

Electromechanical Universal Testing Machines

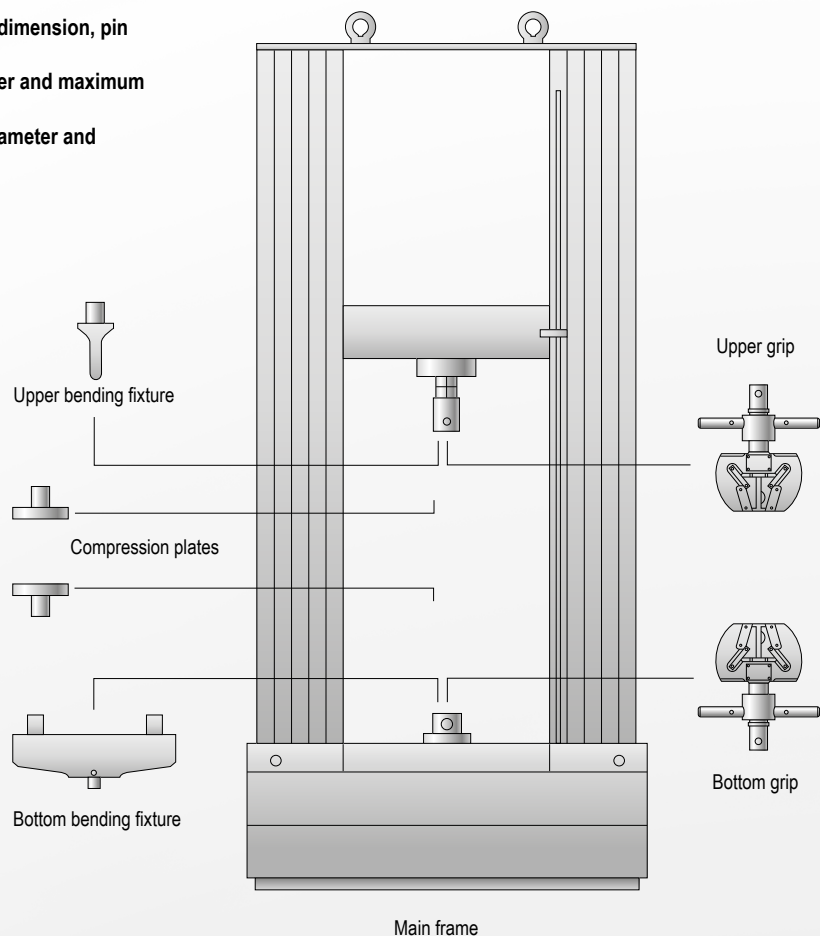
- > ETM series includes complete range of electromechanical Universal Testing Machines, from the compact and lightweight single column to robust double column floor-standing version.
- > Equipped with load cells from 0.5 to 600kN, ETM series allow to perform wide range of tests on different kind of materials such as: metals, plastic, composites, wood, wires, biomaterials etc.
- > Pre-loaded ball screws, heavy duty bearings and full protection covers, ensure long life with zero backlash. The result is an accurate and repeatable measurement which represents the specimen characteristics
- > Aluminium column covers with chamfered corners for easy access to the test area, T-slots for easy positioning of testing accessories
- > ETM series is equipped with high-speed and low vibration AC servo motor and servo controller, Japanese photoelectrical encoders for displacement measurement
- > American bi-directional load cells positioned in the middle of crosshead to prevent any collisions during to tension or compression tests
- > High speed and closed loop controller of load displacement and elongation, with over-load, over-current, over-voltage, over-speed, and over-travel protection.
- > Built-in port for PC communication, by RS232 or USB.
- > Remote control keypad, with functions of Up, Down, Stop, Jog up, Jog down and Test start, simplify operations
- > All models supported by test software to show and analyse graphs and all tests parameters.

Select the correct electromechanical universal testing machine by choosing:

- > Frame type according to the load cell capacity
- > Tensile jaws according to the specimen material, dimension, pin diameter and maximum kN supported
- > Compression fixture (if needed) in according to specimen dimensions, pin diameter and maximum kN supported
- > Bending fixture (if needed) in according to needed bend type (three or four points), pin diameter and maximum kN supported
- > Shearing fixture (if needed) in according to specimen dimension, pin diameter and maximum kN supported
- > Peel/tear fixture (if needed) in according to pin diameter and maximum kN supported
- > Film COF test fixture (if needed) in according to pin diameter and maximum kN supported
- > Extensometer according to standards indications

Applicable standards:

- > EN 10002-2
- > EN 10002-4
- > ISO 34
- > ISO 37
- > ISO 178
- > ISO 527
- > ISO 604
- > ISO 1184
- > ISO 6892
- > ISO 9513
- > ASTM D412
- > ASTM D638
- > ASTM D790
- > ASTM D882
- > ASTM E4
- > ASTM E8
- > ASTM E83
- > BS 1610
- > JIS B7721



ETM 600

ETM double column series 600kN, floor type version. Designed with strong structure to ensure the linear crosshead travel. High accuracy crosshead alignment reducing variability in measurement .

