KVF / KVI

Capture Jet™ hood
With (F) or without (I) makeup air on the front / M.A.R.V.E.L. compatible

New design

Halton Skyline LED
Culinary light inside

KVF/I hoods are particularly suitable for LEED(1) projects and can be used in all closed, open or show kitchens (hotels, hospitals, gastronomic restaurants, central kitchens, etc).

KVF/I hoods have the latest generation of patented Capture Jet™ technology. KVF hoods are equipped with a low-velocity makeup air system built into the front face.

- HACCP(2) certified.
- Considerable energy savings: 30 to 40% less exhaust airflow rates due to Capture Jet™ technology.
- Savings on maintenance and enhanced safety: Highly-efficient KSA cyclonic filters (UL, NSF and LPS 1263 certified). Prevents build-up of grease deposits which constitute a serious hygiene and fire hazard. Lower ductwork cleaning costs.
- KVF - Better capture and comfort thanks to a low-velocity diffuser built into the front (make up air without draughts).
- Halton Skyline LED culinary light provides the best visual comfort while contributing to further improve the safety and the energy savings.
- Performance tested independently in accordance with the ASTM 1704 standard. Exhaust airflow rates calculated on the base of this performance and the calculation of cooking appliances' heat loads.
- Quick and easy commissioning. Hoods delivered "ready to install", with all accessories included, such as light fitting, T.A.B.™ taps and balancing dampers for quick balancing on-site.
- Sturdier and easier to clean: Less parts and less joints. Stainless steel construction.

(1) Leadership in Energy and Environmental Design
(2) Hazard Analysis Critical Control Point

Halton

Description of the main technologies

New design

Halton Skyline LED
Culinary light inside

Capture Jet™ technology
Up to 40% reduction
in airflow rates

Cyclonic filter (KSA)
95% efficient on 10 µm and above
particles

Halton Skyline (HCL)
Kitchen specific and LED based
Culinary Light

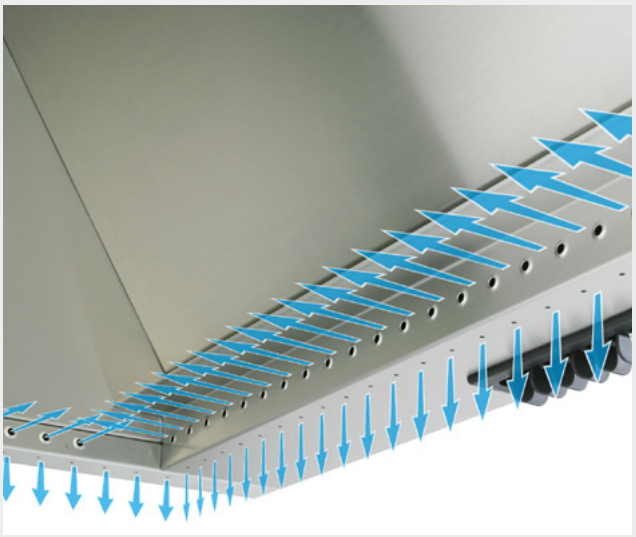
Integrated makeup air
Better smoke capture and comfort
(KVF)

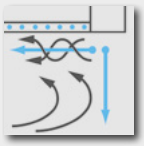
Testing & Balancing (T.A.B.™)
Quick airflow rates measurement

KVF/I

Capture Jet™ hood
With (F) or without (I) makeup air on the front / M.A.R.V.E.L. compatible

Halton





Capture Jet™ technology

ENERGY EFFICIENCY

30 to 40% reduction in exhaust airflow rates.

INDOOR ENVIRONMENT QUALITY (IEQ)

The capture efficiency combined with reduced airflow rates improve the working conditions.

SAFETY

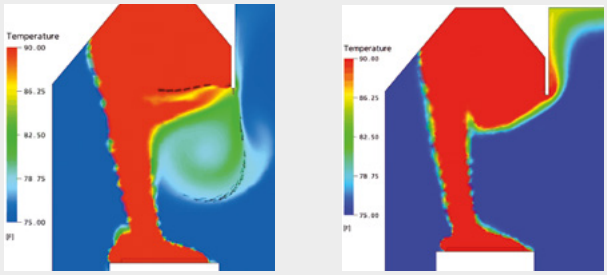
Cooking vapours are not dispersed and food safety is improved.

All hoods fitted with the constantly evolving Capture Jet™ technology (patented) bring about a 30 to 40% reduction of exhaust airflow rates compared to classic hoods.

The latest generation of the Capture Jet™ technology rests on the association of two sets of nozzles supplied with an extremely low supply air volume (a maximum of 30 m³/h/ml of hood). These nozzles fit to the lower part of the hood front as well as the sides, so as to literally encircle the covered cooking areas.

- The horizontal nozzles increase the driving speed to the lower part of the hood front thanks to the Venturi effect. They therefore push vapours back towards the filters.
- The vertical nozzles form a curtain of air that increases the hoods' containment volume, protects the capture zone from draughts and considerably minimises the dispersal of vapours. Thanks to these vertical nozzles, a hood installed at a height of 2 metres is as efficient as if it was installed at a height of 1.85 m or 1.90 m.

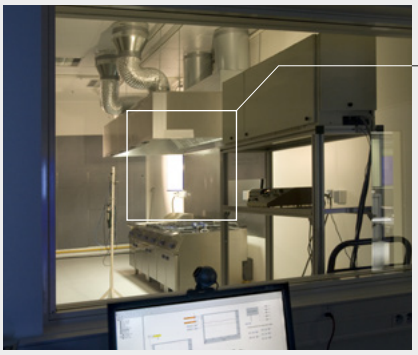
WITH Capture Jets | WITHOUT Capture Jets



Digital simulation on the efficiency of the Capture Jets thanks to the association of two sets of nozzles

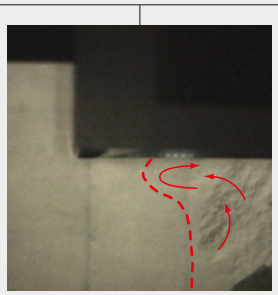
It is possible to bring the reduction of exhaust airflows to 64% by combining Capture Jet™ and M.A.R.V.E.L technologies.

1 Schlieren tests on a hood WITH and WITHOUT Capture Jets



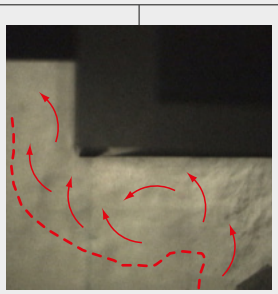
The Schlieren system shows the convective flows of cooking appliances so that the hoods' capture efficiency can be reliably and objectively measured.

WITH Capture Jets
3600 m³/h



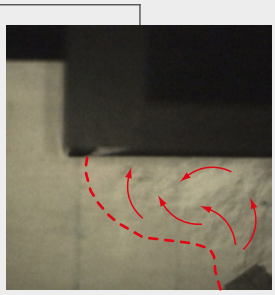
All vapours released by the appliances are captured and evacuated at a rate of 3600 m³/h.

WITHOUT Capture Jets
3600 m³/h



With this same rate of 3600 m³/h, a traditional hood without Capture Jets is inefficient.

WITHOUT Capture Jets
6000 m³/h



The airflow of a hood without Capture Jets must be 6000 m³/h in order to be considered efficient.

Highly-efficient KSA cyclonic filters

ENERGY EFFICIENCY

Reduces the energy used by fans, by minimising loss of pressure.

SAFETY

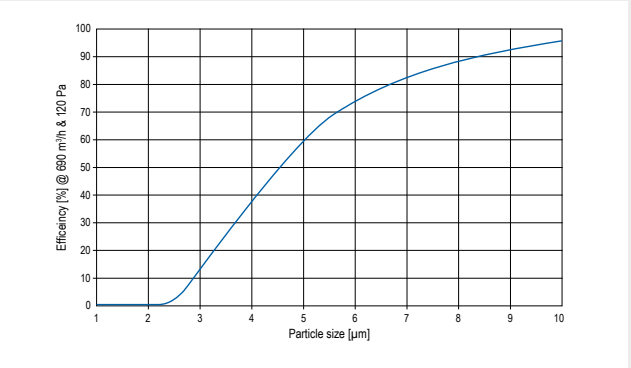
95% efficiency on 10 µm particles minimises build-up of grease deposits and improves fire safety and food safety.

KSA cyclonic filters are composed of vertical honeycomb sections. Opening only at the top and bottom, they are designed to force the air to swirl inside. The centrifugal effect is significant and, above all, continuous – especially in comparison to the action of traditional filters. Particles are thus thrown against the honeycomb walls with much higher force. KSA filters are **95% efficient on 10 µm particles**.

- Improved hygiene and fire safety thanks to less grease deposits in the exhaust plenums and ducts.
- Lower maintenance costs due to lower cleaning frequency.
- Improved noise levels thanks to limited pressure loss.
- A must for the use of UV-C Capture Ray™ technology.
- Unbeatable Efficiency/Pressure loss ratio.

KSA filters are accredited by the UL (Underwriter Laboratories) as flame-retardant and have NSF (National Sanitation Foundation) Hygienic and safety approval. They are fitted on all hoods and ventilated ceilings.

Schlieren tests on a KSA filter



Tests carried out by VTT according to VDI 2052 (part 1) "Ventilation Equipment for kitchens. Determination of Capture Efficiency of Aerosol Separators in Kitchen Exhaust"

Culinary and Human Centric Light (Halton Skyline)

INDOOR ENVIRONMENT QUALITY (IEQ)

Close to sunlight render and increased lighting levels for a better colour and texture render. Ideal working conditions.

SAFETY

The sensible areas of the kitchen benefit from a better light for a better safety and quality control.

ECONOMIC ADVANTAGE

Drastic energy savings leading to reduced payback times.

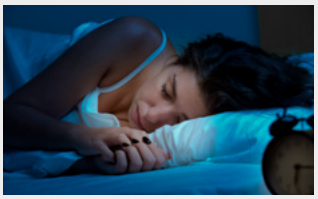
The impact of lighting in professional kitchens has often been regulated to simply satisfying illumination levels without regard for personnel wellbeing.

The link between good lighting, better working conditions and productivity, is now widely recognized. However, what often occurs when a kitchen benefits from excellent lighting levels, the staff is dazzled from reflected light. When dazzling does not occur, the kitchen typically suffers from a lack of illumination that is more harmful for the safety of the staff and hygiene of the kitchen.

Halton Skyline is the first LED based lighting technology specifically developed for professional kitchens. Everyone agrees the light it provides is simply the closest possible to natural light.

- Halton Skyline remarkably respects the food colour and texture from raw ingredients to plated presentation. The two spot models developed for Halton Skyline have respectively a CRI of 83 (@4000K) and 95 (@2800K).

- Halton Skyline provides the best visual comfort, without alteration over time and without dazzling the staff, thus also playing an active role in the kitchen safety. Among others, Halton Skyline's shielding angle is up to two times higher than DIN EN 12464-1[(1)] demand.



- Halton Skyline's Human Centric version is a biodynamic lighting centered on users needs. It creates daylight-similar sequences depending on the kitchen activity, further improving their working conditions and Wellbeing. You would think you were outside!

- A state of the art lighting technology that, at its core, saves significantly on energy and maintenance. With a luminous efficacy of 120 lm/W, Halton Skyline consumes up to 2,8 times less than fluorescent tubes.

