



HIGH PERFORMANCE SMART FUME HOODS



**Revolutionizing Lab Safety and Economics
for a Brighter, Smarter Workspace.**

JAD SMART SERIES HIGH PERFORMANCE SMART FUME HOOD

A New Standard in Laboratory Safety and Efficiency

JAD Solutions proudly introduces the Smart Series Fume Hood, a cutting-edge addition to our laboratory safety solutions. Designed with a focus on energy efficiency, advanced control systems, rapid response, and user-friendly interface, the Smart Series sets a new standard for laboratory fume hoods.



JAD SMART SERIES HIGH PERFORMANCE SMART FUME HOOD

JAD Smart Series High Performance Smart Fume Hood primarily designed to safeguard personnel from harmful dust, toxic fumes, and vapors. This containment apparatus is linked to a ducting system, through which contaminants pass before being released into the environment. In addition to its primary function, it acts as a physical barrier, offering protection against chemical spills, runaway reactions, and fires.

The superior containment and performance of this Smart Fume Hood adhere to the standards set by ASHRAE 110 and EN 14175. These fume hoods are meticulously engineered with precisely tuned aerodynamics, comprehensive systems, and flexible design, ensuring a balance of aesthetics and ergonomics. The goal is to enhance user safety and convenience to an exceptional degree.



JAD SMART SERIES HIGH PERFORMANCE WALK IN SMART FUME HOOD

The Smart Series Walk-In Fume Hoods are specifically crafted to accommodate laboratory procedures that necessitate ample working space or unwieldy equipment, prioritizing the utmost safety for laboratory personnel. These hoods are ideal for tasks involving distillation racks and extraction apparatus benefiting from the increased height they offer.

The walk-in fume hood boast the same robust construction and user-friendly features found in the standard range of hoods. JAD Smart Series Walk In Fume Hood excels in containment and performance, aligning with the standards established by ASHRAE 110 and EN 14175.





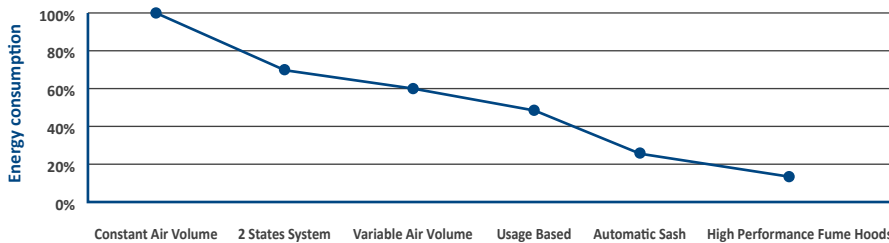
5 Energy Saving Advantages

1. Reduces HVAC equipment investment cost
2. Reduces room air change (ACH) rate
3. Make expansion changes to laboratory easier
4. Increases the redundancy of ventilation systems
5. Reduces operational cost

Energy Saving Excellence

The laboratory setup is a high-investment and high-energy consumption environment, and **JAD SMART** high-performance fume hoods employ a number of energy-saving strategies to improve the customers' returns on investment. Providing lower face air velocities (0.3m/s) with safety in mind, automatic sash control systems for active energy savings, and patented air foil designs for further energy savings when sashes are closed.

Fume Hood Systems' Development Trend Chart



JAD SMART Fume hood meets the EPA and ASHRAE definitions of high performance fume hoods

- Operates at 0.3m/s (0 to +10%) face velocity
- **Conforms to ASHRAE 110-2016 AM testing**
- Tested at 100% sash opening
- Tracer gas leakage rate <0.05ppm

Imported polypropylene. Super high quality to increase durability by nearly 200%

- High chemical resistance
- High strength
- High heat resistance
- Electrical insulation



