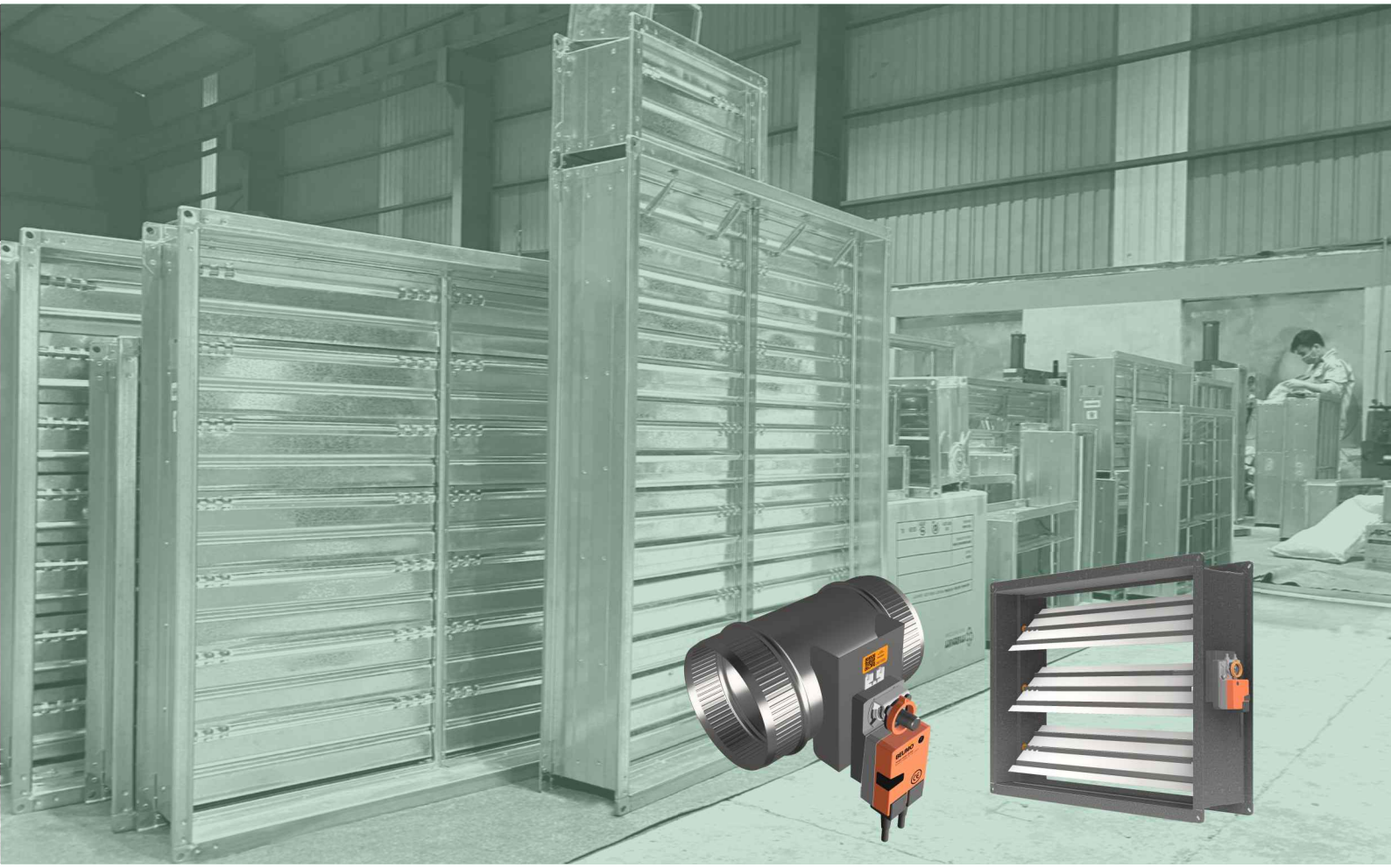
STARDUCT

AIR DAMPER

HVAC systems



Volum Control Damper
Non-Return Damper
Pressure Relief Damper
Disc Valve

STARDUCT

WE SELL SUPERIORITY

Content

STARDUCT - NHÀ SẢN XUẤT ĐƯỢC CHỨNG NHẬN

With 20 years of experience in manufacturing supporting products and systems for MEP and HVAC, Star Asia Jsc. (NSCA) has been suppying many heavy industrial, commercial with its products and service.

Products of Star Asia Jsc., including dampers under Starduct brand, are result from the combination of research, experience and expertises of our staff.
Star Asia Jsc. has a pride of the first company in Vietnam who is meet requirements of manufacturing and service for fire dampers and insulated fire dampers. All fire damper products from us have been certified of representative sample inspection as regulated by law. Starduct dampers have been servicing in many major projects all over the country in many years

PRODUCTION SYSTEM AND PROCESS OF STAR ASIA

Starduct dampers are produced uniformly by exact mechanic lines.

- Frame: CNC line
- Blades: CNC line
- Joints/connections: weldless, by clinching machines
- Mechanical control device: designed solely and produced precisely
- Electrical control device: imported directly from European manufacturers, installed and adjusted in factory by well trained technicians
- Process is inspected seriously as per ISO.

STANDARDS TO BE APPLIED

Following and meeting technical requirements of standard systems is the thoroughly direction of Star Asia Jsc. In designing, production, testing, we always base on and refer to highest standards of the industry such as AMCA, ASTM, ASHRAE, ISO, AHRI, TCVN...

MEMBERSHIP OF ASSOCIATIONS

Star Asia Jsc., is the official member of **AMCA (Air Movement and Control Association)**

STARDUCT là thành viên của AMCA Quốc tế
(Hiệp hội Lưu chuyển và Kiểm soát Không khí)

DIRECT ASSESSMENT SERVICES

DAS CERTIFICATION

Chứng nhận

Hệ thống quản lý chất lượng

This is to certify that the Quality Management System of:

NHÀ MÁY CƠ KHÍ STARDUCT

(thuộc CÔNG TY CỔ PHẦN ĐẦU TƯ CÔNG NGHỆ NGÔI SAO CHÂU Á)

Cụm công nghiệp Thị trấn Phùng, huyện Đan Phượng, thành phố Hà Nội, Việt Nam

Đã được đánh giá và phù hợp với các yêu cầu của tiêu chuẩn:

ISO 9001:2015

Chứng nhận này có hiệu lực theo lĩnh vực hoạt động sau:

Sản xuất và cung cấp cửa gió, van gió, ống gió, thang, máng, khay cáp và các sản phẩm cơ khí ngành cơ điện và điều hòa không khí thông gió, khung giá đỡ pin năng lượng mặt trời.

Ngày ban hành chứng nhận lần đầu:	01/02/2018
Ngày chứng nhận hiện tại:	01/02/2021
Chứng nhận có hiệu lực đến:	31/01/2024
Số chứng nhận:	NVQV17299-Q
Nace/ EA:	25.99

Phê duyệt:

CÔNG TY TRÁCH NHIỆM HỮU HẠN CHỨNG NHẬN D.A.S VIỆT NAM

GIÁM ĐỐC

Nguyễn Hương Giang

Ngày: 01/02/2021

DAS CERTIFICATION Ltd.
6th Floor, 34JSC Office Building,164 Khuat Duy Tien street,
Thanh Xuan district, Hanoi, Vietnam
Tel : +84-24-37763177/ 35539135
Fax: +84-24-37763777
Website: www.dasvietnam.com
Email: dasinfo@dasvietnam.com

MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT IAF

Registered ISO 9001:2015

BUREAU OF ACCREDITATION VIETNAM

VICAS 009 - QMS

Membership certificate

Air Movement & Control Association International, Inc.

The International Authority on Air System Components Since 1917

amca INTERNATIONAL

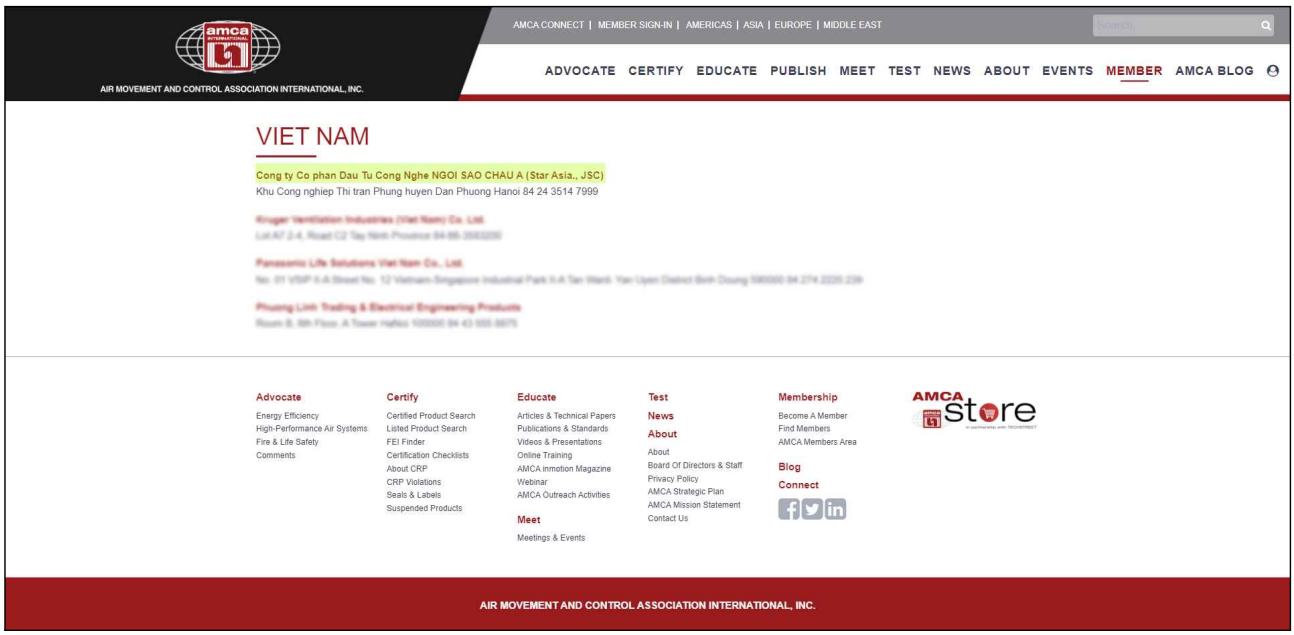
MEMBER

Cong ty Co phan Dau Tu Cong Nghe NGOI SAO CHAU A (Star Asia., JSC)

