

# Fluid velocity

## 1. Selection of suitable piping size

For sound operation of pressure reducing valve and back pressure regulating valve, velocity at valve inlet and outlet shall not be excess.

Friction loss is in inverse proportion to 4.5~5th power of piping size.

Therefore large size is preferable to friction loss.

However, small size is advantageous to economical facility and thermal radiation.

Please refer to table extracted from JIS F7101.

Generally, Fushiman select less than 30m/s for steam and gas (less than 15m/s for slight pressure) and 1~2m/s for liquid.

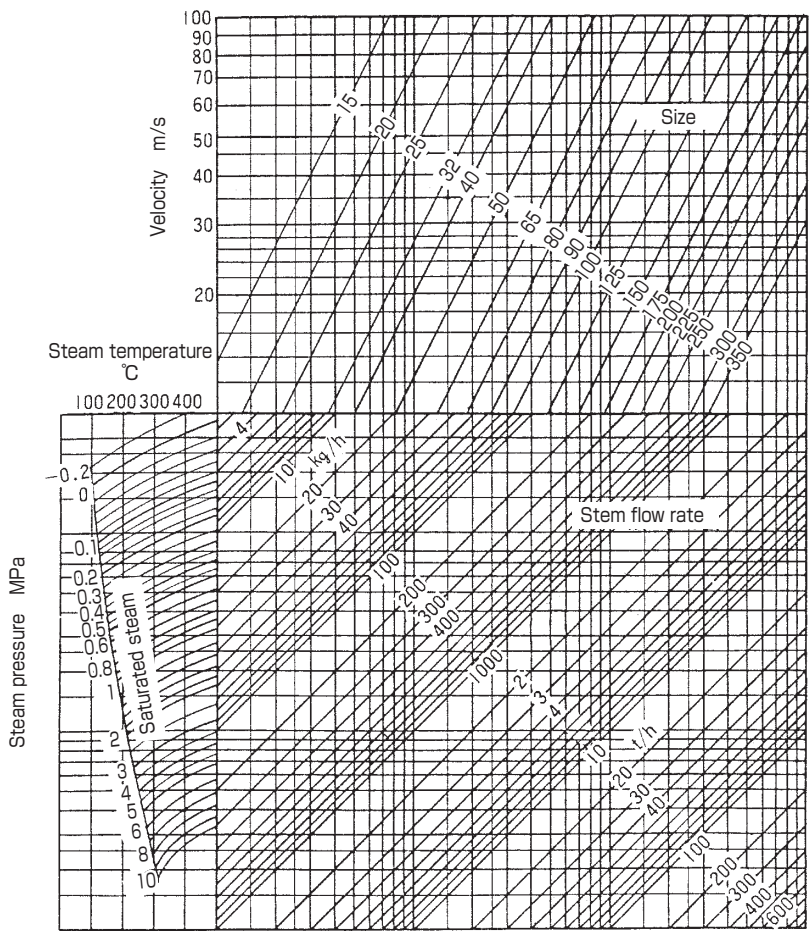
In case pressure loss does not affect on valve operation like a inlet of pressure reducing valve and temperature regulating valve, higher velocity can be selected.

For longer piping, generally, low velocity is selected to lower pressure loss.

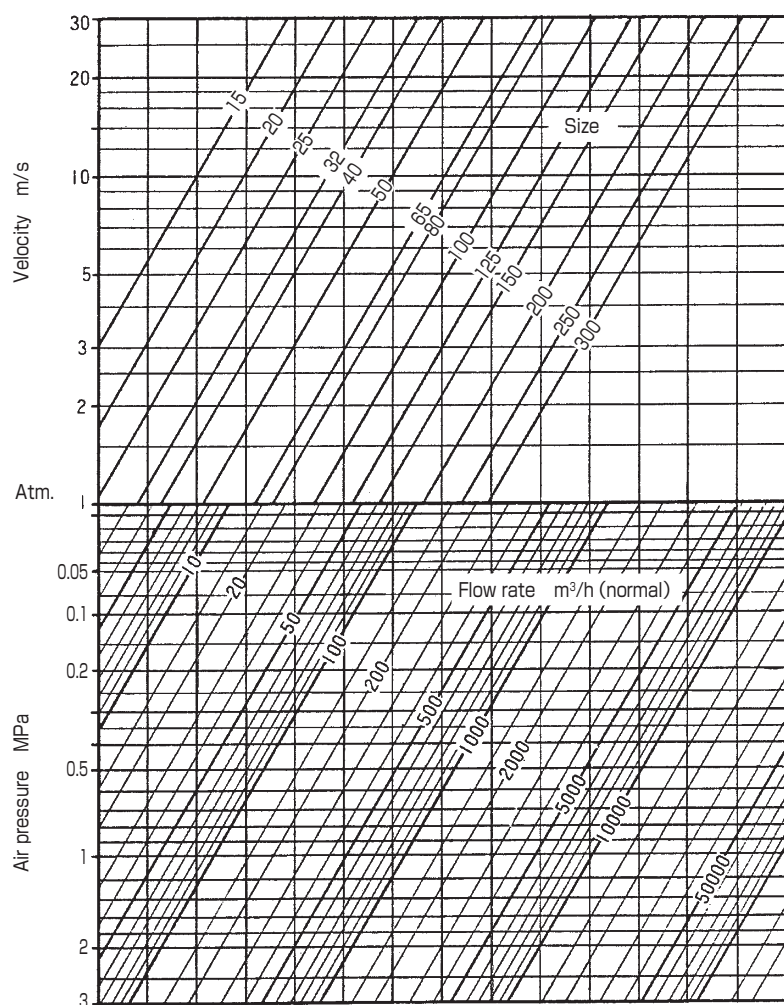
Standard velocity for steam, air and liquid (m/s)

Fluid	Application	Standard velocity
Saturated steam	Vacuum tube or small size	10—20
	Large size	20—40
Superheated steam	Pipe size 75—250mm	30—50
	High grade pipe	65—80
Steam coil inlet	0.3—0.7MPa	25—30
Air	High pressure	20—25
	Low or slight pressure	5—15
Liquid		4 or less

## 2. Steam velocity in piping



### 3. Air velocity



### 4. Liquid velocity

