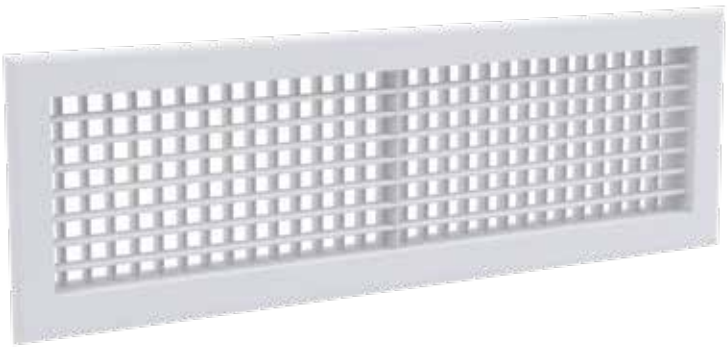
DOĞU
İKLİMLENDİRME | HVAC SYSTEMS



DMD
Double Deflection Grille

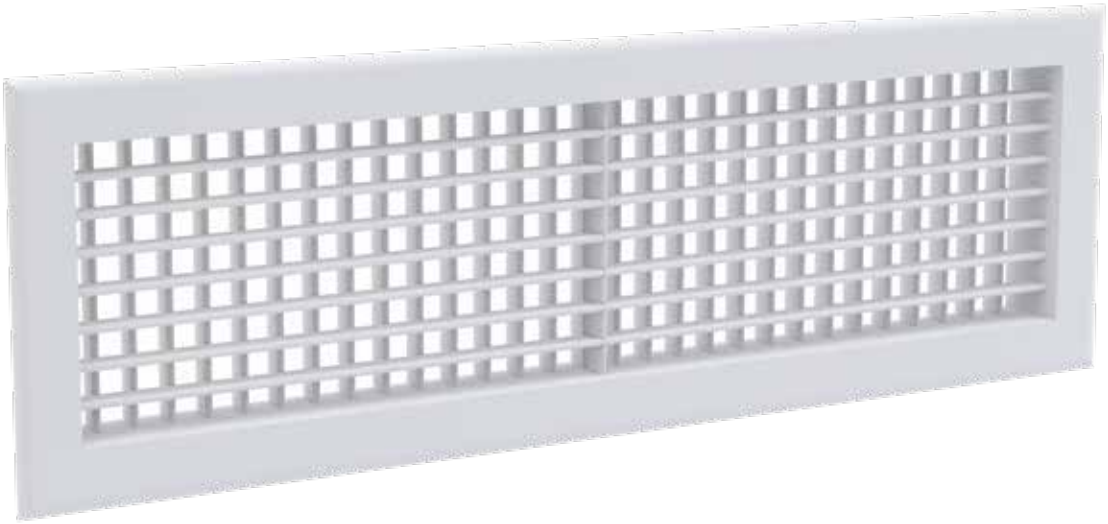
FOUR SEASONS®

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 four major groups as Air Handling Units, Heat/Energy Recovery Units, Air Distribution & Management Products and Kitchen Ventilation Equipment are all produced under the compliance with EU standarts. 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 two factories, in total area of 45.000 sqm in which 25.000 sqm indoor space that enables DOGU HVAC manufactures 140 various type of products. Additionally, DOGU HVAC has a powerful sales network with three sales offices located in Istanbul, Ankara and Antalya 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 50 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 standarts], 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 TSE, CE and GOST-R quality certifications.

- DMD – Double Deflection Grille has aerodynamic blades that can be adjusted horizontally from the front and vertically from the rear.
- It is used in ventilation and air conditioning systems to distribute the supply air in both directions within the space.



MATERIAL

- Aluminum 6063 extrusion profile production
- Optional AISI 304 quality stainless steel production

SURFACE COATING

- RAL 9010 or RAL 9016 electrostatic powder paint as standard
- Optional
  - -Different RAL color codes
  - -Matt aluminum eloxal finish for a matte and metallic look
  - -Unpainted manufacturing

INSTALLATION OPTIONS

- Screw System
- Suspended Ceiling
- Clip-In Ceiling
- Mounting Bracket
- Without Mounting Hole
- Concealed
- Long Spring Clip
- Subframe Short Spring Clip

