

HM FLEX TANK SYSTEM



HIGHER MATERIALS, LLC

Complete Fluid Transfer & Containment Systems

FEATURES

1. Greater capacity;
2. Smaller footprint;
3. Foldable transportation and less loads;
4. Less lines and residuals with more reliability
5. Remote liquid level monitoring with high efficiency



Flex Tank Series Specifications

Model	Working Volume	Dimensions for transportation	Dimensions when operating	Weight	Lifting method
SHG160	160 m ³ (42268gal)	10m × 2.8m × 2.8m (32.8' × 9.2' × 9.2')	10m × 2.8m × 9.2m (32.8' × 9.2' × 30.2')	20 ton (44.1kip)	Crane
SHG180	180 m ³ (47551gal)	10m × 2.8m × 3m (32.8' × 9.2' × 9.8')	10m × 2.8m × 10m (32.8' × 9.2' × 32.8')	21 ton (46.3kip)	Crane
SHG210	210 m ³ (55476gal)	11.9m × 2.8m × 2.9m (39.0' × 9.2' × 9.5')	11.9m × 2.8m × 9.8m (39.0' × 9.2' × 32.2')	22 ton (48.5kip)	Crane
SHG240	240 m ³ (63401gal)	14m × 3.2m × 2.8m (45.9' × 10.5' × 9.2')	14m × 3.2m × 8.5m (45.9' × 10.5' × 27.9')	28 ton (61.7kip)	Crane /Hydraulic lift
SHG300	300 m ³ (79252gal)	14m × 3.2m × 3m (45.9' × 10.5' × 9.8')	14m × 3.2m × 10m (45.9' × 10.5' × 32.8')	32 ton (70.5kip)	Crane

300 Flex Tank (single) Spec.

Nominal Volume	300 m³ (79252 gallons)
Effective Volume	295 m³ (77931 gallons)
Footprint	45 m² (484.4 ft²)
Folded Dimension (L X W X H)	14m×3.2m×3.0m (45.9' × 10.5' × 9.8')
Unfolded Dimension (L X W X H)	14m×3.2m×10.0m (45.9' × 10.5' × 32.8')
Weight	32 ton (70.5 kips)
Outlet Pipe Size	6 "
Pressure (filled up)	0.2MPa (29 PSI)
Temperature	-45°C~80°C (-49°F~176°F) Optional w/ Heating Equipment
Lifting Method	Crane

Technical Advantages



B & B

Alpha Tanks

V.E Enterprise



Technical Advantages (Cont'd)

- **160/180/210 Flex Tanks: ~1/4 truckloads of regular tanks**
- **240/300 Flex Tanks: ~1/6 truckloads of regular tanks**



Technical Advantages (Cont'd)

Type	Total Volume Required (m ³)	Volume of Single Tank (m ³)	Tank Quantity (set)	Footprint / single tank (m ²)	Total Footprint (m ²)
Flex Tank	2000	180/210/240/ 300	12/10/9/ 7	28/33/45/ 45	336/330/405/ 315
Regular Tank	2000	45	45	22	990

**Flex Tank : ~1/3 footprint of regular tanks
 1/4 ~ 1/6 truckloads of regular tanks**

Technical Advantages (Cont'd)

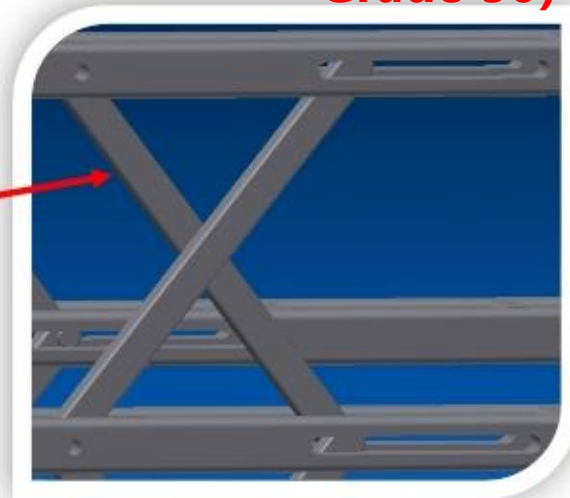
- Easy Assembly ;
- Fewer Hoses with Less Residues and More Reliability
- Remotely Monitor System on Fluid Volume ;



