

# SELLERS

**QUICK HEAT**

SPECIFICATION SHEET NO.

# 9301

January 1, 2006

## VERTICAL SEMI-INSTANTANEOUS WATER HEATER

### GENERAL DESCRIPTION

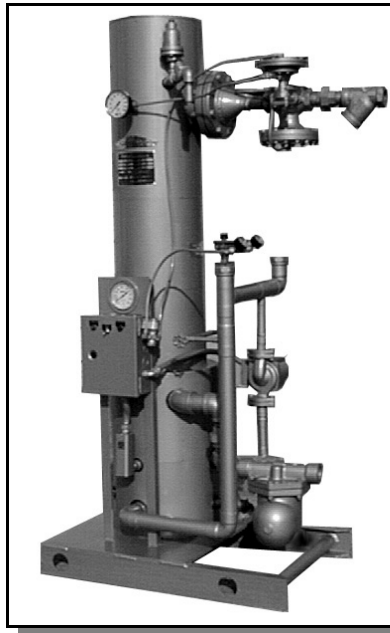
The Sellers Vertical Quick Heat Water Heater utilizes steam or hot water to generate hot water fast. The unit is built in accordance with Section VIII of the ASME code and "U" stamped for 150 psi. The unit is completely factory packaged. It can produce large volumes of hot water while occupying little floor space. A stainless steel mixing chamber eliminates corrosion and erosion while assuring uniform temperatures at any flow rate.

### STANDARD FEATURES

- ◆ Minimum floor space requirements.
- ◆ Outlet water temperature is held within 5 degrees F. of the set point.
- ◆ A pneumatic, electric or self operated ANSI valve rated for industrial steam service control the steam or boiler water flow.

All water wetted surfaces are stainless steel or copper. All stainless steel construction is available for deionized water.

Solid copper piping with lead free solder protects the water supply. Temperature and pressure gauges are console mounted. A control panel with two indicator lights and an on-off switch holds the electronic controls. A steam trap removes the condensate. A sturdy metal jacket covers both the steam and water chambers with a high density insulation. A pump maintains high velocity in the exchanger tubes. The high velocity water effectively scours the scale from inside the tube to increase heat transfer. This maintains like new heat exchanger efficiency. Low volume steam in the shell prevents overheating even with no flow.



### WARRANTY

One year heat exchanger and pressure vessel warranty with 18 month parts coverage. Optional five and ten year extended warranties are also available.

### Controls

The fail safe pneumatic steam valve responds quickly to temperature and flow changes. Outlet temperature changes of one half degree or less

cause the steam valve to respond to bring the temperature back to the set point. A unique sensing system checks the water temperature before it is heated. A signal is fed forward to the steam valve to set the steam flow to match the incoming cold water temperature and volume. Cold "slugs" are eliminated. Hot "slugs" at sudden flow stoppage are prevented. The feed forward sensor provides accurate temperature control. A safety back-up high limit control monitors the exit water temperature. A double safety solenoid system causes the steam valve to shutdown and a dump valve drains the hot water if the water temperature exceeds the high limit set point. A bronze water pressure ASME relief valve is provided.

