

حديد الإمارات أركان  
emirates steel arkan

# WIRE ROD

## PRODUCT CATALOGUE

[www.emiratessteelarkan.com](http://www.emiratessteelarkan.com)





# CONTENTS

<b>4</b>	<b>About Us</b>
<b>4</b>	<b>Corporate Philosophy</b>
<b>5</b>	<b>CEO Message</b>
<b>6</b>	<b>Sustainability and Decarbonization</b>
<b>8</b>	<b>How We Make Our Steel</b>
<b>10</b>	<b>Why Choose Emirates Steel</b>
<b>12</b>	<b>Quality Management</b>
<b>13</b>	<b>Product Technical Specifications</b>
<b>14</b>	<b>Product Categories, Specifications and Applications</b>
	<ul style="list-style-type: none"><li>• Drawing and Cold Rolling</li><li>• Cold Heading Quality</li><li>• Welding Quality Applications</li><li>• Cable Armor Quality Applications</li></ul>
<b>26</b>	<b>Product Certifications</b>



## ABOUT US

Emirates Steel Arkan Group is a public joint stock company (ADX: EMSTEEL) and the UAE's largest steel and building materials manufacturer. The Group leverages cutting-edge rolling mill technologies to supply the domestic and international markets with high quality finished products including wire rods, reinforcing bars, heavy sections and sheet piles. Additionally, the Group produces premium cement, blocks, pipes, and dry mortar, offering a complete solution for the manufacturing and construction sectors.

## CORPORATE PHILOSOPHY

### VISION

To be a world class steel manufacturer providing the highest quality products, services and solutions to our customers and maximizing returns to our shareholders.

### MISSION

- To provide the construction, manufacturing and industrial sectors with their requirements of high-quality steel products.
- Maintain safe and environmentally friendly work practices across our operations.
- Create employment opportunities and inspire our workforce to excel.
- Contribute to the industrialization and diversification of the UAE economy in line with the national Industrial Strategy 'Operation 300bn'.

### CORE VALUES

- Honesty, Integrity, Creativity, Innovation and Quality.
- Pursuit of continuous improvement across all aspects of our business.



## CEO MESSAGE

Welcome to Emirates Steel, an Emirates Steel Arkan company, where our commitment to sustainability and cutting-edge technologies is setting new standards in the steel industry. As CEO, I take pride in leading a division that comprises 70% of our group's total product portfolio, serving as the sole integrated steel plant in the UAE. Our global reach spans over 70 countries across Europe, the Americas, Asia, the Middle East, and Africa, reflecting our dedication to meeting diverse client needs worldwide.

At Emirates Steel, we customize solutions for our wire rod customers, emphasizing continuous improvement and product excellence across sectors like welding, construction, oil and gas, consumer goods, textiles, paper, electricity, automotive, and agriculture, while upholding high quality and environmental sustainability.

Our approach involves forging close partnerships with customers, demonstrated through the dedication of our sales, product development, R&D, supply chain, operations, and quality teams. By intimately understanding our customers' needs, we develop products, services, and IT tools aimed at fostering strong and meaningful partnerships.

Sustainability is central to our operations, with our ambitious commitment to achieving net zero carbon by 2050 showcasing our dedication to environmental stewardship. We offer a range of solutions related to green steel certification, demonstrating our commitment to not only meeting but exceeding evolving environmental standards within our industry.

Our relentless investment in innovation, digitalization, and R&D aims at providing cutting-edge solutions and pioneering the smarter products of tomorrow. Through these efforts, we continue to align with our vision of being a world-class company, setting the benchmark for excellence in the steel industry.

Eng. Saeed Al Ghafri

CEO of Emirates Steel, an Emirates Steel Arkan Company



## PAWING THE WAY IN SUSTAINABILITY



**84%**  
Clean Energy



**45%**  
Increase in renewable energy use



**-15%**  
y/y waste reduction in 2023



**-11%**  
Total emission reduction



**5,390**  
Trees planted

## GREEN HYDROGEN

First-of-a-kind green hydrogen electrolysis demonstration plant in the MENA region to produce green steel

- Springboard for UAE to accelerate decarbonization of hard-to-abate steel sector
- Will catalyze future uptake of large-volumes of green hydrogen from domestic green hydrogen for the UAE steel industry in line with the UAE Hydrogen Strategy
- Equivalent to up to 168,000 trees planted



Scan to download our Sustainability Report

## OUR DECARBONIZATION JOURNEY



## CARBON CAPTURE, UTILIZATION AND STORAGE



Emirates Steel in partnership with ADNOC & Masdar has developed world's first **CCUS for steel production**. With capacity of up to 800kt of CO<sub>2</sub>/year and pipe it 43 km to ADNOC's Rumaitha and Bab oil fields. System is working since 2016.

