Spherical Sand Trap

Higher capacity, effective sand removal

Sand flowing back at high velocities may damage downstream surface equipment including chokes, separators, piping, and valves due to erosion during frac flowback, initial production and permanent facility operation. Our Sand Traps reliably and effectively remove sand to protect this equipment. The unique spherical design provides a larger cross-sectional area resulting in increased solids holding volume. This allows for less frequent sand dumping and overall maintenance.

Available in both 36 and 48 in. diameter, our spherical Sand Traps have proven effective in tight gas or unconventional gas production fields.

	48 in. ID	36 in. ID
Design pressure	5,000 PSIG @ 200°F MDMT -40°F	10,000 PSIG @ 200°F MDMT -50°F
Vessel code	ASME section 8 division 1 constructed and stamped	ASME section 8 division 2 constructed and stamped
Piping	3 in. 1502 HU end connections	3 in. 1502 HU end connections
Pressure relief valve	1 in. 5,000# PRV	¾ in. 10,000# PRV
Sphere volume	1.25 yd^3	0.52 yd^3
Sand capacity	1,500 lb	625 lb
Weight	11,600 lb	9,800 lb

Product Details

Features

- Removable sacrificial deflector protects vessel internals leading to long vessel life
- Offered as a standard package on an L-skid with a gas outlet and drain spools
- Available with NOV's choke valves, plug valves, flow iron, and manifolds

Benefits

- Greater cross sectional area and internal baffling leads to lower flow velocities and improved sand removal
- Larger sand holding capacity equating to less frequent sand dumping
- Allows wells to be flowed back and produced at higher flow rates
- Allows operation of wells with less than complete well cleanup

Processing Rate and Efficiency

Effective sand separation is a function of sand particle size, liquid and gas flow rates, operating pressure, and surging and slugging flow. Our spherical design works well across a wide variety of flow conditions and provides excellent sand capture efficiency. The spherical Sand Trap provides superior performance as compared to traditional vertical and tangential inlet sand separators by providing a greater cross-sectional area, strategically placed internal baffling, and more sand holding capacity resulting in decreased fluid velocities with improved sand capture. The sand trap does not incorporate screens or filters that require cleaning. It is compact, portable, and easy to service.

Operation

Our spherical Sand Trap should be placed in front of the choke manifold in most cases. For high flow wells, multiple Sand Traps may be operated in series or parallel to further improve performance. Well fluids including oil, gas, water, and sand flow into the sand trap and contacts deflector plates/baffles within the vessel. The plates/baffles break the fluid's momentum and divert the flow, directing gas and liquids out of the separator, while holding the sand within the vessel. Sand is periodically removed from the vessel by opening the sand discharge line and allowing the deposited sand to be flushed from the vessel.

Typical 100 Mesh Removal Efficiency

	Liquid rich		Dry gas	
	High pressure	**Low pressure**	**High pressure**	**Low pressure**
Operating pressure	5,000 PSIG	2,000 PSIG	5,000 PSIG	2,000 PSIG
Inlet gas rate	23 MMSCFD	11 MMSCFD	30 MMSCFD	14 MMSCFD
Inlet liquid (water and/or oil) rate	8,000 BPD	8,000 BPD	1,500 BPD	1,500 BPD