July 2020
Member Since

Executive Director

Star Asia in the Web of AMCA
https://www.amca.org/member/find-members/regions/as/viet-nam.html



TEST REPORT OF AIR LEAKAGE: AMCA 500-D

VIỆN VẬT LIỆU XÂY DỰNG - BỘ XÂY DỰNG
VIET NAM INSTITUTE FOR BUILDING MATERIALS – MINISTRY OF CONSTRUCTION
TRUNG TÂM THIẾT BỊ, MÔI TRƯỜNG & AN TOÀN LAO ĐỘNG
CENTRE FOR EQUIPMENT, ENVIRONMENT & LABOUR SAFETY
Địa chỉ (Address): 235 đường Nguyễn Trãi, quận Thanh Xuân, thành phố Hà Nội
Điện thoại (Tel): (+84) 43.558.5928; Fax: (+84) 43.858.1112;
Website: http://vibm.vn/; E-mail: thietbimoitruong@vibm.vn

Standard Code

PHIẾU KẾT QUẢ THỬ NGHIỆM
TEST REPORT

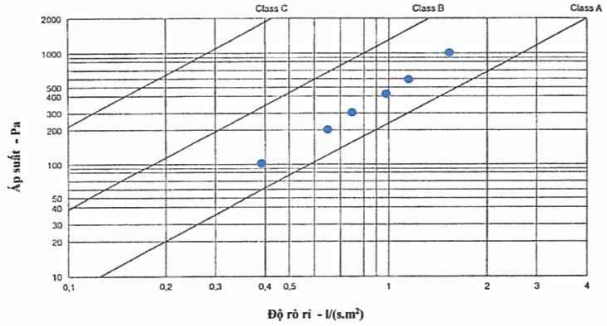
Số (No): 10131.../VLXD-TBMT

Report Code

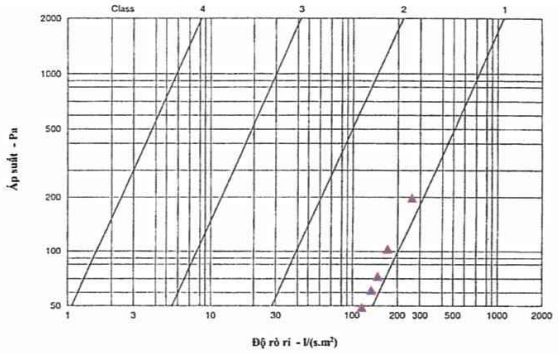
1. Cơ quan gửi mẫu (*Client*): Công ty CP ĐTCN Ngôi Sao Châu Á
2. Địa chỉ (*Address*): Tầng 3, TTTM Interserco, Số 17 Phạm Hùng, Mỹ Đình 1, Nam Từ Liêm, Hà Nội
Nhà máy *(Factory):* Lô C3-C4 Cụm CN Thị trấn Phùng, H. Đan Phượng, TP Hà Nội
3. Loại mẫu (*Kind of sample*): Van điều chỉnh lưu lượng VCD (Multi blades) - Kích thước 600x450
4. Số lượng (*Quantities*): 01
5. Số phiếu Trung tâm *(Cen.No):* 38-17/TBMT
6. Ngày nhận mẫu (*Date of received*): 15/09/2017

KẾT QUẢ THỬ NGHIỆM *(TEST RESULT)*

TT	Tính chất *(Properties)*	Kết quả *(Results)*	Phương pháp thử *(Test method)*
1	Độ rò rỉ của thân van (*The volume control Damper casing leakage*)	Đạt Class A	BS EN 1751:1999
2	Độ rò rỉ của cánh van (*The volume control Damper closed blade leakage*)	Đạt Class 1	



Phân loại độ rò rỉ thân van *(Classification of case leakage)*



Phân loại độ rò rỉ cánh van *(Classification of closed blade leakage)*

Hà Nội, ngày 10 tháng 10 năm 2017
Cán bộ thử nghiệm (Test by): Lê Cao Chiến.....
TT. TB,MT&ATLĐ
CEELS

Viện Vật Liệu Xây Dựng
VIBM

PHÓ VIỆN TRƯỞNG
Nguyễn Văn Huynh

Nguyễn Thị Tâm

Ghi chú (*Note*):
- Các chỉ tiêu và phương pháp thử được thử theo yêu cầu của khách hàng. (*Characteristics and methods were tested according to client's request*).
- Mẫu do khách hàng mang đến Viện Vật liệu xây dựng. Tên mẫu, tên cơ quan gửi mẫu và công trình sử dụng được báo cáo theo yêu cầu của khách hàng. (*Sample were sent to VIBM. Name of sample, client and works are reported client's request*).
- Không được sao chép từng phần (được sao chép toàn bộ) phiếu kết quả này khi chưa được sự đồng ý của Viện Vật liệu xây dựng. (*This test report not be reproduced, except in full*).

TEST REPORT OF AIR LEAKAGE: AMCA 500-D

VIỆN VẬT LIỆU XÂY DỰNG - BỘ XÂY DỰNG
VIET NAM INSTITUTE FOR BUILDING MATERIALS – MINISTRY OF CONSTRUCTION
TRUNG TÂM THIẾT BỊ, MÔI TRƯỜNG & AN TOÀN LAO ĐỘNG
CENTRE FOR EQUIPMENT, ENVIRONMENT & LABOUR SAFETY
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Website: http://vibm.vn/; E-mail: thietbimoitruong@vibm.vn

Standard Code

PHIẾU KẾT QUẢ THỬ NGHIỆM
TEST REPORT

Số (No): .10132../VLXD-TBMT

Report Code

1. **Cơ quan gửi mẫu** (*Client*): Công ty CP ĐTCN Ngôi Sao Châu Á
2. **Địa chỉ** (*Address*): Tầng 3, TTTM Interserco, Số 17 Phạm Hùng, Mỹ Đình 1, Nam Từ Liêm, Hà Nội
   Nhà máy *(Factory):* Lô C3-C4 Cụm CN Thị trấn Phùng, H. Đan Phượng, TP Hà Nội
3. **Loại mẫu** (*Kind of sample*): Van điều chỉnh lưu lượng VCD (Single blade) - Kích thước 150x150
4. **Số lượng** (*Quantities*): 01
5. **Số phiếu Trung tâm** *(Cen.No):* 38-17/TBMT
6. **Ngày nhận mẫu** (*Date of received*): 15/09/2017

KẾT QUẢ THỬ NGHIỆM *(TEST RESULT)*

TT	Tính chất *(Properties)*	Kết quả *(Results)*	Phương pháp thử *(Test method)*
1	Độ rò rỉ của thân van (*The volume control Damper casing leakage*)	Đạt Class A	BS EN 1751:1999
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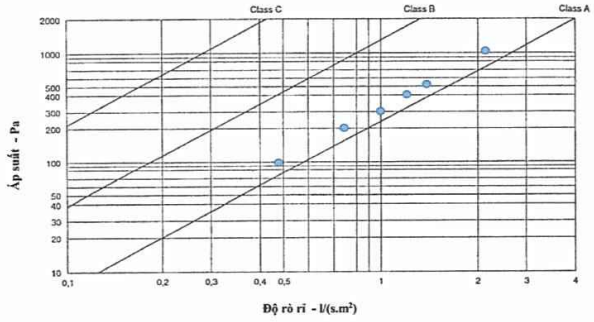
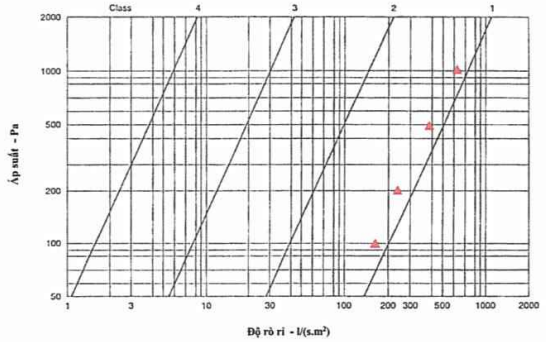


Phân loại độ rò rỉ thân van *(Classification of case leakage)*



Phân loại độ rò rỉ cánh van *(Classification of closed blade leakage)*

Hà Nội, ngày 10 tháng 10 năm 2017
Cán bộ thử nghiệm (Test by): Lê Cao Chiến.....
TT. TB,MT&ATLĐ
CEELS

Viện Vật Liệu Xây Dựng
VIBM

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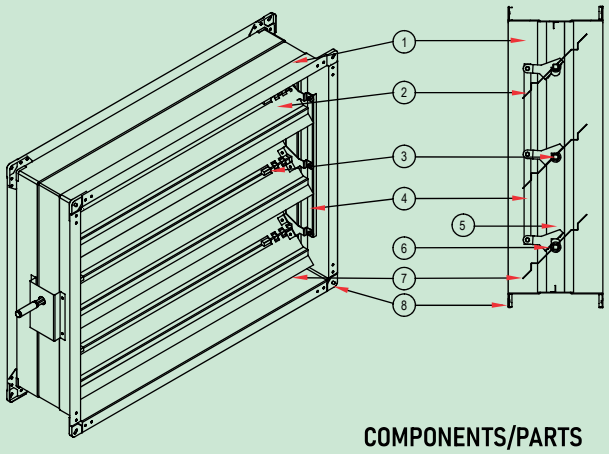
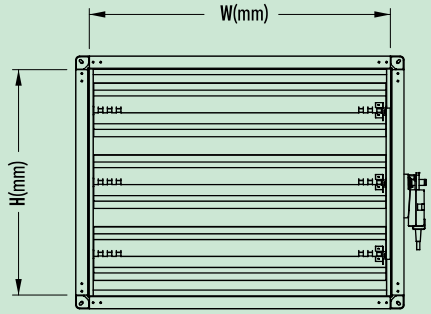
- Không được sao chép từng phần (được sao chép toàn bộ) phiếu kết quả này khi chưa được sự đồng ý của Viện Vật liệu xây dựng. (*This test report not be reproduced, except in full*).