Integrated low velocity makeup air

ENERGY EFFICIENCY

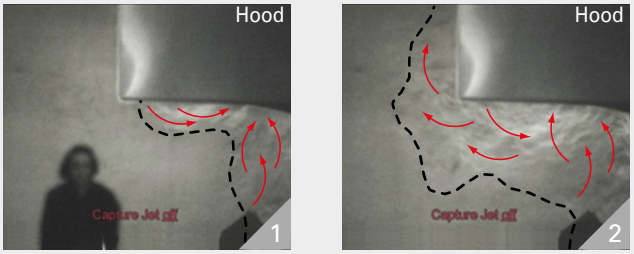
Contributes to the exhaust airflow rates reduction achieved thanks to the Capture Jet™ technology.

INDOOR ENVIRONMENT QUALITY (IEQ)

Better working conditions and productivity thanks to a better air quality, a draughts reduction, lower noise levels and a positive impact on the perceived temperature.

Draughts have to be declared public enemy number one.

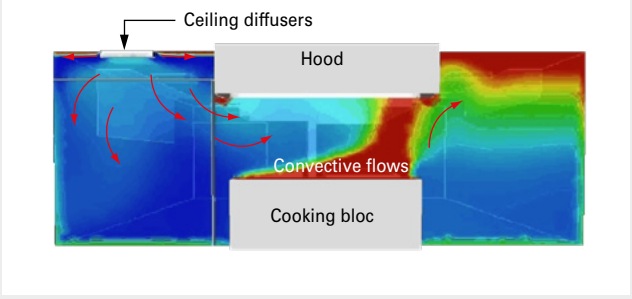
The heat and smoke generated by the cooking appliances are extremely dispersible. When they rise up toward a hood or a ventilated ceiling, they are left to their own and are hence very sensitive to draughts. At a point that the air displacement generated by one people walking close by is high enough to disperse them as shown below on a Schlieren test made on a hood which is not equipped with the Capture Jet™ technology.



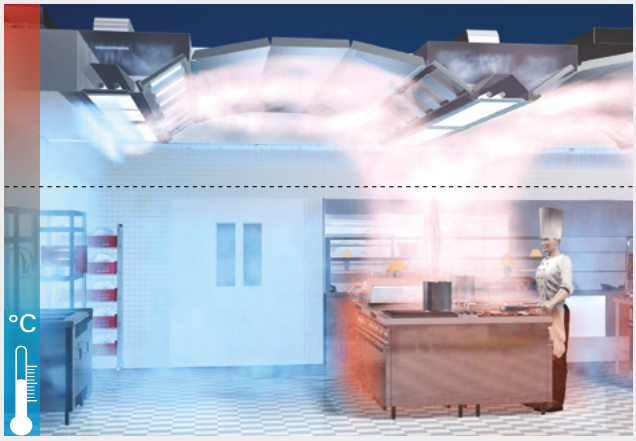
In situation of total Capture, a "user" goes along s standard hood at a normal pace (1). The draught generated is enough to disperse the thermal plumes and cause spillages (2).

"Mixing" diffusers are inadvisable.

In narrow spaces like professional kitchens, mixing diffusers indeed inevitably generate even stronger draughts, harmful for the staff comfort and for the efficiency of hoods and ventilated ceilings.



Low velocity makeup air from ceiling enhances both the kitchen ventilation efficiency and the comfort.

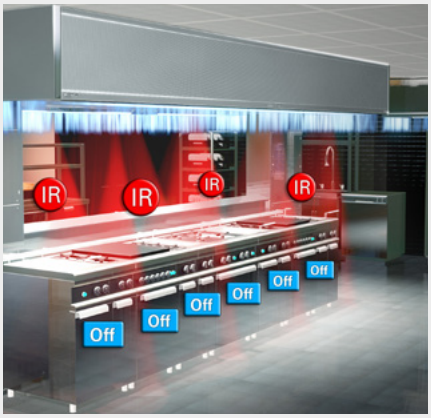


It enables the kitchen air to be renewed on the principle of air displacement. Fresh air naturally drops to low level and fills the working area from that level. The absence of flow turbulences prevents this fresh air from mixing with convective flows from the cooking equipment.

In addition, a comfort limit naturally appears in the kitchen's environment through stratification. Below this limit height i.e. above head level, air quality is optimal.

Low velocity makeup air from ceiling allows not only to improve the air quality inside the kitchen but also to improve the Capture and Containment efficiency of the Capture Jet™ hoods and ventilated ceilings. It leads to energy savings thanks to a reduction of the exhaust airflow rates.

Recommended combinations



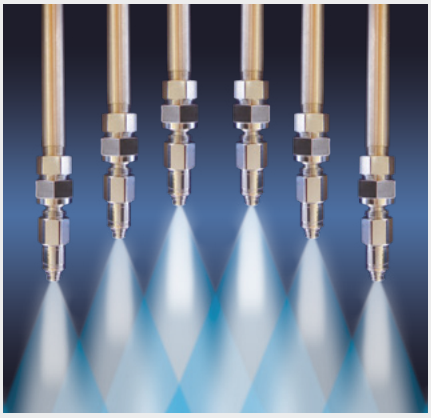
M.A.R.V.E.L. Demand Controlled Ventilation (MRV)

ENERGY EFFICIENCY

Up to 64% reduction in exhaust airflow rates in association with Capture Jets. Reduces drastically the cooling/heating energy consumption and the energy use of supply and extract fans.

INDOOR ENVIRONMENT QUALITY (IEQ)

Reduces noise and draughts through constantly modulating air flows to the correct level to evacuate all vapours.



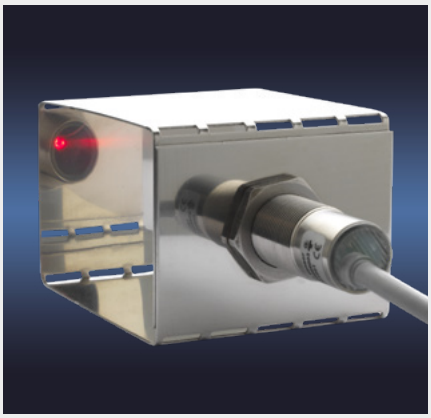
Built-in Fire Suppression System (FSS)

SAFETY

The kitchen and the rest of the building are protected by fires being extinguished at source. Plenums and exhaust connections are also protected from the spread of fire.

ECONOMIC ADVANTAGE

Integration of the system in the factory to provide better respect for products and to optimise costs.



Monitoring system of duct networks (KGS)

SAFETY

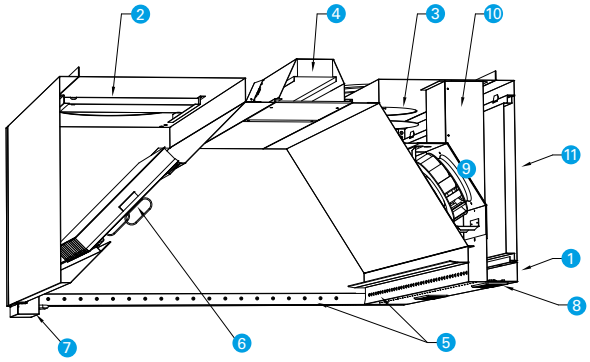
Efficient and cost-effective prevention tool for hygiene and fire safety due to the assessment of grease build-up in the ductwork.

ECONOMIC ADVANTAGE

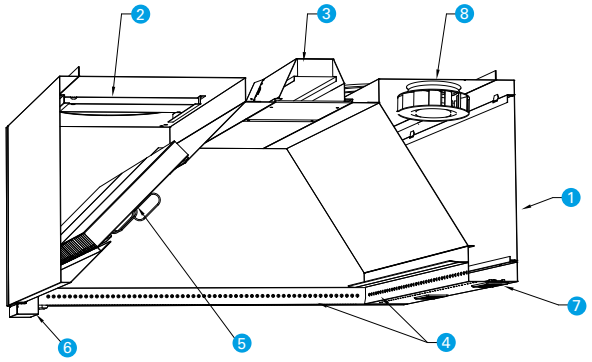
Allows for cleaning of ducts only when really necessary and not in a programmed and often unnecessary way. Maximum safety at minimum cost.

Technical descriptions

KVF



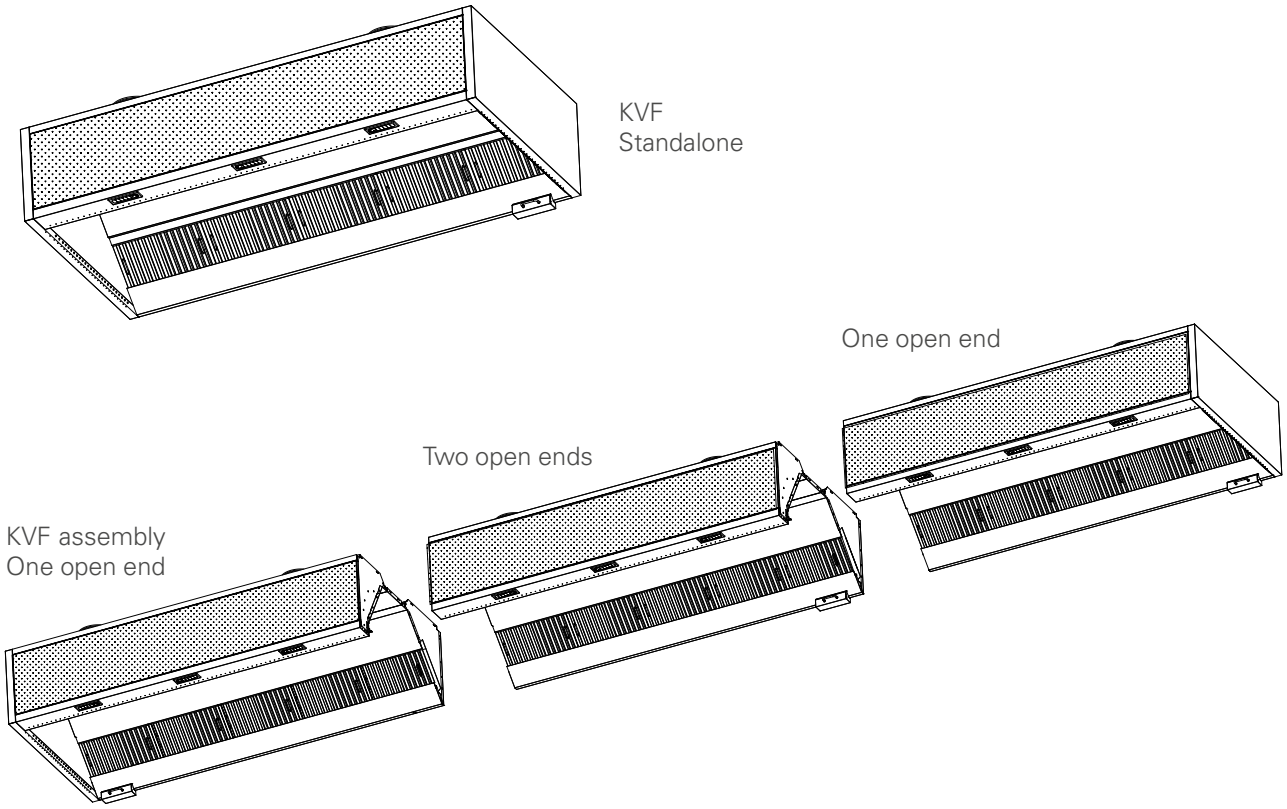
KVI

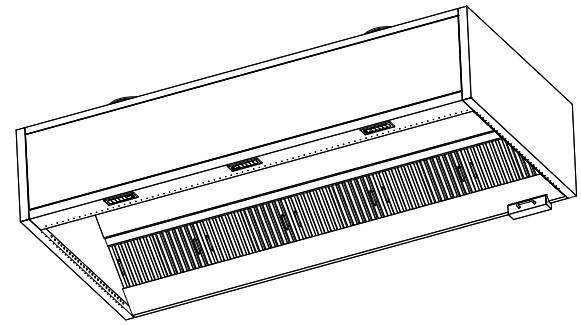


CODE	DESCRIPTION
1	Outer casing – visible parts in stainless steel AISI 304
2	Exhaust air connection and adjustment damper
3	Supply air connection and adjustment damper (type MSM)
4	Halton Skyline LED light fitting
5	Capture Jet™ nozzles
6	KSA cyclonic grease filters