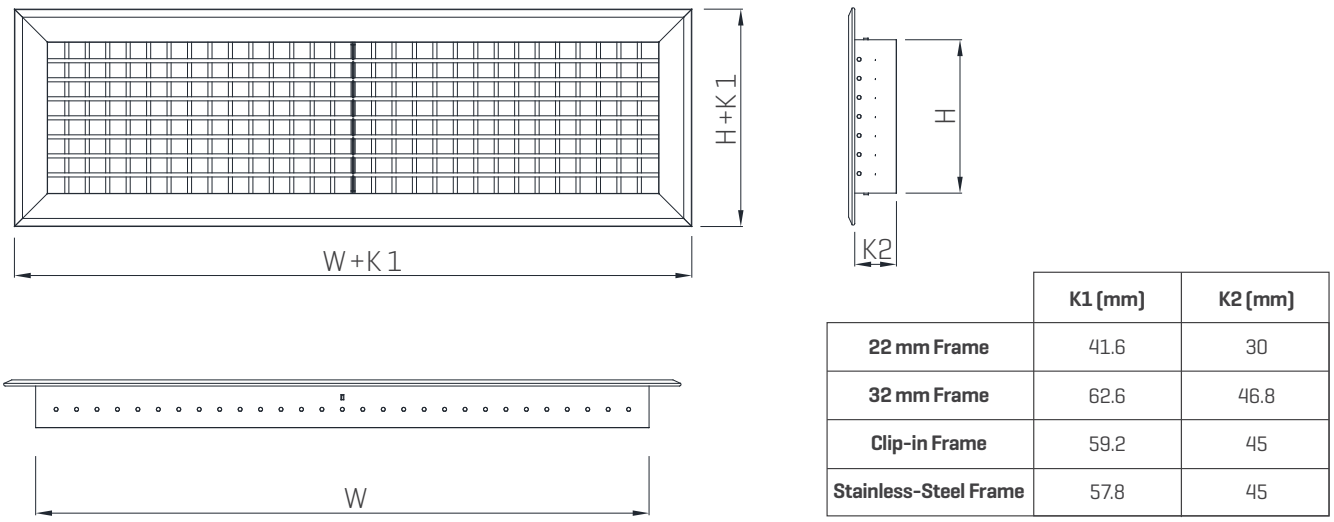
ACCESSORIES

- Optional

  -ZKD-Opposed Blade Air Adjustment Damper (Production from aluminum 6063 extrusion profile)

PRODUCT SELECTION

STANDARD DIMENSIONS



	K1 (mm)	K2 (mm)
22 mm Frame	41.6	30
32 mm Frame	62.6	46.8
Clip-in Frame	59.2	45
Stainless-Steel Frame	57.8	45

Table 1. Standard Dimensions

Standard Dimensions		H Height (mm)										
		50	100	200	300	400	500	600	700	800	900	1000
W Width (mm)	100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	200	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	300	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	400	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	500	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	600	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	700	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	800	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	900	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	1000	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	1100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	1200	✓	✓	✓	✓	✓	✓	✓				
	1300	✓	✓	✓	✓	✓	✓	✓				
	1400	✓	✓	✓	✓	✓	✓	✓				
	1500	✓	✓	✓	✓	✓	✓	✓				
	1600	✓	✓	✓	✓	✓	✓	✓				
	1700	✓	✓	✓	✓	✓	✓	✓				
	1800	✓	✓	✓	✓	✓	✓	✓				

Note: Maximum dimension for the stainless steel production is 1200 mm x 600 mm.

PERFORMANCE DATA

Table 2. Effective Area

Effective Area [m²]		H (Height) (mm)										
		50	100	200	300	400	500	600	700	800	900	1000
W (Width) (mm)	100	0.003	0.006	0.012	0.018	0.024	0.030	0.036	0.042	0.048	0.054	0.060
	200	0.006	0.012	0.024	0.036	0.048	0.060	0.072	0.084	0.096	0.108	0.120
	300	0.009	0.018	0.036	0.054	0.072	0.090	0.108	0.126	0.144	0.162	0.180
	400	0.012	0.024	0.048	0.072	0.096	0.120	0.144	0.168	0.192	0.216	0.240
	500	0.015	0.030	0.060	0.090	0.120	0.150	0.180	0.210	0.240	0.270	0.299
	600	0.018	0.036	0.072	0.108	0.144	0.180	0.216	0.252	0.288	0.323	0.359
	700	0.021	0.042	0.084	0.126	0.168	0.210	0.252	0.294	0.335	0.377	0.419
	800	0.024	0.048	0.096	0.144	0.192	0.240	0.288	0.335	0.383	0.431	0.479
	900	0.027	0.054	0.108	0.162	0.216	0.270	0.323	0.377	0.431	0.485	0.539
	1000	0.030	0.060	0.120	0.180	0.240	0.299	0.359	0.419	0.479	0.539	0.599
	1100	0.033	0.066	0.132	0.198	0.264	0.329	0.395	0.461	0.527	0.593	0.659
	1200	0.036	0.072	0.144	0.216	0.288	0.359	0.431				
	1300	0.039	0.078	0.156	0.234	0.311	0.389	0.467				
	1400	0.042	0.084	0.168	0.252	0.335	0.419	0.503				
	1500	0.045	0.090	0.180	0.270	0.359	0.449	0.539				
	1600	0.048	0.096	0.192	0.288	0.383	0.479	0.575				
	1700	0.051	0.102	0.204	0.305	0.407	0.509	0.611				
	1800	0.054	0.108	0.216	0.323	0.431	0.539	0.647				

