

Pump Development Technology

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- ⇒ Total periodic pump development technology including design, production, and performance test
- ⇒ High-efficiency/suction pump design for energy usage improvement

Client / Market

- Centrifugal/mixed flow/axial flow pump manufacturer
- Extreme environment (cryogenic/ultrahigh speed/high temperature) pump developer
- Plant/ocean/military/spacecraft pump manufacturer

Necessity of this Technology

- Pumps are large energy consuming device that account for over 15% of the total electric power production. For the improvement of energy consumption efficiency, high-efficiency design is required.
- To secure technical competitiveness and reliability, pump development technology or know-how for analysis and test as well as design is required.

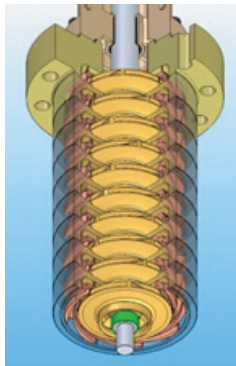
Technical Differentiation

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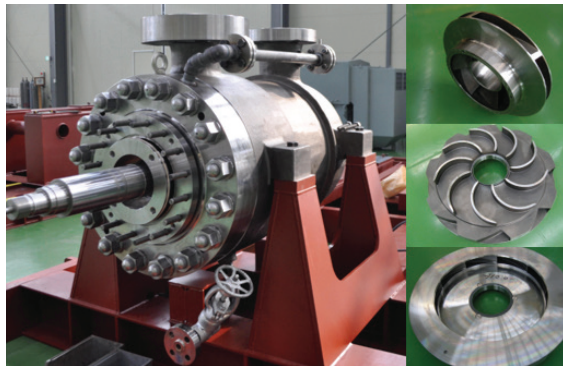
Excellence of Technology

- This pump development technology has gone through the product design, production, performance verification process and can be applied for commercializing pumps for a variety of applications.

A Pump Sketch for ATC



8-Stage Hydrocarbon (350℃) Processing Pump



LNG Cryogenic Pump (-160℃)



DESIRED PARTNERSHIP

Technology Transfer

Licensing

Joint Research

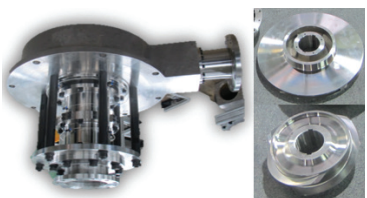
Other



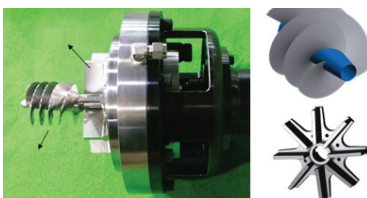
TECHNOLOGY READINESS LEVEL [TRL]



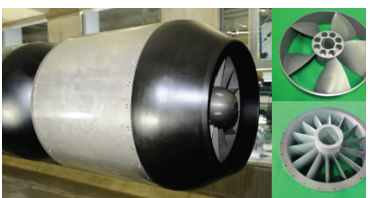
Multiphase Pump



Ultrahigh Speed Centrifugal Pump

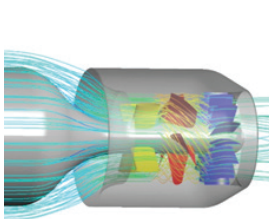


Axial-Flow Propeller

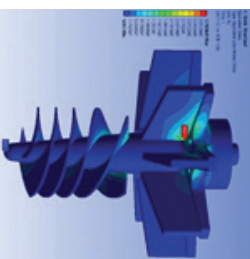


- This pump development technology is a verified technology with reliability and includes the structural analysis/flow analysis technology and performance test.

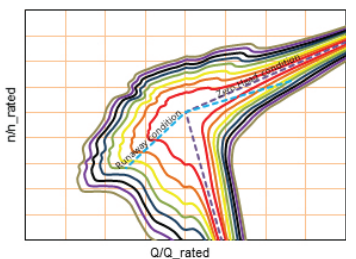
Flow Analysis



Structural Analysis



4 Quadrant Performance Test



Current Intellectual Property Right Status

KNOW-HOW

- High-efficiency impeller/diffuser/volute design technology
- High-suction performance inducer/impeller design technology
- Pump composition design and production technology
- Rotor dynamics technology
- Structural analysis/flow analysis technology
- Performance test technology