



AUTOMATIC CHEMICAL TANK CLEANING SYSTEM

DongGuan Changyuan Spraying Technology Co.,Ltd

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Dongguan City, Guangdong Province, China

Liuyang Factory: China Liuyang City, Hunan Province environmental
Science and Technology Demonstration Park

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公司简介

company profile



Hunan Plant



Guangdong factory

Dongguan Changyuan Spraying Technology Co., Ltd. was founded in 1997 and specializes in the development and manufacturing of various industrial spray products, spray systems, and precision parts. It was the first enterprise in China to focus on the development and production of nozzle spray products. With over 20 years of experience, it has become a leading company in domestic industrial nozzle production and research.

The company has the world's advanced nozzle processing equipment and precision testing instruments, with over 200 sets of CNC processing and testing equipment. With strong R&D and manufacturing capabilities, the company has developed over 10,000 specifications of atomizing nozzle products. These products are widely utilized in various industries such as steel, aviation, automotive, marine building, electronics, medical, chemical, paper, textile, machinery, agriculture, environmental protection, and energy, both domestically and internationally.

The company has passed ISO9001 quality management system and IATF16949 quality management certification, and has been awarded "Dongguan Private Technology Enterprise", "Guangdong Private Technology Enterprise", and "National High-tech Enterprise" consecutively. It is one of the few high-tech companies in the domestic nozzle field. It has been rated as a national high-tech enterprise for 12 consecutive years and has more than 50 patents. The company has introduced the world's high-end nozzle manufacturing and testing equipment. Most of the company's nozzle processing equipment is imported from Japan and Germany, and has established a very advanced particle size control system, and flow testing systems. The company has accumulated rich experience in manufacturing nozzles for the ship desulfurization industry, chemical tank cleaning industry, steel smelting industry, spray disinfection industry, and dry mist dust suppression industry. It also owns Wartsila, Alfa Laval, Customers of world-renowned companies such as Tesla, 711 Research Institute, Shanghai Electric Power Construction, Three China Alliance, DJI UAV, etc., the CYCO nozzle trademark has enjoyed a very high reputation in the field of international industrial nozzles.

In 2022, the company established a wholly-owned subsidiary, Hunan Changyuan Spraying Technology Co., Ltd., in Liuyang, Hunan Environmental Protection Industry Demonstration Park, and established advanced production and testing lines at the Changyuan factory in Hunan, focusing on providing customers with precision spray systems, tank cleaning system, car cleaning system, etc. The company will equip advanced equipment and production and R&D personnel to provide customers with high-quality services and create value beyond expectations.



精密加工设备 专利墙 荣誉墙 美国颗粒度检测仪



Has established cooperation with a number of top 500 companies



→ 技术团队

1997/07
STARTED IN 1997 ESTABLISHED IN 2000
Dongguan Changyuan Spraying Technology Co., Ltd. was founded by Mr. Song Zhiming in 1997

2005/03
CYCO FOREIGN TRADE DEPARTMENT ESTABLISHED
After several years of rapid development, the products are exported overseas

2008/03
FIRST TIME SERVING A MAJOR INTERNATIONAL BRAND
Became a major supplier of nozzles to Whirlpool Corporation in the U.S.

2012/11
OBTAINED IATF6949 SYSTEM CERTIFICATION
Become a Tesla automobile supplier products continue to this day

