

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 SR10 - The Entry Model

Ideal for basic QC tests and is equipped with a single bore barrel configuration and maximum force range of 10 kN.

#### 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
- Thermal Conductivity (ASTM D 5930) - polymer melt heat transfer
- Die Swell - material elasticity evaluation after extrusion
- Melt Cutting (BTM 20006) - extrudate portions cutting at given time
- Stretching Unit - melt strength and material drawing capability
- Slit Die - viscosity tests with a different extrusion geometry



Twin Barrel configuration with two independent Load Cells

### Specifications

		CEAST SR10	CEAST SR20	CEAST SR50
Dimensions with Shield Lifted (W × D × H)	mm	520 × 600 × 1660	670 × 600 × 1750	670 × 600 × 1750
	in	20.4 × 23.6 × 65.4	26.3 × 23.6 × 68.8	20.4 × 23.6 × 68.8
Weight (Without optional devices)	kg	110	130	190
	lbs	242.5	286.6	418.8
Maximum Force Range	kN	10	20	50
	kgf	1.01	2.03	5.09
	lbf	2.24	4.49	11.24
Piston Speed	mm/min	0.0024 - 1200 (speed ratio: 500'000:1)	0.0024 - 1200 (speed ratio: 500'000:1)	0.0024 - 1200 (speed ratio: 500'000:1)
	in/min	0.000094 - 97	0.000094 - 97	0.000094 - 97
Type of Barrel			Twin Bore	Twin Bore
Barrel Working Length	mm	170	290	290
	in	6.7	11.4	11.4
Temperature Range	°C	50 - 350	50 - 450 (option 500)	50 - 450 (option 500)
	°F	122 - 662	122 - 842 (option 932)	122 - 842 (option 932)
Temperature Accuracy	°C	±0.2	±0.2	±0.2
	°F	±0.3	±0.3	±0.3
Force Transducers	kN	1 - 10	1 - 20	1 - 50
	kgf	0.10 - 1.01	0.10 - 2.03	0.10 - 5.09
	lbf	0.22 - 2.24	0.22 - 4.49	0.22 - 11.24
Pressure Transducers	MPa	3.5 - 140	3.5 - 200	3.5 - 200

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