

2/S1
v 3.3 (en)

CEILING DIFFUSERS

ANA, ANE, AND

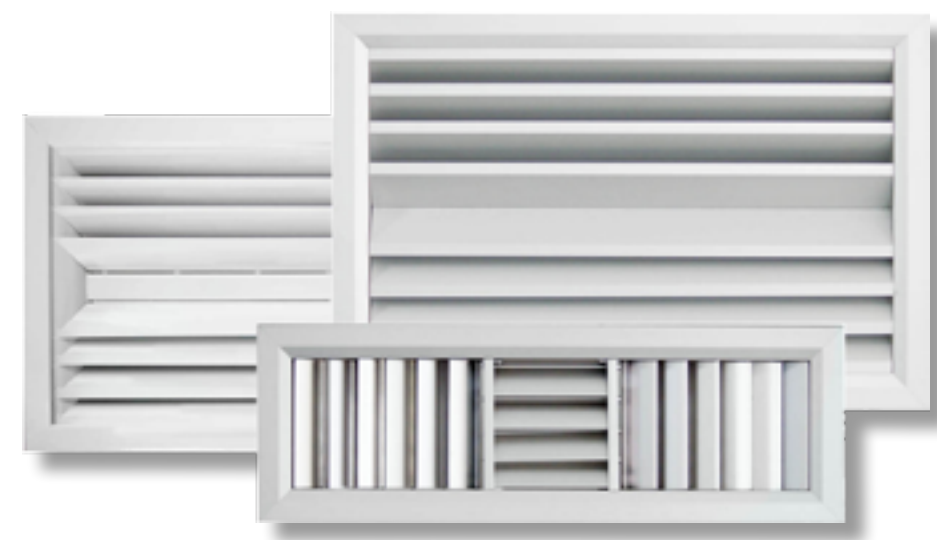


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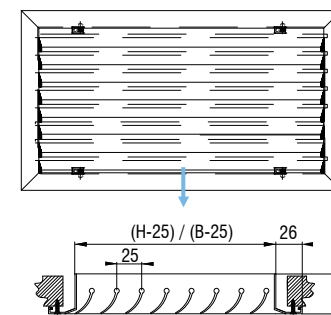
ANA

- Ceiling diffuser for room heights from 2,3 to 4m.
- Frame and blades made out of anodized aluminium
- Individually adjustable blades
- Fixing with visible screws

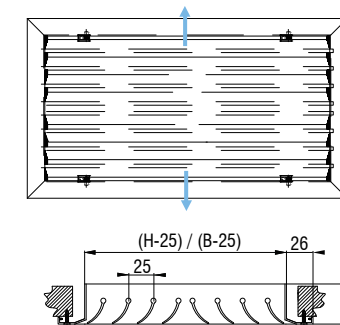
Options:

- Fixing with subframe (UR) only in wall
- Damper (L)
- RAL...
- Plenum box

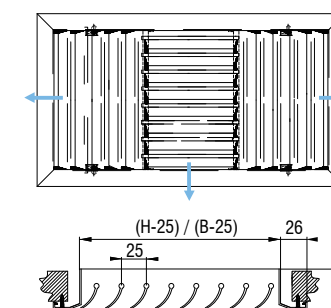
ANA 1



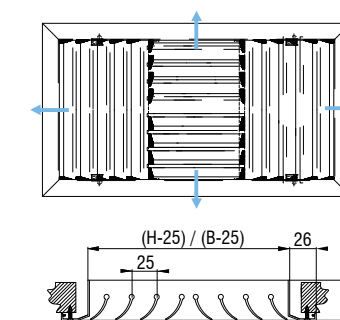
ANA 2



ANA 3



ANA 4



Definition of symbols:

V [m³/h]	- Air flow	v_h [m/s]	- Average core velocity at distance h (m) from diffuser
V_{uk} [m³/h]	- Total air volume in motion	Δp [Pa]	- Total pressure drop
h [m]	- Distance from the ceiling to the occupied zone	t_r [°C]	- Air temperature in the room
H [m]	- Room height	t_z [°C]	- Supply air temperature
A, B [m]	- Distance between diffusers	t_m [°C]	- Core air temperature
x [m]	- Distance from wall	Δt_z [°C]	- $(t_z - t_r)$
L [m]	- Throw distance (x+h)	Δt_L [°C]	- $(t_m - t_r)$
A_{ef} [m²]	- Effective discharge area	i	- Induction V_{uk}/V
v_{ef} [m/s]	- Effective jet velocity	L_{WA} [dB(A)]	- Sound power level
v_L [m/s]	- Average core velocity at distance L (m) from diffuser		

Ordering key:

Type **ANA - 3 - UR - 625x325 - L**
 Number of airflow directions
 Installation subframe
 Standard size B x H
 Flow damper

*Screws are not delivered

Standard dimensions ANA	
B	225 - 1225 mm, in increments 100mm
H	125 - 525 mm, in increments 100mm

* B > H



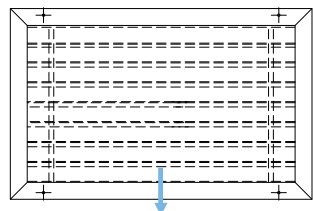
ANE

- Ceiling diffuser for room heights from 2,3 to 4m.
- Frame and blades from anodized aluminium profiles
- Fixed blades
- Fixing with visible screws

