Rolairtrol®
Air Separator

For Hot and Chilled Water Systems

www.ensavior.com

xylem
Let's Solve Water

Xylem is a leading water technology company committed to solving the world's water, wastewater, and energy needs by creating innovative and smart technology solutions. Their technological strength across the life cycle of water is second-to-none, from collection and distribution to reuse and return to nature. **Xylem's** highly efficient water technologies, pumps, and application solutions promote sustainability by using less energy and reducing life-cycle costs.

ensavior

Ensavior is proudly associated as Channel partner with Xylem water Solutions. Our experienced team is equipped with the technical know-how to provide comprehensive support and product demonstrations to meet all your water, wastewater, and energy needs. Whether you have questions or require complete technical support, **Ensavior** is here to assist you every step of the way. Join forces with **Ensavior** and **Xylem** Water Solutions to create a sustainable future today!"

THE BELL & GOSSETT ROLAIRTROL, SUPREME AIR SEPARATION FOR COMMERCIAL SYSTEMS

DESCRIPTION

The Bell & Gossett Rolairtrol is a patented air separator with significant advantages. The Rolairtrol is capable of removing the air that commonly causes problems in commercial hot and chilled water systems. The Rolairtrol provides air free flow, improving efficiency and performance of the HVAC system.

Every aspect of the Rolairtrol design maximizes air separation and simplifies installation and maintenance. The air separation efficiency of the Rolairtrol is significantly higher than any other commercial air separator on the market.

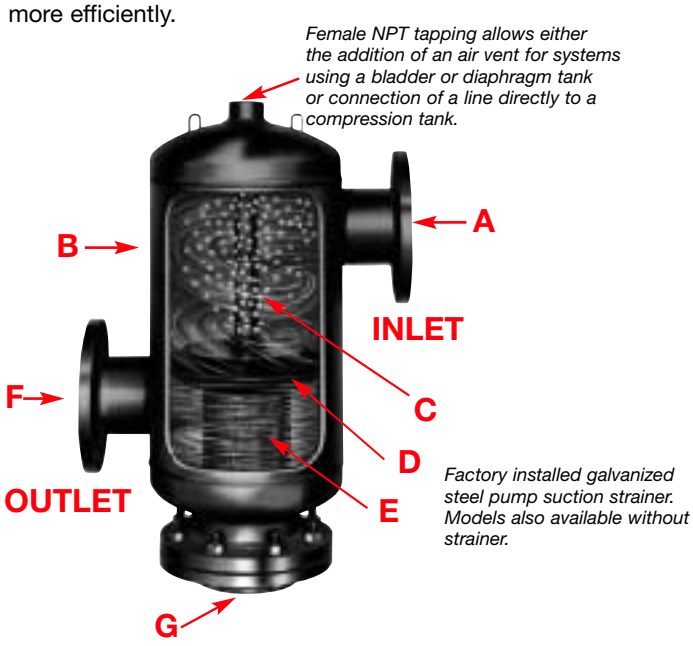
The standard Rolairtrol air separator is constructed to meet ASME code and is stamped for design pressure and temperature ratings of 125 psig (862 kPa) and 350°F (177°C). Higher pressure and temperature models are available.

EPACT 92 IMPACT

As part of the Federal Energy Policy Act of 1992 (known as EPACT 92), effective October 25, 1997, the U.S. Dept. of Energy has established ASHRAE/IESNA Standard 90.1-1989 as the Energy efficiency benchmark for HVAC systems in all new buildings (except low rise residential).

ASHRAE 90.1 has a provision in the form of a clause on building energy transport systems. It states that "energy should be transported by the most efficient means possible and that distribution systems should be selected to complement other system parameters such as control strategies, storage capabilities, conversion, and utilization efficiencies."

