



# PEINEMANN

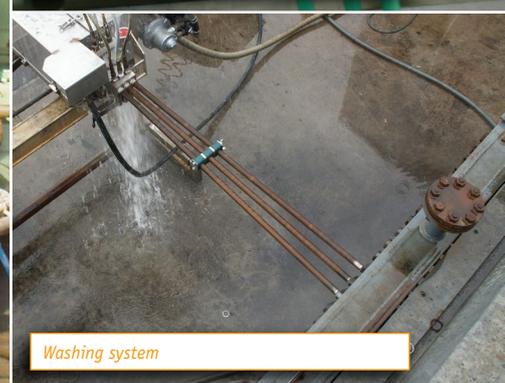
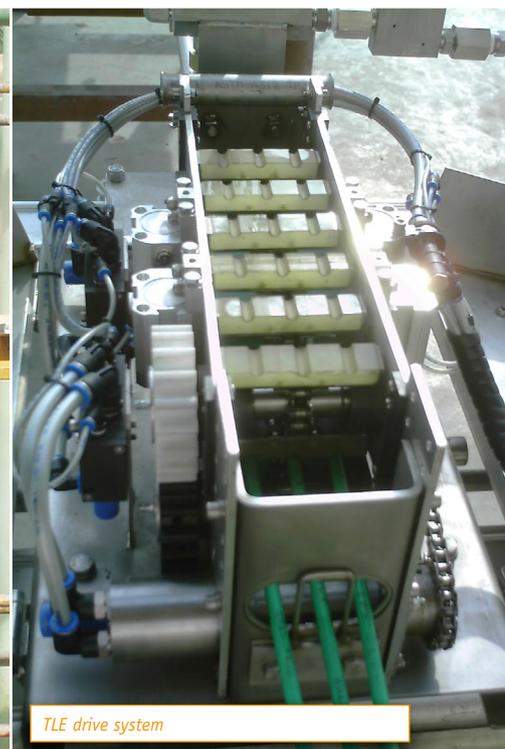
EQUIPMENT



3-lance TLE

## 3-lance TLE

*Cleaning with high pressure presents risks. In order to avoid operator injury with high pressure water, it is our goal to develop machines which take the flexible lance out of the operators hands and position the operators as far from the high pressure activities as possible.*



The TLE special is one of the most advanced machines in our range of products, developed specifically for insitu cleaning within the smallest possible space.

As not all bundles are easy to clean, we added a few features to the machine to clean even the most difficult bundles.

The first feature is the washing station at the front of the TLE. This system allows the machine to clean the outside of the flexible lances with water taken from the high pressure pump and reduced to 150-200 Bar. With this washing system, you

can remove sticky products from the flexible lances and prevent contamination from entering the TLE drive unit.

Second feature (optional) is automatic oscillation. This feature enables the operator to let the flexible lance move in and out of the tubes progressively to remove products in small steps rather than trying to push the flexible lances into the contamination.

This system comes together with a portable (pneumatic) remote control system which gives the operator the flexibility to

2 TLE drive systems on one frame



watch the machine in operation from any position.

The third (optional) feature is the automatic left/right indexing system. This option enables the operator to preset the distance between 3 tubes and automatically move to the next 3 tubes for cleaning. This feature saves time when cleaning large exchangers or when you have deep channel heads where steam obstructs your view of the tube sheet. The operator is no longer dependent on sight for left/right indexing.

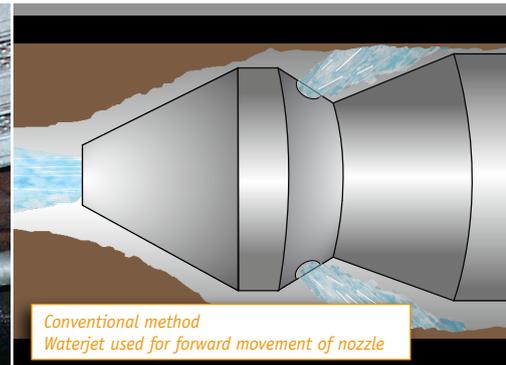


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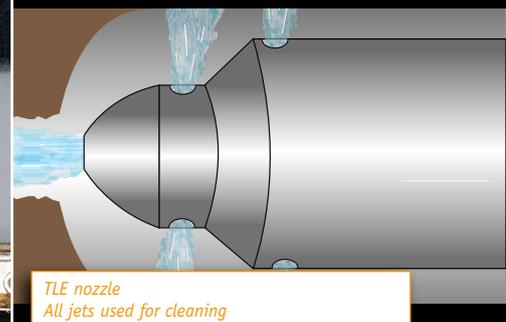
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In situ cleaning with hot water



Conventional method  
Waterjet used for forward movement of nozzle



TLE nozzle  
All jets used for cleaning

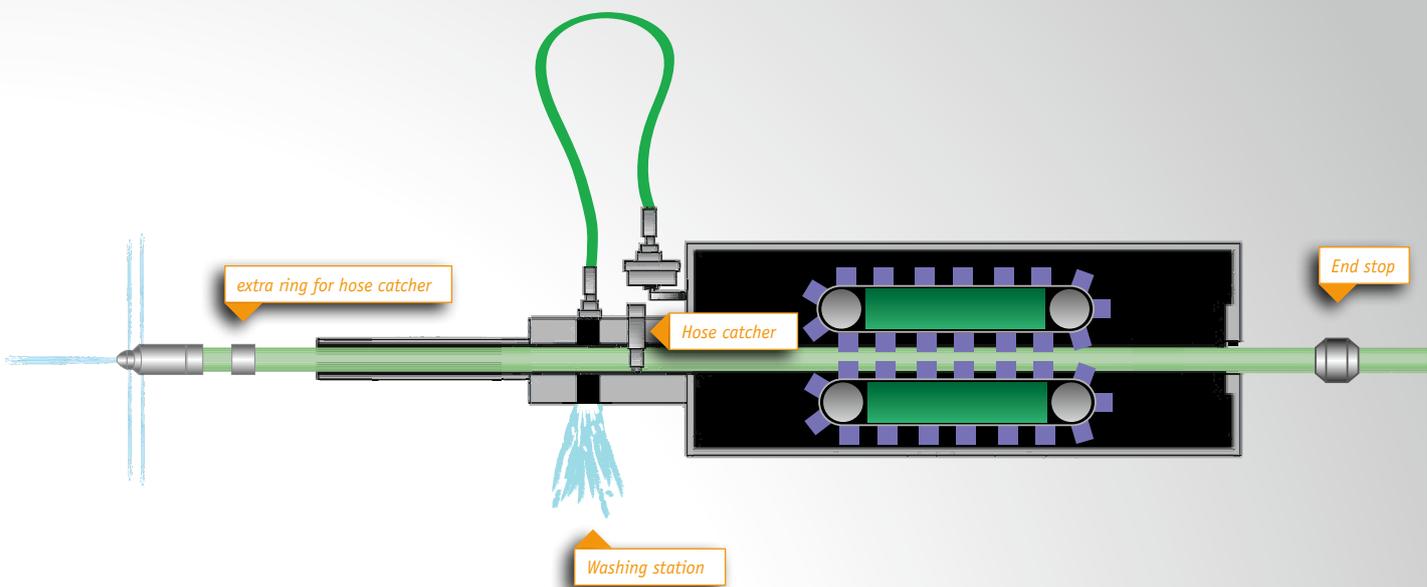


3 TLE efficient cleaning

## The TLE has 3 major advantages over manual cleaning methods

1. **Safety:** Locates the operator away from the dangerous high pressure area. Keeps the operator away from dangerous chemicals or hot water.
2. **Quality:** Due to consistent speed and cleaning the tubes 2 times, (in as well as coming back out) the end results are far better compared to manual cleaning allowing a longer time between shutdowns and improved heat transfer.

### 3 TLE drive mechanism



3. **Efficiency:** 3 tubes are cleaned at the same time, resulting in a much faster production. The machine can also clean most blocked tubes, eliminating the need to remove the bundle and clean at the wash bay.

# Applications

Due to it's flexibility, the TLE can be used in numerous applications.



1. Long exchangers such as airfin coolers and texas towers; As the TLE uses flexible lances, the length of the tubes are not an issue. Typically bundles over 9 meters are a problem with a rigid lance machine. With the TLE you can use long flexible lances cleaning even bundles of 20M length without a large scaffold platform.



2. Vertical exchangers; The TLE can easily be lifted into position by a small crane and mounted on a small scaffold to clean vertical exchangers. We typically need only 1m of head room above the flange of the bundle to clean it. Using a TLE for vertical applications is safer, and provides a much better cleaning result compared to manual cleaning. It is simple to set up and requires very little space.



3. Ultra high pressure applications; the TLE can even be equipped with ultra high pressure hoses up to 3.000 Bar. As the machine only feeds hoses in and out, you can alter the working pressure by changing the hose. In some cases, it is useful to work with 2 machines on the same positioner to increase the speed of cleaning to get the unit back online as fast as possible. Another possibility is to set up 1 machine with unplugging nozzles and the other with polishing nozzles to be able to pass IRIS inspection.

4. Air fin coolers (Fin-Fan's); Since the TLE is very compact, it fits most walkways in front of the air fin coolers to clean the ID of the tubes. There is even an extra compact, extra wide TLE especially made for Fin-fan's which is only 55cm deep and extra wide to handle the pitch of 2,5" which is most common for air fin coolers.



5. Extremely large diameter exchangers; As the scaffold pipes can be used to slide through the top and bottom of the indexing frames, it gives us the possibility to clean large diameter bundles. It is even possible to work independently with 2 TLE drive units on 1 indexing frame, making it possible to clean 6 tubes at the same time. (see picture 3)



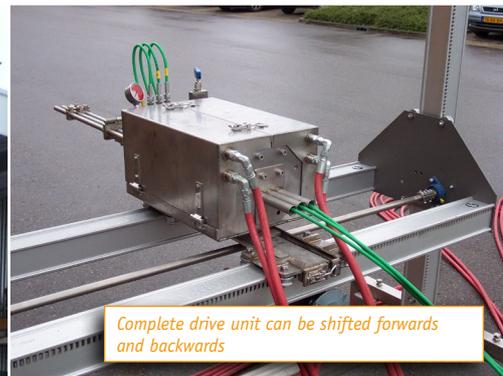
6. Stand alone system; The TLE can be used in combination with an optional stand alone system to allow the operator to clean reactors, evaporators or condensers while leaving the TLE drive outside the channel head. The operator can bring a flexible guide tube with a special expander through the manhole to lock it in the tube sheet and operate the machine from the inside by remote control.



Standard TLE Basic



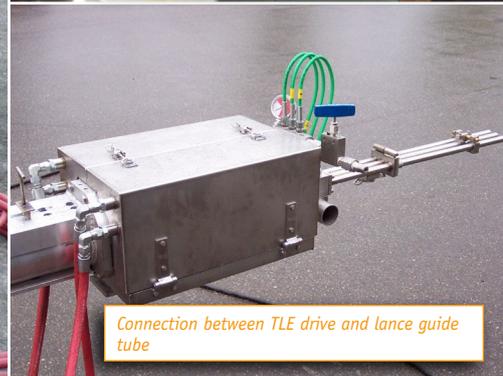
Complete drive unit can be shifted forwards and backwards



pitch adjustment



Connection between TLE drive and lance guide tube



## Standard TLE Basic

Our entry level TLE machine with remote control panel, pneumatic indexing frame and washing system for flexible lances.



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TLE with rigid lance setup and A-frame



## Rigid Lance

Our optional rigid lance conversion set transforms your flexible lance machine into a rigid lance machine by connecting an aluminum guide tube at the rear of the TLE drive unit and hang the back end from an A-frame with chain hoist.

TLE Special with timer box and remote control

light weight remote control



## TLE Special

Our top of the line system with automatic oscillation and portable pneumatic remote control. This version is also able to be converted to a rigid lance system similar to the “basic” model. It has the option to be equipped with our automatic “left/right” indexing system that allows you to move over 3 tubes automatically by pre-setting the travel distance.



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*timer box for automatic oscillation of the flexible lances*

*TLE special in insitu application*

*Automatic left/right indexing system*



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## 3 TLE Basic / Special

### Technical specifications

- Height  
2,2 M (86")
- Width  
2,5 M (98")
- Length  
1 M (39")
- Maximum capacity  
2 air motors of 0,82 HP each = 1,64 HP at 380 RPM
- Minimum air pressure  
4,0 bar (60 psi)
- Maximum air pressure  
6,3 bar (95 psi)
- Air consumption  
30 – 40 L/S (with standard air motors) (63 – 85 cfm)
- Cleaning speed  
10 cm/sec – up to 50 cm/sec (4" up to 19,5" per second)
- Min.-max. flex lance size  
8 – 20 mm outside diameter (.314 – .787")
- Max. pull/push strength  
approx. 1.000 N (737 foot pounds)
- Water pressure  
recomm. 1.000 bar, (higher pressure possible) (14.500 psi)
- Water flow  
recommended 120 LPM, (higher flow possible) (31,7 GPM)

## TLE Rigid Lance

### Technical specifications

- Height  
2,2 M (86")
- Width  
2,5 M (98")
- Length  
10,5 M (34,5 ft)
- Maximum capacity  
2 air motors of 0,82 HP each = 1,64 HP at 380 RPM
- Minimum air pressure  
4,0 bar (60 psi)
- Maximum air pressure  
6,3 bar (95 psi)
- Air consumption  
30 – 40 L/S (with standard air motors) (63 – 85 cfm)
- Cleaning speed  
10 cm/sec – up to 50 cm/sec (4" up to 19,5" per second)
- Max. pull/push strength  
approx. 1.000 N (737 foot pounds)
- Water pressure  
recomm. 1.000 bar, (higher pressure possible) (14.500 psi)
- Water flow  
recommended 120 LPM, (higher volume possible) (31,7 GPM)
- Working length (standard)  
8,1 M (26,5 ft)

## Peinemann Equipment

See also  
[www.peinemannequipment.com](http://www.peinemannequipment.com)

### Peinemann Equipment B.V.

Mandenmakerstraat 190  
3194 DA Hoogvliet  
Phone: +31(0)10 - 295 50 00  
Fax: +31(0)10 - 295 50 59

### Peinemann USA

22820 I-H 45 N., Bldg #7, Ste P  
Spring, TX 77373  
Phone: 281-288-7979  
Fax: 866-431-5140

E-mail: [info@peinemann.nl](mailto:info@peinemann.nl)  
Website: [www.peinemannequipment.com](http://www.peinemannequipment.com)