

# Chinese Foundry Struggling Ahead

China Foundry Association  
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# 1. Chinese Foundry Under Pressure

## (1) Pressure from environmental protection



- This photo was taken in Beijing street in 2017. At that time, air pollution was very serious.
- So Chinese government has enacted a series of strict regulation and standards to fight for blue sky. How strict are the standards? Let me show you an example.

# Comparison of gas furnace particulate emission limit standards in different countries

unit: mg/m<sup>3</sup>

US	EU	Japan	China	
			Beijing	Shanghai
13.73	20	50	10	20

China is a developing country, but some of our environmental standards are stricter than those of developed countries.



At this situation, Chinese foundry industry is working very hard on environmental protection and has achieved good results. We can see from the photos of these foundries. It's clean, right? But even so, they have to stop production now and then because of air pollution control reasons.

## (2) Pressure from Market Shrinkage

I Global economy growth slow down.

II Chinese economy change from high-speed development to stable.

III Trade war.





## Chinese Casting production distribution of downstream industry in 2017 and 2018

(Unit: 10,000 tons)

Out put	Automobile	Internal combustion engine & Agricultural machinery	Engineering machinery	Mining Metallurgy	Cast pipe tube	Machine tool	Railway transportation	Power generation equipment	Ship building	Others	Total
2017	1510	620	380	450	770	260	200	240	40	470	4940
2018	1480	545	425	450	825	250	218	215	37	490	4935
2018 VS 2017 (%)	-2.0	-12.1	11.9	-	7.2	-3.9	9	-10.5	-7.5	4.3	-0.1

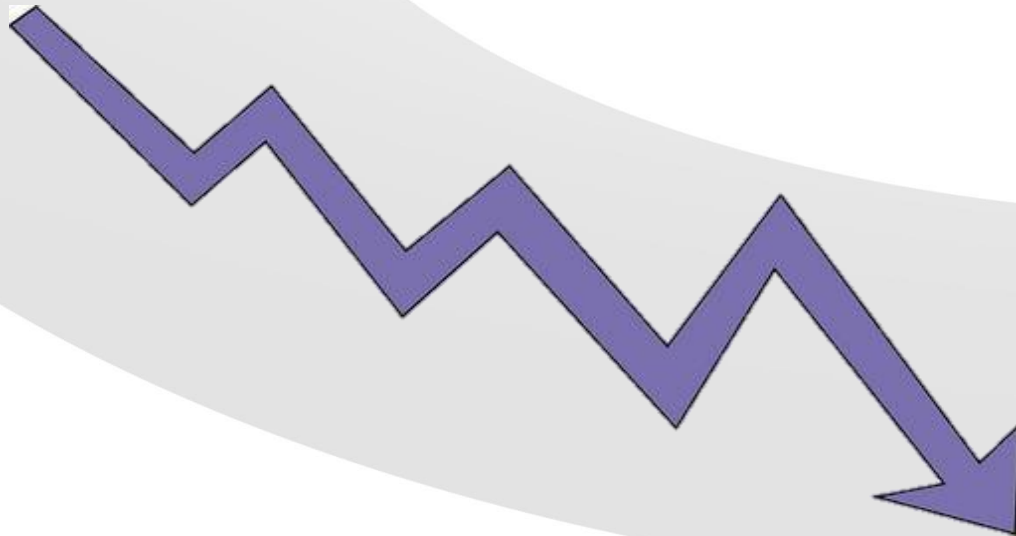
From the comparison of 2018 and 2017, we can see, the market of automobile dropped 2%, Internal combustion engine & agricultural machinery dropped 12.1%, Machine tool dropped 3.9%, Power generation equipment dropped 10.5%, ship building dropped 7.5%, total dropped 0.1%.

## During January to July, 2019

Among the 64 kinds of products monitored by the machinery industry in China, only 30 has been reported increasing year-on-year, accounting for 47%(In last year 47 kind of products had been reported increased). 34 decreased year-on-year, accounting for 53%.

