

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 noncontinuous. 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 |

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