

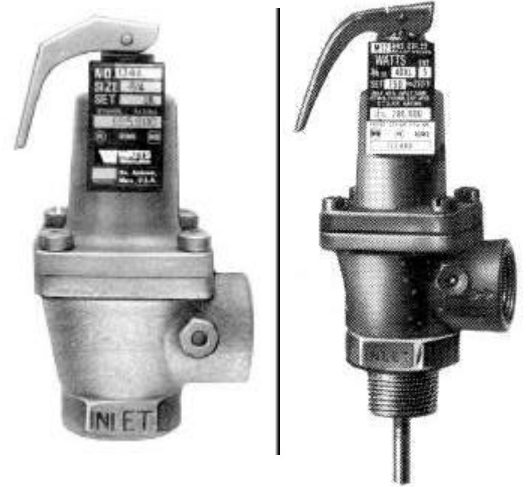
WATTS AND KUNKLE HOT WATER PRESSURE SAFETY RELIEF VALVES**WATTS HOT WATER COMBINATION TEMPERATURE AND PRESSURE SAFETY RELIEF VALVES**

The Watts and Kunkle Hot Water Pressure Safety Relief Valves offer a reliable design with very high BTU discharge capacity for protection against excessive pressure in hot water boilers and heaters.

The Watts Hot Water Combination Temperature and Pressure Safety Relief Valves offer protection against both excessive pressure and temperature (above 210°F) for hot water supply tanks.

SELECTION AND OPERATING INSTRUCTIONS

- CAPACITY SELECTION: SELECT THE VALVE WITH THE PROPER pressure rating and capacity (MBH or LB/HR). See page two schedules for the required relieving capacity on Parker Boilers.
 - "H" STAMPED WATER TUBE HEATING BOILERS: ASME Code Section IV requires Min. Relief Valve Cap (BTU/HR) = HTG SURF x 10 x 1000 or BTU output if greater.
 - "S" STAMPED HIGH TEMPERATURE WATER BOILERS: ASME Code Section I requires Min Relief Valve Cap (LB/HR) = BTU OUTPUT / 1000.
 - Combination T & P Safety Relief Valves for tanks are normally sized on the basis of the BTU/HR Input of the water heater supplying the tank.
- The Safety Relief Valve shall be set at or below the Maximum Allowable Working Pressure (MAWP) or Trim Pressure. For hot water heating boilers, the maximum boiler operating pressure must be at least 25% below (but not less than 10 PSI below) the safety relief valve set pressure to prevent leakage. A high temperature hot water boiler's operating pressure should be substantially lower than the safety relief valve set pressure to minimize the times the safety relief valve must lift. Temperature and Pressure (T & P) Safety Relief Valve set pressure must not be in excess of the stamped pressure on the water storage tank or any system components. The system operating pressure must be below the T & P safety relief valve set pressure minus the valve blowdown pressure. Safety relief valves are designed for emergency safety relief and shall not be used as an operating control.



Pressure Safety Relief Valves

Combination Temperature Pressure Relief Valve

INSTALLATION INSTRUCTIONS:

- Install the boiler safety relief valve in a vertical upright position at the opening provided and recommended by the manufacturer. No shutoff valve or other connections or restrictions are permissible between the boiler (or tank) and the safety relief valve. The safety relief valve piping and opening from the boiler (or tank) cannot be less than the inlet size of the valve, but the valve inlet may be smaller providing the safety relief valve has the required relieving capacity. Combination T & P valves should be installed so that the temperature sensing element is immersed in the water within the top 6" of the tank. They may be installed on the top of the tank in a Tee fitting in the hot water service outlet line or in a separate tank tapping near the top of the tank. If two valves are required, one may be installed in each of those locations.
- The safety relief valve is a precision made instrument and should be handled with care.

Before installing be sure that:

- All upstream pipes and connections have been blown clean.
 - Pipe compound is used on external threads only.
 - Inlet port of valve is free of any foreign material.
 - Use wrench on valve inlet hex only and avoid over tightening. Do not use a pipe wrench.
- TO AVOID WATER DAMAGE OR SCALDING DUE TO VALVE OPERATION, A DISCHARGE PIPE MUST BE CONNECTED TO THE VALVE OUTLET AND RUN FULL SIZE TO A SAFE PLACE OF DISPOSAL. IF A DISCHARGE PIPE IS NOT INSTALLED CORRECTLY, PERSONAL INJURY AND PROPERTY DAMAGE COULD RESULT.** The discharge line must be piped independent of all other piping, as short and straight as possible, without any intervening valve of any description and terminate freely to atmosphere. Never restrict or block a safety valve outlet. Install piping with sufficient flexibility to allow for free expansion and properly supported so there is no strain on the safety valve body. Pipe to a safe point of discharge to prevent any possibility of personal injury and within 6" from the floor or into an open receptacle protected by a splash shield. If discharge cannot be piped to a completely safe location in the boiler room, such discharge should be piped outside the room to a safe location. Have adequate provision for draining condensate at discharge outlet. If piped upwardly, a drain line should be provided at the low point to keep this line drained. Secure the piping so it cannot move to cause personal injury when safety valve discharges. If piping is considerable distance, install a union near the safety valve outlet for convenience of changing valve when required. For boilers up to 400°F use only pipe suitable for 425°F minimum for discharge line. Discharge pipe should terminate plain, not threaded.

MAINTENANCE AND REPAIR

- Safety relief valves should be regularly inspected and kept in good repair. On any indication of leaks, sticking or any deterioration the boiler (or tank) must be taken out of service until the safety relief valve is replaced.
- It is recommended that the Safety Relief Valve be tested periodically per the valve manufacturers' instructions (minimum yearly). The code or service conditions may require more frequent testing (monthly). Test also at the beginning and end of any extended non-service period. **CAUTION:** Prior to testing, make certain that all personnel are clear from area and that the outlet of valve is properly piped to a safe point of discharge (see Installation Instructions). A loud noise and hot water will discharge freely from discharge port. Test lever is designed to be activated only when 75% or more of the popping pressure is reached, otherwise, distortion could result. The valve should be tested at or near maximum operating pressure by holding the test lever fully open for approximately 5 seconds to flush the valve seat free of any debris or sediment then permit valve check to snap shut. If the valve leaks, raise and lower the handle slowly and be sure the valve properly re-seats. If valve continues to leak, shut down boiler and replace valve before placing boiler back in service.
- It is recommended that a spare valve be kept on hand for immediate replacement.

SCHEDULE OF RELIEF VALVES FOR HOT WATER BOILERS & HEATERS
WATTS MODELS M335, 740, M474A, 174A, 40L, 40XL, N240, 340 AND KUNKLE MODEL 927

I. DIRECT FIRED HOT WATER BOILERS

BOILER SIZE	"H" BOILERS MIN. RELIEF VALVE CAPACITY MBH MBH = 1000 BTU/HR	SIZE & MODEL OF HV VALVES AT PRESSURE SHOWN - HEATING BOILERS				"S" BOILERS MIN RELIEF VALVE CAP LB/HR	SIZE 927 V VALVE POWER BOILERS	
		30 PSI	#740 45 PSI	#174A 100 PSI	125 PSI		125 PSI	200 PSI
T300	405	3/4" M335	3/4"	3/4"	3/4" M474A	240	1"	1"
T395	670	3/4" 740	3/4"	3/4"	3/4" M474A	392	1"	1"
T490	670	3/4" 740	3/4"	3/4"	3/4" M474A	392	1"	1"
T600	770	3/4" 740	3/4"	3/4"	3/4" M474A	480	1"	1"
T760	1060	1" 740	3/4"	3/4"	3/4" M474A	608	1"	1"
T970	1200	1" 740	3/4"	3/4"	3/4" M474A	776	1"	1"
T1140	1330	1-1/4" 740	1"	3/4"	3/4" M474A	912	1"	1"
T1460	1930	1-1/4" 740	1-1/4"	1"	3/4" 174A	1168	1"	1"
T1730	2200	1-1/2" 740	1-1/4"	1"	1" 174A	1384	1"	1"
T2160	2850	1-1/2" 740	1-1/2"	1-1/4"	1" 174A	1728	1"	1"
T2600	3370	2" 740	1-1/2"	1-1/4"	1-1/4" 174A	2080	1"	1"
T2970	3640	2" 740	1-1/2"	1-1/4"	1-1/4" 174A	2376	1-1/4"	1"
T3600	4400	2" 740	2"	1-1/2"	1-1/4" 174A	2880	1-1/4"	1"
T3900	4930	2" 740	2"	1-1/2"	1-1/4" 174A	3120	1-1/4"	1"
T4600	5730	(2) 1-1/2" 740	(2) 1-1/2"	(2) 1-1/4"	(2) 1" 174A	3680	(2) 1"	(2) 1"
T5700	6780	(2) 2" 740	(2) 1-1/2"	(2) 1-1/4"	(2) 1-1/4" 174A	4560	(2) 1-1/4"	(2) 1"
T6800	8400	(2) 2" 740	(2) 2"	(2) 1-1/4"	(2) 1-1/4" 174A	5440	(2) 1-1/4"	(2) 1"

