Two brands synonymous with diverse and proficient welding solutions...
...continuing a history of uncompromised quality and superior efficiency.

Modi Arc Electrodes and Weld Excel fuse together under the leadership of GroupMKM
COMPANY PROFILE

The welding business of GroupMKM, promoted by Dr. M.K. Modi, has been at the forefront of welding technology in India for over four decades. The group has been engaged in meeting the exacting welding needs of a host of industries, especially in the Infrastructure sector; be it Power Generation, Oil and Gas Exploration, Oil Refining, Ship Building, Railways, Sea Ports, Airports, Road Construction and the like.

Presently the GroupMKM welding business encompasses two companies – Modi Arc Electrodes Company (MAEC) and Weld Excel India Limited (WEIL).

Modi Arc Electrodes Company was established in the year 1962. The well-equipped plant, spread over an area of approximately 15000 sq. mts. is located at Modinagar (UP) about 45 kilometers North-East of New Delhi. Weld Excel India Limited was acquired in 1997 and has a plant located in Ludhiana (Punjab) about 300 kilometers North-West of New Delhi.

A wide range of electrodes ranging from General Purpose Mild Steel to Stainless Steel, Cast Iron to Nonferrous Hard Surfacing to Low Hydrogen are manufactured on our modern equipment in both companies. LOMELT, Low heat input electrodes for repair and maintenance applications complete the range of stick electrodes. We also manufacture wire for CO2/MIG welding process as well as stainless steel wires for GTAW (TIG) and GMAW (MIG) processes & flux-cored wires.

We offer a complete welding solution including Welding Equipment which includes a comprehensive range of Conventional, Thyristor and Inverter based machines for MMA, MIG, TIG, SAW and Air Plasma Cutting processes. Our new range of Inverter based machines are designed as per advanced Inverter technology and these machines are highly energy efficient, compact, lightweight and maintenance free.

Modi Arc Electrodes Company has upgraded their Quality Management system to standard ISO 9001-2008 and in recent audit, DNV has found our QMS conforming to requirements of the same.

A well-equipped and staffed R&D Centre has been playing a vital role in offering suitable electrodes to the welding industry. Continuous efforts of our scientists and technicians have kept us in the forefront of welding technology with the Department of Scientific & Industrial Research, Ministry of Science & Technology, and the Govt. of India having granted recognitions to our R&D Centre.

Most of the electrodes both in MAEC & WEIL are manufactured to conform to the Bureau of Indian Standards (BIS) as well as the American Society of Mechanical Engineers (ASME) Code, Section-II Part-C. Various electrodes are approved by national and international agencies such as ABS, BIS, BHEL, BECHTEL, CIB (UP), DESEIN, DNV, DALAL, EIL, IRS, Kvaerner Powergas, LRS, MND, NPC, NTPC, ONGC, PDIL, RDSO, TCE, TISCO, TOYO, UHDE, etc. We are also a regular supplier to major fabricators in India like L&T, Reliance, BHEL, NTPC & Tata Steel to name a few.

Our regional depots and offices, supported with a wide network of distributors throughout the country facilitate smooth and quick distribution. A team of qualified and well-trained service engineers extends technical services and prompt after sales service to our customers.
**MILD STEEL ELECTRODES**

**STEELON STABLE**

**AWS A5.1 E 6012**

A thin coated, rutile type electrode designed for welding of mild steels in all positions. Very stable arc, quick-freezing slag and smooth weld deposits are the main features. Mechanical properties are consistently good.

**STEELON SUPER**

**AWS A5.1 E 6013**

STEELON SUPER is a medium coated rutile type electrode suitable for all position welding. It has a shallower arc and thinner slag layer, making the arc easier to strike and regulate. The ripples of the bead on the surface are very fine, and they are easy to control. It is suitable for both AC (50) and DC (+).

**STEELON STANDARD**

**AWS A5.1 E 6013**

STEELON STANDARD is a medium coated rutile type electrode for all position welding. It includes vertical downward. Stable arc, moderately fluid slag, finely rapped bead makes the electrodes highly suitable for all welding shops. Weld metal is capable of meeting radiographic quality standard and gives excellent mechanical properties.

**STEELON ULTRA**

**AWS A5.1 E 6013**

A rutile type medium-heavy coated electrode specially manufactured for radiographic quality welds. Low spatter, adequate penetration, easy slag removal and finely rapped, smooth beads are the special features of STEELON ULTRA electrodes. Mechanical properties are very good and consistent.

**ULTRA SPECIAL**

**AWS A5.1 E 6013**

A rutile type medium-heavy coated electrode specially manufactured for radiographic quality welds. Low spatter, adequate penetration, easy slag removal and finely rapped, smooth beads are the special features of ULTRA SPECIAL electrodes. Mechanical properties are very good and consistent. This electrode is suitable for nitrogen-free welding.

**RECORD**

**AWS A5.1 E 6013**

A heavy coated rutile type electrode developed for "TOUGH" type welding. Arc is very stable. Slag removes by itself leaving almost flat and rippleless weld bead. Striking & re-striking is excellent. Weld metal is of radiographic quality and gives excellent mechanical properties.

**CUTRODE**

An electrode with special coating which gives a stable arc during the cutting and piercing processes. The tips are clean and narrow. Suitable for all positions. Almost no slag is produced.

