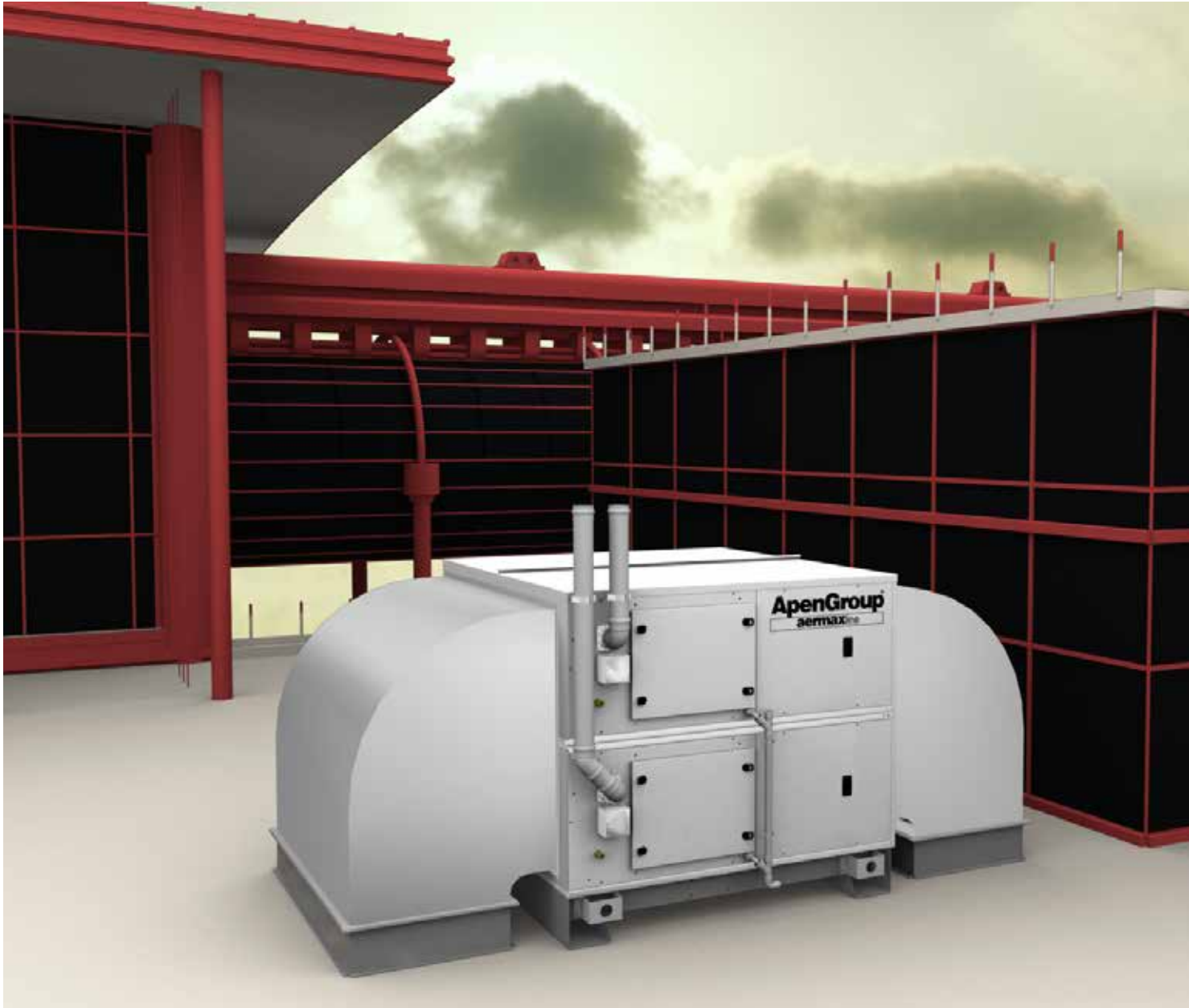


ApenGroup



AH Condensing Air Handling Unit

ApenGroup[®]
aermaxline

Company Presentation

Overview

APEN GROUP S.p.A. is a leading manufacturer of heating systems, and offers a wide range of products: condensing boilers, condensing heat exchangers, suspended warm air heaters, and floor standing condensing warm air heaters.

Apén Group has always been an innovation leader thanks to constant product and process development, and continuous research of advanced solutions in technology.

Our Vision

We consider 'caring for the environment' (environment, persons, relationships, cooperation) our way towards the excellence.

Our Mission

Designing, manufacturing and marketing of HVAC products that stand out for their quality and for their compliance with environmental standards.

Our R&D staff is deeply committed to the setup of products that assure low polluting emissions, high efficiency and minimum consumption, thereby assuring optimum heating and conditioning, from small residential spaces to large industrial buildings.

Customer Service

To be truly customer-oriented, a service must satisfy custom's requests from the clients.

APEN GROUP can meet any project need by developing custom products. Its flexibility in the manufacturing process and the availability of state-of-the-art machinery for metal sheet processing guarantee cost effective products.

Cost effectiveness is another basic characteristic of APEN GROUP products, besides a high potential for technology, commercial and industrial development.

A Leading Company In The Industry

Our modern facility is built on an area of 30,000 sqm, 11,000 of which encompass headquarters, manufacturing and research facilities. Easy and timely intercompany communication is provided through an IBM AS400 server with a fully integrated Server Windows NT PC network.

The website www.apengroup.com and e-mail apen@apengroup.com, allow to communicate easily with all entities outside the company (eg. Customers, suppliers, associations).

Environment

Environment protection is essential for present and next generations' quality of life.

Apén Group's challenge is investing in research and development activities which grant the design and the production of environment friendly products.

Such a concern is well resumed in the current slogan "Apén Group caring for environment" and it involves all the company organization: from research of suppliers and partners who share this same goal, to staff personnel, natural source optimization and definition of any prevention control and correction so to respect the fixed quality goals and environment deference.

Global Presence

Apén Group operates nationally and internationally: it is present in Italy thanks to an efficient and well distributed organization: professional agents, consultants, engineers and designers are ready to match the demands of customers always and everywhere.

Abroad, distributors, dealers, joint ventures with foreign partners, share with the company the principles of distribution of highly qualified equipment in relation to the needs of different countries.

Manufacturing Excellence

Each product is tested, checked, and commissioned to guarantee that combustion parameters, efficiency levels, and component reliability fully comply with quality standards required for user comfort and satisfaction. The manufacturing of our products takes advantage of ultimate, state-of-the-art planning and organization methods, which include: Digital control equipment. Welding robots. Forming robots. Computer assisted test lines. Advanced automation assures top-quality products as well as manufacturing flexibility and timely deliveries. Innovation, reliability, and originality are built-in features of each of our products.

Technology Excellence

A qualified team of engineers and researchers, these committees for the development of standards UNICIG, researches and develops products using CAD computer systems, translating into production the best that you obtained from the research, studying cutting-edge technical and manufacturing solutions.



ApenGroup
Heating and Conditioning Solutions

Certified Quality

APEN GROUP S.p.A. ranges among the first Italian companies to be certified by an industry- wide acknowledging system at European level. We have been audited and certified to be in compliance with the quality standards defined in UNI EN ISO 9001:2015 protocol. Certification has been obtained for the design, manufacturing, marketing and service of hybrid systems, of warm air heaters, condensation heaters and exchangers, condensing boilers, water fan units, air destratifiers, air handling central units, and burners. The commitment to quality took by the company dates back to the beginning of our history, and it is confirmed by the following milestones:

In 1988 APEN GROUP was certified by DVGW Deutscher Verein Des Gas Und Wasserfaches E.V. and it was approved as a trading partner for suspended heaters in Germany. Then approvals for the sale of these heaters in other markets followed, such as France, Switzerland, the Netherlands, and Belgium.

In 1995 all the gas-fired appliances we manufacture were certified according to EC Directives.

In 1991 we were the first Italian company in the HVAC industry to be registered in accordance with UNI EN ISO 9003 requirements.

In 1993 the auditing was extended to include compliance with UNI EN ISO 9002 standards.

In 2003, we were acknowledged to be compliant with UNI EN ISO 9001:2000, and the registration was confirmed in 2006.

In 2013 the Board of Directors has adopted the organizational model 231.

