CLEAN IN PLACE

SERVICES

The circulation unit has been designed to clean refinery process equipment and heat exchanger trains with minimum disruption to refinery throughput. While the unit generally flows our proprietary solvent through the refinery system, we are able to utilize other approaved agents if requested by our client.

The ability to clean heat exchangers without having to remove them is truly transformational. There are significant cost savings and minimized downtime when we clean in place. Due to this process being less disruptive to operations, operators can clean more frequently to maintain production levels and optimize heat exchanger performance. Another key feature is that we minimize worker exposure to hazardous situations. The design includes emergency cut outs and isolation that will eliminate the need to blank in most circumstances.

SPECIFICATIONS

25,000 bpd flow rate

100 psi rating

Reversible flow

480v plug & play system

VFD controlled motor

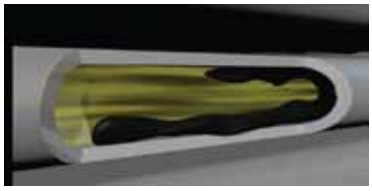
24 hour maximum cleaning time

Heat added with steam or glycol

Fully mechanized

BENEFITS

- **Less disruptive and reduced downtime by eliminating pulling the Heat Exchanger from the network**
- **More cost effective than "pulling" allowing for more frequent cleaning and higher production levels**
- **Fewer resources needed; no scaffolding, cranes and associated labour**
- **Avoids unwanted disassembly and potential damage of asset components, leaving asset integrity undisturbed and elminates risk of loss of containment on start-up**
- **Organic solvent contacts all fouled surfaces allowing a more effective clean**
- **No waste water or spent toxic chemicals**



VALUE ADDED SERVICE

Quick response

Maintenance agreements available to help optimize throughput

We can engage and partner with 3rd parties to monitor heat exchanger performance

DID YOU KNOW?

A 1 ˚C drop in coil inlet temperature in heat exchangers creates an estimated 1 ton of CO_2 emissions (1)

(1) Imperial College London, Sandro Macchietto 2010-2011