

BGK

Heat Recovery Units
With By-Pass Damper



DOGU HVAC: INNOVATING TODAY SUSTAINING TOMORROW

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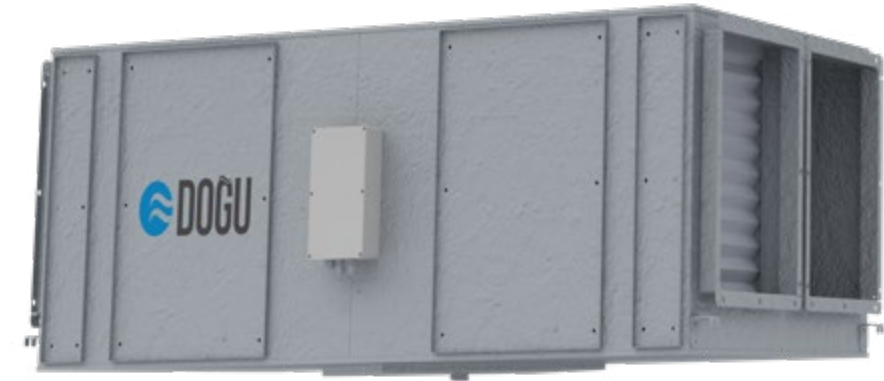
Heat Recovery Units With By-Pass Damper

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HEAT RECOVERY UNITS WITH **BY-PASS DAMPER**

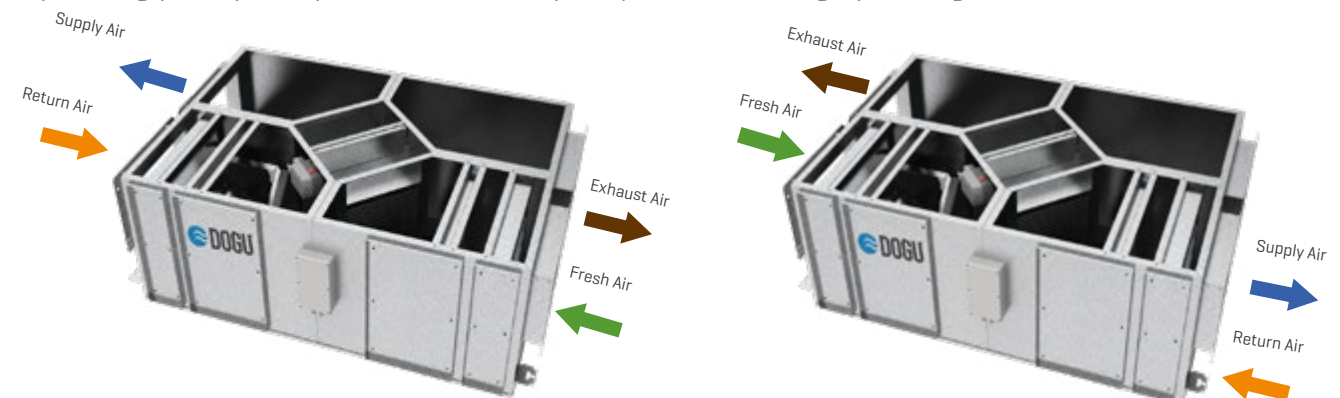
GENERAL INFORMATION

By-Pass Damper Heat Recovery Unit is a ventilation system designed to improve indoor air quality and reduce energy losses in spaces where heating or cooling is applied. It conditions the fresh air taken from outdoors by recovering the thermal energy carried by the exhaust air discharged from the indoor environment. The unit provides high thermal efficiency through its aluminum plate heat recovery exchanger. Frost protection and free-cooling scenarios are safely managed via the by-pass damper. With high-efficiency plug fans, low sound levels, and high static pressure capability, it offers an ideal solution for commercial and industrial applications. Suitable for use in offices, educational buildings, healthcare facilities, shopping centers, and similar conditioned spaces, the unit delivers a reliable and long-lasting ventilation solution with a strong focus on energy efficiency.



WORKING PRINCIPLE

By-Pass Damper Heat Recovery Unit exhausts the stale indoor air while simultaneously drawing in fresh outdoor air. These two air streams pass through the aluminum plate heat recovery exchanger inside the unit without mixing, where heat transfer takes place. The thermal energy carried by the exhaust air is transferred to the fresh air, allowing the supply air to be delivered to the space at a more suitable temperature. In this way, indoor air is continuously renewed while energy losses are significantly reduced. Thanks to the by-pass damper, the exchanger can be temporarily deactivated in free-cooling conditions or in order to prevent frost formation. With the support of the automation system and fan control, the unit operates in a balanced and energy-efficient manner at the desired airflow rates. This operating principle improves indoor air quality while reducing operating costs.



COMPONENTS

① FILTERS

Filters capture dust, dirt, and airborne particles, ensuring clean indoor air quality. They protect system components and contribute to more efficient and longer-lasting operation. Thanks to their easily replaceable design, maintenance procedures are simple and practical. The unit features a single-stage G4 class [ISO Coarse] filter on both the exhaust and fresh air intakes.

② FANS

Fans ensure efficient air circulation and continuous renewal of indoor air, creating a comfortable and healthy environment. The standard AC fans provide reliable and efficient operating performance.