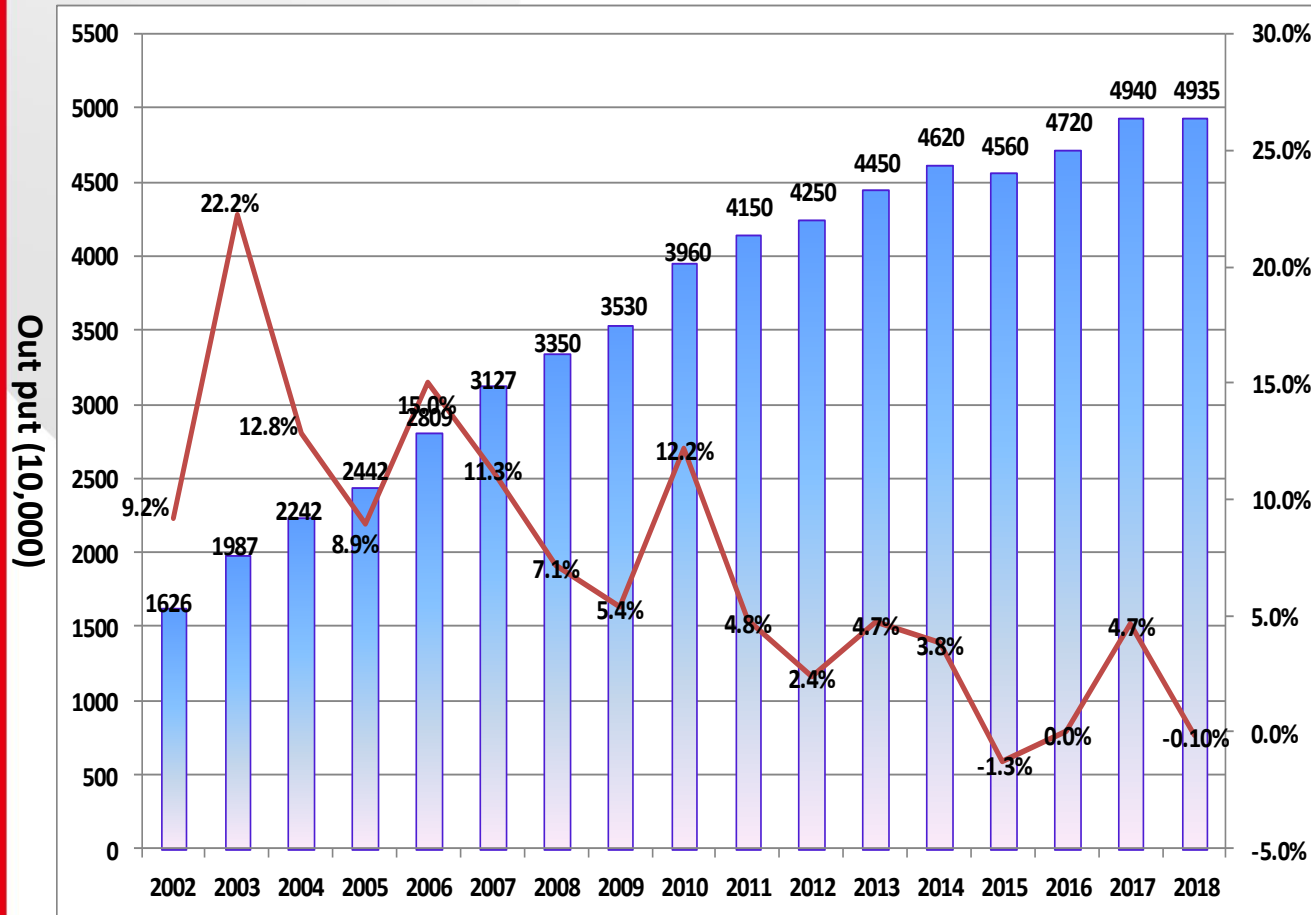


- **Some experts forecast, in the second half of 2019, casting production will continue decline trend, especially in the field of automotive castings.**
- **But we hope it is not truth.**



