

## 1. General

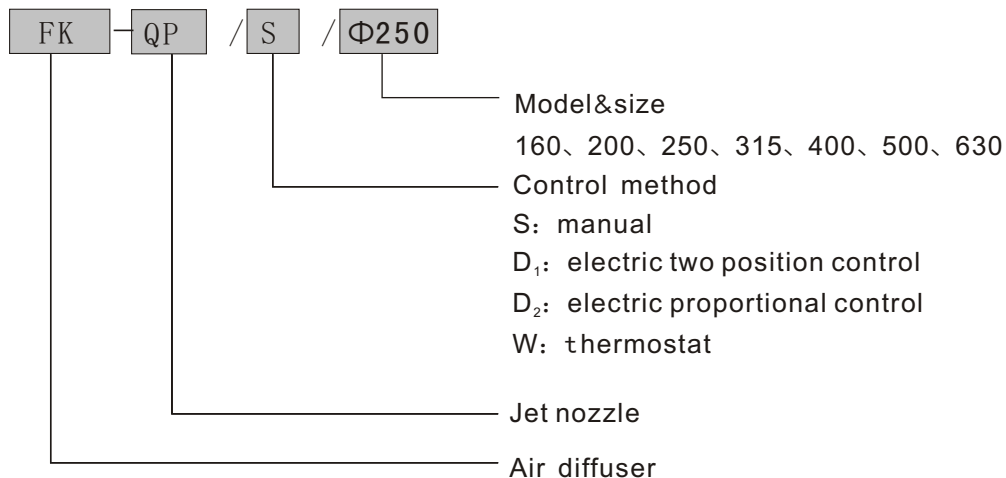
FK-QP series Jet nozzles are used for air conditioner system in large rooms ,in general jet nozzles are arranged in the side wall areas .

This is the case in large rooms (halls,assembly rooms etc.)particularly when the distribution of air via ceiling diffusers is not possible or not practical ,as that it is better to choose Jet nozzles.

Jet nozzles are arranged in the side wall areas to supply air .When the temperature difference between the supply air and the room air changes as the season changes ,making the supply air stream deflected upwards(cold air) or downwards(warm air) to mix the air stream symmetrical and fast.

The well-designed ,aerodynamically efficient shape of Foundation jet nozzles results in low noise characteristics and sophisticated design . For above reasons ,they can be used in areas need high quality air such as concert halls ,theatre ,museum etc.

## 2.Symbol Explanation



Example: FK-QP/W/315 means Thermostat Jet Nozzle whose neck size is 315mm

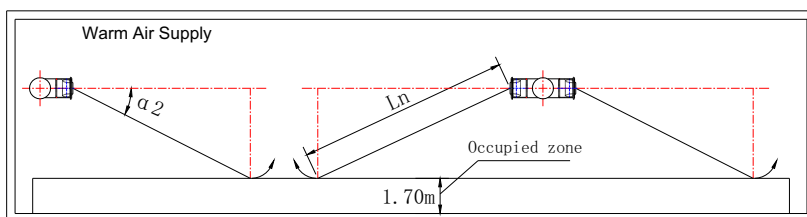
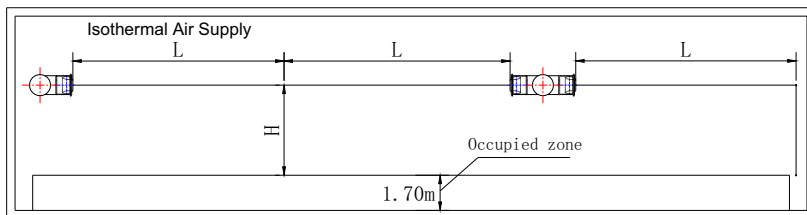
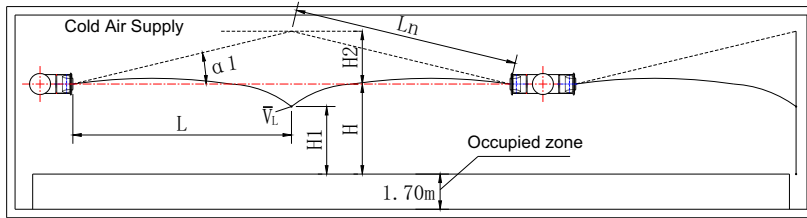
## 3.Characteristics

