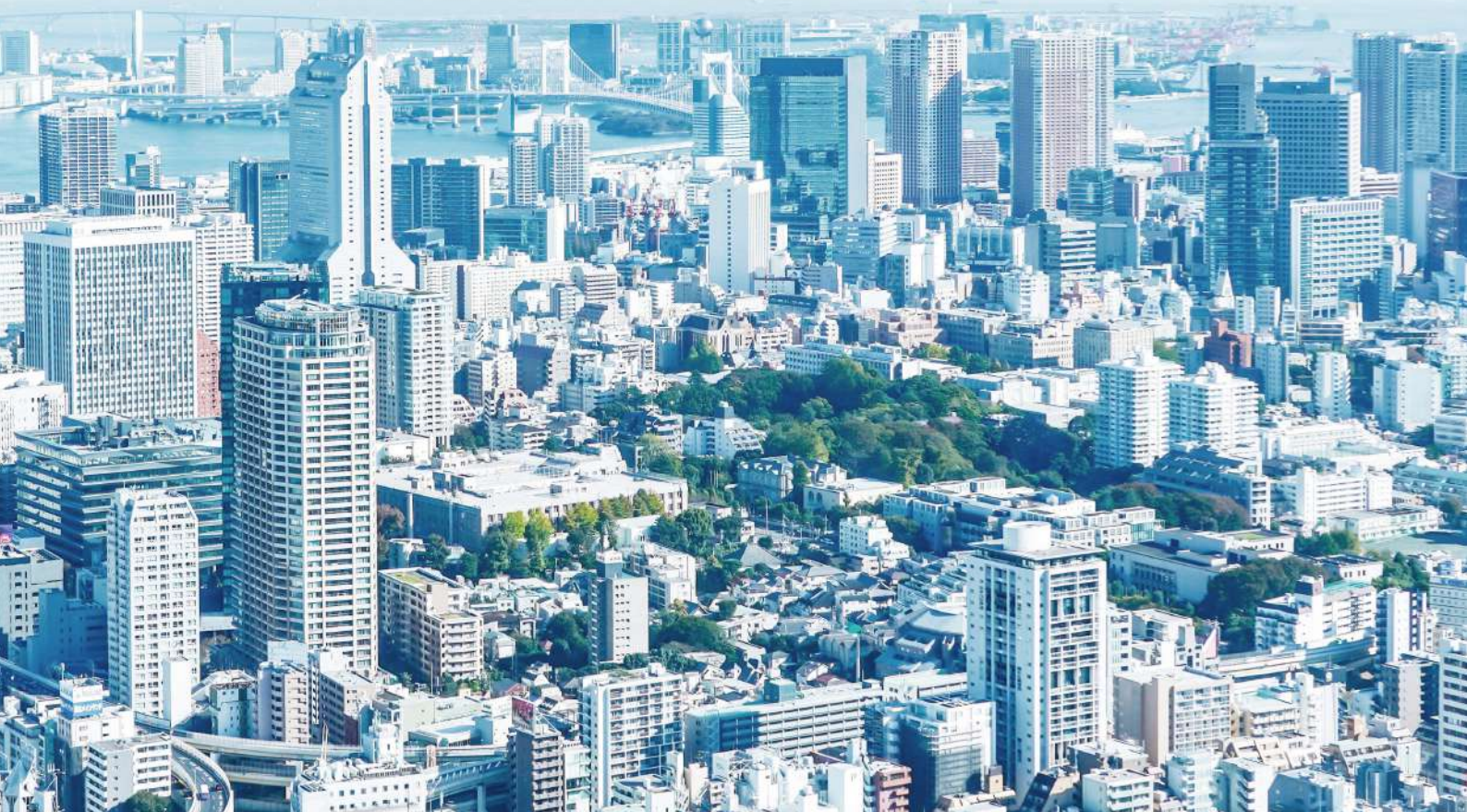
EQUIPPED WITH WIND VELOCITY SENSOR

VAV/CAV

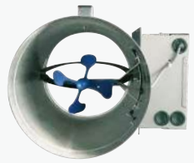
ROUND/SQUARE TYPE VAV/CAV WITH SENSOR

MECHANICAL CAV

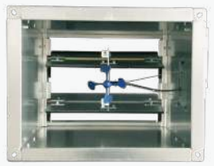


We create new living environment with innovative ideas and technology

ROUND TYPE VAV/CAV EQUIPPED WITH VELOCITY SENSOR

SQUARE TYPE VAV/CAV EQUIPPED WITH VELOCITY SENSOR

MECHANICAL CAV




ROLE OF VAV/CAV

One might have an experience in an office building that a room tends to get hot while adjacent conference room is air-conditioned.
Wheras the room gets too cold when the conference room turns off air-con....

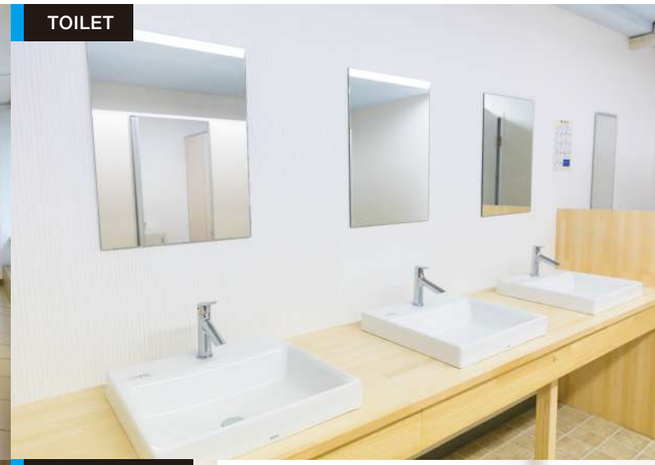
This happens due to the change in static pressure inside duct.

When static press. in the duct changes, wind volume also changes accordingly : when the pressure is high, wind volume increases and when the pressure is low, wind volume decreases.

The ultimate role of VAV/CAV applied in the system is :

- To keep wind volume constant even if duct pressure changes
- To change wind volume in accordance with room temperature

In other words, it adjusts blade-opening accordingly so as to serve to fulfill the role with sensor not withstanding changes in wind volume and room temperature.



WHAT IS VAV?

VAV is an abreviation of Variable Air Volume device.
It is designed to vary air volume accordingly by wind volume signal from device such as room-thermo. In this case, sensor makes reading on velocity of wind passing through the unit and makes comparioson with the signal for precise wind-volume control. Even when static presure varies abruptly, the sensor always makes reading so as to respond quickly to the change. Since the unit has "blade full-shut" fuction to contribute to energy-saving effectively.

WIND-VOLUME SIGNAL

Wind-volume signal sent to VAV is determined depending on control method. When input directly to VAV unit or change air volume with manual volume controler, the applied signal is to be 0-135Ω. Wheras, when signal is sent to VAV unit after going through building management system, 4-20mA is applied.

HOW VAV DIFFERS FROM MOTOR DAMPER?

Confusion sometimes arises when people try to define VAV against Motor damper due to the fact that both of the devices are similar in the sense that both are designed to control blade-angle. However, there is a remarkable difference between
those 2 devices :

For MD, balde-angle corresponds to the signal
For VAV, air flow rate corresponds to the signal

WHAT IS CAV?

