INTERNATIONAL STANDARD

ISO 20890-3

First edition
2020-06

Guidelines for in-service inspections for primary coolant circuit components of light water reactors —

Part 3: Hydrostatic testing

Lignes directrices pour les contrôles périodiques des composants du circuit primaire des réacteurs à eau légère —

Partie 3: Essais de pression

Reference number
ISO 20890-3:2020(E)

© ISO 2020



COPYRIGHT PROTECTED DOCUMENT

© ISO 2020

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

 © ISO 2020 – All rights reserved

Contents

Page

Foreword ... **iv**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **1**

4 Test system ... **2**
4.1 General ... 2
4.2 Standard system ... 2

5 Requirements ... **2**
5.1 Personnel requirements ... 2
5.2 Test object ... 3
5.3 Measuring equipment ... 3
5.3.1 General ... 3
5.3.2 Pressure measurement of the operating instructions ... 3
5.3.3 Test manometer ... 4
5.3.4 Temperature measurement ... 4
5.4 Pressure generation system ... 4

6 Testing ... **4**
6.1 Preparations ... 4
6.2 Performance ... 5
6.3 Final measures ... 5

7 Test report ... **5**

Annex A (informative) **Standard test procedures** ... **7**

Bibliography ... **8**

© ISO 2020 – All rights reserved

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by ISO/TC 85, *Nuclear energy, nuclear technologies, and radiological protection*, Subcommittee SC 6, *Reactor technology*.

A list of all parts in the ISO 20890 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

© ISO 2020 – All rights reserved

Guidelines for in-service inspections for primary coolant circuit components of light water reactors —

Part 3:
Hydrostatic testing

1 Scope

This document gives guidelines for in-service system pressure tests of the reactor coolant circuit of light water reactors.

This document specifies the test technique, the requirements for measuring equipment and additional devices, the preparation and performance of the test as well as the recording and documentation, for the purpose to ensure the reliability and comparability of tests.

NOTE Data on (test) pressure, (test) temperature, scope of testing, rates of change of pressure and temperature, test schedule and inspection intervals can be obtained from the applicable national nuclear codes.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 8596, *Ophthalmic optics — Visual acuity testing — Standard and clinical optotypes and their presentation*

ISO 18490, *Non-destructive testing — Evaluation of vision acuity of NDT personnel*

EN 837-2, *Pressure gauges — Part 2: Selection and installation recommendations for pressure gauges*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
test medium
<pressure testing> reactor coolant or deionate

3.2
test temperature
temperature to which the pressure-retaining boundaries of the reactor coolant system and the *test medium* (3.1) are to be heated

3.3
test pressure
overpressure to which the reactor coolant system is exposed during the test

© ISO 2020 – All rights reserved