Jet nozzle



- Jet nozzles type QP suitable for long throw distances with optimum acoustic properties ,easy to install ,adjust and so on . The direction of the supply air flow is also affected by other factors ,on this condition in order to change the discharge,we design revolving type of jet nozzles . To adapt the direction's change of air stream , the direction of Jet nozzles can be adjusted manually, or motorized or by thermostat.
- Jet nozzle type QP consists of discharge nozzle with spherical outlet mounted in a housing,a mounting flange and in a circular duct rear connection spigot for direct connection to a circular duct .
- When use thermostat Jet Nozzle ,which can recognize supply air temperature automatically.Do not need to adjust deflection angle by manual as the season changes.
- Standard color is RAL9010,clients also can choose other RAL colors.

### 4. Three types of air



#### Nomenclature (in: m )

L-Horizontal distance from nozzles to the two air streams point ,for isothermal conditions.

B-Sapcing distance between two nozzles in a row.

H-Nozzle installation height above occupied zone.

H1-Height of collision point of two air streams above occupied zone ,for isothermal conditions.

H2-Height of collision point of two air streams above mounting position of nozzles ,for isothermal conditions when supply cold air.

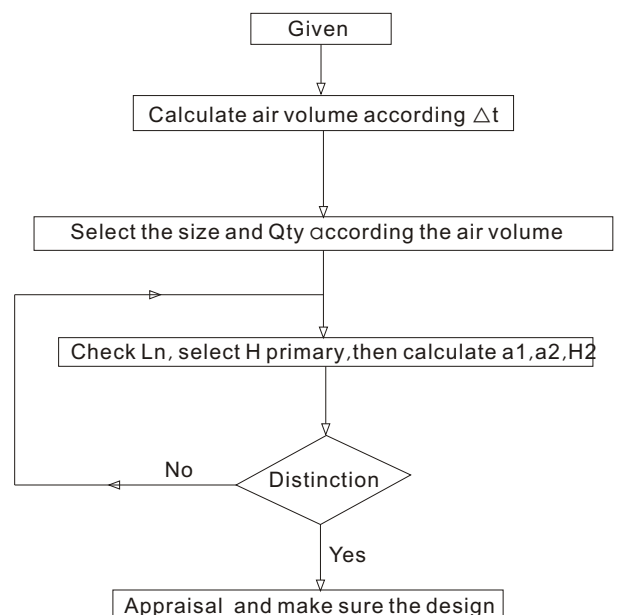
Ln-Length of air stream for isothermal conditions.

a1、 a2- Discharge angle for cold and warm ai.

$\Delta t$ -Temperature differences of air supply and indoor. . (in:  $^{\circ}C$ )

### 5. Selection Method

- 1) Given ,room's length,width and height .The installation height of jet nozzles, indoor temperature and total volume flow in Summer and Winter.
- 2) According the temperature difference between supply air and room air , room burthen to calculate the volume flow rate.
- 3) Preliminary selection ,according the volume flow ,room's size and the nomenclature of three types of air ,to choose the size and quantity of jet nozzles.
- 4) According the size of jet nozzle to check from diagram 1 and relation diagram to confirm the Ln and other parameters.
- 5) According height of the room and Ln, to confirm the H' value height for installation and calculate the a1,a2 and H2's value for warm or cold ai.
- 6)If the selection result is paradoxical ,so can adjust the jet nozzle's size or make a new value of H (height for installation) over again ,then check Ln,a1,a2 and H2's value.
- 7) Evaluate and confirm the project's design to confirm the size ,quantity and other parameter of jet nozzles.



