

# Plumbing & Heating Index

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Rev 09/16

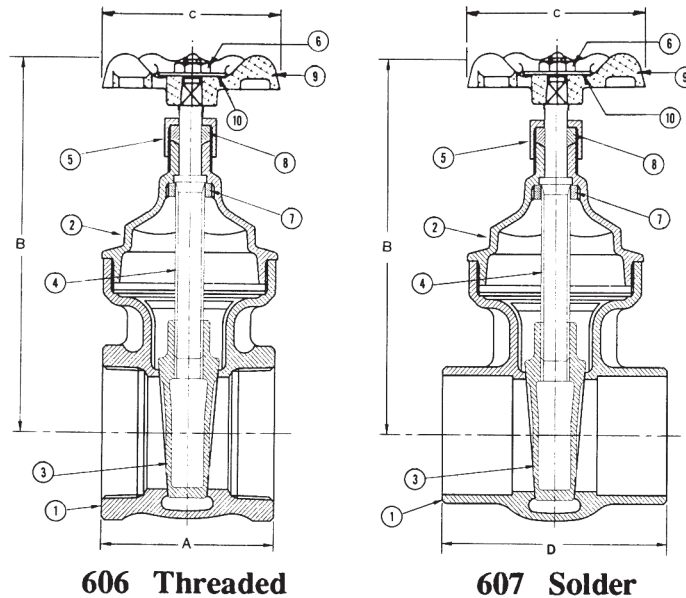
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# BRONZE GATE VALVE

606 & 607

125 WSP - 200 WOG



| DIMENSIONS (INCHES) |      |       |      |      | Approx.<br>Weight<br>606 | Approx.<br>Weight<br>607 |
|---------------------|------|-------|------|------|--------------------------|--------------------------|
| SIZE                | A    | B     | C    | D    |                          |                          |
| 1/4                 | 1.75 | 3.06  | 2.00 | -    | 0.6                      | -                        |
| 3/8                 | 1.81 | 3.06  | 2.00 | 1.63 | 0.7                      | 0.6                      |
| 1/2                 | 2.00 | 3.06  | 2.00 | 1.88 | 0.7                      | 0.6                      |
| 3/4                 | 2.13 | 3.94  | 2.00 | 2.50 | 1.3                      | 1.1                      |
| 1                   | 2.56 | 4.25  | 2.50 | 3.00 | 1.9                      | 1.6                      |
| 1 1/4               | 2.78 | 5.19  | 2.75 | 3.25 | 2.9                      | 2.3                      |
| 1 1/2               | 2.81 | 5.63  | 3.13 | 3.63 | 3.8                      | 3.0                      |
| 2                   | 3.31 | 6.75  | 3.13 | 4.31 | 6.3                      | 5.0                      |
| 2 1/2 *             | 4.81 | 9.13  | 4.38 | 4.81 | 9.6                      | 8.0                      |
| 3 *                 | 4.63 | 10.38 | 5.25 | 5.44 | 13.7                     | 12.2                     |

\* These sizes with gland followers

| MATERIAL SPECIFICATION |               |                |                   |
|------------------------|---------------|----------------|-------------------|
| 1                      | Body          | Cast Bronze    | ASTM B584, C84400 |
| 2                      | Bonnet        | Cast Bronze    | ASTM B584, C84400 |
| 3                      | Disc          | Cast Bronze    | ASTM B584, C84400 |
| 4                      | Stem          | Brass Rod      | ASTM B16          |
| 5                      | Stuffing Nut  | Brass Rod      | ASTM B16          |
| 6                      | Handwheel Nut | Brass Rod      | ASTM B16          |
| 7                      | Stem Retainer | Brass Rod      | ASTM B16          |
| 8                      | Packing Ring  | Non-Asbestos   |                   |
| 9                      | Handwheel     | Malleable Iron | ASTM A-47         |
| 10                     | Nameplate     | Aluminum Sheet | COMMERCIAL        |

Rev. 2

## RATING

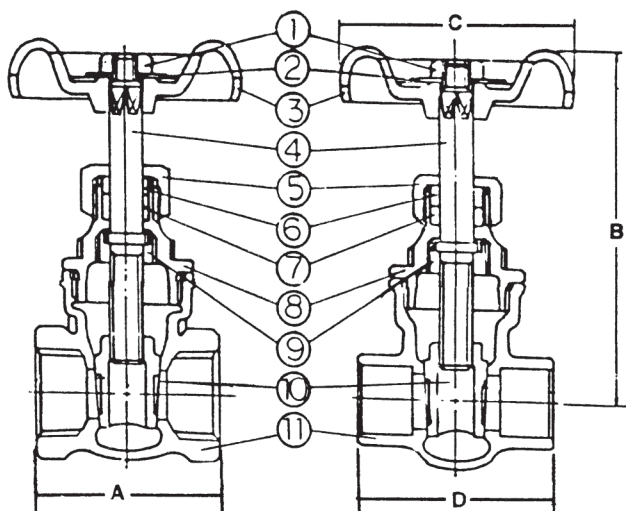
- 125 PSI STEAM TO 353° F
- 200 PSI NON-SHOCK

## FEATURES

- BRONZE BODY
- THREADED OR SOLDER ENDS
- THREADED BONNET
- ADJUSTABLE PACKING NUT
- INTEGRAL SEAT
- NON-RISING STEM
- SOLID WEDGE DISC
- MALLEABLE IRON HANDWHEEL
- 100% FACTORY TESTED

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667 Threaded

668 Solder

| DIMENSIONS (INCHES) |      |       |      |      | Approx. Weight | Approx. Weight | C <sub>v</sub> |
|---------------------|------|-------|------|------|----------------|----------------|----------------|
| SIZE                | A    | B     | C    | D    | 667            | 668            |                |
| 1/4                 | 1.63 | 2.84  | 2.13 | -    | 0.60           | -              | 5.6            |
| 3/8                 | 1.63 | 2.84  | 2.13 | 1.63 | 0.60           | 0.56           | 10.7           |
| 1/2                 | 1.69 | 2.91  | 2.13 | 1.78 | 0.63           | 0.59           | 17.6           |
| 3/4                 | 1.84 | 3.31  | 2.13 | 2.31 | 0.88           | 0.81           | 32             |
| 1                   | 2.19 | 3.94  | 2.41 | 2.84 | 1.25           | 1.19           | 54             |
| 1 1/4               | 2.42 | 4.34  | 2.94 | 3.00 | 1.75           | 1.65           | 97             |
| 1 1/2               | 2.44 | 4.94  | 2.94 | 3.22 | 2.12           | 2.00           | 135            |
| 2                   | 2.84 | 6.03  | 3.19 | 3.97 | 3.20           | 3.10           | 230            |
| 2 1/2               | 3.50 | 7.44  | 3.94 | 4.66 | 6.25           | 6.00           | 337            |
| 3                   | 3.97 | 8.63  | 5.13 | 5.28 | 9.62           | 8.75           | 536            |
| 4                   | 4.56 | 10.00 | 6.78 | -    | 15.50          | -              | 960            |