③ BY-PASS DAMPER

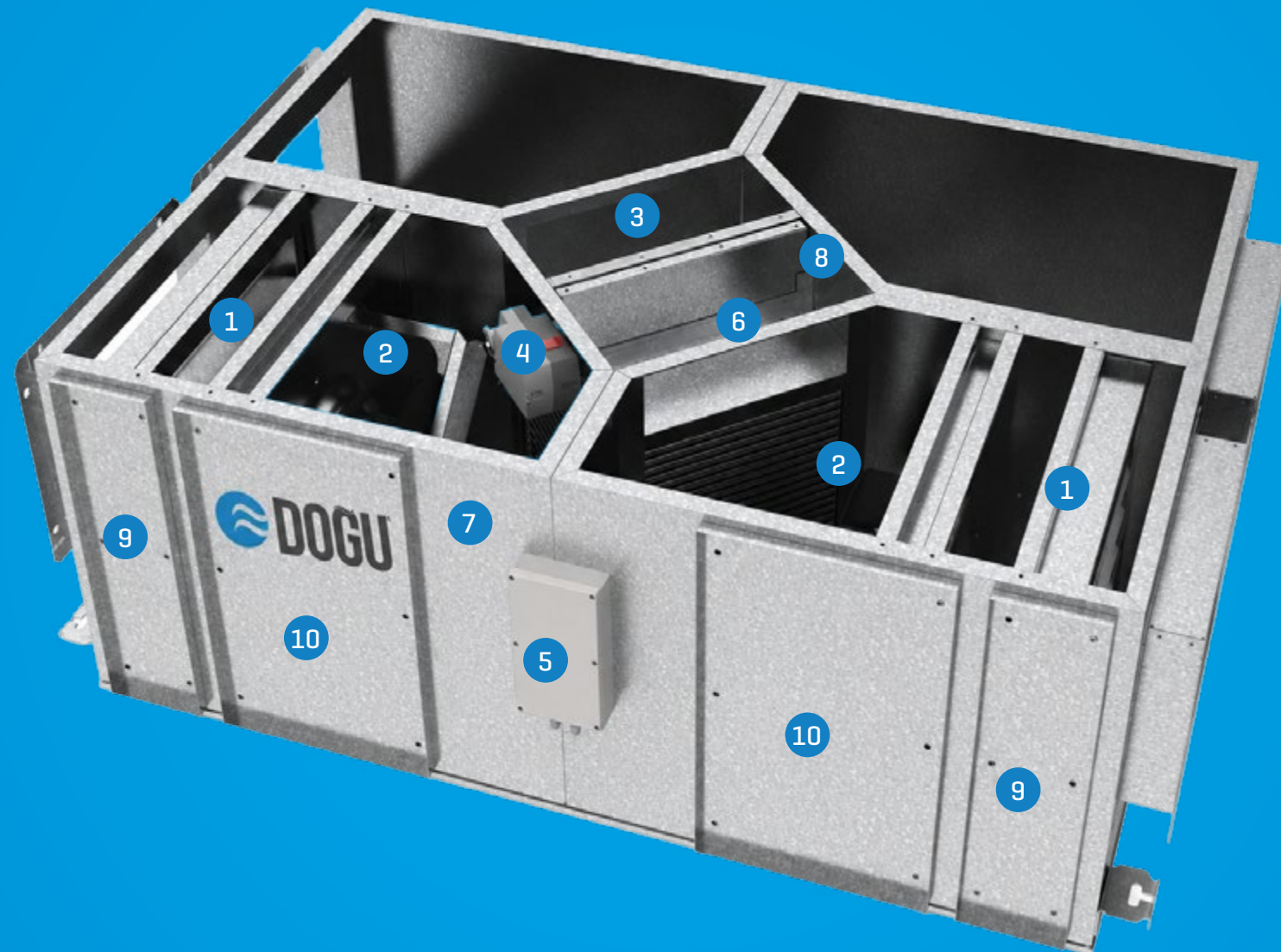
When outdoor air conditions are cooler than the indoor environment and cooling is required, the by-pass damper enables free-cooling by mechanically directing outdoor air directly into the space while exhausting the warm indoor air. In cases where outdoor air temperatures are extremely low and there is a risk of heat exchanger freezing, the by-pass damper opens to allow air to pass through the by-pass line, thereby protecting the heat exchanger against frost damage.

④ BY-PASS DAMPER MOTOR

The primary function of the by-pass damper motor is to control the opening and closing of the damper based on frost protection or free-cooling scenarios, operating on an on/off principle. It enables the intake of outdoor air when required or ensures the damper remains fully closed to prevent unwanted air intake.

⑤ AUTOMATION PANEL

The automation panel is the central unit where all electrical and operational management of the unit is performed. Based on the data received from the fresh air temperature sensor, it automatically controls the by-pass damper and activates the optional duct-type heating equipment when required. With the LCD display, weekly scheduling can be easily configured. An optional CO₂ sensor can be used for air quality based control. The system can also be integrated with optional fresh air intake and exhaust dampers. A humidity sensor is available as an option. Additionally, optional hydronic coil and DX coil control can be provided. The system can be monitored via the Modbus communication protocol.



⑥ HEAT RECOVERY EXCHANGER

The heat recovery exchanger enables heat transfer between the exhaust air discharged from the indoor environment and the fresh outdoor air supply without air mixing. By transferring the thermal energy contained in the exhaust air to the incoming fresh air, it ensures efficient air renewal while reducing energy consumption. The unit uses an aluminum construction cross-flow heat recovery exchanger.

⑦ CASING

The casing protects all mechanical and electrical components against external influences. Its robust construction ensures long service life. Designed with thermal and acoustic insulation, it contributes to safe and quiet operation. Constructed with a single-skin casing made of 275 g/m² galvanized steel sheet.

