

# DKS

Air Handling Unit





# FOCUS DOGU

## For the Future of Heat

With our R&D investments and competent team leading the HVAC sector, we are at the forefront of designing HVAC products that are **both human- and environmentally-friendly.**



**DKS**  
Air Handling Unit

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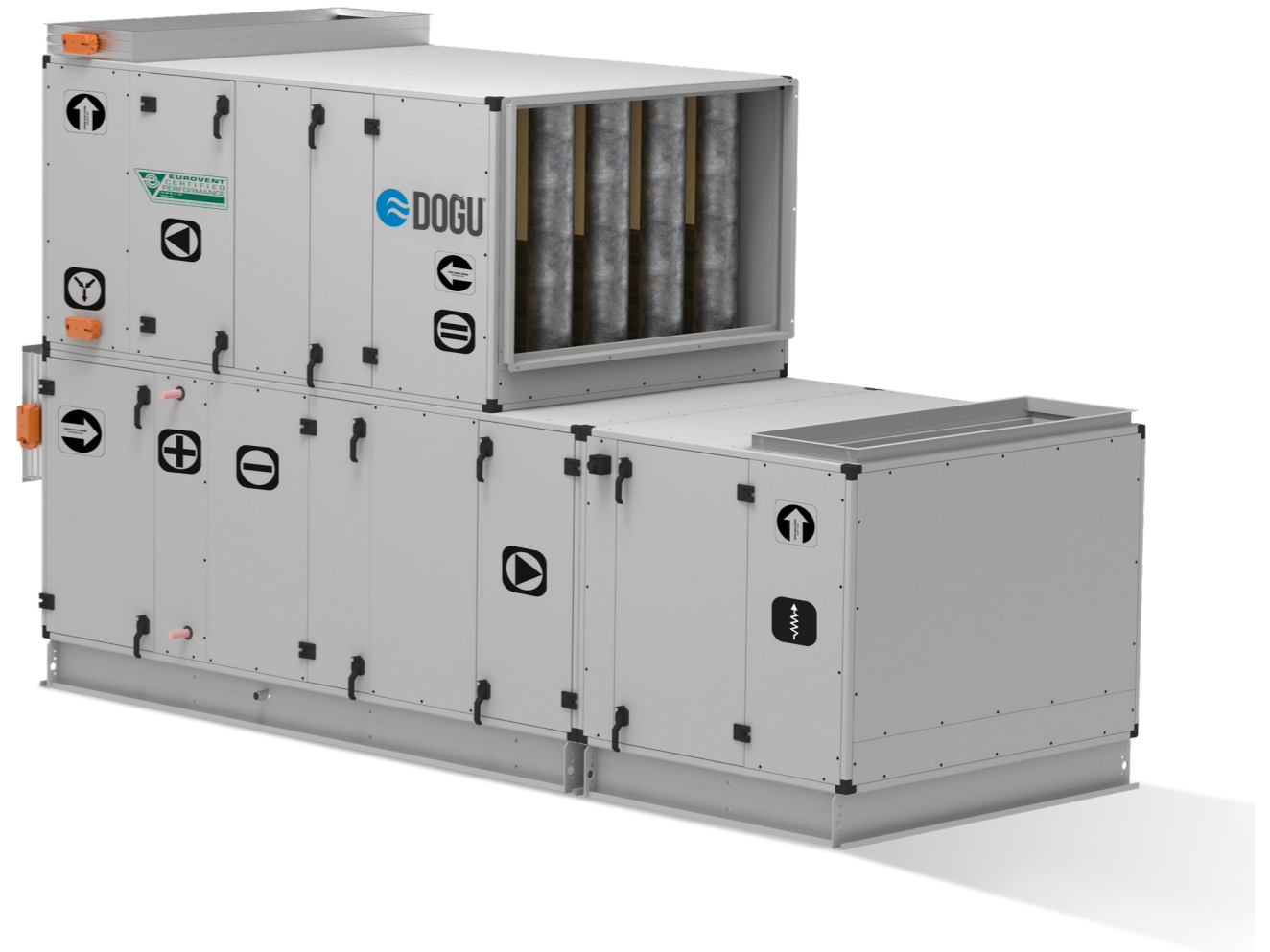
AIR HANDLING UNIT

### GENERAL OVERVIEW

Doğu Air Handling Units (AHUs) provide a comprehensive solution for central ventilation and climate control systems from a single source, thanks to their integrated and complementary components and units. Their ergonomic design and customizable technical specifications make them ideal for schools, hospitals, residential complexes, cinemas, shopping centers, warehouses, offices, and large workplaces.