- › ETM 600kN is dual space type and is equipped with hydraulic grips for large and high strength samples.
- › Environmental chamber tests simulations are possible thanks to special optional.

- › Wide range of test accessories allows to meet test requirements of different standards and for different materials.
- › ETM series is suitable to test: metals, reinforced plastics, wires, composite materials, etc.



Model		ETM 600
Load cell		
Load capacity	kN	600
	kgf	60000
Calibration standard	-	ISO 7500
Accuracy grade	%	0.5 of reading
Testing load accuracy	%	
Deformation accuracy	%	
Displacement accuracy	%	
Force range	FS	0.2%-100%
Force resolution	FS	1/500000
Force accuracy	%	0.5 of reading
Controller		
Sampling frequency	Hz	Up to 1000
Closed loop control frequency	Hz	Up to 1000
Resolution	bit	20
Software		
Software	-	echoTestPilot
Crosshead		
Position resolution	µm	0.021
Crosshead speed	mm/min	0.001-250
Crosshead speed accuracy	%	±1.0/±0.5 of set speed
Crosshead travel (without grip)	mm	1400
Main frame		
Frame type	-	Floor type double column/dual test space
Test width (upper compression, lower tension)	mm	700
Fixture adapter	mm	M64x4 screw connection
Grip pin	mm	M64x4 screw connection
Motor power	kW	5.5
Power supply	V-Hz-ph	400-50/60-3
Dimensions	mm	1535x1175x3000
Weight	kg	2000

Included accessories

Anchor bolt

**ETM 300 - ETM 200
ETM 100**

ETM double column series, from 100kN to 300kN, floor type version.
Designed with strong structure to ensure the linear crosshead travel.
High accuracy crosshead alignment reducing variability in measurement .

- > ETMs from 100kN to 300kN are dual space type.
- > ETM 200 and ETM 300 are equipped with wedge action tensile grips,
- > Environmental chamber tests simulations are possible thanks to special optional.

- > Wide range of test accessories allows to meet test requirements of different standards and for different materials.
- > ETM series is suitable to test: metals, reinforced plastics, wires, composite materials, etc.

ETM 100-200-300



Model		ETM 300	ETM 200	ETM 100
Load cell				
Load capacity	kN	300	200	100
	kgf	30000	20000	10000
Calibration standard	-	ISO 7500		
Accuracy grade	%	0.5 of reading		
Testing load accuracy	%			
Deformation accuracy	%			
Displacement accuracy	%			
Force range	FS	0.2%-100%		
Force resolution	FS	1/500000		
Force accuracy	%	0.5 of reading		
Controller				
Sampling frequency	Hz	Up to 1000		
Closed loop control frequency	Hz	Up to 1000		
Resolution	bit	20		
Software				
Software	-	echoTestPilot		
Crosshead				
Position resolution	µm	0.014		0.025
Crosshead speed	mm/min	0.001-250		0.001-500
Crosshead speed accuracy	%	±1.0/±0.5 of set speed		
Crosshead travel (without grip)	mm	1150		1050
Main frame				
Frame type	-	Floor type double column/dual test space		
Test width (upper compression, lower tension)	mm	650		600
Fixture adapter	mm	ø60		ø40
Grip pin	mm	ø28		ø18
Motor power	kW	5		1.5
Power supply	V-Hz-ph	400-50/60-3		
Dimensions	mm	1210x770x2600		1145x765x2340
Weight	kg	1500		1200

Included accessories

Anchor bolt

Accessories

Mechanical wedge action tensile grips

Model	Description	Max. force applied	Grip pin	Application
JW1100B	Grip body	100kN	ø18mm	For metal and non-metal specimen
JW1100F1	Tensile grip for flat specimens 0-7mm			
JW1100F2	Tensile grip for flat specimens 7-14mm			
JW1100F3	Tensile grip for file specimens 14-21mm			
JW1100R1	Tensile grip for round specimens ø4-9mm			
JW1100R2	Tensile grip for round specimens ø9-14mm			
JW1100R3	Tensile grip for round specimens ø14-19mm			
JW3100B	Grip body	100kN	ø18mm	For metal and non-metal specimen
JW3100F1	Tensile grip for flat specimens 0-20mm			
JW3100R1	Tensile grip for round specimens ø14-19mm			
JW1300B	Grip body	300kN	ø28mm	For metal and non-metal specimen
JW1300F1	Tensile grip for flat specimens 0-8mm			
JW1300F2	Tensile grip for flat specimens 8-16mm			
JW1300F3	Tensile grip for file specimens 16-24mm			
JW1300F4	Tensile grip for file specimens 24-32mm			
JW1300R1	Tensile grip for round specimens ø4-9mm			
JW1300R2	Tensile grip for round specimens ø9-16mm			
JW1300R3	Tensile grip for round specimens ø16-23mm			
JW1300R4	Tensile grip for round specimens ø23-30mm			

