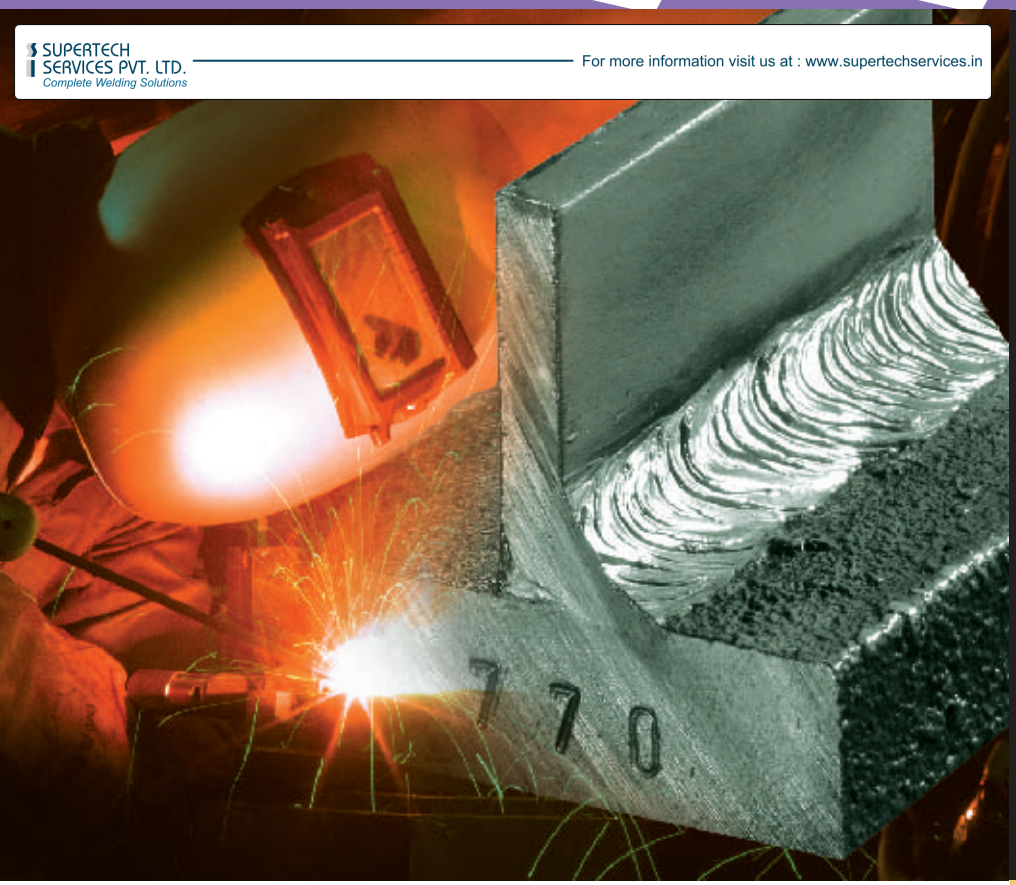
MAGNA™ WELDING ALLOYS

770



High-Strength Non-Cracking Machinable Electrode for Cast Iron

MAGNA 770 — High-Strength Non-Cracking Machinable Electrode for Cast Iron

- *Gives perfect machinable welds on practically all types of cast iron.*
- *Outstanding elongation of electrode positively prevents cracking.*
- *Has higher tensile strength than most types of cast iron.*

TRUST MAGNA FOR

- *Ease of Application*
- *Wide Versatility*
- *Outstanding Physical Properties*

MAGNA INDUSTRIAL CO. LIMITED
Total Quality Maintenance

ITW

SPECIAL FEATURES

Magna 770 High-Strength Non-Cracking Machinable Electrode for Cast Iron is a metallurgical breakthrough!

- **Magna 770** is an ideal maintenance electrode, giving perfect, totally machinable welds on practically all types of cast iron.
- **Magna 770's** excellent elongation make-up allows the weld metal to stretch to prevent cracking.
- **Magna 770** has a higher tensile strength than most types of cast iron.

OUTSTANDING PROPERTIES

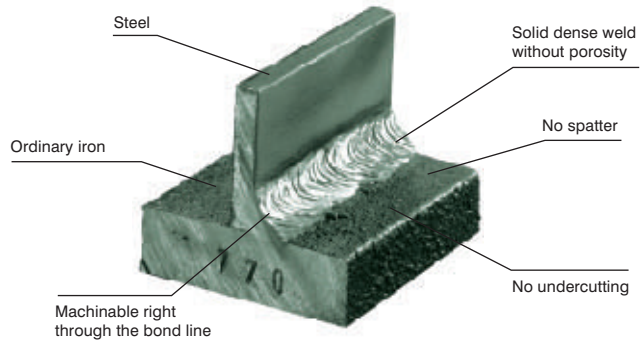
Magna 770 is the high-strength electrode for cast iron that:

- Provides totally machinable welds without hard spots.
- Requires absolutely no preheating.
- Offers extreme tensile strength.
- Provides low viscosity slag enabling you to weld pass-on-pass without removing slag between passes.
- Givses high-strength welds on oil-saturated and dirty cast iron to save you time and money

USE FOR

Magna 770 (for AC & DC) is the ideal maintenance electrode for use with:

- Malleable iron
- Grey Iron
- Ductile Iron
- Meehanite
- Steel to Cast Iron



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MAGNA WELDING ALLOYS™

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MAGNA 770 AC-DC

Description :

Magna 770 AC - DC is the one electrode especially designed to weld all types of cast iron encountered in maintenance applications.