**MODI-7014**

**AWS A5.1 E 7014**

A heavy coated rutile type electrode containing iron powder for obtaining higher deposition rates, can be used on high manganese steels. High deposition rate and low spatter makes the electrodes suitable for high manganese steels and other related applications. Welds are of radiographic quality with excellent mechanical properties.

**LOW HYDROGEN & HIGH TENSILE STEEL ELECTRODES**

**MODI-7016**

**AWS A5.1 E 7016**

A basic coated low hydrogen electrode specially designed for welding of medium and high tensile steel grades of A, D & E. Radiographic quality welds, excellent ductility and notch toughness down to minus 30°C are some of the special characteristics of MODI-7016. Typical hydrogen content is 3ml/100gms of weld deposit.

**MODI-7016S**

**AWS A5.1 E 7016**

A basic coated low hydrogen electrode specially designed for welding of medium and high tensile steel grades of A, D & E. Radiographic quality welds, excellent ductility and notch toughness down to minus 30°C are some of the special characteristics of MODI-7016S. Typical hydrogen content is 3ml/100gms of weld deposit.

**MODI-7018**

**AWS A5.1 E 7018-H1**

A low-hydrogen iron powder electrode, suitable for welding of medium tensile strength steels. Weld metal is of radiographic quality. Metal recovery is minimum 11%. Medium tensile strength and excellent ductility combined with very good impact values at minus 30°C temperature makes the electrodes versatile. Typical hydrogen content 3ml/100gms of weld deposit.

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MODI-7018 (SPL)
IS: 1844-2004 EB-52461-HX
AWSA5.1-E: 7018-H14
A low-hydrogen iron powder electrode, producing exceptionally tough and ductile weld metal with high tensile strength and radiographic quality. Metal recovery is approximately 115%. The weld metal shows an exceptionally high impact strength at room temperature as well as down to minus 46°C. Typical hydrogen content in weld metal is 4ml/100gms.

MODI 7018 G
IS: 1844-2004 E: 499-G126
AWSA5.1-E: 7018-H1
A hydrogen controlled iron powder type electrode yielding 0.5% Ni in the weld metal. Electrode is specially designed for excellent notch toughness at sub zero temperature even when welded in vertical up position. Electrode gives radiographic quality weld. Metal recovery is over 105%.

MODI-7018 A1
IS: 1844-2004 E-498-At-28E
AWSA5.1-E: 7018-A1
A outstanding hydrogen controlled electrode for welding of 0.5% Mo steels and other low alloyed steels subjected to elevated temperatures up to 550°C. Welds are equivalent to radiographic quality. Coating is especially formulated to restrict moisture pick up, thus ensuring high quality. It has a good slag detachability and a high operator appeal. Metal recovery is minimum 115%.

MODI-7048
AWSA5.1-E: 7048
A low hydrogen iron powder type electrode, specially designed for welding in vertical down progression. The electrode is suitable for welding of medium tensile strength steels. Weld metal is of radiographic quality. Excellent durtility combined with very good Impact values at minus 30°C temperature are the special characteristics. Typical Hydrogen content in weld metal is 4ml/100gms.

MODI 8018
IS: 1844-2004 ESSB-G129E
AWSA5.1-E: 8018-G
A low hydrogen iron powder electrode for welding of high strength low alloy steels. Weld metal has high ductility inspite of the High Strength. Operation is relatively well on an AC and DC (+). Radiographic quality welds. Easy slag detachability and finally trapped beads. Metal recovery is over 110%.

MODI 8018 B2
IS: 1844-2004 ESSB-2B-32E
AWSA5.1-E: 8018 B2
An outstanding welding electrode for higher strength steels with tensile strength more than 500N/mm². The coating is specially formulated to resist moisture pick up under conditions of high humidity. As electrode offers resistance to moisture re-adsorption, it helps in preventing hydrogen cracking and aids in eliminating starting porosities. Good slag detachability, smooth bead and high operator appeal are the specialties of the electrodes. The weld metal displays excellent strength and resistance at elevated temperature up to 550°C. Metal recovery is above 115%.

MODI 8018 DL2
IS: 1844-2004 ESSB-B2L-26E
AWSA5.1-E: 8018 BDL2
An outstanding welding electrode for higher strength steels with tensile strength more than 520N/mm². The coating is specially formulated to resist moisture pick up under conditions of high humidity. As electrode offers resistance to moisture re-adsorption, it helps in preventing hydrogen cracking and aids in eliminating starting porosities. Good slag detachability, smooth bead and high operator appeal are the specialties of the electrodes. The weld metal displays excellent strength and resistance at elevated temperature up to 550°C. Due to low carbon, it has improved microstructure, stability during high temperature storage. Metal recovery is above 115%.
Coding & Applications  
Mechanical Properties  
Chemical Composition (%)  
Coding & Applications  
Mechanical Properties  
Chemical Composition (%)  

MODI 110  
IS: 1195-82; E769-M3 29 Fe  
AWS A5.5: E 1101-M  
A low hydrogen iron powder electrode designed for welding of fine grained high  
tensile steels, and hardened & tempered steels such as U7S2-11T,  
T10N 80 steels etc. Weld metal is of radiographic quality  
and gives uniform mechanical properties. Metal recovery is over 110%.  

