

6800 SERIES
the **NEXT**
GENERATION of
Universal Testing Systems



SOLUTIONS FOR ALL OF YOUR TESTING NEEDS

Application-Based Testing Solutions

The 6800 Series Universal Testing Systems range in capacity from 500 N to 50 kN and provide exceptional performance with unparalleled accuracy and reliability. Offering up to 5 kHz data acquisition and $\pm 0.5\%$ accuracy down to 1/1000th of load cell capacity, the 6800 Series offers ultimate flexibility for any testing need.

Single Column Testing Systems

For low force applications, the 6800 single column series provides up to 5 kN capacity available in standard and extra height options.



SCAN THE QR CODE
to learn more and see
the 6800 systems in action.



Table Model Testing Systems

For higher force applications, the 6800 dual column table model series provides up to 50 kN capacity available in standard and extra height/width options.

FLEXIBILITY BY DESIGN

Application-Based Testing Solutions

Instron® systems are routinely found in industries that require the testing of plastics, metals, elastomers and packaging. Some of our key applications can be found in the biomedical, automotive, electronics, and raw materials industries.

The 6800 Series universal testing machines are designed to perform tensile, compression, flex, peel, puncture, friction, shear tests, and more. The systems are compatible with hundreds of grips and fixtures found in Instron's expansive accessories catalog, with specific configurations designed to perform many of the most popular ASTM and ISO tests.

SCAN THE QR CODE
to see Instron's full
Accessories Catalog.





02



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04



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Tensile Testing

- 01 Temperature Chamber with AVE 2
- 02 Cord And Yarn Grips
- 03 Manual Wedge Action Grips & T-Slot Table
- 04 Dual Column XL Extensometer
- 05 Bio Bath & 250 N Pneumatic Grips
- 06 Screw Side Action Grips
- 07 1 kN Pneumatic Grips

SAFER

Safety without Sacrificing Throughput



Operator Protect

The 6800 Series is built on Instron's patent-pending Operator Protect architecture. An intelligent workflow keeps equipment and operators safer by controlling system status from setup to test completion.




Built-in Safety Coaching

The 6800 series provides clear visual feedback regarding system status at all times. Users will easily understand when the system is in a safe setup mode, and clearly reminded to exit the test space once these safety limits are removed.



Smart-Close Air Kit

Finger pinch hazards from pneumatic grips are reduced through lower grip-closing pressure and restricted speed during the setup phase of your test.



The 6800 handset brings system controls closer than ever before with an all-new ergonomic handset, mounted directly to the frame. Operators can use the handset in the mounted position or removed from its dock.

Customizable Soft Keys

With 2 user-defined 'Soft Key' buttons, the operator can initiate a variety of commands. The Soft Keys can be defined per method, allowing for customization for each test.

Virtual Interlock

With Instron's patent-pending system architecture, the machine's movement is restricted during setup to prevent unintended motion of the crosshead.

Variable Speed Jog

During setup mode, your system will default to a safe speed appropriate for an operator to work in the test space.

Precise Positioning

The Fine Position adjustment thumbwheel with tactile feedback allows for precision positioning of the crosshead in 4 μm increments when performing sensitive testing.

Specimen Protect

Specimen Protect prevents unwanted forces from being applied to the specimen by automatically making fine adjustments to the crosshead, protecting your valuable specimen from damage.

Stiff Frames for High-Strength Materials

The 6800 is built for high performance. It features pre-loaded bearings, precision ball screws, an extra thick crosshead and base beam, and low-stretch drive belts to ensure superior performance and longevity.

