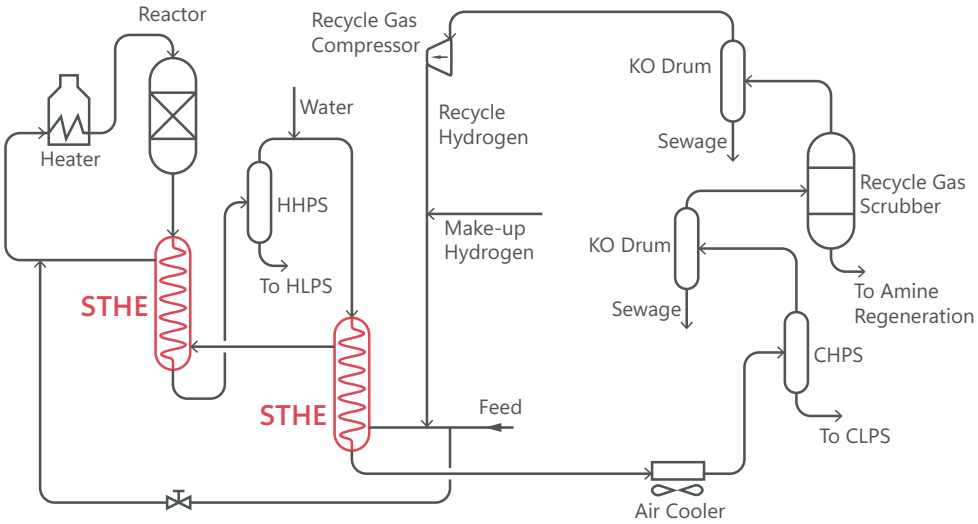
ZPJE

Creating Value for Our Customers

Zhenhai Petrochemical Jianan Engineering Co.,Ltd.
镇海石化建安工程股份有限公司

STHE Technology in Hydrotreatment

The majority of the products from the Crude and Vacuum distillation columns contain contaminants like sulfur, nitrogen, aromatics or olefins that must be removed before being processed on the downstream processing units. While Hydrocracking converts heavy oil into lighter fractions, Hydroprocessing units are used to convert the contaminants to hydrogen sulfide, ammonia, water vapor, and other stabilized byproducts. While refiners are facing more and more challenges to process difficult streams, they need to maintain high quality products and comply to severe constraints like the Euro V norm. The use of high-efficiency equipment like ZPJE Spiral Tubes Heat Exchangers (STHE) is vital to improve the economics of these units that can be translated to millions dollars of saving every year. Robustness and maintainability are also key to ensure long and trouble-free operation between two runs.



ZPJE Benefits

Efficiency :

On the tube side, the Helix-pattern flow in the tubes creates a secondary flow consisting of a pair of vortices enhancing the heat transfer coefficient at the peripheral of the tubes. On the shell side, the pulse-surge collision flow regime brings high turbulence increasing the coefficient outside the tubes.
This allows for an achievable **hot approach temperature** of less than **10°C**.

Robustness:

There are **no mechanical limitations** in temperature rise and fall, making STHE technology highly reliable under process condition fluctuation. It allows for very **low constraints** on start-up/shutdown procedures, and emergency situations.

Fouling :

On the shell side, the high turbulence created by the pulse-surge flow pattern and the absence of stagnant zone greatly reduces the possibility of fouling. On the tube side, the helix-pattern flow creates a secondary flow which increases the shear force. This effect, added to the very low surface roughness, gives an **anti-fouling** and **self cleaning** design.
In case of DeltaP increase, the tube side is **mechanically and chemically cleanable** while the shell side is chemically cleanable.

Leakage :

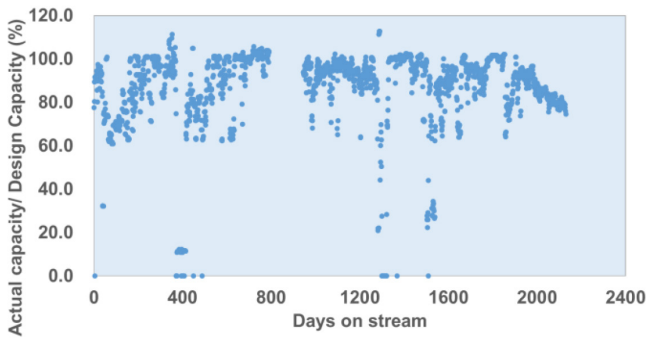
High quality tubes fabrication and proprietary designed internals, severe welding procedures and state-of-the-art fabrication workshop make ZPJE exchangers strong, robust and **reliable**.

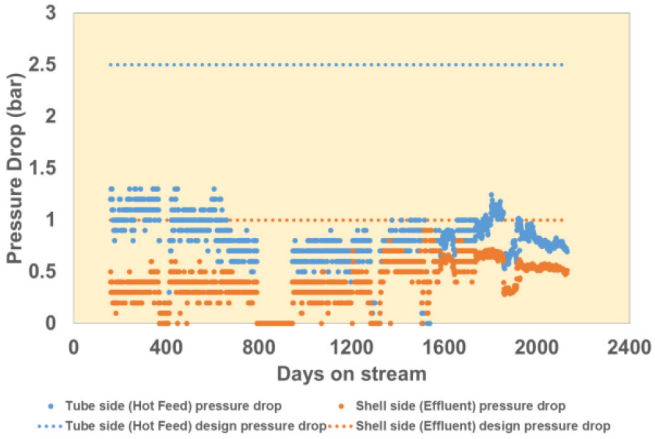
ZPJE

Creating Value for Our Customers

Case Study

Example of an HDT unit processing more than 80% of cracked feedstocks. These are the follow-up data during the 5 years of stable operations :





ZPJE Experience

STHE as Feed/Effluent in Hydrotreatment :

- **224** references
- **17** years in Operation in Hydrotreatment
- **172** in Operation
- **>315,000** Days of cumulative operation
- **>175** MMTA total installed Capacity

Contact Us

Zhenhai Petrochemical Jianan Engineering Co.,Ltd.
Lianhua Road,Jiaochuan Street,Zhenhai District,
Ningbo,Zhejiang,China

In China :
Zhenning Zhang
sales@izpje.com
+86 574-86443513
+86 574-86449171

In Europe :
Christophe Gajecki
christophe.gajecki@htrans-ferconsulting.com
+33 602029453

http://www.sthezpje.com