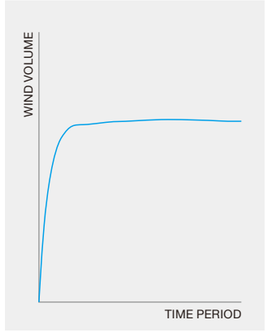
CAV is an abreviation of Constant Air Volume device.
It is designed to keep the assigned air volume with sensor reading passing wind-velocity no matter how static pressure in duct varies.
With switching device, wind volume can be switched to those other than the assigned or even set to be zero with "blade full-shut" function.

HOW CAV IS DIFFERENT FROM VAV

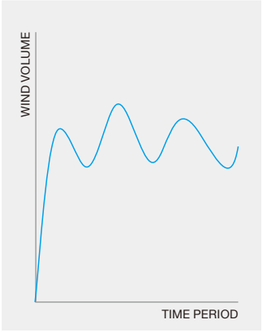
VAV operates by changing wind volume steplessly in accordance with signal (0-100%), wheras CAV operates with wind fixed in volume. In this way, CAV is not designed to control room temp.

Based on this fact,

CAV requires wind pre-conditioned before being sent from AHU.
VAV is designed to adjust room temp.with wind at fixed temp.



CAV KEEPS CONSTANT
IN AIR VOLUME

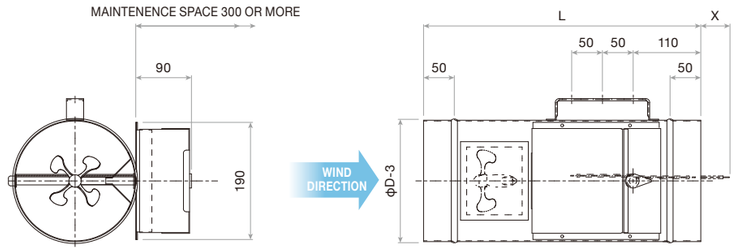


VAV VARIES AIR VOLUME
IN ACCORDANCE WITH REQUEST

SPECIFICATION & DIMENSION

ROUND VAV/CAV WITH SENSOR EQUIPPED IN

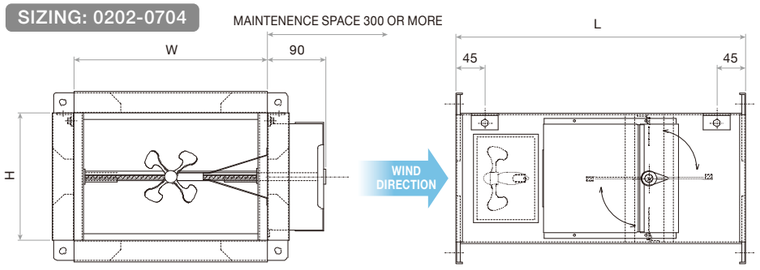
SIZING	ϕD (DUCT DIM.)	DIM.L	DIM.X
150	150	450	0
200	200	450	0
250	250	450	16
300	300	500	41
350	350	500	66



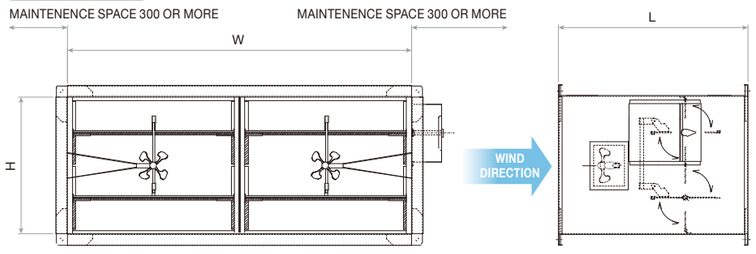
SQUARE VAV/CAV WITH SENSOR EQUIPPED IN

SIZING	(DUCT DIM.)		DIM.L
	W	H	
0202	200	200	450
0302	300	200	450
0403	400	300	450
0404	400	400	450
0504	500	400	450
0704	700	400	450
1004	1000	400	450
1006	1000	600	500
1008	1000	800	500
1208	1200	800	500
1210	1200	1000	500
1212	1200	1200	500
1414	1400	1400	500
1614	1600	1400	500
1616	1600	1600	500

SIZING: 0202-0704

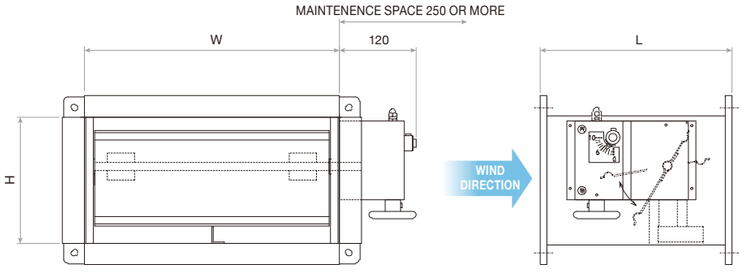


SIZING: 1004



MECHANICAL CAV

SIZING	DUCT SIZE		DIM.L
	W	H	
KM-1	100	200	300
KM-2	200	200	300
KM-3	400	200	300
KM-4	600	200	300
KM-5	800	200	300



SPECIFICATION

PRODUCT	CAV (ANALOG)	VAV (ANALOG)	CAV (DDC)	VAV (DDC)
POWER SOURCE	AC 24V±10% (STANDARD) AC 100V±10% (OPTIONAL) 50/60Hz			
ELECTRIC CONSUMPTION	4VA (AS PER 1 UNIT OF ACTUATOR, NOT INCLUDING THAT OF DDC)			
APPLICABLE TEMP.	0-60°C (NO FREEZING, NO CONDENSATION)			
STATIC PRESS. (DIFFERENCE)	ROUND: 20-500Pa (WITH SILENSOR BOX: 50Pa-) SQUARE20-800Pa (WITH SILENSOR BOX: 50Pa-)			
MATERIAL	STANDARD: H.D.GALVANIZED STEEL PLATE OPTIONAL: SUS, GALVARIUM STEEL PLATE			
PAINTING (OPTIONAL)	POLYVYNYL RESIN PAINT, EPOXY RESIN PAIONT			
VELOCITY SIGNAL OUTPUT	DC4-20mA*1 (LOAD 250Ω OR BELOW, NO INSULATED) *OPTIONAL		VOLTAGE CONTACT PULSE OR DC VOMLTAGE (0-5V, NO INSULATED)	
WIND VOLUME SIGNAL	EXTERNAL CONTACT-SIGNAL (NO VOLTAGE)	4-20mA (IMPEDANCE224Ω)	COMMAND FROM DDC	
		0-135Ω		
		0-10V (IMPEDANCE18.2kΩ)		
SPECIAL CONTROL	BY-PASS TANDEM CONTROL (*OPTIONAL)		—	
FORCED FULL-SHUT /FULL-OPEN	NO VOLTAGE CONTACT SIGNAL FROM OUTSIDE (RATED OUTPUT DC5V.5mA)		COMMAND FROM DDC	
TIME REQUIRED FOR FORCED FULL-SHUT/FULL-OPEN	FROM FULLY OPEN TO FULLY SHUT 102 (50Hz) / 85 (60Hz) SEC			
FULLY-OPEN CONTACT SIGNAL*2	OPTIONAL (MAX. RATED AC125V/0.2A)		STANDARD	
APPROPREATE OPENING CONTACT SIGNAL*2	OPTIONAL (MAX. RATED AC125V/5A)		STANDARD	
OPERATION CONTACT SIGNAL*2	OPTIONAL (MAX. RATED AC125V/5A)		—	

*1: Velocity output is fixed in 0-10m/s. *2: Multiple application of different options has a limitation in value.