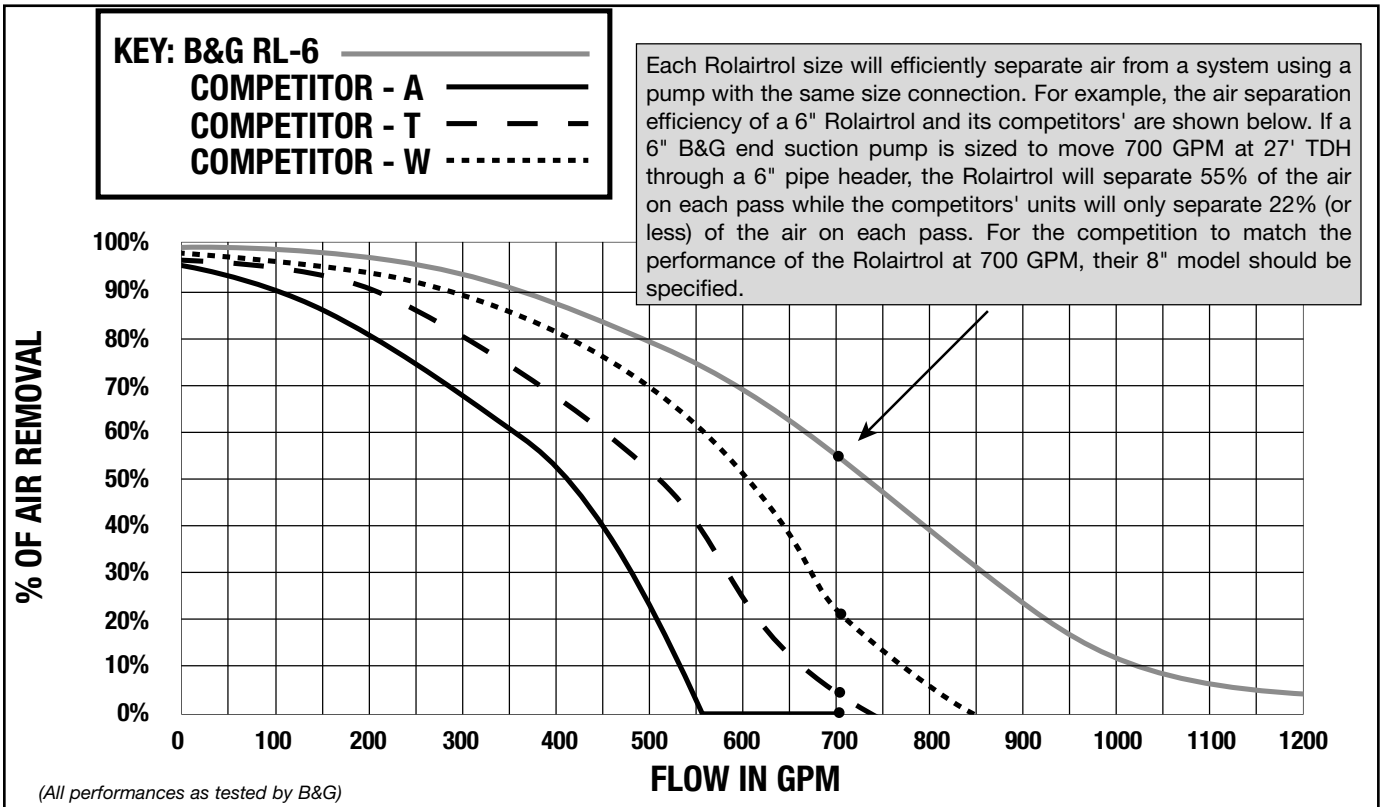
How will a B&G Rolairtrol assist a commercial HVAC system meet EPACT 92 requirements? An air bound system is an inefficient energy transfer system. When the B&G Rolaitrol removes entrained air from a commercial HVAC system, it allows the pumps and valves to operate and transport energy more efficiently.



