

# NEXT-100 Pressure Vessel, May 7, 2012

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  - NEXT100 Pressure Vessel Parameters

## Vessel Design simplified, Material chosen.

- Torispheric heads identical - 4 nozzles each - extra capacity
- Head nozzles shortened - extensions will be used as needed
- Nozzle extensions and cover plates contain O-ring grooves and pumpout ports

## Manufacturer chosen - Movesa , Madrid

- Site visit Fall 2011 - one other mfr. visited
- Capable and versatile mfr. - boilers, reactors for food and pharmaceutical, turnkey processing systems
- Separate facilities for stainless steel vs carbon steel
- Convenient for frequent visits during fabrication

## User Design Specification Completed (ASME)

- Specifies all vessel requirements and operating conditions
- Now goes to Mfr. and Certifying Authority for review and approval
- Mfr. will recalculate - final design must be agreed upon
- Head thickness may meet EU code, but not ASME

Parameter	qty	units
Active Volume Radius	53	cm
Active Volume Length	130	cm
Maximum Operating Pressure (MOP) (differential)	14.0	bar
Maximum Allowable Working pressure (MAWP) (differential)	15.4	bar
Minimum Allowable Pressure (differential)	1.5	bar
Inner diameter	136	cm
Outer Diameter, Vessel	138	cm
Outer Diameter, Flanges	148	cm
Length, inside inner shielding	2.28	m
Length, end to end, axial	2.86	m
Vessel Material, Austenitic Stainless Steel, Alloy	316Ti	
Cylindrical Vessel Wall thickness	10	mm
Torispheric Head Wall thickness	10.5	mm
Flange thickness, head to vessel (each)	4.15	cm
Bolt Diameter (Inconel 718), head to vessel flanges	16	mm
Bolt length, head to vessel flanges	11	cm
Number of Bolts, each head to vessel flange	132	
Mass, Vessel and both heads	1200	kg
Mass, Internal copper shielding (12 cm)	10000	kg
Total Detector and Vessel Weight	12000	kg