

TUNE-S-AL Low Leakage Volume Control Damper Catalogue



Fresh air is essential for people to feel good and to increase the life of your computers and machines. By investing in an energy efficient ventilation system from Systemair you get a healthy indoor environment while reducing your operating costs. Additionally, it prepares you for future environmental requirements and thus increases the value of your property. In other words, pure profit.

Systemair provides professional ventilation solutions for all types of buildings, from single-family and multi-family buildings to shopping centers, hospitals and industrial facilities. We adapt the solution to your particular type of business. Regardless if it is a new construction or a retrofit project, our products are second to none in quality, reliability and length of service life. You can always trust that Systemair delivers energy efficient ventilation solutions for health, comfort and success.

Fresh air is pure profit.





Systemair A Worldwide Partner

Skinnskatteberg, Sweden:

Group Head office, distribution center & largest production facility for AHU, Fan & air curtains

Hässleholm, Sweden:

Manufacturer of heating products for AHU, Fan heaters & dehumidifiers.

Windischbuch, Germany:

Production of fans & modular air handling units, engineered products (e.g. tunnel and jet fans). Distribution center.

Langenfeld, Germany:

Production of air curtains.

Mülheim an der Ruhr, Germany:

Production of AHU's for swimming pool halls & comfort ventilation.

Winterbach, Germany:

Development and manufacture of air curtains

Helmstadt, Germany:

Manufacturer of rotary heat exchangers.

Maribor, Slovenia:

Specialized in centrifugal smoke extract fans, EN certified.

Madrid, Spain:

Production of box fans & large air handling units.

Lenexa, USA:

Production of fans for the US market.

Bouctouche, Canada:

Production of air handling units and inline fans.

Johannesburg, South Africa:

Production of axial fans.

Greater Noida (Delhi), India:

Production of axial and box fans, air distribution products & air handling units.

Hyderabad, India:

Production of air distribution products, fans & air handling units.

Kuala Lumpur, Malaysia :

Production of Tunnel and garage ventilation fans

Bratislava, Slovakia:

Manufactures air distribution products and EN certified fire and smoke dampers.

Dal, Eidsvoll, Norway:

Production of air handling units.

Aarhus, Denmark:

Production of larger air handling units.

Waalwijk, Netherlands:

Manufacturer of air handling units.

Istanbul, Turkey:

Manufacturer of air handling units & fan coils.

Tillsonburg, Canada:

Manufacturer of air handling units.

Sao Paulo, Brazil:

Production of air handling units.

Wujiang, China:

Production of air handling units

Ukmerge, Lithuania:

Production of residential units & large air handling units.

Pardubice, Czech Rep:

Development & manufacturing of AHU & air curtains.

Tillières, France:

Production of air conditioning products.

Barlassina, Italy:

Production of liquid & air cooled chillers & heat pumps for comfort cooling.



Greater Noida India: **LEED certified Platinum rated** manufacturing facility.

Systemair India

Systemair India (100% owned subsidiary of Systemair AB, Sweden) started operations in 2006. Today the company has its offices pan India in 9 cities- Noida, Hyderabad, Bengaluru, Chennai, Kochi, Kolkata, Pune, Mumbai & Ahmedabad. The team of 400 dedicated professionals are looking after- sales, technical support, production & logistics.

The company has manufacturing area totaling to 15000 sq mts in its 2 ultra-modern factories located at Greater Noida & Hyderabad. The strategically located production units manufacture high quality products to support the local market needs with minimum possible time for delivery.

The **Greater Noida factory is a LEED Platinum certified building**, with modern laboratories the **ATD lab** (Air Terminal Devices) and **Aerodynamic performance along-with Acoustic Laboratory**.

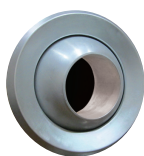
The ATD lab is built in compliance with EN 12238 & ASHRAE 70 standards boasts of robotized high precise measuring equipments and an independent control software to determine air flow patterns & velocity profile of air terminal devices. The Aerodynamic performance and Acoustic lab built in compliance with AMCA 210 & AMCA 300 standards. The aerodynamic performance viz. airflow rate, pressure developed, power consumption, air density, speed of rotation and efficiency for rating purposes & airborne sound emissions at different octave bands is measured in this lab. The lab can conduct tests for up to air flow of 45000 Cub. Mt./Hr. with a pressure handling capacity of 3000pa.

