



QUEEN Air Destratifiers

ApenGroup®

RESEARCH, ECOLOGY AND ENERGY SAVING

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.

Apem 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.

A LEADING COMPANY

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).

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.

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.

ENVIRONMENT

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

Apem 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 "Apem 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.

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.

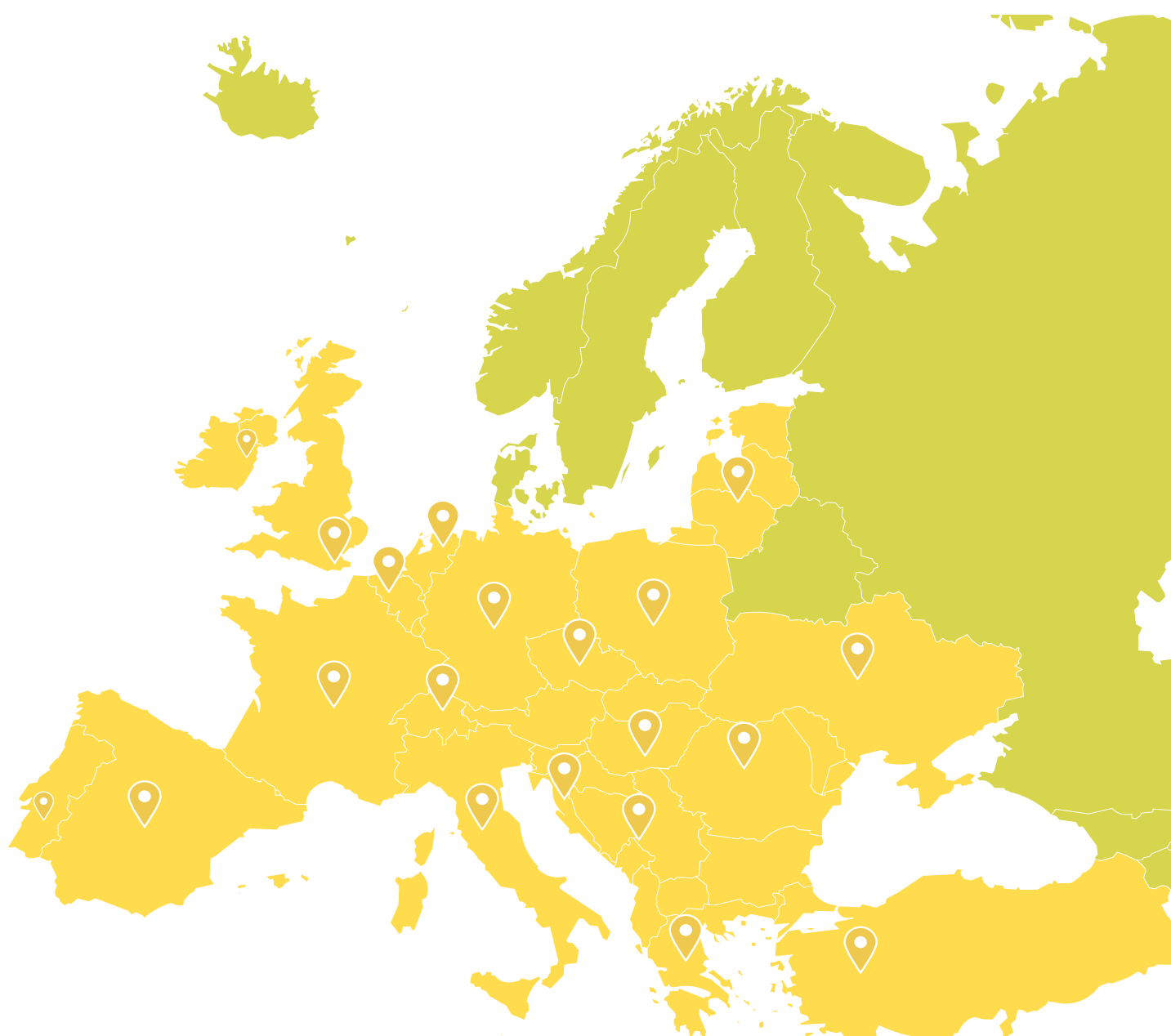
The manufacturing of our products takes advantage of ultimate, state-of-the-art planning and organization methods, which include: Digital control equipment. Welding robots. Forming robots. Computer assisted test lines. Advanced automation assures top-quality products as well as manufacturing flexibility and timely deliveries. Innovation, reliability, and originality are built-in features of each of our products.


