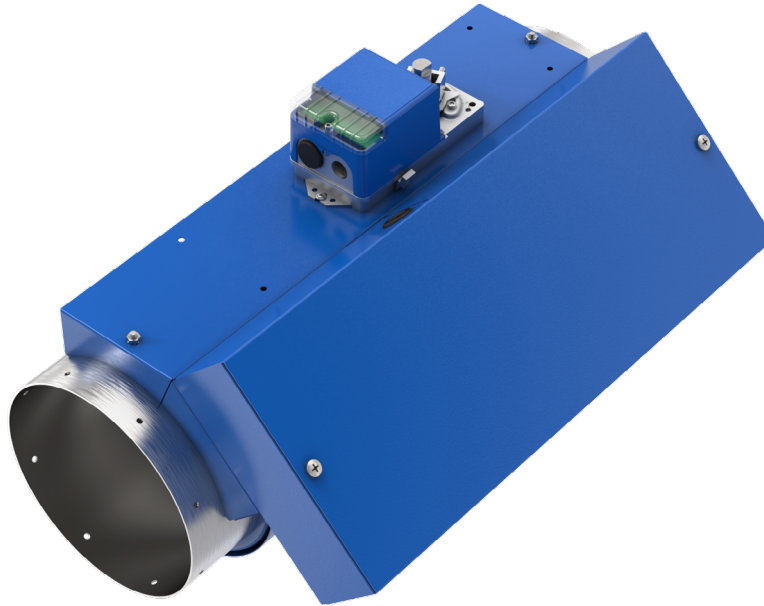


Figure 1: EcoAir Valve



### Overview

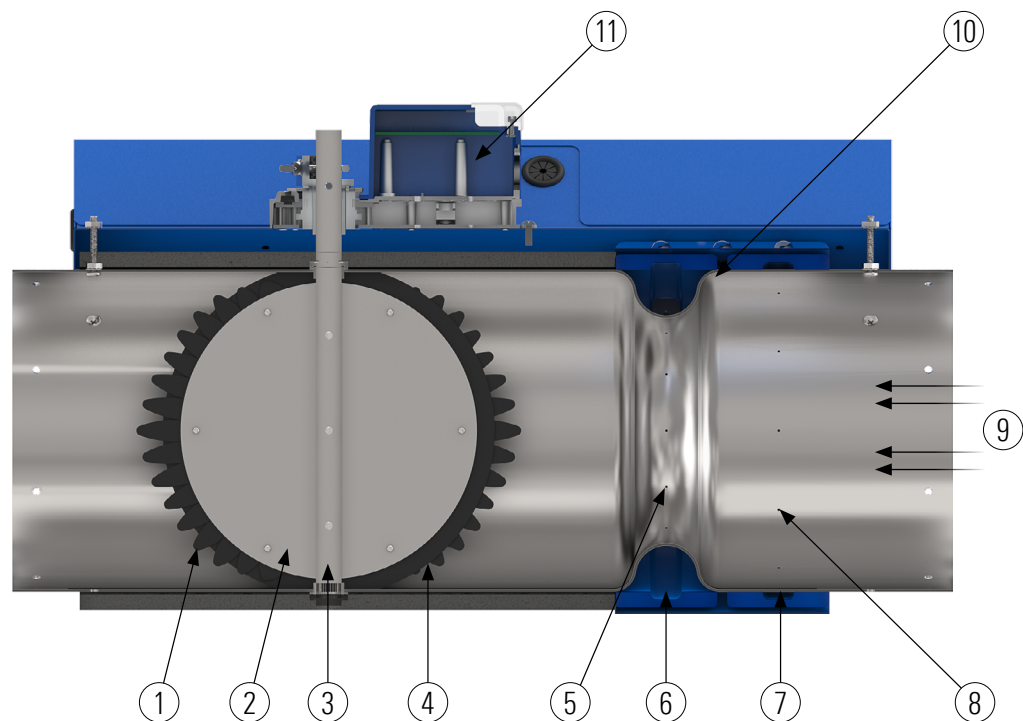
The EcoAir Valve is a robust and reliable ultra-low pressure drop air valve designed for use in critical HVAC applications like room pressure containment and fume hood exhaust. With debris-proof airflow measurement technology and true-real-time airflow metering, the EcoAir valve enables safe, reliable, and energy efficient solutions for critical environment design. Factory mounted controls provide full solution integration with existing BAS systems for seamless compatibility throughout the facilities.