Certifications

- AXC-PV, AXC-P and AXC(A) axial fans are certified for air and sound performance as per AMCA 210 and AMCA 300 standards.
- TUNE-S-AL Volume control damper is certified for air and leakage performance as per ANSI/AMCA 500-D, Figure 5.3 and 5.5 Alternate.
- BSI approved CE marked Axial & Jet fans tested as per EN12101-3: 2015 for 300°C/2hrs. rating
- BSI approved CE marked Kitchen exhaust fans tested as per EN12101-3: 2015 for 400°C/2hrs. rating
- Follows ETL testing lab U.S.A for performance testing of air distribution products like grilles & diffusers.
- Combination fire & smoke dampers certified & listed by UL for 90 min fire rating with class 1 leakage as per UL 555 & UL 555S
- Motorized Fire dampers certified & listed by UL for 90 min fire rating as per UL 555
- Fusible link fire dampers certified & listed by UL for 90 min fire rating as per UL 555
- Fire dampers certified by CBRI Roorkee (as per UL555 for 120 min) and also certified as per BS-476 Part 20.
- Sound attenuators certified in SRL, U.K for the static insertion loss as per BS 4718-1971.
- EUROVENT certified BA series of AHUs
- EUROVENT hygienic certification for BA-H series of AHUs
- BS/EN1886:2007 for casing strength, tightness, thermal resistance, thermal bridging & filter bypass leakage for AHU.
- EN13053/2006 for air flow-static pressure performance, heat transfer and heat recovery performance.

Product Range

The leading edge product range includes



Air Distribution & Fire Safety Products

Range of supply & exhaust diffusers, iris dampers, grilles & fire dampers.



Air Handling Units

Compact & modular AHU's used for industry, commerce, schools, hospitals etc. It also includes the Hygiene air handling units.



Fans

This includes circular & rectangular duct fans, roof fans, box fans & axial fans.

TUNE-S-AL

Low Leakage Volume Control Damper

DESCRIPTION

TUNE-S-AL (Low Leakage Volume control damper) is used for high efficiency and low leakage. It has following components:

BLADES

It consists of extruded aluminium airfoil blades. Airfoil blades are ideal for dampers, as they tend to produce low resistance to the airflow. This results in low-pressure drop across the damper, hence low power consumption during overall operation. The airfoil blade design also enables it to be used in high-pressure conditions due to its increased strength.

FRAME

Side, Top & Bottom frames are constructed from heavy gauge extruded aluminium section.

OTHER COMPONENTS

Stainless steel side seal is used to minimize air leakage between blade ends and side frame. EPDM gasket is slide fitted into both sides of the blade, which ensures no gap between blades and creates tight contact.

APPLICATION

These volume control dampers feature low leakage and high efficiency, and are ideal for most of the applications (like; commercial, IT, Industrial, Cleanroom, Pharma projects etc.).

It is designed to be installed in all supply/return/ fresh air, main/branch ducts as well as in all Air Handling Systems.



Systemair India Pvt. Ltd. certifies that the Tune-S-AL (Low leakage volume control damper) shown herein is licensed to bear the AMCA Seal. The ratings shown are based on the tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Rating Program.

The AMCA Certified Ratings seal applies to Air Leakage and Air Performance ratings.

COMPONENTS	DESCRIPTION
Blade Material	Extruded Aluminium
Blade Type	Airfoil
Blade Action	Opposed
Frame Material	Extruded Aluminium

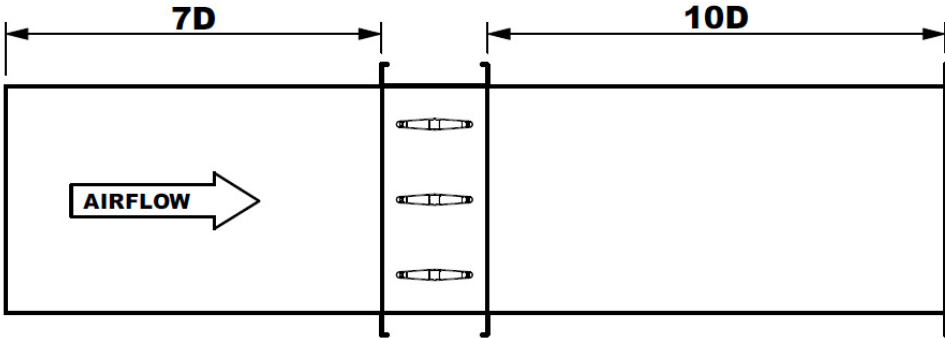
DAMPER SIZES:

- Minimum size of damper is **105 mm x 105 mm**
- Maximum single section size of damper is **1220 mm x 1220 mm**

DAMPER TEST PERFORMANCE

PRESSURE DROP DATA

Test Damper Setup with Inlet and Outlet Ducts – Figure 5.3



$D = \sqrt{(4WH / \pi)}$ for rectangular ducts (where W = duct width and H = duct height).
 D = Duct diameter for round ducts.

Test for air performance in accordance with ANSI/AMCA Standard 500-D, Figure 5.3. All data has been corrected to standard air density of 1.2 kg/m³.

PRESSURE DROP VALUES:

DAMPER SIZE (WxH)= 305mm X 305mm	
VELOCITY (m/s)	ΔP (Pa)
2	0.6
3.8	2
7.5	7.6
11.3	17.7
15.1	32.2

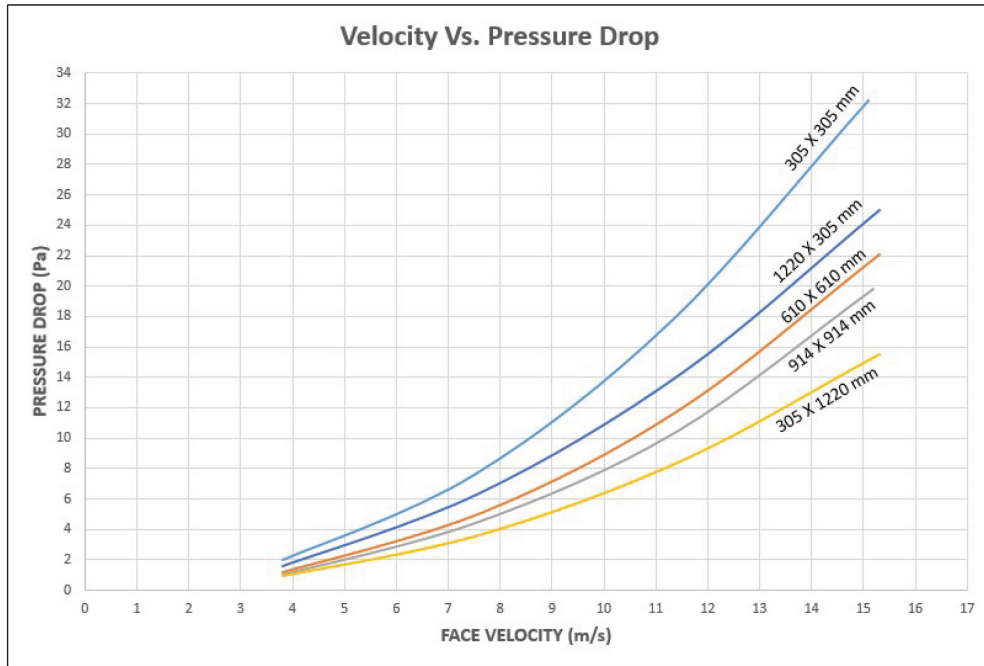
DAMPER SIZE (WxH)= 914mm X 914mm	
VELOCITY (m/s)	ΔP (Pa)
2	0.3
3.8	1
7.6	4.5
11.4	10.4
15.2	19.8

DAMPER SIZE (WxH)= 610mm X 610mm	
VELOCITY (m/s)	ΔP (Pa)
2	0.4
3.8	1.2
7.7	5.2
11.5	12
15.3	22.1

DAMPER SIZE (WxH)= 1220mm X 305mm	
VELOCITY (m/s)	ΔP (Pa)
2	0.5
3.8	1.6
7.6	6.4
11.5	14.3
15.3	25

