

## HYDRONIC SPECIALTIES

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### 1. GENERAL

#### 1.1 Scope

- .1 Manual Air Vents
- .2 Automatic Air Vents
- .3 Air separators
- .4 Relief Valves
- .5 Circuit Balancing Valves

#### 1.2 Quality Assurance

- .1 Thoroughly check system and make necessary corrections if system continually loses solution.
- .2 Perform tests determining strength of glycol solution before system is turned over to the City. Provide test prior to end of guarantee and replenish as required. Provide written test results for review.

#### 1.3 Submittals

- .1 Provide Shop Drawings for all equipment in this Section.

### 2. PRODUCTS

#### 2.1 Manual Air Vents

- .1 Provide manual air vents with 25 mm or line diameter pipe which ever is greater to form air collection chamber. Collection chamber to be 150 mm high.

#### 2.2 Automatic Air Vents

- .1 Provide automatic air vents where shown on Drawings. Vents shall be non-ferrous construction, rated for 1000 kPag (145 psig) and 116°C (240°F) operating temperature.
- .2 Standard of Acceptance: Bell & Gossett model 7 or 87.

#### 2.3 Air Separators

- .1 Inline air separators shall be constructed of single piece cast iron with integral weir to decelerate system flow maximizing air separation, NPT vent tapping, maximum working pressure of 12.1 Bar (175 psig) and maximum operating temperature of 149°C (300°F)
- .2 Tangential air separators shall be tangential style steel construction air separator with low velocity vortex action. Maximum working pressure rated 1034 kPa (150 psi) and maximum operating temperature 177°C (350°F). Removable stainless steel strainer, blowdown connection and NTP vent connection.

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.3 Schedule:

<b>Tag</b>	<b>IAS-1</b>	<b>IAS-2</b>	<b>IAS-3</b>	<b>AS-2</b>
Service	B-1	B-1	IWH	Building Loop
Location	Mechanical Room	Mechanical Room	Basement	Mechanical Room
Type	Inline	Inline	Inline	Tangential c/w Strainer
Fluid Velocity, m/s	--	--	--	1.0
Flow Rate, L/S (USgpm)	5.58 (88.5)	5.58 (88.5)	5.58 (88.5)	3.15 (50)
Height, mm (in)	--	--	--	584 (23)
Overall Width, mm (in)	--	--	--	413 (16.25)
In/Out Sizes, mm (in)	75 (3)	75 (3)	75 (3)	65 (2.5)
Manufacturer	Bell & Gossett	Bell & Gossett	Bell & Gossett	Amtrol
Model	IAS-3	IAS-3	IAS-3	2 1/2 AS-L

**2.4 Relief Valves**

- .1 Provide ASME rated water pressure relief valve to protect glycol hot water system.
- .2 Standard acceptance: Watts series 174A.

**2.5 Circuit Balancing Valves**

- .1 Valves up to 50 mm: Brass body, stem and disk with reinforced nylon or ABS handwheel, Maximum rated pressure 2068 kPa (300 psi) and operation temperature from -20°C to 150°C.
- .2 Valves 65 mm to 150 mm: Ductile iron body, bronze disk, high strength engineered resin seat, brass stem, BUNA N. & EPDM "O" rings and drain tapings. Maximum rated pressure 1724 kPa (250 psi) and maximum operation temperature to 110°C.

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.3 Schedule:

Tag	CBV-HX-1	CBV-IWH
Function	HX-1	IWH
Connection Type	NPT	NPT
Maximum Working Pressure, kPa (psi)	2068 (300)	2068 (300)
Operating Temperature Range, °C (°F)	110 (230)	110 (230)
Medium Handled	Water	Water
Flow Rate Setpoint, L/s (USgpm)	1.68 (26.6)	1.12 (17.8)
Pipe Connection Size, mm (in)	50 (2.0)	50 (2.0)
Manufacturer	Armstrong	Armstrong
Model	CBV-200VT	CBV-200VT

**3. EXECUTION**

**3.1 General**

- .1 Do necessary piping to complete installation as shown on the Drawings specified.
- .2 Thoroughly clean and flush new systems before tying into existing systems and filling with water.

**3.2 Air Vents**

- .1 Provide manual type at system high points and convection type heating units.
- .2 Where large air quantities can accumulate, provide enlarged air collection standpipe.

**3.3 Air Separator**

- .1 Provide on suction side of system circulation pump and connect to expansion tank.

**3.4 Relief Valve**

- .1 Provide one (1) relief valve on glycol system and where indicated.
- .2 System relief valve capacity shall equal make-up pressure reducing valve capacity. Equipment relief valve capacity shall exceed input rating of connected equipment.
- .3 Where one line vents several relief valves, cross sectional areas shall exceed sum of individual vent areas.

**3.5 Circuit Balancing Valves**

- .1 Install valves up to 50 mm five pipe diameters downstream from a fitting or if a valve is located downstream from a circulation pump, allow ten pipe diameters from pump discharge.

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- .2 Install valves 65 mm to 150 mm five pipe diameters downstream from a fitting or if a valve is located downstream from a circulation pump, allow ten pipe diameters from pump discharge end. In both situations provide two pipe diameters downstream from the valve.

**END OF SECTION**