



Arrowhead Brass & Plumbing, LLC

Frost-Free Wall Hydrant Guide Information, Identification & Repair

420 SERIES

Vacuum Breaker
Air-Vent

Internal Check
Assembly
(Cone Washer)



See Pages 4-5

450 SERIES

"USA" & "ABP"
On all Arrowhead
Brass Frost-Free
Hydrants

Brass Square
End



See Pages 6-7

460 SERIES

UPC Shield

"ANTI-SIPHON"
or "ASSE 1019"

460 Series:
Internal Check Assembly
(Cone Washer)

Arrow-Breaker®

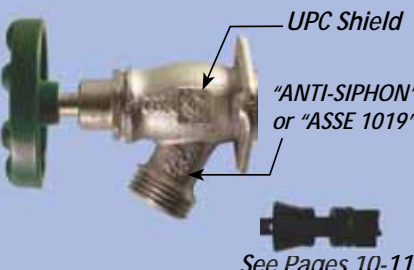


See Pages 8-9

470 FREEZE-PROOF SERIES

UPC Shield

"ANTI-SIPHON"
or "ASSE 1019"

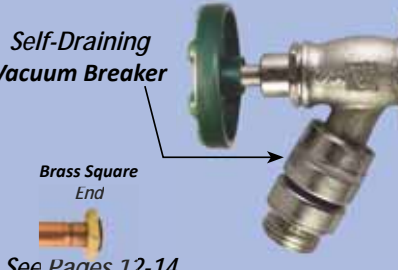


See Pages 10-11

480 SERIES

Self-Draining
Vacuum Breaker

Brass Square
End



See Pages 12-14

490 HOT & COLD SERIES



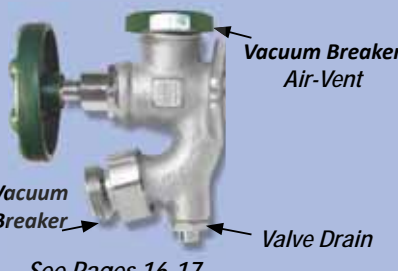
See Page 15

455BFP APACHE SERIES

Vacuum Breaker
Air-Vent

Vacuum
Breaker

Valve Drain



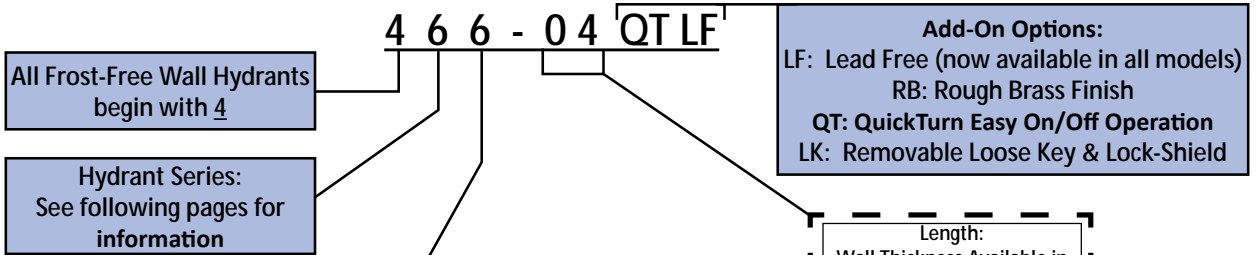
See Pages 16-17



Frost-Free Wall Hydrant Guide

Fitting Options & Stem Length

Frost-Free Model # Identification:



Connection Types

<u>0</u>	Plain End for Push-Fit Coupling (470 Series Only)	
<u>1</u>	3/4" Wirsbo Uponor Style Pex	
<u>2</u>	1/2" Wirsbo Uponor Style Pex	
<u>5</u>	Dual Connections: 1/2" Female Pipe Thread Inside Dia. 3/4" Male Pipe Thread Outside Dia.	
<u>6</u>	Dual Connections: 1/2" Copper Sweat Inside Dia. 1/2" Male Pipe Thread Outside Dia.	
<u>7</u>	3/4" PEX (Crimp Type)	
<u>8</u>	Dual Connections: 3/4" Copper Sweat Inside Dia. 3/4" Male Pipe Thread Outside Dia.	
<u>9</u>	1/2" PEX (Crimp Type)	

How to find your Frost-Free Hydrant Length:

1- Identify the model of Frost-Free Hydrant installed

2- Measure Overall Length of the Stem Assembly



3- Subtract 4" & add to PK # (i.e. PK2004 = 8")

See following pages for model specific details

On the following pages, you will find installation information & repair guides for Arrowhead Brass & Plumbing's various Frost-Free hydrant series. For further assistance, please visit www.arrowheadbrass.com or contact Arrowhead Brass at the information below.

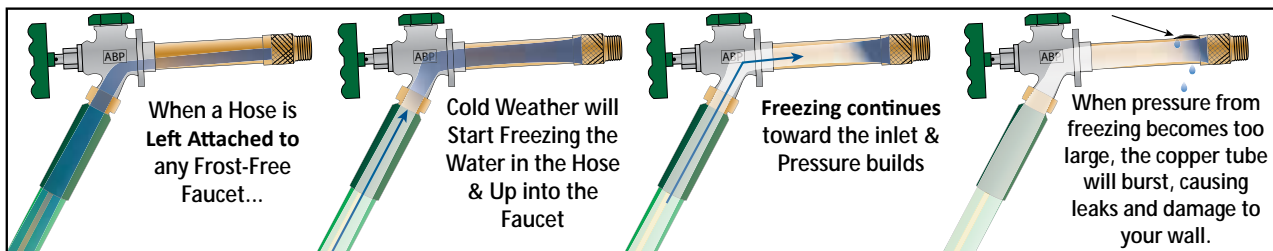
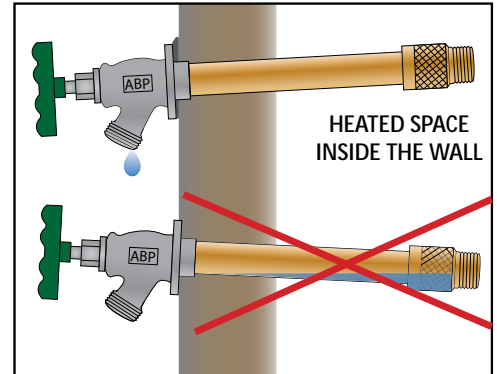


Frost-Free Wall Hydrant Guide

Installation Guide

How Frost-Free Wall Hydrants Work:

- Frost-free wall hydrants are designed to prevent damage from freezing water in plumbing systems. Frost-Free Wall Hydrants separate the water supply from the cold weather by shutting-off flow at the heated area inside wall.
- For a frost-free wall hydrant to work properly, it **MUST** be installed at a slight downward angle toward the spout (as shown to right) so water will drain when it is shut off. The Gap Spacer Wedge sold with every Arrowhead Frost-Free Hydrant should be used to ensure proper installation with a downward tilt.
- If the hydrant is installed level or at an upward angle, water will not drain properly and may freeze inside the faucet and cause the copper tube to burst.