## RATING

- 200 PSI NON-SHOCK

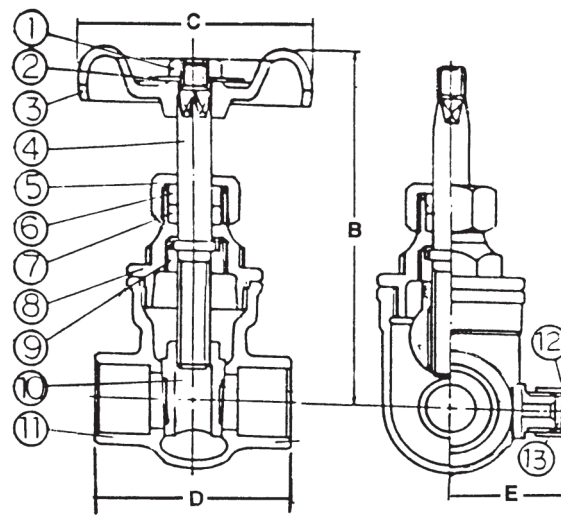
## FEATURES

- FORGED BRASS BODY
- THREADED OR SOLDER ENDS
- THREADED BONNET
- INTEGRAL SEAT
- ADJUSTABLE PACKING NUT
- NON-RISING STEM
- FORGED SOLID WEDGE DISC
- IRON HANDWHEEL
- 100% FACTORY TESTED
- INTERNATIONAL

| MATERIAL SPECIFICATION |               |                                  |                    |
|------------------------|---------------|----------------------------------|--------------------|
| 1                      | Handwheel Nut | Brass                            | ASTM B16           |
| 2                      | Nameplate     | Aluminum Sheet                   | Commercial         |
| 3                      | Handwheel     | Cast Iron                        | ASTM A48, Class 35 |
| 4                      | Stem          | Brass                            | ASTM B124, C37700  |
| 5                      | Packing Nut   | Forged Brass                     | ASTM B283, C37700  |
| 6                      | Gland         | Brass Rod                        | ASTM B124, C37700  |
| 7                      | Packing Ring  | Non-Asbestos<br>Synthetic Fibers |                    |
| 8                      | Bonnet        | Forged Brass                     | ASTM B283, C37700  |
| 9                      | Locknut       | Brass Rod                        | ASTM B16, C36000   |
| 10                     | Wedge         | Forged Brass                     | ASTM B283, C37700  |
| 11                     | Body          | Forged Brass                     | ASTM B283, C37700  |

Rev. 3

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667-20 Threaded

668-20 Solder

| DIMENSIONS (INCHES) |      |      |      |      | Approx.<br>Weight<br>668-20 |
|---------------------|------|------|------|------|-----------------------------|
| SIZE                | B    | C    | D    | E    |                             |
| 1/2                 | 2.91 | 2.13 | 1.78 | 1.00 | 0.55                        |
| 3/4                 | 3.31 | 2.13 | 2.31 | 1.13 | 0.70                        |
| 1                   | 3.94 | 2.41 | 2.84 | 1.25 | 1.17                        |

**RATING**

- 200 PSI NON-SHOCK

**FEATURES**

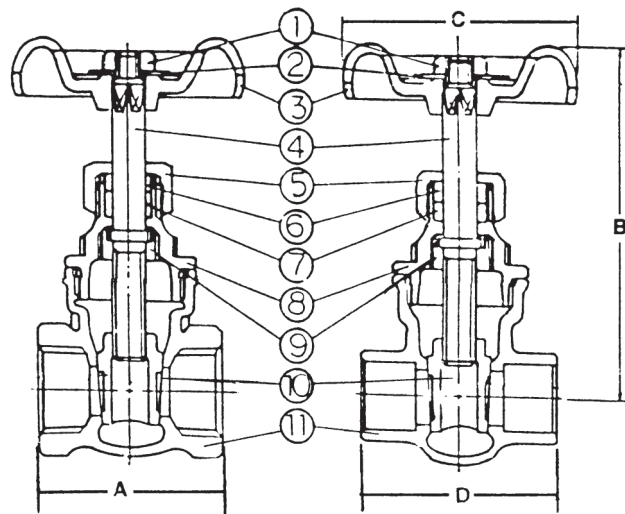
- DRAINABLE BRASS BODY
- SOLDER ENDS
- THREADED BONNET
- ADJUSTABLE PACKING NUT
- INTEGRAL SEAT
- NON-RISING STEM
- SOLID WEDGE DISC
- IRON HANDWHEEL
- 100% FACTORY TESTED
- INTERNATIONAL

| MATERIAL SPECIFICATION |                |                  |                    |
|------------------------|----------------|------------------|--------------------|
| 1                      | Handwheel Nut  | Steel            | Commercial         |
| 2                      | Nameplate      | Aluminum Sheet   | Commercial         |
| 3                      | Handwheel      | Cast Iron        | ASTM A48, Class 35 |
| 4                      | Stem           | Brass Rod        | ASTM B16, C36000   |
| 5                      | Packing Nut    | Brass Rod        | ASTM B16, C36000   |
|                        |                | Cast Brass       | ASTM B584, C85700  |
| 6                      | Gland          | Brass Rod        | ASTM B16, C36000   |
| 7                      | Packing Ring   | Non-Asbestos     |                    |
|                        |                | Synthetic Fibers |                    |
| 8                      | Bonnet         | Forged Brass     | ASTM B283, C37700  |
| 9                      | Locknut        | Brass Rod        | ASTM B16, C36000   |
| 10                     | Wedge          | Forged Brass     | ASTM B283, C37700  |
| 11                     | Body           | Forged Brass     | ASTM B283, C37700  |
| 12                     | Drain Cap      | Brass Rod        | ASTM B16, C36000   |
| 13                     | Drain Cap Seat | TFE              | TFE                |

Rev. 3

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**567 Threaded**

**568 Solder**

| DIMENSIONS (INCHES) |      |       |      |      | Approx. Weight | Approx. Weight |
|---------------------|------|-------|------|------|----------------|----------------|
| SIZE                | A    | B     | C    | D    | 567            | 568            |
| 1/4                 | 1.63 | 2.84  | 2.13 | -    | 0.59           | -              |
| 3/8                 | 1.63 | 2.84  | 2.13 | 1.63 | 0.59           | 0.54           |
| 1/2                 | 1.69 | 2.91  | 2.13 | 1.78 | 0.60           | 0.56           |
| 3/4                 | 1.84 | 3.31  | 2.13 | 2.31 | 0.86           | 0.82           |
| 1                   | 2.19 | 3.94  | 2.41 | 2.84 | 1.22           | 1.16           |
| 1 1/4               | 2.41 | 4.34  | 2.94 | 3.00 | 1.77           | 1.59           |
| 1 1/2               | 2.44 | 4.94  | 2.94 | 3.22 | 2.19           | 2.24           |
| 2                   | 2.84 | 6.03  | 3.19 | 4.66 | 3.55           | 3.23           |
| 2 1/2               | 3.50 | 7.44  | 3.94 | 4.66 | 6.12           | 5.24           |
| 3                   | 3.97 | 8.63  | 5.13 | 5.28 | 8.39           | 7.12           |
| 4                   | 4.56 | 10.00 | 6.78 | -    | 12.93          | -              |

