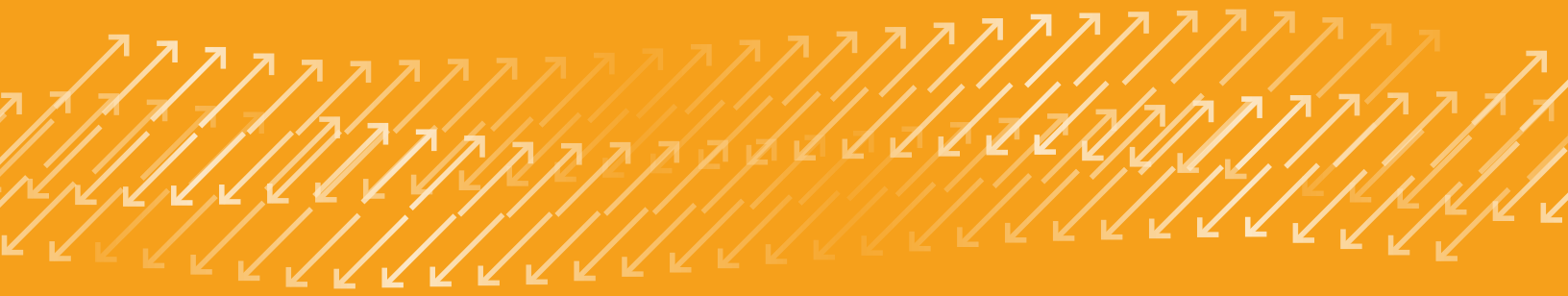
Accessories for MTS Criterion™ Systems

Address a full spectrum of standard and unique monotonic testing requirements

be certain.

MTS COMPLEMENTS ITS **MTS CRITERION SYSTEMS** WITH A WIDE ARRAY OF GRIPS AND FIXTURES, ENVIRONMENTAL SIMULATION SYSTEMS AND EXTENSOMETERS TO HELP YOU EFFICIENTLY ADDRESS A FULL SPECTRUM OF STANDARD AND UNIQUE MONOTONIC TESTING APPLICATIONS



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S-Beam

- Measures axial loads using S-shaped design with a single embedded strain gage
- Offers exceptional value and extreme simplicity for low-capacity testing with minimal side loads
- Ideal for low-force tension and compression testing of plastics, rubber and paper
- Designed for accuracy and linearity
- Available in a range of force capacities (1 N to 5 kN)

LSB.100

Model	Type	Force Rating	Accuracy	Compatible Frames	TEDS ID	Overload Protection	Mounting Thread Size
LSB.100	S-beam	.001 kN	class 0.5 from 1 to 100%	C42.503	yes	800% of capacity	M6 x 1
LSB.500	S-beam	.005 kN	class 0.5 from 1 to 100%	C42.503	yes	800% of capacity	M6 x 1
LSB.11	S-beam	.01 kN	class 0.5 from 1 to 100%	C42.503	yes	800% of capacity	M6 x 1
LSB.251	S-beam	.025 kN	class 0.5 from 1 to 100%	C42.503	yes	800% of capacity	M6 x 1
LSB.501	S-beam	.05 kN	class 0.5 from 1 to 100%	C42.503	yes	800% of capacity	M6 x 1
LSB.102	S-beam	.1 kN	class 0.5 from 1 to 100%	C42.503	yes	800% of capacity	M6 x 1
LSB.252	S-beam	.25 kN	class 0.5 from 1 to 100%	C42.503	yes	800% of capacity	M6 x 1
LSB.502	S-beam	.5 kN	class 0.5 from 1 to 100%	C42.503	yes	420% of capacity	M6 x 1
LSB.103	S-beam	1 kN	class 0.5 from 1 to 100%	C42.503	yes	420% of capacity	M6 x 1
LSB.203	S-beam	2 kN	class 0.5 from 1 to 100%	C42.503	yes	420% of capacity	M6 x 1
LSB.503	S-beam	5 kN	class 0.5 from 1 to 100%	C42.503	yes	420% of capacity	M12 x 1.25

Low Profile Bending Beam

- Measure moderate axial loads using a compact design with four embedded strain gages
- Ideal for tension and compression testing of soft metals, plastics and reinforced plastics
- Low profile maximizes available test space
- Designed for high accuracy, stiffness, overturning momer stability and linearity
- Available in a range of force capacities (1 kN to 300 kN)

LPB.102

Model	Type	Force Rating	Accuracy	Compatible Frames	TEDS ID	Overload Protection	Mounting Thread Size
LPB.102	Low Profile Bending	.1 kN	class 0.5 from 1 to 100%	C43.104 C43.304 C43.504 C44.104 C44.304	Yes	150% of capacity	M6 X 1
LPB.252	Low Profile Bending	.25 kN	class 0.5 from 1 to 100%	C43.104 C43.304 C43.504 C44.104 C44.404	Yes	150% of capacity	M6 X 1
LPB.502	Low Profile Bending	.5 kN	class 0.5 from 1 to 100%	C43.104 C43.304 C43.504 C44.104 C44.304	Yes	150% of capacity	M6 X 1

Low Profile Shear Beam

- Measure moderately high axial loads using a unique design of four embedded strain gages
- Ideal for tension and compression testing of hard metals and composites
- Low profile maximizes available test space
- Designed for high accuracy, stiffness, overturning moment stability and linearity
- Available in a range of force capacities (1 kN to 300 kN)

LPS.103

Model	Type	Force Rating	Accuracy	Compatible Frames	TEDS ID	Overload Protection	Mounting Thread Size
LPS.103	Low Profile Shear Beam	1 kN	class 0.5 from 1 to 100%	C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	Yes	150% of capacity	M12 x 1.25
LPS.253	Low Profile Shear Beam	2.5 kN	class 0.5 from 1 to 100%	C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	Yes	150% of capacity	M12 x 1.25
LPS.503	Low Profile Shear Beam	5 kN	class 0.5 from 1 to 100%	C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	Yes	150% of capacity	M12 x 1.25
LPS.104	Low Profile Shear Beam	10 kN	class 0.5 from 1 to 100%	C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	Yes	150% of capacity	M12 x 1.25
LPS.204	Low Profile Shear Beam	20 kN	class 0.5 from 1 to 100%	C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	Yes	150% of capacity	M12 x 1.25
LPS.304	Low Profile Shear Beam	30 kN	class 0.5 from 1 to 100%	C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	Yes	150% of capacity	M12 x 1.25
LPS.504	Low Profile Shear Beam	50 kN	class 0.5 from 1 to 100%	C43.104 C43.304 C43.504 C45.504 C45.105 C45.305	Yes	150% of capacity	M27 x 2
LPS.105	Low Profile Shear Beam	100 kN	class 0.5 from 1 to 100%	C45.504 C45.105 C45.305	Yes	150% of capacity	M27 x 2
LPS.155	Low Profile Shear Beam	150 kN	class 0.5 from 1 to 100%	C45.305	Yes	150% of capacity	M27 x 2
LPS.205	Low Profile Shear Beam	200 kN	class 0.5 from 1 to 100%	C45.305	Yes	150% of capacity	M36 x 2
LPS.305	Low Profile Shear Beam	300 kN	class 0.5 from 1 to 100%	C45.305	Yes	150% of capacity	M36 x 2

Low Profile Flange Mount

- Measure high axial loads using a reinforced design secured by bolts at the active and fixed ends
- Ideal for tension and compression testing of rock, concrete, rebar and wire strand rope
- Offer exceptional reliability, accuracy and the ability to accommodate large specimens
- Reinforced mounting minimizes nonlinearity, hysteresis and non-repeatability
- Available in a range of force capacities (300 kN to 2000 kN)

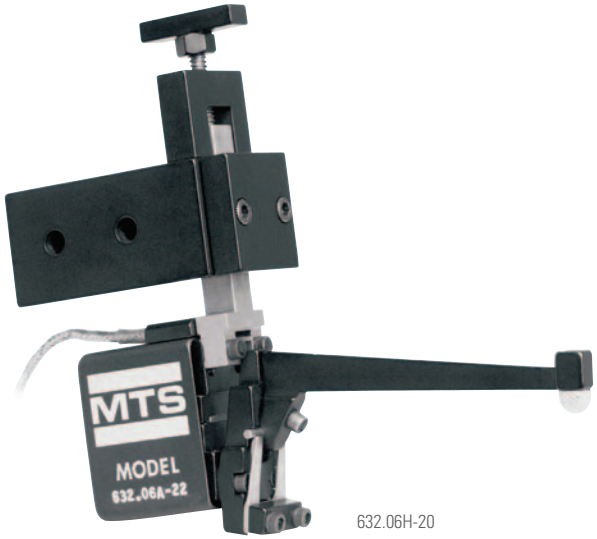
LPF.305

Model	Type	Force Rating	Accuracy	Compatible Frames	TEDS ID	Overload Protection	Mounting Thread Size
LPF.305	Low Profile Flange Mount	300 kN	class 0.5 from 1 to 100%	C64.305	Yes	150% of capacity	M36 x 2
LPF.605	Low Profile Flange Mount	600 kN	class 0.5 from 1 to 100%	C64.605	Yes	150% of capacity	M36 x 2
LPF.106	Low Profile Flange Mount	1000 kN	class 0.5 from 1 to 100%	C64.106	Yes	150% of capacity	M52 x 2
LHC.206	Hollow Core Mount	2000 kN	class 0.5 from 1 to 100%	C64.206	Yes	150% of capacity	M30 x 2

Contacting Extensometers

Displacement Gage

- Ideal for testing advanced materials and composites
- Extremely versatile: designed for measuring small deformations, bend testing or specimens with unusual geometries
- Measures displacement in contact with specimen or on an active component in the force train
- Meets and/or exceeds ASTM E83 Class B1 and ISO 9513 Class 0.5 calibration requirements

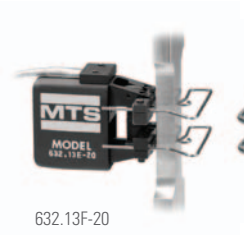


632.06H-20

Model	Type	Height	Length	Travel	Accuracy	Temperature Range
632.06H-20	Displacement Gage	101 mm	101 mm	-4 mm to 4 mm	class 0.5	-100° C to 150° C

Axial Extensometers

- Provide reliable, repeatable means to accurately measure axial strain for testing metals, plastics, composites and ceramics with round or flat specimen geometries
- Available in many gage lengths (10 to 50 mm) and travel ranges (±1.5 to 50 mm)
- Meet and/or exceed ASTM E83 Class B1 and ISO 9513 Class 0.5 calibration requirements
- *See Gage Length Extenders for 634.11 / .12 / .25 Axial Extensometers...page 14*



632.13F-20

632.26F-20

634.12F-54

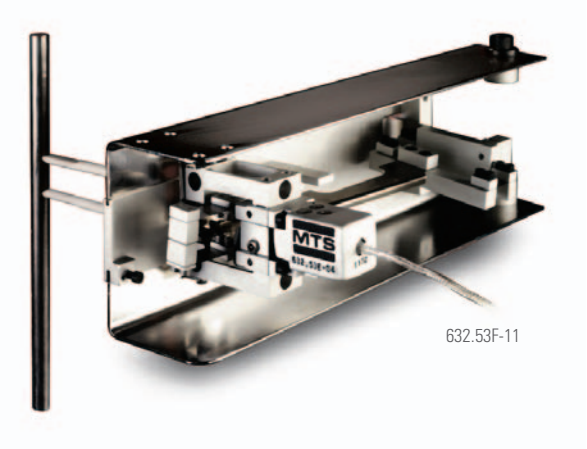
634.25F-24

634.31F-24 – Multiple Gage Lengths

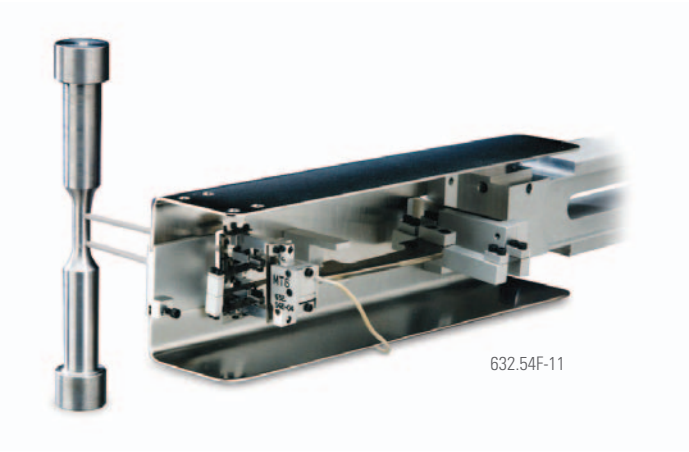
Model	Type	Gage Length(s)	Travel	Accuracy	Temperature Range
632.13F-20	Axial	10 mm	+/- 1.5 mm	class 0.5	-100° C to 150° C
632.26E-30	Axial	0.3 in	+/- 0.018 in	class 0.5	-150° F to 350° F
632.26E-31	Axial	0.3 in	+/- 0.018 in	class 0.5	452° F to 150° F
632.26E-33	Axial	0.3 in	+/- 0.018 in	class 0.5	-150° F to 350° F
632.26E-40	Axial	0.5 in	+/- 0.045 in	class 0.5	-150° F to 300° F
632.26E-41	Axial	0.5 in	+/- 0.045 in	class 0.5	-452° F to 150° F
632.26E-43	Axial	0.5 in	+/- 0.045 in	class 0.5	-150° F to 350° F
632.26F-20	Axial	8 mm	+/- 1.2 mm	class 0.5	-100°C to 150° C
632.26F-21	Axial	8 mm	+/- 1.2 mm	class 0.5	-269° C to 65° C
632.26F-23	Axial	8 mm	+/- 1.2 mm	class 0.5	-100° C to 175° C
632.26F-30	Axial	8 mm	+/- 0.48 mm	class 0.5	-100° C to 150° C
632.26F-31	Axial	8 mm	+/- 0.48 mm	class 0.5	-269° C to 65° C
632.26F-33	Axial	8 mm	+/- 0.48 mm	class 0.5	-100° C to 175° C
632.26F-40	Axial	12 mm	+/- 1.08 mm	class 0.5	-100° C to 150° C
632.26F-41	Axial	12 mm	+/- 1.08 mm	class 0.5	-269° C to 65° C
632.26F-43	Axial	12 mm	+/- 1.08 mm	class 0.5	-100° C to 175° C
634.11F-24	Axial	25 mm	+/- 2.5 mm	class 0.5	-85° C to 120° C
634.11F-54	Axial	25 mm	5 mm	class 0.5	-85° C to 120° C
634.12F-24	Axial	25 mm	-2.5 mm to 12.5 mm	class 0.5	-85° C to 120° C
634.12F-54	Axial	25 mm	12.5 mm	class 0.5	-85° C to 120° C
634.25F-24	Axial	50 mm	-5 mm to 25 mm	class 0.5	-85° C to 120° C
634.25F-54	Axial	50 mm	25 mm	class 0.5	-85° C to 120° C
634.31F-24	Axial - Multiple Gage Length	10, 15, 20, 25, 30, 35, 40, 45, 50 mm	-2 mm to 4 mm	class 0.5	-85° C to 120° C

Axial High-Temperature Extensometers

- Lightweight, low-contact-force devices for measuring strain in tests up to 2200° F (1200° C) in furnaces or induction heaters
- Designed for high-temperature tension and compression testing applications, typically for round metal and ceramic specimens
- Maximize accuracy in complex high-temperature materials tests that require precise measurement of thermal gradients
- Meet and/or exceed ASTM E83 Class B1 and ISO 9513 Class 0.5 calibration requirements



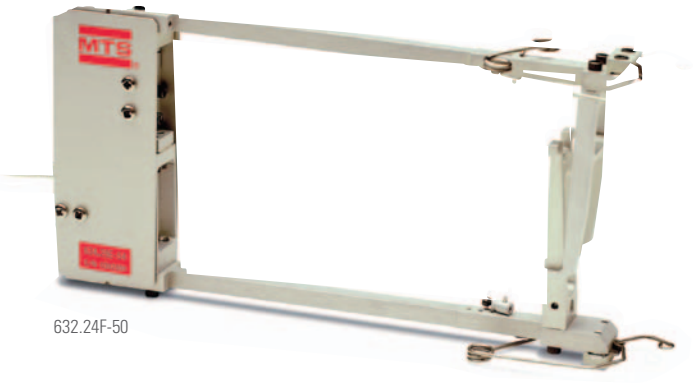
632.53F-11


632.54F-11

Model	Type	Gage Length(s)	Travel	Accuracy	Temperature Range
632.53F-11	Axial High-Temperature	25 mm	-1.25 mm to 2.5 mm	class 0.5	Max: 1200° C
632.53F-14	Axial High-Temperature	12 mm	-1.2 mm to 2.4 mm	class 0.5	Max: 1200° C
632.54F-11	Axial High-Temperature	25 mm	-1.25 mm to 2.5 mm	class 0.5	Max: 1200° C
632.54F-14	Axial High-Temperature	12 mm	-1.2 mm to 2.4 mm	class 0.5	Max: 1200° C

Axial Enhanced Travel Extensometers

- Available in 25 and 50 mm gage lengths to enable measurement over a longer travel range without compromising accuracy
- Suited for tension testing with +100% strain capability, typically for flat or round metal and plastic specimens



632.24F-50

Model	Type	Gage Length(s)	Travel	Accuracy	Temperature Range
632.24F-50	Axial – Enhanced Travel	25 mm	25 mm	class 1.0	-100° C to 150° C
634.28F-24	Axial – Enhanced Travel	50 mm	50 mm	class 0.5	-100° C to 150° C

High Elongation Extensometer

- Designed to accurately measure strain in materials that are prone to very large displacement in tension, such as elastomers, semi-rigid plastics and films
- Employs adjustable mechanical spring to measure strain over a wider range than is typical, up to 800 mm
- Meets and/or exceeds ASTM E83 Class B1 and ISO 9513 Class 0.5 calibration requirements