Special Qualities :

Magna 770 actually diffuses into the base metal favouring soft graphite transformation. This reduces the tendency for both hard martensite formation and stress. With most electrodes for cast iron welding, the elements of the melt consist of two entirely different components. With Magna 770 the weld deposit actually diffuses with the base metal and graphite precipitates in the transition zone, making the weld metal and the base metal compatible. There is no marked separation of two separate components but a gradual structural transition between the weld metal and the base metal. A certain amount of the phosphorous, carbon, and sulphur is converted into slag by special additives in the powerful coating. This greatly increases the weld's resistance to cracking.

Superior Machinability :

One of the major reasons for the extraordinary machinability of Magna 770 is related to supplements in the core wire and coating which tend to eliminate hard formations in the microstructure. Hardening of the zone near the weld is minimized because of additives that are related to carbonization control and which enhance free machining soft graphite formation adjacent to the weld.

It is a well known fact that welds in cast iron which have a high phosphorous content (0.20% phosphorous or more) readily crack when nickel cast iron electrodes are used, but are successfully welded with Magna 770.

Unique Coating :

The coating of Magna 770 is most complex, containing 22 different ingredients, including strontium, sodium and carbonate. In addition it is fortified with fluorides and calcium compounds not normally found in electrode coatings. This unique coating has supplements that actually promote free graphite transformation.

Magna 770 actually enables both the transition zone and the weld deposit to follow a stable system. This makes it possible to weld cast iron of all types without cracking, resulting in a fully machinable weld. It is the remarkable coating chemistry of Magna 770 that gives it an ability to perform differently from ordinary cast iron electrodes.

The arc is highly ionized and with sufficient drive to penetrate contaminated work pieces. The coating also contains a heavy metallic content including vanadium, magnesium, iron and nickel powders. Additionally this remarkable coating is deoxidized with aluminium which is added both as ferro aluminium and as a discrete powder.

The coating has been designed to be electrically conductive and this special feature completely eliminates over-heating of the core-wire.

One additive converts sulphur, which is a common cause for cracking, into harmless manganese sulphide. One additive tends to diffuse into the neighbouring base metal and this condition helps avoid brittle areas.

Crack Resistance :

Magna 770 is capable of providing, at the same time, both crack resistance and ultra high machinability. There are other electrodes made for cast iron such as the nickel irons, that, under certain conditions do not crack. However, these tended to be hard and unmachinable, especially in the transition zone. There are other electrodes, such as monel or nickel types that give reasonable machinability. Unfortunately monel is hot-short and the welds on cast iron crack readily.

One of the outstanding features of Magna 770 is that it has up to 300% the elongation of nickel type electrodes for cast iron. This exceptionally high elongation enables the Magna 770 weld to stretch and absorb weld contraction without either the weld or the base cracking.

Magna 770 is the answer for maintenance welding of cast iron because it produces both crack-free welds and welds that are fully machinable.

Outstanding Weldability:

May be used for "cold" welding without preheat, or may be used with low preheat on heavy sections as required.
Excellent for all position welding including vertical and overhead. It is the one electrode that can be relied on for crack sensitive applications and for repairs subject to hydrostatic pressure. Magna 770 not only welds all types of cast iron but welds exceptionally heavy wall thickness cast iron without danger of cracking and welds cast iron to steel. This electrode is suitable for welding shrinkage holes and cracks as well as very long welds. Preheat is not necessary in these cases. The slag is readily removed and there is no spatter. Magna 770 is noted for its ability to provide dense welds without porosity.

How to Apply :

Clean weld area. Bevel cracks using Magna 100, to form a 75-90 vee in the break or crack area. Preheat is not necessary in most instances. Drill holes at end of crack to prevent crack propagation during welding. Align parts and tack weld. Use AC or DC electrode positive. Maintain short or medium arc. Use stringer beads or slight weaving technique. Peen before making additional weld deposits.

In most instances, Magna 770 can be "poured on" rapidly. It is unnecessary to use the old fashioned method of welding short beads at a low rate as usually required with ordinary electrodes. With Magna 770 the interpass temperature is not critical; the welding can be almost continuous causing the interpass temperature to build up.

Where the size and location of the equipment to be welded makes preheating impossible, but the design is such that expansion and contraction caused during welding will warp or highly stress the metal, the following steps should be observed:-

(1) Pause between passes to allow heat to dissipate.

(2) Lightly peen with a hammer before each deposit solidifies and while it is still hot.

(3) By making separate weld deposits and then going back over and filling in, you will avoid localized excess heat.

Recommended Amperages:

Metric	Inches	Gauge	Setting
2.4 mm.	3/32	12	45 - 85 amps
3.2 mm.	1/8	10	60 - 100 amps
4.0 mm.	5/32	8	90 - 140 amps