## RATING

- 150 PSI NON-SHOCK

## FEATURES

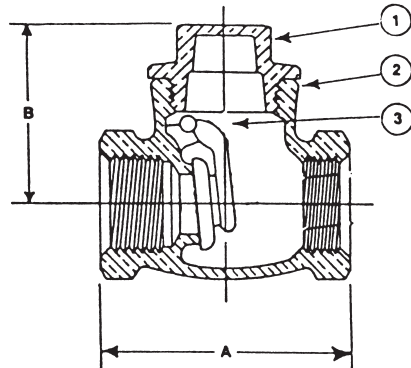
- FORGED BRASS BODY
- THREADED (567) OR SOLDER ENDS (568)
- THREADED BONNET
- INTEGRAL SEAT
- ADJUSTABLE PACKING NUT
- NON-RISING STEM
- FORGED SOLID WEDGE DISC
- IRON HANDWHEEL
- 100% FACTORY TESTED
- INTERNATIONAL

| MATERIAL SPECIFICATION |               |                                  |                    |
|------------------------|---------------|----------------------------------|--------------------|
| 1                      | Handwheel Nut | Brass                            | ASTM B16           |
| 2                      | Nameplate     | Aluminum Sheet                   | Commercial         |
| 3                      | Handwheel     | Cast Iron                        | ASTM A48, Class 35 |
| 4                      | Stem          | Brass                            | ASTM B124, C37700  |
| 5                      | Packing Nut   | Forged Brass                     | ASTM B283, C37700  |
| 6                      | Gland         | Brass Rod                        | ASTM B124, C37700  |
| 7                      | Packing Ring  | Non-Asbestos<br>Synthetic Fibers |                    |
| 8                      | Bonnet        | Forged Brass                     | ASTM B283, C37700  |
| 9                      | Locknut       | Brass Rod                        | ASTM B16, C36000   |
| 10                     | Wedge         | Forged Brass                     | ASTM B283, C37700  |
| 11                     | Body          | Forged Brass                     | ASTM B283, C37700  |

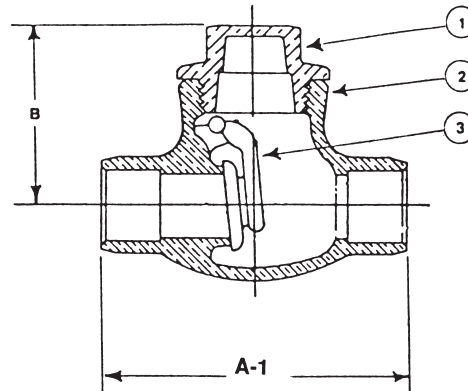
Rev. 3

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**967 Threaded**



**968 Solder**

| Dimensions |       |      |      |      |
|------------|-------|------|------|------|
| Units      | Size  | A    | A-1  | B    |
| Inches     | 1/2   | 1.86 | 2.18 | 1.35 |
| mm         |       | 47   | 55   | 34   |
| Inches     | 3/4   | 2.11 | 2.85 | 1.53 |
| mm         |       | 54   | 72   | 39   |
| Inches     | 1     | 2.52 | 3.46 | 1.74 |
| mm         |       | 64   | 88   | 44   |
| Inches     | 1 1/4 | 2.72 | 3.70 | 1.99 |
| mm         |       | 69   | 94   | 51   |
| Inches     | 1 1/2 | 3.23 | 4.33 | 2.28 |
| mm         |       | 82   | 110  | 58   |
| Inches     | 2     | 3.70 | 5.12 | 2.48 |
| mm         |       | 94   | 130  | 63   |
| Inches     | 2 1/2 | 5.20 |      | 3.11 |
| mm         |       | 132  |      | 79   |
| Inches     | 3     | 5.83 |      | 3.81 |
| mm         |       | 148  |      | 97   |
| Inches     | 4     | 6.89 |      | 4.21 |
| mm         |       | 175  |      | 107  |

| MATERIAL SPECIFICATION |      |              |                   |
|------------------------|------|--------------|-------------------|
| 1                      | CAP  | FORGED BRASS | ASTM B283, C37700 |
|                        |      | CAST BRASS   | ASTM B584, C85700 |
| 2                      | BODY | FORGED BRASS | ASTM B283, C37700 |
|                        |      | CAST BRASS   | ASTM B584, C85700 |
| 3                      | DISC | FORGED BRASS | ASTM B283, C37700 |
|                        |      | CAST BRASS   | ASTM B584, C85700 |

Rev. 6

## RATING

- 200 PSI NON-SHOCK

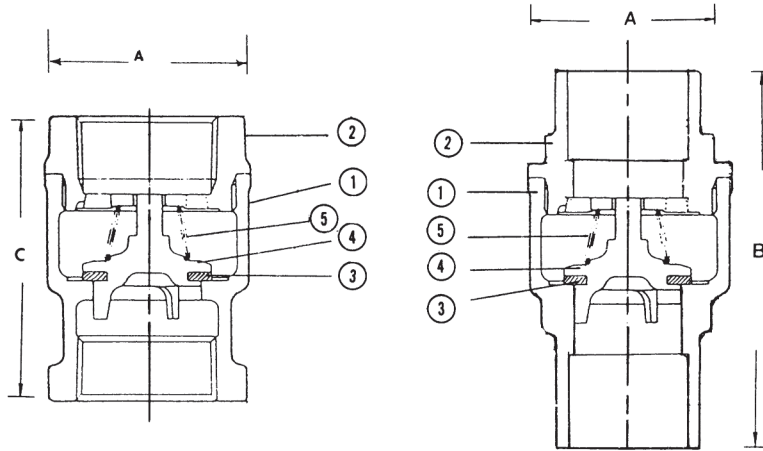
**Warning: DO NOT USE**  
for reciprocating air compressor  
service.