Hydraulic wedge action tensile grips

HJ1100B	Grip body	100kN	ø18mm	For metal specimen
HJ1100F1	Tensile grip for flat specimens 0-8mm			
HJ1100F2	Tensile grip for flat specimens 8-15mm			
HJ1100R1	Tensile grip for round specimens ø4-12mm			
HJ1100R2	Tensile grip for round specimens ø12-20mm			
HJ1300B	Grip body	300kN	ø28mm	For metal specimen
HJ1300F1	Tensile grip for flat specimens 0-6mm			
HJ1300F2	Tensile grip for flat specimens 6-18mm			
HJ1300F3	Tensile grip for flat specimens 18-30mm			
HJ1300R1	Tensile grip for round specimens ø6-16mm			
HJ1300R2	Tensile grip for round specimens ø16-26mm			
HJ1300R3	Tensile grip for round specimens ø26-36mm			
HJ1600B	Grip body	600kN	M64 x 4	For metal specimen
HJ1600F1	Tensile grip for flat specimens 0-6mm			
HJ1600F2	Tensile grip for flat specimens 6-23mm			
HJ1600F3	Tensile grip for flat specimens 23-40mm			
HJ1600R1	Tensile grip for round specimens ø6-12mm			
HJ1600R2	Tensile grip for round specimens ø12-27mm			
HJ1600R3	Tensile grip for round specimens ø27-42mm			

Hydraulic wedge action tensile grips

HSJ100B	Grip body	100kN	ø18mm	For metal specimen
HSJ100F1	Tensile grip for flat specimens 0-15mm			
HSJ100R1	Tensile grip for round specimens ø5-10mm			
HSJ100R2	Tensile grip for round specimens ø10-20mm			
HSJ300B	Grip body	300kN	ø28mm	For metal specimen
HSJ300F1	Tensile grip for flat specimens 0-30mm			
HSJ300R1	Tensile grip for round specimens 6-16mm			
HSJ300R2	Tensile grip for round specimens ø16-26mm			
HSJ300R3	Tensile grip for round specimens ø26-36mm			
HSJ600B	Grip body	600kN	M64 x 4	For metal specimen
HSJ600F1	Tensile grip for flat specimens 0-40mm			
HSJ600R1	Tensile grip for round specimens 6-12mm			
HSJ600R2	Tensile grip for round specimens ø12-27mm			
HSJ600R3	Tensile grip for round specimens ø27-42mm			

Pneumatic tensile grips				
Model	Description	Max. force applied	Grip pin	Application
PNJ3016	Tensile grip for flat specimens 0-10mm	100kN	ø18mm	For low force test of non-metal specimen
PNJ3017	Tensile grip for flat specimens 10-21mm	100kN	ø18mm	For low force test of non-metal specimen
PNJ3018	Tensile grip for round specimens ø4-9mm	100kN	ø18mm	For low force test of non-metal specimen
PNJ3019	Tensile grip for round specimens ø9-14mm	100kN	ø18mm	For low force test of non-metal specimen
PNJ3020	Tensile grip for round specimens ø14-19mm	100kN	ø18mm	For low force test of non-metal specimen

Compression fixtures				
Model	Description	Max. force applied	Grip pin	Application
CP1202	Platen ø100mm	100kN	ø18mm	For compression test
CP1203	Platen ø100mm	300kN	ø28mm	For compression test
CP1204	Platen ø150mm	300kN	ø28mm	For compression test
CP1205	Platen ø200mm	600kN	Screw	For compression test

Bending fixtures				
Model	Description	Max. force applied	Grip pin	Application
BD2006	Bending nose R10mm	100kN	ø18mm	For bending test
	Support roller R10mm			
	Maximum span 340mm, adjustable			
	3-point bending, bending nose e support roller exchangeable			
BD2007	Bending nose R10mm	50kN	ø18mm	For bending test
	Upper span maximum 170mm, adjustable			
	Lower span maximum 320mm, adjustable			
	4-point bending, bending nose e support roller exchangeable			
BD2008	Bending nose R15mm	300kN	ø28mm	For bending test
	Support roller R15mm			
	Maximum span 340mm, adjustable			
	3-point bending, bending nose e support roller exchangeable			
BD2009	Bending nose R15mm	600kN	Screw connection	For bending test
	Support roller R15mm			
	Maximum span 370mm, adjustable			
	3-point bending, bending nose e support roller exchangeable			