## PRODUCT AND PROCESS CERTIFICATIONS

ES has devised its own green steel standard (GHG Protocol based), enabling the production of green steel products. This entire process is verified by a third party (DNV) in accordance with ISO 14064

ISO 14001	Green Building Certified	Health product declaration (HPD)
ISO 45001	Environmental Product Declaration	Recycle Content (RC)
Green Steel Certificate	LEED Certified	Estidama

## SUSTAINABILITY INITIATIVES

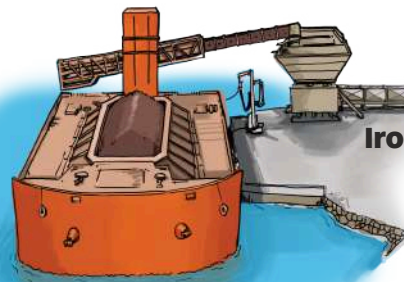
Emirates Steel is a key member of several national and international organizations, sharing the sector's best practice and promoting the concept of sustainable business:

Worldsteel Sustainability Charter	Sustainability Digitalization platform	A Member of Emirates Green Building Council
Metal Recovery & Slag Process	Dust Bunkers	Green Belt
		AI & Blockchain Digital CO <sub>2</sub> emissions



## 1. MATERIAL HANDLING

### JETTY AREA



Iron Oxide Pellets

### STOCK YARD



6.2 million tons per annum

## 2. DIRECT REDUCTION



4.2 million tons per annum

3x DR plants

### CARBON CAPTURE (CCUS)



### H<sub>2</sub> ELECTROLYZER



Natural gas-based direct reduction process equipped with the CCUS System (Carbon Capture) and H<sub>2</sub> electrolyzer to produce low carbon footprint compared to other iron melting processes.