Certified under ISO 9001:2015 quality assurance by TÜV SÜD and CE-marked, Doğu AHUs meet the superior standards of EN 1886 with EUROVENT certification.

These AHUs are available in 30 different sections, offering air flow rates ranging from 800 to 80,000 m<sup>3</sup>/h for cooling and ventilation purposes, and from 1,000 to 100,000 m<sup>3</sup>/h for heating and ventilation.



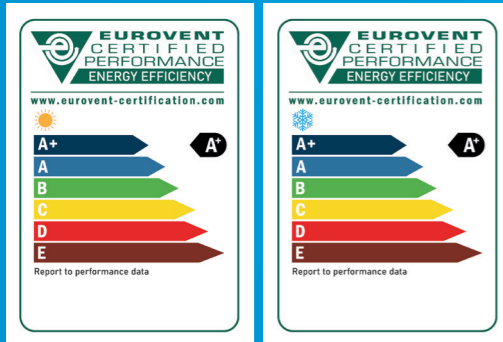


## GENERAL OVERVIEW

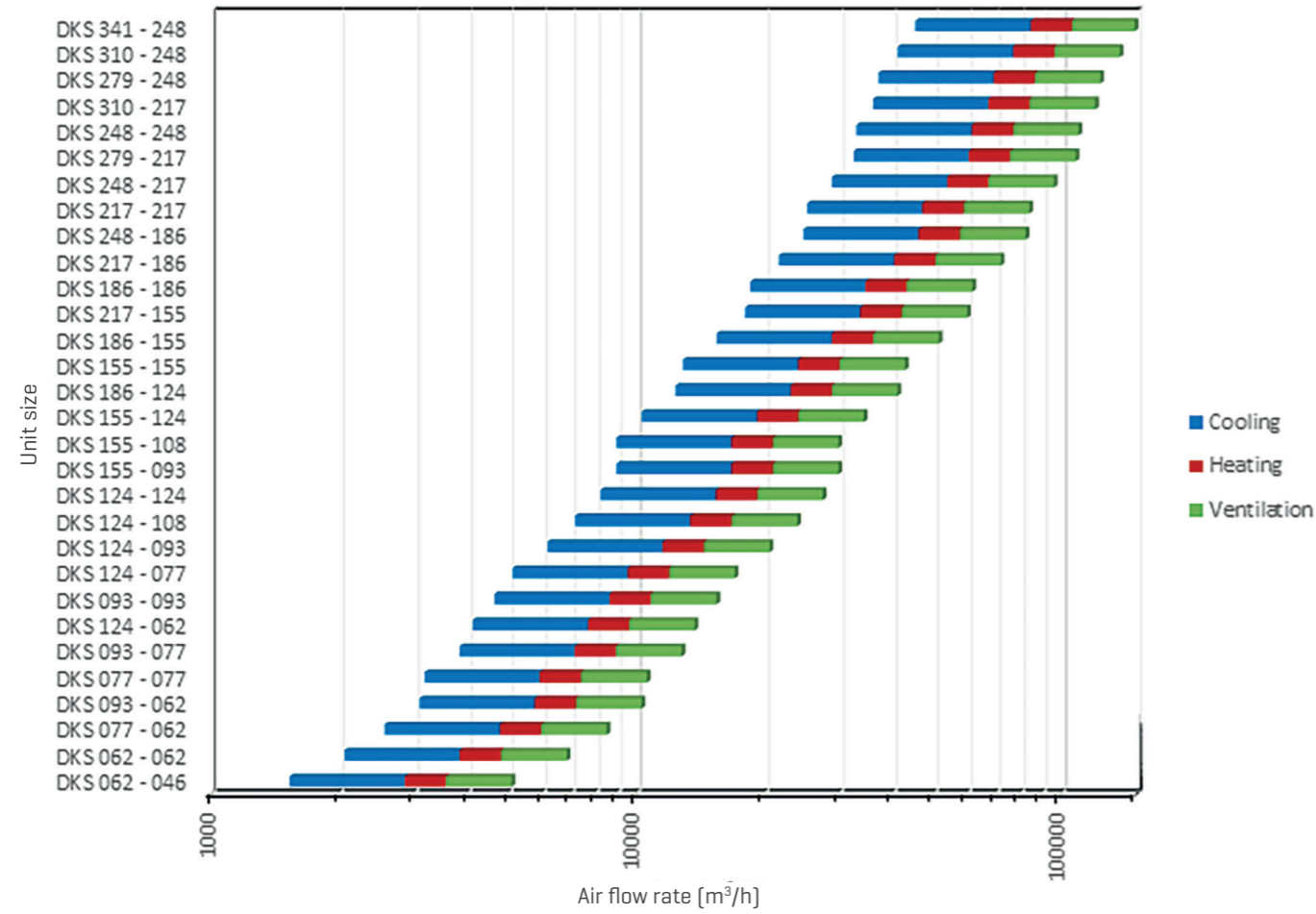
- ☞ Precise Control
- ☞ Unique Hygiene
- ☞ High Energy Efficiency
- ☞ Easy Assembly and Maintenance
- ☞ Seamless Integration with Modern Building Management Systems