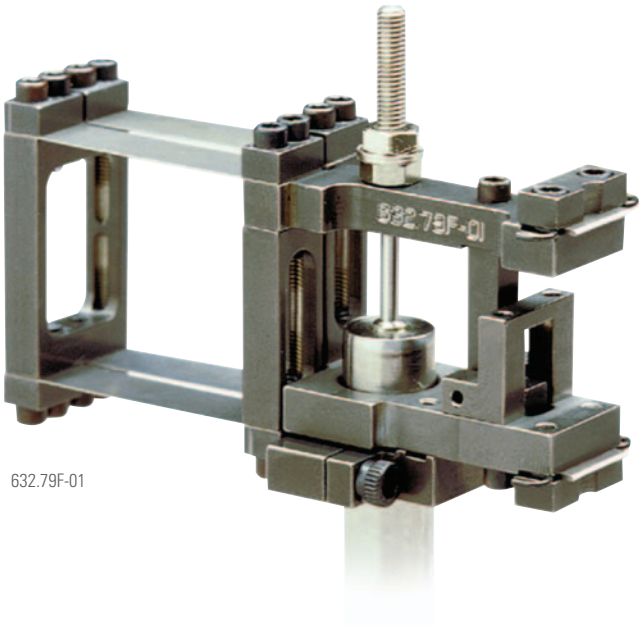
AHX800

Model	Type	Gage Length(s)	Travel	Accuracy	Resolution	Temperature Range
AHX800	Axial – high-elongation	10, 20, 25, 50,100 mm	800 mm	class 0.5	0.004 mm	5° C to 50° C

Contacting Extensometers

Axial Immersible Extensometer

- Designed to accurately measure axial strain while completely submerged in water or saline solution
- Ideal for tension testing of biomaterials
- Patented parallel flexure system accurately translates specimen displacement to a hermetically sealed LVDT
- Meet and/or exceed ASTM E83 Class B1 and ISO 9513 Class 0.5 calibration requirements



632.79F-01

Model	Type	Gage Length(s)	Travel	Accuracy	Temperature Range
632.79F-01	Axial Immersible	25 mm	+/- 6.25 mm	class 0.5	-15° C to 85° C

Axial Sub-miniature Extensometers

- Designed for accurately measuring axial strain on specimens that require a smaller device, such as short or thin wires, delicate materials and small organics
- Available in gage lengths of 3, 5 and 6 mm and travel ranges of ±0.24 mm and 0.5 to 1.5 mm
- Meet and/or exceed ASTM E83 Class B1 and ISO 9513 Class 0.5 calibration requirements

632.29F-20

Model	Type	Gage Length(s)	Travel	Accuracy	Temperature Range
632.29F-20	Axial Sub-miniature	3 mm	+/- 0.24 mm	class 0.5	-100° C to 150° C
632.29E-30	Axial Sub-miniature	6 mm	+/- 0.24 mm	class 0.5	-100° C to 150° C
632.29F-30	Axial Sub-miniature	5 mm	-0.5 mm to 1.5 mm	class 0.5	-100° C to 150° C

Contacting Extensometers

Diametral Extensometers

- Ideal for tension and compression testing of round specimens, determining Poisson's ratio or measuring cross-sectional area change
- Available in gage diameters of 6.1 to 26 mm
- Models optimized for ambient temperature, cryogenic and elevated temperature testing
- Meet and/or exceed ASTM E83 Class B1 and ISO 9513 Class 0.5 calibration requirements

632.18F-20

Model	Type	Gage Diameter	Travel	Accuracy	Temperature Range
632.18F-20	Diametral	6.1 mm to 26 mm	-2 mm to 2 mm	class 0.5	-100° C to 150° C
632.18F-21	Diametral	6.1 mm to 26 mm	-2 mm to 2 mm	class 0.5	-270° C to 65° C
632.18F-23	Diametral	6.1 mm to 26 mm	-2 mm to 2 mm	class 0.5	-100° C to 175° C

Cross Sectional Strain Extensometer

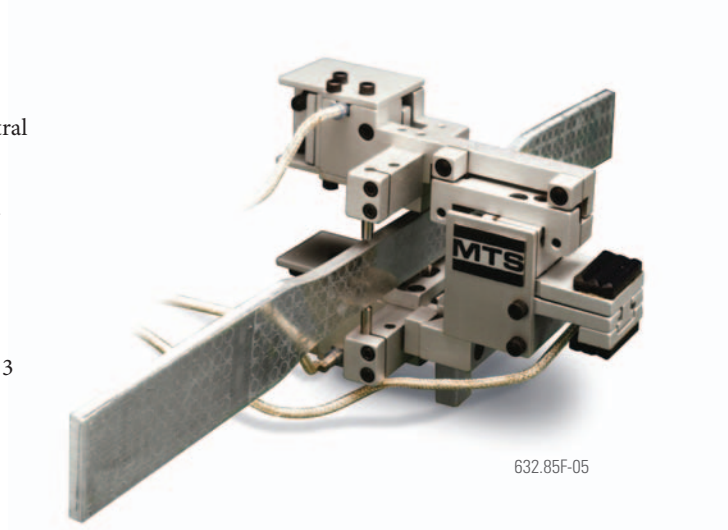
- Dedicated, single-purpose extensometer for measuring cross-sectional strain
- Can be paired with other axial extensometers to measure the "R" value of plastics and sheet metal
- Unique design allows one-hand mounting
- Free-floating feature enables it to travel with the specimen as it is elongated during axial loading
- Meets and/or exceeds ASTM E83 Class B1 and ISO 9513 Class 0.5 calibration requirements

632.23F-30

Model	Type	Gage Width	Specimen Thickness	Travel	Accuracy	Temperature Range
632.23F-30	Cross Sectional Strain	20 mm	.5 mm to 5 mm	-4 mm	class 0.5	-100° C to 150° C

Biaxial Extensometer

- Designed to accurately measure cross-sectional, diametral and average axial strain to help find Poisson's ratio
- Ideal for tension and compression testing of plastic and composite specimens in many shapes and sizes
- Minimizes mechanical crosstalk between axial and transverse channels
- Meets and/or exceeds ASTM E83 Class B1 and ISO 9513 Class 0.5 calibration requirements



632.85F-05

Model	Type	Gage Length	Travel Axial	Travel Transverse	Accuracy	Temperature Range
632.85F-05	Biaxial	25 mm	1.2 mm to -1.5 mm	+/- .5 mm	class 0.5	-100° C to 150° C

GAGE LENGTH EXTENDERS FOR 634.11 / .12 / .25 AXIAL EXTENSOMETERS

» *See Axial Extensometers...page 9*

634.11F-24
(with extender)

Model	Type	Compatible Extensomer(s)	Gage Dimension(s)
634.15C-31	Gage Length Extenders	634.11F, 634.12F	100 mm
634.15C-32	Gage Length Extenders	634.11F, 634.12F	150 mm
634.15C-33	Gage Length Extenders	634.11F, 634.12F	200 mm
634.15C-37	Gage Length Extender Kit	634.11F, 634.12F	50, 100, 150, 200 mm
634.15C-40	Gage Length Extenders	634.25 (C/F)	100 mm
634.15C-41	Gage Length Extenders	634.25 (C/F)	150 mm
634.15C-42	Gage Length Extenders	634.25 (C/F)	200 mm
634.15C-47	Gage Length Extender Kit	634.25 (C/F)	100, 150, 200 mm
634.15C-4X	Gage Length Extenders	634.25 (C/F)	80 mm

Non-Contacting Extensometers

LX Laser Extensometers

- Utilize scanning laser and reflective targets to measure axial strain
- Analog output port for closed loop strain control or input to a data acquisition board or chart recorder
- Self-contained, easily portable, user-friendly design
- Meet accuracy requirements as stated in ASTM E83 Class B1
- Certified with the Center for Devices and Radiological Health as Class II products

LX 500

Model	Type	Travel	Accuracy	Voltage	Non-linearity	Repeatability	Resolution
LX 500	Laser	5 mm to 127 mm	class B1	110 V	0.009 mm	0.003 mm	0.001 mm
LX 500	Laser	5 mm to 127 mm	class B1	220 V	0.009 mm	0.003 mm	0.001 mm
LX 1500	Laser	8 mm to 381 mm	class B2	110 V	0.05 mm	0.05 mm	0.01 mm
LX 1500	Laser	8 mm to 381 mm	class B2	220 V	0.05 mm	0.05 mm	0.01 mm

MTS Fundamental Video Extensometers (FVX)

- Utilize single high-resolution digital video camera and reflective targets to perform edge-to-edge strain measurements
- Value-priced solutions for gaining axial and axial-transverse strain measurements
- Multiple optional lenses provide field of view (FOV) flexibility
- Integrates measurements into results and reports via TestWorks software
- Conforms with ASTM E83, ISO 9513 and EN 10002-4 standards

FVX

Model	Axis of Measurement	Software Platform	Typical Applications	Strain Measurement Segment(s)	Video Camera	Lens	Gage Length	Accuracy	Resolution
FVX01	Axial	TestWorks®	Rubbers / Plastics	1	1380 x 1024 pixel	Tamron M118FM25	Up to 100 mm	class 1.0	1 um
FVX02	Axial-transverse	TestWorks	Soft Metals / Composites	2	1380 x 1024	Tamron pixel Tamron M118FM50	Up to 100 mm M118FM25	class 1.0	1 um

Non-Contacting Extensometers

Advantage Video Extensometers (AVX)

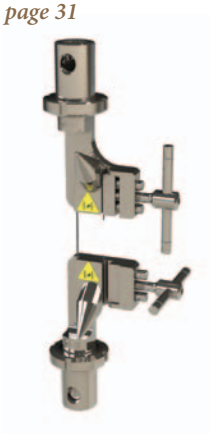
- Utilize single or multiple high-resolution digital video cameras and reflective targets to perform point-to-point strain measurements
- Versatile, high-performance solutions for gaining basic or highly complex measurements: axial, axial-transverse, orthogonal, rotational, dual average
- Multiple optional cameras and lenses available
- Integrate measurements into results and reports via TestSuite TW software
- Conform with ASTM E83, ISO 9513 and EN 10002-4 standards

AVX

Model	Axis of Measurement	Software Platform	Typical Applications	Strain Measurement Segment(s)	Video Camera	Lens	Gage Length	Accuracy	Resolution (um)
AVX01	Axial	MTS TestWorks®	Rubbers / Plastics	1	One digital camera - GigE, 17fps 1388x1038	Lens - General Purpose (focal length 8 mm)	wd: 500 mm FOV: 403 mm	class 1.0	2.9
						Lens - General Purpose (focal length 12 mm)	wd: 500 mm FOV: 268 mm		
						Lens - General Purpose (focal length 16 mm)	wd: 500 mm FOV: 201 mm		
AVX02	Axial	MTS TestSuite	Metals	1	One digital camera - GigE, 17fps, 1388x1038	Lens - General Purpose (focal length 8 mm)	wd: 307 mm FOV: 242 mm	class 1.0	1.7
						Lens - General Testing (magnification 0.094)	wd: 307 mm FOV: 68 mm	class 0.5	0.49
AVX03	Two axial one transverse	MTS TestSuite	Composites	3	One digital camera - GigE, 17fps, 1388x1038	Lens - Material Testing (magnification 0.2)	wd: 297 mm FOV: 32 mm	class 0.5	0.23
AVX04	Multiple (orthogonal, rotation, dual average)	MTS TestSuite	R&D	Unlimited	One digital camera - GigE, 17fps, 1388x1038	Lens - Material Testing (magnification 0.2, WD 297 mm)	wd: 297 mm FOV: 32 mm	class 0.5	0.23
						Lens - General Purpose (focal length 8 mm)	wd: 500 FOV: 403 mm	class 1.0	2.9
						Lens - General Purpose (focal length 16 mm)	wd: 500 FOV: 201 mm	class 1.0	1.9
						Lens - General Purpose (focal length 25 mm)	wd: 500 FOV: 129 mm	class 1.0	0.93

MTS Fundamental Bollard Grips

- Value-priced grips designed to reduce stress concentration on specimens and avoid grip-induced failures
- Suitable for tensile tests of cords, filaments, fibers, fine wire and yarn
- Available in force ratings of 500 N, 2 kN and 10 kN
- Available in horn style with pneumatic or manual clamping, or a capstan style with manual clamping
- Standard rubber faces are included with all grips
- Anti-rotation features and integrated alignment pins enhance test accuracy and repeatability
- *See MTS Fundamental Pneumatic Grip Supply/Controller... page 31*



FCB502B – Manual Horn

FCH203A – Manual Capstan

FCQA502A – Pneumatic Horn

FCA104B – Manual Bollard

Model	Type	Force Capacity	Weight	Specimen Range	Compatible Frames	Temperature Rating	Air Pressure	Attachment Type	Grip/Height Width
FCB502B	Manual Horn	0.5 kN	910 g	0-1.5 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	0° C (32° F) to 50° C (122° F)	n/a	D	Height 152 mm (5.984 in) Width 114.4 mm (2.295 in)
FCH203A	Manual Capstan	2 kN	1067 g	0-2 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	0° C (32° F) to 50° C (122° F)	n/a	D	Height 143 mm (5.630 in) Width 177 mm (6.969 in)
FCQA502A	Pneumatic Horn	0. 5 kN	1125 g	0-1.5 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	0° C (32° F) to 50° C (122° F)	1 MPa (145 psi) See MTS Fundamental Pneumatic Grip Supply/ Controller	D	Height; 147.5 mm (5.787 in) Width 154.5 mm (6.083 in)
FCA104B	Manual Bollard	10 kN	2200 g	0-1.5 mm	C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	0° C (32° F) to 50° C (122° F)	n/a	D	Height 200 mm (7.87 in) Width 141 mm (5.55 in)

Tensile Grips for Series 40 (EM) Systems

MTS Fundamental Roller Grips

- Value-priced grips designed for quick loading and self-tightening
- Suitable for tensile tests of bandages, textiles, synthetics and flexible polymers
- Available in 100 kN force rating
- Anti-rotation features and integrated alignment pins enhance test accuracy and repeatability

FCA105C

Model	Type	Force Capacity	Weight	Specimen Range	Compatible Frames	Temperature Rating	Attachment Type	Grip/Height Width
FCA105C	Roller	100 kN	7130 g	0-5 mm	C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	-50° C (-58° F) to 150° C (302° F)	D	242 mm/138 mm

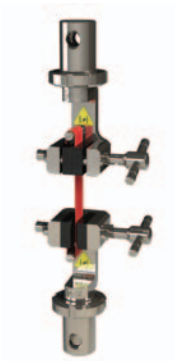
MTS Fundamental Vise Grips

- Value-priced vice action grips for tensile testing of paper, plastic film, textiles, sheet materials and packaging components
- Available in range of force ratings of (10 N to 5 kN) and sizes with manual and pneumatic clamping
- Standard rubber faces are included with all grips
- Anti-rotation features and integrated alignment pins enhance test accuracy and repeatability
- *See MTS Fundamental Pneumatic Grip Supply/Controller...page 31*

FDQA103B – Pneumatic Vise

FDQA101B– Pneumatic Vise

FDSA102A - Manual Vise



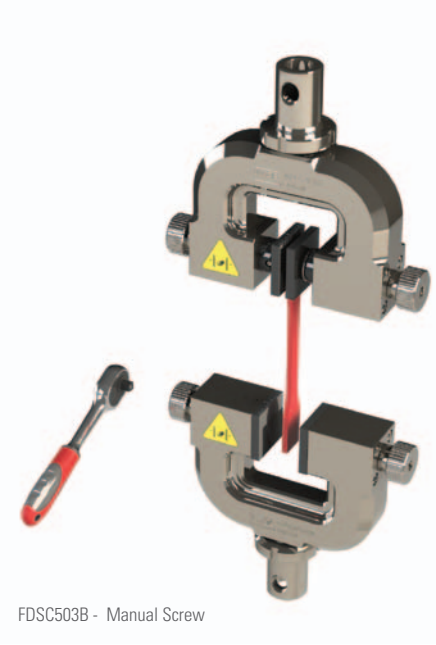
FDSA502B - Manual Vise

FDSD503A - Manual Vise

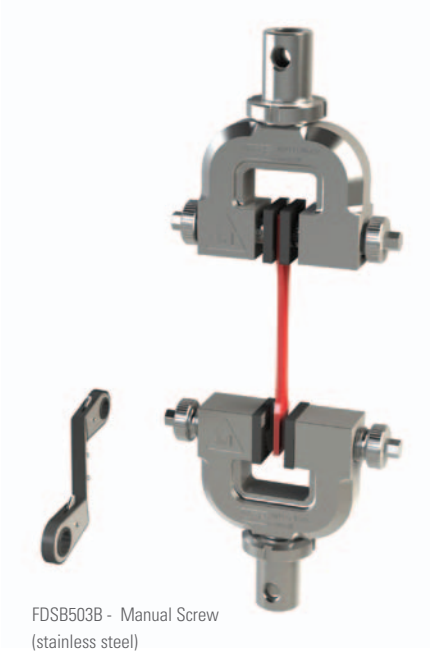
Model	Type	Force Capacity	Weight	Specimen Range	Compatible Frames	Temperature Rating	Air Pressure	Attachment Type	Grip/Height Width
FDQA103B	Pneumatic Vise	1 kN	1257 g	0-8 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	0° C (32° F) to 50° C (122° F)	1 MPa (145 psi) See MTS Fundamental Pneumatic Grip Supply/ Controller	D	Height 149.25 mm (5.876 in) Width 130 mm (5.118 in)
FDQA101B	Pneumatic Vise	10 N	175 g	0-0.2 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	0° C (32° F) to 50° C (122° F)	0.4-0.7 MPa	D	Bottom Height 139 mm (5.47 in) Top Height 129 mm (5.08 in) (2.01 in) Width 51 mm (2.01 in)
FDSA102A	Pneumatic Vise	10 N	175 g	0-0.2 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	0° C (32° F) to 50° C (122° F)	n/a	D	Height 92.5 mm (3.642 in) Width 71.5 mm (2.815 in)
FDSA502B	Manual Vise	0.5 kN	998 g	0-6 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	0° C (32° F) to 50° C (122° F)	n/a	D	Height 119.5 mm (4.705 in) Width 111 mm (4.37 in)
FDSD503A	Manual Vise	5 kN	2007 g	0-7 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	0° C (32° F) to 50° C (122° F)	n/a	D	Height 129.5 mm (5.098 in) Width 120 mm (4.724 in)