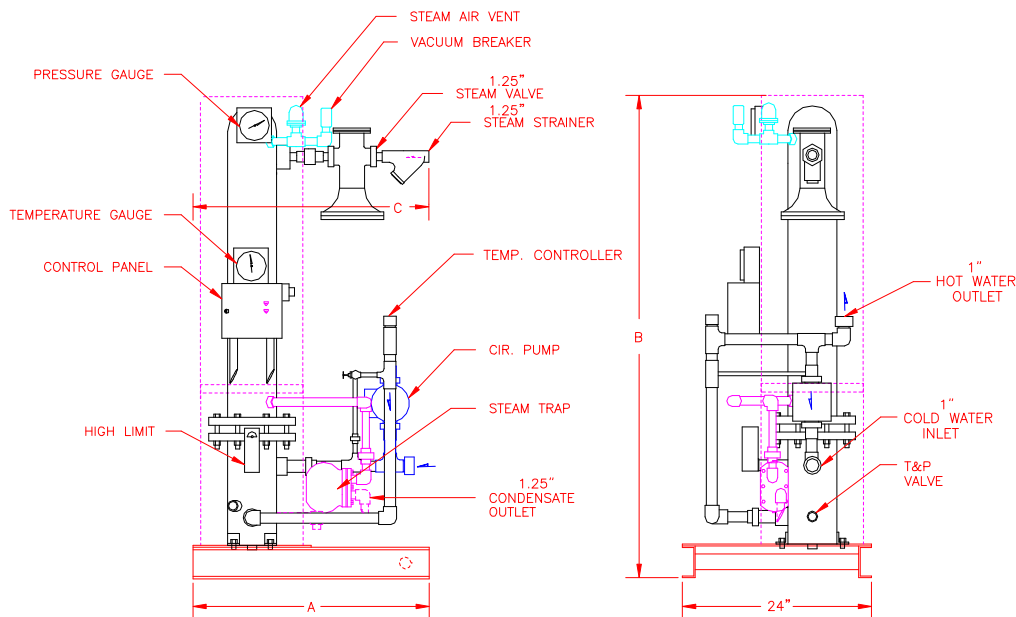
### INSTALLATION

The Quick Heat Water Heater requires steam, air, water, condensate and electrical connections to begin operation. Provide condensate drainage by gravity to a vented receiver. (Steam traps are sized with zero back pressure) If moderate lifts are expected, consult the factory. Provide 115 volt electrical power supply and 20 psi pneumatic air signal to operate the controls. A storage tank may be piped in series to reduce boiler loading if large intermittent load swings are expected.

**SELLERS ENGINEERING CO., MANUFACTURING BOILERS AND WATER HEATERS SINCE 1931.**



# VERTICAL QUICK HEAT STEAM WATER HEATER



## STANDARD EQUIPMENT FURNISHED

Modulating steam control valve with strainer.  
 Pneumatic Temperature controller.  
 Temperature Gauge  
 Steam pressure gauge.  
 ASME certified pressure relief valve.  
 2" insulation with metal jacket.  
 Control panel with on-off switch.  
 Two indicating lights

Vacuum breaker.  
 High limit temperature control.  
 Double safety solenoid circuit.  
 Bronze circulating pump with copper piping.  
 Stainless steel tube sheet.  
 Stainless steel mixing chamber.  
 Steam trap.  
 Skid type base.

### HOW TO SIZE

1. Determine the peak hot water requirements (See Sellers Sizing Guide)
2. Determine the steam pressure available at the heater location.
3. Determine the temperature of the incoming cold water (see cold water correction factor chart below if is greater than 40 degrees F.).
4. Choose the correct model by applying the required capacity (GPM) and the available steam pressure to the respective chart (consult factory for pricing and sizing confirmation, double wall, glycol or different temperature range application).

### EXAMPLE

Requirement: 45 GPM @ 60 to 120 deg. F. using 15 psi steam.

$$45 \text{ gpm} \times .76 \text{ (correction factor for 60 deg. Water)} = 34 \text{ gpm.}$$

Apply 34 gpm to the 40 to 120 deg. Chart.  
 The correct model selection is QHV15 -120.

If a shorter model is required, a model could have been selected. As you read the charts, the first model encountered is usually the most economical.

## COLD WATER CORRECTION FACTOR CHART

|  |      |     |     |     |
|--|------|-----|-----|-----|
| Cold Water Supply Temperature (Deg. F) | 40   | 50  | 60  | 70  |
| Correction Factor Multiplier           | 1.00 | .88 | .76 | .65 |