MODI 120  
AWS A5.5: E: 12018-G  
A basic coated, low hydrogen, low alloy very  
high tensile steel electrode. Weld metal  
deploy shows high strength and toughness.  
Electrode works in all positions and gives  
high radiographic quality welds. Metal recovery is over 100%.  

BOILER-LH  
IS: 1195-82 E: 690-1193  
A basic coated electrode designed for the welding of high tensile steels,  
monoborium bearing steels and other low alloy steels. The  
Easy slag removal, low spatter, uniform  
bead geometry, iron powder producing  
some of the salient features of Boiler-LH.  

MODI COR  
AWS A5.5: E 1018-W2  
IS: 1195-82; E555G126  
A special basic type electrode for welding of  
low carbon and low alloy bearing corrosion  
resistant structural steels. The electrode operates  
equally well on DC(-) and AC(±). Slag is  
easily detachable. Smooth and regular  
fusion gives uniform bead shape. Welds are  
of radiographic quality.  

MODI CROMO-V  
An outstanding welding electrode for higher  
strength steels with a requirement of tensile  
strength more than 63 kg/mm². Coating is  
low hydrogen type and specially formulated to  
resist moisture pick up under condition of high  
humidity. Due to resistance to moisture  
pick up, hydrogen cracking and starting  
problems are avoided. The welds are of  
radiographic quality giving excellent  
strength and creep resistance up to 550°C.  
Metal recovery is above 110%.  

MOLY CHROME-5  
IS: 1195-82 E 1210-B6 26 Fe  
AWS A5.5: E 8018-B6  
A medium heavy coated, hydrogen  
controlled iron powder electrode  
for welding of high tensile strength  
alloy steels. Slag is easy detachable.  
Metal recovery is over 110%.  

MOLY CHROME-9  
AWS A5.5: E 8018-B8  
A basic coated low hydrogen iron powder  
electrode for welding of high strength  
creep resistant steels, ferritic martensitic  
chromium steels. Weld metal gives 9% Cr-1% Mo  
deploy shows high strength under conditions  
up to 700°C. Operates equally well on  
AC (50) and DC (+). Radiographic quality  
metal recovery is over 110%.  

MODI XL 7016  
IS : 814-2004: EB5424 H1X  
AWS A5.1: E 7018  
A basic coated low hydrogen electrode specially  
designed for welding of medium  
high tensile stainless steels of grade A, B,  
L, E. Radiography quality welds. Excellent  
durability and notch toughness down to -30°C  
are some of the special features of MODI  
XL-16. Hydrogen content is 50/100gms.  

EXCEL 18  
IS : 814-2004: EB5424 H3JX  
AWS A5.1: E 7018  
A low hydrogen iron powder electrode,  
suitable for welding of medium tensile  
strength steels. Weld metal is of  
radiographic quality. Metal recovery is above 110%.  
Medium tensile strength and excellent  
durability combined with very good  
impact values at -30°C temperature makes  
the electrode versatile. Typical hydrogen  
content is 5/100gms of weld deposit.  

DEEP PENETRATION ELECTRODES  

STOV-60 AP  
IS: 814-2004: EC-6140X  
AWS A5.5: E 6010  
All an all position electrode with iron powder  
additive giving improved operator  
applicability and smoother arc characteristics. The  
arc stability is outstanding especially at lower  
and medium currents. Deposits with a  
flat bead and high melting rate. The weld  
metal is highly ductile and of radiographic quality  
with sub-zero impact strength.  

STOV-70 AP  
IS: 1195-82; E49C-G110  
AWS A5.5: E7015F1  
An all position electrode with cellulose  
cracking providing good welder appeal  
and smooth arc characteristic. This electrode  
has been specially designed for high yield  
pipe steels. It has unique usability  
characteristic.  

STOV-70 (SPECIAL)  
IS: 1195-82; E49C-G110  
AWS A5.5: E7017A1  
A high all position high strength cellulose  
cracking coated electrode especially designed for the  
welding of Cross Country Pipelines. It has  
good welder appeal, smooth arc characteristic  
giving radiographic quality welds.  

HARD SURFACING ELECTRODES  

HARD ALLOY-200  
A ruffle type electrode manufactured for  
hard surfacing of carbon steels, low alloy  
steels etc. Very slagless, easy detachable  
and smooth weld bead makes the welds  
acceptable in any welding shop. Performance  
is excellent on AC as well as DC. Adequate  
penetration and corrossion bead ensures  
ideal weld deposit for surfacing applications  
to resist high degree of impact and medium  
abrasion.  

HARD ALLOY-400  
A rule type electrode developed for hard  
surfacing of steels subjected to wear due to  
impact and abrasion. Very stable arc and  
smooth transfer of alloying elements to  
the weld deposit ensures completely  
crack free and sound weld metal. The metal  
also has high hardening type and gives 95 to 450 BHN hardness.  

SUPER HARD ALLOY  
A special electrode with basic type of coating  
designed for surfacing of parts subjected 
to heavy abrasion. Arc is very stable and  
smooth. With high hardeneing ensures  
smooth transfer of alloying elements  
to weld pool ensures uniform weld  
metal. Slag is easily detachable. Performance is equally good  
on AC as well as DC.  

