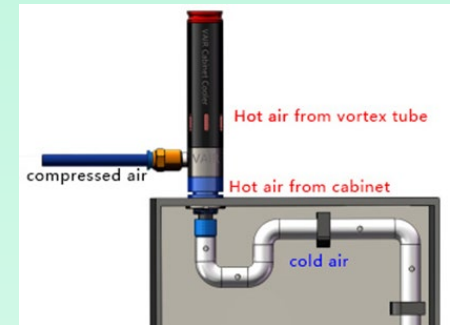


# NANOSTONE PTE. LTD.

## VAIR Cabinet Cooler

**Cabinet Cooler** also is called Vortex Enclosure Cooler, Vortex Cooler. Cabinet Coolers provide a low cost method of both purging and cooling electrical and electronic control panels by using a low-cost, reliable vortex tube to create cold air from ordinary filtered compressed air. A built-in relief valve lets hot air escape from the cabinet enclosure, while the cooler supplies clean, cold air. Since a vortex tube has no moving parts there is little maintenance involved with this system. A Cabinet Cooler can save you money over a normal cooling system, since it is run directly off of compressed air.

Cabinet Coolers are an affordable, low maintenance, and easy to install alternative for thermal management of electrical cabinets and control panels. Filtered, compressed air enters the Cabinet Coolers and through the vortex tube component. The air is split into two streams, one hot and one cold. With no moving parts to wear out, Cabinet Coolers use an internal vortex tube to convert factory compressed air into a low pressure, cold air stream that is distributed throughout the cabinet. The chilled air stream creates a slight positive pressure inside the enclosure to prevent dirt or dust from entering - even in the most challenging environments. From small computer cabinets and touch screen control panels to large electrical panel boxes, Vortex Cabinet Coolers offer efficient and reliable enclosure protection from heat and dirt related shutdowns.

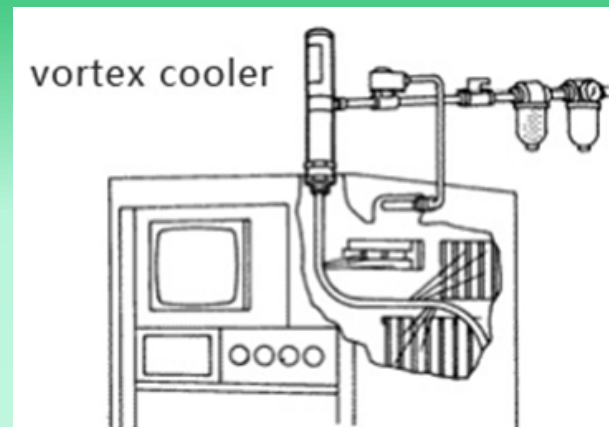




# NANOSTONE PTE. LTD.

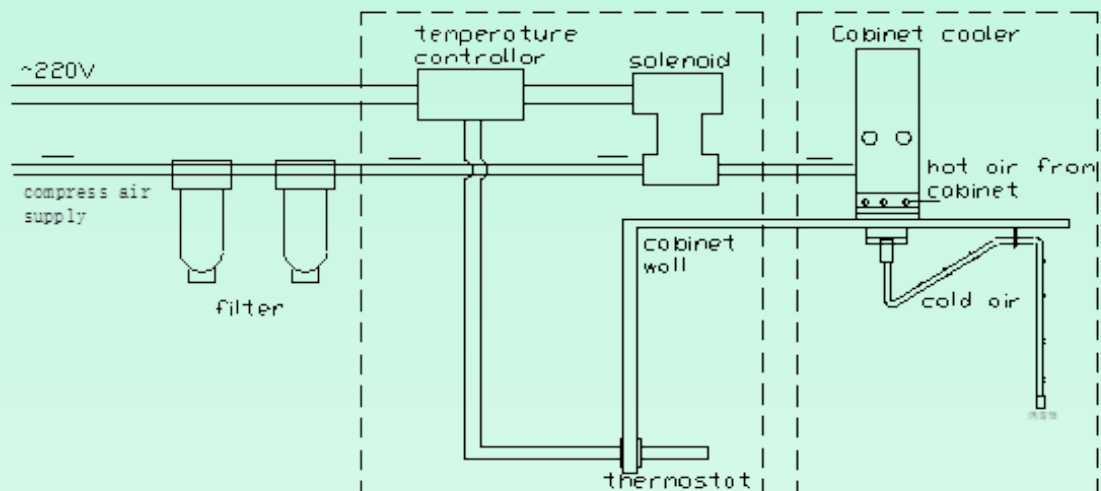
## Cabinet Cooler Features and Benefits:

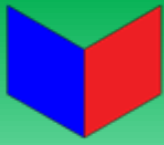
- Very low maintenance, low cost.
- Continuous cooling models available
- Cools without Freon or other refrigerants
- Offers cooling capacities from 420 to 5700 BTU/H
- Thermostatically-controlled to save energy
- Quiet and reliable with no moving parts to wear out
- Provide easy installation - compact size fits in tight spaces
- Units applicable to all environments easily adapted for hazardous environments by suppliers of approved purge systems.