Table 3. Supply Data

		Effective Velocity (m/s)														
Flow Rate (m^3 / h)		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
50	Effective Area [m^2]	0.0278	0.0139	0.009	0.007	0.006	0.005	0.004	0.004	0.003						
	Pressure Drop [Pa]	0	1	2	3	5	7	10	13	17						
	Throw Distance [m]	1	2	2	3	3	3	4	4	4						
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	<15	<15	<15	15						
100	Effective Area [m^2]	0.0556	0.0278	0.019	0.014	0.011	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	
	Pressure Drop [Pa]	0	1	2	3	5	7	10	13	17	21	30	42	55	70	
	Throw Distance [m]	1	2	2	3	3	4	4	4	4	5	5	6	6	6	
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	<15	<15	15	18	21	26	30	34	37	
200	Effective Area [m^2]	0.111	0.056	0.037	0.028	0.022	0.019	0.016	0.014	0.012	0.011	0.009	0.008	0.007	0.006	0.006
	Pressure Drop [Pa]	0	1	2	3	5	7	10	13	17	21	31	42	56	71	88
	Throw Distance [m]	1	2	2	3	3	4	4	4	5	5	5	6	6	7	7
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	<15	<15	18	22	24	29	33	37	40	43
300	Effective Area [m^2]	0.167	0.083	0.056	0.042	0.033	0.028	0.024	0.021	0.019	0.017	0.014	0.012	0.010	0.009	0.008
	Pressure Drop [Pa]	0	1	2	3	5	7	10	13	17	21	31	42	56	71	89
	Throw Distance [m]	1	2	3	3	3	4	4	4	5	5	5	6	6	7	7
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	<15	17	20	23	26	31	35	39	42	45
400	Effective Area [m^2]	0.222	0.111	0.074	0.056	0.044	0.037	0.032	0.028	0.025	0.022	0.019	0.016	0.014	0.012	0.011
	Pressure Drop [Pa]	0	1	2	3	5	7	10	13	17	21	31	42	56	71	89
	Throw Distance [m]	1	2	3	3	3	4	4	4	5	5	5	6	6	7	7
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	<15	18	21	25	27	32	37	40	43	46
500	Effective Area [m^2]	0.278	0.139	0.093	0.069	0.056	0.046	0.040	0.035	0.031	0.028	0.023	0.020	0.017	0.015	0.014
	Pressure Drop [Pa]	0	1	2	3	5	7	10	13	17	21	31	42	56	71	89
	Throw Distance [m]	1	2	3	3	3	4	4	4	5	5	5	6	6	7	7
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	<15	19	22	26	28	33	37	41	44	47
600	Effective Area [m^2]	0.333	0.167	0.111	0.083	0.067	0.056	0.048	0.042	0.037	0.0333	0.028	0.024	0.021	0.019	0.017
	Pressure Drop [Pa]	0	1	2	3	5	7	10	13	17	21	31	43	56	72	89
	Throw Distance [m]	1	2	3	3	3	4	4	4	5	4,9	6	6	6	7	7
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	16	20	23	26	29	34	38	42	45	48
700	Effective Area [m^2]	0.389	0.194	0.130	0.097	0.078	0.065	0.056	0.049	0.043	0.0389	0.032	0.028	0.024	0.022	0.019
	Pressure Drop [Pa]	0	1	2	3	5	7	10	13	17	21	31	43	56	72	89
	Throw Distance [m]	1	2	3	3	3	4	4	4	5	5,0	6	6	7	7	7
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	16	20	24	27	30	35	39	43	46	49
800	Effective Area [m^2]	0.444	0.222	0.148	0.111	0.089	0.074	0.064	0.056	0.049	0.0444	0.037	0.032	0.028	0.025	0.022
	Pressure Drop [Pa]	0	1	2	3	5	7	10	13	17	21	31	43	56	72	89
	Throw Distance [m]	1	2	3	3	3	4	4	4	5	5,0	6	6	7	7	7
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	17	21	25	28	31	35	40	43	46	49
900	Effective Area [m^2]	0.500	0.250	0.167	0.125	0.100	0.083	0.071	0.063	0.056	0.0500	0.042	0.036	0.031	0.028	0.025
	Pressure Drop [Pa]	0	1	2	3	5	7	10	13	17	21	31	43	56	72	89
	Throw Distance [m]	1	2	3	3	3	4	4	4	5	5,0	6	6	7	7	7