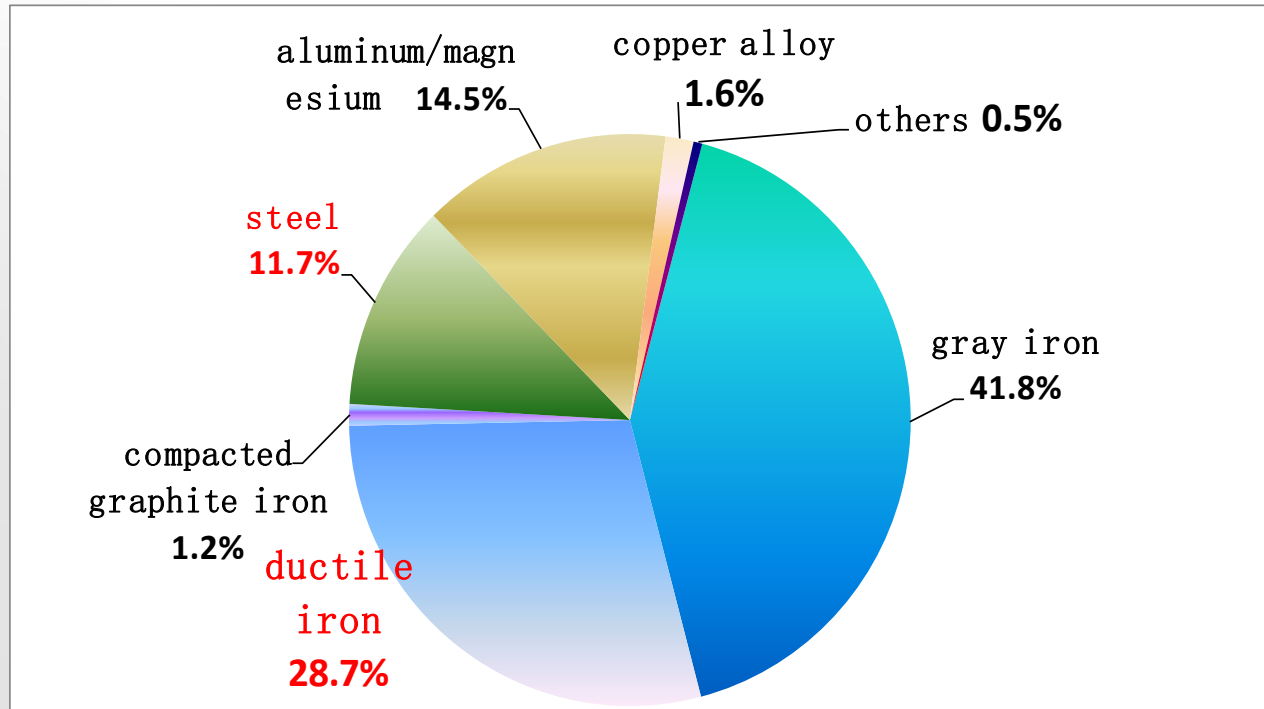
## 2. Statistics of Chinese Foundry

(2018:decline 0.1%; 2017:increase 4.7%; 2016:increase 3.5%; 2015:decline 1.3%)



We can see the casting output in China increased very fast before 2010, then the increase rate slowed. Since 2017, the total casting output has been kept at a stable condition.

In 2018, the casting output is 49.35 million tons, decreasing 0.1% compared with 2017.



This is the distribution of different materials castings in 2018.

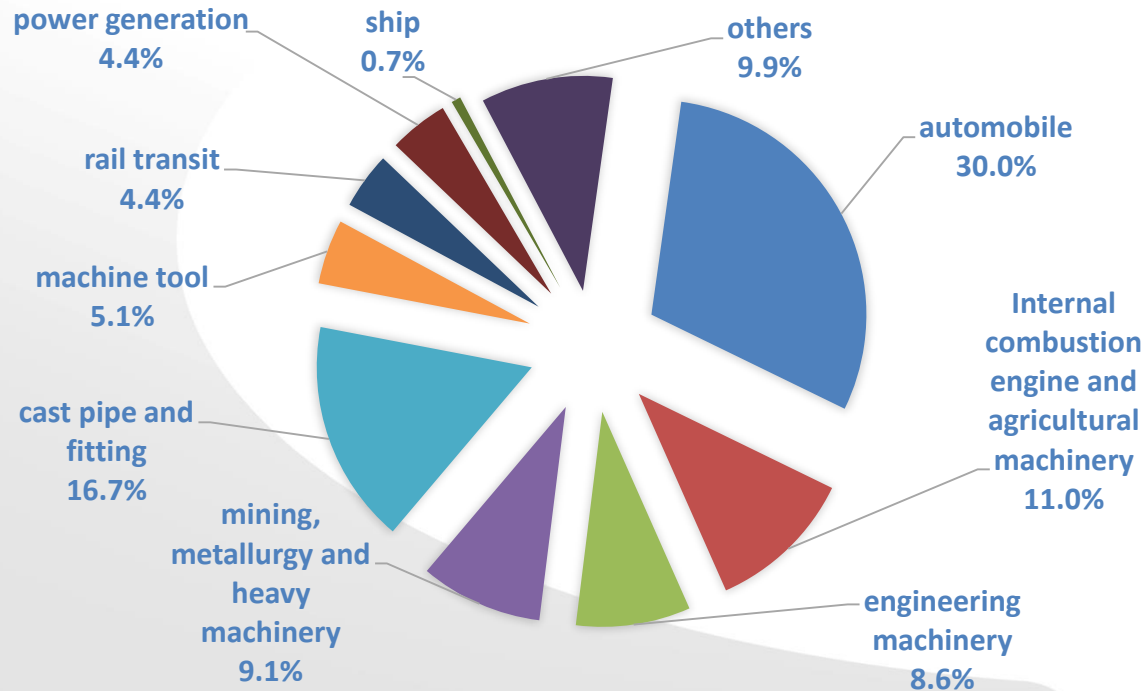
We can see gray iron casting is the largest part, 41.8%, followed by ductile castings, 28.7%, then aluminum and magnesium castings, 14.5%.