## Applications:

- NC/CNC Controls Systems
- PLC'S Scanners
- Motor Controls
- Industrial and CCTV cameras
- Computer Enclosures
- Frequency Drives



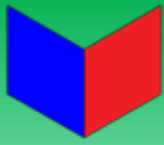


# NANOSTONE PTE. LTD.

Cabinet Cooler Specifications - S style Cabinet Cooler only + hose kits:  
(2-1)

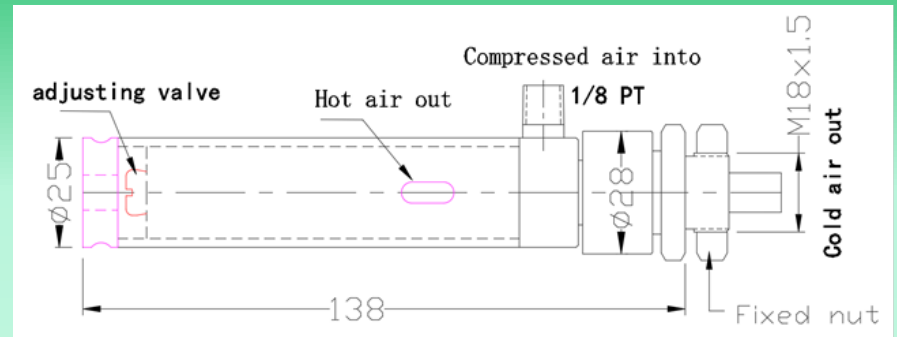


MODEL		Inlet Pressure		Air Consumption		Capacity		
		Psi	Bar	Scfm	Slpm	BTU/H	Kcal/H	WATTS
VC81108S	/	100	6.9	8	230	540	136	158
VC81110S	/	100	6.9	10	283	650	164	190
VC81115S	VC81115SL	100	6.9	15	430	1000	252	293
VC81120S	VC81120SL	100	6.9	20	580	1350	340	396
VC81125S	VC81125SL	100	6.9	25	710	1700	428	498
VC81130S	VC81130SL	100	6.9	30	850	2000	504	586
VC81135S	VC81135SL	100	6.9	35	990	2400	605	703
VC81140S	VC81140SL	100	6.9	40	1130	2800	706	820

