



## DOUBLE DUCT VARIABLE AIR FLOW CONTROLLERS

CL-VCD  
SERIES

### OVERVIEW

#### Overview :

Variable air flow controllers series CL-VCD are air flow regulation units that allow the mixing of hot and cold primary air to obtain the ideal temperature of the air supplied maintaining the continuous control of the air quality in variable air flow systems.

The tightness of the blade assure class 3 as per EN 1751

#### Technical characteristics:

The double duct controller units type CL-VCD include:

- galvanized steel casing with base supports for fitting on site using hanging ties;
- circular connection for cold air with dynamic  $\Delta p$  probe driven by an electrical motor for measuring and regulation in relation to the requirement of the room itself;
- circular connection with damper driven by electrical regulation motor for the regulation and maintenance of the air flow in relation to the requirement of the room itself;
- rectangular exit on the low speed side with dynamic  $\Delta p$  probe for measuring the total supplied air flow;
- silencer section with sound absorbing rock wool material, covered with a black protective film, resistant to fire, class M0.

#### Applications :

The CL-VCD series are used to supply a variable air flow to the area to be conditioned in relation to the variation of the its thermal loads to maintain the maximum thermal comfort conditions.

Differently to single duct units, the ideal air temperature is obtained by mixing hot and cold air instead of regulation the power supply of the pre heating coil.

The auto generated irradiated noise tests have been carried out according to EN ISO 3741 standard.

#### Tender description :

Double duct variable air flow supply control unit, CL-VCD type sold by MP3 Srl, made of galvanized steel complete with differential pressure sensor, air flow regulators and actuators.

#### Accessories :

- additional silencer;
  - double casing;
  - equalising net to be installed to the entry point to better distribute the air flow;
  - micro stretched protection net of noise absorbing material;
- Other coatings, also in glass fibre, to be chosen at the request stage.

#### Models :

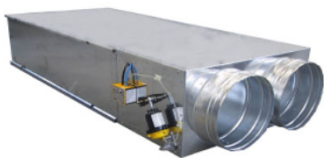
With motors:

- Siemens GDB 181.1/E3/MP;
- Belimo NMV-D3-MP;
- Belimo LMV-D3-MP;
- Belimo NM24AV + reg. VRD3;
- altre motorizzazioni da concordare in sede d'offerta.

Possibility of interfacing with extraction VAV units to guarantee positive or negative pressures in relation to the use of the room.

The units are normally supplied complete with actuators calibrated on our premises according to customer requests.

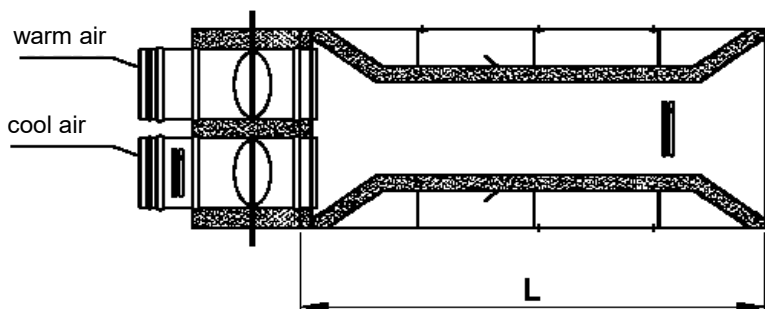
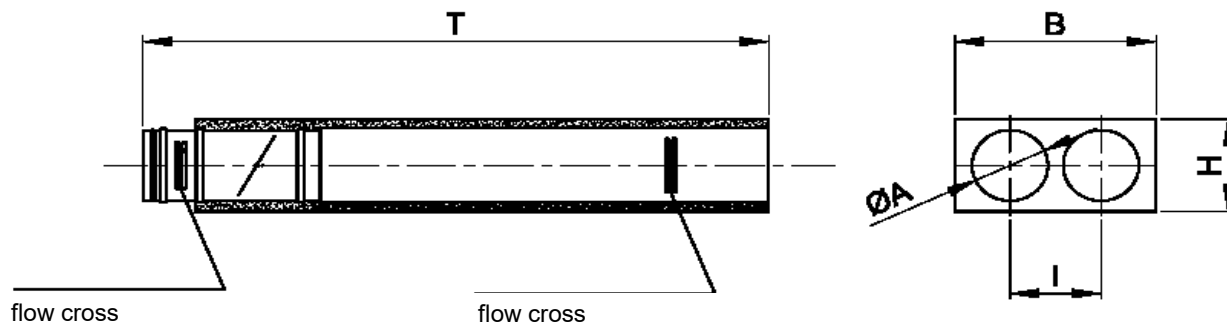
For request of units without actuators, which will need to be installed anyway by the customer on site, MP3 can not guarantee in any way the correct working of the apparatus.