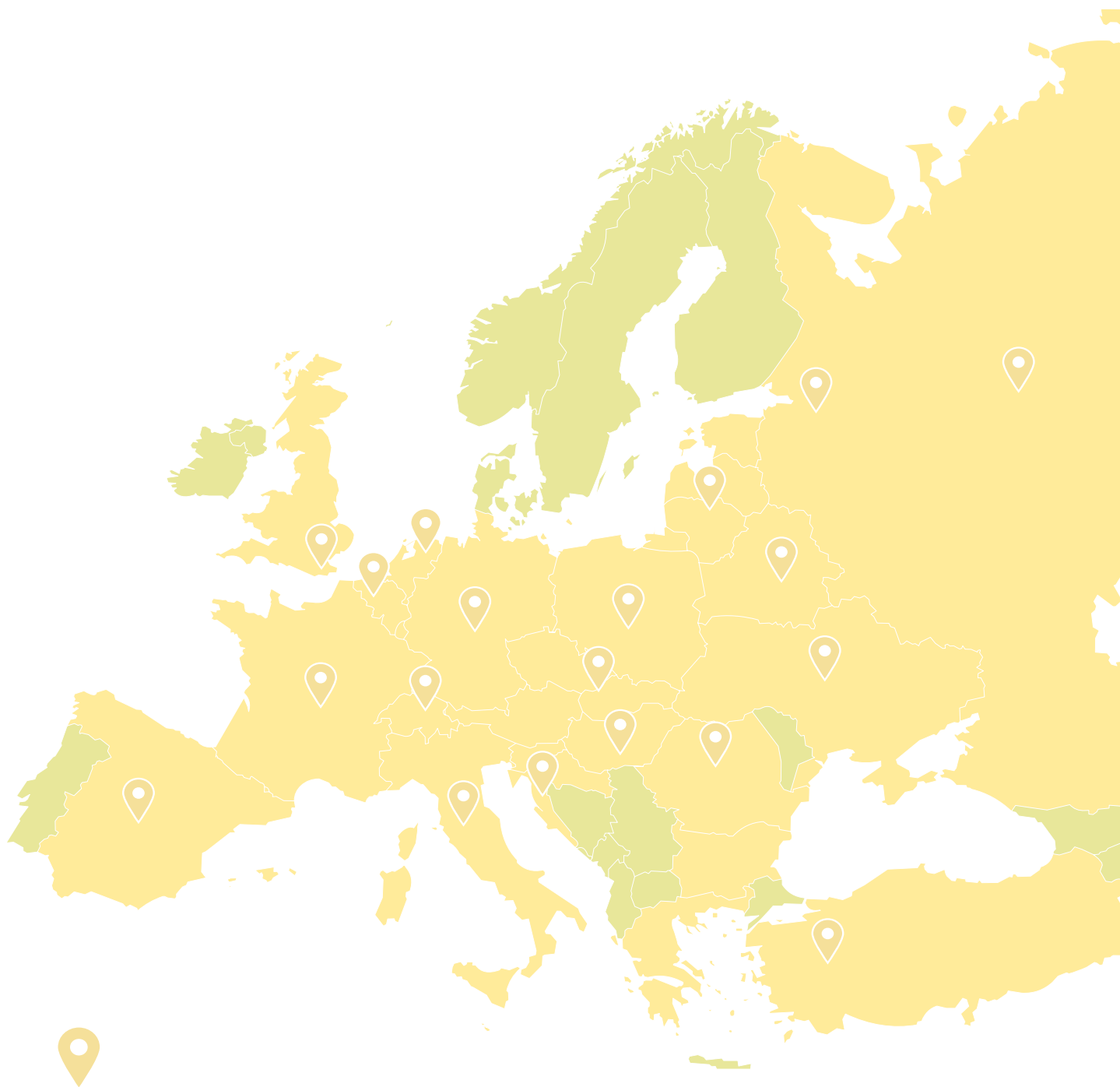
In 2017 we obtained the certification in compliance with the UNI EN ISO 9001:2015.

International Certificates

Apem Group's products have been tested and certified by Gastec-Kiwa CERMET, the famous Dutch Notified Body, with test labs accredited by the EC.



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ApenGroup has an international presence. Contact us at **export@apengroup.it** to get our distributor's name in your country, or to become our partner.

1967

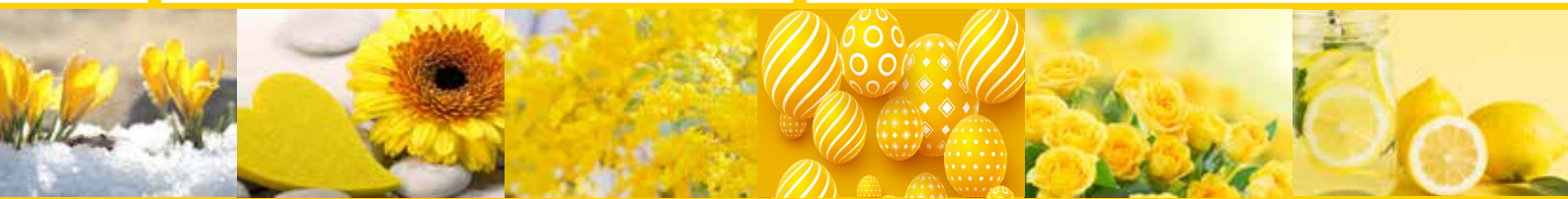
The Origins: Thermovur

The great adventure of the company **THERMOVÜR** begins. It is created with the aim of manufacturing and selling gas-oil and fuel-oil burners. Founder members are two brothers-in-law with the same name, "Rigamonti Angelo" and "Rigamonti Angelo", with the assistance and professionalism of their father Emilio Rigamonti.

The 1980's

Research and Extension of the Range

The heating market undergoes quick changes: the booming house building industry and the increasing need of comfort urge the development of new and diversified products: floor standing boilers, wall boilers, gas burners, suspended gas-fired warm air heaters, gas radiators.



1973

Aermax

Thermovür is flanked by the company **AERMAX** for the marketing of floor-standing warm air heaters and burners in foreign markets.

1991

Creation of ApenGroup

Thermovür and AERMAX merge into a single production and business unit, taking advantage of the skills, experience and know-how of both brands: thus creating the company **APEN GROUP SPA**.

The 2000's

New Projects, New Products

In 1998, the company launched the wall-mounted gas-fired modulating heaters series PLUS. They are EC-approved and feature high efficiency stainless steel exchangers, pre-mix gas burner and forced draught with low NOx emissions. The research and development effort connected with this product have enabled the subsequent designing of the KONDENSA heaters.

In 2001 the company presents AQUASPLIT, an outdoor boiler with matching indoor blower.

In 2008 APEN GROUP confirms its technical knowledge in the air handling industry launching KONDENSA heaters, (wall-mounted condensation warm air heaters), air handling central units, and Roof Top standalone units with built-in condensing exchanger.

2020

Research, Innovation and Ecology

We are in continuous evolution.

The market experiences and difficulties have made us stronger and more committed to face new challenges, new technologies, new countries.

We aim to defend the values we believe in to improve the environmental comfort, the care for people, the good use of energy.

We aim our company to contribute to a better future!



CARING for the environment



2017

50 years of Caring for Environmental!

We are proud of having celebrated our first 50 years of activities!



Installation References

COMPANY	CATEGORY	COUNTRY
MERZIG	Showroom	Germany
DILLINGEN HUTTE GTS	Production hall	Germany
DEITERMANN MAXIT GROUP	Production hall	Germany
LEAR CORPORATION	Production hall	Germany
KNIERIM INDIVIDUAL YACHTS	Production hall	Germany
WS WOLPERT SYSTEM TECHNIC	Logistic center	Germany
DAILMER CHRYSLER (WORTH)	Production hall and logistics	Germany
BRIDGESTONE	Production hall	Germany
STENDORF KUNSTSTOFFE	Production hall	Germany
RHENOTHERM COATINGS	Production hall	Germany
C.ED. SCHULTE GMBH SYLINDERSCHLOBFABRIK	Production hall	Germany
MN MACHINERY NAGEL	Production hall	Germany
FORM + TEST	Production hall	Germany
ITALFIM SPA	Metal grid manufacturer	Italy
LOCAT SPA	Engineering industry	Italy
MEC-TRACK SRL	Machinery manufacturer	Italy
SALMOIRAGHI SPA	Production hall	Italy
RACCORDERIA PIACENTINA	Fitting manufacturer	Italy
SPEEDLINE SPA	Car wheel rim manufacturer	Italy
GRUPPO BEA	Showroom	Italy
NUOVA MAGRINI GALILEO	Mechanical processing	Italy
FILA	Sportswear manufacturer	Italy
MAGNETI MARELLI	Electro-mechanical industry	Italy
LIDL	Supermarket chain	Italy
NATO BASE IN VICENZA	Military base	Italy
DANIELI	Iron manufacturer	Italy
MOTO GUZZI	Motorbike production hall	Italy
LUXOTTICA	Glasses producer	Italy
MIDAS	Car servicing	Italy
OFFICINE ROSSI	Aluminium windows manufacturer	Italy
TNT	Logistics and transport	Italy
OMAG	Equipment for marble manufacturing	Italy
SPORTPIÙ	Sports center	Italy
CONSORZIO VARESE	Farmer's co-operative	Italy
ALTINI COMUNICAZIONE	Advertising graphics agency	Italy
MALPENSA AIRPORT	Transports	Italy
AIRBUS	Helicopter factory	France
LIDL	General store chain	France
INTERMARCHE'	General store chain	France
PEUGEOT	Car manufacturer	France
RENAULT	Car manufacturer	France
CITROEN	Car manufacturer	France
ROVER AUTOMOVILES	Production hall	Spain
BMW	Production hall	Spain
CARPINTERIA NAVA ABENOJAR	Production hall	Spain
AYUNTAMIENTO DE TOLEDO	Office	Spain
IVECO	Production hall	Spain
RENAULT	Production hall	Spain
NISSAN	Production hall	Spain
JAGUAR	Car manufacturer	England
ROVER	Car manufacturer	England
FORD	Car manufacturer	England
IKEA	Furniture store chain	England
WESHAM	Soccer stadium	England
VODAPHONE WAREHOUSE	Warehouse	England
BUDAPEST CITY EXHIBITION FAIR	Exhibition center	Hungary
ETM	Electrical store chain	St Petersburg, Russia
LEON	Production and warehouse	Omsk, Russia
GUR'EVSNA	Warehouse	Atirau, Kazakhstan
MERIDIAN	Package factory	Perm, Russia
JSC	Perm oil machine engineering company	Perm, Russia
SIBLIFT	Elevator company	Omsk, Russia
PTK TETRA	Building company, productions rooms	Siktivkar, Russia
VORONEZH AIRCRAFT JOINT-STOCK COMPANY	Joint-stock company	Voronezh, Russia
VORONEZH RAILROAD	Car repair plant	Voronezh, Russia
GRAINER REAL ESTATE	Real estate	Vladimir, Russia
OZNA	Integrated solutions for oil and gas industry	Russia
JSC SOLIKAMSKSTROY	Building company	Solikamsk, Russia
LIDIGA	Furniture factory	Smolensk, Russia
OOO MERCURY	Shopping center	Ciaikovsky, Russia

