C2020

CANYON LINE BY VENTUS AIR

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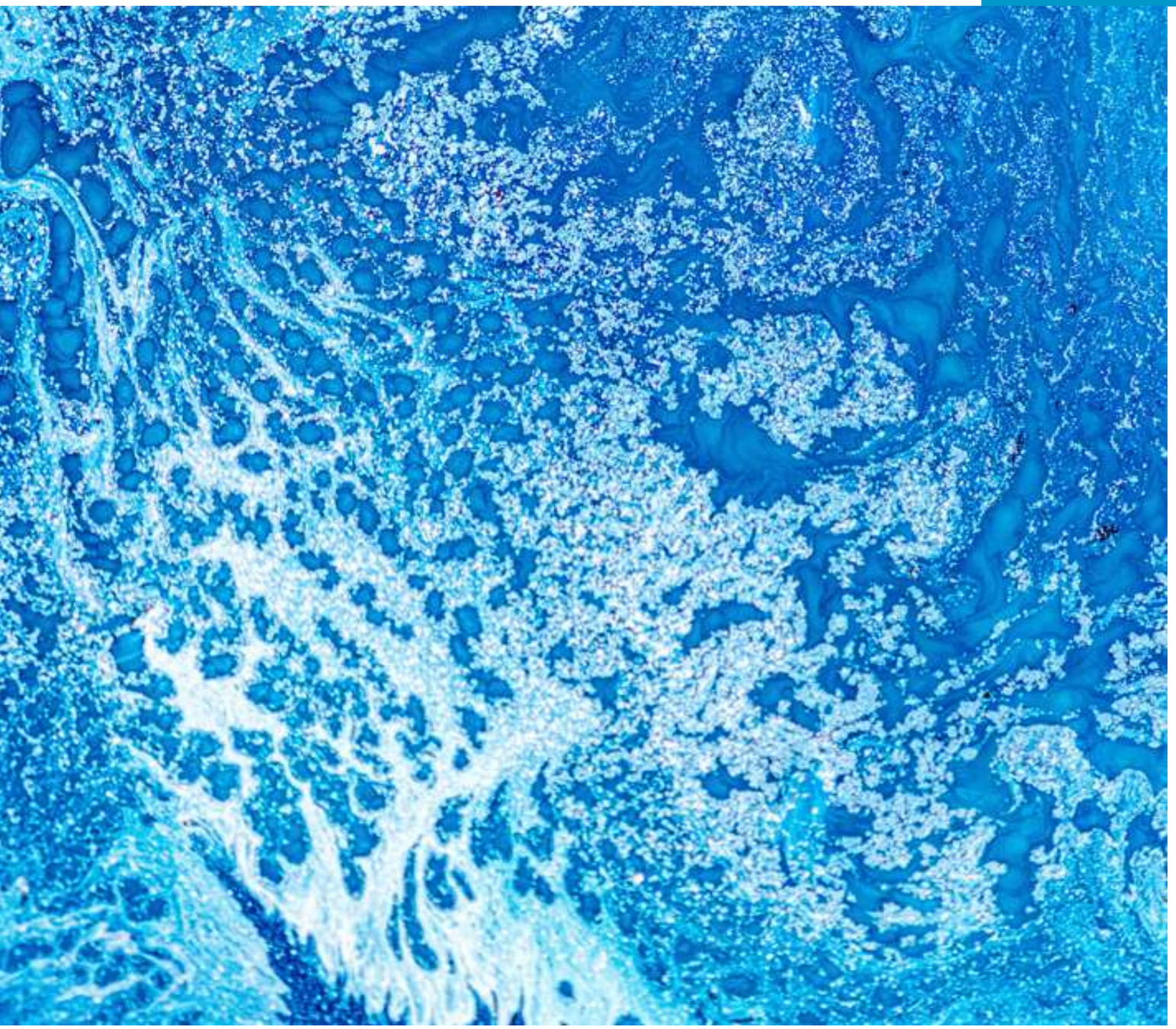
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C2020 BY VENTUS AIR



C2020 GRILLES
BY VENTUS AIR

C2020 by Ventus Air Technologies is a subsidiary company of D. Ellinas Factory Products Ltd which has been established in 2009 and it is based in Cyprus (Limassol). The company is well known for the innovative way of approaching challenges within the construction industry in different sectors especially in the grille technologies sector.

The company specializes in the design and manufacture of PVC grilles and diffusers through a very well-equipped factory, which responds to both limited and mass production. The factory and the whole production team is able to achieve the development and establishment of various high-quality products and custom-made technological structures.

Our main goal is providing products with competitive prices, short delivery time and excellent services. Having established ourselves in the construction of the island. D. Ellinas Factory Products aspires to grow even more each year in being another creative “tool” for the lovers of modern design and innovative products.

In the framework of the collaboration between D. Ellinas Factory Products Ltd and the Laboratory of fluid dynamics of the University of Patra, ECOVAG, we would like to thank Professor Mr. Margaris Dionysios-Eleftherios for the impeccable supervision throughout the testing procedure of the study. Secondly, we would like to thank all the scientific staff for their effort and hard work that led the study to a successful outcome.

Aerodynamics Laboratory
University of Patra

PVC MATERIAL
GENERAL INFORMATION

PVC GRILLES

C2020 Grilles and air conditioning systems are made of high-tech material. They provide an effective solution to a major problem, which is nothing more than liquefaction on the outer surface of the grille. PVC sheets have an extremely low coefficient of thermal conductivity (0.05 W/mK), eliminate the phenomenon of liquefaction and highlight the Ventus grilles as the perfect combination of performance and aesthetics.

C2020 Grilles are available in a variety of:
> standard sizes
> fastening methods
> finishes and,

Can also be customized to your needs and project standards.

PVC MATERIAL SPECIFICATIONS

PVC Foam Sheet is a chemically foamed, rigid and light weight extruded sheet with a closed cell structure, that comes with a smooth matt surface finish on both sides.

TECHNICAL SPECIFICATIONS

Property	Test Method	Units	Value
Density	DIN 53479	g/cm³	0.55
Hardness	DIN 53505	Shore 'D'	≥ 42
Water Absorption	DIN 53495	%	≤ 1.0
Tensile strength*	DIN 53455	MPa	≥ 15
Elongation at break**	DIN 53455	%	≥ 15
Modulus of elasticity	DIN 53457	MPa	900 - 1500
Impact strength Izod	ASTM D 256	KJ/ m²	≥ 9.0
Impact strength Charpy	DIN 53253	KJ/ m²	≥ 15
Flexural strength	DIN 53452	MPa	> 32
Compressive Strength at 10% Deformation	DIN 53421	MPa	> 6.5
Surface resistivity	ASTM D 257	Ω	> 1 x 10^{14}
Volume resistivity	ASTM D 257	Ω-cm	> 1 x 10^{15}
Dielectric Constant at 1 MHZ	ASTM D 150	F/m	1.56
Dielectric strength	DIN 53481	KV / cm	≥ 90
Vicat softening temperature	DIN 53460	°C	≥ 73
Heat Deflection temperature @ 1.8 MPa	DIN 53461	°C	58
Coefficient of Linear Expansion	DIN 53752	mm / m °C	0.08
Thermal conductivity	**DIN 52616**	**W / m K**	**0.05**
Flammability	**EN 13501-1**	**FIGRA 0,2 (W/s)** **FIGRA 0,4 (W/s)**	**Class B**
Smoke Production	**EN 13501-1**	**SMOGRA (m²/s)**	**Class s1**
Flaming Droplets	**EN 13823**	**pc**	**Class d0**

* 15 MPa for free foam sheet with typical density 0.7 g/cc
* 13 MPa for free foam sheet with typical density 0.55 g/cc

** 15% for free foam sheet with typical density 0.7 g/cc
** 13% for free foam sheet with typical density 0.55 g/cc



FIRE STANDARDS
AND COMPARISON

The EN-standard is based on a test for the actual materials response to fire, smoke development and droplets while burning. EN-classification Standards:

Fire behaviour:	Class A1	(highest level)
	Class A2	(not burnable materials)
	Class B	**(inflammable materials)**
	Class C	(normal flammable materials)
	Class D	(normal flammable materials)
	Class E	(normal flammable materials)
	Class F	(not classified materials)
Smoke development:	**Class S1**	**(Very limited smoke development)**
	Class S2	(Limited smoke development)
	Class S3	(no demands on smoke development)
Burning droplets:	**Class d0**	**(No burning droplets or particles)**
	Class d1	(limited burning droplets)
	Class d2	(no demands on burning droplets)

Euro Air Textile Materials (HDC and DFC-line) are certified and approved according to: **B-s1, d0**

The table below shows our main export countries standards and what test textile materials have passed.

Country	Tested according to	Classification
EU	EN 13501-1	Class B-S1, d0
Germany	DIN EN 13501-1 DIN 4102	Class B-S1, d0 Class B1 (flame retardant)
Austria	ÖNORM EN 13501-1 ÖNORM b 3800	Class B-S1, d0 Q1 (limited smoke development)
Holland	NEN EN 13501-1	Class B-S1, d0
France	NFP 92501-1	M1 (Non-combustible)
England	BS 476, Part 6 MoD HH52/92	Class 1 (expected to pass) Passed
USA (Underwriters lab.)	NFPA 90A-1993	< 25 Smoke developed index < 50 Passed



AIR FLOW
FUNDAMENTALS

Those aspects that characterize each air outlet in order to ensure the desired conditions for the intended application are:

> Pressure air drop (DP)
> Air Throw Range
> Drop - Rise
> Noise Level
> Air Spread
> Air outlet velocity

DISTRIBUTION OF AIR CONDITIONING OUTLETS

The purpose of the experimental and computational study of air distribution vents with air grilles, manufactured by Ventus is to acknowledge and develop the appropriate operating range of air grilles and the fundamental values that characterize them. The study took place at the Laboratory of fluid dynamics at the University of Patra, under the supervision of Mr. Dionysios-Eleftherios Margaris. Every air-conditioned area should be ventilated evenly to avoid any discomfort caused by temperature changes or air velocity. The following table shows the range of optimum air velocity depending on the application.

Room Air Velocity (m/s)	Persons Reactions	Application
0-0.08	Sweltering environment	None
0.13	Optimal speed	Everywhere
0.25	Maximum tolerated speed for individual sitting space	Everywhere
0.33	Adverse	Several
0.38	Maximum limit per person moving in a space	Commercial shops
0.38-1.52	High air speeds	Only Industrial

AIR OUTLET VELOCITY AND LIMIT VELOCITY RANGE

Air velocity at a distance of approximately 2,5cm from the grille is known as the air exit velocity Vc (m/s). Under the regulation followed in this study and shown in the above figure, the maximum velocity in forming the boundary of the range and diffusion is 0.5m/s. Table below presents the ranges of air output velocities depending on the application.

Velocity Out Vc (m/s)	Space / Application
1.5-2.5	Libraries
2.5-3.8	Hotels, offices, houses
4	Restaurants and dining rooms
5	Gyms, assembly hall
7	Factories, commercial stores

PRESSURE AIR DROP

Diffusers cause a pressure drop in the airstream that must be considered in calculating the pressure drop of the fan. The passage of air through a diffuser causes a pressure drop due to the conversion of the air energy to speed and due to friction phenomena in the diffuser itself.

THROW

As presented in the figure above, throw is defined as the horizontal distance from the diffuser to a point in the mixed airstream, where the maximum sustained velocity has been reduced to a specific value (0.5 m/s) defined by the regulations under the CYPRUS STANDARD (CYS EN: 12238:2001).

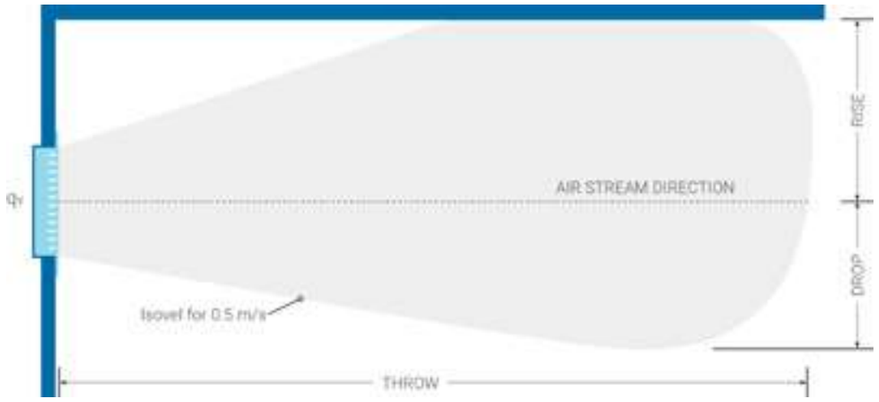
NOISE LEVEL

Noise measurement is necessary in order to sustain the limits of comfort zone. As the noise level is related to the discharge velocity, the limitation of the velocity holds the noise within normal levels. Indicator values for the noise level are shown on the next table (TEEGreek Technical Chamber instructions).

Noise Level	Space / Application
25 dB	Concert halls, Recording studios
30 dB	Bedrooms, Lecture rooms, Libraries
35 dB	Residences, Hotel rooms, Hospital rooms, Offices, Restaurants, Cinemas
40 dB	Retail stores, Laboratories, Waiting rooms
45 dB	Kitchens, Server rooms, Super markets
50 dB	Light industry

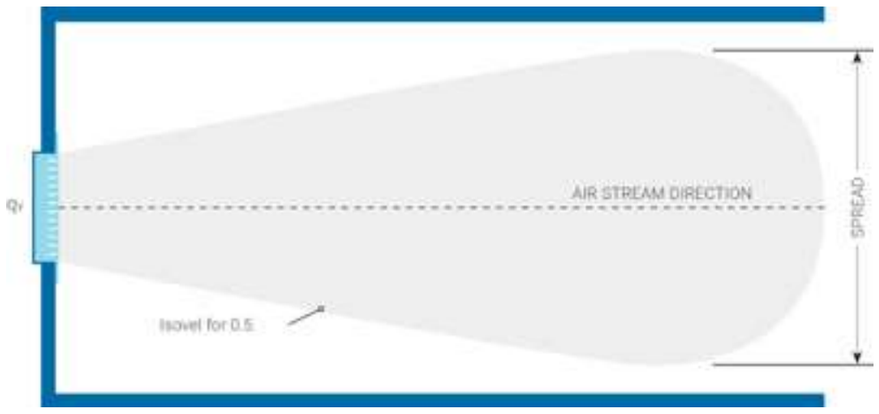
DROP-RISE

Drop, as presented in the figure below, is the vertical distance between the centerline of the grille and the intersection of the airstream at the end of the throw. When the air that comes out from a diffuser is colder than air in the ventilated room, it has greater density and tends to (being heavier) descent, creating the phenomenon of drop. Also, when the density of the fed air is less than that of the air in the room, then the lighter-fed fluid rises to the ceiling creating the effect of the rise. This applies to wall-mounted grilles and is not applicable in ceiling appliances.



SPREAD

Air passing through a diffuser, when there are no obstacles in the air stream, takes the form of asymmetrical beam. Spread is defined as the maximum distance between the two symmetrical ends normally formed by the beam.



TESTING PROCEDURE

INTRODUCTION

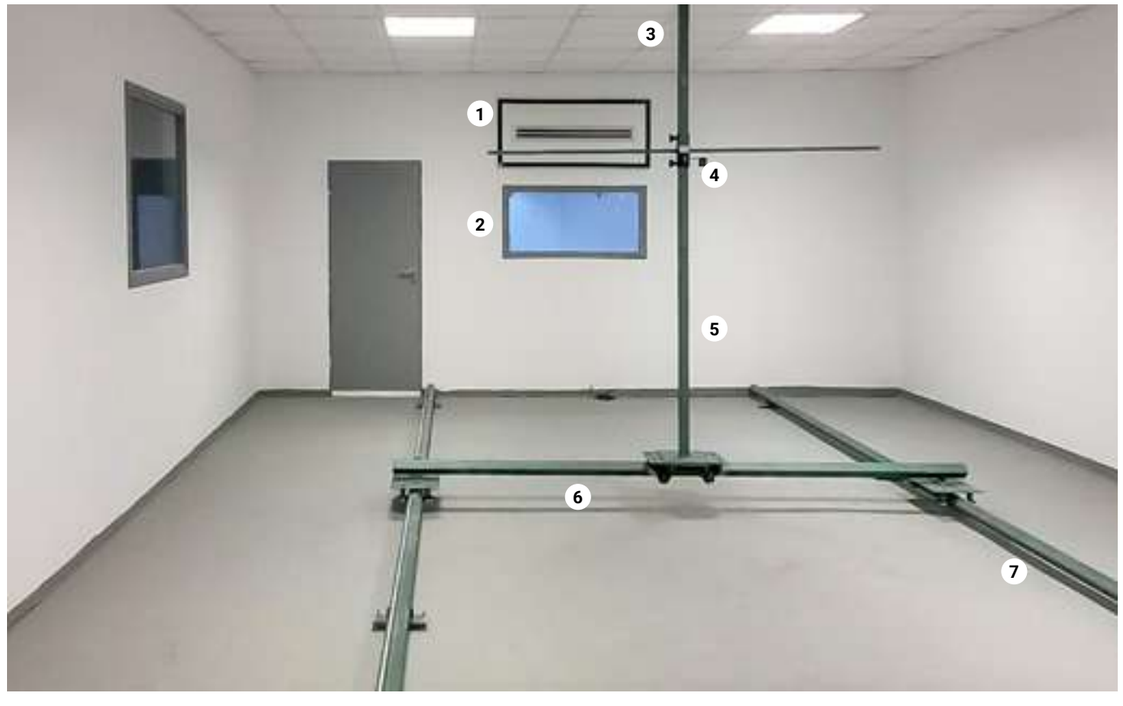
These measurements were made according to the European Standard CYS EN 12238:2001 in an effort to determine throw, drop and spread for each value of the supply. This research project concerns the certification of air conditioning outlets of grilles, which were experimentally tested and computationally simulated. The certification concerns the control of air supply of each discharge and developing the right spans in order, for the room to be in the desired temperature of comfort, i.e. providing the distance in length that will reach the air but also in finding the width (opening) of the outflow. At the same time, measurements of the noise levels for different air flows were established. Furthermore, for each supply, measurement of the air pressure took place in order to determine the pressure difference Δp, which requires calculations from manometer fans in air conditioning systems or the various sites. Moreover, the technical characteristics of the grille masured for air exit velocity from the grille minimum value of Vc =1 to 2 m/s up to a maximum value of Vc = 10 m/s.

MEASURING CHAMBER DESCRIPTION

Measuring chamber (chamber dimensions: 10,0 x 5,5 x 2,75 m = 151,25 m²). The measuring chamber is a metallic and sensored support scaffold system with motion in three axes, in order to be able to process an interior full scan of the interior of the test chamber. The measuring chamber is capable to test outlet surfaces of any kind (linear, with aerostats, curved with fins, jet nozzles, etc.), with maximum dimensions 1,20 X 0,55 m. Also, provision is made for ceiling orifices study of any kind with maximum dimensions 1,20 X 1,20 m. Figure below shows the laboratory area.

The main elements that characterize the industrial area are:

1. Window benefit adjustment hall
2. Grille Wall
3. Orifice room
4. Installation location measuring instrument
5. Z-Axis
6. Y-Axis
7. X-Axis





1. Measuring Room
2. Pitot-static tube gauge during measuring
3. Sound meter
4. Pitot-static tube and MP210 Digital Pressure Gauge

Measuring procedure is a key factor for our constant development. Experimental measurements are necessary for the creation of graphs.







THE C2020 FAMILY

RANGE: 20MM - 65MM





C2020 - 20MM INVISIBLE

The ideal solution for LUXURY VILLAS and APPARTMENTS.

C2020 - 25MM ELEGANT

The ideal solution for HOUSES and PENTHOUSES.





C2020 - 30MM RESIDENTIAL

The ideal solution for HOTEL ROOMS WITH A UNIQUE TOUCH.

* The above illustrations are the actual height of the grille opening. (Scale, 1:1)

STANDARD LENGTHS

50/100/150/200/250/300 CM

C2020 - 40MM COMMERCIAL

The ideal solution for HOTEL LOBBIES, RESTAURANTS, and GYMS.





C2020 - 50MM PROJECT

The ideal solution for MUSEUMS, MALLS, and CASINOS.





C2020 - 65MM INDUSTRIAL

NAME SAYS IT ALL. FOR FACTORY USE.