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DIMENSIONS



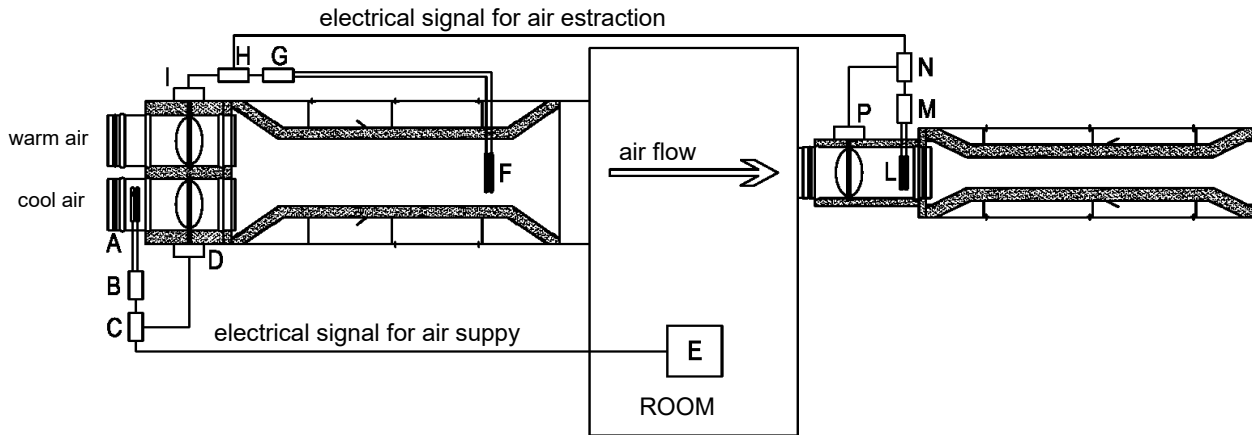
Ø A (mm)	B (mm)	H (mm)	I (mm)	L (mm)	T (mm)
125	380	185	165	1000	1350
160	450	220	200	1000	1400
200	530	260	240	1200	1650
250	630	310	290	1200	1700
315	760	375	355	1400	2000
355	840	415	395	1400	2100
400	930	460	440	1500	2200



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STANDARD INSTALLATION



- A probe for differential pressure of cold air flow
- B pressure transducer for cold air flow
- C signal regulator/equalizer for cold air flow
- D damper servomotor for cold air flow
- E room temperature sensor
- F probe for differential pressure of total supply air flow
- G pressure transducer for total air flow
- H signal regulator/equalizer for total air flow
- I damper servomotor for hot air flow
- L probe for differential pressure of total extraction air flow
- M pressure transducer for total extraction air flow
- N signal regulator/equalizer for total extraction air flow
- O damper servomotor for total extraction air flow

### AIR SUPPLY SECTION

The temperature sensor E adjusts the cold air flow using an electrical signal.

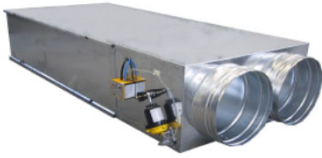
The cold air flow is kept independent of the conditions upstream through the pressure differential probe A, which, using the transducer B emits a signal compared with the control C with the room temperature sensor E. ON the basis of the comparison between the two signals, the controller C modulates the opening of the cold air supply damper through servomotor D.

