GA Valves Sewage and Waste Water Air Valves

A comprehensive range of sewage and waste water air valves is available through the licensing of the Golden Anderson range of products from GA Industries Inc.

GA Valves range of valves is based on the experience gained by GA Inc in the USA market where pumped sewage and waste water systems are normal practice and have been for many years.

The Range

The range of valves is extensive and flexible to meet the needs of both engineer and specifications, as with all air valves there are three basic functions that need to be achieved.

1) **Expel air/gas as the line/system is charged from atmospheric pressure and allow efficient full bore flow through the pipe.**
2) **Admit air whenever sub-atmospheric pressures occur in the pipe/system during drain down or operation to prevent damaging vacuum pressures.**
3) **Bleed air/gas from the system/line at high spots as it accumulates to ensure the system is kept free of air locks and fully charged.**

Single Large orifice valves figure 935 and 939 perform functions 1) and 2) with the addition of either an inflow check valve this is limited to function 1) only. The addition of an outflow check (vented non return valve) the function is limited to 2). Locations close to pumps should use these units.

Single Small orifice valves figure 925 and 929 perform function 3), they can be fitted with inflow check valve to prevent the very small volume of air that could be drawn into the system under sub atmospheric pressure.

Double Orifice air valves figure 942 and 959 perform all functions 1) ,2) & 3) and can be fitted with either inflow or outflow check arrangements to restrict function 1) or 2) respectively.

Operating Principal

The GA Range of waste water air valves are all based on the principal of all stainless steel internal construction with a float on an extended operating rod to ensure that the mechanism is closed before the medium reaches the sealing faces.
The valves offer efficient sealing at pressures from 3m head.

Selection and Sizing of Waste Water Air Valves

When selecting air valves the function detailed above should be noted and then the valve sized according to volume of air to be displaced. Generally when considering pipeline installations a suitably sized double air valve is the best choice.

Air valves should be placed at the following points

Single large orifice air valves	**– vessels, or the top of vertical lifts and as additional capacity if required at double air valve locations, valves in close proximity to pumps.**
Single small orifice air valves	**– pump/plant casings – changes in gradient up or down, vertical bends in pipework.**
Double air valves	**– Peaks of pipelines – long pipe runs level, or gradient up or down every 400 or 500 m.**

Sizing of air valves generally refers to the large orifice of the valve and as such both the outflow and inflow should be considered. The inflow requirements are generally lower than the outflow as the system will drain under gravity slower that it will fill by pump.

FLOW RATES FOR LARGE ORIFICE WASTE WATER AIR VALVES

	DIFFERENTIAL PRESSURE IN BAR	OUTLET DIAMETER OF THE AIR VALVES IN INCHES/MM					CUBIC METRES PER MINUTE FOR LITRES/SEC X 16.6
		1"/25	2"/50	3"/80	4"/100	6"/150	
OUTFLOW	0.5	7.78	25.74	72.62	98.50	222.74	
	0.4	6.95	23.02	64.95	88.10	199.22	
	0.3	6.02	19.93	56.25	76.30	172.53	
	0.2	**4.50**	**14.20**	**41.02**	**55.30**	**125.75**	
	0.1	3.47	11.51	32.48	44.05	99.61	
	0.0						
INFLOW	–0.1	3.33	11.05	31.18	42.29	95.63	
	–0.2	**4.20**	**13.20**	**36.50**	**52.35**	**118.75**	
	–0.3	5.05	16.74	47.25	64.09	144.92	
	–0.4	5.35	17.98	50.01	68.50	153.40	
	–0.5	5.40	19.00	51.20	70.00	158.15	

FIGURES IN **BOLD** ARE RECOMMENDED MAXIMUMS

Single Small Orifice Air Valve for Sewage/Waste Water

Standard figure 925 - 16 bar operation
Short body figure 929 - 5 bar operation

DESCRIPTION - Small orifice air valves function to allow air to bleed from the pipeline under operating pressure, and to expel any accumulations of air at high points or changes in pipeline profile. This maximises pump efficiency by ensuring the line is running at full bore.

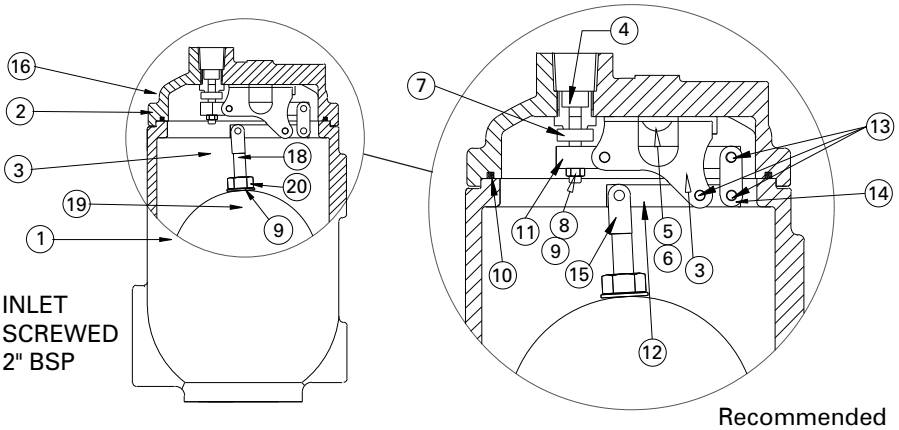
While operating, the body of the valve is partially full of medium, and the buoyancy of the float seats the valve. As air displaces the medium, the float can drop, opening the orifice, and allowing air to escape.

CAPACITY - Application of this type of valve only requires a nominal capacity. The standard valve has an orifice of 3/16". This suits most applications and pressures up to 16 bar - other sizes are available on request.

HIGH CAPACITY - Fitted with 10mm orifice (FIG 922).

OPERATING PRESSURE - The small orifice valve is sealed by the buoyancy of the float and as such does not have a minimum sealing pressure. Figure 925 up to 16 bar and figure 929 up to 5 bar. Both valves are shell tested at 24 bar to comply with NP16 rating.

THIS VALVE ALSO AVAILABLE WITH 50 OR 80mm INTEGRAL FLANGE FIGURE 925 ONLY



Recommended operating and maintenance spares Parts No 7 and 10

ITEM	QTY	DESCRIPTION	MATERIAL
1	1	BODY	GGG50 - NYLON COATED
2	1	COVER	GGG50 - NYLON COATED
3	1	LEVER BRACKET	STAINLESS STEEL
4	1	ORIFICE	STAINLESS STEEL 316
5	2	BRACKET SCREW	STAINLESS STEEL
6	2	BRACKET LOCKWASHER	STAINLESS STEEL
7	1	ORIFICE BUTTON	EPDM/STAINLESS STEEL 316
8	1	ORIFICE BUTTON NUT	STAINLESS STEEL
9	1	LOCKWASHER	STAINLESS STEEL
10	1	'0' RING	NITRILE RUBBER
11	1	LEVER ARM	STAINLESS STEEL
12	1	FLOAT ARM	STAINLESS STEEL 316
13	5	SPIRAL PIN	STAINLESS STEEL
14	1	LINK PLATE	STAINLESS STEEL
15	1	PIVOT LINK	STAINLESS STEEL
16	4	COVER BOLTS	STAINLESS STEEL 316
18	1	FLOAT ROD	STAINLESS STEEL
19	1	FLOAT	STAINLESS STEEL 316
20	1	FLOAT LOCK NUT	STAINLESS STEEL 316