

Experts in Solid-Liquid Separation

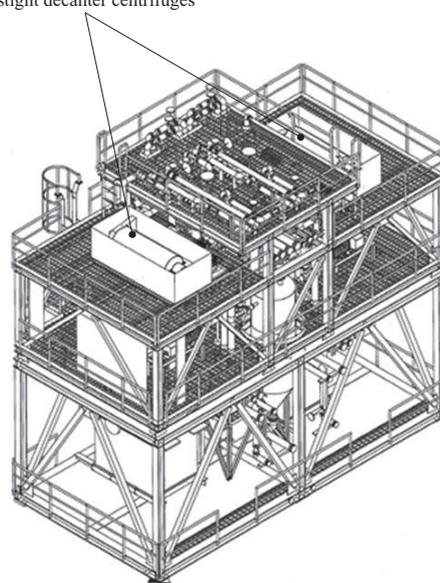
Gastight screw decanter centrifuges: Playing a crucial role in natural gas processing plants

IHI's screw decanter centrifuges are used in a variety of fields ranging from manufacturing processes to wastewater treatment. In recent years, gastight decanters have become widely used in the fields of oil and gas processing.



Gastight screw decanter centrifuge

Gastight decanter centrifuges



Mono Ethylene Glycol (MEG) reclamation module

The need for gastight decanters

A screw decanter centrifuge is a machine that uses a centrifugal force generated at a high rotational speed to continuously separate a solid-liquid mixture (slurry) into solid and liquid. Decanter centrifuges are widely used in a variety of fields, including manufacturing processes and sewerage/wastewater treatment. IHI has a proud record of having delivered more than 10 000 decanter centrifuges since it began selling them in the 1950s.

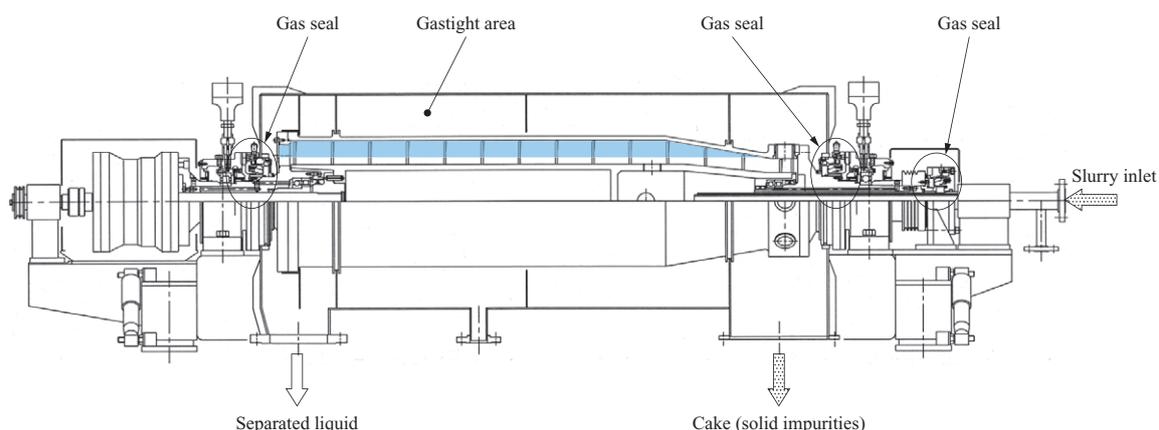
However, in the conventional decanter, gastightness can not be ensured due to the opening of the rotary shaft, which penetrates part of the casing, so that it was difficult to deal with the high value added products field such as chemical processes and manufacturing process field and oil and gas process, which requires processing under sealed conditions. Having recently developed gastight screw decanter

centrifuges, IHI has now successfully penetrated into these fields.

The gastight decanter centrifuges discussed here have been adopted in the Mono Ethylene Glycol (MEG) reclamation modules used at natural gas plants and they are currently being used worldwide.

The function of MEG

MEG is injected as a freezing-point depressant into the pipelines used to transfer gas from gas wells to onshore or offshore sites; in other words, it acts as an antifreeze solution. Because gas pipelines also contain some moisture, they may clog if the moisture freezes. Accordingly, MEG is continuously injected into the pipelines to prevent clogging, and then recycled within the system due to its high cost. With repeated recycling, the MEG in the pipelines is gradually contaminated by salts, hydroxides, and chemical substances



Cross-sectional view

used for control, which leads to a reduction in the freezing-point suppression function of MEG. Given this, the MEG is passed through a reclamation module on a regular basis to remove impurities for regeneration. As the first gastight decanter centrifuge in the world to be specifically designed for use in the MEG field, IHI's latest decanter centrifuge is the key hardware for separating solid impurities from liquid MEG in the MEG reclamation module.

Technical features of the gastight decanter centrifuge

The gastight decanter centrifuge has the following technical features for optimizing its application in aforementioned process.

(1) Use of a pressure-resistant, gastight structure

The pressure-resistant, gastight structure of this decanter centrifuge ensures that there is no leakage of the processing materials, including solvents and other hazardous substances, and that it prevents processing liquids from coming into contact with the air as well.

(2) Adoption of a non-contact gas seal system (static pressure type)

Because a non-contact gas seal method is used for the shaft seals, the loss of power caused by the use of systems with contact mechanical seals can be avoided. In addition, flushing/quenching liquid and incidental equipment for circulating these liquid are not required. Furthermore, there is no contamination of the processing liquids by the abrasion particles generated from the seal materials.

(3) Optimization of a gas seal embedded structure

The increase in the shaft length compared to that of conventional machines as a result of the addition of a gas seal mechanism has been minimized, thereby lowering the critical speed of the rotating bowl and ensuring that its operational rotational speed is about the same as that of conventional machines. Furthermore, the main part of the gastight decanter centrifuge uses a design and structure that is common to conventional machines to maximize of compatibility.

(4) Specifications for oil and gas industry applications

IHI offers product specifications that meet the specific needs of the users' oil or gas applications, as well as various types of production-related testing. For instance, the installation sites vary from one case to the next. Users of the gastight decanter centrifuge are primarily the major multinational oil companies, so gastight decanter centrifuges are installed not only in onshore plants, but also on offshore platforms or floating production storage and offloading (FPSO) units.

IHI also offers gastight decanter centrifuges that are designed to meet requirements that will vary from user to user or project to project by customizing them for specific specification needs, including the selection of the mechanical design, the materials, the instrumentation devices, and any peripheral devices.

Future expansion plans

Since it began selling gastight decanter centrifuges for a wide range of applications — including onshore plants, offshore platforms, and FPSO units — IHI has built up a solid sales record in this line of business. From fiscal 2016 onwards, IHI expects to deliver at least 10 more units. IHI has received many inquiries from oil- and gas- related projects currently underway around the world, and demand for IHI's gastight decanter centrifuges in this industry is strong.

In addition to the oil and gas processing industries, IHI also aims to proactively expand into chemical processing markets, such as the manufacturing of resins and a series of chemical products.

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