

Decanter In-Line Centrifuges



- Automatic Operation
- Barite Recovery and/or Fines Removal Mode
- Speed up to 4000 RPM
- Automatic Torque Control
- Automatic Vibration Control
- Automatic Energy Generator System
- Liquid Level Adjustment
- Stainless Steel Material



In-Line Centrifuge Characteristics

The Andritz “high-performance” polyvalent rotor: A decanter uses centrifugal force to accelerate the sedimentation of solid particles to be separated from a liquid. The fluid to be treated is fed into a rotor composed of a bowl and screw. These turn at high speed, the screw slightly faster than the bowl. The screw conveys and evacuates the decanted solids towards the conical end of the bowl while the clarified liquid is evacuated from the opposite end.

“In-line” design: The Andritz IN-LINE centrifuge design will secure minimum: - Noise level - Vibration - Weight - Space - Energy

New anti-abrasion protection: All parts subject to abrasion (in particular the screw thread) are now protected by our special new surface (Vickers hardness 3000-4000). The coating is unbreakable, removable and renewable.

Energy generator: The reducer input shaft must be slowed down to ensure a positive differential speed between screw and bowl and so to convey and evacuate the decanted sediment. This slowing down can be achieved by the use of an electromagnetic brake, but this disperses the necessary power which is lost as heat. The uniqueness of the Andritz system lies in the use of a motor and generator with continuous frequency variator circuit intersected so as to recover and re-circulate the power needed for braking.

Specially designed reducers: Compact construction, high reduction ratio, exceptional efficiency, large overload capacity, virtually no maintenance.

Stainless Steel contact parts: All parts in contact with the mud are in high quality Stainless Steel material, with a lifespan of more than 20 years.

Liquid level adjustment: Very easy access to adjusting discs. The level can even be adjusted while the decanter is running (optional).

Maintenance: The screw can be removed without dismantling the bowl and drive. Designed for modular handling. Bearings and joints are available from local trade outlets. The two main bearing blocks are lubricated with grease. Complete housing ensures safe working conditions conforming to accepted standards.

GM Automatic Centrifuge System

The GM centrifuge system includes two (2) Andritz D4N IN-LINE Stainless Steel (wetted parts) centrifuges, two (2) screw feeding pumps and one (1) complete control system.

DESCRIPTION

The centrifuge system can be operated in two modes:

- **Parallel Fines Removal**
- **Barite Recovery with Fines Removal**

Note! Automatic or manual operation is available for both modes.

Parallel Fines Removal Mode

In this mode both centrifuges will be set at high speed (approx 3000-3500 RPM) and fed from the degasser discharge tank or from the mud pits by the two feeding pumps.

Both centrifuges will strip the mud and discharge all solids into the solids chute, while clean mud will return to the mud pits.

Barite Recovery Mode

The primary centrifuge, which will have low speed (approx 2000 RPM), will be fed from the degasser discharge tank by the first feeding pump. The centrifuge will then separate the barite which will be returned into the active mud tanks, while the fluid, containing fines, will be routed to the centrifuge holding tank.

This fluid will then be fed into the secondary centrifuge by the other feeding pump. This centrifuge, operated with high speed (approx 3000-3500 RPM), will separate the fines, which are gravity dumped directly into the chute and clean mud will be gravity fed back to the mud pits.

Centrifuge Control System

The centrifuges are equipped with a frequency controlled main bowl motor for absolute speed (AS) variation and frequency controlled screw motor for relative speed (RS) variation. Local speed and torque sensors give signals from the centrifuge shaft to the centrifuge Covirel computer instrument (patent), which will supply signals 0/4 - 20 mA) to the mud reconditioning PLC system.

The centrifuges will be fed from the feeding pumps, with flow regulated by a frequency controlled motor.

The centrifuges can be controlled in manual or in automatic mode via DCDA/PLC. In automatic mode the feeding pump flow will be adjusted in accordance with centrifuge torque level. A 4-20 mA torque signal will be received from Covirel speed/torque microprocessor to an analog input to DCDA-PLC.

If the torque still increases a set point, "H Torque" has to trip the pump and give an alarm signal.

The absolute speed (AS) and the relative speed (RS) will be set (adjusted to) at the best speed, depending on the type of inlet solids and liquid. Higher speed with fine solids (LGS) and lower speed with heavy solids (HGS).

If the "HH Torque" set point is reached, the centrifuge will trip.

Vibration sensor High set point will give a signal to the DCDA/PLC system for alarm and shut-down of system at HH Vibration.

An absolute speed signal (bowl speed) and relative speed signal, both 4-20 mA, are received from Covirel microprocessor as analog inputs to DCDA/PLC system. This signal together with torque signal and pump speed signal will be displayed on the DCDA/PLC VDU's.

Reference List

Centrifuges Norway

PROJECT	CLIENT	OPERATION
DEEPSEA TRYM	Odfjell Drilling	Barite Recovery/Fines Removal
EKOFISK II 2/4-X	Phillips Petroleum Comp.	Barite Recovery/Fines Removal
EXPLORER 1	Navis	Barite Recovery/Fines Removal
FLORØ	Statoil	Mud Cleaning Test (Rental)
GRANE	Norsk Hydro	Barite Recovery/Fines Removal
GYDA	BP Norway Ltd U.A.	Barite Recovery/Fines Removal
HEIDRUN	Conoco Inc	Barite Recovery/Fines Removal
KVITEBJØRN	Statoil	Barite Recovery/Fines Removal
S10000	Saipem	Barite Recovery/Fines Removal
SNORRE B	Saga Petroleum A/S	Barite Recovery/Fines Removal
VISUND	Norsk Hydro	Barite Recovery/Fines Removal
IRAN ALBORZ	NIOC (National Iranian Oil Co.)	Barite Recovery/Fines Removal

In addition, several centrifuges have been sold internationally outside Norway e.g. BP UK/Holland, Shell and Amoco Holland.