Chiller Efficiency: COP ↔ kW/TR ↔ EER

Convert chiller or air conditioner efficiency between COP, kW per ton of refrigeration and EER (Btu/h per W), from any one of them.

Method: Definitions: 1 TR = 12 000 Btu/h = 3.516 853 kW; 1 Btu (IT) = 1055.055 852 62 J

Input parameters

Unit system: SI

Parameter	Value	Unit
Value given	COP	
Value	5.6000	

Calculated results

Parameter	Value	Unit
COP	5.6000	
kW per ton of refrigeration	0.62801	
EER (Btu/h per W)	19.108	

Formula and method

$$\frac{kW}{TR} = \frac{3.516\,853}{COP}, \quad EER = 3.412\,142\,COP$$

Variables

given	Value given	-
x	Value	-
COP	COP	-
kW/TR	kW per ton of refrigeration	-
EER	EER (Btu/h per W)	-

Method and standards

Unit definitions.

Assumptions and limits

- Same basis for all values.

References

- Definitions: 1 TR = 12 000 Btu/h = 3.516 853 kW; 1 Btu (IT) = 1055.055 852 62 J

Report details

Report reference	FCC-HKFA-PSG0 (the same inputs always give the same reference)
Generated	17 November 2026, 19:48 UTC
Calculator	Chiller Efficiency: COP ↔ kW/TR ↔ EER
Method last reviewed	12 November 2026
Software release	FireCAD Calc, release of 17 November 2026
Release checks	3 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/hvac/chillers/chiller-efficiency-conversions

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.