

■ Laying insulated flowline by conventional submarine pipe techniques

## System Benefits

### ■ Rugged Structure

Able to withstand transportation to remote sites and handling

### ■ Simple Assembly

No special gear or trades required. Spread size not increased, no extra investment in plant. Bending on-site requires only standard size booms or hydraulic benders. Standard construction procedures.

### ■ Watertight

Long term integrity to prevent sea water infiltration into the insulation.

### ■ High-efficiency insulation

Meets stringent operating specifications throughout its lifetime.

### ■ High Strength

No creepage between different components of the system.

### ■ Low-cost life cycle

No maintenance

### ■ Engineered system

Optimised insulation thickness and joint connectors to minimise heat losses and limit concentrations.

### ■ Subcontractor liaison as required for practical solutions

- Selection of sub-contractors
- Training through data modules
- Training on-site
- Site supervision
- Assistance with commissioning
- Complete on-time and within budget

### ■ Quality

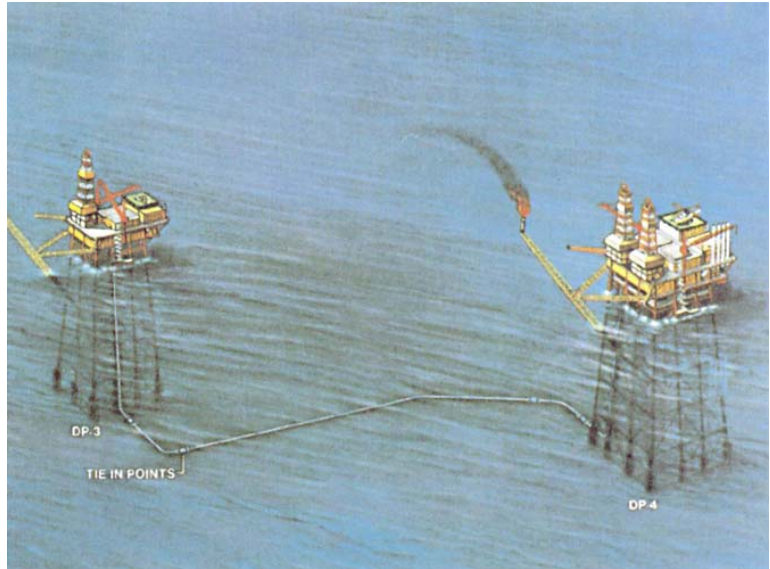
- Factory insulated under controlled conditions
- Qualified procedures and controlled conditions throughout manufacture.
- No weather delays. No damp insulation. No reduction in quality due to site conditions or remoteness
- Minimum reliance on field skills

■ **Typical Applications**

- Flow lines between platforms
- Gathering lines
- Unloading terminals
- Wet gas lines
- Waxy crude lines

■ **Insulation**

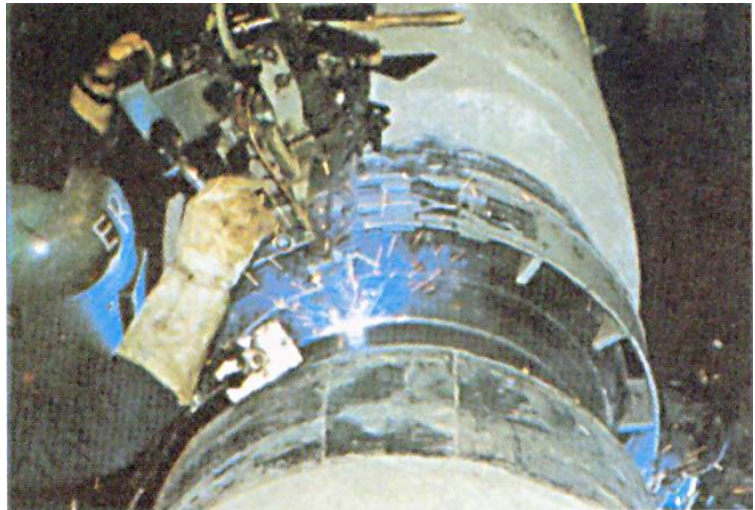
Thermal conductivity:	0.024 W/m <sup>2</sup> K
Compressive Strength	320 kPa
Shear strength	205 kPa
Density	65 kg/m
Jacket material	Steel
Corrosion protection	Tape wrapped or coated
Weight coating	Concrete
Sacrificial anodes	Optional
Pipe length	Normally double random



■ Typical insulated flowline at depth of 170m



■ Welding of special joint



■ Butt-welding of pipes on lay-barge

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