Structure of Flex Tank System

(Flexible Steel Frame + Flexible Net + Rubber Bladder)

Flexible Steel Frame (Q345 Steel) (equivalent to ASTM A572, Grade 50)



Structure of Flex Tank System

(Flexible Steel Frame + Flexible Net + Rubber Bladder)

Rubber Bladder

Material 1: High strength nylon line
+Aging-resistance rubber
(Normal Temp. App.)

Material 2: TPU (Low Temp. App.)

Thickness: 0.08"~0.16"(2mm ~ 4mm)

Design Lifecycle: 8 yrs (rubber);
8 yrs (TPU)

Folding Times: 40,000

PH range: 6~11 (rubber);
4~11 (TPU);

1~11(material available
for request)

Application fields:

Rubber dam (16 year old)



Marine bladder



Structure of Flex Tank System

(Flexible Steel Frame + Flexible Net + Rubber Bladder)

Flexible Net Material: Polypropylene Fiber
Design Lifecycle: 8 yrs

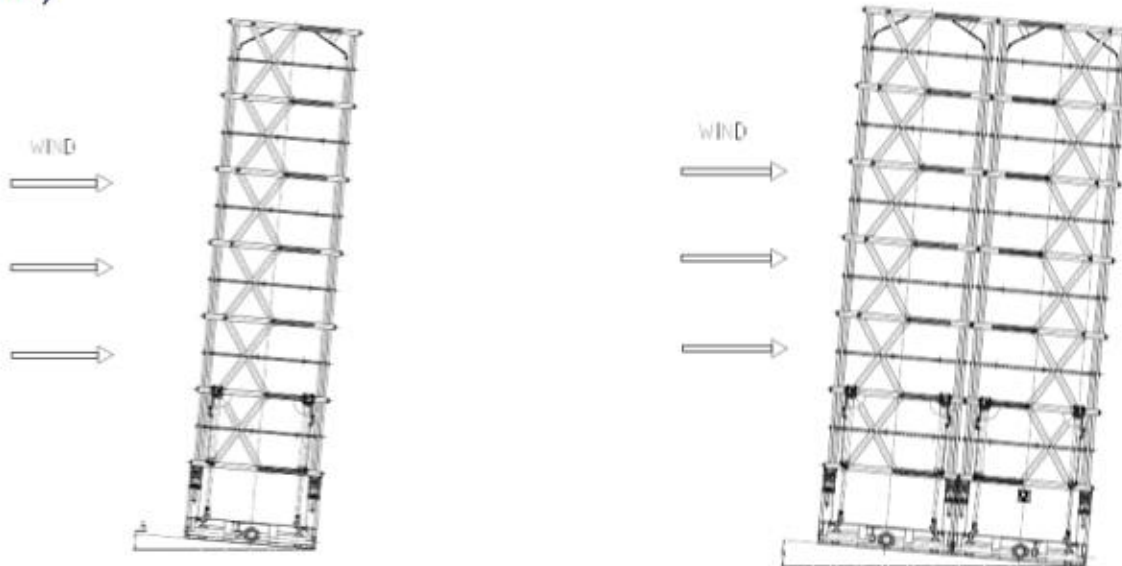


Wind Load Resistance Calculation

180A as example:

One tank could withstand wind speed <46 Knots (23.7m/s; Beaufort Wind Scale: 9);

Two tanks (connected) could withstand wind speed <58 Knots (29.9m/s; Beaufort Wind Scale: 11)



CONDITIONS:

Both overthrow and slide of the tank are considered;

Empty and full conditions of the tank are both considered.

RECOMMENDATIONS:

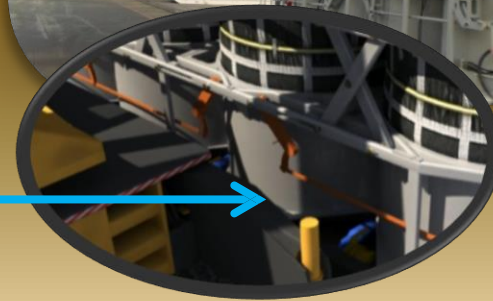
When the angle of inclination of narrow side $\Theta < 1^\circ$ (height difference < 50mm), two tanks are recommended to be connected with each other.

