



# Specifications and Selection for Temperature and Pressure Protection of Water Heaters and Hot Water Storage Tanks

# NEWS

The following will enable you to select the proper size Watts Temperature and Pressure Relief Valves for water heaters, based on the listed temperature relieving capacity exceeding that of the heater BTU input rating. All valves are constructed, tested and rated under ANSI Z21.22 "Relief Valves for Hot Water Supply Systems" and have a discharge capacity based on temperature steam ratings.

### *For Heaters Under 200,000 BTU Per Hour Input Rating:*

Type No. †	Model	Inlet x Outlet Size (In.)	CSA Temp. Steam Rating BTU/HR	
1L-2	M7	1/2 M x 1/2 F	15,000	} 1/2"
1XL-4	M7	1/2 M x 1/2 F	15,000	
1XL-8	M7	1/2 M x 1/2 F	15,000	
10L-2	M7	3/4 M x 3/4 F	80,000	} 3/4"
100XL	M7	3/4 M x 3/4 F	100,000	
100XL-8	M7	3/4 M x 3/4 F	100,000	
SL100XL	M7	3/4 M x 3/4 F	100,000	
L100XL-3	M7	3/4 M x 3/4 F	100,000	
LL100XL-2.5	M7	3/4 M x 3/4 F	100,000	
LLL100XL	M7	3/4 M x 3/4 F	100,000	
40L-3	M15	3/4 M x 3/4 F	180,000	
LL40XL	M15	3/4 M x 3/4 F	200,000	
LLL40XL	M15	3/4 M x 3/4 F	200,000	
40XL-5	M15	3/4 M x 3/4 F	200,000	
40XL-8	M15	3/4 M x 3/4 F	200,000	
140S-3	M15	3/4 F x 3/4 F	180,000	
140X-5	M15	3/4 F x 3/4 F	200,000	
140X-8	M15	3/4 F x 3/4 F	200,000	

†Suffix = length of thermostat in inches. Example: 1L-2 = extension length 2".

### *For Heaters Over 200,000 BTU Per Hour Input Rating:*

40L-2	M15	1 M x 1 F	450,000	See back page for ASME ratings of T&P Valves 1" & larger
40XL-4	M15	1 M x 1 F	500,000	
40XL-7	M15	1 M x 1 F	500,000	
LL40XL	M15	1 M x 1 F	500,000	
140S-3	M15	1 F x 1 F	570,000	
140X-6	M15	1 F x 1 F	670,000	
140X-9	M15	1 F x 1 F	670,000	
*N240X-6	M15	1 F x 1 F	730,000	
*N240X-9	M15	1 F x 1 F	730,000	
*N241X-5	M15	1 1/4 M x 1 F	730,000	
*N241X-8	M15	1 1/4 M x 1 F	730,000	
*340-3	M15	1 1/2 F x 1 1/2 F	1,150,000	
*340X-8	M15	1 1/2 F x 1 1/2 F	1,150,000	
*342-3	M15	2 M x 1 1/2 F	1,150,000	
*342X-8	M15	2 M x 1 1/2 F	1,150,000	

\*Standardly furnished with stainless steel thermostat tube.

These ratings are the result of improved and advanced designs incorporating new higher lift thermostatic elements as well as the ANSI Z21.22 Listing Requirements.

## Valve Specifications to Meet All Latest Applicable Standards and Established Requirements

To meet CSA, UL, or FHA water heater standard safety requirements, a temperature and pressure relief valve, constructed and located in conformance with current "ANSI Z21.22 Relief Valves for Hot Water Supply Systems", shall be installed on all water heaters at time of installation. The temperature sensing element shall be immersed in the water within the top 6" of the tank.

### CSA Interpretation of Current ANSI Z21.10.1 Gas Storage Water Heater Standard:

"That portion of the marking which provides, 'a listed temperature and pressure relief valve shall be installed at the time of the installation of the heater,' shall be considered by the CSA to be mandatory and not optional with the installer." "Compliance with this instruction is deemed by CSA to be a required step for the safe installation and use of a water heater as intended by Z21.10.1 1966.