ROLAIRTROL FEATURES	ROLAIRTROL BENEFITS
A Tangential Flow Through Design	**Original B&G Design...Perfected by B&G –** The Rolairtrol provides maximum air separation efficiency due to a combination of centrifugal force and velocity reduction. The Rolairtrol's tangential design creates a whirlpool inside the vessel. This vortex action sends heavier, air-free water to the outer portion of the vessel shell while forcing the separated air into the center where it is drawn to the air collector tube. The tangential design has been proven to have greater air separation efficiency when compared to less effective, straight flow air separators.
B Vessel Shell is 3 Times the Nominal Inlet/Outlet Pipe Diameter	**Original B&G Design...Perfected by B&G –** The vessel shell is at least 3 times the inlet and outlet pipe diameter. This assures maximum velocity reduction in order to develop the highest possible air separation efficiency.
C Stainless Steel Air Collector Tube	**Exclusive B&G Design –** An air collector tube is provided to efficiently gather and centralize the separated air. The separated air is easily directed upwards through the tube and vented in air elimination systems or returned to the compression tank in air control systems.
D Baffle	**Exclusive B&G Design –** The baffle is a barrier between the air-free water and the separated air. It assures that only air-free water is tranferred to the outlet connection while separated air is directed to the collector tube.
E Vertical Strainer with Bottom Access	**Exclusive B&G Design –** Unlike the upper, horizontal strainer location in competitive air separators, the Rolairtrol's lower, vertical strainer does not interfere with the vortex action necessary for proper air removal…maximizing efficiency. In addition, the Rolairtrol's strainer is accessible from the bottom of the unit, reducing floor space while simplifying maintenance and clean out of accumulated system debris.
F NPT, Grooved and Flanged Connections	**Exclusive B&G Product Offering –** 3 connection options offer installation flexibility. 2"-3" models are NPT, 3"-12" models are grooved or flanged, and 14"-36" models are flanged.
F Up to 36" Pipe Size Connections	**Exclusive B&G Product Offering –** Models up to 36" in pipe diameter will meet the air separation requirements in the largest HVAC systems.
G Optional B&G Manual Blowdown Valve	**Exclusive B&G Product Offering –** A 1" NPTF manual blowdown valve is available to simplify installation, general maintenance, and remove start-up debris.

BELL & GOSSETT ROLAIRTROL FEATURES VERSUS THE COMPETITION

AIR SEPARATION EFFICIENCY COMPARISON (6" MODEL)



Cv COMPARISON (WITHOUT STRAINER)

MANUFACTURER:	B&G RL-6	COMPETITOR-A	COMPETITOR-T	COMPETITOR-W
6" Separators:	850	720	750	410

3 TIMES PIPE DIAMETER

MANUFACTURER:	B&G	COMPETITOR-A	COMPETITOR-T	COMPETITOR-W
	All Models	Only 2" Size	Only 2"-6" Sizes	Only 2"-4", 6", 10" Sizes

COLLECTOR TUBE

MANUFACTURER:	B&G	COMPETITOR-A	COMPETITOR-T	COMPETITOR-W
	All Models	Not Available	Not Available	Not Available

BAFFLE

MANUFACTURER:	B&G	COMPETITOR-A	COMPETITOR-T	COMPETITOR-W
	All Models	Not Available	Not Available	Not Available

STRAINER ACCESS

MANUFACTURER:	B&G “R” TYPE	COMPETITOR-A	COMPETITOR-T	COMPETITOR-W
	Vertical/Bottom	Horizontal/Side	Horizontal/Side	Horizontal/Side

ROLAIRTROL MATERIALS, OPERATING DATA & AIR ELIMINATION EFF.

CONSTRUCTION MATERIALS

Body – Models R-2, RL-2, R-2½, and RL-2½: Cast iron

Shell – All other models: Steel

System Strainer ("R" Models only): Have galvanized steel strainers with 3/16" (4.8mm) diameter perforations with 51% open area.

Air Collector Tube: Stainless steel with 5/32" (4mm) diameter perforations and 63% open area.

Baffle/Collector Tube Support Assembly: Steel

OPERATING DATA*

Maximum working pressure . . . . . 125 PSIG (862 kPa)
Maximum operating temperature . . . . . 350°F (177°C)

*Higher pressure and temperature ratings are available upon request.