The airflow sensor is outside the air stream, which protects the flow sensing mechanism from exhaust dust, grime, and debris. This design ensures an extended service life and eliminates the need for an access panel to regularly clean the airflow sensor within the airstream.

Due to the latest advances in state-of-the-art pressure sensors, the Superior Sensor Module (SSM) in the EcoAir valve enables accurate airflow measurement within  $\pm 5\%$  accuracy across its entire flow range of 0 cfm to 350,000 cfm @ 10 in. W.C. The serrated air fin blade design enables precision airflow control at the near closed position across the entire operating pressure range of 0.05 in. W.C. to 10 in. W.C.

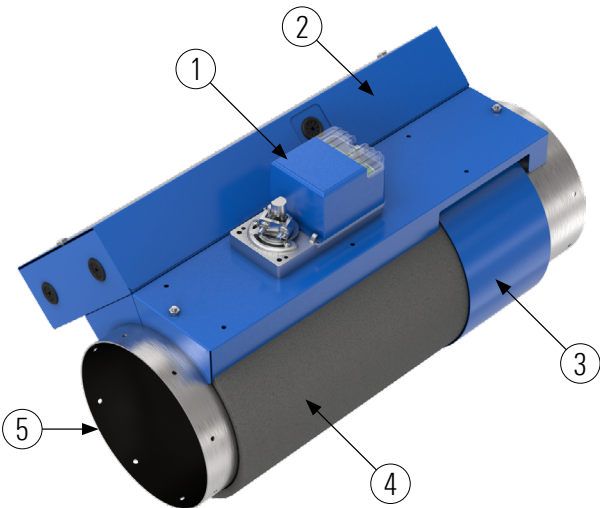
You can use the EcoAir Valve in tandem with Venturi Valves in healthcare and laboratory spaces to provide room pressure containment and fume hood exhaust solutions.

Figure 2: Valve Side View



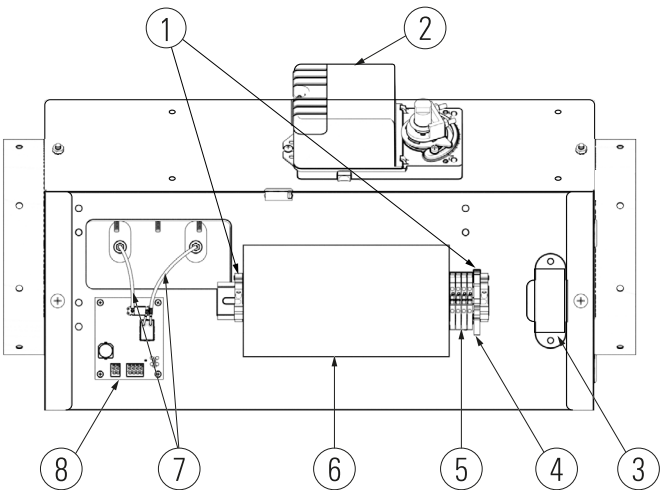
Callout	Feature	Description
1	Air fins	The unique air fin design ensures precise airflow control across the entire operating pressure range of the EcoAir valve and optimizes performance.
2	Damper	Constructed from 316 stainless steel, the damper blade can endure the harshest HVAC environments and provide durability and reliability.
3	Shaft	The 5/16 in. machined damper shaft, made from 316 stainless steel, offers robust structural stability and ensures smooth modulation of the damper blade under arious duct conditions.
4	Full shut-off gasket	Ensures a near-perfect seal, effectively restricts airflow through the EcoAir valve and enhances control and efficiency.
5	Low pressure pick-up holes	Integral to the Venturi Halo flow measuring technology, this design is debris-proof and ensures reliable operation even in challenging HVAC applications.
6	Low pressure averaging channel	Part of the Venturi Halo technology, this channel enables accurate pressure veraging which is essential for precise airflow measurement.
7	High pressure averaging channel	Utilizes the Venturi effect to provide accurate pressure averaging which ensures precise airflow measurements in the duct.
8	High pressure pick-up holes	An integral component of the Venturi Halo designed to remain debris-proof for reliable operation in various environments.
9	Air flow direction	You can install the valve in any orientation to ensure effective and accurate airflow management.
10	Venturi Halo	Integrated into the valve body, it induces the Venturi effect and enables precise airflow measurement and enhances control accuracy.
11	Fast-acting actuator	Responds quickly to changes in airflow demand and instantly adjusts to deliver the correct amount of airflow which maintains safety and performance.