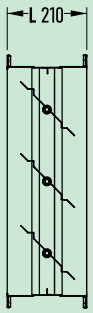
BASIC CONSTRUCTION - SQUARE VCD



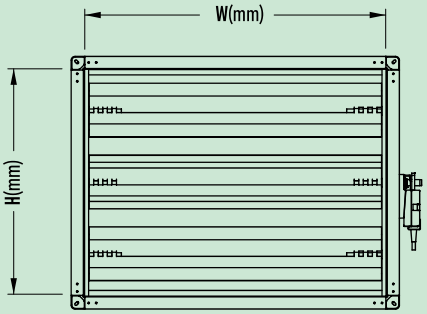
① Frame
② Blade
③ Blade axle
④ Lifting blade mechanism
⑤ Frame seal (opt.)
⑥ Bushing/Bearing
⑦ Blade seal (opt.)
⑧ Corner/flange

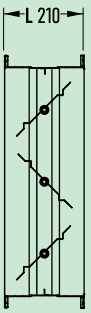
COMPONENTS/PARTS



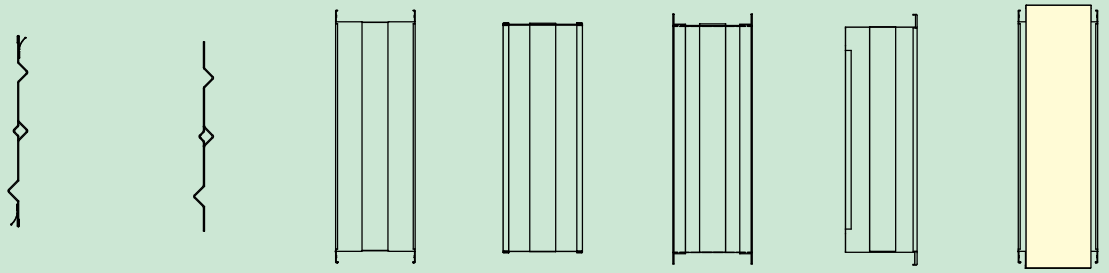


PARALLEL BLADE DAMPER - PDB





OPPOSED BLADE DAMPER - OBD



3 V BLADE with seal
3 V BLADE
TDC frame
C-flange frame
V-flange frame
Doubleside frame
Thermal Insulated frame (EI)

DIMENSIONS AND EXTENSION METHOD OF DAMPER

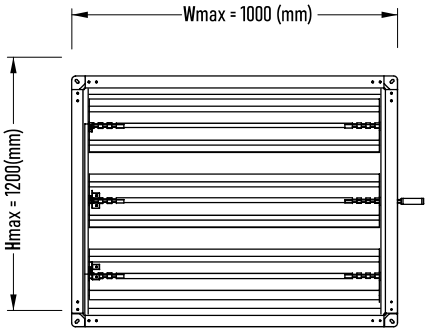
SINGLE SECTION DAMPER

Minimum dimensions:

- Width : W(min) = 100mm
- Height : H(min) = 100mm
- Depth : L(min) = 210mm

Maximum dimensions:

- Width : W(max) = 1000mm
- Height : H(max) = 1200mm
- Depth : L(max) = 210mm



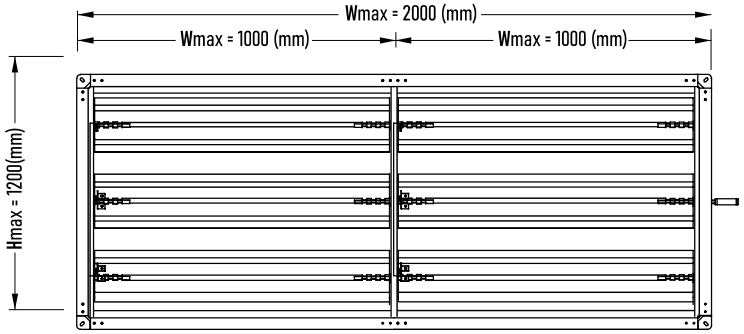
HORIZONTAL 2-SECTION MODULE

Maximum dimensions:

- Width : W(max) = 1000mm
- Height : H(max) = 1200mm
- Depth : L(max) = 210mm

Applicable for :

1000 < W ≤ 2000 mm
H ≤ 1200



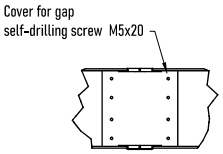
VERTICAL 2-SECTION MODULE

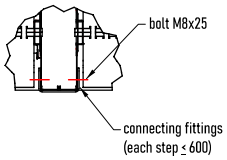
Dimensions:

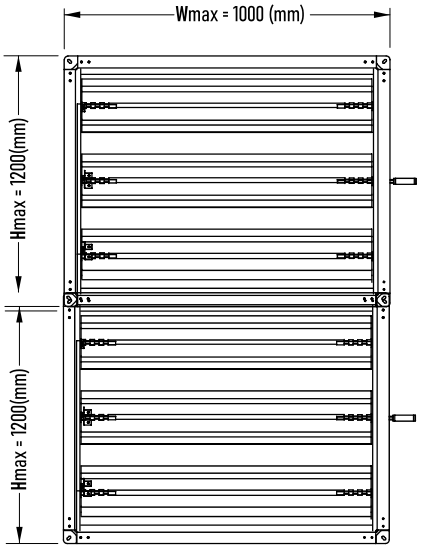
- Width : W(max) = 1000mm
- Height : H(max) = N x 1200mm
- Depth : L(max) = 210mm

Applicable for:

W ≤ 1000 mm
H > 1200







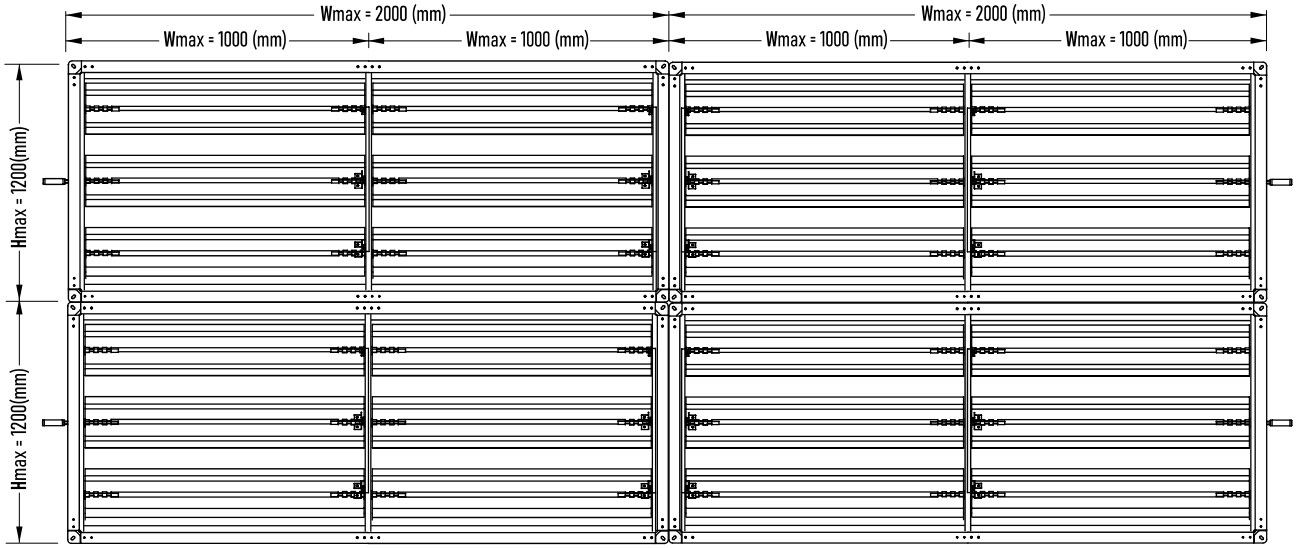
COMBINATION OF HORIZONTAL MODULE

Dimensions

- Width : W(max) = n x 2000mm
- Height : H(max) = n x 1200mm
- Depth : L(max) = 210mm

Applicable for :

W > 2000 mm
H > 1200



VOLUME CONTROL DAMPER - **SVCD**

OPPOSED BLADE DAMPER - OBD

PARALLEL BLADE DAMPER - PDB

1. FRAME AND MATERIAL:

Depending to the technical requirements of dimensions, working pressure, fire-rate, airtight-rate, the damper frame could be made of different materials and thicknesses. Standard material of Starduct for frames is galvanised steel sheet (up to 180g/m²) as per JIS G 3302:2010 and JIS H 0401:2007 (equivalent to ASTM A653/A653M), thickness from 0.75 to 1.5mm. Frame is made of C-profile one-piece for low and medium working pressure or "Hat-profile" for high working pressure.

2. BLADE AND MATERIAL:

Depending to the technical requirements of dimensions, working pressure, fire-rate, airtight-rate, the damper frame could be made of different materials and thicknesses. Standard material of Starduct for frames is galvanised steel sheet (up to 180g/m²) as per JIS G 3302:2010 and JIS H 0401:2007 (equivalent to ASTM A653/A653M), thickness from 0.75 to 1.5mm

Normally, parallel blade is applied for 2-position (open/closed) dampers, opposed blade dampers is applied for modulating/balancing damper

3. DAMPER SHAFT:

CT4 steel bar, galvanised (Z18) or stainless steel with various dimensions depending on the type of damper. The shaft could be square steel bar(10x10mm) or hexagon steel bar (D10)

4. INTERLOCK LIFTING MECHANISM:

Exactly fabricated from steel sheet in 2 types, opposed and parallel moving. The mechanism can be hidden inside the frame or exposed outside the frame.

