

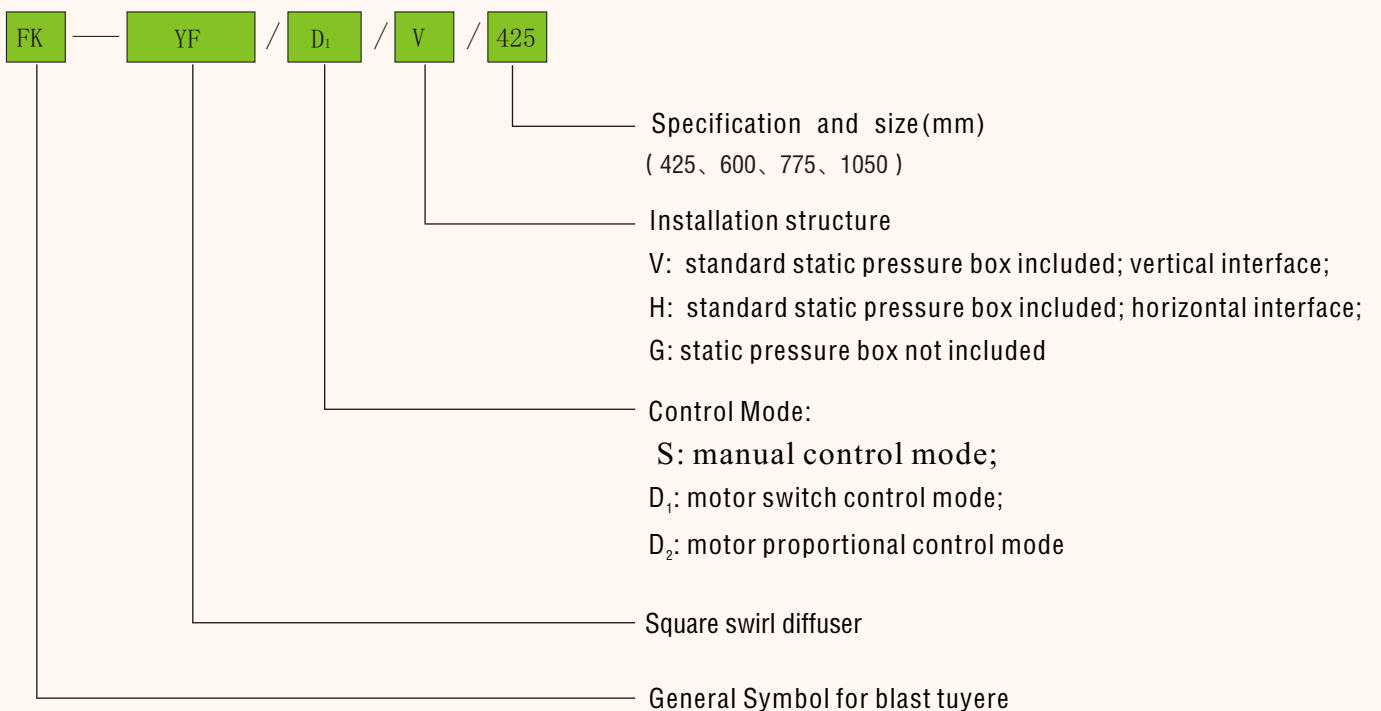
## 1 General Introduction

FK-YF variable square swirl diffusers are applicable for spaces with a height of more than 3.8 m, such as air port, waiting hall in stations, theatre, stadium, industrial workshop, business hall, large conference room, reception hall, shared space in department store, and etc.

FK-YF variable square swirl diffusers is equipped with variable blowing mode control blade which blows out rotating current horizontally or vertically when adjusted.

The product can be equipped with manual-control or electrical-control devices.

## 2 Representation Format for FK-YF Model



For example: FK-YF /D<sub>1</sub>/V/425 stands for square swirl diffuser controlled by motor switch, 425 x 425 mm surface size, and with standard static pressure box included.