JAD-SS Series



JAD-BS Series



JAD-SP Series

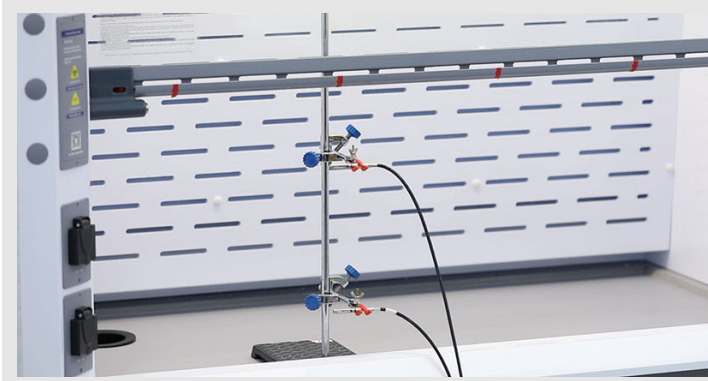
JAD SMART METAL FUME HOOD SERIES

JAD SMART POLYPROPYLENE (PP) FUME HOOD SERIES

NOT ALL FUME HOODS ARE HIGH PERFORMANCE FUME HOODS

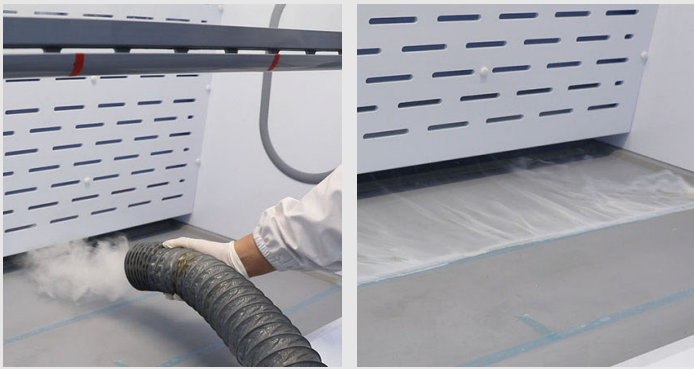
ASHRAE 110-2016 AM Test

JAD SMART high performance fume hoods are tested to ASHRAE 110-2016 AM (0.3m/s and 0.5m/s) including face velocity, flow visualization, tracer gas, perimeter scan and sash movement effect



VAV FACE VELOCITY CONTROL TEST

The purpose of these tests is to validate the average airflow face velocity meets the specifications at the required sash positions. This should include the calibration and adjustment of the controller, sensors, VAV supply and exhaust airflow control devices as part of the system.



FLOW VISUALIZATION

The purpose of these tests is to visually verify the fume hood's capture performance and all smoke shall be contained within the fume hood under all test procedure.

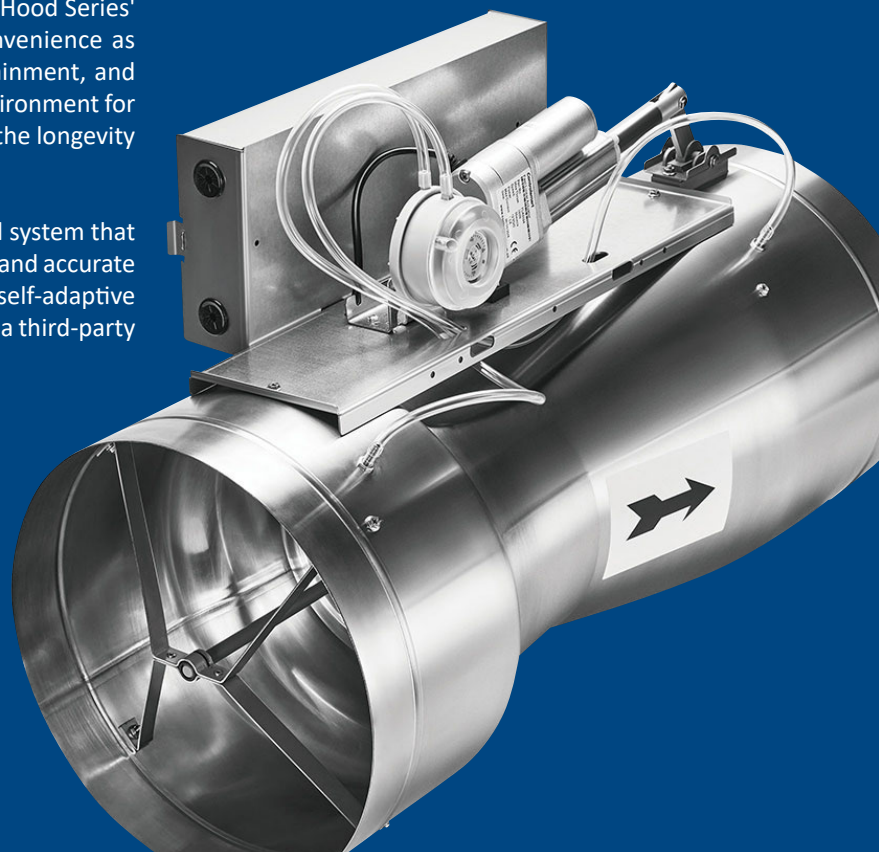
High-Performance Fume Hood Control System

Elevate your laboratory experience with the Smart Fume Hood Series' High-Performance Control System. Precision meets convenience as researchers gain unparalleled control over airflow, containment, and monitoring. This system ensures a safe and controlled environment for experiments, contributing to both research integrity and the longevity of the fume hood.