CHARACTERISTICS

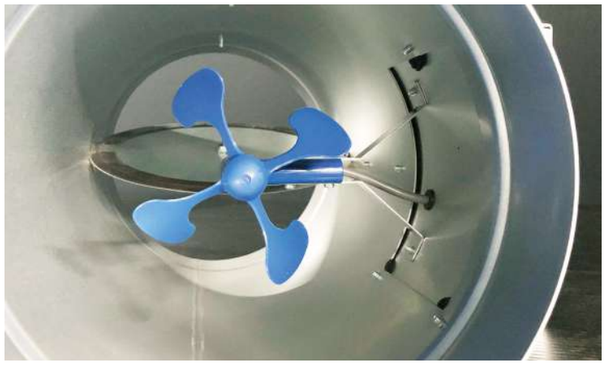
We are ready to provide you with high air-tight performance and controlability required for VAV and CAV.

By adopting air-tight spec.,LED to make blade-opening indication more visible, and highly trustable propeller velocity sensor,the product has been high in durability and controlability.

With a compact setting device, preset value can be changed easily, monitoring can be made in variation, and it is designed to cope with alarm signal output, multiple points setup and tandem operation with other units.

LOW PRESSURE LOSS

Designed to be low in pressure loss by abolishing pressure-generating parts adopted internally.



HIGH IN AIR-TIGHT PERFORMANCE

Blade with special packing applied on the tip secures high air-tight effect.
By minimizing air-leakage when the blade is closed completely, it contributes to energy-saving.

OPTIONAL DEVICE

MONITORING FUNCTION IN VARIATION

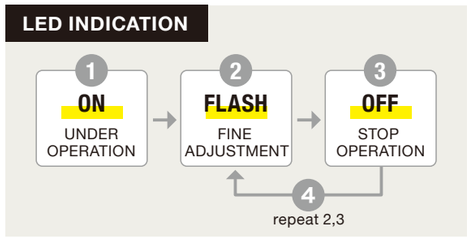
With this setting device, monitoring can be easily done such as wind velocity, assigned signal, and even operating condition including external/internal signal input/output. Hence other reading device such as tester is not even needed.

AIR VOLUME SETTING MADE SIMPLE

All you must do is to input wind velocity to the setting device(option)by calculating with duct size and wind volume.
Operation made simple even without special technology nor conversion required.

CONTROL SPEED INCREASED BY STEP-OPERATION

Motor reacts to deviation between target and actual (by sensor-reading) to control time required for operation in 4 steps. When the deviation is large (target is far from reading value), motor goes into continuous operation, then into intermittent operation, finally into bit-by-bit opertation when the target is getting close. In this way, quick reaction and accurate volume control has been realized.



OPEN/CLOSE DONE BY HAND

Just by pressing clutch button, main shaft becomes free so that the unit can be opened/closed manually by hand. Even after it's powered, blade angle of the unit can be adjusted electrically at any degree with setting device.

Open up actuator cover with screw driver.

Remove the right-hand side cover to expose clutch button.

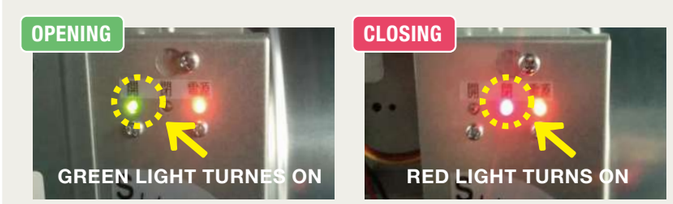
Open/close adjustment can be done manually with clutch button depressed.

MONITORING OPERATING CONDITION

Clear colored LED on actuator face facilitates remote indication :

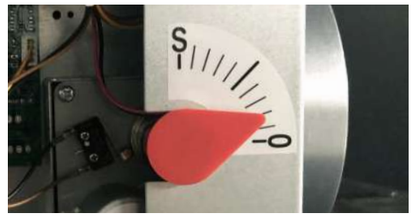
- OPEN : GREEN
- CLOSE : RED
- POWER : ORANGE

Power LED flashes to notify "alarm".



BLADE OPENING INDICATION

Blade-opening indicator exposed outside the unit made convenient for checking.



EVEN LARGE SIZED UNIT COPES WITH PARTIAL FLOW

Large unit comes with sensor equipped both on right and left side of the unit to secure accuracy in reading.

OPTIONAL

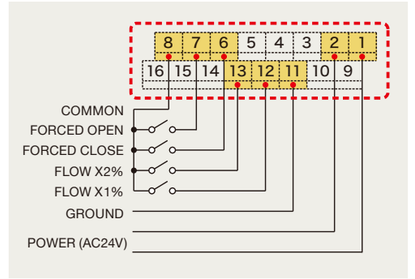
ALARM OUTPUT

Alarm signal is sent out when signal from velocity sensor is detected missing for a certain period, full-open/close signal is not detected even after motor has been activated, and when flow signal sent from main VAV unit (to sub unit) is detected to be missing.

OPTIONAL

MULTIPLE FLOW OPTION FOR CAV

In addition to the standard multiple flow-stage available up to 3 (flow0-flow1-full), stage 4 (flow0-flow1-flow2-full) and 5(flow0-flow1-flow2-flow4-full) are also available as option.



TRANSMISSION CABLE needed FOR TANDEM-OPERATION (OPTIONAL) is minimized

In the old practice, to assign VAV units to open/close forcefully in tandem operation, cable was needed to connect each unit. However it is no longer needed thanks to our new communication system.

SIZING DETERMINED BY FLOWRATE

Precise flow rate control depends upon sizing of the unit appropreate for air volume handled.

- Select the unit with max. flowrate falling within applicable flowrate range shown in blue color.
- Flowrate range shown in yellow is the safety margin secured against the flow expected to be increased/decreased after the unit is set up in ducting system.
- Stay within the blue range to select in order to avoid unexpected noise generated by high-speed wind.

ROUND

MODEL	FLOWRATE FOR SELECTION (CMH)
	0 500 1000 1500 2000 2500 3000 3500
150*	65 400 630
200	110 340 800 1130
250	180 530 1300 1760
300	250 760 1900 2540
350	350 1040 2600 3460

SQUARE

MODEL	FLOWRATE FOR SELECTION (CMH)
	0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 6500 7000 7500
0202*	145 800 1440
0302	220 640 1600 2160
0403	430 1290 3200 4320
0404	580 1720 4300 5760
0504	720 2160 5400 7200

MODEL	FLOWRATE FOR SELECTION (CMH)
	0 5000 10000 15000 20000 25000 30000 35000
0704	1000 3020 7500 10080
1004	1450 4300 11000 14400
1006	2150 6480 16000 21600
1008	2880 8640 21000 28800
1208	3450 10370 26000 34500

MODEL	FLOWRATE FOR SELECTION (CMH)
	0 10000 20000 30000 40000 50000 60000 70000 80000 90000
1210	4350 12960 32000 43200
1212	5200 15550 40000 51800
1414	7050 21170 50000 70500
1614	8050 24190 60000 80600
1616	9200 27650 70000 92100

MECHANICAL CAV

MODEL	FLOWRATE FOR SELECTION (CMH)
	0 500 1000 1500 2000 2500 3000 3500 4000
1	200 500
2	500 1000
3	1000 2000
4	1500 3000
5	2000 4000

SELECTION TABLE FOR UNIT APPLYING DDC

For the selection for Digital VAV unit, follow the table below.

