

Commercial HVAC Load Calculator

Compares commercial HVAC motor FLA, heater load, voltage, phase, and manufacturer reference values for preliminary load and MCA review.

Generated October 10, 2026

<https://www.elecatrix.com/commercial-industrial-loads/commercial-hvac-load-calculator/>

Inputs

Input	Value	Unit
Largest motor FLA	20	A
Other motor FLA total	5	A
Electric heater load	5	kW
System voltage	480	V
Phase	Balanced three-phase	
Manufacturer MCA reference	45	A
Manufacturer MOCP reference	60	A

Results

Result	Value	Unit
Heater current	6.0141	A
Preliminary MCA estimate	36.0141	A
Entered load current sum	31.0141	A
Estimated load	25.7846	kVA
Margin to entered MCA	8.9859	A

Status

Status	Value	Unit
MCA comparison	Within entered MCA reference	
MOCP comparison	MOCP value carried for review only	

Calculation details

Detail	Value	Unit
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Calculation basis

Preliminary HVAC MCA estimate applies a transparent 125 percent factor to the entered largest motor FLA, then adds other motor FLA and heater current. All nameplate and manufacturer inputs remain user supplied.

Equipment boundary

This is not an Article 440 determination, MCA/MOCP approval, conductor selection, breaker selection, listing check, or AHJ result.

Formulas

$$I_{\text{heater}} = \frac{1000 P_{\text{heater}}}{V_{\text{L-L}} \phi V}$$

$$I_{\text{MCA,est}} = 1.25 I_{\text{largest}} + I_{\text{other}} + I_{\text{heater}}$$

$$I_{\text{load}} = I_{\text{largest}} + I_{\text{other}} + I_{\text{heater}}$$

$$S_{\text{load}} = \frac{\phi V I_{\text{load}}}{1000}$$

No final MCA, MOCP, conductor, breaker, listing, or code result is selected.

Warnings and limitations

The entered 125 percent factor is a transparent preliminary model, not a universal code conclusion. Exact HVAC nameplate MCA/MOCP, Article 440 edition, equipment listing, conductor conditions, and AHJ review control final decisions.