PERFORMANCE DATA*

Model No.	Design Capacity** GPM (m^3/hr)	Size of Tangential Openings		Cv	Strainer Free Area in Sq. Inches (mm^2)
R-2	56 (12.7)	2	NPT	44	32 (20,645.1)
R-2½	90 (20.4)	2½		64	45 (29,032.2)
R-3***	190 (43.2)	3		80	66 (42,580.6)
R-4(G)	300 (68.1)	4	Flanged or Grooved	135	140 (90,322.4)
R-5(G)	500 (120.4)	5		215	
R-6(G)	700 (159.0)	6		305	220 (141,935.2)
R-8(G)	1,300 (295.2)	8		532	310 (199,999.6)
R-10(G)	2,000 (454.2)	10		850	435 (280,644.6)
R-12(G)	2,750 (624.5)	12		1,180	590 (380,644.4)
R-14	3,400 (772.1)	14	Flanged	1,445	715 (461,289.4)
R-16	4,400 (999.2)	16		1,885	919 (592,902.0)
R-18	5,200 (1,180.9)	18		2,340	1,521 (981,288.4)
R-20	6,300 (1,430.7)	20		2,945	1,989 (1,282,223.2)
R-22	7,400 (1,680.5)	22		3,725	2,322 (1,498,061.5)
R-24	8,500 (1,930.4)	24		4,325	2,841 (1,832,899.6)
RL-2	56 (12.7)	2	NPT	55	N/A
RL-2½	90 (20.4)	2½		80	
RL-3***	190 (43.2)	3		215	
RL-4(G)	300 (68.1)	4	Flanged or Grooved	370	
RL-5(G)	530 (120.4)	5		580	
RL-6(G)	850 (193.0)	6		850	
RL-8(G)	1,900 (431.5)	8		1,445	
RL-10(G)	3,600 (817.6)	10		2,340	
RL-12(G)	4,800 (1,090.1)	12		3,300	
RL-14	6,100 (1,385.3)	14	Flanged	3,900	
RL-16	8,000 (1,861.8)	16		5,100	
RL-18	9,700 (2,202.9)	18		6,410	
RL-20	12,000 (2,725.2)	20		8,000	
RL-22	15,000 (3,406.5)	22		10,000	
RL-24	17,000 (3,860.7)	24		11,700	

*For 26"-36" sizes, performance data is available upon request.
**Recommended design capacity at 40% first pass, air elimination efficiency.
***Flanged and grooved connections are also available for the 3" Rolairtrol.
For approximate dimensions, see B&G Rolairtrol Submittal A-326G.

AIR ELIMINATION EFFICIENCY

To find the first pass air elimination percentage of any Rolairtrol size, perform the following steps:

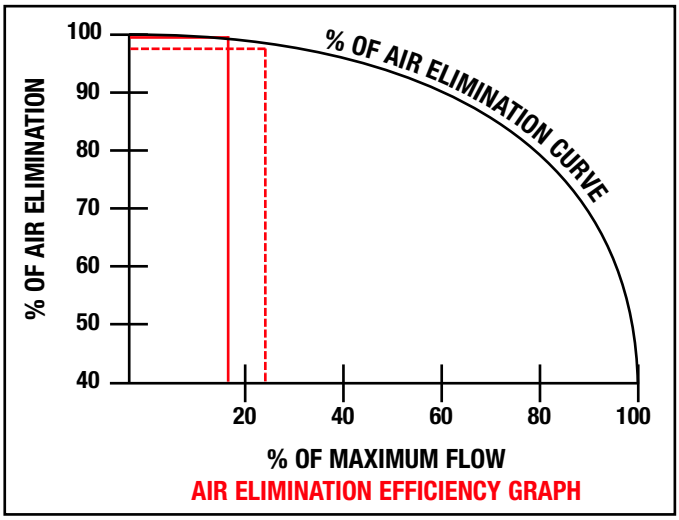
A. Determine actual system flow rate.

B. Find the maximum capacity of the Rolairtrol model (see Performance Data, below, left)

C. Use A & B in the following formula –

$$\frac{A}{B} \times 100 = \%\ \text{OF MAXIMUM FLOW}$$

D. Draw a vertical line from the x-axis on the Air Elimination Efficiency Graph to the % air elimination curve line and find the percentage of air elimination.



AIR ELIMINATION EFFICIENCY GRAPH

Example No. 1: For an R-8 (with strainer) with 350 GPM passing through it, the percentage of maximum flow would be *(BROKEN RED LINE ABOVE)*:

$$\frac{350}{1{,}300} \times 100 = 26.92\%$$

At this % of maximum flow the R-8 will separate **97.5%** of the entrained air on each pass through the unit. The pressure drop through the unit with a clean strainer would be 1.0 feet (see page 5).

Example No. 2: For an RL-8 (less strainer) with 350 GPM passing through it, the percentage of maximum flow would be *(SOLID RED LINE ABOVE)*:

$$\frac{350}{1{,}900} \times 100 = 18.42\%$$

At this % of maximum flow the R-8 will separate **98.5%** of the entrained air on each pass through the unit. The pressure drop through the unit with a clean strainer would be 0.14 feet (see page 5).

