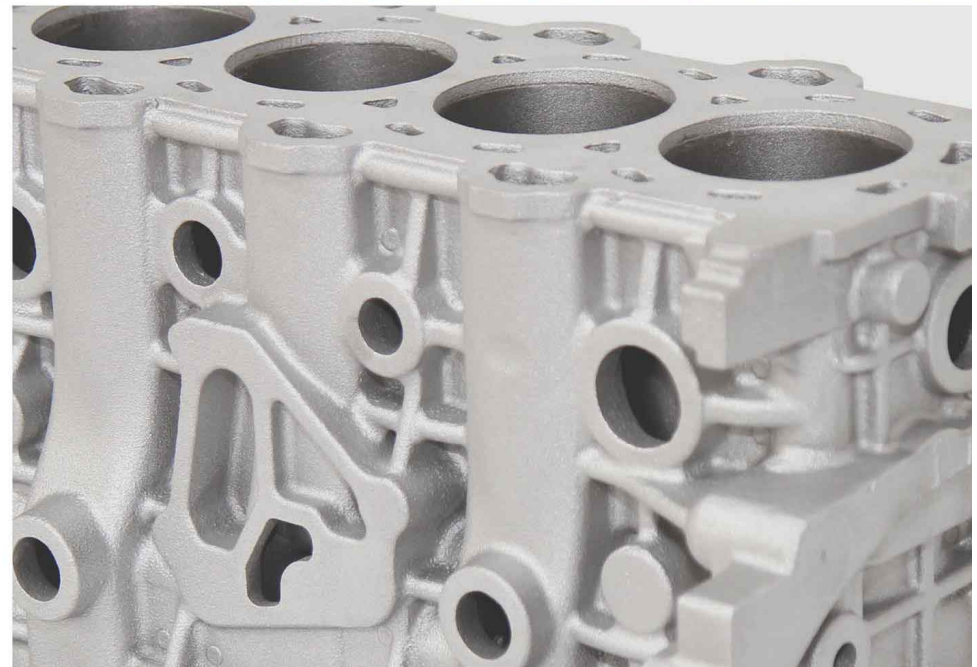


Casting Business

BNG precision Sand casting can make customer oriented quality.

HYUNDAI
BNGSTEEL

Maximizing customer values based on high quality product manufacturing and pursuing sustainable growth based on green management



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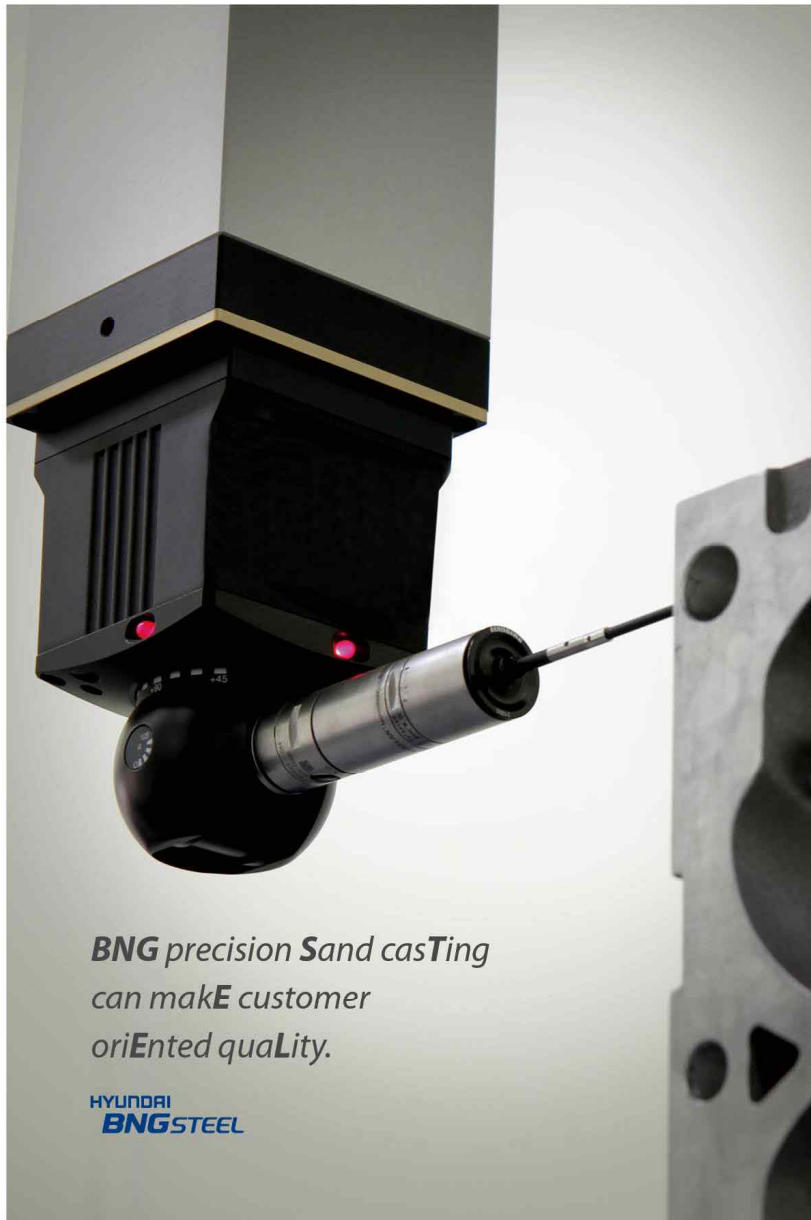
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*BNG precision Sand casting
can make customer
oriented quality.*

