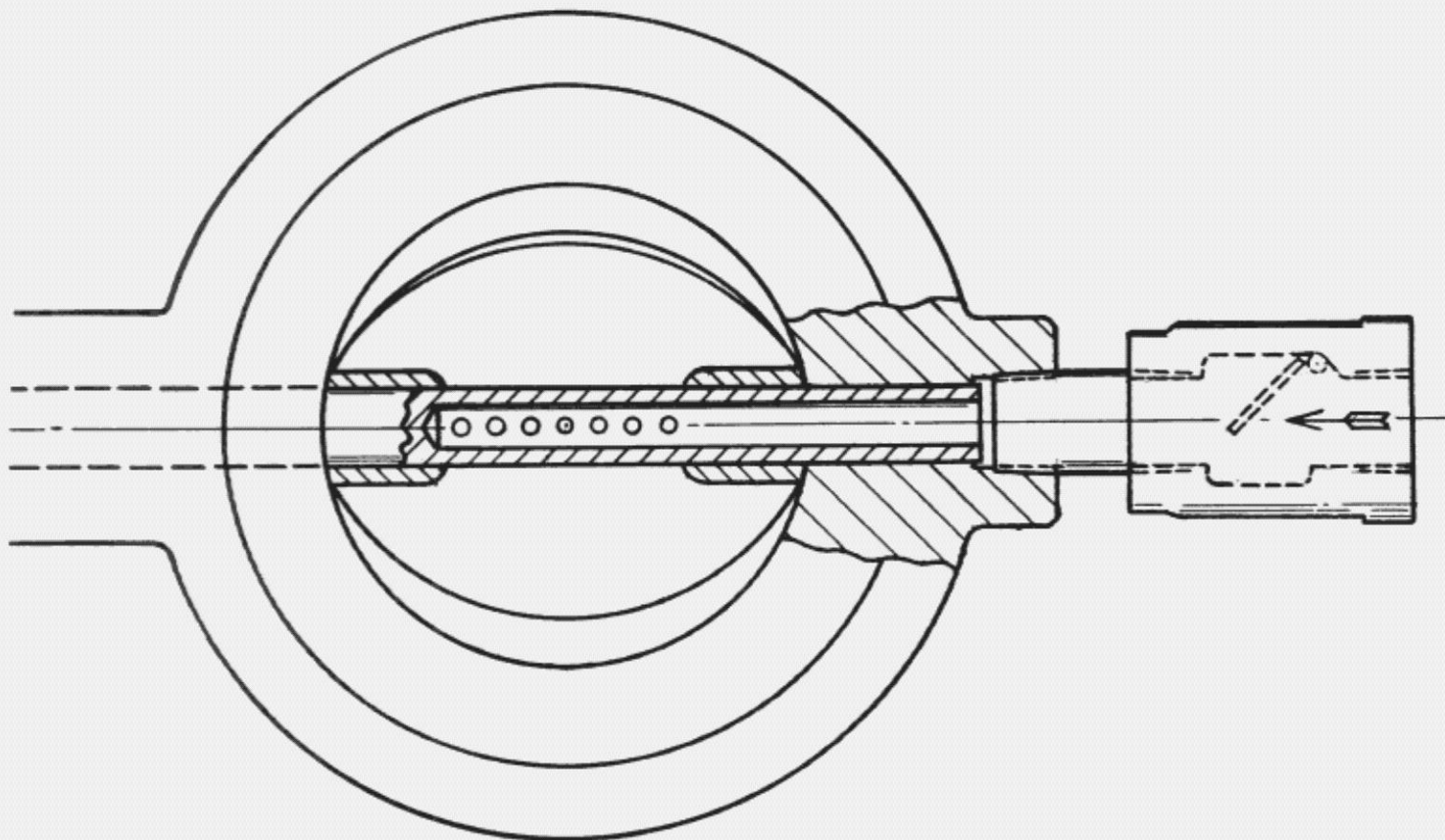


BAUMANN

CONTROL BUTTERFLY VALVES WITH AIR INJECTION TO FIGHT CAVITATION

Baumann Type 25000 Series "Lo-T" metal seated and 21000 Series elastomer lined CONTROL BUTTERFLY VALVES can be modified to provide for air injection through perforated shaft holes and a check valve located at the outboard bearing connection in order to reduce cavitation noise.