5. AIRTIGHT SEALS OF FRAME AND BLADES

Depending to the technical requirements, seals can be applied or not. Materials can be rubber, silicone or stainless steel.

6. BUSHING/BEARING

Could be produced from PPP, cooper or bearing.

8. STIFFERNING CORNER AND JOINTS

Depending on type of damper, the corner of damper can be connected by clinched corner plate (one or two intergrated flanges), C-flange, S-clip for medium/low working pressure or V3, V4, V5 flanges for high working pressures.

9. CONTROL MECHANISMS:

- MOTORIZATION: Belimo actuators, made in Switzerland or USA with many different torque forces and functions (see the guide table in next page)
- MANUAL QUADRANT: produced by Star Asia, one-touch mechanism for easy operation and application. Control steps: 1~9 (10% each step)
- SCREW STEPLESS REGULATOR: produced by Star Asia, adjustment steplessly for exact control airflow.

10. PRODUCTION STANDARDS:

Starduct VCD/ NRD/ PRD dampers of Star Asia are produced in accordance with Ashrea 70:2006 and AMCA 500-D. Especially, all frames, blades and parts are fabricated in exact lines to get high and uniform quality.

11. AIRTIGHTNESS:

Starduct VCD/ NRD/ PRD dampers of Star Asia have low leakage, Class 2 of AMCA 500-D and can be get up to Class 1 if applied stainless seals for frame and blades .

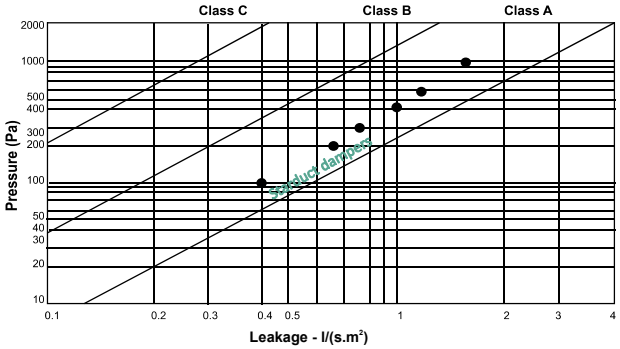
12. GUARANTEE:

Starduct VCD/ NRD/ PRD dampers of Star Asia are guaranteed in 24 months (from the delivery date). In addition, the actuator (motor) is guaranteed 60 month by the manufacturer Belimo.

Leakage rate - AMCA 500-D

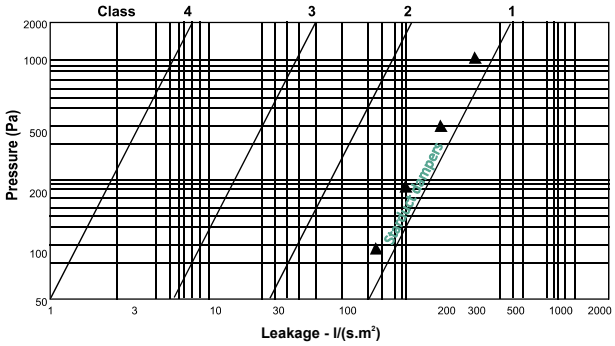
1. Leakage rate - damper case (l/s.m²)

Class A (AMCA 500-D) tested method BS-EN 1751:1999



2. Leakage rate - damper blade (l/s.m²)

Class 1 (AMCA 500-D) tested method BS-EN 1751:1999



Pressure drop (Pa) calculation method

W mm / H mm	200	300	400	500	600	700	800	900	1000	1100	1200
200	185	315	435	564	685	805	934	1055	1184	1304	1434
300	315	527	731	944	1147	1360	1573	1776	1989	2192	2405
400	463	768	1082	1388	1702	2007	2313	2627	2932	3238	3552
500	592	981	1378	1767	2165	2553	2951	3339	3737	4126	4338
600	722	1193	1674	2155	2627	3108	3589	4061	4542	5023	5495
700	870	1443	2026	2599	3173	3756	4329	4912	5485	6068	6642
800	990	1656	2322	2979	3645	4301	4967	5624	6290	6956	7613
900	1147	1906	2664	3432	4190	4949	5717	6475	7234	8001	8760
1000	1267	2118	2960	3811	4653	5504	6346	7197	8038	8889	9731
1100	1138	2081	3025	3968	4921	5865	6808	7761	8704	9648	10591
1200	1240	2266	3302	4329	5356	6392	7419	8455	9481	10508	11544

Table 1 : effective area of Starduct damper - Unit : cm²

$$\Delta P = C_o \times V^2$$

In which:

- C_o is the average pressure drop coefficent of 5-7 and 10m/s velocity, and C_o = 2.75
- V^2 (m/s) is the face area velocity going through the damper with

$$V_{damper} = \frac{Q\ (m^3/s)}{\text{Effective area}\ (cm^2)} \qquad V^2 = (V_{damper} - V_{duct})^2$$

Ghi chú: dữ liệu tính với van mở hoàn toàn

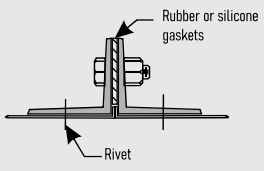
Example:

V_{duct} = 5 m/s, Damper size: 300x300mm ⟶ effective area 900 cm2

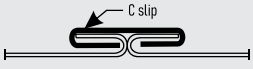
- **Q** = effective area x duct velocity = 900 x 5 = 4500 (m^3/h)
- V_{damper} = 4500/527 = 8.53 (m/s) [527 taken from the size 300x300 in the table]
- V^2 = (8.53 - 5)^2 = 12.52 (Pa)

Result: Pressure loss **ΔP** = 2.75 (C_o) x 12.52 (V^2) = **34.4 Pa**

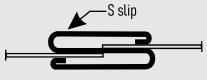
CONNECTING METHODS TO DUCTS



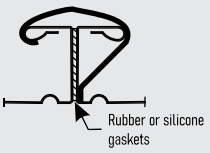
V-flange connect



C-slip connect



S-slip connect



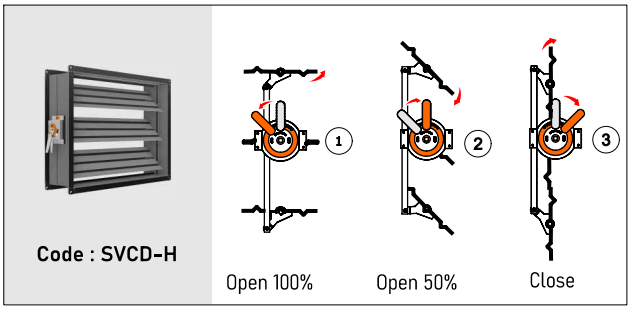
TDC/TDF flange connect

Material thickness by dimensions

H \ W	200	300	400	500	600	700	800	900	1000	1100	1200	2000	3000
200	0.75mm					0.95mm			1.15mm				
300													
400													
500													
600													
700													
800													
900													
1000												1.50mm	
1100													
1200													
2000													
3000													

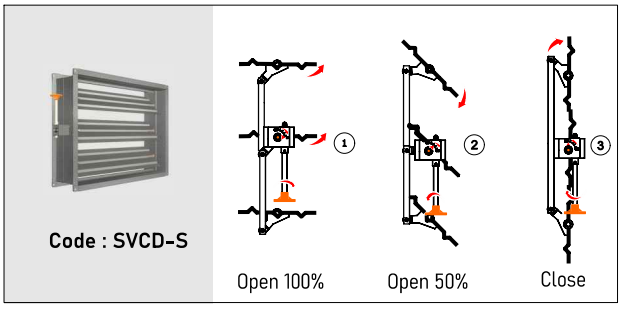
MANUAL CONTROL MECHANISM

1. **Manual quadrant (code HQ)**: produced by Star Asia, one-touch mechanism for easy operation and application. Control steps: 1~9 (10% each step)



Three basic positions

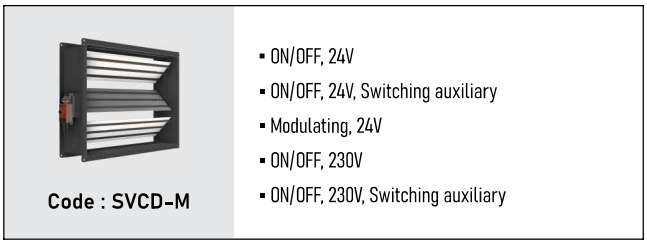
2. **Screw stepless regulator (code SQ)**: produced by Star Asia with plastic knob and exact mechanism for easy and precision operation. Stepless control , applicable for dampers need small and exact adjustment.

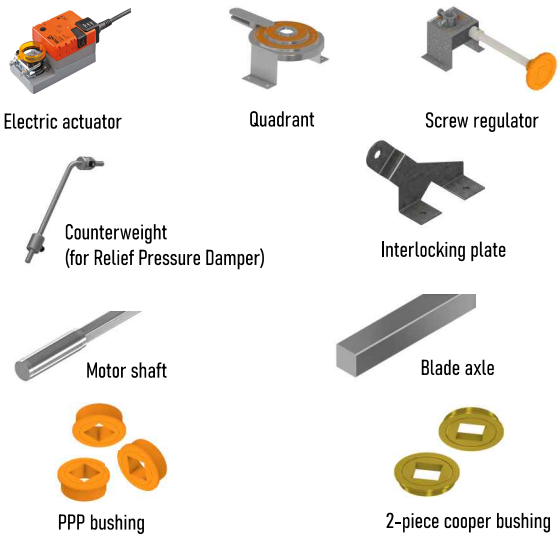


Three basic positions

MOTORIZED CONTROL MECHANISM

3. **Motorization (code M)**: Star Asia using only Belimo actuators from Switzerland, the leading brand of the industry. Belimo has ranges of many models such as On/Off, fast reaction, 220v AC or 24v DC. Installation and adjustment of actuator are jobs need professional expertises, so, 100% actuators should be installed and adjusted at factory by technicians being trained by the manufacturer :





ORDERING CODE

SVCD - WxHxL - G/S - H/F - SB/DB/SI - O/P - TDC/V/C/S - HQ/SQ/M...

