

■ Never fail_(maybe) Easy backload design formula

(2013年版・Small Diameter Full Range Direct Tube Continuous Type Backload Specification)

You can easily calculate the cross-sectional area of the backload horn! It is a design formula using K (surprise coefficient).

The only parameter of the SP unit required for calculation is the effective diaphragm radius.

1 Air chamber volume (V) = executive diaphragm area (S) ÷ 25 = $(a \times a) \pi \div 25$ (liter)

a = effective diaphragm radius (cm)

2 Throat (first tube) cross-sectional area (S1) = Execution diaphragm area (S) × Shibori rate

Shibori rate = 0.7 to 0.9 (at the most suitable value)

3rd X-tube cross-sectional area (Sx) = (X-1) cross-sectional area (Sx-1) ×! K (surprise factor)

(e.g.)

2nd tube cross-sectional area (S2) = S1 ×! K

3rd cross-sectional area (S3) = S2 ×! K

... and ...

No. X-tube cross-sectional area (Sx) = [Sx-1] ×! K

4 Relation between the number of direct tubes and the surprise coefficient

- Five direct tubes ⇒! K = 1.5 before and after
- Six direct tubes ⇒! K = 1.4 before and after
- Seven direct tubes ⇒! K = around 1.3

※ Please increase or decrease the surprise factor as necessary.

Specific design examples. [Click here](#)