

647 All-Temperature Hydraulic Wedge Grips

Benefits

RAPID SPECIMEN CHANGEOVER

- » Remote opening and closing allows specimens to be changed quickly without cooling or touching the hot grip head.

EXCELLENT REPEATABILITY

- » Clamping to the specimen in the same position each time minimizes bending strains on the specimen, increasing accuracy and repeatability.

LOW THERMAL GRADIENTS

- » When used with MTS environmental chambers, you can achieve thermal gradients as low as $\pm 3^{\circ}\text{F}$ (1.6°C). This capability gives you accurate results on temperature-sensitive materials and minimizes any risk from thermal stress on your sample.

Series 647 All-Temperature Grips provide all the advantages of our popular Series 647 Hydraulic Wedge Grips in a design that can be operated within an environmental chamber at temperatures up to 1000°F (540°C). Two models are available: one with a range from -130 to 315°C (-200°F to $+600^{\circ}\text{F}$), and the other from -130 to 540°C (-200°F to $+1000^{\circ}\text{F}$). These grips are opened and closed remotely, so there is no need to cool them down before changing specimens. Rapid specimen changeover can be accomplished without touching the hot gripping device.

In addition, because the grip head operates within the chamber—at test temperatures—thermal gradients between the grip and specimen are minimized. When these grips are used within an MTS environmental chamber, gradients as low as $\pm 3^{\circ}\text{F}$ (1.6°C) can be achieved.

As with all MTS hydraulic grips, these provide a constant, adjustable gripping force, regardless of the test loads applied. This consistency prevents specimen slippage or damage to soft specimens during testing. When actuated, all moving parts of the grips are hydraulically locked in place so the specimen can be cycled from full tension to full compression without backlash.

Wedges for these grips are available in many configurations for testing both flat and round specimens. To minimize potential damage to your specimen shaft, you can order our flat wedges with an optional Surfalloy™ finish. This rough, tungsten carbide surface coating provides firm gripping of even the most brittle composites to deliver more accurate, repeatable material characterization.

Options

Attachment Kits

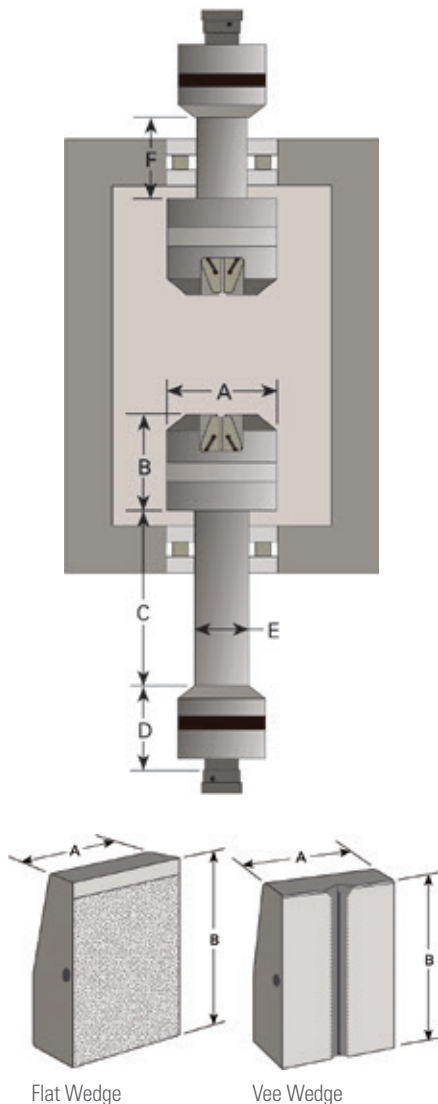
- » Two studs and two sets of spiral washers