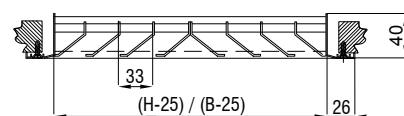
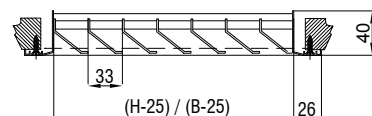
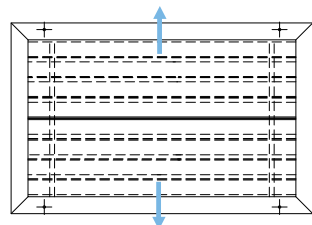
Options:

- Fixing with subframe (UR) only in wall
- Damper (L)
- RAL...
- Plenum box

ANE 1



ANE 2



Ordering key:

Type **ANE - 2 - UR - 600x282 - L**
 Number of airflow directions
 Installation subframe
 Standard size B x H
 Flow damper

*Screws are not delivered

Standard dimensions ANE1	
B	500 - 1800 mm, in increments 100 mm
H	155, 254, 353 mm

Standard dimensions ANE2	
B	500 - 2000 mm, in increments 100 mm
H	218, 282, 414 mm



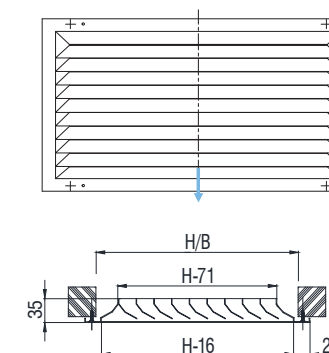
AND

- Ceiling diffuser for room heights from 2,3 to 4m.
- Frame and blades from steel sheet
- Fixed blades
- Fixing with visible screws

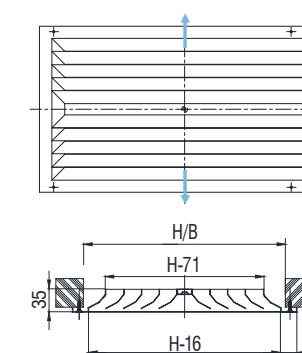
Options:

- Fixing with central screw (AND2, AND3, AND4)
- Damper (L)
- RAL...
- Plenum box

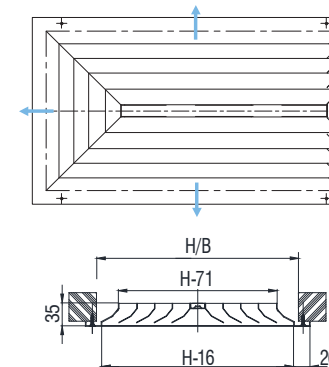
AND 1



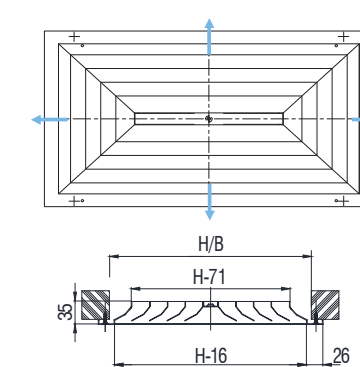
AND 2



AND 3



AND 4



Ordering key:

Type **AND - 3 - 871x264 - L**
 Number of airflow directions
 Standard size B x H
 Flow damper

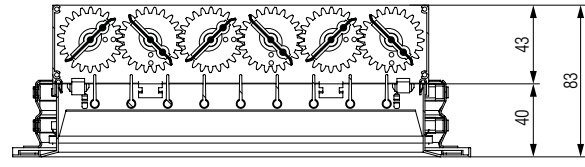
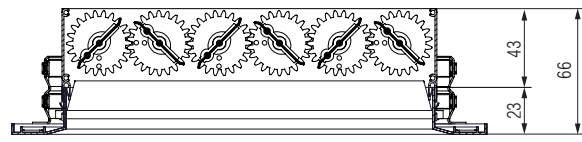
*Screws are not delivered

Standard dimensions AND	
B	371 - 1271 mm, in increments 100 mm
H	208 - 544 mm, in increments 56 mm

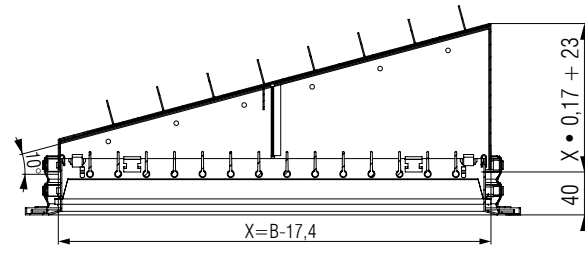
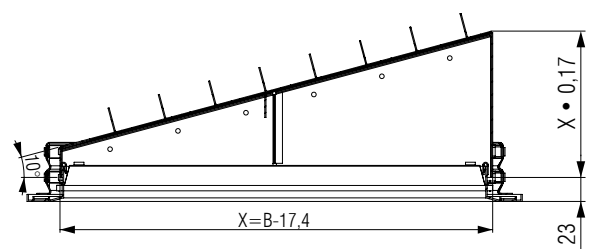
* B > H