The total flow of air into the room is detected by the differential pressure probe F which through the transducer G emits a signal to regulator H using the servomotor I modulating the opening of the damper for the hot air supply.

### AIR EXTRACTION SECTION

The pressure differential probe L and through transducer M emits a signal proportional to the total extraction air supply compared with the regulator N with the proportional signal tot the total supply air flow emitted from regulator H. on the basis of a comparison between the two signals, controller H modulates the opening of the extraction damper through servomotor P.

This procedure will allow to always keep the environment in desired pressure conditions, which can be equal, greater or less than the atmospheric pressure external according to the type of activities within the environment itself.



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AIR FLOW - PRESSURE LOSSES

### Regulator calibration and servomotor selection

For the calibration of the CL-VCD unit the maximum and minimum air flows will need to be indicated for the specific application.

These air flows will need to be included in the table below.

For any supplies without engine, which will nevertheless be applied and calibrated by the customer, MP3 can not guarantee in any way the proper operation within the environment itself.

### Conditions of installation

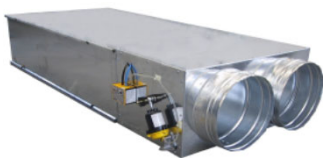
For a correct reading of pressures and for a air flow tolerance of 5%, upstream section of straight channel of length equal to 2/3 times the size of the diameter of the regulator should be installed. in the opposite case, the air flow may suffer variations between 10% and 20% compared to the calibrated value.

### Pressure losses with closed damper:

The seal is fitted in the perimeter of the damper, it maintains a level of pressure losses below 0.1% of the nominal air flow,, with a maximum pressure of 1000 Pa.

The tightness of the blade assure class 3 as per EN 1751

AIR FLOWS AND PRESSURE LOSSES			
Diameter (mm)	Maximum Q (m <sup>3</sup> /h)	Minimum Q (m <sup>3</sup> /h)	Minimum Δp (pA)
125	570	170	150
160	950	280	150
200	1500	450	150
250	2300	690	150
315	3600	1100	150
355	4800	1440	150
400	6300	1890	150



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### ACOUSTIC DATA

Ø mm	ΔP Pa	Q M³/h	Lw1 dBa	Lw2 dBa	Lw3 dBa
125	200	170	32	38	27
		303	35	40	29
		437	37	41	30
		570	39	42	31
	500	170	38	42	32
		303	43	47	37
		437	46	50	40
		570	49	52	42
	1000	170	40	46	36
		303	47	50	41
		437	51	53	44
		570	54	55	47

Ø mm	ΔP Pa	Q M³/h	Lw1 dBa	Lw2 dBa	Lw3 dBa
160	200	280	35	42	32
		503	40	45	35
		727	43	47	37
		950	45	49	38
		280	40	46	35
	500	503	46	52	41
		727	50	55	44
		950	53	58	47
		280	44	50	40
	1000	503	50	56	46
		727	54	60	49
		950	56	63	52

Ø mm	ΔP Pa	Q M³/h	Lw1 dBa	Lw2 dBa	Lw3 dBa
200	200	450	34	42	32
		800	38	45	35
		1150	41	47	37
		1500	43	49	38
		450	41	49	38
	500	800	47	54	44
		1150	50	58	47
		1500	53	60	50
		450	46	54	43
	1000	800	52	59	48
		1150	55	63	52
		1500	58	65	54

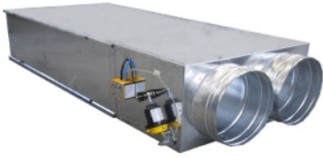
Ø mm	ΔP Pa	Q M³/h	Lw1 dBa	Lw2 dBa	Lw3 dBa
250	200	690	36	42	32
		1227	38	45	34
		1763	40	46	36
		2300	41	47	37
		690	43	50	39
	500	1227	47	54	43
		1763	50	56	46
		2300	52	58	48
		690	49	57	45
	1000	1227	55	62	51
		1763	58	65	54
		2300	61	67	57