NOTE: On request different bending nose and support roller diameters are available

Shear grips				
Model	Description	Max. force applied	Grip pin	Application
SG6781	Shear grip for specimen diameter ≤10mm	100kN	ø18mm	For metal and non-metal shear test

Lever grips				
Model	Description	Max. force applied	Grip pin	Application
LVG024	Lever grip with clamping width <70mm	50kN	ø18mm	For rubber tensile test
	Max. opening 30mm			
LVG025	Lever grip with clamping width <170mm	100kN	ø18mm	For rubber tensile test
	Max. opening 35mm			

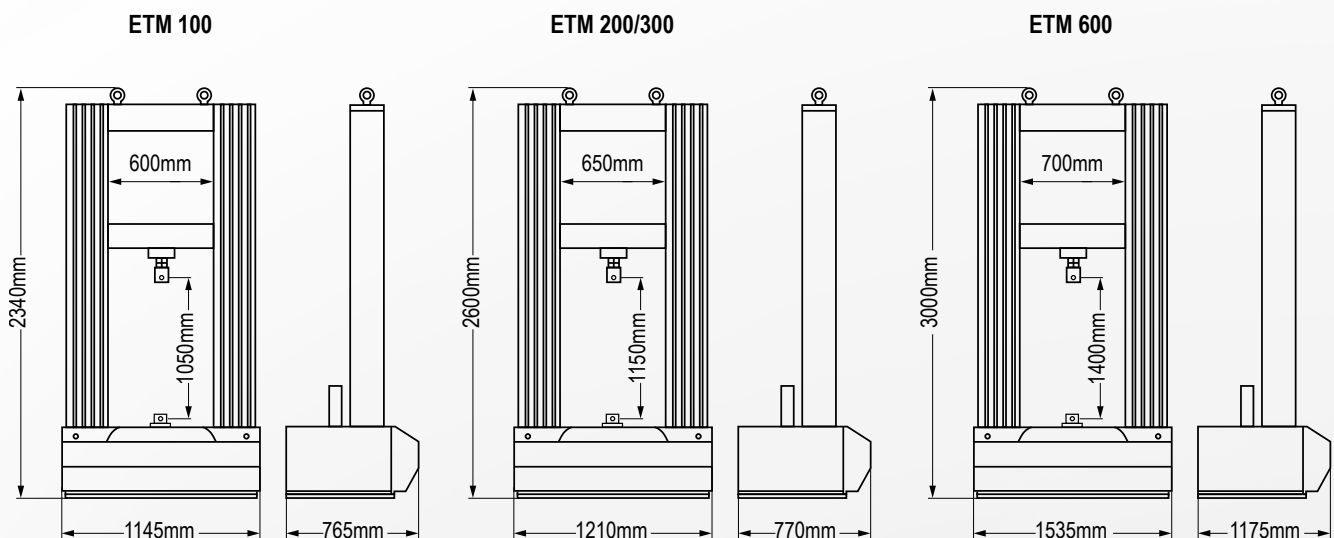
Shoulder grips				
Model	Description	Max. force applied	Grip pin	Application
SHG781	Grip for specimen with diameter 3mm	100kN	ø18mm	For high hardness specimens tensile test
SHG782	Grip for specimen with diameter 5mm	100kN	ø18mm	For high hardness specimens tensile test
SHG783	Grip for specimen with diameter 10mm	100kN	ø18mm	For high hardness specimens tensile test
SHG791	Grip for specimen with diameter 10mm	200kN	ø28mm	For high hardness specimens tensile test
SHG792	Grip for specimen with diameter 10mm	300kN	ø28mm	For high hardness specimens tensile test

Other special grips are available on request

Computer System		
Computer System	ECHOCS01	Computer
	ECHOCS02	Monitor
	ECHOCS03	Color printer
	ECHOCS04	Mouse
	ECHOCS05	Keyboard

Optional accessories	
01ETM004	Front protection shield for ETM 100
01ETM005	Full-closed protection shield for ETM 100
01ETM006	Front protection shield for ETM 200 and ETM 300
01ETM007	Full-closed protection shield for ETM 200 and ETM 300
01ETM008	Front protection shield for ETM 600
01ETM009	Full-closed protection shield for ETM 600
HF110	Furnace
HF11001	Tensile grip for furnace for round specimen $\varnothing 5\text{mm}$ (M8 gripping end)
HF11002	Tensile grip for furnace for flat specimen from 1 to 3mm
HF11003	Tensile grip for furnace for round specimen $\varnothing 10\text{mm}$ (M16 gripping end)
HF11004	S type thermocouple 3pcs
HF11005	Pullrod for gripping ends $\leq M16$
ETT100-2	Environmental chamber
ETT300A-2	Environmental chamber
ETT300B-2	Environmental chamber

NOTE: For tests with environmental chamber and with furnace, the fixture must be on request



**ETM 50 - ETM 20
ETM 10**

ETM double column series from 10kN to 50kN. Dual space bench type version, designed with strong guidance column to increase lateral stiffness and ensure a linear crosshead travel.

