

# Merpro® Tore™ Trap - Technology Document

## INTRODUCTION

ToreTrap is a single vessel desander and accumulator designed to remove sand from an inlet fluid stream with minimal disruption to the flow. Solid/liquid hydrocyclones deposit sand within the accumulation section whereupon the Tore installed in the base of the accumulation section allows on-line sand discharge. ToreTrap can be used in conjunction with a sand cleaning unit, for example a ToreScrub, to allow sand to be cleaned to meet current environmental standards for disposal.

## WHAT DOES TORETRAP DO?

The ToreTrap removes sand from a process fluid stream before the sand can cause problems with downstream equipment and allows on-line transfer or disposal of the captured sand while remaining on-line. The ToreTrap can also be used off-line in batch operation, hydro transport most solids such as sand, grit, mud etc.

## HOW DOES TORETRAP WORK?

Well fluids containing sand, enter the de-sanding cyclones installed in the upper section of the ToreTrap. These liners induce high centrifugal forces within the fluids, encouraging the sand to disengage and drop to the accumulation section in the lower section of the ToreTrap. The substantially sand free fluids exit the ToreTrap via the cyclone overflow and continue to the remainder of the process equipment. After a set time period, or once the sand has reached a high level within the accumulation section, the Tore in the base of the ToreTrap is activated.

The Tore utilises a motive fluid supply to fluidize and transport the sand as slurry from the accumulation section in a controlled manner. The sand can be directed to a cleaning package, disposal or other equipment as the project dictates. Typically a 1" Tore requires a motive fluid flow of 3-4 m<sup>3</sup>/hr to operate at a delivery pressure 0.5 bar above the operating pressure of the ToreTrap vessel. The ToreTrap continues to separate sand from the inlet fluids as this disposal occurs. Due to this on-line removal, the ToreTrap is superior to other desanders which may require off-line depressurisation or a separate accumulator vessel to operate. ToreTrap vessels can be installed as part of a larger sand handling package or retrofitted to an existing plant. The operation of the ToreTrap can be fully automated allowing possible installation subsea to provide wellhead desanding or to allow removal of sand in hazardous areas.



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## FEATURES AND BENEFITS:

- Allows sand removal from a fluid stream without the need to take the ToreTrap offline
- Single vessel for desander and accumulator providing reduced space requirements and weight compared with other solutions
- No moving parts in contact with sand, there are low maintenance requirements
- Removal of sand by ToreTrap prevents sand reaching production equipment, eliminating erosion problems and improving production efficiency
- The cyclones and the Tore are both insensitive to motion, allowing the ToreTrap to be used in a variety of installations and situations
- Requires low feed pressure and flowrate to remove the sand from the accumulation section
- Operation can be easily automated and incorporated in a wider plant control system

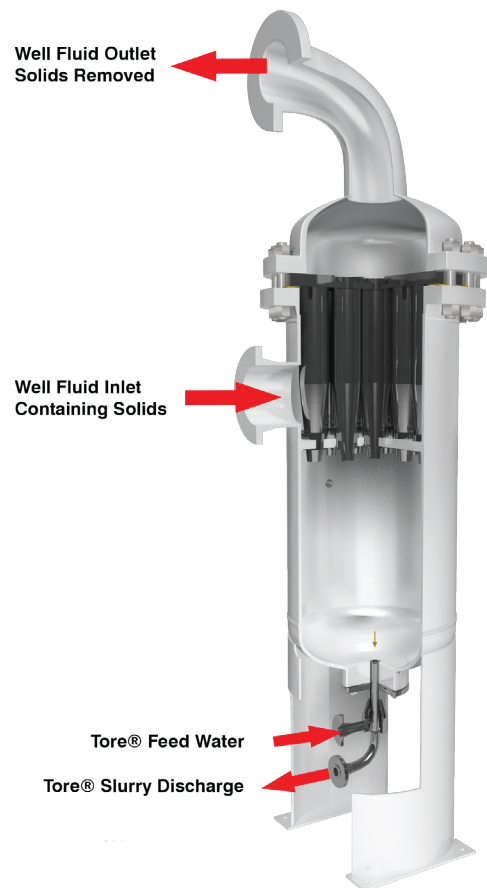
## APPLICATIONS:

Desanding - wellhead design / wellstream design

Produced water treatment to protect downstream equipment

**The following industries may have requirements for ToreTrap:**

- Oil & Gas
- Water Treatment
- Pharmaceuticals
- Mass Production food and drink - removal of solids from cooking oils and other fluids
- Mining



\*ToreTrap illustration fitted with external Tore