## COMPLIANT with INTERNATIONAL STANDARDS and NORMS.

- ☞ EN 1886:2008
- ☞ EN 13053:2011
- ☞ EN 13779:2008
- ☞ VDI 3803
- ☞ VDI 6022
- ☞ DIN 1946
- ☞ EN 305:1999
- ☞ EN 308:1998
- ☞ EN 779:2012
- ☞ EN 1216:2008
- ☞ EN 1751:2014
- ☞ EN ISO 16890:2017
- ☞ EN 60204-1:2006
- ☞ EN ISO 5136:2009
- ☞ EN ISO 12100:2010
- ☞ EN ISO 12944-2:2018



## GENERAL OVERVIEW



Doğu AHUs feature high mechanical strength and thermal performance, with 50 or 60 mm panel thickness options, ensuring high-quality and eco-friendly production. They come with modular, double-walled panels, electrostatically powder-coated galvanized exterior, and options for galvanized or stainless-steel interiors. The insulation between the panels, available in 50 or 60 mm thickness, uses rock wool with a density of 50, 70, 90, or 110 kg/m<sup>3</sup>, ensuring superior body air tightness. Each AHU's frame is constructed from a robust framework, with specially designed profiles and connectors for maximum durability.

Our units utilize high-efficiency, imported fans with sparse or dense blades, meeting VDI 2060 standards for static and dynamic balancing. To prevent vibrations from transferring to the housing, spring isolators are used in plug and radial fans. The fan motors have IP 55 protection class and comply with IEC 34-6.

Depending on the application, various types and sizes of filters (Panel, Bag, HEPA, Carbon, etc.) are used. The filter cells are designed to prevent unwanted air leakage and conform to international standard filter dimensions, ensuring they can withstand optimal air velocities.

Table 1.

<b>Production Quality</b>	Compliant with TSE Standard for Body Strength, Air Tightness, Filter By-Pass, and Body Sound Insulation.
<b>Structure and Panel</b>	Modular structure with double-skin panels.
<b>Profile</b>	Available in Aluminum (Thermal bridge-free) and Steel
<b>Sheet Material</b>	Galvanized, Stainless Steel
<b>Panel Thickness</b>	50mm / 60mm
<b>Air Tightness</b>	EPDM sealing gaskets are used to ensure complete air tightness on panel surfaces
<b>Heat and Sound Insulation</b>	Rock Wool, Polyurethane
<b>Fan</b>	Backward Curved Fan / Forward Curved Fan / Plug Fan & AC Motor / Plug Fan & EC Motor

## SELECTION SOFTWARE

The selection, sizing, and performance data generation for Doğu Air Handling Units (AHUs) is easily managed through the HVAC CALCULATOR AHU selection program. This program allows users to:

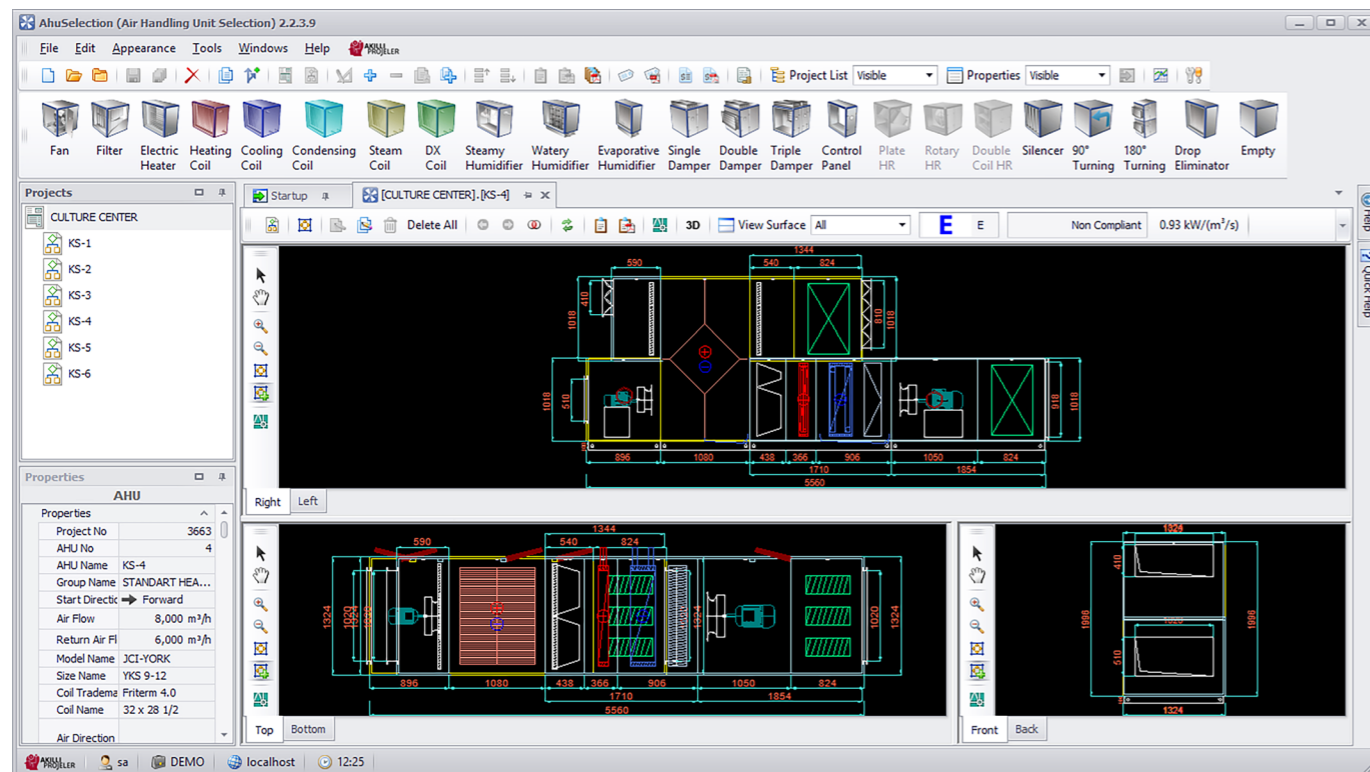
- View air velocities in various sections and choose the optimal one.
- Combine elements to design a custom AHU.
- Accessory and brand/model alternatives are available for each element, including price comparisons.
- Determine the number of parts and maximum cell size.
- Review the unit's dimensions, weight, and pricing.

The program also generates a technical report including dimensions, images, and relevant specifications. Filtration Features:

- International-standard compliant filtration area.
- Easy installation and removal of cassette-type filters.
- Maintenance-friendly service doors.
- Optional accessories like manometers, lighting, and viewing windows.

Filter Types:

- First Stage: Coarse 45% (G3), Coarse 55% (G4), or ePM10 75% (M6) compact filters.
- Second Stage: Coarse 85% (M5), ePM10 60% (M6), or ePM2.5 65% (F7) compact filters.
- Third Stage: ePM1 80% (F9) compact filter or optional Carbon/Chemical filters.
- Fourth Stage: HEPA Filters H13 - H14.



