



NSAI
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Standard Recommendation
S.R. CWA 16519:2012

Design and Construction Code for mechanical equipments of innovative nuclear installations

S.R. CWA 16519:2012

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Design and Construction Code for mechanical equipments of innovative nuclear installations

This CEN Workshop Agreement has been drafted and approved by a Workshop of representatives of interested parties, the constitution of which is indicated in the foreword of this Workshop Agreement.

The formal process followed by the Workshop in the development of this Workshop Agreement has been endorsed by the National Members of CEN but neither the National Members of CEN nor the CEN-CENELEC Management Centre can be held accountable for the technical content of this CEN Workshop Agreement or possible conflicts with standards or legislation.

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This CEN Workshop Agreement is publicly available as a reference document from the CEN Members National Standard Bodies.

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Contents

Page

Introduction	5
1 Scope	6
2 Terms and definitions	6
3 Instruction Files approved from short-term modification requests	7
3.1 General.....	7
3.2 Design rules – Working group 1.....	9
3.3 Materials specifications – Working group 2	12
4 Tests and non-destructive examinations – Working group 3	12
4.1 Welding and Fabrication (manufacturing) – Working group 4.....	12
5 Medium term items – pre-normative investigation needed	13
5.1 General – List of received medium-term modification requests (MR)	13
5.2 Charpy Impact test after ageing (MR 03).....	14
5.3 Titanium Ti6Al4V Material data (MR 05)	14
5.4 Missing 18AS irradiated material data (MR 06).....	14
5.5 Cryogenic aluminium alloy material properties and Design rules (MR 07)	14
5.6 Define criteria for tests: procedure, preparation, examination and acceptance (MR 23 – Annex P)	15
5.7 Extension of the actual design rule to proton damages (MR 25)	15
5.8 Data for neutron irradiation effect on mechanical properties are needed for A3.10S stainless steel (MR 26)	15
6 Long term items – Research and development needed	16
6.1 How to deal with compatibility and corrosions into the code (MR 19)	16
7 Other modification requests.....	17
7.1 General – List of received modification requests (MR)	17
7.2 Small (diameter 4 mm) tensile specimen size requirements for irradiated materials (MR 13)	18
7.3 Reference and irradiated tensile properties for Eurofer 97 (9% Cr) steel (MR 14).....	18
7.4 Recommended standard for carbon steel pipes dimensions (MR 024 – Annex S)	18
8 Implementation into the RCC-MRx 2012	19
Annex A (Informative) Detailed Modification Review Files MR 02 – Negligible creep domain and in the negligible irradiation domain (WG 1)	20
Annex B (Informative) Detailed Modification Review Files MR 04 – Updating of the scope to precise the type of neutron irradiation (WG 1)	23
Annex C (Informative) Detailed Modification Review Files MR 09 – Applicability of inelastic design (WG 1).....	25
Annex D (Informative) Detailed Modification Review Files MR 10 – Computation of notations by adding alias (WG 1).....	33
Annex E (Informative) Detailed Modification Review Files MR 11 – English proof reading (WG 1).....	37
Annex F (Informative) Detailed Modification Review Files MR 12 – Orientation of the plane of defect of complex orientation (WG 1).....	39
Annex G (Informative) Detailed Modification Review Files MR 16 – Ambiguity in the definition of radius of curvature (WG 1).....	41
Annex H (Informative) Detailed Modification Review Files MR 20 – Error on the naming of parameter "t" and "h" (WG 1).....	44

Annex I (informative) Detailed Modification Review Files MR 21 – Consistency on decimal notation and definition of parameter rr (WG 1)	47
Annex J (Informative) Detailed Modification Review Files MR 28 – Consistency on the use of point for decimal notation (WG 1).....	50
Annex K (Informative) Detailed Modification Review Files MR 32 – Missing coefficients and confusion on the notation (WG 1).....	55
Annex L (Informative) Detailed Modification Review Files MR 33 – Improve consistency by adding “part” to the text “For a longitudinal throughwall defect...” (WG 1).....	57
Annex M (Informative) Detailed Modification Review Files MR 34 – Clarification of rules for type S damages in non-significant creep and significant irradiation	60
Annex N (Informative) Detailed Modification Review Files MR 22– Clarification about Charpy impact tests (WG 2)	62
Annex O (Informative) Detailed Modification Review Files MR 01– Temperature limit for Reference Data Sheets of filler materials (WG 4)	64
Annex P (Informative) Detailed Modification Review Files MR 23 – Define criteria for tests – hydrostatic test specification (Medium Term).....	75
Annex Q (Informative) Detailed Modification Review Files MR 12 – Location of a defect (Short term).....	79
Annex R (Informative) Detailed Modification Review Files MR 17 – 18AS plates between 15 and 250 (instead of 150) mm thick (WG 2) (Temporary rules).....	82
Annex S (Informative) Detailed Modification Review Files MR 24 – Recommended standard for carbon steel pipes dimensions (Other Requests)	85
Annex T (Informative) Detailed Modification Review Files MR 27 – New appendix A.21: “Guide to the standardized representation of engineering data for digital recording, reporting and archiving” (Other Requests)	87
Bibliography.....	90

Foreword

This CEN Workshop Agreement has been drafted and approved by a Workshop of representatives of interested parties on 2012-07-03, the constitution of which was supported by CEN following the public call for participation made on 2011-02-03.

