



**DMK**  
Access Grille

# Venues Breathe with DOGU HVAC Systems!

DOGU HVAC founded in 1999, and ever since has been manufacturing energy and cost efficient products as Air Handling Units, Air Distribution & Management & Movement Systems [HVAC Components] and constantly enhancing to provide an integrated solution for well-being. DOGU HVAC's core business products which are subsumed under 6 major groups as Air Handling Units, Rooftop Units, Heat/Energy Recovery Units, Air Purifiers, Air Distribution & Management Products and Kitchen Ventilation Equipments are all produced under the compliance with EU standards. Particularly AHU and HRU-ER units are entitled under the "FOUR SEASONS" brand name for domestic and foreign markets. DOGU HVAC's, headquarter in Izmir/Turkey, operates in a large-sized plant spread over 2 factories, in total area of 32.000 sqm in which 17.500 sqm indoor space that enables DOGU HVAC manufactures 180 various type of products. Additionally, DOGU HVAC has a powerful sales network with 4 sales offices located in İstanbul, Ankara, Antalya and Adana in Turkey as well as authorized dealers in many other countries for sales and after sales operations. DOGU HVAC has been exporting to more than 55 countries.

Thanks to our "Customer Satisfaction", "Zero-Defect Policy" motto and reinforced by complete certified products, more than 250 employees. DOGU HVAC R&D center developed exclusive products, such as Double Skin Make-Up Kitchen Hood, Recirculated Laminar Airflow Unit, Single Piece Square Ceiling Diffuser and Ecology Units, for the first time have brought to the sector. DOGU HVAC R&D has the ability to make customized production which can meet the requirement of the customers by means of special software such as "ANSYS FLUENT". DOGU HVAC guaranteed its quality of management by having advantages of ISO 9001, ISO 14001, ISO 18001 certifications. Air Handling Units have EUROVENT, TUV Hygiene [in accordance with DIN1946-4, VDI 6022-1, DIN EN 13053 standards], CE, TSEK, GOST-R certifications; Fire Dampers have EN 1366-2 and EN 13501-3 CE certifications; Smoke Control Dampers have EN 1366-10 and 12101-8 CE certifications; Kitchen Ventilation Products have TSEK, CE and GOST-R quality certifications.



- ☞ DMK - Access Grille; It is a suction grille with blades that form a square, honeycomb-shaped mesh.
- ☞ Since its effective area is higher than other grilles, it has a low pressure loss value. Therefore, it is used as a return grille in ventilation systems.

## MATERIAL

- ☞ Frame and blades made of aluminum 6063 extrusion profile.
- ☞ Without Frame, 22 mm, snap and clip-in case options.
- ☞ Mesh blades made of aluminum 1050 sheet.

## SURFACE COATING

- ☞ RAL 9010 electrostatic powder paint as standard
- ☞ Optional
  - Different RAL Codes
  - Without paint