## ACCESSORIES (OPTIONAL)

Emergency Stop	Observation Window	Lamp	Moisture and Temperature Sensor	Differential Pressure Sensor
Differential Pressure Switch	Frost Thermostat	Valve-Valve Motor	Maintenance Switch	Damper Motor



## FILTERS [OPTIONAL]

The entire section of the East HVAC Center is used as a filter transition area in accordance with international standards. The filters are cassette type and can be easily installed and removed. Air leaks are prevented with appropriate designs. Service doors are available in filter cells for maintenance and replacement. Optionally, manometers, lighting, and observation windows are used.

Considering the importance of indoor air quality in air handling units, different types and efficiencies of filters are used. Generally, the types of filters include panel filters, metal filters, activated carbon filters, compact filters, and HEPA filters.

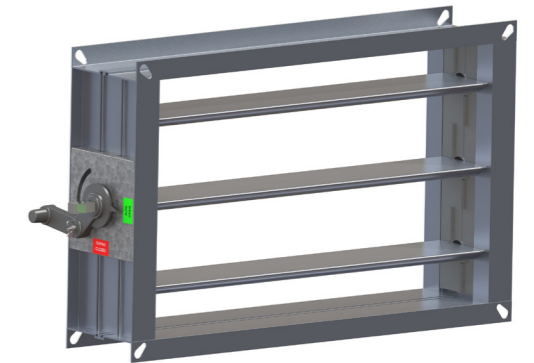
For the first stage, Coarse 45% [G3] / Coarse 55% [G4] level Coarse, Wire or ePM10 75% [M6] level Compact filters,

For the second stage, Coarse 85% [M5], ePM10 60% [M6], ePM2.5 65% [F7] level Compact filters, For the third stage, ePM1 80% [F9] Compact filter, or if the fourth stage is desired, Carbon or Chemical filter, For the fourth stage, Hepa Filter H13 - H14.



## EXHAUST-MIXING-SUPPLY DAMPERS [OPTIONAL]

The dampers are sized according to air velocity, featuring standard aerofoil-shaped, opposed blade dampers made of aluminum. To minimize air leakage, the damper blades have seals on the edges. The dampers can be operated manually or with servo motors, with options for rain protection and flexible connections. Designed to handle 100% airflow, the damper dimensions align with the AHU type.



## SILENCERS [OPTIONAL]

Silencers reduce noise levels in HVAC systems to acceptable standards. The sound absorption coefficient varies with the silencer length. The silencer cell consists of rock wool placed inside galvanized or stainless steel sheets, designed for smooth airflow and durability. Six different silencer lengths are available, with specific noise reduction capacities provided.

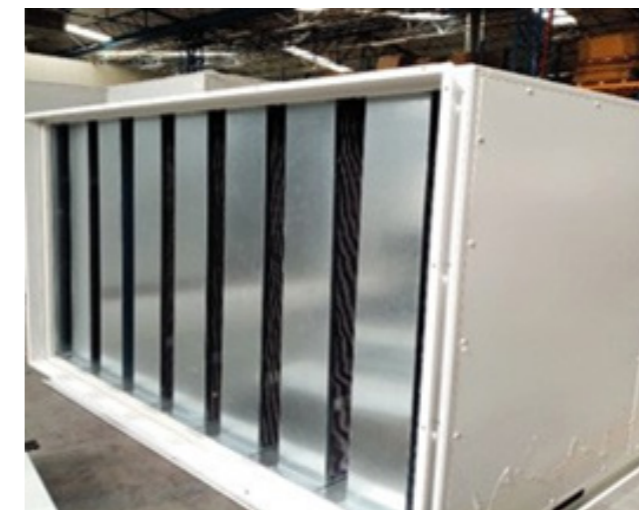


Table 2. Sound Absorption Capacity According to Silencer Sizes

Silencer Size [mm]	Sound Absorption Capacity [dB]							
	63 hz	125 hz	250 hz	500 hz	1000 hz	2000 hz	4000 hz	8000 hz
<b>610</b>	5	9	15	16	16	11	8	8
<b>920</b>	6	12	21	22	23	16	11	11
<b>1230</b>	7	15	27	28	29	20	12	12
<b>1540</b>	9	19	33	34	36	25	17	17
<b>1850</b>	10	22	39	40	42	29	20	20
<b>2160</b>	11	25	45	46	48	33	23	23