Precision Guidance for Alignment and Bending

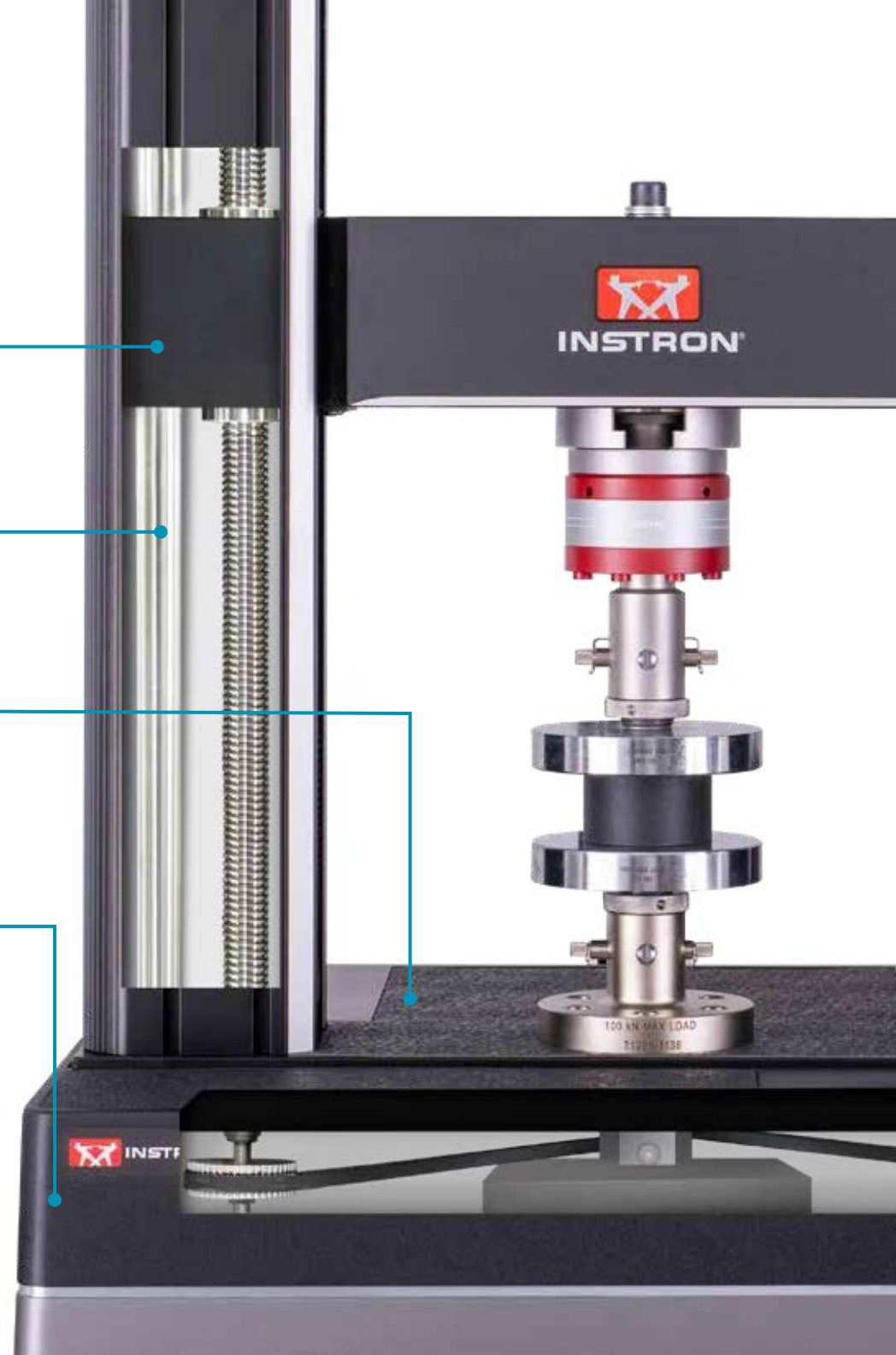
When performing a uniaxial test, accurate stress and strain results can only be achieved with a system that contains robust, precise guidance columns that ensure minimal specimen bending under load.

Larger Motors for Better Reliability

The 6800 load frames use powerful motors with reserve capacity that allow for quicker rates of acceleration. Maintenance-free brushless AC servomotors enable cyclic, creep, and relaxation testing for up to 10 days (up to 1Hz at 25 °C).