MTS Fundamental Screw Grips

- Value-priced screw action grips that deliver higher clamping forces than vise grips for tensile testing of stronger, larger paper, plastic plate and film, textiles, sheet materials and packaging specimens
- Available in steel and stainless steel with manual clamping
- Standard rubber faces are included with all grips
- Anti-rotation features and integrated alignment pins enhance test accuracy and repeatability
- *See Grip Faces for MTS Fundamental Screw Action Grips... page 32*



FDSC503B - Manual Screw



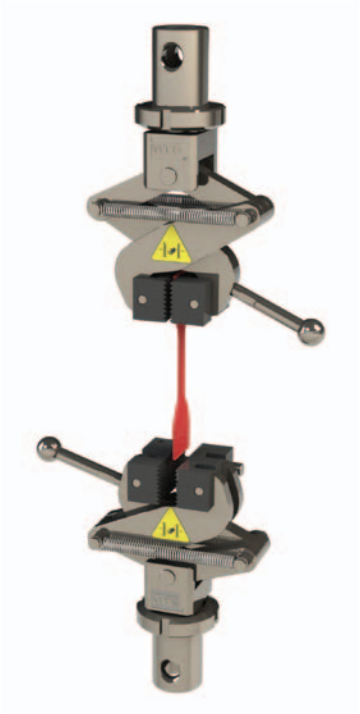
FDSB503B - Manual Screw (stainless steel)

Model	Type	Force Capacity	Weight	Specimen Range	Compatible Frames	Temperature Rating	Air Pressure	Attachment Type	Grip/Height Width
FDSC503B	Manual Screw	5 kN	2360 g	0-16 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	0° C (32° F) to 50° C (122° F)	n/a	D	Height 132.5 mm (5.217 in) Width 52 mm (2.047 in)
FDSB503B	Manual Screw – Stainless Steel	5 kN	2360 g	0-16 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	0° C (32° F) to 50° C (122° F)	n/a	D	Height 132.5 mm (5.217 in) Width 168.8 mm (6.646 in)

MTS Fundamental Scissors Grips

- Value-priced scissor action grips feature self-tightening, self-aligning clamps
- Suitable for tensile testing of delicate flat, flexible specimens like foil, films, rubber and flexible polymers
- Available in force ratings of 200 and 500 N
- Standard diamond faces included with all grips
- Anti-rotation features and integrated alignment pins enhance test accuracy and repeatability

FGD203A - Manual Scissors



FGD503A - Manual Scissors

Model	Type	Force Capacity	Weight	Specimen Range	Compatible Frames	Temperature Rating	Attachment Type	Grip/Height Width
FGD203A	Manual Scissors	0.2 kN	1016 g	0-12 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	0° C (32° F) to 50° C (122° F)	D	Height 134 mm (5.276 in) Width 138 mm (5.433 in)
FGD503A	Manual Scissors	0.5 kN	1735 g	0-14 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	0° C (32° F) to 50° C (122° F)	D	Height 170 mm (6.693 in) Width 153 mm (6.024 in)

MTS Fundamental Wedge Grips

- Value-priced wedge action grips for tensile testing of strong plastics, aluminum and steel
- Accommodate both flat and vee wedge styles
- Available in force ratings of 10, 30, 100 and 300 kN
- Design minimizes compressive or buckling forces during specimen insertion
- Anti-rotation features and integrated alignment pins enhance test accuracy and repeatability
- *See Wedges for MTS Fundamental Wedge Grips...page 36*

FXSC104B – Manual Wedge

FXSA104B – Manual Wedge

FXSA304A – Manual Wedge

FXSA105A – Manual Wedge

Model	Type	Force Capacity	Weight	Specimen Range	Compatible Frames	Temperature Rating	Attachment Type	Grip/Height Width
FXSC104B	Manual Wedge	10 kN	7466 g	0-12 mm	C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	0° C (32° F) to 50° C (122° F)	D	Height 187 mm (7.362 in) Width 155 mm (6.102 in)
FXSA104B	Manual Wedge	10 kN	3100 g	See Wedges for MTS Fundamental Wedge Grips	C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	0° C (32° F) to 50° C (122° F)	D	Height 157 mm (6.18 in) Width 104 mm (4.09 in
FXSA304A	Manual Wedge	30 kN	9189 g	See Wedges for MTS Fundamental Wedge Grips	C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	0° C (32° F) to 50° C (122° F)	D	Height 272 mm (10.705 in) Width 370 mm (14.567 in)
FXSA105A	Manual Wedge	100 kN	14786 g	See Wedges for MTS Fundamental Wedge Grips	C43.504 C45.504 C45.105	0° C (32° F) to 50° C (122° F)	D	Height 271.9 mm (10.705 in) Width 370 mm (14.567 in)
FXSA305A	Manual Wedge	300 kN	26000 g	See Wedges for MTS Fundamental Wedge Grips	C45.305	0° C (32° F) to 50° C (122° F)	E	Height 295 mm (11.6 in) Width 429 mm (16.9 in

Tensile Grips for Series 40 (EM) Systems

MTS Fundamental Nut/Bolt/Shoulder Grips

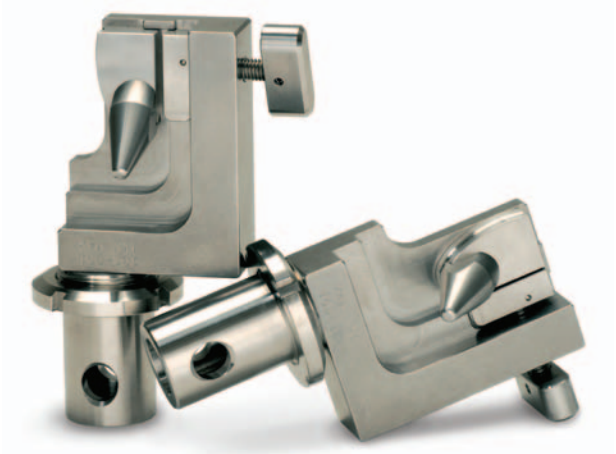
FLA105B Nut/Bolt Grip

FTA105B Shoulder Grip

Model	Type	Force Capacity	Weight	Specimen Range	Compatible Frames	Temperature Rating	Attachment Type	Grip/Height Width
FLA105B	Nut and Bolt	100 kN	4.1kg (9 lb)	Chose appropriate insert	C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105 C45.305	0° C (32° F) to 50° C (122° F)	D	142 mm (5.6 in)/ 134 mm (5.3 in)
FTA105B	Shoulder	100 kN	4.5kg (10 lb)	Chose appropriate insertl	C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105 C45.305	0° C (32° F) to 50° C (122° F)	D	146 mm (5.7 in)/ 146 mm (5.7 in)

Bionix Bollard Grips

- Value-priced, stainless steel grips designed to reduce stress concentration on specimens and avoid grip-induced failures
- Suitable for tensile tests of cords, filaments, fibers, fine wire and biomaterials in fluid bath environments
- Available in 1 kN force rating
- Available in manual horn style
- Standard rubber faces are included with all grips
- Anti-rotation features and integrated alignment pins enhance test accuracy and repeatability
- *See Fluid Baths for Series 40 (EM) Systems...page 61*



EnviroBath Optional Grip.01

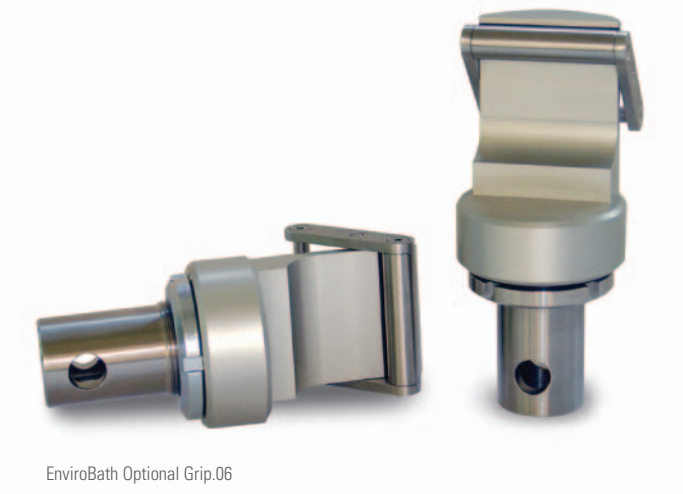
Model	Type	Force Capacity	Weight	Maximum Specimen Diameter	Compatible Frames	Temperature Rating	Attachment Type	Height (each from clevis center)
EnviroBath Optional Grip.01	Manual Horn	1 kN	1010 g	3 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	- 130° C to 250° C	D	124 mm

Tensile Grips for Series 40 (EM) Systems

Bionix Roller Grips

- Value-priced, stainless steel grips featuring quick loading, self-tightening rollers
- Suitable for tensile tests of bandages, biotextiles, diapers, synthetics and flexible polymers in fluid bath environments
- Available in 1, 2 and 5 kN force ratings
- Anti-rotation features and integrated alignment pins enhance test accuracy and repeatability
- *See Fluid Baths for Series 40 (EM) Systems...page 61*

EnviroBath Optional Grip.05

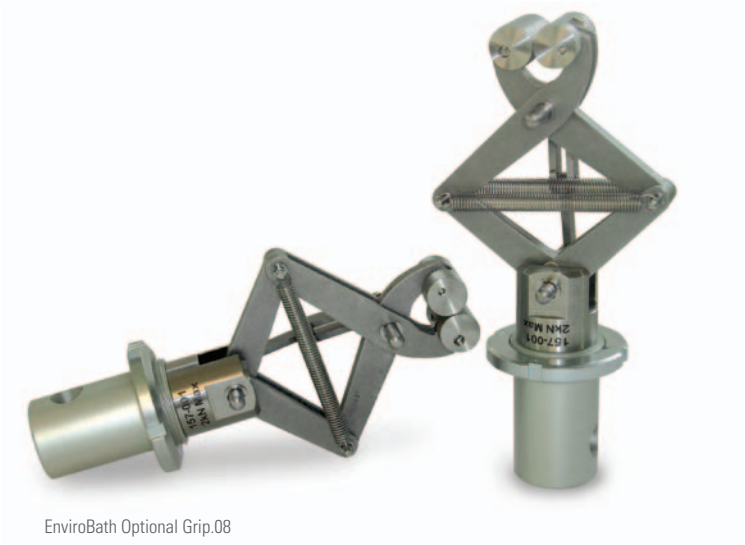


EnviroBath Optional Grip.06

Model	Type	Force Capacity	Weight	Maximum Specimen Thickness	Maximum Specimen Width	Compatible Frames	Temperature Rating	Attachment Type	Height (each from clevis center)
EnviroBath Optional Grip.05	Roller Action	1 kN	1300 g	3 mm	50 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	- 10° C to 50° C	D	123 mm
EnviroBath Optional Grip.06	Roller Action	2 kN	1425 g	4 mm	50 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	- 130° C to 250° C	D	111 mm
EnviroBath Optional Grip.07	Roller Action	5 kN	2260 g	7 mm	75 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	- 130° C to 250° C	D	121 mm

Bionix Scissors Grips

- Value-priced, stainless steel scissor action grips with self-tightening, self-aligning clamps
- Suitable for tensile testing of delicate flat, flexible specimens like foil, films, rubber, flexible polymers and biomaterials in fluid bath environments
- Available in force rating of 1 kN
- Anti-rotation features and integrated alignment pins enhance test accuracy and repeatability
- *See Fluid Baths for Series 40 (EM) Systems...page 61*



EnviroBath Optional Grip.08

Model	Type	Force Capacity	Weight	Maximum Specimen Diameter	Compatible Frames	Temperature Rating	Attachment Type	Height (each from clevis center)
EnviroBath Optional Grip.08	Scissors Action	1 kN	850 g	10 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	- 130° C to 250° C	D	160 mm

Bionix Vise Grips

- Value-priced, stainless steel vice action grips
- Suitable for tensile testing of plastic film, textiles, sheet materials, packaging components and biomaterials in fluid bath environment
- Available in range of force ratings (100 N, 2 kN, 5 kN) with manual clamping
- Standard rubber faces are included with all grips
- Anti-rotation features and integrated alignment pins enhance test accuracy and repeatability
- *See Fluid Baths for Series 40 (EM) Systems...page 61*

EnviroBath Optional Grip.08

EnviroBath Optional Grip.10

Model	Type	Force Capacity	Weight	Maximum Specimen Thickness	Maximum Specimen Width	Compatible Frames	Temperature Rating	Attachment Type	Height (each from clevis center)
EnviroBath Optional Grip.09	Vise Action	.1 kN	560 g	2 mm	10 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	- 10° C to 50° C	D	100 mm
EnviroBath Optional Grip.10	Vise Action	2 kN	1000 g	3.5 mm	63 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	- 10° C to 50° C	D	95 mm
EnviroBath Optional Grip.11	Vise Action	5 kN	3100 g	10 mm	80 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	- 10° C to 50° C	D	140 mm

Advantage Pneumatic Clamp Grips

» Versatile, high-performance pneumatic clamps for tensile testing of a wide array of specimen types:

- low-breaking-strength specimens
- thin sheets, films and tapes
- elastomers, plastics, rigid and semi-rigid films and sheets

» Available in range of force ratings of (10 N to 10 kN)

» Dual-acting grip faces ensure correct specimen alignment and eliminate bending strains

» *See Grip Faces for Advantage Pneumatic Grips...pages 33-34*
» *See Wedges for Advantage Pneumatic 10,000 Grips...page 37*
» *See Advantage Pneumatic Grip Supply/Controller...page 31*

Advantage Pneumatic 10

Advantage Pneumatic 100/200

Advantage Pneumatic 2000

Advantage Pneumatic 10,000

Model	Type	Force Capacity	Weight	Specimen Range	Compatible Frames	Temperature Rating	Air Pressure	Attachment Type	Grip/Height Width
Advantage Pneumatic 10	Pneumatic Clamp	.01 kN	0.27 kg (0.60 lb)	5.00 mm (0.20 in)	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304	- 40° C (-40° F) to 200° C (400° F)	5.5 bar (80 psi) See Advantage Pneumatic Grip Supply/Controller	B	Height 145.80 mm (5.74 in) Width 71.63 mm (2.80 in)
Advantage Pneumatic 100/200	Pneumatic Clamp	.2 kN	0.91 kg (2.0 lb)	10.0 mm (0.39 in)	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304	- 40° C (-40° F) to 200° C (400° F)	5.5 bar (80 psi) See Advantage Pneumatic Grip Supply/Controller	C	Height 187.71 mm (7.39 in) Width 114 mm (4.50 in)
Advantage Pneumatic 2000	Pneumatic Clamp	2 kN (450 lbf)	2.7 kg (6.0 lb)	12.0 mm (0.47 in)	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	- 40° C (-40° F) to 200° C (400° F)	5.5 bar (80 psi)	D	Height 210.31 mm (8.28 in) Width 147.32 mm (5.80 in)
Advantage Pneumatic 10000	Pneumatic Clamp	10 kN (2200 lbf)	6.8 kg (15 lb)	25.4 mm (1.00 in) See Wedges for Advantage Pneumatic 10,000 Grips	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	- 40° C (-40° F) to 200° C (400° F)	5.5 bar (80 psi) See Advantage Pneumatic Grip Supply/Controller	D	Height 210.31 mm (6.59 in) Width 200 mm (7.88 in)

Tensile Grips for Series 40 (EM) Systems

Advantage Screw Grips

- Versatile, high-performance screw action grips that provide high clamping forces for tensile testing of metals, plastics, polymers and wood
- Available in range of force ratings of (10 N to 10 kN)
- Dual-acting grip faces ensure correct specimen alignment and eliminate bending strains
- *See Grip Faces for Advantage Screw Grips...page 35*

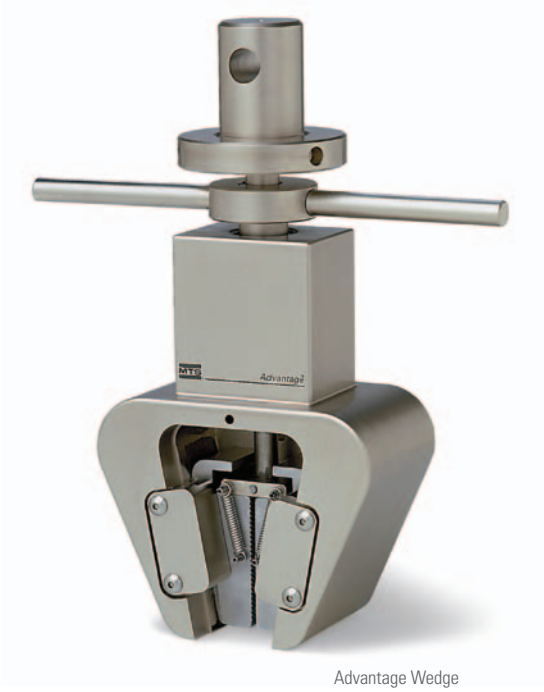
Advantage Screw Action 100 | Advantage Screw Action 2000 | Advantage Screw Action 10000