MODI-Mn  
An electrode with basic type of coating,  
suitable for reconditioning of austenitic  
maragesis stainless steels. Adequate  
penetration and smooth transfer of alloying  
elements to weld pool ensures uniform  
metal. Slag is easily removable and leaves  
clean bead.  

MODI-600  
A semi basic coated hard surface coating  
having good welding properties  
even on relatively low OCV transformers.  
The electrode is very easy to use and gives  
smooth and weldable surface. Resistance to  
cracking is good. Weld metal shows  
excellent resistance to tempering up to  
600°C.  

MODI-650  
A basic coated hard surface having good  
welding characteristics even in DC.  
The electrode is highly resistant to cracking  
and exhibits excellent resistance to freezing  
up to 600°C. It is special characterised  
that hardness of 550-650 Brinell is achieved in  
the first layer itself with a completely crack  
free deposit.
### MODI DIEHARD
A special purpose hardfacing electrode with nucleating characteristics which can be used for low alloy steel in the weld metal. The weld metal displays excellent resistance to heat and retains hardness at elevated temperatures. The weld metal has high resistance to cracking.

### CARBO CHROM
It is a special hard surfacing electrode depositing chromium carbide weld metal involving severe abrasion with or without impact, erosion and erosion resistant. This electrode is suitable for both AC and DC welding.

### MODI XL H.A.
A special electrode with basic type of coating, designed for surfacing of parts subjected to heavy abrasion. Art is very stable and smooth transfer of alloying elements to weld deposit ensures complete free and sound weld metal. The weld metal is air hardening type and gives 350 to 450 BHN hardness.

### MODI XL Mn
An electrode with basic type of coating, suitable for hard surfacing of austenitic manganese steel parts. Adequate penetration and smooth transfer of alloying elements to weld pool ensures uniform weld metal. Slag is easily removable and leaves clean bead.

### MODI XL 650
A basic coated hard surfacing electrode having good working characteristics even on AC. The electrode is resistant to cracking and exhibits excellent resistance to tempering even up to 500°C. Its special characteristic is that hardness of 560-650 BHN is achieved in the first layer itself with a completely crack free deposit.

### STAINLESS STEEL ELECTRODES

<table>
<thead>
<tr>
<th>MODI</th>
<th>Application</th>
<th>Chemical Composition (%)</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS304-15</td>
<td>A type stainless steel electrode designed to yield a weld deposit of extra low carbon. Excellent mechanical properties and excellent operational characteristics. The weld metal has high resistance to corrosion and crevice corrosion up to 800°C. Operates equally well on AC and DC(+).</td>
<td>C: 0.04 (max.)&lt;br&gt;Mn: 0.9 (max.)&lt;br&gt;Ni: 9-11&lt;br&gt;Cr: 19-21&lt;br&gt;Mo: 0.75 (max.)&lt;br&gt;Cu: 0.75 (max.)&lt;br&gt;S: 0.03 (max.)&lt;br&gt;P: 0.04 (max.)</td>
<td>Operates equally well on AC and DC(+).</td>
</tr>
</tbody>
</table>

| SS304 | A type stainless steel electrode suitable for welding of AISI 304, 304L and 304H grade stainless steels. The weld metal is highly resistant to corrosion and scaling temperatures up to 800°C. Operates equally well on AC and DC(+). | C: 0.04 (max.)<br>Mn: 0.9 (max.)<br>Ni: 9-11<br>Cr: 19-21<br>Mo: 0.75 (max.)<br>Cu: 0.75 (max.)<br>S: 0.03 (max.)<br>P: 0.04 (max.) | Operates equally well on AC and DC(+). |

| SS309 | A type stainless steel electrode suitable for welding of AISI 309, 309L and 309H grade stainless steels. The weld metal is highly resistant to corrosion and scaling temperatures up to 800°C. Operates equally well on AC and DC(+). | C: 0.04 (max.)<br>Mn: 0.9 (max.)<br>Ni: 9-11<br>Cr: 19-21<br>Mo: 0.75 (max.)<br>Cu: 0.75 (max.)<br>S: 0.03 (max.)<br>P: 0.04 (max.) | Operates equally well on AC and DC(+). |

| SS310 | A type stainless steel electrode suitable for welding of AISI 310 stainless steel. The weld metal has excellent resistance to scaling at high temperature up to 1100°C. Operates equally well on AC and DC(+). | C: 0.04 (max.)<br>Mn: 0.9 (max.)<br>Ni: 9-11<br>Cr: 19-21<br>Mo: 0.75 (max.)<br>Cu: 0.75 (max.)<br>S: 0.03 (max.)<br>P: 0.04 (max.) | Operates equally well on AC and DC(+). |

| SS304-16 | A type stainless steel electrode designed to yield a weld deposit of extra low carbon. Excellent mechanical properties and excellent operational characteristics. The weld metal has high resistance to corrosion and crevice corrosion up to 800°C. Operates equally well on AC and DC(+). | C: 0.04 (max.)<br>Mn: 0.9 (max.)<br>Ni: 9-11<br>Cr: 19-21<br>Mo: 0.75 (max.)<br>Cu: 0.75 (max.)<br>S: 0.03 (max.)<br>P: 0.04 (max.) | Operates equally well on AC and DC(+). |