- SVCD: Volum Control Damper
- WxHxL: Width (**W**) x Height (**H**) x Depth (L)
- G/S: **G** = galvanized; **S** = inox
- H/F: **H** = welded frame; **F** = one-piece frame
- SB/DB/SI: **SB** = Single skin blade; **SI** = blade with inox seal; **DB** = double skin blade with silicone seal
- O/P: Blade operation: **O** = opposed; **P** = parallel
- TDC/V/C/S: Connection type
- HQ/SQ/M...: Control mechanism: **HQ** = Quadrant; **SQ** = worm-gear; **MF** = fast motor; **MD** = modulating motor; **M...220** = 220v AC/DC; **M...24**= 24v DC

Actuator selection guide

BELIMO

DAMPER AREA AND STANDARD CONFIG. OF MOTOR		OPTIONAL ALTERNATIVES	
- Applicable for damper area up to 0.2 m^2		UM24Y-R.1	ON/OFF, 24V, CW
- Torsion moment: 1.0 Nm		UM230Y-R.1	ON/OFF, 230V, CW
- Voltage: 24V AC/DC		UM24Y-SR-R.1	Modulating, 24V, CW
- Control type : ON/OFF		**UM24Y-L1**	**ON/OFF, 24V, CCW*)**
- Damper shaft: 8 x 8 (mm)		**UM230Y-L.1**	**ON/OFF, 230V, CCW(*)**
	UM24Y-R.1	**UM24Y-SR-L1**	**Modulating 24V, CCW (*)**

DAMPER AREA AND STANDARD CONFIG. OF MOTOR		OPTIONAL ALTERNATIVES	
- Applicable for damper area up to 0.4 m^2		CM24-R	ON/OFF, 24V, CW
- Torsion moment: 2.0 Nm		CM230-R	ON/OFF, 230V, CW
- Voltage: 24V AC/DC		CM24-SR-R	Modulating, 24V, CW
- Control type : ON/OFF		**CM24-L**	**ON/OFF, 24V, CCW(*)**
- Damper shaft: 8 x 8 (mm)		**CM230-L**	**ON/OFF, 230V, CCW (*)**
	CM24-R	**CM24-SR-L**	**Modulating 24V, CCW(*)**

DAMPER AREA AND STANDARD CONFIG. OF MOTOR		OPTIONAL ALTERNATIVES	
- Applicable for damper area up to 1.0 m^2		LM24A	ON/OFF, 24V
- Torsion moment: 5.0 Nm		LM24A-S	ON/OFF, 24V, auxiliary switch
- Voltage: 24V AC/DC		LM24A-SR	Modulating, 24V
- Control type : ON/OFF		LM230A	ON/OFF, 230V
- Damper shaft: 10 x 10 (mm)	**LM24A**	LM230A-S	ON/OFF, 230V, auxiliary switch

DAMPER AREA AND STANDARD CONFIG. OF MOTOR		MÔ-TƠ LỰA CHỌN RIÊNG	
- Applicable for damper area up to 2.0 m^2		NM24A	ON/OFF, 24V
- Torsion moment: 10.0 Nm		NM24A-S	ON/OFF, 24V, auxiliary switch
- Voltage: 24V AC/DC		NM24A-SR	Modulating, 24V
- Control type : ON/OFF		NM230A	ON/OFF, 230V
- Damper shaft: 8 x 8 (mm)	**NM24A**	NM230A-S	ON/OFF, 230V, auxiliary switch

DAMPER AREA AND STANDARD CONFIG. OF MOTOR		MÔ-TƠ LỰA CHỌN RIÊNG	
- Applicable for damper area up to 4.0 m^2		SM24A	ON/OFF, 24V
- Torsion moment: 20.0 Nm		SM24A-S	ON/OFF, 24V, auxiliary switch
- Voltage: 24V AC/DC		SM24A-SR	Modulating, 24V
- Control type : ON/OFF		SM230A	ON/OFF, 230V
- Damper shaft: 8 x 8 (mm)	**SM24A**	SM230A-S	ON/OFF, 230V, auxiliary switch

Note : (*) not in-stock, available in 3 ~ 6 months

ROUND VOLUME CONTROL DAMPER - **SVCD-T**

DESCRIPTION

Round volume control damper (SVCD-T) is used in most of HVAC systems to regulate the flow of air in intake, exhaust or mixed air applications.

The product is designed and produce as per requirements of round duct systems

- Standard: Ashrea 70:2006 / AMCA 500-D
- Low leakage rate: ± 5% (with EMDM seal)

CONSTRUCTION

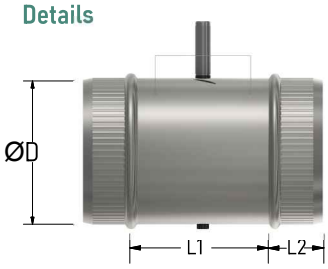
Materials

- Frame/housing: galvanized steel sheet of 0.75~1.15mm
- Blade: galvanized steel sheet 0.75~1.0mm
- Damper shaft: galvanized Ct4 steel bar
- Bushing: cooper /PPP
- Blade seal: silicone/EPDM

Sizes

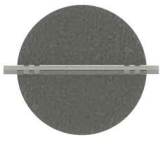
- Ø100 ~ Ø500 (mm)

Details



High-airtight blade EPDM seal

High-airtight blade silicone seal



Galvanized single-layer blade

Structure

- Housing: one-piece, weldness, clinching joint.
- Optional corrugated end
- Optional sealed blade

Working pressure

- Low, medium

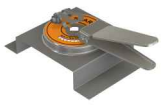
Control mechanisms

MOTORIZED **SVCD-T-M**

QUADRANT **SVCD-T-H**

SCREW REGULATOR **SVCD-T-S**

- BELIMO actuator



- One-touch quadrant

- Stepless regulator

Size - D (mm)	L1 (mm)	L2 (mm)	Material Thickness (mm)
100 ~ 200	132	60	0.75
225 ~ 300	212	70	0.75
325 ~ 350	262	75	0.95
375 ~ 400	312	80	0.95
425 ~ 450	362	90	1.15
475 ~ 500	500	100	1.15

Pressure loss (Pa)

Size (mm)	300			500		
AMCA figure	5.2	5.3	5.5	5.2	5.3	5.5
Lưu tốc (m/s)	Sụt áp (Pa)					
2.5	2.5	2.5	5.0	2.5	2.5	5.0
5.0	15.0	5.0	25.0	10.0	2.5	22.5
7.5	32.5	12.5	55.0	20.0	7.5	50.0
10.0	57.0	20.0	94.5	37.0	15.0	89.5
12.5	92.0	32.5	149.5	57.0	22.5	136.5
15.0	132.0	47.0	214.0	82.0	32.0	201.5

ORDERING CODE

SVCD-T - D - G/S - SB/DB/OB - HQ/SQ/M...

- Round VCD
- Size : ØD
- G = galvanized; S = inox
- SB = Single layer blade
  DB = double layer, silicone seal
  OB = EPDM seal
- Control mechanism :
  HQ = Quadrant; SQ = Screw
  MF = fast motor
  MD = modulating motor

Actuator/motor selection guide

BELIMO

Sizes up to D400

DAMPER AREA AND STANDARD CONFIG. OF MOTOR		OPTIONAL ALTERNATIVES	
- Applicable for damper area up to 0.2 m^2		UM24Y-R.1	ON/OFF, 24V, CW
- Torsion moment: 1.0 Nm		UM230Y-R.1	ON/OFF, 230V, CW
- Voltage: 24V AC/DC		UM24Y-SR-R.1	Modulating, 24V, CW
- Control type : ON/OFF		**UM24Y-L1**	**ON/OFF, 24V, CCW*)**
- Damper shaft: 8 x 8 (mm)		**UM230Y-L.1**	**ON/OFF, 230V, CCW(*)**
	UM24Y-R.1	**UM24Y-SR-L1**	**Modulating 24V, CCW (*)**

Sizes from D450 to D600

DAMPER AREA AND STANDARD CONFIG. OF MOTOR		OPTIONAL ALTERNATIVES	
- Applicable for damper area up to 0.4 m^2		CM24-R	ON/OFF, 24V, CW
- Torsion moment: 2.0 Nm		CM230-R	ON/OFF, 230V, CW
- Voltage: 24V AC/DC		CM24-SR-R	Modulating, 24V, CW
- Control type : ON/OFF		**CM24-L**	**ON/OFF, 24V, CCW(*)**
- Damper shaft: 8 x 8 (mm)		**CM230-L**	**ON/OFF, 230V, CCW (*)**
	CM24-R	**CM24-SR-L**	**Modulating 24V, CCW(*)**

Other options

LỰA CHON RIÊNG KHÁC CHO VAN TRÒN ĐẾN D600			
- Applicable for damper area up to 1.0 m^2		LM24A	ON/OFF, 24V
- Torsion moment: 5.0 Nm		LM24A-S	ON/OFF, 24V, auxiliary switch
- Voltage: 24V AC/DC		LM24A-SR	Modulating, 24V
- Control type : ON/OFF		LM230A	ON/OFF, 230V
- Damper shaft: 10 x 10 (mm)	**LM24A**	LM230A-S	ON/OFF, 230V, auxiliary switch

Note : (*) not in-stock, available in 3 ~ 6 months

NON-RETURN DAMPER - **SNRD**

DESCRIPTION

Non-return dampers (also known as gravity dampers) are used in ventilation systems to allow airflow in one direction and prevent airflow in the opposite direction. A relief damper is developed with an elevated and adjustable start-open pressure while providing the backdraft function.

When placed on a propeller fan, for example, it will prevent the wind from causing the fan to run backwards when the power is off.