### UL Standards require the following heater marking:

"Install temperature and pressure protective equipment required by local codes, but not less than a combination temperature and pressure relief valve certified as meeting requirements of ANSI Z21.22 by a nationally recognized testing laboratory that maintains periodic inspection of production of listed equipment or materials."

### FHA No. 300 Minimum Property Standards Sec. 1005-4.1

All direct-fired, automatic storage-type water heaters shall be provided, at the time of installation, with a reseating type temperature and pressure relief valve constructed, listed and installed in accordance with ANSI Z21.22. This requirement is in addition to the energy cutoff device installed by the heater manufacturer and which conforms to the labeling requirements of the appropriate CSA and UL standards.



## Correct Installation of T&P Relief Valves

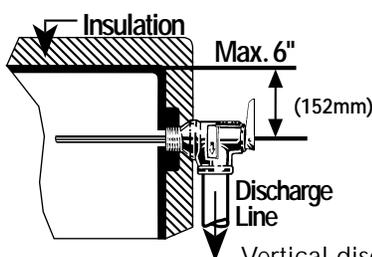
### Direct Side Tapping

#### FOR EXTERNAL FLUE HEATERS

Use extra length extension thermostat to extend into water storage tank.

#### FOR INTERNAL FLUE HEATERS

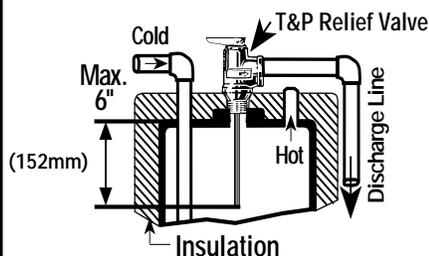
Use short or standard length thermostat. Vertical discharge line must be installed with its direction downward.



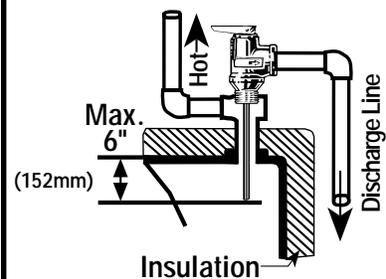
Vertical discharge line must be installed with its direction downward.

### For Heaters with Direct Top Tapping

Use Standard or extra length extension thermostat



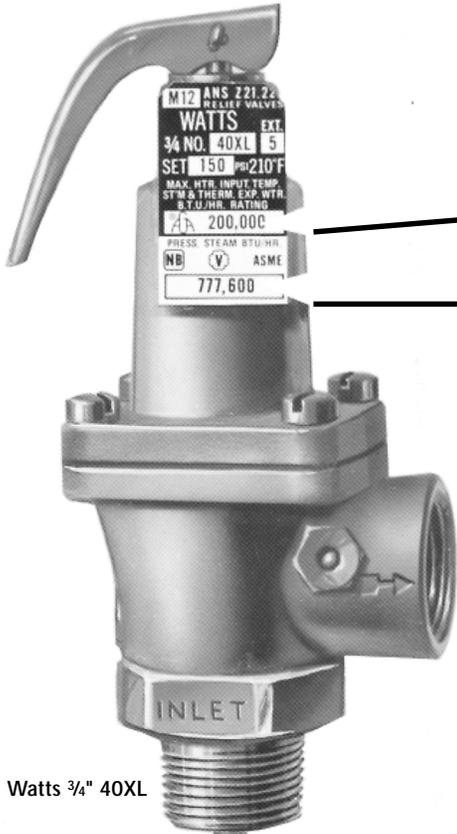
"Alternate" Only when the tapings are not provided Use Standard or extra length extension thermostat.



### IMPORTANT

A relief valve functions, in an emergency, by discharging water. Therefore, it is essential that a discharge line be piped from the valve in order to carry the overflow to a safe place of disposal. The drain pipe must be the same size as the valve outlet, and must pitch downward from the valve and terminate at least 6" above a drain where discharge will be clearly visible.