## 6. Technical parameter

Size	Effective air area of air supply(m <sup>2</sup> )	Air volume (m <sup>3</sup> /h)	Pressure lost(Pa)	Noise dB(A)	Length of of air stream for isothermal conditions Ln(m)	End air velocity (m/s)		
160	0.005	100	18.5	26	10.7	0.25		
		125	22.8	30	13.5			
		160	56	34	17.4			
		200	82	39	22.2			
		250	116	43	27.3			
				125	22.8	30	6.7	0.5
				160	56	34	8.6	
				200	82	39	10.8	
				250	116	43	13.5	
				320	144	48	16.3	
200	0.009	160	10	30	12.7	0.25		
		200	21	33	16			
		250	54	38	20			
		320	82	41	25.7			
		400	116	45	32.2			
				200	21	33	7.9	0.5
				250	54	38	9.9	
				320	82	41	12.6	
				400	116	45	16	
				500	142	49	18.5	
250	0.0145	250	11	29	12.9	0.25		
		320	22	34	16.9			
		400	55	39	25.2			
		500	81	42	31.5			
		630	116	46	37.5			
				320	22	34	8.4	0.5
				400	55	39	12.5	
				500	81	42	15.6	
				630	116	46	18.6	
				800	142	50	21.4	
315	0.023	400	12.8	26	16	0.25		
		500	21	34	20			
		630	46	38	25			
		800	68	42	30.2			
		1000	94	46	37			
				500	21	34	9.9	0.5
				630	46	38	12.5	
				800	68	42	15	
				1000	94	46	18.4	
				1250	148	50	21.6	

Continues Table 1

Size	Effective air area of air supply(m <sup>2</sup> )	Air volume (m <sup>3</sup> /h)	Pressure lost(Pa)	Noise dB(A)	Length of air stream for isothermal conditions Ln(m)	End air velocity (m/s)
400	0.0415	630	8	32	17.6	0.25
		800	17	36	22.2	
		1000	31	39	28.4	
		1250	58	43	34	
		1600	80	46	40	
		800	17	28	10.9	0.5
		1000	31	39	14	
		1250	58	43	16.8	
		1600	80	48	19.7	
		2000	102	49	22.8	
500	0.0642	1000	5	30	18.3	0.25
		1250	12	36	22.8	
		1600	28.8	41	28.9	
		2000	51	44	34.8	
		2500	70	50	41.2	
		1250	12	36	11.3	0.5
		1600	28.8	41	14.3	
		2000	51	44	17.2	
		2500	48	50	20.4	
		3200	90	52	23.1	
630	0.127	2000	6	36	17.5	0.25
		2500	12.5	41	21.8	
		3200	29.4	43	27.6	
		4000	52	46	35.4	
		5000	78	49	44.3	
		2500	12.5	41	10.8	0.5
		3200	29.4	43	14	
		4000	52	46	18.2	
		5000	78	49	21.6	
		6300	103	54	26	

Note:

1. Above table is the reference to choose the size .If the volume flow is corresponding to other sizes,we can use Division Insertion Method to confirm correlative parameter. If end air velocity is not same with the list , at this time ,we also can use Division Insertion Method to confirm the throw. You can confirm the technical parameter according the relation curve.

2. The technical parameters listed is confirmed the testing condition which is free air streams for isothermal conditions. When use condition is different from the testing condition, the technical parameters in the samples may have a little windage.

7. Jet nozzles octave band and sound power level correction

Table 2

Center frequency Hz	63	125	250	500	1000	2000	4000	6300
Correction dB(A)	-3	-7	-9	-13	-13	-17	-21	-18

8. Size table

Table 3

Size	D1	D2	D3	E	F	L3(Manual)	L3(Thermostat)
160	197.5	158	95	16	19	90	335
200	260	198	105	25	22	95	335
250	302.5	247	135	25	28	122	335
315	382	312	186	29	32	150	360
400	487	397	230	37	41	185	400
500	598	498	288	35	60	220	500
630	715	629	403	15	134	270	620