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Casting method and its feature

Casting method

PSC process (Precision Sand Casting): All core package system



Molding feature

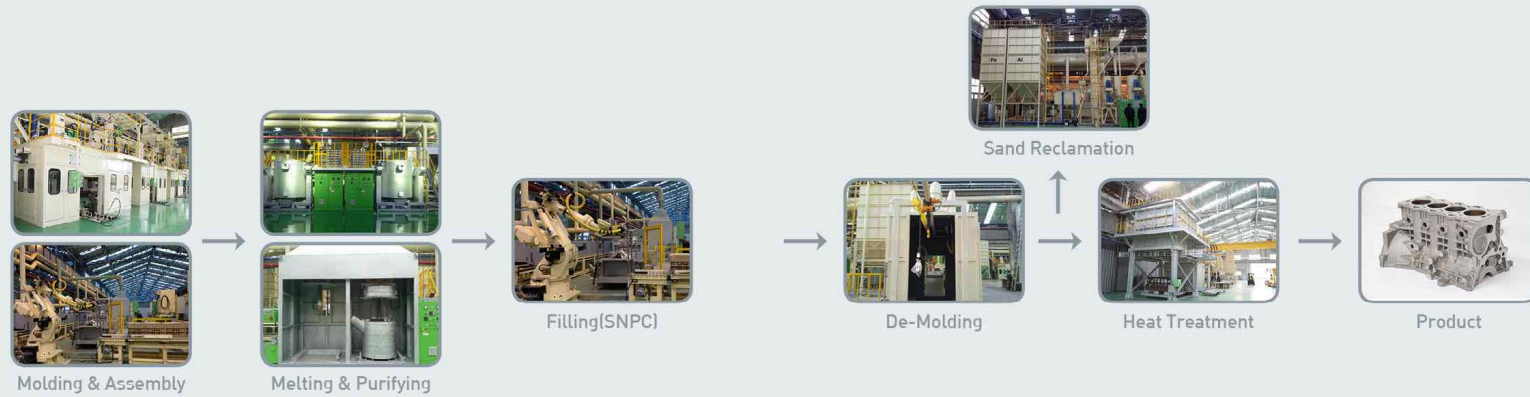


Possible production range

Material	Iron	Aluminum
Capacity (ton/year)	2,500	1,500
Material	FC25, FC30, CGI, FCD40, 50, 70	AC4CH, AC2B, AC4B
Casting method	PSC (Precision Sand Casting)	
Detail	Molding	Cold box & Shell
	Filling	Gravity Casting
Tooling	Soft Tool(synthetic resin): Proto products	
	Hard tool(metal): Mass products	

