



NSAI

ANNUAL REPORT 2022

NSAI TECHNICAL COMMITTEE
NSAI/TC 128 – SAFETY OF
MACHINERY

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1 Committee Chair

In 2020 the scope of this Committee was changed from an e-Committee to a technical Committee. Due to the change in scope, a chair was required and NSAI invited Mr Brian Maher to take up the role of chair of the new NSAI/TC 128 (formerly NSAI/TC 48/SC 10)

Mr Maher has worked for Rockwell Automation for 15 years and is currently a Technology Consultant on Automation & Safety Solutions, with many years' experience in functional safety and machine automation. He is a member of ISO/TC 199/WG 8 Safe Control Systems and NSAI/TC 49/SC 03 Robots, Cobots and Robotics.

2 Introduction

The relevant international committees in the area of safety of machinery are ISO Standards Technical Committee of [ISO/TC 199](#) and the European Technical Committee of [CEN/TC 114](#). The main activity is standardisation of general principles for safety of machinery incorporating terminology and methodology.



Standards contribute greatly to urgently addressing global emissions

3 Scope of TC

The scope of this Committee is focussed on standardization of basic concepts and general principles for safety of machinery incorporating terminology, methodology, guards and safety devices within the framework of ISO / IEC Guide 51 and in cooperation with other ISO and IEC technical committees. This scope excludes product safety standards, as defined in ISO / IEC Guide 51, which are explicitly covered by the work of other ISO or IEC technical committees.

This Committee does not produce indigenous Irish Standards. Instead, the national committee is focussed on participating in the development of International Standards at an ISO level and at a European Level, participating in the work of a CEN Technical Committee.

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

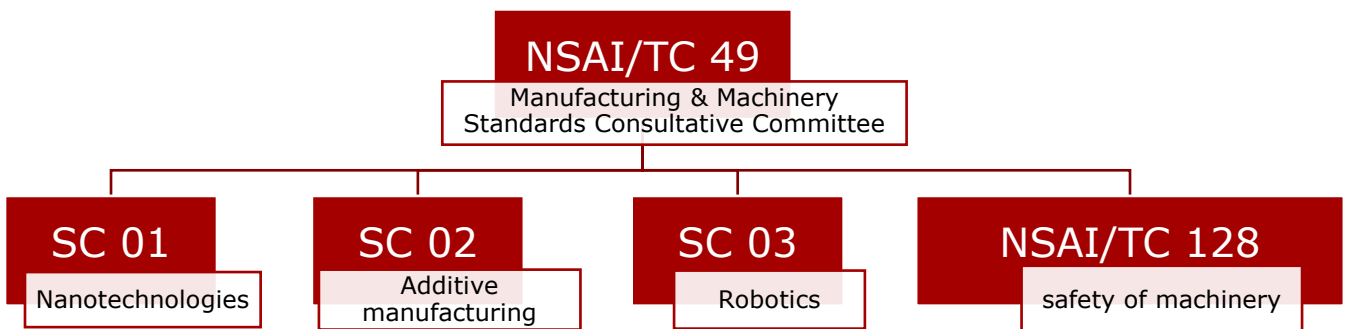
The committee mirrors the following European & international committees:

Committee Name	Committee Title
ISO/TC 199	Safety of machinery
ISO/TC 199/WG 5	General principles for the design of machinery and risk assessment
ISO/TC 199/WG 7	Interlocking devices
ISO/TC 199/WG 8	Safe Control Systems
CEN/TC 114	Safety of machinery
IEC/TC 44	Safety of Machinery – Electrotechnical aspects

4 Structure and Membership

4.1 Structure

The Figure below Illustrates the structure of the National Committee:



The Committee reports to the Manufacturing & Machinery Standards Consultative Committee and the Chairman participates in the work of that group.

4.2 Members

The list below are the members for the year 2022:

Organisation	Role
NSAI	Secretary
Rockwell Automation	Chairman
Analog Devices	Committee member
Boston Scientific	Committee member
Heineken	Committee member
Johnson & Johnson	Committee member
Modular Automation	Committee member
NeoDyne	Committee member
Pilz	Committee member
Project Engineering	Committee member

5 Summary of 2022 Activities

5.1 National

5.1.1 Meetings

The meetings were conducted via web-conferencing meeting facilities bearing in mind the COVID-19 Pandemic, as well as the need to reduce the burden and environmental impact of travel for members. Committee members attended the following national meetings as follows:

Meeting No.	Date	Minutes Reference ** optional**
1	10 th February 2022	N 82
2	07 th April 2022	N 92
3	26 th May 2022	N 99
4	25 th August 2022	N 109
5	30 th November 2022	N 137

5.1.2 National Work

The Standards Committee does not draft any National Standards instead, the Committee is focussed on international standards development. All of the ISO/TC 199 and CEN/TC 114 Standards that are produced/adopted as European Standards will be published as Irish Standards.