## 3 Features

FK-YF/D  
Variable Swirl Diffuser



- Four specifications for consideration i.e. 425, 600, 775, 1050
- Averaging air blowing, and variable shape of air current;
- Easy installation; connected and hung directly with hooks
- White as standard paint color for the surface; paint of other color available

4 Two Conditions

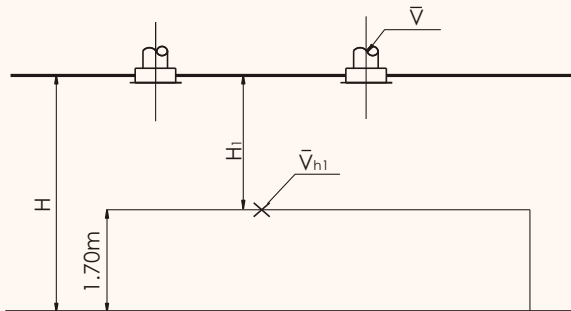


The blade could be adjusted to refrigeration mode to adapt to summer conditions. Cold air blows out by means of diffusing swirls to facilitate air convection.



The blade could be adjusted to warming mode to adapt to winter condition. Warm jets are amassed vertically to be supplied to areas where there are human activities

5 Symbol Definitions



- $\bar{V}$ (m<sup>3</sup>/h)      blast volume of every air port
- $\bar{V}_{h1}$ (m/s)      average air speed between the two air ports at Height H
- $H_1$ (m)      distance from the ceiling to the activity area
- $\Delta Pt$  (Pa)      total pressure loss (air blowing)
- $H$ (m)      installation height
- LWA(dB<A>)      A sound power level noise

6 Technical Specifications

1) Air blowing press loss and Noise Level

Specifications	Air volume (m <sup>3</sup> /h)	H structure		V structure	
		Pressure loss(Pa)	Noise dB(A)	Pressure loss(Pa)	Noise dB(A)
425	540	20	29	14	33
	720	37	38	26	42
	900	56	44	40	47
	1080	80	49	60	52.5
	1440	145	≤57	110	≤60
600	1080	25	33	15.5	35.5
	1440	43	40.2	27	43.5
	1800	70	47	40	48.5
	2180	100	52	60	54.7
	2520	137	56	82	59
	2880	180	60	112	62.5
775	1440	11	25	9	≤25
	1800	17	31	16	31
	2160	25	37	22	36
	2880	57	48	47	47.5
	3860	82	54	69	54
	5040	130	≤62	110	60
1050	2160	11	≤25	9	<25
	2880	20	34	16	31
	3860	35	42	28	40
	5040	63	49	48	47
	5160	100	56	80	55

2) Effective Defusing Radii for summer conditions

Specification: 425X425

Wind speed height $H_1$ (m)		Air volume( $m^3/h$ )	540	720	900	1080	1440
		$\bar{V}_{h1}$ (m/s)	Defusing Radii (m)				
2.0	0.15		2.06	2.75	3.45	4.15	5.60
	0.20		—	2.1	2.56	3.13	4.17
	0.30		—	—	—	2.34	3.10
3.0	0.15		—	—	2.44	2.94	3.92
	0.20		—	—	—	2.25	2.94
	0.30		—	—	—	—	2.22
4.0	0.15		—	—	—	2.31	3.00
	0.20		—	—	—	—	2.31

Specification: 600X600

Wind speed height $H_1$ (m)		Air volume( $m^3/h$ )	1080	1440	1800	2180	2520	2880
		$\bar{V}_{h1}$ (M/s)	Defusing Radii (m)					
2.0	0.15		2.81	3.71	4.67	5.50	6.50	7.40
	0.20		2.08	2.75	3.42	4.11	4.72	5.43
	0.30		—	2.11	2.63	3.13	3.67	4.25
3.0	0.15		2.0	2.66	3.29	3.92	4.61	5.21
	0.20		—	—	2.42	2.84	3.33	3.79
	0.30		—	—	—	2.23	2.63	2.96
4.0	0.15		—	2.08	2.59	3.08	3.62	4.14
	0.20		—	—	—	2.28	2.68	3.0
	0.30		—	—	—	—	2.07	2.36