Select the unit with max. flowrate falling within applicable flowrate range shown in blue color.

ROUND

MODEL	FLOWRATE FOR SELECTION (CMH)
	0 500 1000 1500 2000 2500 3000 3500
150*	65 400 560
200	110 340 800 1000
250	180 530 1300 1580
300	250 760 1900 2280
350	350 1040 2600 3110

SQUARE

MODEL	FLOWRATE FOR SELECTION (CMH)
	0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 6500 7000 7500
0202*	145 800 1290
0302	220 640 1600 1940
0403	430 1290 3200 3880
0404	580 1720 4300 5180
0504	720 2160 5400 6480

MODEL	FLOWRATE FOR SELECTION (CMH)
	0 5000 10000 15000 20000 25000 30000 35000
0704	1000 3020 7500 9070
1004	1450 4300 11000 12960
1006	2150 6480 16000 19440
1008	2880 8640 21000 25920
1208	3450 10370 26000 31050

MODEL	FLOWRATE FOR SELECTION (CMH)
	0 10000 20000 30000 40000 50000 60000 70000 80000 90000
1210	4350 12960 32000 38880
1212	5200 15550 40000 46620
1414	7050 21170 50000 63540
1614	8050 24190 60000 72540
1616	9200 27650 70000 82890

* Minimum controlable flow for Model 150 and 0202 is set to be at minimum available flow generated by the units.

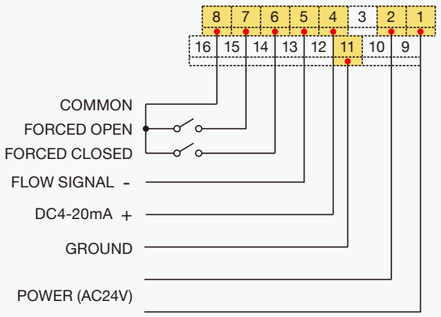
WIRING DIAGRAM

VAV/CAV has variation in wiring suitable for each system to maximize effect in performance.

VAV (FLOWRATE SIGNAL 4-20mA)

MODEL:

VAI-□-24

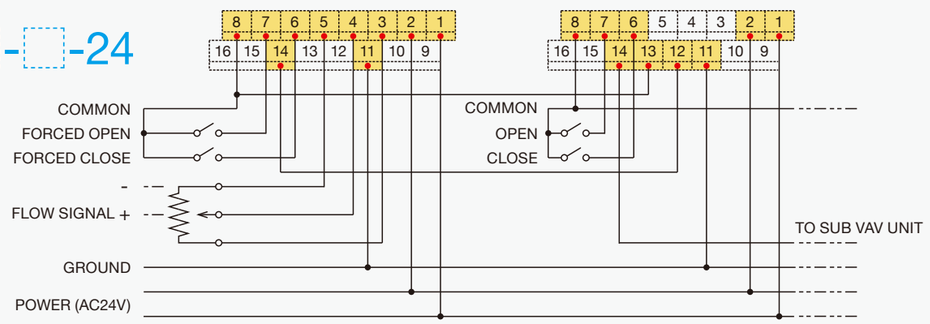


•Unit with doesn't have flow signal and power separated in circuit. Apply transformer to separate the power when used in combination with others (AC100V comes with transformer). •Multiple units operated in tandem with cross-wiring require the same cable-connect. configuration (including terminals).* The unit applying 4-20mA is not designed in this way.

VAV TANDEM OPERATION (FORCED OPEN/CLOSE)

MODEL:

VA□-□-24

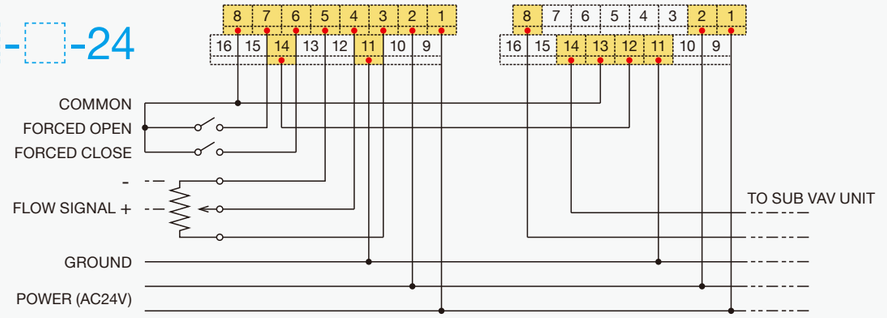


•Unit with doesn't have flow signal and power separated in circuit. Apply transformer to separate the power when used in combination with others (AC100V comes with transformer). •Multiple units operated in tandem require the same cable-connect. configuration (including terminals).

VAV TANDEM OPERATION (FORCED OPEN/CLOSE INTERLOCKED)

MODEL:

VA□-□-24

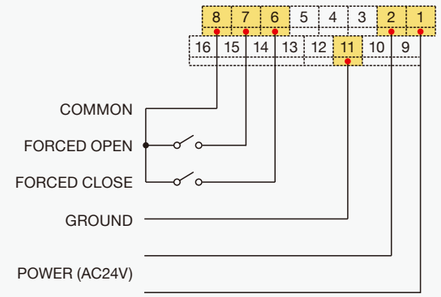


•For the unit in AC24V application, air volume signal and power are not isolated internally. Apply transformer when the unit is used in conjunction with other equipments for isolation purpose (the unit in AC100V application is equipped with built-in transformer).

CAV (2 STAGE)

MODEL:

CA2-□-24

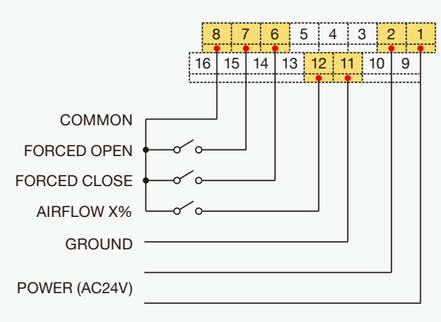


•Multiple units operated in tandem with cross-wiring require the same cable-connect. configuration (including terminals).

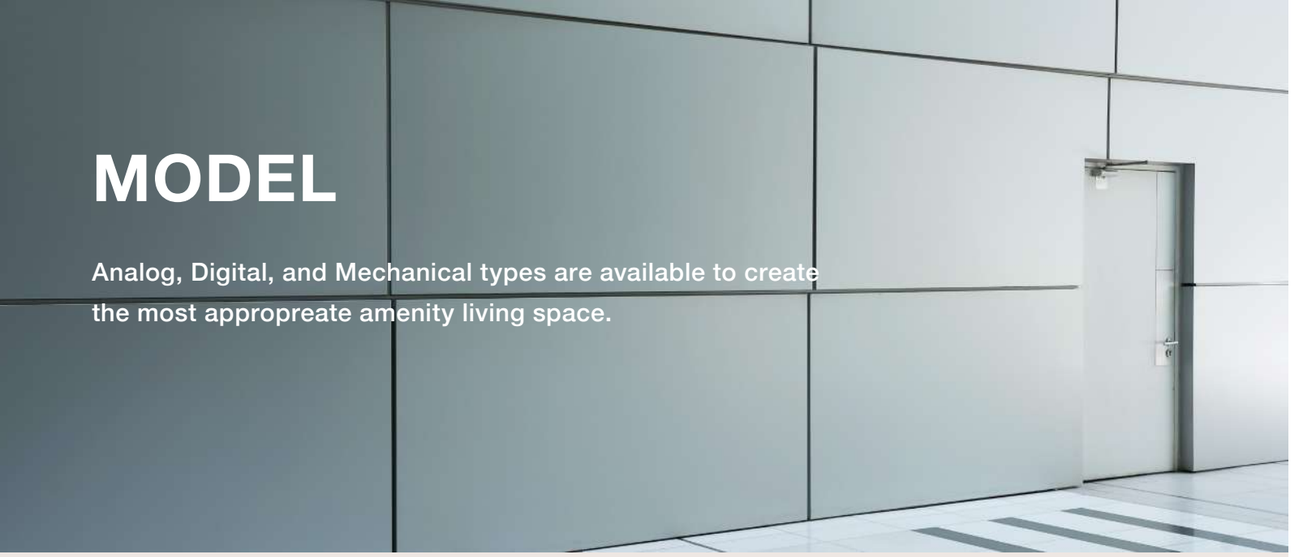
CAV (3 STAGE)