| SS304-16 | A type stainless steel electrode suitable for welding of AISI 304, 304L and 304H grade stainless steels. The weld metal is highly resistant to corrosion and scaling temperatures up to 800°C. Operates equally well on AC and DC(+). | C: 0.04 (max.)<br>Mn: 0.9 (max.)<br>Ni: 9-11<br>Cr: 19-21<br>Mo: 0.75 (max.)<br>Cu: 0.75 (max.)<br>S: 0.03 (max.)<br>P: 0.04 (max.) | Operates equally well on AC and DC(+). |

| SS304-16 | A type stainless steel electrode suitable for welding of AISI 309, 309L and 309H grade stainless steels. The weld metal is highly resistant to corrosion and scaling temperatures up to 800°C. Operates equally well on AC and DC(+). | C: 0.04 (max.)<br>Mn: 0.9 (max.)<br>Ni: 9-11<br>Cr: 19-21<br>Mo: 0.75 (max.)<br>Cu: 0.75 (max.)<br>S: 0.03 (max.)<br>P: 0.04 (max.) | Operates equally well on AC and DC(+). |

| SS304-16 | A type stainless steel electrode suitable for welding of AISI 310 stainless steel. The weld metal has excellent resistance to scaling at high temperature up to 1100°C. Operates equally well on AC and DC(+). | C: 0.04 (max.)<br>Mn: 0.9 (max.)<br>Ni: 9-11<br>Cr: 19-21<br>Mo: 0.75 (max.)<br>Cu: 0.75 (max.)<br>S: 0.03 (max.)<br>P: 0.04 (max.) | Operates equally well on AC and DC(+). |
Modi SS 316

IS: 5206-83 E 19.12. R 26
AWS A5.4 E-316-L

A stainless steel electrode which yields a weld deposit with extra low carbon and has good resistance to intergranular corrosion. Presence of molybdenum provides creep resistance up to 850°C. Suitable for welding in all conventional positions and operates equally well on AC and DC(+).

Modi SS 316L

IS: 5206-83 E 19.12.1 R 26
AWS A5.4 E-316-L16

A stainless steel electrode which yields a weld deposit with extra low carbon and has good resistance to intergranular corrosion. Presence of molybdenum provides creep resistance up to 850°C. Suitable for welding in all conventional positions and operates equally well on AC and DC(+).

Modi SS 316L (0.5 FN)

IS: 5206-83 E 19.12.1 L D 26
AWS A5.4 E-316-L16

A stainless steel electrode which yields a weld deposit with extra low carbon and has good resistance to intergranular corrosion. Presence of molybdenum provides creep resistance up to 850°C. Suitable for welding in all conventional positions and operates equally well on AC and DC(+).

Modi SS 317L

IS: 5206-83 E 19.12.2 R 26
AWS A5.4 E-317-L16

A stainless steel electrode which yields a weld deposit with extra low carbon and controlled ferrite content of 2% to 8%. Weld deposit has good resistance to intergranular corrosion and sensitization. Suitable for welding in all conventional positions and operates equally well on AC and DC(−).

Modi SS 318

IS: 5206-83 E 19.12.3 Nb-R 26
AWS A5.4 E-318-16

A ruff type stainless steel electrode designed for welding of AISI 316, 316L, and 317L grades and similar composition steels. Columbium in the weld metal provides resistance to intergranular carbide precipitation, thus increasing resistance to intergranular corrosion. Weld metal has excellent creep strength of elevated temperature up to 850°C. Electrodes operate equally good on AG as well as DC(−) in all conventional positions.

Modi SS 347

IS: 5206-83 E 19.9 R R 26
AWS A5.4 E-347-16

A ruff type stainless steel electrode designed for welding of AISI 316, 316L, 317L, and 347 grades and similar composition steels. Columbium plus tantalum in the weld metal reduces the possibility of intergranular corrosion. Chemical and mechanical properties are excellent and consistent. Electrodes operate equally good on AG as well as DC(−) in all conventional positions.
| MODI DUEX-1 | AWS A5.4 E-2209-17
| AWS 5.4 E-2209-17
| A rutile type stainless steel electrode suitable for welding of AISI 304, 308, 309 grade stainless steels. The weld metal is high resistant to corrosion, welding and moderate resistance to hot cracking. Operates equally well on AC and DC (+) in all conventional positions. Excellent chemical and mechanical properties. |
| UTS : 690 N/mm² (min)
| Elong : 20% (min)
| C : 0.04 (max.)
| Mn : 0.5-2.5
| Si : 0.90 (max.)
| Ni : 21.5-23.5
| N : 0-1.5
| Mo : 0-3.5
| Cu : 0-0.5
| P : 0.04 (max.) |

| MODI XL 308 | AWS A5.4 E 19.9 R 26
| A rutile type stainless steel electrode suitable for welding of AISI 304, 308 grade stainless steels. The weld metal is high resistant to corrosion, welding and moderate resistance to hot cracking. Operates equally well on AC and DC (+) in all conventional positions. Excellent chemical and mechanical properties. |
| UTS : 550-640 N/mm²
| Elong : 35-45% (min)
| Impact (CVN) at 27°C : 70 Joules (min)
| C : 0.08 (max.)
| Mn : 0.5-2.5
| Si : 0.9 (max.)
| Ni : 18-21
| Mo : 0-3.5
| Cu : 0.75 (max.)
| S : 0.03 (max.)
| P : 0.04 (max.) |