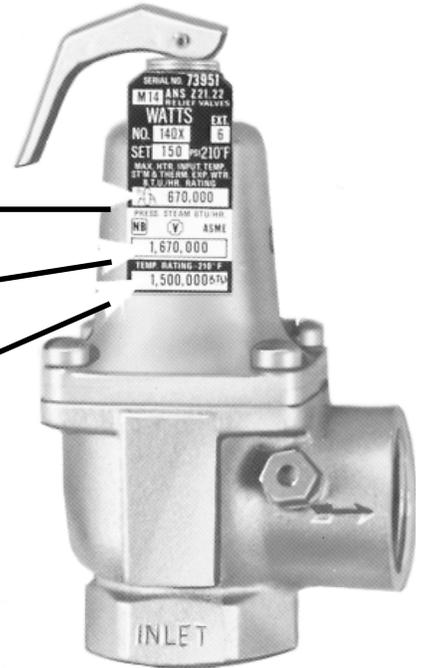
# T&P Relief Valve Ratings



Watts 3/4" 40XL

Thermo-Bonded (non-Metallic) Coating

3/4" and 1" Series 40, 3/4" Series 140, Model M15, 1L-2, 1XL Series and Series 100XL feature a thermostat with a special thermo-bonded (nonmetallic) protective coating. This feature retards the accumulation of mineral deposits created by adverse water conditions.



Watts 3/4" 140XL

Stainless Steel Thermostat Tube

1" Series 140 Model M15, Series N240, N241 Model M2 and Series 340, 342 Model M15 are standardly furnished with stainless steel thermostat tube.

CSA Temperature Steam Rating  
(See Page 1)

ASME Pressure Steam Rating  
(See Page 4)

Temperature Water Rating  
(See Page 4)

## General Recommendations

1. For gas, electric or oil storage water heaters under 200,000 BTU/hr. rating and for compliance with any applicable water heater labeling requirements: **Use 3/4" T&P Valves tested under ANSI Z21.22 with ratings as certified and listed by CSA.**
2. For gas or oil-fired storage water heaters between 200,000 and 730,000 BTU/hr. rating; and for compliance with any applicable water heater labeling requirements: **Use 1" and over T&P valves tested under ANSI Z21.22 with ratings as certified and listed by CSA.**
3. For ASME installations of gas or oil-fired hot water supply boilers heating domestic water for a storage tank over 730,000 BTU output; and for ASME installations of steam coil storage water heaters: **Use 1 1/2" and over, T&P valves tested under ANSI Z21.22 with ratings as certified and listed by CSA.**

**NOTE - Temperature Water Rating at 210°F:** Where the BTU heater input exceeds available CSA test ratings, larger size valves 1" and above have an in built temperature water rating capacity at 210°F, as shown on rear page. However, the stated temperature water rating should only be used where approved and understood to be conditional that there must be no less than 30 lbs. supply pressure available to the water heater during any period of overheating discharge. Otherwise, the valves would not be responsible for adequate protection of heater BTU input installations in excess of the CSA temperature steam ratings.

**WARNING: Following installation, the valve lever MUST be operated AT LEAST ONCE A YEAR by the water heater owner to ensure that waterways are clear.** Certain naturally occurring mineral deposits may adhere to the valve, blocking waterways, rendering it inoperative. When the lever is operated, hot water will discharge if the waterways are clear. **PRECAUTIONS MUST BE TAKEN TO AVOID PERSONAL INJURY FROM CONTACT WITH HOT WATER AND TO AVOID PROPERTY DAMAGE.** BEFORE operating lever, check to see that a discharge line is connected to the valve, directing the flow of hot water from the valve to a proper place of disposal. If no water flows when the lever is operated, replacement of the valve is required. **TURN THE WATER HEATER "OFF" (see instruction manual) AND CALL A PLUMBER IMMEDIATELY.**

This device is designed for emergency safety relief and shall not be used as an operating control. A relief valve functions, in an emergency, by discharging water. Therefore, it is essential that a discharge line be piped from the valve in order to carry the overflow to a safe place of disposal. The discharge line must be same size as the valve outlet and must pitch downward from the valve and terminate at least 6" above a drain where any discharge will be clearly visible.