⑧ HEAT EXCHANGER SERVICE COVERS

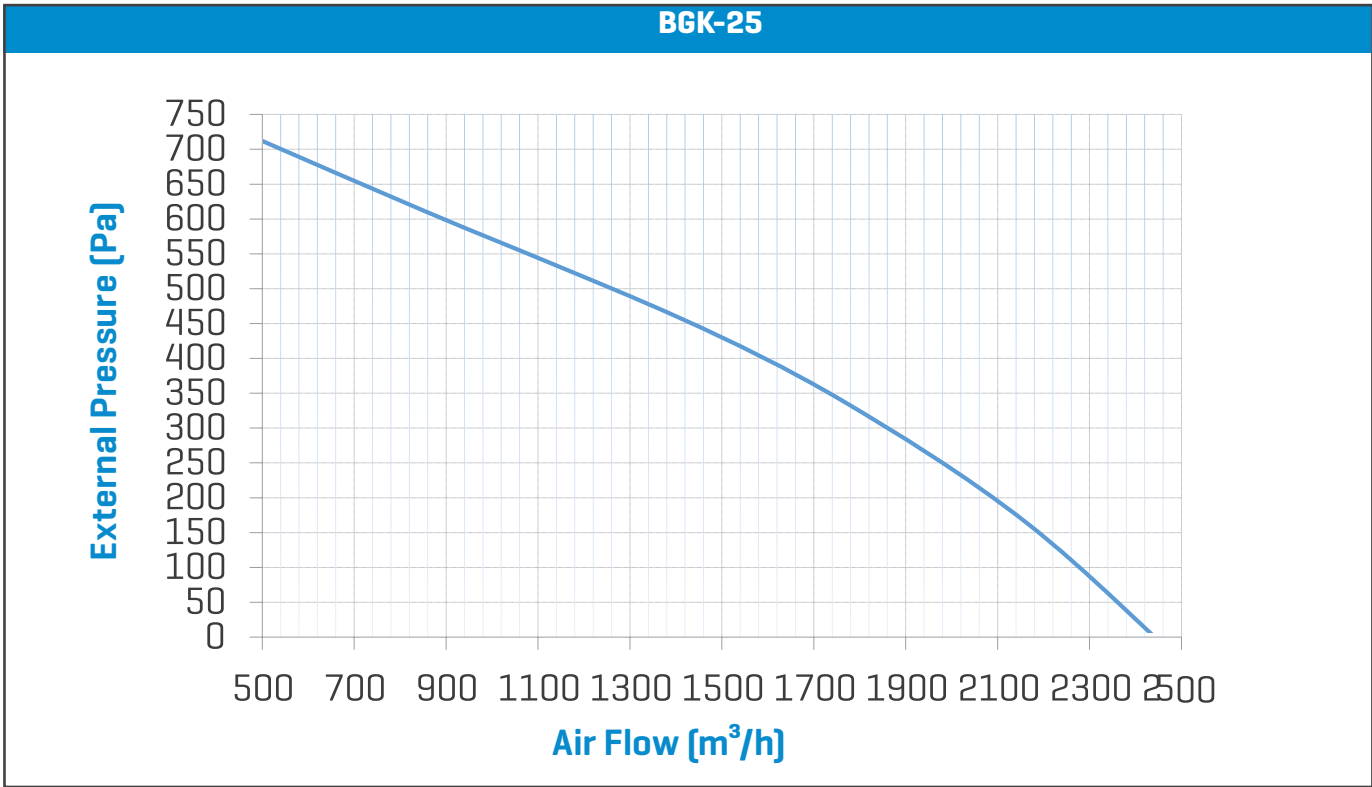
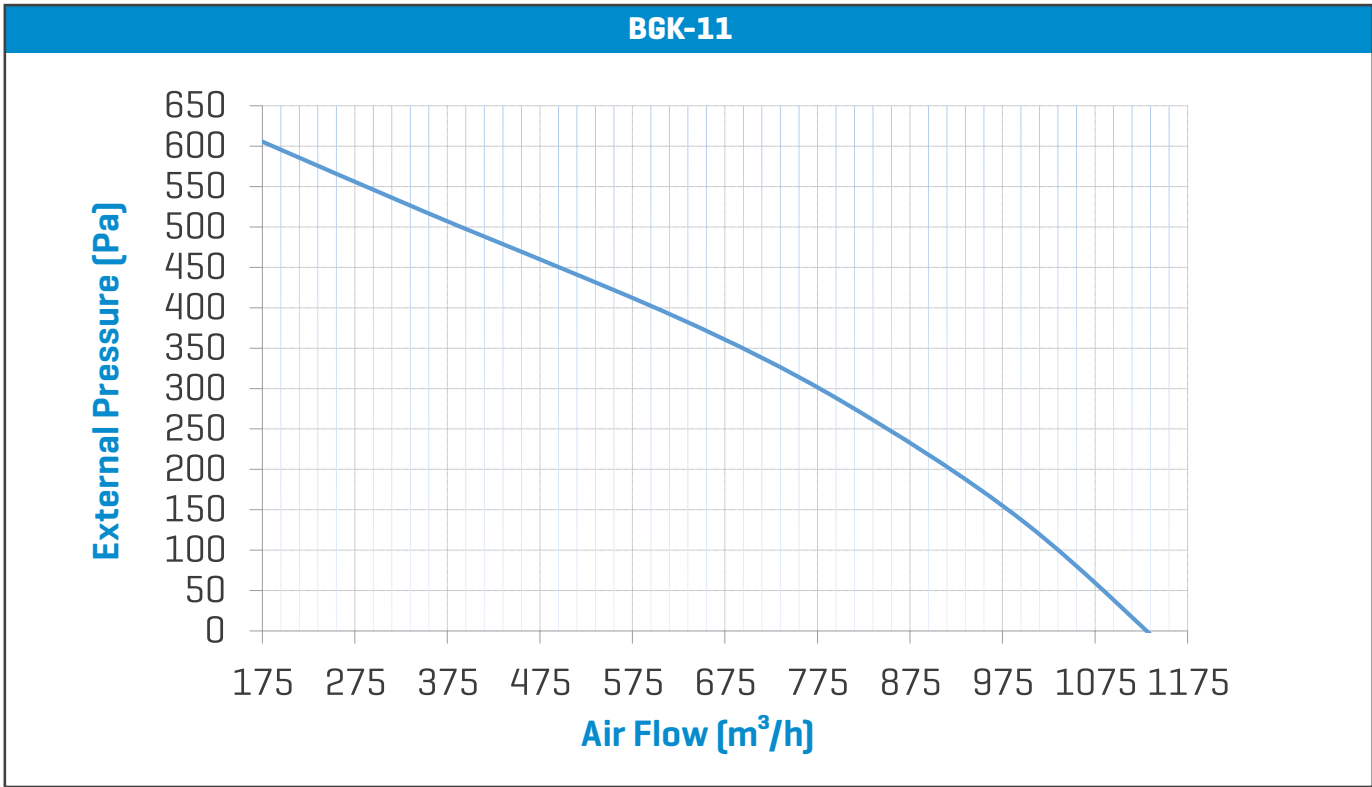
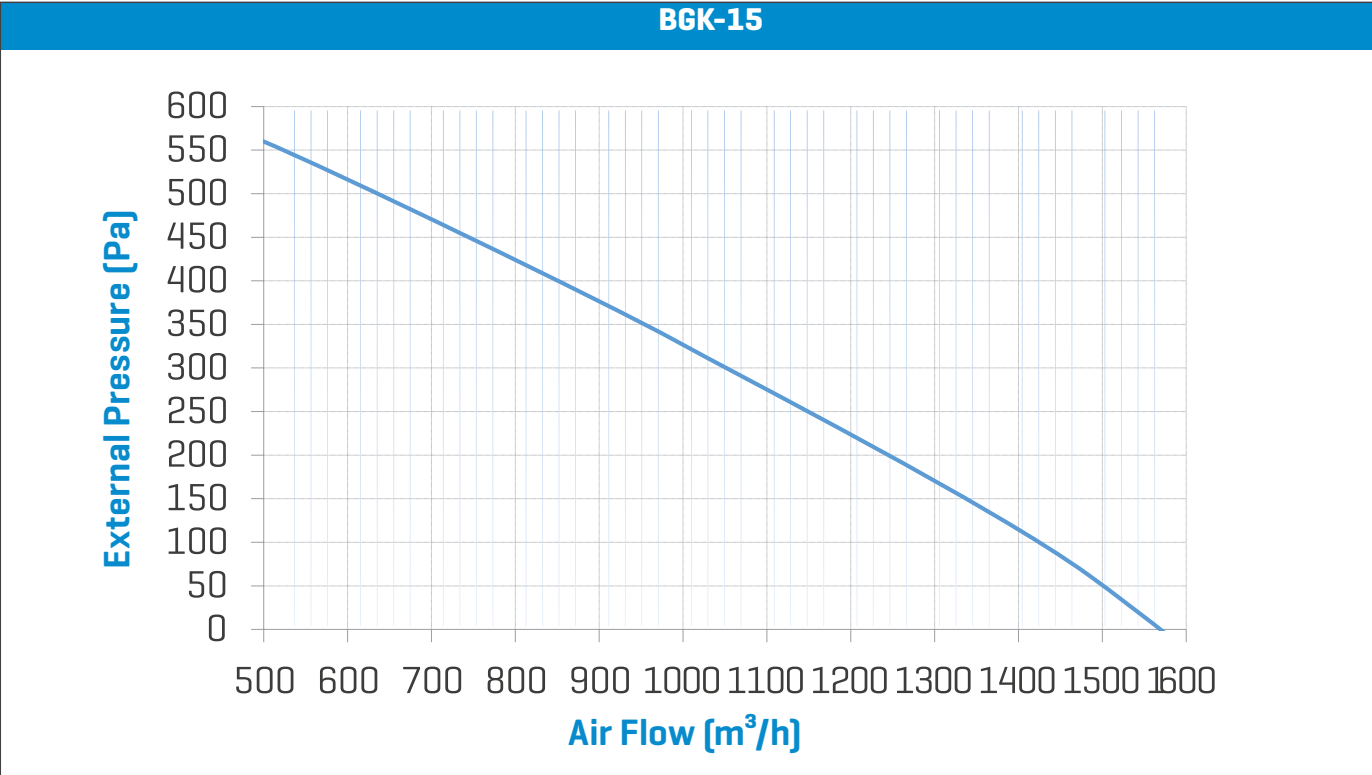
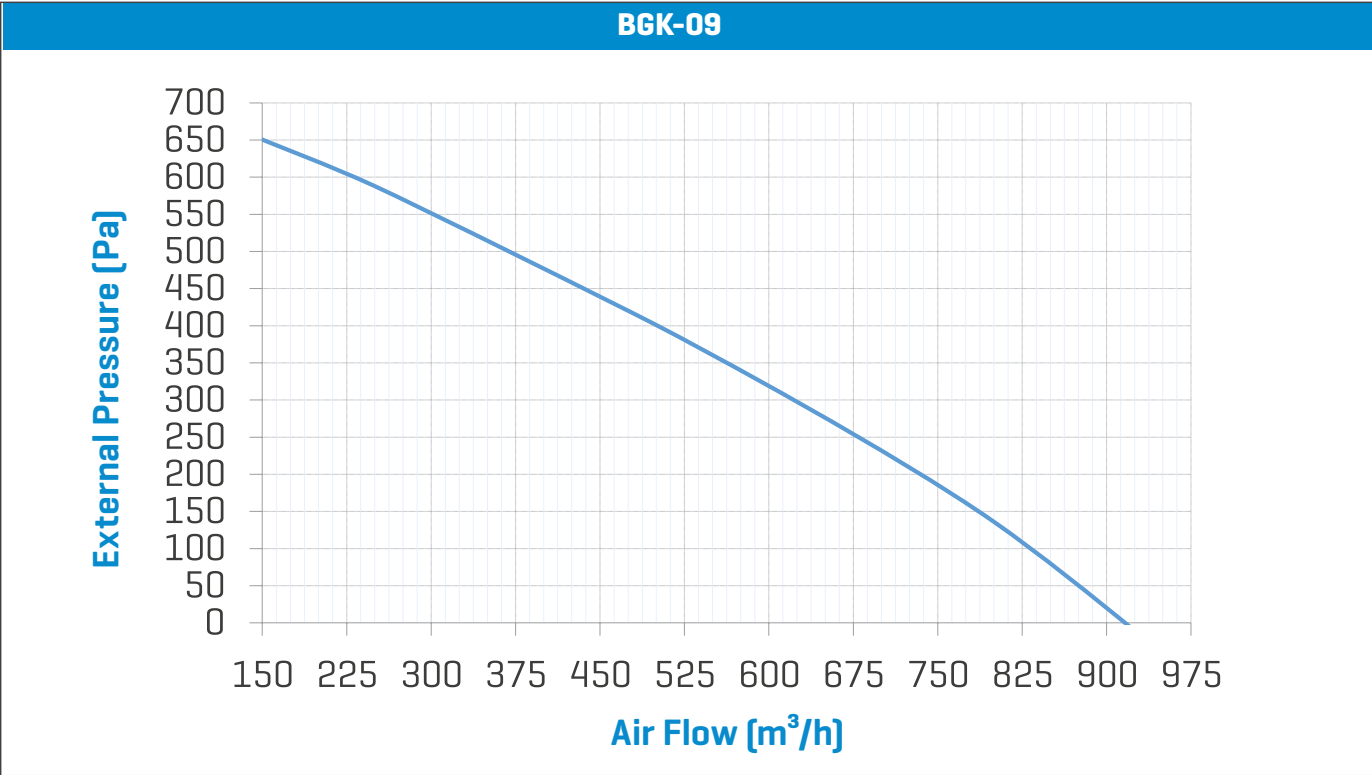
The heat exchanger service panels are designed to provide easy access to the heat exchanger. Thanks to their removable design, cleaning, maintenance, and servicing can be carried out quickly and easily. This design reduces service time and ensures ease of maintenance.