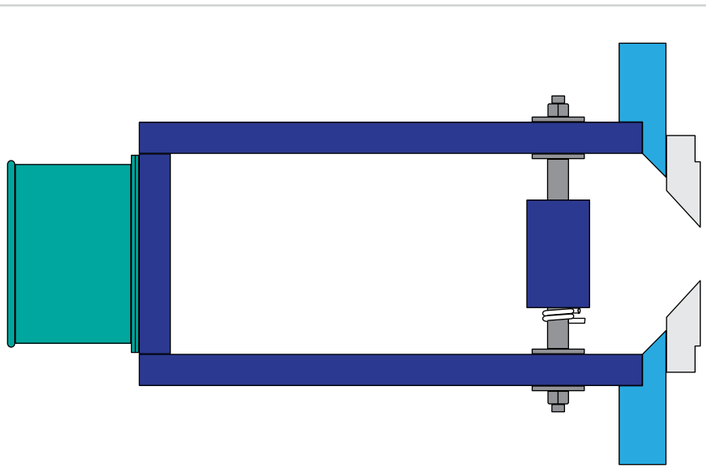




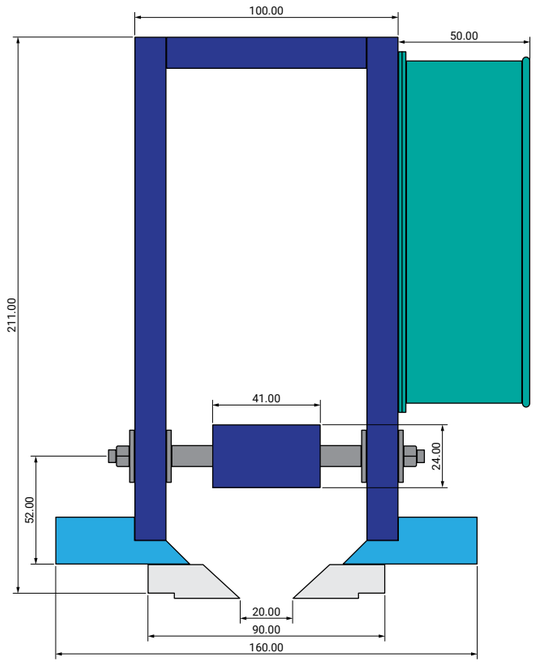
C2020 20MM
INVISIBLE

C2020 20MM
INVISIBLE

WALL



CEILING



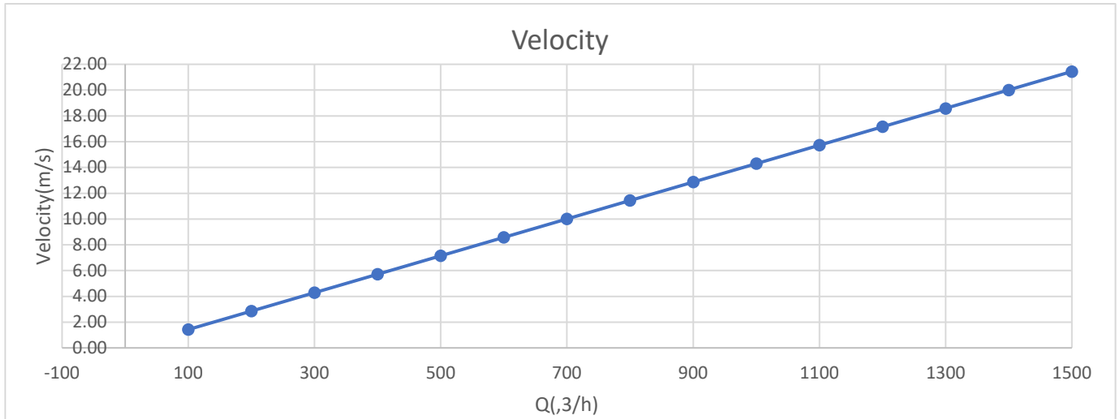
The C2020 20mm - INVISIBLE has been designed and created based on the needs of the market for a discreet finish, perfect aesthetics with low noise levels. Recommended for use in Villas, luxury buildings with high requirements.

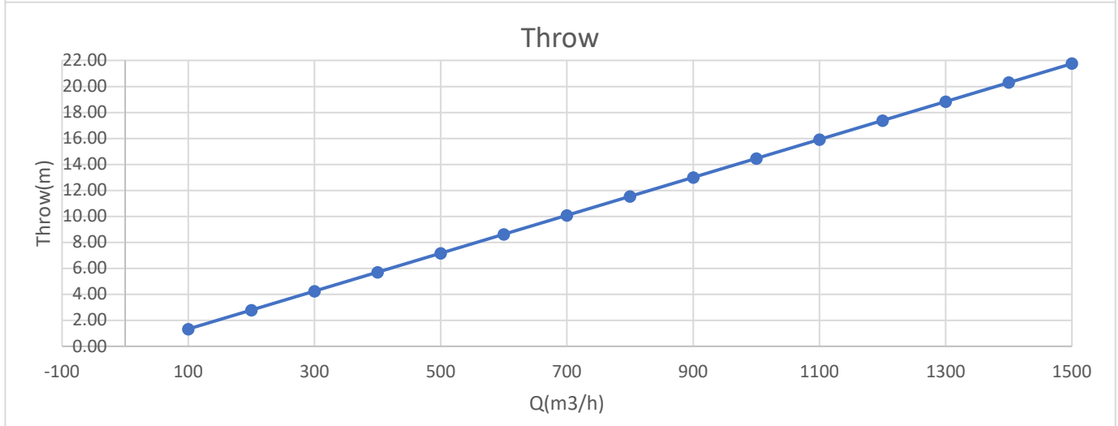
Available in standard lengths 500mm - 1000mm - 1500mm - 2000mm - 2500mm - 3000mm with the possibility of connecting pieces for unlimited length.

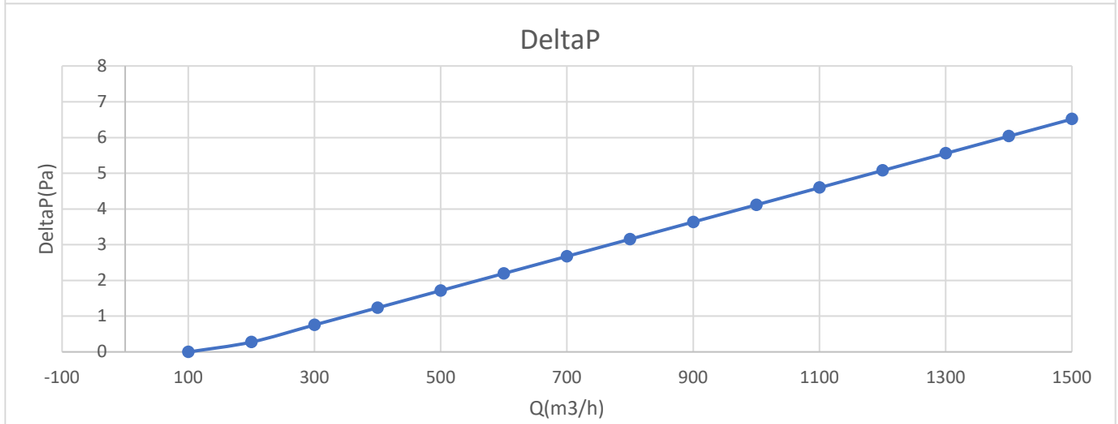
Characteristics:
- Standard sizes
- Air deflector
- Various ways of installation
- Low noise levels
- Ideal solution for installation on the ceiling and on the wall (front)

LEGEND
- 12mm Black PVC
- 18mm White PVC
- 13mm White PVC
- Metal Rod
- Spigot

PERFORMANCE GRAPHS





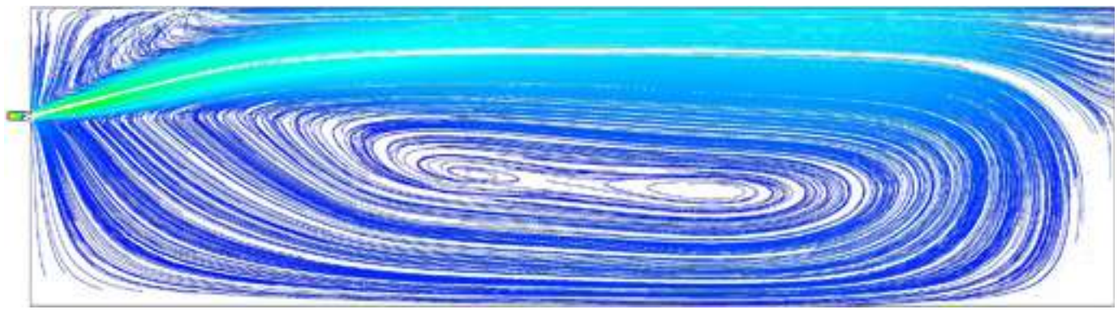


GRAPHS DATA

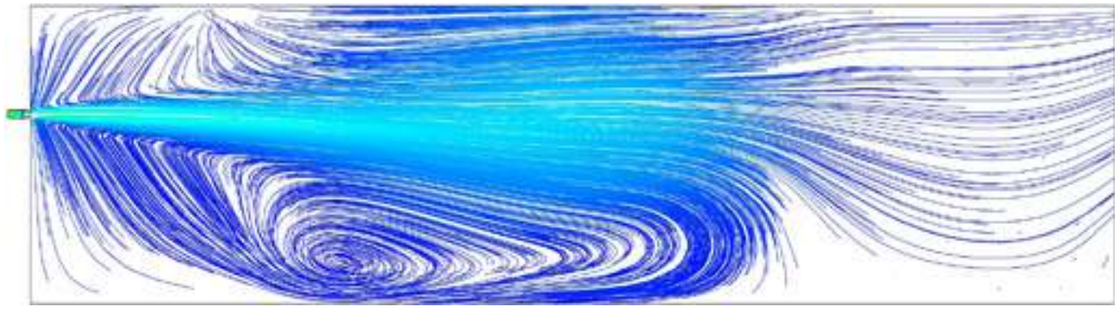
Q(m3/h)	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
V (m/s)	1.43	2.86	4.29	5.72	7.15	8.58	10.01	11.44	12.87	14.30	15.73	17.16	18.59	20.02	21.45
T (m)	1.32	2.78	4.24	5.70	7.16	8.62	10.08	11.54	13.00	14.46	15.92	17.38	18.84	20.30	21.76
ΔP (Pa)	0	0.2779	0.7579	1.2379	1.7179	2.1979	2.6779	3.1579	3.6379	4.1179	4.5979	5.0779	5.5579	6.0379	6.5179
dB	24.80	25.28	25.76	26.24	26.72	27.20	27.68	28.16	28.64	29.12	29.60	30.08	30.56	31.04	31.52

WALL
AIR FLOW SIMULATIONS

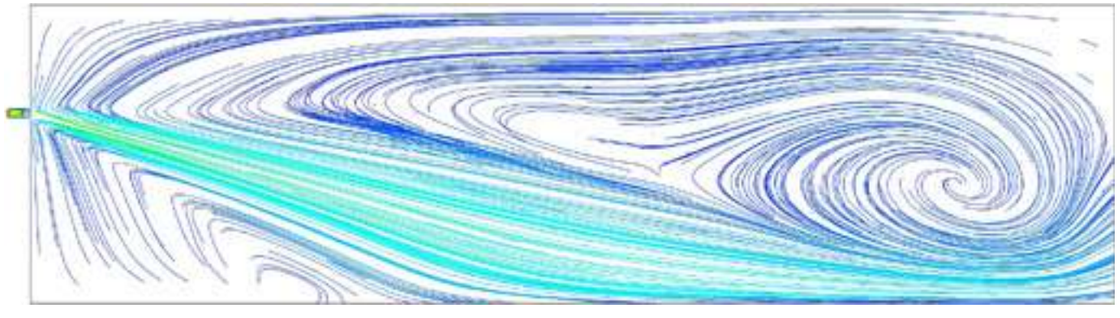
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REGULATOR MIDDLE

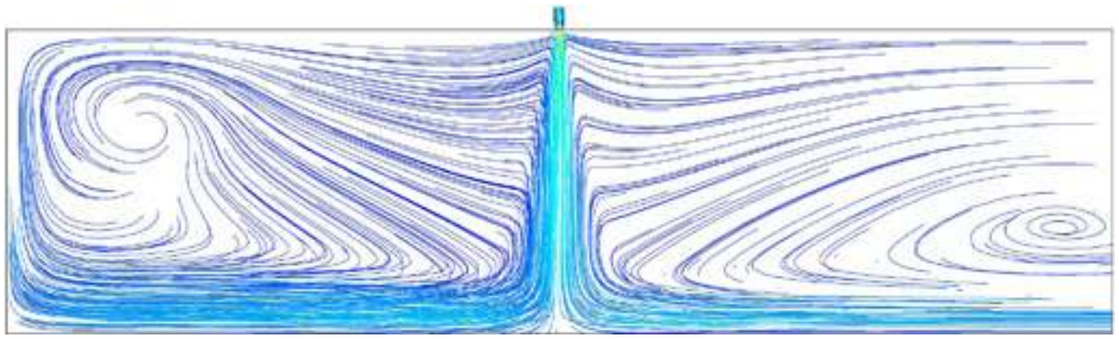


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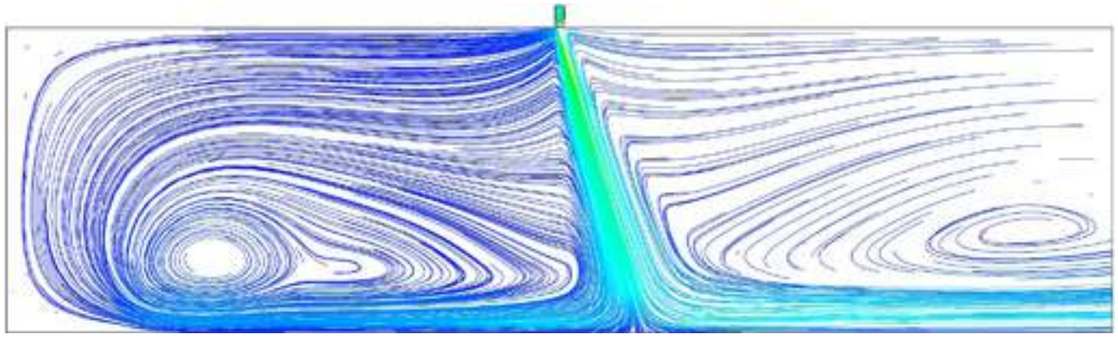


CEILING
AIR FLOW SIMULATIONS

REGULATOR MIDDLE



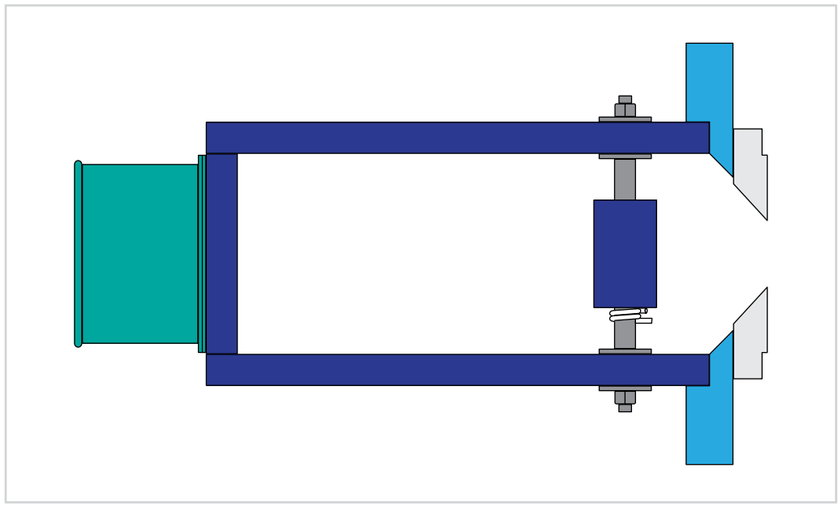
REGULATOR SIDE



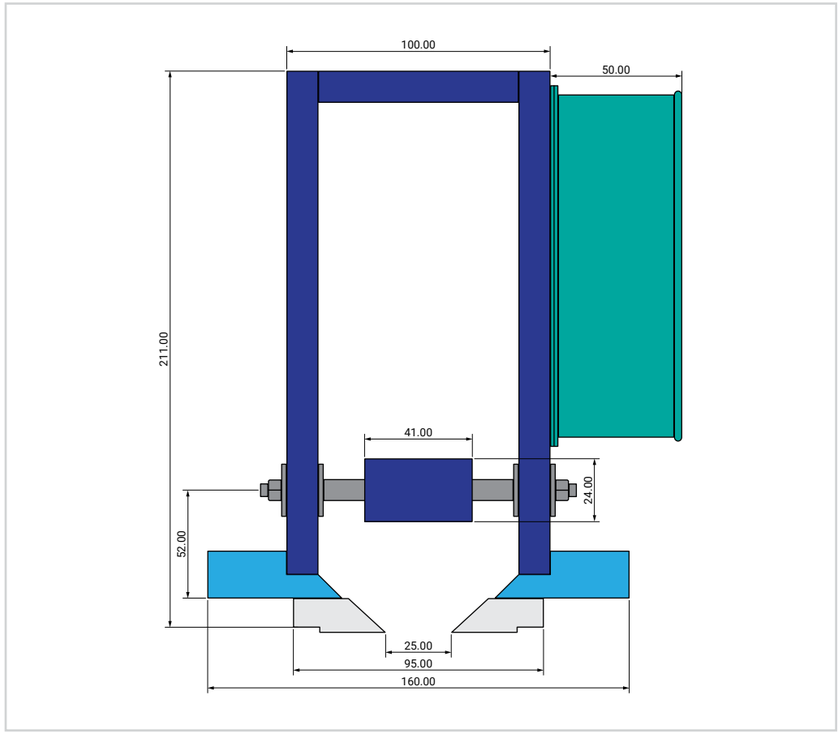
C2020 25MM
ELEGANT

C2020 25MM
ELEGANT

WALL



CEILING



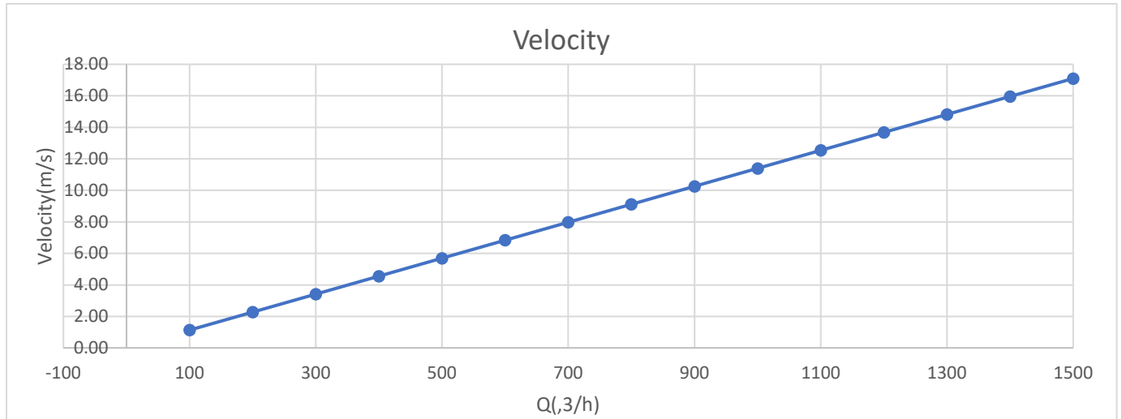
The C2020 25mm - ELEGANT has been designed and created based on the needs of the market for a discreet finish, perfect aesthetics with low noise levels. Recommended for use in conventional homes and buildings with the requirement of perfect result.

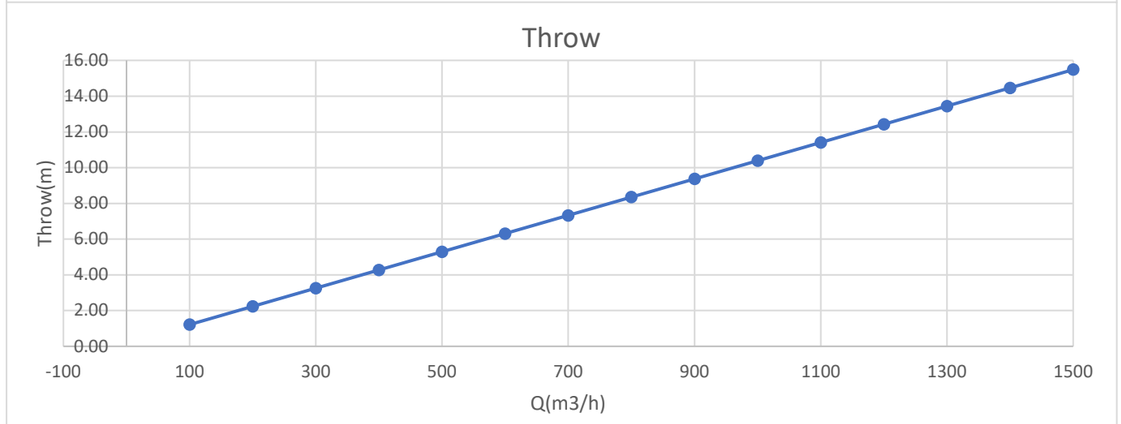
Available in standard lengths 500mm - 1000mm - 1500mm - 2000mm - 2500mm - 3000mm with the possibility of connecting pieces for unlimited length.

