



## Ductile Iron in ASTM A536

Ductile Iron, also known as spheroidal or nodular iron, is described as cast iron with the graphite substantially spheroidal in shape and essentially free of other forms of graphite. Ductile iron is most popular metal material. [www.castingquality.com](http://www.castingquality.com)

*Reference Casting Standards:*

**ASTM A536: Standard Specification for Ductile Iron Castings**

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

- n Sand Casting
- n Shell Casting
- n Lost Form Casting
- n Centrifugal casting



**Ductile iron standard grades in ASTM A536**

Casting Grade	Tensile Strength, min		Yield Strength, min		Elongation in 2in or 50mm, %, min
	psi,	Mpa	psi	Mpa	
A536 Gr 60-40-18	60 000	414	40 000	276	18
A536 Gr 65-45-12	65 000	448	45 000	310	12
A536 Gr 80-55-06	80 000	552	55 000	379	6.0
A536 Gr 100-70-03	100 000	689	70 000	483	3.0
A536 Gr 120-90-02	120 000	827	90 000	621	2.0

**Ductile iron standard grades for Special Applications in ASTM A536:**

Casting Grade	Tensile Strength, min		Yield Strength, min		Elongation in 2in or 50mm, %, min
	psi,	Mpa	psi	Mpa	
A536 Gr 60-42-10	60 000	415	42 000	290	10
A536 Gr 70-50-05	70 000	485	50 000	345	5
A536 Gr 80-60-03	80 000	555	60 000	415	3

**ASTM A536 Ductile Iron Heat treatment requirement:** [www.castingquality.com](http://www.castingquality.com)

Generally ductile iron, that is heat treated by quenching to martensite and tempering, may have substantially lower fatigue strength than as cast material of the same hardness. The grade 60-40-18 will normally require a full ferritizing anneal. The 120-90-02 and the 100-70-03 grades generally require a quenching and temper or a normalize and temper, or an isothermal heat treatment. The other two grades can be met either as-cast or by heat treatment. Pls contact with Casting Quality for more details.

**ASTM A536 Ductile Iron Typical Casting Application**

Machinery, valve, truck, railway, gearbox, flywheels etc.



No any requirement about chemistry in ASTM A536 Standards, but we will suggest the chemistry as our experience in Casting industry:

ASTM A536	Chinese Grade	C	Si	Mn	P ≤	S ≤	Mg	RE	Others
60-40-18	QT400-18	3.6-3.8	2.3-2.7	0.5	0.08	0.025	0.03-0.05	0.02-0.03	-
60-42-10	QT400-15	3.5-3.6	3.0-3.2	0.5	0.07	0.02	0.04	0.02	-
65-45-12	QT450-10	3.4-3.9	2.7-3.0	0.2-0.5	0.07	0.03	0.06-0.10	0.03-0.10	-
70-50-05	QT500-7	3.6-3.8	2.5-2.9	0.6	0.08	0.025	0.03-0.05	0.03-0.05	-
80-60-03	QT600-3	3.6-3.5	2.0-2.4	0.5-0.7	0.08	0.025	0.035-0.05	0.025-0.045	-
100-700-03	QT700-2	3.7-4.0	2.3-2.6	0.5-0.8	0.08	0.02	0.035-0.065	0.035-0.065	Mo 0.15-0.4 Cu 0.4-0.8
120-90-02	QT900-2	3.5-3.7	2.7-3.0	0.5	0.08	0.025	0.03-0.05	0.025-0.045	Mo 0.15-0.25 Cu 0.5-0.7

Similar Ductile Iron Casting Grades: [www.castingquality.com](http://www.castingquality.com)