**WARNING: REINSPECTION OF T&P RELIEF VALVES:** Temperature and Pressure Relief Valves should be inspected **AT LEAST ONCE EVERY THREE YEARS**, and replaced, if necessary, by a licensed plumbing contractor or qualified service technician, to ensure that the product has not been affected by corrosive water conditions and to ensure that the valve and discharge line have not been altered or tampered with illegally. Certain naturally occurring conditions may corrode the valve or its components over time, rendering the valve inoperative. Such conditions can only be detected if the valve and its components are physically removed and inspected. **Do not attempt to conduct an inspection on your own.** Contact your plumbing contractor for a reinspection to assure continuing safety.

**WARNING: FAILURE TO REINSPECT THIS VALVE AS DIRECTED COULD RESULT IN UNSAFE TEMPERATURE OR PRESSURE BUILDUP WHICH CAN RESULT IN SERIOUS INJURY OR DEATH AND/OR SEVERE PROPERTY DAMAGE.**

The use of a temperature water rating discharge capacity for 1" and larger inlet and outlet T&P relief valves is specified in ANSI Z21.22. Therefore, Watts certifies these 1" and larger valves also have a temperature water rating based on 1,250 BTU for each gallon of water discharged at 30 lbs. working pressure with a maximum temperature of 210°F. They are ASME pressure steam rated at least equal to their temperature water rating as indicated in the specifications following:

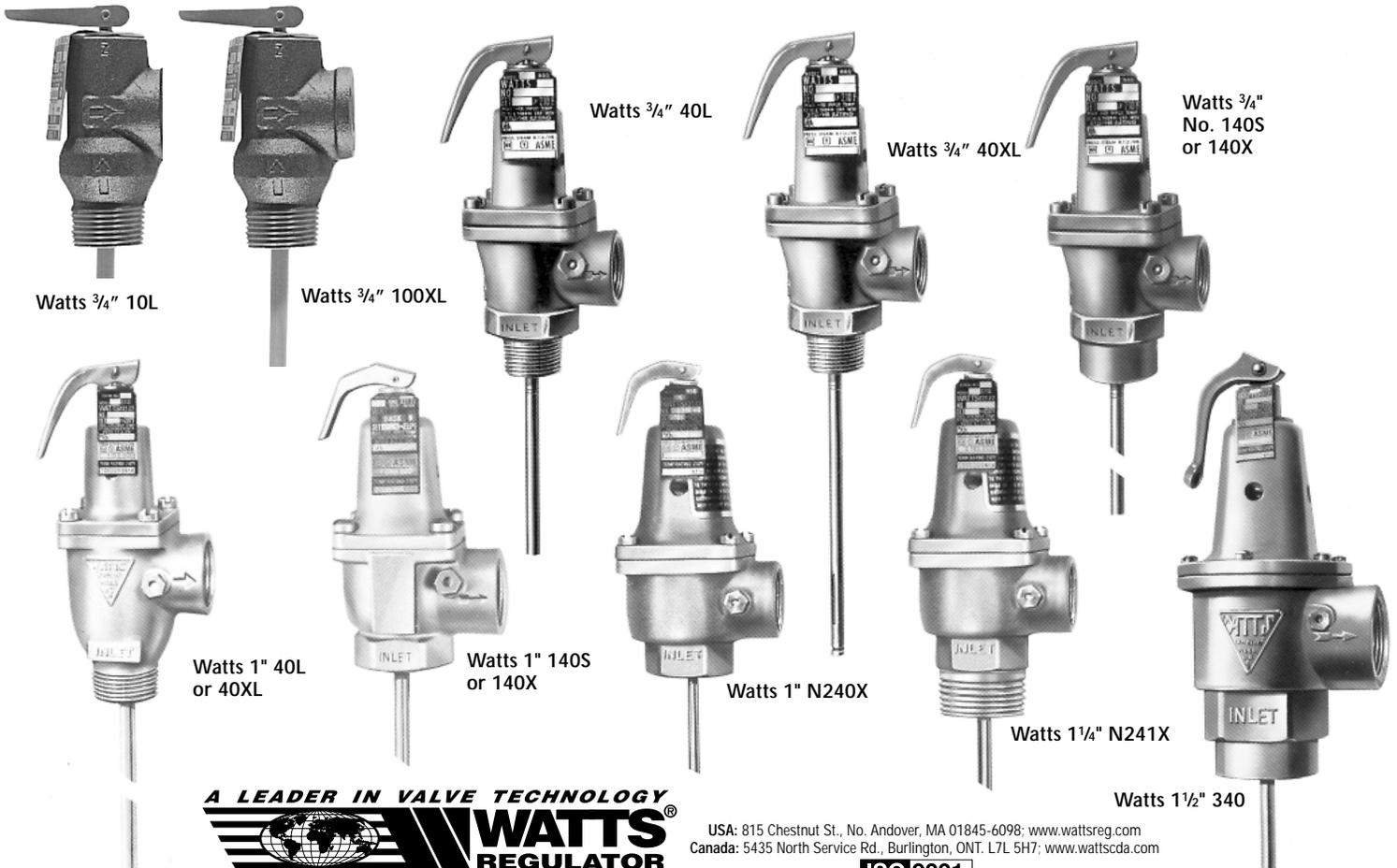
**IMPORTANT NOTE - Watts Temperature Water Rating 210°F:** The stated temperature water rating should only be used where approved and understood to be conditional that there must be no less than 30 lbs. supply pressure available to the water heater. Otherwise, the valves would not be responsible for adequate protection of heater BTU input installations in excess of the CSA temperature steam ratings given on page 1 of this folder.