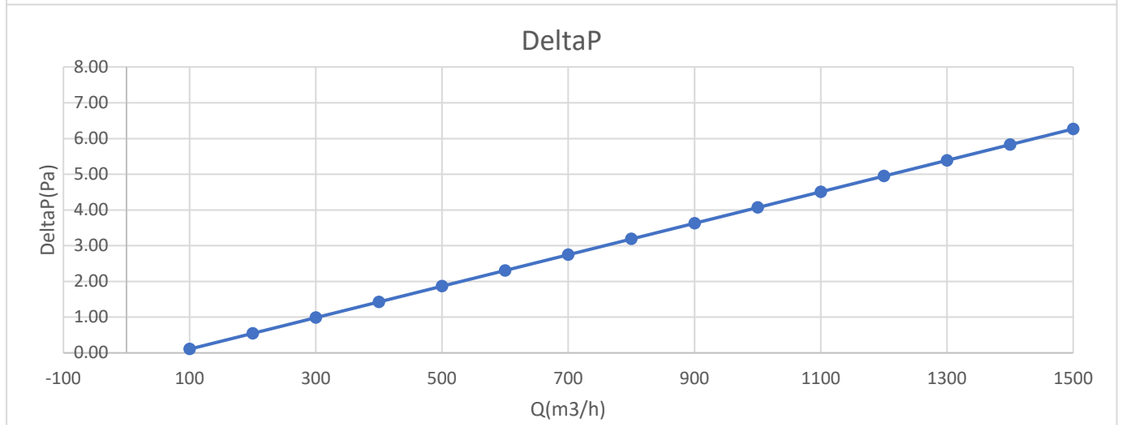
Characteristics:
- Standard sizes
- Air deflector
- Various ways of installation
- Low noise levels
- Ideal solution for installation on the ceiling and on the wall (front)

LEGEND
- 12mm Black PVC
- 18mm White PVC
- 13mm White PVC
- Metal Rod
- Spigot

PERFORMANCE GRAPHS





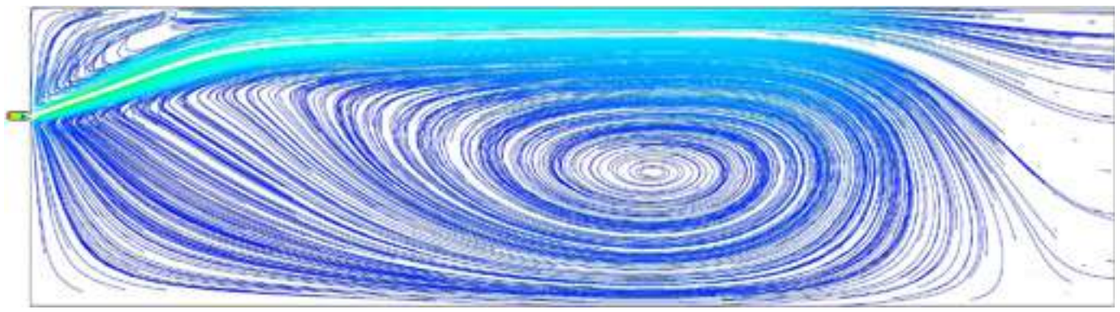


GRAPHS DATA

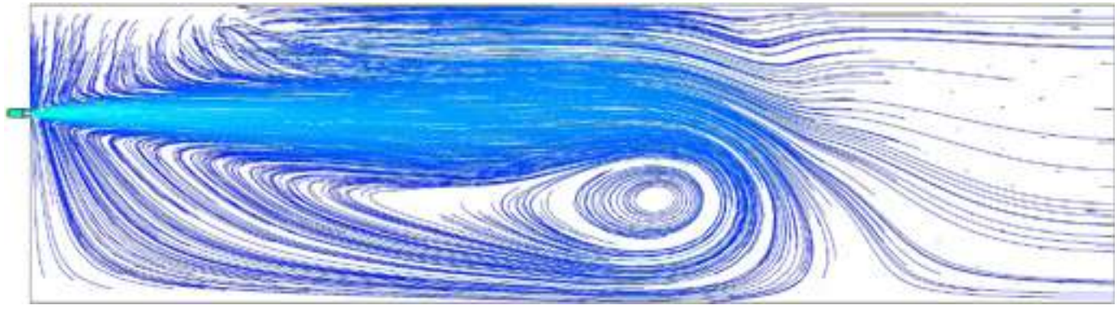
Q(m3/h)	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
V (m/s)	1.14	2.28	3.42	4.56	5.70	6.84	7.98	9.12	10.26	11.40	12.54	13.68	14.82	15.96	17.10
T (m)	1.21	2.23	3.25	4.27	5.29	6.31	7.33	8.35	9.37	10.39	11.41	12.43	13.45	14.47	15.49
ΔP (Pa)	0.11	0.55	0.99	1.43	1.87	2.31	2.75	3.19	3.63	4.07	4.51	4.95	5.39	5.83	6.27
dB	24.33	24.78	25.23	25.68	26.13	26.58	27.03	27.48	27.93	28.38	28.83	29.28	29.73	30.18	30.63

WALL
AIR FLOW SIMULATIONS

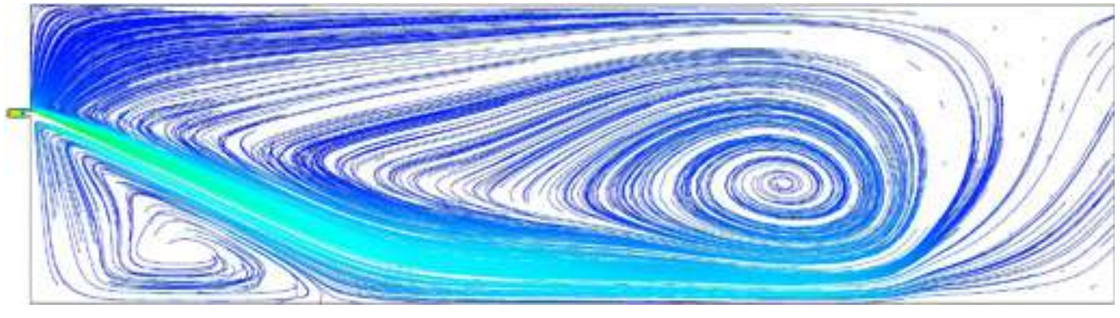
REGULATOR TOP



REGULATOR MIDDLE

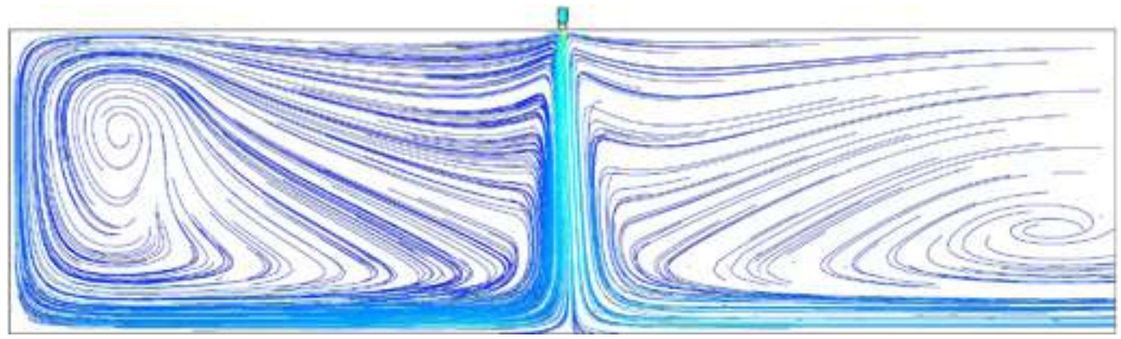


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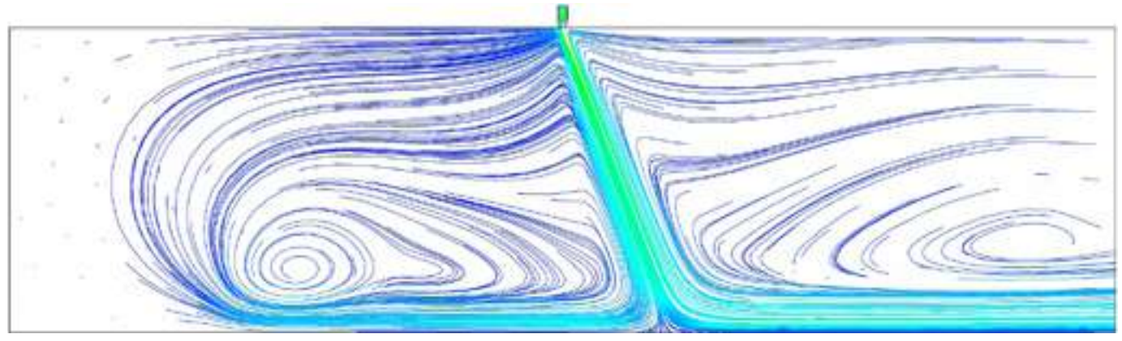


CEILING
AIR FLOW SIMULATIONS

REGULATOR MIDDLE



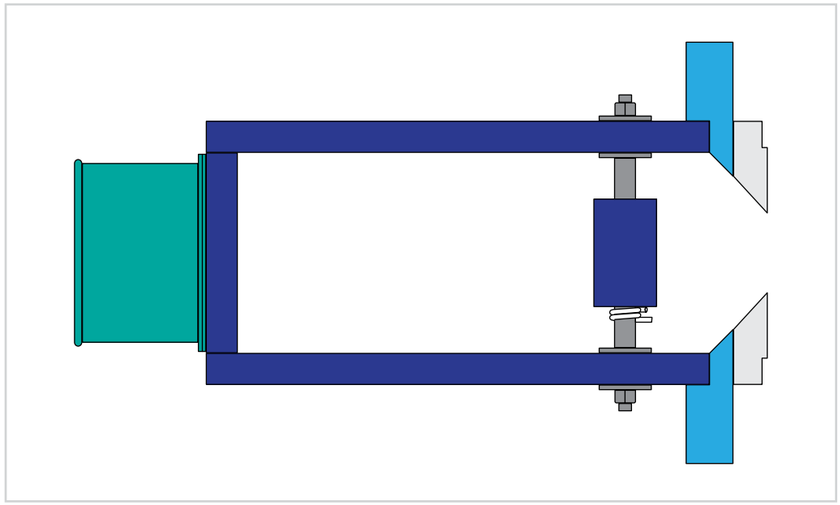
REGULATOR SIDE



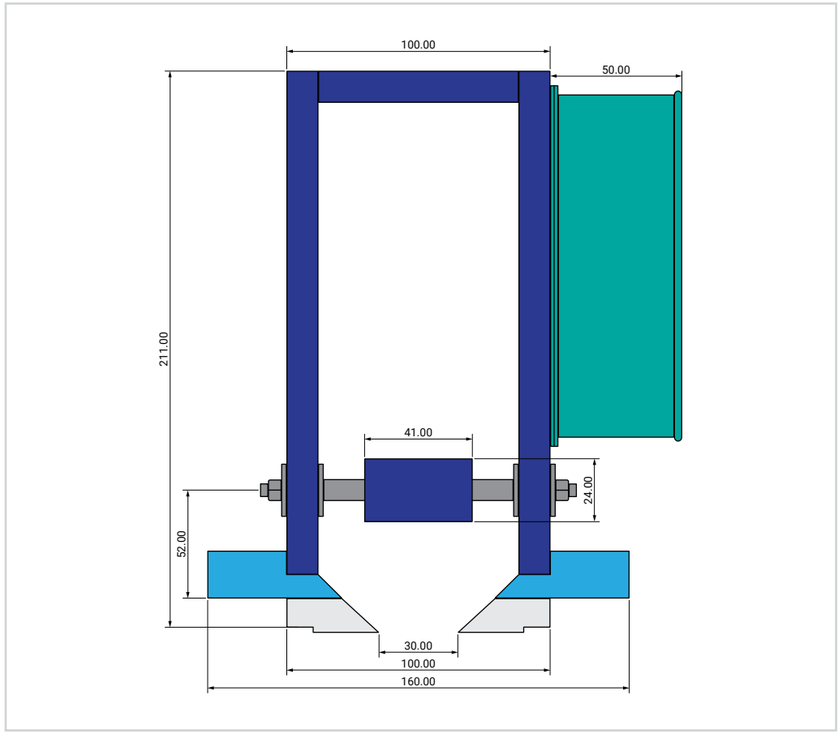
C2020 30MM
RESIDENTIAL

C2020 30MM
RESIDENTIAL

WALL



CEILING



The C2020 30mm - RESIDENTIAL has been designed and created based on the needs of the market for a discreet finish, perfect aesthetics with low noise levels. Recommended for use in hotel rooms that want to stand out for the comfort and quality they offer.

Available in standard lengths 500mm - 1000mm - 1500mm - 2000mm - 2500mm - 3000mm with the possibility of connecting pieces for unlimited length.

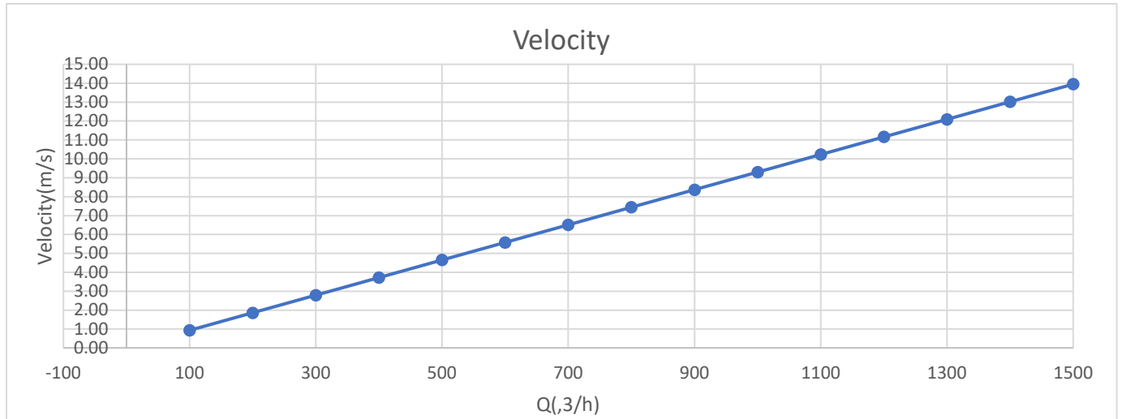
Characteristics:

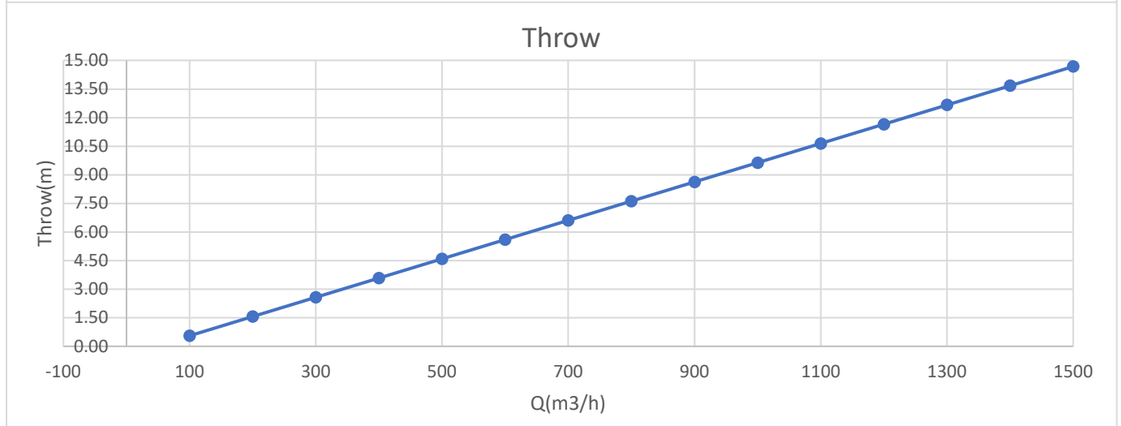
- Standard sizes
- Air deflector
- Various ways of installation
- Low noise levels
- Ideal solution for installation on the ceiling and on the wall (front)

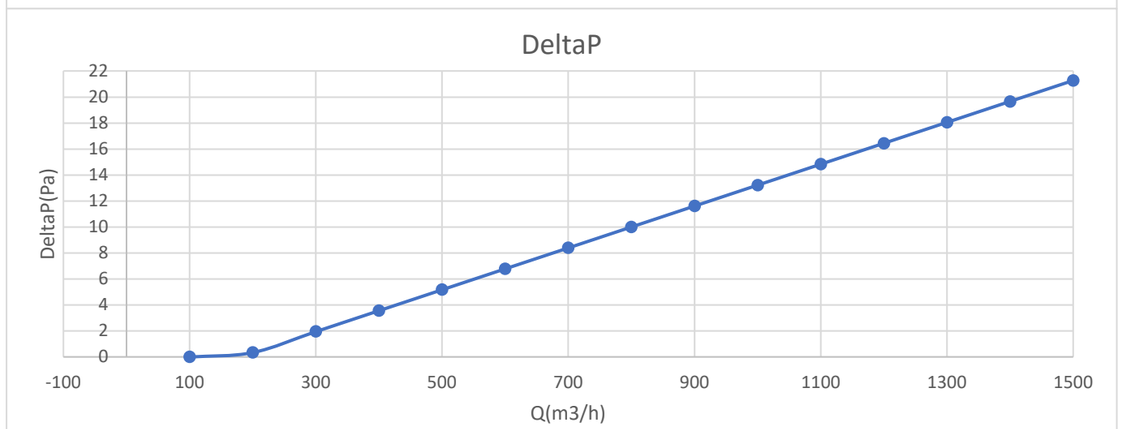
LEGEND

- 12mm Black PVC
- 18mm White PVC
- 13mm White PVC
- Metal Rod
- Spigot

PERFORMANCE GRAPHS







GRAPHS DATA

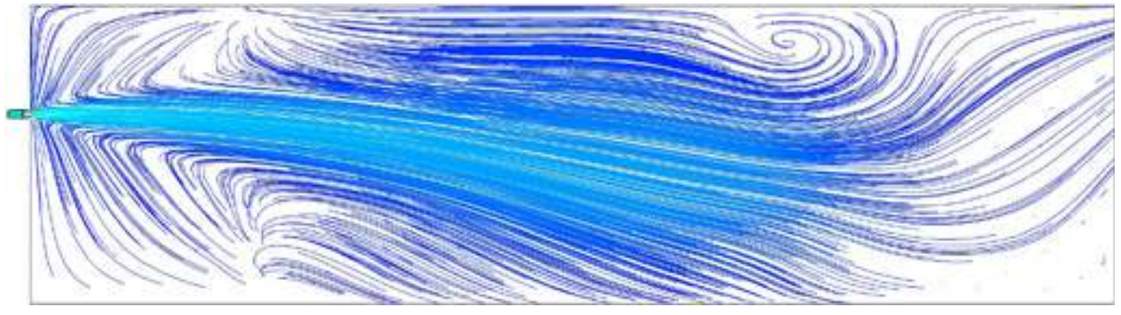
Q(m3/h)	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
V (m/s)	0.93	1.86	2.79	3.72	4.65	5.58	6.51	7.44	8.37	9.30	10.23	11.16	12.09	13.02	13.95
T (m)	0.55	1.56	2.57	3.58	4.59	5.60	6.61	7.62	8.63	9.64	10.65	11.66	12.67	13.68	14.69
ΔP (Pa)	0	0.34	1.95	3.56	5.17	6.78	8.39	10	11.61	13.22	14.83	16.44	18.05	19.66	21.27
dB	22.38	24.49	26.60	28.71	30.82	32.93	35.04	37.15	39.26	41.37	43.48	45.59	47.70	49.81	51.92

