



ZOTEFOAMS



T-TUBES®

CLEAN TECHNOLOGY INSULATION SYSTEM



Recommended Installation & Maintenance Guidelines

All statement and technical information are based on results obtained under typical conditions. It is the responsibility of the recipient to verify with us that the information is appropriate for the specific use intended by the recipient. The data and information are provided as a technical service and are subject to change without notice. Zotefoams plc gives no representation or warranty as to the accuracy of the data or information. Zotefoams guarantees the manufacture of the product T-TUBES®, but cannot guarantee the work carried out by installers & contractors.

T-TUBES® IS A REGISTERED TRADEMARK OF UFP
TECHNOLOGIES Inc.

KYNAR® IS A REGISTERED TRADEMARK OF ARKEMA INC.

ZOTEK® IS A REGISTERED TRADEMARK OF ZOTEFOAMS PLC

Contents:

Description:	Page:
General.....	3
Simple Installation Tooling.....	4
Cutting & Installing.....	5
Do's.....	5
Don'ts.....	5
Examples of Correct Installs.....	6-13
Statement.....	14

All statement and technical information are based on results obtained under typical conditions. It is the responsibility of the recipient to verify with us that the information is appropriate for the specific use intended by the recipient. The data and information are provided as a technical service and are subject to change without notice. Zotefoams plc gives no representation or warranty as to the accuracy of the data or information. Zotefoams guarantees the manufacture of the product T-TUBES®, but cannot guarantee the work carried out by installers & contractors.

General:

T-TUBES® are made from ZOTEK® F42HTLS Closed Cell Kynar® PVDF foam manufactured by Zotefoams plc, the only Closed Cell Clean Technology Insulation product designed and manufactured specifically for 'CLEAN ROOM' use.

Parts are composed of a clamshell design comprising ca. 889mm straights, custom moulded 90° & 45° elbows and equal tees, as well as flat sheets for the safe enclosure of valves, reducers, heat exchanges and flanges etc. Straight lengths are supplied with pre-fitted PVDF pressure sensitive adhesive tape for ease and secure closure, the same tape is supplied and available in separate rolls of ca. 50m.

T-TUBES® can be installed with the minimum of fuss, tooling or disruption to any clean room operation, and are particulate free, enabling their installation in 'Live' Clean Rooms without any special containment requirements, tents or hoods etc; shut downs or interruption of production.

The high grade PVDF polymer, and the unique closed cell manufacturing process, enable a hydrophobic product that does not require any 'over-jacket' as well enabling a 'Clean' and inherently bacteria free product (ASTM G21-96) allowing for a minimum cleaning process, utilizing standard internationally recognized cleaning products and fluids.

Because of its unique properties and construction, T-TUBES® is a Fast, Easy and Hygienic solution for insulating Clean Rooms, these properties enable the constructor an advantage when deciding exactly when to start the insulating process, allowing the benefit of time for early completion of construction, and installing the product in a relatively 'Clean Room State'

General Recommendations & Requirements:

- *Construction Free area*
- *Clean the area and pipes/tubing prior to installation*
- *Start installation procedure from Elbows & Tees*
- *Prep Elbows minimum 6 hours prior to installation*
- *Remove backing tape from straight lengths prior to assembly*
- *Use only Zotefoams recommended products when installing*
- *On straight lengths snip/slice backing tape every 150mm to reduce excessive wrinkling*
- *Apply significant pressure to tape on assembly as 'pressure sensitive'*

All statement and technical information are based on results obtained under typical conditions. It is the responsibility of the recipient to verify with us that the information is appropriate for the specific use intended by the recipient. The data and information are provided as a technical service and are subject to change without notice. Zotefoams plc gives no representation or warranty as to the accuracy of the data or information. Zotefoams guarantees the manufacture of the product T-TUBES®, but cannot guarantee the work carried out by installers & contractors.

Simple Installation Tools:

Only very simple and basic tools are required for the installation, fitting and maintenance of the T-TUBES® product, and all will most likely already be found in any insulation contractors' tool kit; no special tooling is required:



Tape measurer



Scissors



Die Cutters / Sharp knife (using straight edge if necessary) Die cutters for cutting 'circular' holes can be manufactured using onsite tubing.



Pen/Pencil

NB: For maintenance requirements, existing pre-applied tape may be cut through and replaced/over-layered with new PVDF tape supplied by Zotefoams (Part Nr: ZAXX9164)

All statement and technical information are based on results obtained under typical conditions. It is the responsibility of the recipient to verify with us that the information is appropriate for the specific use intended by the recipient. The data and information are provided as a technical service and are subject to change without notice. Zotefoams plc gives no representation or warranty as to the accuracy of the data or information. Zotefoams guarantees the manufacture of the product T-TUBES®, but cannot guarantee the work carried out by installers & contractors.