SALES EFFICIENCY

Apem 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.

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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.

HISTORY

1967

THE ORIGINS: THERMOVÜR

The company - founded under the name Thermovür - began its great adventure with the production and sale of oil and gas burners. The founding partners are two brothers-in-law having the same name - Angelo Rigamonti - with the assistance and great professionalism of their father/father-in-law Emilio Rigamonti.

1973

AERMAX

Thermovür is supported by the company AERMAX for the marketing of floor-standing warm air heaters and burners, particularly for the foreign market.

1980'S

EXPERIENCE AND KNOW-HOW

The heating sector is evolving rapidly, the building boom and the need to keep everyone warm leads to the need for new and different products: floor-standing boilers, wall-hung boilers, gas burners, gas-fired wall-mounted warm air heaters, gas radiators.

1991

APENGROUP IS BORN

The two companies create a single company, which will benefit from the wealth of knowledge of the two brands and the know-how now internalised by the company: APEN GROUP SPA is born, a group of companies for new energies. Apen Group today.

2000'S

NEW PROJECTS, NEW PRODUCTS

In 2008, confirmation of the company's technical capabilities in the field of air conditioning was confirmed by the introduction on the market of the Kondensa product (condensing warm air heater), air handling units and RoofTop monobloc machines with built-in condensing heat exchanger.

2017

50 YEARS OF LOVE FOR THE CLIMATE!

We are proud to have celebrated our first 50 years in business. In the book "La storia siamo Noi" (We are history), we have recounted the main events that have marked the most important milestones which have made us grow in terms of competence and technological know-how in the heating sector. A continuous evolution, because progress is a never ending process.



ApenGroup

2024

RESEARCH, INNOVATION AND ECOLOGY

We are always evolving. The market, the experiences, the difficulties have made us stronger and more committed to facing new challenges, new technologies, new countries. We want to defend the values we believe in to be able to improve environmental comfort, attention to people and the use of energy. We also want our company to contribute to a better future!

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

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



QUEEN

AIR DESTRATIFIERS



OPTIONAL
CONTROLLER



OPTIONAL
CONTROLLER



ELECTRONIC
DESTRATIFIER



OPTIONAL
SMART X CONTROLS



NEW

THE QUEEN DESTRATIFIERS

The QUEEN destratifiers have been purposely designed to reduce air stratification and make the temperature of the environments in which they are installed homogeneous, exploiting the powerful air blow of the axial fans with which they are equipped.

The concept of destratification at the base of this product is simple: the hot air that tends to remain in the upper zones of the heated environments is sucked by the axial fan mounted on the destratifier and pushed downwards in the zones where people is present.

DIRECT EFFECT INDUCTION EFFECT

The Queen destratifiers move a large quantity of air, both for a direct effect and for the effect of induction which (as verified by the laboratory tests) drags the air immediately adjacent to the directly treated air. This allows for very high efficiency and great speed in achieving environmental comfort. This action is added to those of the heating appliances by mixing the hot air they produce with the ambient air.

SECTORS OF USE

- Logistics
- Depots and Warehouses
- Facilities
- Sheds
- Workshops with all types of processing
- Body shops
- Carpenter's workshops
- Shopping malls
- Public environments
- Gyms

INNOVATIVE DESIGN

The QUEEN destratifier has an innovative shape and design: it is built with very light materials (ABS plastic) and has a particularly compact shape.

POSITIONING VERSATILITY

The QUEEN destratifier's compact shape allows it to be installed very close to the ceiling of the target building (64 cm), solving problems often related to the passage of overhead cranes or other self-propelled structures inside some sheds.

SIMPLE INSTALLATION

Its particularly small size and weight make it easy to move and position.