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	17	21	25	28	31	36	40	44	47	50
1000	Effective Area [m^2]	0.556	0.278	0.185	0.139	0.111	0.093	0.079	0.069	0.062	0.0556	0.046	0.040	0.035	0.031	0.028
	Pressure Drop [Pa]	0	1	2	3	5	7	10	13	17	21	31	43	56	72	90
	Throw Distance [m]	1	2	3	3	3	4	4	4	5	5,0	6	6	7	7	7
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	18	22	25	29	32	36	41	44	47	50
1250	Effective Area [m^2]		0.347	0.232	0.174	0.139	0.116	0.099	0.087	0.077	0.0694	0.058	0.050	0.043	0.039	0.035
	Pressure Drop [Pa]		1	2	3	5	7	10	13	17	21	31	43	56	72	90
	Throw Distance [m]		2	3	3	3	4	4	5	5	5,1	6	6	7	7	8
	Sound Power Level [dB(A)]		<15	<15	<15	<15	19	23	27	30	33	37	42	45	48	51
1500	Effective Area [m^2]		0.417	0.278	0.208	0.167	0.139	0.119	0.104	0.0926	0.0833	0.069	0.060	0.052	0.046	0.042
	Pressure Drop [Pa]		1	2	3	5	7	10	13	17	21	31	43	57	72	90
	Throw Distance [m]		2	3	3	4	4	4	5	4,8	5,1	6	6	7	7	8
	Sound Power Level [dB(A)]		<15	<15	<15	<15	20	24	27	30	33	38	42	46	49	52
1750	Effective Area [m^2]		0.486	0.324	0.243	0.194	0.162	0.139	0.122	0.1080	0.0972	0.081	0.069	0.061	0.054	0.049
	Pressure Drop [Pa]		1	2	3	5	7	10	13	17	21	31	43	57	72	90
	Throw Distance [m]		2	3	3	4	4	4	5	5	5	6	6	7	7	8
	Sound Power Level [dB(A)]		<15	<15	<15	15	20	24	28	31	34	39	43	47	50	53
2000	Effective Area [m^2]		0.556	0.370	0.278	0.222	0.185	0.159	0.139	0.1235	0.1111	0.093	0.079	0.069	0.062	0.056
	Pressure Drop [Pa]		1	2	3	5	7	10	13	17	21	31	43	57	72	90
	Throw Distance [m]		2	3	3	4	4	4	5	5	5	6	6	7	7	8
	Sound Power Level [dB(A)]		<15	<15	<15	16	21	25	29	32	35	40	44	47	50	53
2500	Effective Area [m^2]			0.463	0.347	0.278	0.232	0.198	0.174	0.1543	0.1389	0.116	0.099	0.087	0.077	0.069
	Pressure Drop [Pa]			2	3	5	7	10	14	17	21	31	43	57	73	90
	Throw Distance [m]			3	3	4	4	4	5	5	5	6	6	7	7	8
	Sound Power Level [dB(A)]			<15	<15	17	22	26	30	33	36	40	45	48	51	54
3000	Effective Area [m^2]			0.556	0.417	0.333	0.278	0.238	0.2083	0.1852	0.1667	0.139	0.119	0.104	0.093	0.0833
	Pressure Drop [Pa]			2	3	5	7	10	14	17	21	31	43	57	73	90
	Throw Distance [m]			3	3	4	4	4	5	5	5	6	6	7	7	8
	Sound Power Level [dB(A)]			<15	<15	18	23	27	30	34	36	41	45	49	52	55
4000	Effective Area [m^2]				0.556	0.444	0.370	0.3175	0.2778	0.2469	0.2222	0.185	0.159	0.139	0.1235	0.1111
	Pressure Drop [Pa]				3	5	7	10	14	17	22	31	43	57	73	91
	Throw Distance [m]				3	4	4	4	5	5	5	6	6	7	7	8
	Sound Power Level [dB(A)]				<15	19	24	28	32	35	38	43	47	50	53	56
5000	Effective Area [m^2]					0.556	0.4630	0.3968	0.3472	0.3086	0.2778	0.232	0.198	0.1736	0.1543	0.1389
	Pressure Drop [Pa]					5	7	10	14	17	22	31	43	57	73	91
	Throw Distance [m]					4	4	4	5	5	5	6	6	7	7	8
	Sound Power Level [dB(A)]					20	25	29	33	36	39	44	48	51	54	57
7500	Effective Area [m^2]							0.595	0.521	0.4630	0.4167	0.347	0.298	0.260	0.232	0.208
	Pressure Drop [Pa]							10	14	17	22	32	43	57	73	91
	Throw Distance [m]							4	5	5	5	6	7	7	8	8
	Sound Power Level [dB(A)]							31	34	38	40	45	50	53	56	59
10000	Effective Area [m^2]									0.6173	0.5556	0.463	0.397	0.347	0.309	0.2778
	Pressure Drop [Pa]									17	22	32	44	57	73	91
	Throw Distance [m]									5	6	6	7	7	8	8
	Sound Power Level [dB(A)]									39	42	47	51	54	58	60