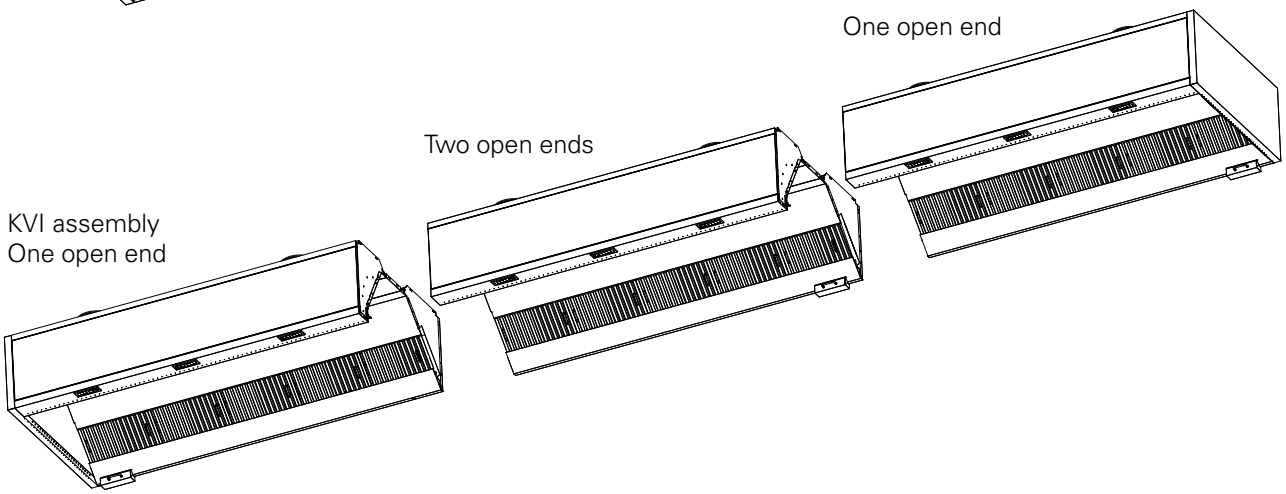
CODE	DESCRIPTION
7	Grease collection tray or drain tap
8	Personal supply air nozzles
9	Capture Jet™ fan
10	Option Capture Jet™ fan air inlet plenum
11	Perforated front face

STANDALONE HOOD AND ASSEMBLY OF MODULAR SECTIONS





KVI
Standalone

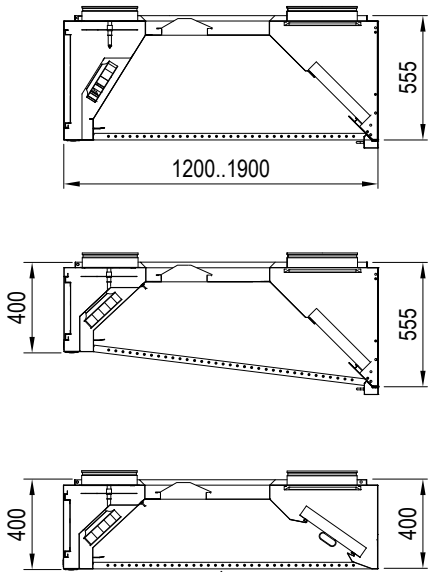


QUICK SELECTION DATA

L (section length)	L1 (active length)	Recommended Exhaust air volume*		Recommended make up air volume		Capture Jet air volume (with width = 1300)	
		l/s	m³/h	H = 555	H = 400	l/s	m³/h
1600	1500	420 ... 654	1515 ... 2358	200 l/s or 720 m³/h per linear meter of section MSM 100% open ΔPst = 48 to 52 Pa	157 l/s or 565 m³/h per linear meter of section MSM 100% open ΔPst = 45 to 70 Pa	27	97
2100	2000	560 ... 872	2020 ... 3144			31	112
2600	2500	700 ... 1090	2525 ... 3930			35	127
5100	5000	1400 ... 2180	5050 ... 7860			56	202
7600	7500	2100 ... 3270	7575 ... 11790			77	277
10100	10000	2800 ... 4360	10100 ... 15720			98	352

* Minimum at a T.A.B.™ reading of 59 Pa (505 m³/h or 140 l/s per filter)... maximum at a T.A.B.™ reading of 144 Pa (786 m³/h or 218 l/s per filter)

KVF



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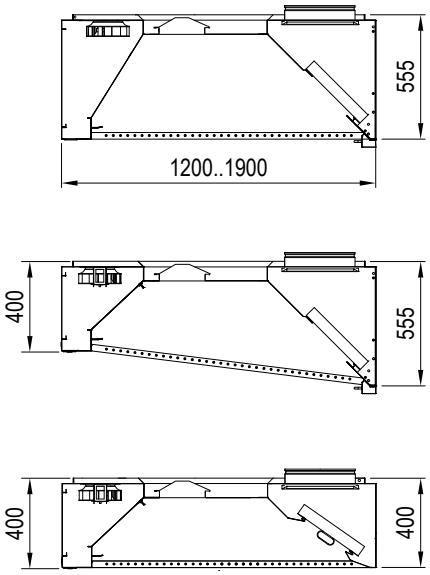
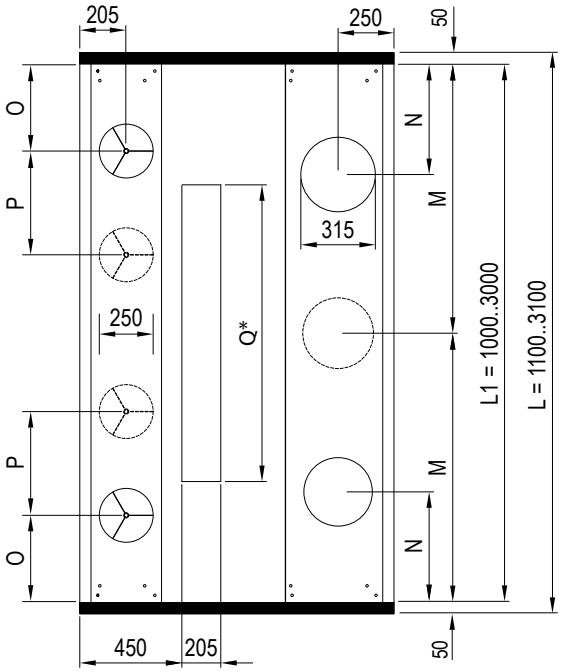
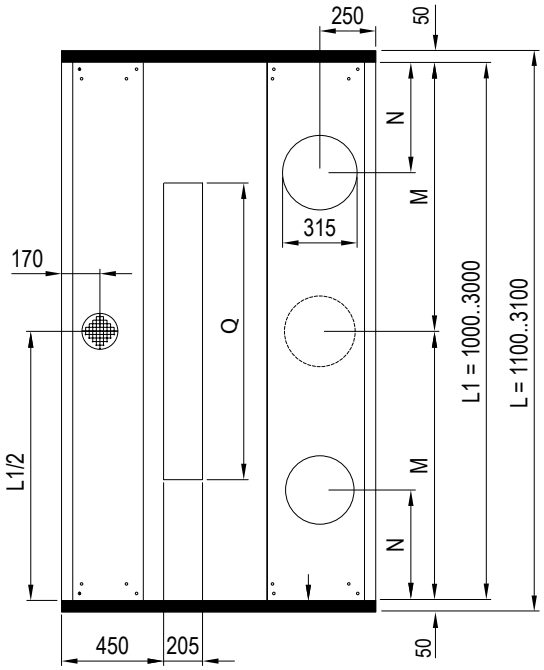






DIMENSIONS

	Exhaust			Supply		Light
	1 Ø315	2 Ø315	3 Ø315	2Ø250	4 Ø250	
L	M	N	M, N	O	P	Q
1600	L1/2	325	-	450	-	720
2100	L1/2	450	-	450	500	1320
2600	-	450	L1/2, 450	450	500	1320
3100	-	450	L1/2, 450	-	500	1320

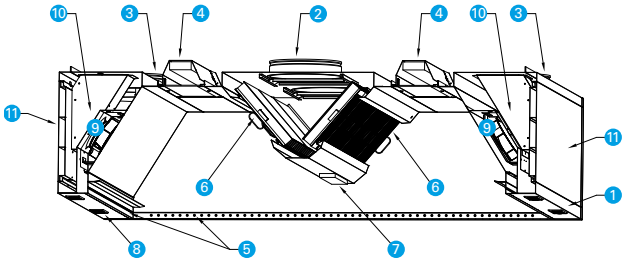
- Above 3000 mm active, hoods are an assembly of separate sections to make transportation and site handling easier.
- Number of exhaust and supply connections to be determined based on the sections length and on the calculation of the exhaust airflow rates depending on the cooking appliances.
- Other air supply possibilities of the Capture Jet fan and on request.
- Other connection configurations for exhaust and supply on request.

