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PICTORIAL INDEX



A-200
Trap Seal Primer



BV-800
Shut-off Valve



MS-8000
Fresh Air Inlet



BV-200
In-Line Backwater Valve



BV-1000
Internal Backwater Valve



PS Series
Pipe Sleeves

Photo not
available at
this time

BV-240
In-Line Backwater Valve



MS-930
Trap Primer Adaptor



SG Series
Copper Shock Arrestor



BV-600
Pit Drain



MS-950
Funnel/Trap Adapter



SS Series
Stainless Steel Shock Arrestor



WATER HAMMER ARRESTORS & MISC. SPECIALTIES

WATER HAMMER ARRESTORS

Watts water hammer arrestors prevent water hammer in piping systems, which generally results from sudden changes in flow velocity. Solenoid-actuated and other types of quick closing valves create shock pressure, which can often cause water hammer (banging pipes). Properly installed arrestors will absorb the shock, eliminating noise and potential damage to the piping system.

Certification

All Watts water hammer arrestors are Certified by the Plumbing & Drainage Institute (PDI), in accordance with Standard PDI-WH201.

Pressure & Temperature Range

SG Series - 150 PSI maximum working pressure, 180 deg. F maximum temperature

SS Series - 150 PSI maximum working pressure, 300 deg. F maximum temperature

Sizing & Placement

The PDI fixture unit method is used. PDI methodology takes into consideration probabilities for coincidental valve closings, as well as pipe size, length, flow pressure, and velocity.

- 1.) Calculate the total number of fixture units (Table 1) on each hot and cold water line separately. Determine the total number of fixture units on a line by adding the unit values for each fixture.
- 2.) From Table 2, select the Watts water hammer arrestor with a fixture unit rating equal to, or greater than, the total number of fixture units on the line.
- 3.) For multiple fixture branch lines less than 20' in length, the water hammer arrestor should be installed between the last two fixtures (Fig. A).
- 4.) For multiple fixture branch lines over 20' in length, two water hammer arrestors should be used, with the second unit placed at the approximate midpoint of the line. The sum of the unit ratings for the two water hammer arrestors should be equal to, or greater than, the total fixture units for the line (Fig. B).
- 5.) For long runs of piping terminating at a piece of equipment, the water hammer arrestor size should be determined from Table 3. The arrestor(s) should be located as near as possible to the closure valve (Fig. C).

Note:

1.) Sizing recommendations are based upon an average flow velocity between 5 & 10 feet per second, and an operating pressure less than 65 PSI. For operating pressures over 65 PSI, use the next larger water hammer arrestor size. A pressure reducing valve is recommended for line pressures exceeding 85 PSI.

Calculation Example:

Cold Water Branch (Less than 20')

2 Water Closets @ 10 Fixture Units ea. = 20 Fixture Units

2 Lavatories @ 1-1/2 Fixture Units ea. = 3 Fixture Units

Total Fixture Units = 23

Select PDI Size #B Water Hammer Arrestor

WATER HAMMER ARRESTORS

Sizing & Placement

Table 1

| Fixture | Type of Supply Control | Fixture Unit Weight | | | |
|----------------------|------------------------|---------------------|-------|---------|-------|
| | | Public | | Private | |
| | | Cold | Hot | Cold | Hot |
| Water Closet | Flush Valve | 10 | — | 6 | — |
| Water Closet | Flush Tank | 5 | — | 3 | — |
| Pedestal Urinal | Flush Valve | 10 | — | — | — |
| Stall or Wall Urinal | Flush Valve | 5 | — | — | — |
| Stall or Wall Urinal | Flush Tank | 3 | — | — | — |
| Lavatory | | 1-1/2 | 1-1/2 | 1 | 1 |
| Bathtub | | 2 | 3 | 1-1/2 | 1-1/2 |
| Shower Head | | 2 | — | 1 | 2 |
| Bathroom Group | | — | — | 8 | 3 |
| Bathroom Group | | — | — | 6 | 3 |
| Separate Shower | | — | — | 1 | 2 |
| Service Sink | | 3 | 3 | — | — |
| Laundry Tubs (1-3) | | — | — | 3 | 3 |
| Combination Fixture | | — | — | 3 | 3 |