- > Environmental chamber tests simulations are possible thanks to special optional.
- > Wide range of test accessories allows to meet test requirements of different standards and for different materials.
- > ETM series is suitable to test: metals, reinforced plastics, wires, textiles, small components, adhesive materials, etc.



Model		ETM 50	ETM 20	ETM 10
Load cell				
Load capacity	kN	50	20	10
	kgf	5000	2000	1000
Calibration standard	-	ISO 7500		
Accuracy grade	%	0.5 of reading		
Testing load accuracy	%			
Deformation accuracy	%			
Displacement accuracy	%			
Force range	FS	0.2%-100%		
Force resolution	FS	1/500000		
Force accuracy	%	0.5 of reading		
Controller				
Sampling frequency	Hz	Up to 1000		
Closed loop control frequency	Hz	Up to 1000		
Resolution	bit	20		
Software				
Software	-	echoTestPilot		
Crosshead				
Position resolution	µm	0.06		
Crosshead speed	mm/min	0.001-500		
Crosshead speed accuracy	%	±1.0/±0.5 of set speed		
Crosshead travel (without grip)	mm	1000		
Main frame				
Frame type	-	Floor type double column/dual test space		
Test width	mm	420		
Fixture adapter	mm	ø40	ø20	
Grip pin	mm	ø18	ø10	
Motor power	kW	0.85		
Power supply	V-Hz-ph	230-50/60-1		
Dimensions	mm	775x660x1802		
Weight	kg	400		

Accessories

Mechanical wedge action tensile grips

Model	Description	Max. force applied	Grip pin	Application
JW310B	Grip body	10kN	ø10mm	For metal and non-metal specimen
JW310F1	Tensile grip for flat specimens 0-20mm			
JW310R1	Tensile grip for round specimens ø4-9mm			
JW310R2	Tensile grip for round specimens ø9-14mm			
JW120B	Grip body	20kN	ø10mm	For metal and non-metal specimen
JW120F1	Tensile grip for flat specimens 0-6mm			
JW120F2	Tensile grip for flat specimens 6-12mm			
JW120F3	Tensile grip for file specimens 0-6mm			
JW120R1	Tensile grip for round specimens ø4-9mm			
JW120R2	Tensile grip for round specimens ø9-14mm			
JW130B	Grip body	30kN	ø10mm	For metal and non-metal specimen
JW130F1	Tensile grip for flat specimens 0-7mm			
JW130F2	Tensile grip for flat specimens 7-14mm			
JW130F3	Tensile grip for file specimens 14-21mm			
JW130R1	Tensile grip for round specimens ø4-9mm			
JW130R2	Tensile grip for round specimens ø9-14mm			
JW130R3	Tensile grip for round specimens ø14-19mm			
JW1100B	Grip body	100kN	ø18mm	For metal and non-metal specimen
JW1100F1	Tensile grip for flat specimens 0-7mm			
JW1100F2	Tensile grip for flat specimens 7-14mm			
JW1100F3	Tensile grip for file specimens 14-21mm			
JW1100R1	Tensile grip for round specimens ø4-9mm			
JW1100R2	Tensile grip for round specimens ø9-14mm			
JW1100R3	Tensile grip for round specimens ø14-19mm			
JW3100B	Grip body	100kN	ø18mm	For metal and non-metal specimen
JW3100F1	Tensile grip for flat specimens 0-20mm			
JW3100R1	Tensile grip for round specimens ø14-19mm			

Hydraulic wedge action tensile grips

Model	Description	Max. force applied	Grip pin	Application
HJ1100B	Grip body	100kN	ø18mm	For metal specimen
HJ1100F1	Tensile grip for flat specimens 0-8mm			
HJ1100F2	Tensile grip for flat specimens 8-15mm			
HJ1100R1	Tensile grip for round specimens ø4-12mm			
HJ1100R2	Tensile grip for round specimens ø12-20mm			

Hydraulic side action tensile grips

Model	Description	Max. force applied	Grip pin	Application
HSJ1100B	Grip body	100kN	ø18mm	For metal specimen
HSJ100F1	Tensile grip for flat specimens 0-15mm			
HSJ100R1	Tensile grip for round specimens ø5-10mm			
HSJ100R2	Tensile grip for round specimens ø10-20mm			