Note: Data were obtained with the air distribution equipment when the ambient air temperature difference is T=8 K

Throw Distance is the distance between the point where the air leaving the dispenser equipment reaches to velocity of 0.25 m/s, and the air dispenser equipment.

Table 4. Extract Data

		Effective Velocity (m/s)														
Flow Rate [m³ / h]		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
50	Effective Area [m²]	0.0278	0.0139	0.0093	0.0069	0.006	0.005	0.004	0.003	0.003						
	Pressure Drop [Pa]	<1	1	2	3	5	8	10	14	17						
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	<15	<15	<15	16						
100	Effective Area [m²]	0.0556	0.0278	0.019	0.014	0.011	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.0035	0.0031	
	Pressure Drop [Pa]	<1	1	2	3	5	8	10	14	18	22	32	44	58	74	
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	<15	<15	16	19	22	27	31	34	38	
200	Effective Area [m²]	0.111	0.056	0.037	0.028	0.022	0.019	0.016	0.014	0.012	0.011	0.009	0.008	0.007	0.0062	0.0056
	Pressure Drop [Pa]	<1	1	2	3	5	8	11	14	18	22	32	44	58	74	93
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	<15	15	19	22	25	30	34	38	41	44
300	Effective Area [m²]	0.167	0.083	0.056	0.042	0.033	0.028	0.024	0.021	0.019	0.017	0.014	0.012	0.010	0.009	0.008
	Pressure Drop [Pa]	<1	1	2	3	5	8	11	14	18	22	32	44	59	75	93
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	<15	17	21	24	27	32	36	39	43	45
400	Effective Area [m²]	0.222	0.111	0.074	0.056	0.044	0.037	0.032	0.028	0.025	0.022	0.019	0.016	0.014	0.012	0.011
	Pressure Drop [Pa]	<1	1	2	3	5	8	11	14	18	22	32	44	59	75	93
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	<15	18	22	25	28	33	37	41	44	47
500	Effective Area [m²]	0.278	0.139	0.093	0.069	0.056	0.046	0.040	0.035	0.031	0.028	0.023	0.020	0.017	0.015	0.014
	Pressure Drop [Pa]	<1	1	2	3	5	8	11	14	18	22	32	45	59	75	93
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	15	19	23	26	29	34	38	42	45	48
600	Effective Area [m²]	0.333	0.167	0.111	0.083	0.067	0.056	0.048	0.042	0.037	0.0333	0.028	0.024	0.021	0.019	0.017
	Pressure Drop [Pa]	<1	1	2	3	5	8	11	14	18	22	32	45	59	75	94
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	16	20	24	27	30	35	39	42	46	48
700	Effective Area [m²]	0.389	0.194	0.130	0.097	0.078	0.065	0.056	0.049	0.043	0.0389	0.032	0.028	0.024	0.022	0.019
	Pressure Drop [Pa]	<1	1	2	3	5	8	11	14	18	22	32	45	59	75	94
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	17	21	24	28	30	35	40	43	46	49
800	Effective Area [m²]	0.444	0.222	0.148	0.111	0.089	0.074	0.063	0.056	0.049	0.0444	0.037	0.032	0.028	0.025	0.022
	Pressure Drop [Pa]	<1	1	2	3	5	8	11	14	18	22	33	45	59	75	94
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	17	21	25	28	31	36	40	44	47	50
900	Effective Area [m²]	0.500	0.250	0.167	0.125	0.100	0.083	0.071	0.063	0.056	0.0500	0.042	0.036	0.031	0.028	0.025
	Pressure Drop [Pa]	<1	1	2	3	5	8	11	14	18	22	33	45	59	75	94
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	18	22	26	29	32	36	41	44	47	50
1000	Effective Area [m²]	0.556	0.278	0.185	0.139	0.111	0.093	0.079	0.069	0.062	0.0556	0.046	0.040	0.035	0.031	0.028
	Pressure Drop [Pa]	<1	1	2	3	5	8	11	14	18	22	33	45	59	76	94
	Sound Power Level [dB(A)]	<15	<15	<15	<15	<15	18	22	26	29	32	37	41	45	48	51
1250	Effective Area [m²]		0.347	0.231	0.174	0.139	0.116	0.099	0.087	0.077	0.0694	0.058	0.050	0.043	0.039	0.035
	Pressure Drop [Pa]		1	2	3	5	8	11	14	18	22	33	45	59	76	94
	Sound Power Level [dB(A)]		<15	<15	<15	<15	19	23	27	30	33	38	42	46	49	52
1500	Effective Area [m²]		0.417	0.278	0.208	0.167	0.139	0.119	0.104	0.0926	0.0833	0.069	0.060	0.052	0.046	0.0417
	Pressure Drop [Pa]		1	2	3	5	8	11	14	18	22	33	45	59	76	94
	Sound Power Level [dB(A)]		<15	<15	<15	15	20	24	28	31	34	39	43	46	50	52
1750	Effective Area [m²]		0.486	0.324	0.243	0.194	0.162	0.139	0.122	0.1080	0.0972	0.081	0.069	0.061	0.054	0.0486
	Pressure Drop [Pa]		1	2	3	5	8	11	14	18	22	33	45	59	76	94
	Sound Power Level [dB(A)]		<15	<15	<15	16	21	25	29	32	35	39	44	47	50	53
2000	Effective Area [m²]		0.556	0.370	0.278	0.222	0.185	0.159	0.139	0.1235	0.1111	0.093	0.079	0.069	0.062	0.0556
	Pressure Drop [Pa]		1	2	3	5	8	11	14	18	22	33	45	60	76	95
	Sound Power Level [dB(A)]		<15	<15	<15	16	21	26	29	32	35	40	44	48	51	54
2500	Effective Area [m²]			0.463	0.347	0.278	0.231	0.198	0.174	0.1543	0.1389	0.116	0.099	0.087	0.077	0.0694
	Pressure Drop [Pa]			2	3	5	8	11	14	18	23	33	45	60	76	95
	Sound Power Level [dB(A)]			<15	<15	17	22	27	30	33	36	41	45	49	52	55
3000	Effective Area [m²]			0.556	0.417	0.333	0.278	0.238	0.2083	0.1852	0.1667	0.139	0.119	0.104	0.0926	0.0833
	Pressure Drop [Pa]			2	3	5	8	11	14	18	23	33	45	60	76	95
	Sound Power Level [dB(A)]			<15	<15	18	23	27	31	34	37	42	46	50	53	56
4000	Effective Area [m²]				0.556	0.444	0.370	0.3175	0.2778	0.2469	0.2222	0.185	0.159	0.1389	0.1235	0.1111
	Pressure Drop [Pa]				3	5	8	11	14	18	23	33	45	60	76	95
	Sound Power Level [dB(A)]				<15	19	24	29	32	35	38	43	47	51	54	57
5000	Effective Area [m²]					0.556	0.4630	0.3968	0.3472	0.3086	0.2778	0.231	0.1984	0.1736	0.1543	0.1389
	Pressure Drop [Pa]					5	8	11	14	18	23	33	45	60	77	95
	Sound Power Level [dB(A)]					21	25	30	33	36	39	44	48	52	55	58
7500	Effective Area [m²]							0.5952	0.5208	0.4630	0.4167	0.347	0.298	0.2604	0.2315	0.2083
	Pressure Drop [Pa]							11	14	18	23	33	46	60	77	96
	Sound Power Level [dB(A)]							31	35	38	41	46	50	54	57	60
10000	Effective Area [m²]									0.6173	0.5556	0.463	0.3968	0.3472	0.3086	0.2778
	Pressure Drop [Pa]									18	23	33	46	60	77	96
	Sound Power Level [dB(A)]									39	42	47	51	55	58	61

Note: Data were obtained with the air distribution equipment when the ambient air temperature difference is T=8 K

Table 5. Throw Distance Correction

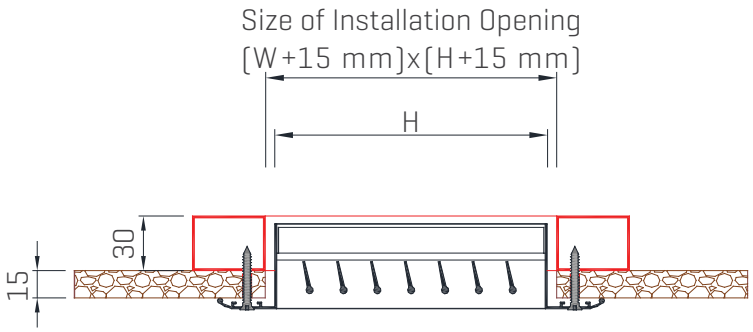
Heating Mode (ΔT)	4	6	8	10	12
Throw Distance Coefficient	1.07	1.02	1	0.90	0.83
Cooling Mode (ΔT)	4	6	8	10	12
Throw Distance Coefficient	1.31	1.36	1.42	1.48	1.54

