EN-GJL-150 (EN 5.1200) Grey Cast Iron Casting Material

Introduction

EN-GJL-150 is a grey cast iron grade covered by EN 1561. Typical applications include shaped cast components, radiators and furnace-related castings.

Manufacturing Process

Sand Casting
Shell Molding Casting
Lost Foam Casting

Equivalent Materials

Standard	Material Grade
AS 1830	150
ASTM A48M	150
BS 1452	150
DIN 1691	GG15
SS 14 01	O115
SAE J431	G9H12
GB/T 9439	HT150
NBN 830-01	FGG15
UNI 5007	G15
UNF	FG15
NG A32-101	FGL150
NS11 100	SJG150
JIS G5501	FC150
IS 210	FG150
GB 9439	HT150
ISO 185	ISO 185/JL/150

Reference Standards

Standard	Standard Title	Edition	Specification	Identifier
EN 1561	Founding - Grey cast irons	2023	EN-GJL-150	—

Physical Properties

N/A

Chemical Composition

No specified chemical composition limits in EN 1561

Heat Treatment

EN 1561–2023

Heat treatment for special applications may be agreed when the order is accepted; no fixed cycle is prescribed. If heat treatment is applied, representative samples must receive the same treatment as the castings.

Mechanical Properties

Core Mechanical Properties

Conditions are not identical. Compare each stated condition and applicability separately.

EN 1561 — 2023 · Table 1 — Normative

Property	Tensile classification
Tensile Strength	150–250 MPa[1] 150–250 MPa[2] 150–250 MPa[3] 150–250 MPa[4] 150–250 MPa[5] 150–250 MPa[6] 150–250 MPa[7] >= 125 MPa[8] >= 110 MPa[9] >= 100 MPa[10] >= 90 MPa[11]

Sand moulds or moulds with comparable thermal behaviour; properties refer only to the stated sample type and wall-thickness range

EN 1561 — 2023 · Table A.1 — Informative

Property	Informative 30 mm sample data
Compressive Strength	3.40 * Rm
Shear Strength	170 MPa

Cast sample with 30 mm as-cast diameter; Informative Annex A.1 reference only, not an acceptance requirement. 0.1 percent proof properties are not 0.2 percent yield strength.; Informative reference value; not an acceptance requirement

EN 1561 — 2023 · Table E.1 — Informative

Property	Informative casting-cut guidance
Tensile Strength	>= 165 MPa[12] >= 150 MPa[13] >= 135 MPa[14] >= 115 MPa[15] >= 100 MPa[16] >= 90 MPa[17]

Test piece cut from a casting; source designation EN-GJL-150C uses the same material number; Table E.1 is guidance only for simple uniform-wall castings. Required minimum at a stated location is agreed with manufacturer; for thickness above 200 mm the sample and minimum values shall be agreed. No unconditional minimum is imposed.; Informative reference value; not an acceptance requirement

Additional Mechanical Properties

Other Mechanical Properties

EN 1561 — 2023 · Table A.1 — Informative

Property	Informative 30 mm sample data
Torsional Strength	1.36 * Rm

Cast sample with 30 mm as-cast diameter; Informative Annex A.1 reference only, not an acceptance requirement. 0.1 percent proof properties are not 0.2 percent yield strength.; Informative reference value; not an acceptance requirement

Notes

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[1] Tensile Strength: wall thickness <= 5 mm; Separately cast or side-by-side cast sample; Grade maximum tensile strength is the minimum plus 100 MPa. The lower thickness bound is inclusive only where identified by the Specimen/sample size is selected as prescribed in the sampling clauses.

[2] Tensile Strength: wall thickness <= 10 mm; Separately cast or side-by-side cast sample; Grade maximum tensile strength is the minimum plus 100 MPa. The lower thickness bound is inclusive only where identified by the Specimen/sample size is selected as prescribed in the sampling clauses.

[3] Tensile Strength: wall thickness <= 20 mm; Separately cast or side-by-side cast sample; Grade maximum tensile strength is the minimum plus 100 MPa. The lower thickness bound is inclusive only where identified by the Specimen/sample size is selected as prescribed in the sampling clauses.

[4] Tensile Strength: wall thickness <= 40 mm; Separately cast or side-by-side cast sample; Grade maximum tensile strength is the minimum plus 100 MPa. The lower thickness bound is inclusive only where identified by the Specimen/sample size is selected as prescribed in the sampling clauses.

[5] Tensile Strength: wall thickness <= 80 mm; Separately cast or side-by-side cast sample; Grade maximum tensile strength is the minimum plus 100 MPa. The lower thickness bound is inclusive only where identified by the Specimen/sample size is selected as prescribed in the sampling clauses.

[6] Tensile Strength: wall thickness <= 150 mm; Separately cast or side-by-side cast sample; Grade maximum tensile strength is the minimum plus 100 MPa. The lower thickness bound is inclusive only where identified by the Specimen/sample size is selected as prescribed in the sampling clauses.

[7] Tensile Strength: wall thickness <= 300 mm; Separately cast or side-by-side cast sample; Grade maximum tensile strength is the minimum plus 100 MPa. The lower thickness bound is inclusive only where identified by the Specimen/sample size is selected as prescribed in the sampling clauses.

[8] Tensile Strength: wall thickness <= 40 mm; Cast-on sample

[9] Tensile Strength: wall thickness <= 80 mm; Cast-on sample

[10] Tensile Strength: wall thickness <= 150 mm; Cast-on sample

[11] Tensile Strength: wall thickness <= 300 mm; Cast-on sample

[12] Tensile Strength: wall thickness <= 5 mm

[13] Tensile Strength: wall thickness <= 10 mm

[14] Tensile Strength: wall thickness <= 20 mm

[15] Tensile Strength: wall thickness <= 40 mm

[16] Tensile Strength: wall thickness <= 80 mm

[17] Tensile Strength: wall thickness <= 150 mm

Welding Conditions

N/A

Applications

Grey cast iron EN 1561 EN-GJL-150 is used for shaped cast components, radiators and furnace-related castings. Other cast components used in this material family include shaped covers, simple housings, counterweights and decorative and non-critical cast components. Typical settings include general machinery, building hardware and equipment assemblies.

These family examples do not extend light-duty uses to highly loaded moving parts or pressure-retaining equipment.

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Sand Casting

Investment Casting, Lost Wax process

Shell Casting

Lost Form Casting

Permanent Mold Casting

CNC Machining

CAD Design

Tools/Mold Design

Material Supplied

Cast Iron Castings (Grey Iron, Malleable Iron, Ductile Iron)

Carbon Steel and Alloy Steel Castings

Stainless Steel and Duplex Stainless Steel Castings

Aluminum Castings

Bronze and Brass Castings

Titanium and Cobalt Alloy Castings

What We Can Do

Design Ability

Our engineers will help you to improve the designs based on casting technology, then The simulation software will be processed to verify the casting pouring system. Pro/E, Solidworks, AutoCAD and ProCast are available in Casting Quality Industrial.

Saving Cost

Some manufacture processes may lead high cost. We will analyses the designs and advise the suitable methods to our customers. The best solution will be adopted.

Quality Control

From the raw material selecting to bulk production processing, all procedures will follow PPAP program if necessary. The certificates will be provided including chemistry, hardness, mechanical property or NDT testing.

Production Capacity

The max iron/steel castings can reach 30tons in weight, meanwhile the minus casting is around 1gram only.

We also have prototyping and 3D scanning ability for sample plan.

Logistic Service

The products will be delivered directly to customer’s workshop, which will save plenty of work for clients.

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