

**NORTECH**

**NORTECH FERRO ALLOYS PVT. LTD.**

*'30 Years of Casting Excellence'*

# About us

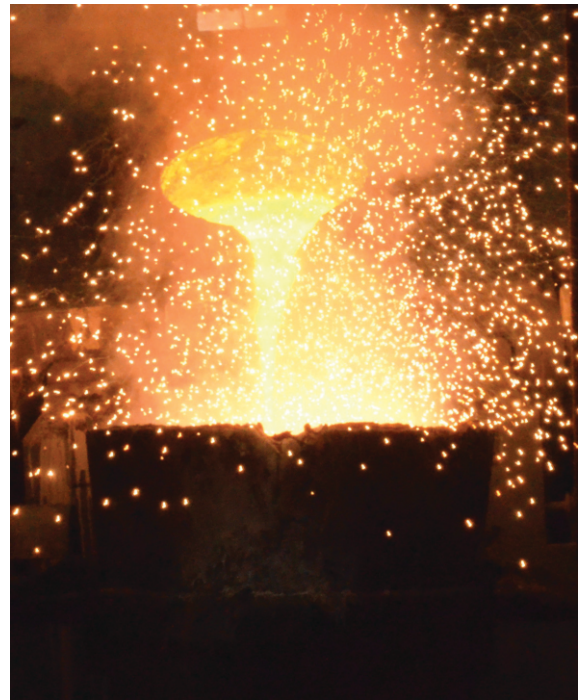
Established in 1990, NORTECH FERRO ALLOYS PVT. LTD. is part of the diversified S.P. Group of companies, Headquartered in Kanpur (U.P.). The group is active in the fields of Iron & Steel, Casting Solutions, Plastics, Renewable Energy, Management Consultancy among others. The group owns and operates a number of well known brands, with our brand PERFECT, being a household name in Plastic Moulded Furnitures.

NORTECH FERRO ALLOYS PVT. LTD. was established with a singular goal to be the preferred OEM manufacturer and supplier of Ferro Alloys and Foundry Chemicals for the Casting and Foundry Industry. Our focus is on adding economic value for our customers, through products supported by innovative service enhancements and partnerships, improved process capability, casting yield, resource utilisation and efficiency.

## QEM, Research & Development

“It is our endeavour to comply and exceed the global standards for quality. Any material which does not conform to the highest standards in their category will not leave the premises.”

Our commitment to quality is 100%. We have a fully functional NABL standard Laboratory equipped with X-Ray Fluorescence Analyser, Spectrometer, Wet Lab etc.



## Infrastructure

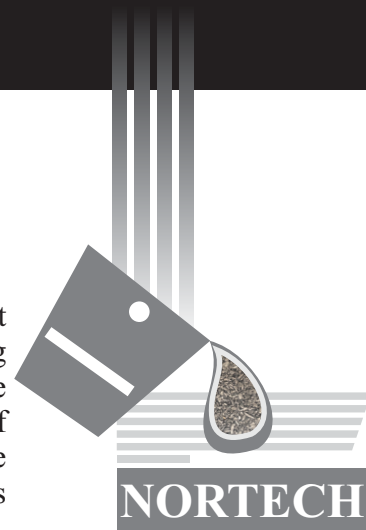
The Head office of the company is in New Delhi whereas the Registered Office is at Kanpur, U.P.

In addition, we have regional branch office's at Ahmedabad, Bhiwadi, Agra, Mujjafarnagar and Kashipur.

The manufacturing facility, spread over 4 acres with the main production shed being at over 1,00,000 Sq. Ft., is situated at Kanpur, U.P. The manufacturing facility is equipped with 3 induction Furnaces of Inductotherm Make of capacity 300 Kg, 500 Kg, and 1000 Kg. in addition to Aluminium Furnace,

# Ferro Silicon Magnesium

Ferro Silicon Magnesium Alloys are used to produce all types of ductile cast iron. It is added to the molten iron for producing a structure containing graphite in nodular or spheroidal form. This form minimizes the embrittlement effect of graphite on the metal matrix with the result of producing cast iron with better machinability, toughness, and tensile properties. Ferro Silicon Magnesium consists mainly of magnesium silicides combined with the silicides of iron, calcium and rare earth metals.