Pneumatic tensile grips

Model	Description	Max. force applied	Grip pin	Application
PNJ3007	Tensile grip for flat specimens 0-10mm, width 50mm	5kN	ø10mm	For low force test of non-metal specimen
PNJ3012	Tensile grip with rubber coated jaw 25.4x25.4mm Sample thickness ≤14mm	10kN	ø10mm	For textile tensile test
PNJ3013	Tensile grip with rubber coated jaw 50.8x76.2mm Sample thickness ≤14mm	10kN	ø10mm	For textile tensile test
PNJ3014	Tensile grip with diamond jaw 25.4x25.8mm Sample thickness ≤14mm	10kN	ø10mm	For textile tensile test
PNJ3015	Tensile grip with diamond jaw 25.4x70mm Sample thickness ≤14mm	10kN	ø10mm	For textile tensile test
PNJ3016	Tensile grip for flat specimens 0-10mm	100kN	ø18mm	For low force test of non-metal specimen
PNJ3017	Tensile grip for flat specimens 10-21mm	100kN	ø18mm	For low force test of non-metal specimen
PNJ3018	Tensile grip for round specimens ø4-9mm	100kN	ø18mm	For low force test of non-metal specimen
PNJ3019	Tensile grip for round specimens ø9-14mm	100kN	ø18mm	For low force test of non-metal specimen
PNJ3020	Tensile grip for round specimens ø14-19mm	100kN	ø18mm	For low force test of non-metal specimen

ETM 50 - ETM 20 ETM 10

Compression fixtures

Model	Description	Max. force applied	Grip pin	Application
CP1200	Platen ø100mm	20kN	ø10mm	For compression test
CP1201	Platen ø200mm	20kN	ø10mm	For compression test
CP1202	Platen ø100mm	100kN	ø18mm	For compression test

Bending fixtures

Model	Description	Max. force applied	Grip pin	Application
BD2002	Bending nose R5mm	10kN	ø10mm	For bending test
	Support roller R2mm			
	Maximum span 160mm, adjustable			
	3-point bending, support roller exchangeable			
BD2003	Bending nose R3mm	10kN	ø10mm	For bending test
	Upper span 110mm adjustable			
	Lower span maximum 220mm adjustable			
	4-point bending, support roller fixed			
BD2004	Bending nose R5mm	20kN	ø10mm	For bending test
	Support roller R2mm			
	Maximum span 200mm, adjustable			
	3-point bending, support roller exchangeable			
BD2005	Bending nose R5mm	20kN	ø10mm	For bending test
	Support roller R2mm			
	Maximum span 200mm, adjustable			
	3-point bending, support roller exchangeable			
BD2007	Bending nose R10mm	50kN	ø18mm	For bending test
	Upper span maximum 170mm, adjustable			
	Lower span maximum 320mm, adjustable			
	4-point bending, bending nose e support roller exchangeable			
BD2006	Bending nose R10mm	100kN	ø18mm	For bending test
	Support roller R10mm			
	Maximum span 340mm, adjustable			
	3-point bending, bending nose e support roller exchangeable			

Wide strap tensile grips

Model	Description	Max. force applied	Grip pin	Application
WS5503	Tensile grip with clamping width <200mm	20kN	ø10mm	For wide strap for geo textile tensile test
	Max. opening 12mm			

Shear grips

Model	Description	Max. force applied	Grip pin	Application
SG6781	Shear grip for specimen diameter ≤10mm	100kN	ø18mm	For metal and non-metal shear test

Lever grips				
Model	Description	Max. force applied	Grip pin	Application
LVG024	Lever grip with clamping width <70mm	50kN	ø18mm	For rubber tensile test
	Max. opening 30mm			
LVG025	Lever grip with clamping width <170mm	100kN	ø18mm	For rubber tensile test
	Max. opening 35mm			

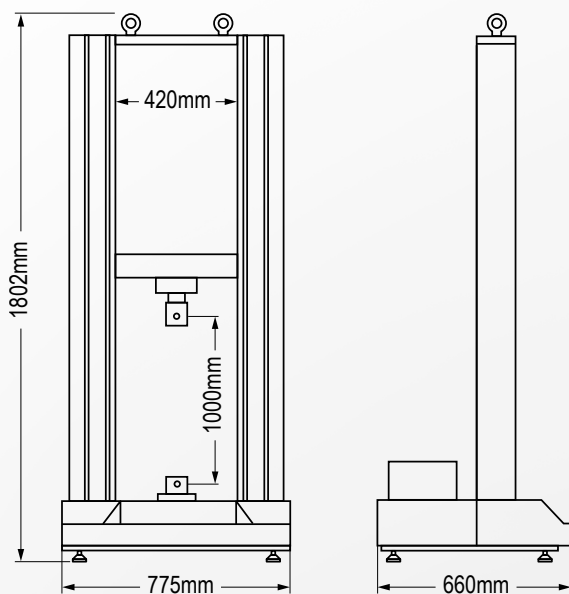
Shoulder grips				
Model	Description	Max. force applied	Grip pin	Application
SHG771	Grip for specimen with diameter 3mm	50kN	ø18mm	For high hardness specimens tensile test
SHG772	Grip for specimen with diameter 5mm	50kN	ø18mm	For high hardness specimens tensile test
SHG773	Grip for specimen with diameter 10mm	50kN	ø18mm	For high hardness specimens tensile test

