

VFD Volts-per-Hertz Calculator

Calculate a commissioning reference from the exact motor nameplate and drive parameter manual without prescribing a universal VFD setup.

Generated October 10, 2026

<https://www.elecatrix.com/motors-starters/vfd-volts-per-hertz-calculator/>

Inputs

Input	Value	Unit
Motor rated voltage	480	V
Motor rated frequency	60	Hz
Target frequency	30	Hz
Entered voltage boost	N/A	V
Maximum output voltage	480	V
Drive parameter note	Record control mode, field weakening, boost, and motor insulation data separately.	

Results

Result	Value	Unit
Base volts per hertz	8	V/Hz
Unlimited reference voltage	240	V
Limited reference voltage	240	V
Voltage limited amount	N/A	V

Control region

Base-frequency region

Calculation details

Detail	Value	Unit
Calculation basis	Base volts-per-hertz is rated voltage divided by rated frequency. Reference voltage is base ratio times target frequency plus entered boost, limited by entered maximum output voltage.	

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VFD boundary

Reference arithmetic only; verify drive control mode, motor insulation, boost, field weakening, flux optimization, maximum frequency, and manufacturer parameters separately.

Formulas

Base V/Hz = (rated voltage/rated frequency)

V_reference, unlimited = Base V/Hz x f_target + V_boost

V_reference = min(V_reference, unlimited, V_maximum)

Voltage limited amount = max(0, V_reference, unlimited - V_reference)

Warnings and limitations

This is a VFD parameter reference estimate. It does not set a drive, select a motor, verify insulation stress, establish field weakening behavior, or prove a commissioning result.