MODEL:

CA3-□-24



•Multiple units operated in tandem with cross-wiring require the same cable-connect. configuration (including terminals).



MODEL

Analog, Digital, and Mechanical types are available to create the most appropreate amenity living space.

ANALOG VAV

V | A | I | ☐ — 0403 — 24 — ☐

FLOW CONTROL SIGNAL

I	FLOW SIGNAL: 4-20mA
R	FLOW SIGNAL: 0-135Ω
E	FLOW SIGNAL: 0-10V
C	SUB UNIT (IN TANDEM OPERATION)
B	SUB UNIT (BYPASS)IN TANDEM OPERATION

SIZING (MODEL)

REFER TO SELECTION TABLE(P14)

FLOW CONTROL SIGNAL

BLANK	STANDARD TYPE
P	MAIN UNIT (IN TANDEM OPERATION)

POWER

24	AC24V
100	AC100V

SPEC.

BLANK	STANDARD TYPE
T	PASSING-NOISE REDUCTION TYPE

ANALOG CAV

C | A | 2 — 0403 — 24 — ☐

FLOW CONTROL SIGNAL

2	2 FLOW POINTS (0-100%)
3	3 FLOW POINTS (0-X-100%)
4	4 FLOW POINTS (0-X1-X2-100%)
5	5 FLOW POINTS (0-X1-X2-X3-100%)

SIZING (MODEL)

REFER TO SELECTION TABLE (P14)

POWER

24	AC24V
100	AC100V

SPEC.

BLANK	STANDARD TYPE
T	PASSING-NOISE REDUCTION TYPE

DIGITAL VAV/CAV

V | D | Y — 0403 — 24 — ☐

APPLICATION

V	VAV
C	CAV

APPLICABLE DIGITAL INTERFACE

Y	AZBIL
J	JOHNSON CONTROLS

DDC通信方式

D	DIGITAL
L	LonWorks

SIZING (MODEL)

REFER TO SELECTION TABLE (P15)

POWER

24	AC24V
100	AC100V

SPEC.

BLANK	STANDARD TYPE
T	PASSING-NOISE REDUCTION TYPE

MECAHNICAL CAV

K | M — 1 | ☐

SIZING (MODEL)

REFER TO SELECTION TABLE (P14)

NO. OF UNITS

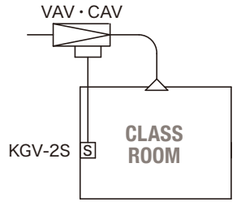
ATTENUATOR BOX

K | S — 0403

SIZING (MODEL)

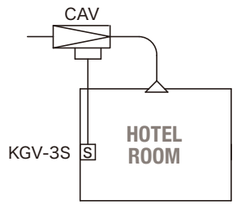
REFER TO SELECTION TABLE (P14)

RELATED DEVICES



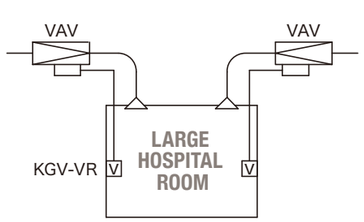
ON/OFF SWITCH (KGV-2S)

The device enables to let wind (pre-contoled temp. by AHU) to flow in. When it is off, VAV/CAV unit is fully shut.



OFF/LOW/HIGH SWITCH (KGV-3S)

The device enables users to control flow at his convenience. Suitable for the use for hotel and hospital where people spend long time.



STEPLESS SWITCH (KGV-VR)

The switch enables user to make stepless flow control. Suitable for the large room application having a number of people in.

SOUND CHARACTERISTICS

ANALOG/DIGITAL VAV,CAV OCTAVEBAND POWER LEVEL (dB)

SIZING	FLOW CMH	PRESS. DIFF. Pa	63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz	NC
150	65	20	36	28	33	27	–	–	–	–	–
		100	38	28	33	37	35	30	26	17	23
		200	41	35	37	43	43	41	39	34	32
		300	58	49	50	56	57	56	54	50	47
	230	20	40	27	31	26	17	–	–	–	–
		100	40	46	46	46	41	39	32	25	31
		200	44	52	51	50	49	46	42	39	38
		300	49	55	53	53	53	50	47	43	42
	400	20	39	48	44	40	36	29	24	–	24
		100	52	54	54	52	48	44	41	32	37
		200	54	60	58	56	54	51	48	43	43
		300	55	63	61	59	57	55	51	48	46
200	340	20	36	33	34	32	30	17	–	–	18
		100	43	47	47	44	43	42	34	24	33
		200	47	50	52	51	50	49	43	37	40
		300	51	52	54	54	54	48	46	49	43
	570	20	45	42	42	39	38	31	20	–	27
		100	52	51	51	49	46	42	39	30	35
		200	55	56	56	54	52	47	46	42	41
		300	56	59	59	58	56	54	51	49	45
	800	20	50	50	52	48	46	41	35	27	35
		100	60	59	59	55	53	50	47	41	42
		200	64	64	63	60	57	54	53	49	46
		300	64	67	65	62	59	56	55	53	48
250	530	20	43	38	36	35	27	17	–	–	19
		100	60	56	52	49	43	43	37	26	34
		200	66	63	60	57	53	50	48	40	43
		300	69	66	65	63	58	55	52	47	49
	920	20	47	43	42	44	37	30	19	–	29
		100	66	61	56	54	48	49	45	34	40
		200	71	68	63	60	55	52	51	45	46
		300	74	72	68	65	60	67	55	50	58
	1300	20	54	52	51	55	46	43	37	32	40
		100	69	64	60	59	53	51	48	40	45
		200	76	72	66	64	58	56	54	49	50
		300	79	76	71	68	63	60	58	54	55
300	760	20	43	34	35	35	32	23	–	–	20
		100	57	54	51	47	44	43	36	28	34
		200	61	59	58	53	51	49	46	40	40
		300	65	61	61	57	56	53	52	47	45
	1330	20	48	41	41	42	39	34	22	–	28
		100	64	59	56	52	50	49	44	35	40
		200	69	66	63	58	54	53	51	45	44
		300	71	70	68	62	58	56	55	51	50
	1900	20	58	51	48	48	46	43	36	27	35
		100	69	62	60	59	56	54	50	44	45
		200	75	71	67	63	60	59	56	52	50
		300	78	75	72	67	63	61	59	56	55
350	1040	20	45	37	24	34	28	20	–	–	18
		100	59	52	48	46	43	53	36	26	44
		200	67	59	55	52	50	49	54	42	46
		300	71	63	59	57	54	54	53	50	45
	1820	20	56	45	41	42	39	30	19	–	28
		100	65	59	54	52	49	52	49	36	43
		200	70	65	61	57	54	53	54	45	46
		300	74	69	64	61	58	56	56	53	48
	2600	20	68	60	53	52	51	44	39	30	40
		100	72	64	60	58	57	54	52	44	46
		200	77	71	66	63	61	59	56	53	50
		300	79	74	70	66	63	61	59	56	53

•NC-value is calculated by deducting 10dB (diffusion decay) from each octaveband value.

