

## Material Testing

Salt Spray (Fog) test (1000 h) on 2 samples of steel

**Orderer:** EXQUIP Germany GmbH  
**Order No.:** Salt Spray (Fog) Test - 416148  
**Project-No.:** ---  
**Contact:** Mr. Kroll  
**Test job:** 1000 h Salt Spray (Fog) Test acc. to ASTM B117 on 2 pipe sections of steel



**Sample name:** L0270 – JFE BEAR CE PIN Protector (old)  
L0271 – KS / JFE BEAR CE BOX Protector (brown)  
L0272 – KS / JFE BEAR CE BOX Protector (red)

**Material No.:** ---  
**Material:** unalloyed steel  
**Specification:** ---  
**Dimensions:** ca. Ø 140 x 10 x 200 mm, ca. Ø 150 x 10 x 250 mm

**Test record:** 1000 h normal salt spray (fog) test (NSS) on 2 pipe sections of unalloyed steel, whose threads are covered with different type of protectors. At sample L0270 (old) the pipe end with an internal thread and at sample L0271 (brown) and L0272 (red) both pipe ends with external threads are covered with protectors of a polymer material. Before the start of testing all protectors are assembled by using a torque wrench with a prescribed torque moment of 100 Nm.

**Result:** After the test duration of 1000 h all three thread ends, which are covered by the protectors, show no visible corrosive attack. All uncovered surfaces show at least locally pronounced red rust formation. By the normal salt spray (fog) test according ASTM B117 and a test duration of 1000 h, the conservation effect of all tested protectors is hereby confirmed.

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### Test conditions of salt spray (fog) test

| <b>Salzsprühnebeltest</b>  |   | L0270 / L0271 / L0272   |           |
|--|---|---|-----------|
| <b>Norm</b><br><i>Specification</i>  | : ASTM B117   | <b>Verfahren</b><br><i>Practice</i>                           | : NSS     |
| <b>Eigenschaften der Kammer</b><br><i>Description of the chamber</i>                   |   |   |           |
| <b>Korrosivität Kammer</b><br><i>Corrosivity chamber</i>                               | : 76 g/m <sup>2</sup> an Gebrauchsnorm aus Stahl<br><i>76 g/m<sup>2</sup> on working standard of steel</i>            |   |           |
| <b>Verwendetes Wasser</b><br><i>Used water</i>   | : demineralisiertes Wasser mit Leitfähigkeit < 20 µS/cm<br><i>demineralized water with conductivity &lt; 20 µS/cm</i> |   |           |
| <b>Salzkonzentration</b><br><i>Salt concentration of br</i>                            | : 50 g/l  | <b>pH-Wert der Sole</b><br><i>pH-value of brine</i>           | : 6,5     |
| <b>Probeneigenschaften und Probenvorbereitung</b><br><i>Description of the chamber</i> |   |   |           |
| <b>Probenart</b><br><i>Test specimen</i>   | : 2 Probestücke<br><i>2 samples</i>   | <b>Beschichtung</b><br><i>Vanish / Layer</i>                  | : ---     |
| <b>Reinigung</b><br><i>Cleaning</i>  | : Alkohol<br><i>Alcohol</i>   | <b>Neigungswinkel</b><br><i>Angle of inclination</i>          | : ca. 20° |
| <b>Zyklusbeschreibung</b><br><i>Description of the test-cycle</i>                      |   |   |           |
| <b>Nebelzeit</b><br><i>Time of salt-fog</i>  | : 1000 h  | <b>Temperatur</b><br><i>Temperature</i>                       | : 35 °C   |
| <b>Niederschlagsmenge</b><br><i>Quantity of precipitation</i>                          | : 1,9 ml/h  | <b>pH-Wert Prüflösung</b><br><i>pH-value of test solution</i> | : 6,6     |
| <b>Dichte der Prüflösung</b><br><i>Density of test solution</i>                        | : 1,035 kg/l  |   |           |
| <b>Bewertung</b><br><i>Evaluation</i>  |   |   |           |
| <b>Beurteilung gem.</b><br><i>Examination acc. to</i>                                  | : ASTM B117   |   |           |
| <b>Bewertung</b><br><i>Evaluation</i>  | : Kein Angriff sichtbar.<br><i>No visible attack</i>  |   |           |

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### Macrodocumentation of test piece - JFE BEAR CE PIN Protector (old) [L0270]



Fig. 1: Delivery condition



Fig. 2: External thread



Fig. 3: Sample with assembled protector

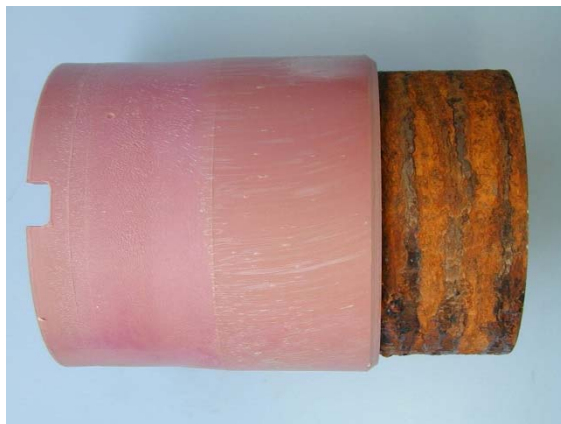


Fig. 4: Sample after 1000 h NSS-Test



Fig. 5: Overview after 1000 h



Fig. 6: External thread after 1000 h

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**Fig. 7:** Inside view



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### Macrodocumentation of test piece - KS / JFE BEAR CE BOX Protektor (brown) [L0271]



Fig. 1: Thread in delivery condition

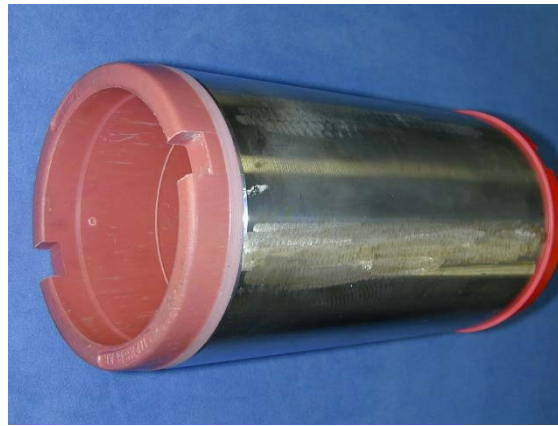


Fig. 2: Sample with assembled protectors



Fig. 3: Torque moment 100 Nm



Fig. 4: Sample after 1000 h NSS-Test



Fig. 5: Internal thread after 1000 h



Fig. 6: Internal thread after 1000 h

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### Makrodokumentation of test piece – KS / JFE BEAR CE BOX Protector (red) [L0272]



**Fig. 1:** Thread in delivery condition



**Fig. 2:** Sample with assembled protectors



**Fig. 3:** Samples in the test chamber



**Fig. 4:** Sample after 1000 h NSS-Test



**Fig. 5:** Internal thread after 1000 h



**Fig. 6:** Internal thread after 1000 h