Table 2

| Fixture Unit Weight | 1-11 | 12-32 | 33-60 | 61-113 | 114-154 | 155-330 |
|---------------------|--------|--------|--------|--------|---------|---------|
| PDI Symbol | #A | #B | #C | #D | #E | #F |
| Watts SG Series | SG-050 | SG-075 | SG-100 | SG-125 | SG-150 | SG-200 |
| Watts SS Series | SS-A | SS-B | SS-C | SS-D | SS-E | SS-F |

Table 3

| Length Of Pipe | Nominal Pipe Size | | | | | |
|----------------|-------------------|------|----|---------|---------|-----------|
| | 1/2" | 3/4" | 1" | 1-1/4" | 1-1/2" | 2" |
| 25' | #A | #A | #B | #C | #D | #E |
| 50' | #A | #C | #C | #D | #E | #F |
| 75' | #B | #C | #D | #A + #E | #F | #E + #F |
| 100' | #C | #D | #E | #F | #C + #F | 2-#F |
| 125' | #C | #D | #F | #A + #F | #E + #F | #E + 2-#F |
| 150' | #D | #E | #F | #D + #F | 2-#F | 3-#F |

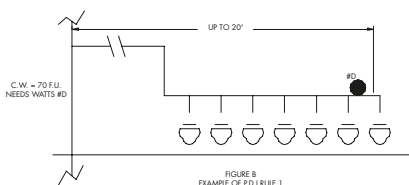


Figure A

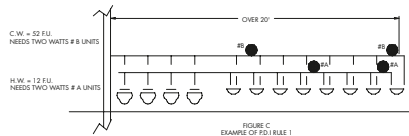


Figure B

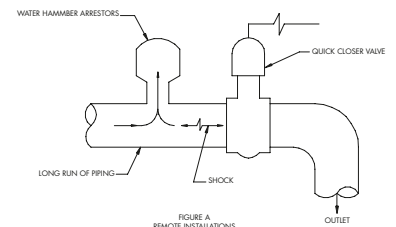
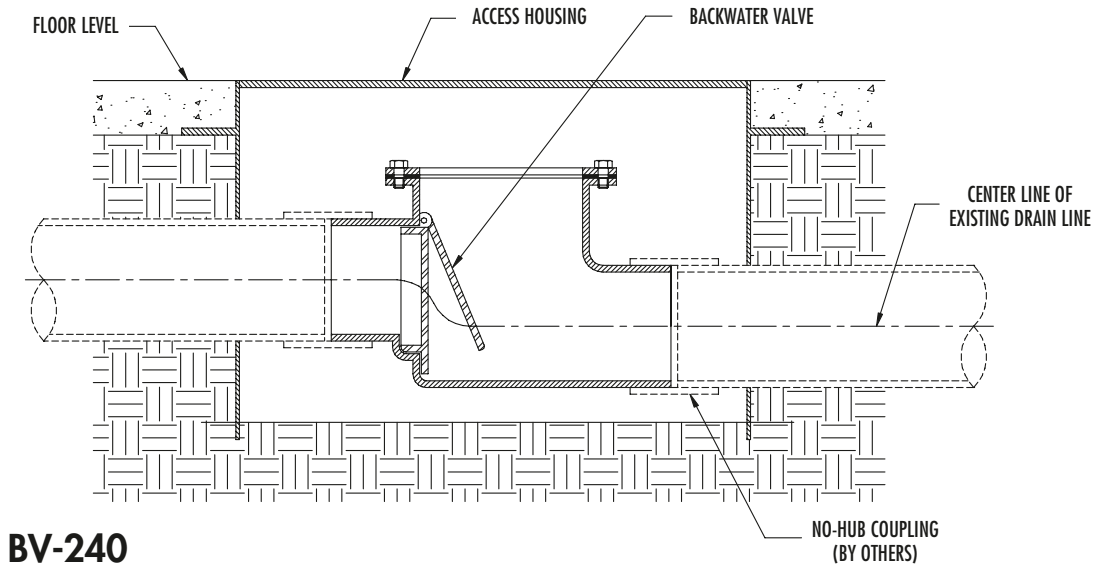


