

# TYTAN

WATER HEATER **PROCESS TECHNOLOGY**

Electric Inline  
Water Heater



**PROCESS  
TECHNOLOGY**

# TYTAN™ SPECIFICATIONS

<b>SIZES</b>	12,000 watts to 144,000 watts
<b>VOLTAGES</b>	208 volt to 480 volt, three phase (single phase available). Consult factory for specific wattage/voltage combinations available
<b>TEMPERATURE CONTROL</b>	PID microprocessor based digital thermostat
<b>TEMPERATURE LIMIT</b>	194° F (90° C), depending on operating conditions
<b>TEMPERATURE ACCURACY</b>	+/- 1° F, depending on operating conditions
<b>PRESSURE RATING</b>	100 PSIG (operating)
<b>EFFICIENCY</b>	> 99%
<b>WETTED SURFACES</b>	All titanium standard
<b>INLET/OUTLET</b>	1" MNPT through 72 kW 2" MNPT 96 kW and higher
<b>STANDARD SAFETY FEATURES</b>	<ul style="list-style-type: none"> <li>• Grounded construction</li> <li>• EMO emergency stop button</li> <li>• Fluid overtemperature detection (J type thermocouple)</li> <li>• Element overtemperature detection (bi-metallic snap switches)</li> <li>• Control fusing (primary and secondary)</li> <li>• FM approved overtemperature limit controller</li> <li>• Ground fault protection (GFP)</li> </ul>
<b>HOUSING</b>	NEMA 1 rated, powder coated metal enclosure
<b>DIMENSIONS</b>	<ul style="list-style-type: none"> <li>• <b>12-48 kW:</b> 29.5" (75 cm) W x 13.5" (34 cm) D x 36.0" (91 cm) H</li> <li>• <b>72 kW:</b> 37.5" (95 cm) W x 13.5" (34 cm) D x 36.0" (91 cm) H</li> <li>• <b>96-144 kW:</b> 28.0" (71 cm) W x 17.0" (43 cm) D x 66.9" (170 cm) H</li> </ul>
<b>STANDARD CERTIFICATIONS</b>	cUL
<b>OPTIONS</b>	<ul style="list-style-type: none"> <li>• CE compliance</li> <li>• Semi S2/S3 compliance</li> <li>• PLC control</li> <li>• Remote interface</li> <li>• Disconnect and circuit breaker</li> <li>• Stainless steel elements and wetted parts</li> <li>• Flanged/sanitary fluid connections</li> <li>• RS remote communications</li> </ul>

## FEATURES and BENEFITS

- **Improved Process Results:** Heated DI water improves cleaning effectiveness and reduces rinse time in most processes.
- **Cost Saving Design:** >99% element efficiency contributes to low cost of ownership (COO) and excellent return on investment (ROI).
- **Outstanding Cleanliness:** 100% titanium heating elements provide very clean performance for precision cleaning applications.
- **Reliable, Rugged Construction:** Simple, heavy walled element construction for trouble free operation and long life. Baffled element chambers enhance heat transfer efficiency.
- **Outstanding Temperature Responsiveness and Stability:** Excellent temperature accuracy over a wide flow range can substantially improve process consistency.
- **Fast/Easy Maintenance:** Long-life element for minimal process down time. Designed for easy service.
- **Rapid Installation:** Minimal facility requirements. Heater is factory tuned to your specifications. Only power and plumbing connections required.
- **Compact Configuration:** Space-saving design minimizes footprint requirements. Wall mounted up to 72kW; floor mounted to 144kW.

# DIMENSIONS

## SIZING

To determine required wattage, use the following equation:

$$\text{GPM} \times \text{TEMP RISE (}^\circ\text{F)} \times 0.147 = \text{KW REQUIRED}$$

