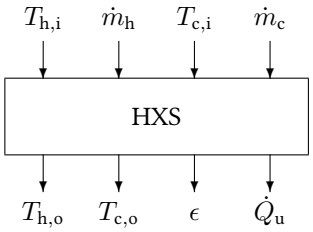
Block HXS

The HXS block simulates a simple sensible heat exchanger.





mode,
$UA, c_{p,h}, c_{p,c}$

Name	HXS
Function	st0015
Inputs	4
Outputs	4
Parameters	4
Strings	0
Group	S

Inputs

1 Temperature $T_{h,i}$ / °C
2 Mass flow $\dot{m}_1$ / kg s^{-1}
3 Temperature $T_{c,i}$ / °C
4 Mass flow $\dot{m}_2$ / kg s^{-1}

Outputs

1 Temperature $T_{h,o}$ / °C
2 Temperature $T_{c,o}$ / °C
3 Effectiveness ϵ
4 Transfered heat $\dot{Q}_u$ / W

Parameters

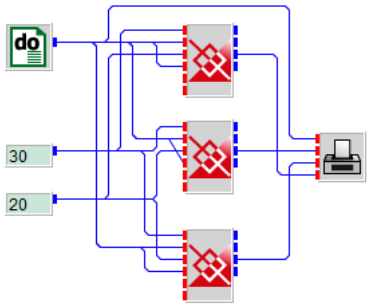
1 Mode
  0 Parallel flow
  1 Counter flow
  2 Cross flow
2 Overall heat transfer coefficient UA / W K^{-1}
3 Specific heat of side 1 fluid $c_{p,h}$ / J kg^{-1} K^{-1}
4 Specific heat of side 2 fluid $c_{p,c}$ / J kg^{-1} K^{-1}

Strings

None

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hxs.vseit



All three types of a simple heat exchangers are simulated: (i) parallel flow – upper one, (ii) counter flow – middle one, and (iii) cross flow – lower one. In all three cases the overall heat transfer coefficient is 5000 $\mathrm{W\,K^{-1}}$, and both specific heat values of the fluid are set to 1007 $\mathrm{J\,kg^{-1}\,K^{-1}}$ (air).

The inlet temperatures are set to 20 and 30 °C, respectively, defined by two CONST blocks.

A DO block varies the mass flow between 0.01 and 10 kg/s and a PLOT block is used to display the three different effectivenesses of the heat exchangers.

