120-90-02 Ductile Cast Iron Casting Material

Introduction

120-90-02 is a ductile cast iron grade covered by ASTM A536. Typical applications include gear and pinion castings, rollers and sliding machine parts.

Manufacturing Process

Sand Casting
Shell Molding Casting
Lost Foam Casting

Equivalent Materials

Standard	Material Grade
NBN 830-02	FNG80-2
IS 1865	SG800/2
SAE J434	D800
AS 1831	800-2
NF A32-201	FGS800-2
ISO 1083	ISO 1083/JS/800-2/S
BS 2789	800/2
NS11 301	SJK-800
GB 1348	QT800-2
EN 1563	EN-GJS-800-2
UNI 4544	GS800-2
JIS G5502	FCD800
UNF	FGE80-2
SS 14 07	0864-03
DIN 1693-1	GGG-80
GB/T 1348	QT800-2

Reference Standards

Standard	Standard Title	Edition	Specification	Identifier
ASTM A536	Standard Specification for Ductile Iron Castings	84(1999) e1	120-90-02	—

Physical Properties

N/A

Chemical Composition

No specified chemical composition limits in ASTM A536

Heat Treatment

ASTM A536–84(1999)e1

The guidance identifies quenching and tempering, normalizing and tempering, or isothermal heat treatment as alternative routes, without prescribing temperatures, holding times or cooling parameters. Quenching to martensite and tempering may substantially reduce fatigue strength compared with as-cast material of the same hardness.

Mechanical Properties

Core Mechanical Properties

ASTM A536 — 84(1999)e1 · Table 1 — Normative

Property	Value
Tensile Strength	>= 120000 psi[1]
Yield Strength	>= 90000 psi[2]
Elongation	>= 2.0 %[3]

Standard round tensile specimen, 2 in. or 50 mm gauge length; small-size alternatives for 1/2-in. Y-block per Clause 11.1; General-use ductile iron castings; Test coupons represent the same ladle or heat and receive the same thermal treatment as the castings. Coupon size is selected by the purchaser, or by the manufacturer if not specified. No quantitative coupon-to-casting property relationship is prescribed.

ASTM A536 — 84(1999)e1 · Table 1 — Informative

Property	Value
Tensile Strength	>= 827 MPa[4]
Yield Strength	>= 621 MPa[5]

Standard round tensile specimen, 2 in. or 50 mm gauge length; small-size alternatives for 1/2-in. Y-block per Clause 11.1; General-use ductile iron castings; Test coupons represent the same ladle or heat and receive the same thermal treatment as the castings. Coupon size is selected by the purchaser, or by the manufacturer if not specified. No quantitative coupon-to-casting property relationship is prescribed.

Notes

ASTM A536 · Edition 84(1999)e1

[1] Tensile Strength: Chemical requirements may be agreed between manufacturer and purchaser. Hardness requirements apply only when specified in the contract or purchase order; no numerical hardness limit is prescribed. Special microstructure, pressure-tightness, radiographic, magnetic-particle, dimensional and surface-finish requirements apply only when specified in the contract or purchase order.

[2] Yield Strength: Yield strength is determined at 0.2% offset; another method requires mutual agreement.

[3] Elongation: Elongation gauge length: 2 in. or 50 mm. For a 1/2-in. Y-block use a permitted small-size specimen.

[4] Tensile Strength: The inch-pound values govern. SI values reproduce the printed and are not independent requirements.; Informative reference value; not an acceptance requirement

[5] Yield Strength: Yield strength is determined at 0.2% offset; another method requires mutual agreement.; The inch-pound values govern. SI values reproduce the printed and are not independent requirements.; Informative reference value; not an acceptance requirement

Welding Conditions

N/A

Applications

Ductile cast iron ASTM A536 Grade 120-90-02 is used for gear and pinion castings, rollers and sliding machine parts. Other cast components used in this material family include gear and transmission components, hubs, brackets, machine housings and pump-related castings. Applications include agricultural, construction and general industrial machinery.

Lifting, low-temperature and pressure-retaining duties require the relevant component-specific requirements; ordinary family uses do not establish those capabilities.

CASTING QUALITY

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Casting Quality Industrial

As a professional manufacturer in China, We Casting Quality focus on Metal Parts OEM industry, and provide solutions and services in Metal Casting field as following:

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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