

Motor Multi-Speed Current Calculator

Estimate per-speed current from entered horsepower, efficiency, power factor, voltage, and phase values.

Generated October 10, 2026

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

Inputs

Input	Value	Unit
Line voltage	480	V
Phase model	Balanced three-phase	
Speed rows	Rows: 2	
Row 1 - Label	High	
Row 1 - Output horsepower	10	hp
Row 1 - Efficiency	90	%
Row 1 - Power factor	85	%
Row 2 - Label	Low	
Row 2 - Output horsepower	5	hp
Row 2 - Efficiency	85	%
Row 2 - Power factor	80	%

Results

Result	Value	Unit
Speed rows	2	rows
Phase multiplier	1.7321	x
Total apparent power	15236.9281	VA
Maximum speed current	11.7294	A
Minimum speed current	6.5978	A
Max-current speed label	High	
Min-current speed label	Low	

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Calculation details

Detail	Value	Unit
Calculation basis	Each speed row converts horsepower to shaft watts, divides by efficiency and power factor, and divides by voltage and phase multiplier for current.	
Screening boundary	Motor multi-speed current arithmetic only; no winding, tap, VFD, controller, overload, conductor, code, or manufacturer approval result is made.	

Formulas

shaft watts per row = output horsepower x 746

input watts per row = shaft watts / (efficiency percent / 100)

apparent power per row = input watts / (power factor percent / 100)

current per row = apparent power / (line voltage x phase multiplier)

phase multiplier = 1 for single-phase; sqrt(3) for balanced three-phase

Warnings and limitations

This multi-speed motor current estimate uses entered row assumptions only. It does not prove winding type, tap behavior, VFD mode, controller selection, overload sizing, or manufacturer approval.