Installation is limited to fixing by means of practical coupling and support systems.

HIGH-PERFORMANCE STRUCTURE

Compact and lightweight, the QUEEN has a solid construction and has no fan balancing issues as it uses a robust type of fan that requires little maintenance.

BENEFITS IN SUMMER

- Reduction of relative humidity by more than 20%.
- Reduction of the concentration of flue gas and odours by more than 50%.
- Clear improvement of the microclimate.

BENEFITS IN WINTER

- Reduction of heat demand by more than 30%.
- Reduction of relative humidity by more than 20%.
- Elimination of condensation.
- Reduced maintenance for plants and facilities.

QUEEN DESTRAFIFIERS

TECHNICAL FEATURES

- ABS supporting structure and diffuser.
- Fin geometry with high diffusion efficiency.
- Treated air from 7,500 m³/h to 10,050 m³/h
- Range of operation 70-380 m².
- Absorbed power 130 W / 230 W.
- 230 V single-phase supply voltage.
- IP54 Protection degree.
- Axial fan.
- Possibility of adjusting the ventilation speed.
- Variable speed drive
- Temperature regulator

VARIABLE SPEED DRIVE

In case there is the need to adjust the rotation speed of the fans, and consequently reduce the air speed on the ground, two 5-position speed drives are available as accessories on request:

A drive that can control up to 2 Q450s or up to 4 Q350s simultaneously.

A drive that can control up to 5 Q450s or up to 10 Q350s simultaneously.

Both drives have a summer/O/winter adjustment button (winter in the case of regulating operation with the accessory thermostat).



AUTOMATIC/ENERGY SAVING

It is important to emphasise that the new QUEEN destratifiers provide the possibility of the combination of an accessory thermostat that allows to set the automatic operation of the destratifier(s) installed in a room.

This accessory kit allows to automate the operation of the destratifier and to regulate its operation only when the environment needs it, thus allowing the reduction of consumption.

The destratifiers start automatically once the operation of the heating system results in a ΔT between the temperature measured at the height of the destratifier installation and the ambient temperature (therefore only when there is a real need to destratify).

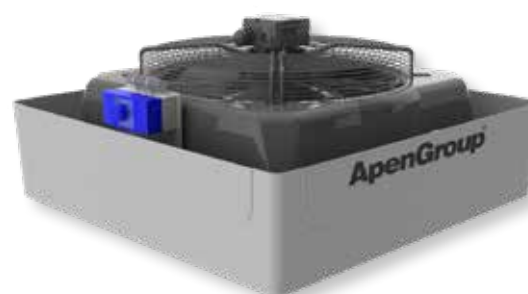


SIMPLICITY AND EFFICIENCY

Among the most important data we want to highlight:

- The single-phase power supply, with consequent ease in setting up the electrical system.
- The reduced power consumption.
- The installation height allowing the passage of overhead cranes or other self-propelled structures.

This type of operation, together with the rapidity in reaching comfort described above, allows to significantly reduce the electrical consumption of the destratification system. This is because the actual hours of operation of the electric fans will be automatically controlled and will be much lower than the hours of use of the heating system.



QUEEN-EC ELECTRONIC DESTRATIFIERS

TECHNICAL FEATURES

- ABS supporting structure and diffuser.
- Fin geometry with high diffusion efficiency.
- Treated air from 8,650 m³/h to 11,550 m³/h.
- Range of operation 70-380 m².
- Absorbed power 130 W / 230 W.
- 230 V single-phase supply voltage.

- IP54 Protection degree.
- Electronic axial fans with integrated inverter.
- Possibility of adjusting the ventilation speed.
- Switch-on, switch-off and air flow rate regulation with 0-10 Vdc signal.

ACCESSORIES UPON REQUEST



KIT G24600:

- SMART X WEB.
- CPU electronic board.
- Immersion probe to be connected to CPU.
- Room probe.
- Control panel.