# Comparison of casting output of different materials during 2014-2018

(Unit: 10,000 tons)

Materials	Gray iron	Ductile iron	Compacted graphite iron	Steel	Aluminum(magnesium) alloys	Copper alloys	Others	Total
2014	2080	1240	60	550	585	75	30	4620
2015	2020	1260	60	510	610	75	25	4560
2016	2035	1320	60	510	690	80	25	4720
2017	2115	1375	60	555	730	80	25	4940
2018	2065	1415	60	575	715	80	25	4935
(%)	-2.4	2.9	--	3.6	-2.1	--	--	-0.1

We can see ductile castings continued increasing, aluminum and magnesium castings increased fast during 2014-2017, but decreased a little in 2018. Gray iron and steel castings were fluctuating.



The above chart shows casting demand proportions in downstream industries in 2018. About 30% castings were used in automobile industry, about 16.7% castings were used in municipal construction, and many other castings were used in ship industry, machine tool industry and so on.

**From the chart, we can also see that Chinese casting market is diverse, which means if one market loses, another will gain.**

### 3. Developing Trend of Chinese Foundry

Chinese economy is stable.

(In the first half of 2019, Chinese GDP reached 6.3%)

Chinese foundry still has strong development momentum.

**(1) Green Foundry**

**(2) Automation and Digital Foundry**

**(3) Innovation Foundry**



## (1) Green Foundry

In the first part of the presentation, we talked about environmental protection pressure. We know, in today's China, green foundry is the only choice.

China Foundry Association has published “Green Foundry Evaluation Criteria”.

China Foundry Association selects and awards green demonstration foundries every two years.

## In 2018, 13 companies were awarded as “Green Foundry Demonstration Enterprises”



## (2) Automation and Digital Foundry

The inadequate human resources greatly promotes the need for improvement of automation level in foundry industry.

Robots have been widely applied in many factories; numerical simulation, online inspection, nondestructive testing have been widely used.



The construction of the digital foundry is in full swing. In a digital factory, workers work in the air-conditioned rooms, the production workshop almost needs no staff. A large number of international orders are processed through network. People use computer+ Human brain to simulate virtual production process, to avoid the risk of waste.





### (3) Innovation foundry

Chinese foundry focuses on innovation and intellectual property protection.

Many foundries in China are equipped with high-end R&D centers. For example, in SQ group, more than 300 experts work in R&D centers.

- Technology Alliance is a new model of innovation.
- Green Manufacturing Alliance has been established in 2012.
- Digital foundry alliance is under construction.
- Thousands of patents register every year.



**This casting includes 23 patented technologies**



- The famous exhibition-----Metal China is a good window to see Chinese foundry development trend and seeking cooperation opportunities.
- From 2020, Metal China will be held every year in Shanghai, it will no longer be held in Beijing.



At the same time, “China International Die Casting Industry Exhibition” will be held together with Metal China.

After the adjustment, we can guarantee that Metal China will be better than before.

**May 13~16, 2020    Shang hai   China**



## Conclusion

*Although under pressure, Chinese foundry is struggling ahead and still has strong development energy.*

*Green foundry, Automation & Digital foundry and Innovation foundry are on the way.*

# Welcome to China!

**Welcome to Metal China on May 13~16, 2020.**

**Thank you for your attention!**