Consists of an automatic sash system and a Smart control system that modulates the sashes and venturi valves to provide stable and accurate airflow, while minimizing total exhaust airflow through self-adaptive controls. The fume hood information can be integrated to a third-party building management system.

VENTURI VALVES

- 95% control accuracy
- Supports third-party building communication systems
- No minimum straight duct installation requirements
- Pressure independent
- Response time 0.83 seconds
- Turndown ratio 20:1
- Low noise
- Factory calibrated



SASH MOVEMENT CONTAINMENT TEST

A sash movement containment test is performed to determine the potential for contaminants escaping from the fume hood with the (sash) movement. This method is applicable to both constant volume fume hood systems and variable air volume fume hood systems.



TRACER GAS TEST

The purpose of these test is to verify the fume hood's containment performance. The procedures use a mannequin to simulate the actions of personnel in front of a fume hood which create turbulence to the airflow pattern. A tracer gas is introduced and released at a specific rate within the worktop area and the tracer gas leakage is then recorded at the tip of the mannequin nose, simulating the personnel inhalation effect.



PERIPHERAL SCAN

Perimeter scan data can be used as a diagnostic tool to identify potential leak points.



INTUITIVE LCD TOUCH SCREEN INTERFACE

Interacting with the Smart Series Fume Hood is a user-friendly experience, thanks to its intuitive touch screen interface. Accessing and controlling various functions is at your fingertips, streamlining operations and reducing the learning curve for users. The touch screen enhances overall user experience, making safety and efficiency accessible to all skill levels.

- **Visual display of system parameters**
Exhaust air volume, face velocity, fume hood status and other information.
- **Product information is programmable**
Project name, room name, fume hood number and other project information can be displayed in the screen.
- **Fault status alarm**
Any equipment failure will sets off an audio and visual alarm.
- **Lighting, sash and valve touch control**
Lighting switch, purge mode and sash height operation settings can be done with one-touch control.



Swift Response Time of 0.83 Seconds

The speed of response after opening the sash affects the safety of the user

VAV FACE VELOCITY CONTROL

This test is applicable to laboratory fume hood systems equipped with variable air volume controllers, which regulate the flow rate according to the movement of the sash height. It includes: variable air volume response speed and variable air volume to steady state time.



Automatic Sash System

Automatic Sash System will lower the sash to a closed position when no user is detected in front of the fume hood after a specific pre-set delay and reduced the face velocity from 0.5 m/s to 0.3 m/s while maintaining a minimum airchange rate within the fume hood. The Sash will automatically stop if any obstacle is detected. The sash will open to operating height or any pre-set height when a user is detected in front of the fume hood.

TEST REPORT Fume Hood Performance Test Method Factory Test (AM)

Response Time (s)	0.8 s
Response Time To Steady State (s)	1.8 s
Perimeter Scan (ppm)	0.004 ppm
Sash Movement Test (ppm)	0.000 ppm
Tracer Gas Concentration Test (ppm)	0.001 ppm
Static Pressure (pa)	28 pa
Visualization Test Large Smoke	Complies
Visualization Test Local Challenge	Complies
Sash Operating Height (mm)	457 mm

VAV Face Velocity Control Test Avg Face Velocity Deviation

100%	0.486 (m/s)	9.8%
50%	0.52 (m/s)	3.3%
25%	0.481 (m/s)	7.8%

Report No.: RQ21081401001 Date: Aug. 27, 2021 Page: 3/20

Project Information

Project Name	Fume Hood Performance Test (ASHRAE110-2016-AM)
Applicant Name	JAD Solutions Pte Ltd
Applicant Address	87 Defu Lane 10#05-02, Singapore 539219
Name/Type	JAD Smart Fume Hood
Brand/ Model Number	JAD-W-FXXXX150
Hood Test Status	VAV (Venturi Valve)
Sash Type	Vertical Sash
Hood Sizes	1520 mm*990 mm*2400 mm
Opening (H*W)	820 mm*1280 mm
Design Face Velocity	0.5 m/s
Exhaust Air Volume	1229 m ³ /h (723 cfm)
Exhaust Diameter	250 mm

Summary of Result

Test Projects	Sash Opening Height (mm)	Static Pressure (Pa)	VAV Face Velocity (m/s)		Flow Visualization	Tracer Gas Test (ppm)	Sash Movement Effect (ppm)	Peripheral Scan (ppm)
			100%	25%				
Result	457	58	0.50	0.50	No escape	0.00	0.00	0.00
Criteria	/	/	Pass	Pass	Pass	Pass	Pass	Pass

*The date of static pressure is tested without the venturi valve.