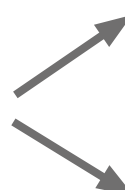
POSSIBLE CONFIGURATIONS



**QUEEN-EC
DESTRATIFIER**



**STAND
ALONE**



**CONTROLLABLE WITH
0-10 VOLT SIGNAL**

**KIT G03780
POTENTIOMETER
MANUAL REMOTE CONTROL**



**QUEEN-EC
DESTRATIFIER**



ELECTRIC BOARD

- CPU electronic card
- Ambient probe



SMART X WEB



**QUEEN-EC
DESTRATIFIER**



**ELECTRIC
BOARD**

- CPU electronic card
- Ambient probe



AKN BOILER



**SMART X WEB
OR SMART X EASY**



KONDENSA LK

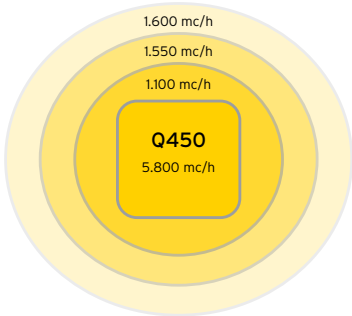


**SMART X WEB
OR SMART X EASY**

DESTRATIFICATION



TREATED AIR

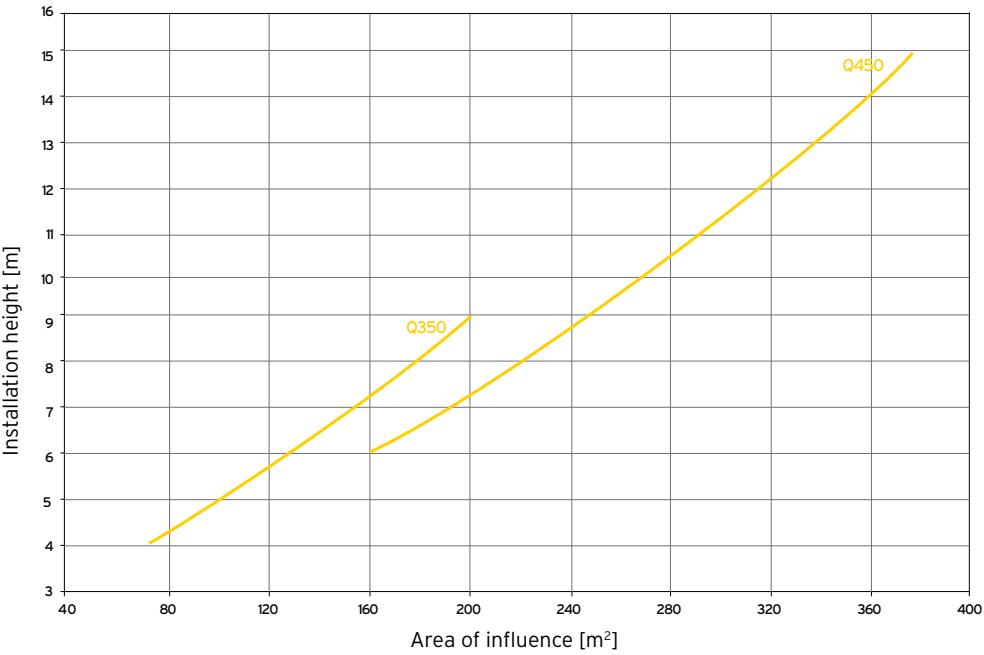


Fan flow rate	3,800 cu.m/h
Induced flow rate	3,700 cu.m/h
Total flow rate	7,500 cu.m/h

Fan flow rate	5,800 cu.m/h
Induced flow rate	4,250 cu.m/h
Total flow rate	10,050 cu.m/h

HIGH INDUCTION DIFFUSER

The downward diffusion of the hot air is “guided” by the inclined blades of the distributor mounted on the QUEEN destratifier; the complex geometry of these inclined blades has been studied and verified in order to have the best air blow in terms of area of influence as well as speed of the air perceived on the ground. The following graph shows the indications of the area of influence depending on the installation height of the two models of the QUEEN destratifier.



