1 EU-TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective systems intended for use in Potentially Explosive Atmospheres - Directive 2014/34/EU**

3 **EC-Type Examination Certificate No:** **FM15ATEX0043X**

4 **Equipment or protective system: (Type Reference and Name)** **1616 Wireless UT Node**

5 **Name of Applicant:** **MISTRAS Group Inc.**

6 **Address of Applicant:** **195 Clarksville Road**
Princeton Junction, NJ 08550- USA

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and documents therein referred to.

8 FM Approvals Ltd, notified body number 1725 in accordance with Article 17 of Directive 2014/34/EU of 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report number:

3051800 dated 29th February 2016

9 Compliance with the Essential Health and Safety Requirements, with the exception of those identified in item 15 of the schedule to this certificate, has been assessed by compliance with the following documents:

EN 60079-0:2012 +A11:2013, EN 60079-11:2012, and EN 60529:1992 + A2:2013

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.

11 This EU-Type Examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include:

II 1 G Ex ia IIC T4; Ta = -55°C to +55°C; IP66

cn=Mick Gower, o=FM Approvals, ou, email=mick.gower@fmapprovals.com, c=GB
2018.01.19 13:40:54 Z

Mick Gower
Certification Manager, FM Approvals Ltd.

Issue date: 19th January 2018

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13 **Description of Equipment or Protective System:**

The 1616 UT Node is a pulser/receiver used for making material thickness measurements. It is used in conjunction with four single-crystal transducers or four dual-crystal transducers. The 1616 UT Node is powered from a 7.2V (nominal) battery, and sends out triggering pulses to the transducers, typically twice per day. Each transducer senses the thickness of the medium it is connected to, and converts it into an electrical signal which is sent back to the 1616.
The 1616's enclosure material is aluminum, while the transducer enclosures are made of stainless steel.

The Model code is as follows:

1616-5015

1616-5015. Wireless UT Thickness Node.
ISSUT5M-XX-YY-5015, with XX = S or TC, YY= 3 or 5. Transducer.
ISDUTXXM-5015, with XX = 2 or 5. Transducer

14 **Specific Conditions of Use:**

1. Do not remove cover, replace batteries, fuse or plug-in module unless the area is known to be free of ignitable gas vapors. Only battery type MISTRAS E950-0036 shall be used.
2. To avoid electrostatic discharge, cleaning must only be performed with a damp cloth.
3. The enclosure contains aluminum and is considered a potential risk of ignition by impact or friction. Care must be taken during installation to prevent impact or friction.

15 **Essential Health and Safety Requirements:**

The relevant EHSRs that have not been addressed by the standards listed in this certificate have been identified and assessed in the confidential report identified in item 8.

16 **Test and Assessment Procedure and Conditions:**

This EU-Type Examination Certificate is the result of testing of a sample of the product submitted, in accordance with the provisions of the relevant specific standard(s), and assessment of supporting documentation. It does not imply an assessment of the whole production.

Whilst this certificate may be used in support of a manufacturer's claim for CE Marking, FM Approvals Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

This Certificate has been issued in accordance with FM Approvals Ltd's ATEX Certification Scheme.

17 **Schedule Drawings**

A list of the significant parts of the technical documentation is annexed to this certificate and a copy has been kept by the Notified Body.

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18 **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
10th March 2016	Original Issue.
01st November 2016	Supplement 1: Report Reference: RR207159 dated 26th October 2016. Description of the Change: Minor design changes and updated certificate to the EU format.
30th March 2017	Supplement 2: Report Reference: Revision Report RR209028 dated 27th March 2017. Description of the Change: Minor design and document changes.
03rd January 2018	Supplement 3: Report Reference: Revision Report RR212400 dated 27th December 2017. Description of the Change: Minor product changes and documentation update.
19th January 2018	Supplement 4: Report Reference: Revision Report RR212589 dated 12th January 2018. Description of the Change: Minor documentation update.

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Blueprint Report

Mistras Group Inc (1000002320)

Class No 3610

Original Project I.D. 3051800

Certificate I.D. FM15ATEX0043X

Drawing No.	Revision Level	Drawing Title	Last Report	Electronic Drawing
1616-1000	1	1616 Wireless Thickness Node User's Manual	3051800	Yes (pdf)
1616-1506	0	Label	RR207159	Yes (pdf)
1616-2010	5	Gerber files (Main board)	3051800	Yes (zip)
1616-2011	5	Wireless UT Node Drill/Fabrication Drawing	3051800	Yes (pdf)
1616-2014(BOM)	5B	Wireless UT Node (Bill of Materials)	RR212400	Yes (pdf)
1616-2014(assy)	5B	Wireless UT Node, Assembly Drawing	RR212589	Yes (pdf)
1616-3010	5B	Wireless UT Node Top Level Schematic	RR212400	Yes (pdf)
1616-3040	0	High Temperature UT Transducer Schematic	3051800	Yes (pdf)
1616-3050	0	Wireless UT Node Transducer ISDUTXXM (Schematic)	3051800	Yes (pdf)
1616-5011-5	0	Label, Warning	3051800	Yes (pdf)
1616-5011-7	0	Label, Product ID, Wireless UT Node	3051800	Yes (pdf)
1616-5015	2	Assembly, Wireless UT Thickness Node	RR207159	Yes (pdf)
1616-6000	1	Wireless UT Node Control Drawing	3051800	Yes (pdf)
610-0183	1	Gerber files (Radio board)	3051800	Yes (zip)
615-0183	1	Fabrication drawing, Radio board	3051800	Yes (pdf)
705-0183	1	Assembly drawing, Radio board	3051800	Yes (pdf)
710-0201(BOM)	03A	BOM, Radio board	3051800	Yes (excel)
710-0201(schematic)	03	LTP5900IPC-WHMA PCA Schematic	3051800	Yes (pdf)
Declaration Letter (Battery)	May 27, 2015	Confirmation Letter	3051800	Yes (pdf)
ISDUTXXM-5015	2	Assembly, ISDUTXXM (XX = 2 or 5)	RR209028	Yes (pdf)
ISSUT5M-HT-XX-YY-5015	2	Assembly, ISSUT5M-HT-XX-YY-5015 (XX = TC or S, YY = 3 or 5)	RR209028	Yes (pdf)
Statement of Compliance (EHSR)	11/19/15	Statement of Compliance	3051800	Yes (pdf)