## FEATURES

- BRASS BODY
- THREADED OR  
SOLDER ENDS
- THREADED BONNET
- INTEGRAL SEAT
- BRASS DISC
- 100% FACTORY TESTED
- INTERNATIONAL

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**943 Threaded**

**947 Solder**

| DIMENSIONS (INCHES) |      |      |      | Approx.<br>Weight<br>943 | Approx.<br>Weight<br>947 | C <sub>v</sub> |
|---------------------|------|------|------|--------------------------|--------------------------|----------------|
| SIZE                | A    | B    | C    |                          |                          |                |
| 3/8                 | 1.25 | 2.06 | 1.97 | 0.43                     | 0.43                     | 2.5            |
| 1/2                 | 1.25 | 2.41 | 2.09 | 0.43                     | 0.43                     | 4.1            |
| 3/4                 | 1.50 | 2.81 | 2.31 | 0.66                     | 0.66                     | 7.6            |
| 1                   | 1.91 | 3.53 | 2.66 | 1.02                     | 1.02                     | 13             |
| 1 1/4               | 2.16 | 3.88 | 3.09 | 1.47                     | 1.47                     | 23             |
| 1 1/2               | 2.59 | 4.22 | 3.31 | 2.20                     | 2.20                     | 31             |
| 2                   | 3.13 | 5.09 | 3.78 | 3.30                     | 3.30                     | 54             |

| MATERIAL SPECIFICATION |             |             |                   |
|------------------------|-------------|-------------|-------------------|
| 1                      | Body        | Cast Bronze | ASTM B584, C84400 |
| 2                      | Tail Piece  | Cast Bronze | ASTM B584, C84400 |
| 3                      | Disc        | Buna        |                   |
| 4                      | Disc Holder | Cast Bronze | ASTM B584, C84400 |
| 5                      | Spring      | Bronze      | ASTM B103, C52100 |

Rev. 5

**Do not use for reciprocating air compressor service.**

**Note:** Check Valves may be installed in both the horizontal and vertical lines with upward flow or in any intermediate position.

## RATING

- 250 PSI NON-SHOCK  
COLD WATER, OIL  
OR GAS

## FEATURES

- BRONZE BODY
- THREADED OR  
SOLDER ENDS
- BRONZE SPRING
- BUNA DISC RING
- BRONZE DISC HOLDER
- 100% FACTORY TESTED
- SILENT CLOSING  
(minimizes water hammer)
- INTERNATIONAL

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**445**  
**STOP (threaded ends)**

| DIMENSIONS (INCHES) |      |      |      | Approx.<br>Weight |
|---------------------|------|------|------|-------------------|
| SIZE                | A    | B    | C    |                   |
| 1/2                 | 2.13 | 2.75 | 2.13 | 0.50              |
| 3/4                 | 2.16 | 2.75 | 2.13 | 0.54              |

## RATING

- 150 PSI WWP  
TO 200° F NON-SHOCK



**446**  
**STOP (solder ends)**

| DIMENSIONS (INCHES) |      |      |      | Approx.<br>Weight |
|---------------------|------|------|------|-------------------|
| SIZE                | A    | B    | C    |                   |
| 1/2                 | 1.22 | 2.75 | 2.13 | 0.42              |
| 3/4                 | 1.22 | 2.75 | 2.13 | 0.53              |

## FEATURES

- BRASS BODY
- HEAVY DUTY PATTERN
- LARGE WATER WAYS
- ADJUSTABLE PACKING NUT & STUFFING BOX
- BUNA-N- SEATS
- IRON HANDWHEEL
- 100% FACTORY TESTED
- INTERNATIONAL



**545**  
**STOP & WASTE**  
**(threaded ends)**

| DIMENSIONS (INCHES) |      |      |      | Approx.<br>Weight |
|---------------------|------|------|------|-------------------|
| SIZE                | A    | B    | C    |                   |
| 1/2                 | 2.13 | 2.75 | 2.13 | 0.51              |
| 3/4                 | 2.16 | 2.75 | 2.13 | 0.55              |



**546**  
**STOP & WASTE**  
**(solder ends)**

| DIMENSIONS (INCHES) |      |      |      | Approx.<br>Weight |
|---------------------|------|------|------|-------------------|
| SIZE                | A    | B    | C    |                   |
| 1/2                 | 1.22 | 2.75 | 2.13 | 0.45              |
| 3/4                 | 1.22 | 2.75 | 2.13 | 0.54              |

Rev. 2

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**710\***

**BOILER DRAIN**  
(male IPS to hose)

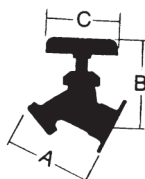
| DIMENSIONS (INCHES) |      |      |      | Approx.<br>Weight |
|---------------------|------|------|------|-------------------|
| SIZE                | A    | B    | C    |                   |
| 1/2                 | 1.56 | 3.50 | 2.13 | 0.45              |
| 3/4                 | 1.56 | 3.63 | 2.13 | 0.46              |



**712\***

**BOILER DRAIN**  
(female IPS to hose)

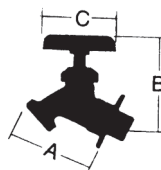
| DIMENSIONS (INCHES) |      |      |      | Approx.<br>Weight |
|---------------------|------|------|------|-------------------|
| SIZE                | A    | B    | C    |                   |
| 1/2                 | 3.00 | 2.22 | 2.09 | 0.38              |
| 3/4                 | 3.00 | 2.22 | 2.09 | 0.46              |



**1032**

**SILL FAUCET**  
(female IPS to hose)

| DIMENSIONS (INCHES) |      |      |      | Approx.<br>Weight |
|---------------------|------|------|------|-------------------|
| SIZE                | A    | B    | C    |                   |
| 1/2                 | 2.44 | 2.75 | 2.00 | 0.42              |
| 3/4                 | 2.44 | 2.75 | 2.00 | 0.43              |



**1034**

**SILL FAUCET**  
(solder to hose)

| DIMENSIONS (INCHES) |      |      |      | Approx.<br>Weight |
|---------------------|------|------|------|-------------------|
| SIZE                | A    | B    | C    |                   |
| 1/2                 | 2.44 | 2.75 | 2.00 | 0.47              |
| 3/4                 | 2.44 | 2.75 | 2.00 | 0.48              |

## RATING

- 150 PSI WWP  
TO 200° F NON-SHOCK

## FEATURES

- BRASS BODY
- HEAVY DUTY  
PATTERN
- LARGE WATER WAY
- ADJUSTABLE  
PACKING NUT &  
STUFFING BOX
- BUNA-N- SEATS
- IRON HANDWHEEL
- HAMMOND NAME  
ON BODY
- 100% FACTORY  
TESTED
- INTERNATIONAL

\*User's are advised that some boiler applications require ASME code compliant and/or higher rated product, it is the user's responsibility to ensure all regulatory requirements are met for their installation.