DAMPERS

L - damper



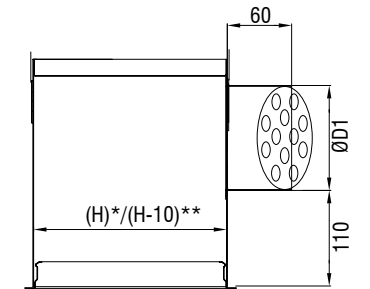
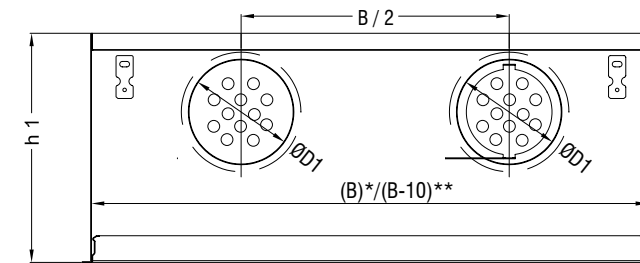
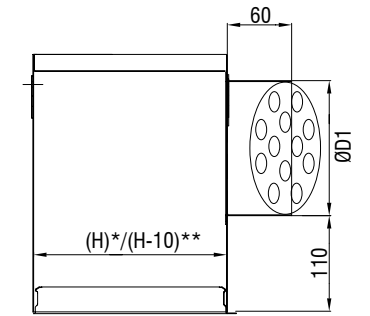
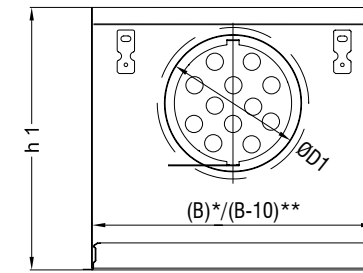
S - damper



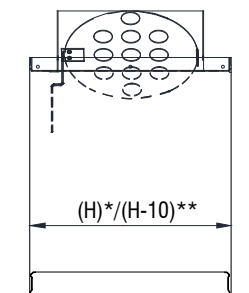
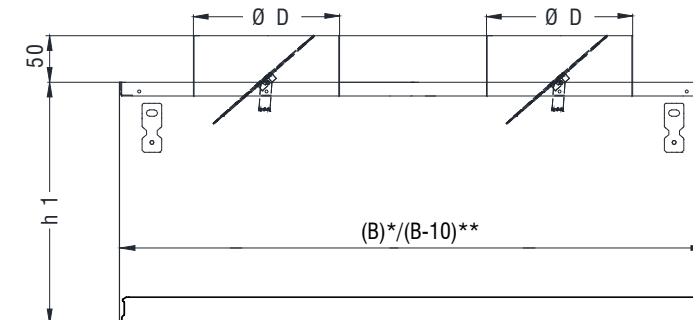
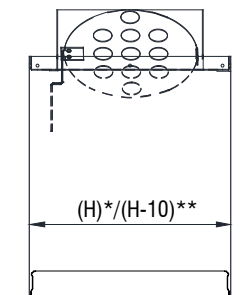
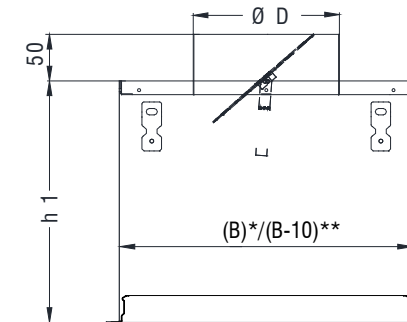
Diffuser	OPTIONS					
	Damper		Installation with subframe	RAL...	Linear grille B > 1225mm	Plenum box PK1, PK2, PK3
	L	S				
ANA	•	•	•	•	•	•
ANE	•	•	•	•	•	•
AND	•			•	•	•

PLENUM BOXES

Plenum box - PK1



Plenum box - PK2



Note:

- * Plenum box dimensions for installation with subframe
- ** Plenum box dimensions for installation without subframe

Plenum boxes ANE 1							
Size		One connection		Two connections		V _{min} [m³/h]	V _{max} [m³/h]
B [mm]	H [mm]	D1 [mm]	h1 [mm]	D2 [mm]	h2 [mm]		
500	155	158	300			64	387
600		158	300			79	468
700		198	340			92	550
800		198	340			105	631
900		198	340			119	713
1000		248	390			132	794
1100		248	390	158	300	146	875
1200		248	390	198	340	159	957
1300		248	390	198	340	173	1038
1400		248	390	198	340	187	1120
1500		313	455	198	340	200	1200
1600		313	455	198	340	214	1284
1700		313	455	198	340	227	1364
1800		313	455	198	340	241	1446
1900		313	455	198	340	254	1528
2000	313	455	198	340	268	1610	
500	254	198	340			127	768
600		248	390			154	926
700		248	390			180	1084
800		313	455			208	1256
900		313	455			234	1407
1000		313	455			260	1570
1100		313	455	198	340	288	1728
1200		353	495	248	390	314	1890
1300		353	495	248	390	342	2050
1400		353	495	248	390	368	2210
1500		353	495	248	390	395	2372
1600				298	440	420	2534
1700				298	440	450	2694
1800				298	440	474	2853
1900				298	440	500	3014
2000			298	440	530	3176	
500	353	248	390			196	1170
600		313	455			240	1405
700		313	455			280	1650
800		313	455			323	1894
900		353	495			362	2140
1000		353	495			403	2380
1100		398	540	313	455	446	2630
1200		398	540	313	455	485	2870
1300		398	540	313	455	528	3120
1400		398	540	313	455	568	3360
1500		448	590	313	455	610	3600
1600				353	495	649	3850
1700				353	495	693	4095
1800				353	495	732	4340