# VERTICAL QUICK HEAT STEAM WATER HEATER

## CAPACITIES AND DIMENSIONS – SINGLEWALL

| QUICK HEAT MODEL | 40 TO 120 DEG F             |            |          |    |      |          |    |      |          |    |      |          |    |      |          |    |      |          |    |      |          |    |      |
|------------------|-----------------------------|------------|----------|----|------|----------|----|------|----------|----|------|----------|----|------|----------|----|------|----------|----|------|----------|----|------|
|                  | STEAM SUPPLY PRESSURE (PSI) |            |          |    |      |          |    |      |          |    |      |          |    |      |          |    |      |          |    |      |          |    |      |
|                  | BASE SIZE A                 | UNIT HT. B | 5 PSI    |    |      | 10 PSI   |    |      | 15 PSI   |    |      | 25 PSI   |    |      | 50 PSI   |    |      | 75 PSI   |    |      | 100 PSI  |    |      |
|                  |                             |            | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  |
| QHV(*)A2-120     | 30                          | 50         | 6        | 31 | 382  | 8        | 31 | 375  | 9        | 31 | 375  | 10       | 29 | 371  | 13       | 28 | 375  | 15       | 28 | 370  | 17       | 28 | 370  |
| QHV(*)A3-120     | 30                          | 62         | 18       | 41 | 485  | 20       | 35 | 439  | 22       | 36 | 439  | 25       | 33 | 427  | 31       | 32 | 420  | 33       | 32 | 425  | 36       | 30 | 422  |
| QHV(*)A4-120     | 30                          | 74         | 30       | 46 | 588  | 33       | 47 | 547  | 36       | 38 | 501  | 40       | 38 | 501  | 40       | 36 | 482  | 40       | 34 | 482  | 40       | 33 | 478  |
| QHV(*)B2-120     | 36                          | 50         | 11       | 37 | 489  | 13       | 34 | 489  | 15       | 34 | 475  | 18       | 34 | 475  | 23       | 34 | 470  | 26       | 32 | 476  | 29       | 32 | 473  |
| QHV(*)B3-120     | 36                          | 62         | 31       | 48 | 644  | 35       | 46 | 608  | 38       | 43 | 608  | 44       | 40 | 563  | 55       | 40 | 573  | 58       | 38 | 689  | 65       | 38 | 552  |
| QHV(*)B4-120     | 36                          | 74         | 54       | 61 | 792  | 60       | 51 | 723  | 65       | 51 | 719  | 72       | 51 | 678  | 72       | 43 | 644  | 72       | 41 | 753  | 72       | 41 | 652  |
| QHV(*)C2-120     | 48                          | 50         | 17       | 46 | 702  | 21       | 40 | 659  | 23       | 41 | 659  | 28       | 41 | 665  | 37       | 38 | 655  | 40       | 37 | 640  | 46       | 37 | 653  |
| QHV(*)C3-120     | 48                          | 62         | 50       | 63 | 886  | 57       | 54 | 817  | 62       | 54 | 813  | 70       | 54 | 772  | 88       | 52 | 907  | 94       | 46 | 885  | 104      | 48 | 842  |
| QHV(*)C4-120     | 48                          | 74         | 89       | 77 | 1125 | 98       | 65 | 963  | 105      | 60 | 991  | 118      | 60 | 922  | 118      | 56 | 1002 | 118      | 54 | 953  | 118      | 48 | 996  |
| QHV(*)D2-120     | 48                          | 50         | 23       | 53 | 896  | 28       | 45 | 860  | 31       | 45 | 860  | 37       | 45 | 815  | 50       | 45 | 855  | 55       | 43 | 964  | 62       | 41 | 919  |
| QHV(*)D3-120     | 48                          | 62         | 69       | 71 | 1192 | 78       | 60 | 1025 | 85       | 58 | 1047 | 98       | 56 | 988  | 122      | 56 | 1140 | 131      | 54 | 1140 | 145      | 56 | 1093 |
| QHV(*)D4-120     | 48                          | 74         | 124      | 80 | 1401 | 138      | 71 | 1396 | 147      | 68 | 1229 | 165      | 67 | 1377 | 173      | 58 | 1263 | 173      | 58 | 1263 | 173      | 56 | 1266 |