Index	Country	Ductile Iron Grade							
1	China	QT400-15	QT400-18	QT450-10	QT500-7	QT600-3	QT700-2	QT800-2	QT900-2
2	Japanese	FCD400	—	FCD450	FCD500	FCD600	FCD700	FCD800	—
3	USA	60-42-10	60-40-18	65-45-12	70-50-05	80-60-03	100-70-03	-	120-90-02
4	Russia	B440	—	B445	B450	B460	B470	B480	B4100
5	Germany	GGG40	—	—	GGG50	GGG60	GGG70	GGG80	—
6	Italy	—	GS370-17	GS400-12	GS500-7	GS600-2	GS700-2	GS800-2	—
7	France	FGS400-15	FGS400-18	FGS450-10	FGS500-7	FGS600-3	FGS700-2	FGS800-2	FGS900-2
8	England	—	400/18	450/10	500/7	600/3	700/2	800/2	900/2
9	Poland	—	ZS3817	ZS4012	ZS4505/5002	ZS6002	ZS7002	ZS8002	ZS9002
10	India	—	SG370/17	SG400/12	SG500/7	SG600/3	SG700/2	SG800/2	—
11	Romania	—	—	—	—	—	FGN70-3	—	—
12	Spanish	—	FGE38-17	FGE42-12	FGE50-7	FGE60-2	FGE70-2	FGE80-2	—
13	Belgium	—	FNG38-17	FNG42-12	FNG50-7	FNG60-2	FNG70-2	FNG80-2	—
14	Australia	—	300-17	400-12	500-7	600-3	700-2	800-2	—
15	Sweden	—	0717-02	—	0727-02	0732-03	0737-01	0864-03	—
16	Hungary	—	GöV38	GöV40	GöV50	GöV60	GöV70	—	—
17	Bulgaria	400-12	380-17	450-5	500-2	600-2	700-2	800-2	900-2
18	ISO	400-15	400-18	450-10	500-7	600-3	700-2	800-2	900-2
19	COPANT	—	—	FMNP4500 7	FMNP55005	FMNP6500 3	FMNP7000 2	—	—
20	Finland	—	GRP400	—	GRP500	GRP600	GRP700	GRP800	—
21	Holland	—	GN38	GN42	GN50	GN60	GN70	—	—
22	Luxemburg	—	FNG38-17	FNG42-12	FNG50-7	FNG60-2	FNG70-2	FNG80-2	—
23	Austria	—	SG38	SG42	SG50	SG60	SG70	—	—
24	Europa-Nor m	En-GJS-4 00-15	En-GJS-4 00-18	En-GJS-4 50-10	En-GJS-500 -7	En-GJS-6 00-3	En-GJS-7 00-2	En-GJS- 800-2	En-GJS-9 00-2



As a professional casting manufacture, Qingdao Casting Quality Industrial pay much attention to the quality and technology, our products are much more casting and forging parts. We are mainly do Sand Casting, Investment Casting (Lost Wax Casting or Precision Casting) and Die Casting .Today, its products are marketed globally through many countries.

## Our Services

Casting Quality focus on Metal Parts industry, we provide professional service in Metal Casting field.

Sand Casting

Investment Casting

Shell Casting

CNC Machining

CAD Design

Tools/Mold Design

Many buyers from all over the world purchase products from China. But do you know the quality of products in China? Maybe you only pay the surface and price, but the inner quality is lost .

Housing Casting Design in Solidworks

## What makes Casting Quality the best?

### Innovation

Our engineers are more than just designers....they're pioneers. Our team use CAD/CAM to do the simulation of casting parts .Through the advanced technology, we can know the weight and structure . We also visited so many factories to know their difference and improve our products every year.

### Quality

We're obsessed with quality. Casting Quality constantly strives to exceed our customers' expectations in durability and performance. In fact, we will control the whole process from the original material to the finished parts , include the technology .Uniquely-designed Quality Control System focuses on ensuring four product goals: 1) Eligible Chemistry , 2) Hardness 3) Property and 4) Affordable Pricing. The result is the best casting products value in the industry.

### Service

We're in Qingdao,China, It has convenient transportation of road and sea. Courteous service is part of who we are, and we do it better than anyone in the industry. With Casting Quality you can expect friendly, knowledgeable, and prompt customer service.

### Fulfillment

Shipping orders complete and on-time is of paramount importance to our customers. We will count the delivery date and result before accept your order. Casting Quality consistently ranks as one of the best in speed of delivery and fill rates.

### ***SERVICE IN QINGDAO CASTING QUALITY INDUSTRIAL***

- I SAND CASTING**
- I INVESTMENT CASTING**
- I SHELL CASTING**
- I PERMANENT MOLD CASTING**
- I CNC MACHINING**
- I CAD/CAM DESIGN**