Specification: 775X775

Wind speed height $H_1$ (m)		Air volume( $m^3/h$ )	1440	1800	2160	2880	3960	5040
		$\bar{V}_{h1}$ (m/s)	Defusing Radii (m)					
2.0	0.15		2.69	3.37	4.0	6.4	7.36	9.38
	0.20		2.0	2.47	3.0	4.0	5.5	7.0
	0.30		—	—	2.25	3.0	4.11	5.21
3.0	0.15		—	2.39	2.89	3.85	5.26	6.69
	0.20		—	—	2.18	2.93	4.0	5.12
	0.30		—	—	—	2.17	2.96	3.8
4.0	0.15		—	—	2.21	2.96	4.05	5.06
	0.20		—	—	—	2.28	3.08	3.97
	0.30		—	—	—	—	2.33	2.93

Specification: 1050X1050

Wind height H1(m)	Air volume(m <sup>3</sup> /h)	2160	2880	3960	5040	5760
	speed $\bar{v}_{H1}$ (m/s)	Deffusing radii(m)				
2.0	0.15	2.89	3.85	5.29	6.67	7.35
	0.20	2.11	2.82	3.87	4.89	5.71
	0.30	—	2.14	2.96	3.75	4.33
3.0	0.15	2.06	2.77	3.8	4.83	5.5
	0.20	—	2.04	2.82	3.6	4.13
	0.30	—	—	2.08	2.68	3.06
4.0	0.15	—	2.1	2.91	3.7	4.28
	0.20	—	—	2.22	2.79	3.21
	0.30	—	—	—	2.14	2.42

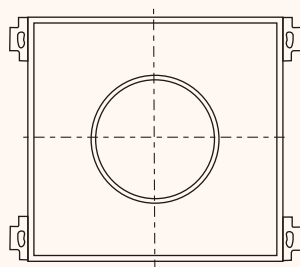
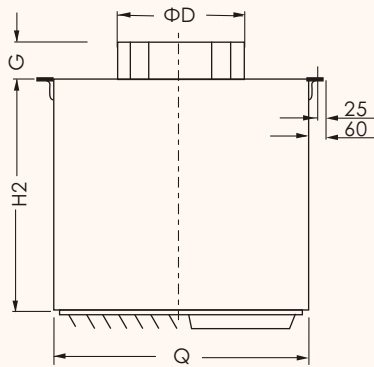
Max. Jet length in winter conditions (m)

0.5m/s at jet end

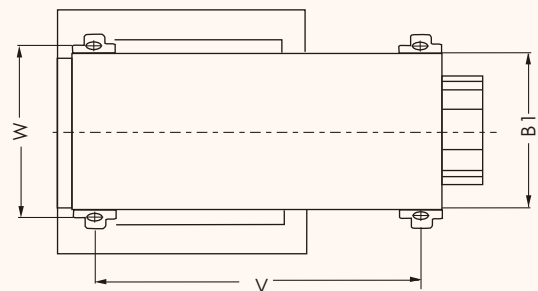
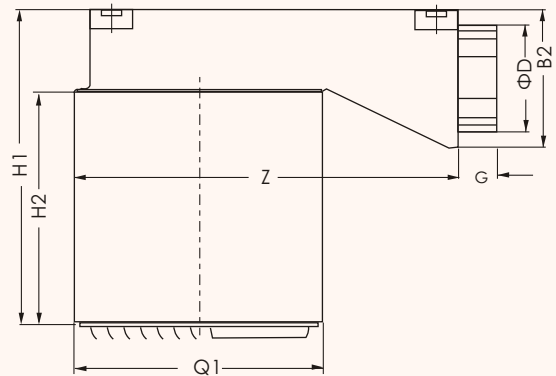
Specification (mm)	Air volume (m <sup>3</sup> /h)	540	720	900	1080	1440	1880	2160	2520	2880	3860	5040	5160
Winter conditions	425	2.50	3.60	4.40	5.95	8.50	—	—	—	—	—	—	—
	600	—	—	—	3.00	4.30	5.00	6.90	8.50	10.00	—	—	—
	755	—	—	—	—	2.50	3.50	4.40	5.34	6.30	9.00	12.00	—
	1050	—	—	—	—	—	—	2.60	3.10	3.50	5.00	6.70	10.00