Receive Date:	Aug. 25, 2021	Test Date:	Aug. 25, 2021 (First)
Tester:	Haidong Xu	Editor:	Hehu Lin
		Review:	Junjie Fan



Shanghai Ruanqi S&T Co., Ltd.
 Add: Building 8, No.326 Songdong Road, Songjiang District, SH
 Tel: 400 666 9939 Email: info@sc2.com Zip Code: 201613

SPECIFICATIONS

JAD SMART SERIES HIGH PERFORMANCE WALK IN SMART FUME HOOD

Model	JAD Smart High Performance Fume Hood			JAD Smart High Performance Walk In Fume Hood		
	JAD-SS120 JAD-SP120	JAD-SS150 JAD-SP150	JAD-SS180 JAD-SP180	JAD-BS150	JAD-BS180	JAD-BS240
Extract Volume at 500mm Height Sash Opening (CMH)	1200 CMH	1500 CMH	1800 CMH	1500 CMH	1800 CMH	2400 CMH
Design Velocity (m/s)	0.5m/s	0.5m/s	0.5m/s	0.5m/s	0.5m/s	0.5m/s
Material	PP / Metal	PP / Metal	PP / Metal	Metal	Metal	Metal
Sash Opening Height	800mm	800mm	800mm	1600mm	1600mm	1600mm
Lighting Intensity (Lumen)	900lm	1200lm	1200lm	1200lm	1200lm	1200lm
Internal Dimension (Length)	960/1020mm	1260/1320mm	1560/1620mm	1320mm	1620mm	2220mm
Internal Dimension (Depth)	660mm	660mm	660mm	720mm	720mm	720mm
Internal Dimension (Height)	1220mm	1220mm	1220mm	2100mm	2100mm	2100mm
External Dimension (Length)	1200mm	1500mm	1800mm	1500mm	1800mm	2400mm
External Dimension (Depth)	970/980mm	970/980mm	970/980mm	980mm	980mm	980mm
External Dimension (Height)	2400mm	2400mm	2400mm	2400mm	2400mm	2400mm
Internal Material	PP / Phenolic Compact Laminate	PP / Phenolic Compact Laminate	PP / Phenolic Compact Laminate	Phenolic Compact Laminate / Ceramic Fibre	Phenolic Compact Laminate / Ceramic Fibre	Phenolic Compact Laminate / Ceramic Fibre
External Material	PP / Metal Powder Coated	PP / Metal Powder Coated	PP / Metal Powder Coated	Metal Powder Coated	Metal Powder Coated	Metal Powder Coated
Airfoil	PP / Metal	PP / Metal	PP / Metal	Metal	Metal	Metal
Rear Baffle	PP / Phenolic Resin Powder Coated	PP / Phenolic Resin Powder Coated	PP / Phenolic Resin Powder Coated	Phenolic Compact Laminate	Phenolic Compact Laminate	Phenolic Compact Laminate
Working Desktop	PP / Epoxy / Ceramic	PP / Epoxy / Ceramic	PP / Epoxy / Ceramic	/	/	/
Sash Material and Thickness	Laminated Tempered Glass, 6mm Thk	Laminated Tempered Glass, 6mm Thk	Laminated Tempered Glass, 6mm Thk	Laminated Tempered Glass, 6mm Thk	Laminated Tempered Glass, 6mm Thk	Laminated Tempered Glass, 6mm Thk



Support Testing Service

On-site AI/AU testing services are available to ensure the safe operation of fume hoods in the working environment

Fully adjustable exhaust system to control face velocity and exhaust volume accurately
Supply, exhaust and door locations can be created to simulate their effects on fume hood face velocity
Smoke generation equipment can display airflow pattern in any situation

Prototypes and new designs are subjected to this rigorous testing

Upon request, technicians will test samples of standard fume hoods under specific and unique operating conditions

Fully calibrated, commissioned, tested and ready for use when connected to a power supply



Factory Certification

Our fume hood testing facilities have a comprehensive ventilation system setup to meet the requirements of fume hood testing experiments



everything under control

JAD SOLUTIONS PTE LTD
(A member of Natural Cool Holdings Limited)

87 Defu Lane 10 #05-02 Singapore 539219

Tel 65-6841 8656 * Fax 65-6284 4415

Email enquiry@jad-venture.com * Web jad-venture.com

Company Reg No. 200703726E * GST Reg No. 200703726E