Other special grips are available on request

Computer System		
Computer System	ECHOCS01	Computer
	ECHOCS02	Monitor
	ECHOCS03	Color printer
	ECHOCS04	Mouse
	ECHOCS05	Keyboard

Optional accessories	
01ETM003	Front protection shield
ETT100-1	Environmental chamber
ETT300A-1	Environmental chamber
ETT300B-1	Environmental chamber

NOTE: For tests with environmental chamber, the fixture must be on request



ETM 5 - ETM 1

ETM 1 and ETM 5 bench type double column version with compact design.

- > Best solution for the operator who needs a small force but the stability of double column frame.
- > Wide range of test accessories allows to meet test requirements of different standards and for different materials.
- > ETM series is suitable to test: metals, reinforced plastics, wires, textiles, small components, adhesive materials, etc.



Model		ETM 5	ETM 1
Load cell			
Load capacity	kN	5	1
	kgf	500	100
Calibration standard	-		ISO 7500
Accuracy grade	%		0.5 of reading
Testing load accuracy	%		
Deformation accuracy	%		
Displacement accuracy	%		
Force range	FS		0.2%-100%
Force resolution	FS		1/500000
Force accuracy	%		0.5 of reading
Controller			
Sampling frequency	Hz		Up to 1000
Closed loop control frequency	Hz		Up to 1000
Resolution	bit		20
Software			
Software	-		echoTestPilot
Crosshead			
Position resolution	µm		0.027
Crosshead speed	mm/min		0.001-500
Crosshead speed accuracy	%		±1.0/±0.5 of set speed
Crosshead travel (without grip)	mm		1000
Main frame			
Frame type	-		Bench top double column
Test width	mm		420
Fixture adapter	mm		ø20
Grip pin	mm		ø10
Motor power	kW		0.4
Power supply	V-Hz-ph		230-50/60-1
Dimensions	mm		728x470x1520
Weight	kg		150

Accessories				
Mechanical wedge action tensile grips				
Model	Description	Max. force applied	Grip pin	Application
JW310B	Grip body	10kN	ø10mm	For metal and non-metal specimen
JW310F1	Tensile grip for flat specimens 0-20mm			
JW310R1	Tensile grip for round specimens ø4-9mm			
JW310R2	Tensile grip for round specimens ø9-14mm			
JW120B	Grip body	20kN	ø10mm	For metal and non-metal specimen
JW120F1	Tensile grip for flat specimens 0-6mm			
JW120F2	Tensile grip for flat specimens 6-12mm			
JW120F3	Tensile grip for file specimens 0-6mm			
JW120R1	Tensile grip for round specimens ø4-9mm			
JW120R2	Tensile grip for round specimens ø9-14mm			
JW130B	Grip body	30kN	ø10mm	For metal and non-metal specimen
JW130F1	Tensile grip for flat specimens 0-7mm			
JW130F2	Tensile grip for flat specimens 7-14mm			
JW130F3	Tensile grip for file specimens 14-21mm			
JW130R1	Tensile grip for round specimens ø4-9mm			
JW130R2	Tensile grip for round specimens ø9-14mm			
JW130R3	Tensile grip for round specimens ø14-19mm			
Pneumatic tensile grips				
Model	Description	Max. force applied	Grip pin	Application
PNJ3001	Tensile grip for sample diameter ≤1mm	500N	ø10mm	For low force test of non-metal specimen
PNJ3002	Tensile grip for sample diameter ≤1mm (nylon cord)	500N	ø10mm	For nylon cord
PNJ3003	Tensile grip with clamping width ≤25mm Sample thickness ≤6.5mm, no liner	500N	ø10mm	For low force test of non-metal specimen
PNJ3005	Tensile grip with clamping width ≤30mm Sample thickness ≤4mm, with liner	500N	ø10mm	For low force test of non-metal specimen
PNJ3010	Tensile grip with clamping width ≤150mm Sample thickness ≤7mm, no liner	1kN	ø10mm	For low force test of non-metal specimen
PNJ3004	Tensile grip with clamping width ≤25mm Sample thickness ≤6.5mm, no liner	1kN	ø10mm	For low force test of non-metal specimen
PNJ3006	Tensile grip for sample diameter ≤3mm	2kN	ø10mm	For low force test of non-metal specimen
PNJ3008	Tensile grip jaw 25x50mm Sample thickness ≤9mm with liner	2kN	ø10mm	For low force test of non-metal specimen
PNJ3009	Tensile grip for sample diameter ≤3mm	3kN	ø10mm	For low force test of non-metal specimen
PNJ3011	Tensile grip for flat specimens 0-4mm	3kN	ø10mm	For glass fiber specimen
PNJ3007	Tensile grip for flat specimens 0-10mm, width 50mm	5kN	ø10mm	For low force test of non-metal specimen
PNJ3012	Tensile grip with rubber coated jaw 25.4x25.4mm Sample thickness ≤14mm	10kN	ø10mm	For textile tensile test
PNJ3013	Tensile grip with rubber coated jaw 50.8x76.2mm Sample thickness ≤14mm	10kN	ø10mm	For textile tensile test
PNJ3014	Tensile grip with diamond jaw 25.4x25.8mm Sample thickness ≤14mm	10kN	ø10mm	For textile tensile test
PNJ3015	Tensile grip with diamond jaw 25.4x70mm Sample thickness ≤14mm	10kN	ø10mm	For textile tensile test
Compression fixtures				
Model	Description	Max. force applied	Grip pin	Application
CP1200	Platen ø100mm	20kN	ø10mm	For compression test
CP1201	Platen ø200mm	20kN	ø10mm	For compression test