These ratings may be used for T&P valves 1" and larger. See note.

Type No.	Model	Inlet x Outlet Size (In.)	Watts Temp. Water Rating 210°F	†ASME Pressure Steam Rating @75 psi set pressure	†ASME Pressure Steam Rating @100 psi set pressure	†ASME Pressure Steam Rating @125 psi set pressure	†ASME Pressure Steam Rating @150 psi set pressure
40L-2	M15	1 M x 1 F	800,000	1,155,000	1,481,000	1,808,000	2,134,000
40XL-4	M15	1 M x 1 F	1,000,000	1,155,000	1,481,000	1,808,000	2,134,000
40XL-7	M15	1 M x 1 F	1,000,000	1,155,000	1,481,000	1,808,000	2,134,000
LL40XL	M15	1M x 1F	1,000,000	1,155,000	1,481,000	1,808,000	2,134,000
*140S-3	M15	1 F x 1 F	1,200,000	1,670,000	2,140,000	2,610,000	3,085,000
*140X-6	M15	1 F x 1 F	1,500,000	1,670,000	2,140,000	2,610,000	3,085,000
*140X-9	M15	1 F x 1 F	1,500,000	1,670,000	2,140,000	2,610,000	3,085,000
*N240X-6	M15	1 F x 1 F	2,000,000	2,195,000	2,817,000	3,438,000	4,059,000
*N240X-9	M15	1 F x 1 F	2,000,000	2,195,000	2,817,000	3,438,000	4,059,000
*N241X-5	M15	1¼ M x 1 F	2,000,000	2,195,000	2,817,000	3,438,000	4,059,000
*N241X-8	M15	1¼ M x 1 F	2,000,000	2,195,000	2,817,000	3,438,000	4,059,000
*340-3	M15	1½ F x 1½ F	3,000,000	3,450,000	4,426,000	5,403,000	6,379,000
*340X-8	M15	1½ F x 1½ F	3,000,000	3,450,000	4,426,000	5,403,000	6,379,000
*342-3	M15	2 M x 1½ F	3,000,000	3,450,000	4,426,000	5,403,000	6,379,000
*342X-8	M15	2 M x 1½ F	3,000,000	3,450,000	4,426,000	5,403,000	6,379,000

\*Standardly furnished with stainless steel thermostat tube.

†These ASME capacities are steam pressure ratings, and do not reflect the CSA temperature relieving capacity of the valves for selection purposes.



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