## FANS and MOTORS

Different fan types are offered depending on air volume and total pressure drop, including plug, EC plug, backward-curved, and forward-curved fans, all balanced to international standards. The fan-motor group is selected for high efficiency, low noise, and minimal energy consumption, mounted on spring isolators to prevent vibration. Variable-diameter pulleys and belt tensioning mechanisms are available, with optional frequency converters for motor speed control. Motors are IP55 protected and CE compliant, with optional safety and maintenance features.



## HUMIDIFIERS [OPTIONAL]

Three types of humidifiers are available: Steam, Spray, and Evaporative (Pad). A stainless steel condensation tray and polypropylene droplet eliminator are standard. Evaporative humidifiers are suitable for residential and industrial applications, using tap water and offering low energy consumption.

## HEAT RECOVERY SYSTEMS

Heat recovery units are increasingly used in AHUs for energy efficiency. These units reduce the external energy required to condition air by transferring heat between exhaust and fresh air. The options include coil, plate, and rotary heat recovery elements, each offering different levels of thermal performance.

## PLATE TYPE HEAT RECOVERY

These elements provide heat transfer between fresh and exhaust air without moving parts, ensuring high airtightness even under high-pressure differences. They operate within a temperature range of  $-30^{\circ}\text{C}$  to  $90^{\circ}\text{C}$  and are made from aluminum or epoxy-coated aluminum.

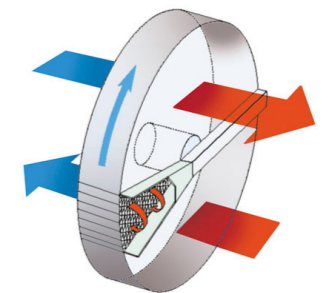


## ROTARY TYPE HEAT RECOVERY

Compact and highly thermally efficient, rotary units use wavy aluminum plates inside the rotor for heat transfer. The rotor is belt-driven by an electric motor, with options for condensation, enthalpy, or sorption heat transfer based on specific needs.

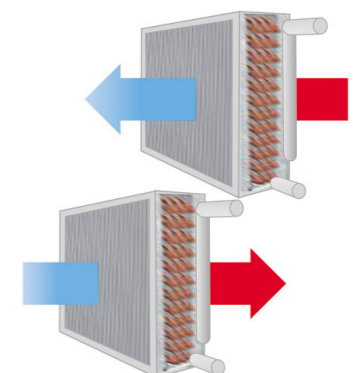
According to the Purpose of Use:

- Condensation type that transfers sensible heat,
  - Enthalpy type that transfers sensible + latent heat,
  - Sorption type that transfers high sensible + latent heat,
- Rotor options are available.



## RUN-AROUND COIL HEAT RECOVERY

Heat is transferred via a closed-loop fluid system between fresh and exhaust air. The transfer fluid is typically an ethylene glycol or water mixture, achieving up to 80% heat recovery efficiency. The system requires a circulation pump and balance tank, with higher pressure losses compared to other recovery systems.



## ELECTRIC HEATERS

Electric heaters are available for Doğu AHUs, especially useful in regions with high freezing risk or systems requiring rapid heating. The heater cassette is made from galvanized or stainless steel, with elements in stainless material, rated at IP43 protection. Stepwise or proportional control is possible, with safety features like automatic and manual reset limit thermostats. CE certification is provided.



## HEATING and COOLING COILS

DOGU AHUs offer water or gas heating/cooling coils. These can be copper tube/aluminum fin or steel tube/steel fin for various fluid temperatures. For hygienic units, copper collector/epoxy-coated aluminum fin and stainless steel housing are used. The design ensures high efficiency through counterflow air-fluid arrangements. Cooling coils have a built-in condensation tray made from double-sloped stainless steel, and a separator is used to catch condensed water from the air.