Model	Type	Force Capacity	Weight	Specimen Range	Compatible Frames	Temperature Rating	Attachment Type	Grip/Height Width
Advantage Screw Action 100	Manual Screw Clamp	.1 kN (22 lbf)	0.36 kg (0.8 lb)	12 mm (0.5 in)	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304	- 40· C (-40° F) to 200° C (400° F)	C	Height 122 mm (4.80 in) Width 129.5 mm (5.10 in)
Advantage Screw Action 2000	Manual Screw Clamp	2 kN (450 lbf)	0.95 kg (2.1 lb)	19 mm (1 in)	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304	- 40° C (-40° F) to 200° C (400° F)	D	Height 132.92 mm (5.23 in) Width 164 mm (6.46 in)
Advantage Screw Action 5000	Manual Screw Clamp	5 kN (1100 lbf)	2.1 kg (4.6 lb)	25 mm (0.75 in)	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	- 40° C (-40° F) to 200° C (400° F)	D	Height 161.11 mm (6.34 in) Width 210.6 mm (8.29 in)
Advantage Screw Action 10000	Manual Screw Clamp	10 kN (2200 lbf)	4.9 kg (10 lb)	25 mm (1 in)	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	- 40° C (-40° F) to 200° C (400° F)	D	Height 161.11 mm (6.34 in) Width 210.6 mm (8.29 in)

Tensile Grips for Series 40 (EM) Systems

Advantage Wedge Grips

- Versatile, high-performance wedge action grips designed for tensile tests that require more clamping force than screw or pneumatic grips
- Available in range of force ratings of (10, 30, 50, 100 kN)
- Ideal for testing metals, composites, ceramics, plastics and wood/paper products
- Available with interchangeable serrated wedges for round or flat specimens
- Self-tightening during testing reduces slippage
- *See Wedges for Advantage Wedge Grips...**page 38***



Advantage Wedge

Model	Type	Force Capacity	Weight	Specimen Range	Compatible Frames	Temperature Rating	Attachment Type	Grip/Height Width
Advantage Wedge 10	Manual Wedge	10 kN (2.2 kip)	4.5 kg (10 lb)	See Wedges for Advantage Wedge Grips	C43.104 C43.304 C43.504 C44.104 C44.304 C44.504 C45.105	-130° C (-200° F) to 315° C (600° F)	D	Height 201.17 mm (7.92 in) Width 132.5 mm (5.22 in)
Advantage Wedge 30	Manual Wedge	30 kN (6.7 kip)	5.5 kg (12 lb)	See Wedges for Advantage Wedge Grips	C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	-130° C (-200° F) to 315° C (600° F)	D	Height 231.39 mm (9.11 in) Width 115 mm (4.50 in)
Advantage Wedge 50	Manual Wedge	50 kN (11 kip)	7.0 kg (15 lb)	See Wedges for Advantage Wedge Grips	C43.104 C43.304 C43.504 C44.104 C44.304 C44.504 C45.105	-130° C (-200° F) to 315° C (600° F)	D	Height 235.97 mm (9.29 in) Width 147.6 mm (5.81 in)
Advantage Wedge 100	Manual Wedge	100 kN (22 kip)	15 kg (33 lb)	See Wedges for Advantage Wedge Grips	C45.504 C45.105	-130° C (-200° F) to 315° C (600° F)	D	Height 269.24 mm (10.60 in) Width 191.52 mm (7.54 in)
Advantage Wedge 150	Manual Wedge	150 kN	18.1 kg (40 lb)	Choose appropriate wedge	C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105 C45.305	-130° C (-200° F) to 315° C (600° F)	D	Height 285.2 mm (11.23 in) Width 259.4 mm (10.22 in)
Advantage Wedge 300	Manual Wedge	300 kN	53.5 kg (118 lb)	Choose appropriate wedge	C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105 C45.305	-130° C (-200° F) to 315° C (600° F)	M36x2 Thread	Height 332 mm (13.1 in) Width 407 mm (16.0 in)

Tensile Grips for Series 40 (EM) Systems

Model 647 Hydraulic Wedge Grips

- Precision side-loading hydraulic wedge grips combine easy specimen insertion with highly accurate, repeatable loading
- Available in force ratings of 30 kN, 100 kN and 300 kN
- Ideal for tensile tests of metals, ceramics, composites, plastics and wood/paper products
- Adjustable pressure allows grips to be used for testing a wide range of materials
- A variety of wedge surfaces are available to meet any requirement

- *See Wedges for Model 647 Hydraulic Wedge Grips...page 38*
- *See Model 685 Hydraulic Grip Supplies/Controllers...page 32*

Model 647.02B

Model	Type	Force Capacity	Weight	Specimen Range	Compatible Frames	Temperature Rating	Hydraulic Power	Attachment Type	Grip/Height Width
647.02B	Side-loading Hydraulic Wedge	30 kN	7.30 kg (16.00 lb)	See Wedges for Model 647 Hydraulic Wedge Grips	C43.104 C43.304 C43.404 C44.104 C44.304 C45.504 C45.105	-40° to 177° C (-40° to 350° F)	See Model 685 Hydraulic Grip Supplies/ Controllers	D	Height 173.30 mm (6.82 in) Width 150.88 mm (5.94 in)
647.10A	Side-loading Hydraulic Wedge	100 kN	27.00 kg (60.00 lb)	See Wedges for Model 647 Hydraulic Wedge Grips	C45.504 C45.105	-40° to 177° C (-40° to 350° F)	See Model 685 Hydraulic Grip Supplies/ Controllers	D	Height 217.88 mm (8.58 in) Width 203.2 mm (8.00 in)
647.25A	Side-loading Hydraulic Wedge	300 kN	62.60 kg (138 lb)	See Wedges for Model 647 Hydraulic Wedge Grips	C45.504 C45.105 C45.305	-40° to 177° C (-40° to 350° F)	See Model 685 Hydraulic Grip Supplies/ Controllers	1 1/2-12 UNF and M36 x 2 mm	Height 224.8 mm (8.85 in) Width 266.7 mm (10.50 in)

MTS FUNDAMENTAL PNEUMATIC GRIP SUPPLY/CONTROLLER

- Required for proper operation of MTS Fundamental Pneumatic Bollard and Vise Grips
- Provides precise control of open/close functions, air pressure regulation and flow
- *See MTS Fundamental Bollard Grips...page 17*
- *See MTS Fundamental Vise Grips...page 19*

FPC2850

Model	Compatible Grip(s)	Output Pressure	Hose Diameter	Power Rating	Electrical Requirements
FPC2850	MTS Fundamental Pneumatic Grips: FCQA502A, FDQA103B	6.9 BAR (100 psi)	6 mm	5.5 W	12V DC

ADVANTAGE PNEUMATIC GRIP SUPPLY/CONTROLLER

- Required for proper operation of Advantage Pneumatic Grips.
- Provides precise control of open/close functions, air pressure regulation and flow
- Magnetic-mount handset or optional footswitch that makes specimen loading hassle-free
- *See Advantage Pneumatic Clamp Grips...page 27*

APG Controller

Optional Footswitch

Model	Compatible Grip(s)	Output Pressure	Hose Diameter	Power Rating	Electrical Requirements
APG Controller	Advantage Pneumatic 10, 100/200, 2000, 10,000	6.2 BAR (90 psi)	4 mm	2.5 W	120-240V AC
APG Controller Optional Footswitch	Advantage Pneumatic 10, 100/200, 2000, 10,000	–	–	—	

Tensile Grips for Series 40 (EM) Systems

685.22D-05

MODEL 685 HYDRAULIC GRIP SUPPLIES/CONTROLLERS

- Required for proper operation of Model 647 Hydraulic Wedge Grips
- Provide precise upper and lower grip clamp/release control, pressure control and rate adjustment
- Enable tight control of highly uniform and consistent clamping forces
- Intuitive, easy-to-use control interface facilitate streamlined test setup
- Special hydraulic fluid allows the grips to be used in environmental chambers at elevated temperatures
- Self-contained design allows for the use of hydraulic grips on non-hydraulic test systems
- *See Model 647 Hydraulic Wedge Grips...page 30*

Model	Compatible Grip(s)	Output Pressure	Hose Diameter	Power Rating	Electrical Requirements	Temperature Range	Dimensions (H x W x D)	Weight
685.22D-05	647.02B 647.10A	0.7 - 20.7 MPa (100 to 3000 psi)	.25 in	0.75 kW	115 V, 60 Hz	-40 to +177° C (-40 to +350° F)	91.44 x 44.45 x 43.18 cm	76 kg (170 lb)
685.22D-06	647.02B 647.10A	0.7 - 21 MPa (100 to 3000 psi)	.25 in	0.75 kW	100-115 V, 50 Hz	-40 to +177° C (-40 to +350° F)	91.44 x 44.45 x 43.18 cm	76 kg (170 lb)
685.22D-07	647.02B 647.10A	0.7 - 21 MPa (100 to 3000 psi)	.25 in	0.75 kW	208-230 V, 60 Hz	-40 to +177° C (-40 to +350° F)	91.44 x 44.45 x 43.18 cm	76 kg (170 lb)
685.22D-08	647.02B 647.10A	0.7 - 21 MPa (100 to 3000 psi)	.25 in	0.75 kW	200-240 V, 50 Hz	-40 to +177° C (-40 to +350° F)	91.44 x 44.45 x 43.18 cm	76 kg (170 lb)
685.10E-05	647.25A	10 to 70 MPa (1500 to 10000 psi)	.25 in	0.75 kW	115 V, 60 Hz	-40° C (-40° F) to 177° C (350° F)	91.44 x 44.45 x 43.18 cm	76 kg (170 lb)
685.10E-06	647.25A	10 to 70 MPa (1500 to 10000 psi)	.25 in	0.75 kW	100-115 V, 50 Hz	-40° C (-40° F) to 177° C (350° F)	91.44 x 44.45 x 43.18 cm	76 kg (170 lb)
685.10E-07	647.25A	10 to 70 MPa (1500 to 10000 psi)	.25 in	0.75 kW	208-230 V, 60 Hz	-40° C (-40° F) to 177° C (350° F)	91.44 x 44.45 x 43.18 cm	76 kg (170 lb)
685.10E-08	647.25A	10 to 70 MPa (1500 to 10000 psi)	.25 in	0.75 kW	200-240 V, 50 Hz	-40° C (-40° F) to 177° C (350° F)	91.44 x 44.45 x 43.18 cm	76 kg (170 lb)

GRIP FACES FOR MTS FUNDAMENTAL SCREW ACTION GRIPS

- *See MTS Fundamental Screw Grips...page 20*

Model	Type	Compatible Grip(s)	Profile	Dimensions	Temperature Range	Specimen Range	Force Capacity
FDSC503B.01	Flat Face	FDSC503B	Serrated	35 mm x 35 mm	0° C (32° F) to 50° C (122° F)	0-16 mm	5 kN
FDSC503B.02	Flat Face	FDSC503B	Rubber	35 mm x 35 mm	0° C (32° F) to 50° C (122° F)	0-16 mm	5 kN

GRIP FACES FOR ADVANTAGE PNEUMATIC GRIPS

» *See Advantage Pneumatic Clamp Grips...page 27*

Model	Type	Compatible Grip(s)	Profile	Dimensions	Temperature Range	Specimen Range	Force Capacity
APG101.01	Flat Face	Advantage Pneumatic 10	Smooth Steel	15 mm x 8 mm	-40° C (-40° F) to 200° C (400° F)	0-5 mm	.01 kN
APG101.02	Flat Face	Advantage Pneumatic 10	Serrated Steel	15 mm x 8 mm	-40° C (-40° F) to 200° C (400° F)	0- 5 mm	.01 kN
APG101.03	Flat Face	Advantage Pneumatic 10	Smooth Rubber	15 mm x 8 mm	0° C (32° F) to 50° C (122° F)	0- 5 mm	.01 kN
APG203.06	Flat Face	Advantage Pneumatic 100/200, 2000	Corrugated Rubber	25 mm x 25 mm	0° C (32° F) to 50° C (122° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.07	Flat Face	Advantage Pneumatic 100/200, 2000	Smooth Rubber	25 mm x 25 mm	0° C (32° F) to 50° C (122° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.08	Flat Face	Advantage Pneumatic 100/200, 2000	Steel Line Contact	25 mm x 25 mm	-40° C (-40° F) to 200° C (400° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.09	Flat Face	Advantage Pneumatic 100/200, 2000	Smooth Steel	70 mm x 25 mm	-40° C (-40° F) to 200° C (400° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.10	Flat Face	Advantage Pneumatic 100/200, 2000	Corrugated Steel	70 mm x 25 mm	-40° C (-40° F) to 200° C (400° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.11	Flat Face	Advantage Pneumatic 100/200, 2000	Serrated Steel	70 mm x 25 mm	-40° C (-40° F) to 200° C (400° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.12	Flat Face	Advantage Pneumatic 100/200, 2000	Saw-tooth Steel	70 mm x 25 mm	-40° C (-40° F) to 200° C (400° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.13	Flat Face	Advantage Pneumatic 100/200, 2000	Matte Rubber	70 mm x 25 mm	0° C (32° F) to 50° C (122° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.14	Flat Face	Advantage Pneumatic 100/200, 2000	Corrugated Rubber	70 mm x 25 mm	0° C (32° F) to 50° C (122° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.15	Flat Face	Advantage Pneumatic 100/200, 2000	Smooth Rubber	70 mm x 25 mm	0° C (32° F) to 50° C (122° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.16	Flat Face	Advantage Pneumatic 100/200, 2000	Smooth Steel	58 mm x 38 mm	-40° C (-40° F) to 200° C (400° F))	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.17	Flat Facel	Advantage Pneumatic 100/200, 2000	Corrugated Steel	58 mm x 38 mm	-40° C (-40° F) to 200° C (400° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.18	Flat Face	Advantage Pneumatic 100/200, 2000	Serrated Steel	58 mm x 38 mm	-40° C (-40° F) to 200° C (400° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN

continued next page...

GRIP FACES FOR ADVANTAGE PNEUMATIC GRIPS...continued

Model	Type	Compatible Grip(s)	Profile	Dimensions	Temperature Range	Specimen Range	Force Capacity
APG203.19	Flat Facel	Advantage Pneumatic 100/200, 2000	Saw-tooth Steel	58 mm x 38 mm	-40° C (-40° F) to 200° C (400° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.20	Flat Face	Advantage Pneumatic 100/200, 2000	Matte Rubber	58 mm x 38 mm	0° C (32° F) to 50° C (122° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.21	Flat Facel	Advantage Pneumatic 100/200, 2000	Corrugated Rubber	58 mm x 38 mm	0° C (32° F) to 50° C (122° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.22	Flat Face	Advantage Pneumatic 100/200, 2000	Smooth Rubber	58 mm x 38 mm	0° C (32° F) to 50° C (122° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.23	Flat Facel	Advantage Pneumatic 100/200, 2000	Steel Line Contact (R=4.75 mm)	58 mm x 38 mm	0° C (32° F) to 50° C (122° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.24	Flat Face	Advantage Pneumatic 100/200, 2000	Grab Test	58 mm x 38 mm	0° C (32° F) to 50° C (122° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.25	Flat Facel	Advantage Pneumatic 100/200, 2000	Smooth Rubber	25 mm x 12.5 mm	0° C (32° F) to 50° C (122° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.26	Flat Face	Advantage Pneumatic 100/200, 2000	Line Contact Rubber Opposite (R=4.75 mm)	25 mm x 12.5 mm	0° C (32° F) to 50° C (122° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.27	Flat Facel	Advantage Pneumatic 100/200, 2000	Line Contact Rubber Opposite (R=4.75 mm)	58 mm x 38 mm	0° C (32° F) to 50° C (122° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.28	Flat Face	Advantage Pneumatic 100/200, 2000	Saw-tooth Steel	150 mm x 25 mm	-40° C (-40° F) to 200° C (400° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.29	Flat Facel	Advantage Pneumatic 100/200, 2000	Line Contact Rubber Opposite (R=2.5 mm)	25 mm x 25 mm	0° C (32° F) to 50° C (122° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN
APG203.30	Flat Face	Advantage Pneumatic 100/200, 2000	Smooth Rubber	150 mm x 25 mm	0° C (32° F) to 50° C (122° F)	0-10 mm, 0-12 mm	.2 kN, 2 kN

GRIP FACES FOR ADVANTAGE SCREW GRIPS

» *See Advantage Screw Grips...page 28*

Model	Type	Compatible Grip(s)	Profile	Dimensions	Temperature Range	Specimen Range	Force Capacity
ASG104.01	Flat Face	Advantage Screw Action 5000, 10000	Corrugated Steel	50 mm x 75 mm	-40° C (-40° F) to 200° C (400° F)	0 to 25 mm	5 kN, 10 kN
ASG104.02	Flat Face	Advantage Screw Action 5000, 10000	Serrated Steel	50 mm x 75 mm	-40° C (-40° F) to 200° C (400° F)	0 to 25 mm	5 kN, 10 kN
ASG104.03	Flat Face	Advantage Screw Action 5000, 10000	Saw-tooth Steel	50 mm x 75 mm	-40° C (-40° F) to 200 C (400 F)	0 to 25 mm	5 kN, 10 kN
ASG104.04	Flat Face	Advantage Screw Action 5000, 10000	Matte Rubber	50 mm x 75 mm	6° C (32° F) to 50° C (122° F)	0 to 25 mm	5 kN, 10 kN
ASG104.05	Flat Face	Advantage Screw Action 5000, 10000	Corrugated Rubber	50 mm x 75 mm	6° C (32° F) to 50° C (122° F)	0 to 25 mm	5 kN, 10 kN
ASG104.06	Flat Face	Advantage Screw Action 5000, 10000	Smooth Rubber	50 mm x 75 mm	6° C (32° F) to 50° C (122° F)	0 to 25 mm	5 kN, 10 kN
ASG104.07	Flat Face	Advantage Screw Action 5000, 10000	Steel Line Contact (R=4.75 mm)	50 mm x 75 mm	-40° C (-40° F) to 200° C (400° F)	0 to 25 mm	5 kN, 10 kN
ASG104.08	Flat Face	Advantage Screw Action 5000, 10000	Grab Test	50 mm x 75 mm	-40° C (-40° F) to 200° C (400° F)	0 to 25 mm	5 kN, 10 kN
ASG104.09	Flat Face	Advantage Screw Action 5000, 10000	Line Contact Rubber Opposite (R=4.75 mm)	50 mm x 75 mm	6° C (32° F) to 50° C (122° F)	0 to 25 mm	5 kN, 10 kN

