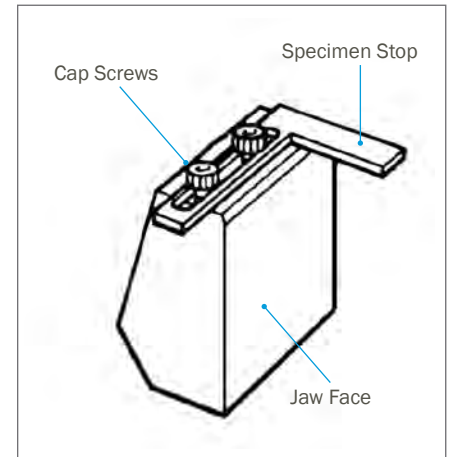
Adapter 2501-256



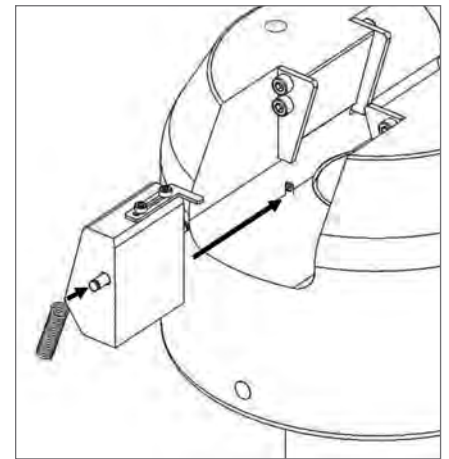
Adapter CP110016

JAW FACES

Catalog Number	Specimen Thickness		Specimen Diameter		Clamping Area (W×H)		Surface
	mm	in	mm	in	mm	in	
2703-541	1 to 12	0.04 to 0.47	-	-	100 × 90	4 × 3.5	Flat Serrated
2703-542	11 to 22	0.43 to 0.87	-	-	100 × 90	4 × 3.5	Flat Serrated
2703-543	21 to 32	0.83 to 1.26	-	-	100 × 90	4 × 3.5	Flat Serrated
2703-544	31 to 42	1.22 to 1.65	-	-	100 × 90	4 × 3.5	Flat Serrated
2703-545	-	-	5 to 10	0.2 to 0.39	100 × 90	4 × 3.5	V-Serrated
2703-546	-	-	10 to 16	0.39 to 0.63	100 × 90	4 × 3.5	V-Serrated
2703-547	-	-	16 to 22	0.63 to 0.87	100 × 90	4 × 3.5	V-Serrated
2703-548	-	-	22 to 28	0.87 to 1.1	100 × 90	4 × 3.5	V-Serrated
2703-549	-	-	28 to 34	1.1 to 1.34	100 × 90	4 × 3.5	V-Serrated
2703-572	1 to 12	0.04 to 0.47	-	-	100 × 90	4 × 3.5	Flat Carbide-Coated, Surfalloy
2703-573	11 to 22	0.43 to 0.87	-	-	100 × 90	4 × 3.5	Flat Carbide-Coated, Surfalloy
2703-574	21 to 32	0.83 to 1.26	-	-	100 × 90	4 × 3.5	Flat Carbide-Coated, Surfalloy
2703-575	31 to 42	1.22 to 1.65	-	-	100 × 90	4 × 3.5	Flat Carbide-Coated, Surfalloy



L-Shaped Specimen Guide



Grip Jaw Face Installation

POWER PACKS

- Stand-alone grip controller and hydraulic power supply (207 Bar (3000 psi)), dual acting / dual stage
- The self-contained unit provides opening and closing control of hydraulic grips with adjustable gripping pressure and handset controls
- Dual acting provides pressure to open and close the grips
- Dual stage provides high flow/low pressure and low flow/high pressure clamping
- Includes hoses for connection to the grips and casters for easy relocation

Dimensions:

- 360 × 560 × 1100 mm (W × D × H)
- Select appropriate voltage (120, 240, or 220 VAC)
- Optional replenish available (advisable for test durations over 24 minutes)



Hydraulic Power Supply

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