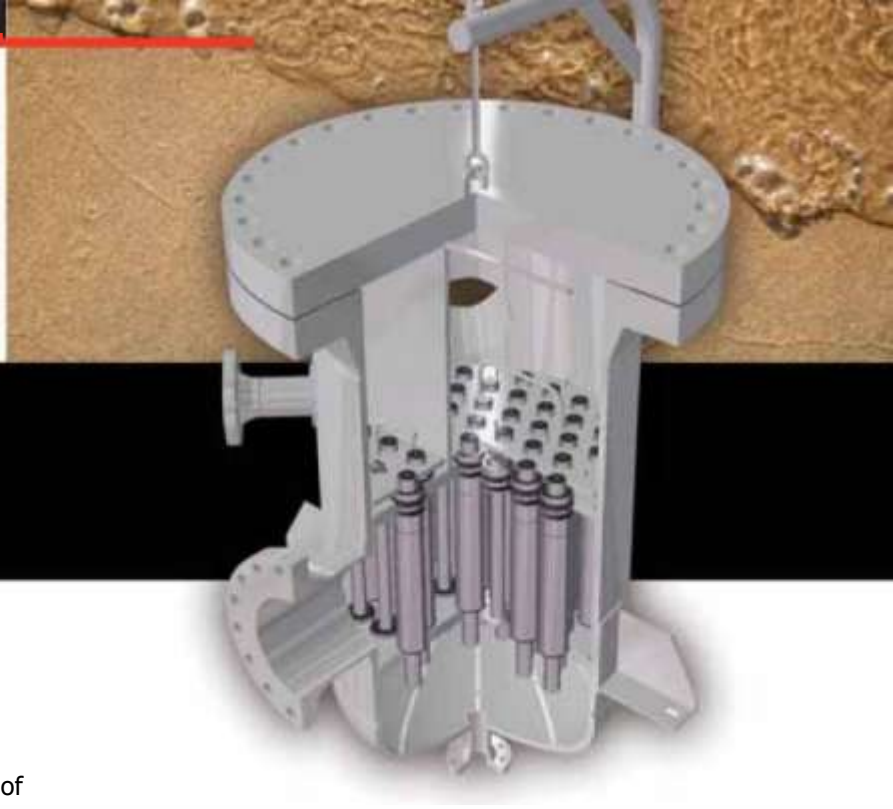
Excelling in

Separation Solutions



CHE Desanding Hydrocyclone

Overview

Solids are a problem in Oil & Gas production facilities and management of separated solids is a critical component of any production process. ChristoHouston Energy Inc has developed the latest generation in hydrocyclone technology, the CHE Desanding Hydrocyclone. The CHE design consists of an involute inlet geometry which minimizes fluid turbulence and reduces inlet wear. The innovative geometry produces finer separation and increased throughput at lower pressure drops than conventional designs. CHE hydrocyclones are designed to meet the harsh conditions of the upstream market and are constructed of wear resistant reaction bonded silicon carbide.

Principles of Operation

The hydrocyclone uses energy from the flow stream to achieve cyclonic separation of solids. The change in flow direction forces the mixture to spin in a radial vortex pattern. This vortex flow is accelerated as the internal diameter is reduced over the length of the cone. This flow pattern causes the flow to segregate relative to the specific gravity differential; heavier material to the outside and lighter material to the core. In desanding applications, solids exit through the apex and collect into an accumulation chamber, where they are periodically purged, while the overflow discharges continually.

CHE hydrocyclones are designed to meet the harsh conditions of the upstream processes.

Mechanical Design System Features

CHE Systems provides hydrocyclones designed to achieve the most efficient separation while managing pressure drop. Sizing options include: 50mm and 75mm diameter liners that are housed inside a larger pressure-containing vessel.

When turndown requirements exceed the normal hydrocyclone ratio of 3:1, CHE Systems can offer a wide turndown design. Turndown ratios that exceed 50:1 are achievable with this design. This is accomplished by compartmentalizing the overflow section and including isolation valves for each compartment. The number of operating liners is determined by the system differential pressures and flow rates and the entire process can be manual or automated.

CHE engineers will work with you to develop the most efficient, cost effective system for your application.

CHE INC.

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Typical Applications

Solids are removed from the process:

- At the wellhead upstream of the choke (up to 15,000 psi, multiphase systems, and 100% gas flow)
- Downstream of the choke and before the production separator (wellstream)
- From the separator in the aqueous phase or sand jetting effluent
- Before reinjection for secondary recovery
- Primary separation of solids from production separators
- Solids removal from vessel desanding operations

Key Features

- Variety of materials of construction
- ASME code stamped (Div I & Div II)
- State-of-the-art hydrocyclone materials
- Continuous or intermittent discharge
- Stand alone equipment or complete skid packages
- Existing installations and detailed knowledge of high pressure, multiphase systems (15,000 psi and 100% gas flow)
- Compact design for reduced footprint and weight
- Wear resistant materials of construction for increased reliability and low maintenance
- Flexible operation for variations in rates
- Installation options for easy retrofit and piping

The closely packed CHE 50 or CHE 75 liners utilize the latest separation technology, which produces finer and sharper separations than other hydrocyclones in the market. They are suited for fine solids removal down to about 10 microns. The hydrocyclones are capable of operating within any given range of flow conditions. The desanding vessel with internal plates supporting the hydrocyclone liners provides high abrasion resistance. Operating close to the target pressure drop will maximize the recovery. The CHE Hydrocyclones are a superior model for Wellhead Desanding Systems because of their ability to produce a high level of separation of small size particles. The ceramic liners are fully replaceable thus provide a cost effective wear solution for desanding applications.

MATERIALS OF CONSTRUCTION

Proper material selection is critical for hydrocyclone design. The materials used must be able to handle the range of temperatures and pressures imparted on the unit, but most importantly they must withstand the erosive and corrosive nature of the fluids.

The typical CHE Desanding Hydrocyclone vessel housing materials of construction are carbon steel, stainless steel or duplex stainless steel. All these metals can be designed to handle virtually any pressure or temperature commonly seen in Oil & Gas applications. Ceramic cyclones are commonly used because of its resistance to hydrocarbons and extremely good impact and sliding wear resistance.

Because of extreme erosive applications, CHE's are typically offered in Reaction Bonded Silicon Carbide for extra erosion protection. In summary, we can offer a wide range of materials, in grades suitable for all wear applications and process requirements.

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