ROLAIRTROL MANUAL BLOWDOWN VALVE ACCESSORY MODEL MBV-1

The MBV-1 facilitates routine manual purging of system debris collected at the bottom of the separator. See B&G MBV-1 Submittal A-329 for more details.

MBV-1 CONSTRUCTION MATERIAL

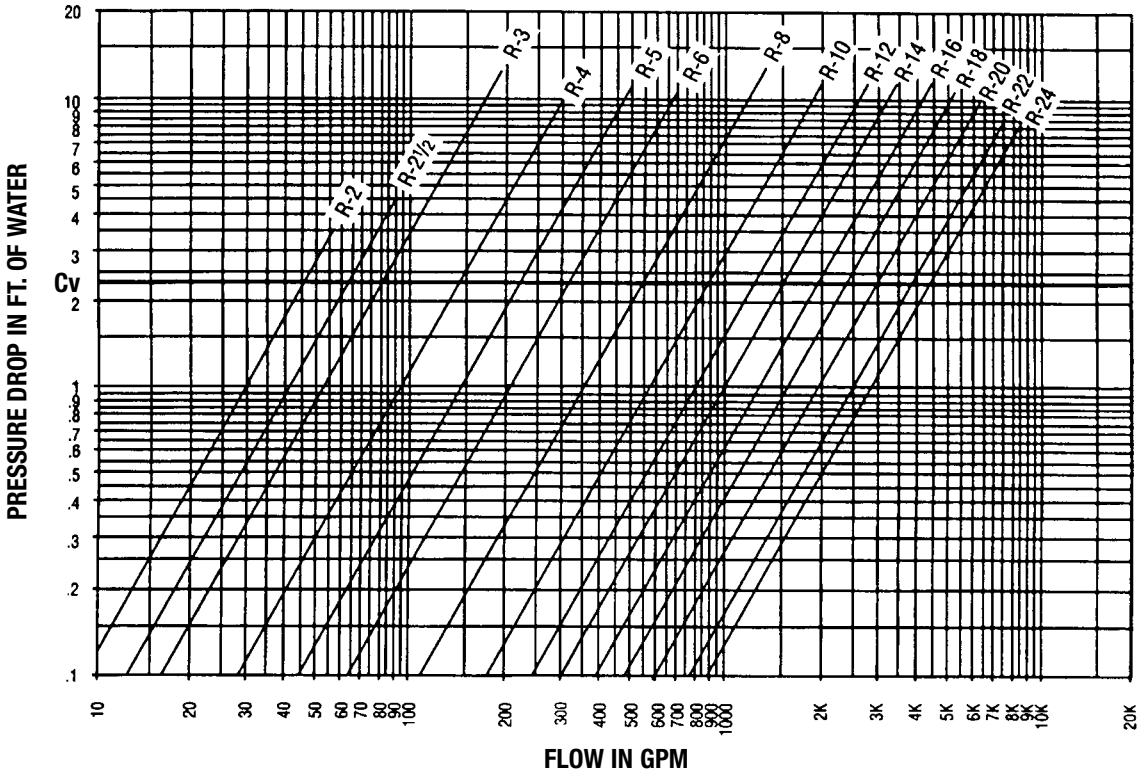
Body: NPTF Bronze
Ball: Chrome Plated Brass
Seal: Reinforced PTFE
Packing: PTFE