Ferro Silicon Magnesium Alloys are produced in induction furnaces and cast in permanent moulds, to give homogeneity. We can offer the right alloy with controlled amounts of Ca and TRE, to reduce the severity of reaction and to improve magnesium recovery. All alloys are analysed with the help of X-Ray Fluorescence Spectrometer to ensure consistent quality. We have a capacity to manufacturer 6000 MT of FeSiMg per annum.

We can offer the following grades in regular production:

## SPECIFICATION

S.No.	Grade	Si%	Mg	Ca%	TRE%	Al%
1	Nomag 570	42-48	5-7	1.0-1.5	0.8-1.2	1.2 max
2	Nomag 571	42-48	5-7	1.0-1.5	1.0-1.5	1.2 max
3	Nomag 572	42-48	5-7	1.0-1.5	1.5-2.0	1.2 max
4	Nomag 680	42-48	6-8	1.0-1.5	0.8-1.2	1.2 max
5	Nomag 681	42-48	6-8	1.0-1.5	1.0-1.5	1.2 max
6	Nomag 682	42-48	6-8	1.0-1.5	1.5-2.0	1.2 max
7	Nomag 810	42-48	8-10	1.0-1.5	0.8-1.2	1.2 max
8	Nomag 811	42-48	8-10	1.0-1.5	1.0-1.5	1.2 max
9	Nomag 812	42-48	8-10	1.0-1.5	1.5-2.0	1.2 max

Regular sizes are 1-5mm, 5-10mm, 5-25mm. Grade and Size can be customised as per the buyer. Packing of 50 Kg Woven PP bags or 1 MT jumbo PP Bags.



# Inoculant



Nortech has been producing various kinds of inoculants with different combination of elements for production of gray iron and ductile iron.

Inoculants are specially designed FeSi based alloys to control the microstructure and mechanical properties of cast irons, it is specially designed to serve most aspects of grey, compacted and ductile iron production, with defined contents of active elements such as Barium, Calcium, Rare earth, Zirconium Etc.

Inoculant performances depend largely on the elements or combination of elements carried into molten iron by the specialty ferrosilicon inoculant. Effects are determined by alloy composition and metallurgical characteristics of the iron. Different inoculants are therefore used for various conditions and requirements in iron casting production.

**Inoculants Range:**

GRADE	Si	Ba	Sr	Zr	Re	Ca	Al	Fe
NORMESH - S	70 - 75	--	--	--	--	0.6 - 1.0	1.0 (max)	Balance
NORMESH - C	70 - 75		--		--	1.5 - 2.0	1.0 (max)	Balance
NORMESH - B	70 - 75	2 - 3	--	--	--	0.6 - 1.0	1.0 (max)	Balance
NORMESH - Sr	70 - 75	--	0.6 - 1.0	--	--	0.1 (max)	1.0 (max)	Balance
NORMESH - Z	70 - 75	--	--	1.0 - 1.5	--	0.1 (max)	1.0 (max)	Balance
NORMESH - Re	70 - 75	--	--	--	1.5 - 2.0	0.5 - 1.0	1.0 (max)	Balance

Or as per customer requirements.

**Standard size:** 0.2 – 0.5, 0.5 – 3.0, 5 – 10 mm or as per customer requirement.

For Stream and Ladle inoculation.

**Packing:** In 50 Kg Bag, 1MT Jumbo Bag, 400 Kg Steel Drum or as per customer requirement.

**Storage:** Keep in dry place. No deterioration of quality when stored in original packing. Not hazardous but normal safety precautions to be observed.



# Ferro Molybdenum

Ferro Molybdenum is an alloy which is formed by combining iron and Molybdenum. Ferro Molybdenum is a hardening agent and is found in many alloy steels that are heat-treatable. Molybdenum prevents corrosion in stainless steels, and when mixed with iron, the Molybdenum also strengthens and hardens into austenite. Ferro Molybdenum comes in many grades, although predominantly it is produced in just two grades (one for US and one for EU) where the content of pure Molybdenum is between 60% and 75%.



## Ferro Molybdenum Properties

Ferro Molybdenum is an additive to the production process of amorphous metals and will impart several desirable properties into the new alloy. One of the primary benefits of adding Ferro Molybdenum to an alloy is its hardening properties that makes steel extremely strong and at the same time weldable, as Molybdenum is one of the top 5 melting-point metals. Additionally, the adding of Ferro Molybdenum to an alloy can increase corrosion resistance. Properties of Ferro Molybdenum make it suitable for a variety of protective films over other metals.