WEIGHT (KVF, h=555 mm, kg)

L/B	1100	1300	1500	1700	1900
1100	86	91	97	107	113
1600	114	119	125	136	141
2100	141	147	152	164	170
2600	169	174	180	193	199
3100	196	202	207	222	228

Technical descriptions (KVF/I-M)

KVF-M



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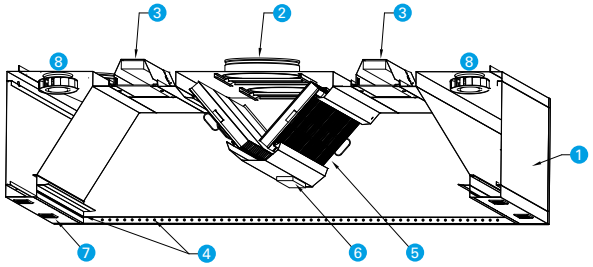
KVI-M



CODE	DESCRIPTION
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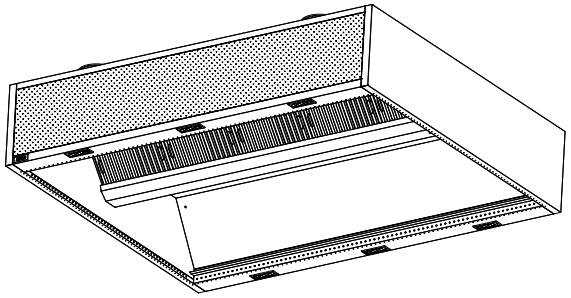
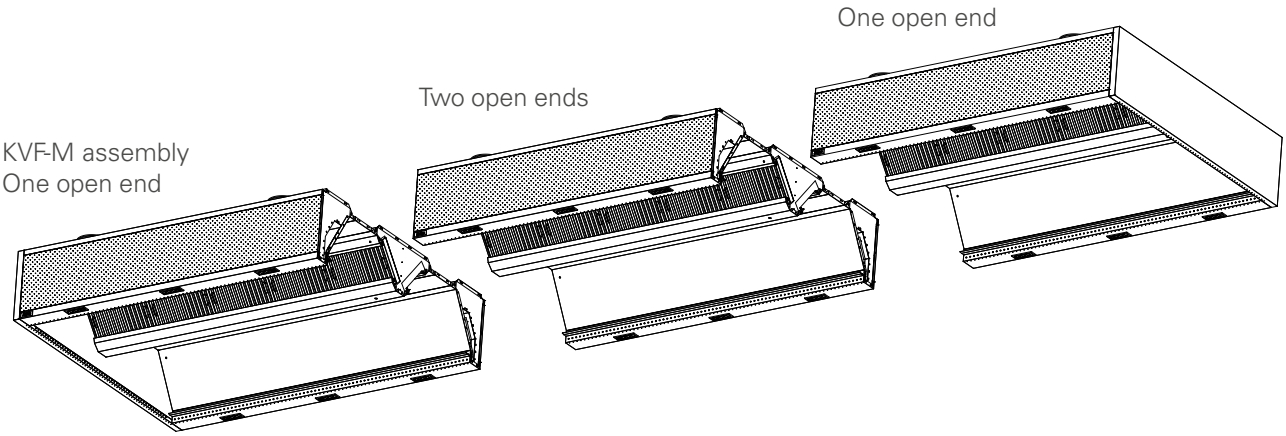
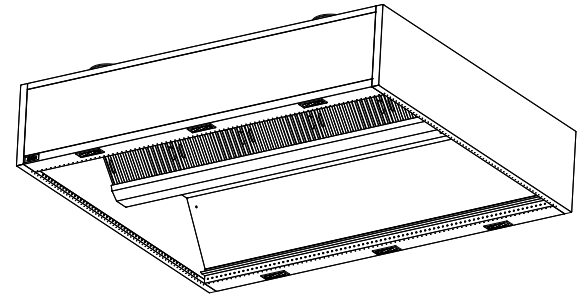
11	Perforated front face

STANDALONE HOOD AND ASSEMBLY OF MODULAR SECTIONS

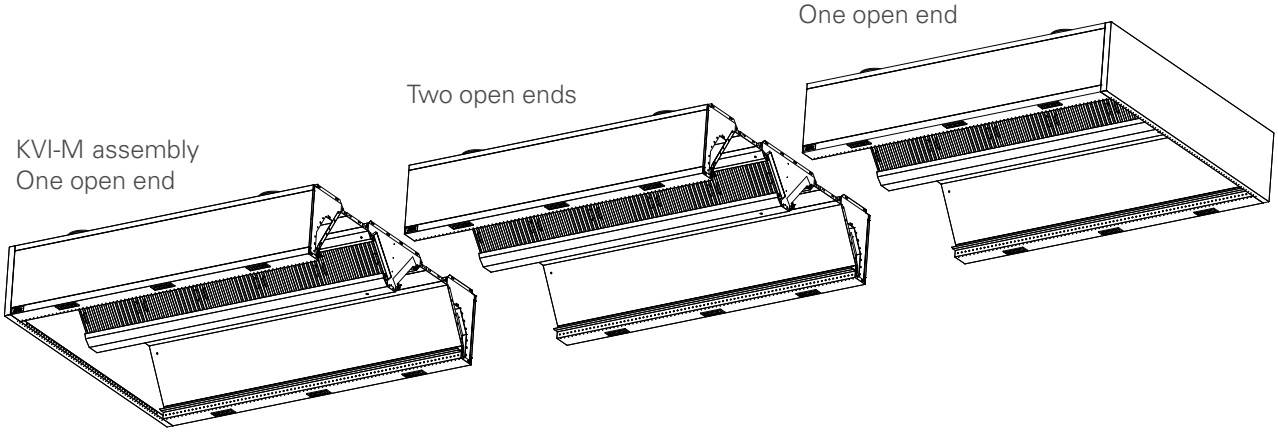


KVF-M
Standalone





KVI-M
Standalone



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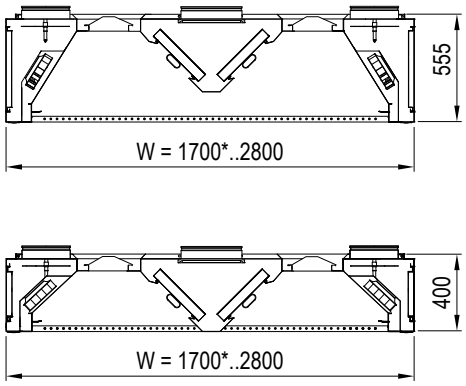
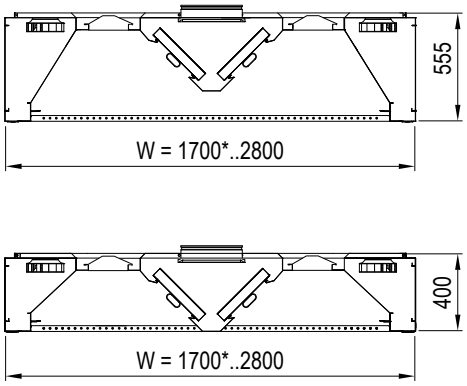
1600	1500	840 … 1308	3030 … 4716	200 l/s or 720 m³/h per linear meter of front face MSM 100% open ΔPst = 48 to 52 Pa	157 l/s or 565 m³/h per linear meter of front face MSM 100% open ΔPst = 45 to 70 Pa	44	158
2100	2000	1120 … 1744	4040 … 6288			52	188
2600	2500	1400 … 2180	5050 … 7860			61	218
5100	5000	2800 … 4360	10100 … 15720			102	368
7600	7500	4200 … 6540	15150 … 23580			144	518
10100	10000	5600 … 8720	20200 … 31440			186	668

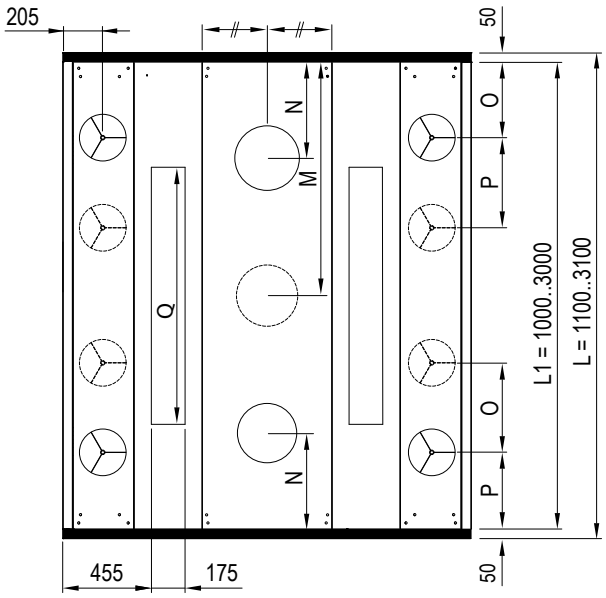
* Minimum at a T.A.B.™ reading of 50 Pa (505 m³/h or 140 l/s per filter)... maximum at a T.A.B.™ reading of 120 Pa (786 m³/h or 218 l/s per filter)

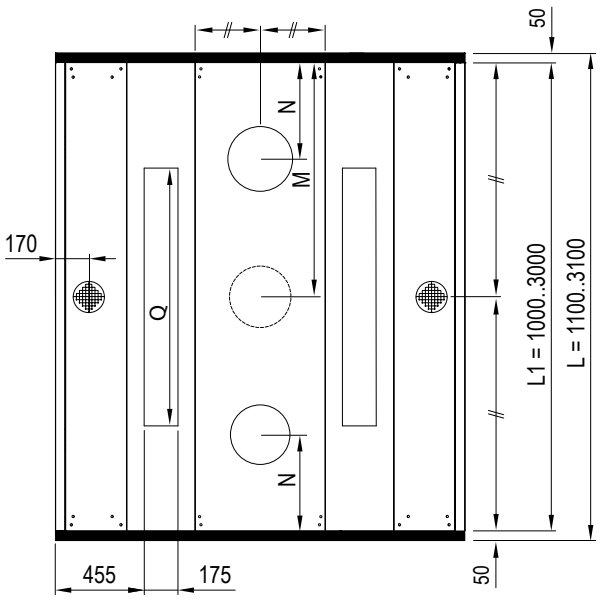
KVF-M



KVI-M







* Light in the supply plenum from 1700 to 2100 mm

DIMENSIONS

	Exhaust			Supply		Light
	1 Ø315	2 Ø315	3 Ø315	2Ø250	4 Ø250	
L	M	N	M, N	O	P	Q
1600	L1/2	325	-	450	-	720
2100	L1/2	450	-	450	500	1320
2600	-	450	L1/2, 450	450	500	1320
3100	-	450	L1/2, 450	-	500	1320

- Number of exhaust and supply connections to be determined based on the sections length and on the calculation of the exhaust airflow rates depending on the cooking appliances.
- Other air supply possibilities of the Capture Jet fan and on request.
- Other connection configurations for exhaust and supply on request.

WEIGHT (KVF-M, h=555 mm, kg)

L/B	1700	1900	2100	2200	2400	2600	2800
1100	149	154	159	164	169	174	179
1600	200	205	210	215	220	225	230
2100	251	256	261	266	271	276	281
2600	302	307	312	317	322	327	332
3100	353	358	363	368	373	378	383

EXHAUST Pressure drop, sound data and airflow measurement

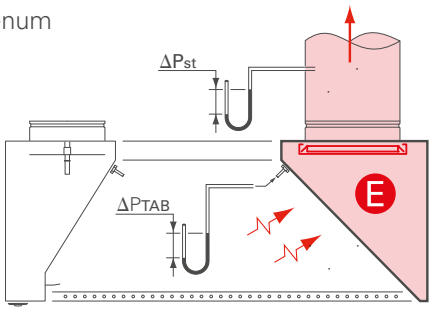
ΔP_{st} = Exhaust section static pressure loss

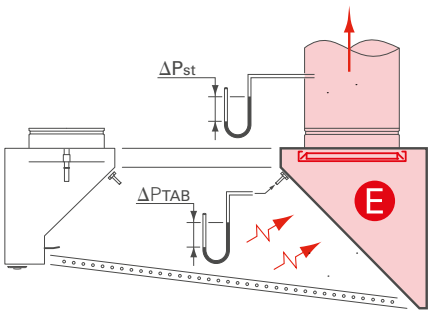
ΔP_{TAB} = T.A.B.™ pressure for airflow rate measurement