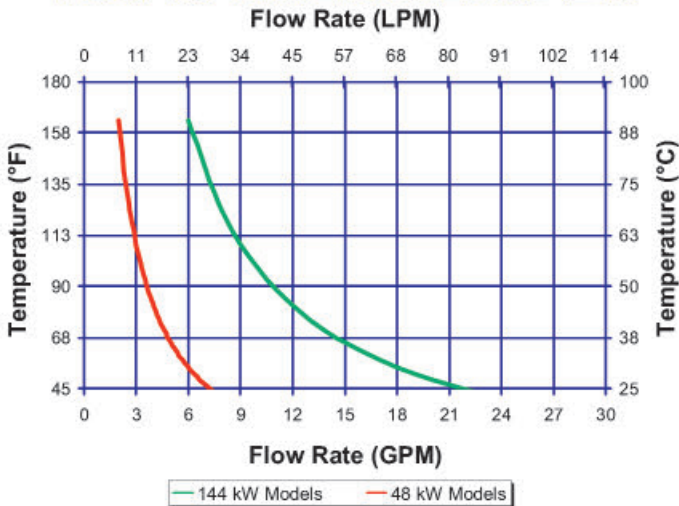
$$\text{LPM} \times \text{TEMP RISE (}^\circ\text{C)} \times .07 = \text{KW REQUIRED}$$

Temperature rise is expressed in degrees F where GPM is gallons per minute of flow desired. Round results up to select unit.

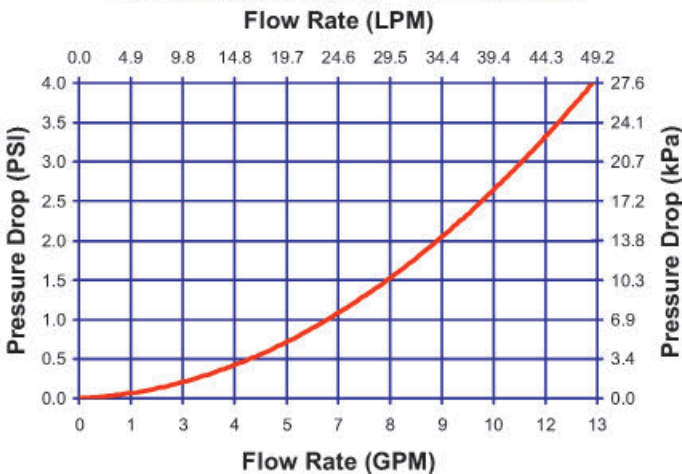
Example: 2.5 GPM x 95°F x 0.147 = 35 kW (Use 36 kW)

CONSULT OUR FACTORY FOR DETAILED SIZING INFORMATION AND APPLICATION ASSISTANCE.

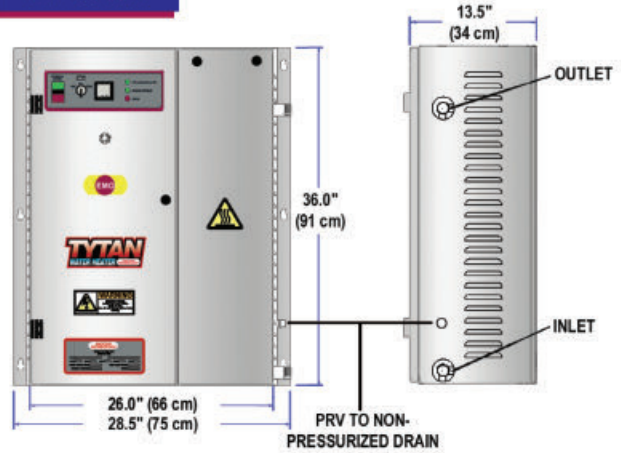
## FLOW VS. TEMPERATURE RISE ( $\Delta T$ )



