

Validation Redesigned Nut for MDM screwlocks

Description of the test :

- Corrosion test (Salt spray 48h) on redesigned MDM nuts
- Locking torque measurement of the screw with redesigned MDM nuts
- Unlocking torque comparison between existing and redesigned nuts after vibration test.

Product :

- Redesigned MDM nuts according to drawing ET 669 099 OP
- Spare parts: Screw +Clip ----> 340103207B
- Spare parts: Bushing + Washer + Nut ----> 340103208B

Traceability :

- Redesigned MDM nuts according to drawing ET 669 099 OP Batch #1, reception April 2015

Summary :

- Laboratory test report page 3 to 6

Applicable documents :

- Generic specification : ESCC 3401 - Issue 3 - November 2014
- Detail specification : ESCC 3401 /032 - Issue 6- March 2015

Conclusion :

- No corrosion points on redesigned MDM nuts after salt bath 48h.
- Torque value for screwing through the nut is acceptable (maxi measured 0,16Nm).
- After vibrations, torque value for unlocking redesigned MDM nuts is higher than with existing nut (0,24Nm average versus 0,20Nm average).

Laboratory Technician
J.TEPINIER

Chief Inspector
O. MASSON

TESTS EQUIPMENTS USED FOR THIS REPORT

Equipment	Ref.	Manufacturer	Type or model	Serial N°	Date of calibration	Date of next calibration
Salt mist	A	WEISS	SC/KWT450	125-003	13/09/2013	10/09/2015
Vibration Test Systems	B	TIRA	Vibration generator	1B97AD	20/11/2014	20/11/2019
		TIRA	Accelerometer	59899	20/11/2014	20/11/2019
		TIRA	Power amplifier	BAA 1000	20/11/2014	20/11/2019
Couplemeter	C	SOMFY TEC	1-8 DaN / cm	109-002	24/02/2015	24/02/2017
Couplemeter	D	SOMFY TEC	0-2 DaN / N	109-016	03/03/2014	03/03/2016

TEST : CORROSION TEST

Report N° 422-15C

Test Group :

Specifications : - Generic specification : ESCC 3401 Para 9.22

Requirements :

Test environment or special conditions :

Test equipment : A

TEST PROCEDURE :

Components shall be suspended in the chamber in an horizontal position.

Duration : 48 hours

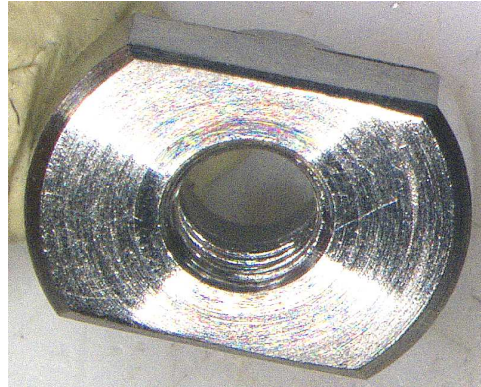
TEST REQUIREMENTS :

Final measurements :