## SURFACE COATING

- ☞ With Screw
- ☞ Tile Ceiling
- ☞ Clip-in
- ☞ Installation from inside

## ACCESSORIES

- ☞ Optional
  - Fiber Filter
  - Polyurethane Filter
  - 10 x 10 Mesh Wire

STANDARD DIMENSIONS

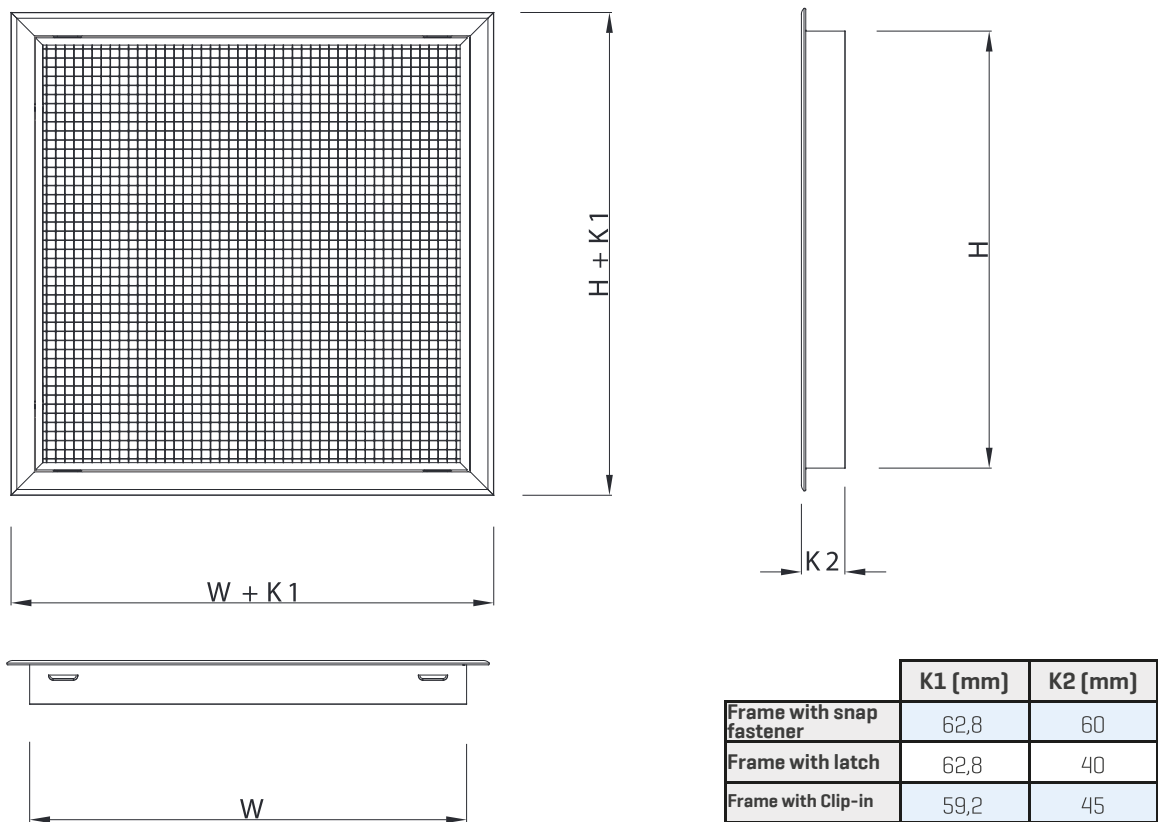


Table 1. Standard Dimensions

<b>W(mm) (Width)</b>	200 - 300 - 400 - 500 - 600 - 700 - 800 - 900 - 1000 - 1100 - 1200
<b>H(mm) (Height)</b>	200 - 300 - 400 - 500 - 600 - 700 - 800 - 900 - 1000

Note: When W=H is ordered, production is made in [W] x [H +3 mm] dimensions.