ZOTEFOAMS

Cutting & Installing:



The process for cutting & installing T-TUBES® is simple, quick and clean, and when adhered will provide a neat, clean finish (see photos):

Do:

- Ensure both the area, including process piping, and the operators hands are clean
- Ensure a clean flat surface is available for prepping, measuring & cutting
- Ensure the correct size of moulded tube or fitting is used, so that the insulation fits correctly without excessive gaps (Parts are designed to fit ASME BPE/ISO/DIN)
- Start the installation from Elbows & tees and work outwards
- Peel back the liner backing the PVDF tape prior to installation & assembly
- Always use a fresh sharp instrument; scissors, knife or circular die cutting tool
- Replace sharp tools frequently
- Always use a straight edge to ensure clean and accurate joins
- Adjust seams on straights & elbows for maximum aesthetic effect
- Where an equal tee has not been used, ensure that all joins are without 'gaps'
- Allow 5mm extra when cutting & joining straight lengths to elbows or tees
- 1" (25mm) Zotefoams ZAXX9164 PVDF tape should be applied to all joins
- Use only ZAXX9525-01 Sealant Adhesive supplied by Zotefoams on Chilled lines
- Seal all joins and straight lengths on chilled lines prior to applying ZAXX9164 tape
- Always use the correct sized moulded elbows & tee pieces where possible
- Prep all elbows using Zotefoams ZAXX9525-01 Sealant (See Photos)
- ½" (12mm) Zotefoams ZAXX9164 PVDF tape should be applied diagonally across the centre of all elbows (See Photos)
- Smooth tape using pressure to reduce wrinkles and ensure adequate adhesion
- Allow 24 hours for adhesive to fully bond (sets within 15 minutes)
- Allow minimum of 6 hours for Sealant to set prior to installing elbows

Don't:

- Do not Start installation process until area has been cleaned and is construction free
- Do not use excessive amounts of tape (see photos)
- Do not tape on the inside of bends
- Do not tape on the outside of bends unless a wrinkle free finish can be obtained
- If tape on the outside of a bend is desirable use only ½" ZAXX9164 PVDF as supplied
- Do not 'glue' the T-TUBES® to the process piping
- Do not use excessive amounts of ZAXX9525-01 when hermetically sealing chilled lines
- Do not use anything other than Zotefoams supplied & approved products

All statement and technical information are based on results obtained under typical conditions. It is the responsibility of the recipient to verify with us that the information is appropriate for the specific use intended by the recipient. The data and information are provided as a technical service and are subject to change without notice. Zotefoams plc gives no representation or warranty as to the accuracy of the data or information. Zotefoams guarantees the manufacture of the product T-TUBES®, but cannot guarantee the work carried out by installers & contractors.



ZOTEFOAMS

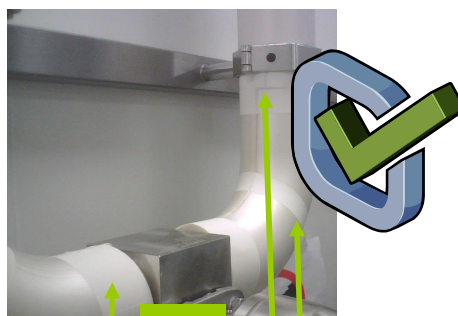


Photos & Recommended Installs:



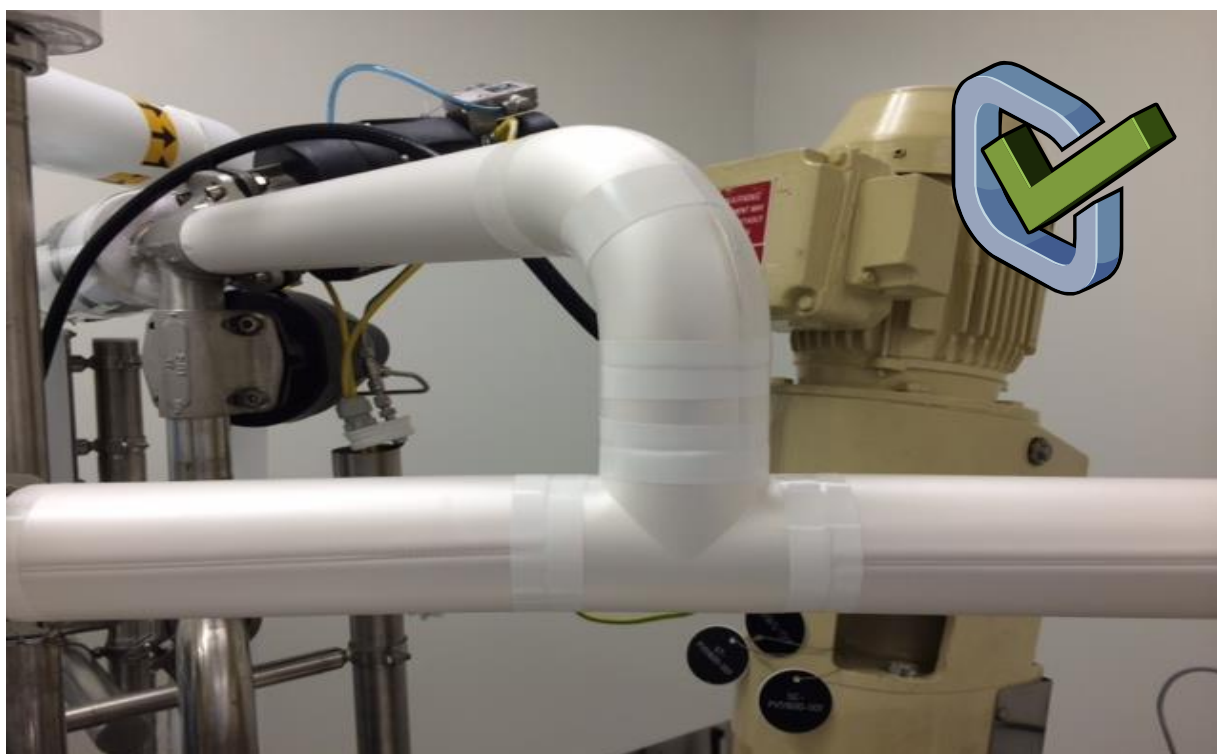
DON'T!

Tape should not be applied on inner seam



DO

Apply tape diagonally across Elbows, after prepping Elbow seams with ZAXX9525-01 and apply tape to both butt ends

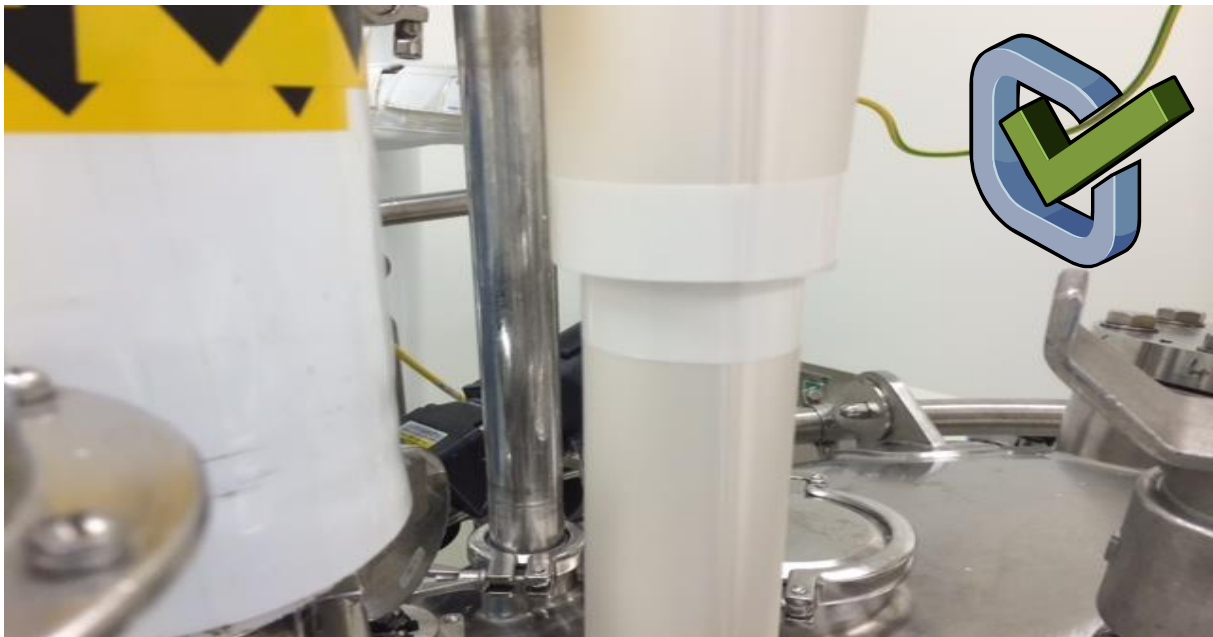


All statement and technical information are based on results obtained under typical conditions. It is the responsibility of the recipient to verify with us that the information is appropriate for the specific use intended by the recipient. The data and information are provided as a technical service and are subject to change without notice. Zotefoams plc gives no representation or warranty as to the accuracy of the data or information. Zotefoams guarantees the manufacture of the product T-TUBES®, but cannot guarantee the work carried out by installers & contractors.