Comprehensive production capacity of precision sand casting for Iron/Aluminum

Manufacturing process



Specification

Material \ Division	Mechanical Properties		Minimum Thickness For Casting [mm]	Dimension Tolerance[mm]			Period of delivery	
	U.T.S.[MPa]	Elongation[%]		~500mm	~1,000mm	>1,000mm	Soft tool	Hard tool
Iron	250~270	-	3.0	± 0.3	± 0.6	± 1.0	40~60 days	4~6 months
Aluminum	320	5~10	2.5	± 0.3	± 0.6	± 1.0		



*Create bright future
with advanced technology*

Representative product

Engine Block & Head



Item	4 cyl. block	V8 block	L850 block	⊖-GDI	Sub frame	T/M part
Fuel	Diesel	Gasoline	Gasoline	Gasoline	-	-
Filling	SNPC	GSC	SNPC	GSC	GSC	GSC
Material	A356-T6	A356-T6	A356-T6	A356	A356	A356

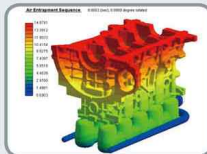
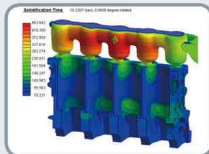
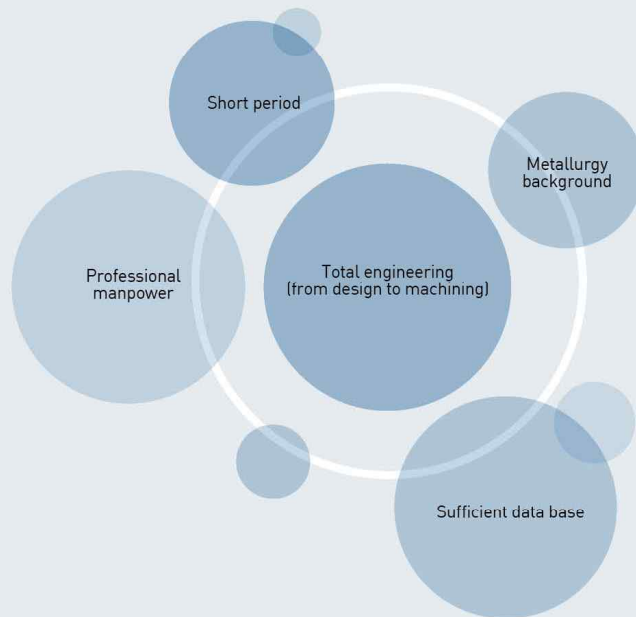
Off road & Industry part



Item	4 cyl. block	4. cyl block	3 cyl head	High pressure pump		
Fuel	Diesel	Diesel	Diesel	Center	Gear	Front
Filling	GSC	GSC	GSC	GSC	GSC	GSC
Material	FC25	FC25	FC25	A356	A356	A356

Consistent development & mass production process

Strength in R&D



Production details

Work Order	Details	Critical point	Remarks
1	Product shape, required properties, material review	Reflect the casting process	In house
2	3D design for sand mold	CAE [Structure, Casting, etc..]	In house
3	Casting Design	Process design, casting simulation	In house
4	Soft tooling design (consider mold, core, assembly, and casting design)	Optimize parting line design	In house
5	Core assembly review	Securing dimensional accuracy	-
6	Prototype trial (Utilizing Soft tooling)	-	-
7	Quality check (Dimensions, hardness, microstructure, elongation, chemical composition, etc...)	Check target properties	In house
8	Feedback result and modify the design	-	-
9	Complete product design and quality inspection standards	Destructive and nondestructive methods	Satisfy requested quality
10	Design hard tooling	Based on soft tooling DB	Enhance quality competitiveness
11	Products by hard tooling	-	-
12	Final quality check and initialization of mass products	-	-

*Challenges towards
the highest,*

**HYUNDAI
BNGSTEEL**



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