QUEEN / TECHNICAL DATA

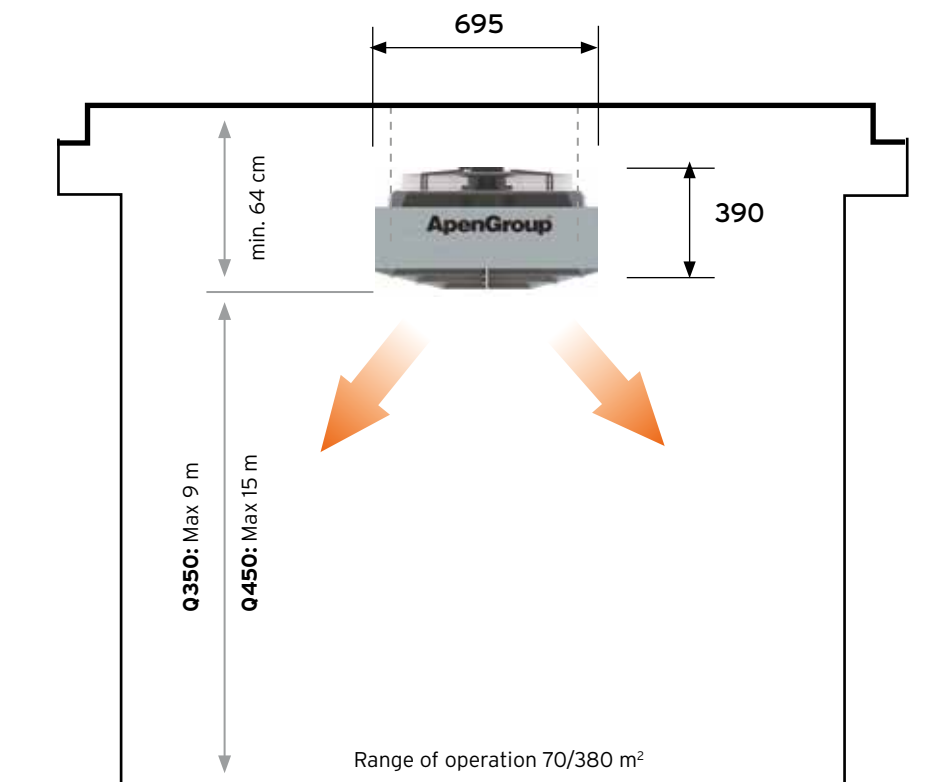
Model		Q350	Q450	Q350EC	Q450EC
Fan type		Axial		Electronic axial	
Casing and diffuser		ABS	ABS	ABS	ABS
Treated air flow rate	m ³ /h	7,500	10,050	8,650	11,550
Fan air flow rate	m ³ /h]	3,800	5,800	2,645	6,028
Sound power	dB(A)	65	71	65	71
Sound pressure	dB(A)	43 (at 5 metres)	45 (at 8 metres)	43 (at 5 metres)	45 (at 8 metres)
Range of operation	m ²	70-200	150-380	70-200	150-380
Installation height	m (min-max)	4-9	6-15	4-9	6-15
No. of fans and blade diameter		1x350	1x450	1x350	1x450
Working temperature	min-max	-15°C,+50°C	-15°C,+50°C	-15°C,+50°C	-15°C, +50°C
Maximum room height	m	18	18	18	18
Rated power	W	135	230	110	300
Frequency	Hz	50	50	50	50
Inrush current/max speed absorbed current	A	0.65/1.5	1.6/2.4	0.95	2.05
Motor revolutions	rpm	1340	1320	1350	1320
Supply voltage	V	230	230	230	230
Protection Rating		IP54	IP54	IP54	IP54
Weight	kg	14	15	17	17

DIMENSIONS AND INSTALLATION HEIGHT

INSTALLATION HEIGHT

The Q350 model is suitable for maximum installation heights of 9 metres with a capacity of 7,500 m³/h.

The Q450IT model, on the other hand, is suitable for heights up to 15 metres, with a maximum treated air flow rate of 10,050 m³/h.