30,70,100 = Damper opening in %

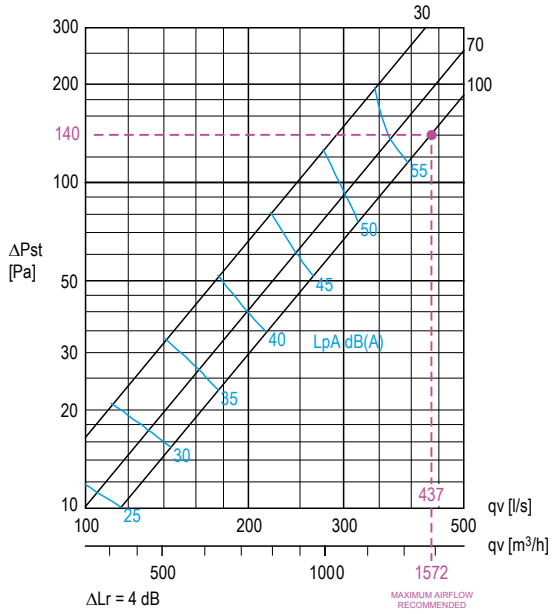
Exhaust plenum

H=555

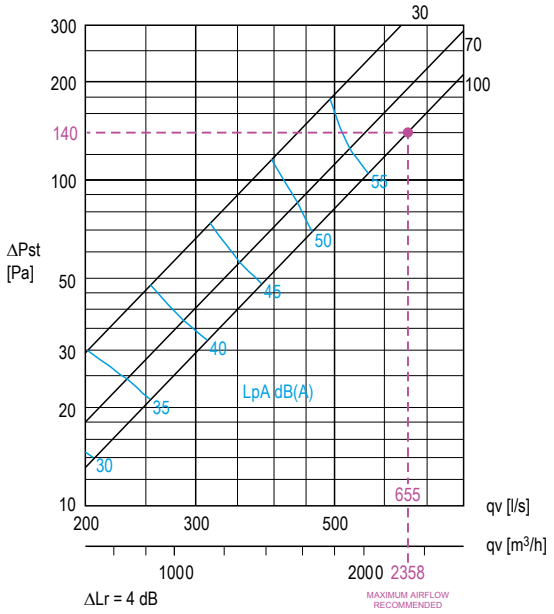




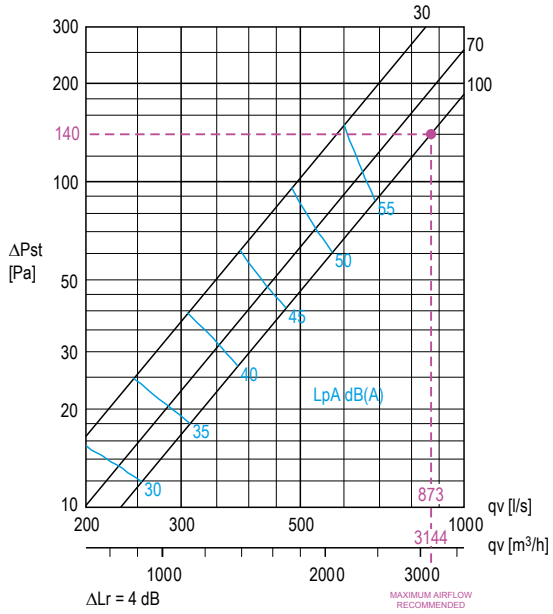
Section 1000 Static pressure loss and sound data



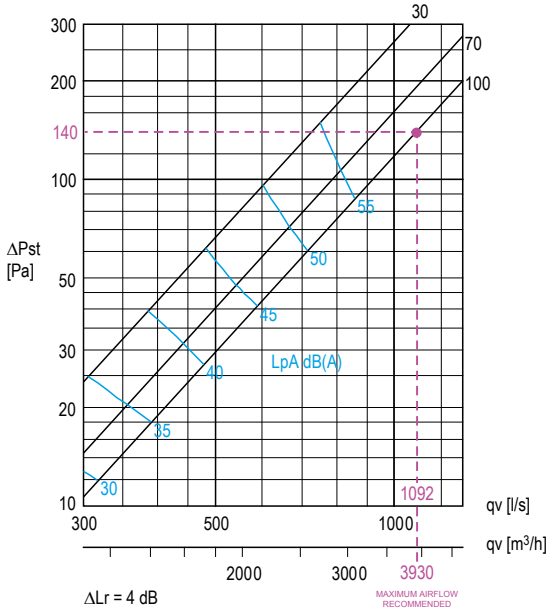
Section 1500 Static pressure loss and sound data

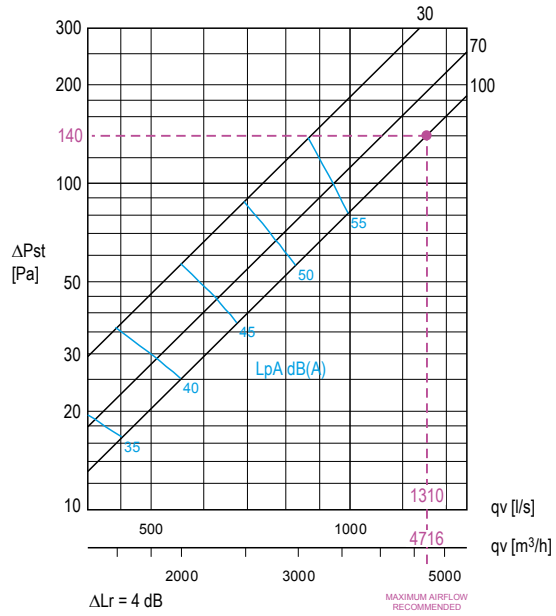


Section 2000 Static pressure loss and sound data



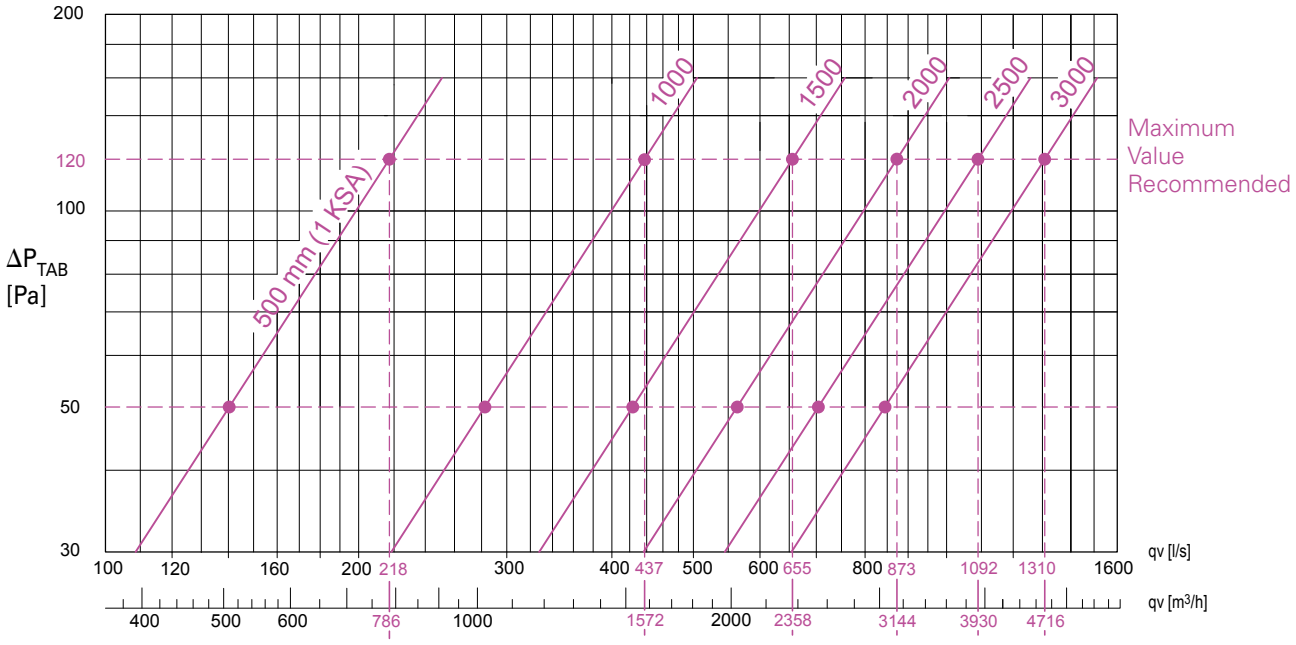
Section 2500 Static pressure loss and sound data





Exhaust airflow rate measurement with T.A.B.™ ports

Recommended pressure T.A.B.™ 50-120 Pa



Exhaust airflow rate measurement using k factors

KSA (Number of filters)	k factor [m³/h]	k factor [l/s]
1	71,8	19,9
2	143,5	39,9
3	215,2	59,8
4	287,0	79,7
5	358,8	99,7
6	430,5	119,6

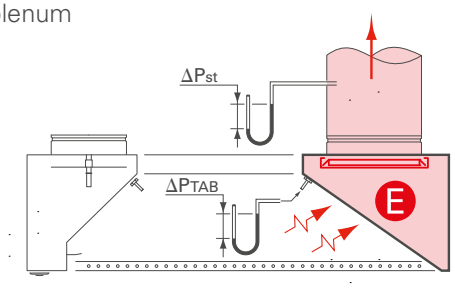
With the T.A.B.™ pressure measurement, it is also possible to check the exhaust airflow with the following formula:

$q_e = k \times \sqrt{\Delta P_{TAB}}$ [Pa]

EXHAUST Pressure drop, sound data and airflow measurement

Exhaust plenum

H=400

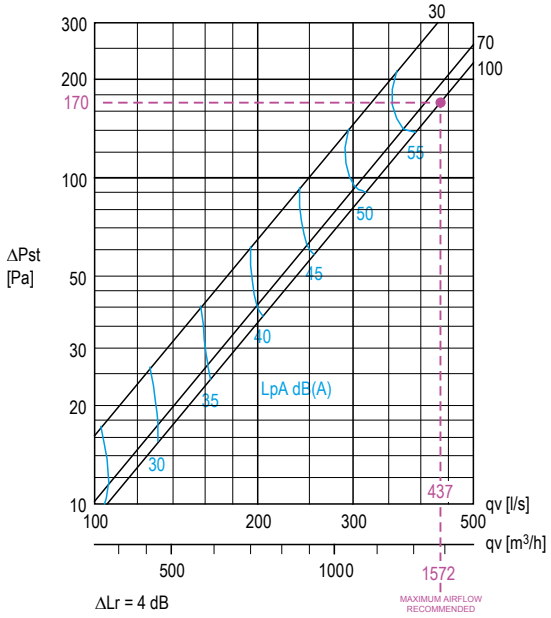


ΔP_{st} = Exhaust static pressure loss

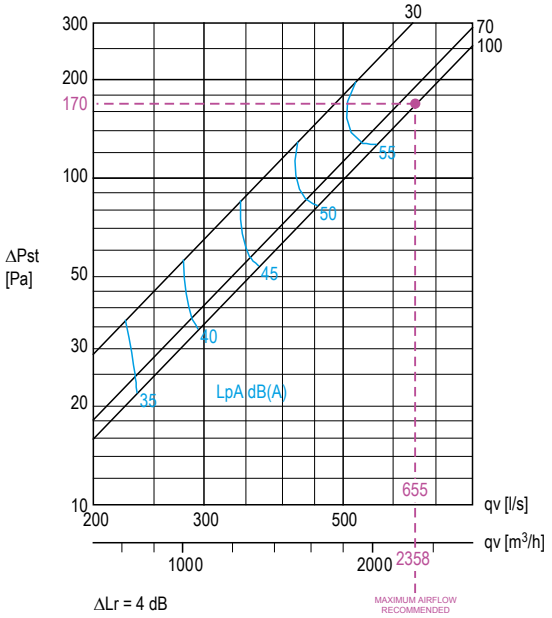
ΔP_{TAB} = T.A.B.™ pressure for airflow rate measurement