SIZING	FLOW CMH	PRESS. DIFF. Pa	63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz	NC
0202	145	20	36	32	37	32	26	22	–	–	–
		100	35	43	48	50	45	45	42	35	36
		200	41	47	51	55	53	53	52	46	44
		300	40	51	53	58	58	58	58	54	50
	470	20	31	38	40	37	34	27	–	–	22
		100	45	50	52	52	50	50	45	38	41
		200	50	54	58	58	57	58	54	50	49
		300	52	57	62	62	61	63	59	56	54
	800	20	38	44	47	47	49	45	37	26	38
		100	58	58	60	62	57	55	49	44	48
		200	62	62	64	65	61	60	57	53	51
		300	64	65	66	66	65	64	61	57	55
0302	640	20	31	33	38	36	31	25	16	–	20
		100	48	51	55	52	52	52	47	42	43
		200	53	55	63	60	58	60	57	52	51
		300	56	59	65	66	63	65	62	58	56
	1120	20	42	41	45	46	44	41	34	27	33
		100	57	57	59	59	55	57	56	48	48
		200	63	63	65	63	61	62	60	56	43
		300	66	66	69	67	65	66	64	61	57
	1600	20	54	49	50	50	48	44	41	35	37
		100	62	61	63	65	61	59	57	51	52
		200	69	67	70	69	66	64	64	61	56
		300	72	71	73	72	71	68	67	65	60
0403	1290	20	36	32	37	33	32	20	–	–	20
		100	50	49	50	52	58	58	48	38	49
		200	58	58	59	59	60	62	62	53	54
		300	62	62	62	59	62	65	67	62	59
	2250	20	41	36	37	39	38	25	17	–	27
		100	56	53	55	54	58	56	51	44	47
		200	62	61	62	61	62	62	61	55	53
		300	65	65	65	64	65	66	66	61	58
	3200	20	47	42	43	43	46	39	33	26	35
		100	59	56	57	55	56	55	50	43	41
		200	65	64	64	62	62	62	61	55	53
		300	69	69	68	67	67	67	65	61	58
0404	1720	20	45	37	35	35	31	25	–	–	19
		100	54	51	53	54	57	58	50	39	49
		200	60	59	57	60	59	61	63	53	55
		300	66	64	64	61	63	64	66	61	58
	3010	20	44	38	38	42	37	27	17	–	27
		100	62	58	56	55	58	58	53	42	49
		200	70	66	64	62	62	63	63	55	55
		300	72	73	70	66	66	67	67	61	59
	4300	20	47	46	46	47	49	42	38	27	38
		100	64	60	59	60	57	55	54	43	46
		200	72	68	65	65	63	61	61	57	53
		300	76	73	70	68	67	66	63	60	57
0504	2160	20	42	36	37	35	30	21	–	–	19
		100	56	53	54	56	57	59	54	41	50
		200	62	59	58	60	59	61	63	52	55
		300	71	66	64	63	62	64	66	60	58
	3780	20	46	39	38	44	36	29	17	–	29
		100	60	56	56	55	58	59	54	40	50
		200	66	62	63	64	62	64	64	54	56
		300	72	68	67	67	67	67	67	60	59
	5400	20	56	48	45	50	47	43	37	29	36
		100	66	60	57	58	58	60	55	43	51
		200	72	65	64	64	63	63	63	57	55
		300	76	71	69	69	68	67	65	61	58

•NC-value is calculated by deducting 10dB (diffusion decay) from each octaveband value.

SOUND CHARACTERISTICS

ANALOG/DIGITAL VAV,CAV OCTAVEBAND POWER LEVEL (dB)

SIZING	FLOW CMH	PRESS. DIFF. Pa	63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz	NC
0704	3020	20	45	41	37	37	33	24	16	–	21
		100	60	58	56	59	61	62	56	41	53
		200	62	64	62	62	61	61	65	53	57
		300	76	70	65	64	64	66	69	63	61
	5260	20	51	45	40	47	37	32	21	–	32
		100	62	62	57	57	60	61	56	41	52
		200	68	63	66	67	65	66	66	54	58
		300	77	68	72	69	68	71	69	62	62
	7500	20	61	49	50	52	48	47	41	32	38
		100	70	65	60	62	61	63	56	47	54
		200	75	70	65	64	63	65	64	60	56
		300	81	73	69	71	68	70	68	62	61
1004	4300	20	47	43	39	38	34	26	17	–	22
		100	61	58	56	61	63	63	58	42	54
		200	64	67	64	63	61	63	67	53	59
		300	77	71	67	64	65	67	70	61	62
	7650	20	51	46	41	48	37	33	23	–	33
		100	62	64	60	57	61	61	58	40	52
		200	70	65	68	68	66	66	67	56	59
		300	79	68	73	71	69	73	70	62	64
	11000	20	62	50	52	53	48	47	41	31	38
		100	72	66	62	63	62	64	56	44	55
		200	76	72	66	65	63	67	65	57	58
		300	83	76	70	71	68	71	69	61	62
1006	6480	20	44	44	46	45	42	35	28	25	31
		100	65	65	61	59	58	58	54	46	49
		200	70	73	70	68	65	65	63	57	56
		300	73	77	73	73	70	69	68	62	60
	10800	20	52	52	54	51	49	44	39	32	38
		100	65	64	61	60	59	60	58	48	51
		200	73	76	72	68	66	66	64	58	57
		300	76	82	78	75	72	70	68	63	62
	16000	20	62	57	60	57	54	50	46	40	43
		100	64	64	64	65	61	61	60	51	52
		200	73	74	71	70	68	68	67	61	59
		300	77	82	78	75	72	72	70	65	63
1008	8640	20	54	54	56	53	51	46	41	34	33
		100	66	65	63	60	60	60	55	47	51
		200	71	75	72	70	67	67	65	58	58
		300	74	79	76	75	72	71	70	64	62
	14400	20	54	54	56	53	51	46	41	34	40
		100	64	62	62	61	60	61	60	48	52
		200	74	76	73	69	67	68	66	59	59
		300	77	83	80	76	73	72	69	64	64
	21000	20	64	59	62	59	56	52	48	42	45
		100	66	65	66	67	62	63	62	52	54
		200	73	74	72	71	69	69	69	62	61
		300	77	82	79	76	73	73	72	66	64

•NC-value is calculated by deducting 10dB (diffusion decay) from each octaveband value.