| QUICK HEAT MODEL | 40 TO 140 DEG F             |            |          |    |      |          |    |      |          |    |      |          |    |      |          |    |      |          |    |      |          |    |      |
|------------------|-----------------------------|------------|----------|----|------|----------|----|------|----------|----|------|----------|----|------|----------|----|------|----------|----|------|----------|----|------|
|                  | STEAM SUPPLY PRESSURE (PSI) |            |          |    |      |          |    |      |          |    |      |          |    |      |          |    |      |          |    |      |          |    |      |
|                  | BASE SIZE A                 | UNIT HT. B | 5 PSI    |    |      | 10 PSI   |    |      | 15 PSI   |    |      | 25 PSI   |    |      | 50 PSI   |    |      | 75 PSI   |    |      | 100 PSI  |    |      |
|                  |                             |            | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  |
| QHV(*)A2-140     | 30                          | 50         | 2        | 27 | 371  | 3        | 27 | 371  | 4        | 27 | 366  | 5        | 27 | 366  | 8        | 27 | 370  | 9        | 27 | 370  | 10       | 27 | 369  |
| QHV(*)A3-140     | 30                          | 62         | 10       | 35 | 439  | 11       | 32 | 436  | 12       | 32 | 424  | 15       | 32 | 424  | 19       | 32 | 417  | 21       | 30 | 417  | 24       | 30 | 417  |
| QHV(*)A4-140     | 30                          | 74         | 18       | 44 | 534  | 20       | 38 | 499  | 22       | 38 | 499  | 26       | 38 | 501  | 33       | 36 | 492  | 35       | 32 | 479  | 38       | 34 | 481  |
| QHV(*)B2-140     | 36                          | 50         | 4        | 33 | 472  | 5        | 32 | 465  | 7        | 32 | 465  | 9        | 32 | 465  | 13       | 32 | 468  | 15       | 30 | 465  | 17       | 31 | 487  |
| QHV(*)B3-140     | 36                          | 62         | 17       | 46 | 600  | 20       | 40 | 600  | 22       | 40 | 555  | 26       | 40 | 558  | 34       | 38 | 567  | 37       | 37 | 538  | 42       | 37 | 545  |
| QHV(*)B4-140     | 36                          | 74         | 30       | 50 | 707  | 34       | 49 | 723  | 37       | 49 | 682  | 43       | 49 | 672  | 54       | 43 | 759  | 58       | 40 | 753  | 64       | 41 | 652  |
| QHV(*)C2-140     | 48                          | 50         | 6        | 37 | 646  | 8        | 36 | 646  | 11       | 36 | 631  | 13       | 36 | 632  | 19       | 37 | 635  | 23       | 35 | 633  | 25       | 35 | 635  |
| QHV(*)C3-140     | 48                          | 62         | 27       | 58 | 801  | 32       | 52 | 765  | 36       | 52 | 765  | 42       | 52 | 765  | 56       | 43 | 852  | 60       | 43 | 872  | 68       | 41 | 827  |
| QHV(*)C4-140     | 48                          | 74         | 53       | 63 | 969  | 60       | 58 | 976  | 66       | 54 | 898  | 77       | 54 | 908  | 96       | 54 | 992  | 102      | 52 | 953  | 115      | 54 | 925  |
| QHV(*)D2-140     | 48                          | 50         | 8        | 42 | 842  | 10       | 40 | 807  | 14       | 40 | 797  | 19       | 40 | 810  | 28       | 39 | 825  | 31       | 39 | 811  | 37       | 39 | 804  |
| QHV(*)D3-140     | 48                          | 62         | 38       | 60 | 1025 | 45       | 56 | 966  | 50       | 56 | 956  | 59       | 56 | 934  | 77       | 54 | 1059 | 83       | 48 | 1019 | 95       | 50 | 991  |
| QHV(*)D4-140     | 48                          | 74         | 74       | 79 | 1310 | 84       | 67 | 1143 | 92       | 62 | 1147 | 106      | 62 | 1306 | 135      | 58 | 1368 | 144      | 58 | 1263 | 160      | 58 | 1267 |

**Notes:**

(\*) Insert steam supply pressure.  
 Water pressure drop through heater does not exceed 3 psi.  
 Consult factory for pricing, glycol or other temperature selections.  
 Cap GPM = Capacity in U.S. gallons per minute.  
 Multiply by 3.8 for liter per minute.  
 Steam assembly may project beyond the base where "C" exceeds "A".  
 Openings 4" and larger are 150 psi flanged.  
 All dimensions are in inches.

**Hot and Cold Opening Sizes**

0 to 16 GPM      1.0"  
 17 to 24 GPM    1.25"  
 25 to 34 GPM    1.50"  
 35 to 60 GPM    2.0"  
 61 to 90 GPM    2.50"  
 91 to 130 GPM   3.0"  
 131 to 220 GPM  4.0"

