

YHR TANKS

GLOBAL STORAGE TANK AND
ANAEROBIC DIGESTION SOLUTIONS



EXCEED CUSTOMER EXPECTATIONS

YHR INTRODUCTION



Beijing Yingherui Environmental Technology Co., LTD. (as known as "YHR") is a wholly-owned subsidiary of Juncheng Herui Environmental Technology Group Co., Ltd (as known as "JCHR Group").

Founded in 2005, YHR is a Chinese National High-Tech Enterprise. Selected as the third batch of specialized, sophisticated, distinctive, and innovative "Little Giant" enterprises by the Ministry of Industry and Information Technology of the People's Republic of China.

YHR is the global industry leading designer, manufacturer and erector of Bolted Steel Tanks and Silos. YHR has two modern and cutting-edge manufacturing facilities in Tangshan city and Jinzhou city, Hebei Province, China.



The Vice President Unit of China
Enamel Industry Association



The Professional Competence
Assessment Base of China
Enamel Industry



YHR drafted the Chinese
Standard QB/T 5379-2019 for
Glass Fused To Steel Tanks





YHR HISTORY

> 2015

YHR takes the lead in drafting Chinese Industry Standard QB/T 5379-2019 for Glass Fused to Steel Tanks

> 2006

YHR Glass Fused to Steel Tanks entered international market

> 2005

YHR was established in Beijing, China, YHR introduces Glass-Fused-To-Steel technology into China

> 2008

YHR awarded Chinese National High-Tech Enterprise

> 2018

YHR Glass Fused to Steel Tanks certified by NSF/ANSI/CAN 61 for potable water contact, YHR launches new manufacturing facility in Tangshan city, Hebei province, China



> 2020

YHR launches new manufacturing line of Fusion Bonded Epoxy Coated Steel Tanks

> 2022

YHR became the vice president unit of China Enamel Industry Association

> 2021

YHR awarded "Little Giant" enterprises by the Ministry of Industry and Information Technology of the People's Republic of China

> 2023

YHR is awarded the contract for supply four (4) 28500m³ Glass Fused to Steel Tanks in the Dominican Republic

Selected as Top Ten enterprises of China Light Industry Enamel Industry in 2022 and the Professional Competence Assessment Base of China Enamel Industry



GLASS FUSED TO STEEL

YHR Glass-Fused-To-Steel Technology, is a leading solution combines the advantages of both materials – **the strength and flexibility of the STEEL and highest corrosion resistance of the GLASS.** The Glass fused to the Steel at **1500 – 1650** deg. F, become a new material: GLASS-FUSED-TO-STEEL with perfect anti-corrosion performance.

- Top Coat
- Base Coat
- Base Steel



YHR has developed **high-strength TRS** (Titanium Rich Steel) plates specially produced for the Glass-Fused-To-Steel Technology, which can work perfectly with our glass frit and can eliminates the "Fish Scale" defect.

SPECIFICATION

YHR Glass-fused-to-steel Tank Specification

Standard Color	RAL 5013 Cobalt Blue
Coating Thickness	250-450 microns
Coating Process	Standard 2 coats, 3 coats available
Adhesive	3450 N/cm
Elasticity	500 KN/mm
Hardness	6.0 Mohs
PH Range	Standard Grade 3 ~ 11 ; Special Grade 1 ~ 14
Holiday Test	Acc. to tank application, 900V to 1500V
Service Life	more than 30 years

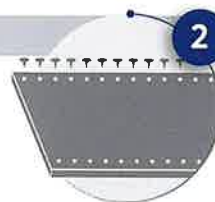
MANUFACTURING PROCEDURE GFS TANK



1

Raw Material

High-strength TRS (Titanium Rich Steel) plates specially produced for the Glass-Fused-To-Steel Technology.



2

Laser Cutting

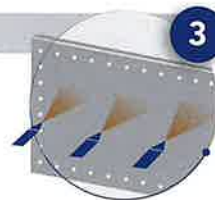
Bolt holes and nozzle openings cut by full-automatic laser cutting to ensure more accurate and efficient production.



