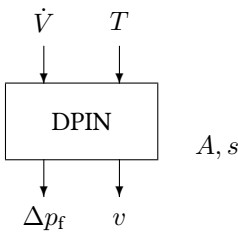


Block DPIN

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  $\dot{V}$  /  $\text{m}^3 \text{h}^{-1}$
- 2 Air temperature  $T$  /  $^{\circ}\text{C}$

Outputs

- 1 Pressure drop  $\Delta p_f$  / Pa
- 2 Flow velocity  $v$  /  $\text{m s}^{-1}$

Parameters

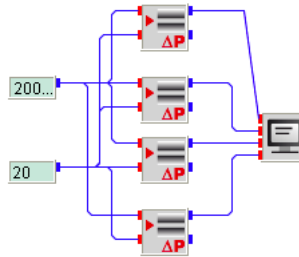
- 1 Channel area  $A$  /  $\text{m}^2$
- 2 Edge sharpness  $s$ 
  - 0 Sharp edge
  - 1 Broken edge
  - 2 Round edge
  - 3 Smooth, round edge

Strings

None

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

dpin.vseit



Four **DPIN** blocks with different edge sharpnesses are simulated at an air volume flow of 20 000 m<sup>3</sup>/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