Table 6. Damper Pressure Correction

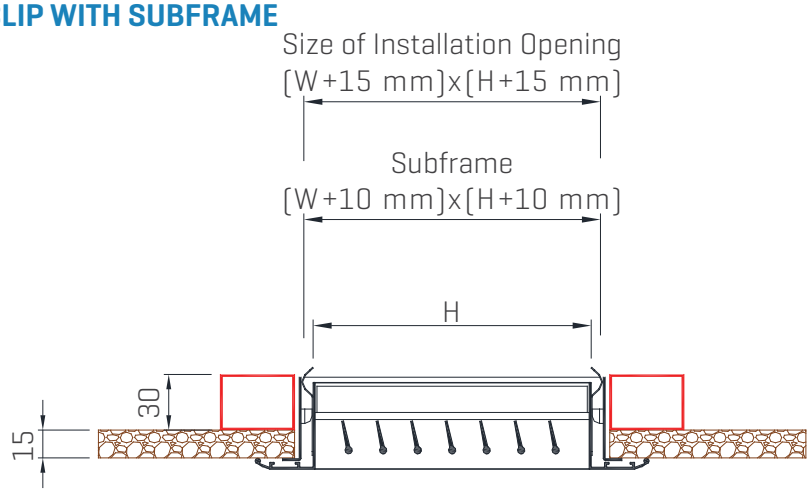
Damper Position	Pressure Correction Factor	Noise Generation [dB(A)]
Open	1.1	+1
25% Closed	1.14	+4
50% Closed	2.48	+14
75% Closed	5.11	+29