MECHANICAL CAV OCTAVEBAND POWER LEVEL (dB)

SIZING	FLOW CMH	PRESS. DIFF. Pa	63Hz	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz	NC
1	200	100	50	55	56	53	53	48	41	34	42
		300	51	56	58	59	61	61	55	48	52
	350	100	51	58	53	54	53	49	42	33	42
		300	55	63	64	63	62	60	54	48	51
	500	100	53	56	64	55	55	51	43	34	45
		300	57	66	67	67	65	61	57	51	54
2	500	100	50	57	55	52	49	43	35	25	38
		300	53	58	61	63	62	59	53	48	51
	750	100	57	57	57	55	53	47	40	30	42
		300	59	64	67	67	63	59	54	49	54
	1000	100	61	59	59	58	56	51	45	36	45
		300	63	69	69	69	65	62	57	52	56
3	1000	100	60	56	53	48	49	44	36	26	38
		300	64	68	69	67	62	60	54	48	54
	1500	100	64	57	53	51	51	47	41	31	40
		300	71	70	68	66	62	60	55	49	53
	2000	100	65	61	58	58	57	53	48	40	46
		300	68	72	68	65	63	61	58	51	52
4	1500	100	62	58	55	51	51	46	37	28	40
		300	67	70	72	68	63	62	57	52	55
	2250	100	65	62	57	55	54	49	42	33	43
		300	74	74	70	66	63	61	57	50	53
	3000	100	66	62	58	57	55	51	44	41	44
		300	75	76	71	68	64	62	58	53	55
5	2000	100	64	59	55	52	51	47	39	30	40
		300	68	70	73	69	63	62	58	52	56
	3000	100	67	64	58	56	55	51	43	34	44
		300	75	74	73	70	64	63	59	54	57
	4000	100	68	65	59	58	56	50	46	37	45
		300	75	75	74	71	65	63	61	55	58

•NC-value is calculated by deducting 10dB (diffusion decay) from each octaveband value.

Quick acess to"Sound Characteristic data" in our web. site.

Electronic Catalog

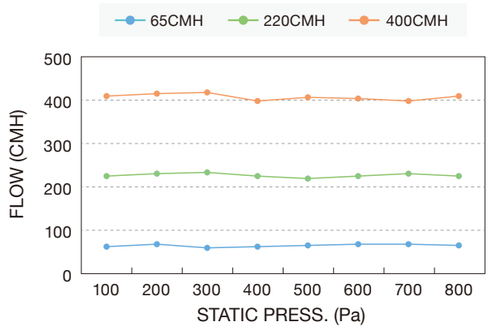
KUKEN CATALOG

https://www.kuken.com/catalog

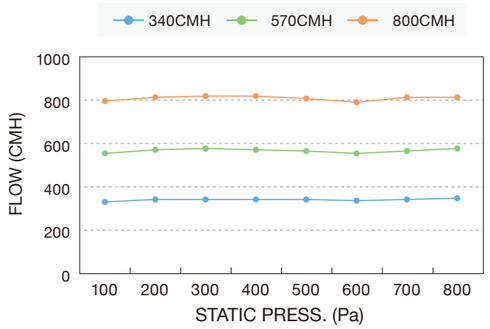
CONSISTENCY CHARACTER IN AIR FLOW

Unit in each sizing is capable of supplying air flow consistant in amount.

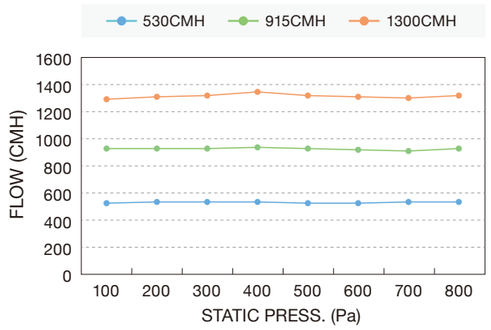
ϕ150 CONSISTENCY



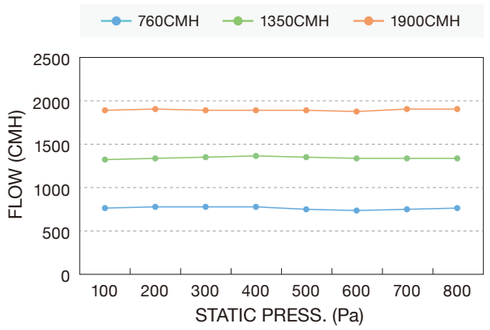
ϕ200 CONSISTENCY



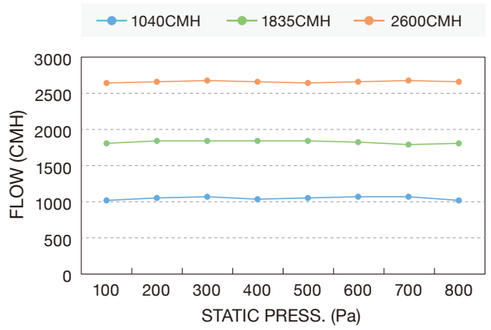
ϕ250 CONSISTENCY



ϕ300 CONSISTENCY



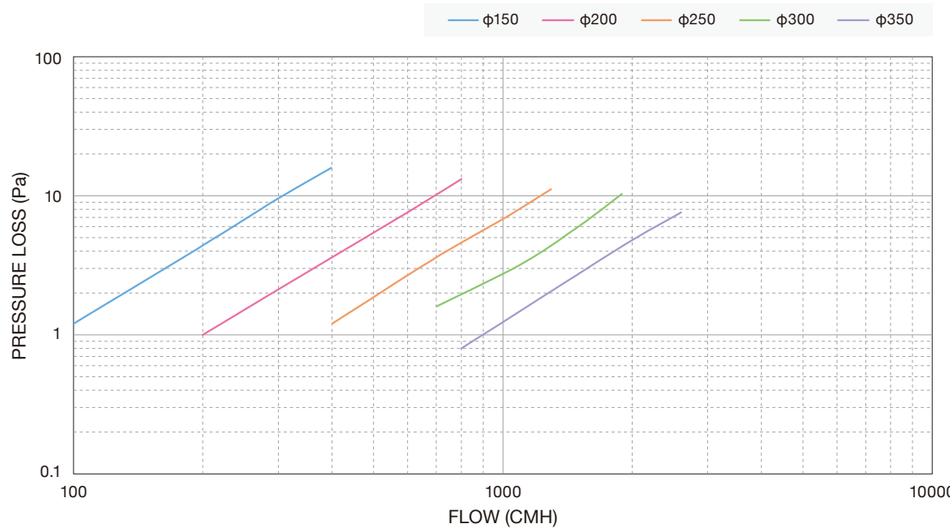
ϕ350 CONSISTENCY



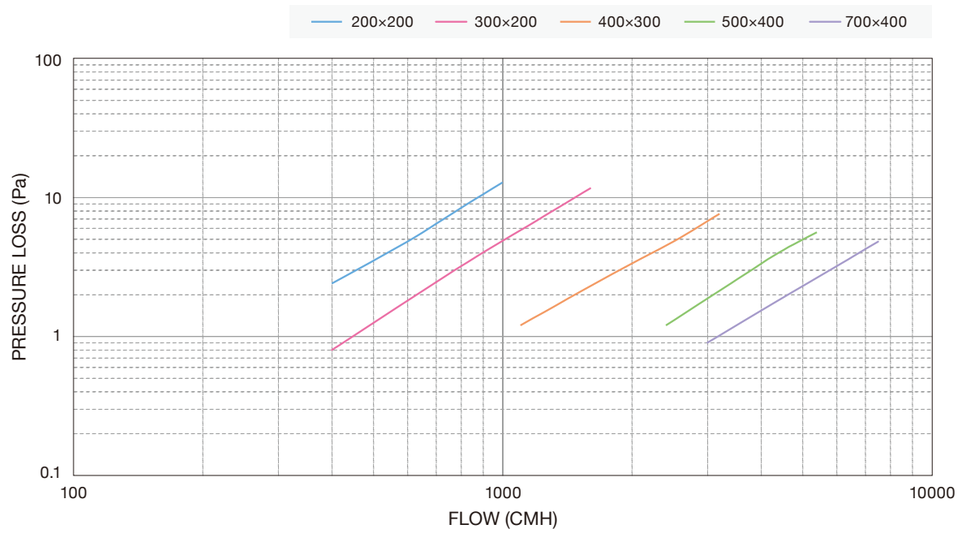
PRESSURE LOSS

Static pressure loss generated by the unit when fully opened :