Rev. 2

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*2002*  
**HOSE BIB**  
 (male IPS to hose)

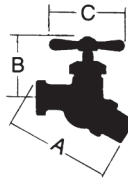
| DIMENSIONS (INCHES) |      |      |      | Approx.<br>Weight |
|---------------------|------|------|------|-------------------|
| SIZE                | A    | B    | C    |                   |
| 1/2                 | 2.00 | 1.22 | 2.94 | 0.38              |
| 3/4                 | 2.00 | 1.22 | 2.94 | 0.46              |

## RATING

- 150 PSI WWP  
TO 200° F NON-SHOCK

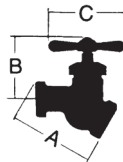
## FEATURES

- BRASS BODY
- HEAVY DUTY PATTERN
- LARGE WATER WAY
- ADJUSTABLE PACKING
- BUNA-N- SEATS
- IRON T-HANDLE
- 100% FACTORY TESTED
- INTERNATIONAL



*2004*  
**NO-KINK HOSE BIBB**  
 (male IPS to hose)

| DIMENSIONS (INCHES) |      |      |      | Approx.<br>Weight |
|---------------------|------|------|------|-------------------|
| SIZE                | A    | B    | C    |                   |
| 1/2                 | 3.00 | 2.22 | 2.16 | 0.38              |
| 3/4                 | 3.00 | 2.22 | 2.16 | 0.46              |



*2005*  
**NO-KINK HOSE BIBB**  
 (female IPS to hose)

| DIMENSIONS (INCHES) |      |      |      | Approx.<br>Weight |
|---------------------|------|------|------|-------------------|
| SIZE                | A    | B    | C    |                   |
| 1/2                 | 2.38 | 2.22 | 2.16 | 0.38              |
| 3/4                 | 2.38 | 2.22 | 2.16 | 0.46              |

Rev. 2



58

**ANTI-SIPHON SILL COCK**  
(1/2" male IPS to hose)

| DIMENSIONS (INCHES) |    | Approx. Weight |
|---------------------|----|----------------|
| LENGTH              | A  |                |
| 6                   | 6  | 1.35           |
| 8                   | 8  | 1.40           |
| 10                  | 10 | 1.50           |
| 12                  | 12 | 1.55           |
| 14                  | 14 | 1.80           |

## RATING

- 150 PSI NON-SHOCK

## FEATURES

- 1/2" COMB. SWEAT & MSPS END
- CHROME PLATED BODY
- HEAVY DUTY PATTERN
- LARGE WATER WAYS
- BUNA-N SEATS
- LARGE PLASTIC HANDLE (EASY GRIP)
- FIG.58 INCLUDES INTEGRAL ANTI-SIPHON & INTEGRAL VACUUM BREAKER
- 100% FACTORY TESTED
- INTERNATIONAL



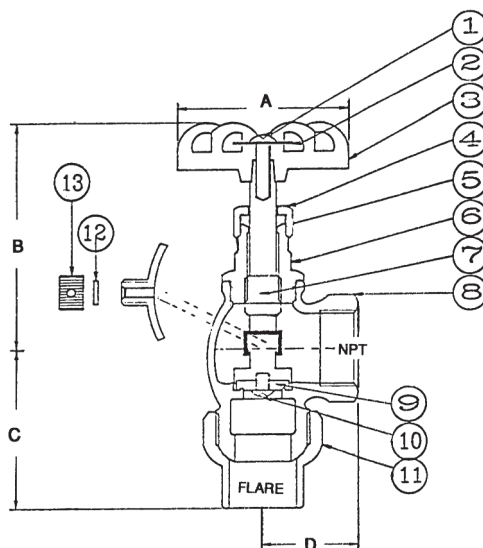
38

**SILL COCK**  
(1/2" male IPS to hose)

| DIMENSIONS (INCHES) |    | Approx. Weight |
|---------------------|----|----------------|
| LENGTH              | A  |                |
| 4                   | 4  | 1.20           |
| 6                   | 6  | 1.30           |
| 8                   | 8  | 1.40           |
| 10                  | 10 | 1.45           |
| 12                  | 12 | 1.60           |
| 14                  | 14 | 1.70           |

Rev. 3

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| DIMENSIONS (INCHES) |      |      |      |      | Approx. Weight | Approx. Weight |
|---------------------|------|------|------|------|----------------|----------------|
| SIZE                | A    | B    | C    | D    | 547            | 548            |
| 3/4 X 1/2           | 2.38 | 3.53 | 2.16 | 1.34 | 0.44           | 0.45           |
| 3/4 X 3/4           | 2.38 | 3.53 | 2.16 | 1.34 | 1.18           | 1.18           |
| 1 X 3/4             | 2.75 | 4.34 | 3.13 | 1.63 | 0.89           | 0.97           |
| 1 X 1               | 2.75 | 4.34 | 3.13 | 1.63 | 2.05           | 2.05           |

## RATING

- 225 PSI NON-SHOCK

## FEATURES

- BRONZE BODY
- FLARED SOLDER END X THREADED
- THREADED BONNET
- ADJUSTABLE PACKING NUT
- RISING STEM
- BUNA DISC
- IRON HANDWHEEL
- 100% FACTORY TESTED
- DESIGNED FOR WATER METER APPLICATIONS
- INTERNATIONAL

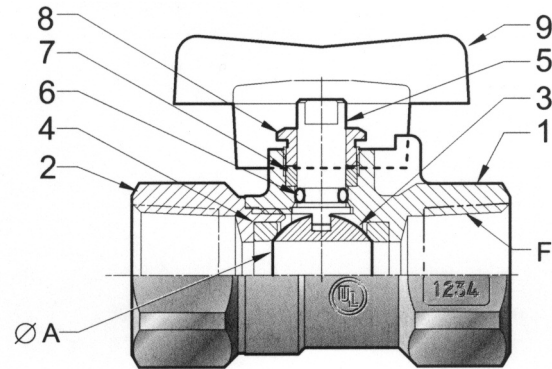
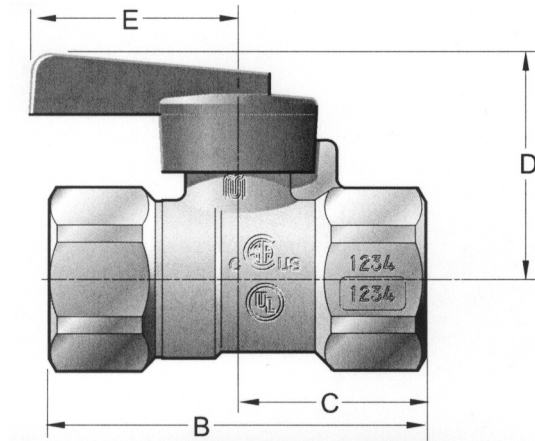
| MATERIAL SPECIFICATION |               |              |                   |
|------------------------|---------------|--------------|-------------------|
| 1                      | Screw         | Steel        | Commercial        |
| 2                      | Name Plate    | Aluminum     | Commercial        |
| 3                      | Handwheel     | Cast Iron    | ASTM A126         |
| 4                      | Packing Nut   | Brass        | ASTM B16          |
| 5                      | Packing Gland | Buna         | ASTM D2000        |
| 6                      | Bonnet        | Forged Brass | ASTM B124, C37700 |
| 7                      | Stem          | Brass        | ASTM B16          |
| 8                      | Body          | Bronze       | ASTM B584, C84400 |
| 9                      | Seat          | Buna         | ASTM D2000        |
| 10                     | Set Screw     | Brass        | ASTM B16          |
| 11                     | Coupling      | Bronze       | ASTM B584, C84400 |
| 12                     | Gasket        | Buna         | ASTM D2000        |
| 13                     | Cap           | Brass        | ASTM B16          |