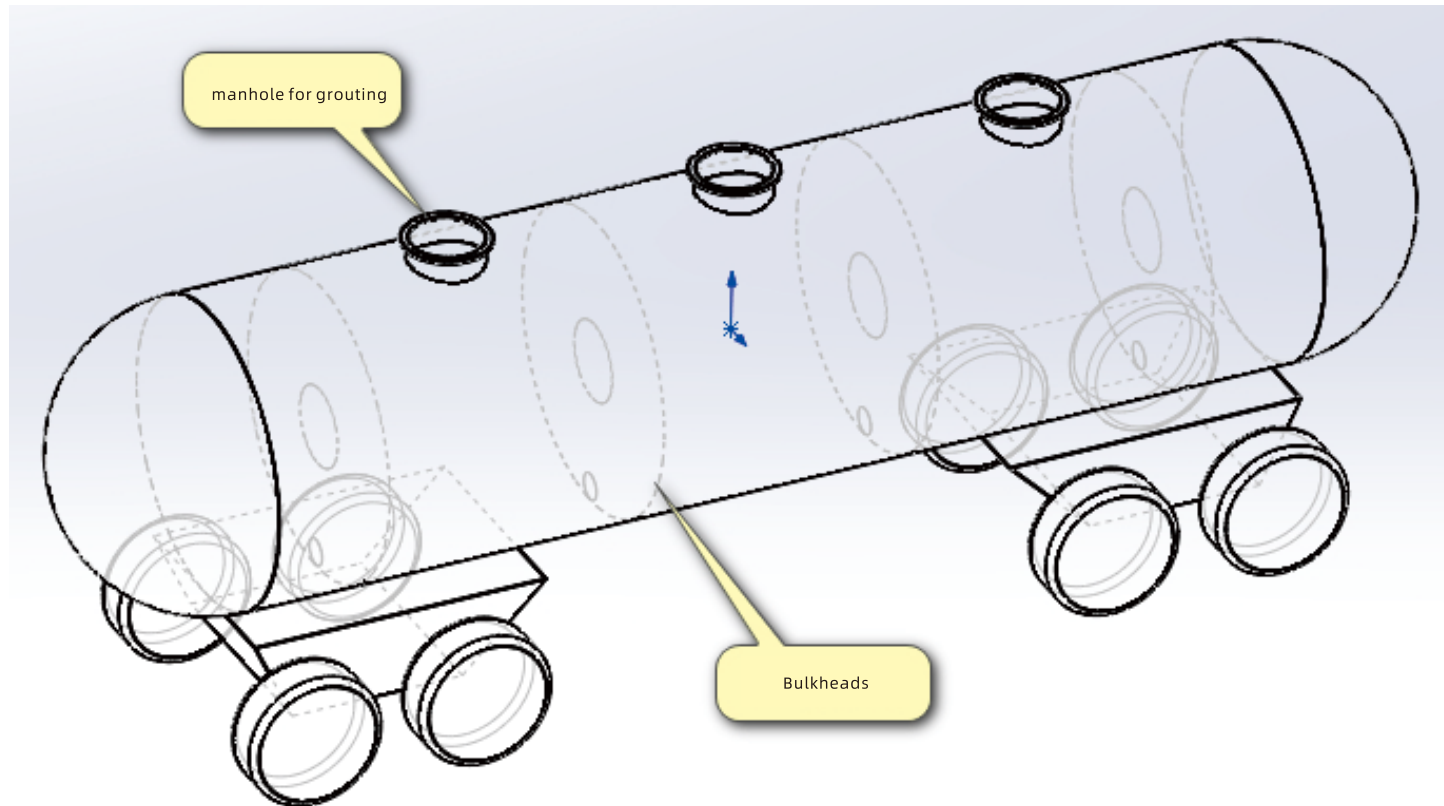
2013/03
ENTERING THE SHIPBUILDING INDUSTRY
Supply of flue gas conditioning nozzles, cabin washers and other products for shipbuilding companies

2015/5
ESTABLISHED COOPERATION WITH MANY TOP 500 COMPANIES
Has Sany, Zoomlion, DJI and other high-quality customers

2020/03
EXPANSION OF PRODUCTION AND ESTABLISHMENT OF A SUBSIDIARY
Established Hunan Changyuan Spray in Liuyang To better serve our customers

2023-至今
BECOME A SPECIALIZED, SPECIALIZED AND NEW ENTERPRISE
Strengthen research and development efforts, implement innovative routes, and develop benignly