4

Bending

The radius of the rolled plates shall be sampling inspected by using the radius sample according to the tank diameter.



3

Shot Blasting

All plates shall be shot blasted to SSPC SP-10/NACE2 (Near White Metal) to remove the surface oxide layer and oil pollution.



5

Glass Coating

High quality glaze from Germany and advanced automatic spraying coating technology as per AWWAD103 standard.



6

Firing

GLASS FUSED TO STEEL-firing in automatic tunnel oven at 800 °C to make glass and steel combined absolutely.



8

Packing

Non-abrasive packaging sheets shall be placed between each plate to eliminate sheet-to-sheet abrasion during shipment.



7

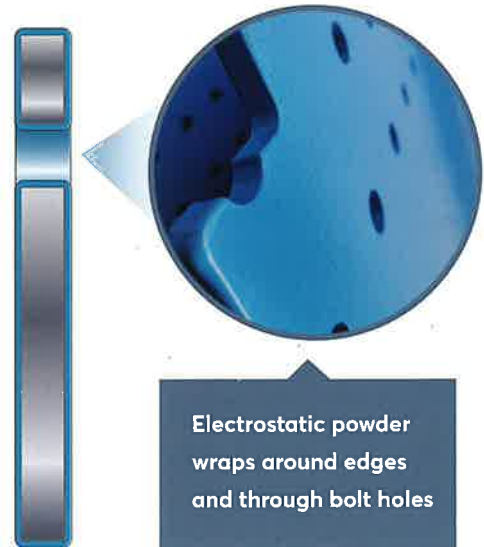
Inspection

Adopted highest standard of quality control system in the industry, Holiday test and coating thickness test every plates.

EPOXY COATED STEEL

Fusion Bonded Epoxy (FBE) is an electrostatically applied coating system with superior coverage and uniform coating thickness. Thermoset resin fusion bonded epoxy used on the internal surface combined with the ultra durable polyester on the external surface ensures high performance corrosion resistance for storage tanks and silos.

Interior and exterior coated surfaces shall be inspected for any visible defect or holiday and have their coating thickness verified by a nondestructive mil-thickness test. Interior coating inspection shall include a holiday test before shipment.



MANUFACTURING PROCEDURE FBE TANK



1 Raw material steel



2 Intelligent steel plate laser cutting



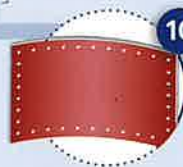
3 Shot blasting to SSPC SP-10/NACE2



12 Packing



11 Final inspection, including holiday test and coating thickness test



10 Crosslink curing

Technical information

Internal coating - Thermoset resin fusion bonded epoxy

Application	Test	Result
Dry Film Thickness	Non-Destructive Test	FBE-V900: Minimum 5 mils / 130 microns FBE-V1100: Minimum 8 mils / 200 microns FBE-V1500: Minimum 12 mils / 300 microns
Hot Water Immersion, 70 C	GB/T1733	Meets or exceeds industry norms
Adhesion	GB/T5210	≥12 / 16 / 16 MPa
Corrosion Resistance	Salty Spray GB/T 1771	2mm creep from scribe at 1000 Hrs / 2000 Hrs / 4000 Hrs
Impact Resistance	GB/T 20624.2	≥18J
PH Range	-	3-13
Abrasion Resistance	Abrasion wheel GB/T1768	CS-17, 1000 cycles <40mg
Hardness	GB/T 6739	2H
Chemical Immersion	50% NaOH, 50% H2SO4	Meets or exceeds industry norms
Holiday Test	900v/1100v/1500v every panel	Discontinuity free (Zero defects at test voltage)

External Coating - Ultra durable polyester

Application	Test	Result
Dry Film Thickness	Non-Destructive Test	Minimum 3 mils / 80 microns
Weathering Resistance	GB/T1865	1000 Hrs no change
Adhesion	GB/T5210	≥12 / 16 / 16 MPa



4
Bending
according to the
tank diameter



5
Pre-treatment,
degrease and
rinse



6
Pre-heating
before coating
application



9
External
electrostatic
spray polyester
coating



8
Green curing



7
Internal
electrostatic
spray epoxy
coating

YHR TANKS ADVANTAGES

- ✓ **Excellent anti-corrosion performance**



- ✓ **Smooth, cohesion less, anti-bacteria**



- ✓ **High-inertia, high acidity/alkalinity tolerance**



- ✓ **Fast installation with better quality:**
design, production and quality control in factory



- ✓ **Less influenced by local weather**



- ✓ **Safe, skill-free:**
less working aloft, no need for long time worker training



- ✓ **Low maintenance cost and easy to repair**



- ✓ **Possible to combine with other technologies**



- ✓ **Possible to relocate, to expand or to reuse**



- ✓ **Beautiful appearance**



ADVANTAGES

Certification & Capabilities

- **ANSI/AWWA D103-2019:**
Factory-Coated Bolted Steel Tanks for Water Storage
- **NSF/ANSI/CAN 61:**
Drinking Water System Components - Health Effects
- **NFPA 22-2018:**
Standard for Water Tanks for Private Fire Protection

- **ISO 28765:2016;**
Vitreous and porcelain enamels — Design of bolted steel tanks for the storage or treatment of water or municipal or industrial effluents and sludges
- **QB/T 5379-2019:**
The design specification of bolted vitreous and porcelain enamelled steel tanks for the storage water or treatment of municipal or industrial effluents and sludges

TANK ANCILLARIES



Roofs

Trough Deck Roof



Double Membrane Roof



Tapered Steel Roof



Geodesic Dome Roof



YHR TANKS APPLICATION



Municipal Wastewater



Biogas Digester



Industrial Wastewater



Slurry Storage



Potable Water



Sludge Storage



Fire Protection Water



Liquid Leachate



Dry Bulk Storage



ANAEROBIC DIGESTION

The anaerobic reactor is a core equipment for the treatment of organic solid waste and high-concentration organic wastewater. It features low energy consumption, high organic load, and the generation of biogas for energy utilization. YHR can customize anaerobic reactors tailored to the water quality characteristics of different projects.

We offer the following reactors to meet your needs:

- CSTR (Continuous Stirred Tank Reactor)
- UASB (Upflow Anaerobic Sludge Blanket Reactor)
- IC (Internal Circulation Reactor)

Application

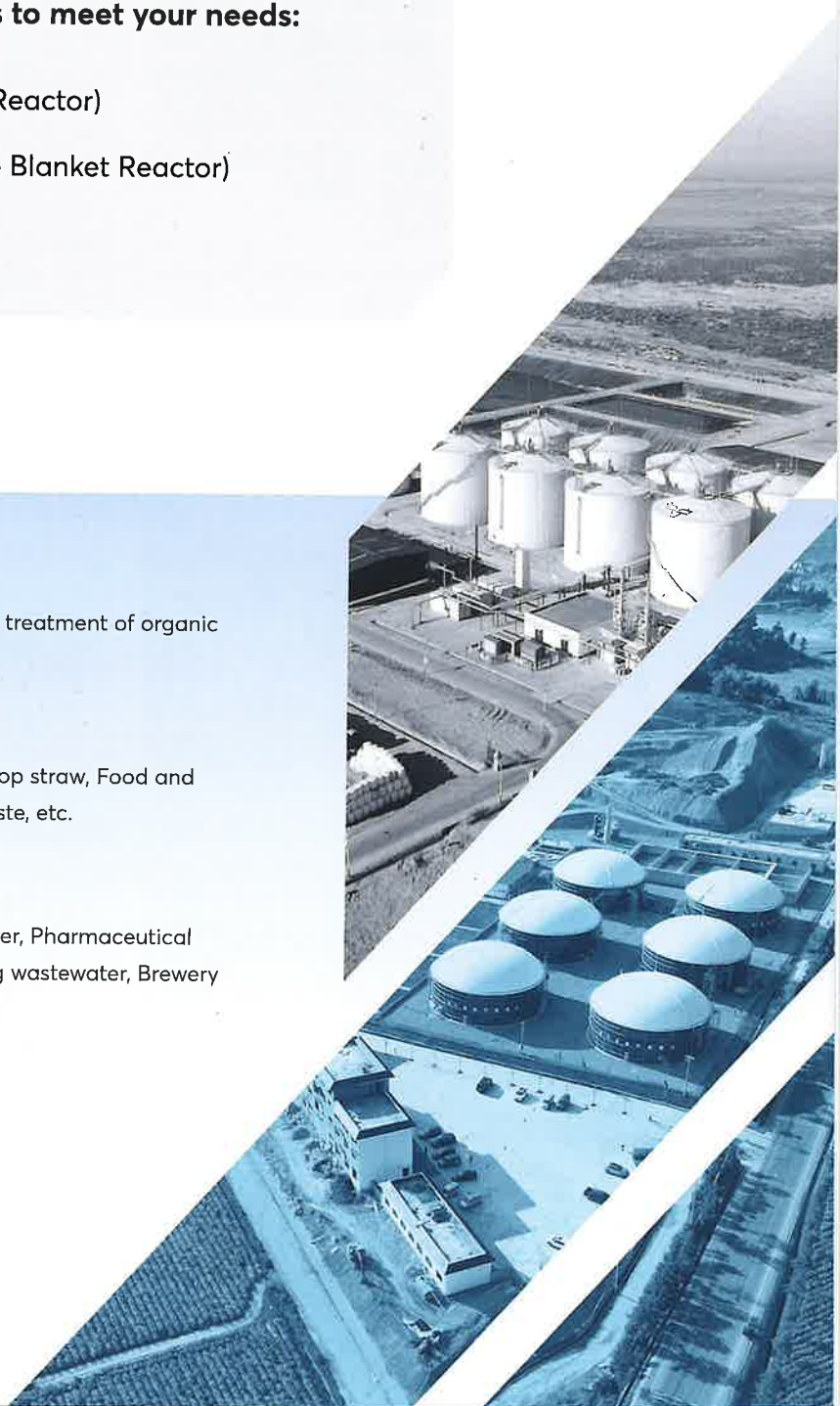
Anaerobic reactors are primarily used for the treatment of organic solid waste and organic wastewater.

Organic Solid Waste:

Livestock and poultry manure, Agricultural crop straw, Food and kitchen waste, Municipal sludge, Distillery waste, etc.

Organic Wastewater:

Landfill leachate, Food and kitchen wastewater, Pharmaceutical wastewater, Dyeing wastewater, Papermaking wastewater, Brewery wastewater, Food processing wastewater, etc.



ANAEROBIC DIGESTION CASES

01



CSTR

Raw Material Type: **Pig manure + Corn stalks**

Tank Capacity: **4447.26m³*6**

Tank Dimensions: **Φ25.97*8.4m(H)*6**

02



UASB

Raw Material Type: **Kitchen Waste**

Tank Capacity: **312m³*1, 4813m³*2, 138m³*1, 1078m³*1**

Tank Dimensions: **Φ6.88*8.4m(H)*1, Φ19.1*16.8m(H)*2, Φ3.82*6m(H)*1, Φ10.7*12m(H)*1**

03



IC

Raw Material Type: **Printing and Dyeing Wastewater**

Tank Capacity: **4399m³*2, 330m³*1, 1508m³*1**

Tank Dimensions: **Φ15.28*24.0m(H)*2, Φ7.64*7.2m(H)*1, Φ21.39*4.2m(H)*1**

GLOBAL PROJECT REFERENCE

01 Fire Protection Water



The Dominican Republic



Fire Protection Water Tank Project

Tank Capacity: 650m³
 Tank Dimensions: Ø9.93m*8.4m(H)
 Construction Time: 2020



The United States of America



Chicago Fire Water Tank Project

Tank Capacity: 510m³
 Tank Dimensions: Ø8.8*8.4m(H)
 Construction Time: 2020



The United States of America




Fire Protection Water Tank Project

Tank Capacity: 180m³
 Tank Dimensions: Ø6.4*5.6m(H)
 Construction Time: 2019

02 Potable Water



Costa Rica 

Potable Water Storage Project

Tank Capacity: **1110m³**
 Tank Dimensions: **Φ11.46*10.8m(H)**
 Construction Time: **2019**



Malaysia 

Felda FGV-Rompin Potable Water Storage Project

Tank Capacity: **320m³**
 Tank Dimensions: **Φ10.7*3.6m(H)**
 Construction Time: **2021**




The Republic of Maldives 

Potable Water Storage Project

Tank Capacity: **240m³*2, 60m³*1**
 Tank Dimensions: **Φ9.17*3.6m(H)*2,**
Φ4.58*3.6m(H)*1
 Construction Time: **2019**



Philippines 

Manila Water Potable Water Storage Project

Tank Capacity: **5730m³*4**
 Tank Dimensions: **Φ26.74m*10.2m(H)*4**
 Construction Time: **2021**

03 Biogas Digester



China



State Grid Tongliao Biogas Plant Project

Tank Capacity: **6470m³*8**

Tank Dimensions: **Φ31.32*8.4m(H)*8**

Construction Time: **2020**



China



Jiuyuan Biogas Plant Project

Tank Capacity: **5650m³*6**

Tank Dimensions: **Φ28.27*9.0m(H)*6**

Construction Time: **2018**



China



Liken Dairy Biogas Plant Project

Tank Capacity: **4430m³*8**

Tank Dimensions: **Φ18.33*16.8m(H)*8**

Construction Time: **2020**



New Zealand



Ecogas Biogas Plant Project

Tank Capacity: **1780m³*2, 4010m³*3**

Tank Dimensions: **Φ15.47*9.5m(H)*2,**
Φ23.2*9.5m(H)*3

Construction Time: **2022**

04 Wastewater/Sewage Treatment



Brazil



Chery Automobile WWTP Project

Tank Capacity: **110m³*2, 420m³*2**

Tank Dimensions: **Φ6.11*3.6m(H)*2,**
Φ12.22*3.6m(H)*2

Construction Time: **2013**



Ghana



Coca-Cola Group Soft Drinks Plant Sewage Treatment Project

Tank Capacity: **480m³*1, 950m³*2, 200m³*1**

Tank Dimensions: **Φ9.17*7.2m(H)*1, Φ12.99*7.2m(H)*2,**
Φ6.88*5.4m(H)*1

Construction Time: **2020**



Solomon Islands



Heineken Sewage Treatment Project

Tank Capacity: **890m³*1, 110m³*1**

Tank Dimensions: **Φ13.75*6.0m(H)*1,**
Φ5.35*4.8m(H)*1

Construction Time: **2019**



China



Shuangliu Airport Sewage Treatment Project

Tank Capacity: **6070m³*3**

Tank Dimensions: **Φ35.91*6m(H)*3**

Construction Time: **2020**

05 Other



China



Landfill Liquid Leachate Treatment Project

Tank Capacity: 2790m³*4, 250m³*1

Tank Dimensions: Φ16.81*12.6m(H)*4,
Φ6.88*6.6m(H)*1

Construction Time: 2019



Indonesia



PT. Gudang Garam Tbk Clove Storage Silo Project

Tank Capacity: 1700m³*15

Tank Dimensions: Φ11.39*16.72m(H)*15

Construction Time: 2020



China



Waste Incineration Liquid Leachate Treatment Project

Tank Capacity: 2580m³*4

Tank Dimensions: Φ14.51*15.6m(H)*4

Construction Time: 2016



Thailand



Yili Group Food Processing Water Storage Project

Tank Capacity: 1070m³*2, 140m³*1, 50m³*2

Tank Dimensions: Φ13.75*7.2m(H)*2, Φ6.11*4.8m(H)*1,
Φ3.82*4.8m(H)*2

Construction Time: 2020



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