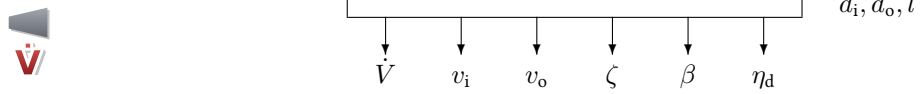
Block VDIF

The VDIF block calculates the Volume flow in a diffuser due to friction of an incompressible one-phase turbulent tubular flow.



Name	VDIF
Function	st0018
Inputs	2
Outputs	6
Parameters	3
Strings	0
Group	S

Inputs

1 Pressure drop Δp_f / Pa
2 Air temperature T / °C

Outputs

1 Volume flow $\dot{V}$ / $\mathrm{m^3\,h^{-1}}$
2 Inlet flow velocity v_i / $\mathrm{m\,s^{-1}}$
3 Outlet flow velocity v_o / $\mathrm{m\,s^{-1}}$
4 Zeta value ζ
5 Opening angle β / $\mathrm{m\,s^{-1}}$
6 Diffuser efficiency η_d

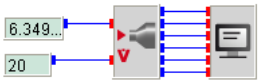
Parameters

1 Inlet diameter d_i / m
2 Outlet diameter d_o / m
3 Length l / m

Strings

None

vdif.vseit



A diffuser of length 1 m with an inlet diamter of 0.25 m and an outlet diamter of 0.4 m is simulated for a pressure drop of 6.34972 Pa and an air temperature of 20 °C as defined by two CONST blocks.

A SCREEN block displays all six outputs of the VDIF block.

```
1800.00049  10.18592   3.97887   0.10302   8.57831   0.87843
```