WEDGES FOR MTS FUNDAMENTAL WEDGE GRIPS

» *See MTS Fundamental Wedge Grips...page 22*

Model	Type	Compatible Grip(s)	Profile	Dimensions	Temperature Range	Specimen Range	Force Capacity
FXSA105A.01	Flat Wedge	FXSA105A, FXSA304A	Flat	40 mm x 55 mm	0° C (32° F) to 50° C (122° F)	0-7 mm	100 kN
FXSA105A.02	Flat Wedge	FXSA105A, FXSA304A	Flat	40 mm x 55 mm	0° C (32° F) to 50° C (122° F)	7-14 mm	100 kN
FXSA105A.03	Flat Wedge	FXSA105A, FXSA304A	Flat	40 mm x 55 mm	0° C (32° F) to 50° C (122° F)	14-21 mm	100 kN
FXSA105A.04	Vee Wedge	FXSA105A, FXSA304A	Vee	40 mm x 55 mm	0° C (32° F) to 50° C (122° F)	ø4-ø9 mm	100 kN
FXSA105A.05	Vee Wedge	FXSA105A, FXSA304A	Vee	40 mm x 55 mm	0° C (32° F) to 50° C (122° F)	ø9-ø14 mm	100 kN
FXSA105A.06	Vee Wedge	FXSA105A, FXSA304A	Vee	40 mm x 55 mm	0° C (32° F) to 50° C (122° F)	ø14-ø19 mm	100 kN
FXSA305A.01 x 2	Flat	FXSA305A	Flat face	50 mm x 62 mm	0° C (32° F) to 50° C (122° F)	0-8 mm	300 kN
FXSA305A.02 x 2	Flat	FXSA305A	Flat face	50 mm x 62 mm	0° C (32° F) to 50° C (122° F)	8-16 mm	300 kN
FXSA305A.03 x 2	Flat	FXSA305A	Flat face	50 mm x 62 mm	0° C (32° F) to 50° C (122° F)	16-24 mm	300 kN
FXSA305A.04 x 2	Flat	FXSA305A	Flat face	50 mm x 62 mm	0° C (32° F) to 50° C (122° F)	24-32 mm	300 kN
FXSA305A.05 x 2	Round	FXSA305A	Vee face	50 mm x 62 mm	0° C (32° F) to 50° C (122° F)	ø4-ø9 mm	300 kN
FXSA305A.06 x 2	Round	FXSA305A	Vee face	50 mm x 62 mm	0° C (32° F) to 50° C (122° F)	ø9-ø16 mm	300 kN
FXSA305A.07 x 2	Round	FXSA305A	Vee face	50 mm x 62 mm	0° C (32° F) to 50° C (122° F)	ø16-ø23 mm	300 kN
FXSA305A.08 x 2	Round	FXSA305A	Vee face	50 mm x 62 mm	0° C (32° F) to 50° C (122° F)	ø23-ø30 mm	300 kN
FXSA104B.01 x 2	Flat	FXSA104B	Flat face	35 mm x 40 mm	0° C (32° F) to 50° C (122° F)	0-7 mm	10 kN
FXSA104B.02 x 2	Flat	FXSA104B	Flat face	35 mm x 40 mm	0° C (32° F) to 50° C (122° F)	7-13 mm	10 kN
FXSA104B.03 x 2	Round	FXSA104B	Vee face	35 mm x 40 mm	0° C (32° F) to 50° C (122° F)	ø4-ø9 mm	10 kN
FXSA104B.04 x 2	Round	FXSA104B	Vee face	35 mm x 40 mm	0° C (32° F) to 50° C (122° F)	ø9-ø14 mm	10 kN

WEDGES FOR ADVANTAGE PNEUMATIC 10,000 GRIPS

» *See Advantage Pneumatic Clamp Grips...page 27*

Model	Type	Compatible Grip(s)	Profile	Dimensions	Temperature Range	Specimen Range	Force Capacity
APG104.01	Flat Wedge	Advantage Pneumatic 10,000	Saw-tooth Steel	25 mm x 38 mm	-40° C (-40° F) to 200° C (400° F)	18.8-25.9 mm	10 kN
APG104.02	Flat Wedge	Advantage Pneumatic 10,000	Saw-tooth Steel	25 mm x 38 mm	-40° C (-40° F) to 200° C (400° F)	0- 7.1 mm	10 kN
APG104.03	Flat Wedge	Advantage Pneumatic 10,000	Saw-tooth Steel	25 mm x 38 mm	-40° C (-40° F) to 200° C (400° F)	7.2 - 14.4 mm	10 kN
APG104.04	Vee Wedge	Advantage Pneumatic 10,000	Serrated Steel	25 mm x 38 mm	-40° C (-40° F) to 200° C (400° F)	3 - 8.1/9.4 mm	10 kN
APG104.05	Vee Wedge	Advantage Pneumatic 10,000	Serrated Steel	25 mm x 38 mm	-40° C (-40° F) to 200° C (400° F)	8.9 - 10.9/15.2 mm	10 kN
APG104.06	Vee Wedge	Advantage Pneumatic 10,000	Serrated Steel	25 mm x 38 mm	-40° C (-40° F) to 200° C (400° F)	14 - 18/20.8 mm	10 kN
APG104.07	Vee Wedge	Advantage Pneumatic 10,000	Serrated Steel	25 mm x 38 mm	-40° C (-40° F) to 200° C (400° F)	20.1 - 2.9/ 27.2 mm	10 kN
APG104.08	Round Wedge	Advantage Pneumatic 10,000	Surfalloy Steel	25 mm x 38 mm	-40° C (-40° F) to 200° C (400° F)	15 mm	10 kN
APG104.09	Round Wedge	Advantage Pneumatic 10,000	Saw-tooth Steel	25 mm x 38 mm	-40° C (-40° F) to 200° C (400° F)	12.7 mm	10 kN
APG104.10	Flat Wedge	Advantage Pneumatic 10,000	Surfalloy Steel	25 mm x 38 mm	-40° C (-40° F) to 200° C (400° F)	0 - 7.1 mm	10 kN
APG104.11	Flat Wedge –water cooled	Advantage Pneumatic 10,000	Saw-tooth Steel	25 mm x 38 mm	-40° C (-40° F) to 200° C (400° F)	0 - 7.1 mm	10 kN
APG104.12	Flat Wedge –water cooled	Advantage Pneumatic 10,000	Surfalloy Steel	25 mm x 38 mm	-40° C (-40° F) to 200° C (400° F)	0 - 7.1 mm	10 kN
APG104.13	Flat Wedge	Advantage Pneumatic 10,000	Saw-tooth Steel	50 mm x 38 mm	-40° C (-40° F) to 200° C (400° F)	0 - 7.1 mm	10 kN

WEDGES FOR ADVANTAGE WEDGE GRIPS

» *See Advantage Wedge Grips...page 29*

Model	Type	Compatible Grip(s)	Profile	Dimensions	Temperature Range	Specimen Range	Force Capacity
AWG504.01	Flat Wedge	Advantage 10, 30, 50	Serrated Steel	50 mm x 25 mm	-130° C (-200° F) to 315° C (600° F)	0- 7.9 mm	50 kN
AWG504.02	Flat Wedge	Advantage 10, 30, 50	Serrated Steel	50 mm x 25 mm	-130° C (-200° F) to 315° C (600° F)	6- 13.2 mm	50 kN
AWG504.03	Vee Wedge	Advantage 10, 30, 50	Serrated Steel	50 mm x 25 mm	-130° C (-200° F) to 315° C (600° F)	3- 7.9 mm	50 kN
AWG504.04	Vee Wedge	Advantage 10, 30, 50	Serrated Steel	50 mm x 25 mm	-130° C (-200° F) to 315° C (600° F)	7- 12.7 mm	50 kN
AWG504.05	Vee Wedge	Advantage 10, 30, 50	Serrated Steel	50 mm x 25 mm	-130° C (-200° F) to 315° C (600° F)	11.5- 16 mm	50 kN
AWG305.01	Flat Wedge	Advantage 100, 150, 300	Serrated Steel	50 mm x 50 mm	-130° C (-200° F) to 315° C (600° F)	0- 9 mm	300 kN
AWG305.02	Flat Wedge	Advantage 100, 150, 300	Serrated Steel	50 mm x 50 mm	-130° C (-200° F) to 315° C (600° F)	6.4- 16 mm	300 kN
AWG305.03	Vee Wedge	Advantage 100, 150, 300	Serrated Steel	50 mm x 50 mm	-130° C (-200° F) to 315° C (600° F)	5- 12.5 mm	300 kN
AWG305.04	Vee Wedge	Advantage 100, 150, 300	Serrated Steel	50 mm x 50 mm	-130° C (-200° F) to 315° C (600° F)	12.2- 19.5 mm	300 kN
AWG305.05	Vee Wedge	Advantage 100, 150, 300	Serrated Steel	50 mm x 50 mm	-130° C (-200° F) to 315° C (600° F)	3.2- 7.6 mm	300 kN

WEDGES FOR MODEL 647 HYDRAULIC WEDGE GRIPS

» *See Model 647 Hydraulic Wedge Grips...page 30*

Model	Type	Compatible Grip(s)	Profile	Dimensions	Temperature Range	Specimen Range	Force Capacity
647.10A.01	Flat Wedge	647.10A	Diamond Tip	63 mm x 50 mm	-40° to 177° C (-40° to 350° F)	0- 7.6 mm	120 kN
647.10A.02	Flat Wedge	647.10A	Diamond Tip	63 mm x 50 mm	-40° to 177° C (-40° to 350° F)	11.7- 19.1 mm	120 kN
647.10A.03	Vee Wedge	647.10A	Serrated Steel	63 mm x 50 mm	-40° to 177° C (-40° to 350° F)	5.8 - 10.2/11.9 mm	120 kN
647.10A.04	Vee Wedge	647.10A	Serrated Steel	63 mm x 50 mm	-40° to 177° C (-40° to 350° F)	10.9 - 12.7/16.5 mm	120 kN
647.02B.01	Flat Wedge	647.02B	Sawtooth	25 mm x 38 mm	-40° to 177° C (-40° to 350° F)	0- 7.2 mm	31 kN
647.02B.02	Flat Wedge	647.02B	Sawtooth	25 mm x 38 mm	-40° to 177° C (-40° to 350° F)	7.2-14.4 mm	31 kN
647.02B.03	Flat Wedge	647.02B	Sawtooth	25 mm x 38 mm	-40° to 177° C (-40° to 350° F)	13.4-20.5 mm	31 kN
647.02B.04	Flat Wedge	647.02B	Sawtooth	25 mm x 38 mm	-40° to 177° C (-40° to 350° F)	18.8-25.9 mm	31 kN
647.02B.05	Vee Wedge	647.02B	Diamond Tip	25 mm x 38 mm	-40° to 177° C (-40° to 350° F)	3.0 - 8.1/ 9.4 mm	31 kN
647.02B.06	Vee Wedge	647.02B	Diamond Tip	25 mm x 38 mm	-40° to 177° C (-40° to 350° F)	8.9 - 10.9/15.2 mm	31 kN
647.25A.01	Flat Wedge	647.25A	Diamond Tip	50.8 x 88.9 mm (2 x 3.5 in)	-40° to 177° C (-40° to 350° F)	1.02 to 11.9 mm	333 kN
647.25A.02	Flat Wedge	647.25A	Diamond Tip	50.8 x 88.9 mm (2 x 3.5 in)	-40° to 177° C (-40° to 350° F)	6.10 to 17.0 mm	333 kN
647.25A.03	Flat Wedge	647.25A	Diamond Tip	50.8 x 88.9 mm (2 x 3.5 in)	-40° to 177° C (-40° to 350° F)	15.0 to 25.9 mm	333 kN
647.25A.04	Vee Wedge	647.25A	Serrated Steel	50.8 x 88.9 mm (2 x 3.5 in)	-40° to 177° C (-40° to 350° F)	6.4 to 13.5 mm	333 kN
647.25A.05	Vee Wedge	647.25A	Serrated Steel	50.8 x 88.9 mm (2 x 3.5 in)	-40° to 177° C (-40° to 350° F)	10.7 to 19.84 mm	333 kN
647.25A.06	Vee Wedge	647.25A	Serrated Steel	50.8 x 88.9 mm (2 x 3.5 in)	-40° to 177° C (-40° to 350° F)	16.8 to 26.2 mm	333 kN

IINSERTS FOR MTS FUNDAMENTAL NUT/BOLT/SHOULDER GRIPS

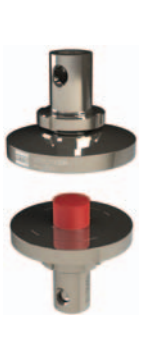
» *See MTS Fundamental Nut/Bolt/Shoulder Grips for Series 40 Systems*

Model	Type	Compatible Grip(s)	Temperature Range	Specimen Range	Force Capacity
FLA105B.01	Bolt	FLA105B	0° C (32° F) to 50° C (122° F)	M4	100 k N
FLA105B.02	Bolt	FLA105B	0° C (32° F) to 50° C (122° F)	M5	100 kN
FLA105B.03	Bolt	FLA105B	0° C (32° F) to 50° C (122° F)	M6	100 kN
FLA105B.04	Bolt	FLA105B	0° C (32° F) to 50° C (122° F)	M8	100 kN
FLA105B.05	Bolt	FLA105B	0° C (32° F) to 50° C (122° F)	M10	100 kN
FLA105B.06	Bolt	FLA105B	0° C (32° F) to 50° C (122° F)	M12	100 kN
FLA105B.07	Nut	FLA105B	0° C (32° F) to 50° C (122° F)	M4	100 kN
FLA105B.08	Nut	FLA105B	0° C (32° F) to 50° C (122° F)	M5	100 kN
FLA105B.09	Nut	FLA105B	0° C (32° F) to 50° C (122° F)	M6	100 kN
FLA105B.10	Nut	FLA105B	0° C (32° F) to 50° C (122° F)	M8	100 kN
FLA105B.11	Nut	FLA105B	0° C (32° F) to 50° C (122° F)	M10	100 kN
FLA105B.12	Nut	FLA105B	0° C (32° F) to 50° C (122° F)	M12	100 kN
FTA105B.01	Shoulder	FTA105B	0° C (32° F) to 50° C (122° F)	ϕ3 mm	100 kN
FTA105B.02	Shoulder	FTA105B	0° C (32° F) to 50° C (122° F)	ϕ5 mm	100 kN
FTA105B.03	Shoulder	FTA105B	0° C (32° F) to 50° C (122° F)	ϕ6 mm	100 kN
FTA105B.04	Shoulder	FTA105B	0° C (32° F) to 50° C (122° F)	ϕ8 mm	100 kN
FTA105B.05	Shoulder	FTA105B	0° C (32° F) to 50° C (122° F)	ϕ10 mm	100 kN

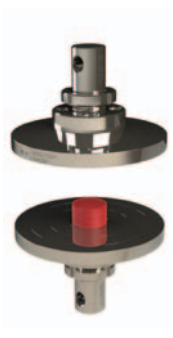
Compression Platens for Series 40 (EM) Systems

MTS Fundamental Steel Compression Platens

- Value-priced, steel platens for compression testing of foam, composites, bottles, and plastic containers
- Available in a variety of diameters with force ratings of 20 kN, 100 kN and 300 kN
- Precision-ground, hardened surfaces enhance platen durability
- Specimen centering grooves, anti-rotation features and integrated alignment pins enhance test accuracy and repeatability


FYA204A

FYA105A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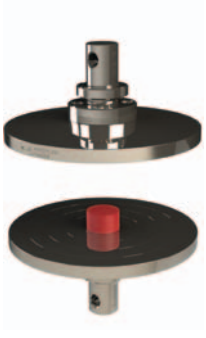

FYC204A

FYC105A

FYD204A

Model	Type	Force Rating	Weight	Specimen Range	Compatible Frames	Temperature Rating	Attachment Type	Platen Height/ Width
FYA204A	Steel Platen	20 kN	0.149 kg	Φ100 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	-50° C (-58° F) to 150° C (302° F)	D	Height 63 mm (2.480 in) Diameter 100 mm (3.937 in)
FYA105A	Steel Platen	100 kN	2.434 kg	Φ100 mm	C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	-50° C (-58° F) to 150° C (302° F)	D	Height 86 mm (3.386 in) Diameter 100 mm (3.937 in)
FYA305A	Steel Platen	300 kN	4.2 kg	Φ100 mm	C45.305	-50° C (-58° F) to 150° C (302° F)	E	Height 98 mm (3.86 in) WIDTH 100 mm (3.94 in)
FYB204A	Steel Platen	20 kN	3.433 kg	Φ150 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	-50° C (-58° F) to 150° C (302° F)	D	Height 81 mm (3.386 in) Diameter 150 mm (5.906 in)

continued next page...