MBV-1 OPERATING DATA

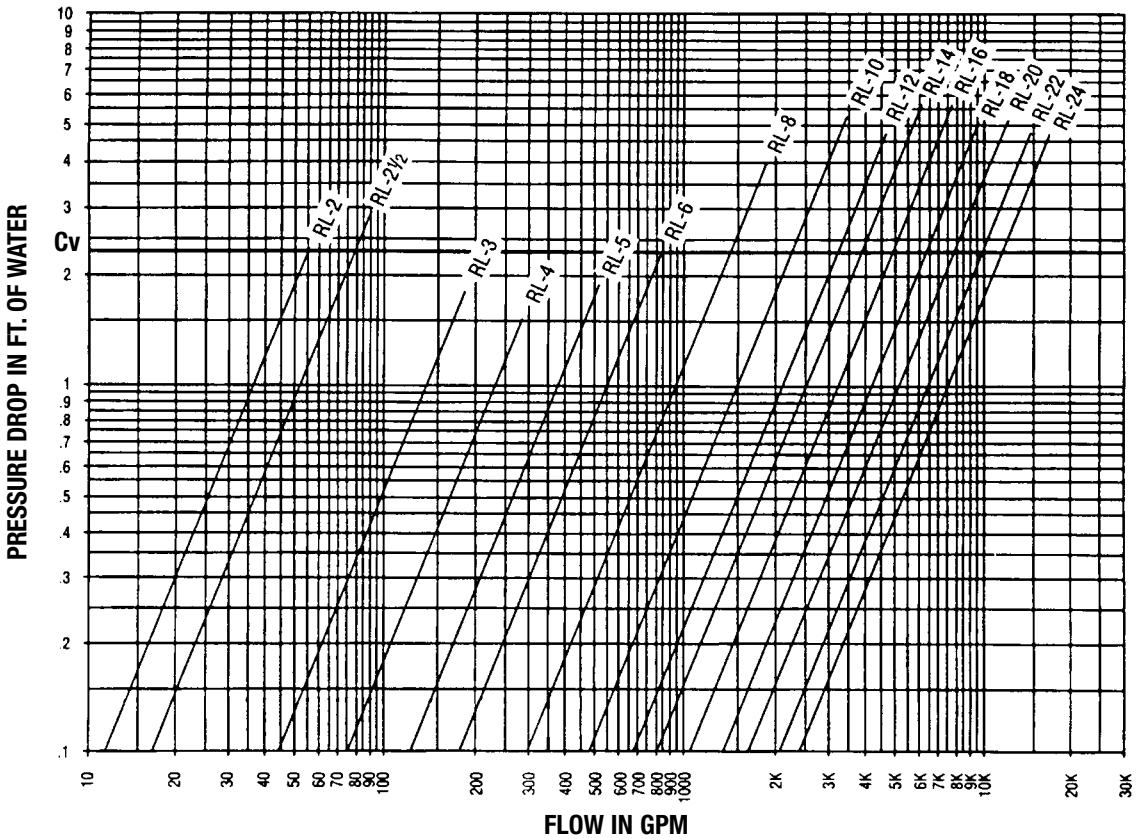
Maximum working pressure . . . . . 300 PSIG (2069 kPa)
Maximum operating temperature. . . . . 250°F (121°C)

ROLAIRTROL® AIR SEPARATOR PERFORMANCE COVERAGE CHART

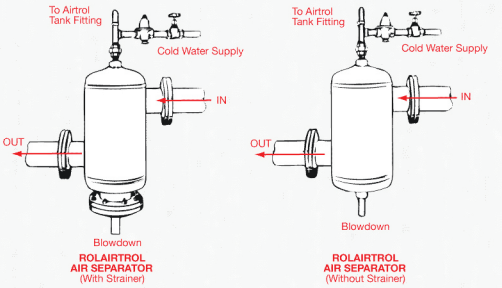
R MODELS (WITH STRAINER)



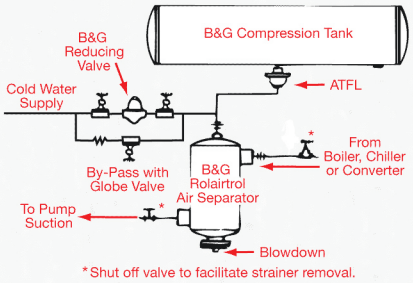
RL MODELS (WITHOUT STRAINER)



TYPICAL PIPING ARRANGEMENTS



TYPICAL INSTALLATION



TYPICAL HYDRONIC HEATING/COOLING APPLICATIONS

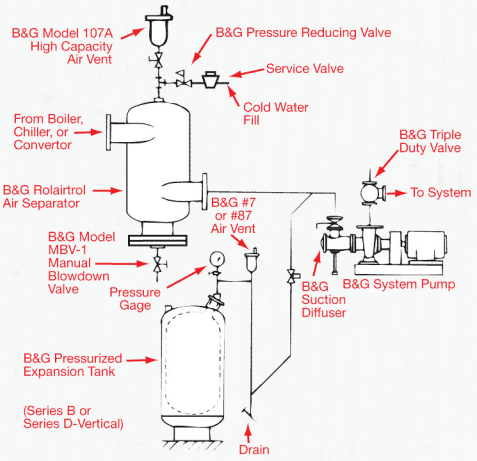


Figure A
B&G Rolairtrol with Series "B" or "D" Vertical Pressurized Expansion Tank