Installation References

COMPANY	CATEGORY	COUNTRY
NPO Iskra	Oil and gas equipment factory (for gazprom companies)	Perm, Russia
ETM	Electrical store chain	Rostov-na-Donu, Russia
Orenburg Factory RTO	Factory	Orenburg, Russia
Litmash-M	Foundry	Russia
URSA Uralita	Insulation materials factory	Serpuhov, Russia
VKM-steel	Foundry	Saransk, Russia
ZBK-1	Concrete goods factory	Saratov, Russia
DOBRINYA company	General store chain	Belgorod, Russia
YAKUTSKIY Airport	Airport	Yakutsk, Russia
UMPO	Air engine factory	Ufa, Russia
DRILLMEC	Oil and gas drilling installation	Siberia, Russia
Shopping Park IKEA	Shopping center	Poland
Shopping Park MATARNIA	Shopping center	Poland
NGK Ceramics	Production hall	Poland
ALFA	Warehouses	Dobczyce, Poland
MDM	Production and storage hall	Bielsko-Biała, Poland
PROFILPAS	Production hall	Kutno, Poland
ELEKTRA	Production hall	Warszawa, Poland
KRISPOL	Production hall	Wrzesnia, Poland
SCANIA	Truck service station / service center	Gliwice, Gruszka and Kielce Poland
HYDRO Aluminium	Production hall	Chrzanów, Poland
ZBYSZKO Company	Production halls, warehouses	Białobrzegi, Poland
TERMOSPRZET	Production hall	Zabrze, Poland
ARIX	Warehouses, production hall	Złobnica, Poland
SYSTEM JWT	Warehouses	Szczecin, Poland
POLOMARKET	Commercial buildings	Swarzedz and Zielona Góra, Poland
ROLLER	Production hall	Łowicz, Poland
IMPRESJA	Car repair shop	Przeworsk, Poland
MAGNA PLAST	Production hall	Białe Błota, Poland
YUSK	Shopping center	Piotrków Trybunalski, Poland
KOL-INS-BUD	Warehouse	Tarnów, Poland
DOOR	Warehouse	Proszówki, Poland
SORTOWNIA POCZTY POLSKIEJ	Warehouse	Rzeszów, Poland
ARM	Warehouses	Stary Sacz, Poland
ECO-PACKERS	Storage hall	Włocławek, Poland
REM-BRUK	Storage hall	Rzezawa, Poland
ONNINEN	Storage hall	Lublin, Poland
SANNPROFI	Storage hall	Bukowiec and Łódz, Poland
DAF	Salon / service	Konin, Poland
LENIGO	Footwear production plant	Grudziadz, Poland
BESKID PLUS	Storage hall	Bielsko-Biała, Poland
AROT	Pvc pipe manufacturing plant	Leszno, Poland
HUTA ŁABEDY	Production hall	Łabedy, Poland
HG-Serwis	Storage hall	Chodzież, Poland
BAMBUS	Wholesale flowers	Czestochowa, Poland
NOWAK&NOWAK	Production hall	Szczecinek, Poland
VOIT	Production hall	Nowa Sól, Poland
PH ADEN	Shopping center	Gniezno, Poland
DEPARTMENT OF MUNICIPAL SERVICES	Warehouse	Brzesko, Poland
VICTAULIC	Production and storage hall	Drezdenko, Poland
HORTICULTURE FARM Tarnów	Foil tunnels	Tarnów, Poland
Tennis hall Łancut	Indoor tennis hall	Łancut, Poland
Printing Co. Janowice	Printing house	Janowice, Poland
Inn "ZŁOTY RÓG"	Restaurant	Rewał, Poland
JAROSŁAW CHURCH	Religious building	Jarosław, Poland
EHB	Wholesale construction materials	Grabów, Poland
Wedding hall "POD LIPAMI"	Wedding hall	Lewin Brzeski, Poland
CCC Store	Shopping center	Piotrków Trybunalski, Poland
JOHN DEERE	Machinery farmer manufacturer	Netherlands
WARMUSEUM OVERLOON	Museum	Netherlands
TELEGRAAF NEWSPAPER	Advertising graphics agency	Netherlands
WETRON TRANSPORT	Logistic and transport	Netherlands
NIJPELS FURNITURE	Furniture manufacturer	Netherlands
STORK	Machinery manufacturer	Netherlands
ANWB	General organisation	Netherlands
SCHEUTEN GLASSGROUP	Glasses producer	Netherlands
INNOSEEDS	Farmer seeds production	Netherlands
VDL GROUP	Engineering industry	Netherlands
MANDEMAKERS GROUP	Sanitair manufacturer	Netherlands

AH / Condensing Air Handling Unit

Why Choose AH:

- Reduce the installation and setting cost
- Reduce the service activity cost during lifetime
- Enhance reliability
- Decrease energy gas consumption and relative yearly cost.



Features

- Efficiency up to 108%;
- Power range from 34kW to 420kW;
- PCH Condensing heat exchanger module housed inside;
- CPU-SMART control board for faults management and display, burner's modulation, start and stop;
- Switching on and off of the gas module (s) subject to the heat demand;
- Modulating temperature control by means of PID (proportional-integral-derivative controller) both on room temperature and on outlet temperature;
- DDMP fan with integrated high efficiency inverter;
- Power supply 400V/3F/50Hz; (230V/1F/50Hz for the model AH034)
- Variable air flow;
- Ethernet connection with possible remote control via browser;
- Indoor/outdoor installation;
- Air volumes 3.210 - 37.000 m³/h.



Our Range

AH units are available as vertical models (AH-V0) and Horizontal models (AH-H0) indoor version and outdoor weatherproof version both for rooftop or floor level installation. 7 models with power range (34-420kw), two static pressure choice for each model.



Modularity

Single units can be coupled to reach higher power output.

Ease of Handling

Reduced installation and handling costs due to product modularity

Ease of Installation

Modularity and reduced product dimensions allow to introduce the product through narrow gates without demolition work or masonry work.



AH / Gas Fired Heating Ventilation Units

AH is a new generation of gas fired air heating ventilation units.

The units are available with a wide range of heat outputs. AH Units are fully condensing heaters with thermal efficiencies of 108%.

The design combines high thermal efficiency, quality components and ease of maintenance for enhanced life expectancy and reduced life cycle costs.

Redundancy AH units from 160kW to 420kW are designed as a modular system, this allows to secure the heating and ventilating process, if one single unit should be off the other will work independently.

Advanced premix gas burner factory incorporated, allows many economic advantages:

- No need to install a third brand burner as for a traditional gas warm air heater
- The burner is already preset and perfectly regulated
- Burner specific in house design allows an additional energy saving and reduces gas consumption.

Model Range

AH units are available as **vertical models (AH-VO)** and horizontal models (AH-HO) indoor version and outdoor weatherproof version, both for rooftop or floor level installation.

7 models with power range from 34kW to 420kW, two static pressure basic choice for each model and possible variations.



Premix Burner

- Factory Incorporated Premix burner specifically designed for the AH series, this is a very important advantage because it reduces the installation and setting cost and allows the end user to refer to only one service company for the heating unit lifecycle. In general with a traditional ventilation unit with external brand burner the customer may need after sales technicians with different expertise
- Burner with no emissions of carbon monoxide ($\text{CO} = 0$),
- Very low emission of nitrogen oxides, below 30 parts per million ($\text{NOx} < 30 \text{ ppm}$),
- Low emission of CO_2 , thanks to high combustion efficiency (108%) and to the reduction of fuel consumption arising from heat output modulation.