Compression Platens for Series 40 (EM) Systems

MTS Fundamental Steel Compression Platens...continued

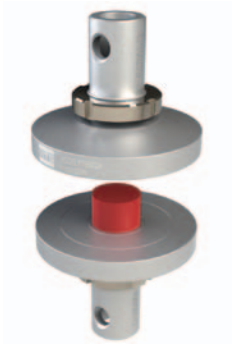
Model	Type	Force Rating	Weight	Specimen Range	Compatible Frames	Temperature Rating	Attachment Type	Platen Height/ Width
FYB105A	Steel Platen	100 kN	4.181 kg	Φ150 mm	C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	-50° C (-58° F) to 150° C (302° F)	D	Height 86 mm (3.386 in) Diameter 100 mm (3.937 in)
FYB305A	Steel Platen	300 kN	8.9 kg	Φ150 mm	C45.305	-50° C (-58° F) to 150° C (302° F)	E	Height 125 mm (4.92 in) Diameter 150 mm 5.91 in)
FYC204A	Steel Platen	20 kN	5.305 kg	Φ200 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	-50° C (-58° F) to 150° C (302° F)	D	Height 81 mm (3.189 in) Diameter 200 mm (7.874 in)
FYC105A	Steel Platen	100 kN	6.637 kg	Φ200 mm	C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	-50° C (-58° F) to 150° C (302° F)	D	Height 86 mm (3.386 in Diameter 200 mm (7.874 in)
FYC305A	Steel Platen	300 kN	12 kg	Φ200 mm	C45.305	-50° C (-58° F) to 150° C (302° F)	E	Height 125 mm (4.92 in) Diameter 200 mm (7.87 in)
FYD204A	Stainless Steel Platen	20 kN	1.501 kg	Φ100 mm	C44.104 C44.304 C45.504 C45.105	-70° C (-94° F) to 350° C (662° F)	D	Height 63 mm (2.480 in) Diameter 100 mm (3.937 in)
FYD105A	Stainless Steel Platen	100 kN	5.03 kg	Φ150 mm	C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	0° C (32° F) to 50° C (122° F)	D	Height 100 mm (3.94 in) Diameter 150 mm (5.91 in)

Compression Platens for Series 40 (EM) Systems

MTS Fundamental Aluminum Compression Platens

- Value-priced, lightweight aluminum platens for compression testing of polystyrene, rubber, composites and sintered materials and components
- Designed for accurate testing with small load cells (1 kN and less)
- Available in a variety of diameters with force ratings of .5 kN
- Specimen centering grooves, anti-rotation features and integrated alignment pins enhance test accuracy and repeatability

FYA502A



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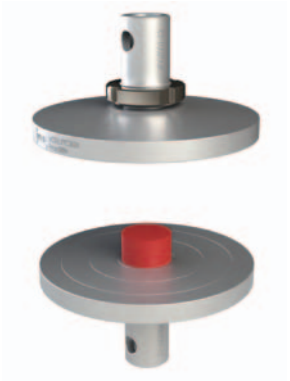


FYC502A

Model	Type	Force Rating	Weight	Specimen Range	Compatible Frames	Temperature Rating	Attachment Type	Platen Height/ Width
FYA502A	Aluminum Platen	0.5 kN	0.280 kg	Φ50 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	-50° C (-58° F) to 100· C (212° F)	D	Height 63 mm (2.480 in) Diameter 50 mm (1.969 in)
FYB502A	Aluminum Platen	0.5 kN	0.548 kg	Φ100 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	-50° C (-58° F) to 100° C (212° F)	D	Height 63 mm (2.480 in) Diameter 100 mm (3.937 in)
FYC502A	Aluminum Platen	0.5 kN	0.966 kg	Φ150 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	-50° C (-58° F) to 100° C (212° F)	D	Height 63 mm (2.480 in) Diameter 150 mm (5.906 in)

Bionix Stainless Steel Compression Platens

- Value-priced, stainless steel platens suitable for compression tests of irregular biomaterials, bone, cartilage, tendons and replacement biomedical components in fluid bath environments
- Precision-ground, hardened surfaces enhance platen durability
- Available in a variety of diameters with force ratings of 10 kN
- Specimen centering grooves, anti-rotation features and integrated alignment pins enhance test accuracy and repeatability
- *See Fluid Baths for Series 40 (EM) Systems...page 61*

EnviroBath
Optional Grip.02

Model	Type	Force Rating	Weight	Maximum Specimen Diameter	Compatible Frames	Temperature Rating	Attachment Type	Height (each from clevis center)
EnviroBath Optional Grip.02	Stainless Steel Platen	10 kN	681 g	Φ50 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	- 130° C to 250° C	D	64 mm
EnviroBath Optional Grip.03	Stainless Steel Platen	10 kN	1820 g	Φ100 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	- 130° C to 250° C	D	64 mm
EnviroBath Optional Grip.04	Stainless Steel Platen	10 kN	3725 g	Φ150 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	- 130° C to 250° C	D	64 mm

Compression Platens for Series 40 (EM) Systems

Compession Platen

Model 643 Compression Platens

» Manufactured from case-hardened steel with hard chrome plating

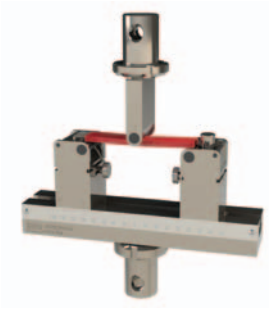
» Feature spherical seats on upper grips and etched concentric rings to ensure test accuracy and repeatability

» Available in a variety of geometries with force rating of 100 kN

Model	Type	Force Rating	Weight	Specimen Range	Compatible Frames	Temperature Rating	Attachment Type	Platen Height/ Diameter
643.06A-01/-02	Steel Platen	100 kN	1.4 kg (3.2 lb)	5-58 mm	C44.104 C44.304 C45.504 C45.105 C45.305	-129° C to 177° C (-200° F to 350° F)	D	63.5 mm (2.5 in)/ 58.4 mm (2.3 in)
643.06A-03/-04	Steel Platen	100 kN	0.8 kg (1.8 lb)	5-58 mm	C44.104 C44.304 C45.504 C45.105 C45.305	-129° C to 177° C (-200° F to 350° F)	D	36.8 mm (1.45 in)/ 58.4 mm (2.3 in)
643.10A-01/-02	Steel Platen	100 kN	3.9 kg (8.6 lb)	5-102 mm	C44.104 C44.304 C45.504 C45.105 C45.305	-129° C to 177° C (-200° F to 350° F)	D	82.8 mm (3.26 in)/ 101.6 mm (4 in)
643.10A-03/-04	Steel Platen	100 kN	3.1 kg (6.8 lb)	5-102 mm	C44.104 C44.304 C45.504 C45.105 C45.305	-129° C to 177° C (-200° F to 350° F)	D	53.8 mm (2.12 in)/ 101.6 mm (4 in)
643.15A-01/-02	Steel Platen	100 kN	11.5 kg (25.4 lb)	5-152 mm	C44.104 C44.304 C45.504 C45.105 C45.305	-129° C to 177° C (-200° F to 350° F)	D	115.1 mm (4.53 in)/ 152.4 mm (6 in)
643.15A-03/-04	Steel Platen	100 kN	3.8 kg (8.4 lb)	5-152 mm	C44.104 C44.304 C45.504 C45.105 C45.305	-129° C to 177° C (-200° F to 350° F)	D	57.2 mm (2.25 in)/ 152.4 mm (6 in)
643.20A-01/-02	Steel Platen	100 kN	4.5 kg (10.0 lb)	5-203 mm	C44.104 C44.304 C45.504 C45.105 C45.305	-129° C to 177° C (-200° F to 350° F)	D	151.1 mm (5.95 in)/ 203.2 mm (8 in)
643.20A-03/-04	Steel Platen	100 kN	3.8 kg (8.4 lb)	5-203 mm	C44.104 C44.304 C45.504 C45.105 C45.305	-129° C to 177° C (-200° F to 350° F)	D	69.9 mm (2.75 in)/ 203.2 mm (8 in)
643.30A-01/-02	Steel Platen	100 kN	92.5 kg (203.9 lb)	5-305 mm	C44.104 C44.304 C45.504 C45.105 C45.305	-129° C to 177° C (-200° F to 350° F)	D	215.9 mm (8.5 in)/ 304.8 mm (12 in)
643.30A-03/-04	Steel Platen	100 kN	61.6 kg (135.9 lb)	5-305 mm	C44.104 C44.304 C45.504 C45.105	-129° C to 177° C (-200° F to 350° F)	D	101.6 mm (4 in)/ 304.8 mm (12 in)

MTS Fundamental 3-Point Bend Fixtures

- Value-priced fixtures for a wide range of flexural (bend) tests on metals composites, plastics and other materials
- Available in a range sizes with force capacities of 10 kN, 100 kN and 300 kN
- Flexible configurations provide either a region of constant stress or a line of maximum stress
- Precision machined rollers are made from corrosion-resistant hardened steel
- Adjustable spans feature metric scales



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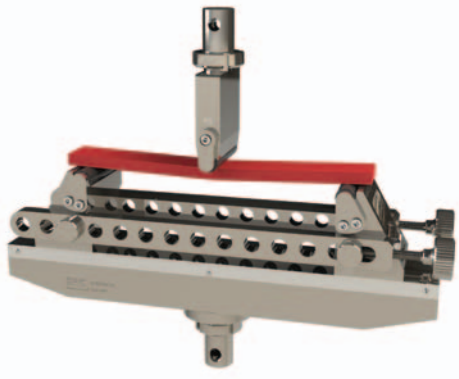


FWA105A

FWB104A

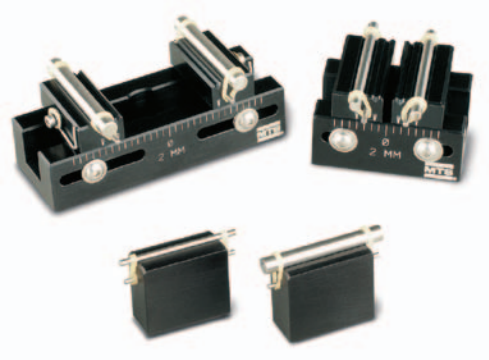
FWA305A

Model	Type	Force Rating	Specimen Width	Upper Roller Diameter (Loading Nose Radius)	Lower Roller Diameter (Support Rod Radius)	Support Span	Compatible Frames	Temperature Rating
FWA104A	3 Point Flexure	10 kN	40 mm	5, 2 mm	5 mm, 2 mm	40-160 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	-50° C (-58° F) to 150° C (302° F)
FWA105A	3 Point Flexure	100 kN	80 mm	10 mm	10 mm	30-360 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	-50° C (-58° F) to 150° C (302° F)
FWA305A	3 Point Flexure	300 kN	90 mm	15 mm	15 mm	30-340 mm	C45.305	-50° C (-58° F) to 150° C (302° F)
FWB104A	3 Point Flexure	10 kN	40 mm	5, 2 mm	5 mm, 2 mm	40-160 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	-70° C (-94° F) to 350° C (662° F)

Bend Fixtures for Series 40 (EM) Systems

Model 642 Three & Four-Point Bend Fixtures

- Modular design accommodates 3 and 4-point configurations for a wide range of flexural (bend) testing of metals, composites, plastics and other materials
- Available in a range sizes with force capacities of 2.89, 10 and 100 kN
- Flexible configurations provide either a region of constant stress or a line of maximum stress
- Precision machined rollers are made from corrosion-resistant hardened steel
- Adjustable spans feature English and metric scales
- *See EM Bend Fixture Rollers...page 47*



642.001A-02

642.01-02

642.10A-02

Model	Type	Force Rating	Specimen Width	Upper Roller Diameter (Loading Nose Radius)	Lower Roller Diameter (Support Rod Radius)	Support Span	Compatible Frames	Temperature Rating
642.001A-02	3& 4 Point Flexure	2.89 kN	25 mm	1, 2, 3, 4, 5 mm	1, 2, 3, 4, 5 mm	14-60 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	-129° C (-200° F) to 150° C (300° F)
642.01-02	3& 4 Point Flexure	10 kN	50 mm	See EM Bend Fixture Rollers	See EM Bend Fixture Rollers	24-152 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	-129° C (-200° F) to 177° C (350° F)
642.10A-02	3& 4 Point Flexure	100 kN	75 mm	See EM Bend Fixture Rollers	See EM Bend Fixture Rollers	38-305 mm	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	-129° C (-200° F) to 177° C (350° F)
642.25B-02	3 & 4 Point Flexure	300 kN	127 mm	See EM Bend Fixture Rollers	See EM Bend Fixture Rollers	79-610 mm	C45.305	-129° C (-200° F) to 177° C (350° F)

ROLLERS FOR MODEL 642 BEND FIXTURES

» *See Model 642 Three & Four-Point Bend Fixtures...page 46*

Model	Compatible Fixtures	Roller Diameter	Force Rating
642.01.01	642.01-02	Φ5 mm	10 kN
642.01.02	642.01-02	Φ10 mm	10 kN
642.01.03	642.01-02	Φ25 in	10 kN
642.01.04	642.01-02	Φ.5 in	10 kN
642.10.01	642.10A-02	Φ5 mm	100 kN
642.10.02	642.10A-02	Φ10 mm	100 kN
642.10.03	642.10A-02	Φ15 mm	100 kN
642.10.04	642.10A-02	Φ20 mm	100 kN
642.10.05	642.10A-02	Φ25 mm	100 kN
642.10.06	642.10A-02	Φ.25 in	100 kN
642.10.07	642.10A-02	Φ.375 in	100 kN
642.10.08	642.10A-02	Φ.5 in	100 kN
642.10.09	642.10A-02	Φ.75 in	100 kN
642.10.10	642.10A-02	Φ1 in	100 kN
642.25.01	642.25B-02	Φ20 mm	300 kN
642.25.02	642.25B-02	Φ30 mm	300 kN
642.25.03	642.25B-02	Φ40 mm	300 kN
642.25.04	642.25B-02	Φ50 mm	300 kN
642.25.05	642.25B-02	Φ0.75 in	300 kN
642.25.06	642.25B-02	Φ1.00 in	300 kN
642.25.07	642.25B-02	Φ1.25 in	300 kN
642.25.08	642.25B-02	Φ1.50 in	300 kN
642.25.09	642.25B-02	Φ1.75 in	300 kN
642.25.10	642.25B-02	Φ2.00 in	300 kN

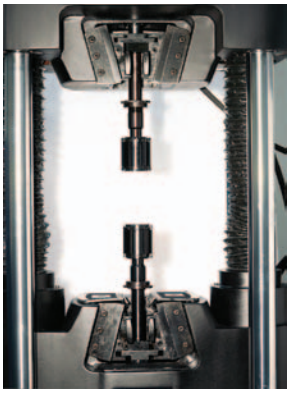
MTS Fundamental Universal Joint

» Anti-rotation features and integrated alignment pins enhance test accuracy and repeatability

Universal Joint

Model	Type	Force Capacity	Weight	Compatible Frames	Temperature Rating	Attachment Type	Grip Height/ Diameter
FWX105	Universal Joint	100 kN	4 kg (8.8 lb)	All	0° C (32° F) to 50° C (122° F)	D	139 mm (5.5 in)/ Φ84 mm (3.4 in)

Tensile Grips for Series 60 (StH) Systems



F-JLT305A1 – shouldered grip

MTS Fundamental Shouldered Grips

- Value-priced high force grips designed for tensile tests of shoulder-ended metal parts
- Available in 300, 600 and 1000 kN force ratings

Model	Type	Force Capacity	Weight	Specimen Range	Compatible Frames	Temperature Range	Attachment Type
F-JLT305A1	Shouldered	300 kN	15 kg (33 lb)	12.5 mm	C64.305	0° C (32° F) to 50° C (122° F)	Wedge grip
F-JLT605A1	Shouldered	600 kN	15.5 kg (34 lb)	12.5 mm	C64.605	0° C (32° F) to 50° C (122° F)	Wedge grip
F-JLT106A1	Shouldered	1000 kN	17.5 kg (39 lb)	12.5 mm	C64.106	0° C (32° F) to 50° C (122° F)	Wedge grip

MTS Fundamental Nut/Bolt Grips

- Value-priced grips enable tension, proof load and wedge load tests for bolts, screws, studs, nuts, washers and rivets
- Available in force ratings of 300, 600, 1000 kN and 2000 kN
- Accommodate two types of loading plates and a selection of inserts for testing bolts on a wide range of thread configurations and nuts on a wide range of nut configurations (M5, M6, M8, M10, M16, M20, M24, M30)
- Three kinds of wedge angles (4°, 6° and 10°) support a variety of loading applications

- *See Bolt Grip Inserts...page 50*
- *See Nut Grip Inserts...page 51*

Model	Type	Force Capacity	Weight	Specimen Range	Compatible Frames	Temperature Range	Attachment Type
F-JLL305A	Nut/Bolt Grips Main	300 kN	13.3 kg (29 lb)	See Nut Grip Inserts	C64.305	0° C (32° F) to 50° C (122° F)	Wedge grip
F-JLL605A	Nut/Bolt Grips Main	600 kN	26 kg (57 lb)	See Nut Grip Inserts	C64.605	0° C (32° F) to 50° C (122° F)	Wedge grip
F-JLL106A	Nut/Bolt Grips Main	1000 kN	28.6 kg (63 lb)	See Nut Grip Inserts	C64.106	0° C (32° F) to 50° C (122° F)	Wedge grip
F-JLL206A	Nut/Bolt Grips Main	2000 kN	32 kg (71 lb)	See Bolt Grip Inserts	C64.206	0° C (32° F) to 50° C (122° F)	Wedge grip

MTS Fundamental Wire Strand Grips

- Value priced grips enable tension, proof load and wedge load tests for stranded wire
- Available in force ratings of 1000 kN and 2000 kN
- 1000 kN grips require Wire Strand Inserts

Model	Type	Force Capacity	Weight	Specimen Range	Compatible Frames	Temperature Range	Attachment Type
F-JLJ106A1	Wire Strand grip main	1000 kN	44 kg	See Wire Strand Grip Inserts	C64.106	0° C (32° F) to 50° C (122° F)	Wedge grip
F-JLJ206A1-01	Wire Strand grip	2000 kN	10.7 kg	18 mm round	C64.206	0° C (32° F) to 50° C (122° F)	Wedge grip
F-JLJ206A1-02	Wire Strand grip	2000 kN	11 kg	15.2 mm round	C64.206	0° C (32° F) to 50° C (122° F)	Wedge grip
F-JLJ206A1-03	Wire Strand grip	2000 kN	11.3 kg	12.7 mm round	C64.206	0° C (32° F) to 50° C (122° F)	Wedge grip
F-JLJ206A1-04	Wire Strand grip	2000 kN	11.7 kg	9.2 mm round	C64.206	0° C (32° F) to 50° C (122° F)	Wedge grip

