Contents   Find

Setting Flow Options

Pick *Flow Options* to select any specific option related to the solution of the duct flow model. For most models, the default value will give good results.

Iteration Limit

You can set an independent iteration limit for the duct flow solution. Enter a maximum number of flow model iterations to be performed for every iteration of the thermal model.

Pressure Convergence

You can specify the *Pressure Convergence Criterion* for fluid models. The default is 0.01, which works well for most models.

Relaxation Factor

Use a *Relaxation Factor* between 0.0 and 0.3 to increase the stability of the flow solution. Smaller *Relaxation Factors* can reduce numerical instabilities at the expense of slower convergence. For highly non-linear models you may need to specify a *Relaxation Factor* of 0.1 or less. Values above 0.3 are not recommended.

Compressible Flow

TMG will model compressiblity effects for duct networks if this option is selected. All heat transfer, area change and frictional effects are modeled in the same manner as for incompressible flows.

TMG will solve the duct flow network as a generalized one-dimensional compressible flow system with combined friction, heat transfer, and area change effects. This solution method is limited to subsonic compressible flows only. TMG will return a warning message in file tmgmsg.dat if choking conditions are approached (Mach number ~ unity). In practice it is recommended to avoid flow Mach numbers in excess of 0.8, otherwise convergence problems may result.

For further information on the details of the compressible flow calculations, see *Hydraulic Elements* in the *TMG Reference Manual*.

Convergence Trace

This provides a comprehensive diagnostic output of the duct flow model's convergence parameters at every iteration. It can be used to determine if a solution is oscillating, diverging, or converging. The data is output to the TMG message file tmgmsg.dat.

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