

# Engineering Specification

## 2.7 relief valves - please select the spec and where these get

Job Name \_\_\_\_\_ installed \_\_\_\_\_

Contractor \_\_\_\_\_

Job Location \_\_\_\_\_

Approval \_\_\_\_\_

Engineer \_\_\_\_\_

Contractor's P.O. No. \_\_\_\_\_

Approval \_\_\_\_\_

Representative \_\_\_\_\_

# Series 174A, 374, 740

## ASME Water Pressure Relief Valves

### ⚠ WARNING

It is illegal to use this product in any plumbing system providing water for human consumption, such as drinking or dishwashing, in the United States. Before installing standard material product, consult your local water authority, building and plumbing codes.

### ⚠ WARNING

The discharge line must be the same size as the valve outlet, and must pitch downward from the valve to a safe place for disposal.  
The valve lever must be tripped at least once a year to ensure that waterways are clear. This device is designed for emergency safety relief and shall not be used as an operating control.

### ⚠ WARNING

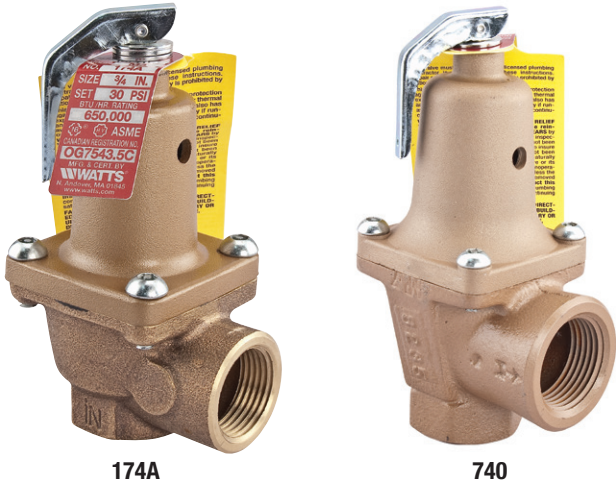
FOLLOWING INSTALLATION, THE VALVE LEVER MUST BE OPERATED AT LEAST ONCE A YEAR BY THE BOILER OWNER TO ENSURE THAT THE WATERWAYS ARE CLEAR. Certain naturally occurring deposits may adhere to the valve, blocking waterways, rendering it inoperative. When manually operating the lever, water will discharge and precautions must be taken to avoid contact with hot water and to avoid water damage. BEFORE OPERATING THE LEVER, check to see that a discharge line is connected to this valve directing the flow of hot water from the valve to a proper place of disposal; otherwise, personal injury or property damage may result. If no water flows, the valve is inoperative. TURN OFF THE BOILER AND CALL A PLUMBER IMMEDIATELY.

Series 174A, 374, and 740 are used for pressure protection of a variety of boiler equipment. Each series has female NPTF inlets and outlets and a valve body constructed from bronze or iron. Series 740 has expanded outlet sizes for use in hot water space heating boilers.

### Features

- Seat located above drain so that water is never trapped and sediment never fouls the seat
- Nonmechanical seat-to-disc alignment that does not stick or freeze
- Water seal of high temperature resisting material to isolate spring working parts from water during relief\*
- Nonmetallic disc-to-metal seating
- Available in diameters from 3/4" to 2"
- Optional SentryPlus Alert® discharge line flood sensor which when paired with a connection kit (sold separately) can detect excessive water discharges from the relief valve (Refer to ES-FS-ReliefValve.)

\* Does not apply to 374A.



### Operation

As thermal expansion conditions develop, pressure builds up to the setting of the relief valve. This causes discharging of small quantity of water and indicates the relief valve is operating as designed and intended.

Should operating controls fail, permitting thermal runaway, the boiler water may reach steam temperatures. The valve then opens to discharge steam at the rate or faster than the boiler can generate it, thus restoring system pressure to a safer level.

### Specification

An ASME Section XIII certified pressure relief valve shall be installed on each boiler as noted. The valve shall have a BTU rating in excess of the BTU rating of the boiler's heating output. Each hot water space heating boiler shall be equipped with a pressure relief valve set to relieve below the maximum boiler working pressure. The valve shall feature a raised seat and nonmechanical disc alignment. Working parts and spring shall be isolated from any discharge by a high temperature resistant material.\* The valve shall be a Watts Series 174A, 374A, or 740 and shall include a sensor for flood detection.

### NOTICE

The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product.

Inquire with governing authorities for local installation requirements.

Materials

Series 174A

Bronze body construction

Series 374A

Iron body with brass inlet

Series 740

Iron body construction

Pressure – Temperature

Series 174A

Pressure range: 30 – 150 psi (2 – 10 bar) with corresponding high BTU/hr ratings from 650,000 to 14,370,000 BTU/hr  
Maximum Temperature: 250°F (121°C)

Series 374A

Pressure range: Rated up to 550,000 BTU/hr at a 30 psi (2 bar) setting (Other settings are available.)