SurfAlloy™ Wedges

- » Provides firm gripping with minimal damage to specimen shank

Extra-Wide Wedges

- » For uniform, full-width gripping of wide specimens



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ISO 9001 Certified QMS

Specifications

Model Number	Temperature Range	Force Rating		Weight		Stud Size
		Dynamic	Monotonic	Upper	Lower	
647.02A-31	-200 to 600°F	5.5 kip	7.0 kip	31 lb	36 lb	1/2 - 20
647.02A-32	-130 to 315°C	25 kN	31 kN	14 kg	17 kg	M12 x 1.25
647.02A-51	-200 to 1000°F	5.5 kip	7.0 kip	31 lb	36 lb	1/2 - 20
647.02A-52	-130 to 540°C	25 kN	31 kN	14 kg	17 kg	M12 x 1.25
647.10A-31	-200 to 600°F	22 kip	27 kip	125 lb	142 lb	1 - 14
647.10A-32	-130 to 315°C	100 kN	120 kN	57 kg	65 kg	M27 x 2
647.10A-51	-200 to 1000°F	22 kip	27 kip	125 lb	142 lb	1 - 14
647.10A-52	-130 to 540°C	100 kN	120 kN	57 kg	65 kg	M27 x 2
647.25A-31	-200 to 600°F	55 kip	75 kip	269 lb	289 lb	1-1/2 - 12
647.25A-32	-130 to 315°C	250 kN	333 kN	122 kg	131 kg	M36 x 2
647.25A-51	-200 to 1000°F	55 kip	75 kip	269 lb	289 lb	1-1/2 - 12
647.25A-52	-130 to 540°C	250 kN	333 kN	122 kg	131 kg	M36 x 2

* Note: Grip weights would change with different extension lengths. Contact MTS for more information.

Dimensions

Model Number	A	B	C*	D	E	F*
647.02	114 mm (4.5 in)	112 mm (4.4 in)	267 mm (10.5 in)	94 to 112 mm (3.8 to 4.4 in)	66 mm (2.6 in)	150 mm (5.9 in)
647.10	203 mm (8.0 in)	160 mm (6.3 in)	297 mm (11.7 in)	117 to 132 mm (4.6 to 5.2 in)	99 mm (3.9 in)	155 mm (6.1 in)
647.25	267 mm (10.5 in)	226 mm (8.9 in)	285 mm (11.2 in)	142 to 168 mm (5.6 to 6.6 in)	122 mm (4.8 in)	165 mm (6.5 in)

* Note: Other grip extension lengths are available. Contact MTS for more information.

Wedge Selection

Grip Model	Wedge Shape	Specimen Thickness or Diameter (Vee)*		Wedge Dimensions	
		Inches	Millimeters	A	B
647.02	Flat	0 to 0.28	0 to 7.1	25 mm (1.0 in)	38 mm (1.5 in)
647.02	Flat	0.28 to 0.57	7.1 to 14.4	25 mm (1.0 in)	38 mm (1.5 in)
647.02	Vee	0.12 to 0.32/0.37	3.0 to 8.1/9.4	25 mm (1.0 in)	38 mm (1.5 in)
647.02	Vee	0.35 to 0.43/0.60	8.9 to 10.9/15.2	25 mm (1.0 in)	38 mm (1.5 in)
647.1	Flat	0 to 0.30	0 to 7.6	45 mm (1.75 in)	64 mm (2.5 in)
647.1	Flat	0.28 to 0.56	7.1 to 14.2	45 mm (1.75 in)	64 mm (2.5 in)
647.1	Vee	0.23 to 0.40/0.47	5.84 to 10.2/11.9	45 mm (1.75 in)	64 mm (2.5 in)
647.1	Vee	0.43 to 0.50/0.65	10.9 to 12.7/16.5	45 mm (1.75 in)	64 mm (2.5 in)
647.1	Flat	0.46 to 0.75	11.7 to 19.0	45 mm (1.75 in)	64 mm (2.5 in)
647.25	Flat	0.04 to 0.47	1.0 to 11.9	50 mm (2.0 in)	89 mm (3.5 in)
647.25	Flat	0.24 to 0.67	6.1 to 17.0	50 mm (2.0 in)	89 mm (3.5 in)
647.25	Flat	0.59 to 1.02	15.0 to 25.9	50 mm (2.0 in)	89 mm (3.5 in)
647.25	Vee	0.42 to 0.66/0.78	10.7 to 16.8/19.8	50 mm (2.0 in)	89 mm (3.5 in)
647.25	Vee	0.66 to 0.79/1.03	16.8 to 20.1/26.1	50 mm (2.0 in)	89 mm (3.5 in)
647.25	Vee	0.25 to 0.40/0.53	6.4 to 10.2/13.4	50 mm (2.0 in)	89 mm (3.5 in)

* Maximum specimen diameter for vee wedges is based on loading specimen from top, not side.

Specifications subject to change without notice.

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