WALL
AIR FLOW SIMULATIONS

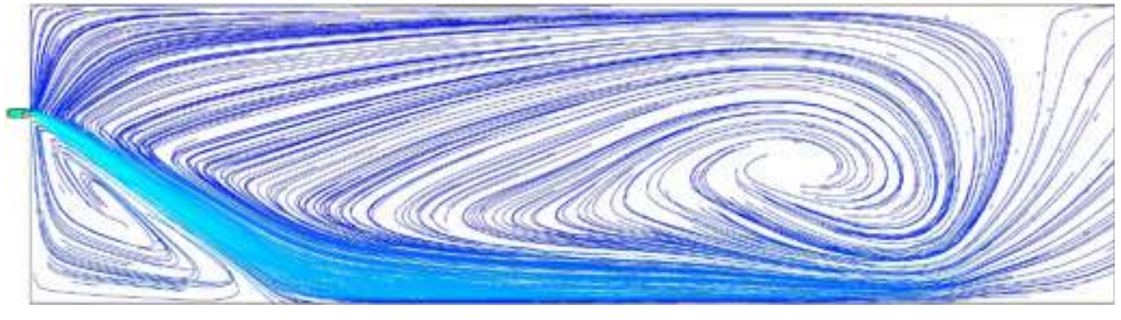
REGULATOR TOP



REGULATOR MIDDLE

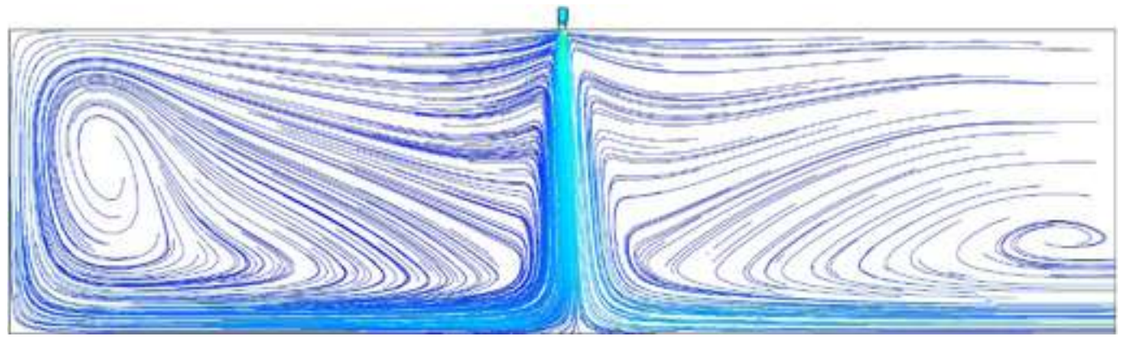


REGULATOR DOWN

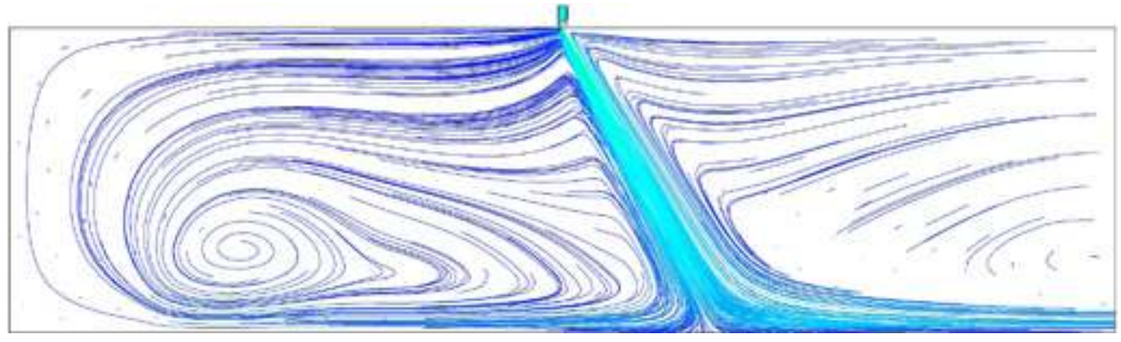


CEILING
AIR FLOW SIMULATIONS

REGULATOR MIDDLE



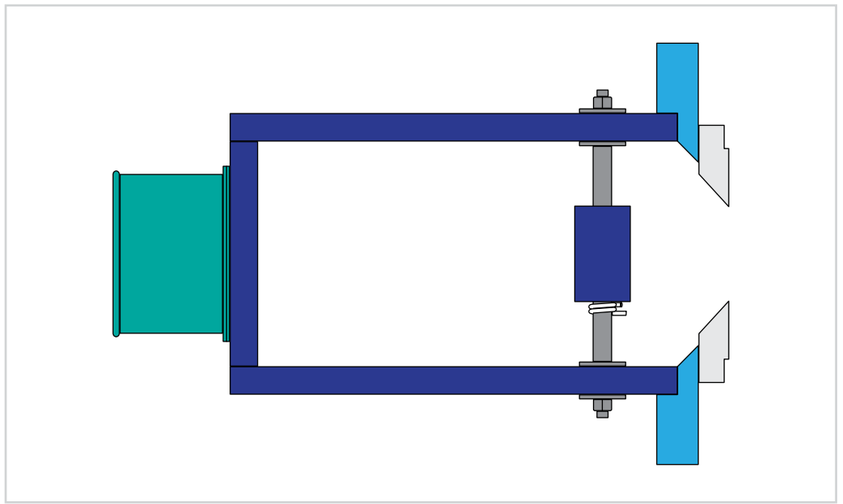
REGULATOR SIDE



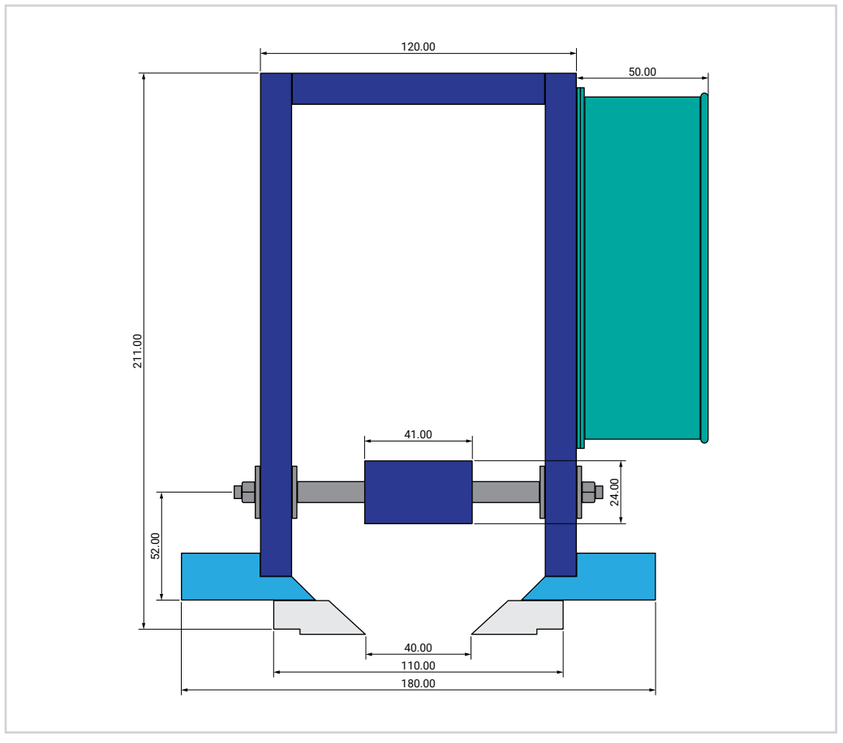
C2020 40MM
COMMERCIAL

C2020 40MM
COMMERCIAL

WALL



CEILING



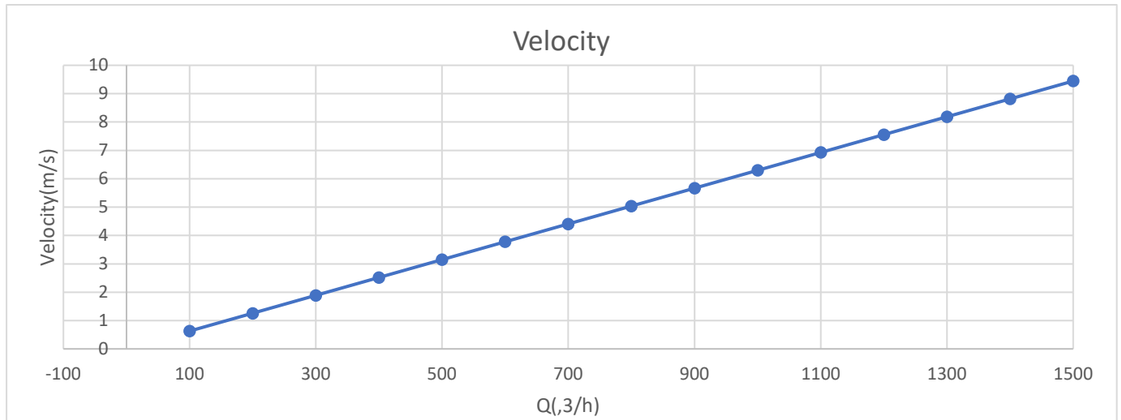
The C2020 40mm - COMMERCIAL has been designed and created based on the needs of the market for a discreet finish, perfect aesthetics with low noise levels. Recommended for use in gyms, lounges, and restaurants.

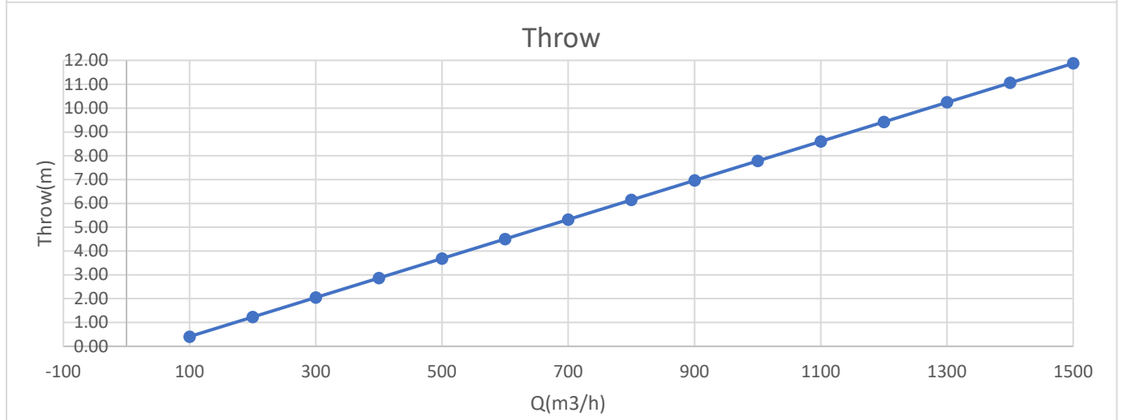
Available in standard lengths 500mm - 1000mm - 1500mm - 2000mm - 2500mm - 3000mm with the possibility of connecting pieces for unlimited length.

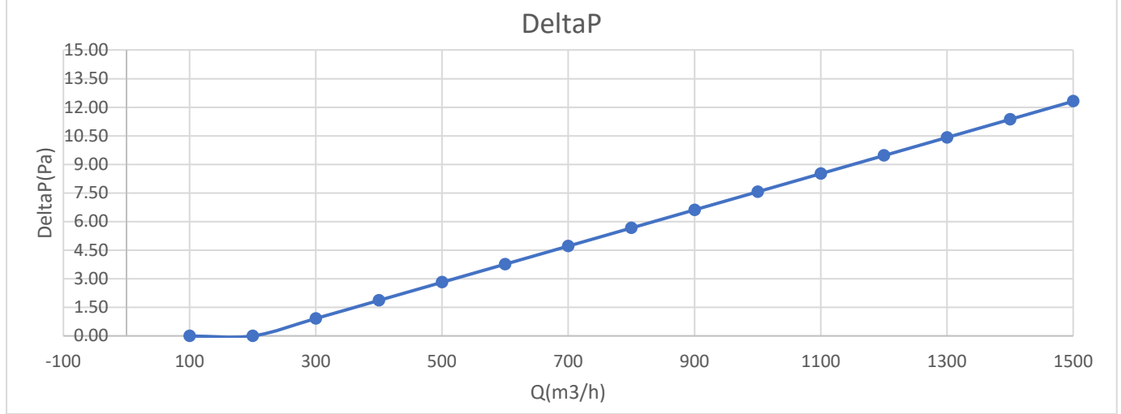
Characteristics:
- Standard sizes
- Air deflector
- Various ways of installation
- Low noise levels
- Ideal solution for installation on the ceiling and on the wall (front)

LEGEND
- 12mm Black PVC
- 18mm White PVC
- 13mm White PVC
- Metal Rod
- Spigot

PERFORMANCE GRAPHS





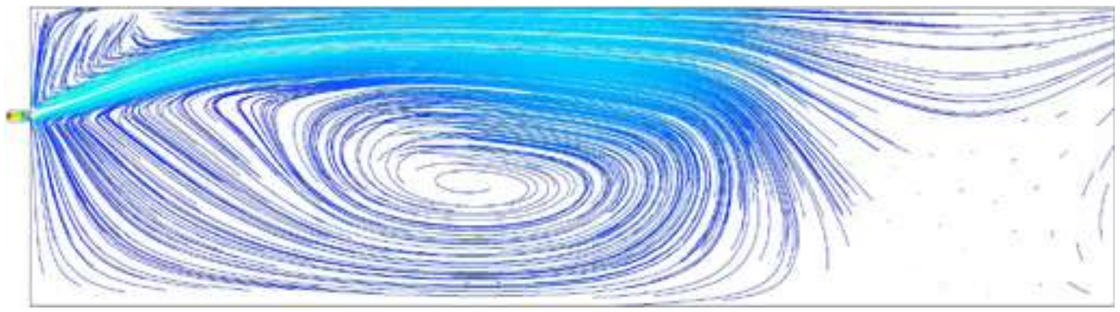


GRAPHS DATA

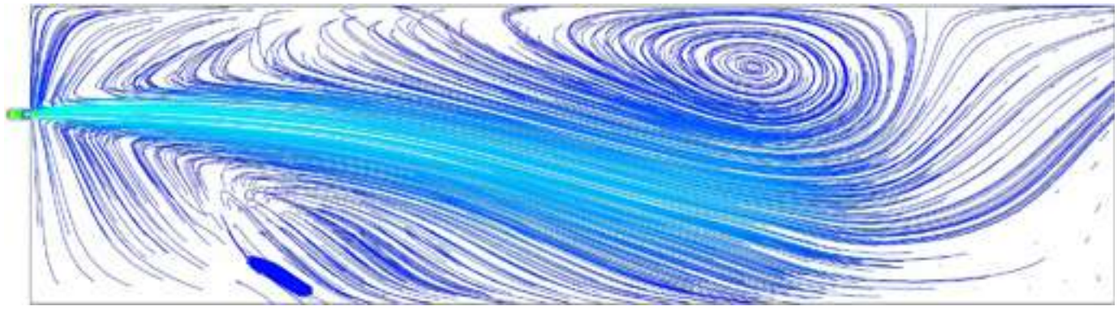
Q(m3/h)	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
V (m/s)	0.63	1.26	1.89	2.52	3.15	3.78	4.41	5.04	5.67	6.3	6.93	7.56	8.19	8.82	9.45
T (m)	0.40	1.22	2.04	2.86	3.68	4.50	5.32	6.14	6.96	7.78	8.60	9.42	10.24	11.06	11.88
ΔP (Pa)	0.00	0.00	0.92	1.87	2.82	3.77	4.72	5.67	6.62	7.57	8.52	9.47	10.42	11.37	12.32
dB	4.17	9.92	15.67	21.42	27.17	32.92	38.67	44.42	50.17	55.92	61.67	67.42	73.17	78.92	84.67

