



High Capacity Swirl Diffusers

SDFCH / SDICH / SDACH

Introduction

The Waterloo SDFCH is a high capacity fixed blade swirl diffuser designed to produce a horizontal, radial air pattern with a turbulent, high entrainment jet characteristic and is ideally suited for applications with high heating or cooling differentials.

The Waterloo SDICH is based on the SDFCH but allows the individual adjustment of blades to create a specifically required air pattern.

The Waterloo SDACH is also based on the SDFCH but provides adjustment to the angle of all of the blades in unison in order to create the required air pattern. This can also be controlled remotely with an optional motor.

Both the SDICH and the SDACH allow a continual adjustment from providing coanda effect to vertical dumping. They are particularly useful in areas that experience a varied thermal load, for example areas that are effected heavily by the changes in season.

All products in the high capacity swirl diffuser range are suitable for ceilings up to 15m.

Product Description

- SDFCH** Large format, high capacity fixed swirl diffuser
SDICH Large format, high capacity swirl diffuser with individually adjustable blades
SDACH Large format, high capacity swirl diffuser with connected adjustable blades
SDP Side entry plenum box
FDC1 Cord operated flap damper
FDQ1 Quadrant operated flap damper
LINED 6mm acoustic lining (optional) reaction to fire class C-s3-d0 to EN 13501-1: 2007
M Optional motorised actuator for the SDACH only

Features

- Large size range
- Profiled frame
- Optional standard side entry plenum

Finishes

PPG9010 (RAL 9010 Gloss - 80% Gloss White)

PPM9010 (RAL 9010 Matt - 20% Gloss White)

PPM9006 (RAL 9006 Matt - 30% Gloss Silver)

Other colours available on request

Advantages

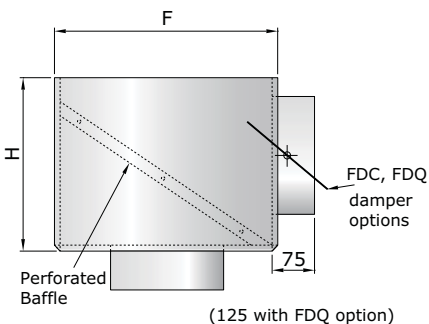
- High air volume capacity
- Standard top entry neck, or side entry with plenum box

Weights

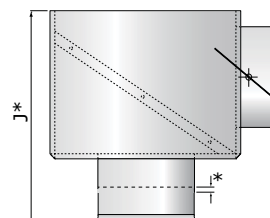
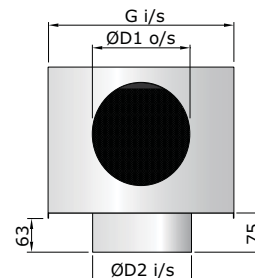
Nom Size	Diffuser (kg)	Plenum (kg)
200	0.5	5.5
250	0.7	7.0
315	1.2	9.0
400	1.7	13.5
500	3.5	18.5
630	4.5	25

Nom Size	ØA	ØB	ØC	D	E	F	G	H	J*	ØD1	ØD2
200	280	225	197	90	5	395	375	290	413	197	200
250	330	275	247	100	5	445	425	340	473	247	250
315	430	360	312	115	5	520	500	405	553	312	315
400	530	450	397	130	5	595	575	490	653	397	400
500	650	550	497	185	8	695	675	590	808	497	500
630	790	680	627	200	8	820	800	720	953	627	630

* FD trimming damper not suitable for use with a spigot velocity greater than 3.0m/s



* Please note the total installed height assumes an overlap of 30mm on the diffuser neck / plenum connection.



ORDER EXAMPLE

SDFCH/200/PPM9010/SDP/FDC1/LINED
 Type _____
 Nominal size _____
 Finish _____
 Plenum (if required) _____
 Plenum spigot damper _____
 Plenum acoustic lining _____



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Selection Criteria

Throw data is for a ceiling mounted diffuser and is based on a cooling differential of 10°C and a jet terminal velocity of 0.5m/s. For isothermal conditions apply a factor of 1.15 to the throws. For 10°C heating applications apply a factor of 1.32 to the throws.

For duct mounted installations without a ceiling, reduce jet throws by a factor of 0.7

P_s is the static pressure loss in Pa and is shown for a ducted diffuser or for a diffuser installed in an SDP plenum.

Noise levels are based on sound pressure levels with an assumed 8dB room absorption allowance.

Selection Example

SDFCH/500

Air Flow Rate 500 l/s

Ducted Diffuser

Throw 4.0 m

Static Pressure Loss 21 Pa

Noise Level 26 dBA

Plenum Mounted Diffuser

Throw 4.0 m

Static Pressure Loss 32 Pa

Noise Level 32 dBA

Performance Table

Also suitable for the SDICH and SDACH when set in the optimum coanda effect position

SDFCH		Supply Air Volume																							
Diameter	m³/h	72	144	216	288	360	432	540	630	720	810	900	1080	1260	1440	1620	1800	2160	2520	2880	3240	3600	3960	4320	
	l/s	20	40	60	80	100	120	150	175	200	225	250	300	350	400	450	500	600	700	800	900	1000	1100	1200	
200	Throw	0.4	0.9	1.3	1.6	1.9																			
	P _s Duct	3	10	23	40	62																			
	P _s Plenum	3	12	27	47	70																			
	L _w Duct	-	-	-	27	35																			
	L _w Plenum	-	-	-	27	35																			
250	Throw			1.1	1.3	1.6	1.8	2.0	2.2																
	P _s Duct			8	14	22	33	50	66																
	P _s Plenum			10	17	26	40	59	80																
	L _w Duct			-	-	-	-	29	34																
	L _w Plenum			-	-	-	28	35	40																
315	Throw					1.4	1.6	1.8	2.0	2.4	2.8	3.3													
	P _s Duct					7	11	15	21	28	35	43													
	P _s Plenum					9	14	20	27	35	43	56													
	L _w Duct					-	-	-	27	32	36	39													
	L _w Plenum					-	-	25	30	35	39	42													
400	Throw							1.7	1.9	2.2	2.4	2.8	3.5	3.8	4.2	4.7									
	P _s Duct							5	6	9	11	14	20	27	35	45									
	P _s Plenum							6	8	11	14	18	25	35	47	58									
	L _w Duct							-	-	-	-	-	-	31	37	42									
	L _w Plenum							-	-	-	-	-	27	34	40	45									
500	Throw													3.2	3.5	3.7	4.0	4.7	5.3						
	P _s Duct													10	13	17	21	30	40						
	P _s Plenum													13	18	22	27	40	54						
	L _w Duct													-	-	-	26	32	37						
	L _w Plenum													26	30	34	37	42	47						
630	Throw															2.8	3.1	3.8	4.4	5.4	6.1	7.0	7.7	8.2	
	P _s Duct															6	8	12	16	21	26	34	40	49	
	P _s Plenum															9	11	16	22	28	36	44	52	62	
	L _w Duct															-	-	-	-	26	30	34	37	40	
	L _w Plenum															-	-	26	30	34	38	41	44	47	

For exhaust applications add 3dB to the dBA level and multiply pressure loss by 1.1

For vertical throw using SDICH/SDACH with vanes at 65 degrees inclination, and 10°C cooling, apply a factor of 1.1 to throws.

For 10°C heating apply a factor of 0.85 to throws.