



National Standards Authority of Ireland
Údarás um Chaighdeáin Náisiúnta na hÉireann

IRISH STANDARD

I.S. EN 14677:2008

ICS 77.180

National Standards
Authority of Ireland
Northwood, Dublin 9
Ireland

Tel: +353 1 807 3800
Fax: +353 1 807 3838
<http://www.nsai.ie>

Sales

<http://www.standards.ie>

*This Irish Standard was
published under the authority
of the National Standards
Authority of Ireland and
comes into effect on:
25 June 2008*

**SAFETY OF MACHINERY - SECONDARY
STEELMAKING - MACHINERY AND
EQUIPMENT FOR TREATMENT OF LIQUID
STEEL**

**NO COPYING WITHOUT NSAI
PERMISSION EXCEPT AS
PERMITTED BY COPYRIGHT
LAW**

© NSAI 2008

Price Code P

Údarás um Chaighdeáin Náisiúnta na hÉireann

This page is intentionally left BLANK.

I.S. EN 14677:2008

EUROPEAN STANDARD

EN 14677

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2008

ICS 77.180

English Version

Safety of machinery - Secondary steelmaking - Machinery and equipment for treatment of liquid steel

Sécurité des machines - Métallurgie secondaire - Machines et équipements pour traitement d'acier liquide

Sicherheit von Maschinen- Sekundärmetallurgie - Maschinen und Anlagen zur Behandlung von Flüssigstahl

This European Standard was approved by CEN on 23 February 2008.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

Page

Foreword.....	4
Introduction	5
1 Scope	5
2 Normative references	6
3 Terms and definitions	8
4 List of significant hazards	10
5 Safety requirements and/or measures	11
5.1 General design requirements	11
5.1.1 General.....	11
5.1.2 Site inspection	11
5.1.3 Linked equipment	11
5.1.4 Safety layout.....	12
5.1.5 Access	12
5.1.6 Safety control system	13
5.1.7 Electrical power supply.....	13
5.1.8 Electrical low voltage supply.....	13
5.1.9 Fluid systems carrying or containing fluids	13
5.1.10 Hydraulic, pneumatic, gas, cooling and lubrication systems	13
5.1.11 Ergonomic principles	14
5.1.12 Harmful areas	14
5.1.13 Personal protective equipment	15
5.1.14 Warning devices and safety signs	15
5.1.15 Operators positions.....	15
5.1.16 Local control box	16
5.1.17 Loss of energy	16
5.1.18 Media supply and discharge.....	16
5.1.19 Exchange of lances	16
5.1.20 Surface temperatures, heat radiation	16
5.1.21 Fluids to be discharged to drains	16
5.1.22 Electrode clamp	17
5.1.23 Grounding of mechanical ladle furnace parts	17
5.1.24 Emergency stop	17
5.1.25 Fire protection.....	17
5.2 List of significant hazards, hazardous situations, safety requirements and/or measures.....	17
5.2.1 General.....	18
5.2.2 Material addition equipment	19
5.2.3 Blowing equipment.....	21
5.2.4 Positioning of equipment.....	22
5.2.5 Stirring equipment	25
5.2.6 Vacuum pump/ventilation equipment.....	26
5.2.7 Vacuum vessel equipment.....	28
5.2.8 Media handling equipment	29
5.2.9 Deslagging equipment	31
5.2.10 Electrical heating equipment.....	31
5.2.11 Temperature measuring and sampling equipment	34
5.3 Special requirements for explosion prevention and protection	34
5.4 Noise reduction as a safety requirement	35
5.4.1 Noise sources	35
5.4.2 Noise reduction at source by design.....	35

5.4.3	Noise reduction by protective measures	35
5.4.4	Noise reduction by information	35
6	Verification of the safety requirements and/or measures	36
7	Information for use	36
7.1	Signs and warning devices	36
7.2	Accompanying documents.....	36
7.2.1	Instruction handbook.....	36
7.2.2	Machine/equipment declaration.....	36
7.2.3	Instruction for transportation and assembly.....	36
7.2.4	Information about commissioning and dismantling of the equipment	37
7.2.5	Operating instructions concerning the equipment.....	37
7.2.6	Maintenance manual	39
7.3	Minimum marking.....	39
7.4	Training of personnel.....	40
Annex A	(normative) Noise test code	41
A.1	Introduction.....	41
A.2	Determination of A-weighted sound power level.....	41
A.3	Determination of A-weighted emission sound pressure levels.....	42
A.3.1	Determination of the emission sound pressure level at specified measuring points	42
A.3.2	Determination of the emission sound pressure level at work stations	42
A.4	Measurement uncertainty	42
A.5	Operating conditions	42
A.6	Information to be recorded and reported.....	43
A.7	Declaration and verification of noise emission values	43
A.8	Examples for workstations at RH-process with ladle furnace.....	44
Annex B	(informative) Examples for secondary steelmaking equipment.....	46
Annex C	(informative) Examples of secondary steelmaking processes.....	48
Annex ZA	(informative) Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/EC.....	49
Annex ZB	(informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC.....	50
Annex ZC	(informative) Relationship between this European Standard and the Essential Requirements of EU Directive 94/9/EC.....	51
Bibliography	52
Figures		
Figure C.1	— Examples of secondary steelmaking processes	48
Tables		
Table 1	— List of significant hazards, hazardous situations, safety requirements and/or measures	18
Table 2	— Examples for operating instructions.....	38
Table A.1	— Example of declared dual-number noise emission values for work stations and specified measuring points	45

Foreword

This document (EN 14677:2008) has been prepared by Technical Committee CEN/TC 322 "Equipment for making and shaping of metals", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2008, and conflicting national standards shall be withdrawn at the latest by October 2008.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EC Directive(s).

For relationship with EC Directive(s), see informative Annex ZA, ZB and ZC, which are an integral part of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-