Controls

Digital touchscreen Smart-Control enables a very efficient and energy saving behaviour of the heating/ventilation units. It allows a smart regulation and feedback information for the customer and installer. It is very simple to program.



Heat Exchanger

AH gas-fired units incorporate an advanced heat exchanger technology (built by robotized welding process) in high grade stainless steel AISI 441 corrosion resistance with longer enhanced life expectancy, which reduces lifecycle cost.



Fan with Integral EC Control

The AH range incorporates an EC fan which provides a wide range of air duties and external static pressures. The addition of the optional mixing box enables advanced air treatment and filtration. A complete range of accessories is available to satisfy every need.



Single-Module Unit

The single-module air handling units comprise a single heat exchanger.
This range includes AH034, AH065 and AH105 models, for low (800 W) or high (2000 W) pressures.
The heat output ranges from 8.13 to 97.15 kW produced.

Model		AH034		AH065		AH105	
Type of equipment		B23P - B53P - C13 - C43 - C53 - C63 - C83 (Ref. PCH module)					
EC approval		PIN		0476CQ0451 (Ref. PCH module)			
NOx class [EN1020:2009]		5 (Ref. PCH module)					
Number and type of Heater		1 x PCH034		1 x PCH065		1 x PCH105	
		min	max	min	max	min	max
Burner heat output (Hi)	kW	7.60	34.85	12.40	65.00	21.00	100.00
Useful heat output [P _{min} , P _{rated}]*	kW	8.13	33.56	13.40	62.93	22.77	97.15
Hi Efficiency (N.C.V.) [η _{gr} , η _{nom}]*	%	106.97	96.30	108.06	96.82	108.40	97.15
Hs efficiency (G.C.V.) [η _{gr} , η _{nom}]*	%	96.37	86.76	97.36	87.22	97.68	87.52
Flue losses with burner on (Hi)	%	0.6	3.7	0.2	3.2	0.2	2.8
Flue losses with burner off (Hi)	%	< 0.1		< 0.1		< 0.1	
Envelope loss factor [F _{env}]* ⁽¹⁾	%	1.5 %		1.5 %		1.5 %	
Seasonal space heating energy efficiency [Reg.EU/2281/2016] [η _{s,h}]*	%	89.8		91.0		91.08	
Emission efficiency [Reg.EU/2281/2016] [η _{s,flow}]*	%	96.3		96.6		96.4	
Max. condensation ⁽²⁾	l/h	0.9		2.1		2.7	
Flue gas - PCH module emissions		PCH034 x 1		PCH065 x 1		PCH105 x 1	
Carbon monoxide - CO - (0% of O ₂) ⁽³⁾	ppm	< 5		< 5		< 5	
Nitrogen oxide emissions - NOx* (0% of O ₂) (Hi) ⁽⁴⁾		42 mg/kWh 24 ppm		39 mg/kWh 22 ppm		39 mg/kWh 22 ppm	
Nitrogen oxide emissions - NOx*(0% of O ₂) (Hs) ⁽⁵⁾		38 mg/kWh 22 ppm		35 mg/kWh 20 ppm		35 mg/kWh 20 ppm	
Pressure available at the flue	Pa	90		120		120	
Electrical Characteristics							
Supply voltage	V	230V/1F+N - 50 Hz		400V/3F+N - 50 Hz		400V/3F+N - 50 Hz	
Rated power - 0.8 kW _{MOTOR}	kW	0.874		1.697		1.730	
Rated power - 2 kW _{MOTOR}	kW	2.074		4.097		4.130	
Auxiliary rated power [e _{l_{min}} - e _{l_{max}}]*	kW	0.011	0.074	0.015	0.097	0.020	0.130
Power input in stand-by [e _{l_{sp}}]*	kW	0.005					
Protection Rating	IP	IP X5D (Ref. PCH module)					
Operating Temperatures	°C	from -15°C to +40°C [for lower temperatures, a burner housing heating kit is required]					
Connections							
Ø Gas connection		UNI/ISO 228/1-G 3/4"		UNI/ISO 228/1-G 3/4"		UNI/ISO 228/1-G 3/4"	
Intake/exhaust pipes Ø	mm	80/80		80/80		80/80	
Air flow rate							
Air flow rate (15°C) ⁽⁶⁾	m³/h	3.210		6.010		9.280	
Available pressure - 0.8 kW _{MOTOR}	Pa	190		380		on request	
Available pressure - 2 kW _{MOTOR}	Pa	560		740		190	
Air flow rate	m³/h	See diagram "air flow rates - pressure drops" on page 54-55					
Pressure drops	Pa	See diagram “air flow rates - pressure drops” on page 54-55					
Weight							
Net Weight	kg	190		220		280	

NOTES:

- * Symbol in compliance with Reg.EU/2281/2016.
- (1) PCH module envelope losses are considered null since it is positioned inside the AH unit ventilation section.
- (2) Max. condensation produced acquired from testing at 30%Qn.
- (3) Value referred to category H (G20).
- (4) Weighted value to EN1020:2009 ref. to cat. H (G20), referred to net calorific value (Hi, N.C.V.).
- (5) Weighted value to EN1020:2009 ref. to cat. H (G20), referred to gross calorific value (Hs, G.C.V.).
- (6) Reference air flow rate for the calculation of yields and season energy efficiencies and emissions, with constant air flow rate, listed in the table.
Air flow rate calculated for a ΔT of 30 °C

Multiple Modules

The multiple-module air handling units consist of two or more heat exchangers; the number of burners and gas equipment match the number of heat exchangers. The gas connection is individual for each module and the wiring connection is on the other hand common for the entire machine. The range includes the **TWO-MODULE** models, AH160 and AH210, the **THREE-MODULE** models, AH320, and the **FOUR-MODULE** models, AH420. The heat output ranges from 35.54 to 388.60 kW produced.

