

**Pipe Router**, ASD flagship product provides automatic cost-driven 3-D pipe routing for both FEED (Front End Engineering and Design) and EPC project phases. This expert system enables engineers to cost-optimize their designs, reduce the man-hours and reduce the quantity of material on a project. Rack design, equipment layout and MTOs can be fixed earlier providing a significant schedule reduction over the whole EPC phase of a project.

### Feed Phase

Pipe Router can be used in the conceptual design mode, when equipment drawings and nozzle locations are not available. In this mode, Pipe Router would provide rule based nozzle placement and optimal nozzle orientation based on the equipment arrangement, providing MTO accuracy within 5%. In this phase, the Pipe Router allows users to evaluate more arrangements, and ultimately choose an optimal layout.

### EPC Phase

Pipe Router start with an equipment model from PDS, PLantSpace, or Microstaiton, and automatically routes pipe based on P&ID information. The design progresses seamlessly to preliminary design, updating equipment and line data, as it becomes available. Refinement tools, data driven and CAD driven, can be used by the designer to control the quality of the Basic design. Finally, the completed routes are fed to PDS, PDMS or any other leading CAD systems to kick start your detailed design.

### Functionalities and Features

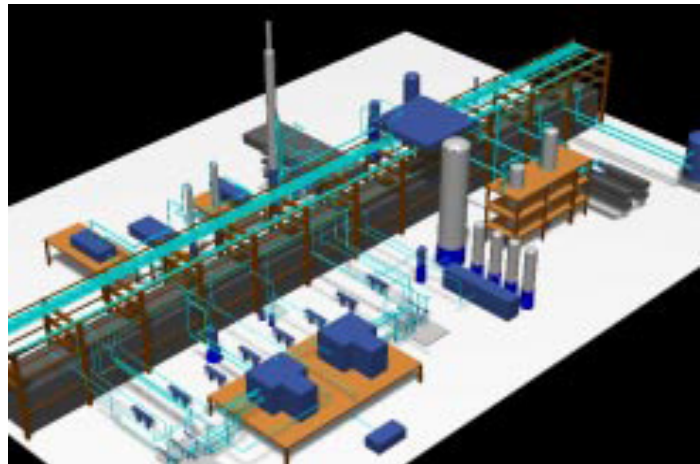
- ✓ Calculates shortest path based on engineering and cost constraints.
- ✓ Reduces number of elbows and length of expensive pipe
- ✓ Automated input requires minimum setup
- ✓ Interference free routing

### Engineering Considerations

- Pipe stress check
- Supportability considerations
- Sloped piping
- Expansion loops

### Deliverables

- ✓ 3-D pipe routes transferable to PDS, PlantSpace, and PDMS
- ✓ Accurate MTO which automatically calculates based on client cost data cost information
- ✓ Automatic Isometrics
- ✓ 3-D Design Review Model
- ✓ 2-D Annotated drawings



### Conceptual

- Rule based nozzle location
- Primitives equipment shapes
- Batch and Online Routing
- Accurate MTO

### Preliminary

- Full batch routing for up to 500 lines
- Automatic input generation from electronic P&ID
- Batch and online routing
- 96% success rate
- 90% Quality center lines on racks

### Detailed

- Routes downloaded into PDS allowing fast track start to detail design

### Advanced Features:

- ✓ User-defined component location.
- ✓ Vertical Pipe chases.
- ✓ Set common BOP elevation
- ✓ Freeze routes and route branch lines

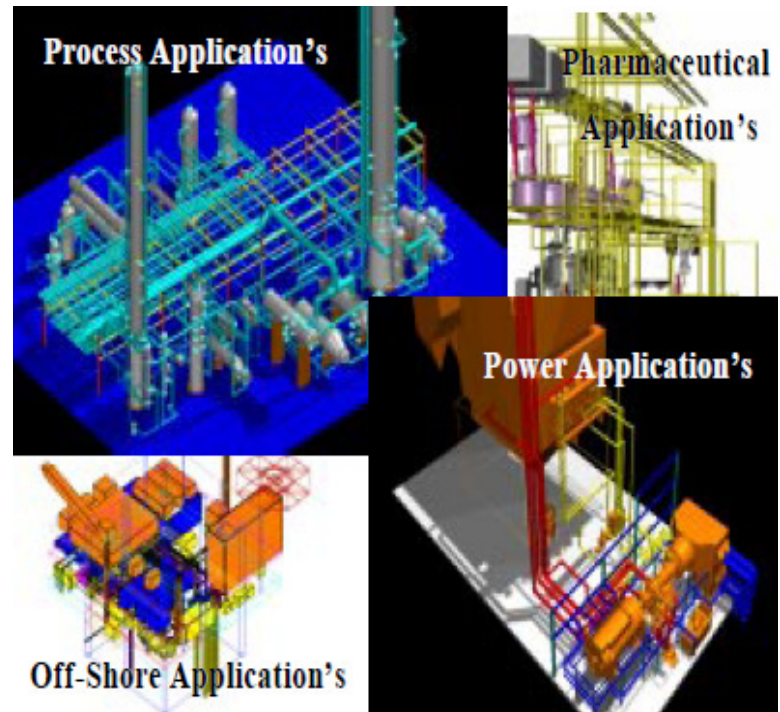
### A Reputation for Delivering Solutions

ASD software solutions have been used in production with major customers for many years. With an ASD solution you are buying into an established company which is committed to developing and implementing strategic solutions to meet your engineering challenges.

### Conclusion

ASD Pipe Router optimizes 3D pipe routings through knowledge-based design rules, cost reduction of pipe lengths and elbows, while maintaining engineering and process requirements. This tool automates the current work-process thereby reducing man-hours and provides greater quality in design.

ASD Pipe Router has been used in production on proposals and conceptual design of projects, globally. Clients have renewed and expanded their usage of these solutions as part of the successful projects. We invite you to see these case studies and see how these products can help you save on your next project.



***“We ran a batch of 123 lines and the ASD Router successfully routed 120 lines in one pass, which were consistent in one quality, within 60 minutes. The ASD Router enables us to produce accurate material take off which can be utilized with confidence on a lump sum project.”***

**- Kenneth Ryder**  
**Information Integration Manager**  
*M.W. Kellogg*