## 3. STEEL MAKING

### BILLETS

Wire Rod, Rebar, Rebar in Coil



### BLOOMS

Heavy Sections



### BEAM BLANKS

Heavy Sections, Sheet Piles



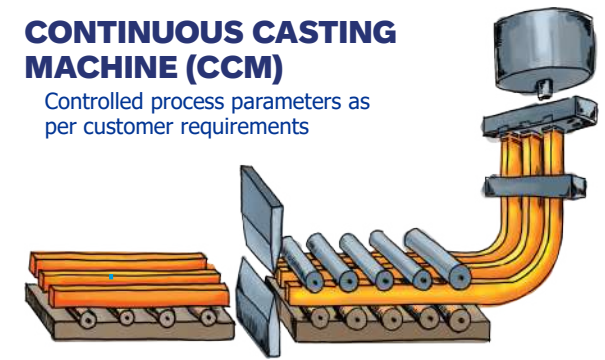
### SLABS

Sheet Piles



### CONTINUOUS CASTING MACHINE (CCM)

Controlled process parameters as per customer requirements



### ELECTRIC ARC FURNACE (EAF)

3x STEEL MAKING PLANTS

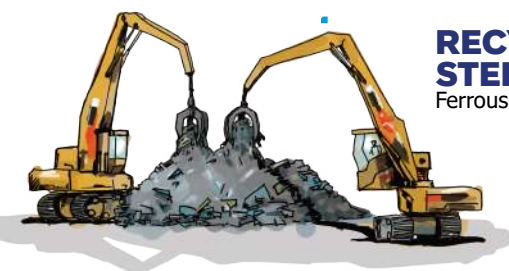
3.7 million tons per annum

### LADLE

Precise control over steel chemistry in line with Customer requirements

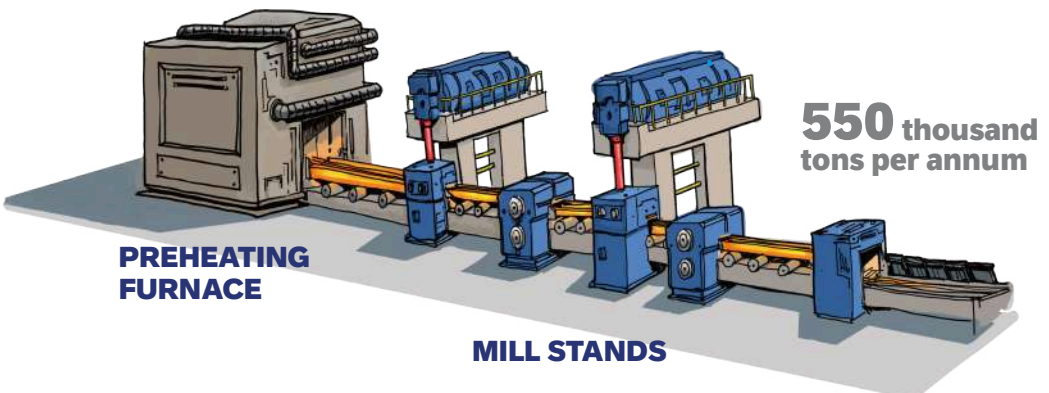


### DRI (Direct Reduced Iron)



### RECYCLED STEEL Ferrous Scrap

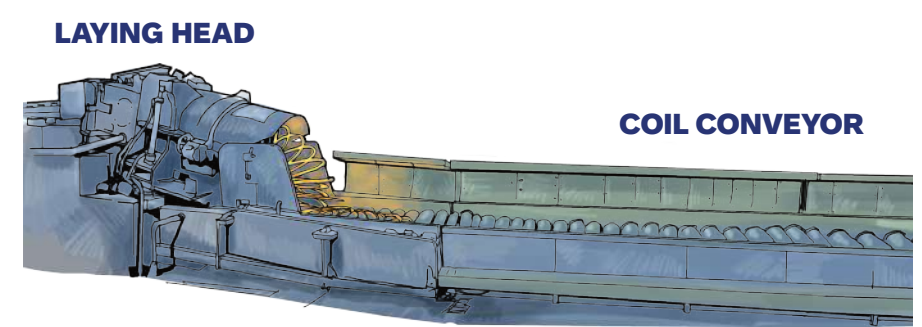
## 4. WIRE ROD ROLLING MILL



### PREHEATING FURNACE

### MILL STANDS

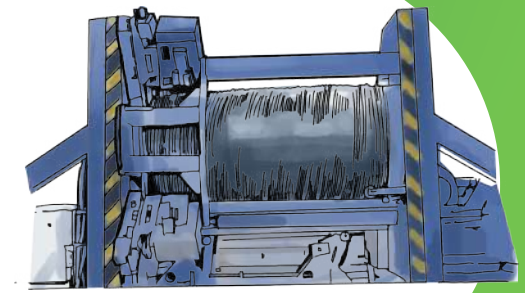
550 thousand tons per annum



### LAYING HEAD

### COIL CONVEYOR

### COIL FORMING



### COIL COMPACTING

### WIRE ROD ROLLING MILL FEATURES

**Annual capacity:** 0.55 Mtpa  
**Rolling Mill stands** with horizontal and vertical blocks (45 degree K type)  
**Cooling Equipment:** Stelmor conveyor with cover (hood) and blowers for special grades

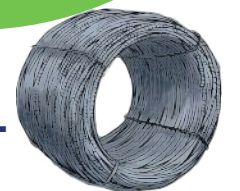
**State of the art measuring equipment:** LAP gauge for product dimensions and ovality to ensure within standard values (LAP gauge)  
**Product Range:**  
 Plain Wire rod (dia): 5.5-16mm  
 Rebar in coil (dia): 8-16mm

## FINISHED PRODUCTS

### WIRE ROD



### REBAR IN COIL





## WHY CHOOSE EMIRATES STEEL AS YOUR PREFERRED SUPPLIER OF WIRE ROD SOLUTIONS

Emirates Steel's wire rod products range is distinguished by its exceptional quality and performance, owing to our uncompromising focus on raw material quality, precision operational control and dedication to continuous innovation and improvement.



### PROCESS EXCELLENCE

- Highest material quality, achieved through the **Direct Reduced Iron (DRI)** process, also known as "Blue Steel" products.
- The adoption of the latest mill process technology guarantees **superior thermo-mechanical and metallurgical properties**.
- Unparalleled **dimensional accuracy**, ensuring our products meet the highest industry standards.
- **Latest online product measurement systems and Enhanced Temperature Control Systems**, ensuring consistency in mechanical properties.
- Our **coil reforming technology** guarantees that coils are handled with the utmost care, ensuring they reach our customers in perfect condition, demonstrating excellent coil stability and damage prevention.
- Our production facility's high automation level, along with continuous quality checks at every stage, enables us to consistently produce wire rods of the highest quality.
- The high surface quality of our products is achieved through a **closed-stream casting process** with aluminum killed, alongside stringent control of continuous casting process parameters. This ensures **exceptional cleanliness of our wire rod products** with very low levels of harmful elements such as Phosphorus (P), Sulphur (S), and tramp elements.



### GUARANTEED QUALITY

- Our wire rod products are recognized for their high quality and dimensional precision, thanks to **robust quality assurance systems** equipped with state-of-the-art equipment and a team of highly skilled professionals dedicated to producing the best possible products by controlling the entire process at every critical point.
- Silicon-controlled steel is specifically produced to serve the needs of the **galvanizing downstream industries**, ensuring compatibility & performance.
- The **homogeneous grain structure** of our products leads to consistent mechanical properties, setting a standard for reliability and performance in applications.



### CUSTOMER FOCUS

- At Emirates Steel, our **commitment towards customer satisfaction** is unwavering, encompassing product quality, timely delivery, and comprehensive technical services.
- We believe that **regular feedback from our extensive network of customers** is invaluable, providing us with the insights needed for the continuous improvement of our products and services.
- Our flexibility in catering to a **variety of international standards** (including ASTM, BS, EN, JIS, BIS, and others) allows us to meet the diverse needs of our global customers, ensuring that our products align with the specific requirements of different markets.





## QUALITY MANAGEMENT

The quality management department of Emirates Steel is focused and dedicated to achieving the rigorous zero defects and zero failures standard and provide our customers with highest premium quality Wire Rod products. We have several dedicated labs for each process sector.

### Direct Reduction Plant Laboratory

The laboratory is equipped with highest technology equipment and instrument to provide our customers with highest quality DRI to ensure the final product material quality and properties.

### Steel Making Laboratory

Equipped with Spectro Laboratory and Optical Emission to ensure minimal fluctuations of chemical elements within required standards range and can be adapted as per customer special requirements. Also slag analyzers to ensure the highest steel quality.

### Rolling Mill Laboratory

Product Mechanical tests of Wire Rod and Re-bar in Coil are performed in Inspection and Testing Laboratories. Suitability of standard and customer requirements is given by well qualified Inspection and Testing team member. The lab will ensure better control of product dimensional tolerances. Also, work in tandem with customers requirement, to continuously fine tune our products.