Plenum boxes ANE 2							
Size		One connection		Two connections		V _{min} [m³/h]	V _{max} [m³/h]
B [mm]	H [mm]	D1 [mm]	h1 [mm]	D2 [mm]	h2 [mm]		
500	216	158	300			87	510
600		198	340			104	620
700		198	340			122	725
800		198	340			139	830
900		248	390			157	940
1000		248	390			174	1046
1100		248	390	198	340	192	1156
1200		248	390	198	340	210	1260
1300		313	455	198	340	230	1370
1400		313	455	248	390	246	1476
1500		313	455	248	390	264	1585
1600		313	455	248	390	282	1692
1700				248	390	299	1800
1800				248	390	317	1905
1900				248	390	334	2015
2000			248	390	352	2120	
500	282	198	340			134	790
600		198	340			160	955
700		248	390			190	1130
800		248	390			218	1290
900		313	455			244	1460
1000		313	455			270	1625
1100		313	455	198	340	300	1790
1200		353	495	248	390	328	1960
1300		353	495	248	390	354	2120
1400		353	495	248	390	382	2290
1500		353	495	248	390	410	2460
1600		398	540	248	390	434	2622
1700				313	455	461	2790
1800				313	455	488	2950
1900				313	455	515	3120
2000			313	455	542	3290	
500	414	248	390			214	1277
600		313	455			260	1550
700		313	455			305	1815
800		353	495			350	2085
900		353	495			392	2350
1000		398	540			437	2620
1100		398	540			482	2890
1200		398	540			530	3160
1300				313	455	573	3430
1400				313	455	615	3700
1500				353	495	663	3965
1600				353	495	707	4240
1700				353	495	750	4510
1800				353	495	796	4780
1900				398	540	840	5045
2000			398	540	886	5320	

Plenum boxes ANA									
Size		One connection		Two connections		V _{min} [m³/h]	V _{max} [m³/h]		
B [mm]	H [mm]	D1 [mm]	h1 [mm]	D2 [mm]	h2 [mm]				
225	125	98	240			20	120		
325		98	240			27	160		
425		123	265			37	230		
525		123	265			47	280		
625		158	300			57	330		
825		158	300	123	265	77	450		
1025		198	340	123	265	97	560		
1225		198	340	158	300	117	680		
325		225	158	300			60	330	
425			158	300			80	450	
525			198	340			90	550	
625			198	340			110	650	
825	248		390	158	300	150	900		
1025	248		390	198	340	190	1150		
1225	313		455	198	340	230	1350		
425	325		198	340			120	760	
525			248	390			160	950	
625			248	390			190	1150	
825			298	440	198	340	260	1550	
1025			313	455	248	390	320	1900	
1225		353	495	248	390	380	2260		
625		425	313	455			260	1560	
825			353	495			350	2100	
1025			398	540			440	2600	
1225			448	590			520	3120	
1025			525	448	590			560	3260
1225				498	640			670	3900

Plenum boxes AND									
Size		One connection		Two connections		V _{min} [m³/h]	V _{max} [m³/h]		
B [mm]	H [mm]	D1 [mm]	h1 [mm]	D2 [mm]	h2 [mm]				
371	208	198	340			74	446		
471		198	340			94	564		
571		198	340			115	691		
671		248	390			136	820		
871		248	390	198	340	178	1070		
1071		313	455	198	340	220	1325		
1271		313	455	248	390	263	1585		
471	264	198	340			130	783		
571		248	390			160	963		
671		248	390			190	1142		
871		313	455	198	340	250	1506		
1071		353	495	248	390	315	1899		
1271		353	495	248	390	370	2230		
571		320	313	455			210	1266	
671	313		455			250	1507		
871	353		495			325	1956		
1071	398		540			400	2410		
1271	398		540			480	2892		
671	376		353	495			310	1870	
871			398	540			410	2472	
1071		448	590			505	3045		
1271		498	640			600	3614		
871		432	398	540			488	2940	
1071			448	590			600	3616	
1271			498	640			712	4291	
462	462		313	455			270	1627	
962			448	590			590	3553	
562			562	398	540			406	2445
1162				553	695			875	5272
587		587		398	540			443	2668
1212				628	770			960	5787