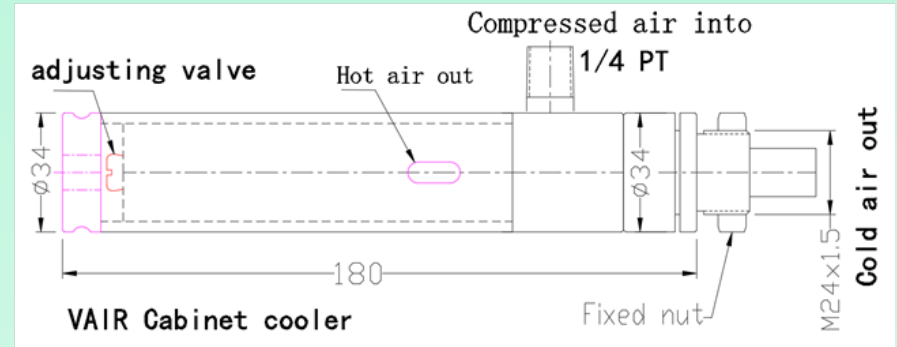


# NANOSTONE PTE. LTD.

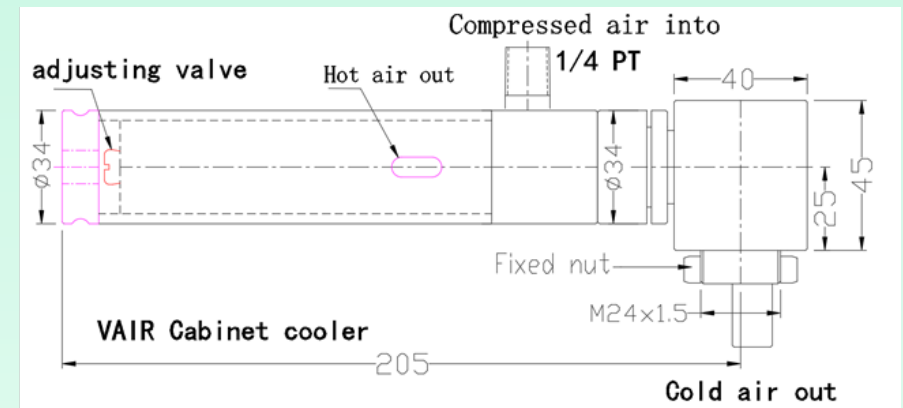
## VC81108S and VC81110S Cabinet Cooler Size (2-2)

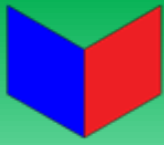


## VC81115S, VC81120S, VC81125S, VC81130S, VC81135S and VC81140S: Cabinet Cooler Size



## VC81115SL, VC81120SL, VC81125SL, VC81130SL, VC81135SL and VC81140SL: Cabinet Cooler Size





# NANOSTONE PTE. LTD.

Cabinet Cooler Specifications - **M style Stainless Steel Cabinet Cooler only +hose kits:**  
(3-1)

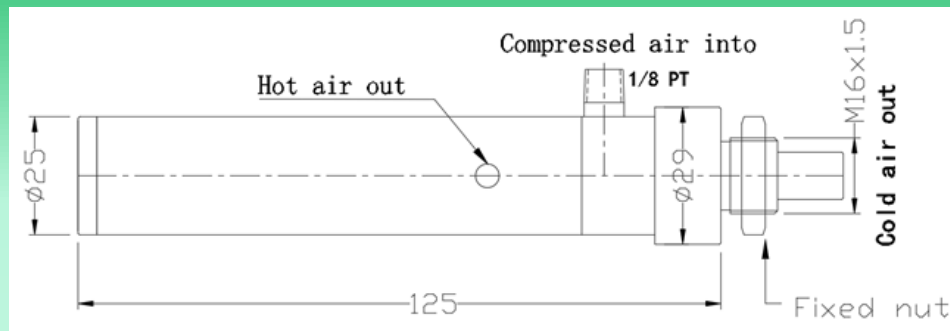


MODEL		Inlet Pressure		Air Consumption		Capacity		
		Psi	Bar	scfm	slpm	BTU/H	Kcal/H	WATTS
VC80106M	/	100	6.9	6	180	420	106	123
VC80108M	/	100	6.9	8	230	560	141	164
VC80110M	VC80110ML	100	6.9	10	283	700	176	205
VC80115M	VC80115ML	100	6.9	15	430	1100	277	322
VC80120M	VC80120ML	100	6.9	20	580	1400	277	410
VC80125M	VC80125ML	100	6.9	25	710	1750	441	513
VC80130M	VC80130ML	100	6.9	30	850	2100	529	615
VC80135M	VC80135ML	100	6.9	35	990	2450	617	718
VC80140M	VC80140ML	100	6.9	40	1130	2850	718	835
VC80145M	VC80145ML	100	6.9	45	1273	3250	820	952
VC80150M	VC80150ML	100	6.9	50	1410	3650	920	1070
VC80175M	/	100	6.9	75	2130	5250	1320	1538