WALL
AIR FLOW SIMULATIONS

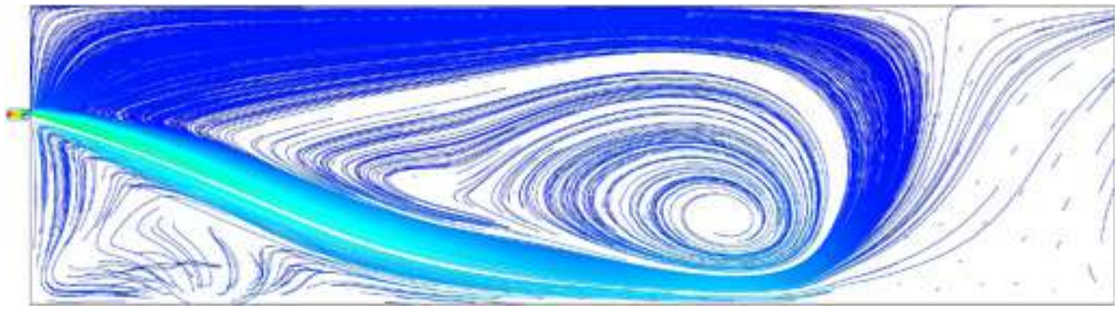
REGULATOR TOP



REGULATOR MIDDLE

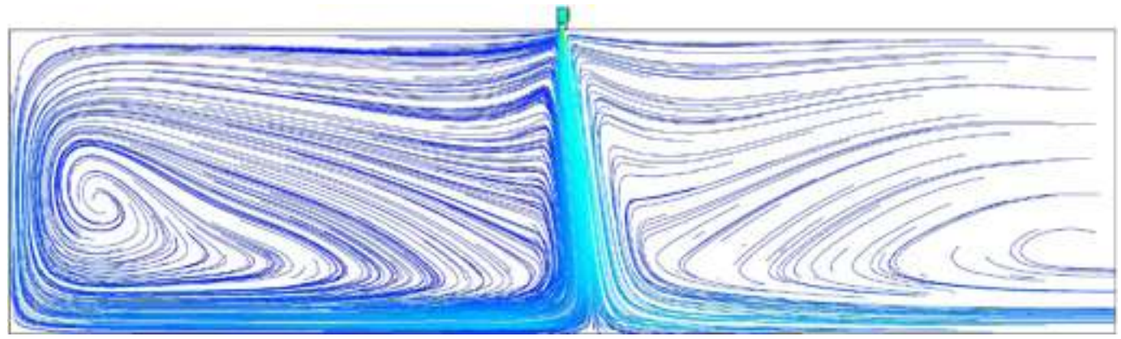


REGULATOR DOWN

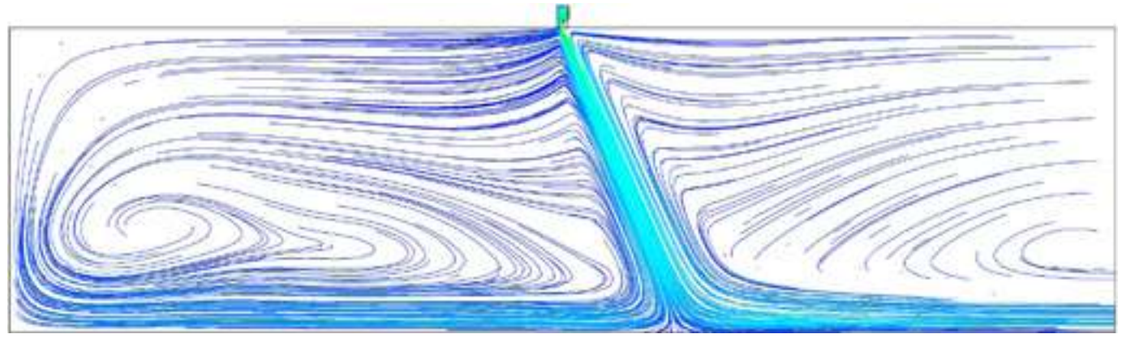


CEILING
AIR FLOW SIMULATIONS

REGULATOR MIDDLE



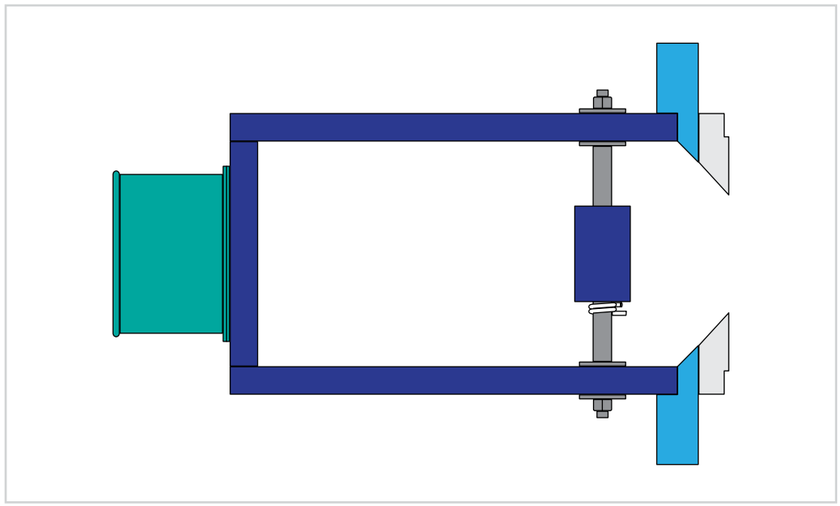
REGULATOR SIDE



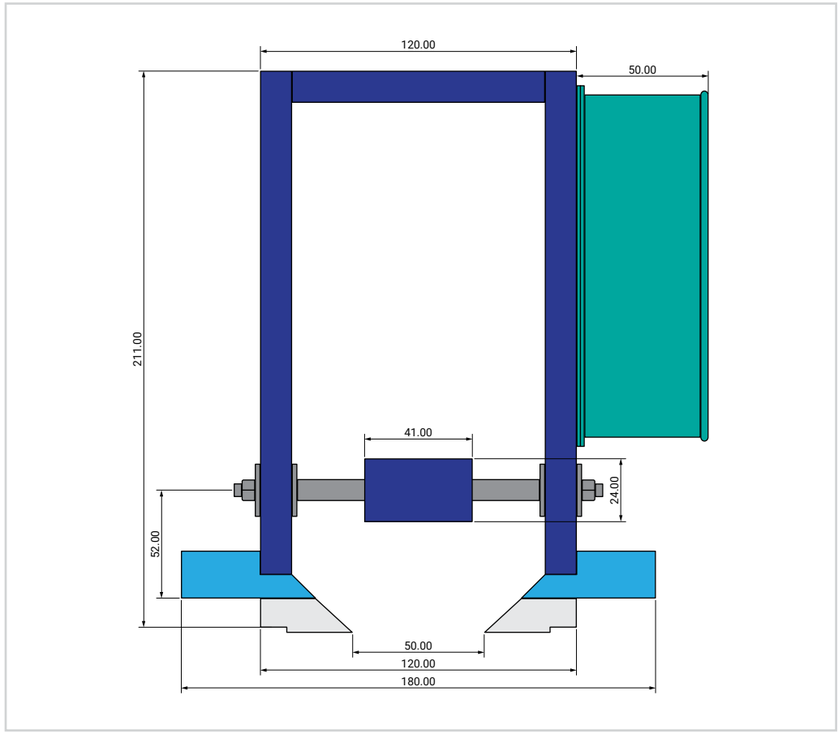
C2020 50MM
PROJECT

C2020 50MM
PROJECT

WALL



CEILING



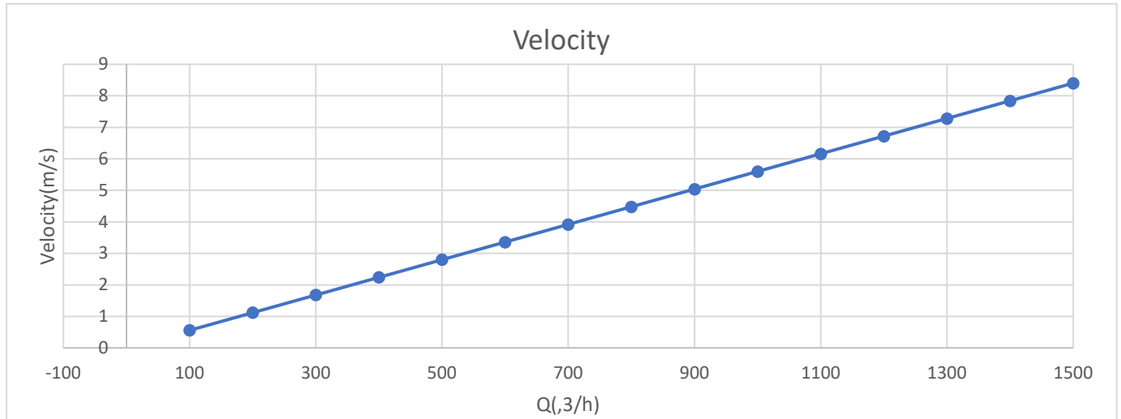
The C2020 50mm - PROJCET has been designed and created based on the needs of the market for a discreet finish, perfect aesthetics with low noise levels. Recommended for use in museums, showrooms, casinos and department stores.

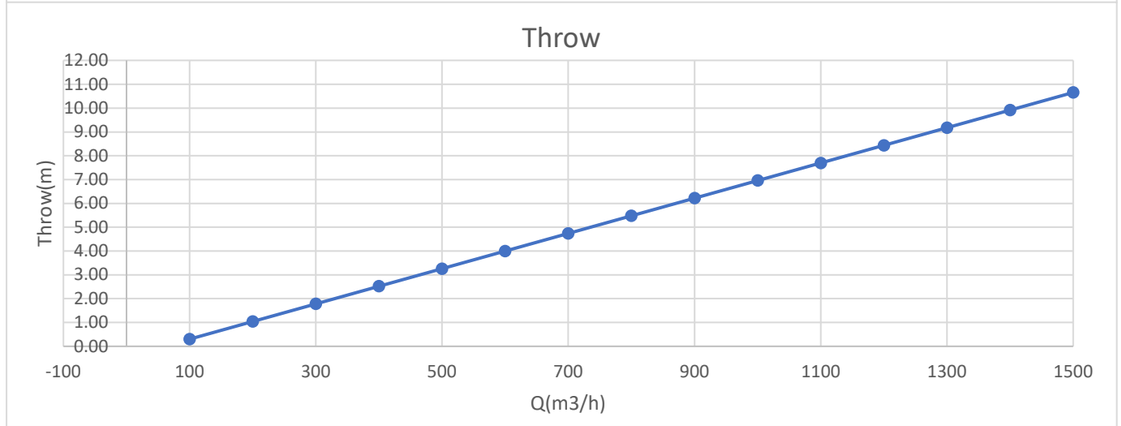
Available in standard lengths 500mm - 1000mm - 1500mm - 2000mm - 2500mm - 3000mm with the possibility of connecting pieces for unlimited length.

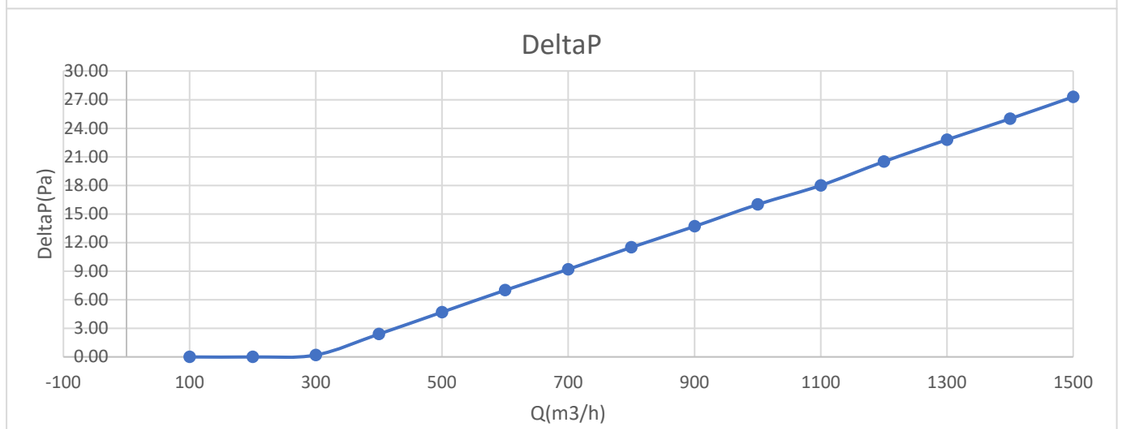
Characteristics:
- Standard sizes
- Air deflector
- Various ways of installation
- Low noise levels
- Ideal solution for installation on the ceiling and on the wall (front)

LEGEND
- 12mm Black PVC
- 18mm White PVC
- 13mm White PVC
- Metal Rod
- Spigot

PERFORMANCE GRAPHS





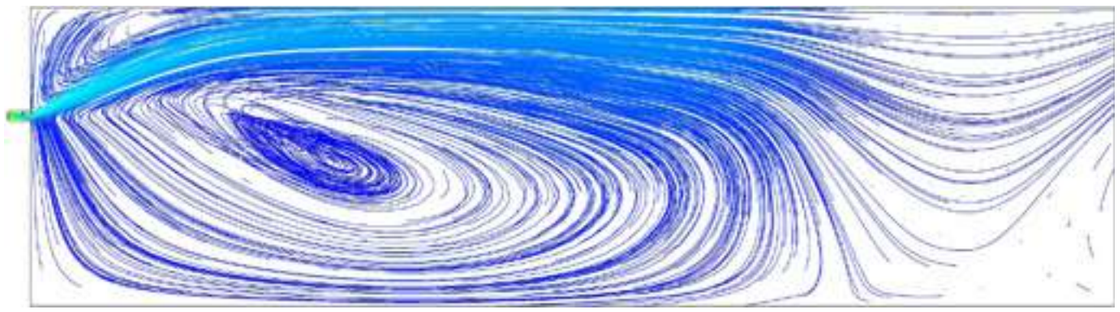


GRAPHS DATA

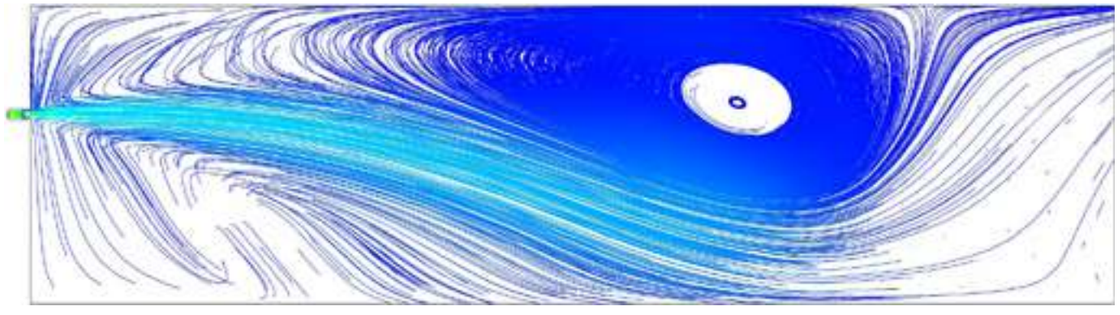
Q(m3/h)	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
V (m/s)	0.56	1.12	1.68	2.24	2.8	3.36	3.92	4.48	5.04	5.6	6.16	6.72	7.28	7.84	8.4
T (m)	0.30	1.04	1.78	2.52	3.26	4.00	4.74	5.48	6.22	6.96	7.70	8.44	9.18	9.92	10.66
ΔP (Pa)	0.00	0.00	0.20	2.40	4.70	7.00	9.20	11.50	13.70	16.00	18.00	20.50	22.80	25.00	27.30
dB	21.34	22.71	24.08	25.45	26.82	28.19	29.56	30.93	32.30	33.67	35.04	36.41	37.78	39.15	40.52

WALL
AIR FLOW SIMULATIONS

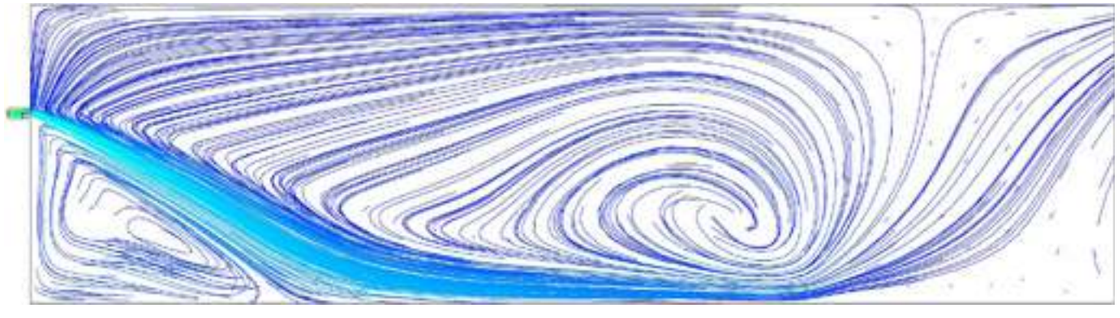
REGULATOR TOP



REGULATOR MIDDLE

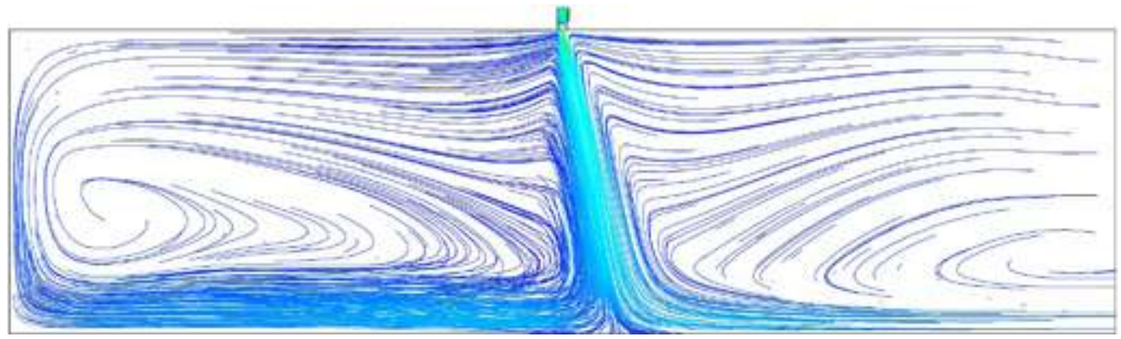


REGULATOR DOWN

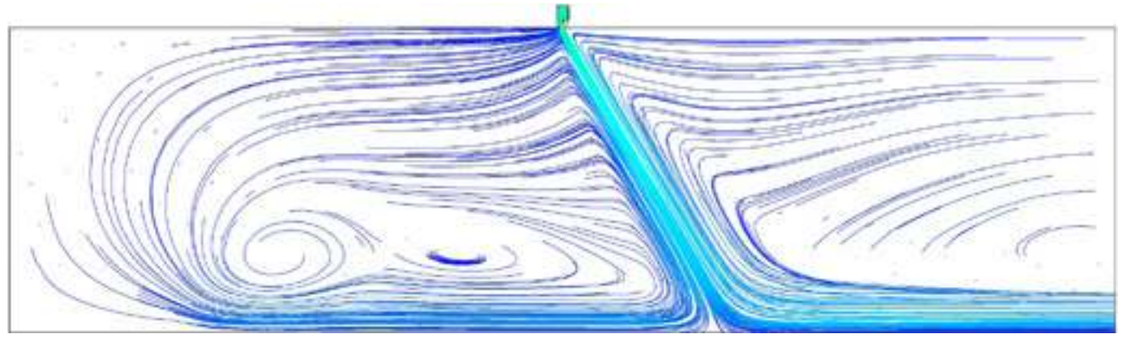


CEILING
AIR FLOW SIMULATIONS

REGULATOR MIDDLE



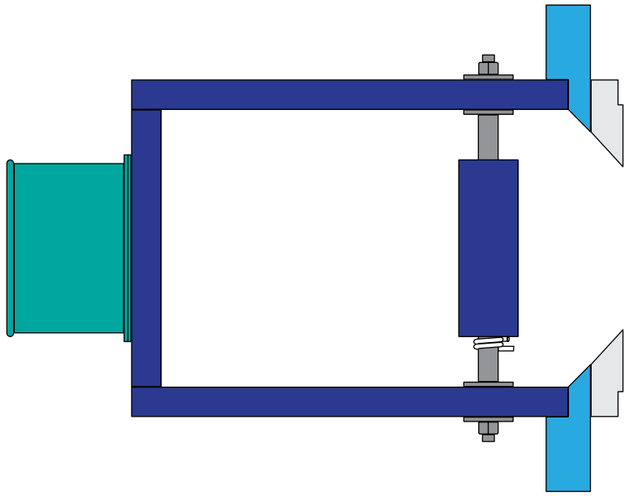
REGULATOR SIDE



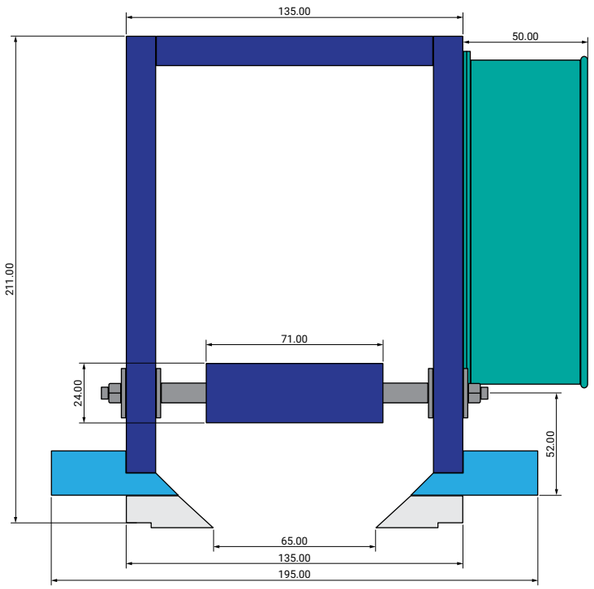
C2020 65MM
INDUSTRIAL

C2020 65MM
INDUSTRIAL

WALL



CEILING



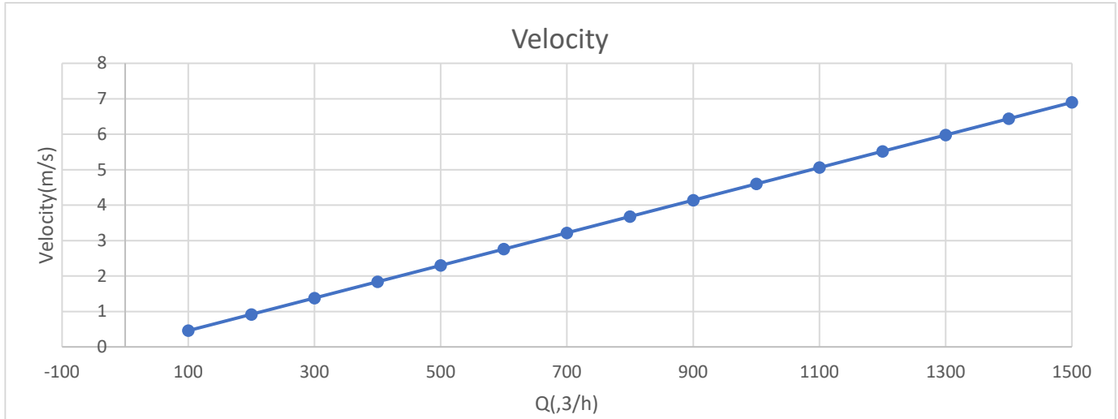
The C2020 65mm - INDUSTRIAL has been designed and created based on the needs of the market for a discreet finish, perfect aesthetics with low noise levels. Recommended for use in factories, laboratories and industrial centers.

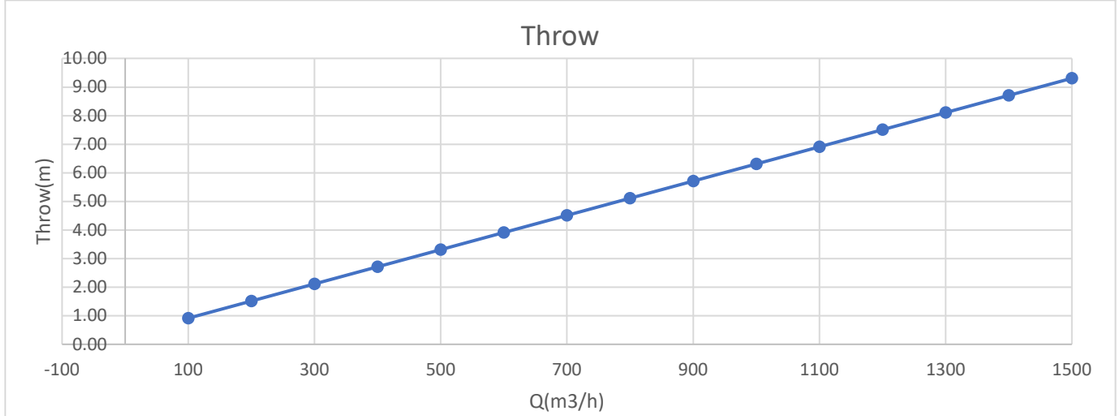
Available in standard lengths 500mm - 1000mm - 1500mm - 2000mm - 2500mm - 3000mm with the possibility of connecting pieces for unlimited length.