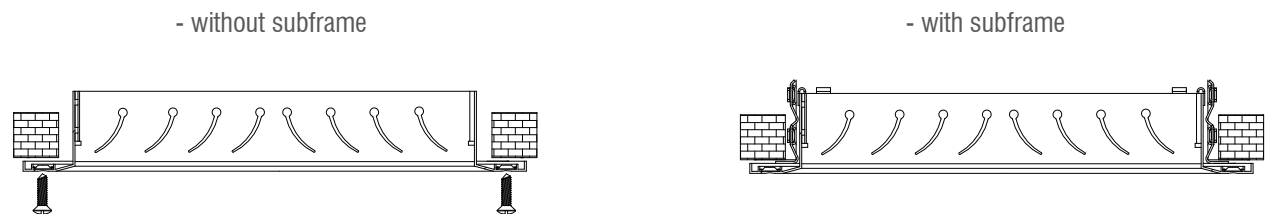
Ordering key:

Type	PK1 - UR - 525x225 - Z
Installation subframe	
Standard dimensions B x H	
Insulation	

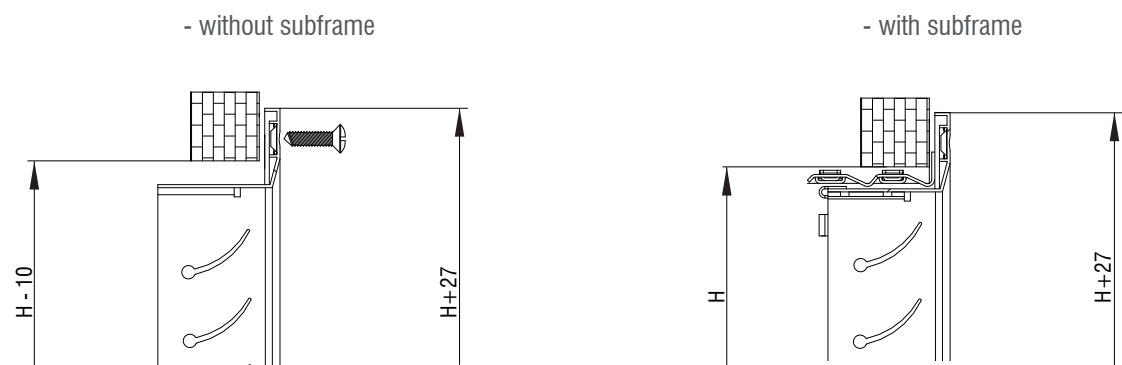
*Screws are not delivered

INSTALLATION

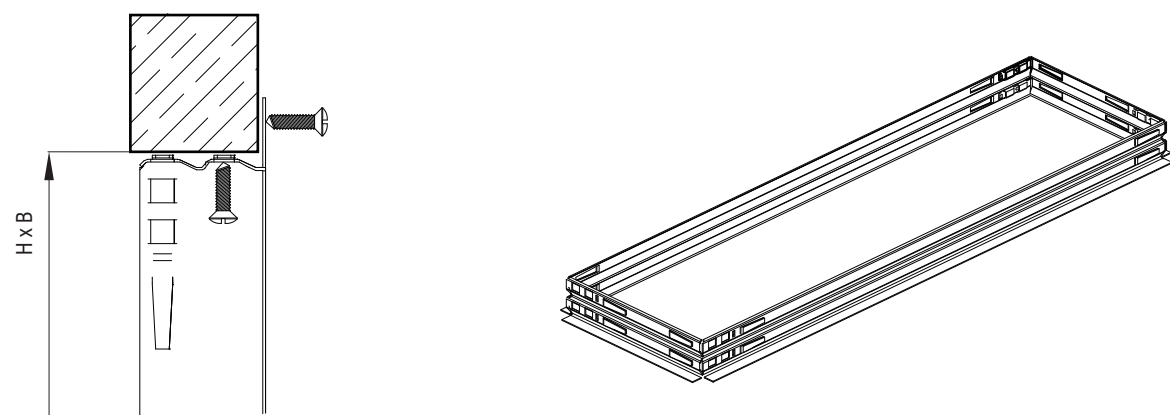
Ceiling installation



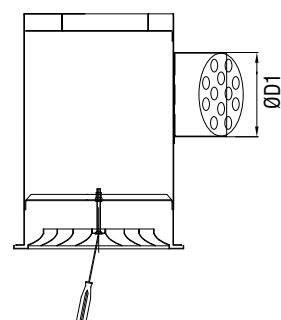
Wall installation



Subframe installation

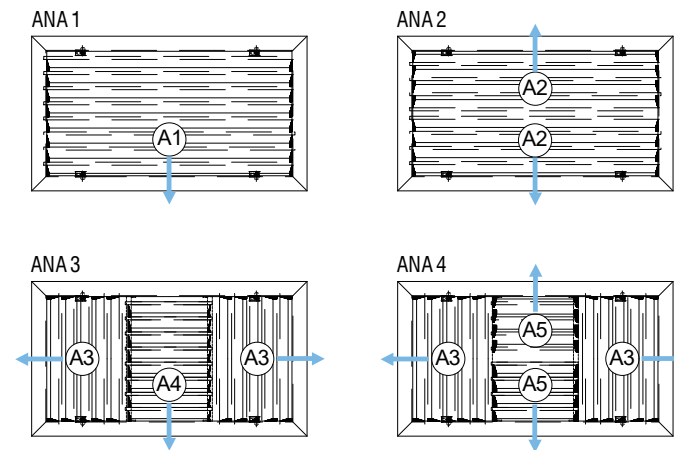


Installation to plenum box with central screw (AND2, AND3, AND4)