When a hose or other restriction is left attached to the faucet (such as an irrigation timer, "Y" hose splitter, or add-on back-flow preventer), water will not drain from the faucet properly. Water inside the hose will begin to freeze upward toward the back, or "SEAT", of the faucet, and the pressure inside the copper tubing will exceed capacity and burst. This will cause leaks within the wall, usually after some time when the faucet is turned on next, and can cause considerable damage. Frost-Free wall hydrants are designed in such a way that this sort of damage can be avoided as long as the user ensures the faucets are angled downward & all hoses/devices are removed so the faucets can drain.

THE ONLY CAUSE OF A BURST FROST-FREE HYDRANT IS WATER EXPANSION FROM FREEZING INSIDE THE COPPER TUBE THAT WAS NOT DRAINED PROPERLY. PROPER INSTALLED VALVES (WITH DOWNWARD TILT) WILL ALWAYS DRAIN UNLESS A HOSE OR OTHER DEVICE WAS LEFT ATTACHED.



Grey Gap spacer included with every wall hydrant. Labeled: "REMOVE HOSE IN FREEZING WEATHER" Use to help tilt hydrant downward in order for it to drain.

FORGOT TO REMOVE YOUR HOSE? TIRED OF BURST PIPES? CHECK OUT ARROWHEAD'S NEW 470 FREEZE-PROOF WALL HYDRANT WITH WORRY-FREE BURST & BACK-FLOW PROTECTION. AVAILABLE NOW. SEE PAGE 10 FOR DETAILS



420 SERIES

Anti-Siphon Frost-Free Hydrant Repair



420 Series Hydrant Information

- Frost-Free Hydrants with built-in anti-siphon technology
- Protects drinking water from harmful contaminants (pesticides, herbicides, etc)
- Protects pipes from freezing & damage
- ASSE 1019 Listed; IAPMO Certified
- Made in the USA; 3-Year Limited Warranty
- Faucet should not be pressurized for more than 12 consecutive hours: Not designed for constant pressure applications (i.e. sprinkler timers, "Y" Shut offs...)
- Remove hose after use to drain faucet
- When using self-closing nozzle, always relieve pressure after shut-off
- Faucet must be installed at a downward angle to ensure drainage & prevent freezing

Repair

Leaking out of the Weep Hole during use:

- Cause: worn out o-ring on the check assembly. This happens over time or if the faucet is left "ON" for long periods of time (over 12 hrs)
- If the faucet was installed after 1999 OR the stem's check assembly is SPRING-LESS, replace with new check assembly [PK2016] OR full stem [PK2004-PK2014]

Any Leaking on Faucet Installed Before 1999 or Check Assembly with SPRING

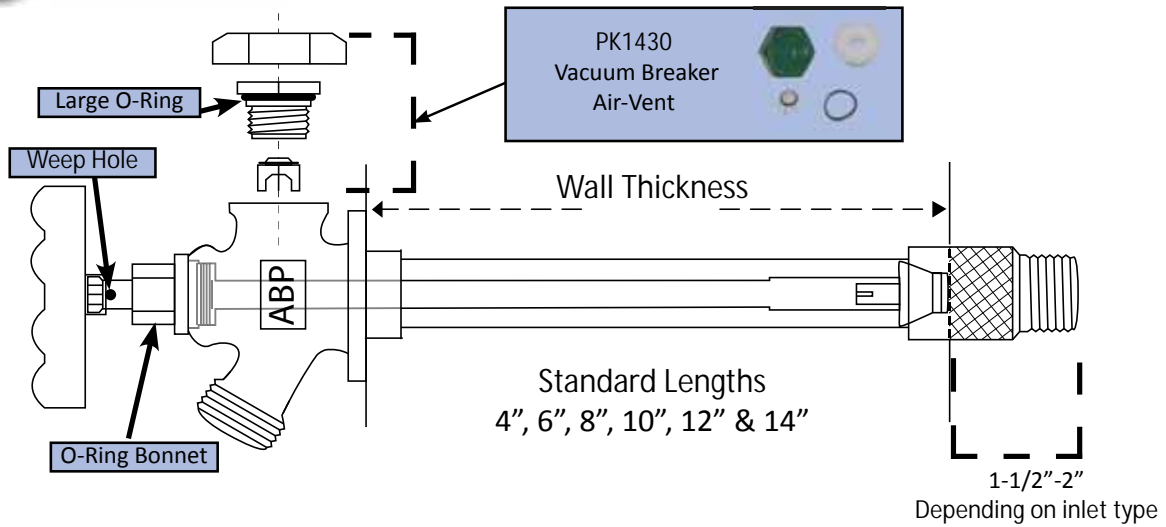
- Cause: worn out parts & seals
- If the stem has a SPRING in the Check Assembly, the full stem should be replaced with a Special Order Stem Length that is 1/4" longer [PK2004SP - PK2014SP]
- If SP Stem does not work, replace the faucet

Leaking out of the Green Cap Air-Vent:

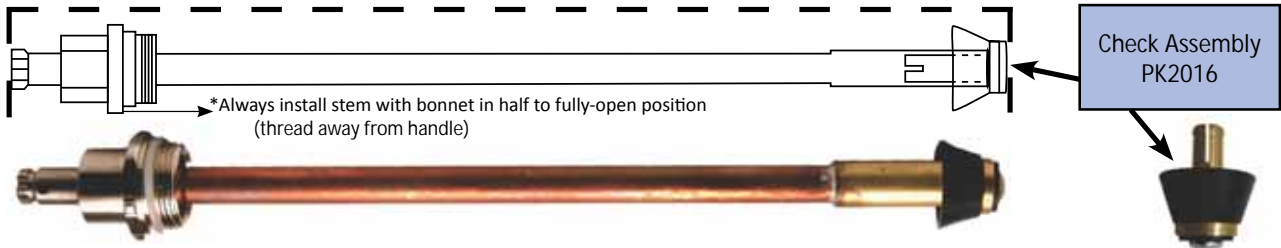
- Cause: worn, broken or missing parts
- Repair by removing old parts & replacing with new parts from kit [PK1430]
- Follow assembly diagram on next page
- If leak persists, ensure positive seal and cleaned threads
- Do not use thread tape or sealant

Leaking out of the Hose Thread when "OFF"- Will Not Shut Off:

- Cause: worn out washer or broken faucet seat
- If the faucet was installed after 1999 OR the stem's check assembly is SPRING-LESS, replace with new check assembly [PK2016] OR full stem [PK2004-PK2014]
- If replacement parts do not work, contact Arrowhead



PK2004-PK2014: Replacement Stem Assembly
Overall Length (Check Assembly Pushed In) Minus 4"



Part Kits

Part Kit #	Description
PK1295	Green Rubberized Coated Handle Stainless-Steel Self-Tapping Screw
PK2004 Through PK2014	Frost-Free Stem Assembly; Last two digits specify hydrant length 02"-14" (Stem overall length minus 4")
PK2016	Replacement Spring-Less Check Assembly for 420 Series Hydrants
PK1430	Green Cap & Air-Vent Assembly
PK1450	Gap Spacer (Grey)
PK2004SP Through PK2014SP	Replacement Spring-Less Stem for old style stems with SPRING (Pre-1999; SP stems are 1/4" longer)

If your faucet stem has a SPRING or does NOT measure to an even length, you may need an "SP" Stem

- SP Stems are 4-1/4" longer than the hydrant length (i.e. PK2004SP = 8-1/4")
- SP Stems should work as replacements for valve older than 1999 but often times may not work. SP or "special" stems are non-returnable & not covered under warranty
- Arrowhead Brass suggests replacing your faucet if it was installed before 2001. We can not guarantee that SP parts will work





450 SERIES

Standard Frost-Free Hydrant Repair



450 Series Hydrant Information

- Standard Frost-Free Wall Hydrant
- Protect faucet & pipes from freezing & damage by separating cold weather from water supply
- Made in the USA; 3-Year Limited Warranty
- **IMPORTANT:** Always shut off faucet after use AND remove hose in order to drain the faucet and prevent freezing
- Faucet should not be pressurized for more than 12 consecutive hours
- Does not provide anti-siphon back-flow protection; add-on devices available (may be required by code)
- Faucet must be installed at a downward angle to ensure drainage & prevent freezing
- Not designed for constant pressure applications (i.e. sprinkler & drip timers, "Y" Shut off...)
- When using self-closing nozzle, always relieve pressure after shut-off

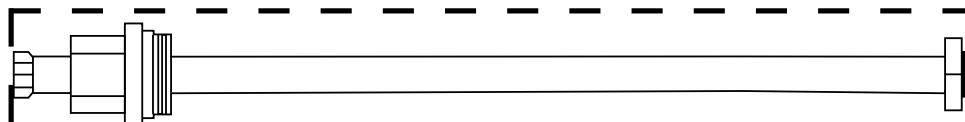
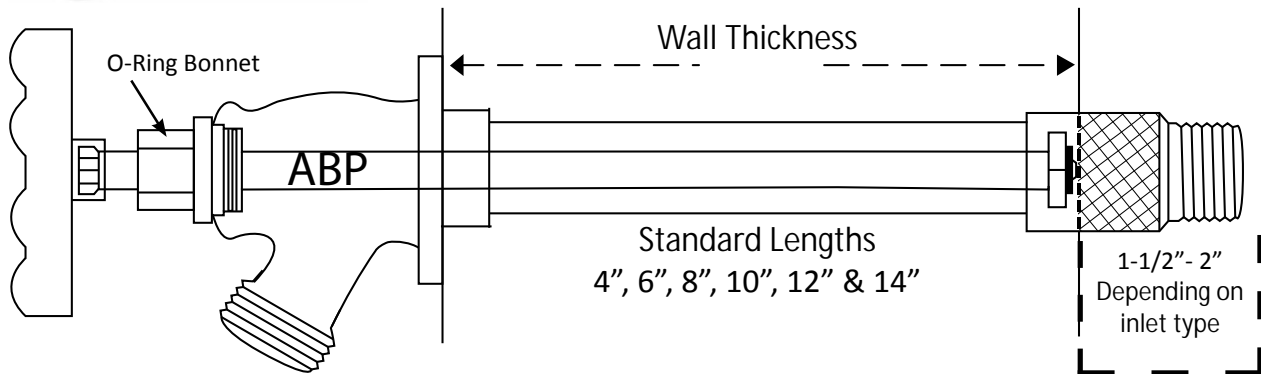
Repair

Leaking out of the hose thread when "OFF"- Faucet will not shut off:

- Cause: worn out washer or broken faucet seat
- Replace entire stem [PK8004-PK8014]- suggested
- Replace seat washer & screw at end of the stem [PK1000]
- If new stem does not stop leak, replace the faucet
- If original stem is not a standard length (even lengths 4"-18" total length), special order stems are available

Leaking out of the packing nut or bonnet:

- Cause: loose bonnet or worn out seals in the bonnet.
- If the bonnet has the old 2-piece style with graphite packing, replacing the entire stem is suggested [PK8004-PK8014]
- If the bonnet is the new o-ring style, replacing the stem is suggested [PK8004-PK8014]
- If original stem is not a standard length (even lengths 4"-18" total length), special order stems are available



*Always install stem with bonnet in half to fully-open position (thread away from handle)

PK8004-PK8014: replacement stem assembly
Measure FULL length as shown & subtract 4"



On faucets older than 1999: replacement stems may require a trim to the brass square washer retainer. Trim 1/16" off each corner to fit it into faucet. Contact Arrowhead for more information.

Part Kits

Part Kit (PK) #	Description
PK1000	Stem Rebuild Kit (seat washer, screw, nylon bonnet washer)
PK1290	Green Oval Handle (Aluminum Die-cast) Stainless-Steel Self-Tapping Screw
PK8004 Through PK8014	Frost-Free Stem Assembly; Last two digits specify hydrant length 02"-14" (Stem overall length minus 4")
PK1450	Gap Spacer Wedge
PK8004SP Through PK8014SP	Frost-Free Stem Assembly; Last two digits specify hydrant length 02"-14" (Stem overall length minus 4-1/4"). SP Special length stems for hydrants installed before 1999.

If your faucet stem does NOT measure to an even length, you may need an "SP" Stem

- SP Stems are 4-1/4" longer than the hydrant length (i.e. PK8004SP = 8-1/4")
- SP Stems should work as replacements for valve older than 1999 but often times may not work. SP or "special" stems are non-returnable & not covered under warranty
- Arrowhead Brass suggests replacing your faucet if it was installed before 2001. We can not guarantee that SP parts will work





460 SERIES

Arrow-Breaker® Frost-Free Hydrant Repair



460 Series Hydrant Information

- Arrow-Breaker® Frost-Free Hydrants with built-in anti-siphon technology
- Protects drinking water from harmful contaminants (pesticides, herbicides, etc)
- Protects pipes from freezing & damage
- ASSE 1019 Listed; IAPMO Certified
- Made in the USA; 3-Year Limited Warranty
- Faucet should not be pressurized for more than 12 consecutive hours
- Not designed for constant pressure applications (i.e. sprinkler & drip timers, "Y" Shut offs...)
- When using self-closing nozzle, always relieve pressure after shut-off
- Faucet must be installed at a downward angle to ensure drainage & prevent freezing

Repair

Leaking out of the Hose Thread when "OFF":

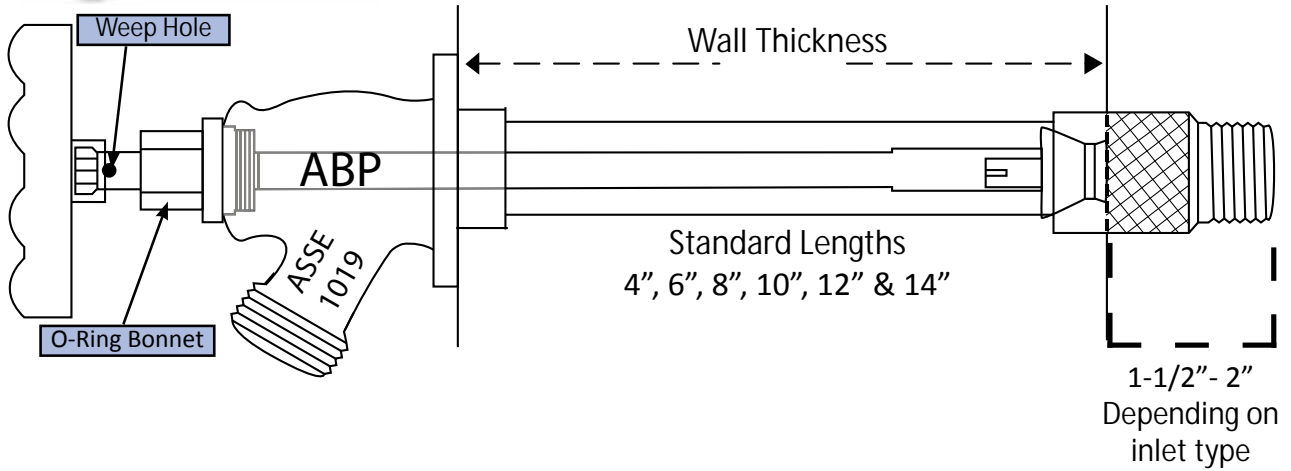
- Cause: worn out washer or broken faucet seat
- Repair by replacing the Spring-Less Check Assembly (PK6026) or replacing the entire stem assembly (PK6004-PK6014)
- If faucet continues to leak when OFF, the faucet seat might be broken and the faucet will need to be replaced

Leaking out of the Weep Hole during use:

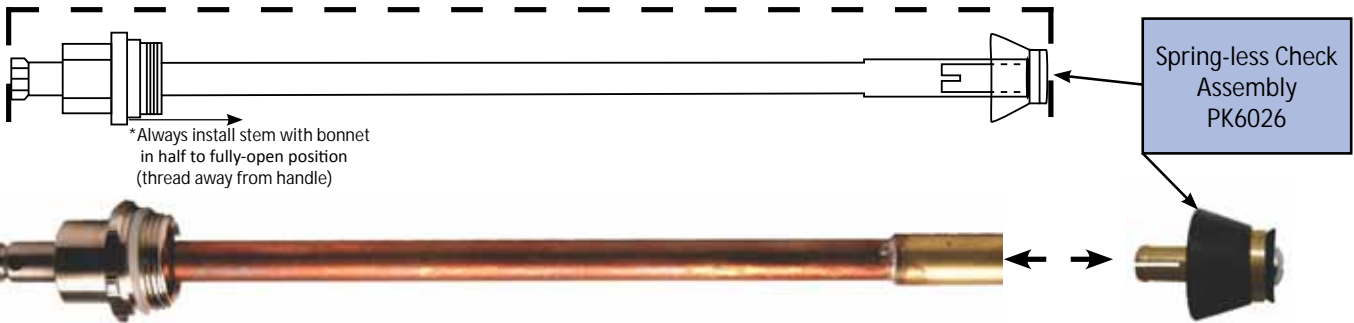
- Cause: worn out o-ring on the check assembly. This happens over time or if the faucet is left "ON" for long periods of time (over 12 hrs).
- Repair by replacing the Spring-Less Check Assembly (PK2016)
- If the leak still occurs, replace the entire stem assembly (PK6004-PK6014)

Leaking out of the Packing Nut or Bonnet:

- Cause: loose bonnet or worn out seals in the bonnet.
- If tightening the bonnet does not stop leaking from the threads, replace nylon washer (62) or the Stem Assembly (PK6004-PK6014)



PK6004-PK6014: Replacement Stem Assembly
Overall Length (Check Assembly Pushed In) Minus 4"



Part Kits

Part Kit (PK) #	Description
PK1295	Green Rubberized Coated Handle Stainless-Steel Self-Tapping Screw
PK6004 Through PK6014	Arrow-Breaker® Frost-Free Stem Assembly Last two digits specify hydrant length 02"-14" (Stem overall length minus 4")
PK6026	Replacement Spring-less Check Assembly for Arrow-Breaker® Frost Free Hydrants
PK1450	Gap Spacer (Grey)





470 SERIES FREEZE-PROOF® Hydrant Repair



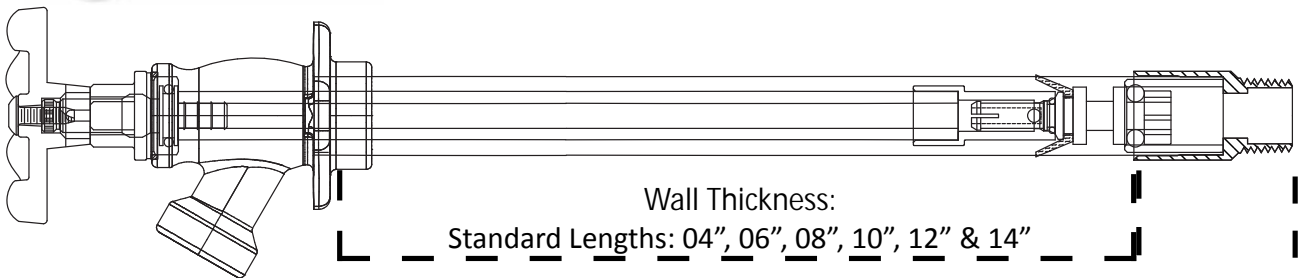
470 Series Hydrant Information

- Revolutionary Freeze-Proof® technology prevents damage from freezing water by reducing pressure build-up
- New innovative o-ring shut off design that prevents damage & wear to hydrant seat
- Maintains constant separation between household and irrigation water sources
- Prevents back-flow by utilizing patented Arrow-Breaker® integrated anti-siphon technology
- QuickTurn® easy on/off operation without letting go of the handle
- ASSE 1019-A Certified
- Max. 140°F – 125 PSI
- 3 Year limited warranty; Made in the USA from domestic and foreign components
- **Faucet should not be pressurized for more than 12 consecutive hours**
- Not designed for constant pressure applications (i.e. sprinkler timers, “Y” Shut offs...)
- Remove hose after use to drain faucet
- When using self-closing nozzle, always relieve pressure after shut-off
- Faucet must be installed at a downward angle to ensure drainage & prevent freezing

Repair

If your FREEZE-PROOF® Hydrant is leaking or experiencing issues, please follow these steps:

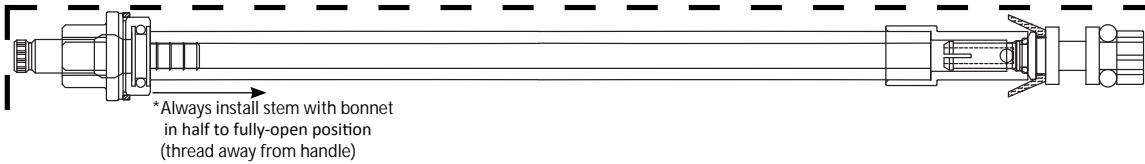
- Shut off water to the hydrant & open it all the way.
- Remove the stem assembly by loosening the bonnet and pulling all the way out.
- With stem removed, turn water supply back on for a few seconds to flush the hydrant, then shut off again.
- Inspect the stem for cracks or damage to the o-rings or other parts. It is also suggested that you measure the entire length of the stem assembly- from the underside of the handle to the end of the extended star-shaped check assembly
- Insert and re-install the stem assembly & test. If the hydrant leaks or experiences other problems, a stem replacement is necessary. Please contact Arrowhead Brass for additional assistance.



Wall Thickness:
Standard Lengths: 04", 06", 08", 10", 12" & 14"

1"-2"
Depending on inlet type

PK7004-PK7014: Replacement Stem Assembly
Overall length (check assembly extended) minus 3-3/4"

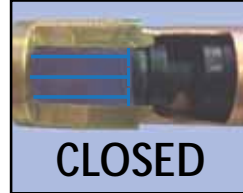
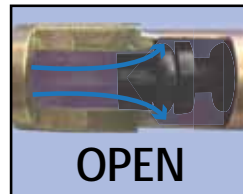


Old- PVC Style (replaced by new copper style stem)

New- Copper Style Stem

Part Kits

Part Kit (PK) #	Description
PK1297	Green Rubberized Coated Handle Stainless-Steel Self-Tapping Screw- for 470 Freeze-Proof® Series
PK7004 Through PK7014	Arrow-Breaker® Frost-Free Stem Assembly- Copper Tube Style. Last two digits specify hydrant length 02"-14" (Stem overall length minus 3-3/4")
PK1450	Gap Spacer (Grey)



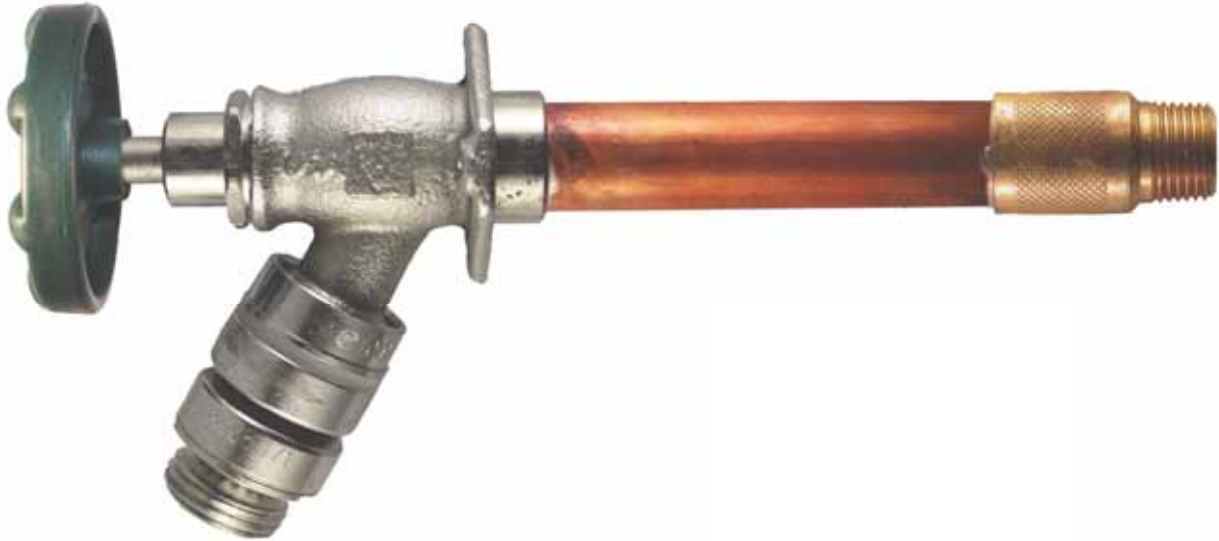
Freeze-Proof® Hydrant Operation

- O-ring shut-off allows water to pass by when open.
- When closed, the o-ring seals against the brass insert
- If water in the valve freezes, increasing pressure pushes the check assembly further into valve fitting and pressure relieves as water drains out the stem's weep hole by the handle



480 SERIES

Self-Draining Anti-Siphon Frost-Free Hydrant



480 Series Hydrant Information

- Frost-Free Hydrants with Self-Draining Anti-Siphon Vacuum Breaker
- Protects drinking water from harmful contaminants (pesticides, herbicides, etc)
- Drains water from hydrant upon shut off to protect faucet & pipes from freezing & damage;
- ASSE 1019 Listed; IAPMO Certified
- Made in the USA; 3-Year Limited Warranty
- Faucet should not be pressurized for more than 12 consecutive hours
- Not designed for constant pressure applications (i.e. sprinkler & drip timers, "Y" Shut offs...)
- When using self-closing nozzle, always relieve pressure after shut-off
- Faucet must be installed at a downward angle to ensure drainage & prevent freezing

Repair

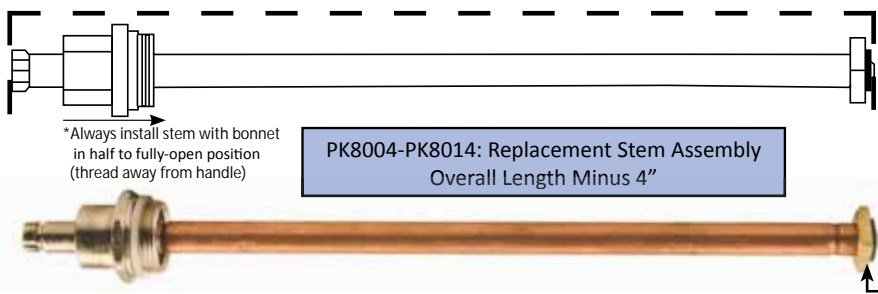
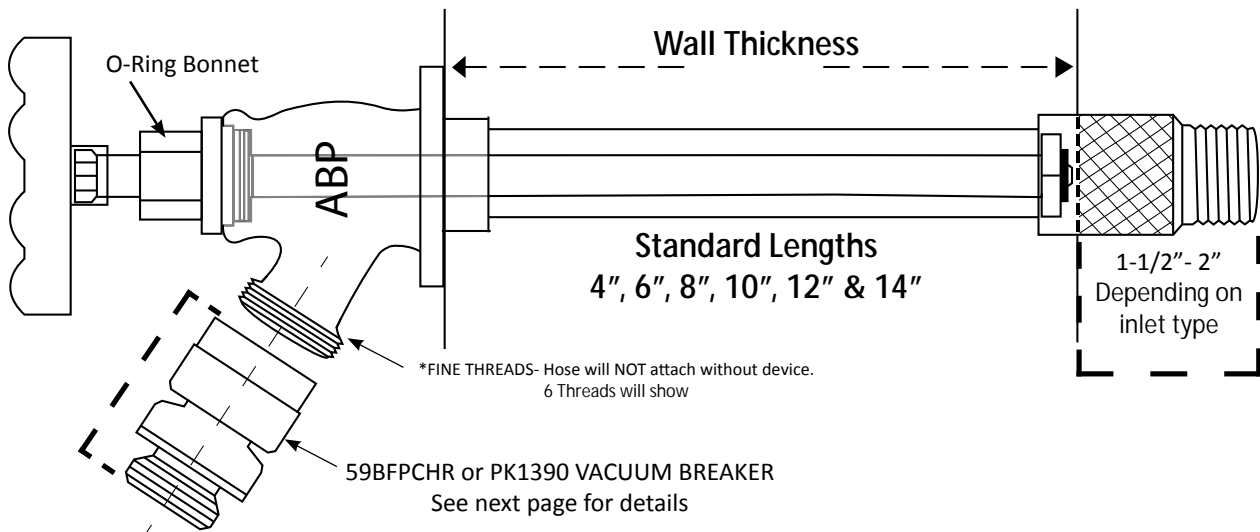
Leaking out of the Hose Thread when "OFF" - Will Not Shut Off:

- Cause: worn out washer or broken faucet seat
- Replace entire stem [PK8004-PK8014]- suggested
- Replace seat washer & screw at end of the stem [5 & 6]
- If new stem does not stop leak, replace the faucet
- If original stem is not a standard length (even lengths 4"-18" total length), special order stems are available

Leaking out of the Packing Nut or Bonnet:

- Cause: loose bonnet or worn out seals in the bonnet.
- If the bonnet has the old 2-piece style with graphite packing, replacing the entire stem is suggested [PK8004-PK8014]
- If the bonnet is the new o-ring style, replacing the stem is suggested [PK8004-PK8014]
- If original stem is not a standard length (even lengths 4-18" total length), special order stems are available

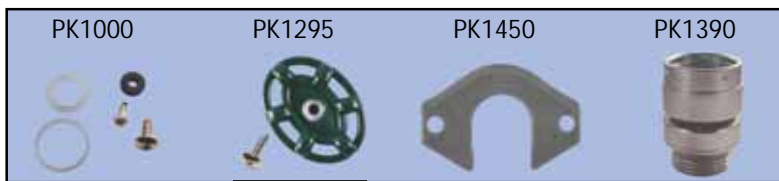
Problem with the Self-Draining Vacuum Breaker? See Page 14



On Faucets older than 1999: Replacement stems may require a trim to the brass square washer retainer. Trim 1/16" off each corner to fit it into faucet. Contact Arrowhead for more information.

Part Kits

Part Kit (PK) #	Description
PK1295	Green Rubberized Coated Handle Stainless-Steel Self-Tapping Screw
PK1390	Replacement Self-Draining Vacuum Breaker with Fine Thread Inlet, 3/4" male Hose Thread Outlet- Chrome
PK8004 Through PK8014	Frost-Free Stem Assembly; Last two digits specify hydrant length 02"-14" (Stem overall length minus 4")
PK1450	Gap Spacer (Grey)





59BFPCHR / PK1390

Self-Draining Vacuum Breaker Replacement



59 Series Vacuum Breaker Information

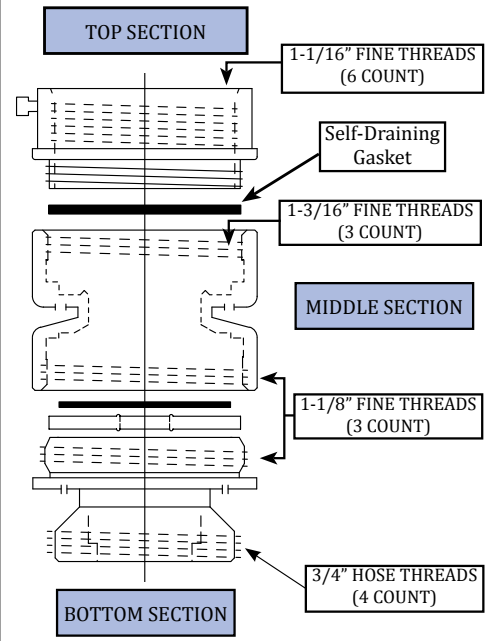
- ASSE 1019 back flow preventer
- Protects drinking water from harmful contaminants (pesticides, herbicides, etc)
- Designed to drain the faucet upon shut off to prevent damage from freezing
- **Vacuum Breaker should not be pressurized for more than 12 consecutive hours: Not designed for constant pressure applications (i.e. sprinkler & drip timers, "Y" Shut offs...)**
- **When using self-closing nozzle, always relieve pressure after shut-off**
- Faucet must be installed at a downward angle to ensure drainage & prevent freezing
- Water from wall hydrant will drain in a steady gentle stream for approximately 15-20 seconds after hydrant is turned off.
- For optimum freeze protection, vacuum breaker should be installed at an angle towards the ground, **device will not work if it is installed completely vertical or horizontal**

Replacing Your Vacuum Breaker



IMPORTANT: After installation, vacuum breaker may need to be pressurized to work correctly: hook up a hose with a closed nozzle attached, turn the faucet on FULL BLAST and allow hose to fill. Once filled, the vacuum breaker will seal & stop leaking

- Cause: worn out gasket and seals; happens with age & use, or when left on/open for long periods of time.
- Result: Leaks non-stop when on out of holes in "middle Section.
- Fix by replacing fine thread vacuum breaker
- **TOP SECTION MUST BE REMOVED FROM FAUCET:** Ensure the fine thread top section of the original vacuum breaker is removed from the faucet before trying to install replacement. 6 fine threads should be visible. Hold the faucet body in place with channel locks while removing vacuum breaker (with pipe wrench or vise grips) to prevent damage to faucet.
- Use Liquid Thread Sealant (Pipe Dope) on Fine Threads when installing replacement. Without positive thread seal, vacuum breaker
- Set Screw on replacement/new vacuum breakers only. Tighten when installed to prevent removal



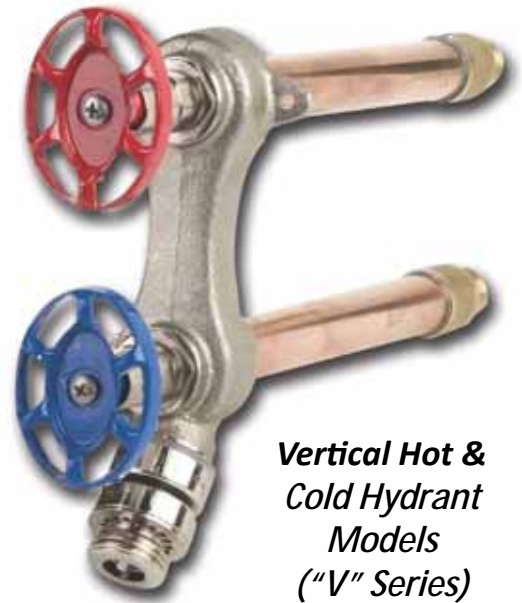


490 SERIES

Hot & Cold Anti-Siphon Hydrant



Standard Hot & Cold Hydrant Models



Vertical Hot & Cold Hydrant Models ("V" Series)

490 Series Hydrant Information

- Hot & Cold Mixing Frost-Free Hydrant
- Anti-Siphon Self-Draining Vacuum Breaker Allows faucet to Drain upon Shut-Off
- Available in Horizontal or Vertical ("V") Models
- Color Coded Metal Handles and Stainless Steel Screws
- Factory-installed vacuum breaker prevents tampering & use if device is removed
- ASSE 1019 Approved, IAPMO Listed
- Made in the USA; 3-Year Limited Warranty
- Faucet should not be pressurized for more than 12 consecutive hours
- Not designed for constant pressure applications (i.e. sprinkler timers, "Y" Shut offs...)
- When using self-closing nozzle, always relieve pressure after shut-off
- Faucet must be installed at a downward angle to ensure drainage & prevent freezing

Part Kits

Part Kit (PK) #	Description
PK1299	Red & Blue Oval Handles & Screws
PK9004 through PK9014	Hot & Cold Stem & O-Ring Bonnet Replacement (Horizontal)
PK9004V through PK9014V	Hot & Cold Stem & O-Ring Bonnet Replacement (Vertical)
PK1390 or 59BFPCHR	Self-Draining Vacuum Breaker (Horizontal)
PK1390V	Self-Draining Vacuum Breaker with 490 Vertical Adapter





455BFP APACHE SERIES

Anti-Siphon Frost-Free Hydrant Repair



455BFP Apache Series Hydrant Information

- Anti-Siphon Frost-Free Wall Hydrant
- **455BFP Apache Series- Discontinued in 2009; hydrant no longer available, limited parts availability.**
- **IMPORTANT:** Always shut off faucet after use AND remove hose in order to drain the faucet and prevent freezing
- Faucet should not be pressurized for more than 12 consecutive hours
- Not designed for constant pressure applications (i.e. sprinkler & drip timers, "Y" Shut off...)
- When using self-closing nozzle, always relieve pressure after shut-off

Repair

Leaking out of the hose thread when "OFF"- OR- Leaking out of the Packing Nut or Bonnet

- Cause: worn out washer, seals or broken faucet seat
- Replace entire stem [PK5004-PK5014]- suggested
- Replace seat washer & screw at end of the stem [PK1000]
- If new stem does not stop leak, replace the faucet
- If original stem is not a standard length (even lengths 4"-18" total length), special order stems are available

Leaking out of the Green Cap Air-Vent:

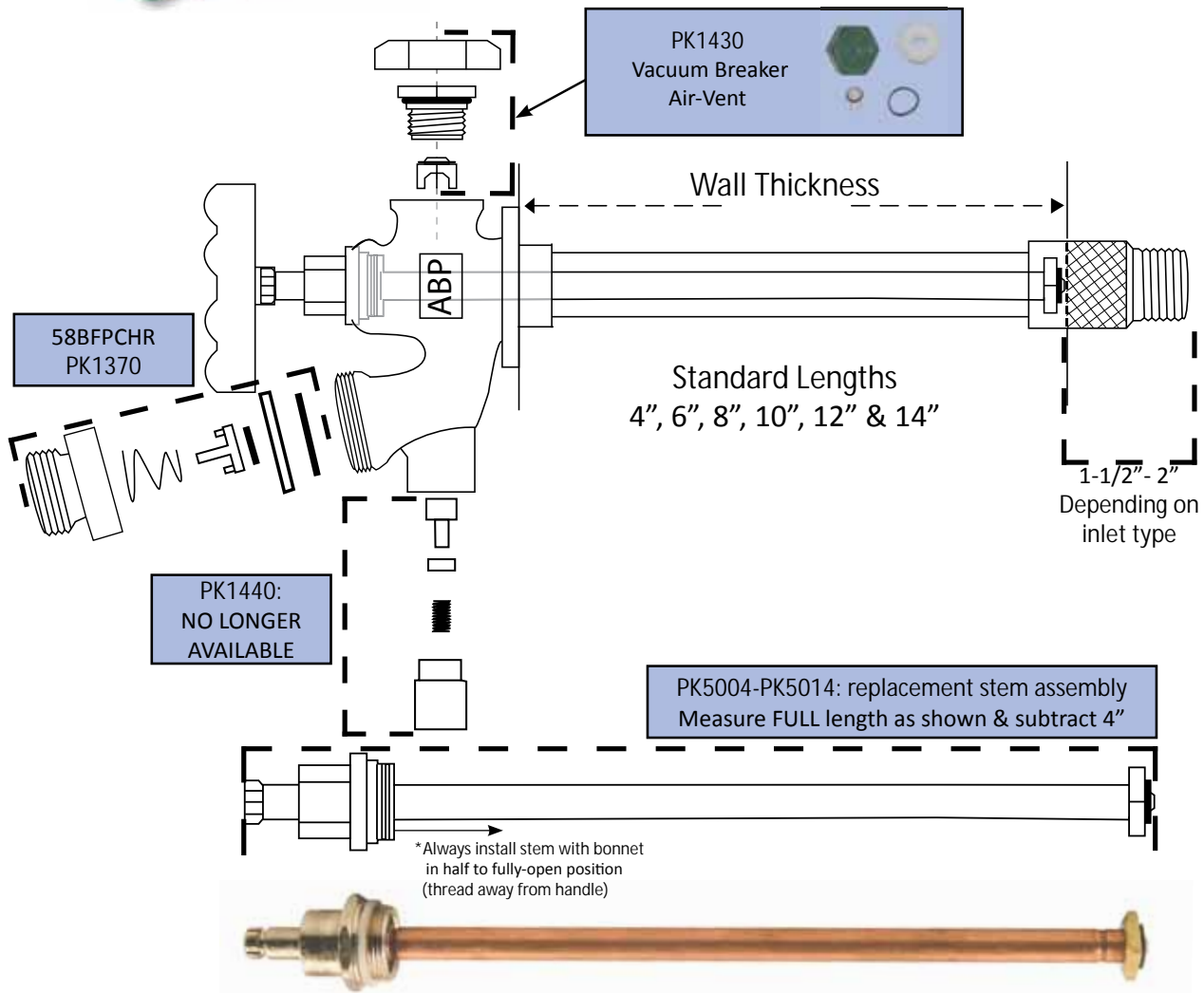
- Cause: worn, broken or missing parts
- Repair by removing old parts & replacing with new parts from kit [PK1430]
- Follow assembly drawing on next page.
- If leak persists, ensure positive seal and cleaned threads; Do not use thread tape

Leaking out of the Drain (below hose connection):

- Cause: worn, broken or missing parts
- Part Kit PK1440 is no longer available from Arrowhead Brass.
- Replace Hydrant

Leaking out of the Hose-Thread Vacuum Breaker:

- Cause: worn, broken or missing parts
- Repair by removing old parts & replacing with new parts [58BFPCHR or PK1370]
- Use thread sealant when installing new part



Part Kits

Part Kit (PK) #	Description
PK1000	Stem Rebuild Kit (seat washer, screw, nylon bonnet washer)
PK1290	Green Oval Handle (Aluminum Die-cast) Stainless-Steel Self-Tapping Screw
PK5004 Through PK5014	Frost-Free Stem Assembly; Last two digits specify hydrant length 02"-14" (Stem overall length minus 4")
PK1430	Part Kit: Air-Vent Assembly
PK1440	Part Kit: Drain Assembly (NO LONGER AVAILABLE)
PK1450	Gap Spacer Wedge

If your faucet stem does NOT measure to an even length, you may need an "SP" Stem

- SP Stems are 4-1/4" longer than the hydrant length (i.e. PK5004SP = 8-1/4")
- SP Stems should work as replacements for valve older than 1999 but often times may not work. SP or "special" stems are non-returnable & not covered under warranty
- Arrowhead Brass suggests replacing your faucet if it was installed before 2001. We can not guarantee that SP parts will work