Series 740

Pressure range: 30 – 75 psi (2 – 5 bar) with corresponding high ratings from 925,000 to 10,700,000 BTU/hr  
Maximum Temperature: 250°F (121°C)  
Style B (Iron Body)

Certifications and Listings



NBBI certified to ASME BPVC Section XIII as an HV designated valve

Dimensions – Weights

SERIES 174A								
Model	Size in.	Model	Height in.	mm	Length in.	mm	Weight lb	kg
174A	¾ x ¾	M3	4½	116	2¾	67	1.2	0.5
174A	1 x 1	M1	5¾	144	3	76	1.9	0.9
174A	1¼ x 1¼	M1	8½	213	4¼	109	4.6	2.1
174A	1½ x 1½	M	9¼	232	4¾	122	6.9	3.1
174A	2 x 2	M	11½	290	6½	162	14.4	6.5
SERIES 374A								
374A	¾ x ¾	—	3½	90	2½	64	1.2	0.5
SERIES 740								
740	¾ x 1	M1	5½	143	3	76	1.88	9.0
740	1 x 1¼	M	7¼	184	3½	89	3.13	1.4
740	1¼ x 1½	M	8¾	222	4½	117	6.13	2.8
740	1½ x 2	M	9¼	235	5¼	133	7.50	3.4
740	2 x 2½	M	11½	295	6¾	171	16.50	7.5

Capacity

BTU/hr steam pressure discharge capacity as tested and rated by the National Board of Boiler and Pressure Vessel Inspectors.

SERIES 174A						
Set Pressure psi	bar	¾" x ¾" 20 x 20mm Model M3	1" x 1" 25 x 25mm Model M1	1¼" x 1¼" 32 x 32mm Model M1	1½" x 1½" 40 x 40mm Model M	2" x 2" 50 x 50mm Model M
30	2.07	650,000	1,005,000	1,682,000	2,020,000	3,815,000
33	2.27	695,000	1,075,000	1,788,000	2,150,000	4,080,000
35	2.41	725,000	1,125,000	1,877,000	2,250,000	4,250,000
36	2.48	740,000	1,145,000	1,916,000	2,310,000	4,344,000
40	2.76	800,000	1,240,000	2,071,000	2,490,000	4,690,000
45	3.10	875,000	1,355,000	2,265,000	2,720,000	5,130,000
50	3.45	950,000	1,470,000	2,459,000	2,950,000	5,575,000
55	3.79	1,025,000	1,590,000	2,653,000	3,190,000	6,010,000
60	4.13	1,100,000	1,702,000	2,847,000	3,425,000	6,450,000
65	4.58	1,170,000	1,820,000	3,041,000	3,660,000	6,890,000
70	4.82	1,245,000	1,935,000	3,325,000	3,890,000	7,330,000
75	5.17	1,320,000	2,055,000	3,429,000	4,125,000	7,770,000
80	5.51	1,400,000	2,166,000	3,605,000	4,360,000	8,215,000
85	5.86	1,470,000	2,285,000	3,817,000	4,590,000	8,650,000
90	6.60	1,545,000	2,400,000	4,011,000	4,825,000	9,090,000
95	6.55	1,620,000	2,520,000	4,205,000	5,060,000	9,530,000
100	6.89	1,695,000	2,635,000	4,399,000	5,290,000	9,970,000
105	7.23	1,770,000	2,750,000	4,593,000	5,525,000	10,410,000
110	7.58	1,845,000	2,865,000	4,787,000	5,760,000	10,850,000
115	7.92	1,920,000	2,980,000	4,981,000	5,990,000	11,290,000
120	8.27	1,995,000	3,100,000	5,175,000	6,225,000	11,730,000
125	8.61	2,070,000	3,215,000	5,370,000	6,460,000	12,170,000
130	8.96	2,145,000	3,330,000	5,564,000	6,690,000	12,610,000
135	9.30	2,220,000	3,445,000	5,758,000	6,925,000	13,050,000
140	9.65	2,295,000	3,565,000	5,952,000	7,160,000	13,490,000
145	9.99	2,370,000	3,680,000	6,146,000	7,390,000	13,930,000
150	10.34	2,445,000	3,795,000	6,340,000	7,630,000	14,370,000

SERIES 740						
Set Pressure psi	bar	¾" x 1" 20 x 25mm Model M1	1" x 1¼" 25 x 32mm Model M	1¼" x 1½" 32 x 40mm Model M	1½" x 2" 40 x 50mm Model M	2" x 2½" 50 x 65mm Model M
30	2.07	925,000	1,300,000	2,105,000	2,900,000	5,250,000
33	2.27	989,000	1,390,000	2,250,000	3,100,000	5,613,000
35	2.41	1,032,000	1,450,000	2,345,000	3,235,000	5,855,000
36	2.48	1,053,000	1,480,000	2,395,000	3,300,000	5,975,000
40	2.76	1,139,000	1,600,000	2,590,000	3,569,000	6,461,000
45	3.10	1,245,000	1,750,000	2,830,000	3,903,000	7,067,000
50	3.45	1,352,000	1,899,000	3,075,000	4,237,000	7,672,000
55	3.79	1,459,000	2,049,000	3,315,000	4,572,000	8,277,000
60	4.13	1,566,000	2,200,000	3,560,000	4,907,000	8,883,000
65	4.58	1,672,000	2,349,000	3,800,000	5,241,000	9,488,000
70	4.82	1,779,000	2,499,000	4,045,000	5,575,000	10,093,000
75	5.17	1,886,000	2,649,000	4,285,000	5,909,000	10,700,000