SMART X SYSTEM

REMOTE CHRONOTHERMOSTATS



ADVANCED
ELECTRONICS



WATER FAN
HEATERS



AIR
DESTRATIFIERS



GUARANTEED
EFFICIENCY



GAS CONDENSING
BOILERS



WALL-MOUNTED
HEATERS



SMART X SYSTEM

Remote chronothermostats

SMART X EASY AND SMART X WEB CONTROLS

Being touch-screen chronothermostats, the Apen Group SMART X EASY and SMART X WEB control all Apen Group products, guaranteeing operation with maximum efficiency and minimum energy consumption.

These user-friendly controls allow a wide choice of adjustments and a clear reading of the operating parameters as well as the resolution of any technical interventions.

PRODUCT CONTROL

- AKN gas condensing boilers.
- AQUAPUMP HYBRID system, hybrid heat pump with gas boiler.
- AX-EC electronic water fan heaters.
- QUEEN-EC Air destratifiers.
- LK and LKN wall-mounted condensing warm air heaters.
- LRP and LRN wall-mounted warm air heaters.
- AH and AH-SPORT modular heating units.
- PK and PK-SPORT floor standing warm air heaters.

SIMPLE INSTALLATION

Connection via 2 power cables and 2 modbus cables is very simple. Installation can be built-in or flush with the wall.

MULTITASKING CONTROL

It acts as a stand-alone chronothermostat and can be used by one to a maximum of 15 machines simultaneously.

CONTROL VERSATILITY

It is possible to install up to 3 remote probes in addition to the one on board the control.

TOUCH SCREEN TECHNOLOGY

The controls are easy to use thanks to a 4.3" colour TFT display and a very intuitive management menu. The user program is multilingual (9 languages).

SMART X WEB

With the SMART X WEB version (through the connection to an intranet network) it is possible to carry out the complete management of the plant remotely via browser on a computer or via http address.