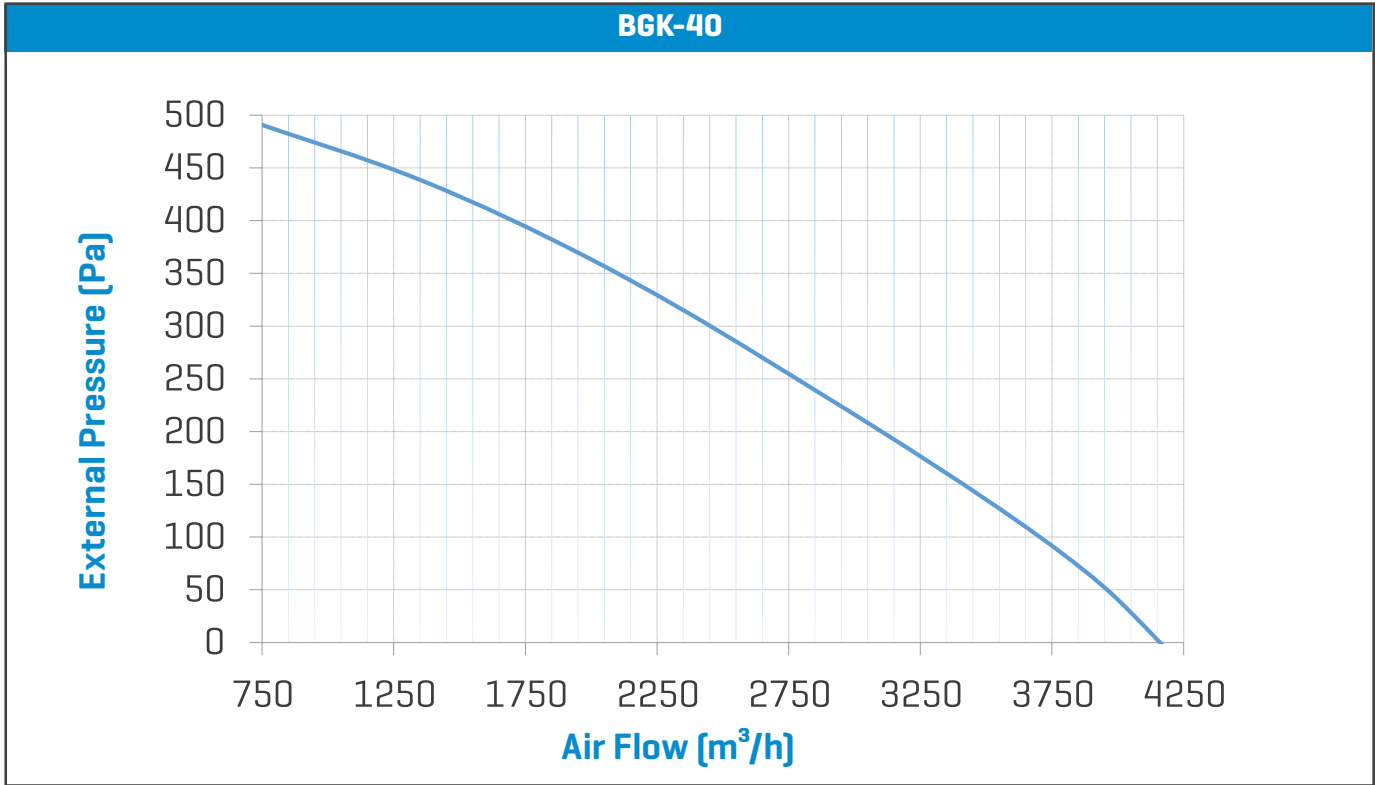
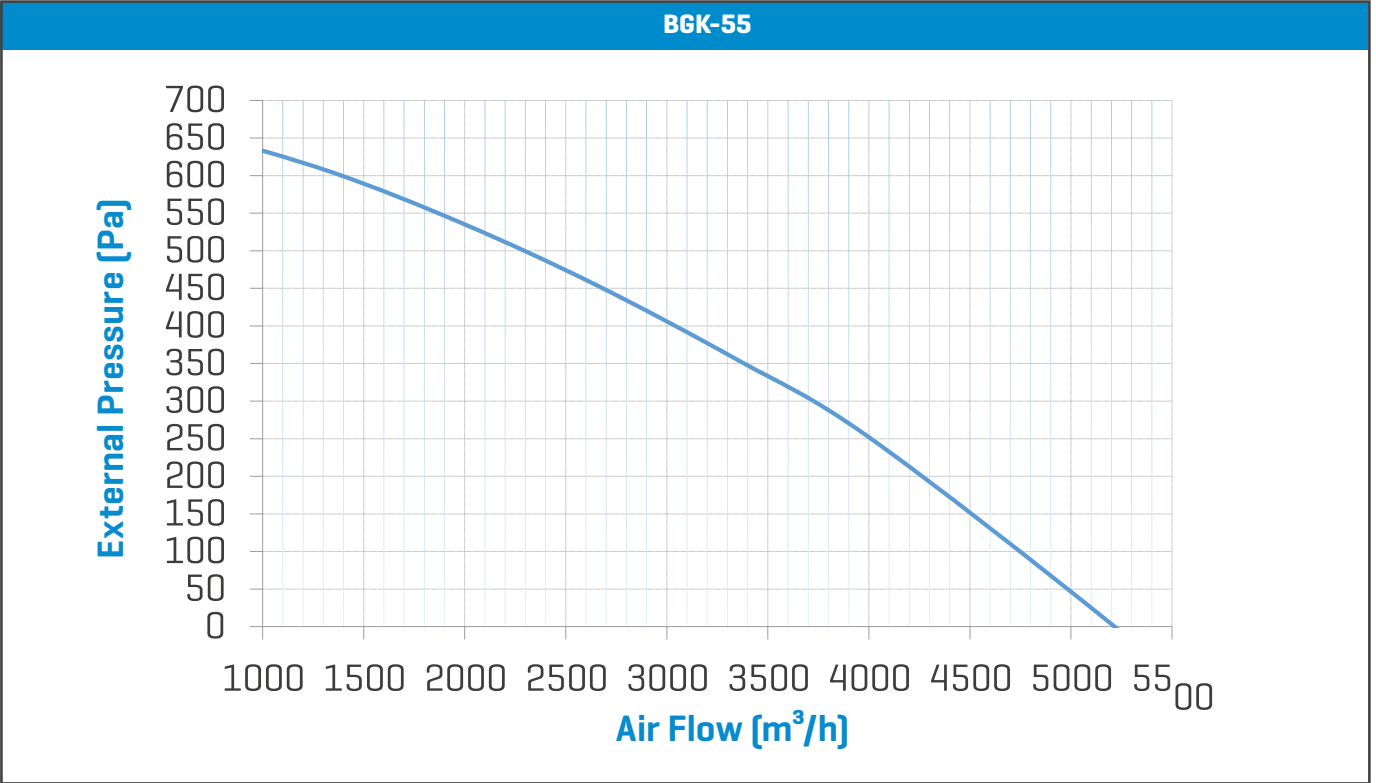
