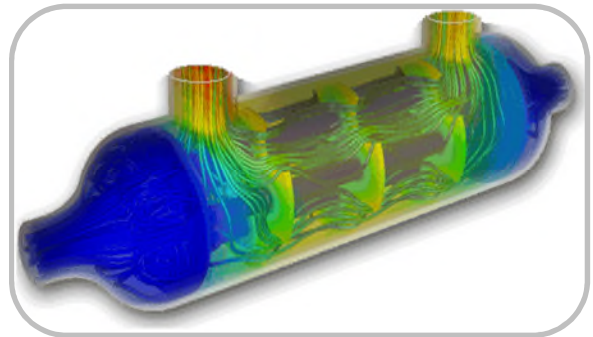


## Where Vibrations count

**Flow Induced Vibration** is a well-known critical issue occurring in Shell&Tube HEXs; it promotes **mechanical wear, fretting** and **fatigue fracture**

Fluid Elastic Instability and **Acoustic Resonance** are probably the two most dangerous typologies. **Fluid Elastic Instability** causes the tube to vibrate leading to rapid wear at tube support

Especially when Gas flows on the shell-side both the mechanisms are prone to occur



Typical Fretting in a Conventional S&T HEX

EMbaffle® technology overcomes vibration issues by :

- + achieving an almost perfect **longitudinal flow**, which eliminates the unwanted cross components of velocity at the basis of vibration incurrence,
- + **filling the entire shell cross section** with tubes so as to reduce at a minimum the tube free-space,
- + realizing a short distance **tube support**, through the proprietary grid baffles, suppressing potential vibration amplitude



Evident consequences of Flow Elastic Instability in a Conventional S&T HEX

The two proposed cases hereinafter refer to

- EMbaffle® replacement of a bundle equipped with conventional cross baffles, which proved to be prone to mechanical failure due to vibration incurrence. Picture (left) shows the state of the new EMbaffle® bundle, withdraw for cleaning after 4 ys. of almost uninterrupted operations: no indication of incipient damage is visible
- EMbaffle® in a Refinery (right) after 2.5 ys. of continuous operations proves exempt from erosive-corrosive phenomena, which often anticipate vibration failure



### Promoting the EMbaffle® technology

EMbaffle B.V. is actively committed in the identification of new potential business opportunities

We operate in consolidated Oil & Gas markets and in emerging high value added segments

Please refer to us to know how to become part of our Network

### For any information contact us at:

LionsParc  
A. Van Leeuwenhoekweg 38 A10  
2408 AN Alphen a/d Rijn, The Netherlands

Telephone +31 172 447 040  
Licensing enquiries [licensing@embaffle.com](mailto:licensing@embaffle.com)  
Sales enquiries [sales@embaffle.com](mailto:sales@embaffle.com)