## CONTROL FUNCTIONS [OPTIONAL]

FUNCTION - EQUIPMENT	DESCRIPTION	STANDARD - S- OPTIONAL- O
<b>Emergency stop button</b>	Halts the system in emergencies.	S
<b>Terminal panel for external connections</b>	Motor terminals are easily accessible from outside tice.	S
<b>AUTOMATIC CONTROL</b> Electronic control panel Duct-type temperature sensor Duct-type humidity sensor Valve servo motors Damper servo motors Frequency converters	Control of air temperature at desired points or locations. Control of humidity at desired points or locations. Control of two-way or three-way valves. Control of dampers. Control of air pressure.	O O O O
<b>MICROPROCESSOR CONTROL</b> Microprocessor Channel type temperature sensor Channel type humidity sensor Differential pressure switches Valve servo motors Damper servo motors Frequency converters	<ul style="list-style-type: none"> <li>- Air flow control,pressure control between two zones</li> <li>- Generates an alarm if the desired flow is not achieved (due to blockage, malfunction, or contamination).</li> <li>- Adjust airflow based on altitude and temperature.</li> <li>- Pre-heating, heating, and cooling algorithms can be configured for supply air temperatures control.</li> <li>- View and modify all parameters via the terminal.</li> <li>- Efficient operation with DX coil control.</li> <li>- Detect and alarm individual filter clogging.</li> <li>- Network communication with all AHUs.</li> <li>- Encryption for operation and configuration parameters.</li> <li>- Audio and visual alarms.</li> <li>- Daily/weekly scheduling .</li> <li>- Multilingual interface[Turkish,English].</li> <li>- Centralized control via hardware,and internet connectivity.</li> <li>- Easy reconfiguration for changes, like adding humidifiers or modifying control strategies.</li> <li>- Propotional,proportional+ integral, or Proportional + integral + derivative control for temperature.</li> <li>- Compensation based on outdoor temperature..</li> <li>- Parametric fan control[thermostatic,continuous, stepped, or proportional].</li> <li>- Fan motor start method[direct,star-delta,triangle]is adjutable.</li> <li>- Test individual equipment.</li> <li>- Memory for all alarm information (differential pressure switches, thermal protection, sensors, emergency stop, etc.).</li> <li>- Integration into building automation systems using all known communication languages (Modbus, BACnet, Lon-ECHELON, LAN TCP/IP, SNMP) with additional hardware.</li> </ul>	O





# SUSTAINABILITY SOLUTIONS AT DOGU HVAC



**GOOD HEALTH and WELL-BEING**

We offer supplementary health insurance to our employees to promote healthy living. We also plan health-focused initiatives such as smoking cessation programs.



**QUALITY EDUCATION**

Through the DOGU HVAC CLUB project, we organize technical tours of our factory, participate in career events, and provide sponsorships to support the skill development of university and technical high school students.



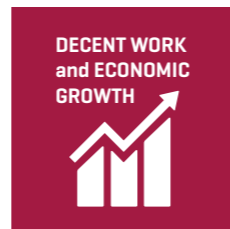
**GENDER EQUALITY**

In 2024, we increased female employment in our administrative and production departments. This step aims to contribute to gender equality by offering a workplace with equal rights for all employees.



**AFFORDABLE and CLEAN ENERGY**

Our R&D center's 2,500 m<sup>2</sup> solar panels and 0.6 MW annual capacity solar energy systems reduce our carbon footprint. We generate our electricity, ensuring a reliable, sustainable, and accessible clean energy source.



**DECENT WORK and ECONOMIC GROWTH**

Decent Work and Economic Growth: As an employer brand, our primary goal is to protect our employees' rights and create a workplace founded on equality and justice for all employees.



**SUSTAINABLE CITIES and COMMUNITIES**

We enhance indoor air quality with environmentally friendly and energy-efficient products, ensuring adherence to European standards.



**RESPONSIBLE CONSUMPTION and PRODUCTION**

We minimize waste through lean production policies and emphasize recycling, simultaneously increasing efficiency in our production processes.



**CLIMATE ACTION**

We support environmental protection through our eco-friendly, sustainable, energy-efficient product lines and R&D efforts focused on reducing waste that could contribute to climate change.



**PEACE, JUSTICE and STRONG INSTITUTIONS**

We value transparency and accountability, working with associations like ISKAV to prevent corruption and unfair competition, aligning with sectoral ethical values.



## Venues Breathe With Us



Read to watch our  
promotional video