### Metallurgical Laboratory

An integral part of the steelmaking and rolling complex, the metallurgical laboratory, i.e. Central Lab is fully equipped to test variations in steel structure from center to surface, distribution and size of non-metallic inclusions and the nature and depth of surface imperfections. Microstructure of different samples is observed to ensure decarburization level

## PRODUCT TECHNICAL SPECIFICATION

### Process Route followed:

- Up to 100% DRI
- Up to 40% recycled scrap but for general quality products

### Coil Dimensions:

- Size range: 5.5-16mm
- Outside coil diameter: 1200 - 1250 mm
- Inside coil diameter: 850 mm
- Coil length: 1600 - 1750 mm
- Coil weight: 2050 Kgs

### Physical Conditions and Metallurgical Properties of Wire rod coils

- Coil free from harmful surface defect. Max depth of surface defects is 1.0% max of wire rod diameter.
- Micro structure: Predominantly fine-grained Ferrite.
- Micro Inclusions: Max level 2.0 (both thin and thick series) as per ASTM E45.
- Grain size 9-12 as per ASTM E 112

### Dimensional tolerances:

Size range (Diameter in mm)	Tolerance on Diameter (mm)	Ovality (out of roundness) tolerance (mm) max
5.5-7.0	+/- 0.25	0.4
>7.00	+/- 0.30	0.5

### Strapping, packaging and delivery

Each coil has 4 straps tied with 7 mm diameter wire.

### Labeling

Two rip proof plastic labels are attached to each coil with the following details and shall be marked with name of manufacturer, heat number, size, grade, and coil weight.

### Test Certificate

Inspection certificate provided with detailed chemical composition and mechanical properties.





## DRAWING AND COLD ROLLING

Our wire rod products are engineered to cater to a broad spectrum of drawing and cold rolling applications. Our offerings are meticulously designed to meet the diverse needs of industries such as construction and infrastructure, agriculture, textiles, paper production, and consumer goods, reflecting our commitment to versatility and quality.

### Diverse Applications Across the Broad Carbon Range

**Low Carbon Grades:** Our low carbon steel products are ideal for a variety of applications, including barbed wire, nails, refrigerator condensers and shelves, coated wires for fences, steel wool, galvanized drawn wire, and components such as cooker's pot holders. This versatility underscores our products' adaptability to different manufacturing needs.

**Medium and High Carbon Grades:** For applications requiring medium to high carbon content, our products excel in applications such as the manufacturing of nails, bolts, springs for mattresses, sling wire rope, electric cable reinforcements, and more. The robustness and durability of our wire rods make them suitable for products that demand high tensile strength and resilience.

### Key Advantages of Our Drawing and Cold Rolling Wire Rod Products

#### Mechanical / metallurgical properties:

- **High Tensile Strength:** Our steel wire rods are characterized by their exceptional tensile strength, ensuring that they are durable and reliable for a wide range of applications.
- **Excellent Ductility:** Demonstrating remarkable ductility, our steel wire rods can withstand

extensive cold working processes without losing their structural integrity, ensuring flexibility in manufacturing.

- **Cold Formability:** Our products are designed to facilitate downstream processes, improving the properties of the final products through exceptional cold formability.
- **Consistency in Metallurgical Properties:** Through precise control over our chemistry, particularly with elements like Silicon (Si), Vanadium (V), Chromium (Cr), and Manganese (Mn), we provide wire rods with specialized mechanical properties conducive to galvanizing applications and other processes.

#### Dimensions and Tolerances:

- **Consistent Dimension:** Precision in manufacturing processes allows our steel wire rods to maintain a consistent diameter, making them ideal for subsequent drawing and cold rolling operations.
- **Tight Dimensional Tolerances:** Manufactured with strict adherence to tight dimensional tolerances, our wire rods guarantee uniformity and consistency, meeting the exacting requirements of diverse applications.

#### Material Quality:

- **Superior Surface Finish:** The smooth and uniform surface finish of our steel wire rods minimizes friction in drawing processes, thereby enhancing the quality of the final product.