# VERTICAL QUICK HEAT STEAM WATER HEATER

## CAPACITIES AND DIMENSIONS – DOUBLEWALL

| QUICK HEAT MODEL | 40 TO 120 DEG F             |            |          |    |      |          |     |      |          |    |      |          |    |      |          |    |      |          |    |      |          |    |      |
|------------------|-----------------------------|------------|----------|----|------|----------|-----|------|----------|----|------|----------|----|------|----------|----|------|----------|----|------|----------|----|------|
|                  | STEAM SUPPLY PRESSURE (PSI) |            |          |    |      |          |     |      |          |    |      |          |    |      |          |    |      |          |    |      |          |    |      |
|                  | BASE SIZE A                 | UNIT HT. B | 5 PSI    |    |      | 10 PSI   |     |      | 15 PSI   |    |      | 25 PSI   |    |      | 50 PSI   |    |      | 75 PSI   |    |      | 100 PSI  |    |      |
|                  |                             |            | CAP. GPM | C  | WT.  | CAP. GPM | C   | WT.  | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  |
| QHV(*)A2-120     | 30                          | 50         | 11       | 35 | 393  | 13       | 33  | 386  | 14       | 33 | 386  | 16       | 32 | 382  | 19       | 32 | 386  | 19       | 30 | 381  | 19       | 29 | 381  |
| QHV(*)A3-120     | 30                          | 62         | 19       | 38 | 496  | 19       | 36  | 450  | 19       | 36 | 450  | 19       | 36 | 438  | 23       | 32 | 431  | 25       | 30 | 436  | 29       | 30 | 433  |
| QHV(*)A4-120     | 30                          | 74         | 23       | 46 | 599  | 26       | 44  | 558  | 29       | 38 | 512  | 33       | 38 | 512  | 41       | 36 | 493  | 41       | 36 | 493  | 41       | 34 | 489  |
| QHV(*)B2-120     | 36                          | 50         | 11       | 37 | 502  | 13       | 345 | 500  | 15       | 34 | 486  | 18       | 34 | 486  | 23       | 34 | 481  | 26       | 32 | 487  | 29       | 32 | 484  |
| QHV(*)B3-120     | 36                          | 62         | 31       | 48 | 657  | 35       | 46  | 619  | 38       | 43 | 619  | 44       | 40 | 574  | 55       | 40 | 584  | 58       | 38 | 700  | 65       | 38 | 563  |
| QHV(*)B4-120     | 36                          | 74         | 54       | 61 | 805  | 60       | 51  | 734  | 65       | 51 | 730  | 72       | 51 | 689  | 72       | 43 | 655  | 72       | 41 | 764  | 72       | 41 | 663  |
| QHV(*)C2-120     | 48                          | 50         | 30       | 58 | 722  | 34       | 52  | 670  | 38       | 52 | 670  | 44       | 52 | 676  | 57       | 46 | 666  | 57       | 46 | 651  | 57       | 44 | 664  |
| QHV(*)C3-120     | 48                          | 62         | 57       | 60 | 906  | 57       | 56  | 828  | 57       | 54 | 824  | 57       | 54 | 783  | 67       | 42 | 918  | 73       | 46 | 896  | 84       | 48 | 853  |
| QHV(*)C4-120     | 48                          | 74         | 67       | 67 | 1145 | 76       | 65  | 974  | 84       | 60 | 1002 | 98       | 60 | 933  | 122      | 56 | 1013 | 122      | 54 | 964  | 122      | 54 | 1007 |
| QHV(*)D2-120     | 48                          | 50         | 40       | 65 | 931  | 46       | 56  | 871  | 51       | 56 | 871  | 60       | 56 | 826  | 78       | 54 | 866  | 82       | 48 | 975  | 82       | 48 | 930  |
| QHV(*)D3-120     | 48                          | 62         | 82       | 67 | 1227 | 82       | 62  | 1036 | 82       | 58 | 1058 | 82       | 58 | 999  | 91       | 56 | 1151 | 100      | 54 | 1151 | 117      | 56 | 1104 |
| QHV(*)D4-120     | 48                          | 74         | 93       | 80 | 1436 | 108      | 71  | 1407 | 119      | 68 | 1240 | 139      | 67 | 1388 | 175      | 62 | 1274 | 175      | 58 | 1274 | 175      | 58 | 1277 |