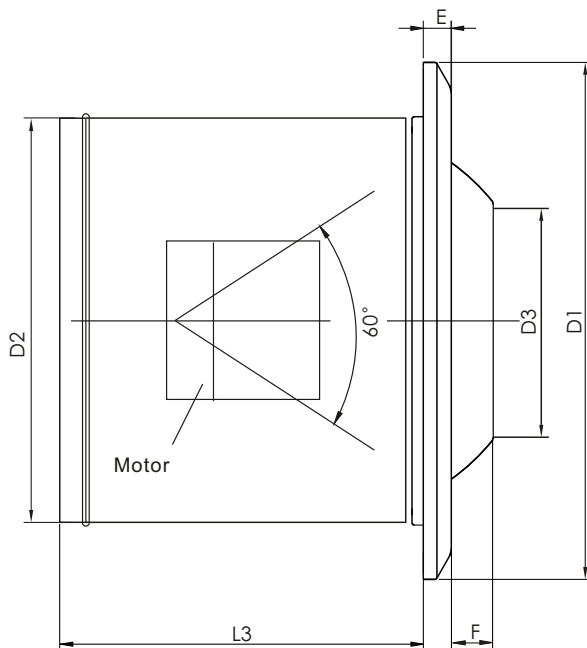
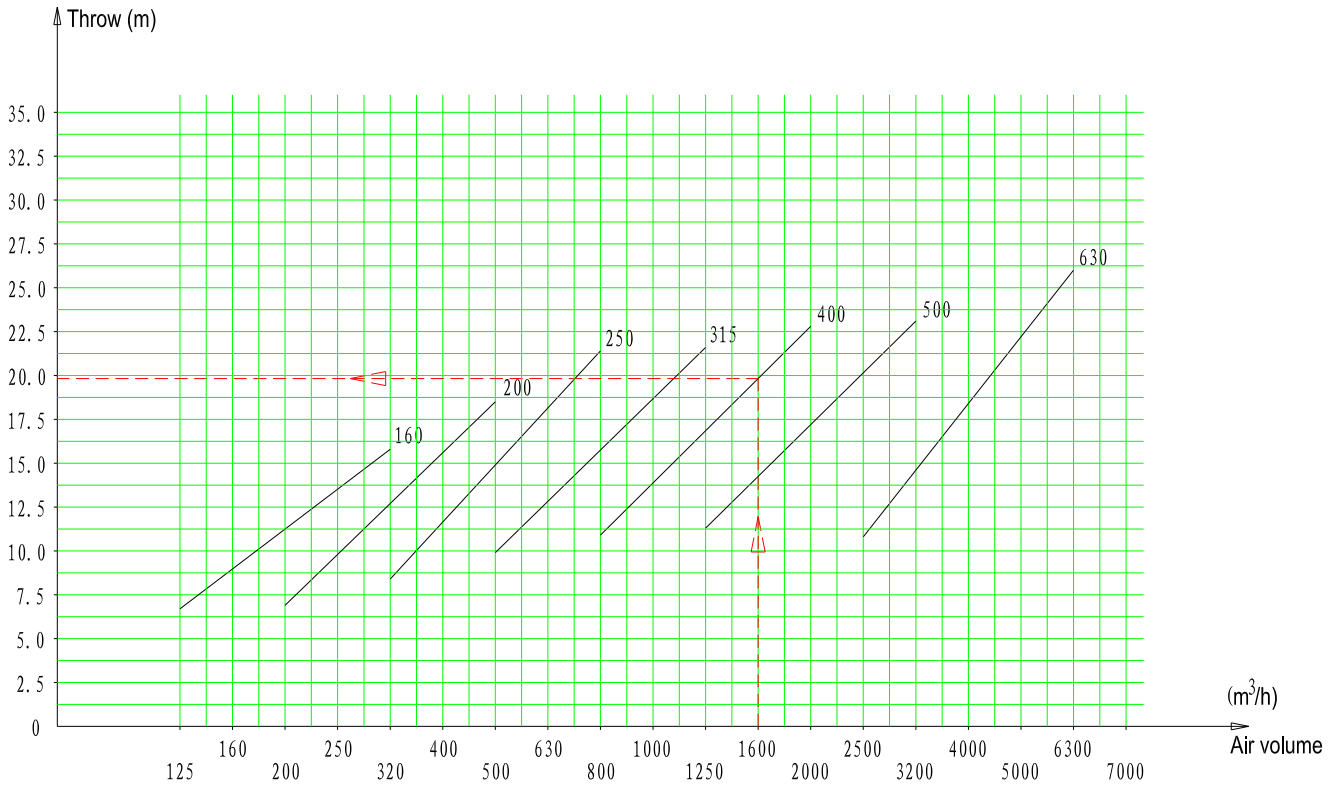