**Size range (Dia):** 5.5 -16.0 mm

## PRODUCT RANGE: DRAWING AND COLD ROLLING

Standard	Grade	CHEMICAL COMPOSITION, %										MECHANICAL PROPERTIES								
		C		Si		Mn		P		S		N		Tensile Strength, N/mm <sup>2</sup>		Elongation, %		Reduction Area, %		
		min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	
ISO 16120-2:2011 BS EN 16120-2:2011 MS - ISO 16120-2 :2008	C4D		0.06	0.06	0.12	0.30	0.45		0.030		0.030									
	C7D	0.05	0.09	0.06	0.13	0.30	0.45		0.030		0.030									
	C9D		0.10	0.06	0.14	0.30	0.45		0.030		0.030									
	C10D	0.08	0.13	0.06	0.15	0.30	0.45		0.030		0.030									
	C12D	0.10	0.15	0.06	0.15	0.30	0.45		0.030		0.030									
	C15D	0.12	0.17	0.10	0.20	0.30	0.45		0.030		0.030									
	C18D	0.15	0.20	0.10	0.20	0.30	0.45		0.030		0.030									
	C20D	0.18	0.23	0.15	0.25	0.30	0.45		0.030		0.030									
	C26D	0.24	0.29	0.15	0.25	0.55	0.65		0.030		0.030									
	C32D	0.30	0.35	0.15	0.25	0.55	0.65		0.025		0.025									
	C38D	0.35	0.40	0.15	0.25	0.55	0.65		0.025		0.025									
	C42D	0.40	0.45	0.15	0.25	0.55	0.65		0.025		0.025									
	C48D	0.45	0.50	0.15	0.25	0.55	0.65		0.025		0.025									
	C50D	0.48	0.53	0.15	0.25	0.55	0.65		0.025		0.025									
	C52D	0.50	0.53	0.15	0.25	0.55	0.65		0.025		0.025									
	C56D	0.53	0.58	0.15	0.25	0.55	0.65		0.025		0.025									
	C58D	0.55	0.60	0.15	0.25	0.55	0.65		0.025		0.025									
	C60D	0.58	0.63	0.15	0.25	0.55	0.65		0.025		0.025									
	C62D	0.60	0.65	0.15	0.25	0.55	0.65		0.025		0.025									
	C66D	0.63	0.68	0.15	0.25	0.55	0.65		0.025		0.025									
C68D	0.65	0.70	0.15	0.25	0.55	0.65		0.025		0.025										
C70D	0.68	0.73	0.15	0.25	0.55	0.65		0.025		0.025										
C72D	0.70	0.75	0.15	0.25	0.55	0.65		0.025		0.025										
C76D	0.73	0.78	0.15	0.25	0.55	0.65		0.025		0.025										
C78D	0.75	0.80	0.15	0.25	0.55	0.65		0.025		0.025										
C80D	0.78	0.83	0.15	0.25	0.55	0.65		0.025		0.025										
ISO 16120-3:2017 BS EN 16120-3:2017 MS-ISO 16120-3:2008	C3D1		0.05		0.05	0.20	0.40		0.025		0.025									
	C4D1		0.06		0.10	0.20	0.45		0.025		0.025									
ISO 16120-4:2017 BS EN 16120-4:2017 MS - ISO 16120-4:2008	C3D2		0.05		0.30	0.30	0.50		0.020		0.025									
	C5D2		0.07		0.30	0.30	0.50		0.020		0.025		0.007							
	C8D2	0.08	0.12		0.30	0.30	0.50		0.020		0.025		0.007							
	C10D2	0.10	0.14		0.30	0.30	0.50		0.020		0.025		0.007							
	C12D2	0.06	0.10		0.30	0.30	0.50		0.020		0.025		0.007							
	C15D2	0.08	0.12		0.30	0.30	0.50		0.020		0.025		0.007							
	C18D2	0.10	0.14		0.30	0.30	0.50		0.020		0.025		0.007							
	C20D2	0.13	0.17		0.30	0.30	0.50		0.020		0.025		0.007							
	C26D2	0.16	0.20	0.10	0.30	0.30	0.50		0.020		0.025		0.007							
	C32D2	0.18	0.29	0.10	0.30	0.30	0.50		0.020		0.025		0.007							
	C36D2	0.24	0.34	0.10	0.30	0.30	0.50		0.020		0.025		0.007							
	C38D2	0.30	0.38	0.10	0.30	0.30	0.50		0.020		0.025		0.007							
	C40D2	0.34	0.38	0.10	0.30	0.30	0.50		0.020		0.025		0.007							
	C42D2	0.36	0.40	0.10	0.30	0.30	0.50		0.020		0.025		0.007							
	C46D2	0.44	0.48	0.10	0.30	0.50	0.70		0.020		0.025		0.007							
	C48D2	0.46	0.50	0.10	0.30	0.50	0.70		0.020		0.025		0.007							
	C50D2	0.48	0.52	0.10	0.30	0.50	0.70		0.020		0.025		0.007							
	C52D2	0.50	0.54	0.10	0.30	0.50	0.70		0.020		0.025		0.007							
	C56D2	0.54	0.58	0.10	0.30	0.50	0.70		0.020		0.025		0.007							
	C58D2	0.56	0.60	0.10	0.30	0.50	0.70		0.020		0.025		0.007							
C60D2	0.58	0.62	0.10	0.30	0.50	0.70		0.020		0.025		0.007								
C62D2	0.60	0.64	0.10	0.30	0.50	0.70		0.020		0.025		0.007								
C72D2	0.70	0.74	0.10	0.30	0.50	0.70		0.020		0.025		0.007								
C76D2	0.74	0.78	0.10	0.30	0.50	0.70		0.020		0.025		0.007								
C78D2	0.76	0.80	0.10	0.30	0.50	0.70		0.020		0.025		0.007								
C80D2	0.78	0.82	0.10	0.30	0.50	0.70		0.020		0.025		0.007								

- Chemical composition and mechanical properties can be adjusted as per customer requirements

- Other elements can be added to achieve required mechanical and metallurgical properties