| MODI XL 309L | AWS A5.4 E 309L-16
| A rutile type stainless steel electrode suitable for welding of AISI 309L grade in cast or wrought form. The weld metal has excellent resistance to corrosion and temperatures up to 1100°C. Operates equally well on AC and DC (+) in all conventional positions. Performance and properties are excellent and consistent. |
| UTS : 550-640 N/mm²
| Elong : 30-40% (min)
| Impact (CVN) at 27°C : 70 Joules (min)
| C : 0.10 (max.)
| Mn : 0-3.5
| Si : 0.9 (max.)
| Cr : 22-25
| Ni : 12-14
| Mo : 0.75 (max.)
| Cu : 0.75 (max.)
| S : 0.03 (max.)
| P : 0.04 (max.) |

| MODI XL 309 | AWS A5.4 E 309-16
| A rutile type stainless steel electrode suitable for welding of AISI 309 grade in cast or wrought form. The weld metal has excellent resistance to corrosion and temperatures up to 1100°C. Operates equally well on AC and DC (+) in all conventional positions. Performance and properties are excellent and consistent. |
| UTS : 550-640 N/mm²
| Elong : 30-40% (min)
| Impact (CVN) at 27°C : 70 Joules (min)
| C : 0.04 (max.)
| Mn : 0-3.5
| Si : 0.9 (max.)
| Cr : 22-25
| Ni : 12-14
| Mo : 0.75 (max.)
| Cu : 0.75 (max.)
| S : 0.03 (max.)
| P : 0.04 (max.) |

| MODI XL 316 | AWS A5.4 E 19.12.2 R 26
| A rutile type stainless steel electrode suitable for welding of AISI 316 grade stainless steels. The weld metal has high resistance to corrosion, prota and scaling temperatures up to 850°C. Excellent and consistent chemical and mechanical properties. High creep strength at elevated temperatures are the salient features. Operates equally well on AC and DC (+) in all conventional positions. |
| UTS : 520-600 N/mm²
| Elong : 30-40% (min)
| Impact (CVN) at 27°C : 70 Joules (min)
| C : 0.08 (max.)
| Mn : 0-3.5
| Si : 0.9 (max.)
| Cr : 17-20
| Ni : 11-14
| Mo : 2-3
| Cu : 0.75 (max.)
| S : 0.03 (max.)
| P : 0.04 (max.) |

| MODI XL 316L | AWS A5.4 E 316L-16
| A new type of stainless steel which yields a weld deposit with extra low carbon and has adequate resistance to intergranular corrosion. Presence of molybdenum provides creep resistance up to 850°C. Suitable for welding in all conventional positions and operates equally well on AC and DC (+). |
| UTS : 490-600 N/mm²
| Elong : 30-40% (min)
| Impact (CVN) at 27°C : 70 Joules (min)
| C : 0.04 (max.)
| Mn : 0-3.5
| Si : 0.9 (max.)
| Cr : 17-20
| Ni : 11-14
| Mo : 2-3
| Cu : 0.75 (max.)
| S : 0.03 (max.)
| P : 0.04 (max.) |

| MODI XL SS Mn | AWS A5.4 E 19.8 R 26
| A stainless steel electrode for variety of applications, in all conventional positions. Core wire is 316L grade stainless steel. Weld metal is austenitic stainless steel, non-magnetic and has good abrasion as well as wear resistance. Resistance to scaling up to a temperature of 850°C is excellent. |
| UTS : 600-650 N/mm²
| Elong : 30-40% (min)
| C : 0.13 (max.)
| Mn : 5-8
| Si : 0.9 (max.)
| Cr : 17-20
| Ni : 7-10
| Mo : 0.5 (max.)
| S : 0.03 (max.)
| P : 0.04 (max.) |

| CAST IRON & NON FERROUS ELECTRODES |
|CASTRON KALT | AWS A5.15 E Ne Ni Cr | A pure nickel core wire electrode designed for welding of cast irons with minimum or no preheat. Weld deposit is very soft but tough and easily machinable. Globular metal transfer and low penetration are special features. |
| Hardness : 200 BHN (max)
| Approvals : BHRI |
|CASTRON FENI | AWS A5.15 E Ne Fe Cr | A nickel-iron alloy wire electrode specially designed for producing high strength joints in malleable cast irons and in nodular cast irons. The weld metal has good ductility and machinability. Slag is very thin and runs to the sides of weld bead. |
| Hardness : 220 BHN (max)
| Approvals : |
|CASTRON GUSM | AWS A5.15 E Ni Cu | An electrode with mild core wire which deposits gray cast iron. Suitable for welding of grey cast irons. Parent metal and weld metal matches absolutely, hence there are no differential stresses and thus no cracking after cooling. Fire heat is a must and varies from 450°C to 700°C depending on the size of the job and machinability desired. |
| Hardness : 250 BHN (max) |
|BRONZE ALLOY | AWS A5.6 E Cu Sn A | A thin coated electrode intended for welding of copper and copper tin alloys. Best suited for joining copper or brass to steels. Can also be used for welding of cast irons without preheat ? machinability is not required. Suitable for riddling also. To obtain best results, use short arc and control interpass temperature. |
| Hardness : On 3 layer deposit 200 BHN (max)
|COSTRON FENI | AWS A5.15 E Ni Fe Cr | A nickel-iron alloy core wire electrode specially designed for producing high strength joints in malleable cast irons and in nodular cast irons. The weld metal has good ductility and machinability. Slag is very thin and runs to the sides of weld bead. |
| Hardness : 200 BHN (max)
| Approvals : |
|COSTRON NICO | AWS A5.15 E Ni Cu B | A nickel-copper alloy wire specially designed for welding of cast iron parts. In view of the balanced flux formula this electrode is more suitable for all impregnated cast-iron jobs. Multipass welding can be done. The weld metal is free from cracks and has best colour match with parent metal. |
| Hardness : On 3 Layer Deposit 200 BHN (max)
| Approvals : |