5.2 International/Regional

5.2.1 Meetings

The following international meetings were cancelled due to the restrictions caused by COVID-19:

Committee Name	Location	Date	Status	No. of Attendees
ISO/TC 199	Virtual	01 st -02 nd June 2022	Cancelled	NA
CEN/TC 114	Virtual	11 th -12 th May 2022	Cancelled	NA

5.2.2 International/Regional Work

Ireland is committed to following and inputting into the development of International and European Standards. The National Committee reviews, comments and votes on each of the public comment drafts circulated by ISO/TC 199 & CEN/TC 114.

Ireland has two experts participating in the Working Groups that are drafting Standards at an International level.

Within IEC there is a Technical Committee, TC 44, focused on Standardization of electrotechnical equipment and systems relating to the safeguarding of persons from hazards of the machinery, its associated equipment and the environment. Ireland is participating in this standardisation work.

Ireland has an expert participating within an IEC Working Group drafting standards with regards safety related sensors used for protection of persons.

5.2.3 International/Regional Standards Reviewed

IEC 60050 -XXX ED 1, *International Electrotechnical Vocabulary (IEV) - Part XXX: Safety of machinery*

IEC/61496-3:2018, *Safety of machinery – Electro-sensitive protective equipment - Part 3: Particular requirements for active opto-electronic protective devices responsive to diffuse Reflection (AOPDDR)*

IEC/TS 61496-5, *Safety of machinery – Electro-sensitive protective equipment - Part 5: Particular requirements for radar-based protective Device*

IEC/TS 62998-3, *Safety of Machinery & Safety-related sensors used for the protection of persons Part 3: Sensor technologies and algorithms*

IEC/TS 63074, *Safety of machinery - Security aspects related to functional safety of safety - related control systems*

ISO/CD TR 21260, *Safety of machinery – Mechanical safety data for physical contacts between moving machinery or moving parts of machinery and persons*

ISO/DIS 13849-1.2, *Safety of machinery – Safety-related parts of control systems – Part 1: General principles for design*

ISO/DIS 13855, *Safety of machinery – Positioning of safeguards with respect to the approach of the human body*

ISO/DIS 14119.2, *Safety of machinery – Interlocking devices associated with guards – Principles for design and selection*

5.2.4 International/Regional Voting Results

The Committee voted on six out of the sixteen international votes in 2022.

5.3 Regulatory Development/Update

In April 2021, the European Commission presented its Proposal for a new Regulation on Machinery Products. The main legal changes are the transformation of the Machinery Directive into a Regulation, with alignment to the New Legislative Framework. The Regulation, when adopted, will facilitate the homogenous application throughout the EU and an alignment with the horizontal rules on the responsibilities of economic operators, market surveillance, accreditation, as well as the role of notified bodies and conformity assessment procedure.

This new Machinery Regulation will ensure that the new generation of machinery guarantees the safety of users and consumers, and encourages innovation. This is achieved by adapting the essential requirements of the legislation to the latest developments in technology, including the collaboration between human and robots and AI.

On 15 December 2022, negotiators from the European Parliament and Council of the EU reached a provisional political agreement on a new Machinery Regulation, adapting the rules to new market developments and risks originating from emerging technologies. It is expected that it will be adopted in the near future.

The new Regulation envisages that six categories of machinery will be included in Annex I, thereby subject to third party conformity assessment, supported by strong procedures for

updating the Annex with additional categories. The new Regulation will apply from 42 months after entry force, thus giving companies time to adjust to the new requirements.

Moreover, the requirements in the new EU AI Act¹, when adopted, will address the safety risks presented by AI systems used in control safety functions in machinery, complementing certain specific requirements in the Machinery Directive with the AI Act will ensure that an AI system is integrated in a safe way into the whole machine, ensuring that the safety of the machine as a whole is not compromised. In order to define obligations and provide a uniform legal framework for the development, marketing and use of AI systems in safety systems through a risk-based approach, in combination with the Machinery Regulation.