Servo-Controlled Drive System

Along with a powerful motor, the 6800 drive system consists of a rugged steel casting with a dual-belt drive system. Unlike systems that use gear-reducers, which create backlash and lower drive system stiffness, the dual-belt system provides synchronous movement of the ball screws, eliminating crosshead tilt and aiding system alignment.

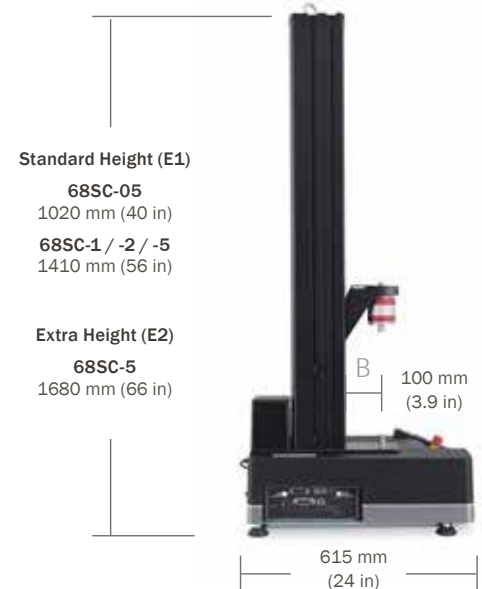


6800 SERIES SPECIFICATIONS

6800 Single Column Series

		68SC-05	68SC-1	68SC-2	68SC-5
Force Capacity	kN	0.5	1	2	5
	lbf	112	225	450	1125
Crosshead Travel	mm	505	868	868	868 (E1), 1112 (E2)
	in	19.9	34.2	34.2	34.2 (E1), 43.8 (E2)
Vertical Test Space (A)	mm	738	1118	1118	1118 (E1), 1375 (E2)
	in	29.1	44.0	44.0	44.0 (E1), 54.1 (E2)
Horizontal Test Space (B)	mm	100	100	100	100
	in	3.9	3.9	3.9	3.9
Maximum Speed	mm/min	2540	2540	2540	2540
	in/min	100	100	100	100
Minimum Speed	mm/min	0.001	0.001	0.001	0.001
	in/min	0.00004	0.00004	0.00004	0.00004
Maximum Return Speed	mm/min	2540	2540	2540	2540
	in/min	100	100	100	100
Position Control Resolution	nm	9.5	9.5	9.5	9.5
	µin	0.38	0.38	0.38	0.38
Frame Axial Stiffness	kN/mm	8.5	8.5	8.5	8.5
	lb/in	48500	48500	48500	48500
Maximum Force at Full Speed	kN	0.5	1	2	2.5
	lbf	112	225	450	562
Maximum Speed at Full Force	mm/min	2540	2540	2540	1270
	in/min	100	100	100	50
Footprint Dimensions (h × w × d)*	mm	1020 × 460 × 615	1410 × 460 × 615	1410 × 460 × 615	1410 × 460 × 615
	in	40 × 18 × 24	56 × 18 × 24	56 × 18 × 24	56 × 18 × 24
Weight	kg	55	62	62	62 (E1), 67 (E2)
	lb	121	136	136	136 (E1), 148 (E2)
Maximum Power Requirements	VA	700	700	700	700

* The footprint width is for the system only. The Operator Dashboard monitor may add 250 mm (10 in) to the overall width of the frame. The extra height (E2) option for the 68SC-5 adds 27 cm (10 in) to the overall height of the frame.