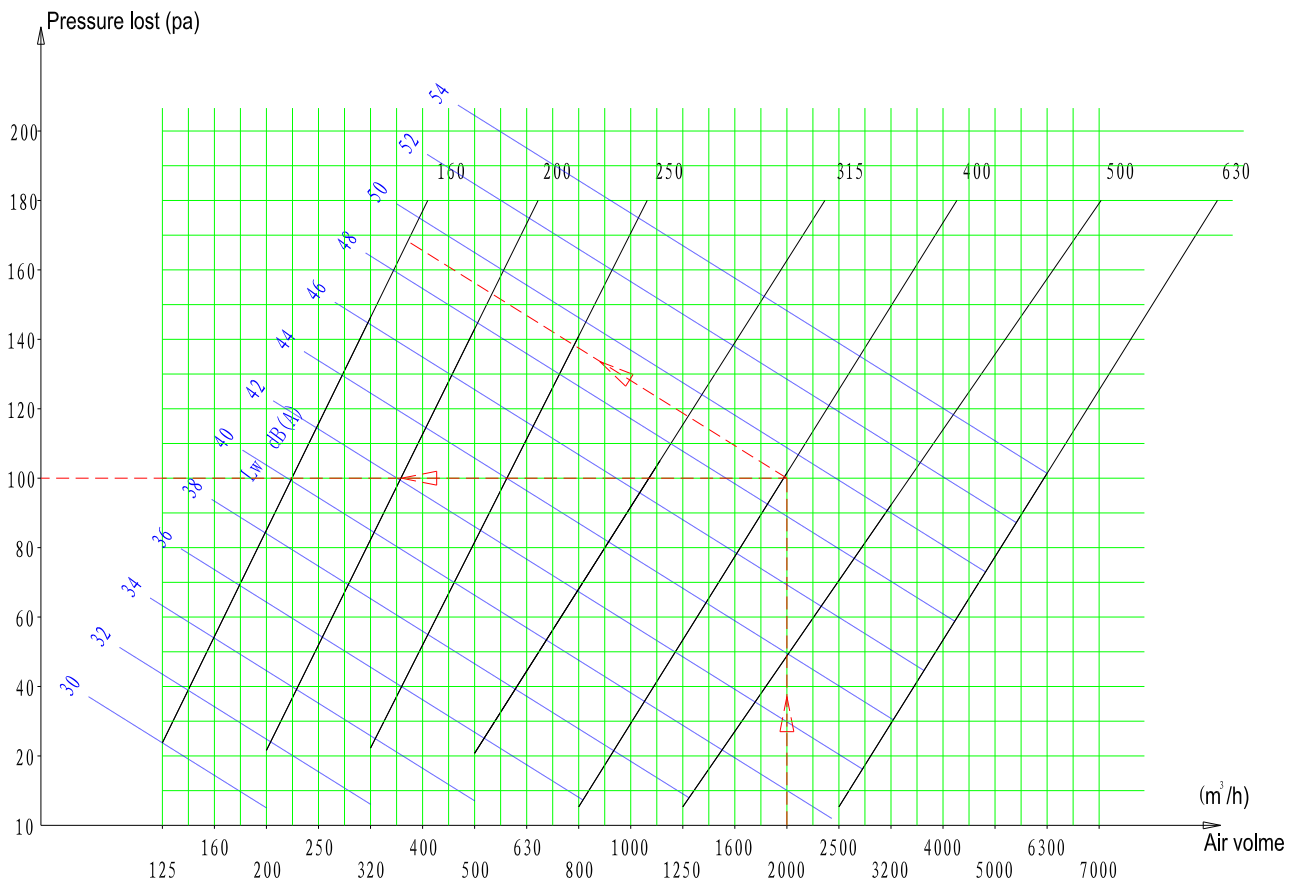