Flex Tank Raise-up and Installation



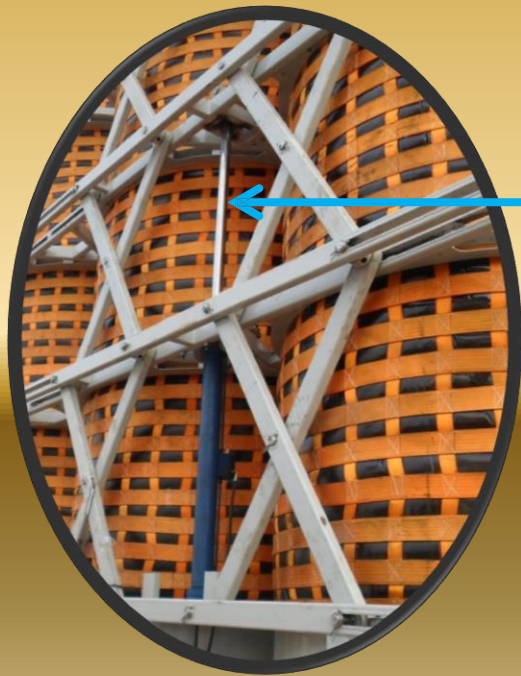
Cylinders

Pull Rod Lock-up mechanism



Raise Up the Flex Tank by Hydraulic System

Hydraulic Pressure : 16MPa
Raising Time : 2~4min



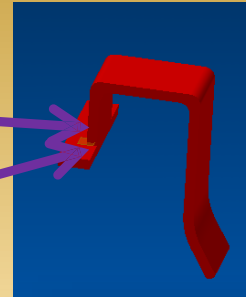
Raise Up the Flex Tank by Crane



Crane Capacity :
25T/30T/50T
Raising Time : 2~4min

Anti-rollover gadget

(1) Top bonding



(2) Bottom Bonding



ACD-1ZL Wireless Level Sensor System (Optional)



Components :

Level Sensor、 Signal
Process Circuit、
CPU

Features:

- No External Power Supply ;
- Remote Real Time Monitor ;
- Wireless Range: 0-800m

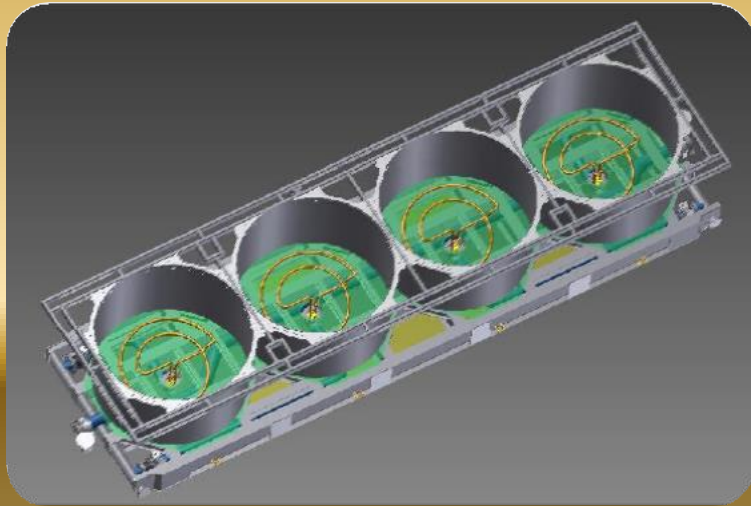
Digital Display for Level (standard)



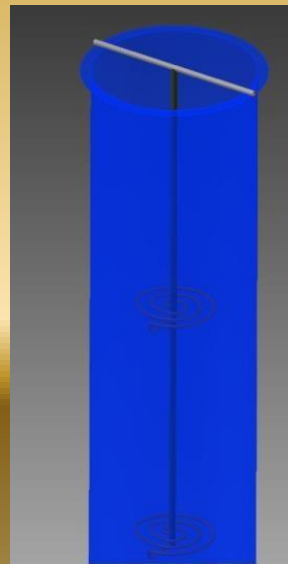
Wireless Components (optional)

Heating Solution in Flex Tank

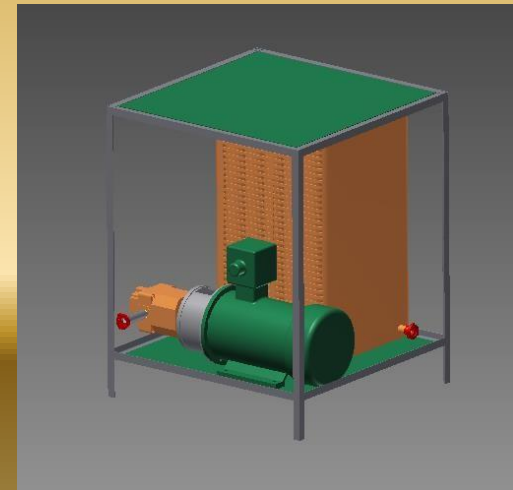
Solutions for Flex Tanks in Freezing Areas



Internal Steam Heating

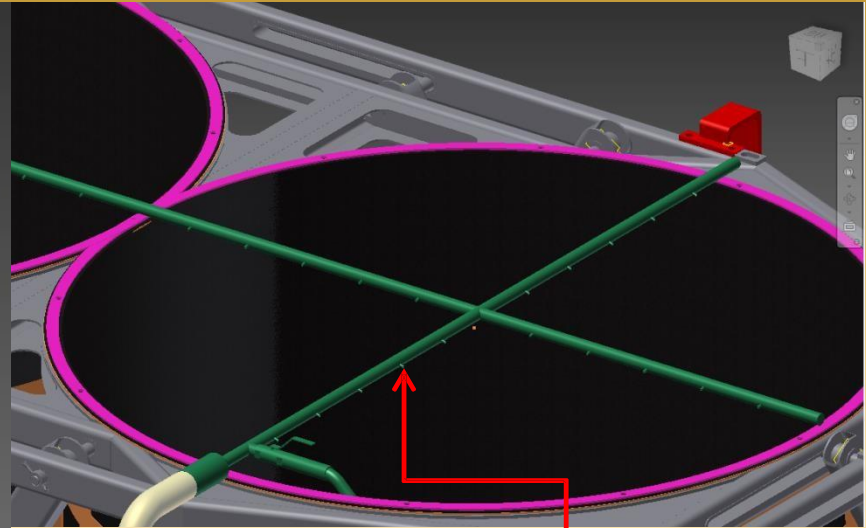
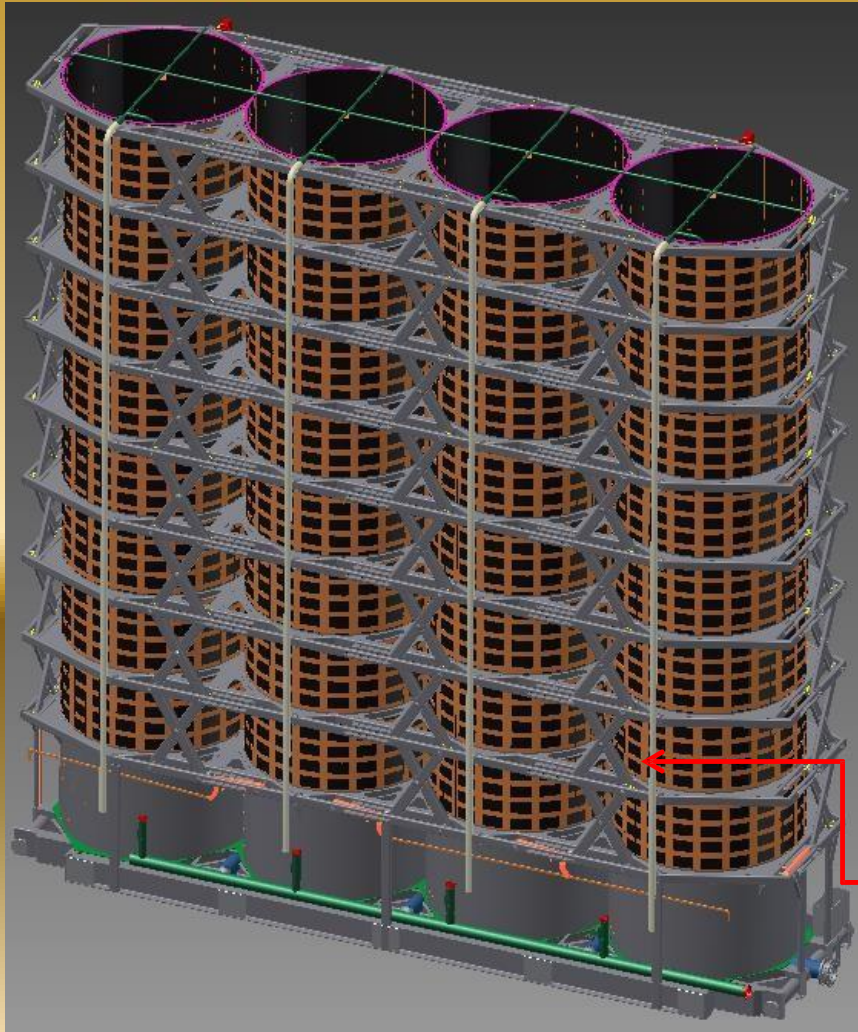


Internal Resistance Heating



External Steam or Resistance Heating

WASH SYSTEM



Washing Nozzle with
Different Angles

Tank Wash By Hoses

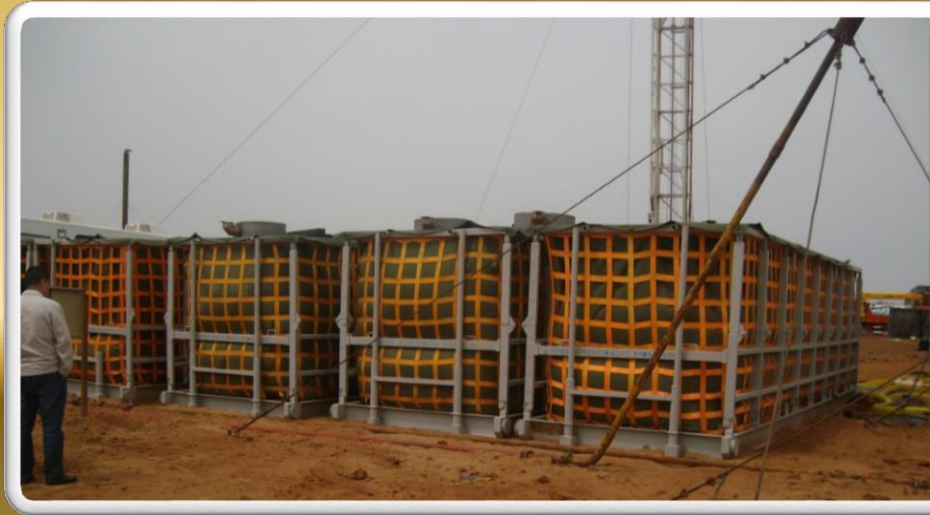
FLEX TANK APPLICATIONS

August 2012 , No. 6 Well Operated by Shell in
Mianyang City of Sichuan Province



FLEX TANK APPLICATIONS

October 2013 , Dongsheng Gas Well in North China



FLEX TANK APPLICATIONS

December 2014, No.H5 Changhe Well in Yibin
City operated by Schlumberger



FLEX TANK APPLICATIONS

June 2015 , Production Field in Xinjiang Province



AWARD IN POLAND OIL & GAS EXHIBITION

flex tank won the “Outstanding Technical Innovation Award” in the 10th Poland Oil & Gas Exhibition & Technical Conference in 2012.

Successful sale to Sinopec in 2013



PLEASE CALL FOR MORE INFO



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THANK YOU