CONSTRUCTION

Material

- Frame: galvanized steel, thickness 0.75~1.15 mm
- Blade: galvanized steel, Z18, thickness 0.75~1.0 mm
- Shaft: plated CT4 steel, Z18
- Bushing: bronze /PPP

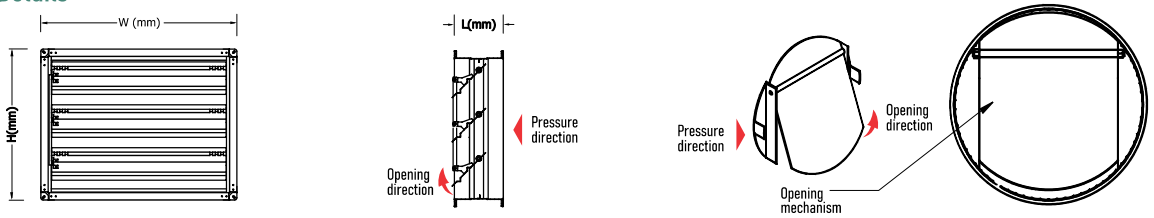
Structure

- One-piece casing, clinching joint, weldness
- Optional corrugated ends

Control mechanism

- Counterweight/motorized

Details



Free area at fully open position (m2)

W (mm) / H (mm)	200	400	600	800	1000	1200
350	0.031	0.085	0.139	0.194	0.248	0.302
700	0.063	0.174	0.284	0.394	0.504	0.614
1000	0.096	0.262	0.428	0.594	0.761	0.927
1350	0.128	0.305	1.572	0.795	1.017	1.239
1650	0.160	0.438	0.717	0.995	1.273	1.552
2000	0.192	0.527	0.861	1.195	1.530	1.864

ORDERING CODE

SNRD/T - WxH/D - G/S - TDC/V/S - M

- **SNRD/T**: No return damper **T** = round damper
- **WxH/D**: Rec. damper : **WxH** Round damper: **D**
- **G/S**: **G** = galvanized **S** = inox
- **TDC/V/S**: Flange type
- **M**: Optional motorisation

PERFORMANCE DATA	
Common size	200 x 200 ~ 1600 x 1600 (mm)
Volume range	110 ~ 6460 (l/s) [396 ~ 23256 (m3/h)] @ 2.5 m/s
Total pressure difference	25 Pa @ 2.5m/s
Max. pressure diffetence to close damper	100 Pa
Working temp.	-20 to + 80°C

MAX. VOLUME TO OPEN DAMPER @ 2.5 m/s

W (mm) / H (mm)	200		300		400		500		600	
	l/s	m³/h	l/s	m³/h	l/s	m³/h	l/s	m³/h	l/s	m³/h
200	110	396	160	576	215	576	270	972	325	1170
300	160	576	235	846	315	846	395	1422	475	1710
400	210	756	310	1116	415	1116	520	1872	625	2250
500	260	936	385	1386	515	1386	645	2322	775	2790
600	310	1116	460	1656	615	1656	770	2772	925	3330
700	360	1296	535	1926	715	1926	895	3222	1070	3852
800	410	1476	610	2196	815	2196	1020	3672	1220	4392
1000	510	1836	760	2736	1020	2736	1270	4572	1520	5472
1200	610	2196	910	3276	1220	3276	1520	5472	1820	6552
1400	710	2556	1060	3816	1420	3816	1770	6372	2120	7632
1600	810	2916	1210	4356	1620	4356	2020	7272	2420	8712

MAX. VOLUME TO OPEN DAMPER @ 2.5 m/s

W (mm) / H (mm)	800		1000		1200		1400		1600	
	l/s	m³/h	l/s	m³/h	l/s	m³/h	l/s	m³/h	l/s	m³/h
200	430	1548	540	1944	645	2322	755	2718	860	3096
300	630	2268	790	2844	945	3402	1100	3960	1260	4536
400	830	2988	1040	3744	1250	4500	1450	5220	1660	5976
500	1030	3708	1290	4644	1550	5580	1800	6480	2060	7416
600	1230	4428	1540	5544	1850	6660	2150	7740	2460	8856
700	1430	5148	1790	6444	2150	7740	2500	9000	2860	10296
800	1630	5868	2040	7344	2450	8820	2850	10260	3260	11736
1000	2030	7308	2540	9144	3050	10980	3550	12780	4060	14616
1200	2430	8748	3040	10944	3650	13140	4250	15300	4860	17496
1400	2830	10188	3540	12744	4250	15300	4950	17820	5660	20376
1600	3230	11628	4040	14544	4850	17460	5650	20340	6460	23256

PRESSURE DROP	
Press drop ΔPt (Pa)	Velocity V (m/s)
10	0.5
15	1.0
20	2.0
25	3.0
30	4.0
40	5.0
45	6.0

PRESSURE RELIEF DAMPER - **SPRD**

DESCRIPTION

Pressure relief dampers are backdraft air dampers with an adjustable start-open pressure. This provides the capability of maintaining a relative constant pressure at various airflows. The damper closes when there is a decrease in differential pressure. This damper is generally used as a safety or controlling device. For example, mounting this damper on a duct section would relieve unexpected overpressure or relieve negative pressure downstream of a rapidly closing fire damper.

CONSTRUCTION

Material

- Frame: galvanized steel, Z18, thickness 0.75~1.15 mm
- Blade: galvanized steel, Z18, thickness 0.75~1.0 mm
- Shaft: plated CT4 steel, Z18
- Bushing: bronze /PPP

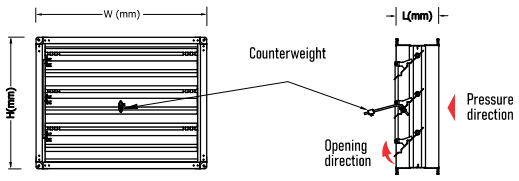
Structure

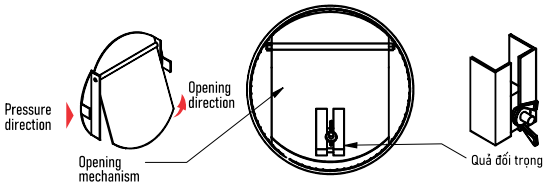
- One-piece casing, clinching joint, weldness
- Optional corrugated ends

Control mechanism

- Counterweight/motorized

Details





Free area at fully open position (m2)

W (mm) / H (mm)	200	400	600	800	1000	1200
350	0.031	0.085	0.139	0.194	0.248	0.302
700	0.063	0.174	0.284	0.394	0.504	0.614
1000	0.096	0.262	0.428	0.594	0.761	0.927
1350	0.128	0.305	1.572	0.795	1.017	1.239
1650	0.160	0.438	0.717	0.995	1.273	1.552
2000	0.192	0.527	0.861	1.195	1.530	1.864

ORDERING CODE

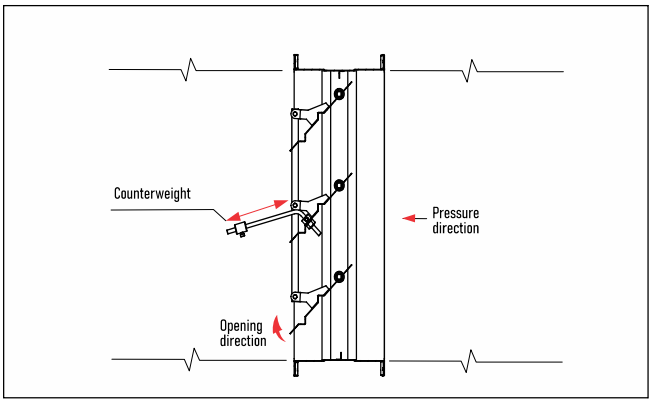
SPRD/T - WxH/D - G/S - TDC/V/S - M

- SPRD/T: Pres. relief damper; T = round damper
- WxH/D: Rec. damper : WxH; Round damper: D
- G/S: G = galvanized; S = inox
- TDC/V/S: Flange type
- M: Optional motorisation

PERFORMANCE DATA	
Common size	200 x 350 ~ 1200 x 2000 (mm)
Volume range	140 ~ 4790 (l/s) [504 ~ 17244 (m3/h)] @ 50 Pa & 2 m/s
Adjustable pressure range	50 ~ 1000 (Pa) [B > 600mm: 600 Pa Max.]
Working velocity	2 m/s @ 50 Pa
Max. pressure difference	5000 Pa
Working temp.	0 - 80°C

MAX. VOLUME TO START OPENING DAMPER @ 50Pa & 2 m/s												
W (mm) / H (mm)	200		400		600		800		1000		1200	
	l/s	m3/h	l/s	m3/h	l/s	m3/h	l/s	m3/h	l/s	m3/h	l/s	m3/h
350	140	504	275	990	415	1494	550	1980	690	2484	830	2988
700	270	972	540	1944	810	2916	1080	3888	1350	4860	1620	5832
1000	400	1440	805	2898	1210	4356	1610	5796	2010	7236	2410	8676
1350	535	1926	1070	3852	1600	5760	2140	7704	2670	9612	3200	11520
1650	665	2394	1330	4788	2000	7200	2660	9576	3330	11988	4000	14400
2000	800	2880	1600	5760	2390	8604	3190	11484	3990	14364	4790	17244

PRESS DROP VS. VELOCITY	
Press drop ΔPt (Pa)	Velocity V (m/s)
35	1
50	2
65	3
80	4
90	5



An expample of calculation and selection

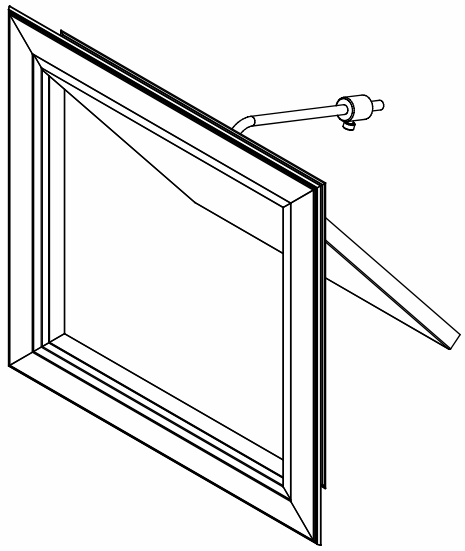
Given requirement:
- Damper size 600 x 1000 (mm)
- Max. pressure difference : 400 Pa
- Required ressure difference to start opening: 50 Pa