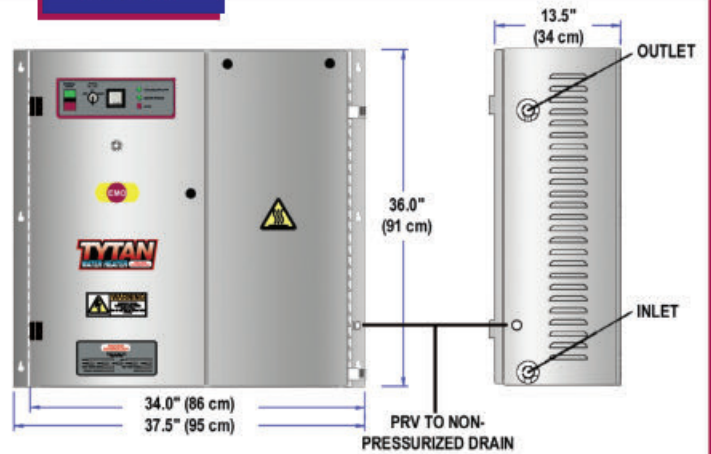
## PRESSURE DROP - ALL SIZES



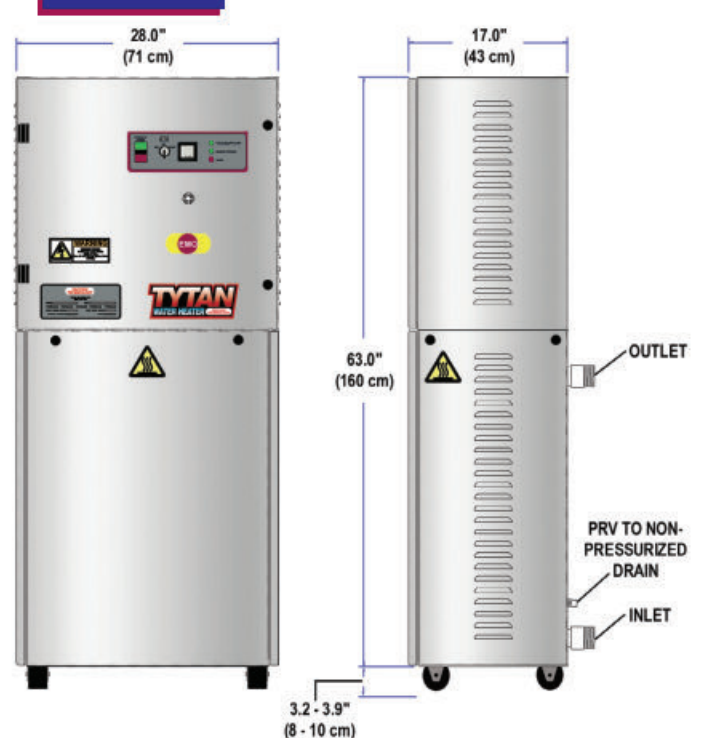
## 12-48 kW



## 72 kW



## 96-144 kW



# PROCESS TECHNOLOGY

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## TYTAN™ WATER HEATER ORDERING INFORMATION

Series	Wattage	Voltage	Phase	Options																						
-012 = 12,000	-018 = 18,000	-024 = 24,000	-036 = 36,000	-048 = 48,000	-072 = 72,000	-096 = 96,000	-120 = 120,000	-144 = 144,000	-208	-240	-380	-400	-415	-480	-600	-1 = 1 phase	-3 = 3 phase	* = specific units	-SC = SEMI S2/S3 and CE compliant	-CB = disconnect and circuit breaker	-RI = remote interface	-RC = RS remote communications	-PLC = PLC control	-S = stainless steel wetted parts	-X = special options (specify in clear text)	
TY = TYTAN™ water heater																										

### HEATER SELECTION MATRIX (by standard heater sizes)

FLOW RATE (LPM/GPM)

TEMPERATURE RISE (DIFFERENTIAL) degrees C / degrees F

	7/13	15/27	22/40	36/65	45/81	52/94	55/100	65/117	75/135
3.8/1	TY12	TY12	TY12	TY12	TY12	TY18	TY18	TY18	TY24
7.6/2	TY12	TY12	TY12	TY24	TY24	TY36	TY36	TY36	TY48
11.4/3	TY12	TY12	TY18	TY36	TY36	TY48	TY48	TY72	TY72
15.1/4	TY12	TY18	TY24	TY48	TY48	TY72	TY72	TY72	TY96
18.9/5	TY12	TY24	TY36	TY48	TY72	TY72	TY72	TY96	TY120
22.7/6	TY12	TY24	TY36	TY72	TY72	TY96	TY96	TY120	TY120
26.5/7	TY18	TY36	TY48	TY72	TY96	TY120	TY120	TY120	TY144
30.3/8	TY18	TY36	TY48	TY96	TY96	TY120	TY120	TY144	*
34.1/9	TY18	TY36	TY72	TY96	TY120	TY144	TY144	*	*
37.8/10	TY24	TY48	TY72	TY96	TY120	TY144	TY144	*	*
41.6/11	TY24	TY48	TY72	TY120	TY144	*	*	*	*
45.4/12	TY24	TY72	TY96	TY144	*	*	*	*	*

( $t_i - t^n$ ) *n.* one that is gigantic in power: one that stands out for greatness of achievement.