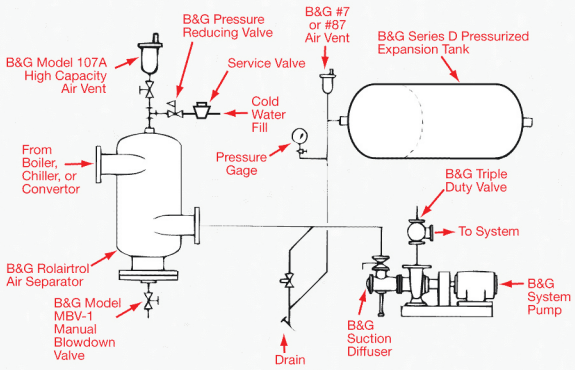


Figure B
B&G Rolairtrol with Series "D" Horizontal Pressurized Expansion Tank

TYPICAL SPECIFICATIONS

Furnish and install, as shown on plans, a centrifugal type air separator. The unit shall have _____" (NPT/flanged/grooved) inlet and outlet connections tangential to the vessel shell. The unit shall have an internal stainless steel air collector tube with $^{5}/_{32}$" (4mm) diameter perforations and 63% open area designed to direct accumulated air to the compression tank on an air control system or an air vent on an air elimination system via an NPT vent connection at top of unit.

(NOTE: If a system strainer is not specified, disregard the following underlined statements.) The unit shall have a removable galavanized system strainer with $^{3}/_{16}$" (4.8mm) diameter perforations and a free area of not less than five times the cross-sectional area of the connecting pipe. The strainer shall be located at the bottom of the vessel to reduce floor space required for strainer removal.

A blowdown connection shall be provided to facilitate routine cleaning of the strainer and the separator. *Specifiy B&G Model MBV-1 Rolairtrol accessory for manual blowdown.* Manufacturer to furnish data sheet specifying air collection efficiency and pressure drop at rated flow.

Vessel shell diameter is to be three times the nominal inlet/outlet pipe diameter, with a minimum vessel volume for sufficient velocity reduction. The air separator must be designed, constructed and stamped for 125 psig @ 350°F (862 kPa @ 177°C) in accordance with Section VIII, Division I of the ASME Boiler and Pressure Vessel Code, and registered with the National Board of Boiler and Pressure Vessel Inspectors. The air separator(s) shall be painted with one shop coat of light gray air dry enamel.

A manufacturer's Data Report for Pressure Vessels, Form U-1 as required by the provisions of the ASME Boiler and Pressure Vessel Code, shall be furnished for each air separator upon request.

Each air separator shall be Bell & Gossett Model No. R-_____ (with system strainer) or RL-_____ (less system strainer) Rolairtrol Air Separator for _____ GPM.

xylem
Let's Solve Water

Xylem Inc.
8200 N. Austin Avenue
Morton Grove, Illinois 60053
Phone: (847) 966-3700
Fax: (847) 965-8379
www.xyleminc.com/brands/bellgossett

REMOVES ENTRAINED AIR
- To protect the system against damage
- To eliminate system noise

TANGENTIAL FLOW PATTERN
- Increases air separation efficiency
- Allows use of smaller sizes than required with straight flow separators

MODELS UP TO 36" PIPE SIZE
- NPT, flanged or grooved connections are available, with and without strainers
- Stainless steel construction available

CONSTRUCTED IN ACCORDANCE WITH ASME CODE
- Stamped 125 psig, higher design pressures are available

GET IN TOUCH

Ensavior Technologies Pvt. Ltd

+91- 9658 373 373
+91- 11- 47350382

info@ensavior.com
www.ensavior.com

Plot No. 17A, Block A, Sector 19, Dwarka,
New Delhi-110075, INDIA

Branch Offices: Bengaluru | Kolkata | Mumbai | Singapore

CIN: U72900DL2011PTC222724