Ø mm	ΔP Pa	Q M³/h	Lw1 dBa	Lw2 dBa	Lw3 dBa
315	200	1100	37	44	34
		1933	39	46	36
		2767	41	47	38
		3600	42	48	39
		1100	47	54	42
	500	1933	50	57	45
		2767	52	59	48
		3600	54	60	49
		1100	52	59	48
	1000	1933	56	63	52
		2767	59	66	55
		3600	61	68	57

Ø mm	ΔP Pa	Q M³/h	Lw1 dBa	Lw2 dBa	Lw3 dBa
355	200	1440	39	44	34
		2560	45	49	38
		3680	48	52	41
		4800	51	54	43
		1440	47	52	42
	500	2560	53	57	47
		3680	56	61	50
		4800	59	63	52
		1440	52	57	46
	1000	2560	57	62	51
		3680	61	65	54
		4800	63	67	56

Ø mm	ΔP Pa	Q M³/h	Lw1 dBa	Lw2 dBa	Lw3 dBa
400	200	1890	37	44	34
		3360	42	49	39
		4830	45	52	41
		6300	47	54	43
	500	1890	46	52	40
		3360	51	57	45
		4830	54	60	48
		6300	56	62	50
	1000	1890	51	57	45
		3360	55	61	50
		4830	58	64	53
		6300	60	66	55

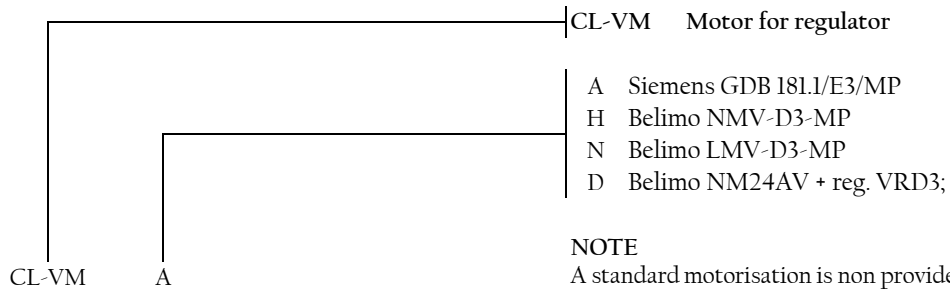
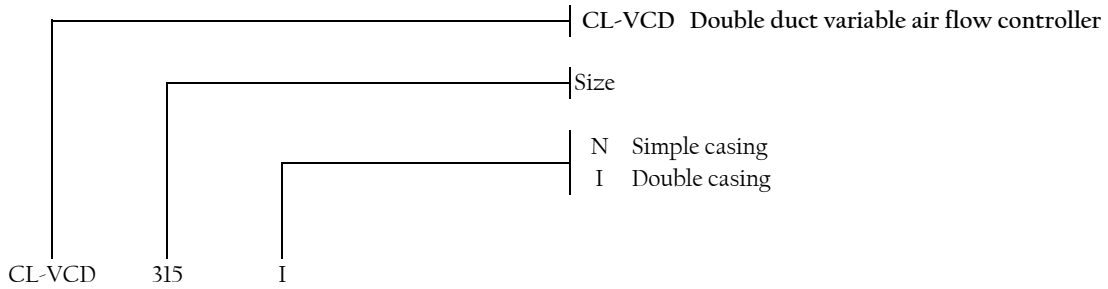
Lw1- Noise pressure in the duct on exit from the unit  
 Lw2- Irradiated noise pressure - simple casing version  
 Lw3- Irradiated noise pressure - double casing version



CASSETTE  
A PORTATA VARIABILE  
DOPPIO CONDOTTO

COME ORDINARE

SERIE  
CL-VCD



NOTE

A standard motorisation is non provided, it will be necessary to always indicated the requested motor. For help in the choice of motors please contact our commercial office.