INSTALLATION

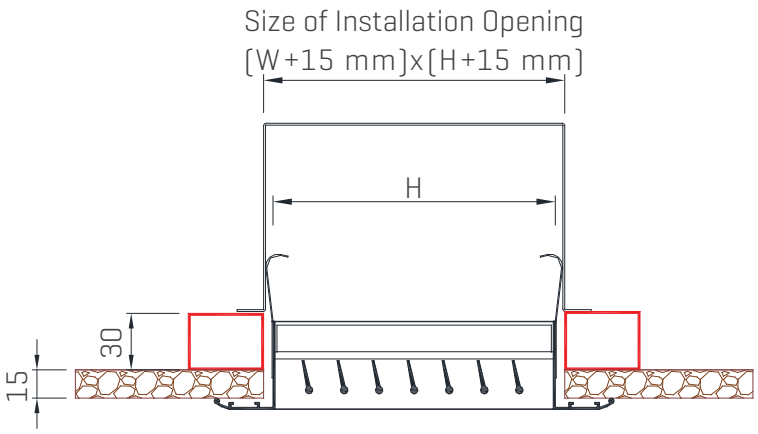
1. SCREW SYSTEM



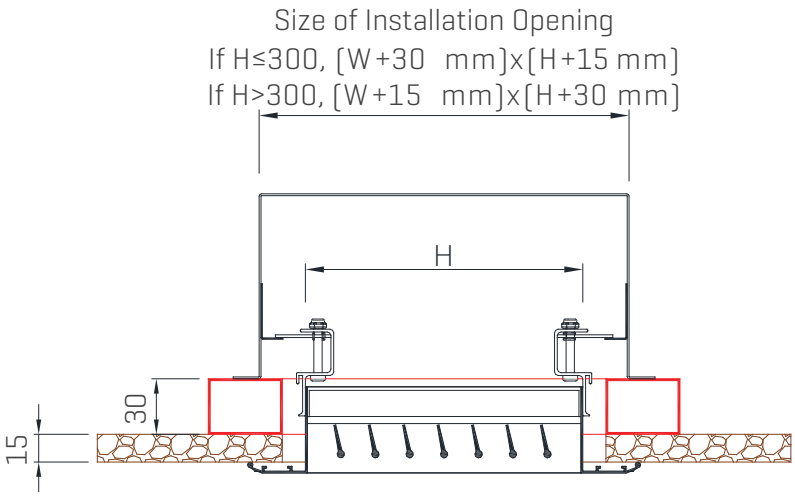
2. SHORT SPRING CLIP WITH SUBFRAME



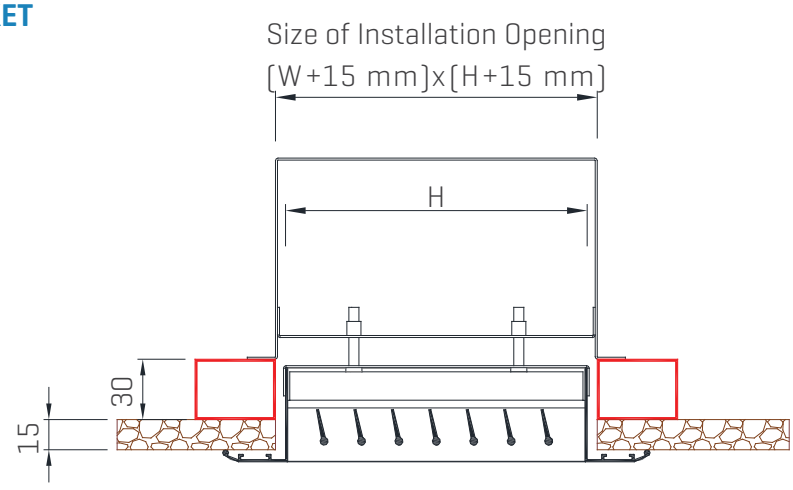
3. LONG SPRING CLIP



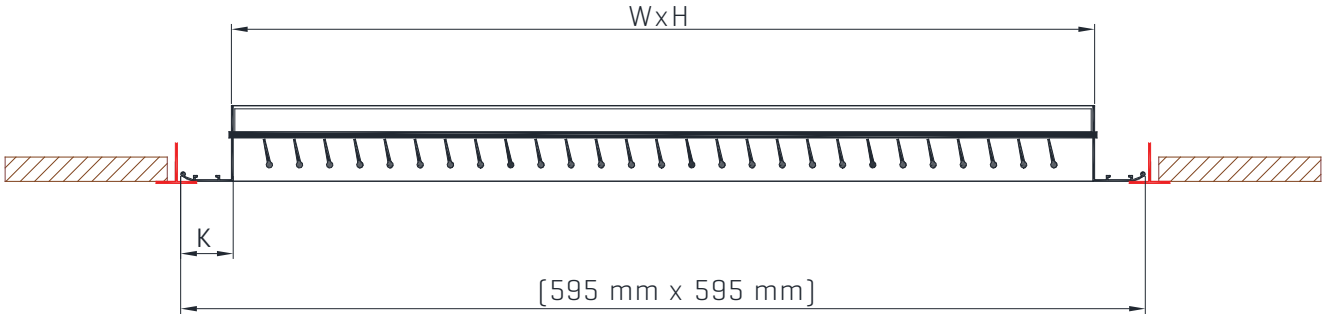
4. CONCEALED



5. MOUNTING BRACKET



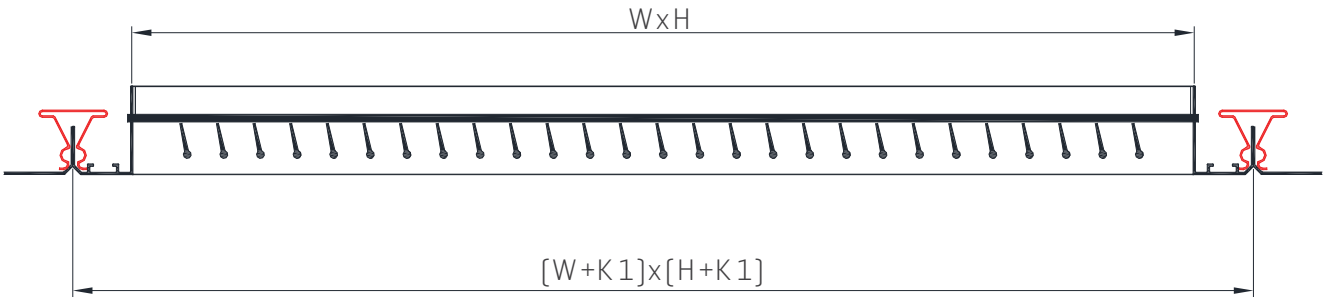
6. SUSPENDED CEILING



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

	W (mm)	H (mm)
22 mm Frame	553.4	553.4
32 mm Frame	532.4	532.4
Stainless-Steel Frame	542	542

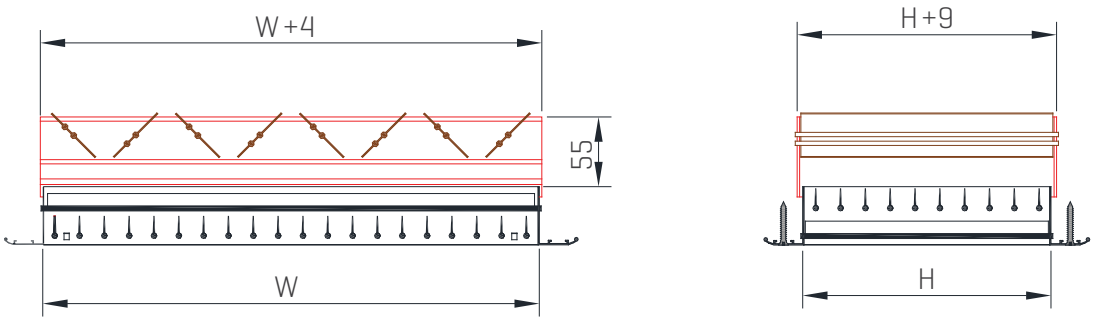
7. CLIP-IN CEILING



Note:
When the product material is selected as stainless steel, clip-in installation can not be done.

