



## AWD-3241 Jet Fuel Thermal Oxidation Stability Tester (JFTOT Method) ASTM D3241

AWD-3241 jet fuel thermal oxidation stability is a crucial quality index of aviation kerosene, and a mandatory testing item for the ex-factory inspection of aviation kerosene in oil refining production. This tester is a professional analytical instrument designed and manufactured in strict accordance with the national standard GB/T 9169-2023 and international standard ASTM D3241.

As the third-generation JFTOT instrument, it has passed rigorous performance tests, with all technical indicators fully meeting the requirements of relevant standards. It is specially developed for the determination of dynamic thermal oxidation stability of jet fuel, and is widely applicable to oil processing, storage and transportation, airports, scientific research institutions and other departments engaged in the production, application and research of aviation fuel, providing accurate and reliable testing data for the quality evaluation and control of jet fuel.

### Performance Advantages

- **High Standard Compatibility**

Fully compliant with GB/T 9169-2023 and ASTM D3241 (JFTOT method) standards, the test results are accurate and authoritative, which can provide compliance basis for the quality judgment of aviation kerosene and meet the mandatory testing requirements of ex-factory inspection.

- **High Degree of Automation**

Equipped with a touch screen operation interface, the whole test process is fully automatic without manual intervention. It can dynamically display all operating parameters of the instrument and the differential pressure change trend after the experiment, and realize automatic fault diagnosis and alarm to ensure the safe and stable operation of the system.

- **Improved Testing Efficiency**

Compared with traditional instruments, it reduces the operator's operation time by 40 minutes, greatly improving the detection efficiency of the laboratory and being suitable for the batch testing needs of jet fuel samples.

- **Safe and Reliable Operation**

Adopts a fully sealed sample processing design, which reduces the direct contact between operators and jet fuel and effectively reduces operational risks. The high-precision pump control system ensures the stability of flow and pressure during the test, and the test process is more reliable.

- **Comprehensive Data Management**

It has the functions of historical data storage, query, export and automatic generation and printing of experimental reports, which can store up to 300 groups of test data. It is convenient for data traceability, comprehensive analysis and archiving, and meets the data management requirements of laboratories.

- **Flexible Function Expansion**

The experimental temperature, pressure and flow can be customized and set, which not only meets the standard testing requirements, but also can carry out scientific research and special experiments, adapting to the diversified testing needs of scientific research institutions and professional testing departments.

### Technical Features

- The accuracy indicators of instrument pressure and flow fully meet the standard requirements, with high testing precision and stable data performance.
- The touch screen operation interface supports real-time collection and display of core parameters such as



temperature, pressure, differential pressure and flow, and synchronously draws temperature and differential pressure change curves for intuitive observation of the test process.

- Equipped with a complete sensor calibration function, supporting the calibration and automatic error correction of temperature, pressure, flow and differential pressure sensors to ensure long-term testing accuracy of the instrument.
- The built-in circulating cooling system can effectively take away the heat of the busbar, avoid the influence of busbar heating on temperature control precision, and ensure the stable operation of the heating system.
- The sample pretreatment system can automatically complete the air inflation saturation of the sample, making the air saturation of the sample reach more than 97%, ensuring the standardization of test conditions and the consistency of test results.
- With automatic fault diagnosis and alarm function, it can timely detect the abnormal operation of the system and issue an alarm prompt, effectively avoiding test failure and instrument damage caused by equipment failure.
- The high-precision differential pressure detection system can automatically record the differential pressure change during the test, and automatically open the bypass valve when the differential pressure reaches the alarm value to ensure the completion of the whole test cycle.

### **System Composition**

The instrument is composed of five core systems, which cooperate with each other to realize the full-process automation from sample pretreatment, parameter control, data collection to result analysis, ensuring the standardization, precision and high efficiency of the test process.

- **Computer Control System**

It is the control center of the instrument, composed of an integrated industrial computer and modules. It has a built-in automatic operation program of ASTM D3241 standard, which can automatically control the working parameters and state of the instrument, realize real-time data collection and monitoring, and support data storage and report generation.

- **Sample Pretreatment System**

Composed of a dryer, air pump, flow meter and filter, it completes the air inflation pretreatment of the sample before the formal test, provides a clean and air-saturated sample for the instrument's accurate analysis, and ensures the standardization of test conditions.

