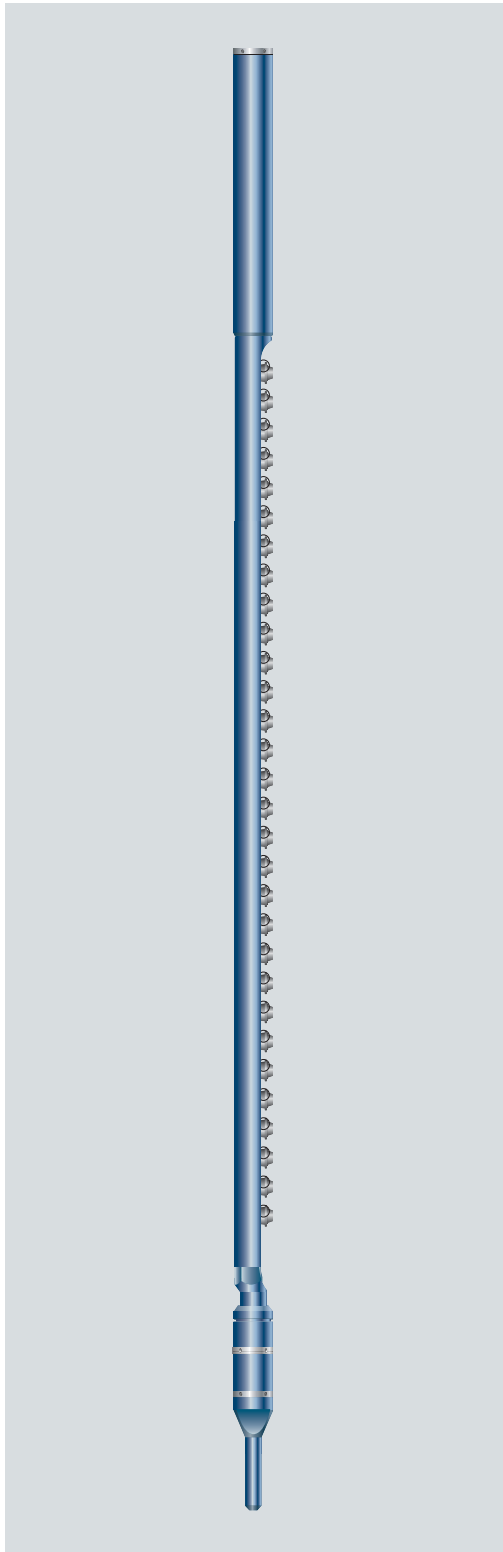


CST Chronological Sample Taker

Schlumberger



The CST* Chronological Sample Taker can collect up to 90 core samples in one trip using a series of core recovery bullets. This percussion-type gun is accurately depth positioned by using a spontaneous potential or gamma ray log. A surface-controlled, electrically ignited powder charge fires a hollow cylindrical bullet into the formation at each sample depth. Each bullet is attached by two retaining wires to the gun; these are used to retrieve the bullet and core. The wires have a breaking strength of approximately 1,800 lbf [8,000 N] to release the gun from the core bullet, which prevents a stuck core resulting in a stuck CST tool.

The CST guns vary in the number of bullets per gun. Bullet designs are available for optimum core recovery in various ranges of formation consolidation. The recovered samples are usually large enough for conducting core analysis.

Applications

- Porosity measurement
- Permeability estimate
- Lithology identification
- Grain size, density, and shape indication
- Hydrocarbon identification
- Oil, gas, and water volume estimates

Measurement Specifications

	CST Tool
Output	Sidewall cores
Logging speed	Stationary
Mud type or weight limitations	Hydrostatic pressure and formation characteristics determine charge selection
Combinability	Usually run with PGGT* Powered Gun Gamma Ray Tool for correlation Up to 3 guns can be used to collect a maximum of 90 core samples
Special applications	H ₂ S service

Mechanical Specifications

	CST Tool
Temperature rating	Explosive charges: 280°F [138°C] for 1 hr or 450°F [232°C] for 1 hr
Pressure rating	20,000 psi [138 MPa]
Borehole size—min. [†]	4½ in. [10.48 cm]
Borehole size—max. [†]	25 in. [63.50 cm]
Outer diameter [†]	3.375 to 5.25 in. [8.57 to 13.33 cm]
Length [†]	6.83 to 17.08 ft [2.08 to 5.21 m]
Weight [†]	125 to 406 lbm [57 to 184 kg]
Tension	50,000 lbf [222,410 N]
Compression	23,000 lbf [102,310 N]