WEDGE FACES FOR SERIES 60 LOAD FRAMES

Model	Type	Compatible Load Frame(s)	Weight	Temperature Range	Specimen Range	Force Capacity
F-JL305A1.01-01	Flat Wedge Face	C64.305	1.4 kg	0° C (32° F) to 50° C (122° F)	2-13 mm	300 kN
F-JL305A1.01-02	Flat Wedge Face	C64.305	1.1 kg	0° C (32° F) to 50° C (122° F)	13-25 mm	300 kN
F-JL305A1.02-01	Vee Wedge Face	C64.305	1.4 kg	0° C (32° F) to 50° C (122° F)	6-12 mm	300 kN
F-JL305A1.02-02	Vee Wedge Face	C64.305	1.2 kg	0° C (32° F) to 50° C (122° F)	12-20 mm	300 kN
F-JL305A1.02-03	Vee Wedge Face	C64.305	1.1 kg	0° C (32° F) to 50° C (122° F)	20-32 mm	300 kN
F-JL605A1.01-01	Flat Wedge Face	C64.605	1.8 kg	0° C (32° F) to 50° C (122° F)	2-16 mm	600 kN
F-JL605A1.01-02	Flat Wedge Face	C64.605	1.4 kg	0° C (32° F) to 50° C (122° F)	16-30 mm	600 kN
F-JL605A1.02-01	Vee Wedge Face	C64.605	1.7 kg	0° C (32° F) to 50° C (122° F)	10-20 mm	600 kN
F-JL605A1.02-02	Vee Wedge Face	C64.305	1.4 kg	0° C (32° F) to 50° C (122° F)	20-30 mm	600 kN
F-JL605A1.02-03	Vee Wedge Face	C64.305	1.2 kg	0° C (32° F) to 50° C (122° F)	30-40 mm	600 kN
F-JL106A1.01-01	Flat Wedge Face	C64.106	3.9 kg	0° C (32° F) to 50° C (122° F)	2-20 mm	1000 kN
F-JL106A1.01-02	Flat Wedge Face	C64.106	3.1 kg	0° C (32° F) to 50° C (122° F)	20-40 mm	1000 kN
F-JL106A1.02-01	Vee Wedge Face	C64.106	3.6 kg	0° C (32° F) to 50° C (122° F)	15-25 mm	1000 kN
F-JL106A1.02-02	Vee Wedge Face	C64.106	3.1 kg	0° C (32° F) to 50° C (122° F)	25-36 mm	1000 kN
F-JL106A1.02-03	Vee Wedge Face	C64.106	2.8 kg	0° C (32° F) to 50° C (122° F)	36-40 mm	1000 kN
F-JL106A1.02-04	Vee Wedge Face	C64.106	2.5 kg	0° C (32° F) to 50° C (122° F)	40-55 mm	1000 kN
F-JL206A1.01-01	Flat Wedge Face	C64.206	9.2 kg	0° C (32° F) to 50° C (122° F)	10-40 mm	2000 kN
F-JL206A1.01-02	Flat Wedge Face	C64.206	6.5 kg	0° C (32° F) to 50° C (122° F)	40-70 mm	2000 kN
F-JL206A1.02-01	Flat Wedge Face	C64.206	10.5 kg	0° C (32° F) to 50° C (122° F)	15-25 mm	2000 kN
F-JL206A1.02-02	Flat Wedge Face	C64.206	8.9 kg	0° C (32° F) to 50° C (122° F)	25-40 mm	2000 kN
F-JL206A1.02-03	Vee Wedge Face	C64.206	7.7 kg	0° C (32° F) to 50° C (122° F)	40-55 mm	2000 kN
F-JL206A1.02-04	Vee Wedge Face	C64.206	8.1 kg	0° C (32° F) to 50° C (122° F)	55-70 mm	2000 kN

BOLT GRIP INSERTS

» *See MTS Fundamental Nut/Bolt Grips...page 48*

Model	Compatible Grips	Insert Type	Force Rating
F-JLL305A1.01-01	F-JLL305A	Threaded adapter (M5)	300 kN
F-JLL305A1.01-02	F-JLL305A	Threaded adapter (M6)	300 kN
F-JLL305A1.01-03	F-JLL305A	Threaded adapter (M8)	300 kN
F-JLL305A1.01-04	F-JLL305A	Threaded adapter (M10)	300 kN
F-JLL305A1.01-05	F-JLL305A	Threaded adapter (M12)	300 kN
F-JLL305A1.01-06	F-JLL305A	Threaded adapter (M16)	300 kN
F-JLL305A1.01-07	F-JLL305A	Threaded adapter (M20)	300 kN
F-JLL605A1.01-01	F-JLL605A	Threaded adapter (M5)	600 kN
F-JLL605A1.01-02	F-JLL605A	Threaded adapter (M6)	600 kN
F-JLL605A1.01-03	F-JLL605A	Threaded adapter (M8)	600 kN
F-JLL605A1.01-04	F-JLL605A	Threaded adapter (M10)	600 kN
F-JLL605A1.01-05	F-JLL605A	Threaded adapter (M12)	600 kN
F-JLL605A1.01-06	F-JLL605A	Threaded adapter (M16)	600 kN
F-JLL605A1.01-07	F-JLL605A	Threaded adapter (M20)	600 kN
F-JLL605A1.01-08	F-JLL605A	Threaded adapter (M24)	600 kN
F-JLL106A1.01-01	F-JLL106A	Threaded adapter (M5)	1000 kN
F-JLL106A1.01-02	F-JLL106A	Threaded adapter (M6)	1000 kN
F-JLL106A1.01-03	F-JLL106A	Threaded adapter (M8)	1000 kN
F-JLL106A1.01-04	F-JLL106A	Threaded adapter (M10)	1000 kN
F-JLL106A1.01-05	F-JLL106A	Threaded adapter (M12)	1000 kN
F-JLL106A1.01-06	F-JLL106A	Threaded adapter (M16)	1000 kN
F-JLL106A1.01-07	F-JLL106A	Threaded adapter (M20)	1000 kN
F-JLL106A1.01-08	F-JLL106A	Threaded adapter (M24)	1000 kN
F-JLL106A1.01-09	F-JLL106A	Threaded adapter (M30)	1000 kN
F-JLL206A1.01-01	F-JLL206A	Threaded adapter (M20)	2000 kN
F-JLL206A1.01-02	F-JLL206A	Threaded adapter (M24)	2000 kN
F-JLL206A1.01-03	F-JLL206A	Threaded adapter (M27)	2000 kN
F-JLL206A1.01-04	F-JLL206A	Threaded adapter (M30)	2000 kN
F-JLL206A1.02-05	F-JLL206A	Threaded adapter (M33)	2000 kN
F-JLL206A1.02-06	F-JLL206A	Threaded adapter (M36)	2000 kN
F-JLL206A1.01-07	F-JLL206A	Threaded adapter (M39)	2000 kN
F-JLL206A1.01-08	F-JLL206A	Threaded adapter (M42)	2000 kN
F-JLL206A1.01-09	F-JLL206A	Threaded adapter (M45)	2000 kN
F-JLL206A1.01-10	F-JLL206A	Threaded adapter (M48)	2000 kN
F-JLL206A1.01-11	F-JLL206A	Threaded adapter (M52)	2000 kN

NUT GRIP INSERTS

» *See MTS Fundamental Nut/Bolts Grips...page 48*

Model	Compatible Grips	Insert Type	Force Rating
F-JLL305A2.01-01	F-JLL305A	High strength bolts (M5)	300 kN
F-JLL305A2.01-02	F-JLL305A	High strength bolts (M6)	300 kN
F-JLL305A2.01-03	F-JLL305A	High strength bolts (M8)	300 kN
F-JLL305A2.01-04	F-JLL305A	High strength bolts (M10)	300 kN
F-JLL305A2.01-05	F-JLL305A	High strength bolts (M12)	300 kN
F-JLL305A2.01-06	F-JLL305A	High strength bolts (M16)	300 kN
F-JLL305A2.01-07	F-JLL305A	High strength bolts (M20)	300 kN
F-JLL605A2.01-01	F-JLL605A	High strength bolts (M5)	600 kN
F-JLL605A2.01-02	F-JLL605A	High strength bolts (M6)	600 kN
F-JLL605A2.01-03	F-JLL605A	High strength bolts (M8)	600 kN
F-JLL605A2.01-04	F-JLL605A	High strength bolts (M10)	600 kN
F-JLL605A2.01-05	F-JLL605A	High strength bolts (M12)	600 kN
F-JLL605A2.01-06	F-JLL605A	High strength bolts (M16)	600 kN
F-JLL605A2.01-07	F-JLL605A	High strength bolts (M20)	600 kN
F-JLL605A2.01-08	F-JLL605A	High strength bolts (M24)	600 kN
F-JLL106A2.01-01	F-JLL106A	High strength bolts (M5)	1000 kN
F-JLL106A2.01-02	F-JLL106A	High strength bolts (M6)	1000 kN
F-JLL106A2.01-03	F-JLL106A	High strength bolts (M8)	1000 kN
F-JLL106A2.01-04	F-JLL106A	High strength bolts (M10)	1000 kN
F-JLL106A2.01-05	F-JLL106A	High strength bolts (M12)	1000 kN
F-JLL106A2.01-06	F-JLL106A	High strength bolts (M16)	1000 kN
F-JLL106A2.01-07	F-JLL106A	High strength bolts (M20)	1000 kN
F-JLL106A2.01-08	F-JLL106A	High strength bolts (M24)	1000 kN
F-JLL106A2.01-09	F-JLL106A	High strength bolts (M30)	1000 kN
F-JLL206A2.03-01	F-JLL206A	High strength bolts (M20)	2000 kN
F-JLL206A2.03-02	F-JLL206A	High strength bolts (M24)	2000 kN
F-JLL206A2.02-03	F-JLL206A	High strength bolts (M27)	2000 kN
F-JLL206A2.02-04	F-JLL206A	High strength bolts (M30)	2000 kN
F-JLL206A2.02-05	F-JLL206A	High strength bolts(M33)	2000 kN
F-JLL206A2.02-06	F-JLL206A	High strength bolts (M36)	2000 kN
F-JLL206A2.02-07	F-JLL206A	High strength bolts (M39)	2000 kN
F-JLL206A2.02-08	F-JLL206A	High strength bolts (M42)	2000 kN
F-JLL206A2.02-09	F-JLL206A	High strength bolts (M45)	2000 kN
F-JLL206A2.02-10	F-JLL206A	High strength bolts (M48)	2000 kN
F-JLL206A2.02-11	F-JLL206A	High strength bolts (M52)	2000 kN

WIRE STRAND GRIP INSERTS

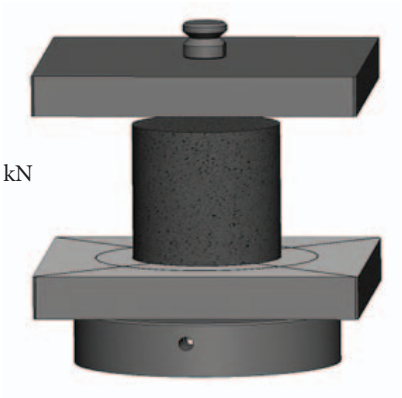
» *See MTS Fundamental Wire Strand Grips (StH)...page 48*

Model	Type	Force Capacity	Weight	Specimen Range	Compatible Grips	Temperature Rating	Attachment Type
F-JLJ106A1.01-01	Wire Strand Insert	1000 kN	27.5 kg	ϕ9.5 mm round	F-JLJ106A1	0° C (32° F) to 50° C (122° F)	Insert
F-JLJ106A1.01-02	Wire Strand Insert	1000 kN	27.2 kg	ϕ11.1 mm round	F-JLJ106A1	0° C (32° F) to 50° C (122° F)	Insert
F-JLJ106A1.01-03	Wire Strand Insert	1000 kN	26.5 kg	ϕ12.7 mm round	F-JLJ106A1	0° C (32° F) to 50° C (122° F)	Insert
F-JLJ106A1.01-04	Wire Strand Insert	1000 kN	25.9 kg	ϕ15.2 mm round	F-JLJ106A1	0° C (32° F) to 50° C (122° F)	Insert

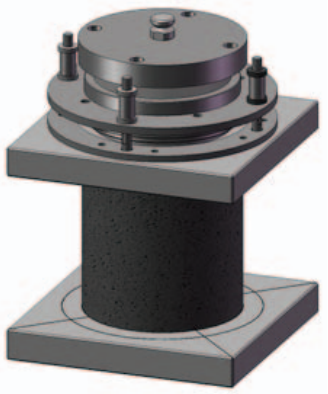
Compression Platens for Series 60 (StH) Systems

MTS Fundamental Steel Compression Platens

- Value-priced, steel platens for high-force compression testing of metals, composites and building materials
- Available in force ratings of 600 kN, 1,000 kN and 2,000 kN
- Precision-ground, hardened surfaces enhance platen durability
- Specimen centering grooves enhance test accuracy and repeatability



F-JY106A1 – Lower spherical



F-JYH106A1 – Upper spherical

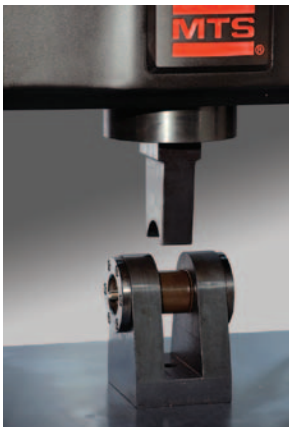
Model	Type	Force Rating	Weight	Specimen Range	Compatible Frames	Temperature Rating	Attachment Type	Platen Height/ Width
F-JY605A1	Steel Platen - fixed upper/ lower spherical	600 kN	15.7 kg	150 x 150 mm	C64.305 C64.605	0° C (32° F) to 50° C (122° F)	Pin Mount	Height Lower 71 mm (2.80) Upper 30 mm (1.18) Width 150 mm (5.90)
F-JYH605A1	Steel Platen - upper spherical/ fixed lower	600 kN	41 kg	150 x 150 mm	C64.305 C64.605	0° C (32° F) to 50° C (122° F)	Pin Mount	Height Lower 60 mm (2.36) Upper 90 mm (3.74) Width 150 mm (5.90)
F-JY106A1	Steel Platen - fixed upper/ lower spherical	1000 kN	31.8 kg	220 x 220 mm	C64.106	0° C (32° F) to 50° C (122° F)	Pin Mount	Height Lower 78 mm (3.07) Upper 30 mm (1.18) Width 220 mm (8.66)
F-JYH106A1	Steel Platen - upper spherical/ fixed lower	1000 kN	68 kg	220 x 220 mm	C64.106	0° C (32° F) to 50° C (122° F)	Pin Mount	Height Lower 60 mm (2.36) Upper 120 mm (4.72) Width 220 mm (8.66)
F-JY206A1	Steel Platen - platen lower spherical/ upper fixed	2,000 kN	73 kg	240x240 mm	C64.206	0° C (32° F) to 50° C (122° F)	Pin Mount	
F-JYH206A1	Steel Platen - upper spherical/ lower fixed	2,000 kN	114 kg	240x240 mm	C64.206	0° C (32° F) to 50° C (122° F)	Pin Mount	

Shear Fixtures for Series 60 (StH) Systems

MTS Fundamental Shear & Splitting Fixtures

- Value-priced fixtures for high-force shear loading of welded metals and building materials, as well as for splitting of concrete specimens
- Available in force ratings of 300, 600 and 1000 kN
- *See Shear Fixture Heads (F-JJ106A1 only)...page 54*

F-JJW305A1 – Shear Fixture



F-JJ106A1 – Shear Fixture

F-JPH605A1 - Concrete Splitting Fixture

Model	Type	Force Rating	Weight	Specimen Range	Compatible Frames	Temperature Rating	Attachment Type
F-JJW305A1	Shear Fixture	300 kN	4.95 kg	Vertical Diameter: 5-12 mm, 14 mm, 16 mm Horizontal Diameter: 5-12 mm	C64.305	0° C (32° F) to 50° C (122° F)	Pin Mount
F-JJW605A1	Shear Fixture	600 kN	4.95 kg	Vertical Diameter: 5-12 mm, 14 mm, 16 mm Horizontal Diameter: 5-12 mm	C64.605	0° C (32° F) to 50° C (122° F)	Pin Mount
F-JJW106A1	Shear Fixture	1000 kN	4.95 kg	Vertical Diameter: 5-12 mm, 14 mm, 16 mm Horizontal Diameter: 5-12 mm	C64.106	0° C (32° F) to 50° C (122° F)	Pin Mount
F-JJ106A1	Shear Fixture	600 kN	5.1 kg	Vertical Diameter: Fixture Heads	C64.605	0° C (32° F) to 50° C (122° F)	Pin Mount
F-JPH605A1	Concrete Splitting Fixture	600 kN	27.4 kg	100 mm^3 150 mm^3	C64.605	0° C (32° F) to 50° C (122° F)	Pin Mount

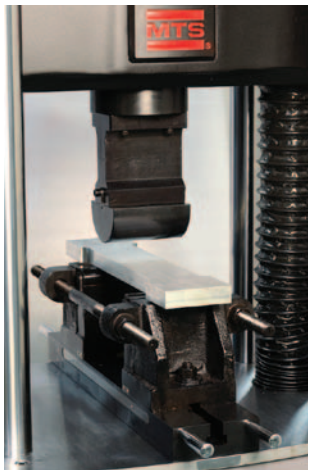
SHEAR FIXTURE HEADS

- *See MTS Fundamental Shear & Splitting Fixtures...page 54*

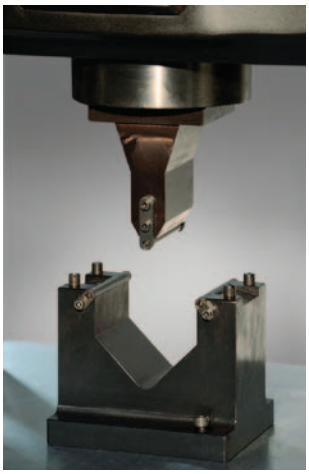
Model	Compatible Grips	Shear Head Diameter	Force Rating
F-JJ106A1.01-01	F-JJ106A1	Φ10 mm	1000 kN
F-JJ106A1.01-02	F-JJ106A1	Φ15 mm	1000 kN
F-JJ106A1.01-03	F-JJ106A1	Φ20 mm	1000 kN

