

## ASD's Pipe Support Optimizer (PSO)

PSO is a state-of-the-art, intelligent tool for automatic pipe support selection and optimization (location, type, and numbers) along the piping route, satisfying stress and other design requirements. PSO eliminates your iterative work process between piping design and stress engineering.

### TODAY'S PROBLEM

- ✓ Piping designer selects supports and passes the pipe route and supports to the Stress Engineer
- ✓ Stress Engineer runs the analysis to identify either that the support locations are not correct or that the route needs to be modified
- ✓ There is an iterative process between Piping and Stress which consumes many man-hours
- ✓ EPC's are looking to REDUCE these man-hours and streamline the work process

### THE SOLUTION

Introduce ASD PSO for the piping designer:

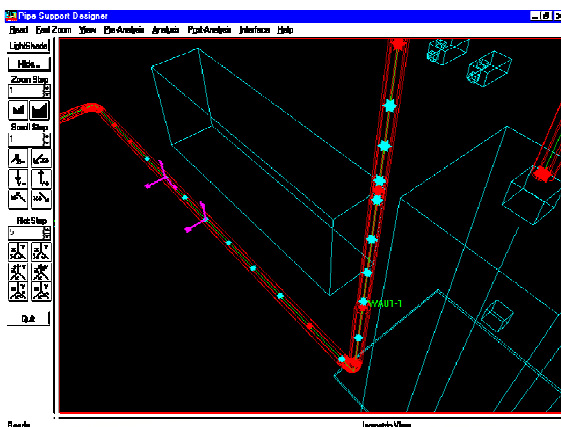
- ✓ PSO will automatically read the pipe route, select supports and run stress analysis to confirm the support locations in a BATCH mode.
- ✓ PSO will alert the designer if a pipe route needs to be changed due to thermal or gravity loads
- ✓ Therefore, the route and supports sent to the Stress group will NOT need to be re-engineered

**During the FEED Stage**, PSO can be used with preliminary information to automatically select supports. The automatic preliminary stress analysis will confirm whether the designed 3D piping system meets flexibility requirements, thermal load requirements, displacement and sag requirements, etc. PSO allows for more engineering to be done at an earlier stage.

**During the Detail Engineering stage**, PSO can be used with detailed piping models and steel to automatically select optimal logical supports and validate these selections with a preliminary stress analysis. Therefore, piping stress models can be passed to stress groups earlier and with greater confidence that they will pass detailed stress analysis. As the piping designer has confirmed the designed route will meet thermal and gravity loads, the stress engineer can complete the detailed analysis without cycling back to the piping group. Structural load information can be passed to the civil/structural group for their analysis at an earlier stage, therefore PSO allows for concurrent engineering during this stage.

### Value

- Significant man-hour savings in confirming the pipe route and selecting optimal supports and their location
- Optimization of total number & type of supports using PSO, thereby reducing overall support cost
- Piping layout designers can easily & quickly verify the routes from stress and supportability considerations.



### PSO Features

- PSO automatically reads input of 3D pipe route (headers with branches) and 3D primary structures, pipe racks, equipments etc. from ASD Optiplant, ASD Pipe Router, Intergraph PDS, and Aveva PDMS
- Automatically identifies feasible pipe support locations along the pipe route based on their distance from primary supporting structural members.
- Automatically selects the type of supports and locates each support along the pipe route
- Automatically selects the type of supports and locates each support along the pipe route and validates the results by ensuring that:
  - Pipe stresses are within code allowable limits
  - Nozzle forces are within user specified allowable limits
  - Support reactions are within user specified allowable limits
  - Displacements along pipe route are within allowable limits