II. INDIRECT FIRED WATER HEATERS

MODEL	WATER HEATER PRESSURE RELIEF VALVE			STORAGE TANK T & P RELIEF VALVE	
	"H" HEATERS MIN RELIEF VALVE CAPACITY MBH	30 PSI SIZE & MODEL	125 PSI SIZE & MODEL	REQUIRED CAPACITY MBH = 1000 BTU/HR.	100 OR 125 PSI SIZE & MODEL
WH300	415	3/4" M335	3/4" M474A	300	1" 40XL-4
WH395	550	3/4" 740	3/4" M474A	395	1" 40XL-4
WH490	550	3/4" 740	3/4" M474A	490	1" 40XL-4
WH600	665	3/4" 740	3/4" M474A	600	1" 40XL-4
WH730	770	3/4" 740	3/4" M474A	730	1" 40XL-4
WH970	1035	1" 740	3/4" M474A	970	1" 40XL-4
WH1210	1275	1" 740	3/4" M474A	1210	1" N240X-6
WH1410	1600	1-1/4" 740	3/4" M474A	1410	1" N240X-6
WH1900	2080	1-1/4" 740	1" 174A	1900	1" N240X-6
WH2270	2510	1-1/2" 740	1" 174A	2270	(2) 1" N240X-6 or (1) 1-1/2" 340-3
WH2650	2870	1-1/2" 740	1" 174A	2650	(2) 1" N240X-6 or (1) 1-1/2" 340-3
WH3000	3310	2" 740	1-1/4" 174A	3000	(2) 1" N240X-6 or (1) 1-1/2" 340-3

III. PRESSURE VALVE SPECIFICATIONS

VALVE SIZE	VALVE OUTLET SIZE	HV VALVES - HEATING BOILERS 250°F MAX							V VALVES - POWER BOILERS - STEEL		
		WATTS VALVE MODEL	RELIEVING CAPACITY IN MBH = 1000 BTU/HR.						KUNKLE VALVE MODEL	REL. CAP. LB/HR	
			30 PSI	45 PSI	75 PSI	100 PSI	125 PSI	150 PSI		125 PSI	200 PSI
3/4"	3/4"	M335	510								
3/4"	1"	740	925	1245	1886						
3/4"	3/4"	M474A					1700				
3/4"	3/4"	174A					1695	2070	2445		
1"	1-1/4"	740	1300	1749	2649						
1"	1"	174A					2635	3215	3795		
1"	1-1/2"									927	2182 3357
1-1/4"	1-1/2"	740	2105	2830	4285						
1-1/4"	1-1/4"	174A					4399	5370	6340		
1-1/4"	2"									927	3581 5510
1-1/2"	2"	740	2900	3903	5910						
1-1/2"	1-1/2"	174A					5290	6460	7630		
1-1/2"	2-1/2"									927	5596
2"	2-1/2"	740	5250	7050	10700						
2"	2"	174A					9970	12170	14370		

- NOTES:**
- For 30 PSI to 75 PSI Pressure Settings, Use Watts Model 740 (or M335 30 PSI Only) 250°F Maximum.
 - For 100 PSI and Greater Pressure Settings, Use Watts Model 174A (or M474A 125 PSI Only) 250°F. For High Temperature Process Boilers, use Kunkle 927.

IV. COMBINATION TEMPERATURE-PRESSURE RELIEF VALVE SPECIFICATIONS

VALVE SIZE	VALVE OUTLET SIZE	WATTS VALVE MODEL	RELIEF CAPACITY MBH = MBTU/HR.		
			TEMP. RATING	ASME PRESS. RATING	AGA TEMP. STEAM RATING
3/4"	3/4"	40L-3		777	180
1"	1"	40XL-4	1000	1155	500
1"	1"	N240X-6	2000	2195	730
1-1/2"	1-1/2"	340-3	3000	3450	1150

NOTE: All Combination Temperature-Pressure Safety Relief Valves are standardly set for 210°F. For sizing Combination T & P Valves, the Temperature Rating may be used where approved and understood to be conditional that there be no less than 30 PSI supply pressure available to the storage tank. If there is less than 30 PSI water supply pressure, size valves on basis of AGA Temperature Steam Ratings.