30,70,100 = Damper opening in %

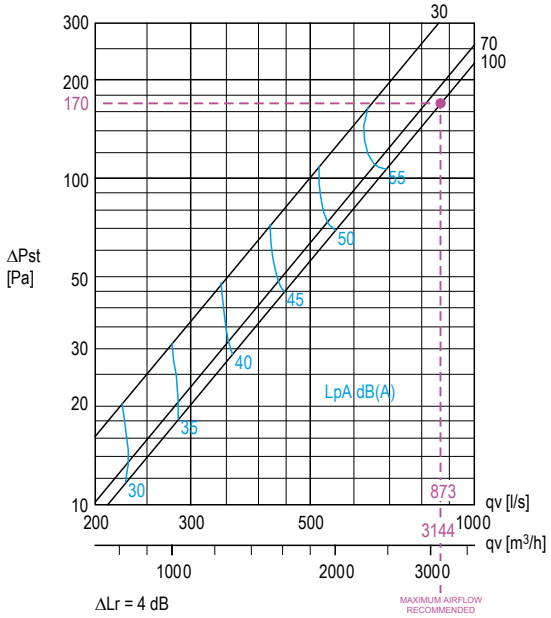
Section 1000 Static pressure loss and sound data



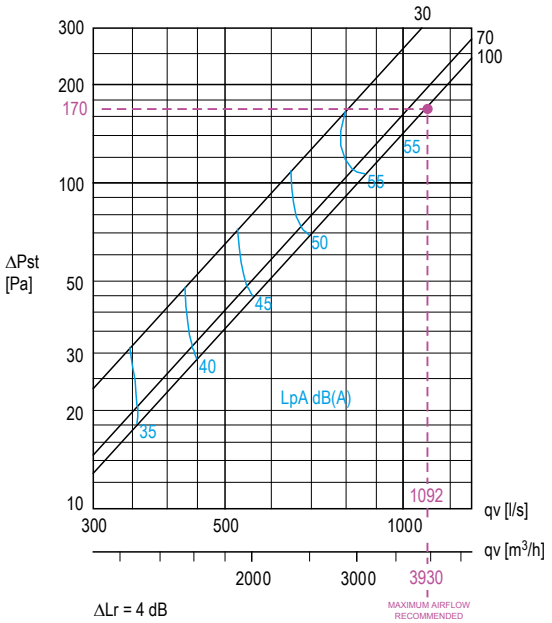
Section 1500 Static pressure loss and sound data

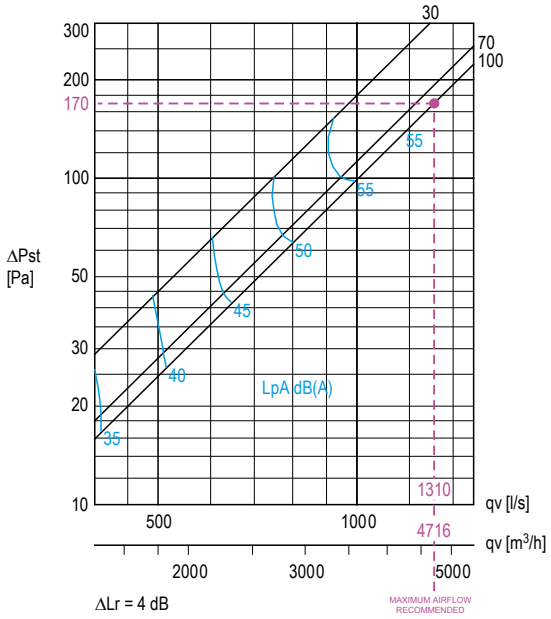


Section 2000 Static pressure loss and sound data



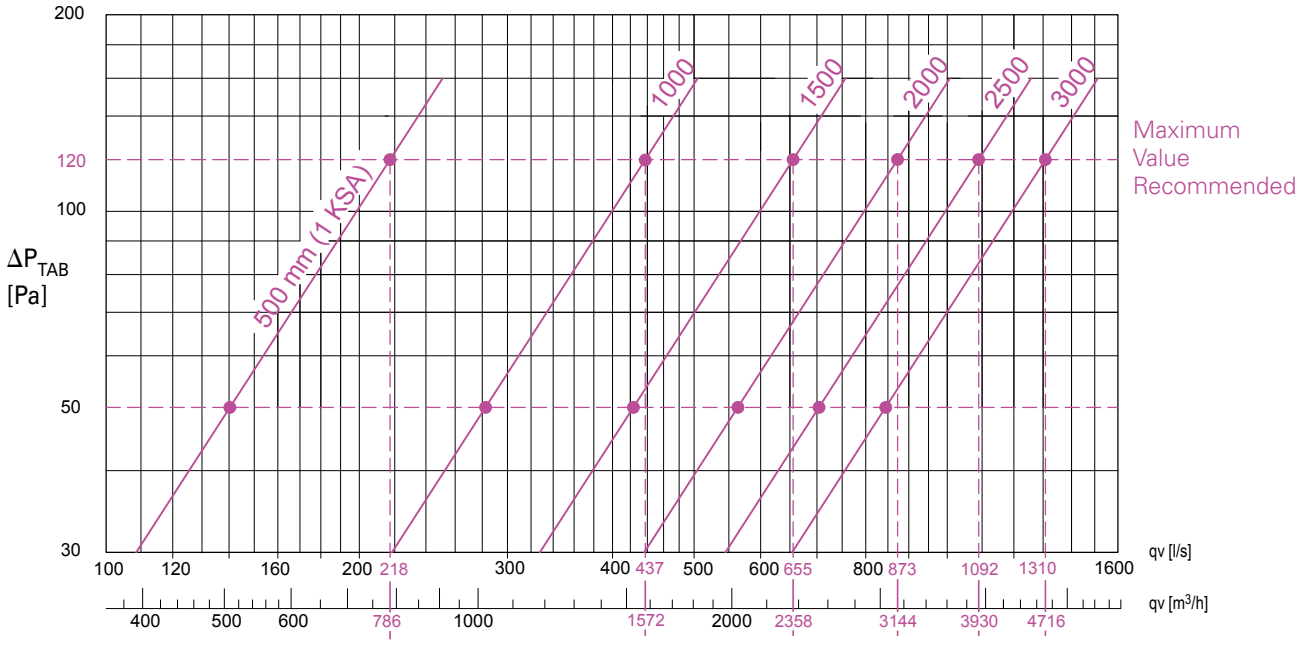
Section 2500 Static pressure loss and sound data





Exhaust airflow rate measurement with T.A.B.™ ports

Recommended pressure T.A.B.™ 50-120 Pa



Exhaust airflow rate measurement using k factors

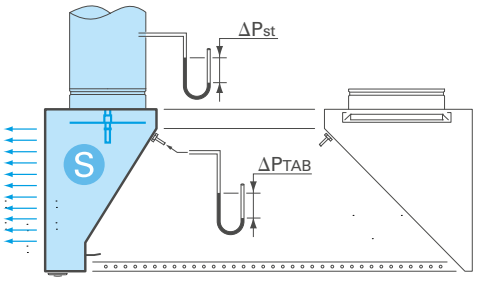
KSA (Number of filters)	k factor [m³/h]	k factor [l/s]
1	71,8	19,9
2	143,5	39,9
3	215,2	59,8
4	287,0	79,7
5	358,8	99,7
6	430,5	119,6

With the T.A.B.™ pressure measurement, it is also possible to check the exhaust airflow with the following formula:

$q_e = k \times \sqrt{\Delta P_{TAB}}$ [Pa]

Supply plenum

H=555

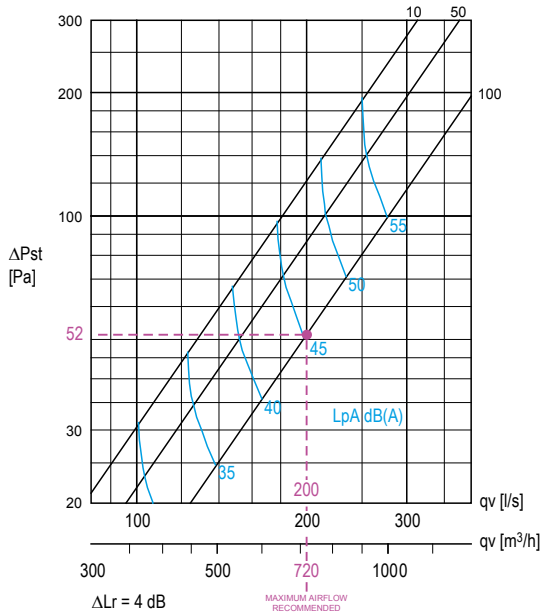


ΔP_{st} = Supply static pressure loss

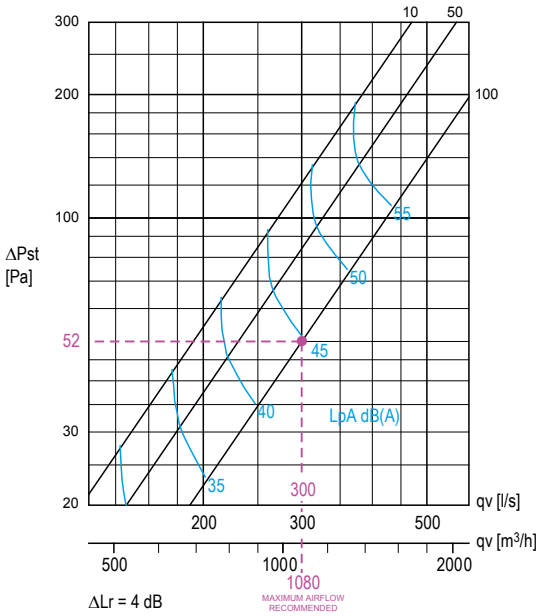
ΔP_{TAB} = T.A.B.™ pressure for airflow rate measurement

10,50,100 = MSM module opening in %

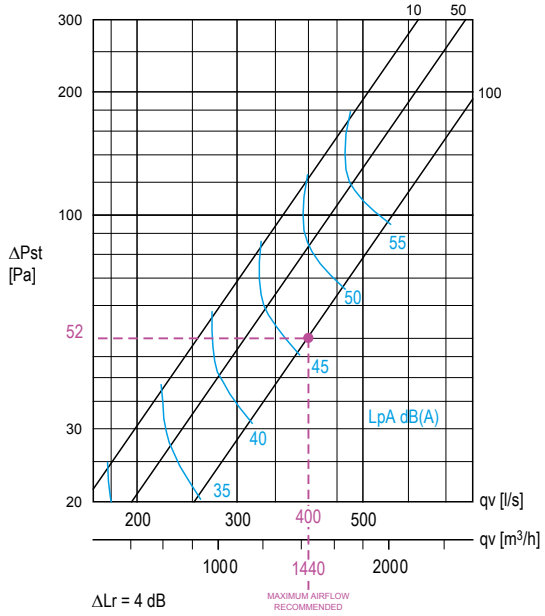
Section 1000 Static pressure loss and sound data



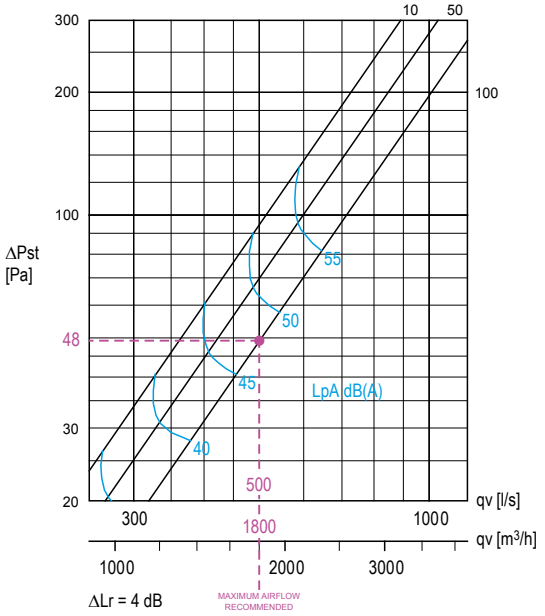
Section 1500 Static pressure loss and sound data

