

## I-Route™



### AUTOMATIC PIPE ROUTING IN 3D MODELERS

I-Route™ represents a new approach to pipe routing during the early stages of plant layout studies and preliminary design. It integrates with any suitable host system, for example, SmartPlant® Layout, and supports a neutral definition of the pipe routing problem.

I-Route helps you:

- Simultaneously route hundreds of pipes within 3D plant design systems
- Rapidly evaluate multiple configurations
- Explore the interaction between equipment layout and pipe routes
- Produce interference-free routes

### KEY FEATURES

- Automation component with a set of properties and methods for describing the problem space
- Simple, rule-based algorithms
- No dependence on reference data, pipe specifications, or material classes, because all data is passed through the interface
- Return of the turning points of the centerline representing the generated pipe routes
- Support of integration with any system that is capable of describing a set of obstructions using simple 3D shapes

### AUTOMATIC PIPE ROUTING IN 3D MODELERS

I-Route will automatically route pipes within 3D plant design systems. The main data that must be passed to I-Route by the design system includes:

- Obstruction zones as defined by equipment and structural items
- Attraction zones as defined by pipe racks, with support for simple layout rules
- Coordinates of the nozzles to which pipes are attached
- Pipe routing requirement; for example, the from-to list
- Simple reference data, such as separation distances

### AUTOMATIC COST GENERATION FOR PIPES

I-Route quickly identifies the minimum cost route for each pipe, avoiding obstructions and making use of pipe attraction zones. The cost data required is the cost per unit length of pipe, which can be provided by bore and piping specification if required. Bends are expressed as an equivalent length of pipe, so that for every bend in the pipe, the cost is increased by an amount equal to the equivalent length, multiplied by the cost per unit length. Running a pipe in free space has a default cost factor of 1.0. For pipe racks, the cost factor is set less than 1.0, so that the cost of the pipe running the rack is reduced, thereby attracting the pipe to the rack.

## ABOUT INTERGRAPH

Intergraph Corporation is the leading global provider of spatial information management (SIM) software. Security organizations, businesses, and governments in more than 60 countries rely on the company's spatial technology and services to make better and faster operational decisions. Intergraph's customers organize vast amounts of complex data into understandable visual representations, creating

intelligent maps, managing assets, building and operating better plants and ships, and protecting critical infrastructure and millions of people around the world.

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