**PRODUCT RANGE: DRAWING AND COLD ROLLING**

**PRODUCT RANGE: DRAWING AND COLD ROLLING**

		CHEMICAL COMPOSITION, %										MECHANICAL PROPERTIES								
Standard	Grade	C		Si		Mn		P		S		N		Tensile Strength, N/mm2		Elongation, %		Reduction Area, %		
		min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	
ASTM A510M-13:2013	AISI/SAE 1005		0.06	0.05	0.10		0.35		0.030		0.030									
	AISI/SAE 1006		0.08	0.06	0.12		0.35		0.030		0.030									
	AISI/SAE 1008	0.06	0.08	0.06	0.12	0.30	0.50		0.030		0.030									
	AISI/SAE 1010	0.08	0.13	0.10	0.20	0.30	0.60		0.030		0.030									
	AISI/SAE 1011	0.08	0.13	0.10	0.20	0.60	0.90		0.030		0.030									
	AISI/SAE 1012	0.10	0.15	0.10	0.20	0.30	0.60		0.030		0.030									
	AISI/SAE 1013	0.11	0.16	0.06	0.12	0.50	0.80		0.030		0.030									
	AISI/SAE 1015	0.13	0.18	0.06	0.12	0.30	0.50		0.030		0.030									
	AISI/SAE 1016	0.13	0.18	0.10	0.20	0.60	0.90		0.030		0.030									
	AISI/SAE 1017	0.15	0.20	0.10	0.30	0.30	0.60		0.030		0.030									
	AISI/SAE 1018	0.15	0.20	0.10	0.30	0.60	0.90		0.030		0.030									
	AISI/SAE 1019	0.15	0.20	0.10	0.30	0.70	1.00		0.030		0.030									
	AISI/SAE 1020	0.18	0.23	0.10	0.30	0.30	0.60		0.030		0.030									
	AISI/SAE 1021	0.18	0.23	0.10	0.30	0.60	0.90		0.030		0.030									
	AISI/SAE 1022	0.18	0.23	0.10	0.30	0.70	1.00		0.030		0.030									
	AISI/SAE 1023	0.20	0.25	0.10	0.30	0.30	0.60		0.030		0.030									
	AISI/SAE 1025	0.22	0.28	0.10	0.30	0.30	0.60		0.030		0.030									
	AISI/SAE 1026	0.22	0.28	0.10	0.30	0.60	0.90		0.030		0.030									
	AISI/SAE 1029	0.25	0.31	0.10	0.30	0.60	0.90		0.030		0.030									
	AISI/SAE 1030	0.28	0.34	0.10	0.30	0.60	0.90		0.030		0.030									
	AISI/SAE 1034	0.32	0.38	0.10	0.30	0.50	0.80		0.030		0.030									
	AISI/SAE 1035	0.32	0.38	0.10	0.30	0.60	0.90		0.030		0.030									
	AISI/SAE 1037	0.32	0.38	0.10	0.30	0.70	1.00		0.030		0.030									
	AISI/SAE 1038	0.35	0.42	0.10	0.30	0.60	0.90		0.030		0.025									
	AISI/SAE 1039	0.37	0.44	0.10	0.30	0.70	1.00		0.030		0.025									
	AISI/SAE 1040	0.40	0.43	0.15	0.30	0.70	0.80		0.025		0.025									
	AISI/SAE 1042	0.40	0.47	0.15	0.30	0.60	0.90		0.025		0.025									
	AISI/SAE 1043	0.40	0.47	0.15	0.30	0.70	1.00		0.025		0.025									
	AISI/SAE 1044	0.43	0.50	0.15	0.30	0.30	0.60		0.025		0.025									
	AISI/SAE 1045	0.45	0.50	0.15	0.30	0.60	0.90		0.025		0.025									
	AISI/SAE 1046	0.43	0.50	0.15	0.30	0.70	1.00		0.025		0.025									
	AISI/SAE 1049	0.46	0.53	0.15	0.30	0.60	0.90		0.025		0.025									
	AISI/SAE 1050	0.48	0.55	0.15	0.30	0.60	0.90		0.025		0.025									
	AISI/SAE 1053	0.48	0.55	0.15	0.30	0.70	1.00		0.025		0.025									
	AISI/SAE 1055	0.50	0.60	0.15	0.30	0.60	0.90		0.025		0.025									
	AISI/SAE 1059	0.55	0.65	0.15	0.30	0.50	0.80		0.025		0.025									
	AISI/SAE 1060	0.55	0.65	0.15	0.30	0.60	0.90		0.025		0.025									
	AISI/SAE 1064	0.60	0.70	0.15	0.30	0.50	0.80		0.025		0.025									
	AISI/SAE 1065	0.67	0.72	0.15	0.30	0.60	0.90		0.025		0.025									
	AISI/SAE 1067	0.68	0.73	0.15	0.30	0.60	0.90		0.025		0.025									
AISI/SAE 1069	0.65	0.75	0.15	0.30	0.60	0.90		0.025		0.025										
AISI/SAE 1070	0.67	0.72	0.15	0.30	0.60	0.90		0.025		0.025										
AISI/SAE 1072	0.70	0.76	0.15	0.30	0.60	0.90		0.025		0.025										
AISI/SAE 1074	0.70	0.80	0.15	0.30	0.30	0.60		0.025		0.025										
AISI/SAE 1075	0.70	0.80	0.15	0.30	0.60	0.90		0.025		0.025										
AISI/SAE 1078	0.72	0.85	0.15	0.30	0.60	0.90		0.025		0.025										
AISI/SAE 1080	0.75	0.88	0.15	0.30	0.70	1.00		0.025		0.025										

