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Date

2017-11-02

Report No.

1709145S – Part 4 / 1710342MH

Order No.

Inspection of Protector Testing acc. to API 5CT Ed. 2011 9th Ed. Annex I & TSSU-003**Components Tested:**

- **Protector PIN 10 ¾" VAM 21 65,7 LBFT** **RAL4006** **(1)**

Tests witnessed:

- **Angular Impact Test at -46 °C**
- **Torque Test at -46 °C**
- **Stripping Test at +66 °C**

Date and Location:**19th October 2017****Exquip Germany GmbH****Auf dem Knuf 12****59073 Hamm****Contact Person:****Mr. Timm Jörgen Kroll, Exquip Germany GmbH****Mr. Jan-Pit Kroll, Exquip Germany GmbH****Mr. Arnd Burghoff, Exquip Germany GmbH****Inspection and Reporting:****Mr. Eric Uhle, Element Materials Hamburg GmbH, Laboratory Mülheim****Operations Manager Laboratory Mülheim****M.Sc., IWE**

1. Object of Examination

10 3/4" Pipeconnector protectors were tested according to API 5CT & TSSU-003. Therefore, some random protectors were taken from the production batches 09/2017 to be tested.

2. Tests

2.1 Angular Impact Test at -46 °C: passed

The Angular Impact Test was performed following the API 5CT & TSSU-003. Different than required by the standard the protector was installed after cooling to -46 °C to the as well cooled connector. The protector was installed using the manufacturer's common practice. After the impact the threads of the connectors were examined.

Protector PIN 10 3/4" VAM 21 65,7lbft

Value	Requirement	Value	Evaluation
Make-up Torque	> 140 Nm	143,5Nm	passed
Impact Energy First Run	542 J	542 J	passed
Surface inspection of the machined surfaces	No damage	Connector and threads found in good condition No damage to the connector observable	passed

2.2 Torque Test at -46 °C:

passed

The Torque Test was performed following the API 5CT & TSSU-003. Different than required by the standard the protector was installed after cooling to -46 °C to the as well cooled connector. The protector was installed using the manufacturer's common practice. After the test the threads of the protector and connector were examined.

Protector PIN 10 3/4" VAM 21 65,7lbft

Value	Requirement	Value	Evaluation
Make-up Torque	> 140 Nm	163 Nm	passed
Break out Torque	For information	135 Nm	passed
Surface inspection of the connector / protector threads	No damage	Protector and connector threads found in good condition No damage to the protector threads observable	passed

2.3 Stripping Test at +66 °C:

passed

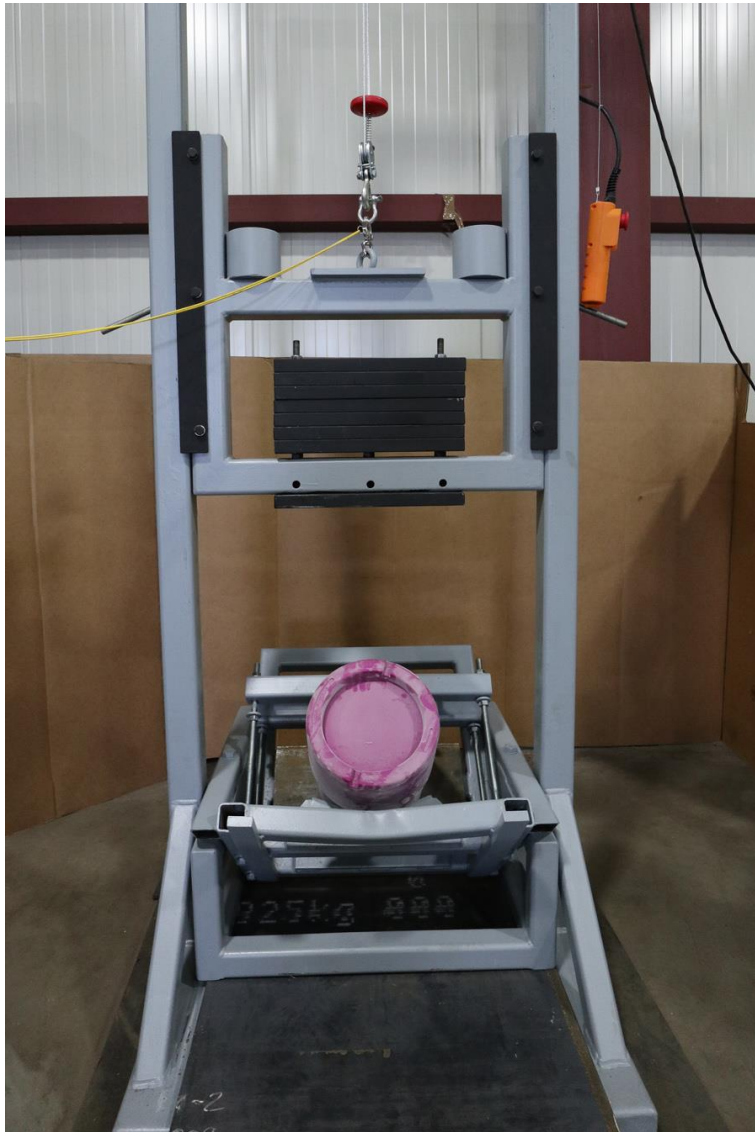
The Stripping Test was performed according to API 5CT & TSSU-003. The protector was installed using the manufacturer's common practice. Heated to +66 °C and soaked for 45 min. After the test the threads of the protector and connector were examined.

Protector PIN 10 3/4" VAM 21 65,7lbft

Value	Requirement	Value	Evaluation
Make-up Torque	> 140 Nm	148 Nm	passed
Axial load	22,8 kN	26,02 kN	passed
Surface inspection of the connector / protector threads	No damage	Protector and connector threads found in good condition No damage to the protector threads observable	passed

3. Pictures

3.1 Pictures Angular Impact Test at -46 °C



Testing device with installed protector (1)



Protector (1) before testing



Protector (1) after testing



Protector (1) after testing



Connector threads after testing
Protector (1)

3.2 Pictures Torque Test at -46 °C

Testing device with installed protector (1)



Protector (1) before testing



Testing device with installed protector (1)

3.3 Pictures Stripping Test at +66 °C



Testing device with installed protector (1)



Protector (1) after testing



Threads of the protector after testing (1)

4. Summary

All requirements are fulfilled for the tested protectors, so the validation regarding the angular impact test, torque test and stripping test was successful and the protectors meet the requirements according to API 5CT & TSSU-003.

Protector PIN 10 3/4" VAM 21 65,7 LBFT

RAL4006 (1)



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