## PERFORMANCE DATA

Table 2. Effective Area Table

Effective Area	H [mm]																	
	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	
W [mm]	200	0,037	0,046	0,055	0,064	0,074	0,083	0,092	0,101	0,110	0,119	0,129	0,138	0,147	0,156	0,165	0,175	0,184
	250	0,046	0,057	0,069	0,080	0,092	0,103	0,115	0,126	0,138	0,149	0,161	0,172	0,184	0,195	0,207	0,218	0,230
	300	0,055	0,069	0,083	0,097	0,110	0,124	0,138	0,152	0,165	0,179	0,193	0,207	0,221	0,234	0,248	0,262	0,276
	350	0,064	0,080	0,097	0,113	0,129	0,145	0,161	0,177	0,193	0,209	0,225	0,241	0,257	0,273	0,290	0,306	0,322
	400	0,074	0,092	0,110	0,129	0,147	0,165	0,184	0,202	0,221	0,239	0,257	0,276	0,294	0,313	0,331	0,349	0,368
	450	0,083	0,103	0,124	0,145	0,165	0,186	0,207	0,228	0,248	0,269	0,290	0,310	0,331	0,352	0,372	0,393	0,414
	500	0,092	0,115	0,138	0,161	0,184	0,207	0,230	0,253	0,276	0,299	0,322	0,345	0,368	0,391	0,414	0,437	0,460
	550	0,101	0,126	0,152	0,177	0,202	0,228	0,253	0,278	0,303	0,329	0,354	0,379	0,404	0,430	0,455	0,480	0,506
	600	0,110	0,138	0,165	0,193	0,221	0,248	0,276	0,303	0,331	0,358	0,386	0,414	0,441	0,469	0,496	0,524	0,552
	650	0,119	0,149	0,179	0,209	0,239	0,269	0,299	0,329	0,358	0,388	0,418	0,448	0,478	0,508	0,538	0,568	0,597
	700	0,129	0,161	0,193	0,225	0,257	0,290	0,322	0,354	0,386	0,418	0,450	0,483	0,515	0,547	0,579	0,611	0,643
	750	0,138	0,172	0,207	0,241	0,276	0,310	0,345	0,379	0,414	0,448	0,483	0,517	0,552	0,586	0,620	0,655	0,689
	800	0,147	0,184	0,221	0,257	0,294	0,331	0,368	0,404	0,441	0,478	0,515	0,552	0,588	0,625	0,662	0,699	0,735
	850	0,156	0,195	0,234	0,273	0,313	0,352	0,391	0,430	0,469	0,508	0,547	0,586	0,625	0,664	0,703	0,742	0,781
	900	0,165	0,207	0,248	0,290	0,331	0,372	0,414	0,455	0,496	0,538	0,579	0,620	0,662	0,703	0,745	0,786	0,827
	950	0,175	0,218	0,262	0,306	0,349	0,393	0,437	0,480	0,524	0,568	0,611	0,655	0,699	0,742	0,786	0,830	0,873
	1000	0,184	0,230	0,276	0,322	0,368	0,414	0,460	0,506	0,552	0,597	0,643	0,689	0,735	0,781	0,827	0,873	0,919
1100	0,202	0,253	0,303	0,354	0,404	0,455	0,506	0,556	0,607	0,657	0,708	0,758	0,809	0,859	0,910	0,961	1,011	
1200	0,221	0,276	0,331	0,386	0,441	0,496	0,552	0,607	0,662	0,717	0,772	0,827	0,882	0,938	0,993	1,048	1,103	