Once high-risk AI system for products covered by the EU AI Act is placed on the market or put into service, with the product manufactured in accordance with the AI Act, the manufacturer of the product shall assume responsibility for the conformity of the AI system and shall be subject to obligations in relation to the AI system as a supplier under the AI Act.

6 Irish Publications/Reviews

6.1 Publications

National Standards are not produced by this committee as it is focussed on international standards development. These International Standards will be published as European Standards and adopted as Irish Standards.

6.2 Reviews

It has been agreed by ISO/TC 199 and CEN/TC 114, that they will not duplicate work. Only in the case the other organization is not interested, or the European Commission submits a Standardization request to CEN, will standards be developed "alone" at EU level.

The Safety of Machinery Committee currently reports to the Manufacturing and Machinery Consultative Committee.

7 Work programme for 2023 onwards

7.1 ISO/TC 199

ISO/CD 11161.2, *Safety of machinery — Integration of machinery into a system — Basic requirements*

ISO/AWI 12895, *Safety of machinery — Identification of whole body access and prevention of derived risks*

ISO/FDIS 13849-1, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design*

ISO/DIS 13855, *Safety of machinery — Positioning of safeguards with respect to the approach of the human body*

¹ European Commission, "Artificial intelligence Act", 2021 [Online]. Available on: <https://eur-lex.europa.eu/legal-content/FR/TXT/PDF/?uri=CELEX:52021PC0206&from=EN> [Accessed 08th February 2023]

ISO/DIS 14119.2, *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection*

ISO/CD TR 21260, *Safety of machinery — Mechanical safety data for physical contacts between moving machinery or moving parts of machinery and persons*

7.2 CEN/TC 114 – Safety of machinery

prEN ISO 11161 rev, *Safety of machinery - Integration of machinery into a system - Basic requirements*

prEN ISO 12895, *Safety of machinery -- Identification of whole body access and prevention of derived risks*

FprEN ISO 13849-1, *Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design (ISO/DIS 13849-1:2021)*

prEN ISO 13855, *Safety of machinery - Positioning of safeguards with respect to the approach of the human body*

prEN ISO 14119, *Safety of machinery - Interlocking devices associated with guards - Principles for design and selection (ISO/DIS 14119:2021)*

7.3 IEC/TC 44 – Safety of machinery - Electrotechnical aspects

IEC 60204-32 ED3, *Safety of machinery - Electrical equipment of machines - Part 32: Requirements for hoisting machines*

IEC TS 61496-5 ED1, *Safety of machinery – Electro-sensitive protective equipment - Part 5: Particular requirements for radar-based protective Devices*

IEC 62046/AMD1 ED1, *Amendment 1 - Safety of machinery - Functional safety of safety-related control systems*

IEC 62061/AMD1 ED2, *Safety of machinery - Positioning of safeguards with respect to the approach of the human body*

IEC 62745 ED2, *Safety of machinery - Requirements for cableless control systems of machinery*

IEC TS 62998-3 ED1, *Safety of Machinery – Safety-related sensors used for the protection of persons Part 3: Sensor technologies and algorithms*

8 Additional Information

The committee has an expert who is actively participating in the revision of ISO 13849-1:2015, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design*. The Irish expert regularly attends ISO/TC 199/WG 8 -- Safe control system meetings and provides detail reports at committee meetings.

ISO 13849-1:2015 provides safety requirements and guidance on the principles for the design and integration of safety-related parts of control systems (SRP/CS), including the design of software. For these parts of SRP/CS, it specifies characteristics that include the performance level required for carrying out safety functions. It applies to SRP/CS for high demand and continuous mode, regardless of the type of technology and energy used (electrical, hydraulic, pneumatic, mechanical, etc.), for all kinds of machinery.

In the coming year ISO is looking into the revision of ISO 12100:2010 - Safety of machinery — General principles for design — Risk assessment and risk reduction specifies basic terminology, principles and a methodology for achieving safety in the design of machinery. It specifies principles of risk assessment and risk reduction to help designers in achieving this objective, which is of great interest to the national committee. ISO 12100:2010 is a harmonised standard with the machinery directive and aspects of the standard will need to be revised in order for it to be harmonised with the proposed new Machinery Regulation.