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87501

87601



| MATERIALS LIST |             |                |              |
|----------------|-------------|----------------|--------------|
| ITEM           | PART        | MATERIALS      | ASTM SPEC.   |
| 1              | Body        | Brass, Forged  | B283 C37700  |
| 2              | Tailpiece   | Brass, Forged  | B283 C37700  |
| 3              | Ball        | Brass          | B124 C37700  |
|                |             | Chrome Plating | B456 SC1     |
| 4              | Ball Seal   | Teflon         | PTFE         |
| 5              | Stem        | Brass          | B124, C37700 |
| 6              | O-Ring      | Buna-N         | UL LISTED    |
| 7              | Packing     | Teflon         | PTFE         |
| 8              | Packing Nut | Brass          | B124, C37700 |
| 9              | Handle      | Zinc           | B86, AG40B   |

## AGENCY APPROVALS



## FEATURES

- FORGED TWO-PIECE BRASS
- STANDARD-PORT BALL VALVE
- INTERNATIONAL

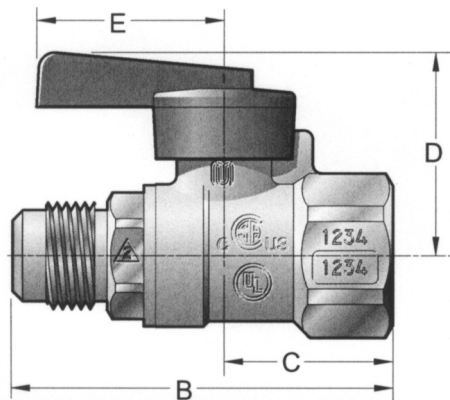
| DIMENSIONS |          |               |       |       |       |
|------------|----------|---------------|-------|-------|-------|
| DIMENSIONS |          | UNITS         | 1/2"  | 3/4"  | 1"    |
| A Ø        |          | INCHES        | 0.394 | 0.591 | 0.787 |
|            |          | mm            | 10.0  | 15.0  | 20.0  |
| B          |          | INCHES        | 2.244 | 2.508 | 2.953 |
|            |          | mm            | 57.0  | 63.7  | 75.0  |
| C          |          | INCHES        | 1.122 | 1.256 | 1.476 |
|            |          | mm            | 28.5  | 31.9  | 37.5  |
| D          | 875      | INCHES        | 1.445 | 1.583 | 1.776 |
|            | Lever    | mm            |       |       | 45.1  |
|            | 876      | INCHES        | 36.7  | 40.2  | NA    |
|            | T-Handle | mm            |       |       |       |
| E          | 875      | INCHES        | 1.378 |       | 1.5   |
|            | Lever    | mm            | 35.0  |       | 38.0  |
|            | 876      | INCHES        | 0.866 |       | NA    |
|            | T-Handle | mm            | 22.0  |       |       |
| F          |          | THREAD<br>NPT | 1/2"  | 3/4"  | 1"    |

Rev. 2

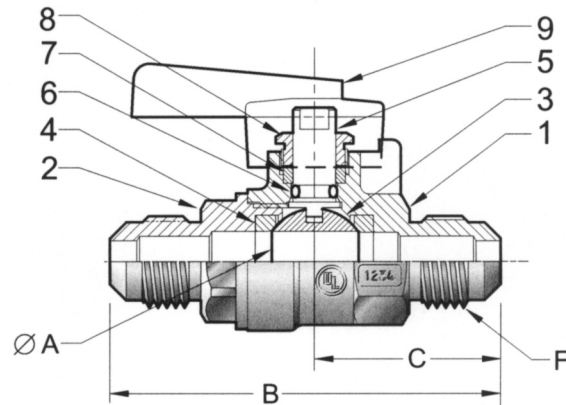
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87901



87801



| MATERIALS LIST |             |                |              |
|----------------|-------------|----------------|--------------|
| ITEM           | PART        | MATERIALS      | ASTM SPEC.   |
| 1              | Body        | Brass, Forged  | B283 C37700  |
| 2              | Tailpiece   | Brass, Forged  | B283 C37700  |
| 3              | Ball        | Brass          | B124 C37700  |
|                |             | Chrome Plating | B456, SC1    |
| 4              | Ball Seal   | Teflon         | PTFE         |
| 5              | Stem        | Brass          | B124, C37700 |
| 6              | O-Ring      | Buna-          | UL LISTED    |
| 7              | Packing     | Teflon         | PTFE         |
| 8              | Packing Nut | Brass          | B124, C37700 |
| 9              | Handle      | Zinc           | B86, AG40B   |

## AGENCY APPROVALS



CGA 9.1  
CSA 3-88  
CR91-002  
ANSI Z 21.15  
5 psi Gas/LP



UL 842

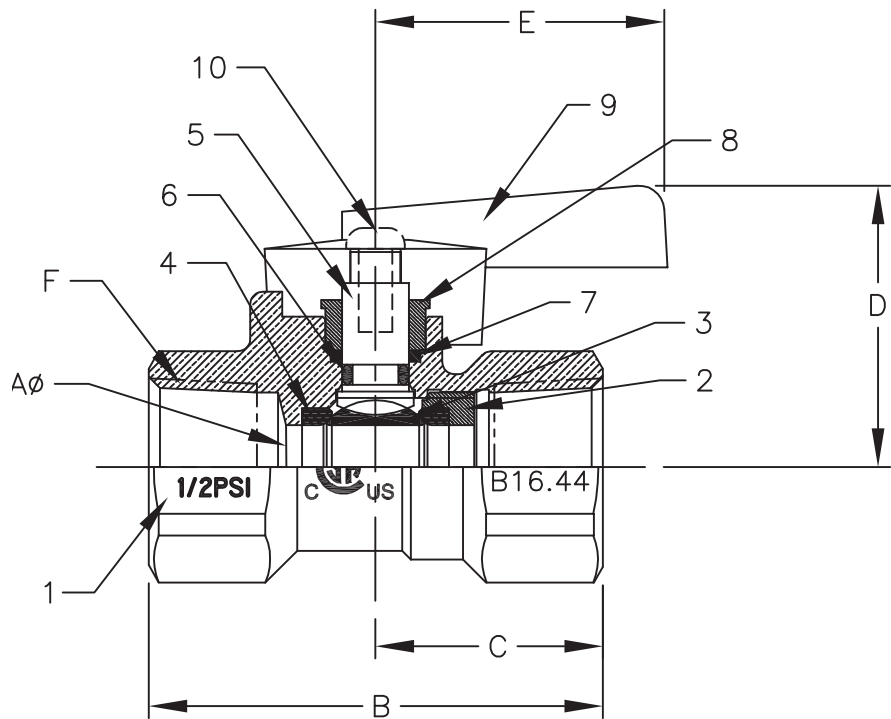
## FEATURES

- FORGED TWO-PIECE BRASS
- STANDARD-PORT BALL VALVE
- ANSI/SAE FLARE J512 FEATURE
- SIZE MARKED ON OUTSIDE
- INTERNATIONAL