Bending fixtures

Model	Description	Max. force applied	Grip pin	Application
BD2002	Bending nose R5mm	10kN	ø10mm	For bending test
	Support roller R2mm			
	Maximum span 160mm, adjustable			
	3-point bending, support roller exchangeable			
BD2003	Bending nose R3mm	10kN	ø10mm	For bending test
	Upper span 110mm adjustable			
	Lower span maximum 220mm adjustable			
	4-point bending, support roller fixed			
BD2004	Bending nose R5mm	20kN	ø10mm	For bending test
	Support roller R2mm			
	Maximum span 200mm, adjustable			
	3-point bending, support roller exchangeable			
BD2005	Bending nose R5mm	20kN	ø10mm	For bending test
	Support roller R2mm			
	Maximum span 200mm, adjustable			
	3-point bending, support roller exchangeable			
	Micrometer included			

Lever grips

Model	Description	Max. force applied	Grip pin	Application
LVG021	Lever grip with clamping width <22mm	2kN	ø10mm	For rubber tensile test
	Max. opening 10mm			
LVG022	Lever grip with clamping width <40mm	2kN	ø10mm	For rubber tensile test
	Max. opening 7mm			
LVG023	Lever grip with clamping width <40mm	5kN	ø10mm	For rubber tensile test
	Max. opening 12mm			

Peeling grips

Model	Description	Max. force applied	Grip pin	Application
PLG971	Grip for stainless steel composite pipe ID-OD 12-16; 16-20; 20-25; 26-32; 33-40	2kN	ø10mm	For stainless steel compoposite pipe peeling test
PLG972	Grip for metal bond sample width <20mm	3kN	ø10mm	For metal bond specimen 90° peeling test

Vice grips

Model	Description	Max. force applied	Grip pin	Application
VG3201	Sample thickness ≤8mm	500N	ø10mm	For plastic and film tensile and peeling test
	Vice grip with clamping width <32mm			
VG3202	Sample thickness ≤13.5mm	1kN	ø10mm	For wire, foil, film, fiber, rubber tensile test
	Vice grip with clamping width <25mm			

VG3203	Sample thickness $\leq 12\text{mm}$	5kN	$\varnothing 10\text{mm}$	For sheet metal, fiber, plastic, rubber tensile test
	Vice grip with clamping width $< 70\text{mm}$			

Wire, cord tensile grips

Model	Description	Max. force applied	Grip pin	Application
CWG021	Wire grip for sample diameter $\leq 1\text{mm}$	500N	$\varnothing 10\text{mm}$	For wire tensile test
CWG022	Wire grip for sample diameter $\leq 0.5\text{mm}$	500N	$\varnothing 10\text{mm}$	For wire tensile test
CWG023	Wire grip for sample diameter $\leq 1.5\text{mm}$	2kN	$\varnothing 10\text{mm}$	For wire tensile test
CWG024	Wire grip for sample diameter $\leq 1.5\text{mm}$	5kN	$\varnothing 10\text{mm}$	For wire tensile test

Other special grips are available on request

Computer System

Computer System	ECHOCS01	Computer
	ECHOCS02	Monitor
	ECHOCS03	Color printer
	ECHOCS04	Mouse
	ECHOCS05	Keyboard

Optional accessories

01ETM002	Front protection shield
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