Introduction to Tanker Trucks

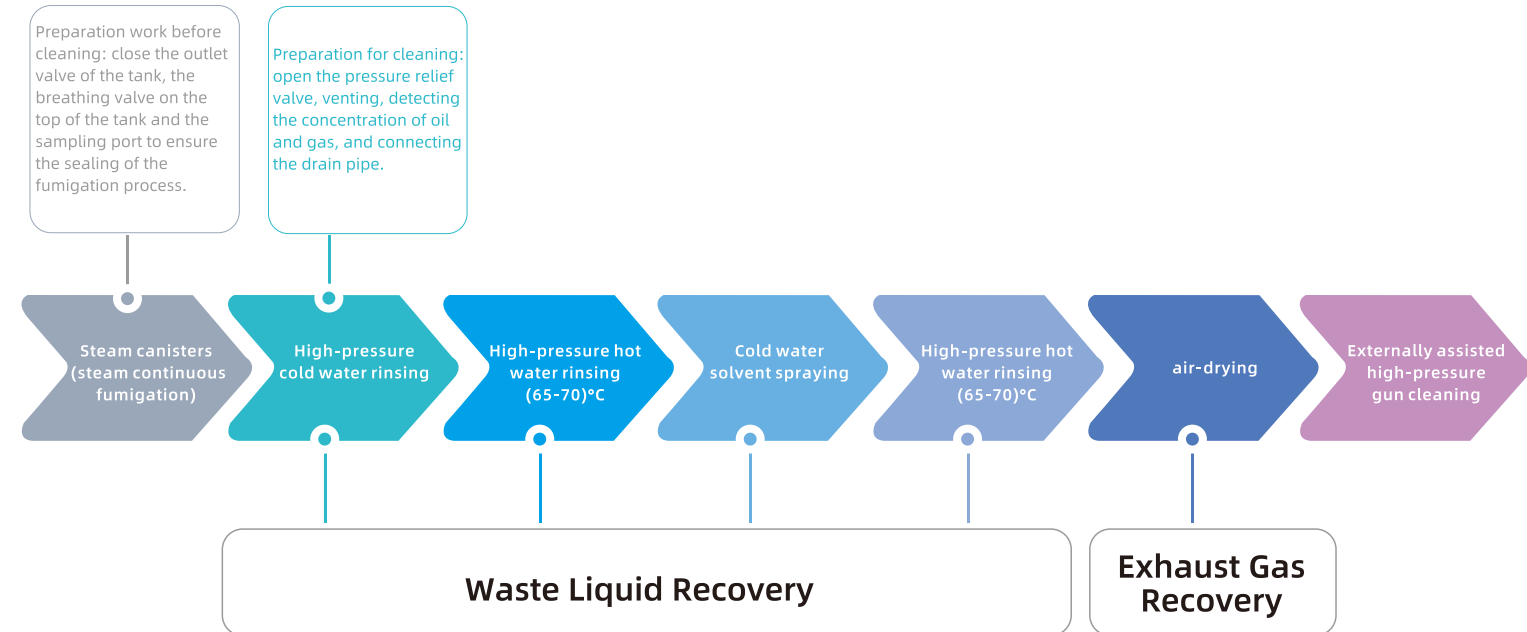


Tanker trucks have multiple bulkheads set up inside the tank to divide the tank into multiple compartments. These partitions not only separate the liquid, but also play a role in enhancing the structural strength of the tank, can effectively disperse the liquid pressure, so that the tank is more durable. At the same time, it reduces the amplitude of liquid shaking, so as to maintain the balance and safety of the vehicle.

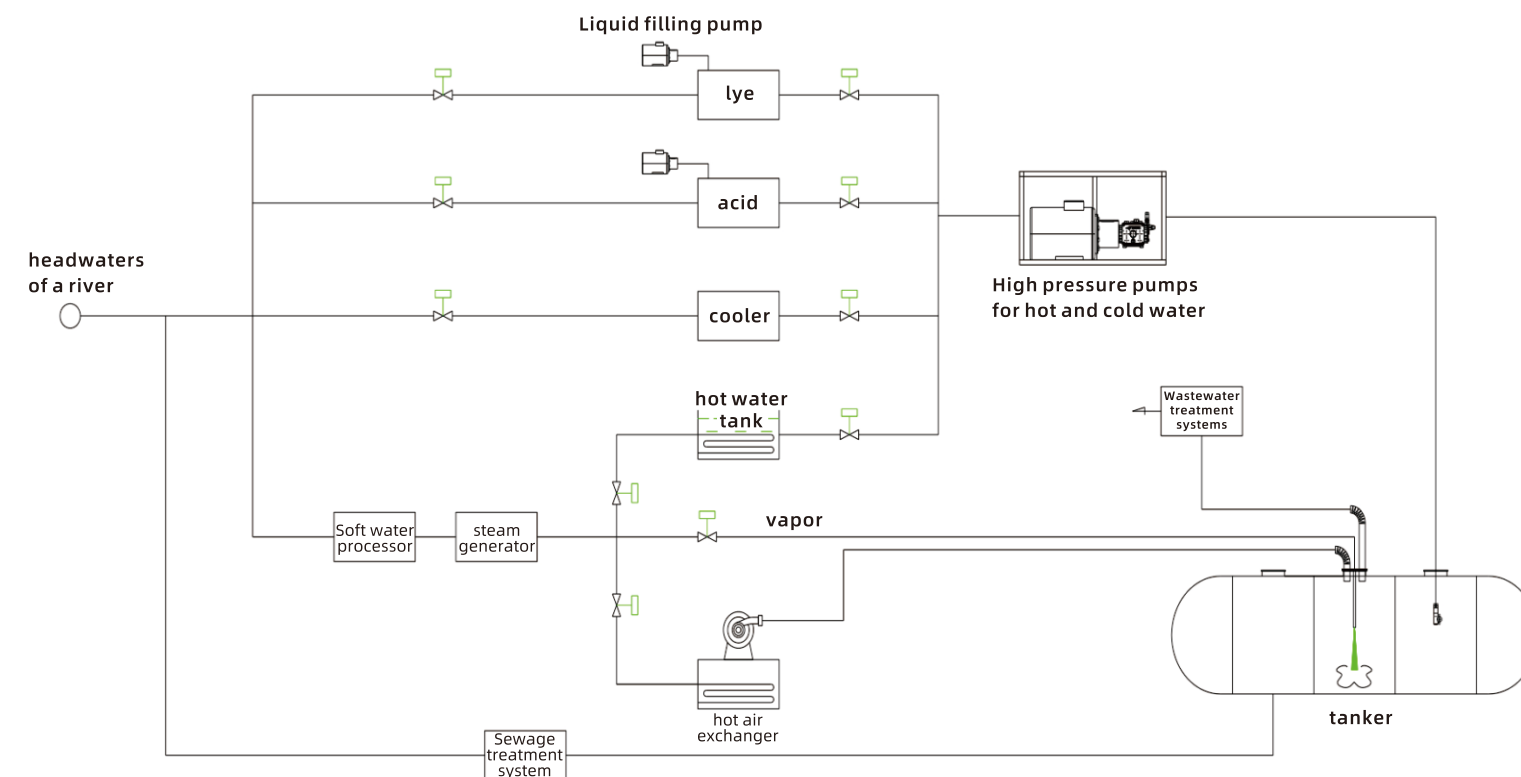
Passing Tank Cleaning: Operators need to go down into the tank and endure high temperatures, irritating odors, noise, etc., and long-term physical contact with hazardous chemicals, exhaust gases and sewage.

Tank Diameter	Tank length	capacity	quality of material
2.4m	9m	32 ³	carbon steel

Tank cleaning process



System piping schematic



Steam fumigation system ----- steam canister



preparatory phase:

Close the tank's outlet valve, tank top breather valve and sampling port to ensure that the tank is sealed.

Steamer process:

At the inlet to the steam, air pressure to ensure that the 2-3kg, and continuous steaming cans 1-2 hours. Steam cans in the process, we must pay attention to the temperature change outside the tank does not exceed 50 °C, feel slightly hot by hand. After steaming the can, open the manhole and the top of the can, and release the water. In the entire cleaning process, to ensure personal safety is the first task, so you need to do a good job of safety measures and materials, tools, equipment, inspection and preparation work. For the cleaning of dangerous goods liquid transportation vehicle tanks, steam cans can not only discharge the residue inside the tank, but also remove the odor inside the tank, keep the tank clean, thus improving the qualified rate of goods transported!

Steam generator: (with soft water processor)

power (output)	evaporation T/H	vapor pressure	temp
216KW	0.3T	0.8MPa (Adjustable below)	175°C (Adjustable below)



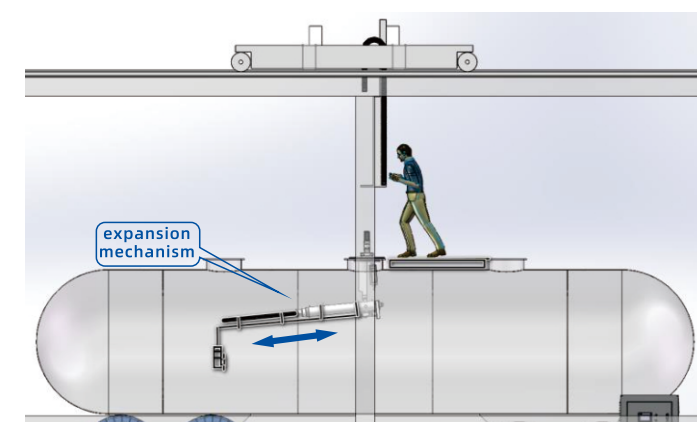
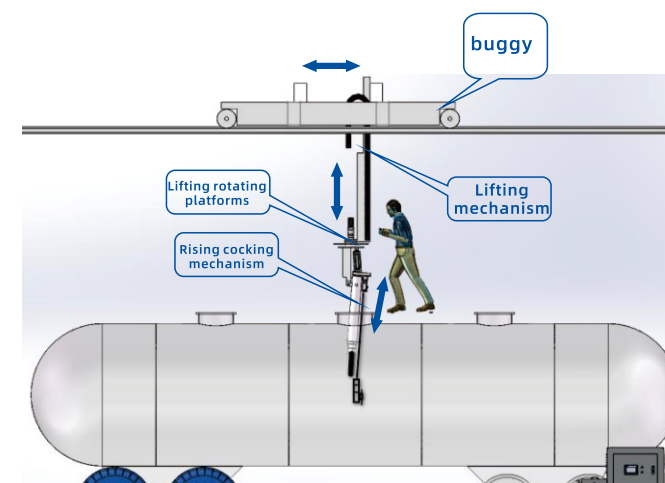
High-pressure cleaning system - main unit/nozzle



sports event	norm	Functions in brief
Overall dimensions (LWH)	1510*775*1285	1、 Using high pressure piston pump, working pressure up to 120-150bar 2、 PLC\HMI can be programmed control 3、 Mobile design, easy to use
power supply	Three-phase 380V	
electrical machinery	Power: 15KW	
stresses	Up to 150 Bar (adjustable)	
flux	50L/min	

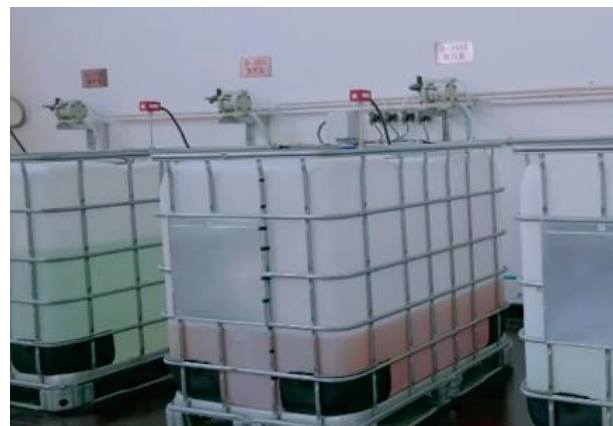
stresses	flux	connector	Applicable temperature
15Mpa	20-50L/min	1/2	90°C or below

Flexible Mechanical Systems ----- Multi-axis Robotic Arms



Multi-axis robotic arm linkage to achieve no dead angle cleaning in the compartment: PLC programmed control, servo motor driven image system assistance, visualization of fixed-point cleaning

Dispensing systems - flushing systems



Automatic dosing pump system, consisting of liquid storage tanks, metering pumps, concentration meters, thermometers, etc., according to the customer's formula requirements for the necessary control of dosage and concentration

Drying and processing systems



steam generator



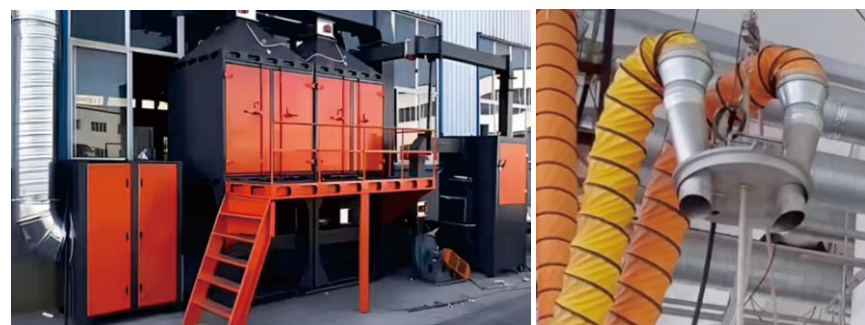
steam heat exchanger



air blower

Automatic dosing pump system, consisting of liquid storage tanks, metering pumps, concentration meters, thermometers, etc., according to the customer's formula requirements for the necessary control of dosage and concentration

Exhaust gas treatment system



The exhaust gas treatment system consists of an exhaust gas collection unit, piping, a purification unit, a fan and a chimney. The exhaust gas collection device is installed on the manhole method; the pipeline is responsible for transporting the exhaust gas from the collection device to the purification device; the purification device is the core part of the exhaust gas treatment system, and its main function is to purify the exhaust gas; the fan is the power source of the exhaust gas treatment system, and it is responsible for providing the purification device with sufficient air flow and pressure; the chimney is to discharge the purified exhaust gas into the atmosphere in a safe manner.

Cleaning residual sewage extraction



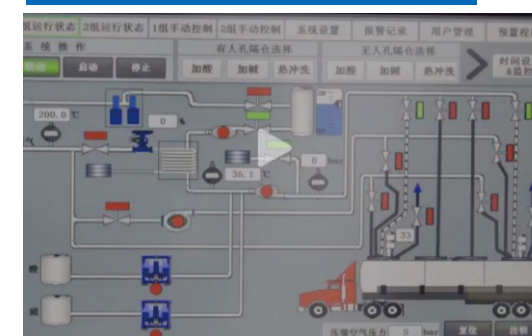
Caliber DN25, flow rate 8 cubic meters per hour head 15 meters, motor power 1.5KW, self-absorption height 5 meters, 304 stainless steel material explosion-proof motor

Water treatment systems

Tank cleaning wastewater treatment:
Sedimentation and Separation: first, the wastewater is put through a static sedimentation or physical sedimentation tank for initial treatment. In this process, the suspended solids in the wastewater settle to the bottom to form a sludge layer, while light grease and floating pollutants float to the surface. By means of physical separation, the suspended solids and oil and grease content of the effluent can be reduced to a greater extent.
Biological treatment: The initially separated wastewater is sent to a biological treatment tank for secondary treatment. The degradation and decomposition of organic matter is accelerated by providing the wastewater with suitable temperature, oxygen and microbial flora. During the biological reaction, the organic substances in the wastewater are degraded by microorganisms into water and carbon dioxide, thus realizing the removal of organic substances.
Activated carbon adsorption: In the biological treatment process, organic matter, oil and grease and other pollutants that are difficult to degrade may still exist in the wastewater. At this time, the wastewater can be adsorbed by activated carbon, and the residual organic pollutants in the wastewater can be removed through the adsorption effect of activated carbon to improve the purification effect of wastewater. After activated carbon adsorption, the dissolved organic matter and color of the wastewater will also be significantly improved.
Membrane separation technology: After the above process, there may still be trace pollutants in the wastewater, such as heavy metal ions. The use of membrane separation technology, such as reverse osmosis, nanofiltration, etc., can further remove trace pollutants in the wastewater. Membrane separation technology relies on the microporous or pore size of the membrane, so that when the wastewater passes through the membrane, the trace pollutants are retained on the membrane surface, and ultimately clearer water is obtained.
Sterilization and disinfection: Wastewater treated by the above process may still contain some bacteria and other microorganisms. In order to ensure the safe discharge of wastewater, it needs to be sterilized and disinfected. Commonly used disinfection methods include UV disinfection, ozone disinfection, etc. to ensure that the microorganisms in the wastewater are completely killed.



Automatic cleaning control system



- Highly integrated automatic control system
- Dynamic screen display working status
- Various cleaning parameters and indicators
- Permission management of production parameter setting
- Various alarm information prompts
- Process-oriented operation interface