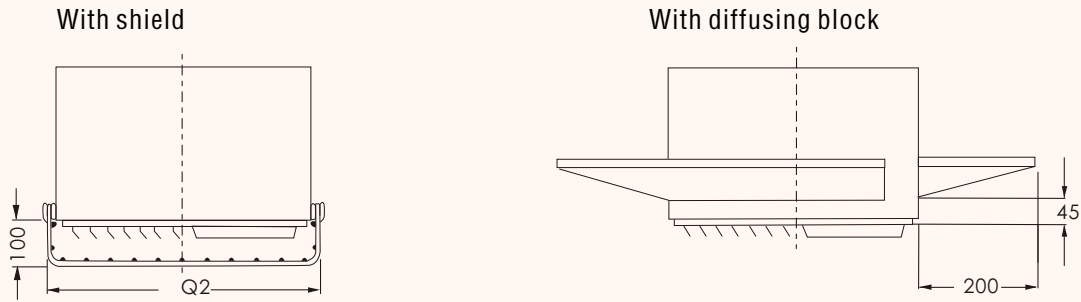
## 7 Specifications

V structure



H structure





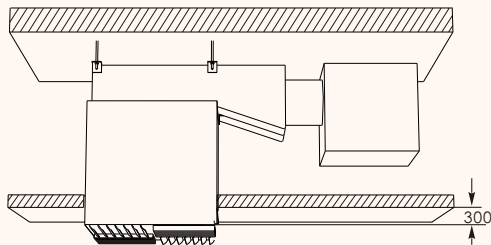
Unit: mm

Specs Sizes	B1	B2	D	G	H1	H2	Q1	Q2	V	W	Z
425	390	298	248	50	650	500	425	460	410	440	570
600	560	363	313	50	750	550	600	630	610	610	770
775	702	498	448	70	900	550	775	810	1020	752	1195
1050	702	548	498	70	1050	600	1050	1080	1020	752	1195

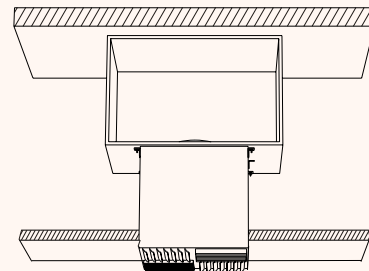
## 8 Installations

Owing to its multiple functions, FK-YF square swirl diffuser could either be fixed parallel to the ceiling or hung freely.

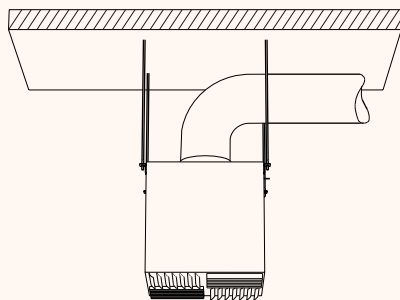
If installed in unenclosed tuned grid flatly, the square swirl diffuser is same with that equipped by means by free hanging in air current, and the blowing angle is variable from horizontal to vertical.