ROUND TYPE

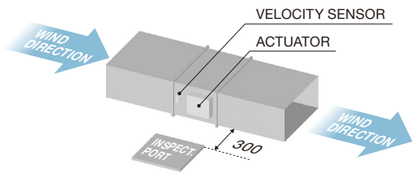


SQUARE TYPE

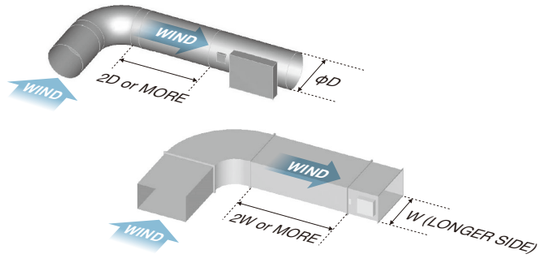


INSTALLATION PROCEDURE

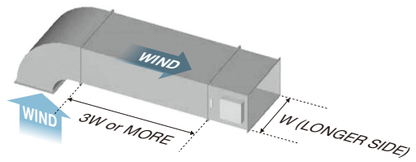
Do not locate the unit in the way that it is exposed to water. Operating temp. must not exceed 60°.



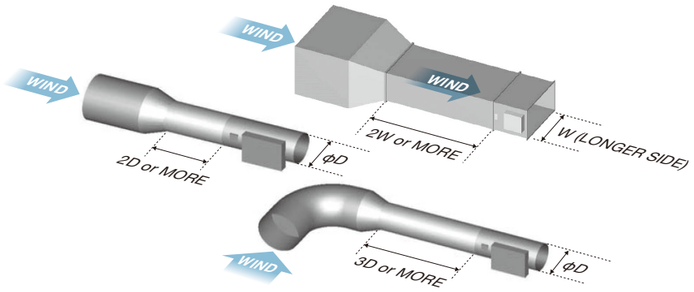
Secure space appropreate for maintenance/ replacement work. Preparing inspection port on duct facilitates the work.



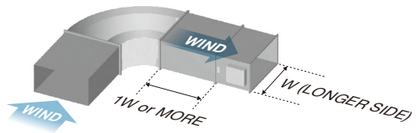
Presence of elbow in the upstream generates partial flow which may disturb accurate reading done by velocity sensor. Combine with straight line to rectify the flow for reading purpose.



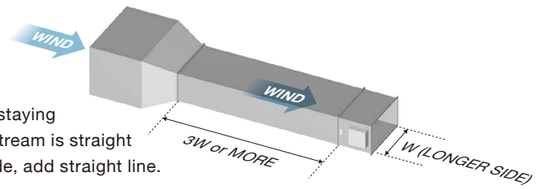
ELBOW AGAINST DUCT (LONGER SIDE)



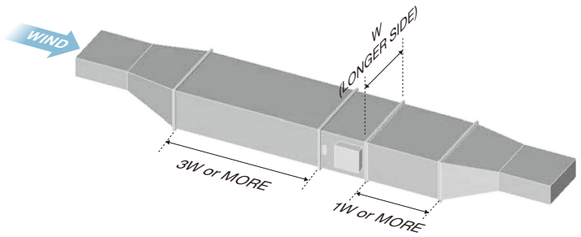
If hopper exists in the upstream, add straight line.



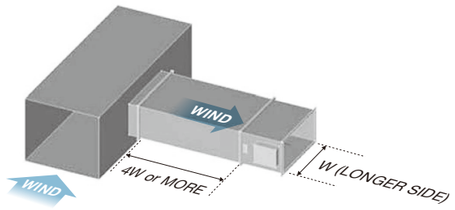
If elbow stays in the upstream and doesn't have space for straight line, apply elbow with guide-vane (elbow is not recommenable to be connected with the unit directly).



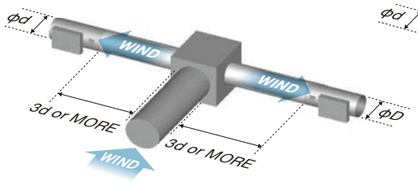
If hopper staying in the upstream is straight on one side, add straight line.

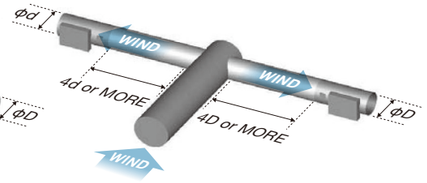


In case that duct in the upstream/downstream is narrower than the unit, partial flow can be generated. Add straight line.



When unit is installed on branch duct, add straight line.





Add straight line for each of the unit located on the end of split terminl duct lines.

Length of straight lines indicated above is just for the reference. For the system already suffering from partial flow in the upstream, it may still disturb accurate reading.

CAUTION IN INSTALLATION

- This product is designed for the use of air-conditioning. For the application in the system in need of extremely high credibility in control (ie. clean room), take proper contermeasure against malfunction.
- Take possible measures against partial flow.
- Do not apply the units outdor or in the location exposed to high temperature (60° or above).
- Make sure to prepare inspection hole on duct for access to actuator and secure enough maintenance space (300mm or more).
  *Prepare 2 inspection holes for the model 1004 and larger having multiple actuators deployed on 2 sides (refer to the drawing).
- Units suffers if it is placed near air-inlet port due to air containing rain water contacting velocity-sensor. Keep enough distance to avoid such trouble.
- When installing the units, handle with care not to give physical shock, not to step on actuator.
- Watch for the facing of the unit for installation. Place the unit with velocity sensor facing upstream.
- Unit can be installed in any way of rotation : horizontally, vertically, slantly as long as blade shaft is remained horizontal. Mechanical type can be applied only in horizontal.
- Do not screw on the unit nor on actuator. It may cause malfunction. (Round stick-in type allows screwing to be connected to duct).
- Take possible measures against noise contamination for input signal.
- For power wiring, se 600V vynyl-insulation wire or higher in grade or cable wire,
- Max. allowable pressure difference between ducts sandwitching the unit must be 500Pa (round type) and 800Pa (square type).
- Do not have the unit deliver gas contining corrosive acid or alkaline vapor.
- Have the unit being fed with clean air. Apply filter on return grille for dusty room.
- Do not apply flexible duct in place of any straight line upstream.
- Unit is designed to fit for the use in normal air-conditioning system. Contact us for the other application.
- Apply voltage 500V or below for insulation resistence test.
- Velocity-sensor, motor,and circuit board are wearing parts. Periodical inspection is recommended.

SOLE DISTRIBUTOR

Kuken Industries Co., Ltd.

INTERNATIONAL DEPT.

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