Table 4

Suitable Circular Duct Dia.(D)					
315	500	630	800	1000	1250
•	•	•	•		
	•	•	•		
	•	•	•		
	•	•	•		
		•	•		
			•	•	
				•	•



Curve of air volume and throw for FK-QP Series( $V_x=0.5\text{m/s}$ )



Curve of air volume ,pressure lost and noise for FK-QP Series( $V_x=0.5\text{m/s}$ )

## 9. Installation

### General deflection angle :

Manual ,electric : upwards: 0°-- 20°(cold air)

Thermostat : upwards: 0°-- 10°(cold air)

Manual ,electric : downwards: 0°-- 30°(warm air)

Thermostat : downwards: 0°-- 20°(warm air)

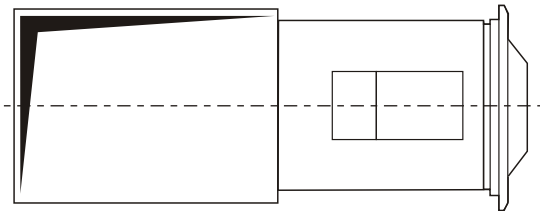
Foundation's jet nozzles are suitable for mounting on rectangular or circular ducts..

With both types of connection,there is a circular undrilled flange which can be used for either screw or rivet fixing, by others ,a sealing strip should preferable be fitted first.

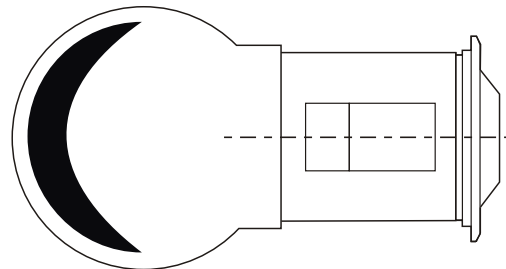
A spigot is provided for direct connection to spiral or flexible circular ducts . The spigot diameter accepts standard circular duct size.

Jet nozzle type QP can be inserted into an connection spigot ,also can be screw fixed to the air duct .To hide the screws,a cover ring with a bayonetwist fixing can be fixed,which easy to knock down.