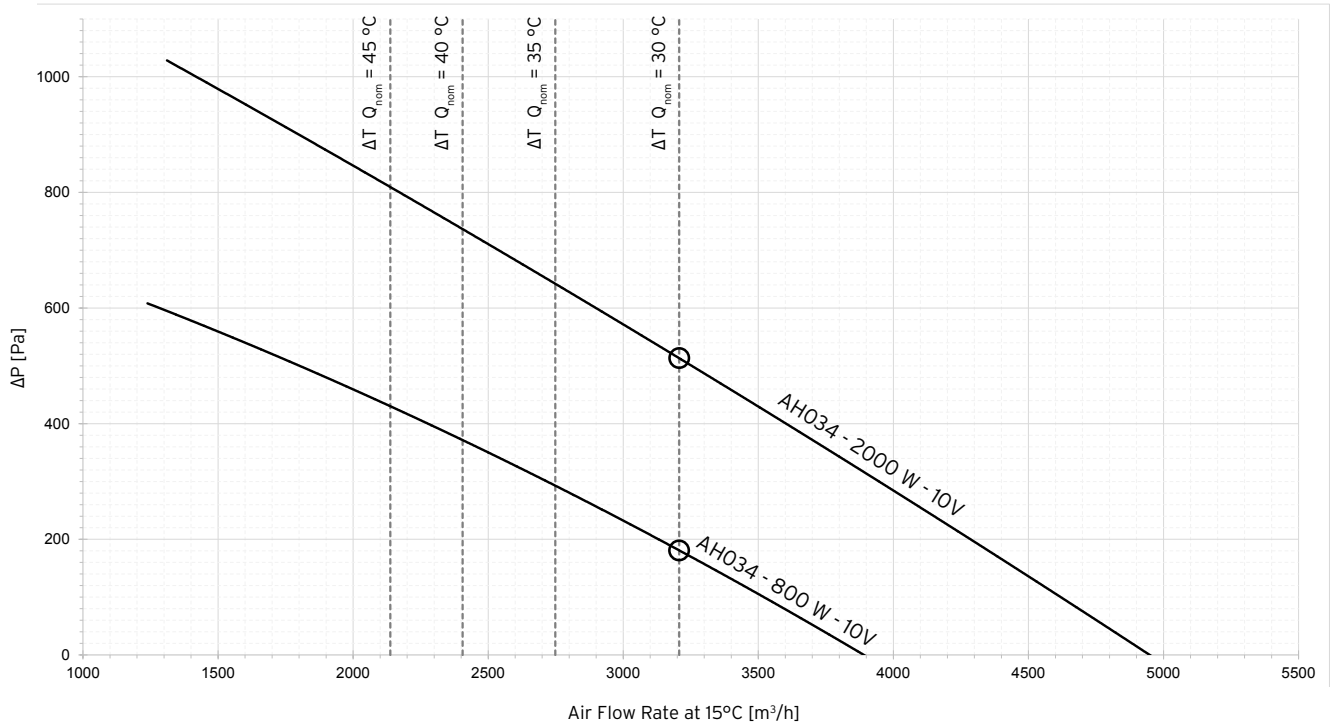
Model		AH160		AH210		AH320		AH420	
Type of equipment		B23P - B53P - C13 - C43 - C53 - C63 - C83 (Ref. PCH module)							
EC approval		PIN		0476CQ0451 (Ref. PCH module)					
NOx class [EN1020:2009]		5 (Ref. PCH module)							
Number and type of Heater		2 x PCH080		2 x PCH105		3 x PCH105		4 x PCH105	
		min	max	min	max	min	max	min	max
Burner heat output (Hi)	kW	2x 16.40	2x 82.00	2x 21.00	2x 100.00	3x 21.00	3x 100.00	4x 21.00	4x 100.00
Useful heat output [P _{min} , P _{rated}]*	kW	2x 17.77	2x 80.03	2x 22.77	2x 97.15	3x 22.77	3x 97.15	4x 22.77	4x 97.15
Hi Efficiency (N.C.V.) [η _{pr} , η _{nom}]*	%	108.35	97.60	108.40	97.15	108.40	97.15	108.40	97.15
Hs efficiency (G.C.V.) [η _{pr} , η _{nom}]*	%	97.62	87.94	97.68	87.53	97.68	87.53	97.68	87.53
Flue losses with burner on (Hi)	%	0.3	2.4	0.2	2.8	0.2	2.8	0.2	2.8
Flue losses with burner off (Hi)	%	< 0.1		< 0.1		< 0.1		< 0.1	
Envelope loss factor [F _{env}]* (1)	%	1.5 %		1.5 %		1.5 %		1.5 %	
Seasonal space heating energy efficiency [Reg.EU/2281/2016] [η _{s,h}]*	%	91.2		91.1		91.1		91.1	
Emission efficiency [Reg.EU/2281/2016] [η _{s,flow}]*	%	96.5		96.4		96.4		96.4	
Max. condensation (2)	l/h	2x 3.3		2x 2.7		3x 2.7		4x 2.7	
Flue gas - PCH module emissions		PCH080 x 2		PCH105 x 2		PCH105 x 3		PCH105 x 4	
Carbon monoxide - CO - (0% of O ₂) (3)	ppm	< 5		< 5		< 5		< 5	
Nitrogen oxide emissions - NOx* (0% of O ₂) (Hi) (4)		41 mg/kWh - 23 ppm		39 mg/kWh - 22 ppm		39 mg/kWh - 22 ppm		39 mg/kWh - 22 ppm	
Nitrogen oxide emissions - NOx* (0% of O ₂) (Hs) (5)		37 mg/kWh - 21 ppm		35 mg/kWh - 20 ppm		39 mg/kWh - 22 ppm		35 mg/kWh - 20 ppm	
Pressure available at the flue	Pa	120		120		120		120	
Electrical Characteristics									
Supply voltage	V	400V/3F+N - 50 Hz							
Rated power - 0.8 kW MOTOR	kW	2x 1.730		2x 1.730		3x 1.730		4x 1.730	
Rated power - 2 kW MOTOR	kW	2x 4.130		2x 4.130		3x 4.130		4x 4.130	
Auxiliary rated power [e _{l,min} - e _{l,max}]*	kW	2x 0.020	2x 0.123	2x 0.020	2x 0.130	3x 0.020	3x 0.130	4x 0.020	4x 0.130
Power input in stand-by [e _{l,sp}]*	kW	0.005							
Protection Rating	IP	IP X5D (Ref. PCH module)							
Operating Temperatures	°C	from -15°C to +40°C - for lower temperatures, a burner housing heating kit is required							
Connections									
Ø Gas connection		UNI/ISO 228/1-2 x G 3/4"		UNI/ISO 228/1-2 x G 3/4"		UNI/ISO 228/1-3 x G 3/4"		UNI/ISO 228/1-4 x G 3/4"	
Intake/exhaust pipes Ø	mm	2 x 80/80		2 x 80/80		3 x 80/80		4 x 80/80	
Air flow rate									
Air flow rate (15°C)(6)	m³/h	15.300		18.560		27.840		37.120	
Available pressure - 0.8 kW MOTOR	Pa	on request		on request		on request		on request	
Available pressure - 2 kW MOTOR	Pa	355		190		190		190	
Air flow rate	m³/h	See diagram “air flow rates - pressure drops” on page 54-55							
Pressure drops	Pa	See diagram “air flow rates - pressure drops” on page 54-55							
Weight									
Net Weight	kg	560		560		840		1120	

NOTES:

- * Symbol in compliance with Reg.EU/2281/2016.
- (1) PCH module envelope losses are considered null since it is positioned inside the AH unit ventilation section.
- (2) Max. condensation produced acquired from testing at 30%Qn.
- (3) Value referred to category H (G20).
- (4) Weighted value to EN1020:2009 ref. to cat. H (G20), referred to net calorific value (Hi, N.C.V.).
- (5) Weighted value to EN1020:2009 ref. to cat. H (G20), referred to gross calorific value (Hs, G.C.V.).
- (6) Reference air flow rate for the calculation of yields and season energy efficiencies and emissions, with constant air flow rate, listed in the table.
Air flow rate calculated for a ΔT of 30 °C

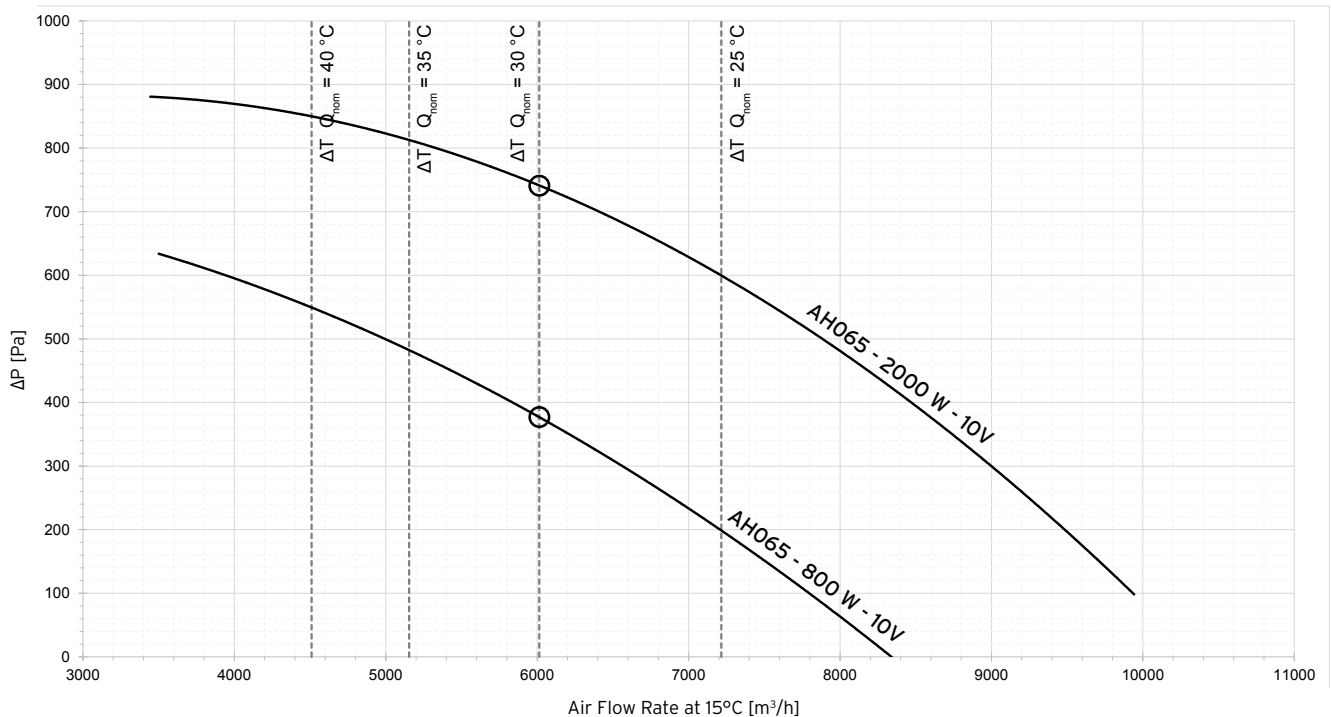
AH034 diagram

Air flow rate - Pressure drop [Q_{nom} - 10 V]