At the onset of cavitation, a vacuum is created downstream of the valve where the perforated shaft is located. This vacuum will cause the check valve to open and to draw outside air into the downstream pipe, passing through the shaft perforations, and to mix with the fluid. Thus, vapor bubbles created by the initial cavitation stage are surrounded by air bubbles which absorb a major portion of the implosion energy once the cavitation bubbles collapse in the downstream pipe. The higher the vacuum (and the greater the amount of cavitation in the fluid) the more air is injected, leading to a significant reduction in cavitation noise and indirectly to a reduction in pipe and valve erosion. Once, at small flow rates, the vacuum is broken the check valve will close again and prevent valve fluid from escaping.

This is a self-regulating process that does not require air compressors nor auxiliary control equipment and which provides a surprisingly effective and low cost solution to handle high pressure drop, liquid throttling applications without generating excessive, OSHA violating, noise problems.

Air injection is suitable for water and other liquids that can tolerate air entrainment as long as there is a settling tank or open containment downstream which will allow the air to dissolve from the liquid.

SIZING DATA

21000 SERIES, ELASTOMER LINED BODY S/A

SIZE, INCH	MAXIMUM ALLOWABLE INLET PRESSURE	MAXIMUM RATED C_v	F_L
2	200 PSI	95	.65
3	200 PSI	230	.65
4	150 PSI	435	.65
6	100 PSI	975	.65

25000 SERIES, METAL SEATED BODY S/A

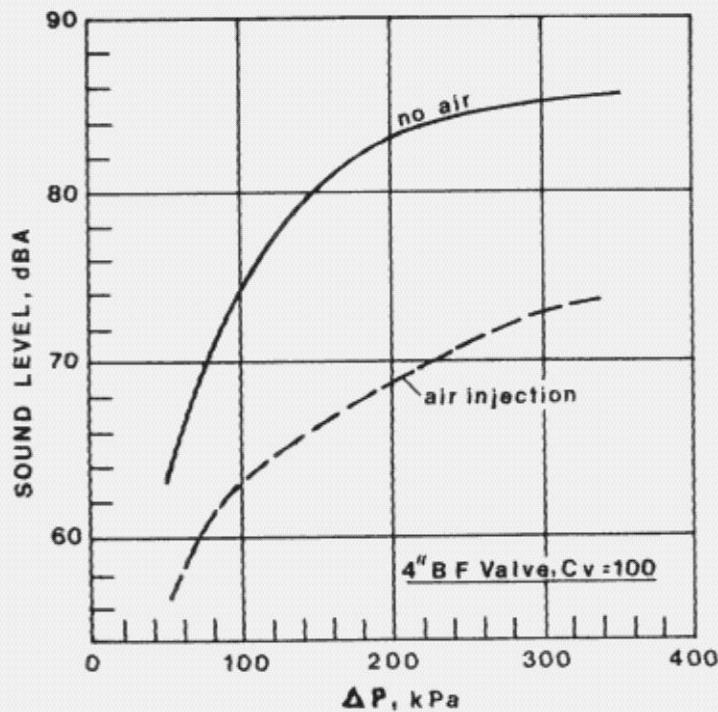
SIZE, INCH	MAXIMUM ALLOWABLE INLET PRESSURE	MAXIMUM RATED C_v	F_L
2	300 PSI	85	.70
3	300 PSI	176	.70
4	250 PSI	363	.70
6	100 PSI	825	.70
8	85 PSI	1595	.70
10	110 PSI	2515	.70
12	75 PSI	3610	.70

Notes:

A) Consult factory for valve between reducer installations.

B) Vapor pressure must not exceed 5 psia.

C) For additional technical data, refer to Bulletins Lo-T-6 and RL-5.



Test data with 4" butterfly valve shows beneficial effects of air injection on downstream noise level under cavitating conditions.

H. D. BAUMANN ASSOC., LTD.

35 MIRONA ROAD — PORTSMOUTH, N.H. 03801
PHONE (603) 436-2044 FAX (603) 436-4901