DIN EN ISO 21809-2 Epoxy Coatings for Buried or Submerged Pipelines / Flexibility of the Coating / Testing Equipment

Description

A.13 Flexibility of the coating

A.13.1 Equipment
The equipment shall consist of the following:
A.13.1.1 Hydraulic press.
A.13.1.2 Bending mandrels, with fixed radii.
A.13.1.3 Freezer.
A.13.1.4 Strain gauges (if applicable).
A.13.2 Test specimens
Laboratory-coated test specimens shall be approximately 6,4 mm Ã— 25 mm with a minimum length of 200 mm.
Specimens from test rings shall be the pipe wall thickness with a width of 25 mm and a minimum length of 200 mm. The length of 200 mm dimension shall be parallel to the axis of the pipe.

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A.13.3 Procedure
A.13.3.1 Smooth the coating on the edge of the sample to remove any potential stress risers. Place the test specimen in the freezer, cool it to 0 Â°C Â± 3 Â°C, and hold for a minimum of 1 h.
A.13.3.2 Determine the sample thickness, d, which includes the specimen thickness and any curvature, by
placing the specimen on a flat surface and measuring the thickness as shown in Figure A.13.
A.13.3.3 Determine the mandrel radius, R, that corresponds to an angle of deflection Â°ppd length from the
following Equations:

2°ppd, $R=28,1d$

2,5°ppd, $R=22,4d$

3,0°ppd, $R=18,6d$

where

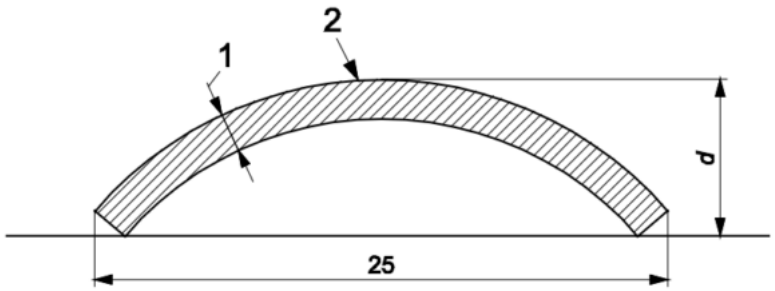
R is the mandrel radius, expressed in millimetres;

d is the sample thickness, expressed in millimetres.

A.13.3.4 Bend the test specimen over a mandrel whose radius is not larger than that determined in accordance with the applicable requirements of A.13.3.3. Bend the specimen such that the operation lasts no longer than 10 s and is completed within 30 s of the test specimen having been removed from

the freezer.
NOTE Where the sample exhibits peaking, the percent strain can be calculated by the use of stain gauges attached to the test specimen.
A.13.5 Warm the bent test specimen to 20 Â°C Â± 5 Â°C, and hold it in this temperature range for a minimum
of 2 h. Within the next hour, visually inspect it for the presence of cracks.

Dimensions in millimetres



Key

1 pipe wall thickness
2 coating

Figure A.13 — Effective strap thickness diagram

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A.13.4 Results
The following information shall be recorded:
â€“ epoxy-powder batch number;
â€“ date of testing;
â€“ specified angle of deflection;
â€“ cracking, if any.
Testing of production coating requires pipe number or identification.



Hydraulic Press for flexibility of the Coating According to DIN EN ISO 21809-2 A13

- Digital speed settings
- Including 1 mandrels as per customer request (others are as option)
- Hydraulic tank with indicator

- Pressure value is indicated on a gage
- Force capacity 100KN
- Maximum speed 100 mm/min



Laboratory Freezer 55Lit

- Digital temperature controller
- 55 Lit of inside capacity
- Inside dimensions 44*31*47 cm
- SS304 inside chamber
- Digital timer included
- Air circulation for inside chamber

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Category

1. Equipment for Standards
2. Standards