- **Heating Power Supply, Temperature and Differential Pressure Measuring Mechanism**

It is responsible for providing controllable heating power to the heating tube and measuring the real-time temperature and differential pressure. The heating tube is the core detection component of the instrument, which determines the correctness of the test results. The high-precision differential pressure sensor completes the measurement of the differential pressure caused by the blockage of the filter by the decomposition products of the sample.

- **Circulating Cooling System**

Composed of a coolant storage tank, coolant delivery pump, air cooler and flow meter, it is used to take away the heat of the busbar, avoid the influence of busbar heating on the temperature control precision of the heating tube, and ensure the stable operation of the heating system.

- **Analysis System**

Mainly composed of a precision high-pressure constant flow pump, pre-filter, heating tube assembly, high-pressure back pressure valve, state switching valve, bypass valve, temperature sensor, pressure sensor and differential pressure sensor. The tested oil sample completes the whole test process in this system, including filtration, heating, pressure maintaining and differential pressure detection.

## Application Scope

This instrument is a special testing equipment for the determination of dynamic thermal oxidation stability of jet fuel, and is widely used in:

- Oil refining and processing enterprises: ex-factory quality inspection of aviation kerosene, process control in production.
- Aviation fuel storage and transportation units: quality detection of jet fuel in the process of storage and transportation, ensuring the quality stability of fuel.
- Airport oil testing departments: on-site detection of aviation kerosene used by aircraft, ensuring flight safety.
- Petrochemical scientific research institutions: research on the thermal oxidation stability of jet fuel and development of new fuel products.

## Technical Parameters

No	Item	Technical Index
1	Operating Ambient Temperature	10~35°C
2	Relative Air Humidity	≤85%
3	Power Supply	220V±10% , 50Hz±1% , 0.6KW
4	Analysis Medium	3# Jet Fuel / Aviation Fuel
5	Coolant Flow Rate	38±8 L/H
6	Temperature Control Range	100~405°C
7	Temperature Control Accuracy	±1°C
8	Differential Pressure Transmitter Accuracy	Class 0.075
9	Differential Pressure Display Resolution	0.01KPa
10	Sample Flow Rate	3ml/min±0.3ml ( ±10% )
11	System Working Pressure	3.45MPa±0.345MPa
12	Overall Dimension (H×W×L)	470×540×860mm
13	Instrument Weight	About 55KG



## Accessories List

Nº	Name	Specification	Quantity
1	Main Unit	AWD-3241	1 set
2	Tube Evaluator	JZ701	1 set
3	Colorimetric Plate	Special for matching	1 piece
4	Aeration Head	Special for matching	1 piece
5	Thermocouple Calibration Rod	Special for matching	1 piece
6	Special Tools	8-piece set (see Remarks)	1 set
7	Latex Gloves	Large size	1 pair
8	Rubber Bulb	Special for matching	1 piece
9	Wash Bottle	500ml	1 piece
10	Receiving Tray	35*40cm	1 piece
11	Micro Graduated Cylinder	5ml	1 piece
12	Heating Tube Jacket Brush	Special for matching	1 piece
13	Thermocouple	Special for matching	1 piece
14	Prefilter O-Ring	Special for matching	2 pieces
15	Pipeline O-Ring	Special for matching	10 pieces
16	Detection Tube Insulating Ring	Special for matching, TC-2	2 pieces
17	Detection Tube	JZDH1909	10 pieces
18	Tin Particles	99.99%, 25g	1 bottle
19	Color Changing Silica Gel	2.0-5.6mm, 500g	1 bag
20	Prefilter Membrane	0.45µm	1 piece
21	Qualitative Filter Paper	32cm	1 pack
22	Tweezers	Special for matching	1 piece
23	Sample Cup	Special for matching	2 pieces
24	Sample Cup	Spare	1 piece
25	Hex Screwdriver	M5	1 piece
26	Slotted Screwdriver	2.5mm	1 piece
27	Oil Cup O-Ring	Φ96*2.5	2 pieces
28	Instrument Certificate of Conformity	-	1 piece
29	Power Cord	-	2 pieces
30	User Operation Manual	-	1 copy
31	Prefilter Membrane Support	Special for matching	1 piece
32	Heating Tube Jacket Assembly	-	1 set
33	Mouse and Keyboard	Special for matching	1 set