Figure C

BACKWATER VALVES

Flapper type backwater valves are specified in gravity flow (non-pressure) applications to restrict backflow from excessive rainfall, tidewater, or other drainage conditions. The bronze flapper valve should be periodically inspected and kept free of debris or other obstruction to assure proper functioning.

TYPICAL INSTALLATIONS

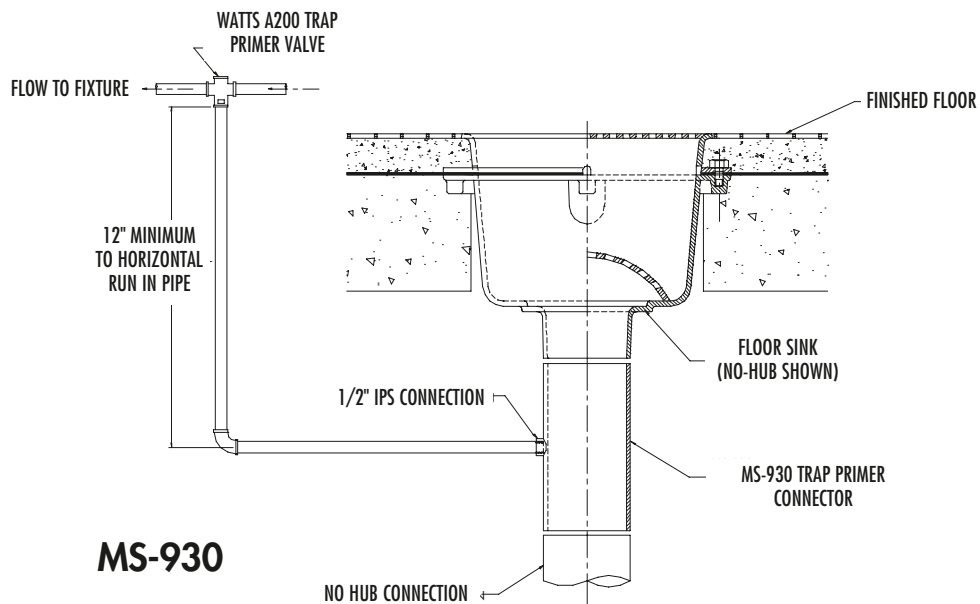


BV-240

TRAP PRIMER ADAPTORS

Watts MS-930 Series Trap Primer Adaptors are specified when direct connection of trap primer lines is impractical, or undesirable. Typical applications include connections below a thick slab, and connections to Sanitary Floor Sinks, where a direct trap primer connection would damage the interior of the sink.

TYPICAL INSTALLATIONS



MS-930



WATER HAMMER ARRESTORS & MISC. SPECIALTIES

TRAP SEAL PRIMERS

Trap seal primers are specified to maintain a water seal in the trap of infrequently used drains. An unmaintained trap seal may allow sewer gases or vermin to enter the building through the drainage system.

Watts A-200 Trap Seal Primer operates to deliver spurts of water to the trap. A unique mechanism activates the primer twice in a complete flow cycle, delivering a spurt upon both the opening and closing of the fixture valve. Trap seal primers should be installed on the cold water supply line servicing a frequently sink or other fixture.

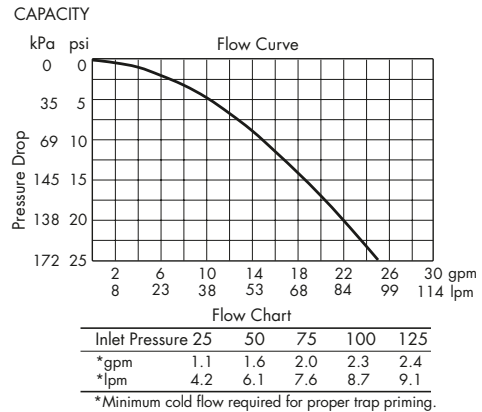
Compliance

Watts A-200 Trap Seal Primer complies with ANSI/ASSE Standard 1018.

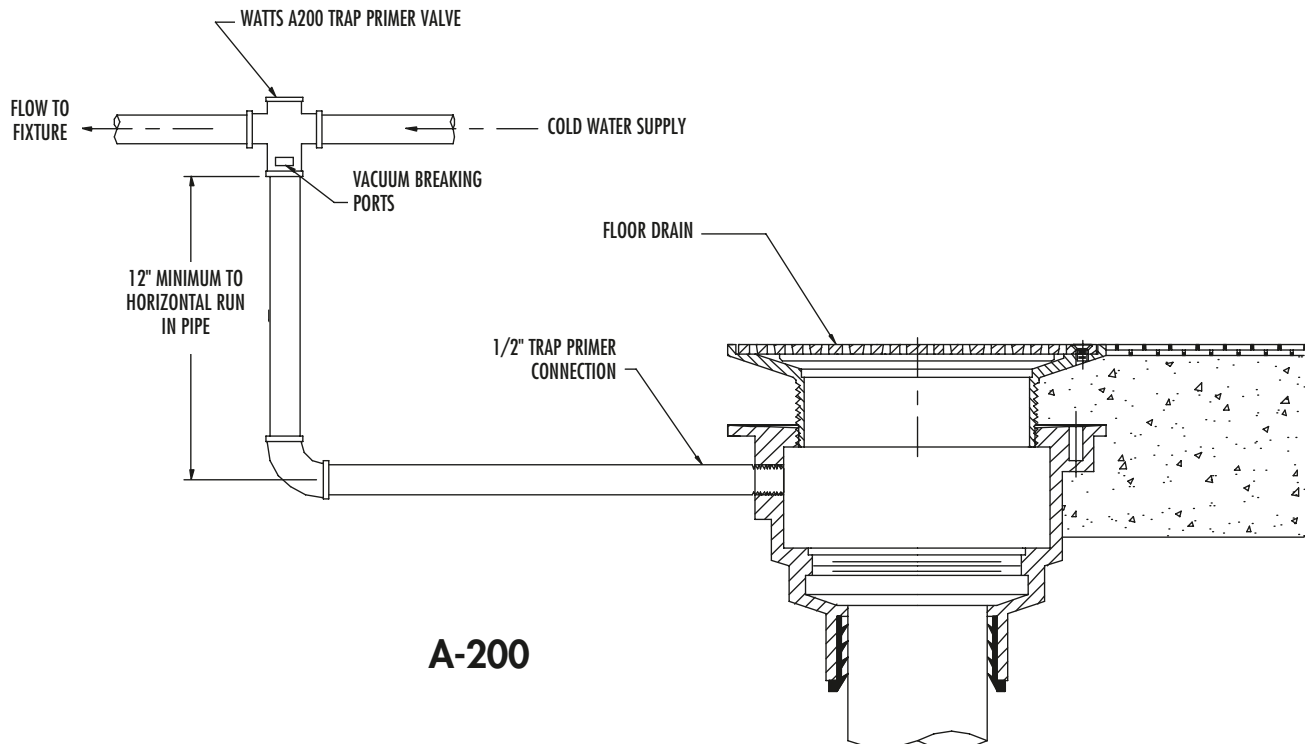
Pressure & Flow Characteristics

Minimum Supply Pressure: 25 PSI
 Maximum Supply Pressure: 125 PSI

| Inlet Pressure (PSI) | Minimum Flow Watts Required (GPM) |
|----------------------|-----------------------------------|
| 25 | 1.1 |
| 50 | 1.6 |
| 75 | 2 |
| 100 | 2.3 |
| 125 | 2.4 |



TYPICAL INSTALLATIONS



A-200