Taking from table: Max. volume = 1210 l./s (4356 m3/h)

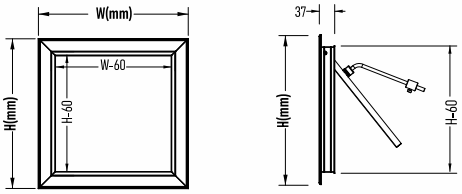
Calculation
A = 0.6 x 1.0 = 0.6m2
V = v x A = 2.0 l/s x 0.6 x 1000 = 4342 (m3/h) [1200 l/s]

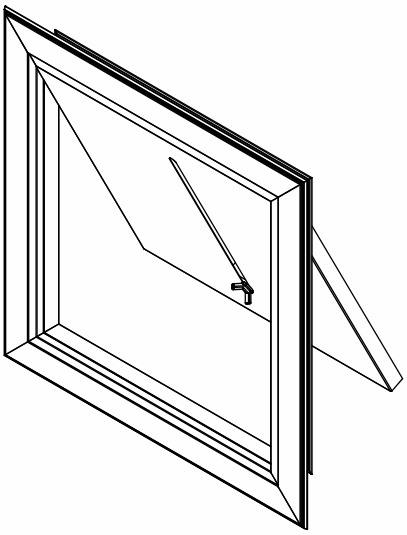
Conclusion
4342 m3/h [1200 l/s] is the volume for the damper of 600 x 1000 mm starting open @ 50 Pa

PRESSURE RELIEF DAMPER - **SPRD (SB/SF)**

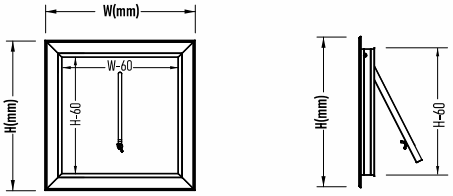


Model : S-PRD(SB)
Outer counterweight, adjust at the back





Model : S-PRD(SF)
Inner counterweight, adjust at the front



Materials

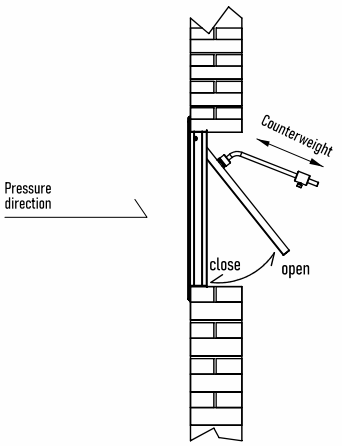
- Frame: aluminum 6063T5, thickness 1.2mm
- Blade: aluminum, thickness 0.8mm
- Surface: powder coating as per AAMA 2603-15

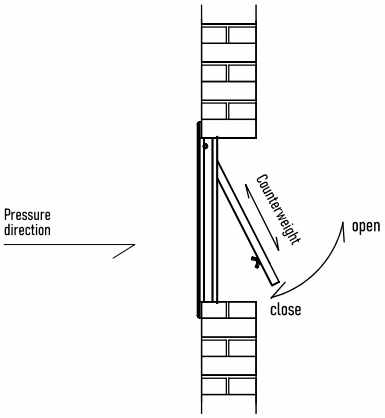
Mechanism

- Blade is openned by positive pressure inside the room to balance pressure in the room as requested.
- The counterweight can be adjusted to set the force of pressure (Pa)

Effective range

- Min. : 20 Pa
- Max.: 100 Pa (fully opened)





PERFORMANCE DATA	
Common size	200 x 350 ~ 1200 x 2000 (mm)
Volume range	140 ~ 4790 (l/s) [504 ~ 17244 (m3/h)] @ 50 Pa & 2 m/s
Adjustable pressure range	50 ~ 1000 (Pa) [B > 600mm: 600 Pa Max.]
Working velocity	2 m/s @ 50 Pa
Max. pressure difference	5000 Pa
Working temp.	0 - 80°C

FREE AREA WHEN FULLY OPENED (m^2)

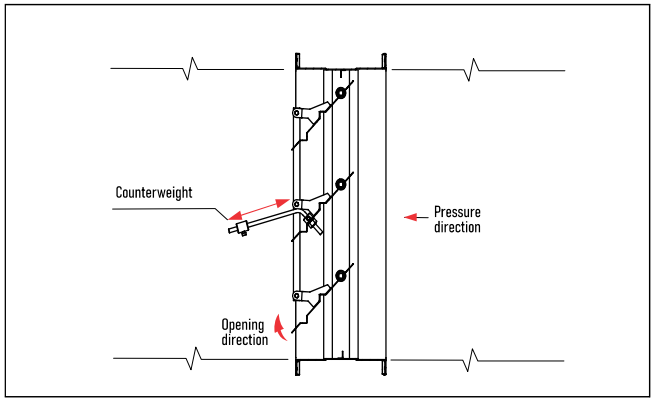
W(mm) / H(mm)	200	400	600	800	1000	1200
350	0.031	0.085	0.139	0.194	0.248	0.302
700	0.063	0.174	0.284	0.394	0.504	0.614
1000	0.096	0.262	0.428	0.594	0.761	0.927
1350	0.128	0.350	0.572	0.795	1.017	1.239
1650	0.160	0.438	0.717	0.995	1.273	1.552
2000	0.192	0.527	0.861	1.195	1.530	1.864

MAX. VOLUME FOR OPENING @ 50Pa, V=2m/s

W(mm)	200		400		600		800		1000		1200	
H(mm)	l/s	m^3/h	l/s	m^3/h	l/s	m^3/h	l/s	m^3/h	l/s	m^3/h	l/s	m^3/h
350	140	504	275	990	415	1494	550	1980	690	2484	830	2988
700	270	972	540	1944	810	2916	1080	3888	1350	4860	1620	5832
1000	400	1440	805	2898	1210	4356	1610	5796	2010	7236	2410	8676
1350	535	1926	1070	3852	1600	5760	2140	7704	2670	9612	3200	11520
1650	665	2394	1330	4788	2000	7200	2660	9576	3330	11988	4000	14400
2000	800	2880	1600	5760	2390	8604	3190	11484	3990	14364	4790	17244

PRESS DROP VS. VELOCITY

Press drop ΔPt (Pa)	Velocity V (m/s)
35	1
50	2
65	3
80	4
90	5



An expample of calculation and selection

Given requirement:
- Damper size 600 x 1000 (mm)
- Max. pressure difference : 400 Pa
- Required ressure difference to start opening: 50 Pa

Taking from table: Max. volume = 1210 l./s (4356 m3/h)

Calculation
A = 0.6 x 1.0 = 0.6m2
V = v x A = 2.0 l/s x 0.6 x 1000 = 4342 (m3/h) [1200 l/s]

Conclusion
4342 m3/h [1200 l/s] is the volume for the damper of 600 x 1000 mm starting open @ 50 Pa

ORDERING CODE

SPRD - SB/SF - WxH

- SPRD: Pres. relief damper
- SB/SF: **SB** = Counterweight at the back; **SF** = Counterweight at the front
- WxH: **W** = width, **H** = height

DISC VALVE - **STD**

TYPICAL APPLICATION

Disc valve diffuser can be used for supply, exhaust and ventilation applications.

Best suited to air distribution systems handling relatively low air flow rates.

Recommended for exhaust of greasy and damp air in areas such as toilets, bathrooms and kitchens.

MATERIAL

- Frame and disc: high grade spun aluminum.
- Connect thread & frame: steel

FINISH

- Standard: powder coated RAL 9010 (option per RAL codes)

SIZE

- Optional (see table)

FEATURES

- Easy to adjust cone up & down
- Free area up to the cone position

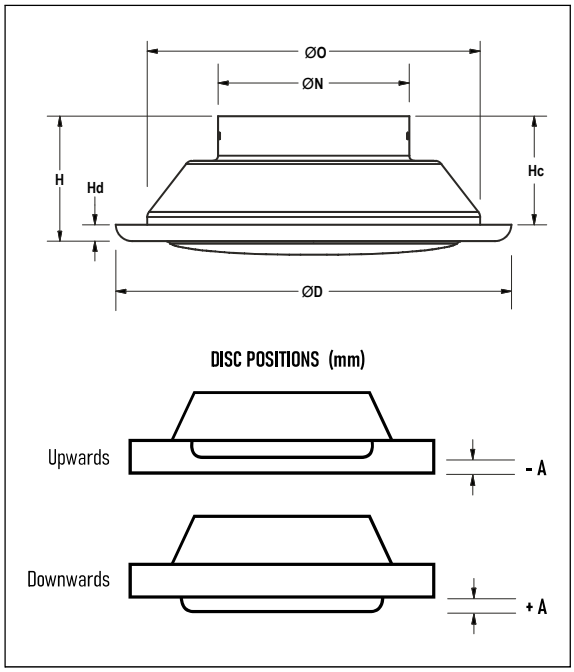
APPLICATION

- Air supply/return
- Ceiling mounted or directly to duct

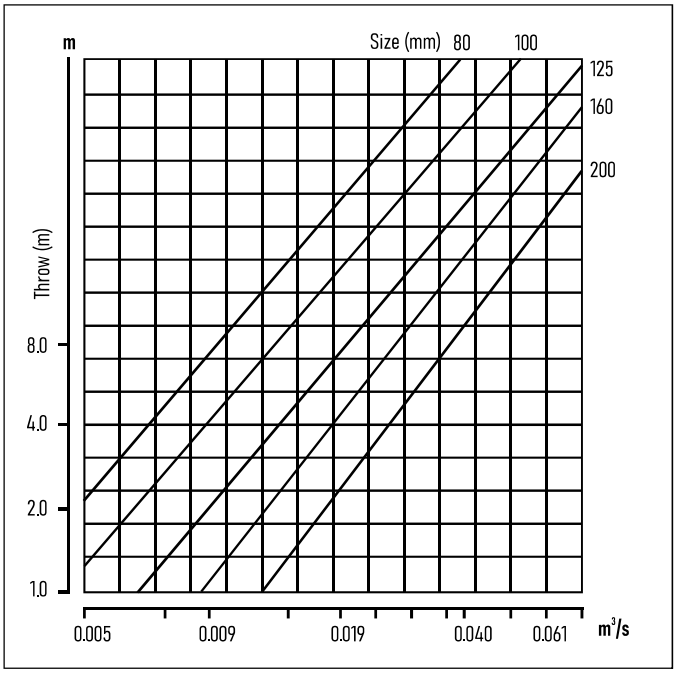
OPTIONAL ACCESSORIES

- GI plenum box

CONSTRUCTION



SUPPLY AIR VOLUME VS. THROW (for A = 0)