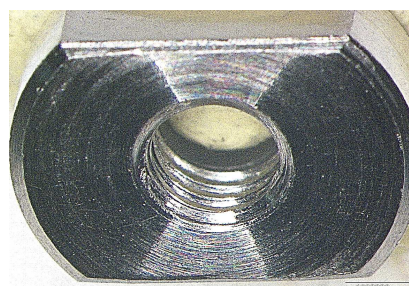
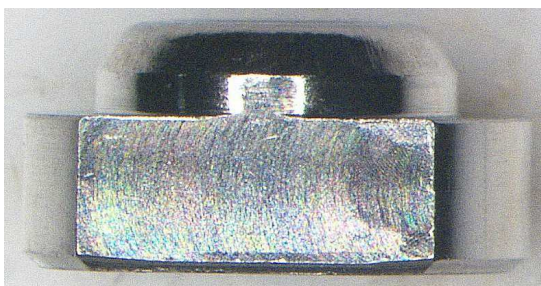
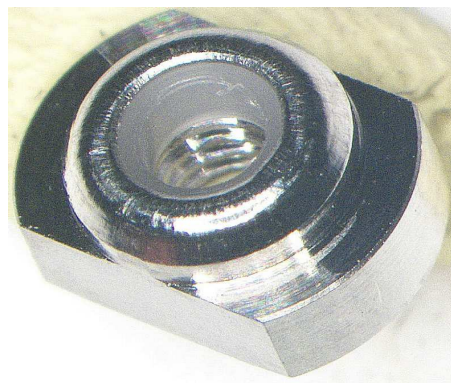
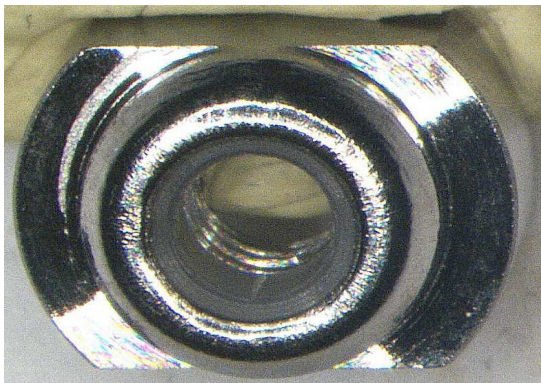
- visual examination under Binocular.

TEST SAMPLES : Redesigned MDM nuts

initial



after BS





LABORATORY DATA SHEET

Appendix 1

TEST :

TORQUE VALUE FOR SCREWING
TROUGH REDESIGNED MDM NUTS

Report N° 422-15C

Test Group :

Specifications : ESCC 3401 Generic Specification

Requirements : ESCC 3401/032 para 4.3.3

Test environment or special conditions :

Test equipment : D

TEST PROCEDURE :

Measurement of the torque value for screwing
through Redesigned MDM nut.

TEST REQUIREMENTS :

Torque Values < 0,44 Nm

TEST SAMPLES : REDESIGNED MDM NUTS WITH STANDARD FEMALE SCREWLOCK

Parts N°	Torque applied on screwlocks Nm	Results	
		pass	fail
1	0,11	√	
2	0,08	√	
3	0,11	√	
4	0,16	√	
5	0,15	√	
6	0,11	√	
7	0,14	√	
8	0,14	√	
9	0,11	√	
10	0,14	√	
Mini	0,08		
Maxi	0,16		
Average	0,13		

TEST : **VIBRATION**

Report N° 422-15C

Test Group :

Specifications : **ESCC 3401 Generic Specification § 9.11.2**

Requirements :

Test environment or special conditions :

Unwired connectors

Test equipment : **B**

TEST PROCEDURE :

Mated connectors (unwired) shall be mounted on the vibration table by their normal mounting means or by a suitable clamping arrangement.

Torque value for female side for screwlock is 4,4 daN.cm.

Torque value for screw is 2,8 daN.cm.

The connectors shall be submitted to vibration testing in accordance with IEC Publication N° 512-4, Test 6d.

Sweep frequency: 10-2000-10Hz.

The entire frequency range of 10 to 2000Hz and return to 10Hz shall be traversed in 30 minutes.

The vibration amplitude shall be 1.5mm or 20g whichever is less.

This cycle shall be performed once in each of the 3 mutually perpendicular directions so that the motion is applied for a total period approximately 90 minutes.