MTS Fundamental Bend Fixtures

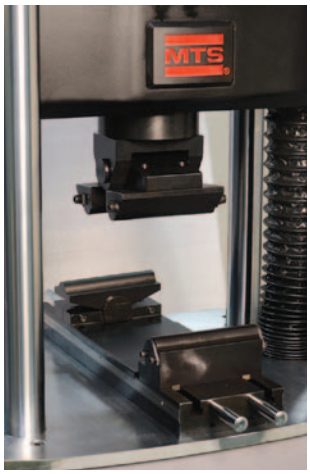
- Value-priced fixtures for a high-force flexural (bend) testing of metals, building materials, cement and concrete
- Available in a range sizes with force capacities of 300 kN, 1000 kN and 2000 kN
- Precision machined rollers are made from corrosion-resistant hardened steel
- *See StH Bend Fixture Rollers...page 56*



F-JW106A1



F-JZS305A1 - Cement Flexural Fixture



F-JZH305A1 - Concrete Fixture

Model	Type	Force Rating	Specimen Dimensions	Specimen Range	Upper Roller Diameter (Loading Nose Radius)	Support Span	Compatible Frames	Temperature Rating
F-JW305A1	3 Point Flexure	300 kN	125 mm (width)	See StH Bend Fixture Rollers	See StH Bend Fixture Rollers	350 mm	C64.305	0° C (32° F) to 50° C (122° F)
F-JW106A1	3 Point Flexure	1000 kN	125 mm (width)	See StH Bend Fixture Rollers	See StH Bend Fixture Rollers	350 mm	C64.605 C64.106	0° C (32° F) to 50° C (122° F)
F-JW206A1	3 Point Flexure	2000 kN	150 mm (width)	See StH Bend Fixture Rollers	60 mm	500mm	C64.206	0° C (32° F) to 50° C (122° F)
F-JZS305A1	Cement Flexural Fixture	300 kN	40 x 40 x 160 mm (W x T x L)	10 mm	10 mm	100 mm	C64.305	0° C (32° F) to 50° C (122° F)
F-JZH305A1	Concrete Flexural Fixture	300 kN	100 x 100 x 400 mm (W x T x L) 150 x 150 x 600 mm (W x T x L)	30 mm	30 mm	Upper: 100 mm, 150 mm Lower: 300-450 mm	C64.305	0° C (32° F) to 50° C (122° F)

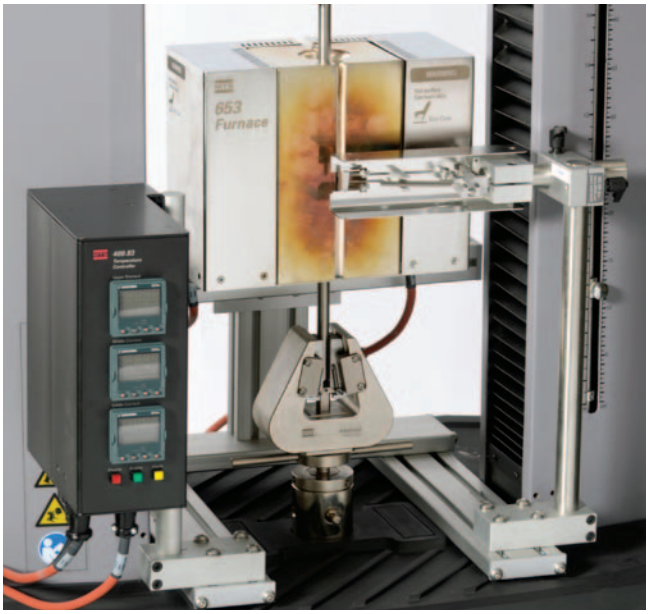
STH BEND FIXTURE ROLLERS

» *See MTS Fundamental Bend Fixtures (StH)...page 53*

Model	Compatible Grips	Shear Head Diameter	Force Rating
F-JW305A1.01-01	F-JW305A1	ϕ18 mm	1000 kN
F-JW305A1.01-02	F-JW305A1	ϕ24 mm	1000 kN
F-JW305A1.01-03	F-JW305A1	ϕ30 mm	1000 kN
F-JW305A1.01-04	F-JW305A1	ϕ36 mm	1000 kN
F-JW305A1.01-05	F-JW305A1	ϕ42 mm	1000 kN
F-JW305A1.01-06	F-JW305A1	ϕ48 mm	1000 kN
F-JW305A1.01-07	F-JW305A1	ϕ54 mm	1000 kN
F-JW305A1.01-08	F-JW305A1	ϕ60 mm	1000 kN
F-JW305A1.01-09	F-JW305A1	ϕ66 mm	1000 kN
F-JW305A1.01-10	F-JW305A1	ϕ75 mm	1000 kN
F-JW305A1.01-11	F-JW305A1	ϕ84 mm	1000 kN
F-JW305A1.01-12	F-JW305A1	ϕ96 mm	1000 kN
F-JW106A1.01-01	F-JW106A1	ϕ18 mm	1000 kN
F-JW106A1.01-02	F-JW106A1	ϕ24 mm	1000 kN
F-JW106A1.01-03	F-JW106A1	ϕ30 mm	1000 kN
F-JW106A1.01-04	F-JW106A1	ϕ36 mm	1000 kN
F-JW106A1.01-05	F-JW106A1	ϕ42 mm	1000 kN
F-JW106A1.01-06	F-JW106A1	ϕ48 mm	1000 kN
F-JW106A1.01-07	F-JW106A1	ϕ54 mm	1000 kN
F-JW106A1.01-08	F-JW106A1	ϕ60 mm	1000 kN
F-JW106A1.01-09	F-JW106A1	ϕ66 mm	1000 kN
F-JW106A1.01-10	F-JW106A1	ϕ75 mm	1000 kN
F-JW106A1.01-11	F-JW106A1	ϕ84 mm	1000 kN
F-JW106A1.01-12	F-JW106A1	ϕ96 mm	1000 kN
F-JW106A1.01-13	F-JW106A1	ϕ108 mm	1000 kN
F-JW106A1.01-14	F-JW106A1	ϕ120 mm	1000 kN
F-JW106A1.01-15	F-JW106A1	ϕ150 mm	1000 kN
F-JW206A1.01-01	F-JW206A1	ϕ24 mm	2000 kN
F-JW206A1.01-02	F-JW206A1	ϕ30 mm	2000 kN
F-JW206A1.01-03	F-JW206A1	ϕ36 mm	2000 kN
F-JW206A1.01-04	F-JW206A1	ϕ42 mm	2000 kN
F-JW206A1.01-05	F-JW206A1	ϕ48 mm	2000 kN
F-JW206A1.01-06	F-JW206A1	ϕ54 mm	2000 kN
F-JW206A1.01-07	F-JW206A1	ϕ60 mm	2000 kN
F-JW206A1.01-08	F-JW206A1	ϕ66 mm	2000 kN
F-JW206A1.01-09	F-JW206A1	ϕ75 mm	2000 kN
F-JW206A1.01-10	F-JW206A1	ϕ84 mm	2000 kN
F-JW206A1.01-11	F-JW206A1	ϕ96 mm	2000 kN
F-JW206A1.01-12	F-JW206A1	ϕ108 mm	2000 kN
F-JW206A1.01-13	F-JW206A1	ϕ120 mm	2000 kN
F-JW206A1.01-14	F-JW206A1	ϕ150 mm	2000 kN
F-JW206A1.01-15	F-JW206A1	ϕ180 mm	2000 kN
F-JW206A1.01-16	F-JW206A1	ϕ200 mm	2000 kN

Model 653 Furnaces for Series 40 (EM) Systems

- Enables testing from 100° C to 1400° C with single or multiple-zone heating
- Ideal for high-temperature tension, compression and bend testing of metals, composites and ceramics
- Well-suited for high-temperature tests requiring lower thermal gradient
- Control zones with multiple heating elements facilitate precise control of temperatures and heated areas
- Center-split design simplifies specimen and fixture access
- *See Pull Rods for Model 653 Furnaces...page 57*
- *See Controllers for Model 653 Furnaces...page 58*



Model 653 Furnace

Model	Temperature Range	Heating Levels	Hot Zone Dimensions (W x D x H)	Overall Height	Compatible Frames
653.01	100 to 1400° C	1	50.0 mm; 50.0 mm; 19.0 mm	55.0 mm	C44.104 C44.304 C45.504 C45.105 C45.305
653.02	100 to 1400° C	2	50.0 mm; 50.0 mm; 50.0 mm	85.0 mm	C44.104 C44.304 C45.504 C45.105 C45.305
653.03	100 to 1400° C	2	62.5 mm; 62.5 mm; 90.0 mm	126.0 mm	C44.104 C44.304 C45.504 C45.105 C45.305
653.04	100 to 1400° C	3	62.5 mm; 62.5 mm; 185.0 mm	220.0 mm	C44.104 C44.304 C45.504 C45.105 C45.305

PULL RODS FOR MODEL 653 FURNACES

- *See MTS Fundamental Furnaces...page 58*

Model	Temperature Rating	Load Capacity	Lengths	Specimen Adapter
FHA000	1050° C	80 kN	125 mm (2) 200 mm (2)	NA
FHA110	1050° C	80 kN	108 mm (2)	M16 Thread
FHA120	1050° C	80 kN	126 mm (2)	M2 Thread
FHA210	1050° C	80 kN	95 mm (2)	1-4mm Flat
FHA220	1050° C	80 kN	95 mm (2)	4-8mm Flat
FHA010	1050° C	80 kN	200 mm (2)	NA

CONTROLLERS FOR MODEL 653 FURNACES

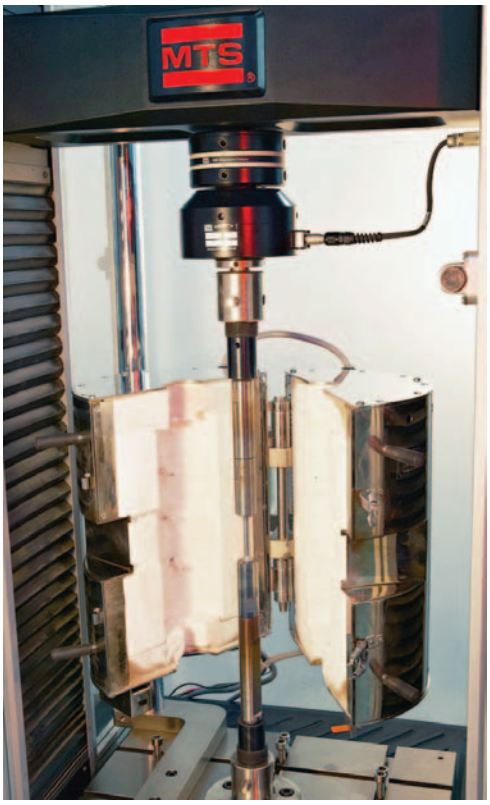
» *See Model 653 Furnaces for Series 40 (EM) Systems...page 57*

Model	Type	Temperature Rating	Voltage
409.83-01	Single-zone controller	1400° C	230 V
409.83-02	Dual-zone controller	1400° C	230 V
409.83-03	3-zone controller	1400° C	230 V
409.83.01	Controller stand	–	–
409.83.02	Furnace/extensometer mounting stand	–	–
409.83.03	Furnace/ extensometer protective case	–	–

MTS Fundamental Furnaces

- Value-priced furnace for testing from 300° C to 1050° C with single -zone heating
- Ideal for high-temperature tension and compression
- Center-split, clam shell design simplifies specimen and fixture access

» *See Furnace Options*



MTS Fundamental Furnace

Model	Temperature Rating	Compatible Frames	Heating Zones	Hot Zone Dimensions (ϕ x H)	Overall Height
FGW900	300-1050° C	C45.505F C45105 C45305	1	108 mm x 300 mm	420 mm

Advantage Environmental Chambers for Series 40 Systems

- Increase range of temperatures available for materials testing, enabling testing at controlled temperatures from -129° C to 315° C
- Ideal for research, quality control and production testing of elastomeric components, tire cords, plastics, composites, laminates, etc.
- Enable testing at a constant temperature with very little gradient across the specimen
- Compatible with video or laser extensometers
- *See Extensions Rods for Advantage Environmental Chambers...page 60*

AEC Tall

Model	Temperature Rating	Compatible Frames	Internal Dimensions (H x W x D)	External Dimensions (H x W x D)	Cooling Mechanism	U-Plug (Y/N)
AEC 10x10x24	-129 to 315° C	C43.104 C43.304 C43.504 C44.104 C44.304 C43.104E C43.304E C43.504E C44.104E C44.304E	610 mm 254 mm 254 mm	762 mm 406 mm 737 mm	LN2	Y
AEC 14x17x24	-129 to 315° C	C45.504 C45.105 C45.305 C45.504E C45.105E C45.305E	813 mm 254 mm 254 mm	965 mm 406 mm 737 mm	LN2	Y
AEC 10x10x32	-129 to 315° C	C43.104E C43.304E C43.504E C44.104E C44.304E	610 mm 356 mm 432 mm	762 mm 508 mm 914 mm	LN2	Y
AEC 14x17x32	-129 to 315° C	C45.504E C45.105E C45.305E	813 mm 356 mm 432 mm	965 mm 508 mm 914 mm	LN2	Y

EXTENSION RODS FOR ADVANTAGE ENVIRONMENTAL CHAMBERS

» *See MTS Fundamental Environmental Chambers...page 60*

Model	Temperature Rating	Load Capacity	Lengths
Type C	-130 to 315° C (-200 to 600° F)	.2 kN	250 mm (9.8 in) 200 mm (7.8 in) 150 mm (5.9 in) 125 mm (4.9 in) 125 mm (4.9 in) 100 mm (3.9 in)
Type D	-130 to 315° C (-200 to 600° F)	150 kN	250 mm (9.8 in) 200 mm (7.8 in) 150 mm (5.9 in) 125 mm (4.9 in) 100 mm (3.9 in)
F007003	-70 to 350° C	100 kN	100 mm (3.9 in) 125 mm (4.9 in) 150 mm (5.9 in) 200 mm (7.8 in) 250 mm (9.8 in) 300 mm (11.7 in)

MTS Fundamental Environmental Chambers

- Value-priced chamber for enabling testing at controlled temperatures from -70° C to 350° C
- Ideal for research, quality control and production testing of elastomeric components, tire cords, plastics, composites, laminates, etc.
- Compatible with video or laser extensometers

MTS Fundamental Environmental Chambers

Model	Temperature Rating	Compatible Frames	Internal Dimensions (H x W x D)	External Dimensions (H x W x D)	Cooling Mechanism	U-Plug (Y/N)
FEC 1200	-70 to 350° C (-94 to 662° F)	C43 C43E C44 C44E	600 x 200 x 195 mm	848 x 360 x 1055 mm	LN2	Y
FEC 1300	-70 to 350° C (-94 to 662° F)	C45 C45E	600 x 300 x 250 mm	853 x 460 x 1055 mm	LN2	Y

Fluid Baths for Series 40 (EM) Systems

- Enables mechanical testing of medical device and biomaterial specimens in fluids heated to body temperatures
- Available in 1, 6 and 10 liter volumes
- Supports saline and protein-based fluids
- Highly reliable temperature control system
- Compatible with video or laser extensometers
- Leak-proof access panels enable easy change out of accessories and specimens
- Easy disassembly simplifies cleaning and regular maintenance

- *See Fluid Bath Options...page 61*
- *See Bionix Bollard Grips...page 23*
- *See Bionix Roller Grips...page 24*
- *See Bionix Scissors Grips...page 25*
- *See Bionix Vise Grips...page 26*
- *See Bionix Stainless Steel Compression Platens...page 43*

Bionix EnviroBath 1

Model	Volume	Compatible Frames	Internal Dimensions (H x W x D)	External Dimensions (H x W x D)	Temperature Rating
Bionix EnviroBath 1	1 liter	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	200 mm; 100 mm; 56 mm	295 mm; 180 mm; 95 mm	5° C above ambient to 40° C
Bionix EnviroBath 6	6 liter	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	480 mm; 130 mm; 100 mm	575 mm; 205 mm; 140 mm	5° C above ambient to 40° C
Bionix EnviroBath 10	10 liter	C42.503 C43.104 C43.304 C43.504 C44.104 C44.304 C45.504 C45.105	305 mm; 215 mm; 150 mm	395 mm; 295 mm; 190 mm	5° C above ambient to 40° C

FLUID BATH OPTIONS:

Model	Type
EnviroBath Controller	EnviroBath 1 Circulator (240 V AC)
EnviroBath Controller	EnviroBath 6 and 10 Circulator (240 V AC)
EnviroBath Controller	EnviroBath miscellaneous required tubing and fittings
EnviroBath Option	EnviroBath 1 Lid
EnviroBath Option	EnviroBath 6 and 10 Lid
EnviroBath Option	230 V European - Schuko Plug
EnviroBath Option	230 V European - Locking Plug
EnviroBath Option	EnviroBath 6 Spray
EnviroBath Option	EnviroBath 10 Spray
EnviroBath Option	EnviroBath 1 - Protein Fluid Serum Distribution Assembly
EnviroBath Option	EnviroBath 6 and 10 - Protein Fluid Serum Distribution Assembly

Environmental Simulation Tools

Spares Kits

Model	Description	Compatible Frames
C42.503	This kit includes certain switches, bellows, all belts, limit switch, clevis pins and tools.	C42.503
C43.104	This kit includes certain switches, bellows, all belts, limit switch, clevis pins and tools.	C43.104
C42.304	This kit includes certain switches, bellows, all belts, limit switch, clevis pins and tools.	C43.304
C45.305	This kit includes limit switch, filters and tools.	C45.305
C62.206	This kit includes limit switch, filters and tools.	C64.206

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