

SmartRHEO Series | Capillary Rheometer

Thermoplastic materials are processed as fluids under the effect of temperature and pressure. The ability of plastics to be formed into a wide variety of shapes, by the common plastics conversion processes, has a fundamental importance in polymer science and application. The innovative Instron® line of CEAST SmartRHEO Series of Capillary Rheometer systems are designed for an accurate investigation of the rheological properties of polymeric materials.

Features and Benefits

- Rigid “H” frame for high strength and stiffness
- Brushless servomotor for accurate piston movement
- Accurate barrel temperature control with 3 heating zones and multiple PT100 sensors, ensuring minimum delay in reaching the test temperature and rapid recovery after sample loading
- Twin Bore barrel configuration allows two simultaneous and independent rheological tests, increasing time saving
- Crosshead with independent load cell on each piston provides superior accuracy, increasing the repeatability and reliability of test results
- Two interchangeable and independent barrel-mounted pressure transducers allowing accurate data acquisition
- The test data are collected, managed, and elaborated by a dedicated software. Additional modules provide deeper rheological data analysis.
- Wide selection of optional devices and capillary dies are ideal for multiple testing applications within a single machine

Application Range

- Plastics - raw polymers, composites, compounds, recycled materials, MIM, ceramic materials, and fibers
- Rheological tests - R&D, advanced quality control, and process optimization (injection moulding, extrusion, blow moulding, and thermoforming)

Related Standards

Compliant with ISO 11443, ASTM D 3835, and DIN 54811 standards for rheology testing.



The CEAST SmartRHEO Series includes the most versatile and technically advanced laboratory tabletop capillary rheometers. These systems determine the rheological properties of polymer samples over a wide range of shear rates and processing testing conditions.

CEAST SR20 - The Intermediate Model

Designed for testing the characterization of the most common raw polymers or blends with a medium viscosity range. It is equipped for single or twin bore barrel configuration and with a maximum range of 20 kN.

CEAST SR50 - The Premiere Model

Suited for single or twin bore barrel configuration and a maximum force range of 50 kN. Designed with a special reinforced frame, the SR50 matches the performance of floor standing units, and test newly developed materials with high viscosity range, including reinforced polymer formulations.

Optional Features

- PVT (ISO 17744) - polymer cooling behavior and compressibility
- Die Swell - material elasticity evaluation after extrusion



Twin Barrel configuration with two independent Load Cells

Specifications

		CEAST SR20	CEAST SR50
Dimensions with Shield Lifted (W × D × H)	mm	670 × 600 × 1750	670 × 600 × 1750
	in	26.3 × 23.6 × 68.8	26.3 × 23.6 × 68.8
Weight (Without optional devices)	kg	130	190
	lbs	286.6	418.8
Maximum Force Range	kN	20	50
	kgf	2.03	5.09
	lbf	4.49	11.24
Piston Speed	mm/min	0.0024 - 1200 (speed ratio: 500'000:1)	0.0024 - 1200 (speed ratio: 500'000:1)
	in/min	0.000094 - 97	0.000094 - 97
Type of Barrel		Single Bore/Twin Bore	Twin Bore
Barrel Working Length	mm	290	290
	in	11.4	11.4
Temperature Range	°C	50 - 450	50 - 450
	°F	122 - 842	122 - 842
Temperature Accuracy	°C	±0.2	±0.2
	°F	±0.3	±0.3
Force Transducers	kN	1 - 20	1 - 50
	kgf	0.10 - 2.03	0.10 - 5.09
	lbf	0.22 - 4.49	0.22 - 11.24
Pressure Transducers	MPa	20 - 200	20 - 200

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