Figure 3: Valve Overhead View



Callout	Component
1	Fast acting actuator with capacitor fail safe
2	Valve panel to house the sensor, controller, and device level wiring
3	Venturi Halo
4	Valve body with spun in Venturi Halo
5	Air outlet

Figure 4: Panel contents view



Callout	Description
1	DIN rail end stops
2	Actuator
3	Isolation transformer
4	DIN rail fuse holder and fuse
5	DIN rail terminal blocks
6	Controller
7	Pressure tubing
8	SSM-100

## Features and Benefits

The EcoAir Valve has several features and benefits for critical HVAC applications:

Table 1: Features and Benefits

Feature	Benefit
Fully integrated solution	Actuator, flow sensor, and controller are factory mounted, programmed, and prewired to save time during equipment selection, installation, start up, and commissioning.
True-real-time airflow feedback	Precision airflow metering in real time for safe and reliable room pressure containment, building efficiency optimization, and system status diagnostics.
Fast-acting actuator	Provides rapid response to airflow demand changes and instantly delivers the correct amount of airflow to ensure safety.
Air fins	Unique air fin design enables precision airflow control across the entire operating pressure range of the EcoAir valve.
Debris-proof technology	The airflow sensor is outside the airstream and does not require regular cleaning. This provides years of reliable service in critical HVAC application like fume hood exhaust.
No straight duct requirement	Provides duct design and valve installation flexibility.
Orientation independent	Can operate in horizontal, up flow, and down flow installations.
Pressure independent flow control	Regardless of the dynamic system pressure changes, the EcoAir valve ensures fast and precise airflow metering.

Table 2: EcoAir Valve maximum flow rate at in. W.C. duct static pressure

Size	Minimum design flow	CFM Maximum flow rate (0.05 in. W.C. to 1 in. W.C)										
		0.05	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
1 x 8 in.	30	200	280	400	490	575	650	720	780	840	900	945
1 x 10 in.	100	530	770	1,100	1,345	1,565	1,745	1,905	2,035	2,180	2,315	2,435
2 x 10 in.	200	1,060	1,540	2,200	2,690	3,130	3,490	3,810	4,070	4,360	4,630	4,870
3 x 10 in.	300	1,590	2,310	3,300	4,035	4,695	5,235	5,715	6,105	6,540	6,945	7,305
1 x 12 in.	150	800	1,160	1,650	2,030	2,380	2,700	2,950	3,150	3,430	3,590	3,800
2 x 12 in.	300	1,600	2,320	3,300	4,060	4,760	5,400	5,900	6,300	6,860	7,180	7,600
3 x 12 in.	450	2,400	3,480	4,950	6,090	7,140	8,100	8,850	9,450	10,290	10,770	11,400
1 x 14 in.	200	1,280	1,880	2,630	3,200	3,800	4,250	4,650	5,387	5,959	6,531	7,104
2 x 14 in.	400	2,560	3,760	5,260	6,400	7,600	8,500	9,300	10,774	11,919	13,063	14,207
3 x 14 in.	600	3,840	5,640	7,890	9,600	11,400	12,750	13,950	16,161	17,878	19,594	21,311

**Note:**

- Listed flow rates are in cubic feet per minute.
- Flow rates tested in accordance with AMCA 210 standard on NIST traceable equipment.
- See Table 2 and Table 3 for more information.

Table 3: EcoAir Valve maximum flow rate at in. W.C. duct static pressure up to 10 in. W.C

Size	Minimum design flow	CFM Maximum flow rate (0.5 in. W.C to 10 in. W.C)										
		0.5	1	2	3	4	5	6	7	8	9	10
1 x 8 in.	30	650	945	1,550	2,074	2,661	3,249	3,836	4,423	5,010	5,598	6,185
1 x 10 in.	100	1,745	2,435	3,914	5,462	7,011	8,560	10,109	11,657	13,206	14,755	16,304
2 x 10 in.	200	3,490	4,870	7,827	10,925	14,022	17,120	20,217	23,315	26,412	29,510	32,607
3 x 10 in.	300	5,235	7,305	11,741	16,387	21,034	25,680	30,326	34,972	39,619	44,265	48,911
1 x 12 in.	150	2,700	3,800	6,995	9,983	12,971	15,960	18,948	21,936	24,924	27,912	30,900
2 x 12 in.	300	5,400	7,600	13,990	19,966	25,943	31,919	37,895	43,872	49,848	55,825	61,801
3 x 12 in.	450	8,100	11,400	20,985	29,950	38,914	47,879	56,843	65,808	74,772	83,737	92,701
1 x 14 in.	200	4,250	7,104	12,825	18,546	24,268	29,989	35,711	41,432	47,154	52,875	58,596
2 x 14 in.	400	8,500	14,207	25,650	37,093	48,536	59,979	71,421	82,864	94,307	105,750	117,193
3 x 14 in.	600	12,750	21,311	38,475	55,639	72,804	89,968	107,132	124,296	141,461	158,625	175,789