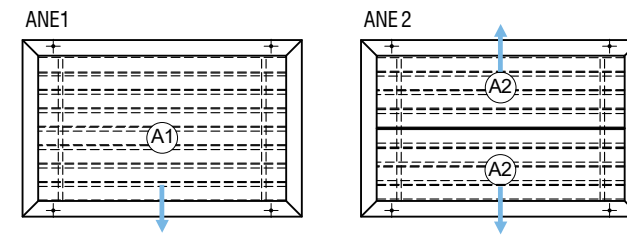


* Screws are not delivered
** Screws for diffuser fixing 3,9xL(DIN 7972, 7973, 7983)

EFFECTIVE DISCHARGE AREA TABLE

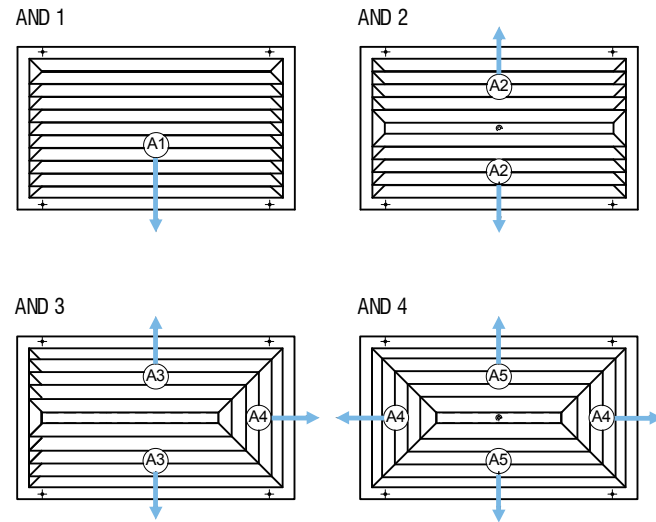


B x H [mm]		ANA A _{eff} [m ²]						
		A _{eff} [m ² / per outlet section]						
B	x	H	A1	A2	A3	A4	A5	
225	x	125	0,005					
325		0,007						
425		0,010						
525		0,012						
625		0,015						
825		0,021						
1025		0,026						
1225		0,031						
325	x	225	0,017	0,007	0,005	0,005	0,002	
425		0,024	0,010	0,006	0,007	0,003		
525		0,030	0,012	0,008	0,010	0,004		
625		0,035	0,014	0,011	0,010	0,005		
825		0,047	0,020	0,014	0,016	0,007		
1025		0,058	0,025	0,020	0,020	0,008		
1225		0,069	0,030	0,025	0,022	0,009		
425		x	325	0,035	0,016	0,010	0,012	0,005
525	0,046		0,020	0,012	0,016	0,007		
625	0,055		0,024	0,017	0,019	0,009		
825	0,072		0,032	0,022	0,025	0,011		
1025	0,090		0,041	0,029	0,029	0,013		
1225	0,108		0,049	0,036	0,034	0,015		
625	x		425	0,074	0,032	0,022	0,022	0,010
825			0,098	0,045	0,029	0,034	0,016	
1025		0,122	0,057	0,038	0,040	0,019		
1225		0,143	0,068	0,049	0,046	0,021		
1025		x	525	0,153	0,073	0,048	0,051	0,025
1225			0,186	0,087	0,060	0,058	0,028	