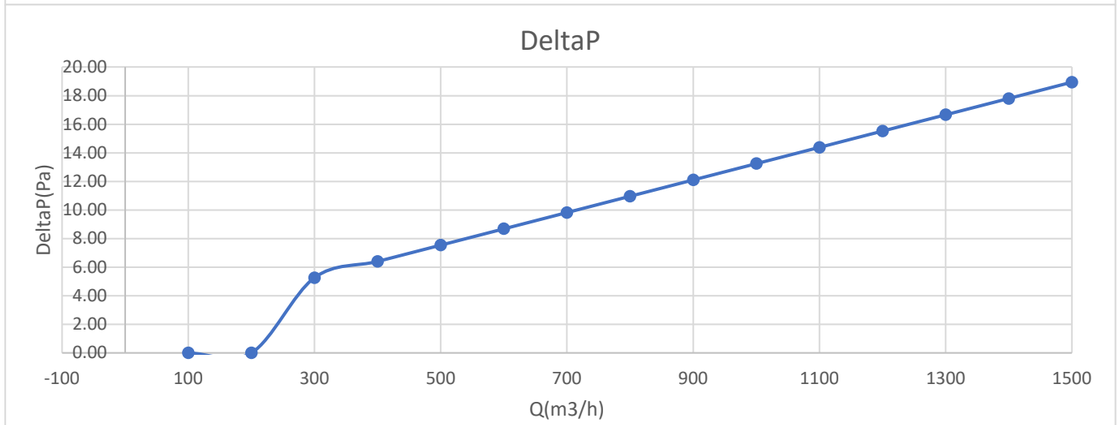
Characteristics:
- Standard sizes
- Air deflector
- Various ways of installation
- Low noise levels
- Ideal solution for installation on the ceiling and on the wall (front)

LEGEND
- 12mm Black PVC
- 18mm White PVC
- 13mm White PVC
- Metal Rod
- Spigot

PERFORMANCE GRAPHS





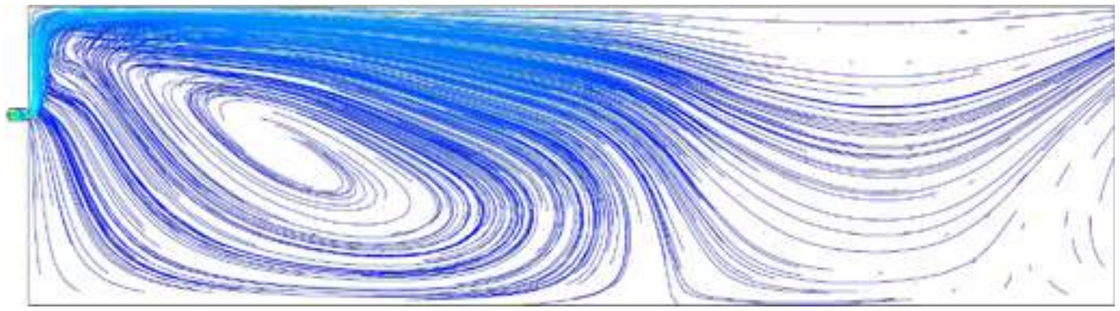


GRAPHS DATA

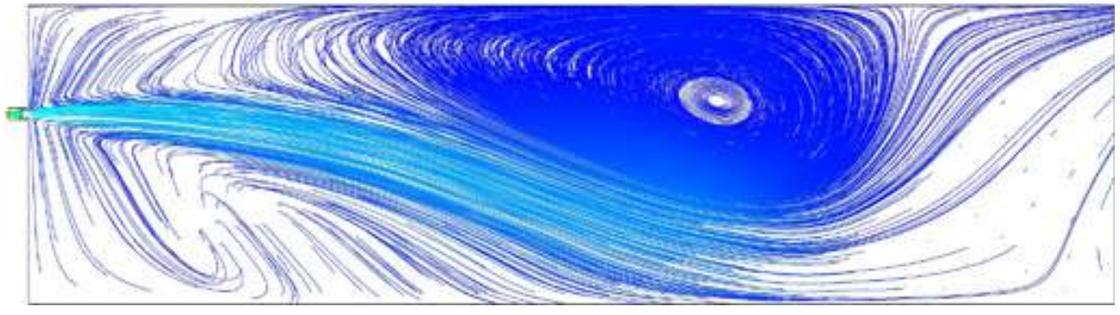
Q(m3/h)	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
V (m/s)	0.46	0.92	1.38	1.84	2.3	2.76	3.22	3.68	4.14	4.6	5.06	5.52	5.98	6.44	6.9
T (m)	0.91	1.51	2.11	2.71	3.31	3.91	4.51	5.11	5.71	6.31	6.91	7.51	8.11	8.71	9.31
ΔP (Pa)	0.00	0.00	5.26	6.40	7.54	8.68	9.82	10.96	12.10	13.24	14.38	15.52	16.66	17.80	18.94
dB	22.05	23.32	24.59	25.86	27.13	28.40	29.67	30.94	32.21	33.48	34.75	36.02	37.29	38.56	39.83

WALL
AIR FLOW SIMULATIONS

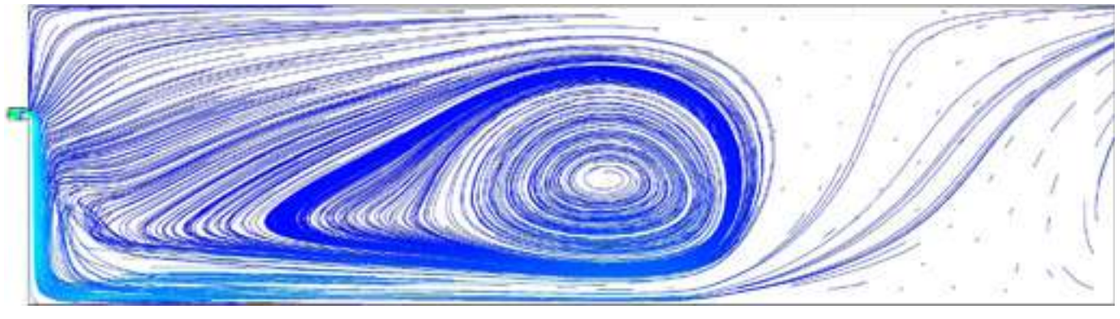
REGULATOR TOP



REGULATOR MIDDLE

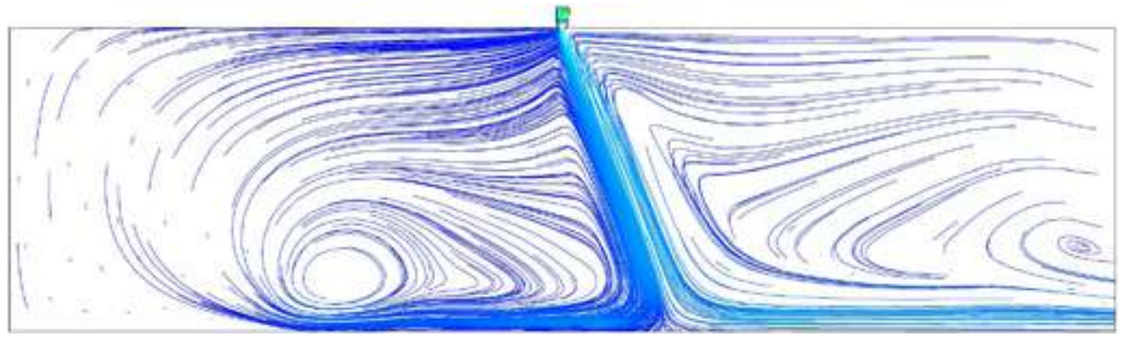


REGULATOR DOWN

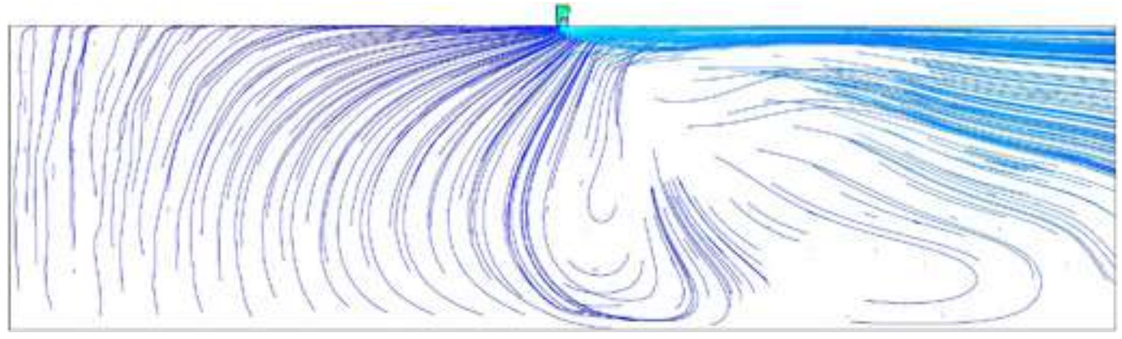


CEILING
AIR FLOW SIMULATIONS

REGULATOR MIDDLE



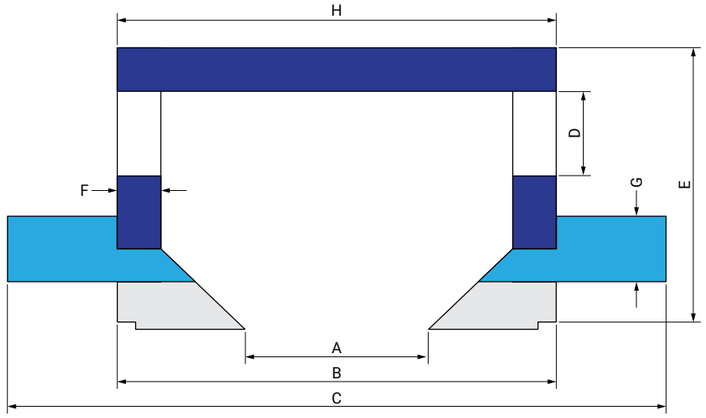
REGULATOR SIDE



C2020 RETURN
SEAMLESS

C2020 RETURN
CEILING

CROSS SECTION



C2020 Return Systems have been designed to provide excellent looks without sacrificing efficiency and economy especially when the return grille is not necessary to be connected with flexible ducts on the a/c unit.

Characteristics:
- Zero deflection (return)
- 20mm – 25mm – 30mm – 40mm – 50mm - 65mm spacing available
- Curved: Concave, Convex
- Mitered convers
- Multiple ways of fastening

DIMENSIONS

C2020	A	B	C	D	E	F	G	H	Free Area
20mm	20	90	160	20	65	12	18	100	0.02m²
25mm	25	95	160	20	65	12	18	100	0.025m²
30mm	30	100	160	20	65	12	18	100	0.03m²
40mm	40	110	180	20	65	12	18	120	0.04m²
50mm	50	120	180	20	65	12	18	120	0,05m²
65mm	65	135	195	20	65	12	18	135	0,065m²

SIDE VIEW

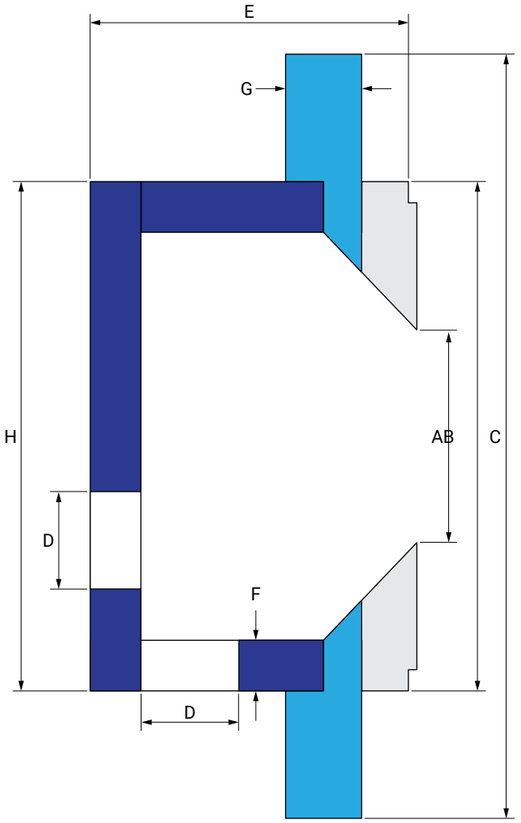


LEGEND

- 12mm Black PVC
- 18mm White PVC
- 13mm White PVC

C2020 RETURN
WALL

CROSS SECTION

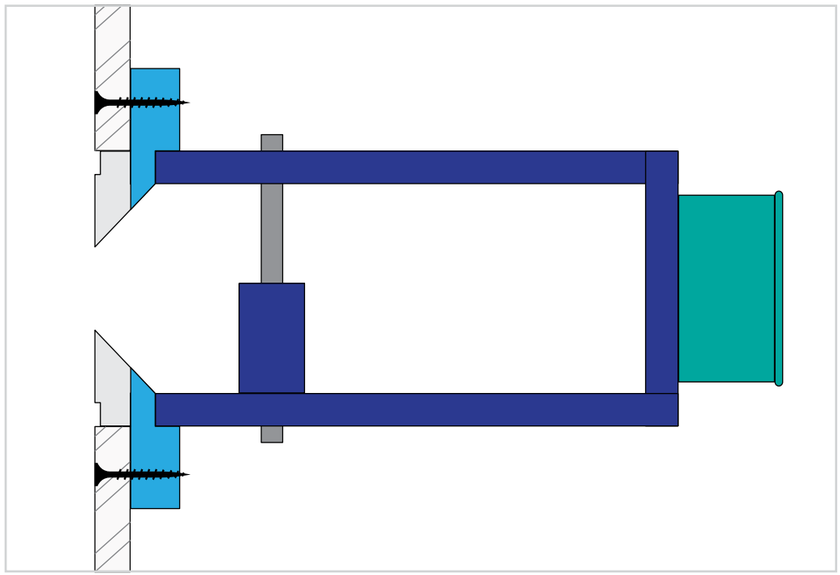


C2020
APPLICATIONS

C2020
ON GYPSUM BOARD

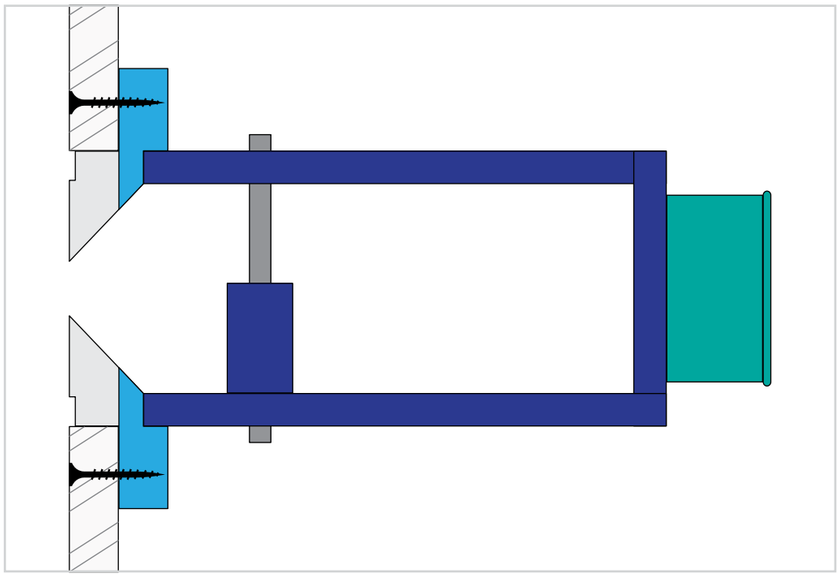
By Placing your order it’s important to let us know what is the thickness of the gypsum board that you will install the C2020.

12.5mm THICKNESS



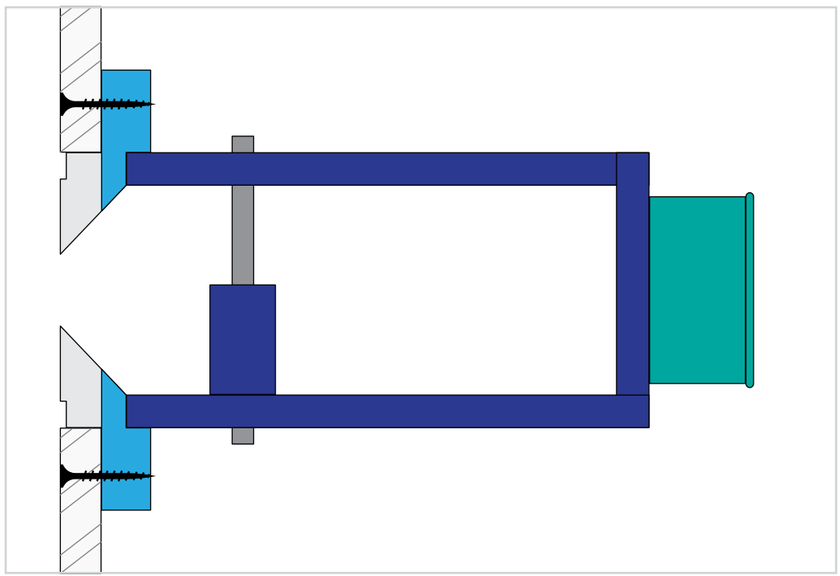
Installation on 12.5mm gypsum board.

18mm THICKNESS



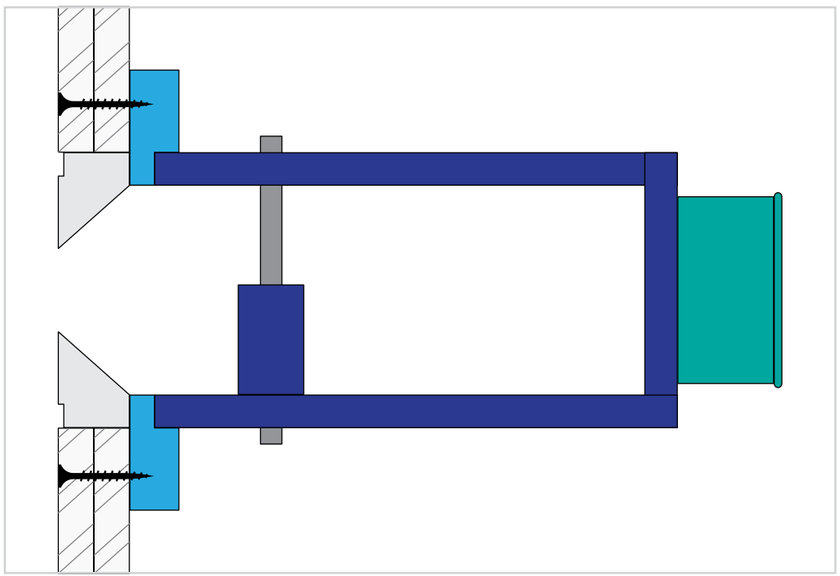
Installation on 18mm gypsum board.

15mm THICKNESS



Installation on 15mm gypsum board.

25mm THICKNESS

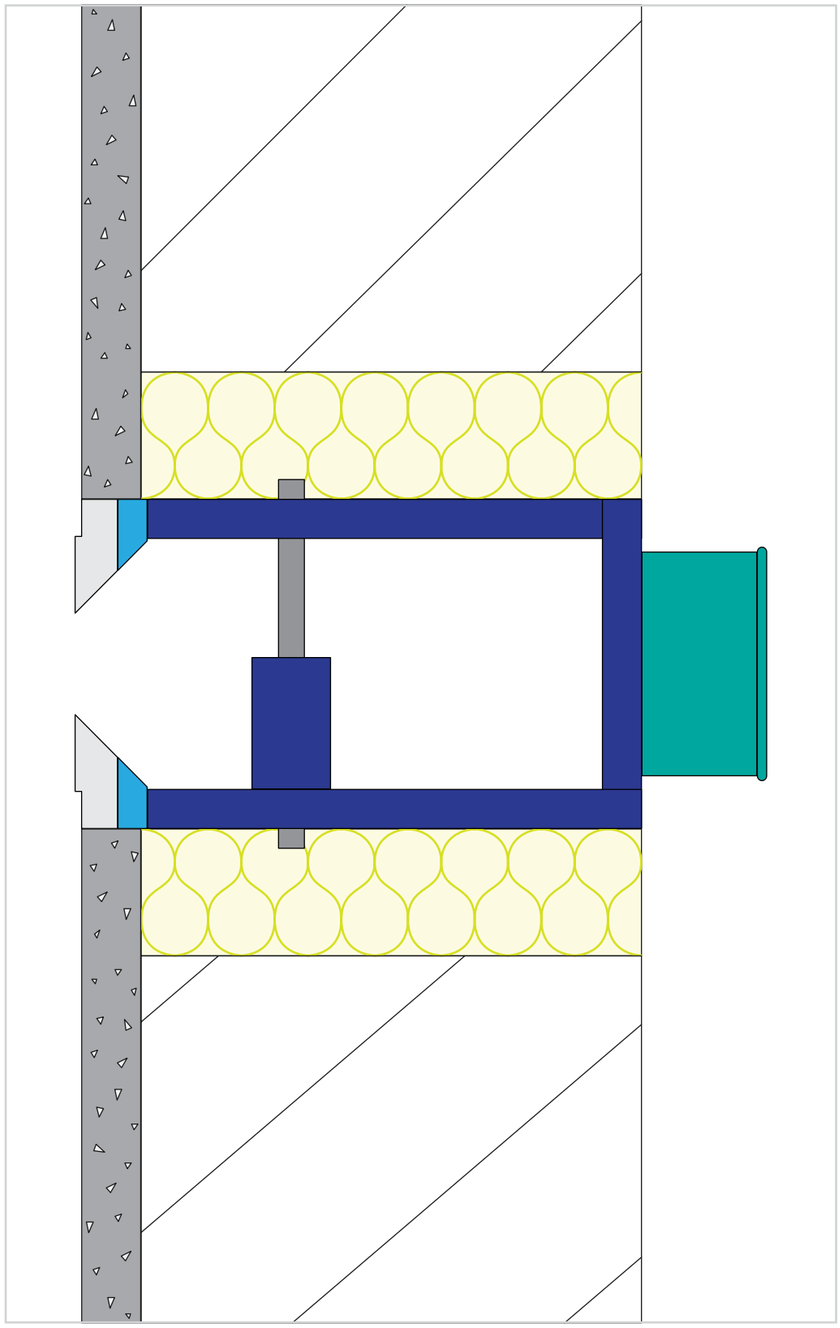


Installation on double 12.5mm gypsum board (Total 25mm)

LEGEND

- 12mm Black PVC
- 18mm White PVC
- White PVC
- Gypsum Board
- Metal Rod
- Spigot

C2020
ON CEMENT WALL



C2020 ON CEMENT/ BRICK WALL

Installation on cement/ brick wall without the 18mm frame of C2020.