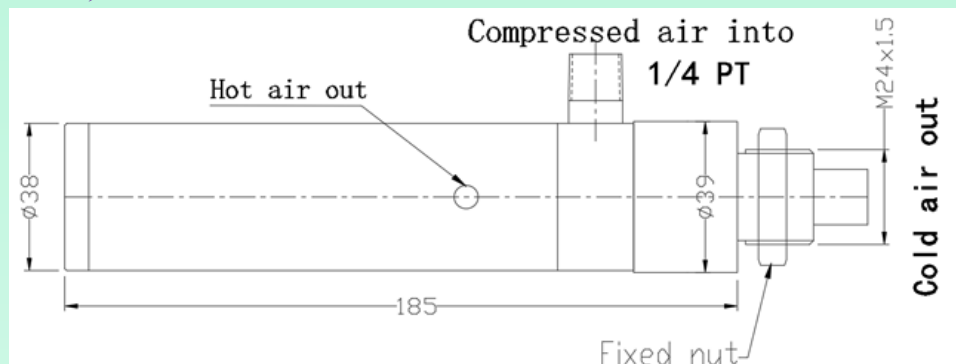


# NANOSTONE PTE. LTD.

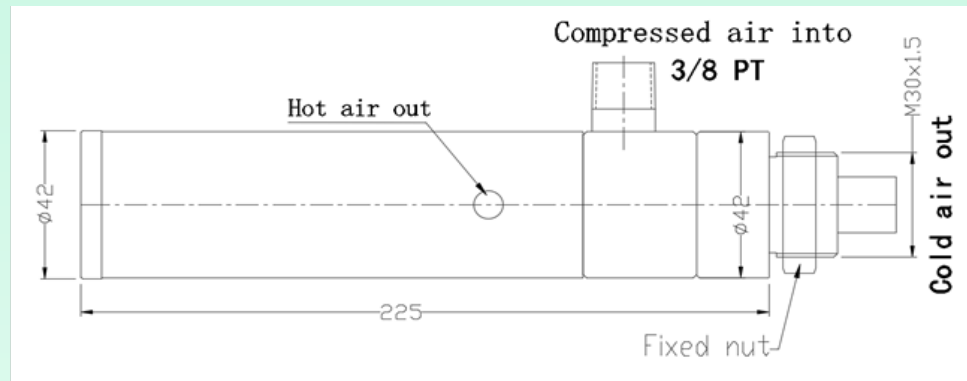
## VC80106M and VC80108M Cabinet Cooler Size (3-2)



## VC80110M, VC80115M, VC80120M, VC80125M, VC80130M, VC80135M and VC80140M: Cabinet Cooler Size



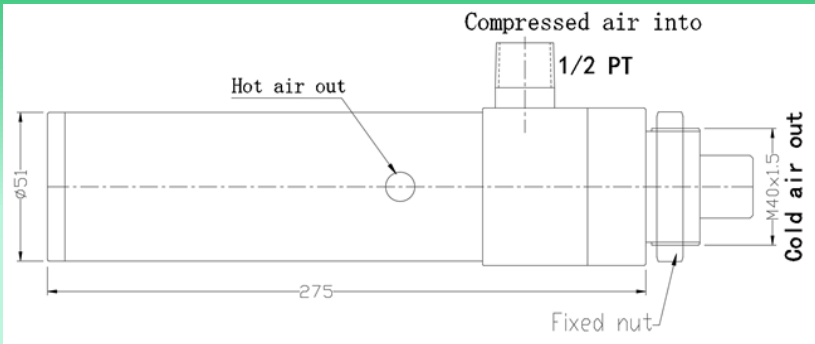
## VC80145M and VC80150M: Cabinet Cooler Size



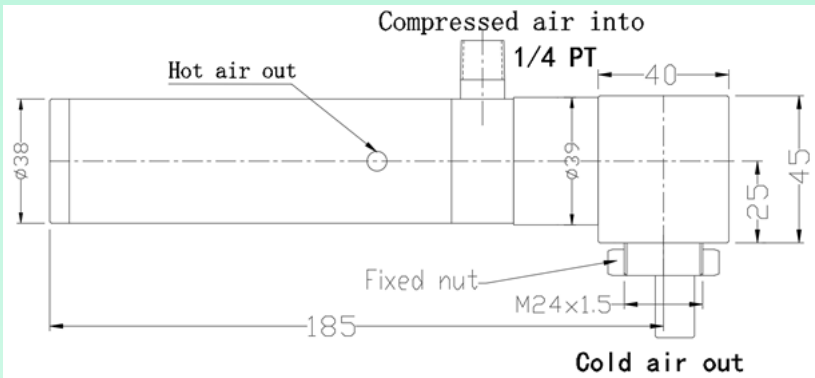


# NANOSTONE PTE. LTD.

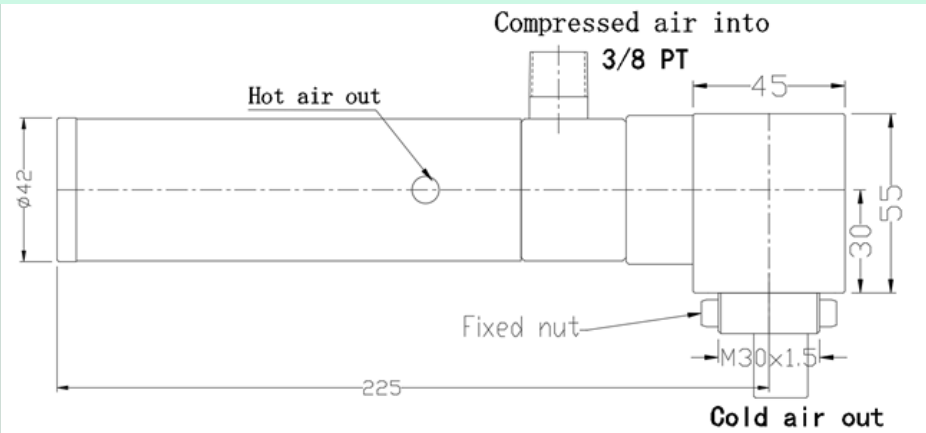
**VC80175M and VC80199M Super Cabinet Cooler Size (3-3)**