[†] Depends on the gun, see "CST Sample Gun Specifications"

CST Sample Gun Specifications

	CST-AA	CST-BA	CST-C	CST-DA	CST-G	CST-G60N	CST-G60P	CST-G60Y
Core samples	30	30	30	30	30	60	60	60
Temperature rating	450°F [232°C]	450°F [232°C]	450°F [232°C]	450°F [232°C]	280°F [138°C]	280°F [138°C]	280°F [138°C]	280°F [138°C]
Pressure rating	20,000 psi [138 MPa]	20,000 psi [138 MPa]	20,000 psi [138 MPa]	20,000 psi [138 MPa]	20,000 psi [138 MPa]	20,000 psi [138 MPa]	20,000 psi [138 MPa]	20,000 psi [138 MPa]
Borehole size—min.	8½ in. [21.59 cm]	8½ in. [21.59 cm]	8½ in. [21.59 cm]	8½ in. [21.59 cm]	5½ in. [13.97 cm]	5½ in. [13.97 cm]	5½ in. [13.97 cm]	6¼ in. [15.55 cm]
Borehole size—max.	25 in. [63.50 cm]	25 in. [63.50 cm]	25 in. [63.50 cm]	25 in. [63.50 cm]	12½ in. [31.75 cm]	12½ in. [31.75 cm]	12½ in. [31.75 cm]	12½ in. [31.75 cm]
Outer diameter	5.25 in. [13.33 cm]	4.5 in. [11.43 cm]	5.25 in. [13.33 cm]	4.5 in. [11.43 cm]	4 in. [10.16 cm]	4 in. [10.16 cm]	4 in. [10.16 cm]	4.375 in. [11.11 cm]
Length	9.08 ft [2.77 m]	7.92 ft [2.41 m]	7.86 ft [2.39 m]	11.42 ft [3.48 m]	9.50 ft [2.89 m]	17.08 ft [5.21 m]	17.08 ft [5.21 m]	16.71 ft [5.09 m]
Weight	262 lbm [119 kg]	229 lbm [104 kg]	200 lbm [91 kg]	326 lbm [148 kg]	175 lbm [79 kg]	308 lbm [140 kg]	308 lbm [140 kg]	308 lbm [140 kg]

CST Sample Gun Specifications

	CST-GY	CST-J	CST-U	CST-V	CST-W	CST-Y	CST-Z
Core samples	30	25	24	21	12	21	30
Temperature rating	280°F [138°C]	450°F [232°C]	450°F [232°C]	450°F [232°C]	450°F [232°C]	450°F [232°C]	450°F [232°C]
Pressure rating	20,000 psi [138 MPa]	20,000 psi [138 MPa]	20,000 psi [138 MPa]	20,000 psi [138 MPa]	20,000 psi [138 MPa]	20,000 psi [138 MPa]	20,000 psi [138 MPa]
Borehole size—min.	6¼ in. [15.56 cm]	4¼ in. [10.46 cm]	5½ in. [13.97 cm]	5½ in. [13.97 cm]	4¾ in. [12.07 cm]	5½ in. [13.97 cm]	8½ in. [21.59 cm]
Borehole size—max.	12½ in. [31.75 cm]	10 in. [25.40 cm]	12½ in. [31.75 cm]	12½ in. [31.75 cm]	12½ in. [31.75 cm]	12½ in. [31.75 cm]	25 in. [63.50 cm]
Outer diameter	4.375 in. [11.11 cm]	3.375 in. [8.57 cm]	4.375 in. [11.11 cm]	4.375 in. [11.11 cm]	4.375 in. [11.11 cm]	4.375 in. [11.11 cm]	5.25 in. [13.33 cm]
Length	9.50 ft [2.89 m]	12.92 ft [3.93 m]	6.83 ft [2.08 m]	7.60 ft [2.32 m]	8.08 ft [2.46 m]	7.60 ft [2.32 m]	11.42 ft [3.48 m]
Weight	175 lbm [79 kg]	187 lbm [85 kg]	125 lbm [57 kg]	168 lbm [76 kg]	148 lbm [67 kg]	168 lbm [76 kg]	406 lbm [184 kg]

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*Mark of Schlumberger

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