PERFORMANCE DATA

Table 3. Performance Data

Air Flow (m³/h)		Effective Velocity(m/s)										
		0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	6.0
100	Effective Area (m²)	0,0556										
	Pressure Drop (Pa)	<1										
	Throw Distance (m)	1										
	Sound Level (dB(A))	<15										
200	Effective Area (m²)	0,1111	0,0556	0,037								
	Pressure Drop (Pa)	<1	<1	2								
	Throw Distance (m)	2	3	3								
	Sound Level (dB(A))	<15	<15	<15								
300	Effective Area (m²)	0,1667	0,0833	0,0556	0,0417							
	Pressure Drop (Pa)	<1	<1	2	4							
	Throw Distance (m)	2	3	4	5							
	Sound Level (dB(A))	<15	<15	<15	<15							
400	Effective Area (m²)	0,2222	0,1111	0,0741	0,0556	0,0444	0,037					
	Pressure Drop (Pa)	<1	<1	2	4	6	8					
	Throw Distance (m)	2	3	4	5	6	6					
	Sound Level (dB(A))	<15	<15	<15	<15	<15	15					
500	Effective Area (m²)	0,2778	0,1389	0,0926	0,0694	0,0556	0,0463	0,0397				
	Pressure Drop (Pa)	<1	<1	2	4	6	8	11				
	Throw Distance (m)	2	3	4	5	6	7	8				
	Sound Level (dB(A))	<15	<15	<15	<15	<15	16	20				
600	Effective Area (m²)	0,3333	0,1667	0,1111	0,0833	0,0667	0,0556	0,0476	0,0417	0,037		
	Pressure Drop (Pa)	<1	<1	2	4	6	8	11	15	19		
	Throw Distance (m)	2	4	5	6	7	7	8	9	10		
	Sound Level (dB(A))	<15	<15	<15	<15	<15	17	21	24	27		
700	Effective Area (m²)	0,3889	0,1944	0,1296	0,0972	0,0778	0,0648	0,0556	0,0486	0,0432	0,0389	
	Pressure Drop (Pa)	<1	<1	2	4	6	8	11	15	19	23	
	Throw Distance (m)	2	4	5	6	7	8	9	9	10	10.9	
	Sound Level (dB(A))	<15	<15	<15	<15	<15	17	22	25	28	31	
800	Effective Area (m²)	0,4444	0,2222	0,1481	0,1111	0,0889	0,0741	0,0635	0,0556	0,0494	0,0444	0,037
	Pressure Drop (Pa)	<1	<1	2	4	6	8	11	15	19	23	33
	Throw Distance (m)	3	4	5	6	7	8	9	10	11	11.4	13
	Sound Level (dB(A))	<15	<15	<15	<15	<15	18	22	26	29	31	36
900	Effective Area (m²)	0,5	0,25	0,1667	0,125	0,1	0,0833	0,0714	0,0625	0,0556	0,05	0,0417
	Pressure Drop (Pa)	<1	<1	2	4	6	8	11	15	19	23	33
	Throw Distance (m)	3	4	5	7	8	9	9	10	11	11.9	13
	Sound Level (dB(A))	<15	<15	<15	<15	<15	19	23	26	29	32	37
1000	Effective Area (m²)	0,5556	0,2778	0,1852	0,1389	0,1111	0,0926	0,0794	0,0694	0,0617	0,0556	0,0463
	Pressure Drop (Pa)	<1	<1	2	4	6	8	11	15	19	23	33
	Throw Distance (m)	3	4	6	7	8	9	10	11	12	12.3	14
	Sound Level (dB(A))	<15	<15	<15	<15	<15	19	23	27	30	32	37
1250	Effective Area (m²)	0,6944	0,3472	0,2315	0,1736	0,1389	0,1157	0,0992	0,0868	0,0772	0,0694	0,0579
	Pressure Drop (Pa)	<1	<1	2	4	6	8	11	15	19	23	33
	Throw Distance (m)	3	5	6	7	8	9	11	11	12	13.2	15
	Sound Level (dB(A))	<15	<15	<15	<15	15	20	24	27	31	33	38
1500	Effective Area (m²)	0,8333	0,4167	0,2778	0,2083	0,1667	0,1389	0,119	0,1042	0,0926	0,0833	
	Pressure Drop (Pa)	<1	<1	2	4	6	8	11	15	18	23	
	Throw Distance (m)	3	5	6	8	9	10	11	12	13.1	14.1	
	Sound Level (dB(A))	<15	<15	<15	<15	16	21	25	28	31	34	
1750	Effective Area (m²)	0,9722	0,4861	0,3241	0,2431	0,1944	0,162	0,1389	0,1215	0,108	0,0972	
	Pressure Drop (Pa)	<1	<1	2	4	6	8	11	15	18	23	
	Throw Distance (m)	3	5	7	8	9	11	12	13	14	15	
	Sound Level (dB(A))	<15	<15	<15	<15	17	21	25	29	32	35	
2000	Effective Area (m²)	0,5556	0,3704	0,2778	0,2222	0,1852	0,1587	0,1389	0,1235			
	Pressure Drop (Pa)	<1	2	4	6	8	11	15	18			
	Throw Distance (m)		5	7	8	10	11	12	13	15		
	Sound Level (dB(A))		<15	<15	<15	17	22	26	29	33		
2500	Effective Area (m²)	0,6944	0,463	0,3472	0,2778	0,2315	0,1984	0,1736				
	Pressure Drop (Pa)	<1	2	4	6	8	11	14				
	Throw Distance (m)		6	8	9	11	12	13	14			
	Sound Level (dB(A))		<15	<15	<15	18	23	27	30			
3000	Effective Area (m²)	0,8333	0,5556	0,4167	0,3333	0,2778	0,2381					
	Pressure Drop (Pa)	<1	2	4	6	8	11					
	Throw Distance (m)		6	8	10	11	13	14				
	Sound Level (dB(A))		<15	<15	<15	19	24	28				
4000	Effective Area (m²)			0,7407	0,5556	0,4444	0,3704					
	Pressure Drop (Pa)			2	4	6	8					
	Throw Distance (m)			9	11	12	14					
	Sound Level (dB(A))			<15	<15	20	25					

**Note:** The data were obtained when the air collecting equipment and the room air temperature difference was DT = 8 K.  
 Throw distance: It is the vertical distance between the air dispersing equipment and the point where the air in the comfort zone reaches 0.25 m/s velocity.

