

Large Plenum Rated Heater CKL Series

How to Size a CKL Heater

Step1: Customer Supplied Specs Example:

1. Voltage Required	480V
2. Phase Required	3 Phase
3. ΔT (Temperature Rise)	70
4. Air Volume (CFM)	6000 CFM
5. Static Pressure	1.2" WG

Step2: Calculate KW Requirement

- Calculate BTUH Requirement
BTUH Formula = (CFM x 1.08) x Temperature rise
(1.08 factor assumes air density at sea level)
Example: (6000 x 1.08) x 70 = 453,600 BTUH Requirement
- Convert BTUH to KW Requirement
KW Conversion Formula = BTUH/3413
Example: 453,600/3413 = 133KW.
Then round up to nearest kW in BASE MODELS CHART
= **140KW Requirement**

Step3: Select Base Model

- Refer to **BASE MODELS CHART**
- Select model matching Voltage, Phase and KW Requirements
Example: 480V, 3-Phase, 140kW

Step4: Select Motor Horsepower

- Refer to **AIR DELIVERY / MOTOR SELECTION CHART**
- Find CFM (Column B) matching customer requirement
Example: 6000 CFM
- Refer to Static Pressure (Column E).
Based on system static requirement
Example: 1.2" WG, find the closest " WG
that is equal or above the system requirement.
Example: 2.9" WG
- Refer to Motor HP (Column D) and select related Motor HP
Example: 5HP

Step5: Select Motor Speed Type (Fixed or Variable)

- VPS - Variable Pitch Sheave -
(Fixed Motor Speed w/ minor field adjustment)
- VFD - Variable Frequency Drive - (Variable Motor Speed)
Example: VPS

Step6: Select Additional Options

- SSR - Solid State Relays (SSR) for modulating 1 Stage (Vernier Stage)
- PT - Proportional Thermostat and remote sensor to control discharge temperature.
- DS - (XX) Disconnect Switch
Example: No Additional Options Required

Step7: Compile Final Complete Model Number Based on Model Code Legend

Example: Final Model: CKL48140-3-8-6.0-1.2-VPS4

How to Determine ΔT (Temperature Rise)

Step1: Winter Design Temp For Location

Step2: Desired Heater Discharge Temp

Step3: ΔT (Temperature Rise) = Heater Discharge Temp - Winter Design Temp

Example: 75°F 5°F = 70°F ΔT (Temperature Rise)

Air Delivery / Motor Selection Chart

ITEM NUMBER	A	B	C	D	E
		CFM	FPM	Motor HP	Max External Static ("WG")
-2.5-x.x-Vxx2		2,500	870	2	2.4
-2.5-x.x-Vxx3		2,500	870	3	3.3
-3.0-x.x-Vxx2		3,000	1,045	2	2.2
-3.0-x.x-Vxx3		3,000	1,045	3	3.1
-3.5-x.x-Vxx3		3,500	1,220	3	2.8
-3.5-x.x-Vxx5		3,500	1,220	5	4.1
-4.0-x.x-Vxx3		4,000	1,394	3	2.6
-4.0-x.x-Vxx5		4,000	1,394	5	3.9
-4.5-x.x-Vxx3		4,500	1,586	3	2.3
-4.5-x.x-Vxx5		4,500	1,586	5	3.7
-5.0-x.x-Vxx3		5,000	1,742	3	2.0
-5.0-x.x-Vxx5		5,000	1,742	5	3.5
-5.5-x.x-Vxx5		5,500	1,916	5	3.1
-5.5-x.x-Vxx7.5		5,500	1,916	7.5	4.4
-6.0-x.x-Vxx5		6,000	2,265	5	2.9
-6.0-x.x-Vxx7.5		6,000	2,265	7.5	4.2
-6.5-x.x-Vxx5		6,500	2,091	5	2.6
-6.5-x.x-Vxx7.5		6,500	2,091	7.5	4.0
-7.0-x.x-Vxx5		7,000	2,439	5	2.3
-7.0-x.x-Vxx7.5		7,000	2,439	7.5	3.8
-7.5-x.x-Vxx5		7,500	2,613	5	2.0
-7.5-x.x-Vxx7.5		7,500	2,613	7.5	3.4
-8.0-x.x-Vxx7.5		8,000	2,787	7.5	3.2
-8.0-x.x-Vxx10		8,000	2,787	10	4.0
-8.5-x.x-Vxx7.5		8,500	2,962	7.5	2.7
-8.5-x.x-Vxx10		8,500	2,962	10	3.7
-9.0-x.x-Vxx7.5		9,000	3,136	7.5	2.4
-9.0-x.x-Vxx10		9,000	3,136	10	3.5
-9.5-x.x-Vxx7.5		9,500	3,310	7.5	2.1
-9.5-x.x-Vxx10		9,500	3,310	10	3.3
-10.0-x.x-Vxx7.5		10,000	3,484	7.5	1.8
-10.0-x.x-Vxx10		10,000	3,484	10	2.9
-10.0-x.x-Vxx10		10,500	3,659	10	2.5
-11.0-x.x-Vxx10		15,000	3,833	10	2.2
-11.0-x.x-Vxx10		11,500	4,007	10	1.8
-12.0-x.x-Vxx10		12,000	4,148	10	1.5

Motor Amps Chart

Motor HP	208V FLA	240V FLA	480V FLA
2HP	7.8	6.8	3.4
3HP	11.0	9.6	4.8
5HP	17.5	15.2	7.6
7.5HP	25.3	22.0	11.0
10HP	N/A	N/A	14.0