| MODI XL 315L | AWS A5.4 E 19.12.2 R 26
| A new type of stainless steel which yields a weld deposit with extra low carbon and has adequate resistance to intergranular corrosion. Presence of molybdenum provides creep resistance up to 850°C. Suitable for welding in all conventional positions and operates equally well on AC and DC (+). |
| UTS : 520-600 N/mm²
| Elong : 30-40% (min)
| Impact (CVN) at 27°C : 70 Joules (min)
| C : 0.08 (max.)
| Mn : 0-3.5
| Si : 0.9 (max.)
| Cr : 17-20
| Ni : 11-14
| Mo : 2-3
| Cu : 0.75 (max.)
| S : 0.03 (max.)
| P : 0.04 (max.) |

| MODI XL 316L | AWS A5.4 E 316L-16
| A new type of stainless steel which yields a weld deposit with extra low carbon and has adequate resistance to intergranular corrosion. Presence of molybdenum provides creep resistance up to 850°C. Suitable for welding in all conventional positions and operates equally well on AC and DC (+). |
| UTS : 490-600 N/mm²
| Elong : 30-40% (min)
| Impact (CVN) at 27°C : 70 Joules (min)
| C : 0.04 (max.)
| Mn : 0-3.5
| Si : 0.9 (max.)
| Cr : 17-20
| Ni : 11-14
| Mo : 2-3
| Cu : 0.75 (max.)
| S : 0.03 (max.)
| P : 0.04 (max.) |
**MODI FC 316L**
AWSA 5.20: E316L-1-1/4
MODI FC 316L is designed for MAG welding of low carbon 18% Cr - 12% Ni stainless steels. This wire has low carbon content which gives good resistance to most types of corrosion of the weld metal (ASTI 316L, 316Ti, 316 Ca).

<table>
<thead>
<tr>
<th>YTS</th>
<th>650 N/mm² (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UTS</td>
<td>800 N/mm² (min)</td>
</tr>
<tr>
<td>Eleng</td>
<td>30% min</td>
</tr>
</tbody>
</table>

**MODI MAG 1**
AWSA 5.18: ER 70S-6
Double dezilled copper coated Mn-Si wire suitable for Gas Metal Arc Welding in all position for mild and fine grained steels. Produces weld with excellent radiographic quality. Thin and uniform coat ensures good electrical contact reduces friction during high speed feeding and obviates corrosion possibilities.

| YS | 500 N/mm² (min) |
| UTS | 600 N/mm² (min) |
| Eleng | 25% (min) |

**MODI FC 316L**
AWSA 5.20: E316L-1-1/4
MODI FC 316L is designed for MAG welding of low carbon 18% Cr - 12% Ni stainless steels. This wire has low carbon content which gives good resistance to most types of corrosion of the weld metal (ASTI 316L, 316Ti, 316 Ca).

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| YS | 500 N/mm² (min) |
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AWSA 5.20: E316L-1-1/4
MODI FC 316L is designed for MAG welding of low carbon 18% Cr - 12% Ni stainless steels. This wire has low carbon content which gives good resistance to most types of corrosion of the weld metal (ASTI 316L, 316Ti, 316 Ca).

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</tr>
<tr>
<td>Eleng</td>
<td>30% min</td>
</tr>
</tbody>
</table>
## SOLID STAINLESS STEEL WIRES FOR TIG WELDING