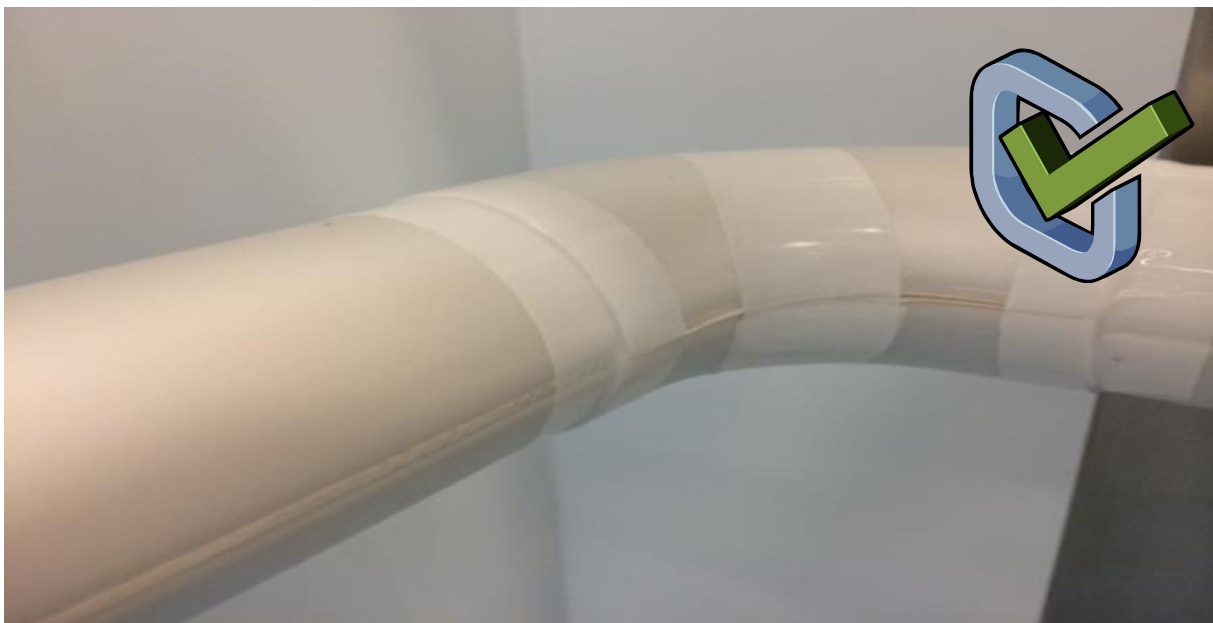
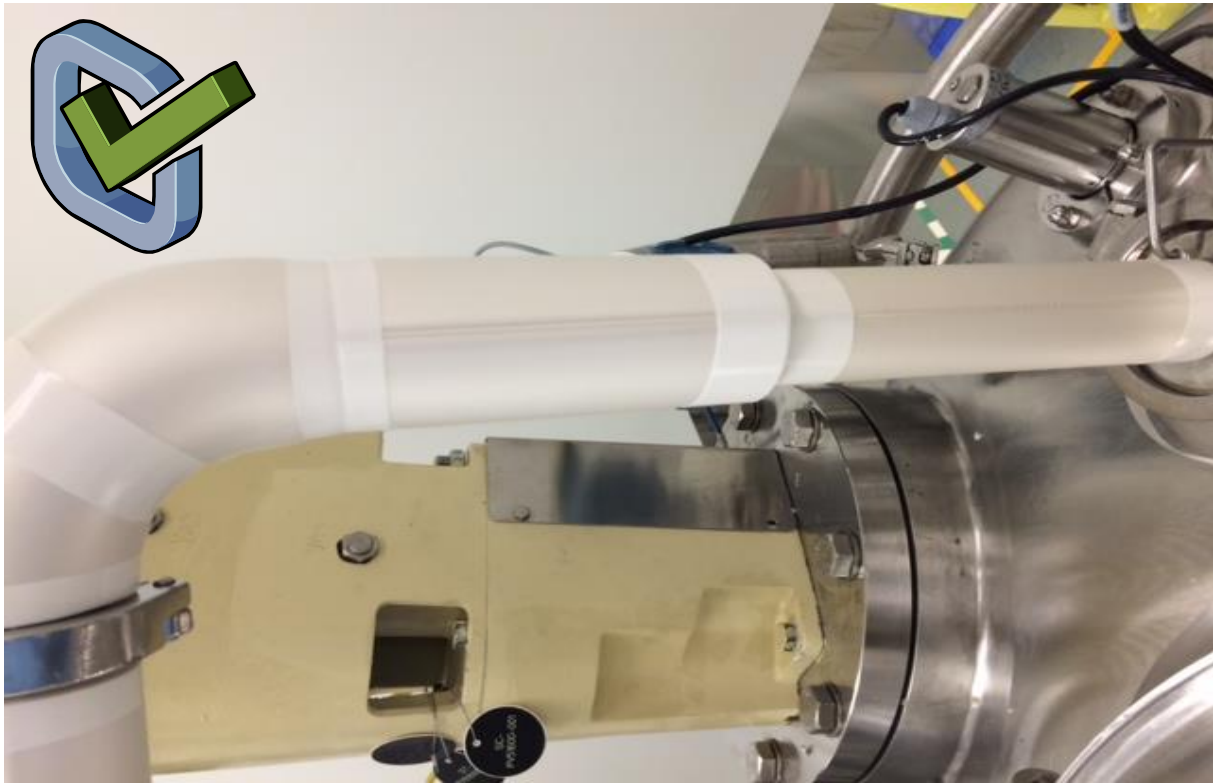
T-TUBES® IS A REGISTERED TRADEMARK OF UFP TECHNOLOGIES Inc.

