GS240 (EN 1.0455) Carbon Steel Casting Material

Introduction

GS240 (EN 1.0455) is a carbon steel casting grade specified in EN 10293. The standard covers steel castings for general engineering uses and defines the applicable delivery conditions and engineering requirements. Casting process options include Investment Casting, Shell Molding Casting and Sand Casting, subject to the applicable specification and component requirements.

Manufacturing Process

Investment Casting
Shell Molding Casting
Sand Casting

Equivalent Grades

N/A

Reference Standards

Standard	Standard Title	Edition	Specification	Identifier
EN 10293	Steel castings — Steel castings for general engineering uses	2015	GS240	EN 1.0455
EN 10340	Steel castings for structural uses	2007	GS240	EN 1.0455

Physical Properties

N/A

Chemical Composition

Element	EN 10293 Edition 2015 · wt.% Cast analysis	EN 10340 Edition 2007 · wt.% Cast analysis
C	<= 0.23	<= 0.23
Si	<= 0.60	<= 0.60
Mn	<= 1.20	<= 1.20
P	<= 0.030	<= 0.030
S	<= 0.025	<= 0.025
Cr	<= 0.30[1]	<= 0.30[2]
Ni	<= 0.40[1]	<= 0.40[2]
Mo	<= 0.12[1]	<= 0.12[2]
Cu	<= 0.30[1]	<= 0.30[2]

Element	EN 10293 Edition 2015 · wt.% Cast analysis	EN 10340 Edition 2007 · wt.% Cast analysis
V	<= 0.03[1]	<= 0.03[2]

Notes

EN 10293 · Edition 2015

[1] Cr/Ni/Mo/Cu/V: Applies only where unspecified in unless otherwise agreed; no intentional addition except for finishing the heat.

EN 10340 · Edition 2007

[2] Cr/Ni/Mo/Cu/V: Cr + Mo + Ni + V + Cu <=1.00 wt.%.

Heat Treatment

EN 10293–2015 · +N

Step	Operation	Temperature	Cooling
1	: normalizing	880–980 °C	air

EN 10340–2007 · +N

Step	Operation	Temperature	Cooling
1	: normalizing	900–980 °C	air

Mechanical Properties

Property	EN 10293 Edition 2015[1]	EN 10340 Edition 2007[2]
Yield Strength (Rp0.2)	>= 240 MPa	>= 240 MPa
Tensile Strength	450–600 MPa	450–600 MPa
Elongation	>= 22 %	>= 22 %
Impact Energy	>= 31 J	>= 31 J

Notes

EN 10293 · Edition 2015

[1] All properties in this column: wall thickness <= 100 mm; Test block of relevant thickness; maximum test-block wall thickness 150 mm; Room temperature; Properties apply to the casting up to the specified maximum wall thickness; above this, foreseeable lowering shall be agreed.

EN 10340 · Edition 2007

[2] All properties in this column: wall thickness <= 100 mm; Test block of relevant thickness; maximum thickness 150 mm; Room temperature; Yield and tensile strength also apply to the casting up to the maximum relevant wall thickness.

Welding Conditions

EN 10293–2015

Requirement	Value
Preheat	20–150 °C[1]
Interpass Temperature	<= 350 °C
Post-weld Heat Treatment	No post-weld heat treatment necessary

EN 10340–2007

Requirement	Value
Preheat	20–150 °C[2]
Interpass Temperature	<= 350 °C
Post-weld Heat Treatment	No post-weld heat treatment necessary

Notes

EN 10293 · Edition 2015

[1] Preheat: Preheat depends on casting geometry, thickness and climatic conditions.

EN 10340 · Edition 2007

[2] Preheat: Preheat depends on casting geometry, thickness and climatic conditions.

Applications

At the casting-family level, typical applications include machinery, automotive and railway components, agricultural equipment and mining equipment.

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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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