EN-GJL-300 (EN 5.1302) Grey Cast Iron Casting Material

Introduction

EN-GJL-300 is a grey cast iron grade covered by EN 1561. Typical applications include bearing shells, turbine housings, presses and tooling components.

Manufacturing Process

Sand Casting
Shell Molding Casting
Lost Foam Casting

Equivalent Materials

Standard	Material Grade
ASTM A48	300 (No. 45)
UNF	FG30
NBN 830-01	FGG30
UNI 5007	G30
IS 210	FG300
NS11 100	SJG300
GB/T 9439	HT300
NG A32-101	FGL300
BS 1452	300
DIN 1691	GG30
SAE J431	G13H22
ASTM A48M	300
AS 1830	300
JIS G5501	FC300
GB 9439	HT300
SS 14 01	O130
ISO 185	ISO 185/JL/300

Reference Standards

Standard	Standard Title	Edition	Specification	Identifier
EN 1561	Founding - Grey cast irons	2023	EN-GJL-300	—

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	300–400 MPa[1] 300–400 MPa[2] 300–400 MPa[3] 300–400 MPa[4] 300–400 MPa[5] >= 250 MPa[6] >= 225 MPa[7] >= 210 MPa[8] >= 190 MPa[9]

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	2.87 * Rm
Shear Strength	345 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	>= 270 MPa[10] >= 235 MPa[11] >= 210 MPa[12] >= 195 MPa[13] >= 185 MPa[14]

Test piece cut from a casting; source designation EN-GJL-300C 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

EN 1561 · Edition 2023

[1] 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.

[2] 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.

[3] 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.

[4] 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.

[5] 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.

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

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

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

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

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

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

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

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

[14] Tensile Strength: wall thickness <= 300 mm

Welding Conditions

N/A

Applications

Grey cast iron EN 1561 EN-GJL-300 is used for bearing shells, turbine housings, presses and tooling components. Manufacturer guidance also lists tables, wheels, angle plates and tooling blocks. Other cast components used in this material family include machine-tool bases, gearbox cases, bearing housings, pump bodies, compressor bodies and stationary frames.

Typical settings include industrial and agricultural machinery, equipment manufacture and maintenance replacement. Component duty and casting section govern the choice of grade.

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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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