## THROW DISTANCE CORRECTION TABLE

Table 4. Throw Distance Correction Table

Heating Mode ( $\Delta T$ )	4	6	8	10	12
Throw Distance Multiplier	1,07	1,02	1	0,90	0,83
Cooling Mode ( $\Delta T$ )	4	6	8	10	12
Throw Distance Multiplier	1,31	1,36	1,42	1,48	1,54

## DAMPER PRESSURE DROP TABLE

Table 5. Damper Pressure Drop Table

Damper Position	Pressure Drop Multiplier	Sound Generation
Open	1,1	+1
25% Close	1,14	+4
50% Close	2,48	+14
75% Close	5,11	+29

## FILTER PRESSURE DROP TABLE

Table 6. Filter Pressure Drop Table

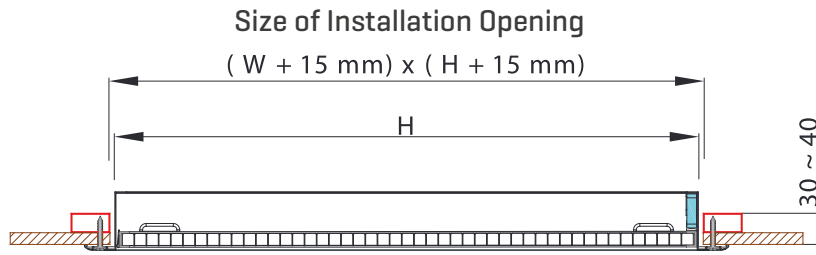
		Air Velocity [m/s]														
		0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	6.0	7.0	8.0	9.0	10.0
Pressure Drop [Pa]	Polyurethane Filter	1	3	5	8	11	15	19	24	29	35	48	63	81	100	121
	Fiber Filter	15	28	40	51	62	73	84	94	105	115	135	155	174	193	212

**Polyurethane Filter:** 20 PPL polyester based polyurethane filter with 6 mm thickness.

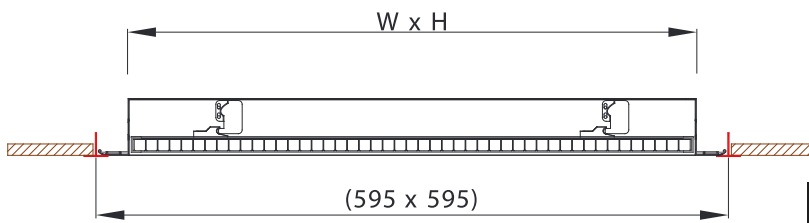
**Fiber Filter:** EN 16890 ISO COARSE 80% class 10 mm thick fiber filter.

## INSTALLATION OPTIONS

### WITH SCREW



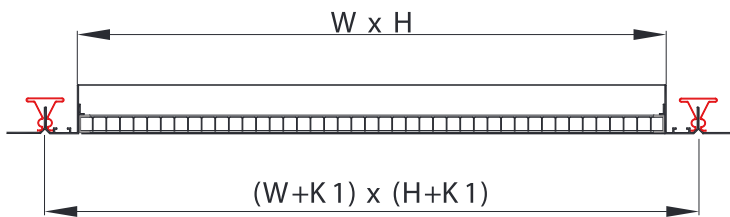
### TILE CEILING



	W (mm)	H (mm)
Frame With Snap Fastener	529	529
Frame with latch	529	529

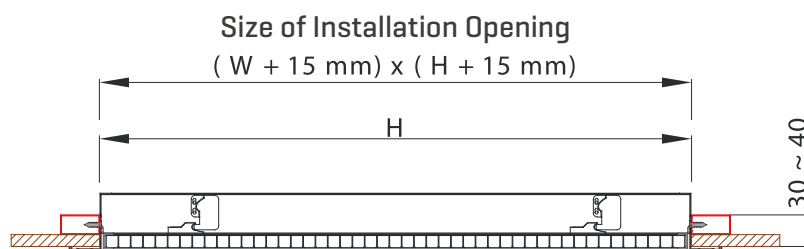
W and H dimensions that can be selected according to the frame dimensions specified in the product selection are shown in the table above.