		CHEMICAL COMPOSITION, %										MECHANICAL PROPERTIES							
Standard	Grade	C		Si		Mn		P		S		N		Tensile Strength, N/mm2		Elongation, %		Reduction Area, %	
		min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
JIS G3505:2004	SWRM 6		0.08				0.60		0.035		0.035								
	SWRM 8		0.10				0.60		0.035		0.035								
	SWRM 10	0.08	0.13			0.30	0.60		0.035		0.035								
	SWRM 12	0.10	0.15			0.30	0.60		0.035		0.035								
	SWRM 15	0.13	0.18			0.30	0.60		0.035		0.035								
	SWRM 17	0.15	0.20			0.30	0.60		0.035		0.035								
	SWRM 20	0.18	0.23			0.30	0.60		0.035		0.035								
	SWRM 22		0.10		0.10	0.30	0.60		0.035		0.035								
	SWRH 27	0.24	0.31	0.15	0.35	0.30	0.60		0.030		0.030								
	SWRH 32	0.29	0.36	0.15	0.35	0.30	0.60		0.030		0.030								
JIS G3506:2004	SWRH 37	0.34	0.41	0.15	0.35	0.30	0.60		0.030		0.030								
	SWRH 42A	0.39	0.46	0.10	0.25	0.30	0.60		0.030		0.030								
	SWRH 42B	0.39	0.46	0.15	0.35	0.60	0.90		0.030		0.030								
	SWRH 47A	0.47	0.50	0.10	0.25	0.35	0.55		0.030		0.025								
	SWRH 47B	0.47	0.50	0.15	0.35	0.70	0.80		0.030		0.025								
	SWRH 52A	0.52	0.55	0.10	0.25	0.35	0.55		0.030		0.025								
	SWRH 52B	0.52	0.55	0.15	0.35	0.70	0.80		0.030		0.025								
	SWRH 57A	0.56	0.60	0.10	0.25	0.35	0.55		0.030		0.025								
	SWRH 57B	0.56	0.60	0.15	0.35	0.70	0.80		0.030		0.025								
	SWRH 62A	0.62	0.65	0.15	0.35	0.35	0.55		0.025		0.025								
	SWRH 62B	0.62	0.65	0.15	0.35	0.70	0.80		0.025		0.025								
	SWRH 67A	0.65	0.69	0.15	0.35	0.35	0.55		0.025		0.025								
	SWRH 67B	0.65	0.69	0.15	0.35	0.70	0.90		0.025		0.025								
	SWRH 72A	0.70	0.76	0.15	0.35	0.30	0.60		0.025		0.025								
	SWRH 72B	0.71	0.75	0.15	0.35	0.60	0.90		0.025		0.025								
	SWRH 77A	0.75	0.80	0.15	0.35	0.60	0.90		0.025		0.025								
	SWRH 77B	0.75	0.80	0.15	0.35	0.60	0.90		0.025		0.025								

- Chemical composition and mechanical properties can be adjusted as per customer requirements  
 - Other elements can be added to achieve required mechanical and metallurgical properties

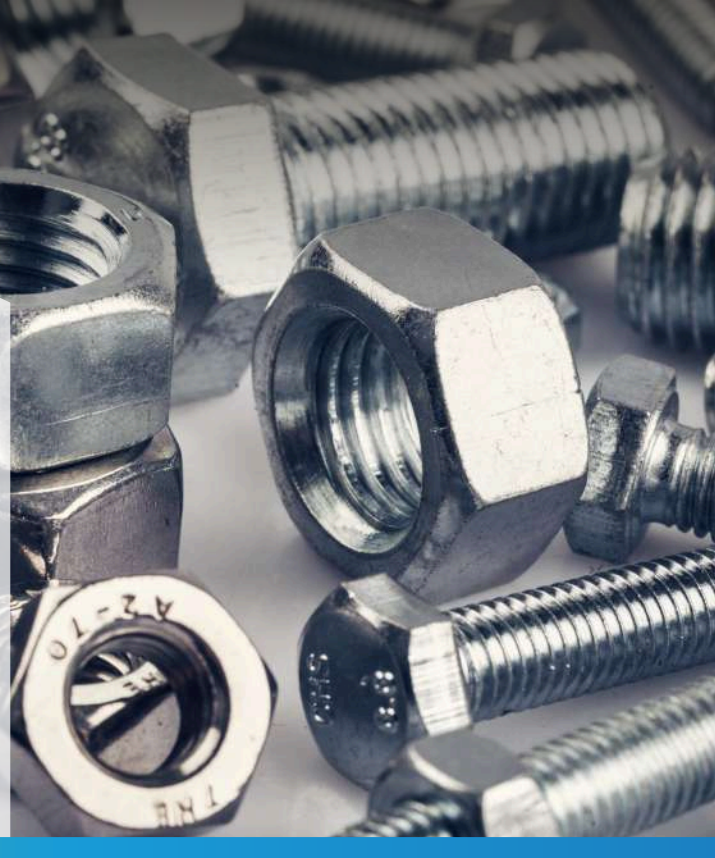
- Chemical composition and mechanical properties can be adjusted as per customer requirements  
 - Other elements can be added to achieve required mechanical and metallurgical properties



# COLD HEADING

We are at the forefront of providing specialized wire rod solutions, meticulously tailored to meet the precise requirements of our esteemed customers across various demanding industries such as automotive, construction, oil and gas, and manufacturing sectors.

Our products are designed to support a wide range of applications within the cold heading segments, including case hardening, quenching and tempering, as well as heat-treated cold-rolled and



## Mechanical and Metallurgical properties:

- **Enhanced Cold Ductility and Mechanical Properties:** Our selection includes low and medium carbon, boron, and alloyed steels, engineered for superior cold ductility and exceptional final mechanical properties.
- **Diverse Tensile Strength Range:** We offer a wide spectrum of tensile strengths, accommodating a variety of industrial applications and manufacturing demands.
- **Optimal Microstructural Properties:** The microstructure homogeneity, including uniform austenitic grain size, guarantees the mechanical integrity and performance of our wire rods.
- **Exceptional Upsetability:** Our wire rods exhibit very good upsetability, enhancing their formability in cold heading applications.