## Ferro Molybdenum Applications

The largest practical applications of Ferro Molybdenum are its use in ferrous alloys, and depending on the molybdenum content range, it is suited for machine tools and equipment, military hardware, refinery tubing, load-bearing parts and rotary drills. Ferro Molybdenum is also used in cars, trucks, locomotives and ships. In addition, Ferro Molybdenum is used in stainless and heat-resisting steels that are employed by synthetic fuel and chemical plants, heat exchangers, power generators, oil-refining equipment, pumps, turbine tubing, ship propellers, plastics and inside acid storage containers. Tool steels, with a high percentage range of Ferro Molybdenum, are used in high-speed machining parts, cold work tools, drill bits, screwdrivers, dies, chisels, heavy castings, ball and rolling mills, rolls, cylinder blocks, piston rings and large drill bits.

## Ferro Molybdenum Production

Ferro Molybdenum is primarily produced by oxidising the sulphurous ore and then combining the resultant Molybdenum oxide with Iron by a Alumino-Thermic process. We have a installed capacity to manufacture 100 MT of Ferro Molybdenum Per Month.

The General Grade is :

Mo	Si	C	Fe
60%	1.5%	0.01%	Balance



# Controlled Carbon Ferro Manganese



Manganese is intentionally present in most grades of steel and is a residual constituent of virtually all others. Aside from its historic importance as a desulphurizer and deoxidizer, Manganese is undoubtedly the most prevalent alloying agent in steels, after carbon. Manganese has an important influence on the structure and properties of steel, depending on the amount used and the combined effect with other alloying elements. Manganese improves the tensile strength, workability, toughness, hardness and resistance to abrasion. It also reacts with the remaining sulphur in the steel and thus prevent any tendency of hot shortness. Manganese addition agents, Ferro Manganese being the most common, are generally chosen on the basis of carbon content. As the content of carbon becomes more restricted in Steel, it is necessary to switch to the more costly medium-or-low carbon Ferro Manganese.

## MEDIUM CARBON FERRO MANGANESE

When Medium Carbon Ferro Manganese is used in comparison to High Carbon Ferro Manganese, approximately 80% less carbon is added to the steel. Medium Carbon Ferro Manganese is used as an alloying constituent for Tool Steel, Stainless and Heat resistance Steel, Structural Steel and Anti Abrasion Steel to name a few.

## LOW CARBON FERRO MANGANESE

Low Carbon Ferro Manganese is used for maximum restriction of carbon content in steel. As compared to High Carbon Ferro Manganese, approximately 90-95% less carbon is added to the steel along with lower contents of Sulphur, Phosphorous and Silicon. Low Carbon Ferro Manganese is mostly used in the welding industry. It is an essential ingredient for making high strength low-alloy steel and stainless steel. It serves as a major constituent of making Mild Steel Welding electrodes and other electrodes and is widely acclaimed for its optimum quality and accurate composition.

### Technical Specification:

Grade	Mn	Si	C	S	P
FeMn MC	70-75%	2-4%	2% Max.	0.05% Max	0.3% Max
FeMn LC	70-75%	1-7%	0.6% Max.	0.05% Max	0.2% Max
FeMn ULC	70-75%	1-5%	0.1% Max	0.05% Max	0.2% Max





# Low Carbon Ferro Chrome

Chromium is one of the most versatile and widely used alloying elements in steel. It imparts corrosion and oxidation resistance, is a mild harden ability agent, improves wear resistance and promotes the retention of useful strength levels at elevated temperatures.

Ferro Chrome is an alloy of Chromium and Iron containing 50-70% Chromium by weight. Similar like Manganese, Chrome addition agents are also chosen on the basis of carbon content. As the content of Carbon becomes more restricted in Steel, it becomes necessary to switch to the more costly Low Carbon Ferro Chrome.

Low Carbon Ferro Chrome is used when the content of Chromium need to be increased without an addition to the content of Carbon.

Low Carbon Ferro Chrome is used mainly in all major grades of Stainless Steel. It is also used for Constructional Alloy Steels, Tool Steels, Super Alloys and other speciality metals.

## Technical Specification:

**Cr** : 55-65%, **Si** : 2%, **C** : 0.1%, **S** : 0.1% Max., **P** : 0.05% Max.



# Lustrous Coal Powder

Coal is a fossilised product of decomposed plant and forest growth under marshy conditions. Coal is not a single material of one chemical composition but is a range of natural solids, which are rich in carbon. These carbons are part of a metamorphic series extending from Peat to Diamond with different total carbon content which can increase from about 50% to over 90%.