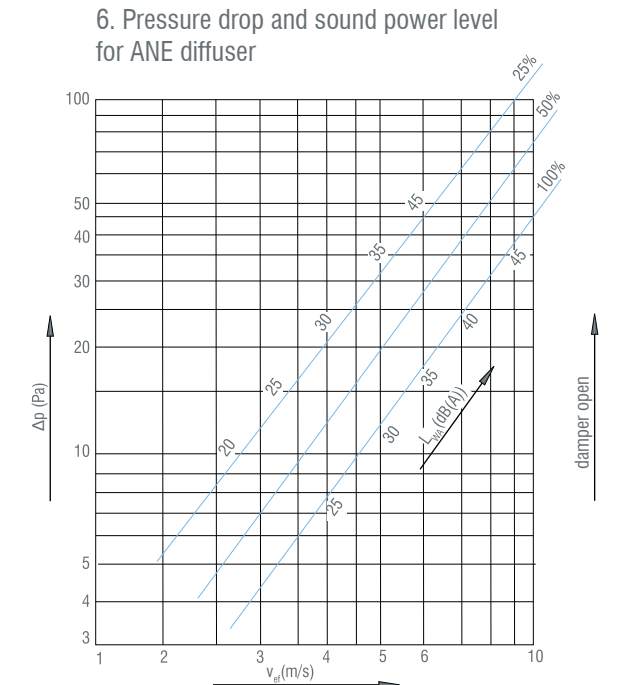
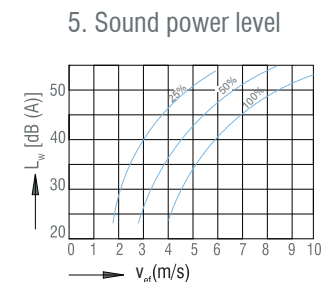
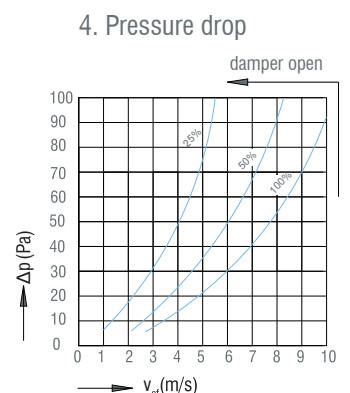
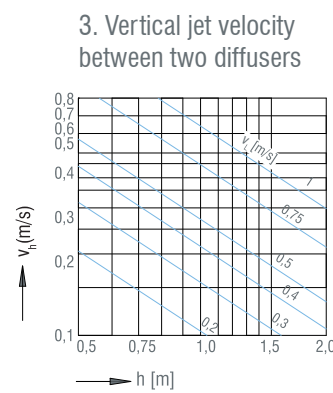
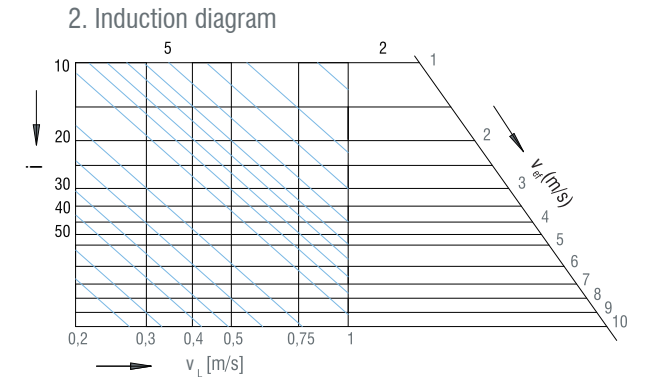
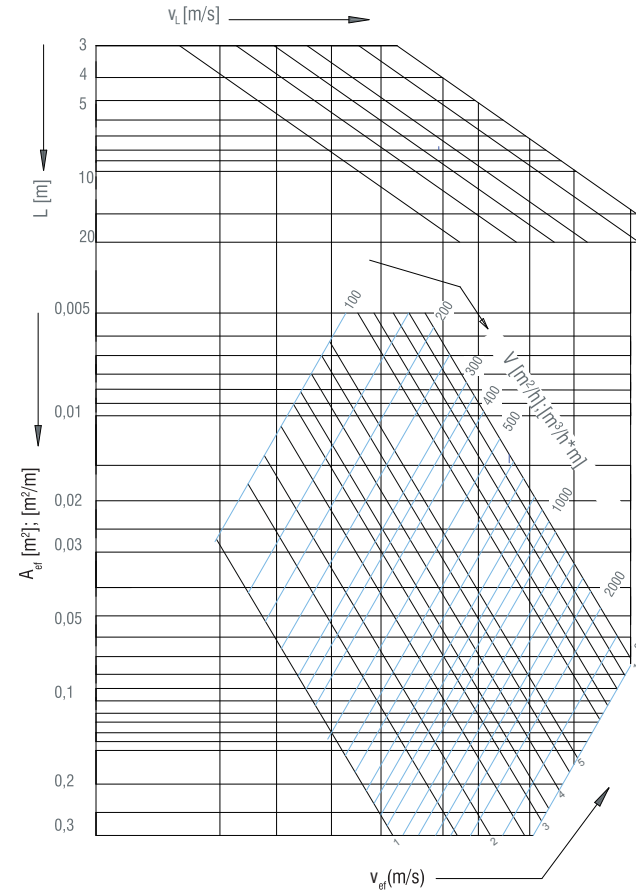
ANE A _{eff} [m ² /m]			
H [mm]	ANE1 [m ² /m]	H [mm]	ANE 2 [m ² /m]
155	0,037	216	0,024
254	0,073	282	0,037
353	0,110	414	0,061

