

Motor Starting Current Calculator

Estimate motor starting current and a voltage-sag reference from entered full-load current, starting multiplier, line voltage, and sag percentage before reviewing motor, controller, utility, and manufacturer data.

Generated October 10, 2026

<https://www.elecatrix.com/motors-starters/motor-starting-current-calculator/>

Inputs

Input	Value	Unit
Full-load current	24	A
Starting multiplier	6	x
Line voltage	240	V
Voltage sag reference	12	%
Full-load current basis note	N/A	
Starting multiplier basis note	N/A	
Voltage sag basis note	N/A	

Results

Result	Value	Unit
Estimated starting current	144	A
Voltage sag reference	28.8	V
Running current reference	24	A
Starting multiplier used	6	x
Voltage sag percent used	12	%
Remaining voltage reference	211.2	V

Calculation details

Detail	Value	Unit
Calculation basis	Full-load current, user-supplied starting multiplier, line voltage, and user-supplied voltage-sag percentage.	

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Starting method boundary	Starting multiplier is user-supplied; this calculator does not select across-the-line, reduced-voltage, soft-start, VFD, or controller settings.
Locked-rotor boundary	No NEMA code-letter conversion, locked-rotor current lookup, motor protection setting, starter selection, short-circuit study, or utility approval is made by this calculator.
Voltage sag boundary	Voltage sag is a user-entered percentage converted to volts; no source impedance, transformer, feeder, utility flicker, or acceptance analysis is made by this calculator.
Equipment selection boundary	No starter, overload, breaker, fuse, conductor, controller, VFD, soft-starter, utility, or code-compliance selection is made by this calculator.

Formulas

Starting current = Full-load current x Starting multiplier

Estimated voltage sag = Line voltage x (Voltage sag percent/100)

Remaining voltage reference = Line voltage - Estimated voltage sag

Running current reference = Full-load current

remaining voltage reference = line voltage - estimated voltage sag

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Warnings and limitations

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This calculator provides a preliminary estimate only. It is not locked-rotor current, not a NEMA code-letter conversion, not a starter selection, not a motor protection setting, not conductor sizing, not overcurrent-protection selection, not a utility voltage-sag approval, and not a code-compliance result. Verify the applicable NEC edition, NEMA/manufacturer data, controller ratings, utility requirements, AHJ interpretation, and project conditions before design, installation, or inspection decisions.