



CFR-A5 Diesel Cetane Rating Machine ASTM D613

CFR-A5 Diesel Cetane Rating Units are used for determining and certifying the ignition quality of diesel fuels in terms of an arbitrary scale of cetane numbers. The sample fuel is tested using a standard single cylinder, four-stroke cycle, variable compression ratio, indirect injected diesel engine. Accurate analysis of diesel cetane number is crucial for diesel fuel blenders and refineries to maintain fuel consistency and quality. It will help to ensure the integrity of the fuel supply chain from refinery to the pump. The cetane number scale covers the range from zero (0) to 100, but typical testing is in the range of 30 to 65 cetane number. The unit can automatically display, save and print the test report.

Conforms to:

ASTM D613: Standard Test Method for Cetane Number of Diesel Fuel Oil

GB/T 386: Standard test method for cetane number of diesel fuel oil

Performance Characteristics:

- 1. CFR standard crankcase, with its 5 gears, 2 balance modules. The engine is mounted on the right side and the turning check system at the front.
- 2. Head, cylinder block, piston, CR plug, nozzle components and other major mechanical components are designed and manufactured according to international standards
- 3. Powerful upper exhaust cooled water circulator, water tank capacity $\geq 60\text{L}$, cooled water outlet pressure : 0.2-0.4MPa, temperature range: 15~25°C
- 4. Automatic detection and adjustment of fuel flow through photoelectric automatic measurement system
- 5. Real-time display of the working curve to timely reflect the ignition delay timing.
- 6. Fuel injection timing is automatically controlled by computer. The instrument is equipped with advanced electric control pump and high quality fuel injection nozzle.
- 7. Variable Compression Plug Handwheel fully meets the specification requirements.
- 8. Laser micrometer system is used for handwheel reading , automatic data acquisition and display
- 9. Air Intake : large-capacity air purification system.
- 10. Exhaust : the instrument is equipped with a muffler to effectively eliminate the noise during operation.
- 11. Lubrication system: two stage filtration and circulating cooling, lubricating oil auxiliary preheating function effectively shorten the preheating time.
- 12. Fuel system: three parallel fuel tanks and one fuel flow rate buret.
- 13. Safety system: emergency stop function to realize emergency protection under abnormal conditions.
- 14. Data acquisition, automatic calculation, automatic control, automatic table look-up, test result printing and prompts and other powerful functions.
- 15. Real-time monitoring of cooling water temperature, intake air temperature, nozzle temperature, lubricating oil temperature, fuel temperature, motor power and other operating conditions.
- 16. Negative pressure sensor to display the engine operation pressure in real-time.
- 17. Digital screen displays the engine power.
- 18. Automatically record start-up time and accumulated test time.

Technical Parameters:

No.	Tech Indicator	Description
1	Cetane Number Range	0 to 100 (Typical testing CN range: 30 to 65)
2	Cast Iron Cylinder Bore (Diameter)	82.55mm (3.250 inch)
3	Piston Stroke	114.3mm (4.50 inch)
4	Compression Ratio Range	Adjustable 8: 1 to 36: 1 by External Handwheel Assembly
5	Cylinder Displacement	0.61L (37.33 in3)
6	Cylinder Jacket Coolant Temperature	100°C ± 2°C (212°F ± 3°F)
7	Engine Speed	900 rpm±9 rpm
8	Injection Timing	13°±0.2°BTDC
9	Injection Pressure	10.3 MPa±0.34 MPa (1500 psi ± 50 psi)
10	Injection Flow Rate	13ml/min±0.2 ml/min
11	Injector Coolant Passage Temp.	38°C±3°C (100°F± 5°F)
12	The clearance for both intake and exhaust valves (Engine running and hot)	0.2mm±0.025mm (0.008 in. ± 0.001 in.)
13	Intake Air Temperature	66°C±0.5°C (150°F±1°F)
14	Lubricating Oil Temperature	57°C±8°C (135°F±15°F)
15	Lubricating Oil Pressure	172kPa to 207kPa(25psi to 30psi)
16	Basic Compression Pressure	3275kPa±138kPa (475psi±20psi)
17	Crankcase Internal Pressure	0.25 to 1.5 kPa less than atmospheric pressure
18	Operating Conditions	15°C to 35°C,20% to 80% relative humidity (non-condensing)
19	Electrical Specifications	380V, 50Hz, Properly Grounded
20	Dimension of Machine	1550mm(W)×900mm(D)×1720mm(H)
21	Net Weight of Machine	1200kg

