



Electrical Service

The trutankless water heater is considered a non-continuous heating appliance according to the definitions in the National Electric Code sections 410 and 411. An appliance load that is not continuous for 3 hours or more is considered non-continuous. The trutankless heater is, therefore, a non-continuous heating appliance. Due to the diversity of water heating in a home and the manner in which the power is cycled between the heating elements in the trutankless system, the load (amps) contribution of the our system to the overall service load of the home or building can be calculated using the optional methods of National Electrical Code, sections NEC 220-82 or 220-83. The methods and rules for calculating these loads is found under the National Electric Code Rules – Load Calculations.



For new dwellings, the service load should be calculated using NEC 220-82. For existing dwellings, the service load should be calculated using NEC 220-83. By both calculation methods, the trutankless load is generally added to the service load at 40% of its maximum nameplate rating. For instance, the maximum current (amp) rating of the trutankless TR29 is 120 amps and 40% of this rating is about 48 amps. The 48 amps is typically the load added to the overall service load of the dwelling when using the optional calculation methods as described in NEC 220-82 and 220-83, not the maximum current rating, 120 amps. As a result, the trutankless TR29 will fit in most homes up to 3000 square feet that have a 200 amp whole-house electrical service.

Service Load - NEC Optional 220-82 - New Dwelling Dwelling with trutankless Water Heater

120/240V Service		Example 1	Example 2
SQUARE FEET		3500	1700
TRUTANKLESS WATER HEATER		TR29 / BR28	TR15 / BR14
		Line VA	Line VA
LIGHTING	3VA/sq.ft x Area	10500	5100
APPLIANCE	2x1500VA	3000	3000
LAUNDRY	1500VA	1500	1500
	Subtotal (VA)	15000	9600
RANGE	12kVA	12000	12000
WATER HEATER	TR29	28800	14400
DISHWASHER	1.2kVA	1200	1200
DRYER	5kVA	5000	5000
	Subtotal (VA)	47000	32600
3.5 TON AC	AC 240V x 21.2A	5088	5088
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	Subtotal (VA)	10176	5088
DEMAND FACTORS			
10KW @ 100%		10000	10000
HVAC @ 100%		10176	5088
REMAINDER AT 40%		20800	12880
SERVICE LOAD (VA)		40976	27968
CURRENT (A)		170.73	116.53
SERVICE PANEL (A)		200	125
NOTES:			
LOAD OF TRUTANKLESS @ 40%		11520	5760