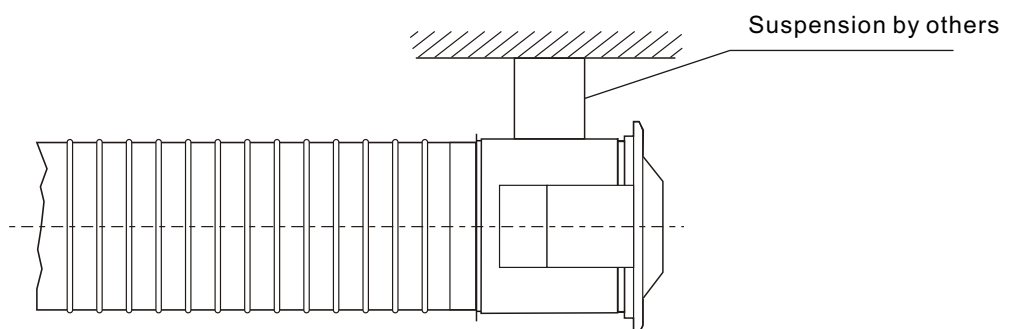
Example of rectangular duct connection



Example of circular duct connection



Example of duct or flexible duct connection

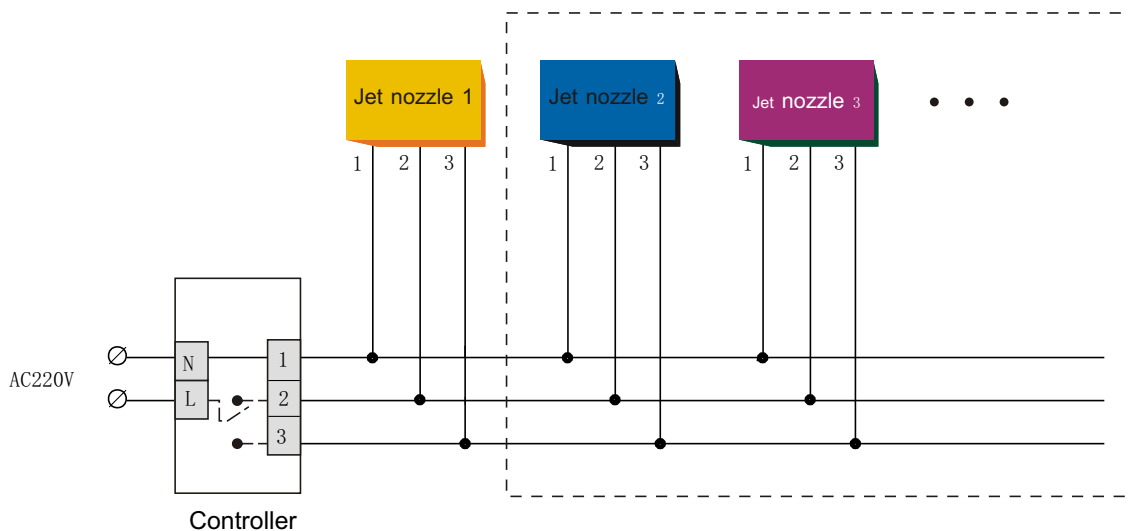


## 10, Connection Method

Electric jet nozzle ,there are two controls way which are two position control and proportional control according actuator 's control .

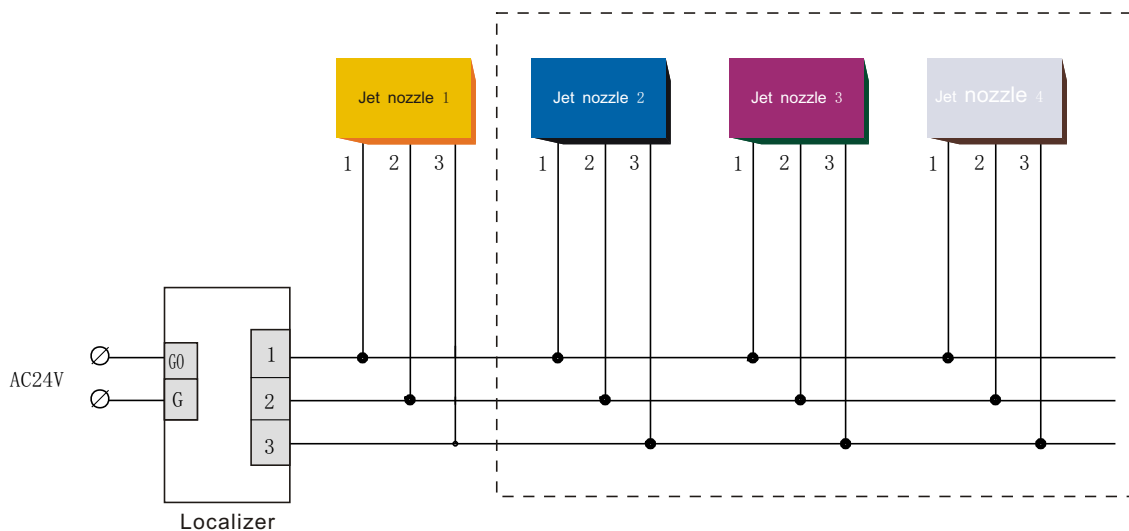
As two position control, nozzles can not be adjusted continuous ,which just can upward and downward means warm air and cold air .

There are two electric source which are AC220V/50Hz and AC24V/50HZ to choose . In general ,we choose AC220/50HZ. It is easy to control use controller which are one controller control one or more jet nozzles. For AC220V/50HZ , power lost is not more than 20VA; for AC/24V/50HZ, power lost is not more than 5VA ,the connection drawing as follows:



As proportional control ,which can according the outside signal to adjust proportional . It can be corresponded to three types of air such as Summer, Spring and Winter . There are two electric source which are AC24V/50HZ and DC24V ,whose control signal is 2-10VDC or 0-10Ma.

Through the localizer to adjust jet nozzle's deflection angle , one controller control one or more jet nozzles (not more than 4 units) . Power lost is not more than 5VA ,the connection drawing as follows:



## **11. Order details**

- 1.The technical parameters listed in are reckoned in special working conditions. Testing condition are air streams for isothermal conditions .When use condition is different from the testing condition, the technical parameters in the samples may have a little windage.
- 2.When use condition is different from the testing condition, the technical parameters in the samples may have a little windage.
- 3.Our company retains the rights of interpretation and revision of this sample.