



AMPERE FORMULA CALCULATOR

Electrical formulas for calculating amperes, horsepower, kilowatts, and KVA.

E = VOLTAGE I = AMPS PF = POWER FACTOR EFF = EFFICIENCY HP = HORSEPOWER

To Find	Direct Current	Alternating Current		
		Single Phase	Two-Phase* Four-Wire	Three Phase
Amperes when Horsepower is known	$\frac{HP \times 746}{E \times EFF}$	$\frac{HP \times 746}{E \times EFF \times PF \times 2}$	$\frac{HP \times 746}{2 \times E \times EFF \times PF}$	$\frac{HP \times 746}{E \times EFF \times PF \times 1.73}$
Amperes when Kilowatts are known	$\frac{KW \times 1000}{E}$	$\frac{KW \times 1000}{E \times PF}$	$\frac{KW \times 1000}{2 \times E \times PF}$	$\frac{KW \times 1000}{2 \times E \times PF}$
Amperes when "KVA" is known		$\frac{KW \times 1000}{E}$	$\frac{KVA \times 1000}{2 \times E}$	$\frac{KVA \times 1000}{E \times 1.73}$
Kilowatts	$\frac{E \times I}{1000}$	$\frac{E \times I \times PF}{1000}$	$\frac{I \times E \times 2 \times PF}{1000}$	$\frac{E \times I \times 1.73 \times PF}{1000}$
Kilovolt-Amperes "KVA"-		$\frac{I \times E}{1000}$	$\frac{I \times E \times 2}{1000}$	$\frac{E \times I \times 1.73}{1000}$
-Horsepower (Output)	$\frac{E \times I \times EFF}{746}$	$\frac{E \times I \times EFF \times PF}{746}$	$\frac{I \times E \times 2 \times EFF \times PF}{746}$	$\frac{E \times I \times EFF \times PF \times 1.73}{746}$

NOTE: Direct current formulas do not use (PF, 2, or 1.73)

Single phase formulas do not use (2 or 1.73)

Two phase-four wire formulas do not use (1.73)

Three phase formulas do not use (2)

*For three-wire, two phase circuits the current in the common conductor is 1.41 times that in either of the other two conductors.

Information is provided as a guideline only. Check your local code.