## Coal Powder uses in casting

Coal Powder is used to reduce the production of Burn-on. The practice of adding pulverised coal to greensand in order to improve surface finish is as old as foundry industry itself. It is also used to eliminate expansion-type defects like metal penetration. When molten iron is poured into a greensand mould containing Coal, the input of heat causes the evolution of reducing gases into the mould cavity and these prevent the formation of iron oxide, which is thought to be an intermediate stage in the production of burn-on. As the oxygen supply in the mould is limited, sooting results and a thin layer of lustrous carbon is condensed onto the mould surface from the hydrocarbon gases. This layer acts as a refractory barrier between the metal and the sand thereby improving surface finish. In the final stage, Coal begins to coke near to the mould surface and in doing so it softens and expands. This happens at the same time as the critical quartz expansion takes place in the surrounding base silica sand and it allows re-adjustment of the sand grains and thus helps to control expansion-type defects.

## CARBO range of Coal Powder

CARBO range of Coal Powders are manufactured using the right quality of Bituminous coal. Some advantages of using CARBO are:

- Improved surface finish through better lustrous carbon formation
- Improved sand peel off
- Reduced fettling and consumption of shots
- Reduced hydrogen and expansion-type defects such as pin-holing, scabs, rat-tails, metal penetration etc.
- Better Standardization for predictable results

Grade	V.M.	Ash	S	FC	Moisture	LC	LoI
CARBO C-20	45-50%	5%	1% max	By Difference	2-4%	7-10%	95%
CARBO C-50	55-60%	3-4%	1% max	By Difference	2-4%	10-12%	98%







## Our Clients

**Mahindra**

**CIE Automotive**



**Kores**

Kores (India) Ltd.

**ARORA**  
IRON & STEEL  
THE STEEL MASTERS



**RIMJHIM**  
ISPAT



**AMAR UDYOG**

**JSL**  
JINDAL STAINLESS

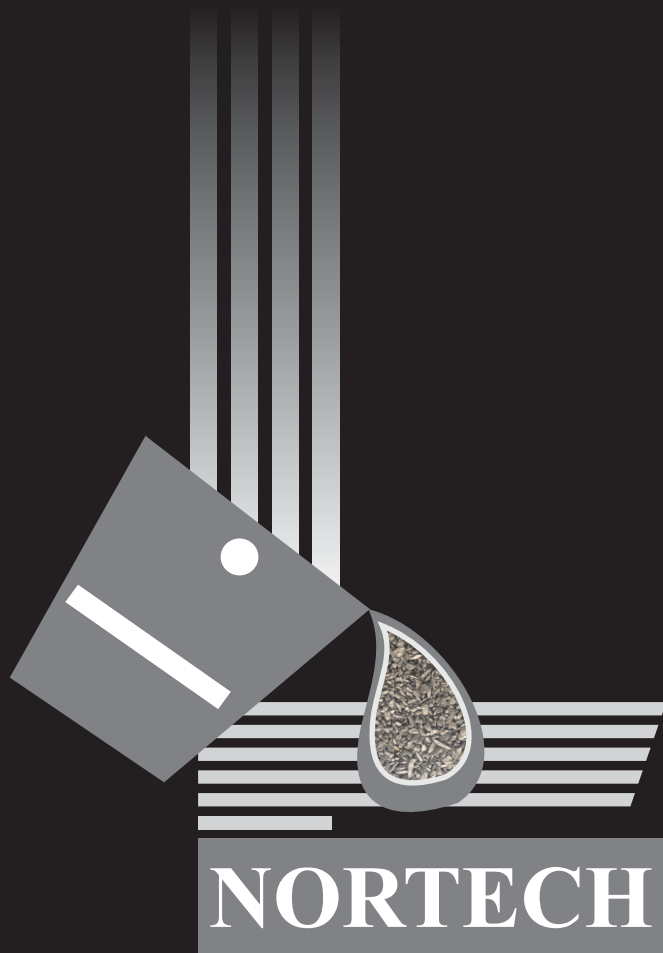


**KIE** KIE Engineering Pvt. Ltd.



**PTC INDUSTRIES** **GS AUTO**  
Aspire. Innovate. Achieve.





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