AH065 diagram

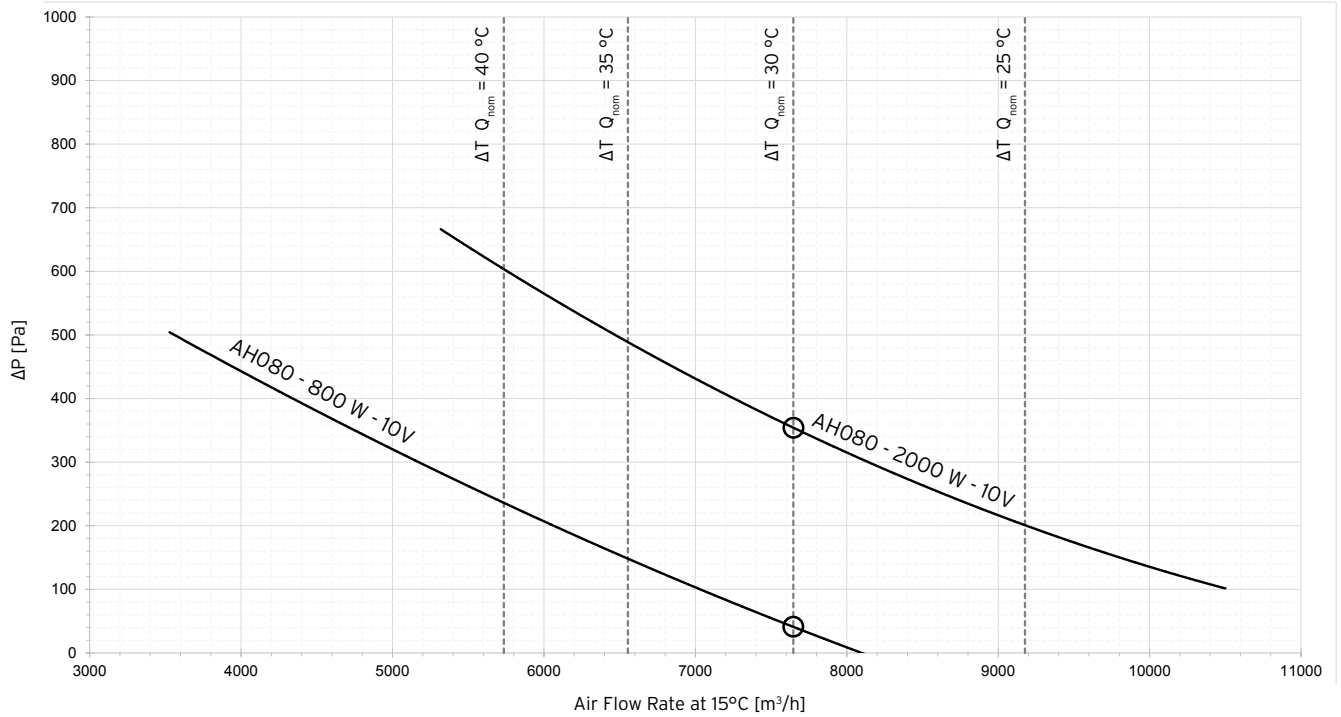
Air flow rate - Pressure drop [Q_{nom} - 10 V]



AH / Air Flow Rate - Pressure Drops

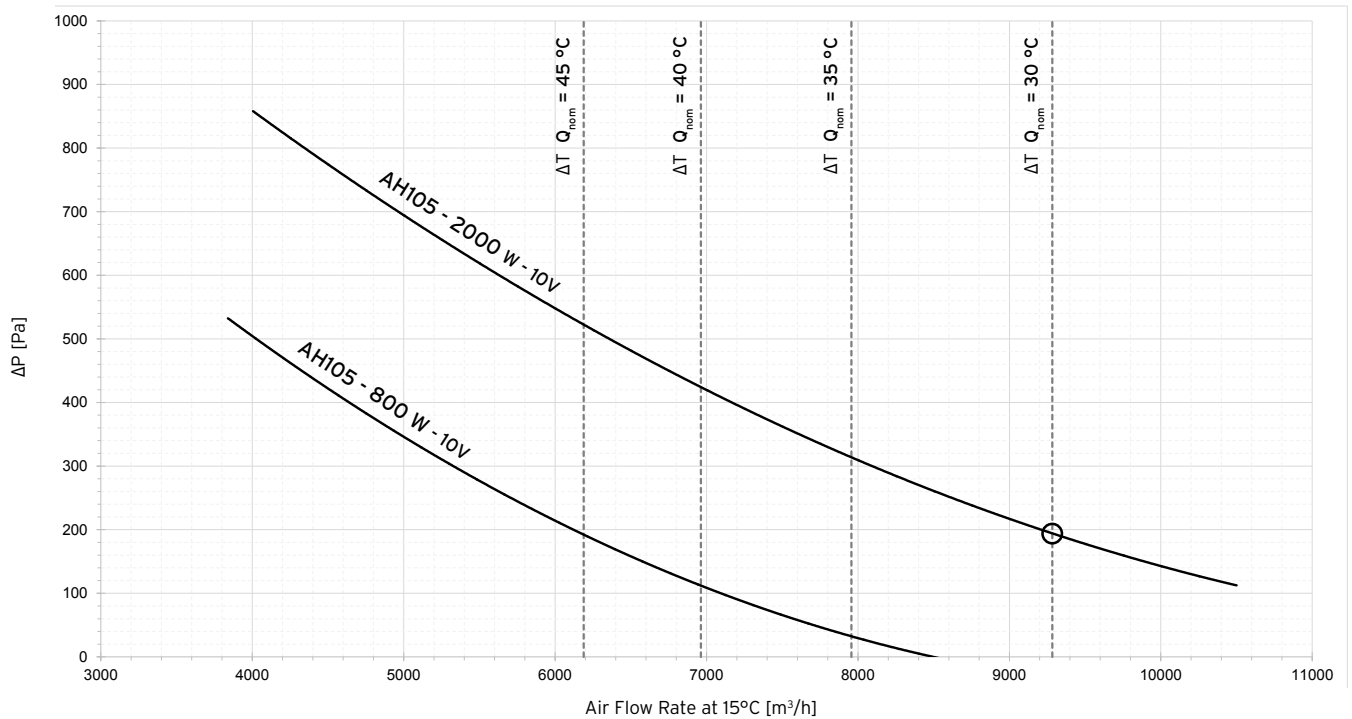
AH080 diagram (for AH160)

Air flow rate - Pressure drop [Q_{nom} - 10 V]

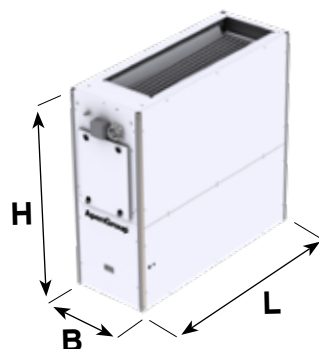


AH105 diagram

Air flow rate - Pressure drop [Q_{nom} - 10 V]



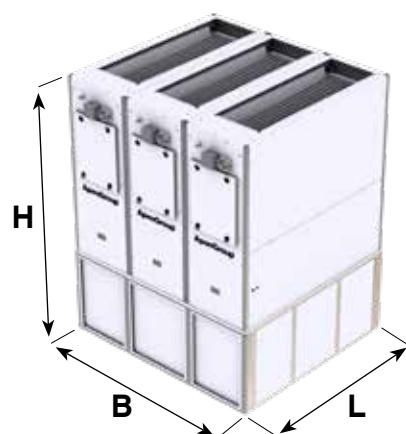
AH Vertical Version / Dimensions



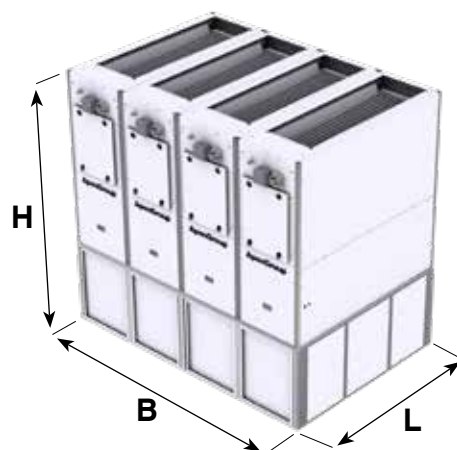
Model	L cm	B cm	H cm	Weight kg
AH034IT	977	625	1495	190
AH065IT	1277	625	1495	220
AH105IT	1698	625	1580	280



Model	L cm	B cm	H cm	Weight kg
AH160IT	1698	1250	2330	560
AH210IT	1698	1250	2330	560

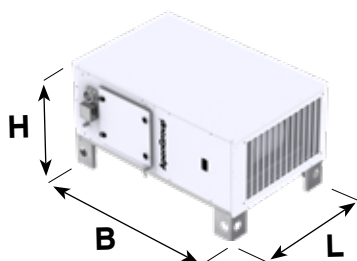


Model	L cm	B cm	H cm	Weight kg
AH320IT	1698	1875	2460	840

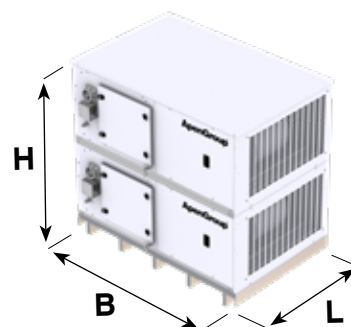


Model	L cm	B cm	H cm	Weight kg
AH420IT	1698	2500	2460	1120

AH Horizontal Version / Dimensions

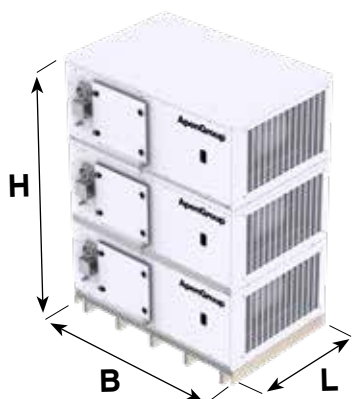


Model	L cm	B cm	H cm	Weight kg
AH034IT-OxH0	977	1520	840	190
AH065IT-OxH0	1277	1520	840	220
AH105IT-OxH0	1698	1605	840	280