Note: for position A = +10, reduced throw by 30%, for position A = -10, increased throw by 40%

SIZE TABLE

(mm)

Prod. code	Face size (ØD)	Neck size (ØN)	Hc	Hd	H
STD 250	250	95	82	12.5	94.5
STD 300	300	145	82	12.5	94.5
STD 350	350	195	82	12.5	94.5
STD 400	400	245	82	12.5	94.5

PERFORMANCE DATA

SUPPLY AIR DISC VALVE

Neck size (mm)	Disc positions	Airflow rate								
		m³/s	0.005	0.009	0.019	0.028	0.038	0.047	0.057	0.066
95-100	A = + 10	Pt (mmH2O) NC (dB)	0.51 -	1.12 -	3.46 30	6.60 38	--- ---	--- ---	--- ---	--- ---
	A = 0	Pt (mmH2O) NC (dB)	0.71 -	2.04 20	6.11 36	11.21 44	--- ---	--- ---	--- ---	--- ---
	A = - 10	Pt (mmH2O) NC (dB)	1.43 -	4.08 31	12.23 45	20 45	--- ---	--- ---	--- ---	--- ---
125-145	A = + 10	Pt (mmH2O) NC (dB)	0.41 -	1.12 -	3.06 26	5.61 33	9.20 42	--- ---	--- ---	--- ---
	A = 0	Pt (mmH2O) NC (dB)	0.82 -	1.83 -	5.61 33	9.40 40	14.78 45	--- ---	--- ---	--- ---
	A = - 10	Pt (mmH2O) NC (dB)	1.22 -	3.06 26	8.87 42	16.30 45	20.00 45	--- ---	--- ---	--- ---
160-195	A = + 10	Pt (mmH2O) NC (dB)	0.40 -	0.61 -	1.83 20	4.30 25	5.70 31	9.20 37	12.70 40	--- ---
	A = 0	Pt (mmH2O) NC (dB)	0.40 -	1.22 -	3.87 25	8.20 35	11.20 41	18.30 45	20.00 45	--- ---
	A = - 10	Pt (mmH2O) NC (dB)	1.00 -	2.75 30	8.20 41	16.30 45	20.00 45	20.00 45	20.00 45	--- ---
200-245	A = + 10	Pt (mmH2O) NC (dB)	0.40 -	0.4 -	0.82 -	1.63 -	3.10 22	4.10 25	5.10 33	7.90 37
	A = 0	Pt (mmH2O) NC (dB)	0.40 -	0.71 -	1.83 -	4.10 24	5.61 30	9.1 36	10.7 40	18.320 45
	A = - 10	Pt (mmH2O) NC (dB)	0.40 -	1.22 -	4.30 26	7.60 35	10.7 39	18.30 45	20.00 45	20.00 45

RETURN AIR DISC VALVE

Neck size (mm)	Disc position	Airflow rate								
		m³/s	0.005	0.009	0.019	0.028	0.038	0.047	0.071	0.094
95-100	A = + 10	Pt (mmH2O) NC (dB)	0.40 -	0.40 -	1.63 -	3.80 23	5.80 31	9.70 37	--- ---	--- ---
	A = 0	Pt (mmH2O) NC (dB)	0.40 -	0.76 -	2.50 -	5.60 30	9.70 35	14.70 45	--- ---	--- ---
	A = - 10	Pt (mmH2O) NC (dB)	0.61 -	2.24 -	7.60 35	15.20 40	20.00 45	20.00 45	--- ---	--- ---
125-145	A = + 10	Pt (mmH2O) NC (dB)	0.40 -	0.4 -	0.71 -	1.42 -	2.90 20	4.10 25	9.7 37	--- ---
	A = 0	Pt (mmH2O) NC (dB)	0.40 -	0.4 -	1.83 -	4.10 21	8.15 30	11.20 35	20.00 45	--- ---
	A = - 10	Pt (mmH2O) NC (dB)	0.40 -	2.1 -	7.10 23	16.80 35	20.00 45	20.00 45	20.00 45	--- ---
160-195	A = + 10	Pt (mmH2O) NC (dB)	0.40 -	0.4 -	0.4 -	0.81 -	1.43 -	2.10 -	5.20 28	9.70 37
	A = 0	Pt (mmH2O) NC (dB)	0.40 -	0.40 -	0.81 -	1.74 -	3.40 -	5.30 25	12.20 37	20.00 45
	A = - 10	Pt (mmH2O) NC (dB)	0.40 -	0.50 -	1.74 -	3.80 -	7.60 27	14.70 35	20.00 45	20.00 45
200-245	A = + 10	Pt (mmH2O) NC (dB)	0.40 -	0.4 -	0.40 -	0.40 -	0.76 -	1.12 -	2.60 27	4.38 34
	A = 0	Pt (mmH2O) NC (dB)	0.40 -	0.4 -	0.70 -	1.40 -	2.30 -	3.40 20	8.40 35	12.2 42
	A = - 10	Pt (mmH2O) NC (dB)	0.40 -	0.50 -	1.62 -	3.40 -	7.10 -	11.20 34	20.00 45	20.00 45

Note ● A = 0, A = +10 and A= - 10 presents position of the disc at normal position, 10mm below and 10mm above mormal position ●NC based on a room attenuation of 10 dB, re 10^{-12} W
● Dash (-) is for NC<20 ● Pt = total pressure loss across the disc valve

ORDERING CODE

STD - D - RAL - M

- STD: Standard valve
- D: Face size
- RAL: Colour: RAL codes
- M: Optional accessories: short/low plenum

Storage and handling

As fire damper is a safety element, it should be stored and handled with care

Avoid:

- Any kind of impact or damage
- Contact with water
- Deformation of the casing

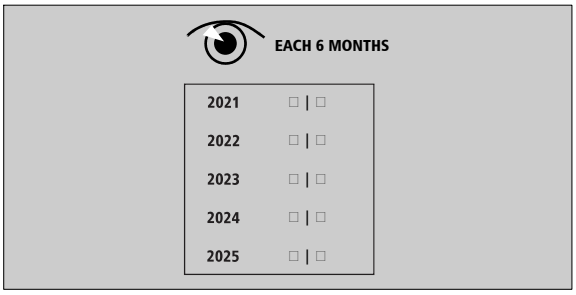
Recommendations for Star Asia :

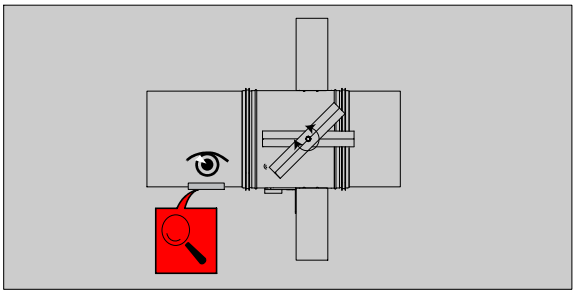
- To unload in a dry area
- Not to flip or roll the product to move it
- Not use the damper as a scaffold, working table etc.
- Do not store smaller damper inside large one
- Do not stand or seat on the product

Important notes when installation

General :

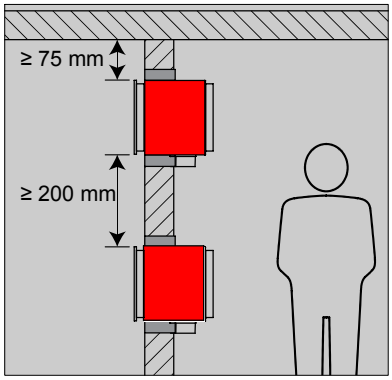
- The installation must comply with the installation manual delivered with the product and the classification report.
- Axis orientation: see the declaration of performance
- Avoid obstruction of adjoining ducts.
- Product installation: always doing with closed damper blade
- Verify if the blade can move freely
- Please observe safety distances with respect to other construction elements.The operating mechanism must also remain accessible: allow for a clearance of 200 mm around the housing.
- The air tightness class will be maintained if the damper is installed according to the installation manual.
- The fire dampers are always tested in standardised constructions according to QCVN 60:2021/BXD. The achieved results are valid for similar supporting constructions with a fire resistance, thickness and density equal or superior to the supporting construction used during the test.
- The damper must remain accessible for inspection and maintenance.
- Schedule at least two running checks each year.





Installation at a minimal distance from another damper or from an adjacent supporting construction

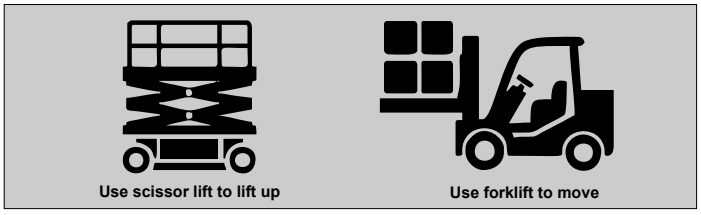
1



1. Principle according to the test standard:

Minimum distance of ≥ 75 mm from the ceiling

Minimum distance ≥ 200mm to an adjacent damper



STARDUCT

NOTES

STARDUCT

RELIABLE PARTNER

OF

MEP CONTRACTOR

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