



NSAI

F-ST-25 – Rev 0

Pgs 1-5

ANNUAL REPORT 2018

NSAI TECHNICAL COMMITTEE
NSAI/TC 49/SC 02 – ADDITIVE
MANUFACTURING

Contents

1	Chairman's Statement	3
2	Introduction	3
3	Scope of TC.....	3
4	Structure and Membership	3
4.1	Structure	3
4.2	Members	4
5	Summary of 2018 Activities	5
5.1	National	5
5.1.1	Meetings	5
5.1.2	National Work	5
5.2	International/Regional	5
5.2.1	Meetings	5
5.2.2	International/Regional Work	5
5.2.3	International/Regional Standards Reviewed	5
5.2.4	International/Regional Voting Results	6
5.3	Regulatory Development/Update	6
6	Irish Publications/Reviews	6
6.1	Publications	6
6.2	Reviews	6
7	Work programme for 2019 onwards	6
8	Additional Information	6

1 Chairman's Statement

NSAI currently convenes the Additive Manufacturing committee. A Chairman will be appointed by NSAI in 2019.

2 Introduction

The ISO Standards Technical Committee [ISO/TC 261](#) was created in 2011 following an agreement with the American Industrial Standards Organisation, ASTM, and the European Standards Organisation, CEN, to have one global suite of AM Standards. [ISO/TC 261](#) and the [ASTM F42](#) work in parallel to produce the AM Standards. The Secretariat of [ISO/TC 261](#) is held by the German National Standards Body DIN.



These are first ever Standards to be developed for Additive Manufacturing

The Standards being developed at present are the first generation of Standards for Additive Manufacturing.

3 Scope of TC

Standardization in the field of Additive Manufacturing (AM) concerning their processes, terms and definitions, process chains (Hard- and Software), test procedures, quality parameters, supply agreements and all kind of fundamentals.

This committee will not produce indigenous Irish Standards. The national committee will participate in the development of International Standards at an ISO level.

The International Standards published by ISO will be adopted as European Standards. NSAI will adopt these European Standards as Irish Standards.

The committee mirrors the following international committees:

Committee Name	Committee Title
ISO/TC 261	Additive Manufacturing
ISO/TC 261/WG 1	Terminology
ISO/TC 261/WG 2	Processes, systems and materials
ISO/TC 261/WG 3	Test methods and quality specifications
ISO/TC 261/WG 4	Data and Design
ISO/TC 261/JWG 5	Joint ISO/TC 261 - ISO/TC 44/SC 14 WG: Additive manufacturing in aerospace applications
ISO/TC 261/WG 6	Environment, health and safety
ISO/TC 261/JWG 7	Joint ISO/TC 261 - ISO/TC 61/SC 9 WG: Additive manufacturing for plastics
ISO/IEC JTC 1/WG 12	Information technology - 3D Printing and scanning

4 Structure and Membership

4.1 Structure

The Figure below illustrates the structure of the National Committee:



4.2 Members

The list below are the members for the year 2018:

Organisation	Name	Role
NSAI	Fergal Finn	Secretary
Confirm	Johanna Aaspollu	Committee member
HPRA	Kevin Ashton	Committee member
Dublin City University	Prof Dermot Brabazon	Committee member
Trinity College Dublin	Mark Culleton	Committee member
Stryker	Aoife Dooley	Committee member
University College Dublin	Prof Denis Dowling	Committee member
Domone Engineering	Barry Fanning	Committee member
IT Sligo	Brendan Flaherty	Committee member
Neratek	Des Forde	Committee member
NSAI NML	Rory Hanrahan	Committee member
National University of Galway	Dr Noel Harrison	Committee member
Irish Manufacturing Research	Mark Hartnett	Committee member
Johnson & Johnson	Eddie Kavanagh	Committee member
University College Dublin	Dr Shane Keaveney	Committee member
NSAI	Paul Killeen	Committee member
Irish Manufacturing Research	Océane Laveau	Committee member
Trinity College Dublin	Dr Rocco Lupoi	Committee member
HP	Brian McAuliffe	Committee member
Irish Manufacturing Research	Tristan McCallum	Committee member
Irish Manufacturing Research	Sean McConnell	Committee member
Johnson & Johnson	Fionnan McNamara	Committee member
Irish Manufacturing Research	Colin Meade	Committee member
Boston Scientific	Mark Mirigian	Committee member
Irish Manufacturing Research	Dr Ann o'connell	Committee member
National University of Galway	Dr Gerard O'Connor	Committee member
IT Waterford	Dr Sinéad O'Halloran	Committee member
I-Form	John Oliver	Committee member
dePuy Synthetics	John Power	Committee member
IT Waterford	Dr Ramesh Raghavendra	Committee member
Trinity College Dublin	Harry Shipley	Committee member
Trinity College Dublin	Daniel Trimble	Committee member
Laser Proto	Thomas Walls	Committee member