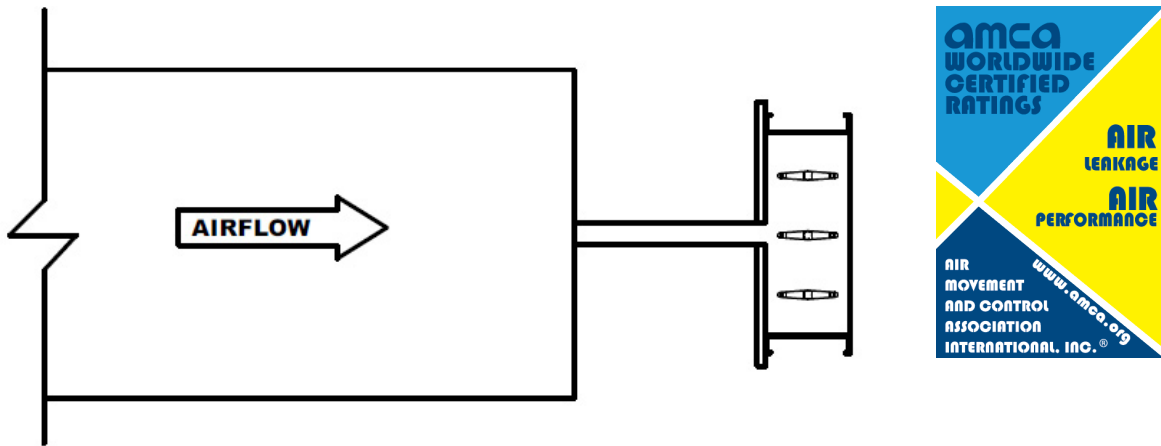
DAMPER SIZE (WxH)= 305mm X 1220mm	
VELOCITY (m/s)	ΔP (Pa)
2	0.2
3.8	0.9
7.6	3.6
11.5	8.5
15.3	15.5

VELOCITY VS. PRESSURE DROP CURVE:



LEAKAGE TEST DATA

Test Damper Setup with Inlet Chamber - Figure 5.5 Alternate



As defined by AMCA Publication 511-21, the maximum allowable leakage is as follows:

Class (C)	Maximum Allowable Leakage, L/s/m ² (cfm/ft ²)				
	At 0.25KPa (1in. wg)	At 0.5KPa (2in. wg)	At 1KPa (4in. wg)	At 1.5KPa (6in. wg)	At 2KPa (8in. wg)
1A	15.2 (3)	N/A	N/A	N/A	N/A
1	20 (4)	28 (6)	41 (8)	49 (10)	56 (11)
2	51 (10)	72 (14)	102 (20)	124 (24)	144 (28)
3	203 (40)	287 (57)	406 (80)	497 (98)	574 (113)

Test Information

Air leakage is based on operation between 0°C and 49°C (32 °F and 120 °F).
 Tested for air Leakage in accordance with ANSI/AMCA standard 500-D, Figure 5.5 Alternate
 All data has been corrected to standard air density of 1.2 kg/m3.

Torque

For the damper (305 x 1220) mm, a torque of 32.3 Nm/m² was applied to the close and seat dampers during the test.
 For the damper (1220 x 914) mm, a torque of 13.5 Nm/m² was applied to the close and seat dampers during the test.

TUNE-S-AL LEAKAGE CLASSIFICATION

TUNE-S-AL	LEAKAGE CLASS, L/s/m ² (cfm/f ²)				
Damper Size, W x H	At 0.25KPa (1in. wg)	At 0.5KPa (2in. wg)	At 1KPa (4in. wg)	At 1.5KPa (6in. wg)	At 2KPa (8in. wg)
305 x 1220 mm (12 x 48) in.	1 (A)	1	1	1	1
1220 x 914 mm (48 x 36) in.	1 (A)	1	1	2	2

NOTE – Leakage class 1A is defined, only for 250 Pa (1 in. wg).

Ordering Codes

		TUNE-S-AL - [] - [] - []			
Size (mm)	Width x Height	(W X H)			
Operation Type	For Manual operation	H			
	For Motorized operation	M			
	For Dual operation (I.e. manual & motorized both).	D			
Operation side	Right Hand	R			
	Left Hand	L			



Example of Ordering Code

- a. TUNE-S-AL-1200×600-H-R
 Control damper TUNE-S-AL with 1200 mm width and 600 mm height, Manual operation with Right Hand operation side.
- b. TUNE-S-AL-500×1000-M-L
 Control damper TUNE-S-AL with 500 mm width and 1000 mm height, Motorized operation with Left Hand operation side.

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