**Note:**

- Maximum flow rate accuracy is  $\pm 5\%$  or 10 cfm. Use the greater value.
- 8 in. EcoAir valve flow setpoint below 30 cfm results in airflow accuracy of  $>5\%$  or 10 cfm, whichever is greater.
- 10 in. EcoAir valve flow setpoint below 100 cfm results in airflow accuracy of  $>5\%$  or 10 cfm, whichever is greater.
- 12 in. EcoAir valve flow setpoint below 150 cfm results in airflow accuracy of  $>5\%$  or 10 cfm, whichever is greater.
- 14 in. EcoAir valve flow setpoint below 200 cfm results in airflow accuracy of  $>5\%$  or 10 cfm, whichever is greater.
- All product specifications and data are subject to change without notice.

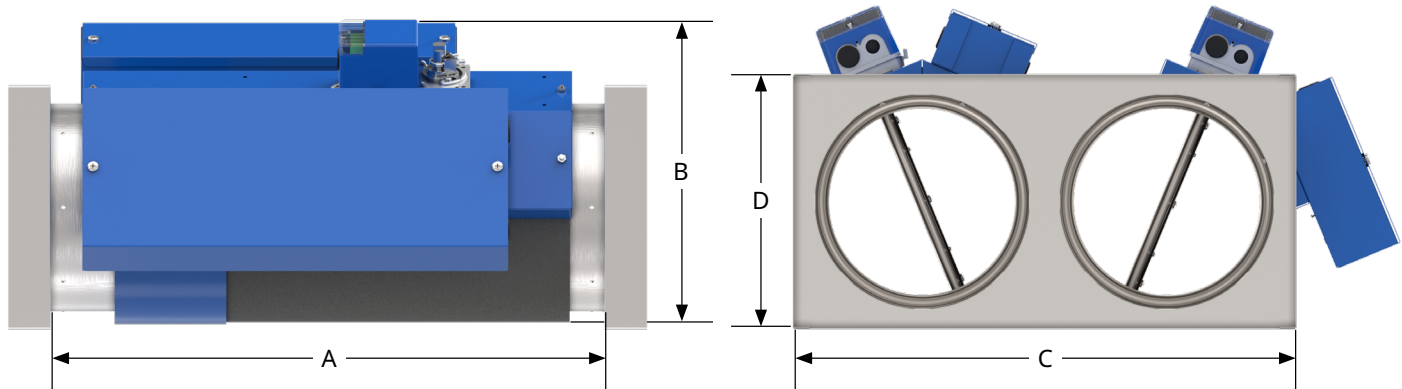


Table 4: Dimensions and weights

Unit Size		Weight		Valve diameter		Valve length (A)		Valve height (B)		Collar width (C)		Collar height (D)	
		SS316											
		lb	kg	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
8 in.	1	25	11	7.88	200	23	584	13	330	n/a			
10 in.	1	30	14	9.74	247	26	660	16	406	n/a			
	2	60	27	n/a	n/a	30	762	16	406	22.63	575	11.44	291
	3	90	41	n/a	n/a	30	762	16	406	33.75	857	11.44	291
12 in.	1	40	18	11.68	297	26.8	681	18	457	n/a			
	2	80	36	n/a	n/a	30.8	782	20.5	521	26.75	679	13.5	343
	3	120	54	n/a	n/a	30.8	782	20.5	521	40	1016	13.5	343
14 in.	1	50	23	13.62	346	30	762	20	508	n/a			
	2	100	45	n/a	n/a	34	864	23.5	597	32.15	817	16	406
	3	150	68	n/a	n/a	34	864	23.5	597	48.3	1,227	16	406

**Note:** All product specifications and data are subject to change without notice to improve reliability, function, design, or otherwise.

