

# Excelling in Separation Solutions

## enerscope Solids Transport Device



**Enerscope offers a complete line of solids management equipment designed to remove solids from upstream oil and gas production fluids. The Enerscope (EST) Solids Transport Device is a compact fluidizing and solids transport solution.**

The Enerscope EST Solids Transport Device allows for on-line solids fluidization and transport of solids which settle to the floor of vessels. This device has no moving parts; it uses a motive fluid which can be supplied from almost any source to fluidize solids in a controlled manner in a defined region of a vessel.

For many years, Enerscope Systems International has been recognized as the leader in desanding technologies. It is this technology that is the basis for the EST design.

### Principles of Operation

The EST uses our hydrocyclone technology to create a vortex beneath the device which affects settled solids in an approximate area of 1 meter in diameter at its 10 psi (0.7 bar) is introduced into the EST inside the vessel. The water is fed tangentially to the inlet section of the unit and directed downwards. The EST creates rotational acceleration and in turn a vortex which draws solids into the center. These solids

then exit from the center of the EST which is directly connected to the discharge piping at the base of the vessel.

This area of the vessel is swept clean of solids using a low energy low flow cyclonic pattern. The solids are evacuated through the center of the EST to an exit point (nozzle). An EST manifold can be designed to cover all or part of a vessel. The resultant slurry created by the EST can be up to 70% by weight solids. This dense slurry makes it possible to handle solids in an efficient and effective manner as the amount of produced water delivered with the solids is minimized.

When compared to conventional sand jetting systems, slurry density is as much as 9 times heavier. A 50mm EST can transport up to 16 tons of solids per hour. The EST manifold is the evolution of the sand jet into a more efficient device for transporting solids.

The EST can be operated both on-line and off-line. For both operations, motive water is required to produce the circular mixing action on the vessel floor to fluidize the sand/solids.



## Key Features

- Effectively removes solids which help prevent emulsions, instrument failure, erosion and corrosion, pump damage, creation of off-spec product, etc.
- Uses minimal flow and pressure of motive fluids – eliminates erosion
- Creates a dense slurry – eliminating the need for downstream fluid handling equipment
- Slurry transport over long distances is possible
- No moving parts – highly reliable
- Requires minimal support instrumentation and control equipment
- Allows for on-line removal of solids
- Can be used in conjunction with other Enerscope solids management equipment such as sand cleaning and bagging equipment

## The Enerscope Advantage

*The EST has been developed over the last few years from an ongoing research program conducted by Enerscope into all our technologies, which in this case, is aimed at replacing the conventional sparging systems used in Oil & Gas Production vessels for removal of sands/solids.*

The EST has been designed as the optimum size to achieve maximum coverage over the vessel floor consistent with the removal of solids well within the normal range of particle sizes expected for removal of sand.

- Lower turbulence
  - Eliminates instrument fouling
  - Minimizes sand carryover problems
  - Minimizes re-entrainment and emulsions

## Feed Requirements

Nominal motive fluid feed (approximately 3-4 m<sup>3</sup>/hr). The fluid is supplied at a pressure of approximately 0.6-0.7 bar (8 to 10 psi) above the operating pressure of the vessel.

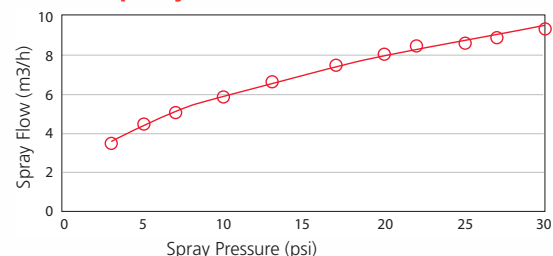
### COMMON APPLICATIONS:

**Test & Production Separators** FWKO **Storage Tanks** Accumulator Vessels **Sand Cleaning** **Slurry Transport**

- Higher discharge concentration
  - Smaller Feed Pump
  - Smaller downstream handling equipment
  - Faster removal
- Lower feed pressure
  - Eliminates vessel wall erosion
  - Eliminates nozzle plugging
- Reliability and ease of use
  - Can operate EST 50 frequently with no upset to operations
- Economical solution for replacement of sand jetting systems
- Competitive with other sand jetting methods
- Lowers overall costs with on-line operation
- Less Intrusive tank sand pans and high volume-high pressure jetting operations
- Manifolds constructed to specification
- Couples with external sand handling options available from Enerscope

The Design of the EST has taken into consideration the normal standards in the Oil & Gas industry for service life of up to and greater than 30 years. Accordingly, for produced water, the standard unit is manufactured in Duplex 2205 Stainless Steel. In addition, no maintenance is required, the device has no moving parts, and internal blockages are very unlikely to occur.

**EST 50 Capacity Calculator**



## Piping Design

Enerscope will assist in the design and application of the EST to ensure transport velocity criteria acceptable. The piping design must allow for minimal flow velocities to avoid the settling of solids (typically 1.5-3 m/s).

CORPORATE OFFICE

LOCAL CONTACT