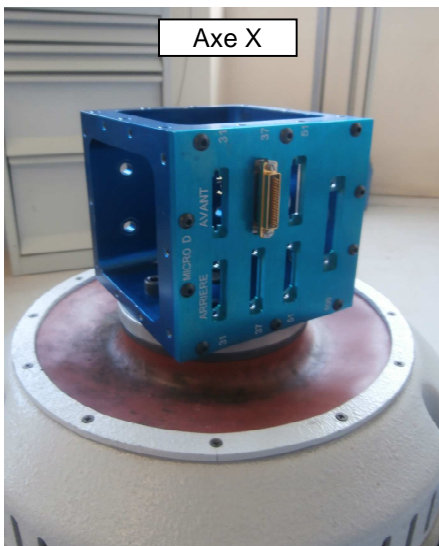
TEST REQUIREMENTS :

Connectors shall not be damaged and there shall be no loosening of parts.

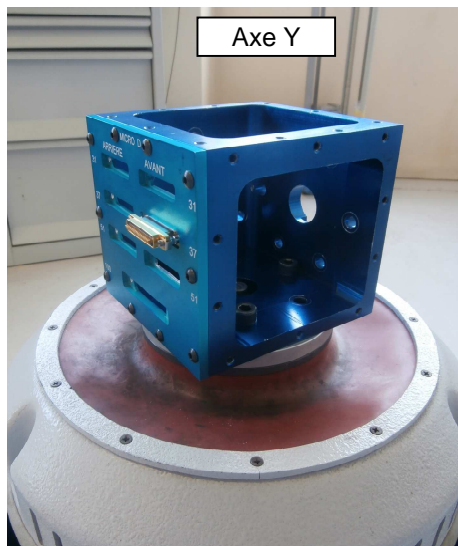
Final Measurements:

- Torque value.

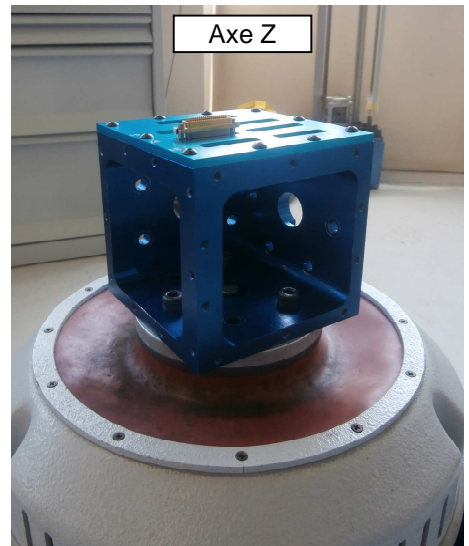
TEST SAMPLES : REDESIGNED MDM NUTS WITH STANDARD FEMALE SCREWLOCK



Axe X



Axe Y



Axe Z

TEST : TORQUE VALUE FOR UNLOCKING

Report N° 422-15C

Test Group :

Specifications : ESCC 3401 Generic Specification

Requirements : ESCC 3401/032 para 4.3.3

Test environment or special conditions :

Test equipment : C

TEST PROCEDURE :

The torque value to be used for unlocking the screws of the accessories specified herein shall be as mentioned in table 1 of this specification.

TEST REQUIREMENTS :

Unlocking Torque Values:

TEST SAMPLES : REDESIGNED MDM NUTS WITH STANDARD FEMALE SCREWLOCK

Parts N°	Visual Inspection	Unlocking Torque Nm				Results	
		Standard nut		Redesigned nut		pass	fail
		screw	nut	screw	nut		
1	OK	0,22	0,21	0,19	0,25	√	
2	OK	0,20	0,16	0,21	0,24	√	
3	OK	0,23	0,12	0,21	0,28	√	
4	OK	0,18	0,15	0,20	0,17	√	
5	OK	0,21	0,30	0,23	0,30	√	
6	OK	0,18	0,27	0,23	0,32	√	
7	OK	0,22	0,19	0,17	0,16	√	
8	OK	0,18	0,22	0,18	0,27	√	
9	OK	0,18	0,26	0,20	0,28	√	
10	OK	0,19	0,15	0,18	0,17	√	
Mini		0,18	0,12	0,17	0,16		
Maxi		0,23	0,30	0,23	0,32		
Average		0,20	0,20	0,20	0,24		