



## Grey Iron in ISO 185

Grey Cast Iron is also known as flake graphite cast iron, and less commonly as lamellar graphite cast iron. castings in ISO 185 are popular gray iron material. [www.castingquality.com](http://www.castingquality.com)

*Reference Casting Standards:*

**ISO 185: 2005 Grey Cast Irons - Classification**

**Grey Iron castings can be produced in Casting Quality Industrial:**

- Sand Casting
- Shell Casting
- Lost Form Casting



### Material Property of Grey Iron:

Density:

ISO 185/JL/150 - 7.1kgs/dm<sup>3</sup>;

ISO 185/JL/200 and ISO 185/JL/225 - 7.15kgs/dm<sup>3</sup>;

ISO 185/JL/250 and ISO 185/JL/275 - 7.2kgs/dm<sup>3</sup>;

ISO 185/JL/300 and ISO 185/JL/350 - 7.25kgs/dm<sup>3</sup>;

### Grey Iron Chemical Requirements in ISO 185:

The chemical composition shall be left to the discretion of the manufacture , shall ensure that the requirements of ISO 185 standard are met for the material grade . No any standard mentioned the chemistry composition, so we only suggest the following chemistry based on our experience.

Grade	Wall Thickness (mm)	C	Si	Mn	P ≤	S ≤
ISO 185/JL/100	-	3.4~3.9	2.1~2.6	0.5~0.8	0.3	0.15
ISO 185/JL/200	<30	3.3~3.5	2.0~2.4	0.5~0.8	0.2	0.12
	30~50	3.2~3.5	1.9~2.3	0.5~0.8	0.2	0.12
	>50	3.2~3.5	1.8~2.2	0.6~0.9	0.2	0.12
ISO 185/JL/250	<30	3.2~3.5	1.6~2.0	1.7~0.9	0.15	0.12
	30~50	3.1~3.4	1.5~1.8	0.8~1.0	0.15	0.12
	>50	3.0~3.3	1.4~1.6	0.8~1.0	0.15	0.12
ISO 185/JL/300	<30	3.0~3.3	1.4~1.7	0.8~1.0	0.15	0.12
	30~50	2.9~3.2	1.3~1.6	0.9~1.1	0.15	0.12



	>50	2.8~3.1	1.2~1.5	1.0~1.2	0.15	0.12
ISO 185/JL/350	<30	2.9~3.2	1.4~1.7	0.8~1.0	0.15	0.10
	30~50	2.9~3.2	1.2~1.5	0.9~1.1	0.15	0.10
	>50	2.8~3.1	1.1~1.4	1.0~1.2	0.15	0.10

### ISO 185 Grey Iron Machinability

Very good, easy for machining such as milling, turning or drilling.

### Grey Iron Mechanical Requirements in ISO 185: [castingquality.com](http://castingquality.com)

The material can be designated as two methods: a) the tensile strength in separately casting; b) the hardness of material.

Grade	Wall thickness mm		Mechanical Requirements		
			Tensile strength mandatory Value		Tensile Strength anticipated value in castings
Symbol	Over	Up to	In separately casting sample (N/mm <sup>2</sup> ), min	In cast-on samples (N/mm <sup>2</sup> ) min	Tensile Strength, Rm min, (MPa)
ISO 185/JL/100	5	40	100	-	-
ISO 185/JL/200	2.5	5	150	-	180
	5	10		-	155
	10	20		-	130
	20	40		120	110
	40	80		110	95
	80	150		100	80
ISO 185/JL/200	150	300	90	-	-
	2.5	5	200	-	230
	5	10		-	205
	10	20		-	180
	20	40		170	155
	40	80		150	130
	80	150		140	115
150	300	130		-	-
ISO 185/JL/225	5	10	225	-	230
	10	20		-	205
	20	40		190	170
	40	80		170	150
	80	150		155	135
	150	300		145	-
ISO 185/JL/250	5	10	250	-	250
	10	20		-	225



	20	40		210	195
	40	80		190	170
	80	150		170	155
	150	300		160	-
ISO 185/JL/275	10	20	275	-	250
	20	40		230	220
	40	80		205	190
	80	150		190	175
	150	300		175	-
ISO 185/JL/300	10	20	300	-	270
	20	40		250	240
	40	80		220	210
	80	150		210	195
	150	300		190	-
ISO 185/JL/350	10	20	350	-	315
	20	40		290	280
	40	80		260	250
	80	150		230	225
	150	300		210	-

Brinell hardness of castings of grey cast iron:

Grade material	Relevant Wall thickness (mm)		Brinell hardness (HBW)	
	Over	Up to	Min	Max
ISO 185/JL/HBW155	2.5	5	-	210
	5	10		185
	10	20		170
	20	40		160
	40	80		150
ISO 185/JL/HBW175	2.5	5	170	260
	5	10	140	225
	10	20	125	205
	20	40	110	185
	40	80	100	175
ISO 185/JL/HBW195	4	5	190	275
	5	10	170	260
	10	20	150	230
	20	40	135	210
	40	80	120	195
ISO 185/JL/HBW215	5	10	200	275
	10	20	180	255
	20	40	160	235
	40	80	145	215
ISO 185/JL/HBW235	10	20	200	275



	20	40	180	255
	40	80	165	235
ISO 185/JL/HBW255	20	40	200	275
	40	80	185	255

### ISO 185 Grey Iron Equivalent Material:

ISO 185:2004	ISO 185:1988	EN 1561	ASTM A48	JIS G5501	SAE J431	GB/T 9439:2010
ISO 185/JL/150	150	EN-GJL-150	150	FC150	G9H12	HT150
ISO 185/JL/200	200	EN-GJL-200	200	FC200	G10H18	HT200
ISO 185/JL/225	-	-	225	-	G10/21/G11H18	HT225
ISO 185/JL/250	250	EN-GJL-250	250	FC250	G11H20	HT250
ISO 185/JL/275	-	-	275	-	G12H21/G13H19	HT275
ISO 185/JL/300	300	EN-GJL-300	300	FC300	G13H22	HT300
ISO 185/JL/350	350	EN-GJL-350	350	FC350	G13H24	HT350
ISO 185/JL/HBW155	H145	EN-GJL-HB155	-	-	H10	H155
ISO 185/JL/HBW175	H175	EN-GJL-HB175	-	-	H11	H175
ISO 185/JL/HBW195	H175/H195	EN-GJL-HB195	-	-	H13/H14	H195
ISO 185/JL/HBW215	H175/195/215	EN-GJL-HB215	-	-	H15	H215
ISO 185/JL/HBW235	H195/215/235	EN-GJL-HB235	-	-	H18	H235
ISO 185/JL/HBW255	H215/235/255	EN-GJL-HB255	-	-	H20	H255

### Gray Iron Heat treatment in ISO 185:

Generally, the castings are supplied without heat treatment.

### Grey Iron castings Weldability:

Very bad. Generally, castings welding require the purchaser's approval. The welding process and the filler metals should be appropriated to the use of the casting in manner intended.

### Grey Iron Typical Casting Application:

- Pump and valve
- Machinery bed.
- Machinery parts.

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:

1. Sand Casting
2. Investment Casting, Lost Wax process
3. Shell Casting
4. Lost Form Casting
5. CNC Machining
6. CAD Design
7. 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 analyze 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 1 gram 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.

**Contact with Us Immediately**

**Director: Mark Wang**

**Email: [mark@castingquality.com](mailto:mark@castingquality.com)**

**WhatsApp: +8613964880878**

**Skype: castingquality**

**Website: [www.castingquality.com](http://www.castingquality.com)**