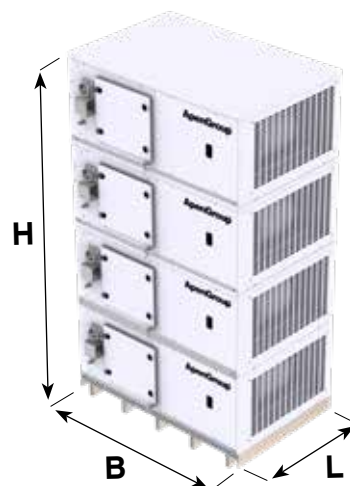
Model	L cm	B cm	H cm	Weight kg
AH160IT-OxH0*	1698	1605	1460	560
AH210IT-OxH0*	1698	1605	1460	560

* Supplied with stainless steel basement



Model	L cm	B cm	H cm	Weight kg
AH320IT-OxH0*	1698	1605	2085	840

* Supplied with stainless steel basement

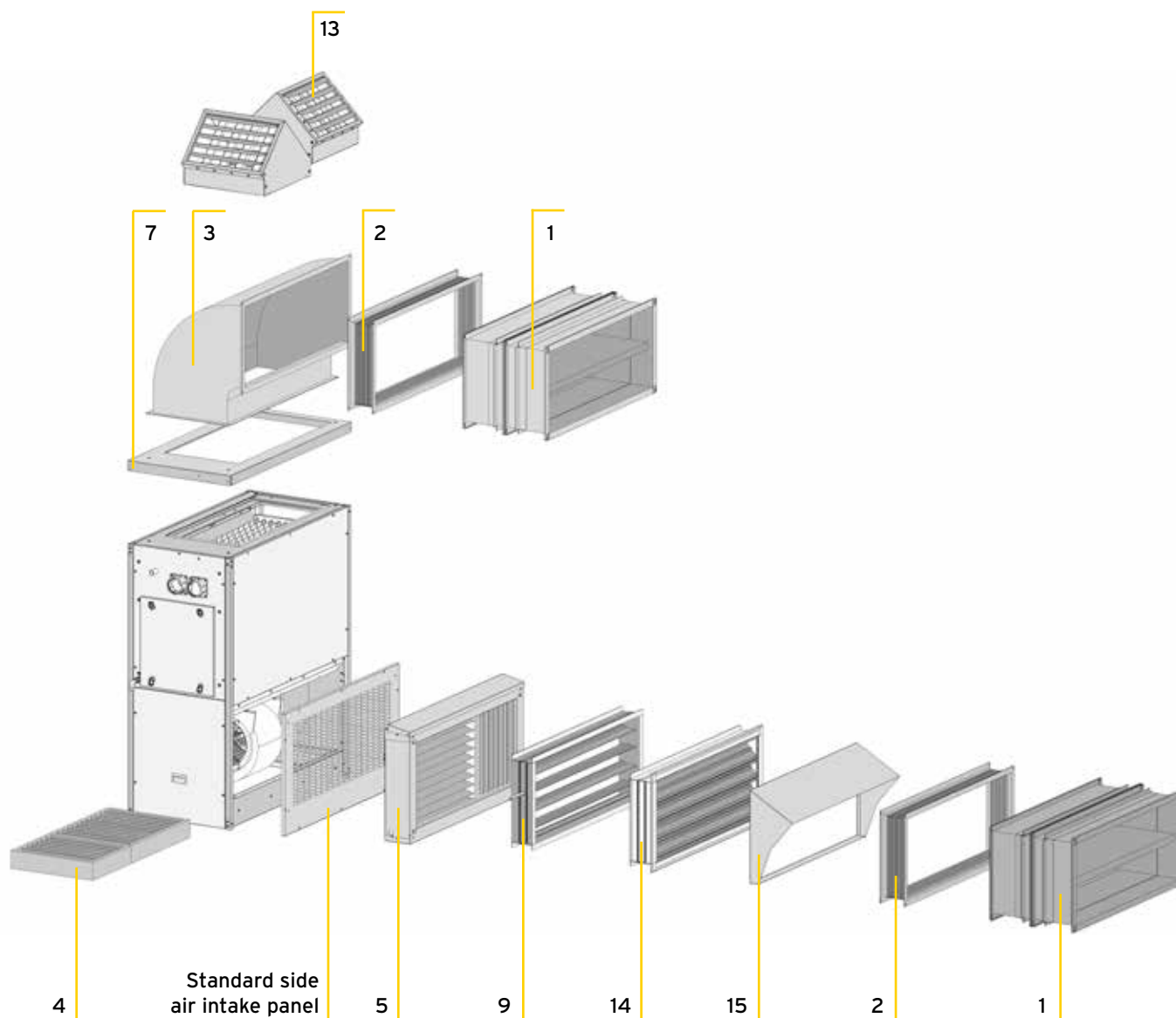


Model	L cm	B cm	H cm	Weight kg
AH420IT-OxH0*	1698	1605	2710	1120

* Supplied with stainless steel basement

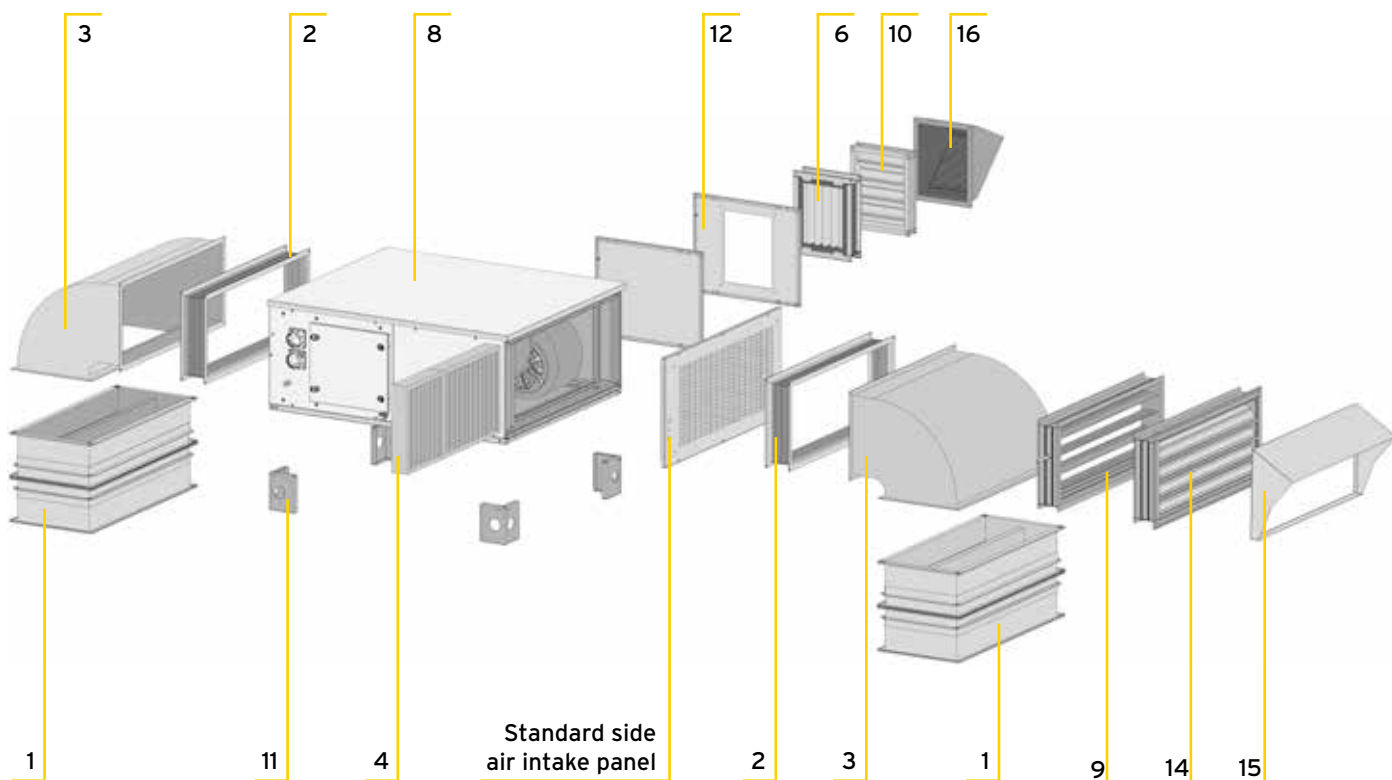
AH / Accesories for Vertical Single Module

- | | |
|--------------------------|---|
| 1. Fireproof damper | 7. Vertical roof (for outdoor installation) |
| 2. Anti-vibration joint | 9. Motorized regulation damper |
| 3. Connection bend | 13. Delivery plenum |
| 4. Inlet air filter | 14. Rain Deflector |
| 5. Side inlet air filter | 15. Snow protection |



