



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS G 5504 : 2005

(OSTEC/JSA)

**Heavy-walled ferritic spheroidal
graphite iron castings for low
temperature service**

ICS 77.140.80

Reference number : JIS G 5504 : 2005 (E)

PROTECTED BY COPYRIGHT

 **Documents**
Document Sharing Hub

7 S

Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by The New Material Center, Osaka Science & Technology Center (OSTEC) / Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently **JIS G 5504 : 1992** is replaced with this Standard.

Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have technical properties. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

Date of Establishment: 1992-07-01

Date of Revision: 2005-10-20

Date of Public Notice in Official Gazette: 2005-10-20

Investigated by: Japanese Industrial Standards Committee
Standards Board
Technical Committee on Iron and Steel

JIS G 5504 : 2005, First English edition published in 2006-03

Translated and published by: Japanese Standards Association
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

© JSA 2006

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

Printed in Japan

Contents

	Page
Introduction	1
1 Scope	1
2 Normative references	1
3 Definitions	1
4 Grade and symbol	2
5 Appearance	2
6 Chemical components	2
7 Mechanical properties	2
8 Spheroidal graphite rate	2
9 Matrix structure	2
10 Internal soundness	3
11 Shapes, dimensions, mass and tolerances thereon	3
12 Manufacturing method	3
13 Tests	3
13.1 Test place	3
13.2 Sampling of test specimen	3
13.3 Analytical test	3
13.4 Mechanical tests	3
13.5 Assessment test on spheroidal graphite rate	4
13.6 Evaluation on matrix structure	4
13.7 Non-destructive test	6
14 Retest	6
15 Inspection	6
16 Marking	6
17 Report	6
Annex (normative) Additional requirements for casks for transporting and storing atomic-energy spent fuel, etc. (cask)	7

Heavy-walled ferritic spheroidal graphite iron castings for low temperature service

1 Scope This Japanese Industrial Standard specifies the heavy-walled ferritic spheroidal graphite iron castings of 550 mm or under as cast wall thickness to be used at a temperature of -40°C or higher (hereafter referred to as the “iron castings”).

2 Normative references The standards given below contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards including amendments shall be applied.

- JIS G 0320 *Standard test methods for heat analysis of steel products*
- JIS G 0321 *Product analysis and its tolerance for wrought steel*
- JIS G 0417 *Steel and iron—Sampling and preparation of samples for the determination of chemical composition*
- JIS Z 2201 *Test pieces for tensile test for metallic materials*
- JIS Z 2241 *Method of tensile test for metallic materials*
- JIS Z 2242 *Method for Charpy pendulum impact test of metallic materials*
- JIS Z 2343-1 *Non-destructive testing—Penetrant testing—Part 1: General principles—Method for liquid penetrant testing and classification of the penetrant indication*
- JIS Z 2343-2 *Non-destructive testing—Penetrant testing—Part 2: Testing of penetrant materials*
- JIS Z 2343-3 *Non-destructive testing—Penetrant testing—Part 3: Reference test blocks*
- JIS Z 2343-4 *Non-destructive testing—Penetrant testing—Part 4: Equipment*
- JIS Z 2344 *General rule of ultrasonic testing of metals by pulse echo technique*
- ISO 945 *Cast iron—Designation of microstructure of graphite*
- ASTM E1820 *Standard Test Method for Measurement of Fracture Toughness*

3 Definitions For the purpose of this Standard, the following definitions apply.

- a) **excess length part** an excess thickness provided to an extended part of iron castings, which is solidified under the same conditions as those for iron castings
- b) **matrix** a principle part of an alloy structure
A small amount of other structures are dispersed in this part. For instance, in the case of spheroidal graphite iron castings the principal part in which spheroidal graphite is dispersed, is called a matrix. When this part is of ferritic structure, it is called a ferritic matrix