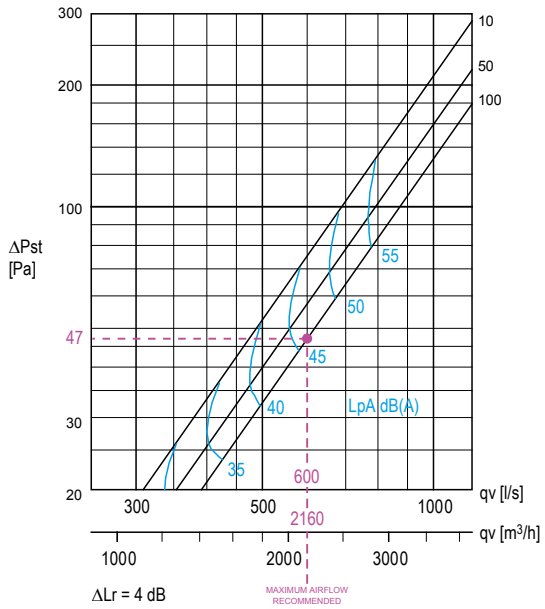


Section 2000 Static pressure loss and sound data



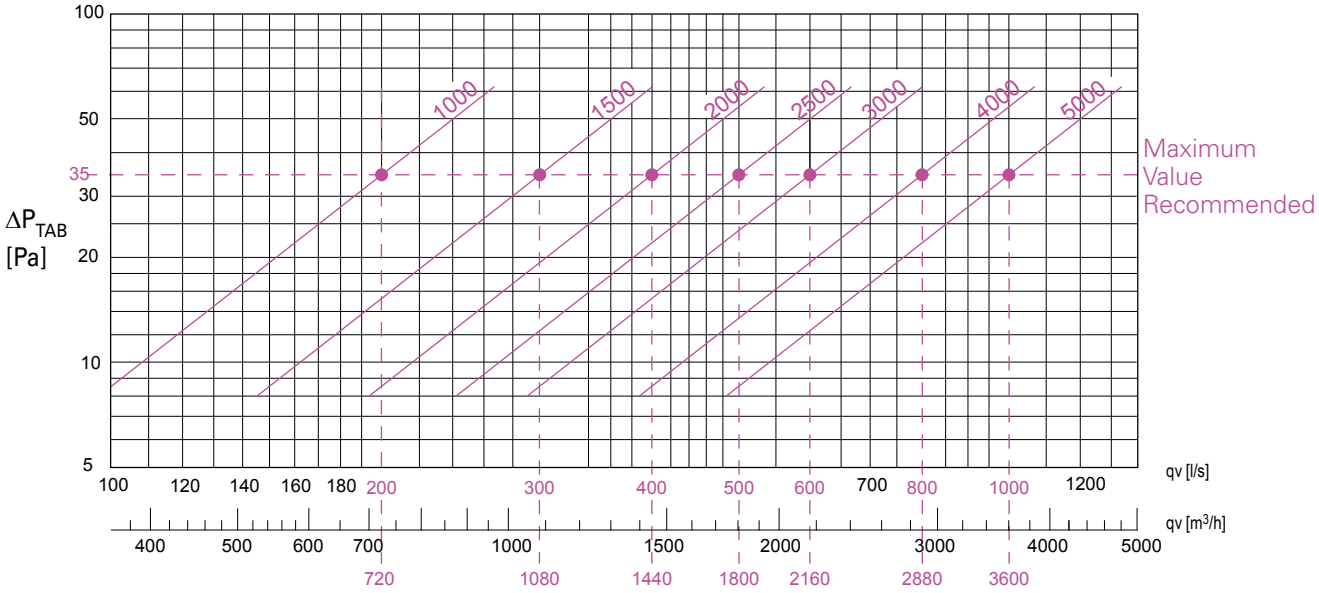
Section 2500 Static pressure loss and sound data





Supply airflow rate measurement with T.A.B.™ ports

Recommended pressure T.A.B.™ 35 Pa



Supply airflow rate measurement using k factors

With the T.A.B.™ pressure measurement, it is also possible to check the supply airflow with the following formula: $q_s = k \times \sqrt{\Delta P_{TAB}}$ [Pa]

L1 (Length of section) mm	k factor [m³/h]	k factor [l/s]
1000	121,7	33,8
1500	182,6	50,7
2000	243,4	67,6
2500	304,2	84,5
3000	365,1	101,4

Supply airflow rate measurement using MSM

The supply airflow is balanced with MSM modules installed on each supply connection. Therefore, it is also possible to check the supply airflow by adding up the airflow of each MSM using the following formula.

q_s [l/s] = 51 x $\sqrt{\Delta Pm}$ [Pa]

q_s [m³/h] = 183,6 x $\sqrt{\Delta Pm}$ [Pa]

SUPPLY Pressure drop, sound data and airflow measurement

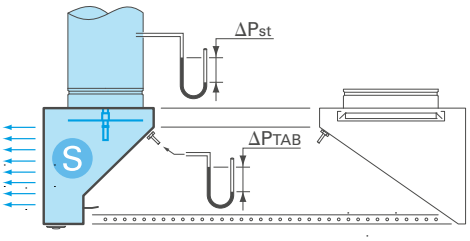
ΔP_{st} = Supply static pressure loss

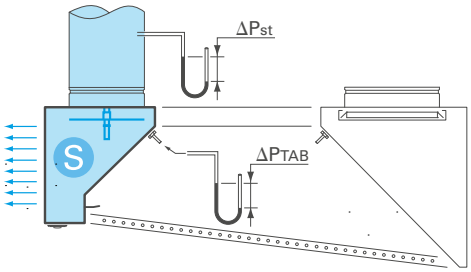
ΔP_{TAB} = T.A.B.™ pressure for airflow rate measurement

10,50,100 = Damper opening in %

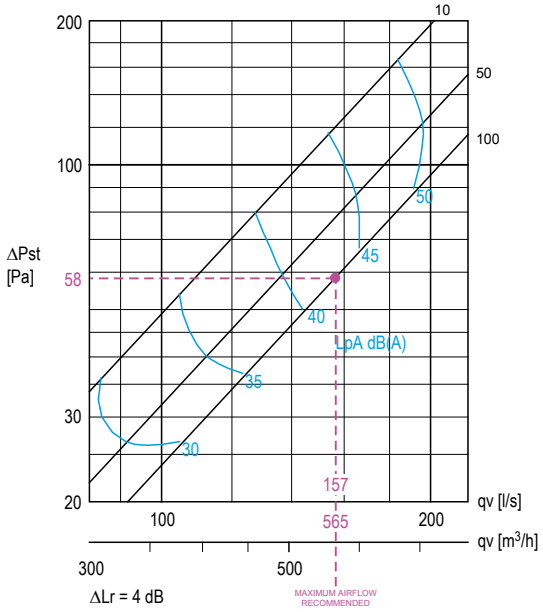
Supply plenum

H=400

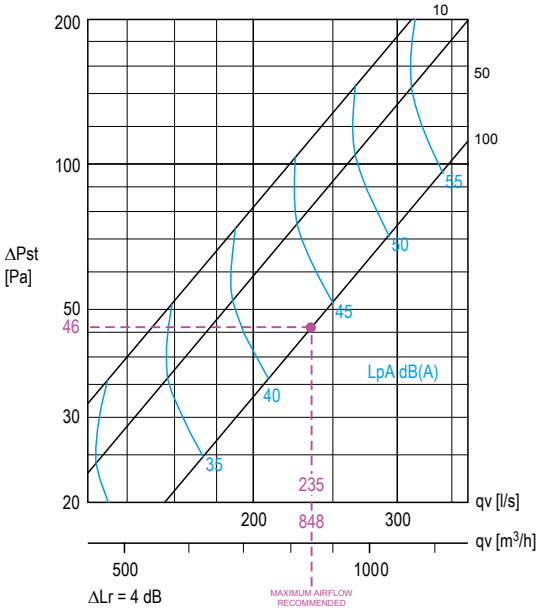




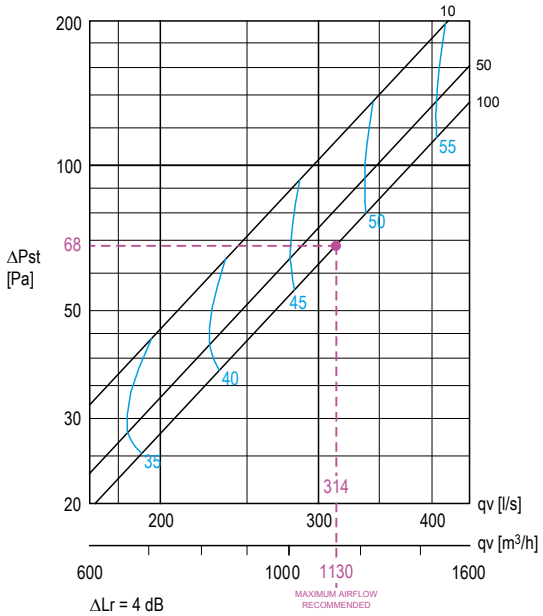
Section 1000 Static pressure loss and sound data



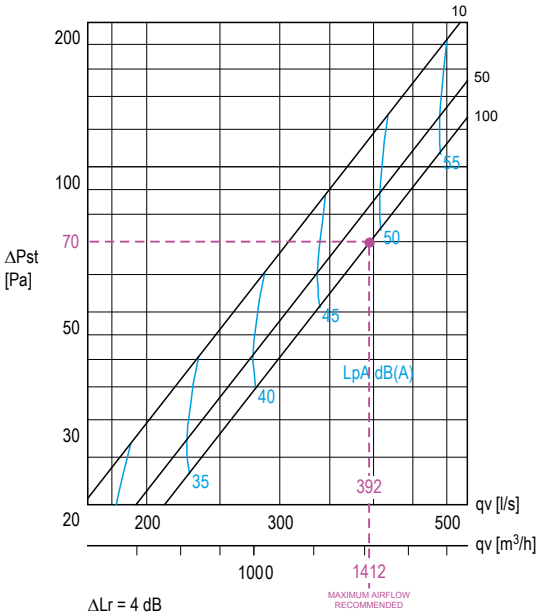
Section 1500 Static pressure loss and sound **data**