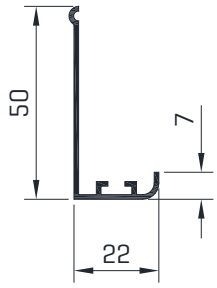
Clip-In Frame K1 = 59 mm	W (mm)	H (mm)
600x600	541	541
300x300	241	241

8. WITH DAMPER

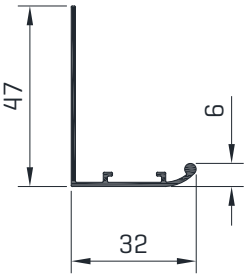


FRAME TYPES

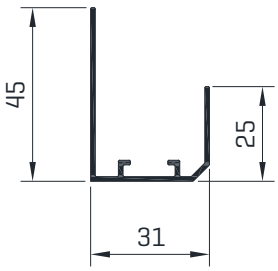
22 mm Frame



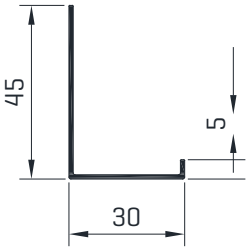
32 mm Frame



Clip-In Frame



Stainless Steel Frame



SIZE PARAMETERS

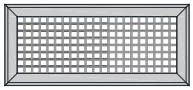
MAXIMUM MODULE SIZE

The standard dimensions of one module can be selected between 100 mm x 50 mm and 1800 mm x 1000 mm. For the stainless-steel production, maximum module dimension is 1200 mm x 600 mm. If the order dimension exceeds the module length, grilles will be produced by modular.

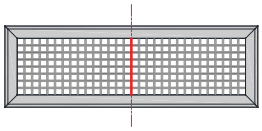
SUPPORT NUMBER PARAMETERS

Support is used only in aluminum products.

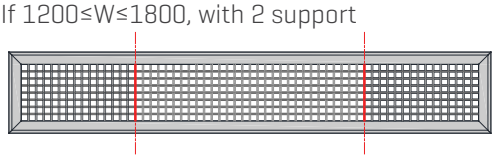
If W<600, without support



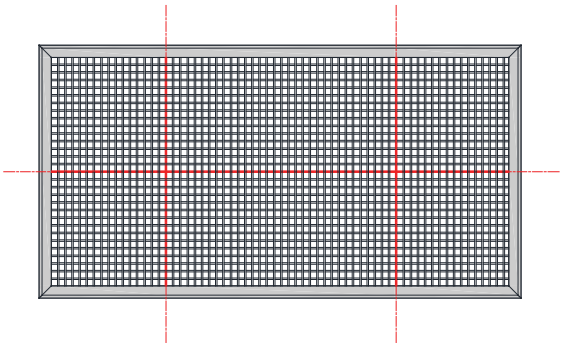
If 600≤W≤1200, with 1 support



If 1200≤W≤1800, with 2 support



If 600<H≤1000, with 1 support



PRODUCT SELECTION

Example: The air flow distributed in the space has been determined as 5000 m^3/h. 10 double deflection grille will be used for blowing. The temperature difference in heating mode is 8K. Make your product selection.

Solution: Air flow rate for a grille, 5000/10=500 m^3/h

Effective areas corresponding to appropriate pressure drop and flow rate values are selected from the blow data table (Table 3)

For example, in an effective area of 0.04 m^2, the effective velocity is 3.5 m/s, pressure drop 10 Pa, throw distance 4 m and sound power 19 dB(A).

The appropriate grille size can be selected from the effective area table (Table 2) as 300 mm x 200 mm corresponding to the value of 0.04 m^2.

Throw Distance Correction Chart

In the previous example, the throw distance was found to be 4 m for the heating mode 8K. Refer to Throw Distance Correction Chart for 10K heating mode. The multiplier value is 0.9.

Corrected throw distance=4 m x 0.9=3.6 m

Opposed Blade Damper Condition

The pressure drop and sound power level changes in the damper product. Damper Correction Table (Table 6) should be used. For example, for the tipper product with the damper closed at 50%, the corresponding pressure factor in the table is 2.48 and sound production is +14 dB(A)

Total static pressure drop: 10x2.48=24.8 Pa

Total sound power level: 19+14=33 dB(A)

PRODUCT ORDER CODES

You can place your orders for aluminum or stainless products according to the coding style by looking at the seperate tables given below.

ALUMINUM PRODUCT ORDER CODE

DMD.<A>.<B>.<C>.<D>.<E>.<F>.<G>

A	Raw Material Type	
	ALM	Aluminum
B	**Frame Type**	
	02	22 mm Frame
	01	32 mm Frame
	09	Clip-In Frame
C	**Damper**	
	ZD	Opposed Blade Damper
	DZ	Without Damper
D	**Installation Type**	
	VD	Screw System
	KR	Suspended Ceiling
	KL	Clip-In Ceiling
	KP	Mounting Bracket
	MD	Without Mounting Hole
	MN	Concealed
	UK	Long Spring Clip
	KO	Subframe Short Spring Clip
	KK	Short Clips
E	**Horizontal Dimension (W) (mm)**	
	0000	You can view it from standard dimensions.
F	**Vertical Dimension (H) (mm)**	
	0000	You can view it from standard dimensions.
G	**Paint**	
	00	Unpainted
	S1	Standard Painted - RAL 9010
	S2	Standard Painted - RAL 9016
	XX	Special Painted

Sample Coding; DMD.ALM.01.DZ.VD.0500.0200.S1

STAINLESS-STEEL PRODUCT ORDER CODE

DMD. < PAS > . < 32 > . < A > . < B > . < C > . < D > . < 00 >

A	Damper	
	ZD	Opposed Blade Damper
	DZ	Without Damper
B	**Installation Type**	
	VD	Screw System
	KR	Suspended Ceiling
	KP	Mounting Bracket
	MD	Without Mounting Hole
	MN	Concealed
	UK	Long Spring Clip
	KO	Subframe Short Spring Clip
	KK	Short Clips
C	**Horizontal Dimension (W) (mm)**	
	0000	You can view it from standard dimensions.
D	**Vertical Dimension (H) (mm)**	
	0000	You can view it from standard dimensions.

Sample Coding; DMD.PAS.32.DZ.VD.0500.0200.00

NOTES

NOTES

NOTES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