6800 Table Model Series



		68TM-5	68TM-10	68TM-30	68TM-50
Force Capacity	kN	5	10	30	50
	lbf	1125	2250	6750	11250
Crosshead Travel	mm	1163 (E1), 1648 (E2)	1163 (E1), 1648 (E2)	1119 (E1), 1605 (E2)	1119 (E1), 1605 (E2)
	in	45.8 (E1), 64.9 (E2)	45.8 (E1), 64.9 (E2)	44.1 (E1), 63.1 (E2)	44.1 (E1), 63.1 (E2)
Vertical Test Space (A)*	mm	1234 (E1), 1739 (E2)	1234 (E1), 1739 (E2)	1190 (E1), 1695 (E2)	1190 (E1), 1695 (E2)
	in	48.6 (E1), 68.5 (E2)	48.6 (E1), 68.5 (E2)	46.8 (E1), 66.7 (E2)	46.8 (E1), 66.7 (E2)
Horizontal Test Space (B)	mm	420	420	420 (F1), 947 (F2)	420
	in	16.5	16.5	16.5 (F1), 37.2 (F2)	16.5
Maximum Speed	mm/min	3048	2032	1016	762
	in/min	120	80	40	30
Minimum Speed	mm/min	0.001	0.001	0.001	0.001
	in/min	0.00004	0.00004	0.00004	0.00004
Maximum Return Speed	mm/min	3500	2100	1100	800
	in/min	138	83	43	31
Footprint Dimensions (h × w × d)**	mm	1640 × 760 × 715	1640 × 760 × 715	1640 × 756 × 715	1640 × 760 × 715
	in	65 × 30 × 28	65 × 30 × 28	65 × 30 × 28	65 × 30 × 28
Position Control Resolution	nm	9.9	4.9	2.6 (F1), 2.8 (F2)	1.8
	μin	0.39	0.19	0.10 (F1), 0.11 (F2)	0.07
Frame Axial Stiffness	kN/mm	45	50	140 (F1), 88 (F2)	180
	lb/in	256,950	285,500	799,000 (F1), 502,000 (F2)	1,027,000
Maximum Force at Full Speed	kN	2.5	5	15	25
	lbf	563	1125	3372	5620
Maximum Speed at Full Force	mm/min	1524	1016	508	381
	in/min	60	40	20	15
Weight	kg	139 (E1), 154 (E2)	139 (E1), 154 (E2)	196 (E1+F1), 215 (E2+F1) 453 (E1+F2), 471 (E2+F2)	255 (E1), 278 (E2)
	lb	307 (E1), 340 (E2)	307 (E1), 340 (E2)	433 (E1), 473 (E2) 999 (E1+F2), 1038 (E2+F2)	562 (E1), 612 (E2)
Maximum Power Requirements	VA	1400	1400	1400 (F1) 1500 (F2)	1400

* The F2 option for 68TM-30 reduces test space by 53 mm (2 in).

** The footprint width is for the system only. The Operator Dashboard monitor may add 450 mm (18 in) to the overall width of the frame. The extra height (E2) option adds 530 mm (21 in) to the overall height of the frame.

| SPECIFICATIONS & REQUIREMENTS

Data Acquisition Rate at the PC:

Up to 5 kHz simultaneous on force, displacement, and strain channels.

Load Measurement Accuracy:

± 0.5% of reading down to 1/1000th of load cell capacity with 2580 Series load cells (with Advanced Performance Option)

± 0.5% of reading down to 1/500th of load cell capacity with 2580 Series load cells

± 0.5% of reading to 1/250th of load cell capacity with 2525 or 2530 Series load cells

Strain Measurement Accuracy:

Meets or exceeds ASTM E83, BS 3846, ISO 9513, and EN 10002-4 standards.

Displacement Measurement Accuracy:

±0.01 mm or 0.05% of displacement (whichever is greater).

Notes:

These specifications were developed in accordance with Instron's standard procedures and are subject to change without notice. All systems conform to all relevant European standards and carry a CE mark.

Testing Speed Accuracy:

(Zero or constant load) ±0.1% of set speed.

Single Phase Voltage:

100, 120, 220, or 240 VAC ±10%, 47 to 63 Hz.

Operating Temperature:

+5 to +40 °C (+41 to +104 °F)

Storage Temperature:

-25 to +55 °C (-13 to +131 °F)

Ingress Protection (IP) Rating:

IP 2X. Protective measures may be required if excessive dust, corrosive fumes, electromagnetic fields, or hazardous conditions are encountered.

Humidity Range:

+10 to +90%, non-condensing at 20 °C