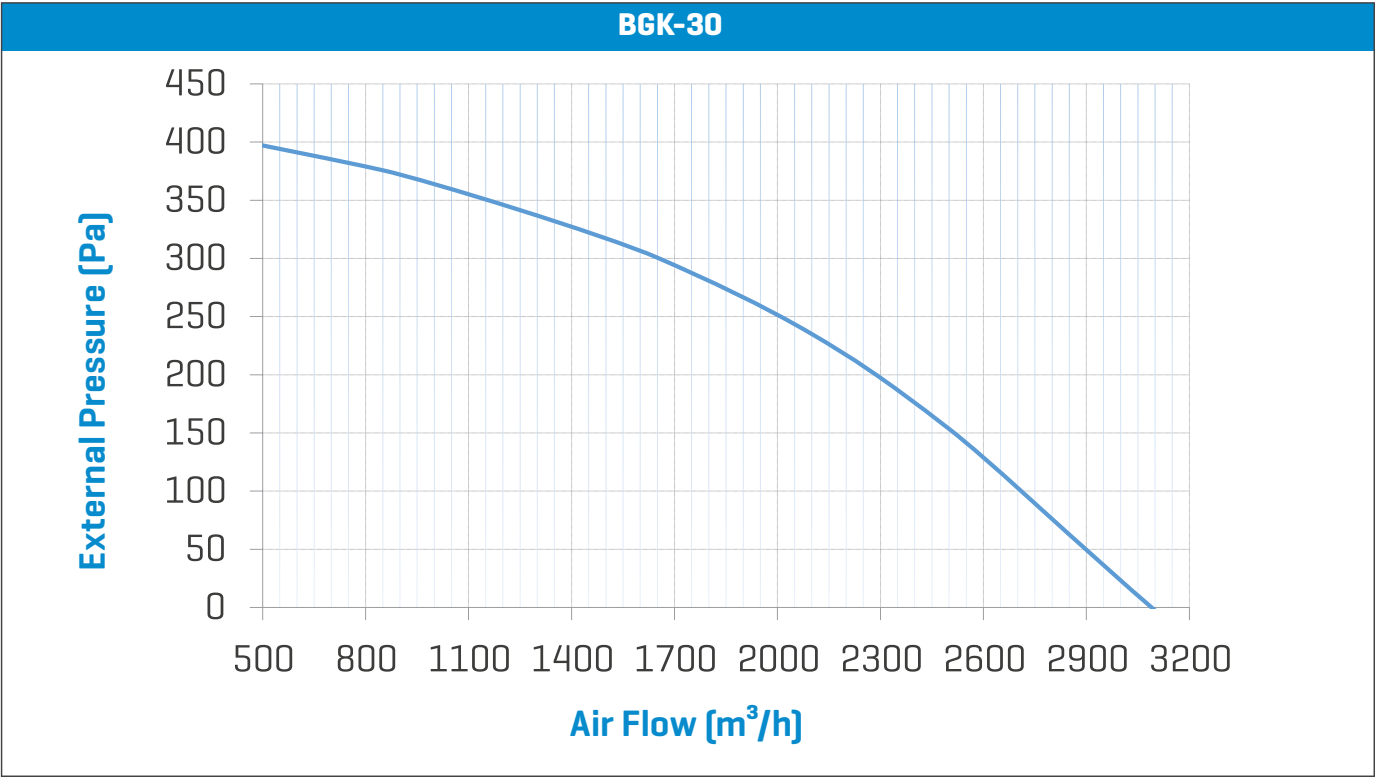
⑨ FILTER SERVICE COVERS

