

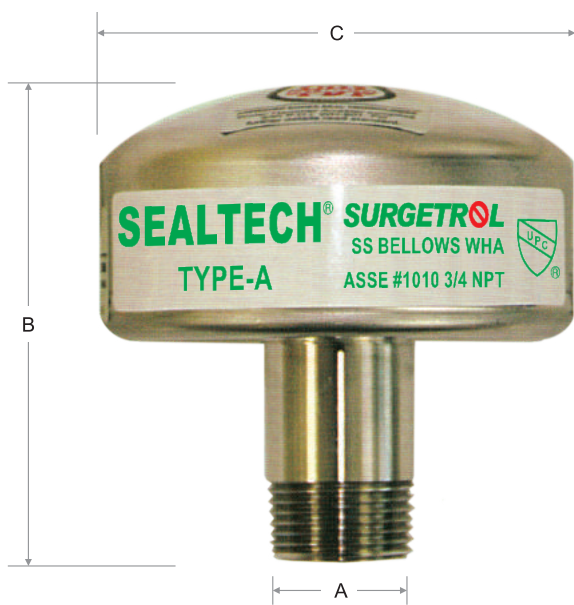


**KOREA SEAL TECHNOLOGY**

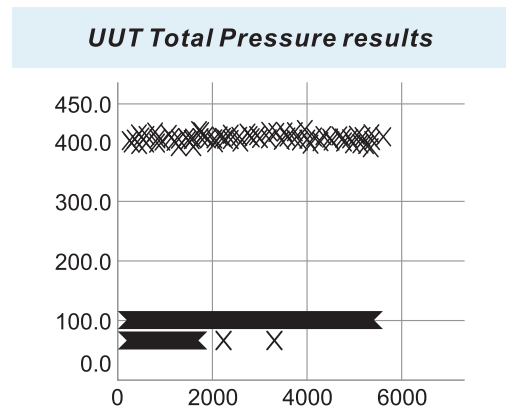
**SPECIFICATION** | SURGETROL pre-charged all stainless steel type SS304/SS316(18-8)with stainless steel diaphragm bellows, and male NPT & BSP threaded connection.

**OPERATING PRESSURE** | Designed up to 400 p.s.i.g. for effective and operation.

**TEMPERATURE RANGE** | -100°F to 300°F (-73°C to 149°C)



Pipe Sizing (Select One)	
Suffix	Description
AA	1/2" (15) Connection <input type="checkbox"/>
A	1/2" (15) Connection <input type="checkbox"/>
A	3/4" (20) Connection <input type="checkbox"/>
B	1" (25) Connection <input type="checkbox"/>
C	1" (25) Connection <input type="checkbox"/>
D	1" (25) Connection <input type="checkbox"/>
E	1" (25) Connection <input type="checkbox"/>
F	1" (25) Connection <input type="checkbox"/>



**Certified by :**



	Technical Data							
	TYPE-AA	TYPE-A	TYPE-A	TYPE-B	TYPE-C	TYPE-D	TYPE-E	TYPE-F
Fixture Unit	1-3	1-11	1-11	12-32	33-60	61-113	114-154	155-330
"A"connection	1/2"(15)	1/2"(15)	3/4"(20)	1"(25)	1"(25)	1"(25)	1"(25)	1"(25)
"B"height	2-13/16"(71)	3-3/16"(81)	3-3/16"(81)	4"(102)	4-5/16"(110)	5-1/4"(102)	7"(178)	7"(178)
"C"diameter	3-1/4"(83)	3-1/4"(83)	3-1/4"(83)	3-1/4"(83)	3-1/4"(83)	3-1/4"(83)	3-1/4"(83)	3-1/4"(83)



SURGETROL TYPE-AA / TYPE-F include have been tested and certified in accordance with the Plumbing and Drainage Institute "Standard P. D. I. WH-201" ASSE Standard 1010. CSA Standard. certified by NSF to ANSI Standard 61-8 Listed by IAPMO R&T.

# SURGETROL

## SS WATER HAMMER ARRESTERS

Sealtech SURGETROLS provide complete protection against water hammer in common pipe diameters for varying pipe lengths wherever flow velocity is subject to sudden change-in quick closing, solenoid-actuated valves used with lavatories and sinks, dishwashers, and residential automatic washers; in improperly adjusted water closet flush valves; in pumping systems, and in drinking fountains or similar installations where water flow is valved for intermittent operation.

Each SURGETROL has its shock-absorbing air cushion hermetically sealed within the unit. Consequently, there is no loss of air from the SURGETROL due to leakage past worn elastomeric sealing surfaces nor due to permeation through elastomeric features. In addition, the SURGETROL'S TYPE 304, SS316(18-8) stainless steel construction makes it virtually immune to attack and degradation by high levels of chloramine and other common waterborne chemicals which quickly degrade elastomeric components.

SURGETROLS ARE PRE-CHARGED AND PERMANENTLY SEALED AT THE FACTORY

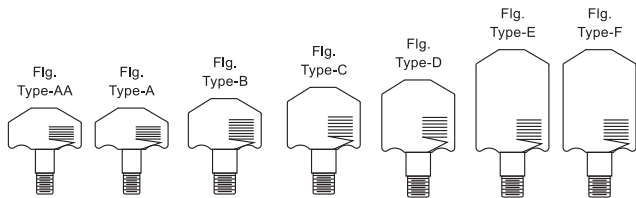
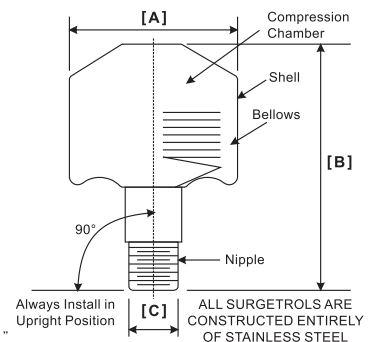
Surgetrols Type-AA to Type-F inclusive conforms to ASSE Standard #1010.

Certificate of compliance available upon request.

Approve by:



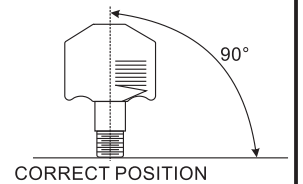
Surgetrols Type-AA to Type-F include have been tested and certified in accordance with the Plumbing and Drainage Institute "Standard P.D.I. WH-201"



**IMPORTANT  
INSTALLATION  
NOTE**

### ALWAYS INSTALL IN UPRIGHT POSITION

SURGETROL should be placed at location denoted on engineer's plans. Unit must be installed in a vertical (upright) position to insure proper operation of the internal bellows. When installing, place wrench on nipple only.   
※ Never tighten by gripping shell.



### SIZING AND PLACEMENT OF SURGETROLS

All sizing and placement data is in accordance with the Plumbing and Drainage Institute Standard P.D.I. WH-201

In an effort to arrive at a uniform method of sizing water hammer arrestors, members of the Plumbing and Drainage Institute sponsored a comprehensive testing program which lasted four years. As a result, there is now an industry-wide standard, P.D.I.-WH201, and the all-stainless-steel Sealtech SURGETROL conforms with every aspect of this newly-available information.

#### SIZING-SINGLE and MULTIPLE FIXTURE BRANCH LINES

Standard P.D.I.-WH201 bases its sizing data upon the well-known fixture-unit formula. Since most engineers and specifiers utilize fixture-units in their daily calculations, it was appropriate to employ this method for quick, concise water hammer arrestor sizing.

Using [Table 1], determine the "weight in fixture-units" for cold and hot water branch lines serving a group of fixtures, either for public or private installations. When the "weight in" has been established the data is then applied to the selection [Table 2]

Using the "weight in fixture-units" obtained from [Table 1], select the properly sized SURGETROL from [Table2].

If the water pressure in the line exceeds 65 psig, select the next larger size SURGETROL. If the fixture unit total contains "1/2" fraction, "round-it-up" to the next larger or whole number.

(Example: If total is 11-1/2 fixture-units change it to 12 fixture-units).

[ Table 1 ]

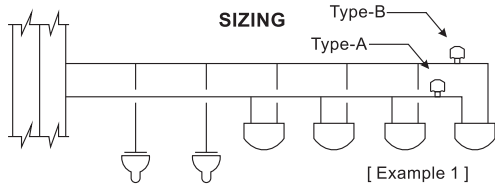
FIXTURE	TYPE OF SUPPLY CONTROL	WEIGHT IN FIXTURE UNITS			
		PUBLIC		PRIVATE	
		C.W	H.W	C.W	H.W
WATER CLOSET	FLUSH VALVE	10	-	6	-
WATER CLOSET	FLUSH TANK	5	-	3	-
PEDESTAL URINAL	FLUSH VALVE	10	-	-	-
STALL OR WALL URINAL	FLUSH VALVE	5	-	-	-
STALL OR WALL URINAL	FLUSH TANK	3	-	-	-
LAVATORY	FAUCET	1 1/2	1 1/2	1	1
BATHTUB	FAUCET	2	3	1 1/2	1 1/2
SHOWER HEAD	MIXING VALVE	2	3	1	2
BATHROOM GROUP	FLUSH VALVE CLOSET	-	-	8	3
BATHROOM GROUP	FLUSH TANK CLOSET	-	-	6	3
SEPARATE SHOWER	MIXING VALVE	-	-	1	2
SERVICE SINK	FAUCET	3	3	-	-
LAUNDRY TUBS(1-3)	FAUCET	-	-	3	3
COMBINATION FIXTURE	FAUCET	-	-	3	3

[ Table 2 ]

FIG. NO.	P.D.I. SYMBOL	FIXTURE UNIT RATING	DIAMETER [ A ]	LENGTH [ B ]	CONNECTION [ C ]
Type-AA	AA	1-3	3 1/4"	2 13/16"	1/2"
Type-A	A	1-11	3 1/4"	3 1/4"	1/2"
Type-A	A	1-11	3 1/4"	3 1/4"	3/4"
Type-B	B	12-32	3 1/4"	4 1/16"	1"
Type-C	C	33-60	3 1/4"	4 3/8"	1"
Type-D	D	61-113	3 1/4"	5 1/4"	1"
Type-E	E	114-154	3 1/4"	7"	1"
Type-F	F	155-330	3 1/4"	7"	1"

NOTE : WHEN WATER PRESSURE IN LINE EXCEEDS 65 PSI, SPECIFY THE NEXT LARGER SURGETROL

### SIZING AND PLACEMENT OF SURGETROLS

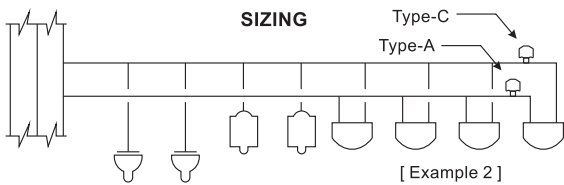


Find fixture unit weight of each fixture using Table 1. Total weights for both hot and cold branches

Cold Water Branch		Hot Water Branch	
2 W.C. at 10 F.U. ....	ea. = 20	4 Lav. at 1 1/2 F.U. ....	ea. = 6
4 Lav. at 1 1/2 F.U. ....	ea. = 6		
Total 26		Total 6	

Select P.D.I. "B" Unit                      Select P.D.I. "A" Unit  
Select correct size SURGETROL using Table 2.

Cold Water Branch                      Hot Water Branch  
Type-B                                      Type-A



Find fixture unit weight of each fixture using Table 1. Total weights for both hot and cold branches.

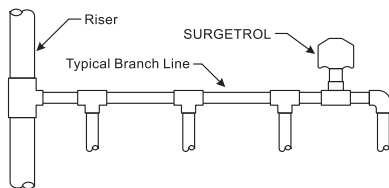
Cold Water Branch		Hot Water Branch	
2 W.C. at 10 F.U. ....	ea. = 20	4 Lav. at 1 1/2 F.U. ....	ea. = 6
2 Ur. at 5 F.U. ....	ea. = 10		
4 Lav. at 1 1/2 F.U. ....	ea. = 6		
Total 36		Total 6	

Select P.D.I. "C" Unit                      Select P.D.I. "A" Unit  
Select correct size SURGETROL using Table 2.

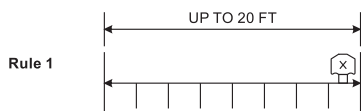
Cold Water Branch                      Hot Water Branch  
Type-C                                      Type-A

### PLACEMENT

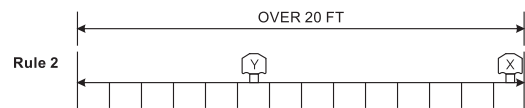
It has been established that the preferred location for the water hammer arrester is at the end of the branch line between the last two fixtures served



Two basic rules were established one for branches up to 20' in length, and another for branches over 20' in length.

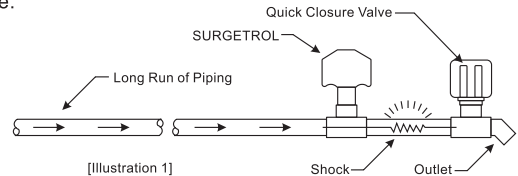


Rule 1, covers multiple fixture branch lines which do not exceed 20ft. in length. SURGETROL Table 3-A(Right) is used to select the required unit.



Rule 2, covers multiple fixture branch lines which do exceed 20ft. in length. Surgetrol Table 3-B(Right) is used to select the required unit. The Sum of the Fixture Unit Ratings of units X and Y shall be equal to or Greater than the demand of the branches.

LONG RUNS OF PIPING TO SINGLE FIXTURE, APPLIANCES OR EQUIPMENT Table 3 indicates the size SURGETROL required for long runs of piping which feed a single remote fixture of appliance. SURGETROL unit should be sized by using Table 3 and located as close to the point of quick closure as possible.



When a unit of equipment is located at the remote end of a long run of piping, the Sealtech SURGETROL should be placed as close to the point of valve closure as possible. At this location, the SURGETROL will control any developed energy and prevent shock waves from surging through the piping system (Illustration 1).

Properly sized SURGETROLS should be selected for such installations using Tables 3-A and 3-B below.

**Table 3 SURGETROL SELECTION CHART**

Table 3-A for pressure up to 65 psig (Length Unit:ft)

Length of Pipe	Nominal Pipe Size					
	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
25	One Type-A	One Type-A	One Type-B	One Type-C	One Type-D	One Type-E
50	One Type-A	One Type-B	One Type-C	One Type-D	One Type-E	One Type-F
75	One Type-B	One Type-C	One Type-D	One Type-A & One Type-E	One Type-F	One Type-E & One Type-F
100	One Type-C	One Type-D	One Type-E	One Type-F	One Type-C & One Type-F	Two Type-F
125	One Type-C	One Type-D	One Type-F	One Type-A & One Type-F	One Type-E & One Type-F	One Type-E & Two Type-F
150	One Type-D	One Type-E	One Type-F	One Type-D & One Type-F	Two Type-F	Three Type-F

Table 3-B for pressures 65 psig to 85 psig (Length Unit:ft)

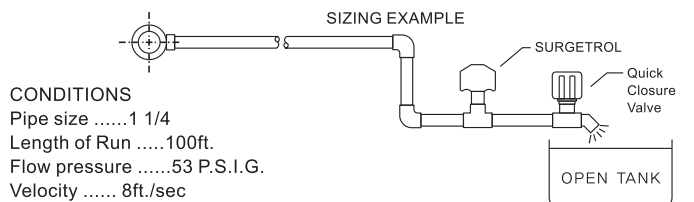
Length of Pipe	Nominal Pipe Size					
	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
25	One Type-B	One Type-B	One Type-C	One Type-D	One Type-E	One Type-F
50	One Type-B	One Type-C	One Type-D	One Type-E	One Type-F	One Type-C & One Type-F
75	One Type-C	One Type-D	One Type-E	One Type-F	One Type-C & One Type-F	Two Type-F
100	One Type-D	One Type-E	One Type-F	One Type-C & One Type-F	One Type-E & One Type-F	One Type-E & Two Type-F
125	One Type-D	One Type-E	One Type-C & One Type-F	One Type-D & One Type-F	Two Type-F	One Type-B & Three Type-F
150	One Type-E	One Type-F	One Type-C & One Type-F	Two Type-F	One Type-D & Two Type-F	Four Type-F

For further sizing information, see "Plumbing & Drainage Institute Standard WH-201".

Note: Table 3 shows lengths of run of branch piping. The length of run used should be the length of the pipe from point of valve closure to a point of relief.

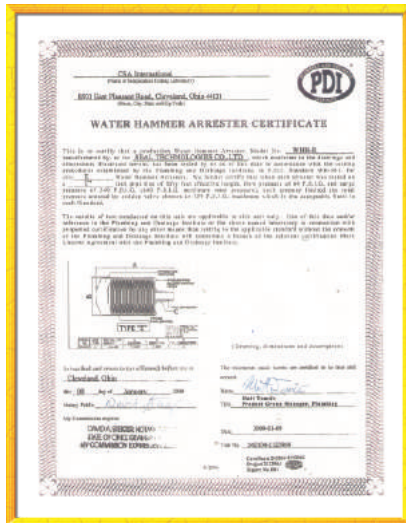
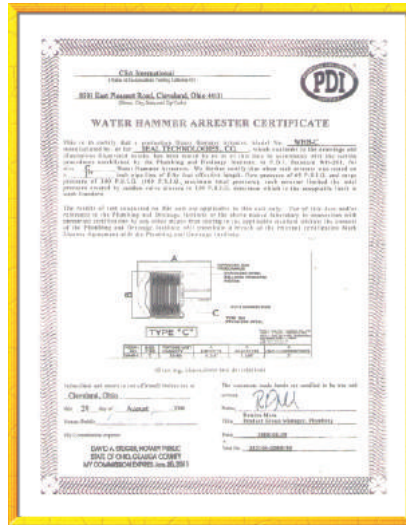
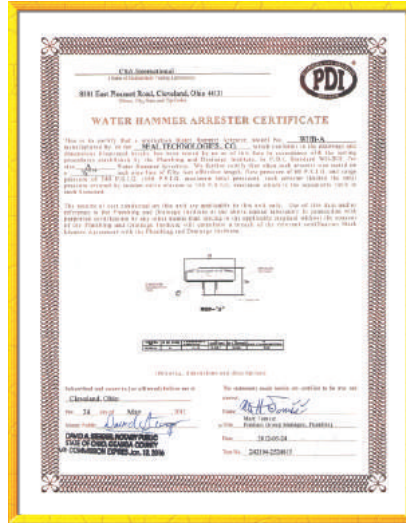
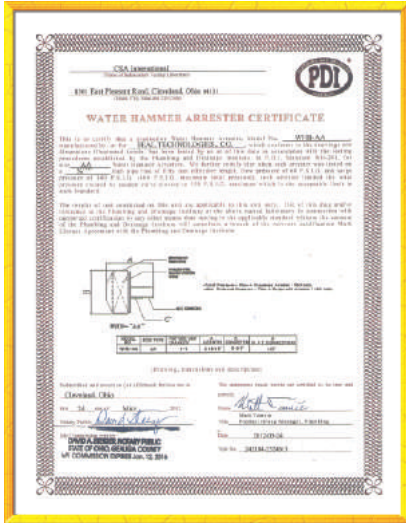
Such as a large pipe riser twice the size of the branch line, main line or water tank.

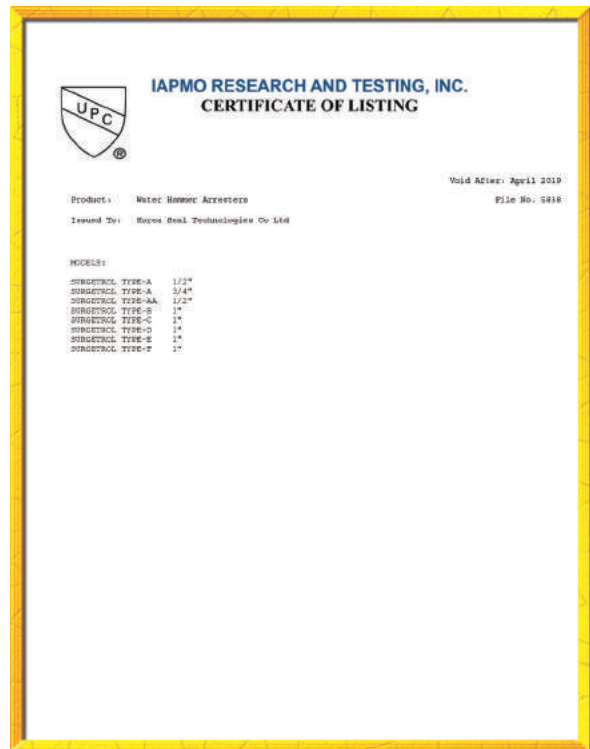
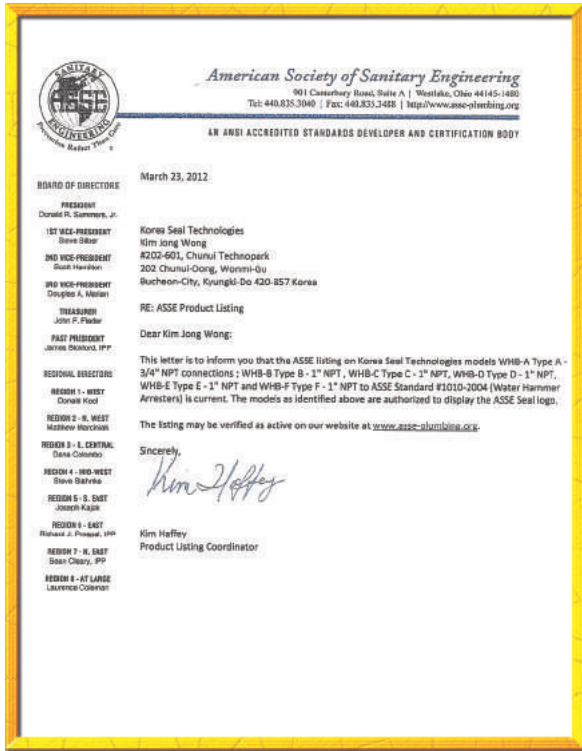
All sizing recommendations shown in Table 3 are based on an operation water pressure of 65 PSI or under and an average velocity between 5 and 10 feet per second. If operating pressures are over 65 PSI use the next larger SURGETROL unit. Where pressures are anticipated above 85 PSI a pressure reducing valve is recommended.



CONDITIONS  
Pipe size ..... 1 1/4  
Length of Run ..... 100ft.  
Flow pressure ..... 53 P.S.I.G.  
Velocity ..... 8ft./sec

RECOMMENDATION:  
Sealtech Fig. Type-F SURGETROL installed as shown





**SPECIFICATION** | SEALTECH® Products Pre-charged hard drawn copper surge pressure absorber with teflon piston, EPDM O-ring seals, and male NPT & BSP connection. Lead Free in Compliance With NSF/ANSI 372-2016

**OPERATING PRESSURE** | Designed to operate on all domestic and commercial lines upto 150 PSI working pressure.

**TEMPERATURE RANGE** | 33°F to 180°F (0.5°C to 82°C)

**INSTALLATION** | May be installed in new or existing plumbing systems with a standard pipe tee.

#### CONSTRUCTION

**Bodies:** Hard drawn copper with custom internal mirror finish.

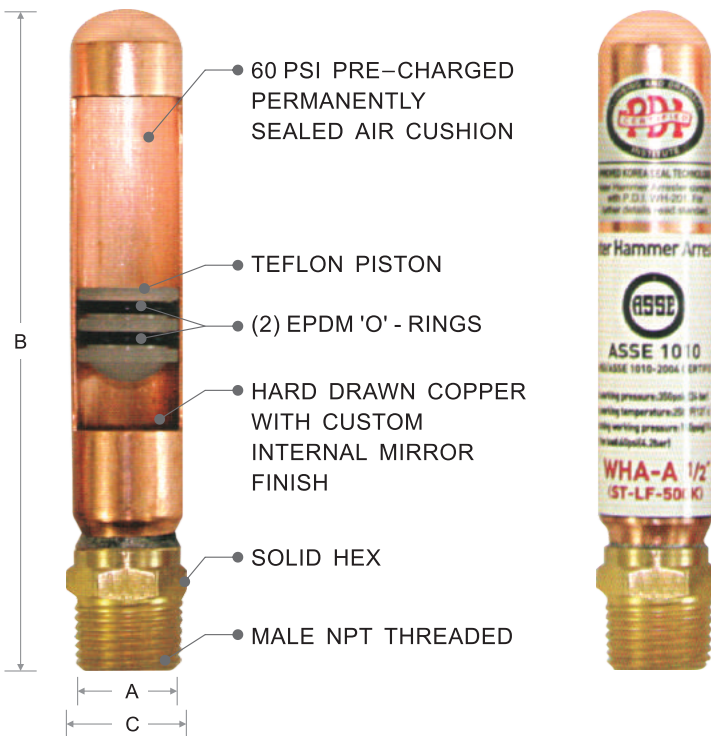
**Seal Lubricant:** Dow-Corning Silicone compound #111 FDA approved for use in portable water system.

**Piston:** Teflon

**Seals:** 'O' rings, (2) EPDM

**Order Code:** ST - □

Ex. ST-500K



#### Pipe Sizing (Select One)

Suffix	Description	
AA-250K	Conn, Size 1/2" (13), Height	<input type="checkbox"/>
A-500K	Conn, Size 1/2" (13), Height 4-7/8"(124)	<input type="checkbox"/>
B-750K	Conn, Size 3/4" (20), Height 6-7/8"(175)	<input type="checkbox"/>
C-1000K	Conn, Size 1" (25), Height 7-3/8"(187)	<input type="checkbox"/>
D-1250K	Conn, Size 1-1/4" (32), Height 10-3/4"(273)	<input type="checkbox"/>
E-1500K	Conn, Size 1-1/2" (38), Height 11-1/2"(192)	<input type="checkbox"/>
F-2000K	Conn, Size 2" (51), Height 14-7/8"(378)	<input type="checkbox"/>

**Certified by :**



APPROVED KOREA SEAL TECH Water Hammer Arrestor Complies with P.D.I WH-201. For further details read standard.

SURGETROL WHA-AA to WHA-F include have been tested and certified in accordance with the Plumbing and Drainage Institute "Standard P.D.I.WH-201" ASSE Standard 1010. CSA Standard. certified by NSF to ANSI Standard 61-8 Listed by IAPMO R&T.

#### Technical Data

	ST-250K	ST-500K	ST-750K	ST-1000K	ST-1250K	ST-1500K	ST-2000K
Fixture Unit	1-3	1-11	12-32	33-60	61-113	114-154	155-330
"A"connection	1/2"(13)	1/2"(13)	3/4"(19)	1"(25)	1-1/4"(31)	1-1/2"(38)	2"(51)
"B"height	5"(129)	5.38"(152)	6-7/8"(175)	7-3/8"(187)	10-13/16"(276)	11-1/2"(292)	14-7/8"(464)
"C"diameter	3/8"(24)	3/8"(24)	1-7/8"(48)	2-3/16"(57)	2-11/16"(66)	3-5/16"(85)	3-5/16"(85)

## Water Hammer Arrestors WHA-ST-LF SERIES LEAD FREE\*

**Sizes: 1/2" -1" (15-25mm)**

### What is Water Hammer?

The noise from banging pipes is caused by shocks of high speed water flowing in the piping system when a fixture is suddenly closed. Sudden stoppage of the water (a non-compressible Liquid) flowing at a given pressure and velocity causes a surge or spike of water and is called water hammer. When this occurs, a pressure wave travels back through the piping until it finds a point of relief. The WHA-ST-LF THREADED and WHA-ST-LF SOLDER Water Hammer Arrestors are designed to eliminate this effect. The WHA-ST-LF THREADED and WHA-ST-LF SOLDER features Lead Free\* construction to comply with Lead Free\* requirements.

Dishwashers, clothes washers, fast closing positive shutoff valves incorporated in the system all contribute to creating water shock which is not only annoying but damaging to pipes and appliances. The SEAL TECH Series THREADED and SOLDER incorporates a precharged, permanent sealed air chamber to absorb the shock, The sealed chamber prevents the loss of air to the water and insures long and trouble-free Life.

### ■ Features

- NPT solid hex brass adapter or solder end connection for easy installation
- Approved for installation with no access panel required
- May be installed in new or existing plumbing systems with a standard pipe tee vertically, horizontally or at any angle.
- PDI Listed (PDI WH201)
- Air pre-load is 60psi (4.2 bar)
- Factory air charged and permanently sealed

### ■ Standards

Approved by :



WHA-A to WHA-F include have been tested and certified in accordance with the Plumbing and Drainage Institute "Standard P.D.I. WH-201"



Threaded

Solder

### ■ Pressure-Temperature

**Max. Pressure :** 350psig

**Operating Pressure :** Designed to operate on all domestic and commercial lines 150 psi (10.6bar) working pressure.

**Temperature Range :** 33°F (0.5°C to 82°C)

### ■ Materials Description

**Body :** Copper barrel

**Piston :** Polypropylene

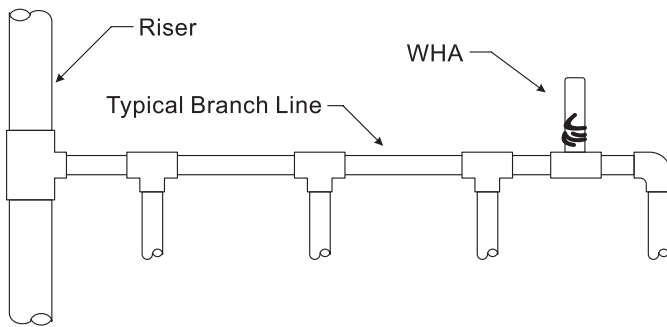
**Adapter :** Lead Free\* Brass

**O-ring :** EPDM

The wetted surface of this product contacted by consumable water contains less than one quarter of one percent (0.25%) of lead by weight.



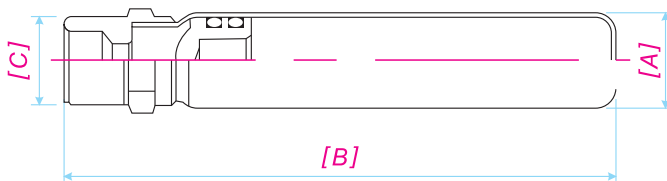
## ■ Sizing and Placement



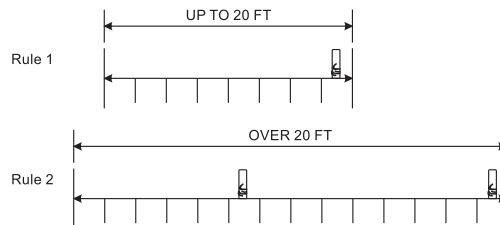
As shown, it has been established that the preferred location for the water hammer arrestor is at the end of the branch line between the last two fixtures served.

The location of the water hammer arrestor shown above applies to branch lines that do not exceed 20 ft. (6m) in length, from the start of the horizontal branch line to the last fixture supply on this branch line. When the branch line exceeds the 20ft.(6m) length, an additional water hammer arrestor should be used. This practice is best defined by two rules which have been established to cover the placement of water hammer arrestors.

## ■ Dimensions-Weight



SIZE	DIMENSION				Weight (kgs)	
	A in	A mm	B in	B mm		
<b>THREADED</b>						
1/2" WHA-A-ST-LF-500K	1 1/8"	28.58	5 15/16"	151	1/2"	0.17
3/4" WHA-B-ST-LF-750K	1 1/8"	28.58	7 5/16"	185	3/4"	0.22
1" WHA-C-ST-LF-1000K	1 3/8"	34.90	8 11/16"	221	1"	0.38
1 1/4" WHA-D-ST-LF-1250K	1 5/8"	41.30	10 3/16"	259	1 1/4"	0.58
1 1/2" WHA-E-ST-LF-1500K	2 1/8"	54.00	11 3/16"	283	1 1/2"	0.9
2" WHA-F-ST-LF-1750K	2 5/8"	66.70	12 15/16"	328	2"	1.5
<b>SOLDER</b>						
1/2" WHA-A-ST-LF-500K	1 1/8"	28.58	5 15/16"	151	1/2"	0.168
3/4" WHA-B-ST-LF-750K	1 1/8"	28.58	7 5/16"	185	3/4"	0.217
1" WHA-C-ST-LF-1000K	1 3/8"	34.90	8 11/16"	221	1"	0.296
1 1/4" WHA-D-ST-LF-1250K	1 5/8"	41.30	10 3/16"	259	1 1/4"	0.565
1 1/2" WHA-E-ST-LF-1500K	2 1/8"	54.00	11 3/16"	283	1 1/2"	0.890
2" WHA-F-ST-LF-1750K	2 5/8"	66.70	12 15/16"	328	2"	1.400



**Rule 1** covers multiple fixture branch lines which do not exceed 20ft.(6m) in length.

**Explanation** Fixture-unit sizing and selection table is used to select the required PDI unit (water hammer arrestor).

**Rule 2** covers multiple fixture branch lines which do exceed 20ft.(6m) in length.

**Explanation** Fixture-unit sizing and selection table is used to select the required PDI unit(water hammer arrestor).

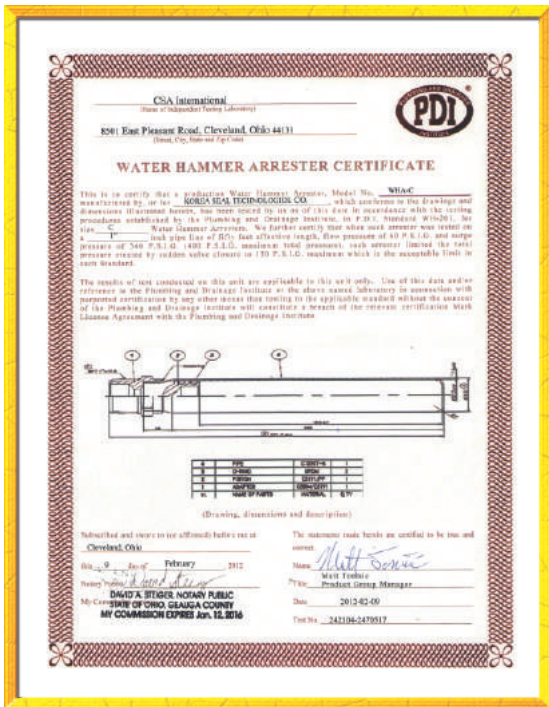
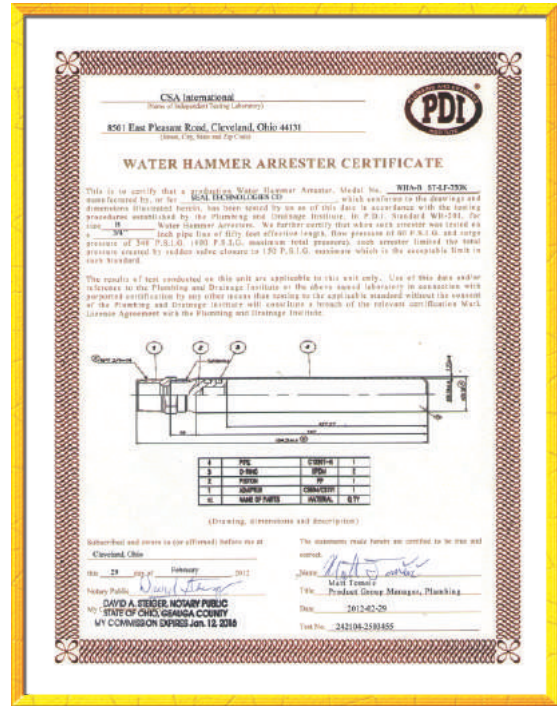
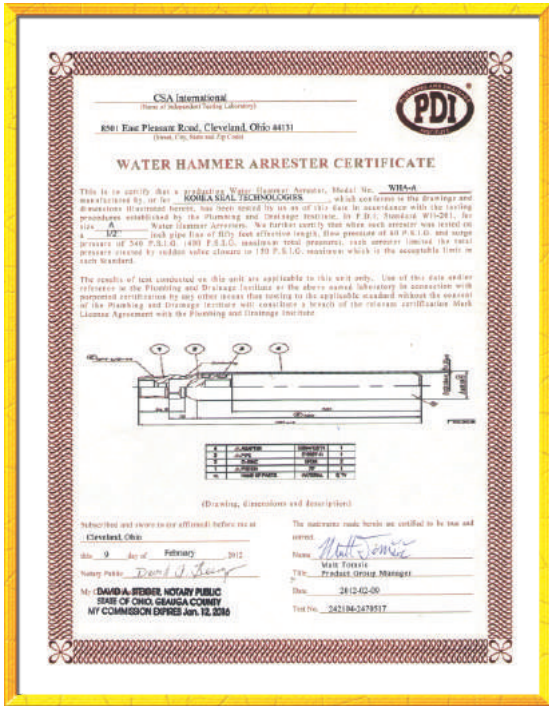
The sum of the fixture units rating of units X and Y shall be equal to or greater than the demand of the branches.

Sizing and Selection Table

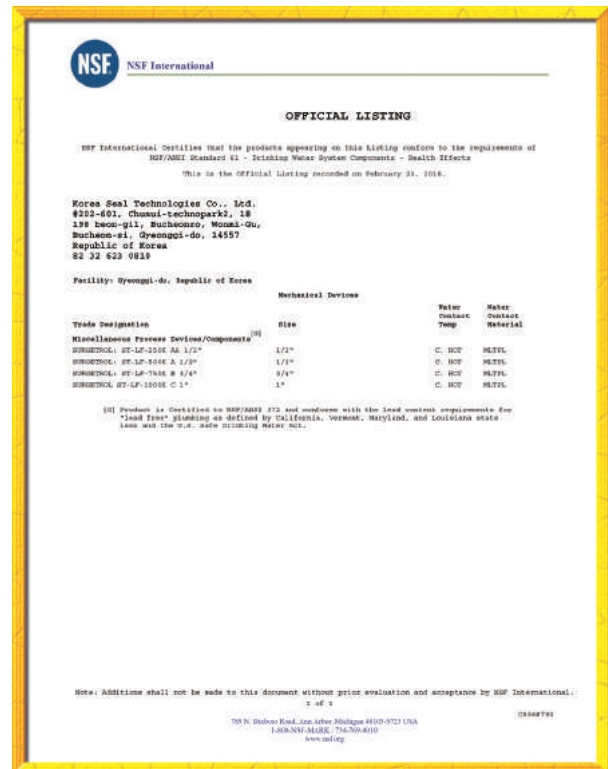
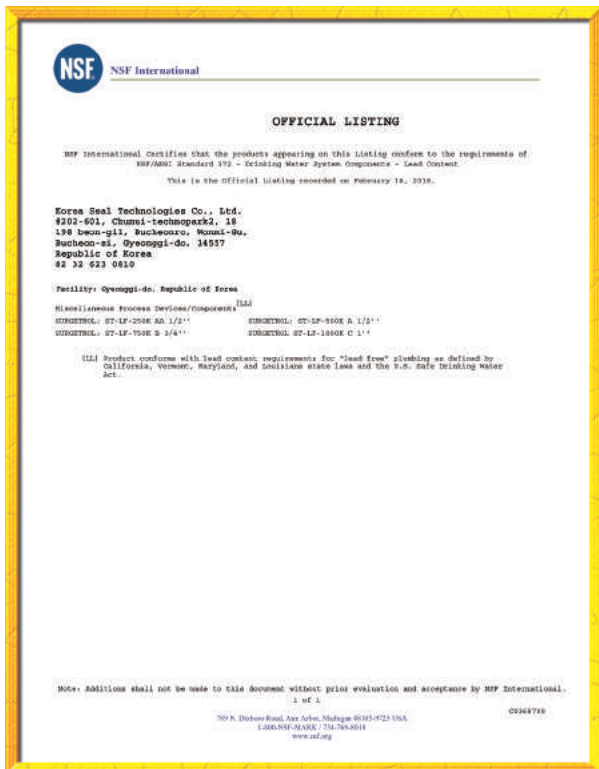
PDI SYMBOL	SIZE in	SIZE mm	MODEL Threaded	MODEL Solder	FIXTURE Unit
A	1/2"	15	1/2" WHA-A-ST-LF-500K	1/2" WHA-A-ST-LF-500K	1-11
B	3/4"	20	3/4" WHA-B-ST-LF-750K	3/4" WHA-B-ST-LF-750K	12-32
C	1"	25	1" WHA-C-ST-LF-1000K	1" WHA-C-ST-LF-1000K	33-60
D	1 1/4"	32	1 1/4" WHA-D-ST-LF-1250K	1 1/4" WHA-D-ST-LF-1250K	61-113
E	1 1/2"	40	1 1/2" WHA-E-ST-LF-1500K	1 1/2" WHA-E-ST-LF-1500K	114-154
F	2"	50	2" WHA-F-ST-LF-1750K	2" WHA-F-ST-LF-1750K	155-330

## ■ Fixture Units Sizing Information

FIXTURE	TYPE OF SUPPLY CONTROL	WEIGHT IN FIXTURE UNITS			
		PUBLIC		PRIVATE	
		C.W.	H.W.	C.W.	H.W.
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 RINAL	FLUSH TANK	3	-	-	-
LAVATORY	FAUCET	1 1/2	1 1/2	1	1
BATHTUB	FAUCET	2	3	1 1/2	1 1/2
SHOWER HEAD	MIXING VALVE	2	3	1	2
BATHROOM GROUP	FLUSH VALVE CLOSET	-	-	8	3
BATHROOM GROUP	FLUSH TANK CLOSET	-	-	6	3
SEPARATE SHOWER	MIXING VALVE	-	-	1	2
SERVICE SINK	FAUCET	3	3	-	-
LAUNDRY TUBS(1-3)	FAUCET	-	-	3	3
COMBINATION FIXTURE	FAUCET	-	-	3	3

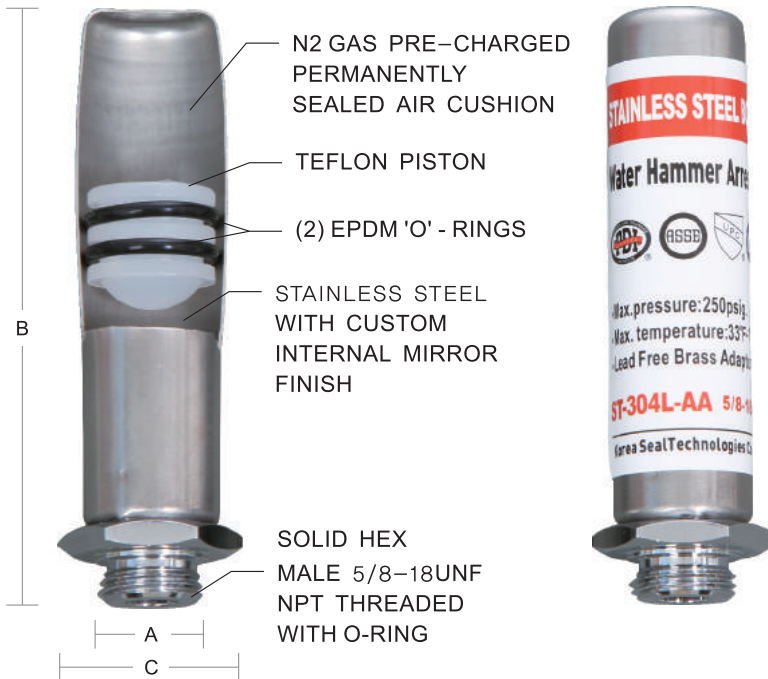


**KOREA SEAL TECHNOLOGIES CO.,LTD.** SPECIFICATION DRAINAGE OPERATION. Chunui Technopark, #202-601, Wonmi-Gu, Bucheon-city, Korea.  
 PHONE:+82-32-623-0810 FAX:+82-32-623-0813 WEBSITE: sealtech21.kr Form No. WHB, 2009/01



- SPECIFICATION** | SEALTECH® Products Pre-charged hard drawn Stainless Steel Body surge pressure absorber with teflon piston, EPDM O-ring seals, and male 5/8-18UNF NPT & BSP
- OPERATING PRESSURE** | Designed to operate on all domestic and commercial lines upto 150 PSI working pressure.
- TEMPERATURE RANGE** | 33°F to 180°F (0.5°C to 82°C)
- INSTALLATION** | May be installed in new or existing plumbing systems with a standard pipe tee.
- CONSTRUCTION**

**Bodies:** STAINLESS STEEL : with custom internal mirror finish. **Piston:** Teflon  
**Seal Lubricant:** Dow-Corning Silicone compound #111 FDA **Seals:** 'O' rings, (2) EPDM approved for use in portable water system.



**Order Code:** ST - [ ] - [ ] - [ ]  
 Ex. ST-304L - MINI - NPT

Pipe Sizing (Select One)	
Suffix	Description
ST-304L-	Conn, Size 1/2" NPT(13), Height -2.87"(73mm), <input type="checkbox"/>
MINI	Conn, Size 5/8 -18UNF, Height 4-2.68"(68mm) <input type="checkbox"/>
ST-304L-	Conn, Size 1/2" NPT(13), Height -3.74"(95mm), <input type="checkbox"/>
AA	Conn, Size 5/8 -18UNF(13) Height 4-3.62"(92mm) <input type="checkbox"/>

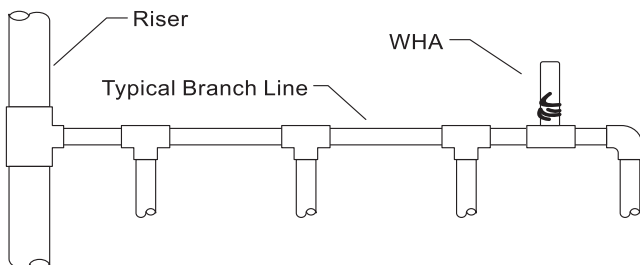
**Certified by :**



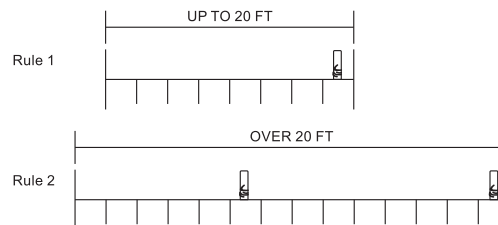
SURGETROL WHA ST-304L-AA include have been tested and certified in accordance with the Plumbing and Drainage Institute "Standard P.D.I.WH-201" ASSE Standard 1010. CSA Standard, certified by NSF to ANSI Standard 61-8 Listed by IAPMO R&T.

	Technical Data			
	ST-304L-MINI		ST-304L-AA	
	NPT	5/8-18UNF	NPT	5/8-18UNF
Fixture Unit	1-3	1-3	1-3	1-3
"A"connection	1/2"(13)	5/8"18UNF	1/2"(13)	5/8-18UNF
"B"height	2.87"(73)	2.68"(68)	3.74"(95)	3.62"(92)
"C"diameter	1.06"(27)	1.06"(27)	1.06"(27)	1.06"(27)

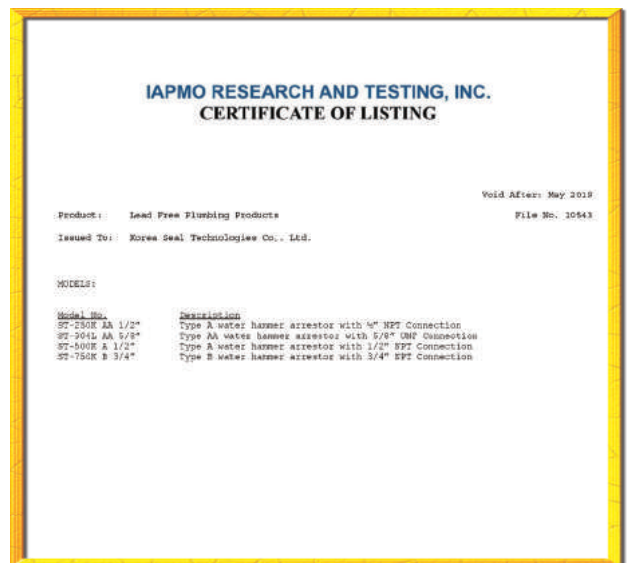
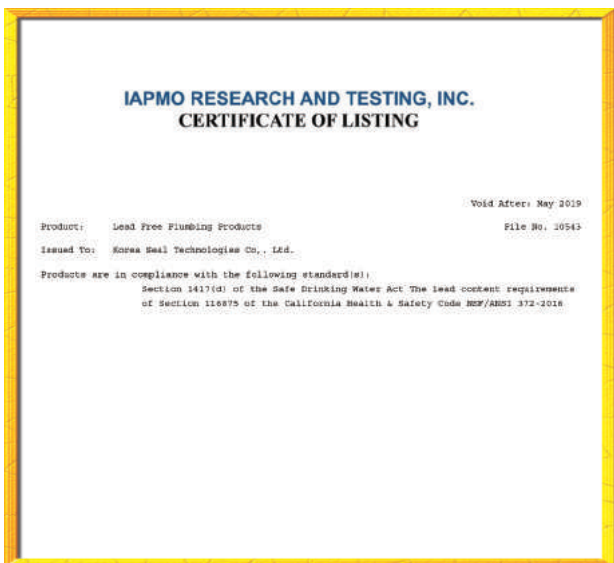
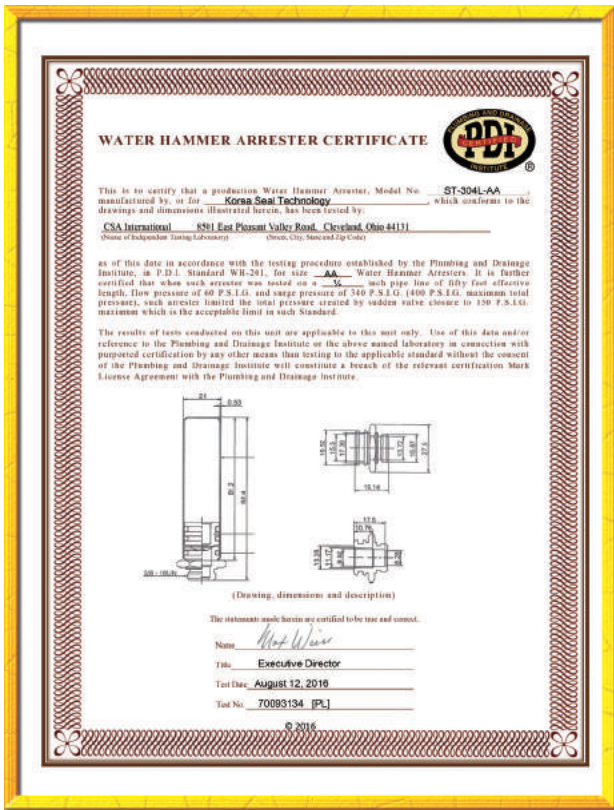
### ■ Sizing and Placement



As shown, it has been established that the preferred location for the water hammer arrestor is at the end of the branch line between the last two fixtures served. The location of the water hammer arrestor shown above applies to branch lines that do not exceed 20 ft. (6m) in length, from the start of the horizontal branch line to the last fixture supply on this branch line. When the branch line exceeds the 20ft.(6m) length, an additional water hammer arrestor should be used. This practice is best defined by two rules which have been established to cover the placement of water hammer arrestors.



- Rule 1** covers multiple fixture branch lines which do not exceed 20ft.(6m) in length.
- Explanation** Fixture-unit sizing and selection table is used to select the required PDI unit (water hammer arrestor).
- Rule 2** covers multiple fixture branch lines which do exceed 20ft.(6m) in length.
- Explanation** Fixture-unit sizing and selection table is used to select the required PDI unit(water hammer arrestor). The sum of the fixture units rating of units X and Y shall be equal to or greater than the demand of the branches.



### SURGETROL - Air Admittance Valve

**AFAAV – Mini (1 ¼", 1 ½", 2")**

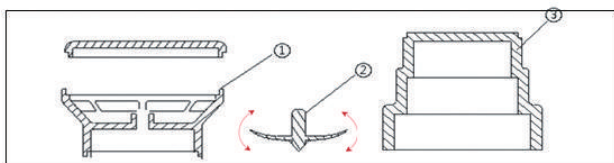
**AFAAV – Maxi (3", 4")**

#### ■ SPECIFICATIONS

1. Products that can be installed freely from vertic direction to horizontal direction.
2. Pressure equilibrium maintenance, smooth flow, prevent destruction of the seal by siphon-age
3. Structure that completely block odor to the outside
4. The role of extinction the backwashing pressure wave
5. Economic and easy installation, Compact Size
6. Fast response, perfect sealing, durability and reliability
7. Excellence of raw material as **PVC resins, Diaphragm(Silicon) etc**
8. Reduce the cost as 0.1% down when replace the vent pipes to vent valve

#### ■ Our product's strong point

There is limit on installation problem in case of conventional products which can only be Installed vertically (90 °). Non limited installation air vent valve for sanitation equipment drain pipe which is main subject of development has the main structure that can install in all directions from the vertical to the horizontal direction. The technical key points are as follows

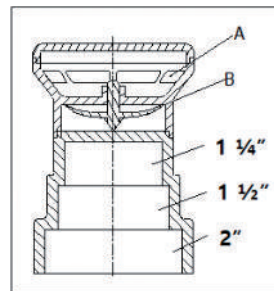


When combining ①, ② and ③, it connected as be pushed compare with diaphragm(silicon) dimension in space between ② and ③. The air comes when the wing part of ② are bent, at a time ② is tightly joined with ① and block the odor due to the elastic force generates in pointed part of ②.



#### ■ Technical difference with conventional product

**Any angle free installation valve for drainage piping integrated with sanitary equipment**



- 0 ° ~ 180 ° freely installable  
**(Patent application No. : 10-2015-0175216)**
- Complex model (1 ¼" ~ 2"), (3" ~4") is available:  
Cost savings
- It can be installed in all directions. Even in horizontal and vertical structure, the packing is completely sealed, and polluted air does not leak to the outside
- It can connect directly to piping system without any packing.



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