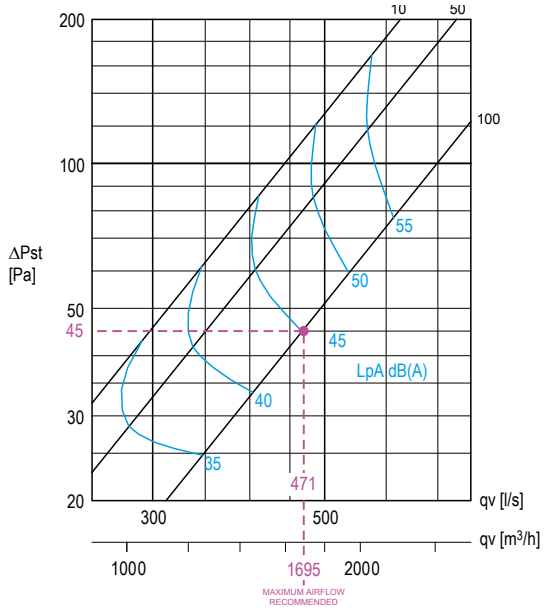


Section 2000 Static pressure loss and sound data



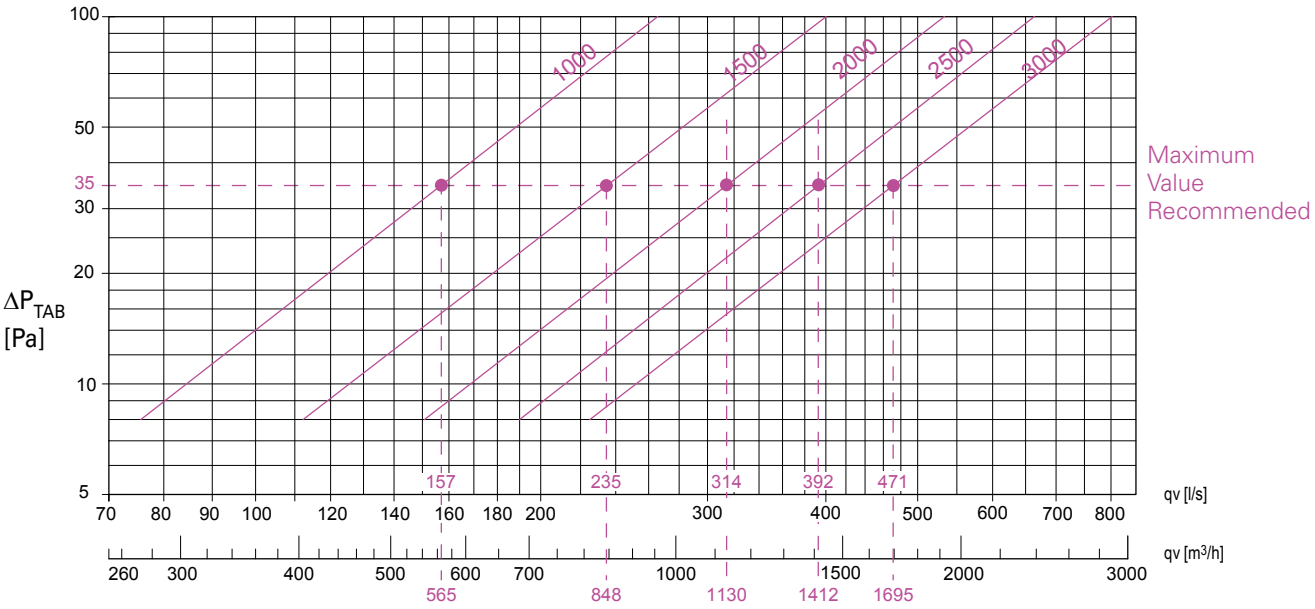
Section 2500 Static pressure loss and sound **data**





Supply airflow rate measurement with T.A.B.™ ports

Recommended pressure T.A.B.™ 35 Pa



Supply airflow rate measurement using k factors

With the T.A.B.™ pressure measurement, it is also possible to check the supply airflow with the following formula: $q_s = k \times \sqrt{\Delta P_{TAB}}$ [Pa]

L1 (Length of section) mm	k factor [m³/h]	k factor [l/s]
1000	95,5	26,5
1500	143,3	39,7
2000	191,0	53,1
2500	238,7	66,3
3000	286,5	79,6

Supply airflow rate measurement using MSM

The supply airflow is balanced with MSM modules installed on each supply connection. Therefore, it is also possible to check the supply airflow by adding up the airflow of each MSM using the following formula.

q_s [l/s] = 51 x $\sqrt{\Delta Pm}$ [Pa]

q_s [m³/h] = 183,6 x $\sqrt{\Delta Pm}$ [Pa]

Specifications

KVF / KVI Hood

The hood shall be Halton Brand, KVIF range. This hood type is equipped with the Capture Jet™. The models shall be according to the projected exhaust devices list. KVI is the exhaust only type model when the KVF is equipped with an integrated makeup air system on the front.

The hood shall be supplied completed and ready to be installed with all embedded technologies fully pre-wired from the factory. The following specifications shall be fully observed.

Hood outer casing

- Constructed from 1.0 mm AISI 304 stainless-steel in a brushed satin finish. The joints of the lower edges shall be fully welded for better robustness, cleanability and a better aesthetic. All exposed welds are ground and polished to the metal's original finish.
- Hood sides shall be of double-wall construction to enable the air supply of the side Capture Jets while reducing the condensation risk on the internal face.

Capture Jet™ technology

- The hood shall be equipped with the Capture Jet™ technology. Based on the use of two sets of nozzles on the lower part of both the front fascia and sides, the Capture Jets improve the hood capture and containment efficiency. The exhaust airflow rates are thus reduced by up to 30 to 40% to remove the same heat load compared to the traditional hoods, thus leading to huge energy savings.
- The air used for the Capture Jets shall not represent more than 5% of the calculated exhaust airflow and the airspeed at nozzles outlet shall be a minimum of 8 m/s. Slot- or grille-type discharge shall not be used.
- The hood shall be supplied with an integrated fan to provide the required airflow and static pressure for the Capture Jet™ nozzles operation. A specific duct is thus not required whatever the model, unless contrary specification of a local code.

Exhaust and supply airflow rates

- The exhaust airflow rates shall be determined with an EN 16282-1(1) based calculation method. Hence, they shall be calculated based on the convective loads released by the cooking appliances, whether the loads are characterised by the standard, the manufacturer or third parties' tests, and the installation configuration of the hood(s). The method shall, also, in addition, consider the hood capture efficiency according to ASTM 1704-12 standard. Both the exhaust airflow rates and capture efficiency shall be justified by a calculation note.
- Any modification of the hood installation height together with the input power, type and dimensions of the cooking appliances shall be brought to the attention of the manufacturer as they all significantly impact the exhaust airflow rates.
- The makeup air design, especially the diffuser type, size, location and the balance between exhaust and supply, shall be entrusted to the hood manufacturer as it also impacts the exhaust airflow rates and capture efficiency. It is also key to preventing cross-contamination between the kitchen areas.

Exhaust plenum

- The exhaust plenum shall be constructed from 1.0 mm AISI 304 stainless steel in a brushed satin finish. The lower part of the sides shall be welded for a durable tightness against condensates. All exposed welds are ground and polished to the metal's original finish. Its bottom edge shall be aerodynamically designed (no flat surface) thus helping the smoke and steam to freely rise toward the exhaust plenum, preventing steam spillage or stagnation leading to harmful dripping of condensation.
- It shall be equipped with KSA multi-cyclone grease filters, constructed from stainless steel. Their efficiency shall be at least 95% on 10 microns particles or larger, as tested by an independent laboratory. The filters shall also be NSF and UL classified. Baffle or slot type filters shall not be used.
- The exhaust connections shall be supplied with sliding balancing dampers. The exhaust plenum shall be equipped with T.A.B.™ pressure tap for quick airflow measurement.

[Option] Integrated makeup air (KVF)

- To improve the staff comfort but also to optimise the capture and containment efficiency of the hoods (thus contributing to the exhaust airflow rates reduction), the makeup air shall be introduced into space from the hood front fascia and at a very low velocity (less than 0.5 m/s).
- The hood shall be equipped with a perforated stainless-steel front panel, combined with a honeycomb structure on the back. This draught free diffusion complex shall be easy to remove for cleaning and maintenance operations. The internal face of the supply plenum shall be insulated to avoid any risk of condensation on the hood containment volume side.
- The supply connections shall be supplied with MSM balancing dampers. The supply plenum shall be equipped with T.A.B.™ pressure tap for quick airflow measurement.

[Option] M.A.R.V.E.L. Demand Controlled Ventilation

- The hood shall be equipped with M.A.R.V.E.L. Demand Controlled Ventilation system to automatically adjust, in real time, the exhaust airflow rates and this, hood section per hood section, in an independent manner and depending on the real cooking activity.

• To that purpose, each hood section shall be equipped with one or several IRIS Infrared Radiation Index Sensor(s). They are used to scan the cooking appliances' surface and monitor real-time variations in cooking activity.
• The reliability and sharpness of the airflow adjustment are reinforced by temperature sensors installed in each hood exhaust plenum. An additional room temperature sensor installed in the kitchen provides the required reference to the plenum temperature sensors.
• Each hood section is also equipped with an ABD damper used for real-time exhaust airflow adjustment.
• All hood section specific components are connected to a hood controller. This controller shall have the ability to make the hood section behave in a totally independent manner while communicating with all the other sections. These communication capabilities are a must for an efficient and required adjustment of the fan(s) speed.
• M.A.R.V.E.L. system shall be controlled by a tactile LCD screen. It shall allow a fast and simple use of the systems, even by non-professional personnel.
• [Option] The LCD screen shall also manage all the other technologies delivered by the manufacturer as part of the kitchen ventilation system. Check the additional requirements specific to these technologies.
• The additional requirements specific to M.A.R.V.E.L., especially concerning the balance between exhaust and supply together with the fan's speed control, will also be observed.

Halton Skyline light fitting

• Each hood shall be equipped with Halton Skyline Culinary Light. Constructed from stainless steel, the light fitting comprises flush-mounted broad beam spots with a diffusion angle of at least 80°. Each spot is composed of a patented mixing chamber and a specific reflector. Both shall provide a good balance between direct and diffuse light components without dazzling the staff. Especially, the shielding angle shall exceed DIN 12464-1 requirement and be at least 30°.
• The illuminance on the working surfaces shall be 750 lx with a CRI Colour Rendering Index of at least 83.
• The LEDs lifetime shall be 50,000 hours. The power supplies shall have at least the same lifetime and be DALI compatible. They shall enable switching on/off or dim the light (0-100%) with one or several switches.
• [Option] The power supplies shall also have a Constant Light Output feature, adjusting the output to keep the 750-lx illuminance required over LEDs lifetime.
• [Option] A specific DALI user interface with a simple scenario and zoning functions shall be used to control the light fittings installed in the hoods and/or ventilated ceilings and – if applicable – in the rest of the kitchen. Check the additional lighting requirements described in the present document.
• [Option] A specific DALI user interfaces with an advanced scenario and zoning functions, equipped with an LCD screen, shall be used to control the light fittings installed both in the hoods and/or ventilated ceilings and in the rest of the kitchens and related areas. Check the additional lighting requirements described in the present document.

[Option] Fire Suppression System

• The fire extinguishing system shall be from Ansul® R-102™ type and be pre-installed from the factory for better integration, at least for the plenum and exhaust connection(s) protection. The detection chain and fusible link(s) shall be fully integrated inside the exhaust plenum to not be visible at all.
• The cooking appliances nozzles shall, as much as possible, drop from the hood roof, without horizontal pipes visible inside the containment volume of the hood.
• The site complementary installation shall be carried out by the hood manufacturer or a certified partner. In all cases, it shall be an authorised representative of Ansul and the installation shall comply with UL 300 requirements and local codes.

(1) The European Standards published by CEN are developed by experts, established by consensus and adopted by the Members of CEN. It is important to note that the use of standards is voluntary, and so there is no legal obligation to apply them (source: CEN).

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