

Masoneilan[®] Lo-dB[®] Expansion Plates

Specification Data

CP7000

12/92

**Two Stage Multi-port
Device Designed
to Reduce Noise
and Vibration**



LO-DB® Expansion Plates

Principle of Operation

LO-DB expansion plates are two-stage multi-port devices specifically designed to absorb a large part of the pressure drop which would otherwise exist across the control valve. This effectively reduces the amount of noise generated by up to 20 db. LO-DB plates are available in sizes from 3" to 36". They are mounted downstream of a control valve to raise the static outlet pressure to that approximating choked flow ($\Delta P \geq 0.5 C_v^2 P_1$)* and to reduce the downstream velocities below the level at which pipe noise would exceed that of the valve. An important feature of LO-DB plates is that they do not necessitate use of larger control valves. These devices reduce noise and related vibration instead of muffling noise as conventional silencers do.

Construction and Installation

The two stages of the LO-DB plates are carefully proportioned to make use of the resonant damping phenomenon, to limit the velocity variation from stage to stage, and to bring about fast mixing of the moving stream. These features contribute to the high noise reduction capabilities of the LO-DB plate.

The restriction plates are made of 18-8 stainless steel welded to a carbon steel housing for temperature up to 650°F. An 18-8 stainless steel housing is used above that temperature. Consult the Masoneilan Engineering Department if the ΔP

versus temperature rating are exceeded.

The 3" to 12" size plates are bolted between conventional ANSI class pipe flanges on the downstream side of the control valve usually between standard flanged pipe reducers. The outside diameter of the plate is identical to the raised face diameter of the pipe flange. The larger plates, 16" through 36", have butt weld connections.

Piping

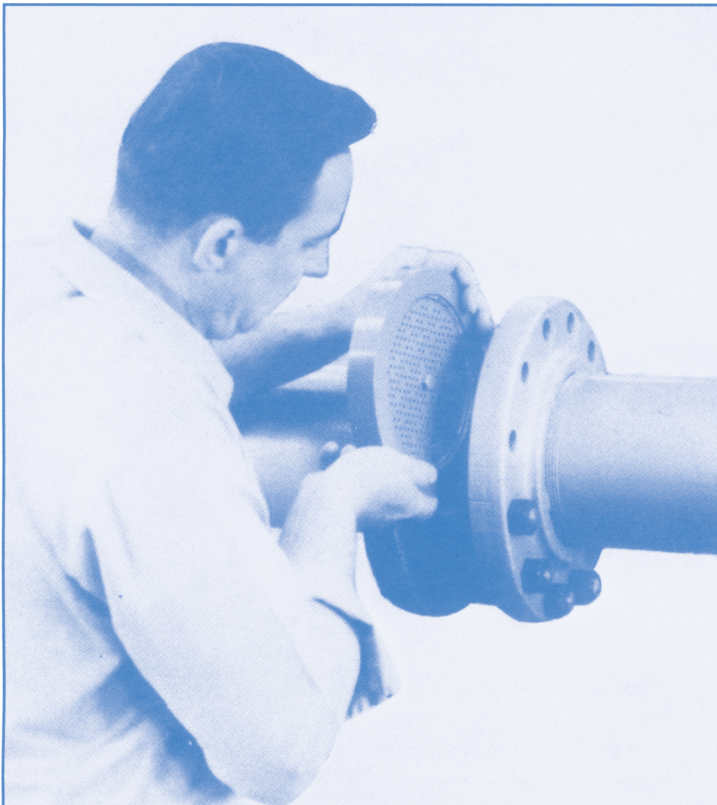
The distance between the valve and the plate, or between plates is not critical. A plate can be mounted in any convenient location in the downstream piping. In most cases, valve and cast reducers having heavier walls than the adjoining piping provide additional noise attenuation. The plate itself acts as a barrier to the sound waves produced upstream. If the LO-DB plate is mounted directly against the valve outlet flange or if a cast reducer is used between the valve and the plate, an additional net reduction of 6 db in valve SL is obtained.

Sizing

For sizing material, submit full details to your local Masoneilan Representative. Ask for the following:

Masoneilan Noise Control Manual
Masoneilan Handbook for Control Valve Sizing

*See Masoneilan Noise Control Manual



Flow Coefficient = C_v .

