

Motor Soft-Starter Current Calculator

Estimate across-line starting current, soft-start current limit, reduction, kVA, and comparison from entered motor values.

Generated October 10, 2026

<https://www.elecatrrix.com/motors-starters/motor-soft-starter-current-calculator/>

Inputs		
Input	Value	Unit
Motor FLA	50	A
Across-line start multiplier	6	x
Soft-starter current limit	300	% of FLA
Line voltage	480	V
Results		
Result	Value	Unit
Across-line start current	300	A
Soft-start limit current	150	A
Soft-start limit multiplier	3	x FLA
Current reduction	150	A
Current reduction	50	%
Across-line start apparent power	249.4153	kVA
Soft-start apparent power	124.7077	kVA
Soft-starter comparison	Soft-start limit is at or below across-line start current	
Calculation details		
Detail	Value	Unit
Calculation basis	Across-line starting current is FLA multiplied by the entered starting multiplier. Soft-start limit current is FLA multiplied by the entered current-limit percent.	

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Screening boundary

Motor soft-starter current arithmetic only; no ramp, torque, bypass, thermal, harmonic, coordination, source, code, or manufacturer approval result is made.

Formulas

$\text{across-line start current} = \text{motor FLA} \times \text{across-line start multiplier}$

$\text{soft-start limit current} = \text{motor FLA} \times \text{soft-starter current-limit percent} / 100$

$\text{current reduction} = \text{across-line start current} - \text{soft-start limit current}$

$\text{current reduction percent} = \text{current reduction} / \text{across-line start current} \times 100$

$\text{three-phase kVA} = \sqrt{3} \times \text{line voltage} \times \text{current} / 1000$

Warnings and limitations

This soft-starter estimate is current-limit arithmetic only. It does not verify ramp, torque, bypass, thermal behavior, harmonics, coordination, source capacity, manufacturer settings, or code compliance.