KYNAR® IS A REGISTERED TRADEMARK OF ARKEMA INC.

ZOTEK® IS A REGISTERED TRADEMARK OF ZOTEFOAMS PLC



All statement and technical information are based on results obtained under typical conditions. It is the responsibility of the recipient to verify with us that the information is appropriate for the specific use intended by the recipient. The data and information are provided as a technical service and are subject to change without notice. Zotefoams plc gives no representation or warranty as to the accuracy of the data or information. Zotefoams guarantees the manufacture of the product T-TUBES®, but cannot guarantee the work carried out by installers & contractors.



All statement and technical information are based on results obtained under typical conditions. It is the responsibility of the recipient to verify with us that the information is appropriate for the specific use intended by the recipient. The data and information are provided as a technical service and are subject to change without notice. Zotefoams plc gives no representation or warranty as to the accuracy of the data or information. Zotefoams guarantees the manufacture of the product T-TUBES®, but cannot guarantee the work carried out by installers & contractors.

T-TUBES® IS A REGISTERED TRADEMARK OF UFP
TECHNOLOGIES Inc.

KYNAR® IS A REGISTERED TRADEMARK OF ARKEMA INC.

ZOTEK® IS A REGISTERED TRADEMARK OF ZOTEFOAMS PLC



ZOTEFOAMS



All statement and technical information are based on results obtained under typical conditions. It is the responsibility of the recipient to verify with us that the information is appropriate for the specific use intended by the recipient. The data and information are provided as a technical service and are subject to change without notice. Zotefoams plc gives no representation or warranty as to the accuracy of the data or information. Zotefoams guarantees the manufacture of the product T-TUBES®, but cannot guarantee the work carried out by installers & contractors.

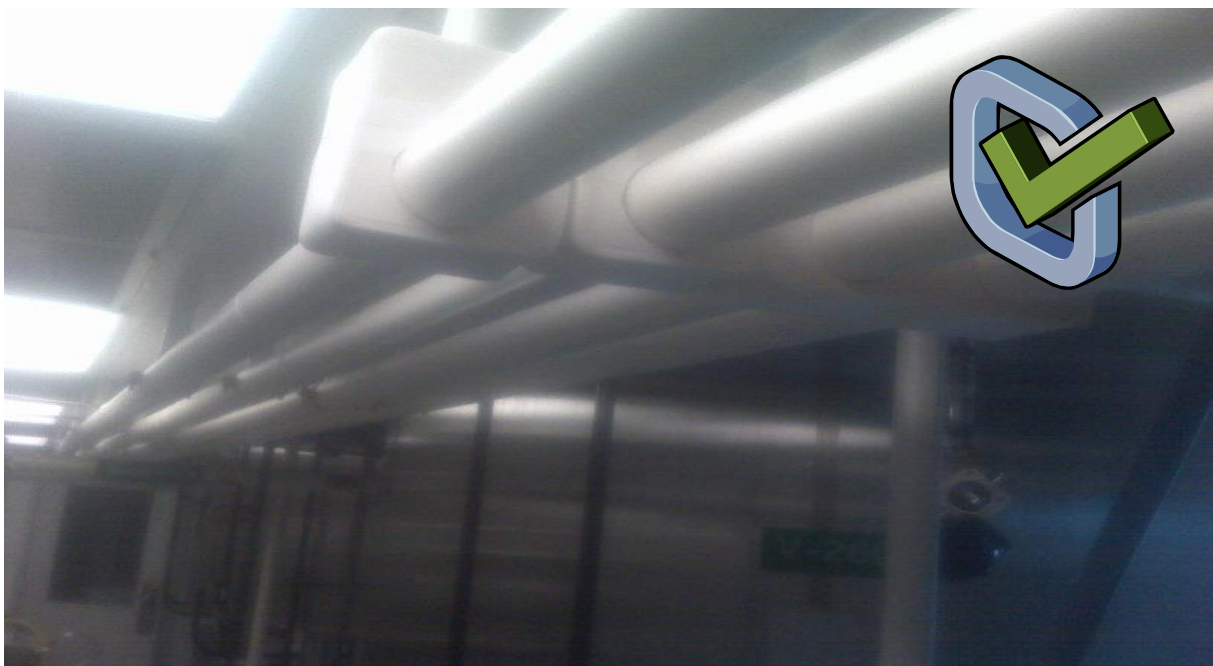
T-TUBES® IS A REGISTERED TRADEMARK OF UFP
TECHNOLOGIES Inc.

KYNAR® IS A REGISTERED TRADEMARK OF ARKEMA INC.

ZOTEK® IS A REGISTERED TRADEMARK OF ZOTEFOAMS PLC



ZOTEFOAMS



All statement and technical information are based on results obtained under typical conditions. It is the responsibility of the recipient to verify with us that the information is appropriate for the specific use intended by the recipient. The data and information are provided as a technical service and are subject to change without notice. Zotefoams plc gives no representation or warranty as to the accuracy of the data or information. Zotefoams guarantees the manufacture of the product T-TUBES®, but cannot guarantee the work carried out by installers & contractors.

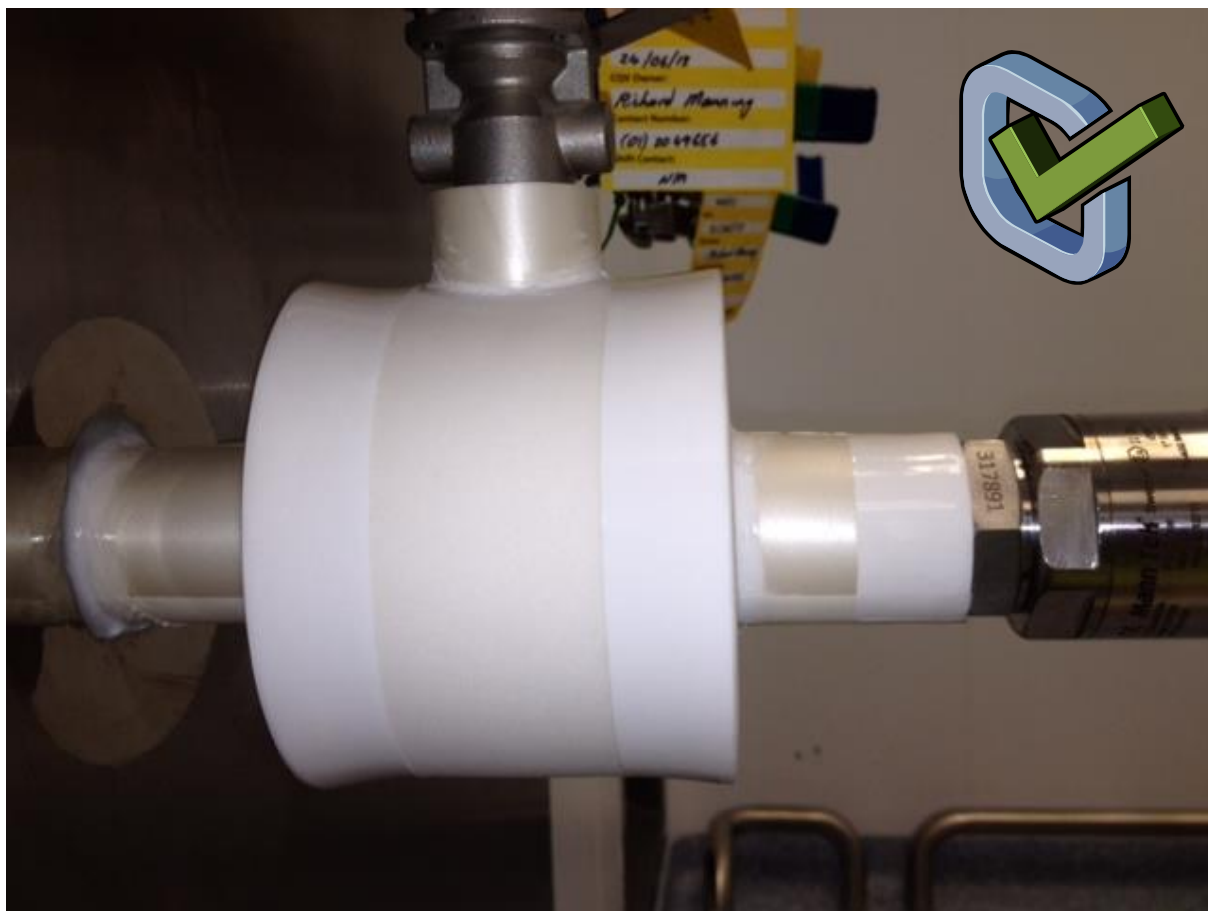
T-TUBES® IS A REGISTERED TRADEMARK OF UFP
TECHNOLOGIES Inc.

KYNAR® IS A REGISTERED TRADEMARK OF ARKEMA INC.

ZOTEK® IS A REGISTERED TRADEMARK OF ZOTEFOAMS PLC



ZOTEFOAMS



All statement and technical information are based on results obtained under typical conditions. It is the responsibility of the recipient to verify with us that the information is appropriate for the specific use intended by the recipient. The data and information are provided as a technical service and are subject to change without notice. Zotefoams plc gives no representation or warranty as to the accuracy of the data or information. Zotefoams guarantees the manufacture of the product T-TUBES®, but cannot guarantee the work carried out by installers & contractors.

T-TUBES® IS A REGISTERED TRADEMARK OF UFP
TECHNOLOGIES Inc.

KYNAR® IS A REGISTERED TRADEMARK OF ARKEMA INC.

ZOTEK® IS A REGISTERED TRADEMARK OF ZOTEFOAMS PLC



ZOTEFOAMS



All statement and technical information are based on results obtained under typical conditions. It is the responsibility of the recipient to verify with us that the information is appropriate for the specific use intended by the recipient. The data and information are provided as a technical service and are subject to change without notice. Zotefoams plc gives no representation or warranty as to the accuracy of the data or information. Zotefoams guarantees the manufacture of the product T-TUBES®, but cannot guarantee the work carried out by installers & contractors.

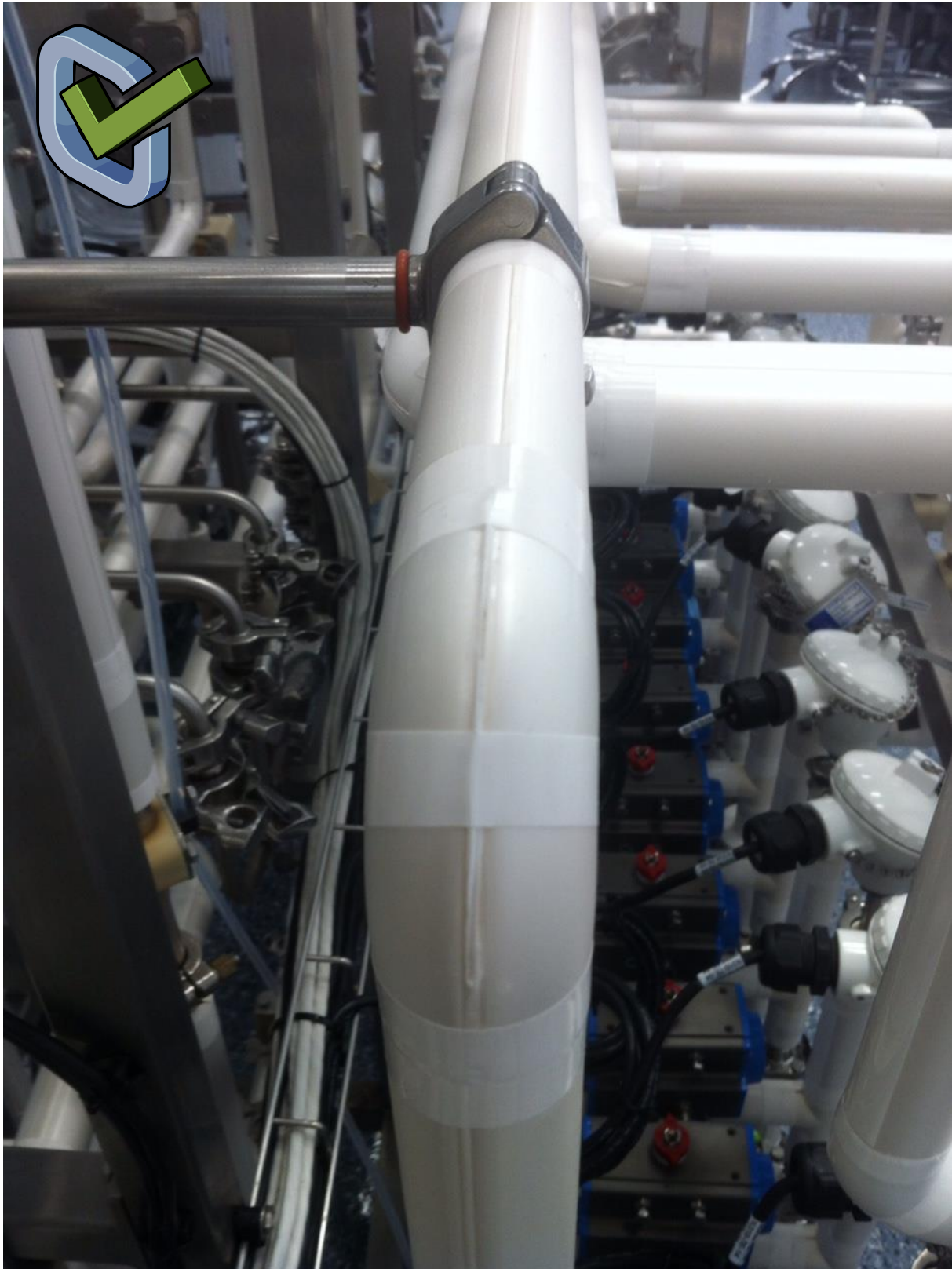
T-TUBES® IS A REGISTERED TRADEMARK OF UFP
TECHNOLOGIES Inc.

KYNAR® IS A REGISTERED TRADEMARK OF ARKEMA INC.

ZOTEK® IS A REGISTERED TRADEMARK OF ZOTEFOAMS PLC



ZOTEFOAMS



All statement and technical information are based on results obtained under typical conditions. It is the responsibility of the recipient to verify with us that the information is appropriate for the specific use intended by the recipient. The data and information are provided as a technical service and are subject to change without notice. Zotefoams plc gives no representation or warranty as to the accuracy of the data or information. Zotefoams guarantees the manufacture of the product T-TUBES®, but cannot guarantee the work carried out by installers & contractors.

T-TUBES® IS A REGISTERED TRADEMARK OF UFP
TECHNOLOGIES Inc.

KYNAR® IS A REGISTERED TRADEMARK OF ARKEMA INC.

ZOTEK® IS A REGISTERED TRADEMARK OF ZOTEFOAMS PLC



NB:

In order to ensure the longevity and durability of the insulation, it is very important that the material fits on the tubing snugly and the seams are closed with little or no gaps wherever possible; T-TUBES® are produced in a variety of dimension's specifically to fit the international standards of piping/tubing used; ASME BPE, ISO or DIN. Full list of part numbers available across the range of standards offered are available on request.

Please use the designated T-TUBES® insulation that corresponds with the piping/tubing in use, along with the specified ancillary products, tape & sealant, to ensure a long lasting and durable clean room insulation.

Final fit and durability of the product will always be the prime responsibility of the insulation contractor carrying out the insulation project; Zotefoams plc can take no responsibility for the final fit in this respect. We do however offer a free of charge service for advice, recommendations, and training whenever it is required or requested.

Contacts for further information:

David Sadler
Global Sales & Marketing Manager
[***das@zotefoams.com***](mailto:das@zotefoams.com)
[***www.zotefoams.com***](http://www.zotefoams.com)
Tel: +44 7595400937

All statement and technical information are based on results obtained under typical conditions. It is the responsibility of the recipient to verify with us that the information is appropriate for the specific use intended by the recipient. The data and information are provided as a technical service and are subject to change without notice. Zotefoams plc gives no representation or warranty as to the accuracy of the data or information. Zotefoams guarantees the manufacture of the product T-TUBES®, but cannot guarantee the work carried out by installers & contractors.