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 specialised 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

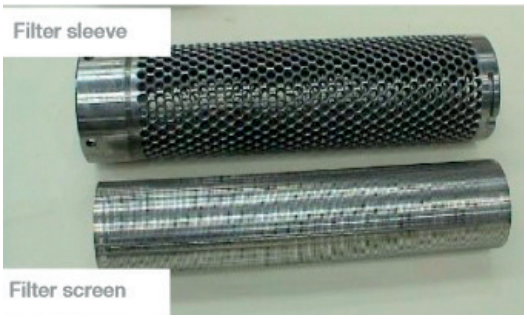
Features and Benefits

- 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 1

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)** **Condensate - bpd (Sm3/d)**	 70.79 (2) 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
	Material	316 stainless steel
Filter sleeve	**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@exprogroup.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.