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Best Practices Checklist for Dynamic Studies

Use this checklist to get started creating a dynamic study from a steady-state flowsheet. The Dynamics Assistant in Aspen HYSYS® may provide additional guidance.

Once the integrator is started, the value of the dynamic specification can be changed (its value appears in blue), but the choice of dynamic specification cannot be changed.

Starting Tuning Parameter

System	K_c	T_i (min)	T_d (min)
Flow	0.1	0.2	0
Level	2	10	0
Pressure	2	2	0
Temperature	1	20	0
Composition	0.1	0.2	0

- **BOUNDARY STREAMS**
  Insert a valve on all boundary streams within the flowsheet that are not connected to conductance devices (i.e., heat exchangers, coolers, heaters).
- **PRESSURE SPECIFICATIONS**
  Place a pressure specification on all boundary streams within the flowsheet.
- **DISTILLATION COLUMNS**
  Distillation columns with condensers require an extra specification around the condenser. Make a flow specification for the reflux flow.
- **VALVES**
  Use the "Pressure/Flow Relationship" as the dynamic specification for a valve.
- **K-VALUE**
  Use the "Overall K-Value" as the dynamic specification for coolers, heaters, heat exchangers and LNG exchangers.
- **PRESSURE GRADIENTS**
  Be sure to account for pressure gradients throughout the flowsheet and specify reasonable pressure drops/rises. Pressure differentials are the driving force for flow.
- **TRAY SIZING**
  Use the Tray Sizing Utility or Column Analysis to estimate the column geometry and pressure profile.
- **MIXERS**
  Use the "Equalize All" option as the pressure specification for mixers.
- **TEES**
  Remove "Use Splits" as dynamic flow specs on tees.
- **ROTATING EQUIPMENT**
  Use compressor or pump curves, if available, for dynamic specifications. If not available, use "Efficiency" and either "Head" or "Pressure Rise" as dynamic specifications for rotating equipment.
- **HOLD-UPS**
  Be sure to properly size equipment with hold-ups.