

Motor Starter Current Reference Calculator

Enter motor nameplate FLA and transparent project assumptions to estimate starting current, an overload reference current, and a starter continuous-current discussion basis. This tool is not a starter selection, not an overload setting, and does not select a compliant starter, overload relay, breaker, conductor, disconnect, controller, SCCR, or equipment rating.

Generated October 10, 2026

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

Inputs

Input	Value	Unit
Motor nameplate FLA	18	A
Starting current multiplier	6	x FLA
Overload reference percentage	115	% of FLA
Starter continuous-current margin	125	% of FLA
Motor FLA basis note	N/A	
Starting-current basis note	N/A	
Overload reference basis note	N/A	
Starter margin basis note	N/A	

Results

Result	Value	Unit
Estimated overload reference current	20.7	A
Estimated starting current	108	A
Estimated starter continuous-current basis	22.5	A
Overload reference ratio	1.15	decimal
Starter margin ratio	1.25	decimal
Starting multiplier used	6	x

Calculation details

Detail	Value	Unit
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Calculation basis	Motor nameplate FLA multiplied by user-entered starting-current, overload-reference, and starter-margin assumptions.
User assumption boundary	Percentages and multiplier are user-supplied assumptions; no NEC, NEMA, UL, manufacturer, or AHJ setting is selected by this calculator.
Overload setting boundary	No overload relay setting, trip curve, heater element, electronic overload parameter, or code-required overload protection result is made by this calculator.
Starter selection boundary	No starter size, contactor rating, overload relay, breaker, fuse, conductor, disconnect, SCCR, short-circuit study, utility approval, or code-compliance result is made by this calculator.
Locked-rotor boundary	No NEMA code-letter conversion, locked-rotor current lookup, starting-method approval, acceleration study, or voltage-sag approval is made by this calculator.
Manufacturer/listing boundary	No manufacturer catalog selection, UL/listed equipment combination, SCCR verification, enclosure rating, or controller listing result is made by this calculator.
Code compliance boundary	No NEC, AHJ, utility, equipment-listing, or code-compliance conclusion is made by this calculator.

Formulas

$$r_{\text{overload}} = (\text{Overload reference percentage}/100)$$

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$r_{\text{starter}} = (\text{Starter margin percentage} / 100)$

$I_{\text{overload reference}} = I_{\text{FLA}} \times r_{\text{overload}}$

$I_{\text{starting}} = I_{\text{FLA}} \times \text{Starting current multiplier}$

$I_{\text{starter basis}} = I_{\text{FLA}} \times r_{\text{starter}}$

$\text{overload reference ratio} = \text{overload reference percentage} / 100$

$\text{starter continuous-current margin ratio} = \text{starter continuous-current margin percentage} / 100$

user assumption boundary = percentages and multiplier are user-supplied assumptions; no NEC, NEMA, UL, manufacturer, or AHJ setting is selected by this calculator

starter selection boundary = no starter size, contactor rating, overload relay, breaker, fuse, conductor, disconnect, SCCR, short-circuit study, utility approval, or code-compliance result is made by this calculator

Warnings and limitations

This is a U.S. English preliminary engineering estimate for transparent discussion only. It does not reproduce NEC tables, does not determine a code-required overload setting, is not a starter selection, and does not select a compliant motor starter, overload relay, breaker, fuse, conductor, disconnect, controller, SCCR, short-circuit rating, UL/listed equipment combination, or equipment rating. The percentage inputs are user-entered assumptions, not normative conclusions and not a code-compliance result. Starting current depends on motor design, NEMA code-letter or locked-rotor data, starting method, driven load, acceleration time, source impedance, voltage drop, and manufacturer instructions. Verify nameplate data, listed equipment ratings, the adopted NEC edition, UL/listing constraints, NEMA/manufacturer data, AHJ requirements, manufacturer instructions, and project conditions with a qualified electrical professional before design or installation.