### CLIP-IN



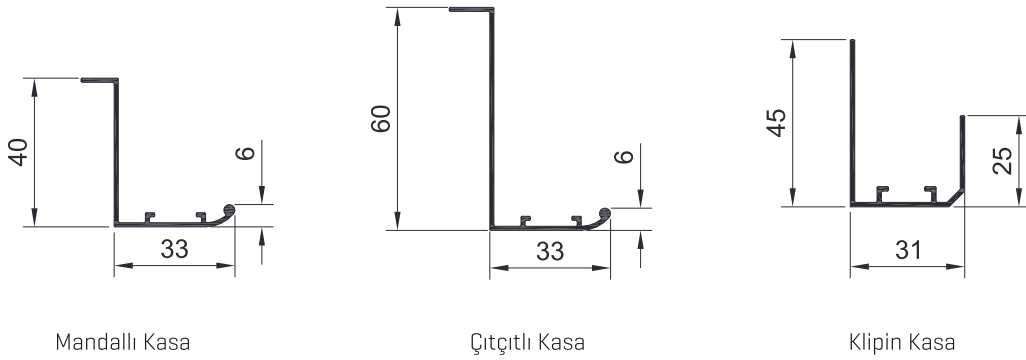
Frame with Clip-in = 59.2 mm	W (mm)	H (mm)
600x600	541	541
300x300	241	241

### INSTALLATION FROM INSIDE





## FRAME TYPES



## DIMENSION PARAMETERS

The standard size of the one-piece product is between 200x200 and 1200x1000 mm. If the order is placed over the standard dimensions, the grilles will be produced more than once as a whole piece.

## PRODUCT SELECTION

**Example:** The air flow rate distributed in the space is determined as 3000 m<sup>3</sup>/h. 3 access grilles will be used for return. Make the product selection.

**Solution:** Return air flow rate for a grill, 3000/3 = 1000 m<sup>3</sup>/h  
 Effective areas corresponding to appropriate pressure loss and flow rates are selected from the performance table [Table 3]. For example: In an effective area of 0.0794 m<sup>2</sup>, the effective speed is 3.5 m/s, the pressure loss is 11 Pa, and the sound levels 23 dB[A]. The appropriate grill size can be selected from the effective area table [Table 2] as 350 x 250 mm, which corresponds to 0.0794 m<sup>2</sup>.

## OPPOSITE BLADE DAMPER SITUATION

In the product with damper, pressure loss and sound power level change. Damper pressure loss table [Table 5] should be used.

**For example,** in a product with a damper in the 50% closed position, the pressure multiplier is 2.48 corresponding to the table, and the sound generation that needs to be added is +14 dB[A].

Total static pressure loss: 11 x 2.48 = 27.3 Pa  
 Total sound generation is 37 dB[A].

## PRODUCT ORDER CODES

You can place your orders according to the coding style by looking at the separate tables given below.

**DMK.<A>.<B>.<C>.<D>.<E>.<F>.<G>**

<b>A</b>	<b>Raw Material Type</b>	
	ALM	Aluminum
<b>B</b>	<b>Frame Type</b>	
	07	Frame With Snap Fastener
	08	Frame With Latch
	55	Clip-In Frame - With Snap Fastener
	56	Clip-in Frame - Latch
<b>C</b>	<b>Installation Type</b>	
	VD	With Screw
	KR	Tile Ceiling
	KL	Clip-In
	IC	Installation From Inside
<b>D</b>	<b>Accessories</b>	
	00	without Accessories
	10	10 x 10 Mesh Wire
	EF	Fiber Filter
	PF	Polyurethane Filter
<b>E</b>	<b>Width (W) (mm)</b>	
	0000	You Can Look at Standard Sizes
<b>F</b>	<b>Height (H) (mm)</b>	
	0000	You Can Look at Standard Sizes
<b>G</b>	<b>Paint</b>	
	00	Paintless
	S1	Standard painted - RAL 9010
	S2	Standard painted- RAL 9016
	XXT	Special painted

**Sample Coding:** DMK.ALM.07.IC.PF.0500.0500.S1

## NOTES





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180 different types of products.



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