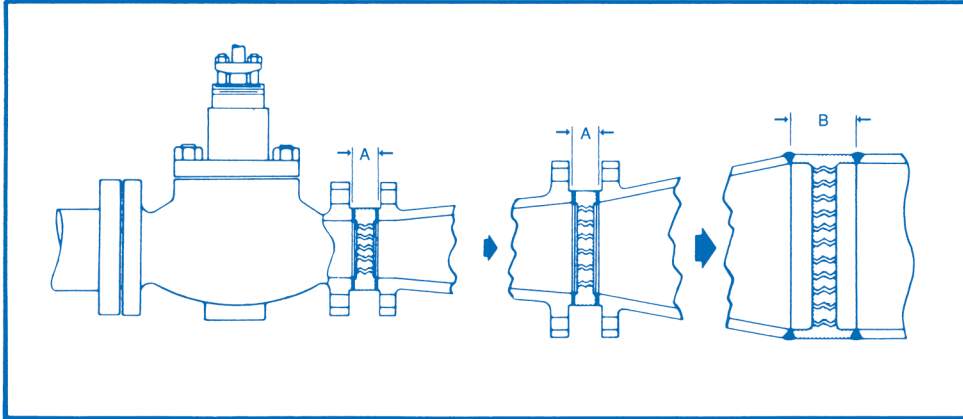
$C_f = 0.95$

Plate Size (in.)	Rated C_v^*			
	Full	.9	.8	.7
3	20	17.5	15	12
4	40	35	29	24
6	80	70	58	48
8	155	135	115	95
12	310	270	230	190
16	460	385	—	—
18	620	540	—	—
24	920	770	—	—
26	1240	1080	—	—
30	1840	1540	—	—
36	2480	2160	—	—

*Use C_v in conjunction with the sizing equations.

See Masoneilan Noise Control Manual.

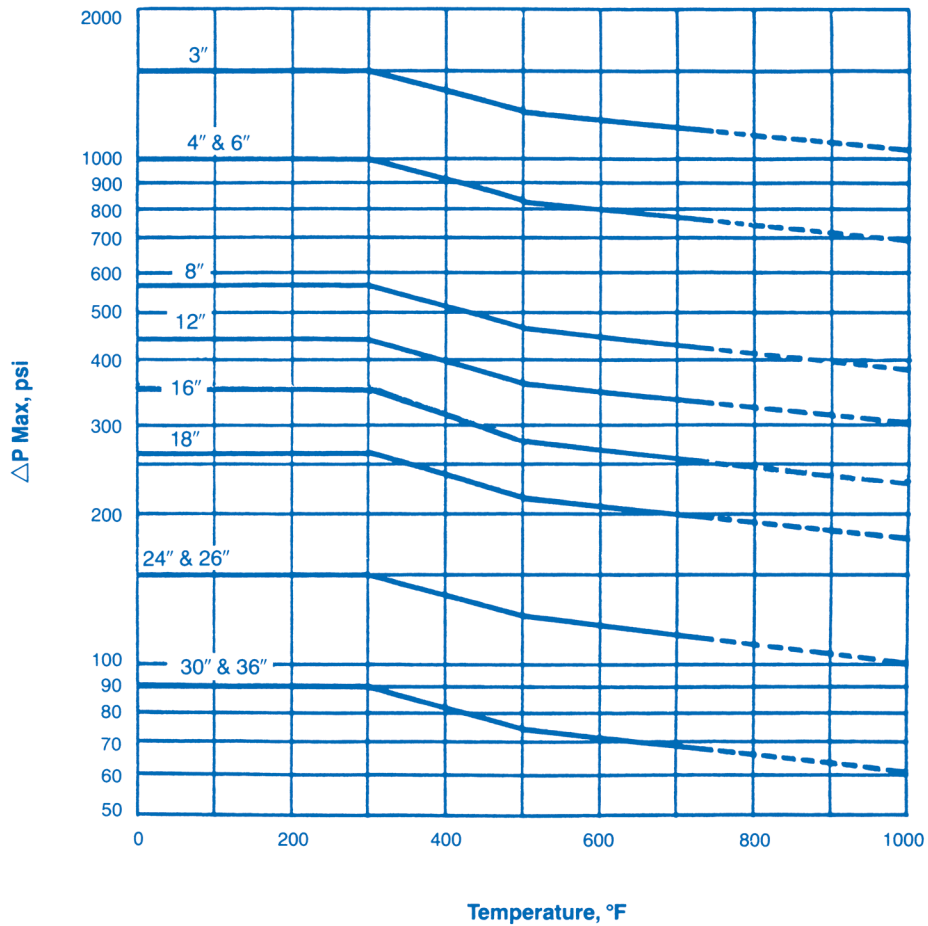
Specifications



Dimensions — In.

Plate Size	Flange Mounted A	Butt Weld Ends B
3	1 3/16	—
4	1 3/16	—
6	1 1/2	—
8	1 1/2	—
12	2	—
16	—	6
18	—	6
24	—	6
26	—	6
30	—	6
36	—	6

Lo-db Plates— ΔP vs. Temperature



Note: Above 650F use 18-8 stainless steel housing. Above 750F consult engineering. Maximum static pressure is 3 times maximum pressure drop at service temperature.

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