Table 5: Ordering guide

Feature	Code letter or number and description	Product code number example: TT110SIAA
Brand	TT = Titus EcoAir	TT
Quantity	1 = Single 2 = Dual 3 = Triple F = Flanged	1
Size	08 = 8 in. 10 = 10 in. 12 = 12 in. 14 = 14 in.	10
Material	S = 316 Stainless steel 18 GA	S
Insulation	I = Insulated	I
Actuator	A = Fast acting with fail open or close (for critical applications)	A
Controller	A = EasyIO FW Series N = No controller. See Important note for more information.	A

**Note:**

- Typical critical environment applications for positive pressure containment have supply air valves as fail open and general exhaust air valves as fail closed.
- Typical critical environment applications for negative pressure containment have supply air valves as fail closed and the general exhaust air valves as fail open.



Any EcoAir valve units sold without the factory-mounted and factory-wired controller option (no controller option (N)), the field installer is responsible to provide, mount, wire, program, calibrate, and commission a third-party controller. The manufacturer of the EcoAir Valve is not liable for any performance issues from the device, system, or fume hood application level that results from the use of a third-party field-provided controller.

The manufacturer's warranty applies only to the supplied components, including the EcoAir Valve body, damper blade, SSM, and fast-acting actuator. Any performance concerns related to the control, operation, or system dynamics that involve a third-party controller which has not been factory integrated as part of the full EcoAir Valve package are outside the scope of the manufacturer's responsibility. Third-party vendor or on-site integrator must support external systems and field-supplied components, including controllers.

Table 6: Actuator details

SKU	Description	SKU Designator	Fail Safe
BM060-TT6	TT ACTUATOR TT6 50 in. lb O/C	FA	Open or Close

## Technical specifications

Table 7: Technical specifications

Electrical	Input power	24 VAC $\pm$ 20% 50 Hz/60 Hz
	Power requirements	Single: 30 VA
		Dual: 60 VA
		Triple: 90 VA
	CFM Command signal	0 VDC to 10 VDC with default scaling set to 1 V = 100 cfm
	CFM Feedback signal	0 VDC to 10 VDC with default scaling set to 1 V = 100 cfm
Performance	Network	BACnet® MS/TP
	Accuracy	$\pm$ 5% or $\pm$ 10 cfm whichever is greater
	Operating pressure	0.01 in. W.G. to 10 in. W.G. differential pressure across valve
	Failure modes	FA = Fail to close or open (optimal for critical applications)
	Airstream Operating Temperature	0°F to 122°F (-17.78°C to 50°C)
	Ambient Environment Temperature	-22°F to 122°F (-30°C to 50°C)
Construction	Humidity	0% RH to 90% RH
	Valve housing	SS316 18 gauge
	Shaft	SS316 5/8 in. (0.625 in.) round stock
	Shaft bearings	PTFE
	Seal	Neoprene
	Air fins	Formex®

**Note:** You must power the EcoAir Valve actuators directly from a customer-supplied 24 VAC power source. The valve does not receive power from an isolation transformer. Supply the power independently from the customer's electrical system and ensure a dedicated power connection to the actuator.

## Related Documentation

For more information about related products, see the following documents:

Table 8: Related documentation

Document Title	Document Number
<a href="#">EcoAir Valve Installation Guide</a>	LIT-12013510
<a href="#">SSM Data Sheet</a>	LIT-12014444
<a href="#">BM060-TK6 Actuator Data Sheet</a>	LIT-12014151

## North American Emissions Compliance

### United States

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when this equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference, in which case users will be required to correct the interference at their own expense.

### Canada

This Class (A) digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la Classe (A) respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

## Repair information

If you purchased a service agreement, contact your Titus representative for a replacement unit. If you do not have a service agreement, contact [tu@titus-hvac.com](mailto:tu@titus-hvac.com).

## Patents

Patents: <https://jcipat.com>

## Software terms

Use of the software that is in (or constitutes) this product, or access to the cloud, or hosted services applicable to this product, if any, is subject to applicable end-user license, open-source software information and other terms set forth at [www.johnsoncontrols.com/techterms](http://www.johnsoncontrols.com/techterms). Your use of this product constitutes an agreement to such terms.

## Product warranty

This product is covered by a limited warranty. Contact your representative for more details.

## Contact information

Contact your local Titus representative

Contact Support: Call (+1) 972-212-4800 or email [tu@titus-hvac.com](mailto:tu@titus-hvac.com)