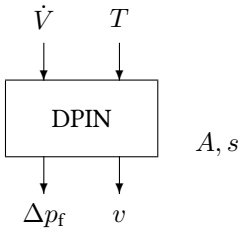
Block DPIN

The DPIN block calculates the pressure drop from free space into a channel or tube.





Name	DPIN
Function	st0019
Inputs	2
Outputs	2
Parameters	2
Strings	0
Group	S

Inputs

1 Volume flow $\dot{V}$ / $m^3\,h^{-1}$
2 Air temperature T / °C

Outputs

1 Pressure drop Δp_f / Pa
2 Flow velocity v / $m\,s^{-1}$

Parameters

1 Channel area A / m^2
2 Edge sharpness s
- 0 Sharp edge
- 1 Broken edge
- 2 Round edge
- 3 Smooth, round edge

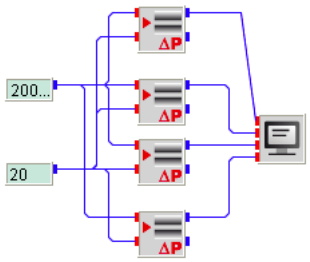
Strings

None

Description

The ζ value of sharp-edged inlets is assumed to depend on the shape of the inlet only. For sharp edges ζ is set to 0.35, for broken edges $\zeta = 0.11$, round edges $\zeta = 0.01$, for smooth, round edges ζ is set to zero.

dpin.vseit



Four DPIN blocks with different edge sharpnesses are simulated at an air volume flow of 20 000 m^3/h at 20 °C as defined through two CONST blocks.

The SCREEN block displays the resulting pressure drops in Pascal.

```
6.41756   2.01695   0.18336   0.00183
```