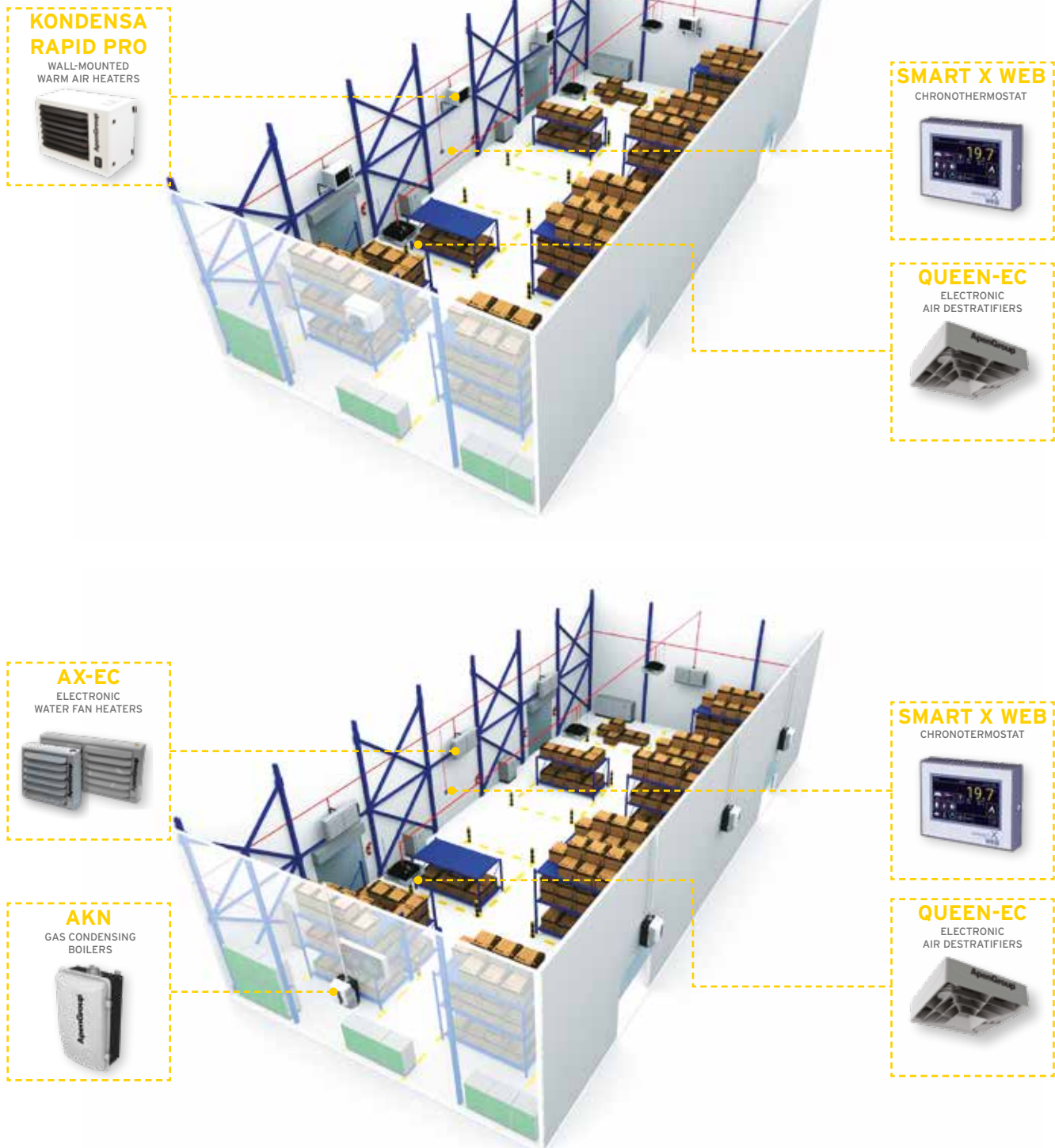
FAN MODE

Ventilation mode management for combination of AX-EC water fan heaters with AKN boilers.