5 Summary of 2018 Activities

5.1 National

5.1.1 Meetings

Committee members attended the following national meetings in NSAI as follows:

Meeting No.	Date	Minutes Reference	Venue
1	16 th January 2018	N031	IMR, Mullingar
2	12 th June 2018	N042	Trinity College Dublin
3	29 th November 2018	N051	Dublin City University

The meetings were held at various venues allowing the hosts to showcase their AM labs to the committee members.

5.1.2 National Work

The Standards Committees is represented at the National Steering Committee for Collaborative Robotics and submits a report on progress at each meeting.

5.2 International/Regional

5.2.1 Meetings

Committee members attended international meetings as follows:

Committee Name	Location	Date	No. of Attendees
ISO/TC 261	Maryland, USA	3-6 th April 2018	0
ISO/TC 261	Singapore	18-21 st September 2018	0
ISO/IEC JTC 1/WG 12	Seoul, Korea	15-17 th October 2018	1

5.2.2 International/Regional Work

Ireland is committed to following and inputting into the revision of the International Standards for the Safety Functionality of Industrial Robotics (ISO 10218). Since 2017 Ireland has been represented at each of the meeting held in Europe and internationally.

The focus of the work is on the requirements around the collaborative applications for robotics and humans.

Within the International Joint Technical Committee for Information Technology, ISO/IEC JTC 1 there is a Working Group, WG 12 focused on 3D printing and Scanning.

5.2.3 International/Regional Standards Reviewed

ISO/TR 20218-1:2018, *Robotics -- Safety design for industrial robot systems -- Part 1: End-effectors*

ISO/CD2 10218-1, *Robots and robotic devices -- Safety requirements for industrial robots -- Part 1: Robots*

ISO/CD2 10218-2, *Robots and robotic devices -- Safety requirements for industrial robots -- Part 2: Robot systems and integration*

ISO/DTR 23482-1, *Robotics -- Application of ISO 13482 -- Part 1: Safety-related test methods*

ISO/PRF TR 23482-2, *Robotics -- Application of ISO 13482 -- Part 2: Application guide*

5.2.4 International/Regional Voting Results

The committee voted on five of the fifteen international votes in 2018.

5.3 Regulatory Development/Update

The European Machinery Directive is due to be revised and the Irish Committee will be monitoring this revision to ensure that provisions for robotics are included and that they serve to promote collaborative robotics.

6 Irish Publications/Reviews

6.1 Publications

National standards will not be produced by this committee as the International Standards will be published as European Standards adopted as Irish Standards.

6.2 Reviews

The Committee reports to the National Steering Committee for Collaborative Robotics and participates in the work of the group.

7 Work programme for 2019 onwards

ISO/CD 10218-1 revision – *Robots and robotic devices -- Safety requirements for industrial robots -- Part 1: Robots*

ISO/CD 10218-2 revision – *Robots and robotic devices -- Safety requirements for industrial robots -- Part 2: Robot systems and integration*

ISO/DTR 23482-1 – *Robotics -- Application of ISO 13482 -- Part 1: Safety-related test methods*

ISO/TR 23482-2 – *Robotics -- Application of ISO 13482 -- Part 2: Application guide*

8 Additional Information

Ireland will host the ISO/TC 299/WG 3 meeting in November 2019. Over seventy of the world's experts on industrial robots will convene in Mullingar to address the technical comments received during the public enquiry stage.

NSAI with our research, academic and industry partners in robotics will work together to organise a meeting that benefits both WG3 and our local manufacturers interested in advanced manufacturing.