EFFECTIVE DISCHARGE AREA TABLE



B x H [mm]			AND A _{et} [m ²]				
B	x	H	A _{et} [m ² / per outlet section]				
			A1	A2	A3	A4	A5
371	x	208	0,020	0,008			
471			0,026	0,010			
571			0,033	0,013			
671			0,039	0,016			
871			0,052	0,021			
1071	x	264	0,065	0,026			
1271			0,078	0,031			
471			0,036	0,015	0,014	0,0046	0,011
571			0,045	0,020	0,018	0,0046	0,015
671			0,054	0,023	0,021	0,0046	0,018
871	0,073	0,031	0,029	0,0046	0,026		
1071	x	320	0,091	0,039	0,037	0,0046	0,034
1271			0,109	0,047	0,045	0,0046	0,042
571			0,058	0,026	0,022	0,0074	0,018
671			0,070	0,031	0,027	0,0074	0,023
871			0,094	0,042	0,038	0,0074	0,034
1071	x	376	0,117	0,052	0,048	0,0074	0,044
1271			0,140	0,062	0,058	0,0074	0,054
671			0,086	0,039	0,033	0,0110	0,028
871			0,114	0,052	0,046	0,0110	0,041
1071			0,143	0,065	0,060	0,0110	0,054
1271	x	432	0,172	0,078	0,072	0,0110	0,067
871			0,135	0,062	0,054	0,0157	0,046
1071			0,169	0,078	0,070	0,0157	0,062
1271			0,203	0,094	0,086	0,0157	0,078
462			x	462	0,071	0,036	0,027
982	0,162	0,081			0,072	0,0182	0,063
562	0,115	0,057			0,042	0,0293	0,029
1162	0,255	0,128			0,113	0,0293	0,099
587	x	587			0,127	0,060	0,044
1212			0,282	0,133	0,117	0,0320	0,101

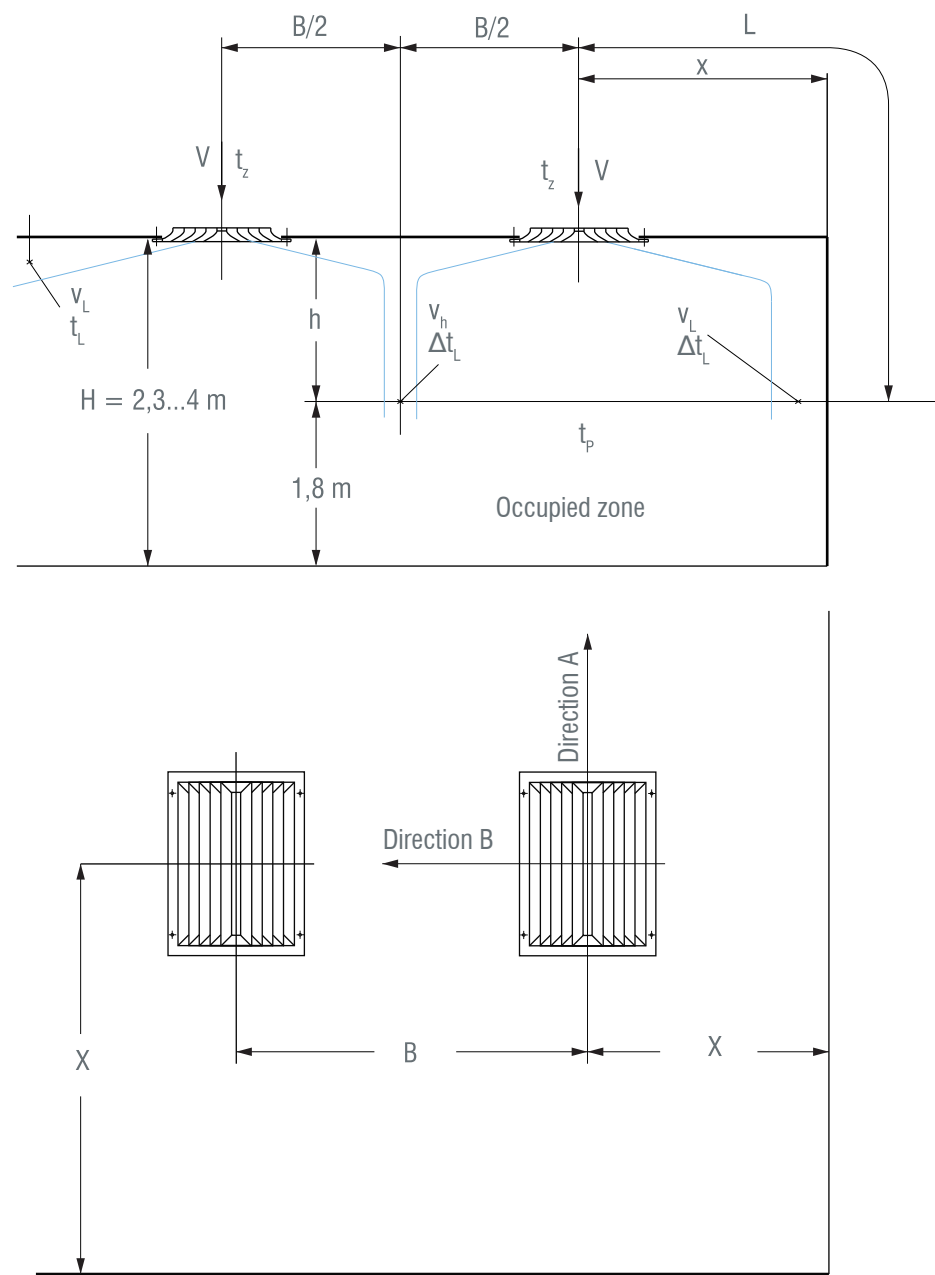
SELECTION DIAGRAMS



Sound power level correction table

A _{et} [m ²]	0,005	0,01	0,02	0,05	0,07	0,10	0,15	0,20	0,30
Correction [dB(A)]	-4	-4	-3	-1	0	3	6	8	11

DISCHARGE DIAGRAM



NOTES:
