

**Daikin Fire Rated Hoses & Hose Kits for  
Water Source Heat Pumps**



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## Daikin Water Source Heat Pump Hoses & Hose Kits

Daikin sells a variety of flexible supply, return and condensate hoses and hose kit assemblies for connecting its water source heat pumps to a building's hard piping system.

The supply and return hoses have a swivel fitting at one end to facilitate removal of the unit for replacement or service (Figure 1).

**Figure 1: Supply and return hoses**



Standard supply and return fire-rated hoses have either a Thermoplastic Rubber (EPTF) (Figure 2) with a braided covering of stainless steel. Fittings are either plated steel or brass.

**Figure 2: Flexible, steel braided supply and return hose**



For condensate piping, Daikin offers flexible vinyl hose, steel braided hose or a long, clear, plastic hose with the necessary clamps for connection to the field piping. In most cases the use of plastic hose eliminates the need for insulation to be wrapped around the pipe to prevent sweating.

A threaded, factory-supplied condensate fitting on each WSHP unit allows the connection of flexible vinyl hose or steel braided hose. All horizontal units condensate piping must be trapped at the unit and pitched away from the unit not less than 1/4" per foot.

Piping systems should include supply and return shutoff valves in the design to allow for the shut-off of water

flow to the unit and to isolate it if removal of a unit is necessary, without the need to shut down the entire heat pump system. Daikin offers a combination full port shut-off ball valve and union for this purpose (Figure 3).

**Figure 3: Union-ended shut-off ball valve**



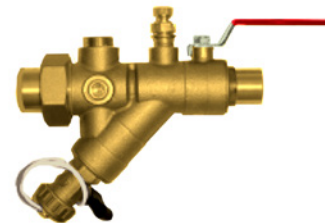
One of the most important factors when operating a water source heat pump is to maintain the proper water (GPM) flow rate to the unit. If water flow is not maintained the premature opening of the refrigeration system safeties will stop unit operation. Daikin provides the solution with hose assemblies that are equipped with an auto flow controller installed at the factory (Figure 4). To maintain proper GPM flow rate, after installing the shut off valve, open the valve fully and the flow controller will do the rest.

**Figure 4: Circuit Sentry automatic flow limiting valve**



The supply hose assembly includes a shut-off ball valve with one pressure/temperature test port and an optional Y-strainer (Figure 5). The return assembly includes a shut-off ball valve with the flow controller and two pressure/temperature test points and an optional autoflow controller.

**Figure 5: Y-strainer combination valve**



Also provided in this catalog are hose kit options, plastic condensate hose kits and shut-off ball valves.

**Table 1: Supply & return water connection sizes and typical flow rate ratings**

Unit Size	Water Connection Diameter Table - FPT, JIC, or OD Sweat (inches)									Typical Auto Flow Rate Range <sup>1</sup>	
	Console	Enfinity™ Horizontal	Enfinity Vertical	Smart-Source Horiz. & Vert.	Smart-Source Horiz. & Vert.	Vertical Stack	Enfinity Large Vertical	Water to Water	Rooftop		
	Enfinity MHC/MHW	CCH/CCW	VFC/VFW	GSH/GSV	GTH/GTV	VHC/VHF	LVC/LVW	WRA/WHA/WCA	RWA/RGA/RWC/RGC		
	Legacy WXx/WZx										
007	0.50	0.50		0.50		0.50 JIC				1	2
009	0.50	0.50	0.50	0.50		0.50 JIC				1.5	3
012	0.50	0.50	0.50	0.50		0.50 JIC				2	4
015	0.50	0.50	0.50	0.75		0.50 JIC				2.5	6
018/019	0.50	0.50	0.50	0.75		0.50 JIC				3	6
024/026		0.50	0.50	0.75	0.75	0.75 JIC				4	8
030/032		0.75	0.75	0.75	0.75	0.75 JIC				5	10
036/038		0.75	0.75	0.75	0.75	0.75 JIC		0.75		6	12
042/044		0.75	0.75	1.00	1.00					7	14
048/049		0.75	0.75	1.00	1.00			1.00		8	16
060/064		0.75	0.75	1.00	1.00			1.00		10	20
070		0.75	0.75	1.00						12	24
072		1.25			1.00			1.25	1.00	12	24
096		1.25						1.25		16	32
120		1.25						1.25	1.50	20	40
150								1.50	1.625 OD*	25	49
180								1.50	2.00*	30	60
200/210/215								1.50		36	72
240								2.00*	2.125 OD*	38	76
290/300								1.50	2.00*	48	98
360								2.00*	2.125 OD*	62.5	124
420								2.00*	2.125 OD*	80	144

Note: <sup>1</sup> Range of flow rates is model specific.  
 \* Hose kit option not available from Daikin

## Summary of Hose Kit Options

**Table 2: Summary of hose kit options**

Hose Kit Options	Hose Type		Shut-Off Ball Valve with PT Plug	Auto Flow Controller	Y-Strainer and Blowdown Valve
# 1 - Condensate Hose	Supply				
	Return	•			
# 2 - 2 Hoses	Supply	•			
	Return	•			
# 3 - 2 Hoses <sup>1</sup>	Supply	•			
	Return	•			
# 4 - 2 Hoses	Supply	•	•		
	Return	•	•		
# 5 - 2 Hoses	Supply	•	•		•
	Return	•	•		
# 6 - 2 Hoses	Supply	•	•		
	Return	•		•	
# 7 - 2 Hoses	Supply	•	•		•
	Return	•		•	
# 8 - 1 Jumper Hose	Supply	•			
	Return				

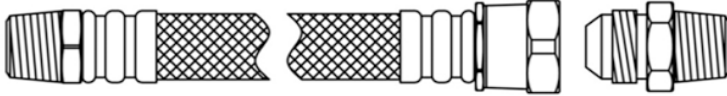
Note: <sup>1</sup>Hoses for Console units.

## Condensate Hose Kits

### Hose Kit #1 (1 hose per kit)

#### Features

- Fixed Male NPT x Female JIC Swivel with Male NPT Adapter



#### Specifications:

Hose Connection Sizes..... 3/4" to 1-1/4"  
 Inner Tube .....EPTF - White Santoprene with UL-94 VO Fire Rating  
 Outer Braid..... 302/304 Stainless Steel  
 Hose Fittings..... Plated Steel  
 Hose/Adapter Connection ..... Male JIC Metal to Metal Seal (no O-ring or gaskets)  
 Fixed End Fitting .....MNPT<sup>1</sup>  
 Swivel End Fitting.....MNPT<sup>1</sup>  
 Temperature Range ..... -40°F to 212°F

Table 3: Hose kit #1 part numbers and data

Part Number	Connection Size <sup>3</sup> (inches)	Length <sup>2</sup> (ft)	Hose Min. Bend Radius (inches)	Hose Working Pressure (psi)	Hose Burst Pressure (psi)
106063801	3/4	2	4	400	1600
106063901	3/4	3	4	400	1600
910152694	1	2	5.5	500	2000
910152695	1	3	5.5	500	2000
910152359	1-1/4	2	10	400	1600
910152360	1-1/4	3	10	400	1600

- Notes: <sup>1</sup> Male pipe thread fittings have sealant pre-applied.  
<sup>2</sup> Length is for the hose only and does not include the adapter.  
<sup>3</sup> Fitting size, not actual hose diameter.

## Plastic Condensate Hose Kits

Note: Also see, "Condensate Hose Trap / Kits and Other Accessories" on page 23.

Table 4: Condensate hose kits

Part Number	Description	Size & Nominal Length (inches)	For Use With (Sizes)		
			Smart Source	Enfinity Horizontal	Large Vertical & Horizontal
106063701	3/4" x 30 inches plastic hose w/ fitting - 1 hose	3/4 x 30	007-070	007-070	-
106665101	3/4" x 36 inches plastic hose w/ fitting - 1 hose	3/4 x 36	007-070	007-070	-
106064301	Hose Plastic Condensate	1 x 30	-	-	072 - 120
106064401	Hose Plastic Condensate	1-1/4 x 38	-	-	180 - 290

#### Legend for Hose Kits:

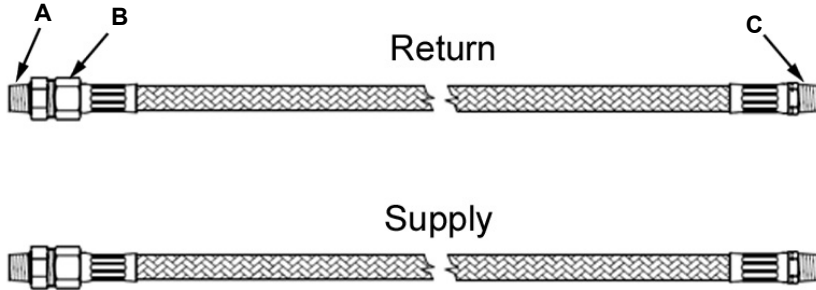
- NPT** - National Pipe Thread
- JIC** - Joint Industrial Committee
- EPTF** - Ethylene Propylene Thermoplastic Rubber
- MNPT** - Male National Pipe Thread
- FNPT** - Female National Pipe Thread

## Fire Rated Supply and Return Hose Kits

### Hose Kit #2 (2 hoses per kit)

#### Features

- Fixed Male NPT x Female JIC Swivel with Male NPT Adapter



#### Specifications:

Hose Connection Sizes.....	1/2" to 1-1/2"
Inner Tube .....	EPTF - White Santoprene with UL-94 VO Fire Rating
Outer Braid.....	302/304 Stainless Steel
Hose Fittings.....	Plated Steel
(A) Hose/Adapter Connection .....	JIC to MNPT Adapter <sup>1</sup>
(B) Swivel End Fitting.....	Female JIC Swivel
(C) Fixed End Fitting .....	MNPT <sup>1</sup>
Temperature Range .....	-40°F to 212°F

**Table 5: Hose kit #2 part numbers and data**

Part Number	Connection Size <sup>3</sup> (inches)	Length <sup>2</sup> (ft)	Hose Min Bend Radius (inches)	Hose Working Pressure (psi)	Hose Burst Pressure (psi)
106062801	1/2	2	2.5	400	1600
106063101	1/2	3	2.5	400	1600
106062901	3/4	2	4	400	1600
106063201	3/4	3	4	400	1600
106063401	1	2	5.5	500	2000
106063501	1	3	5.5	500	2000
106063001	1-1/4	2	10	400	1600
106063301	1-1/4	3	10	400	1600
106064501	1-1/2	2	10	400	1600
106064601	1-1/2	3	10	400	1600

- Notes:**
- <sup>1</sup> Male pipe thread fittings have sealant pre-applied.
  - <sup>2</sup> Length is for the hose only and does not include the adapter.
  - <sup>3</sup> Fitting size, not actual hose diameter.
  - <sup>4</sup> 1-1/2" hose kits have a secondary FPT to MPT adapter on the fixed end.

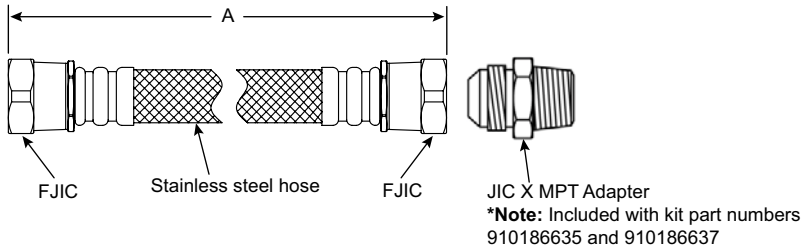
## Fire Rated Supply and Return Hose Kits for Series 3 Vertical Stack WSHP

### Hose Kit #2 (2 hoses per kit)

Kit #s 910162104 and 910162105

#### Features

- Female JIC Swivel End x Female JIC Swivel End



#### Specifications:

- Hose Connection Sizes ..... 1/2" to 3/4"
- Inner Tube .....EPTF - White Santoprene with UL-94 VO Fire Rating
- Outer Braid..... 302/304 Stainless Steel
- Hose Fittings..... Plated Steel
- \*Hose/Adapter Connection..... Male JIC Metal to Metal Seal (no O-ring or gaskets)
- Swivel Ends Fittings..... FJIC
- Temperature Range..... -40°F to 212°F

**Table 6: Hose kit #2 for vertical stack WSHP part numbers and data**

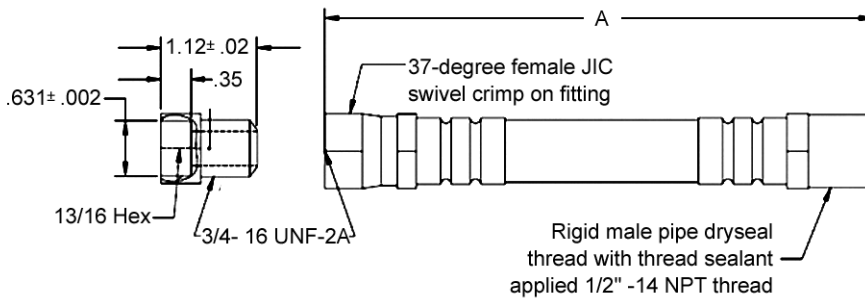
Part Number	Connection Size (inches)	Length (ft) "A"	Hose Min Bend Radius (inches)	Hose Working Pressure (psi)	Hose Burst Pressure (psi)
910162104	1/2	2.5	2.5	400	1600
910162105	3/4	3	4	400	1600
*910186635	1/2	2.5	2.5	400	1600
*910186637	3/4	3	4	400	1600

# Fire Rated Supply & Return Hose Kits for Console WSHP

## Hose Kit #3 (2 hoses per kit)

### Features

- Fixed Male NPT x Female JIC Swivel with 5/8 ID Female Sweat Adapter



### Specifications:

Hose Connection Sizes.....	1/2"
Inner Tube .....	EPTF - White Santoprene with UL-94 VO Fire Rating
Outer Braid.....	302/304 Stainless Steel
Hose Fittings.....	Plated Steel
Hose/Adapter Connection .....	Male 37-degree JIC Metal to Metal Seal (no O-ring or gaskets)
Fixed End Fitting .....	MNPT <sup>1</sup>
Swivel End Fitting.....	5/8" Sweat Brass
Temperature Range .....	-40°F to 212°F

**Table 7: Hose kit #3 part numbers and data**

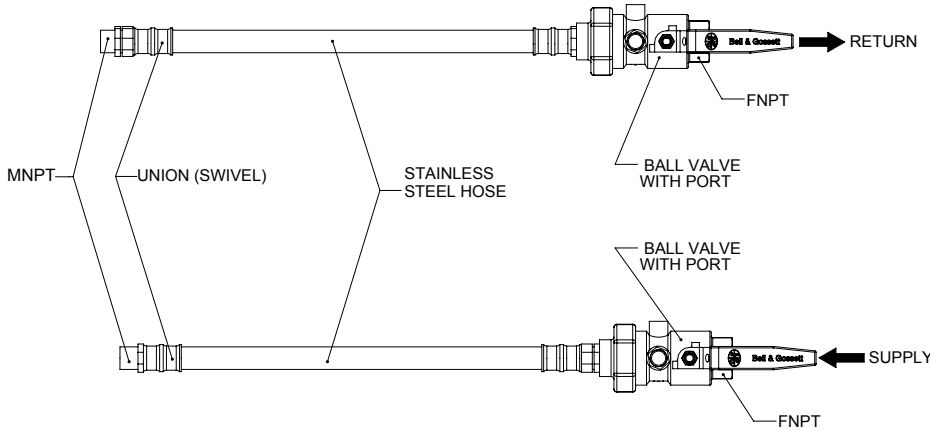
Part Number	Connection Size <sup>3</sup> (inches)	Length <sup>2</sup> (inches) "A"	Hose Min Bend Radius (inches)	Hose Working Pressure Min Bend Radius (psi)	Hose Burst Pressure (psi)
668817701	1/2	9	2.5	400	1600
668817702	1/2	12	2.5	400	1600
668817703	1/2	18	2.5	400	1600
668817704	1/2	24	2.5	400	1600

- Notes:**
- <sup>1</sup> Male pipe thread fittings have sealant pre-applied.
  - <sup>2</sup> Length is for the hose only and does not include the adapter.
  - <sup>3</sup> Fitting size, not actual hose diameter.



## Fire Rated Supply & Return Hose Kits with Shut-Off Ball Valve Hose Kit #4 (2 hoses per kit)

Supply Side Hose	Return Side Hose
Ball Valve w/ PT Port	Ball Valve w/ PT Port
FPT x MPT Swivel Adapter	FPT x MPT Swivel Adapter



### Specifications:

#### Hoses:

Hose Connection Sizes..... 1/2" to 1-1/2"  
 Inner Tube .....EPTF - White Santoprene with UL-94 VO Fire Rating  
 Outer Braid..... 302/304 Stainless Steel  
 Hose Fittings..... Plated Steel  
 Hose/Adapter Connection ..... Male 37-degree JIC Metal to Metal Seal (no O-ring or gaskets)  
 Temperature Range ..... -40°F to 212°F

#### Shut-Off Ball Valve:

Body..... C37000 Brass  
 Ball ..... Chrome Plated  
 Ball Seal..... Teflon®  
 Stem..... Explosion Proof  
 O-Rings..... EPDM  
 Handle..... Chrome Plated Steel with Plastic Cover  
 Taps ..... 1/4" NPT with 1 Pressure/Temperature Port

Table 8: Hose kit #4 part numbers and data

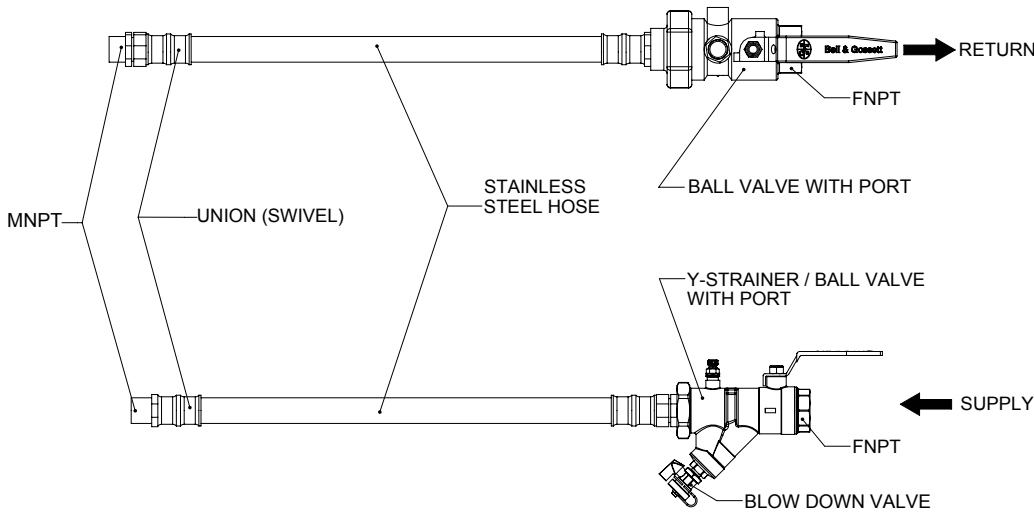
Part Number	Connection Size <sup>3</sup> (inches)	Length <sup>2</sup> (ft)	Hose Min. Bend Radius (inches)	Hose Working Pressure (psi)	Hose Burst Pressure (psi)
669483401	1/2	2	2.5	400	1600
669481302	1/2	3	2.5	400	1600
669483501	3/4	2	4	400	1600
669481402	3/4	3	4	400	1600
669481501	1	2	5.5	500	2000
669481502	1	3	5.5	500	2000
669481601	1-1/4	2	10	400	1600
669481602	1-1/4	3	10	400	1600
669481701 <sup>4</sup>	1-1/2	2	10	400	1600
669481702 <sup>4</sup>	1-1/2	3	10	400	1600

Notes: <sup>1</sup> Male pipe thread fittings have sealant pre-applied.  
<sup>2</sup> Length is for the hose only and does not include the adapter.  
<sup>3</sup> Fitting size, not actual hose diameter.  
<sup>4</sup> 1-1/2" hose kits have a secondary FPT to MPT adapter on the fixed end.

# Fire Rated Supply & Return Hose Kits with Ball Valve, "Y" Strainer and Blowdown Valve

## Hose Kit #5 (2 hoses per kit)

Supply Side Hose	Return Side Hose
Ball Valve w/ PT Port	Ball Valve w/ PT Port
"Y" Strainer w/Blowdown Valve	FPT x MPT Swivel Adapter
FPT x MPT Swivel Adapter	



### Specifications:

#### Hoses:

- Hose Connection Sizes ..... 1/2" to 1-1/2"
- Inner Tube .....EPTF - White Santoprene with UL-94 VO Fire Rating
- Outer Braid..... 302/304 Stainless Steel
- Hose Fittings..... Plated Steel
- Hose/Adapter Connection ..... Male 37-degree JIC Metal to Metal Seal (no O-ring or gaskets)
- Temperature Range ..... -40°F to 212°F

#### Combination Ball Valve & "Y" Strainer:

- Body..... Brass C37000
- Ball.....Full Port Chrome Plated
- Ball Seal..... Teflon®
- Stem.....Explosion Proof
- O-Rings.....EPDM
- Strainer..... 20 Mesh Stainless Steel
- Bypass Port Tap ..... 1/2" FPT for sizes 1/2", 3/4," and 1"  
.....3/4" FPT for sizes 1-1/4" and 1-1/2"
- Maximum Working Pressure ..... 400 psig

## Fire Rated Supply & Return Hose Kits with Ball Valve, “Y” Strainer and Blowdown Valve – Hose Kit #5 (continued)

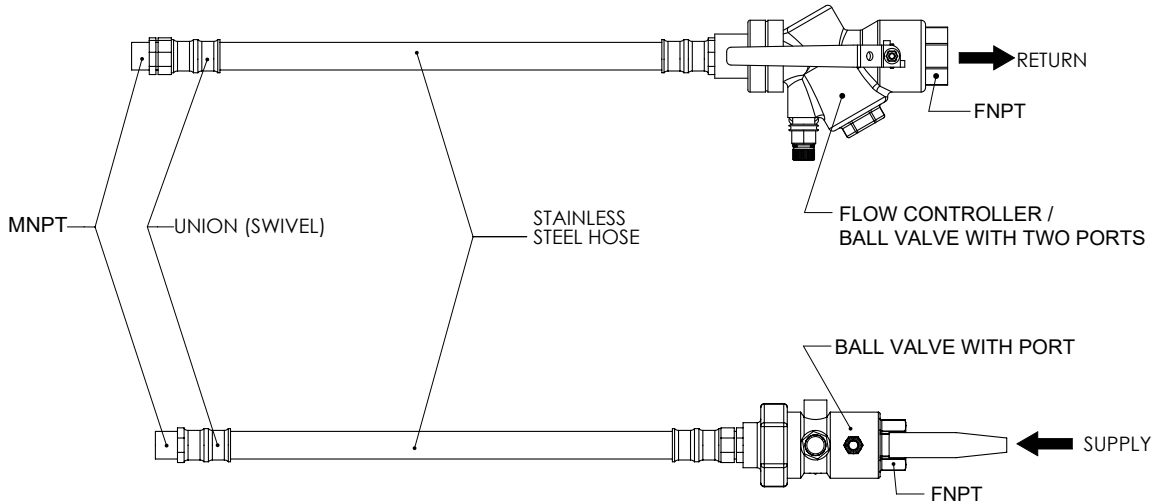
**Table 9: Hose kit #5 part numbers and data**

Part Number	Connection Size <sup>3</sup> (inches)	Length <sup>2</sup> (ft)	Hose Min. Bend Radius (inches)	Hose Working Pressure (psi)	Hose Burst Pressure (psi)
669481801	1/2	2	2.5	400	1600
669481802	1/2	3	2.5	400	1600
669481901	3/4	2	4	400	1600
669481902	3/4	3	4	400	1600
669482001	1	2	5.5	500	2000
669482002	1	3	5.5	500	2000
669482101	1-1/4	2	10	400	1600
669482102	1-1/4	3	10	400	1600
669482201	1-1/2	2	10	400	1600
669482202	1-1/2	3	10	400	1600

- Notes:**
- <sup>1</sup> Male pipe thread fittings have sealant pre-applied.
  - <sup>2</sup> Length is for the hose only and does not include the adapter.
  - <sup>3</sup> Fitting size, not actual hose diameter.
  - <sup>4</sup> 1-1/2" hose kits have a secondary FPT to MPT adapter on the fixed end.

## Fire Rated Supply & Return Hose Kits with Ball Valve and Auto Flow Control Valve Hose Kit #6 (2 hoses per kit)

Supply Side Hose	Return Side Hose
Ball Valve w/ PT Port	Ball Valve
FPT x MPT Swivel Adapter	Auto Flow Control Valve w/ 2 PT Ports
	FPT x MPT Swivel Adapter



### Specifications:

#### Hoses:

Hose Connection Sizes .....	1/2" to 1-1/2"
Inner Tube .....	EPTF - White Santoprene with UL-94 VO Fire Rating
Outer Braid.....	302/304 Stainless Steel
Hose Fittings.....	Plated Steel
Hose/Adapter Connection .....	Male 37-degree JIC Metal to Metal Seal (no O-ring or gaskets)
Temperature Range .....	-40°F to 212°F

#### Circuit Sentry Auto Flow Control Valve:

Balance Type.....	Automatic Flow Limiting Valve with internal fixed flow cartridge
Body Design.....	Brass Valve w/ integrated isolation/shut-off, PT's, Union End on inlet side
Ball.....	Chrome Plated Brass
O-rings/Diaphragm .....	EPDM
Spring .....	Stainless Steel
Max. Working Pressure.....	400 psig
Min. psid.....	Varies with size/cartridge
Max. psid .....	60

**Fire Rated Supply & Return Hose Kits with Ball Valve and Auto Flow Control Valve –  
Hose Kit #6 (continued)**
**Shut-Off Ball Valve:**

**Body**..... C37000 Brass  
**Ball**..... Chrome Plated  
**Ball Seal**..... Teflon®  
**Stem**..... Explosion Proof  
**O-Rings**..... EPDM  
**Handle**..... Chrome Plated Steel with Plastic Cover  
**Taps** ..... 1/4" NPT with 1 Pressure/Temperature Port  
**Maximum Working Temperature** ..... 400 psig

**Table 10: Hose kit #6 part numbers and data**

Part Number	Connection Size <sup>3</sup> (inches)	Length <sup>2</sup> (ft)	Hose Min. Bend Radius (inches)	Hose Working Pressure (psi)	Hose Burst Pressure (psi)	Flow Rate (gpm)	Min ΔP (psi)+	Cv <sup>++</sup>
669482301	1/2	2	2.5	400	1600	.5	1.5	0.42
669482302	1/2	2	2.5	400	1600	1	1.7	0.76
669482303	1/2	2	2.5	400	1600	1.5	1.9	1.10
669482304	1/2	2	2.5	400	1600	2	2	1.42
669482305	1/2	2	2.5	400	1600	2.5	2	1.70
669482306	1/2	2	2.5	400	1600	3	2	2.11
669482307	1/2	2	2.5	400	1600	3.5	2.3	2.32
669482308	1/2	2	2.5	400	1600	4	3	2.35
669482309	1/2	2	2.5	400	1600	4.5	3.2	2.52
669482310	1/2	2	2.5	400	1600	5	3.2	2.81
669482311	1/2	2	2.5	400	1600	5.5	3.3	3.07
669482312	1/2	2	2.5	400	1600	6	3.3	3.29
669482401	3/4	2	4	400	1600	3	2	2.11
669482402	3/4	2	4	400	1600	3.5	2.3	2.32
669482403	3/4	2	4	400	1600	4	3	2.35
669482404	3/4	2	4	400	1600	4.5	3.2	2.52
669482405	3/4	2	4	400	1600	5	3.2	2.81
669482406	3/4	2	4	400	1600	5.5	3.3	3.07
669482407	3/4	2	4	400	1600	6	3.3	3.29
669482408	3/4	2	4	400	1600	6.5	3.3	3.57
669482409	3/4	2	4	400	1600	7	3.3	3.85
669482410	3/4	2	4	400	1600	7.5	3.5	4.06
669482411	3/4	2	4	400	1600	8	3.5	4.3
669482412	3/4	2	4	400	1600	9	3.6	4.75
669482413	3/4	2	4	400	1600	10	3.8	5.13
669482414	3/4	2	4	400	1600	11	4	5.38
669482415	3/4	2	4	400	1600	12	7.3	4.48

**Fire Rated Supply & Return Hose Kits with Ball Valve and Auto Flow Control Valve – Hose Kit #6  
(continued)**

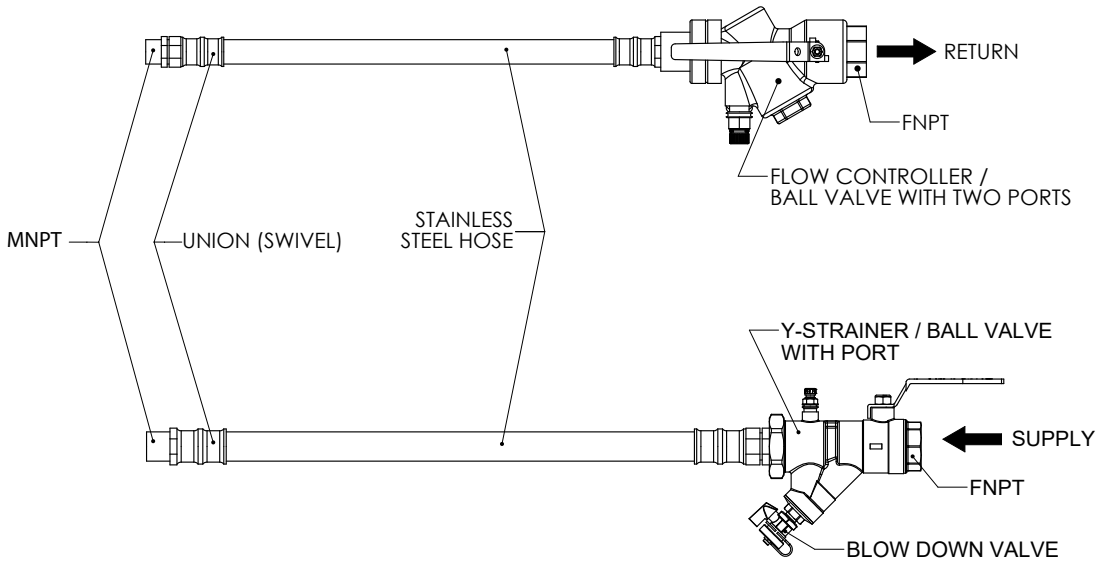
Part Number	Connection Size <sup>3</sup> (inches)	Length <sup>2</sup> (ft)	Hose Min. Bend Radius (inches)	Hose Working Pressure (psi)	Hose Burst Pressure (psi)	Flow Rate (gpm)	Min ΔP (psi) <sup>+</sup>	Cv <sup>++</sup>
669482416	3/4	2	4	400	1600	13	7.3	4.85
669482417	3/4	2	4	400	1600	15	3.2	8.44
669482501	1	2	5.5	500	2000	8	3.5	4.3
669482502	1	2	5.5	500	2000	9	3.6	4.75
669482503	1	2	5.5	500	2000	10	3.8	5.13
669482504	1	2	5.5	500	2000	11	4	5.38
669482505	1	2	5.5	500	2000	12	7.3	4.48
669482506	1	2	5.5	500	2000	13	7.3	4.85
669482507	1	2	5.5	500	2000	15	3.2	8.44
669482508	1	2	5.5	500	2000	18	3	10.37
669482601	1-1/4	2	10	400	1600	15	3.2	8.44
669482602	1-1/4	2	10	400	1600	20	3.2	11.26
669482603	1-1/4	2	10	400	1600	26	2	13.73
669482604	1-1/4	2	10	400	1600	30	3.9	15.24
669482605	1-1/4	2	10	400	1600	36	2.2	17.07
669482606	1-1/4	2	10	400	1600	40	4.9	18.12
669482701	1-1/2	2	10	400	1600	30	3.9	15.24
669482702	1-1/2	2	10	400	1600	36	2.2	23.77
669482703	1-1/2	2	10	400	1600	40	4.9	18.12
669482704	1-1/2	2	10	400	1600	45	2.8	27.5
669482705	1-1/2	2	10	400	1600	50	3.2	28.14
669482706	1-1/2	2	10	400	1600	55	3.3	30.35
669482707	1-1/2	2	10	400	1600	60	3.5	31.98
669482708	1-1/2	2	10	400	1600	65	3.9	33.02
669482709	1-1/2	2	10	400	1600	70	4.2	34.33
669482710	1-1/2	2	10	400	1600	75	4.9	33.95
669482711	1-1/2	2	10	400	1600	80	4.9	36.1
669482712	1-1/2	2	10	400	1600	85	5.1	37.85
669482713	1-1/2	2	10	400	1600	90	5.2	40.09
669482714	1-1/2	2	10	400	1600	95	5.2	41.74

- Notes:**
- <sup>1</sup> Male pipe thread fittings have sealant pre-applied.
  - <sup>2</sup> Length is for the hose only and does not include the adapter.
  - <sup>3</sup> Fitting size, not actual hose diameter.
  - <sup>4</sup> 1-1/2" hose kits have a secondary FPT to MPT adapter on the fixed end.
  - + Min ΔP is minimum differential pressure across valve necessary to maintain design flow rate through cartridge.
  - ++ Can be used to determine flow through valve when differential pressure is below minimum. When differential pressure is above minimum, Cv can no longer be used to determine flow.

# Fire Rated Supply & Return Hose Kits with Ball Valve and Auto Flow Control Valve, "Y" Strainer and Blowdown Valve

## Hose Kit #7 (2 hoses per kit)

Supply Side Hose	Return Side Hose
Ball Valve w/ PT Port	Ball Valve
"Y" Strainer w/Blowdown Valve	Auto Flow Control Valve w/ 2 PT Ports
FPT x MPT Swivel Adapter	FPT x MPT Swivel Adapter



### Specifications:

#### Hoses:

- Hose Connection Sizes ..... 1/2" to 1-1/2"
- Inner Tube .....EPTF - White Santoprene with UL-94 VO Fire Rating
- Outer Braid..... 302/304 Stainless Steel
- Hose Fittings..... Plated Steel
- Hose/Adapter Connection ..... Male 37-degree JIC Metal to Metal Seal (no O-ring or gaskets)
- Temperature Range ..... -40°F to 212°F

#### Circuit Sentry Auto Flow Control Valve:

- Balance Type..... Automatic Flow Limiting Valve with internal fixed flow cartridge
- Body Design..... Brass Valve w/ integrated isolation/shut-off, PT's, Union End on inlet side
- Ball ..... Chrome Plated Brass
- O-rings/Diaphragm ..... EPDM
- Spring ..... Stainless Steel
- Max. Working Pressure ..... 400 psig
- Min. psid ..... Varies with size/cartridge
- Max. psid ..... 60

**Fire Rated Supply & Return Hose Kits with Ball Valves and Auto Flow Control Valve, Y" Strainer and Blowdown Valve –Hose Kit #7 (continued)**
**Combination Ball Valve & "Y" Strainer:**

Body.....	Brass C37000
Ball.....	Full Port Chrome Plated
Ball Seal.....	Teflon®
Stem.....	Explosion Proof
O-Rings.....	EPDM
Strainer .....	20 Mesh Stainless Steel
Bypass Port Tap .....	1/2" FPT for sizes 1/2", 3/4," and 1"
.....	3/4" FPT for sizes 1-1/4" and 1-1/2"
Maximum Working Pressure .....	400 psig

**Table 11: Hose kit #7 part numbers and data**

Part Number	Connection Size <sup>3</sup> (inches)	Length <sup>2</sup> (ft)	Hose Min. Bend Radius (inches)	Hose Working Pressure (psi)	Hose Burst Pressure (psi)	Flow Rate (gpm)	Min ΔP (psi) <sup>+</sup>	Cv <sup>++</sup>
106582901	1/2	2	2.5	400	1600	0.5	1.5	0.42
106582902	1/2	2	2.5	400	1600	1	1.7	0.76
106582903	1/2	2	2.5	400	1600	1.5	1.9	1.10
106582904	1/2	2	2.5	400	1600	2	2	1.42
106582905	1/2	2	2.5	400	1600	2.5	2	1.70
106582906	1/2	2	2.5	400	1600	3	2	2.11
106582907	1/2	2	2.5	400	1600	3.5	2.3	2.32
106582908	1/2	2	2.5	400	1600	4	3	2.35
106582909	1/2	2	2.5	400	1600	4.5	3.2	2.52
106582910	1/2	2	2.5	400	1600	5	3.2	2.81
106582911	1/2	2	2.5	400	1600	5.5	3.3	3.07
106582912	1/2	2	2.5	400	1600	6	3.3	3.29
106582913	3/4	2	4	400	1600	3	2	2.11
106582914	3/4	2	4	400	1600	3.5	2.3	2.32
106582915	3/4	2	4	400	1600	4	3	2.35
106582916	3/4	2	4	400	1600	4.5	3.2	2.52
106582917	3/4	2	4	400	1600	5	3.2	2.81
106582918	3/4	2	4	400	1600	5.5	3.3	3.07
106582919	3/4	2	4	400	1600	6	3.3	3.29
106582920	3/4	2	4	400	1600	6.5	3.3	3.57
106582921	3/4	2	4	400	1600	7	3.3	3.85
106582922	3/4	2	4	400	1600	7.5	3.5	4.06
106582923	3/4	2	4	400	1600	8	3.5	4.3
106582924	3/4	2	4	400	1600	9	3.6	4.75
106582925	3/4	2	4	400	1600	10	3.8	5.13
106582926	3/4	2	4	400	1600	11	4	5.38
106582927	3/4	2	4	400	1600	12	7.3	4.48
106582928	3/4	2	4	400	1600	13	7.3	4.85
106582929	3/4	2	4	400	1600	15	3.2	8.44
106582932	1	2	5.5	500	2000	8	3.5	4.3
106582933	1	2	5.5	500	2000	9	3.6	4.75
106582934	1	2	5.5	500	2000	10	3.8	5.13
106582935	1	2	5.5	500	2000	11	4	5.38
106582936	1	2	5.5	500	2000	12	7.3	4.48
106582937	1	2	5.5	500	2000	13	7.3	4.85
106582939	1	2	5.5	500	2000	15	3.2	8.44
106582942	1	2	5.5	500	2000	18	3	10.37



**Fire Rated Supply & Return Hose Kits with Ball Valves and Auto Flow Control Valve, Y” Strainer and Blowdown Valve –Hose Kit #7 (continued)**

Part Number	Connection Size <sup>3</sup> (inches)	Length <sup>2</sup> (ft)	Hose Min. Bend Radius (inches)	Hose Working Pressure (psi)	Hose Burst Pressure (psi)	Flow Rate (gpm)	Min ΔP (psi) <sup>+</sup>	Cv <sup>++</sup>
669482901	1-1/4	2	10	400	1600	15	3.2	8.44
669482902	1-1/4	2	10	400	1600	20	3.2	11.26
669482903	1-1/4	2	10	400	1600	25	2	13.73
669482904	1-1/4	2	10	400	1600	30	3.9	15.24
669482905	1-1/4	2	10	400	1600	36	2.2	17.07
669482906	1-1/4	2	10	400	1600	40	4.9	18.12
669483001	1-1/2	2	10	400	1600	30	3.9	15.24
669483002	1-1/2	2	10	400	1600	35	2.2	23.77
669483003	1-1/2	2	10	400	1600	40	4.9	18.12
669483004	1-1/2	2	10	400	1600	45	2.8	27.5
669483005	1-1/2	2	10	400	1600	50	3.2	28.14
669483006	1-1/2	2	10	400	1600	55	3.3	30.35
669483007	1-1/2	2	10	400	1600	60	3.5	31.98
669482708	1-1/2	2	10	400	1600	65	3.9	33.02
669483009	1-1/2	2	10	400	1600	70	4.2	34.33
669483010	1-1/2	2	10	400	1600	75	4.9	33.95
669483011	1-1/2	2	10	400	1600	80	4.9	36.1
669483012	1-1/2	2	10	400	1600	85	5.1	37.85
669483013	1-1/2	2	10	400	1600	90	5.2	40.09
669483014	1-1/2	2	10	400	1600	95	5.2	41.74
910186310	1/2	3	2.5	400	1600	0.5	1.5	0.42
910186311	1/2	3	2.5	400	1600	1	1.7	0.76
910186312	1/2	3	2.5	400	1600	1.5	1.9	1.10
910186313	1/2	3	2.5	400	1600	2	2	1.42
910160444	1/2	3	2.5	400	1600	2.5	2	1.70
910157026	1/2	3	2.5	400	1600	3	2	2.11
910186314	1/2	3	2.5	400	1600	3.5	2.3	2.32
910160445	1/2	3	2.5	400	1600	4	3	2.35
910186430	1/2	3	2.5	400	1600	4.5	3.2	2.52
910160446	1/2	3	2.5	400	1600	5	3.2	2.81
910186315	1/2	3	2.5	400	1600	5.5	3.3	3.07
910186431	1/2	3	2.5	400	1600	6	3.3	3.29
910157027	3/4	3	4	400	1600	3	2	2.11
910186316	3/4	3	4	400	1600	3.5	2.3	2.32
910157028	3/4	3	4	400	1600	4	3	2.35
910186317	3/4	3	4	400	1600	4.5	3.2	2.52
910182844	3/4	3	4	400	1600	5	3.2	2.81
910186318	3/4	3	4	400	1600	5.5	3.3	3.07
910157029	3/4	3	4	400	1600	6	3.3	3.29
910186319	3/4	3	4	400	1600	6.5	3.3	3.57
910157030	3/4	3	4	400	1600	7	3.3	3.85
910186433	3/4	3	4	400	1600	7.5	3.5	4.06
910182845	3/4	3	4	400	1600	8	3.5	4.3
910160448	3/4	3	4	400	1600	9	3.6	4.75
910186434	3/4	3	4	400	1600	10	3.8	5.13
910186436	3/4	3	4	400	1600	11	4	5.38
910186439	3/4	3	4	400	1600	12	7.3	4.48
910160450	3/4	3	4	400	1600	13	7.3	4.85
910186322	3/4	3	4	400	1600	15	3.2	8.44
910186331	1	3	5.5	500	2000	8	3.5	4.3
910157024	1	3	5.5	500	2000	9	3.6	4.75
910182846	1	3	5.5	500	2000	10	3.8	5.13
910186332	1	3	5.5	500	2000	11	4	5.38
910182847	1	3	5.5	500	2000	12	7.3	4.48

**Fire Rated Supply & Return Hose Kits with Ball Valves and Auto Flow Control Valve, Y” Strainer and Blowdown Valve –Hose Kit #7 (continued)**

Part Number	Connection Size <sup>3</sup> (inches)	Length <sup>2</sup> (ft)	Hose Min. Bend Radius (inches)	Hose Working Pressure (psi)	Hose Burst Pressure (psi)	Flow Rate (gpm)	Min ΔP (psi) <sup>4</sup>	Cv <sup>++</sup>
910186333	1	3	5.5	500	2000	13	7.3	4.85
910186440	1	3	5.5	500	2000	15	3.2	8.44
910186334	1	3	5.5	500	2000	18	3	10.37
910186335	1-1/4	3	10	400	1600	15	3.2	8.44
910147421	1-1/4	3	10	400	1600	20	3.2	11.26
910186336	1-1/4	3	10	400	1600	25	2	13.73
910182848	1-1/4	3	10	400	1600	30	3.9	15.24
910186337	1-1/4	3	10	400	1600	36	2.2	17.07
910186338	1-1/4	3	10	400	1600	40	4.9	18.12
910186339	1-1/2	3	10	400	1600	30	3.9	15.24
910186340	1-1/2	3	10	400	1600	35	2.2	23.77
910160451	1-1/2	3	10	400	1600	40	4.9	18.12
910186441	1-1/2	3	10	400	1600	45	2.8	27.5
910186341	1-1/2	3	10	400	1600	50	3.2	28.14
910186342	1-1/2	3	10	400	1600	55	3.3	30.35
910186343	1-1/2	3	10	400	1600	60	3.5	31.98
910160452	1-1/2	3	10	400	1600	65	3.9	33.02
910186344	1-1/2	3	10	400	1600	70	4.2	34.33
910186345	1-1/2	3	10	400	1600	75	4.9	33.95
910186346	1-1/2	3	10	400	1600	80	4.9	36.1
910186347	1-1/2	3	10	400	1600	85	5.1	37.85
910186348	1-1/2	3	10	400	1600	90	5.2	40.09
910186349	1-1/2	3	10	400	1600	95	5.2	41.74

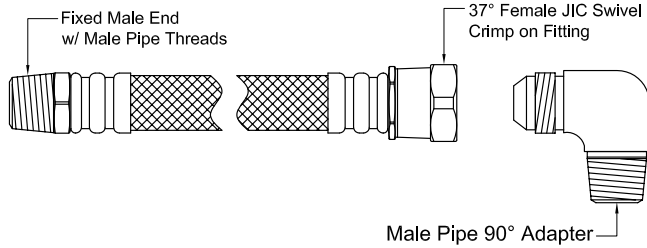
- Notes:**
- <sup>1</sup> Male pipe thread fittings have sealant pre-applied.
  - <sup>2</sup> Length is for the hose only and does not include the adapter.
  - <sup>3</sup> Fitting size, not actual hose diameter.
  - <sup>4</sup> 1-1/2" hose kits have a secondary FPT to MPT adapter on the fixed end.
  - + Min ΔP is minimum differential pressure across valve necessary to maintain design flow rate through cartridge.
  - ++ Can be used to determine flow through valve when differential pressure is below minimum. When differential pressure is above minimum, Cv can no longer be used to determine flow.

# Fire Rated Jumper Hose

## Hose Kit #8 – (1 hose per kit)

### Features

- Fixed Male NPT x Female JIC Swivel with Male NPT 90° Elbow Adapter



### Specifications:

#### Hose:

Hose Connection Sizes .....	1/2" to 1"
Inner Tube .....	EPTF - White Santoprene with UL-94 VO Fire Rating
Outer Braid.....	302/304 Stainless Steel
Hose Fittings.....	Plated Steel
Hose/Adapter Connection .....	Male JIC Metal to Metal Seal (no O-ring or gaskets)
Fixed End Fitting .....	MNPT <sup>1</sup>
Swivel End Fitting.....	MNPT <sup>1</sup>
Temperature Range .....	-40°F to 212°F

#### Elbow:

Body.....	Plated Steel
End Fittings.....	MPT

Table 12: Hose kit #8 part numbers and data

Part Number	Connection Size <sup>3</sup> (inches)	Length <sup>2</sup> (ft)	Hose Min. Bend Radius (inches)	Hose Working Pressure (psi)	Hose Burst Pressure (psi)
669483101	1/2	4	2.5	400	1600
669483102	1/2	6	2.5	400	1600
669483201	3/4	4	4.0	400	1600
669483202	3/4	7	4.0	400	1600
669483301	1	7	5.5	500	2000
669483302	1 x 3/4	7	5.5	500	2000

- Notes: <sup>1</sup> Male pipe thread fittings have sealant pre-applied.  
<sup>2</sup> Length is for the hose only and does not include the adapter.  
<sup>3</sup> Fitting size, not actual hose diameter.

Table 13: Waterside economizer hose kit #8 selection table for SmartSource vertical (WGSV/WGTV) and horizontal (WGSV/WGTH)

Unit Size	Connection Sizes		Length Requirements				Hose Kit Part Number			
	Unit	Economizer	Vertical		Horizontal		Vertical		Horizontal	
			Right-Hand	Left-Hand	Right-Hand	Left-Hand	Right-Hand	Left-Hand	Right-Hand	Left-Hand
007-012	1/2"	1/2"	4'	6'	4'	6'	669483101	669483102	669483101	669483102
015-019	3/4"	3/4"	4'	7'	4'	7'	669483201	669483202	669483201	669483202
024-032	3/4"	3/4"	7'	7'	7'	7'	669483202	669483202	669483202	669483202
036-038	3/4"	1"	7'	7'	7'	7'	669483302	669483302	669483302	669483302
040-072	1"	1"	7'	7'	7'	7'	669483301	669483301	669483301	669483301

## Fire Rated Jumper Hose (Continued)

### Hose Kit #8 – (1 hose per kit)

*Table 14: Hydronic heat jumper hose selection table*

Unit Size	Connection Sizes		Length Requirements	Hose Kit Part Number
	Unit	Heat		
7-12	1/2"	1/2"	4'	669483101
15-19	3/4"	3/4"	4'	669483201
24-38	3/4"	3/4"	7'	669483202
40-72	1"	1"	7'	669483301

## Combination Ball Valve and “Y” Strainer with Blowdown Valve and Supply Hose for Valve Size Fixed End 1/2", 3/4", 1" & 1-1/4"

Figure 6: Combination ball valve & “Y” strainer with blowdown valve and supply hose

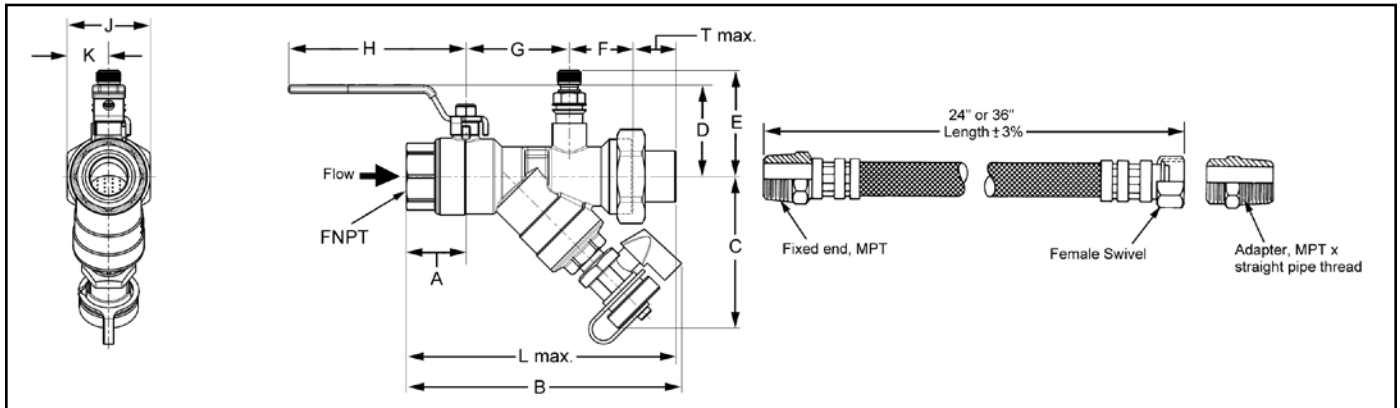


Table 15: Letter dimensions for Figure 6

Valve Size Fixed End	A	B	C	D	E	F	G	H	J	K	T max.	L max.
1/2"	1.055 (26.8)	5.169 (131.29)	2.918 (74.12)	1.672 (42.46)	1.92 (48.77)	1.135 (28.82)	1.872 (47.56)	3.533 (89.74)	1.375 (34.93)	0.688 (17.46)	.650 (16.51)	7.19 (182.63)
3/4"	1.189 (30.2)	5.494 (139.56)	3.024 (76.82)	1.819 (46.2)	2.114 (53.7)	1.27 (32.25)	2.064 (52.43)	3.533 (89.74)	1.66 (42.16)	0.83 (21.08)	.8 (20.32)	7.667 (194.74)
1"	1.421 (36.1)	6.704 (170.29)	4.029 (102.33)	2.126 (54)	2.323 (59)	1.332 (33.83)	2.603 (66.11)	4.288 (108.93)	1.910 (48.51)	.955 (24.26)	.900 (22.86)	9.123 (231.72)
1-1/4"	1.634 (41.5)	7.357 (186.87)	4.374 (111.1)	2.882 (73.2)	2.475 (62.87)	1.561 (39.65)	3.105 (78.87)	5.158 (131.02)	2.43 (61.72)	1.215 (30.86)	1.00 (25.4)	10.824 (274.93)

Note: All dimensions ± 0.125 (3.2mm) tolerance. Dimensions are subject to changed. Not to be used for construction purposes unless certified.

## Combination Ball Valve and Circuit Sentry™ Auto Flow Control Valve and Return Hose for Valve Size Fixed End 1/2", 3/4", 1" & 1-1/4"

Figure 7: Circuit sentry auto flow control valve with return hose

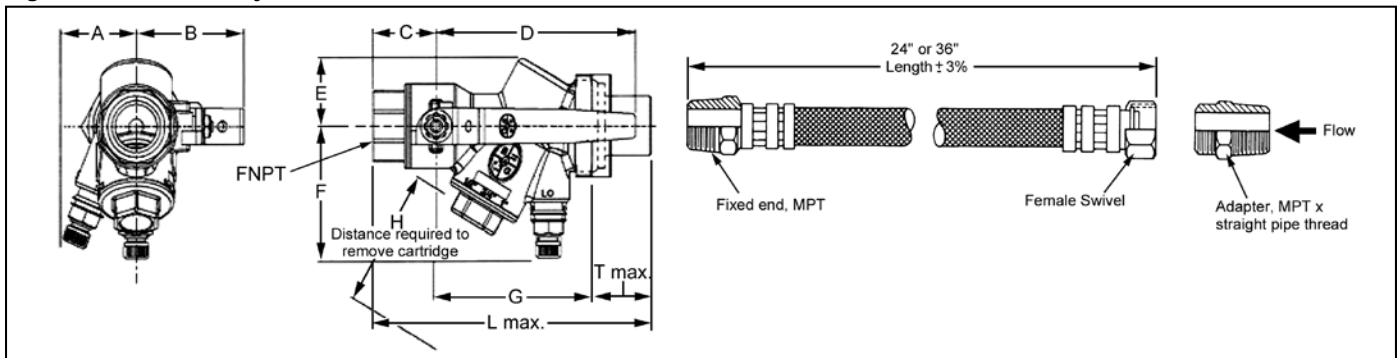


Table 16: Letter dimensions for Figure 7

Valve Size Fixed End	A	B	C	D	E	F	G	H	T max.	L max.
1/2"	1.42 (36)	1.93 (49)	1.18 (30)	3.74 (95)	1.18 (30)	2.36 (60)	3.03 (77)	1.77 (45)	0.98 (25)	5.19 (132)
3/4"	1.42 (36)	1.93 (49)	1.18 (30)	3.74 (95)	1.18 (30)	2.36 (60)	3.03 (77)	1.77 (45)	0.98 (25)	5.19 (132)
1"	1.42 (36)	1.93 (49)	1.38 (35)	3.74 (95)	1.18 (30)	2.36 (60)	3.03 (77)	1.77 (45)	1.69 (43)	6.10 (155)
1-1/4"	1.65 (42)	2.87 (73)	1.65 (42)	5.2 (132)	1.89 (48)	2.95 (75)	4.67 (118.5)	2.46 (62.5)	2.09 (53)	8.41 (213.5)

Note: All dimensions ± 0.125 (3.2mm) tolerance. Dimensions are subject to changed. Not to be used for construction purposes unless certified.

## Combination Ball Valve and “Y” Strainer with Blowdown Valve and Supply Hose for Valve Size Fixed End 1-1/2"

Figure 8: Combination ball valve & “Y” strainer with blowdown valve and supply hose

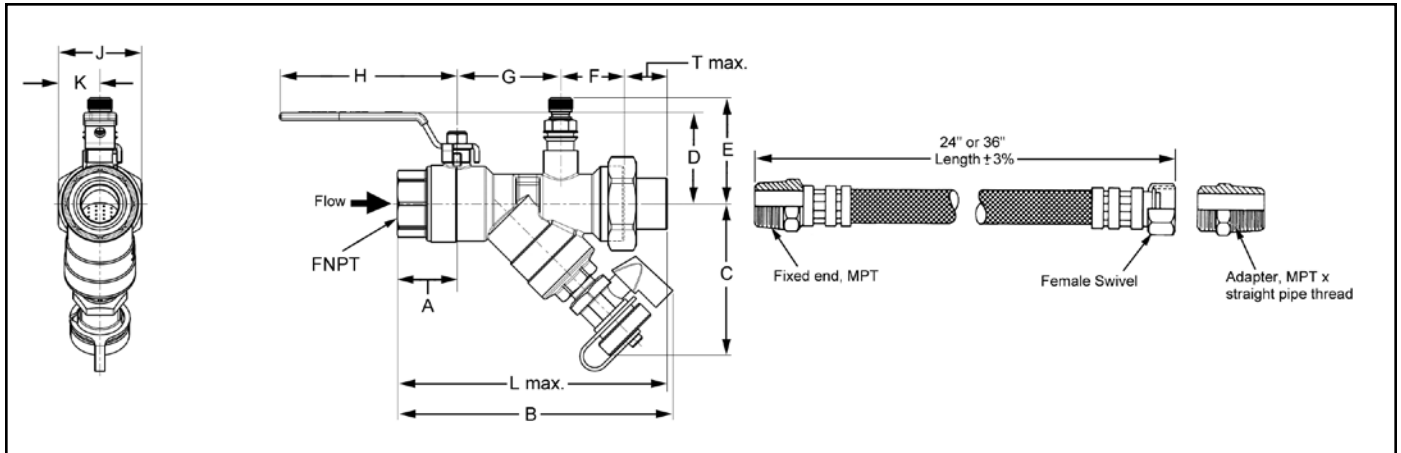


Table 17: Letter dimensions for Figure 8

Valve Size Fixed End	A	B	C	D	E	F	G	H	J	K	T max.	L max.
1-1/2"	1.83" (46.5mm)	8.58" (217.9mm)	4.923" (125.04mm)	3.12" (79.12mm)	2.72" (69.0mm)	1.815" (46.11mm)	4.227" (107.37mm)	5.16" (131mm)	2.82" (71.63mm)	1.41" (35.81mm)	1.250" (31.75mm)	12.452" (316.28mm)

Note: All dimensions ± 0.125 (3.2mm) tolerance. Dimensions are subject to changed. Not to be used for construction purposes unless certified.

## Combination Ball Valve and Circuit Sentry™ Auto Flow Control Valve and Return Hose for Valve Size Fixed End 1-1/2" - Large Body

Figure 9: Large body Circuit Sentry auto flow control valve with return hose

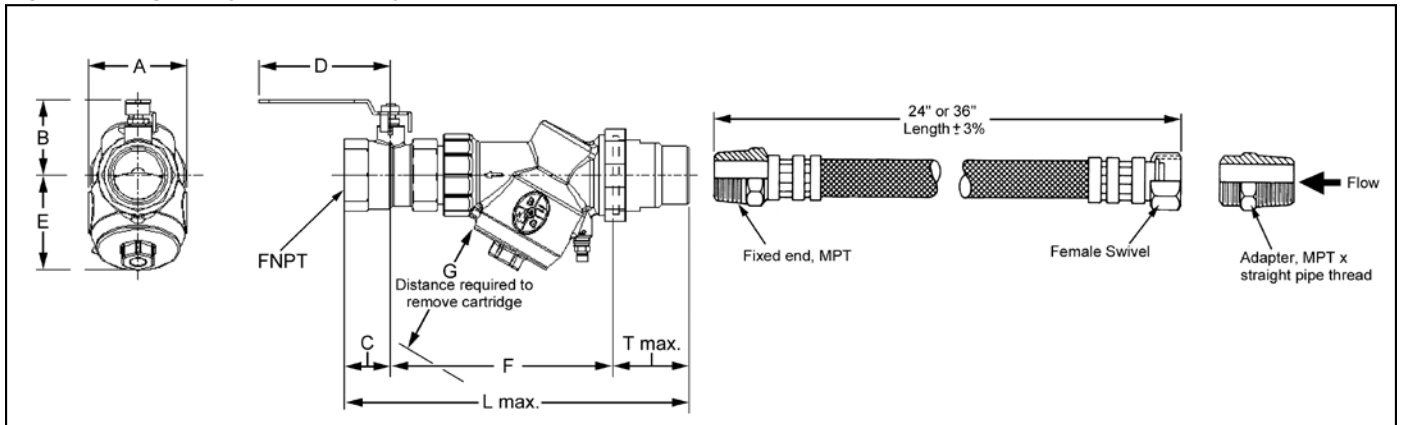


Table 18: Letter dimensions for Figure 9

Valve Size Fixed End	A	B	C	D	E	F	G	T max.	L max.
1-1/2"	4.0 (102)	3.07 (78)	4.92 (125)	5.35 (136)	3.85 (98)	9.0 (228)	4.33 (110)	3.12 (79)	17.04 (432)

Note: All dimensions ± 0.125 (3.2mm) tolerance. Dimensions are subject to changed. Not to be used for construction purposes unless certified.

## Condensate Hose Trap / Kits and Other Accessories

Available as a long clear plastic hose with the necessary clamps and a MPT hose fitting for connection to the FPT field piping. All vertical units are provided with an internally trapped, clear vinyl tubing, to allow inspection of condensate drainage.

**Note:** See "Table 20: Condensate hose kits" on page 24 for plastic condensate hose kit part numbers.



### Condensate Hose Sizing

Match the MPT hose size to the same FPT connection size on the unit.

**Note:** See certified drawing or unit catalog for condensate connection sizes

### Condensate Hose Specifications:

**Inner Tube:** Fire Retardant TRP (Thermoplastic Rubber)

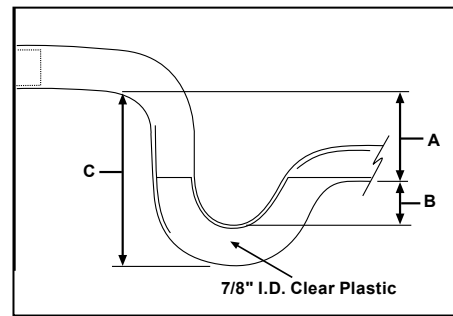
## Condensate Trapping

**Note:** With the exception of SmartSource model GCV, all other vertical units and vertical stack WSHP units have a factory-installed internal condensate trap.

Condensate piping must be trapped at the unit and pitched away from the unit not less than 1/4" per foot. A vent is required after the trap so that the condensate will drain away from the unit. The vent also acts as a clean out when the trap becomes clogged.

To avoid waste gases entering the building, the condensate drain should not be directly piped to a drain/waste/vent stack. See local codes for the correct application of condensate piping to drains.

**Figure 10: Condensate piping**



Improper trapping can lead to several problems. If the trap is too tall, negative pressure will prevent drainage, causing condensate backup. If the trap is too short the seal will be destroyed or nonexistent, producing the same effect as a non-trapped system.

Construct the trap of 7/8" clear plastic piping. The condensate piping from the drain trap must be sloped to facilitate proper drainage. The clear plastic trap should be clamped and removable for cleaning. It may be necessary to manually fill the trap at system startup, or to run the unit for sufficient time to build a condensate seal. The condensate trap and condensate piping drainage should be free of any foreign debris.

Debris can prevent proper drainage and unit operation and result in condensate buildup.

**Table 19: Condensate drain static pressures**

	A	B	C
Standard Static Pressure	1-1/4"	5/8"	2-3/4"
High Static	1-1/2"	3/4"	3-1/8"

## Plastic Condensate Hose Kits

**Table 20: Condensate hose kits**

Part Number	Description	Size & Nominal Length (inches)	For Use With (Sizes)		
			Smart Source	Enfinity Horizontal	Large Vertical & Horizontal
106063701	3/4" x 30 inches plastic hose w/ fitting - 1 hose	3/4 x 30	007-070	007-070	-
106665101	3/4" x 36 inches plastic hose w/ fitting - 1 hose	3/4 x 36	007-070	007-070	-
106064301	Hose Plastic Condensate	1 x 30	-	-	072 - 120
106064401	Hose Plastic Condensate	1-1/4 x 38	-	-	180 - 290

## Shut-Off Ball Valves

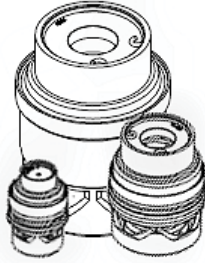
**Table 21: Ball valves**

Part Number	Description	Connection Size (inches)	For Use With Model Sizes			
			Smart Source	Enfinity	Large Vertical & Horizontal	Console
106065102	Ball Valve - box of 2 valves	1/2 FPT	007-019	007-024	-	007-018
106065110	Ball Valve - box of 10 valves	1/2 FPT	007-019	007-024	-	007-018
106065202	Ball Valve - box of 2 valves	3/4 FPT	024-038	030-070	-	-
106065210	Ball Valve - box of 10 valves	3/4 FPT	024-038	030-070	-	-
106065302	Ball Valve - box of 2 valves	1 FPT	042-072	-	-	-
106065310	Ball Valve - box of 10 valves	1 FPT	042-072	-	-	-
106065401	Ball Valve w/ Memory Stop - 1 valve pack	1-1/4 FPT	-	-	072-120	-
106065405	Ball Valve w/ Memory Stop - box of 5 valves	1-1/4 FPT	-	-	072-120	-
106065501	Ball Valve - 1 valve pack	1-1/2 FPT	-	-	180-290	-
106065505	Ball Valve - box of 5 valves	1-1/2 FPT	-	-	180-290	-



## Circuit™ Sentry Cartridge

### Internal Automatic Flow Limiting Cartridge



The cartridge is an internal automatic flow limiting cartridge that is used in Circuit Sentry™ Flow Limiting Valves. It features a rolling diaphragm that separates the upstream and downstream pressures, thus maintaining control of the constant differential pressure across the selected flow orifice.

Each unique flow orifice is designed specifically for one flow. When used with appropriate cartridge, the assembly maintains the specified low rate +/-5% as long as the differential pressure stays within the control range.

### Specifications

#### Construction:

#### Type 10, 11, 20, 21, 30, and 40

**Body** – Brass C36000 or Equivalent

**Spring** – 304 Stainless Steel

**Diaphragm & O-ring** – EPDM

**Orifice** – Brass C36000 or Equivalent

#### Type 50 and 60

**Body** – 304 Stainless Steel

**Spring** – 304 Stainless Steel

**Diaphragm & O-ring** – EPDM

**Orifice** – Brass C36000 or Equivalent

## Circuit Sentry Cartridge Dimensions

Table 22: Cartridge letter dimensions for Figure 11

Cartridge Type	Dimension - inches (mm)	
	A	B
Type 10	1.6 (40)	1.1 (28)
Type 11	1.6 (40)	1.1 (28)
Type 20	1.6 (40)	1.1 (28)
Type 21	1.6 (40)	1.1 (28)
Type 30	2.5 (64)	1.9 (49)
Type 40	2.5 (64)	1.9 (49)
Type 50	3.9 (99)	3.0 (75)
Type 60	3.9 (99)	3.0 (75)

**Note:** All dimensions +/- 0.125" (3.2 mm) tolerance. Dimensions are subject to change. Not to be used for construction purposes unless certified.

Figure 11: Circuit Sentry cartridge dimensions

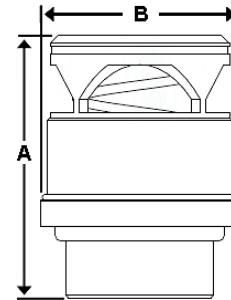


Figure 12: How to identify the flow rate of the orifice

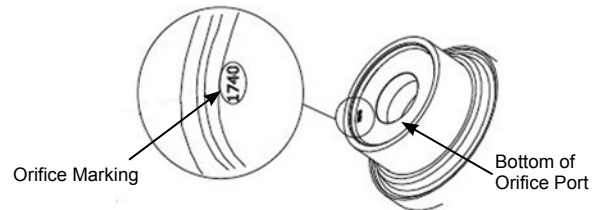


Figure 13: Cartridge Examples



## Cartridge Minimum Differential Pressure Requirements

### "A" Body Valve Cartridges (1/2", 3/4", and 1")

Table 23: Type 10

Flow Rate (GPM)	Orifice Marking	Min. ΔP psid (kPa) <sup>+</sup>	Cv <sup>++</sup>
0.5	1300	1.5 (10.3)	0.42
1	1420	1.7 (11.7)	0.76
1.5	1510	1.9 (13.1)	1.10
2	1570	2.0 (13.8)	1.42
2.5	1620	2.0 (13.8)	1.70

Table 24: Type 11

Flow Rate (GPM)	Orifice Marking	Min. ΔP psid (kPa) <sup>+</sup>	Cv <sup>++</sup>
3	1730	2.0 (13.8)	2.11
3.5	1740	2.3 (15.9)	2.32
4	1750	3.0 (20.7)	2.35

Table 25: Type 20

Flow Rate (GPM)	Orifice Marking	Min. ΔP psid (kPa) <sup>+</sup>	Cv <sup>++</sup>
4.5	2070	3.2 (22.1)	2.52
5	2074	3.2 (22.0)	2.81
5.5	2078	3.3 (22.8)	3.07
6	2082	3.3 (22.8)	3.29
6.5	2086	3.3 (22.8)	3.57
7	2088	3.3 (22.8)	3.85
7.5	2091	3.5 (24.1)	4.06
8	2094	3.5 (24.1)	4.30
9	2098	3.6 (24.8)	4.75
10	2103	3.8 (26.2)	5.13
11	2109	.0 (27.6)	5.38

Table 26: Type 21

Flow Rate (GPM)	Orifice Marking	Min. ΔP psid (kPa) <sup>+</sup>	Cv <sup>++</sup>
12	2099	7.3 (50)	4.48
13	2106	7.3 (50)	4.85

- + Min. ΔP is minimum differential pressure across valve necessary to maintain design flow rate through cartridge.
- ++ Cv can be used to determine flow through valve when differential pressure is below minimum. When differential pressure is above minimum, Cv can no longer be used to determine flow.

### "B" Body Valve Cartridges (1", 1-1/4" and 1-1/2")

Table 27: Type 30

Flow Rate (GPM)	Orifice Marking	Min. ΔP psid (kPa) <sup>+</sup>	Cv <sup>++</sup>
15	3161	3.2 (22.1)	8.44

Table 28: Type 40

Flow Rate (GPM)	Orifice Marking	Min. ΔP psid (kPa) <sup>+</sup>	Cv <sup>++</sup>
20	4168	3.2 (22.1)	11.26
25	4191	3.6 (24.8)	13.73
30	4200	3.9 (26.9)	15.24
35	4217	4.5 (31.0)	17.07
40	4229	4.9 (33.8)	18.12

### "C" Body Valve Cartridges (1-1/2" Large Body)

Table 29: Type 50

Flow Rate (GPM)	Orifice Marking	Min. ΔP psid (kPa) <sup>+</sup>	Cv <sup>++</sup>
45	5279	2.8 (19.3)	27.50
50	5287	3.2 (22.1)	28.14
55	5292	3.3 (22.8)	30.35
60	5298	3.5 (24.1)	31.98
65	5303	3.9 (26.9)	33.02
70	5308	4.2 (29.0)	34.33

Table 30: Type 60

Flow Rate (GPM)	Orifice Marking	Min. ΔP psid (kPa) <sup>+</sup>	Cv <sup>++</sup>
75	6285	4.9 (33.8)	33.95
80	6292	4.9 (33.8)	36.10
85	6305	5.1 (35.2)	37.85
90	6312	5.1 (35.2)	40.09
95	6319	5.2 (35.9)	41.74

- + Min. ΔP is minimum differential pressure across valve necessary to maintain design flow rate through cartridge.
- ++ Cv can be used to determine flow through valve when differential pressure is below minimum. When differential pressure is above minimum, Cv can no longer be used to determine flow.

## Fire Rated Supply and Return Hose Kits with Ball Valve and Auto Flow Control Valve

**Equation to calculate Pressure Drop:**

$$GPM = C_v \sqrt{\frac{\Delta P}{G}} \quad C_v = \sqrt{\frac{GPM}{G}} \quad \Delta P = \left[ \frac{GPM}{C_v} \right]^2 G$$

**C<sub>v</sub>** = Flow Coefficient

**ΔP** = Pressure Change (Drop)

**G** = Specific Gravity of Fluid (Water = 1.00)

**GPM** = Flow Rate

**Notes:**

1. Pressure drop information is for reference only and should not be used to build a system.
2. Figures do not take into account pressure drop through the Circuit Sentry Automatic Flow Limiting Valve. This is a pressure independent valve, thus does not sustain a "fixed" C<sub>v</sub>, making it impossible to calculate pressure drop.



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