| QUICK HEAT MODEL | 40 TO 140 DEG F             |            |          |    |      |          |    |      |          |    |      |          |    |      |          |    |      |          |    |      |          |    |      |
|------------------|-----------------------------|------------|----------|----|------|----------|----|------|----------|----|------|----------|----|------|----------|----|------|----------|----|------|----------|----|------|
|                  | STEAM SUPPLY PRESSURE (PSI) |            |          |    |      |          |    |      |          |    |      |          |    |      |          |    |      |          |    |      |          |    |      |
|                  | BASE SIZE A                 | UNIT HT. B | 5 PSI    |    |      | 10 PSI   |    |      | 15 PSI   |    |      | 25 PSI   |    |      | 50 PSI   |    |      | 75 PSI   |    |      | 100 PSI  |    |      |
|                  |                             |            | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  | CAP. GPM | C  | WT.  |
| QHV(*)A2-140     | 30                          | 50         | 5        | 31 | 382  | 6        | 29 | 382  | 7        | 29 | 377  | 9        | 29 | 377  | 13       | 29 | 381  | 14       | 28 | 381  | 16       | 28 | 380  |
| QHV(*)A3-140     | 30                          | 62         | 15       | 44 | 450  | 17       | 38 | 447  | 19       | 36 | 435  | 19       | 36 | 435  | 19       | 34 | 428  | 19       | 33 | 428  | 19       | 31 | 428  |
| QHV(*)A4-140     | 30                          | 74         | 15       | 44 | 545  | 17       | 38 | 510  | 19       | 36 | 510  | 19       | 36 | 512  | 19       | 34 | 503  | 19       | 33 | 490  | 19       | 31 | 492  |
| QHV(*)B2-140     | 36                          | 50         | 9        | 38 | 485  | 11       | 35 | 476  | 13       | 34 | 476  | 15       | 34 | 476  | 21       | 34 | 479  | 24       | 33 | 476  | 27       | 33 | 498  |
| QHV(*)B3-140     | 36                          | 62         | 27       | 55 | 613  | 31       | 49 | 611  | 34       | 49 | 566  | 35       | 43 | 569  | 35       | 41 | 578  | 35       | 40 | 549  | 35       | 40 | 556  |
| QHV(*)B4-140     | 36                          | 74         | 35       | 51 | 720  | 35       | 49 | 734  | 35       | 43 | 693  | 35       | 43 | 683  | 46       | 40 | 770  | 50       | 38 | 764  | 58       | 38 | 663  |
| QHV(*)C2-140     | 48                          | 50         | 14       | 49 | 666  | 17       | 43 | 657  | 20       | 43 | 642  | 25       | 43 | 643  | 33       | 41 | 646  | 37       | 39 | 644  | 43       | 37 | 646  |
| QHV(*)C3-140     | 48                          | 62         | 44       | 63 | 821  | 50       | 58 | 776  | 55       | 54 | 776  | 58       | 54 | 776  | 58       | 46 | 863  | 58       | 46 | 883  | 58       | 44 | 838  |
| QHV(*)C4-140     | 48                          | 74         | 58       | 60 | 989  | 58       | 56 | 987  | 58       | 54 | 909  | 58       | 56 | 919  | 77       | 52 | 1003 | 84       | 46 | 964  | 96       | 48 | 936  |
| QHV(*)D2-140     | 48                          | 50         | 19       | 53 | 877  | 23       | 51 | 818  | 27       | 45 | 808  | 33       | 45 | 821  | 46       | 45 | 836  | 51       | 43 | 822  | 59       | 43 | 815  |
| QHV(*)D3-140     | 48                          | 62         | 60       | 71 | 1060 | 70       | 62 | 977  | 77       | 62 | 967  | 83       | 56 | 945  | 83       | 54 | 1070 | 83       | 48 | 1030 | 83       | 48 | 1002 |
| QHV(*)D4-140     | 48                          | 74         | 83       | 67 | 1345 | 83       | 62 | 1154 | 83       | 58 | 1158 | 83       | 58 | 1317 | 106      | 63 | 1379 | 117      | 61 | 1274 | 135      | 56 | 1278 |

**Notes:**

(\*) Insert steam supply pressure.  
 Water pressure drop through heater does not exceed 3 psi.  
 Consult factory for pricing, glycol or other temperature selections.  
 Cap GPM = Capacity in U.S. gallons per minute.  
 Multiply by 3.8 for liter per minute.  
 Steam assembly may project beyond the base where "C" exceeds "A".  
 Openings 4" and larger are 150 psi flanged.  
 All dimensions are in inches.

**Hot and Cold Opening Sizes**

0 to 16 GPM      1.0"  
 17 to 24 GPM    1.25"  
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 35 to 60 GPM    2.0"  
 61 to 90 GPM    2.50"  
 91 to 130 GPM   3.0"  
 131 to 220 GPM 4.0"