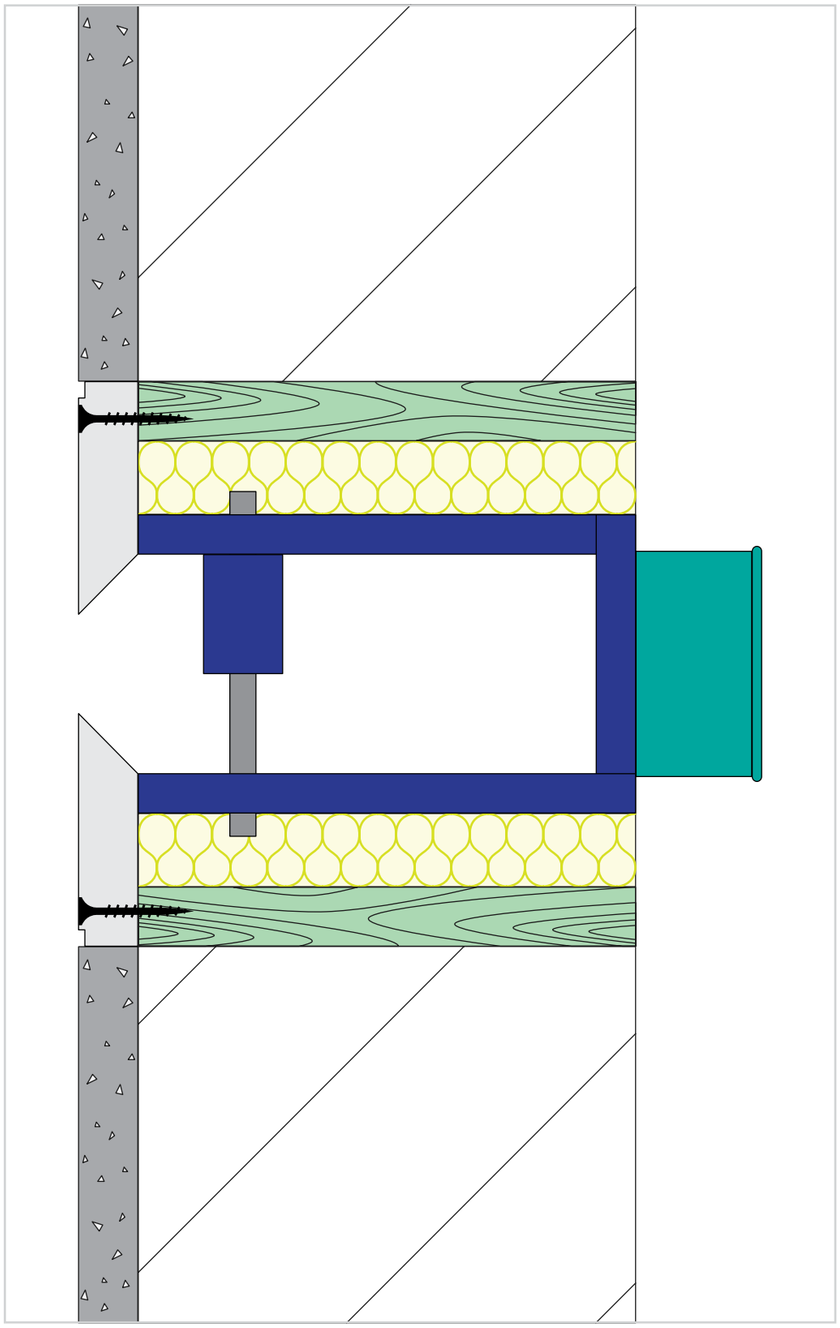
LEGEND

- 12mm Black PVC
- 9mm White PVC
- 13mm White PVC
- Low Expansion Foam
- Cement
- Brick
- Metal Rod
- Spigot

C2020
ON CEMENT WALL (WITH WOOD FRAME)

C2020 ON CEMENT WALL (WITH WOOD FRAME)

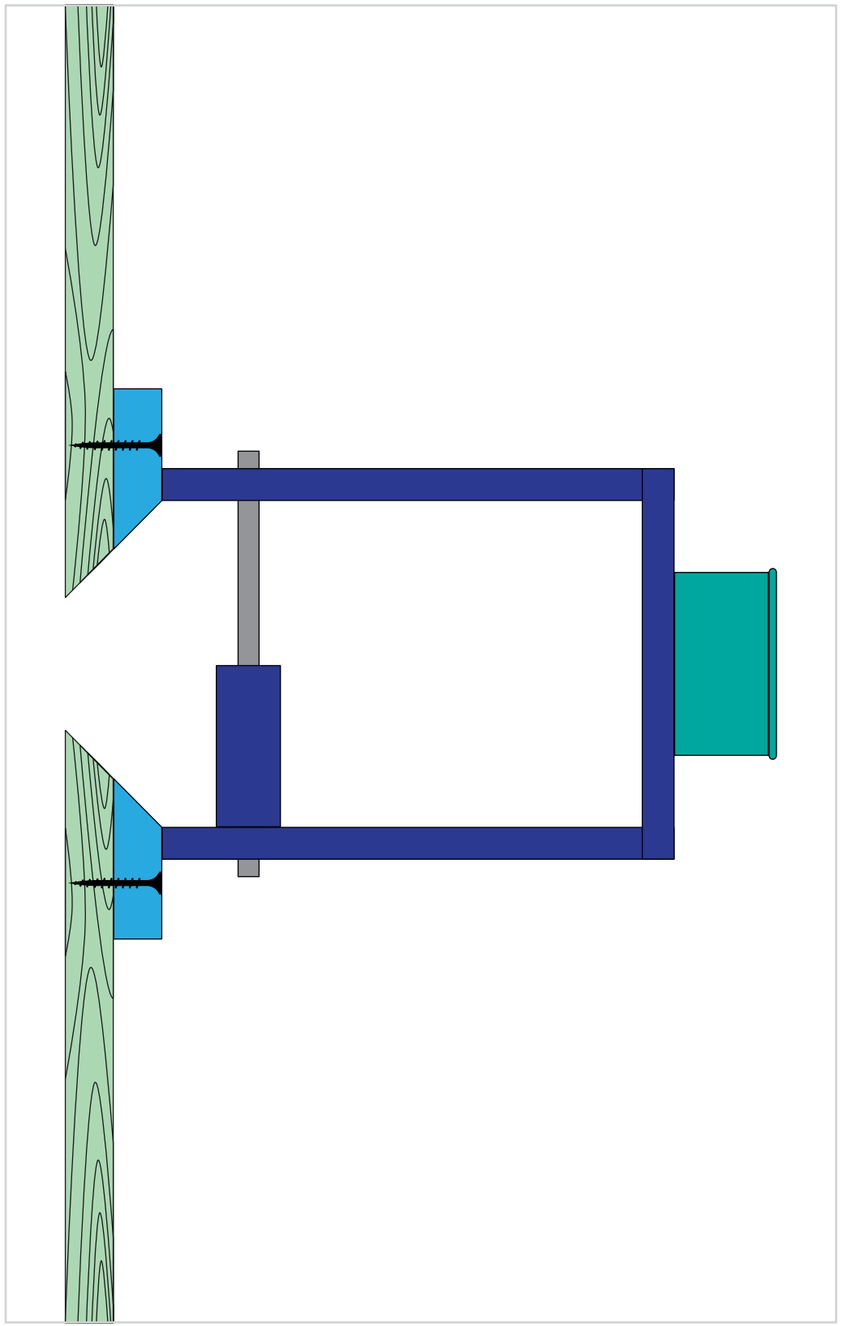
Installation on cement/brick wall in case where a wooden box is already installed in the brick wall, by screw through the 18mm PVC frame of C2020 ti the wood.



LEGEND

- 12mm Black PVC
- 18mm White PVC
- Low Expansion Foam
- Cement
- Brick
- 18mm Plywood
- Metal Rod
- Spigot

C2020
ON WOOD (HIDDEN)



C2020 BIHIND THE WOOD (HIDDEN)

Installation behind the wood. At this case only the slot is visible. For the proper function of the C2020 system the wood need to be cutted at 45° as shown on the picture. Screws of 25mm need to be used for the installation throw our 18mm frame to the wood.

LEGEND

- 12mm Black PVC
- 18mm White PVC
- 18mm Wood
- Metal Rod
- Spigot

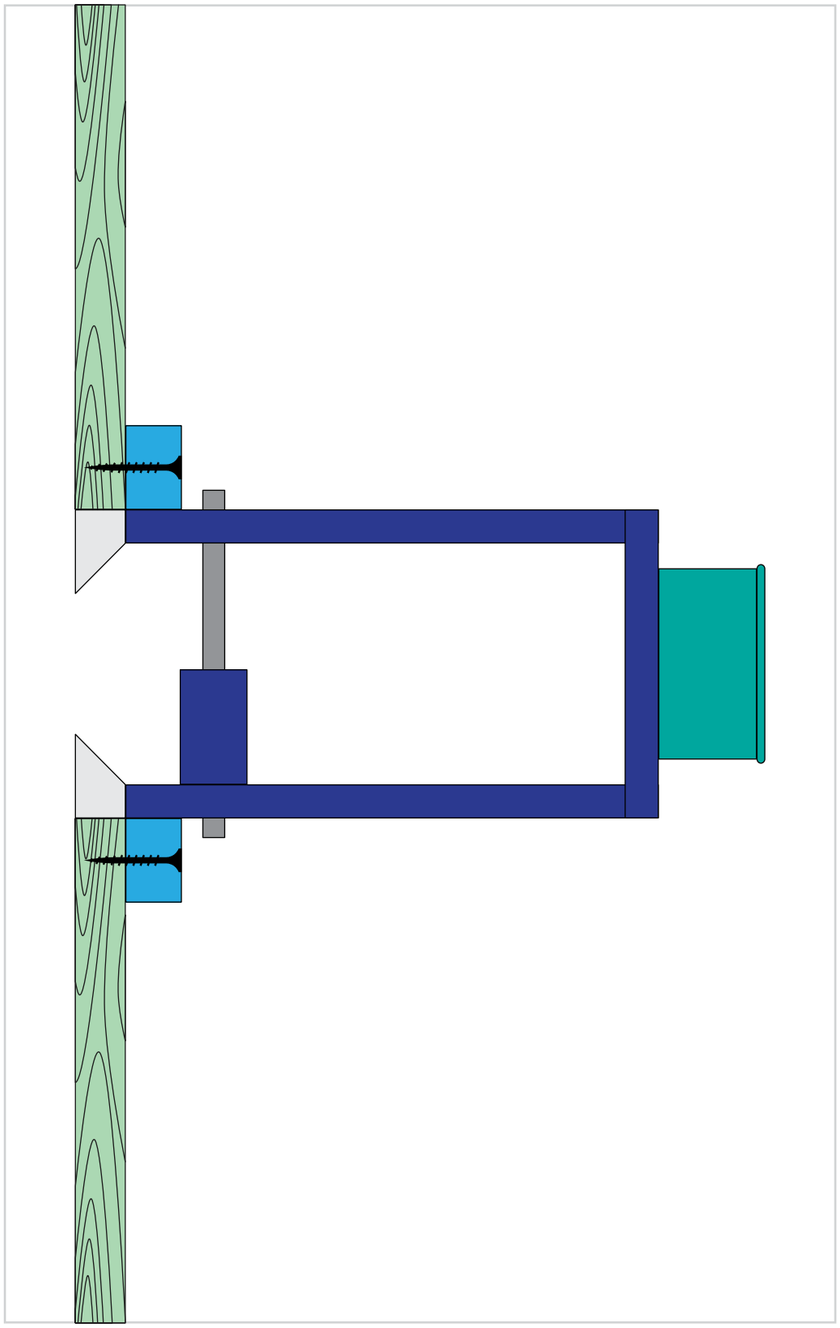
C2020
ON WOOD (EXPOSED)

C2020 ON WOOD

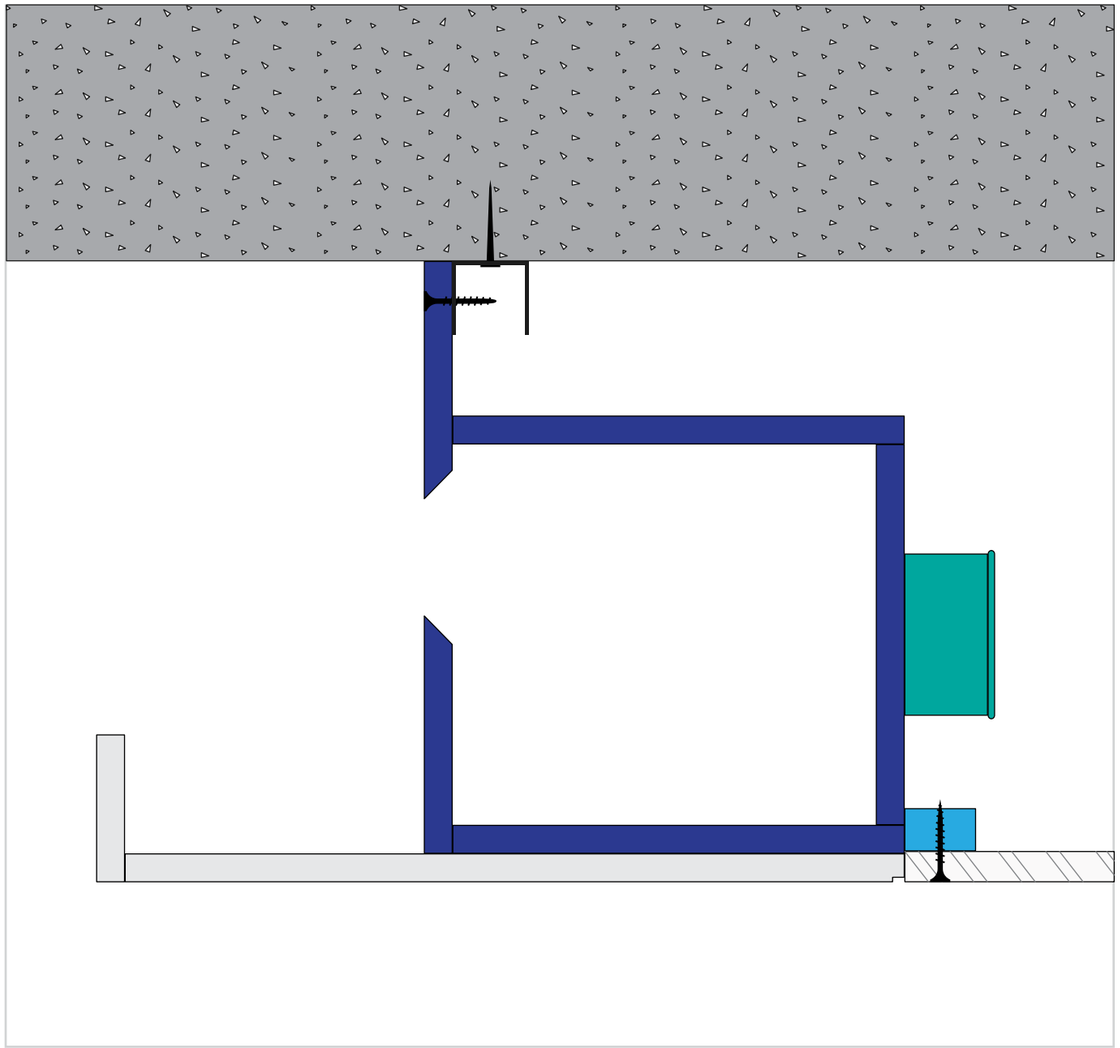
Installation on the wood. A straight cut line need to be done on the wood (according the size of the C2020 system). Our 13mm PVC will be visible including the slot and can be painted any color (usually black). Screws of 25mm need to be used for the installation through our 18mm frame to the wood.

LEGEND

- 12mm Black PVC
- 18mm White PVC
- 18mm White PVC
- 18mm Wood
- Metal Rod
- Spigot



C2020
FULL BODY (HIDDEN LIGHT)



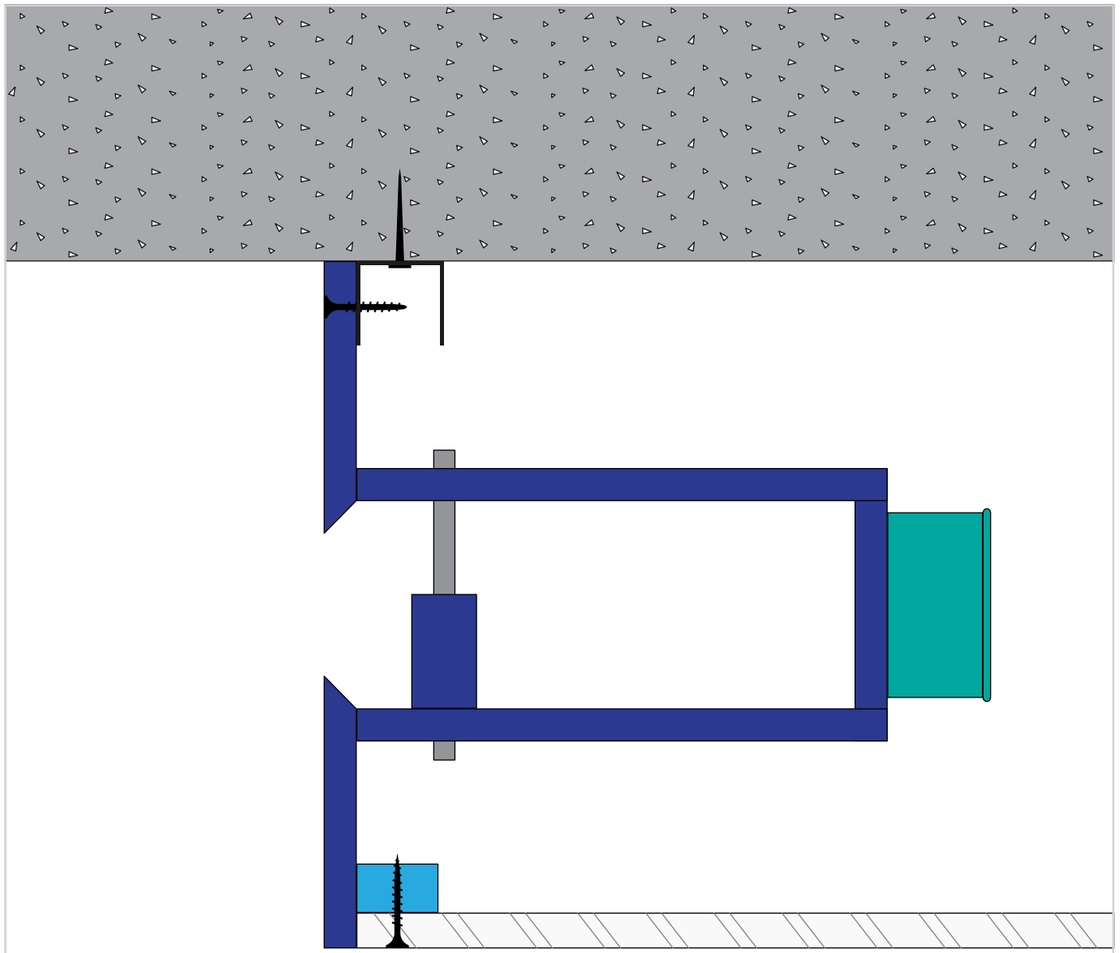
C2020 BODY (HIDDEN LIGHT)

Instead of using a gypsum board to create the corner connection between the false ceiling. We provide you the entire connection part made from PVC, one piece with our C2020 system, including an extension with a 90° corner at any dimensions, for using it to install the LED strip.