Filter service covers are designed to provide fast and easy access to the filters. Their removable design allows filter replacement, cleaning, and maintenance to be carried out conveniently. This design reduces service time and improves ease of operation.

⑩ FAN SERVICE COVERS

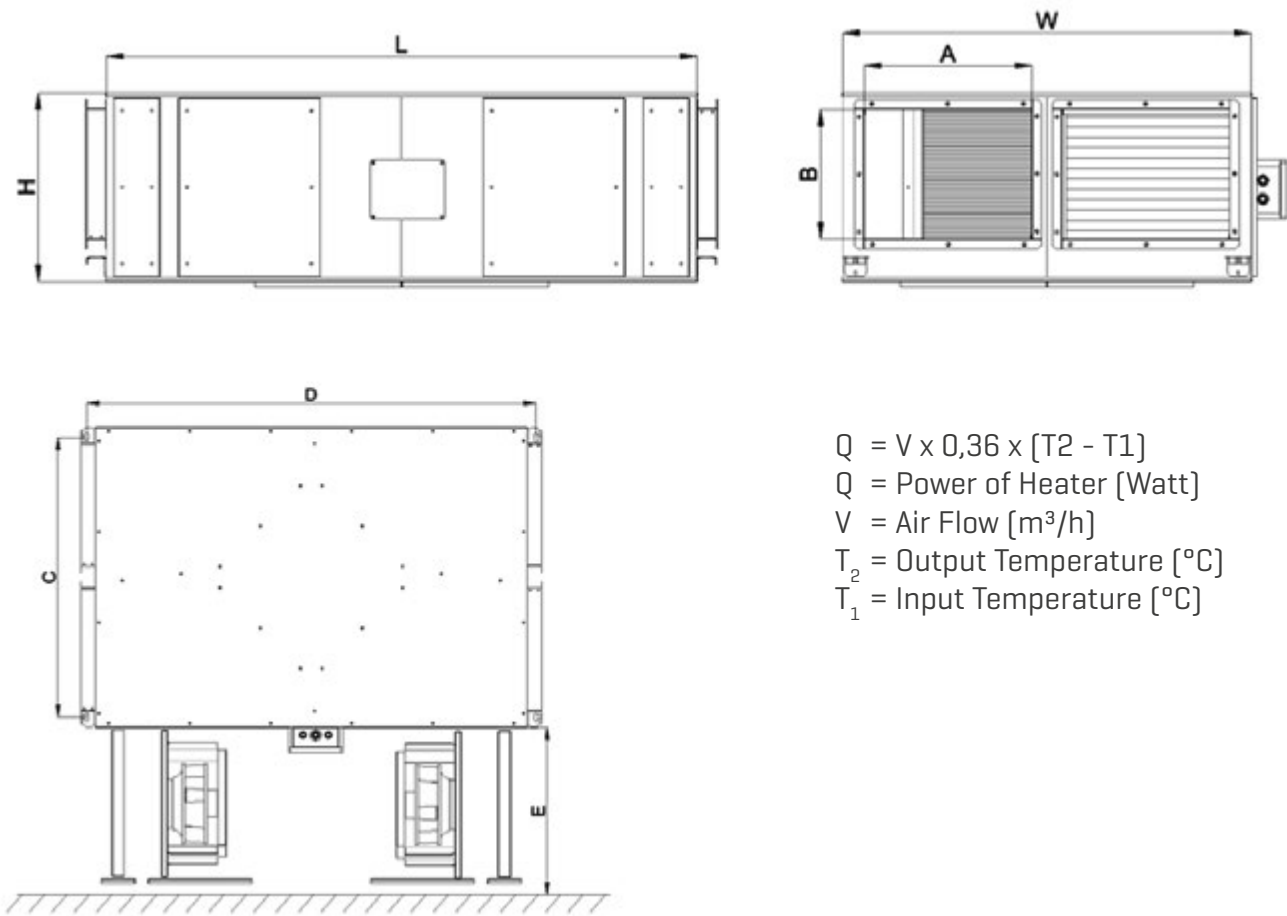
Fan service covers are designed to provide fast and easy access to the fans. Their removable design allows fan replacement, maintenance, and servicing to be carried out conveniently. This design reduces service time and improves ease of operation.