### CHEMICAL COMPOSITION

<table>
<thead>
<tr>
<th>Brand</th>
<th>AWS</th>
<th>Carbon</th>
<th>Manganese</th>
<th>Silicon</th>
<th>Chromium</th>
<th>Nickel</th>
<th>Molybdenum</th>
<th>Sulphur</th>
<th>Phosphorous</th>
<th>Copper</th>
<th>U.T.S.(min.)</th>
<th>%EL(min.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODI TIG 308</td>
<td>ER 308</td>
<td>0.08 max</td>
<td>1.0-2.5</td>
<td>0.30-0.65</td>
<td>19.5-22.0</td>
<td>9.0-11.0</td>
<td>0.75max</td>
<td>0.03max</td>
<td>0.03max</td>
<td>0.75max</td>
<td>550</td>
<td>35</td>
</tr>
<tr>
<td>MODI TIG 308L</td>
<td>ER 308L</td>
<td>0.03 max</td>
<td>1.0-2.5</td>
<td>0.30-0.65</td>
<td>19.5-22.0</td>
<td>9.0-11.0</td>
<td>0.75max</td>
<td>0.03max</td>
<td>0.03max</td>
<td>0.75max</td>
<td>520</td>
<td>35</td>
</tr>
<tr>
<td>MODI TIG 309</td>
<td>ER 309</td>
<td>0.12 max</td>
<td>1.0-2.5</td>
<td>0.30-0.65</td>
<td>23.0-25.0</td>
<td>12.0-14.0</td>
<td>0.75max</td>
<td>0.03max</td>
<td>0.03max</td>
<td>0.75max</td>
<td>550</td>
<td>30</td>
</tr>
<tr>
<td>MODI TIG 309L</td>
<td>ER 309L</td>
<td>0.03 max</td>
<td>1.0-2.5</td>
<td>0.30-0.65</td>
<td>23.0-25.0</td>
<td>12.0-14.0</td>
<td>0.75max</td>
<td>0.03max</td>
<td>0.03max</td>
<td>0.75max</td>
<td>520</td>
<td>30</td>
</tr>
<tr>
<td>MODI TIG 310</td>
<td>ER 310</td>
<td>0.08-0.15</td>
<td>1.0-2.5</td>
<td>0.30-0.65</td>
<td>25.0-28.0</td>
<td>20.0-22.5</td>
<td>0.75max</td>
<td>0.03max</td>
<td>0.03max</td>
<td>0.75max</td>
<td>550</td>
<td>30</td>
</tr>
<tr>
<td>MODI TIG 316</td>
<td>ER 316</td>
<td>0.08 max</td>
<td>1.0-2.5</td>
<td>0.30-0.65</td>
<td>18.0-20.0</td>
<td>11.0-14.0</td>
<td>2.0-3.0</td>
<td>0.03max</td>
<td>0.03max</td>
<td>0.75max</td>
<td>520</td>
<td>30</td>
</tr>
<tr>
<td>MODI TIG 316L</td>
<td>ER 316L</td>
<td>0.03 max</td>
<td>1.0-2.5</td>
<td>0.30-0.65</td>
<td>18.0-20.0</td>
<td>11.0-14.0</td>
<td>2.0-3.0</td>
<td>0.03max</td>
<td>0.03max</td>
<td>0.75max</td>
<td>490</td>
<td>30</td>
</tr>
</tbody>
</table>

*Also contains Columbium between 10xC to min. to 1.0 max*

### PACKING SPECIFICATION

- Diameter (mm) | 1.6 | 2.0 | 2.5 | 3.15
- Length (mm) | 1000 | 1000 | 1000 | 1000
- Weight per Carton | 5.25 Kg | 5.25 Kg | 5.25 Kg | 5.25 Kg
- Weight per Box | 21 Kg | 21 Kg | 21 Kg | 21 Kg

## SOLID STAINLESS STEEL WIRES FOR MIG WELDING

### CHEMICAL COMPOSITION

<table>
<thead>
<tr>
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<th>Phosphorous</th>
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<td>0.08 max</td>
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<td>0.30-0.65</td>
<td>19.5-22.0</td>
<td>9.0-11.0</td>
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<td>0.75max</td>
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<td>0.30-0.65</td>
<td>19.5-22.0</td>
<td>9.0-11.0</td>
<td>0.75max</td>
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<td>35</td>
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<tr>
<td>MODI MIG 309</td>
<td>ER 309</td>
<td>0.12 max</td>
<td>1.0-2.5</td>
<td>0.30-0.65</td>
<td>23.0-25.0</td>
<td>12.0-14.0</td>
<td>0.75max</td>
<td>0.03max</td>
<td>0.03max</td>
<td>0.75max</td>
<td>550</td>
<td>30</td>
</tr>
<tr>
<td>MODI MIG 309L</td>
<td>ER 309L</td>
<td>0.03 max</td>
<td>1.0-2.5</td>
<td>0.30-0.65</td>
<td>23.0-25.0</td>
<td>12.0-14.0</td>
<td>0.75max</td>
<td>0.03max</td>
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<td>520</td>
<td>30</td>
</tr>
<tr>
<td>MODI MIG 310</td>
<td>ER 310</td>
<td>0.08-0.15</td>
<td>1.0-2.5</td>
<td>0.30-0.65</td>
<td>25.0-28.0</td>
<td>20.0-22.5</td>
<td>0.75max</td>
<td>0.03max</td>
<td>0.03max</td>
<td>0.75max</td>
<td>550</td>
<td>30</td>
</tr>
<tr>
<td>MODI MIG 316</td>
<td>ER 316</td>
<td>0.08 max</td>
<td>1.0-2.5</td>
<td>0.30-0.65</td>
<td>18.0-20.0</td>
<td>11.0-14.0</td>
<td>2.0-3.0</td>
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<td>MODI MIG 316L</td>
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<td>0.03max</td>
<td>0.75max</td>
<td>490</td>
<td>30</td>
</tr>
</tbody>
</table>

*Also contains Columbium between 10xC to min. to 1.0 max*

### PACKING SPECIFICATION

- Diameter (mm) | 0.8 | 1.2 | 1.6
- Weight per Spool | 15 Kg | 15 Kg | 15 Kg