LEGEND

- 12mm Black PVC
- 18mm White PVC
- 13mm White PVC
- Gypsum Board
- Cement
- Spigot
- “U” Metal Frame

C2020
FULL BODY



LEGEND

- 12mm Black PVC
- 18mm White PVC
- Gypsum Board
- Cement
- Metal Rod
- Spigot
- “U” Metal Frame

C2020 FULL BODY

Instead of using a gypsum board to create the corner connection between the false ceiling. We provide you the entire connection part made from PVC, one piece with our C2020 system.

PLENUM BOXES
VENTUS AIR



AIR INNOVATIONS
QUALITY PRODUCTS

Ventus vision is the immediate and direct customer service and the instant supply of quality products.

In Ventus we are passionate about our products. This reflects in hard work, consistently and innovative ideas, making the name Ventus synonymous with quality and attention to detail.

INTRODUCTION

Ventus plenum boxes are designed to guarantee a good distribution of air, prior to diffusion through the terminals through a tight horizontal or vertical air pattern even at low volumes. Their use consist of the supply and exhaust of conditioned air and they apply to any grille type and size.

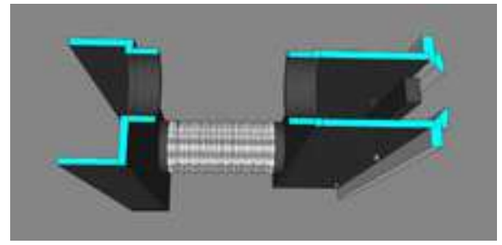
Manufactured with 12mm black PVC foam board they are not prone to moisture, are lightweight, fire retardant and have excellent thermal and sound insulation properties.

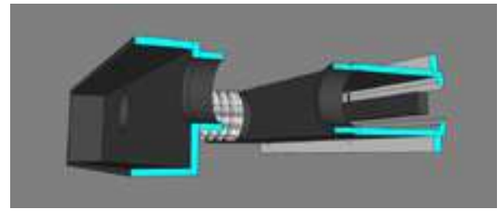
Our company has the facilities and experience to accommodate plenum boxes with a high differentiation and customization degree.

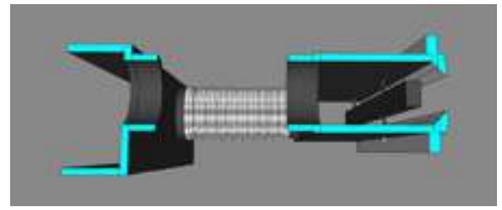
The client has the choice of entry connection of the duct (back, side, top) and diameter. The shape of the duct can be rounded or oval as requested.

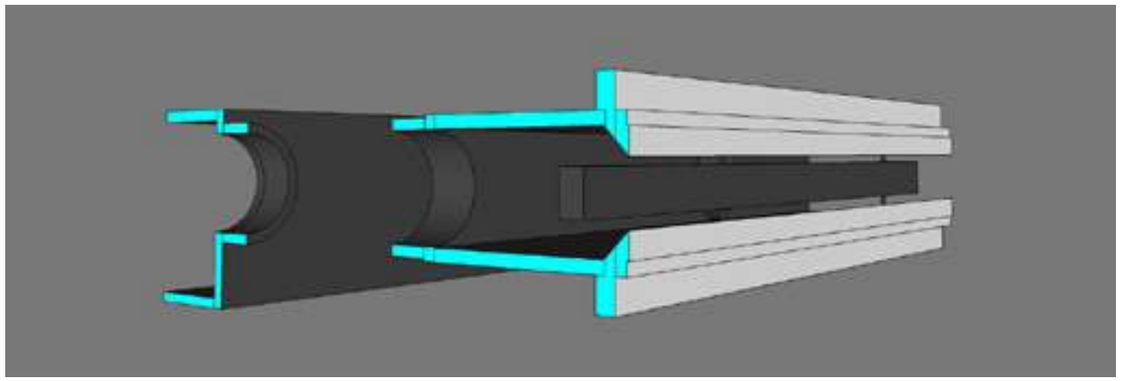
LEGEND

1. Plenum Box A/C
2. Plenum Box Grille
3. Reverse Grille
4. Flexible
5. Indoor Unit A/C









With a growing environmental consciousness in the marketplace towards using “green” and sustainable materials, we can actively source PVC leftovers trough out production line and recycle them back to foam-board PVC panel for your eco-friendly project.



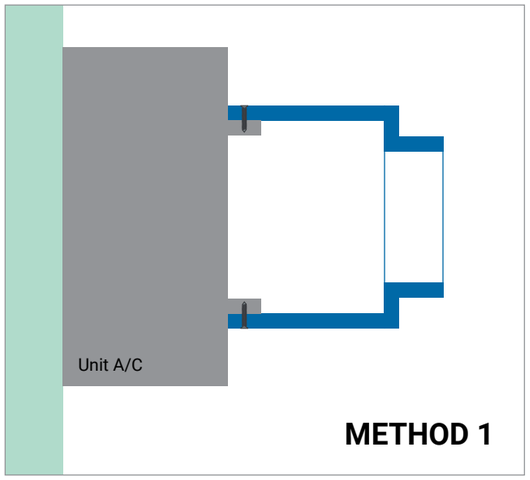
SUGGESTED
DIMENSIONS

For the below-mentioned brands we suggest the following Plenum Box dimensions for your ease of use.

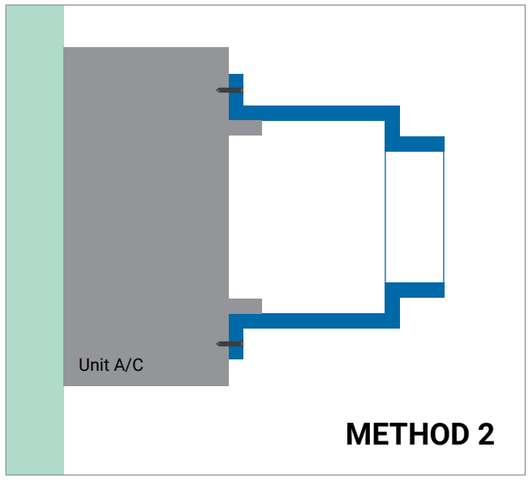
BRAND	MODEL	Kw	(m3/h)	BTU/h	SUPPLY (mm)			RETURN (mm)		
DAIKIN	FBA35A	3.4	900	11601	497	183	100	659	215	100
	FBA50A	5	900	17061	497	183	100	659	215	150
	FBA60A	6.8	1080	23202	797	183	100	959	215	100
	FBA71A	7.1	1080	24226	797	183	100	959	215	100
	FXSQ15	1.7	522	5801	345	183	100	509	215	100
	FXSQ20	2.2	540	7507	345	183	100	509	215	100
	FXSQ25	2.8	540	9554	345	183	100	509	215	100
	FXSQ32	3.6	570	12284	345	183	100	509	215	150
	FXSQ40	4.5	900	15355	497	183	100	659	215	150
	FXSQ50	5.6	912	19108	497	183	100	659	215	200
	FXSQ63	7.1	1260	24226	797	183	100	959	215	200
TOSHIBA AIR CONDITIONING	MMD-AP0076BH-E	2.2	540	7507	645	185	100	665	240.5	100
	MMD-AP0096BH-E	2.8	570	9554	645	185	100	665	240.5	100
	MMD-AP0126BH-E	3.6	570	12284	645	185	150	665	240.5	150
	MMD-AP0156BH-E	4.5	800	15355	645	185	150	665	240.5	150
	MMD-AP0186BH-E	5.6	800	19108	645	185	200	665	240.5	200
	MMD-AP0246BH-E	7.1	1200	24226	945	185	200	965	240.5	200
	RAV-RM561BTP-E	5	800	17061	645	185	200	665	240.5	200
	RAV-RM801BTP-E	7.1	1200	24226	945	185	200	965	240.5	200
GREE	GUD-035-PS	3.5	650	11942	590	127	100	705	205	100
	GUD-050-PS	5	950	17061	890	127	100	1005	205	100
	GUD-071-PS	7	1200	23885	1190	147	100	1305	225	100
					745	220	100	905	265	100
	GUD-085-PS	8.5	1400	29003	1190	147	100	1305	225	100
					745	220	100	905	265	100
Haier	AD25S2SM2FA	2.5	530	8530	597	171	100	765	157	100
	AD35S2SM3FA	3.5	840	11942	597	171	100	583	243	150
	AD50S2SM3FA	5	1020	17061	997	171	100	983	243	200
	AD71S2SM3FA	7.1	1440	24226	997	171	100	983	243	200
inventor	V5MDI32-24WiFiR	5.28	880	18016	930	180	200	1005	235	200
	V6MDI32-18WiFiR	5.28	880	18016	715	145	200	790	195	200
	V7MDI32-12WiFiR	5.28	880	12000	542	157	200	604	191	200
	V7MDI32-18WiFiR	5.28	880	18000	711	141	200	787	195	200
	V7MDI32-24WiFiR	7.03	1248	24000	931	180	100	1006	233	200
	V7MDI32-36WiFiR	10.55	1400	36000	931	180	250	1006	233	250
	V7MDI32-42WiFiR	10.55	1400	42000	1049	232	250	1106	285	250
	V7MDI32-50WiFiR	14.07	2400	50000	1049	232	300	1106	285	100
	V7MDI32-60WiFiR	15.4	2600	60000	1049	232	350	1106	285	100
Midea	MTIU-12FNXD0	3.5	600	11942	542	120.2	100	604	191	100
	MTIU-18FNXD0	5.28	1006	18016	711	145	200	787	195	100
	MTIU-24FNXD0	7.03	1248	23987	931	180	200	1006	233	100
	MTI-30FNXD0	8.7	1400	29685	1191	180	250	1266	233	100
	MTI-36FNXD0	10.55	1400	35998	1191	180	250	1266	233	100
	MTI-42FNXD0	12.3	1871	41969	1049	232	300	1106	285	100
	MTI-48FNXD0	14	2400	47770	1049	232	300	1106	285	100
	MTI-55FXND0	16	2600	54594	1049	232	350	1106	285	100
TOYOTOMI	DCT-A35IUINV	3.5	750	11942	590	127	100	705	205	100
	DCT-A53IUINV	5	1000	17061	890	127	101	1005	205	101
	DCT-A71IUINV	7	1400	23885	1190	147	102	1305	225	102
	DCT-A90IUINV	8.3	1400	28321	1190	147	100	1305	225	100
	DCT-A110IUINV	10	2100	34121	751	200	101	965	269	101
	DCT-A125IUINV	11.5	2100	39239	1155	200	102	1365	269	102
Panasonic	S-36PF1E5B	3.6	840	12284	597	191	100	805	260	100
	S-45PF1E5B	4.5	900	15355	597	191	100	805	260	100
	S-50PF1E5B	5	960	17061	597	191	100	805	260	100
	S-60PF1E5B	6	1260	20473	797	191	100	1005	260	100
	S-71PF1E5B	7.1	1260	24226	797	191	100	1005	260	100
	S-100PF1E5B	10	1920	34121	1197	191	100	1405	260	100
	S-125PF1E5B	12.5	2040	42651	1197	191	100	1405	260	100
	S-140PF1E5B	14	2160	47770	1197	191	100	1405	260	100
LG	ARNU07GM1A4	2.2	540	7507	862	205	100	854	236	100
	ARNU09GM1A4	2.8	570	9554	862	205	100	854	236	100
	ARNU12GM1A4	3.6	660	12284	862	205	100	854	236	100
	ARNU15GM1A4	4.5	960	15355	862	205	100	854	236	100
	ARNU18GM1A4	5.6	1020	19108	862	205	100	854	236	100
	ARNU24GM1A4	7.1	1140	24226	862	205	200	854	236	100
	ARNU28GM2A4	8.2	1680	27979	1211	202	100	1210	235	100
	ARNU36M2A4	10.6	1920	36168	1211	202	100	1210	235	100
	ARNU42GM2A4	12.3	2280	41969	1211	202	100	1210	235	100
	CL09F N50	3.2	690	10919	865	154	100	905	160	100
	CL12F N50	4.7	690	16037	865	154	100	905	160	100
	CL18F N60	5.8	900	19790	1065	154	100	1105	160	100
	CL24F N33	7.8	1200	26614	1065	154	100	1105	160	100
	CM18FN10	5.6	990	19108	862	275	100	855	236	100
	CM24FN10	7.5	1080	25591	862	275	100	855	236	100
	UM30FN10	8.3	1320	28321	862	275	100	855	236	100
	UM36FN10	10.5	1920	35827	1211	205	100	1210	235	100
AUX AIR CONDITIONER	AMSD-H07/4R3A	2.2	600	7507	575	116	100	689	173	100
	AMSD-H09/4R3A	2.6	600	8871	575	116	100	689	173	100
	AMSD-H12/4R3A	3.6	680	12284	575	116	100	689	173	100
	AMSD-H18/4R3A	5.1	860	17402	835	115	100	982	173	100
	ALMD-H18/NDR3HA	5	1150	17061	816	180	100	1044	209	100
	ALMD-H24/NDR3HA	7	1400	23885	816	180	100	1044	209	100
	ALMD-H36/NDR3HA	10.55	1900	35998	1218	183	150	1280	183	150
	ALMD-H48/NDR3HA	14	2300	47770	1218	183	200	1280	183	200
	ALMD-H60/NDR3HA	16	2300	54594	1218	183	250	1280	183	250
Hisense	ADT-09UX4RRBL4	2.9	520	9895	754	136	100	791	170	100
	ADT-12UX4RSBL4	3.52	600	12011	754	136	100	791	170	100
	ADT-18UX4RSCL4	5.3	900	18084	1024	136	100	1061	170	100
	AUD-24UX4RFCL4	7.2	1100	24567	1024	136	100	1061	170	100
	AUD-30UX4RFDH4	8.8	1450	30027	991	180	100	1011	233	100
	AUD-36UX4RADH4	10.5	1800	35827	991	180	100	1011	233	100
	AUD-42UX6RTHH4	12.5	1750	42651	1210	227	100	1240	313	100
	AUD-48UX6RPHH4	14.4	2400	49134	1210	227	100	1240	313	100
	AUD-60UX6RPHH4	17.5	2400	59712	1210	227	100	1240	313	100
MITSUBISHI ELECTRIC Cooling and Heating Solutions	PEFY-P15VMS1-E	1.7	420	5801	665	155	100	705	162.5	100
	PEFY-P20VMS1-E	2.2	480	7507	665	155	100	705	162.5	100
	PEFY-P25VMS1-E	2.8	540	9554	665	155	100	705	162.5	100
	PEFY-P32VMS1-E	3.6	600	12284	665	155	100	705	162.5	100
	PEFY-P40VMS1-E	4.5	660	15355	865	155	150	905	162.5	100
	PEFY-P50VMS1-E	5.6	780	19108	865	155	150	905	162.5	100
	PEFY-P63VMS1-E	7.1	990	24226	1065	155	200	1105	162.5	100
	PEFY-P20VMA(L)-E	2.2	510	7507	665	183	100	705	229	100
	PEFY-P25VMA(L)-E	2.8	510	9554	665	183	100	705	229	100
	PEFY-P32VMA(L)-E	3.6	630	12284	665	183	100	705	229	100
	PEFY-P40VMA(L)-E	4.5	840	15355	865	183	100	905	229	100
	PEFY-P50VMA(L)-E	5.6	1020	19108	865	183	100	905	229	100
	PEFY-P63VMA(L)-E	7.1	1140	24226	1065	183	100	1105	229	100
	PEFY-P71VMA(L)-E	8	1260	27297	1065	183	100	1105	229	100
	PEFY-P80VMA(L)-E	9	1260	30709	1065	183	100	1105	229	100
	PEFY-P100VMA(L)-E	11.2	1980	38216	1365	183	100	1405	229	100
	PEFY-P125VMA(L)-E	14	2400	47770	1365	183	100	1405	229	100
	PEFY-P140VMA(L)-E	16	2520	54594	1565	183	100	1605	229	100
MITSUBISHI HEAVY INDUSTRIES, LTD.	FDUM-40VF	4	600	13648	685	175	150	665	205	100
	FDUM-50VF	5	600	17061	685	175	150	665	205	100
	FDUM-60VF	5.6	900	19108	885	175	200	865	205	100
	FDUM-71VF1	7.1	1140	24226	885	175	200	865	205	100
	FDUM-100VF2	10	1680	34121	1205	175	250	1205	240	100
	FDUM-125VF2	12.5	1920	42651	1205	175	300	1205	240	100
	FDUM-140VF2	14	2100	47770	1205	175	350	1205	240	100
	SRR25ZM-S	2.5	570	8530	665	104	100	665	165	100
	SRR35ZM-S	3.5	600	11942	665	104	150	665	165	100
	SRR50ZM-S	5	810	17061	865	104	200	865	165	100
	SRR60ZM-S	6	870	20473	865	104	200	865	165	100

FASTENING METHODS
OF PLENUM BOX A/C

Any A/C concealed ducted unit available can become part of an A/C unit – plenum box configuration according to the needs and standards of your project. Some of the recommended A/C unit plenum box fastening methods are presented in the illustration that follow:



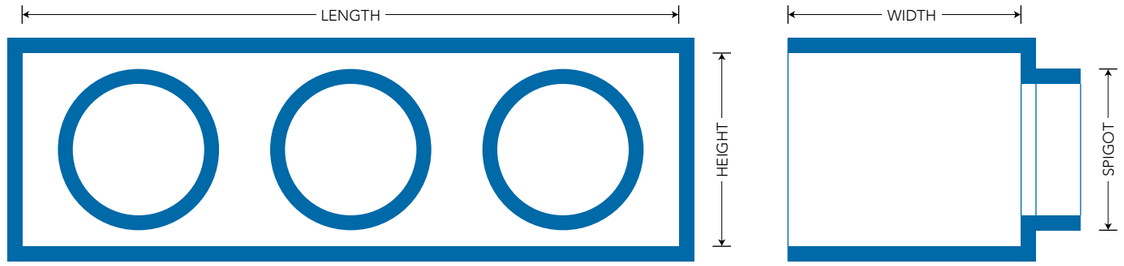
Plenum box fixed on a/c unit using screws on the side panel of the supply air opening.



Plenum box fixed on a/c unit using screws on a 20mm frame around the plenum box.

HOW TO ORDER
YOUR PLENUM BOX A/C

INTERNAL DIMENSIONS



1. By requesting an A/C Plenum Box please provide also the A/C unit model number
2. Let us know about the quantity, dimensions and spigots position
3. Confirm our Plenum Box dimension on our quotation

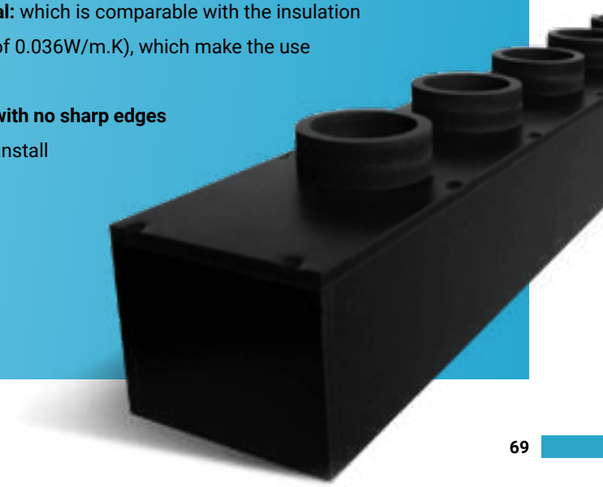


WHY VENTUS?

Euro Air textile materials (HDC and DFC-line) are certified and approved according to:

B-s1, d0

- **Flammability, EN13501-1 Class B**
- **Smoke Production, EN13501-1 Class s1**
- **Flaming Droplets, EN13823 Class d0**
- Fire Retardant material (5 seconds self-extinguishing ability)
- **Very Low Thermal conductivity factor of 0.05W/m.K as a material:** which is comparable with the insulation that used for convectional Plenum Boxes (Thermal Conductivity of 0.036W/m.K), which make the use of insulation unnecessary
- **Insulated spigots made from the same material rounded or oval with no sharp edges**
- Low ratio of weight to size, making them lightweight and easy to install
- **No liquefaction inside the Plenum Box**
- Very Low Water Absorbing Capacity (less than 1.5%)
- Very good noise cancellation factor
- Natural black color that doesn't reflect light



CUSTOM MADE
DESIGNED GRILLES

At Ventus we take pride in our ability to offer fully-customized products to our clients according to their specifications.

For any Custom-Made order, please attach drawings specifying all necessary information (the various dimensions needed, depth of the plenum box, location and dimensions of spigots)

HOW TO ORDER

YOU DESIGN IT
WE BUILD IT

C2020

WWW.C2020.EU