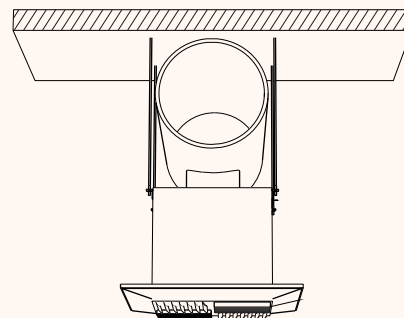
Installation panel 300 mm (hanging) from the ceiling to obtain complete variable blowing angles;



Installation panel neatly touches the ceiling. Yet only two fixed blowing angles, i.e., horizontal one and vertical one, could be achieved.



Free hanging; complete variable blowing angles could be achieved if applied in industries;



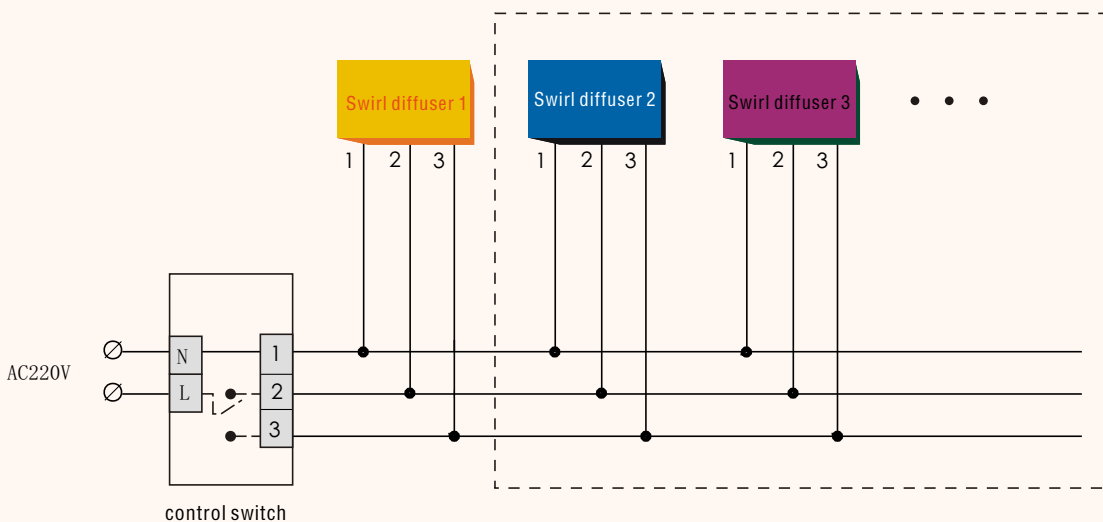
Free hanging; horizontal angle blowing could be achieved with an auxiliary bushing if applied to comfortable environment

## 9. Connection

Motor driven swirl diffuser could be divided into two types, i.e., switch control and proportional control, in accordance with the control mode of its electric operation structure.

Continuous adjustment is not applicable for moving blade in the swirl diffuser of switch controlled type. Moving blade could not be adjusted to the maximum position and minimum position to adapted to summer and winter (fresh air) conditions.

Two options for operating voltage: AC220V/50Hz and AC24V/50Hz, are available, whereas AC220V/50Hz is the default one for operating voltage. It could be controlled easily through common switch on walls by means of either one to one or one to multiple. Power consumption for each swirl diffuser with AC220V/50Hz as operating voltage normally will exceeding 20VA, and for that with AC24V/50Hz normally will not exceed 5 VA. Connection is indicated in the following figures:



Dynamical blade of swirl diffuser of proportional control type could be adjusted proportionally pertaining to the outside signals to adapt to ventilation in summer and springs as well as winter. The operating voltage types are AC24V/50Hz/ and DC 24V, and the control signal is 2-10 VDC or 0-10 VDC.

The rotation angle of dynamical blade of swirl diffuser could be controlled by localizer, which may be one to one or one to multiple. The power consumption for each swirl diffuser normally will not exceed 5 VA. Connection is indicated in the following figures:

