

Plastic pipes and joints

Inspection and advice



Ultrasound examination of electro-welded district heating mantles



PP-n pipe system used for Mill Q water

- **What types of pipe and joint should I choose?**
- **How do I ensure the quality of joints?**

Processing plants consisting of plastic pipes are being increasingly used in the chemical and offshore industries, the pharmaceutical and biotech industries, the food industry and the electronics industry. Processing plants integrating plastic pipes contain many welded and glued joints, the quality of which is crucial to the durability and life of pipe installations. The same applies to electrically welded couplings, which are used for the jointing of mantle pipes in district heating and gas pipes.

To guarantee the quality of welded and glued joints FORCE Technology offers assistance within project supervision, visual inspection and non-destructive testing of welded and glued plastic joints. The choice

of method depends on the chosen jointing technique. Moreover, FORCE Technology in collaboration with the pipe supplier qualifies personnel in accordance with applicable requirements and standards.

Visual inspection

Butt welds, including IR (infrared) welded joints are inspected visually, in that a series of quality parameters are examined in order to check that welding has been performed correctly. Visual checking of butt welds can be performed in clean rooms if so required. The inspection method can also usually be used to detect faults that have occurred during welding and thus prevent similar faults being repeated.



Non-destructive testing

It can be of great benefit to subject welded and glued mantle joints in a large number of plastic types to non-destructive testing. With ultrasound FORCE Technology can check that welded and glued areas (hidden from the naked eye) actually comply with requirements. With ultrasound FORCE Technology can reveal any areas where adhesion is defective. The method is an effective tool for ensuring excellent and uniform quality, thus maximising the durability and lifetime of pipe installations.

Moreover, ultrasound inspection also enables the performance of periodic condition checks of glued joints, welds and pipe thicknesses in critical components. This is beneficial, as it allows optimum planning of any production stops or repairs.

Consultancy

During the construction phase, FORCE Technology provides advice on the choice of plastics and glue for pipes and other equipment, thus making it possible to ensure that processing plants actually can withstand the effects they are exposed to, such as chemicals, cleaning processes, temperature fluctuations, etc.

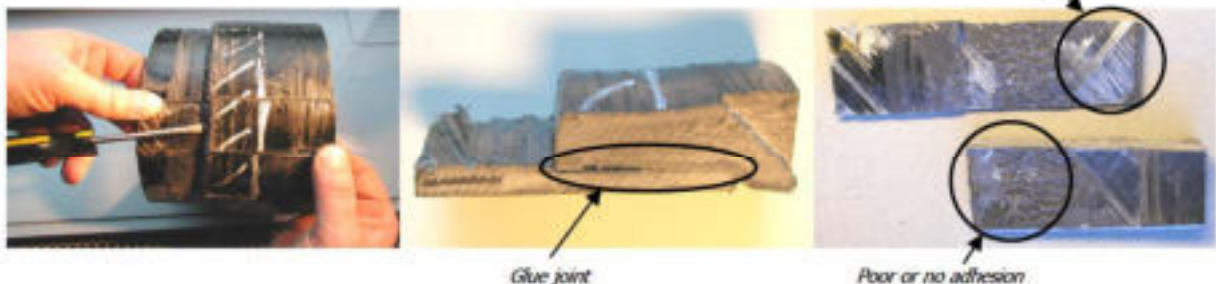
Qualification

If plastic is contained in processing plants which must be qualified, FORCE Technology can:

- Provide advice and assistance in preparing validation plans, qualification protocols and test plans at all stages of qualification
- Carry out all qualification work or specific tests
- Manage or train validation teams
- Report on and document the qualification process.

Research and development

FORCE Technology participates in a number of national and international research and development projects. Most development projects are implemented in collaboration with Danish and foreign companies and knowledge centres. The object is to promote technological development and also to maintain high levels of professional expertise among our staff to the benefit of our customers and collaborative partners.



The pictures show a typical faulty area in a glued joint, detected using ultrasound. It should be noted that this fault was not revealed by a prior pressure test.



Further information:

Jens Rusborg, tel. (direct) +45 96 35 08 07, jer@force.dk

Subject to changes without notice

FORCE Technology USA Inc.
Tel. +1 713 975 8300
FORCE Technology Rusland LLC
Tel. +7(812) 326 80 92

FORCE Technology Norway AS
Claude Morets allé 5
1338 Sandvika, Norway
Tel. +47 64 00 35 00
Fax +47 64 00 35 01
info@forcectechology.no

FORCE Technology Sweden AB
Tallmätargatan 7
721 34 Västerås, Sweden
Tel. +46 (0)21 490 3000
Fax +46 (0)21 490 3001
info@forcectechology.se

FORCE Technology, Headquarters
Park Allé 345
2605 Brøndby, Denmark
Tel. +45 43 26 70 00
Fax +45 43 26 70 11
info@forcectechology.com
www.forcectechology.com