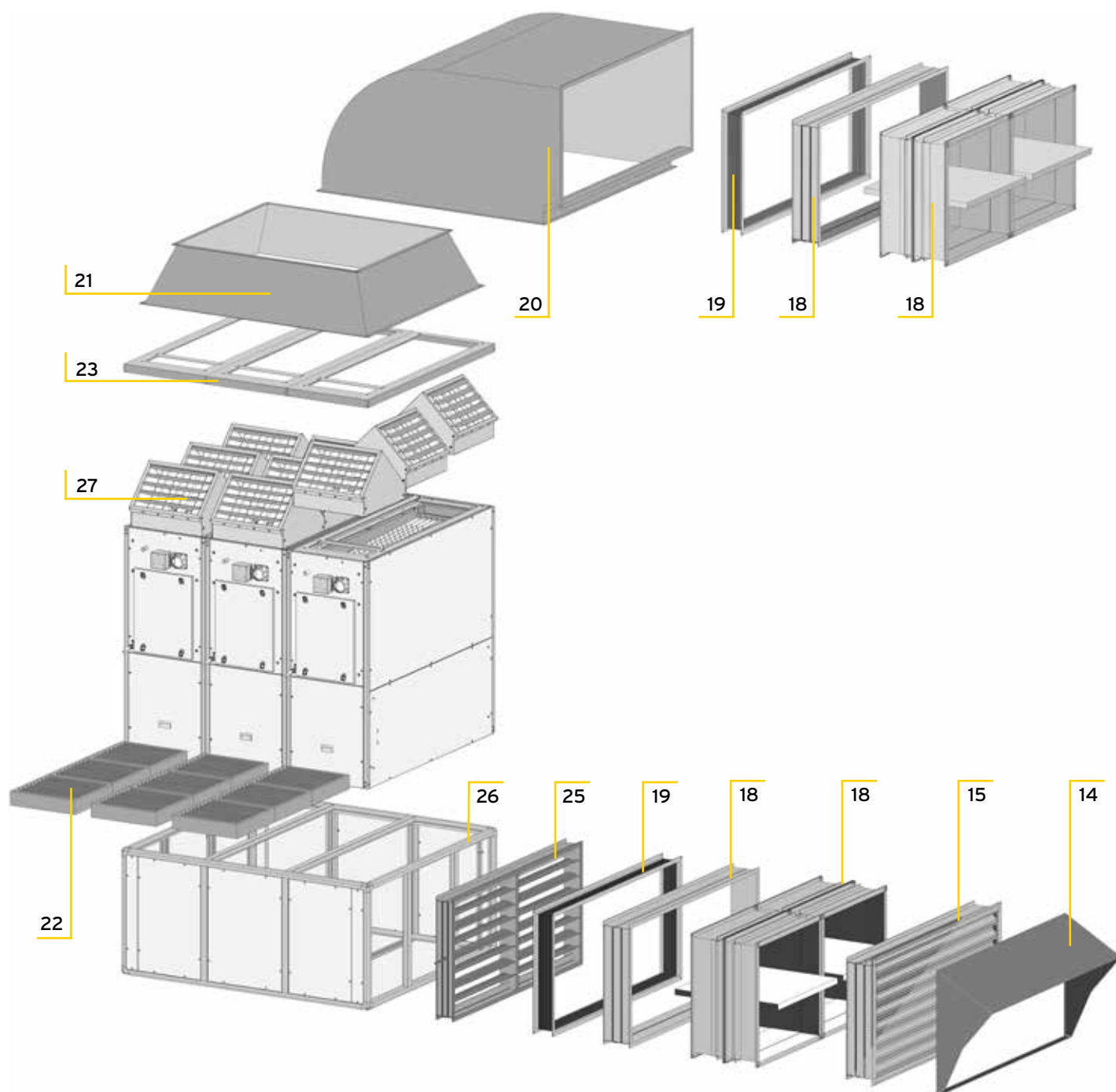
AH / Accesories for Horizontal Single Module

- | | |
|---|-----------------------------|
| 1. Fireproof damper | 10. Rear regulation damper |
| 2. Anti-vibration joint | 11. Support foot (supplied) |
| 3. Connection bend | 12. Rear intake |
| 4. Inlet air filter | 14. Rain deflector |
| 6. Rear inlet air filter | 15. Snow protection |
| 8. Horizontal roof (for outdoor installation) | 16. Rear snow protection |
| 9. Motorized regulation damper | |



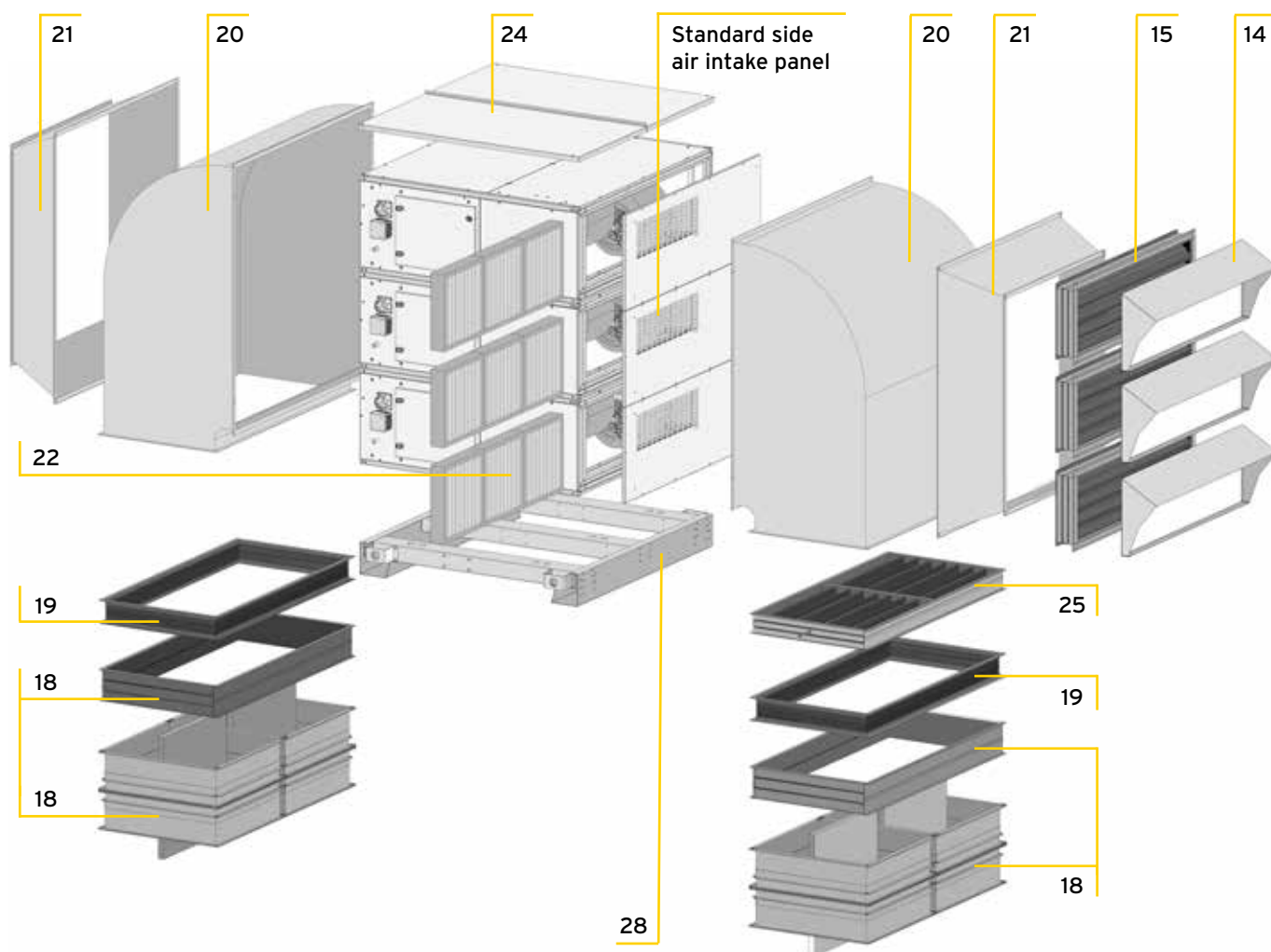
AH / Accesories for Vertical Multiple Module

- 14. Side snow protection
- 15. Rain deflector
- 18. Duct and fireproof damper
- 19. Anti-vibration joint
- 20. Duct bend
- 21. Duct reduction
- 22. Inlet air filter
- 23. Vertical roof (for outdoor installation)
- 25. Motorized regulation damper
- 26. Intake plenum
- 27. Delivery plenum



AH / Accesories for Horizontal Multiple Module

- 14. Side snow protection
- 15. Rain deflector
- 18. Duct and fireproof damper
- 19. Anti-vibration joint
- 20. Duct bend
- 21. Duct reduction
- 22. Inlet air filter
- 24. Horizontal roof (for outdoor installation)
- 25. Motorized regulation damper
- 28. Support foot (supplied)





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