SMART X SYSTEM

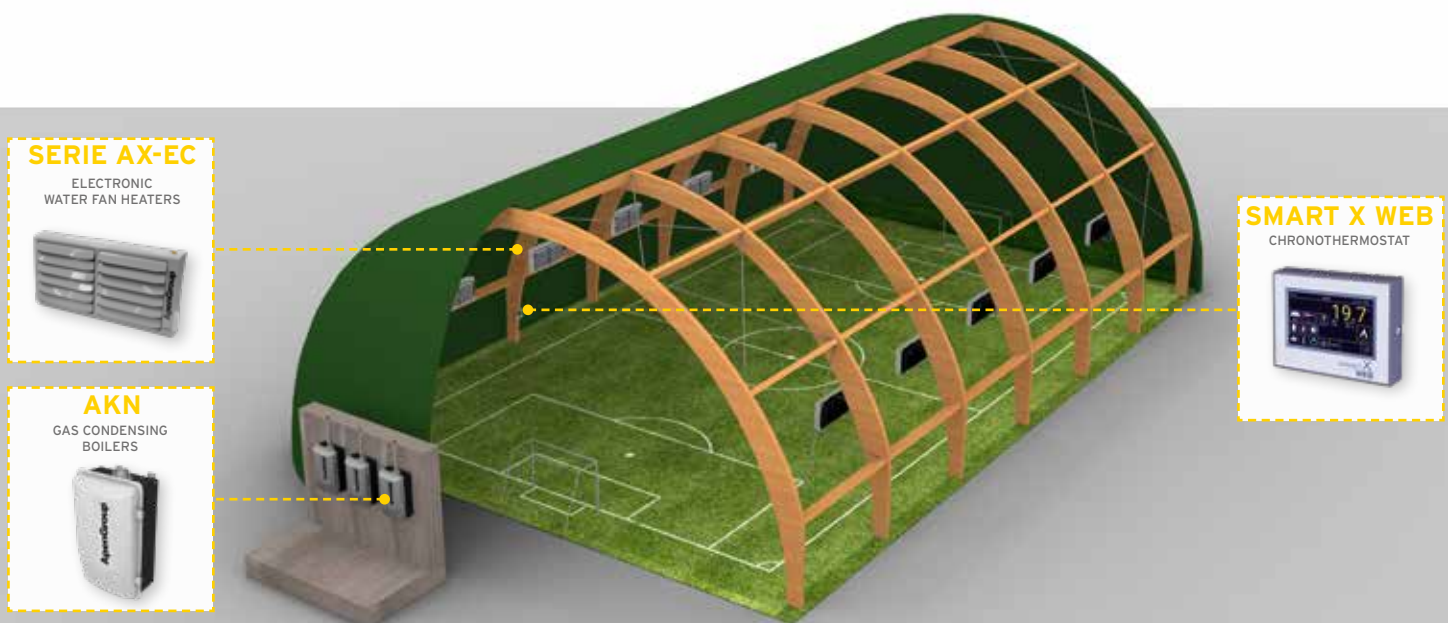
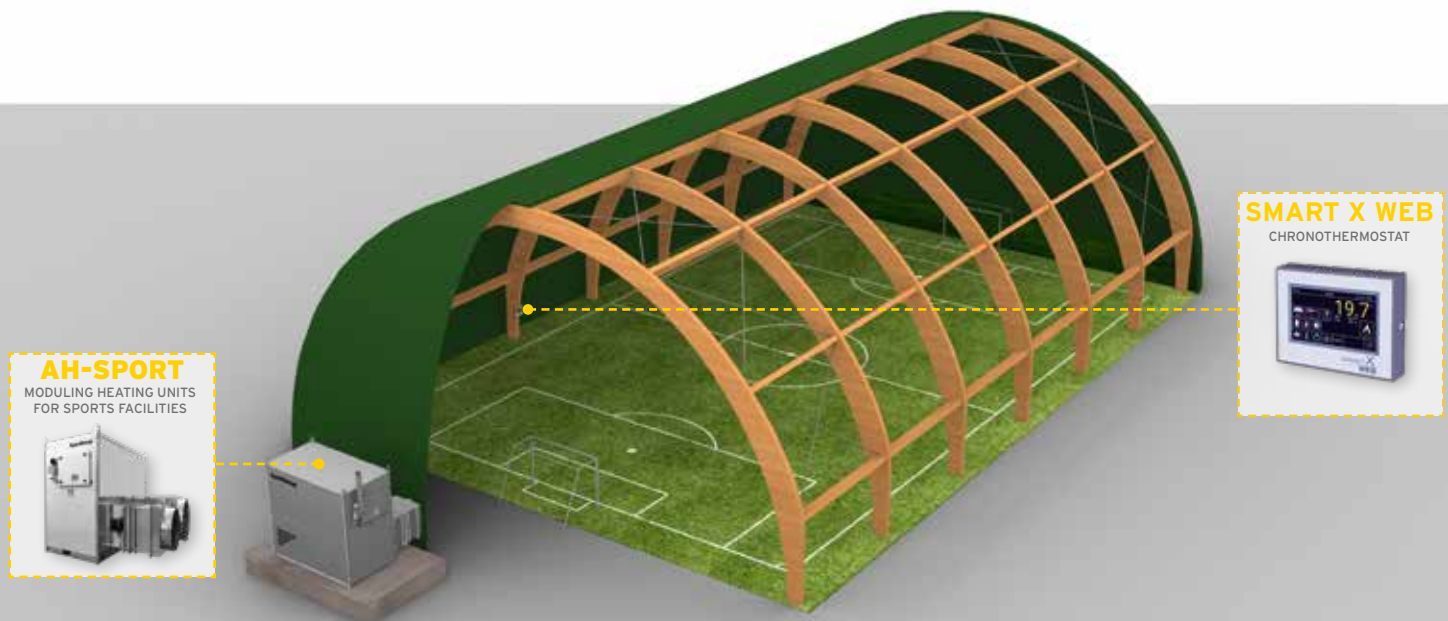
THERMOSTAT CONFIGURATION FOR CONTROL OF:

- AKN Gas condensing boilers.
- AX-EC Electronic water fan heaters.
- QUEEN-EC Electronic air destratifiers.
- KONDESA LK-LKN Wall-mounted condensing warm air heaters.
- RAPID PRO LRP-LRN Wall-mounted warm air heaters.



THERMOSTAT CONFIGURATION FOR CONTROL OF:

- AH-SPORT Moduling heating units.
- AKN Gas condensing boilers.
- AX-EC Electronic water fan heaters.





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Code X01326GB ed. 2402
The contents of this catalogue may be edited without prior notification.