| DIMENSIONS   |        |                        |                        |                        |                        |
|--------------|--------|------------------------|------------------------|------------------------|------------------------|
| NOMINAL SIZE |        |                        |                        |                        |                        |
| UNITS        |        | 1/2x1/2"               | 1/2x3/8"               | 3/8x3/8"               | 1/2x1/2"               |
| MODEL        |        | 879                    | 879                    | 878                    | 878                    |
| A Ø          | INCHES | 0.394                  | 0.394                  | 0.394                  | 0.394                  |
|              | mm     | 10.0                   | 10.0                   | 10.0                   | 10.0                   |
| B            | INCHES | 2.937                  | 2.748                  | 2.894                  | 3.213                  |
|              | mm     | 74.6                   | 69.8                   | 73.5                   | 81.6                   |
| C            | INCHES | 1.122                  | 1.122                  | 1.398                  | 1.398                  |
|              | mm     | 28.5                   | 28.5                   | 35.5                   | 35.5                   |
| D            | INCHES | 1.445                  |                        |                        |                        |
|              | mm     | 36.7                   |                        |                        |                        |
| E            | INCHES | 1.378                  |                        |                        |                        |
|              | mm     | 35.0                   |                        |                        |                        |
| F            | INLET  | 1/2" NPT               | 1/2" NPT               | 3/8" FLARE<br>SAE-J512 | 1/2" FLARE<br>SAE-J512 |
|              | OUTLET | 1/2" FLARE<br>SAE-J512 | 3/8" FLARE<br>SAE-J512 | 3/8" FLARE<br>SAE-J512 | 1/2" FLARE<br>SAE-J512 |

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| MATERIALS LIST |             |                  |              |
|----------------|-------------|------------------|--------------|
| ITEM           | PART        | MATERIALS        | ASTM SPEC.   |
| 1              | Body        | Brass, Forged    | B283, C37700 |
| 2              | Tailpiece   | Brass, Forged    | B283, C37700 |
| 3              | Ball        | Brass            | B124, C37700 |
|                |             | Chrome Plating   | B456, SC1    |
| 4              | Ball Seal   | Teflon           | PTFE         |
| 5              | Stem        | Brass            | B124, C37700 |
| 6              | O-Ring      | Buna-            | UL LISTED    |
| 7              | Packing     | Teflon           | PTFE         |
| 8              | Packing Nut | Brass            | B124, C37700 |
| 9              | Handle      | Zinc             | B86, AG40B   |
| 10             | Screw       | Steel/Zinc Plate | B633         |

AGENCY APPROVALS



FEATURES

- FORGED ONE-PIECE BRASS
- STANDARD-PORT BALL VALVE

RATINGS MARKING

- 5G = 5 PSI
- 1/2" 150,000 BTU/HR
- 3/4" 400,000 BTU/HR
- MINIMUM FLOW CAPACITY
- INTERNATIONAL

| DIMENSIONS |        |      |       |
|------------|--------|------|-------|
| DIMENSIONS | UNITS  | 1/2" | 3/4"  |
| A Ø        | INCHES | 0.39 | 0.591 |
|            | mm     | 10.0 | 15.0  |
| B          | INCHES | 2.14 | 2.508 |
|            | mm     | 54.4 | 63.7  |
| C          | INCHES | 1.07 | 1.256 |
|            | mm     | 27.3 | 31.9  |
| D          | INCHES | 1.33 | 1.583 |
|            | mm     | 33.7 | 40.2  |
| E          | INCHES | 1.36 | 1.36  |
|            | mm     | 34.6 | 34.6  |
| F          | THREAD | 1/2" | 3/4"  |
|            | NPT    |      |       |

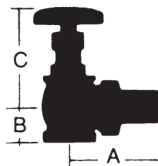
Rev. 1

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*100-25*  
STEAM  
RADIATOR  
ANGLE  
(female IPS)



| DIMENSIONS (INCHES) |      |      |      | Approx.<br>Weight |
|---------------------|------|------|------|-------------------|
| SIZE                | A    | B    | C    |                   |
| 1/2                 | 2.31 | 0.97 | 2.97 | 0.98              |
| 3/4                 | 2.66 | 1.09 | 2.72 | 1.33              |
| 1                   | 2.94 | 1.28 | 2.94 | 1.67              |
| 1 1/4               | 3.31 | 1.47 | 3.25 | 2.67              |

## RATING

- FIG. 100-25  
15# WSP & 60 PSI NON-SHOCK HOT WATER  
(for low pressure steam and hot water)
- FIG.200-GRAVITY  
HOT WATER

## FEATURES

- BRASS BODY
- EPDM DISC
- PHENOLIC HAND-WHEEL (heat resistant)
- ADJUSTABLE PACKING NUT
- TAIL PIECE & UNION NUT PART OF ASSEMBLY
- 100% FACTORY TESTED
- INTERNATIONAL

*200*  
HOT WATER  
ANGLE  
(female IPS)



| DIMENSIONS (INCHES) |      |      |      | Approx.<br>Weight |
|---------------------|------|------|------|-------------------|
| SIZE                | A    | B    | C    |                   |
| 1/2                 | 2.31 | 0.97 | 2.97 | 0.98              |
| 3/4                 | 2.66 | 1.09 | 2.72 | 1.33              |
| 1                   | 2.94 | 1.28 | 2.94 | 1.67              |
| 1 1/4               | 3.31 | 1.47 | 3.25 | 2.67              |

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**102**  
UNION GATE  
(male union X female  
IPS)

| DIMENSIONS (INCHES) |      |      |      | Approx.<br>Weight |
|---------------------|------|------|------|-------------------|
| SIZE                | A    | B    | C    |                   |
| 1/2                 | 2.31 | 0.97 | 2.97 | 0.98              |
| 3/4                 | 2.28 | 1.09 | 3.59 | 1.41              |
| 1                   | 2.88 | 1.28 | 4.09 | 1.91              |
| 1 1/4               | 3.22 | 1.47 | 4.66 | 2.79              |
| 1 1/2               | 3.38 | 1.75 | 3.38 | 3.72              |

## RATING

- FIG. 102 = 125 WSP & 200 WOG
- FIG. 108 = 15 WSP & 60 PSI NON-SHOCK HOT WATER (for low pressure steam and hot water)
- FIG. 201 = 60 PSI HOT WATER

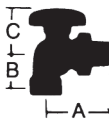
## FEATURES

- BRONZE BODY
- EPDM DISC
- PHENOLIC HAND-WHEEL (heat resistant)
- ADJUSTABLE PACKING NUT
- TAIL PIECE & UNION NUT PART OF ASSEMBLY
- 100% FACTORY TESTED
- INTERNATIONAL



