

Well Flow Management

Well Testing | Solids management system

High Pressure Y-Strainer

The high pressure Y-strainer has been designed to remove high velocity drilling, completion and perforation debris during well tests & production clean-ups.

The unit is designed as per Norsok requirements for use on high rate gas and gas-condensate wells, where relatively small amounts of high velocity debris produced during the clean-up phase can damage the choke manifold.

The strainer is based on a dual run set-up allowing flexibility and change over capability during operations. Alternatively the unit can be used as a “rock-catcher” protecting downstream chokes.

The design concept was chosen since it is specialized for mechanical removal of solids from flowing liquids or gases by means of a perforated or wire mesh straining elements. Expro developed the concept into a high pressure unit. (Picture 1)

Picture 2 shows typical tubing conveyed perforation debris from use of RDX explosives in a well, and is an example of the typical types of debris the Y-strainer unit is meant to handle.

Expro strengthened the basic strainer design by designing and introducing a supportive filter sleeve to the filter screen, increasing differential pressure protection against catastrophic failure. (Picture 3) In the event of a filter screen rupture, the filter sleeve restricts debris passing due to the 12 mm holes in the sleeve.

Applications

- High rate well testing and production clean-ups. (Solids levels in mass-rate terms moderate to low)
- High velocity debris & solids removal from well streams

Features and benefits

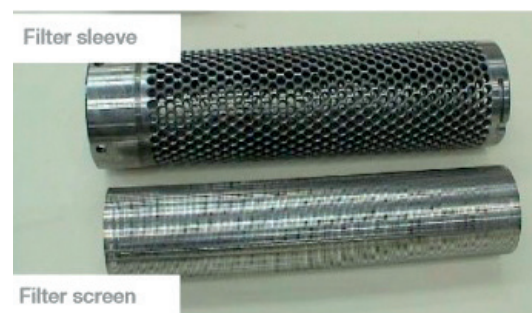
- Effective debris removal
- Changeable screen micron sizes to suit particular needs
- Closed drain system
- Design redundancy and flexibility
- Protection of well test Choke Manifold or production Chokes from erosion and high velocity impact damage



Picture 2



Picture 3





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Technical specifications		
Skid data		
Dimensions (L x W x H) ft. (m)	9.35 x 6.66 x 6.66 (2.85 x 2.03 x 2.03)	
Dry weight – lbs (kgs)	19,842 (9,000)	
Design weight – lbs (kgs)	20,944 (9,500)	
Design code	DNV 2.7.1	
NORSOK Z-015 compliance	Yes	
Service & connections		
Temperature rating - °F (°C)	-20 to 357.8 (-30 to 181)	
Maximum working pressure psi (bar)	10,000 (690)	
Capacity ^{1.}	Pure gas MMscfd (MM Sm³/d)	106.19 (3)
Capacity ^{1.}	Gas + condensate	
	Gas - MMdcfd (MM Sm³/d)	70.79 (2)
	Condensate - bpd (Sm³/d)	12,580 (2,000)
Inlet/outlet	4-1/16" 10k API flange	
Design Code	API 6A (PSL 3)	
Service	NACE-MR-01-75	
Y-strainer internals data		
Filter screen	Type	Wedge wire cylinders
	OD and length	137mm OD x 585mm long
	Wire type	22US profile wire (1.8mm wide x 3.7mm deep)
	Support bars	30 ea. Q35 support bars, 3mm square welded w/ 3 closed windings each end
	Lifting bars	1 each 8mm diameter lifting bar at one end
	Theoretical ID	129.6mm, (without support bars) Approx. 125mm (with support bars)
	Aperture (openings)	1mm – option 1, 2mm – option 2
Filter sleeve	Material	316 stainless steel
	OD x ID	177,8mm x 137,44mm
	Length	500mm (perforated section)
	Number of holes and size	1260 ea. 12mm holes
	Maximum differential pressure	627 bar
	Material	AISI 410 stainless steel
	Material	NORSOK N-004 and NS3472

Note: Theoretic & experienced Y-strainer differential pressure is in the 2-10 bar range at the given flow rates, when there is no (or little) plugging of the screen.

For more information contact your local Expro representative or email welltesting@expro.com

1. Flow capacity is approximate and needs to be assessed for each individual project. Capacities are based on previous field data with approximately 600 bar flowing wellhead pressure and 90°C flowing wellhead temperature.