MODELS	V / Hz / Ph.	Power [W]	Amper [A]
BGK-09	230V/50 Hz/1ph.	414	1,36
BGK-11	230V/50 Hz/1ph.	424	1,86
BGK-15	230V/50 Hz/1ph.	634	2
BGK-25	230V/50 Hz/1ph.	1006	4,54
BGK-30	230V/50 Hz/1ph.	916	4,66
BGK-40	230V/50 Hz/1ph.	1388	4,4
BGK-55	230V/50 Hz/1ph.	2600	13,6

DIMENSIONS



$$Q = V \times 0,36 \times [T_2 - T_1]$$

Q = Power of Heater [Watt]
V = Air Flow [m³/h]
T₂ = Output Temperature [°C]
T₁ = Input Temperature [°C]

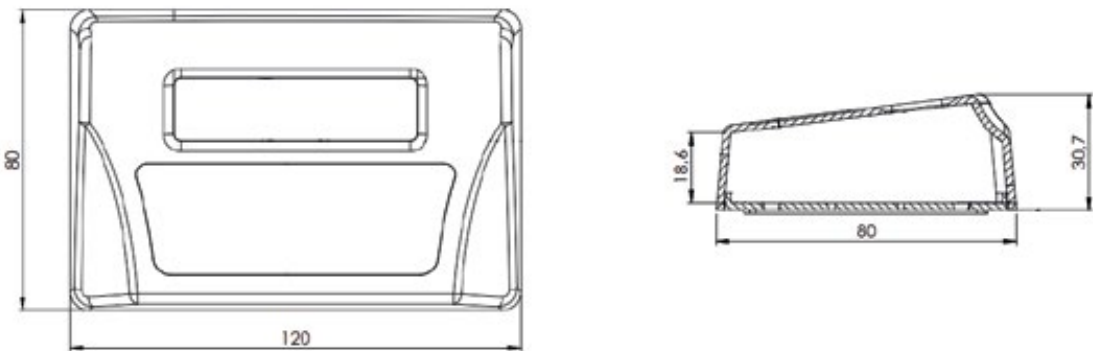
		CAPACITY														Weight	Electric Heater
		Air Flow	Pressure	Air Flow	Pressure	L	W	H	A	B	C	D	E				
MODELS	Units	m³/h	Pa	m³/h	Pa	mm	mm	mm	mm	mm	mm	mm	mm	kg	Capacity		
	BGK-09	910	0	800	150	1120	720	455	260	210	650	1086	400	55	3 Kw-2Kd		
	BGK-11	1125	0	1000	150	1160	800	485	300	240	730	1126	440	60	4 Kw-2Kd		
	BGK-15	1570	0	1350	150	1430	980	550	390	300	910	1496	550	105	6 Kw-3Kd		
	BGK-25	2350	0	2000	150	1590	1100	610	450	350	1030	1656	610	130	9 Kw-3Kd		
	BGK-30	3100	0	2500	150	1900	1126	720	510	460	1156	1966	660	165	12 Kw-3Kd		
	BGK-40	4155	0	3500	150	1930	1300	775	550	520	1230	1996	700	210	15 Kw-3Kd		
	BGK-55	5550	0	5000	150	1930	1300	775	550	520	1230	1996	700	210	15 Kw-3Kd		

CONTROL PANEL

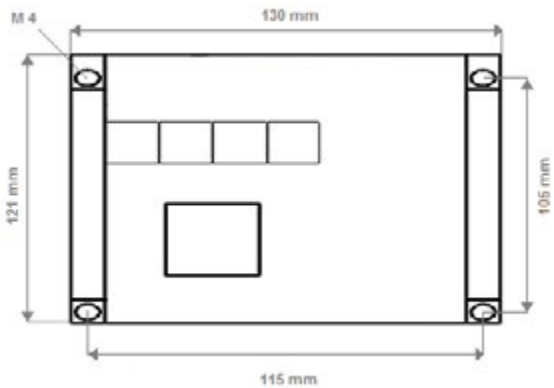
The control panel, meticulously designed to incorporate all details of heat recovery units, takes the operation of these devices a step further. In today’s world of rising energy costs, it plays a significant role in minimizing operating expenses by maximizing energy savings in HVAC systems. Below are some key features of the control panel:

- Stylish and simple
- LCD screen control unit
- 220V AC power supply
- Temperature control range: 5-35°C
- High-precision digital sensor
- Real-time ambient temperature display on the control unit
- Operation modes for summer and winter seasons
- Automatic/manual operation options
- Fan speed level monitoring in manual mode
- Communication capability with the heat recovery unit up to a distance of 50 meters

ROOM PANEL



CONTROL BOARD



SUSTAINABILITY SOLUTIONS AT DOGU HVAC

3 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.

4 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.

5 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.

7 AFFORDABLE and CLEAN ENERGY



Our R&D center's 2,500 m² 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.

8 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.

11 SUSTAINABLE CITIES and COMMUNITIES



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

12 RESPONSIBLE CONSUMPTION and PRODUCTION



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

13 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.

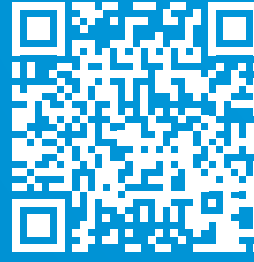
16 PEACE, JUSTICE and STRONG INSTITUTIONS



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



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