**108**  
CONVECTOR  
STEAM ANGLE  
(female union X  
female IPS)

| DIMENSIONS (INCHES) |      |      |      | Approx.<br>Weight |
|---------------------|------|------|------|-------------------|
| SIZE                | A    | B    | C    |                   |
| 1                   | 1.69 | 2.31 | 3.53 | 1.87              |
| 1 1/4               | 1.75 | 2.84 | 3.81 | 2.43              |



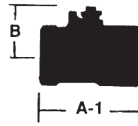
**201**  
CIRCULATOR  
ANGLE VALVE  
(male union X sweat)

| DIMENSIONS (INCHES) |      |      |      | Approx.<br>Weight |
|---------------------|------|------|------|-------------------|
| SIZE                | A    | B    | C    |                   |
| 1/2                 | 2.50 | 0.78 | 1.88 | 0.70              |
| 3/4                 | 2.88 | 0.94 | 2.06 | 0.96              |

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# CIRCULATOR VALVES & ELBOWS 8201-15 -8211-15 - 300 - 302



**8201-15**  
CIRCULATOR  
SLOTTED STEM  
(threaded ends)

| DIMENSIONS (INCHES) |      |      | Approx.<br>Weight |
|---------------------|------|------|-------------------|
| SIZE                | A-1  | B    |                   |
| 1/2                 | 2.84 | 0.94 | 0.30              |
| 3/4                 | 2.16 | 1.06 | 0.50              |
| 1                   | 2.63 | 1.41 | 0.80              |

## RATING

- 150 PSI SATURATED STEAM (8201-15 & 8211-15)
- 400 PSI NON-SHOCK COLD WATER, OIL OR GAS (8201-15 & 8211-15)



**8211-15**  
CIRCULATOR -  
SLOTTED STEM  
(solder ends)

| DIMENSIONS (INCHES) |      |      | Approx.<br>Weight |
|---------------------|------|------|-------------------|
| SIZE                | A    | B    |                   |
| 1/2                 | 2.09 | 0.94 | 0.20              |
| 3/4                 | 2.78 | 1.06 | 0.40              |
| 1                   | 2.63 | 1.41 | 0.70              |

## FEATURES

- FORGED BRASS BODY (ASTM - B283)
- BRASS UNION END & TAILPIECE (ASTM-B16) (300 & 302)
- STANDARD PORT OPENING (8201-15 & 8211-15)
- CHROME PLATED BALL (8201-15 & 8211-15)
- ADJUSTBLE PACK-ING NUT (8201-15 & 8211-15)
- TFE SEATS & SEALS
- 100% FACTORY TESTED
- INTERNATIONAL



**300**  
UNION ELBOW  
(threaded end)

| DIMENSIONS (INCHES) |      |      | Approx.<br>Weight |
|---------------------|------|------|-------------------|
| SIZE                | A    | B    |                   |
| 1/2                 | 2.38 | 1.06 | 0.45              |
| 3/4                 | 2.69 | 1.19 | 0.64              |
| 1                   | 3.06 | 1.44 | 1.00              |
| 1 1/4               | 3.44 | 1.75 | 1.54              |



**302**  
UNION ELBOW  
(solder end)

| DIMENSIONS (INCHES) |      |      | Approx.<br>Weight |
|---------------------|------|------|-------------------|
| SIZE                | A    | B    |                   |
| 1/2                 | 0.75 | 1.25 | 0.39              |
| 3/4                 | 0.75 | 1.50 | 0.56              |

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# ENGINEERING DATA

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## SHOCK

---

Pressure ratings of valves for liquid service are applicable only when no shock is present.

Shock (or water hammer) is the term used to denote a sudden increase in pressure when a liquid flow is suddenly stopped by the rapid closure of a valve. This increase in pressure is only partly related to the working pressure of the system, but more to the velocity at which the liquid is flowing.

For example, a system having a working pressure of 200 PSIG with a velocity of 4 ft. per second will be subject to the same increment of pressure due to water hammer as one having a working pressure of 1000 PSIG.

Shock occurs most frequently in lines supplied by reciprocating pumps, equipped with check or other quick closing valves. It can occur if conventional globe or gate valves are closed too rapidly and it is, therefore, recommended that care always be used in closing valves in lines carrying liquids.

Where shock is likely to be present, it is recommended that the maximum shock pressure be added to the working pressure of the system in order to obtain the pressure rating of the valves which should be used.

## INSTALLING SOLDER END VALVES

---

The following outlines the normal procedures in making up sound leak-tight solder joints.

1. The copper tube ends are to be cut square, removing all burrs by reaming with a file or scraper.
2. The copper tube ends and the inside of the solder cup should be cleaned to bright metal with steel wool or by wire brushing.
3. Apply flux to the outside of the copper tubing and inside the solder cup making sure that all surfaces to be joined are completely covered.
4. Insert the copper tubing into the valve's solder cup until it bottoms against the shoulder, turning the tube in the cup to distribute the flux evenly.
5. Before applying heat, be certain that the valve is in its fully opened position. It is also recommended that the valve and tubing be supported during the soldering operation to prevent straining while cooling.
6. Apply heat of the torch uniformly around the copper tubing first adjacent to the end of the valve. The heat should then

be applied towards the end of the valve's solder cup, directing the flame away from the valve body. Care should be taken to avoid prolonged heating of the valve itself to prevent distortion and/or destruction of the disc, in case it is constructed of non-metallic material.

7. Apply solder at the juncture of the copper tube and the end of the valve's solder cup. When the joint is sufficiently heated the solder will flow into the joint. A ring of solder will form around the circumference of the juncture indicating the completion of the solder joint.
8. Any excess solder should then be removed using a cloth or brush.

NOTE: Bronze solder joint valves should never be used in services where the media may reach higher temperatures than that at which the solder begins to soften. See the pressure/temperature ratings for solder joints shown below.

## INSTALLING THREADED END VALVES

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1. Inspect both the valve and the pipe ends to make sure they are free of dirt, rust, oil, or anything that may prevent a proper connection.
2. Pipe ends must be properly threaded and prepared for installation (pipe threads that are cut either too large or too small can damage the valve; if there is any question, gage the threads).
3. Prior to installation, clean pipe and valve ends with compressed air and/or water and wipe with a clean cloth.
4. PTFE-based sealants are recommended for threaded end valves when making up joints. Consult the sealant manufacturer's instructions for proper use of the sealant.

The sealant should be applied to the pipe, not the female threads in the valve.

5. Because bronze and brass are soft metals and often softer than mating pipe materials, the pipe should be held in a vise and the valve turned onto the pipe using a smooth jawed wrench applied to the valve end being turned onto the pipe (if the body side port is being threaded onto the mating pipe, driving from the endplate side can introduce excessive stress to the body/tail joint).

Note: Pipe wrenches should be used on pipe and certain fittings only – they should never be used on a valve.

## FLUID COMPATIBILITY

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Consider the corrosive, erosive and adhesive effects of the fluids on the valve and piping components. It is the responsibility of the equipment owner or his engineering designer to ensure that the valve is compatible with the fluids and other material in the system.