A list of the individuals and organizations which supported the technical consensus represented by the CEN Workshop Agreement is available to purchasers from the CEN-CENELEC Management Centre. These organizations were drawn from the following economic sector – Nuclear energy.

The formal process followed by the Workshop in the development of the CEN Workshop Agreement has been endorsed by the National Members of CEN but neither the National Members of CEN nor the CEN-CENELEC Management Centre can be held accountable for the technical content of the CEN Workshop Agreement or possible conflict with standards or legislation. This CEN Workshop Agreement can in no way be held as being an official standard developed by CEN and its members.

The final review/endorsement round for this CWA was started on 2012-07-14 and was successfully closed on 2012-09-14. The final text of this CWA was submitted to CEN for publication on 2012-10-11.

This document has been prepared by the CEN Workshop 64 (WS 64) “Design and Construction Code for mechanical equipments of innovative nuclear installations”, the secretariat of which is held by AFNOR.

A CEN Workshop (WS) is a structure and an associated process, introduced by CEN in the standardization era, which aims at bridging the gap between industrial consortia that produce de facto standards with the limited participation of interested parties, and the formal European standardization process which produces standards through consensus under the authority of CEN member bodies. CEN Workshops have a flexible structure that benefits from the openness and consensus that are key values of CEN. More detailed information about CEN Workshops is available in the CEN/CENELEC publications or internet site.

The main activity of a CEN Workshop is the development and publication of a CEN Workshop Agreement (CWA). This document constitutes a draft for the WS 64 CWA that will be submitted to public enquiry before its publication, according to the CEN-CENELEC procedure.

The operation of the Workshop was settled during a kick-off meeting held on 2011-02-03, in the Brussels on the basis of the Business plan proposed by AFCEN to launch the Workshop.

This CEN Workshop Agreement is publicly available as a reference document from the National Members of CEN: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Comments or suggestions from the users of the CEN Workshop Agreement are welcome and should be addressed to the CEN-CENELEC Management Centre.

Introduction

On 22 November 2007, the European Commission published its Strategic Energy Technology (SET) Plan, entitled 'Towards a Low Carbon Future'. This document emphasized the Europe needs to act jointly from now on, to sustainably deliver secure and competitive energy while limiting the growth of greenhouse effect.

With these objectives the European Commission has created a European Technology Platform, named Sustainable Nuclear Energy Technology Platform (SNETP), to promote nuclear energy as an answer to this issue. SNETP has set up a Task Force comprising research bodies and interested industrial partners to make up a dedicated Industrial Initiative: the European Sustainable Nuclear Industrial Initiative (ESNII).

In the SET-Plan, the European Industrial Initiatives (EII) constitutes key elements with the aims of strengthening industrial energy research and innovation and mobilizing the necessary critical mass of activities and actors in order to accelerate deployment of new technologies.

During its 7 March 2010 meeting, ESNII Task Force emphasized the importance of working on codes and standards for Generation IV reactor developments. Considering the already used RCC-MRx as basis to design the mechanical components for ASTRID and MYRRHA, the ESNII Task Force recommended bringing together all the relevant stakeholders in a CEN Workshop in order to develop, on the RCC-MRx basis, the European code for the design and fabrication of mechanical equipment for ESNII innovative nuclear installations.

As the publisher of the RCC-MRx code, the AFCEN was appealed to support this recommendation. Therefore, the AFCEN was the main proposer and chaired the Workshop.

The AFCEN is a joint venture, initially formed by FRAMATOME (now AREVA NP) and EDF, aiming at the development of rules governing the design, construction and operating supervision of the equipment items for electronuclear reactors. These rules are published under AFCEN copyright in specialized collections called codes. The RCC-MRx code is one of them. It is dedicated to the design and construction of mechanical components of innovative nuclear installations. It is the result of the merging of the RCC-MR code, oriented towards sodium fast breeder reactor construction, and the internal code developed by the CEA for research reactors. This code benefits from experience feedback on projects like Phenix and Superphenix. Apart from the GEN IV projects mentioned above, the code is also used for RJH, ITER or the FNR project in India.

This Workshop is supported by the European Commission (EC) as an exercise of Europeanization of the AFCEN RCC-MRx with three objectives:

- Integrate Modification Request from European experts and users with the aim to develop an European Code based on RCC-MRx,
- identify the fields of research and development to be explored for the development for a European design code.

The CEN/WS 64 participants were asked to submit modifications to the RCC-MRx code (2010 draft edition) and to process them in a similar way as what is currently done at AFCEN. To take into account the limited duration of the Workshop, it was decided to sort the proposed modifications in three categories:

- short-term modifications that can be considered for immediate inclusion into the RCC-MRx 2012 edition,
- medium-term modifications which need light pre-normative activities,
- long-term modifications which need the development of R&D programs before being in position to consider their inclusion in the code.

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