**VC80110ML, VC80115ML, VC80120ML, VC80125ML, VC80130ML, VC80135ML, VC80140ML:**  
Cabinet Cooler Size



**VC80145ML and VC80150ML:**  
Cabinet Cooler Size





# NANOSTONE PTE. LTD.

## Cabinet Cooler Specifications

**VC8\*\*\*\*-K---Cabinet Cooler kits+ Thermostat control system**



MODEL		Inlet Pressure		Air Consumption		Capacity		
		Psi	Bar	Scfm	Slpm	BTU/H	Kcal/H	WATTS
/	VC80110MK	100	6.9	10	283	650	164	190
VC81115SK	VC80115MK	100	6.9	15	430	1000	252	293
VC81120SK	VC80120MK	100	6.9	20	580	1350	340	396
VC81125SK	VC80125MK	100	6.9	25	710	1700	428	498
VC81130SK	VC80130MK	100	6.9	30	850	2000	504	586
VC81135SK	VC80135MK	100	6.9	35	990	2400	605	703
VC81140SK	VC80140MK	100	6.9	40	1130	2800	706	820





# NANOSTONE PTE. LTD.

## How to size Correct Cabinet Cooler ?

1). Size the heat load area of the cabinet using the following formula:

$(2 \times W + 2 \times D) \times \text{Height} = \text{Square feet of cabinet}$

Example: 3' wide, 1' deep, 4' high = 32 square feet

2). Determine inside temperature reading for maximum hotter outside temperatures:

Example: If reading is taken on a 70°F day and the temperature reads 110°F, add 25°F if the electronics will be operating during a summer day temperature of 95°F or add more if it will get hotter.

3). 90°F (32°C) is a safe operating temperature for most electronics to reduce heat stress on the controls and drying of the wafer boards.

4). Subtract the temperature of 90°F as the desired temperature inside the cabinet from the temperature reading in step 2 to determine the temperature difference, or Delta T.

5). Use the square area of your cabinet readings on the left side of the scale and match it with the temperature difference from step 4 on the top of the sizing chart.

6). The intersection of these two numbers give you the BTUs required to maintain the desired 90°F inside temperature.

7). Match the BTU reading with the proper VAIR Cabinet Cooler.



# NANOSTONE PTE. LTD.

Cabinet size	Square=2*(M+N)*H		BTU Requirements for Cooling (BTU/H)				
	Square Feet	Square Meters	ΔT=90°F (50°C)	ΔT=70°F (39°C)	ΔT=50°F (28°C)	ΔT=30°F (17°C)	ΔT=10°F (6°C)
2'H-2'M-2'N	16	1.49	500	350	150	100	50
3'H-3'M-2'N	30	2.79	1100	800	450	150	100
4'H-3'M-1'N	32	2.97	1300	900	550	200	100
5'H-3'M-1'N	40	3.72	1600	1100	700	250	100
5'H-4'M-1'N	50	4.65	2200	1400	900	300	150
5'H-4'M-2'N	60	5.60	2600	1800	1100	500	200
5'H-5'M-2'N	70	6.50	3000	2100	1300	600	200
6'H-4'M-2'N	72	6.69	3100	2200	1400	700	200
6'H-5'M-2'N	84	7.80	3600	2600	1600	750	200
6'H-6'M-2'N	96	8.92	4200	3000	1900	900	200
7'H-6'M-2'N	112	10.40	4800	3500	2200	1000	200
7'H-7'M-2'N	126	11.71	5800	4100	2600	1300	250
8'H-7'M-2'N	144	13.38	6500	4600	2900	1450	300
8'H-8'M-2'N	160	14.86	7000	5200	3300	1650	350
8'H-10'M-2'N	192	17.84	8800	6400	5200	2100	450

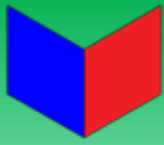
°C = 5/9(°F-32); °F = (9/5)\*°C+32; BTU = Watts x 3.41; Kcal = BTU x 0.252



# NANOSTONE PTE. LTD.

Our Production Line





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