## Dimensions and Tolerances:

Uniformity in Dimensions: Our wire rods are characterized by their uniform and consistent dimensions, ensuring reliability and precision in manufacturing processes.

## Material Quality:

- **Enhanced Surface Finish:** Each product boasts a clean surface finish, minimizing the need for additional processing and facilitating smoother manufacturing workflows for downstream processes.
- **Tightly Controlled Chemical Composition:** We maintain a controlled chemical composition within a very close band, ensuring consistent quality and performance across batches.
- **Reduced Impurities:** Our wire rods feature low nitrogen and oxygen contents, contributing to their overall quality and performance.
- **Minimal Decarburization:** The low decarb level across our products ensures that their core mechanical properties are preserved during manufacturing processes.
- **Superior Steel Cleanliness:** We pride ourselves on the superior cleanliness levels of our steel, which significantly reduces the inclusion content, enhancing the product's overall quality.

**Size range (Dia):** 5.5 -13.0mm (16.0\*)

\*Subject to technical acceptance, minimum quantity and delivery conditions

# PRODUCT RANGE: COLD HEADING - CHQ (1/3)

Standard	Grade	CHEMICAL COMPOSITION, %													MECHANICAL PROPERTIES										
		C		Si		Mn		P		S		B		Al		N		Tensile Strength, N/mm2		Elongation, %		Reduction Area, %			
		min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max		
EN 10263-2:2001	C2C	0.02	0.03	0.10	0.20	0.20	0.40	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	
	C4C	0.06	0.10	0.10	0.20	0.20	0.40	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	
	C8C	0.08	0.12	0.10	0.25	0.25	0.45	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	C10C	0.13	0.17	0.10	0.30	0.30	0.50	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	C15C	0.15	0.19	0.10	0.35	0.35	0.60	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	C17C	0.18	0.22	0.10	0.65	0.65	0.85	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	C20C	0.08	0.12	0.30	0.30	0.30	0.60	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	C10E2C	0.13	0.17	0.30	0.30	0.30	0.60	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	C15E2C	0.15	0.19	0.30	0.60	0.60	0.90	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	C17E2C	0.18	0.22	0.30	0.30	0.30	0.60	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
EN 10263-3:2001	C20E2C	0.13	0.20	0.30	0.60	0.60	0.80	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	15B2	0.16	0.20	0.30	0.60	0.60	0.80	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	18B2	0.16	0.20	0.30	0.90	0.90	1.20	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	18MnB4	0.20	0.24	0.30	0.90	0.90	1.20	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	22MnB4	0.32	0.39	0.30	0.50	0.50	0.80	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	C35EC	0.32	0.39	0.30	0.50	0.50	0.80	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	C35RC	0.42	0.50	0.30	0.50	0.50	0.80	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	C45EC	0.42	0.50	0.30	0.50	0.50	0.80	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	C45RC	0.15	0.20	0.30	0.60	0.60	0.90	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	17B2	0.20	0.25	0.30	0.60	0.60	0.90	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
EN 10263-4:2001	23B2	0.25	0.30	0.30	0.60	0.60	0.90	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	28B2	0.30	0.35	0.30	0.60	0.60	0.90	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	33B2	0.35	0.40	0.30	0.60	0.60	0.90	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	38B2	0.15	0.20	0.30	0.90	0.90	1.20	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	17MnB4	0.18	0.23	0.30	0.90	0.90	1.20	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	20MnB4	0.20	0.25	0.30	0.90	0.90	1.20	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	23MnB4	0.25	0.30	0.30	0.90	0.90	1.20	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	27MnB4	0.27	0.32	0.30	0.80	0.80	1.10	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	30MnB4	0.33	0.38	0.30	0.80	0.80	1.10	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
	36MnB4	0.35	0.40	0.30	1.15	1.15	1.45	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020
BS EN 10265:1999	37MnB5	0.17	0.24	0.40	0.80	0.80	1.15	0.020	0.020	0.025	0.025	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	
	19MnB4																								

- Chemical composition and mechanical properties can be adjusted as per customer requirements  
 - Other elements can be added to achieve required mechanical and metallurgical properties



## PRODUCT RANGE: COLD HEADING - CHQ (2/3)

### CHEMICAL COMPOSITION, %

Standard	Grade	C		Si		Mn		P		S		B		Al		N		Tensile Strength, N/mm <sup>2</sup>		Elongation, %		Reduction Area, %		
		min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	
ASTM A510/ A510M - SAE J403:2001	10B17 (G10170)	0.15	0.20			0.30	0.60		0.025		0.025													
	10B20 (G10200)	0.18	0.23			0.30	0.60		0.025		0.025													
	10B21 (G10210)	0.18	0.22	0.15	0.25	0.83	0.95		0.025		0.025		0.003	0.015									0.008	
	10B22 (G10220)	0.18	0.23			0.70	1.00		0.025		0.025		0.003	0.015										0.008
	10B25 (G10250)	0.22	0.28			0.30	0.60		0.025		0.025		0.003	0.015										0.008
	10B26 (G10260)	0.22	0.28			0.60	0.90		0.025		0.025		0.003	0.015										0.008
	10B29 (G10290)	0.25	0.31			0.60	0.90		0.025		0.025		0.003	0.015										0.008
	10B30 (G10300)	0.28	0.34			0.60	0.90		0.025		0.025		0.003	0.015										0.008
	10B31 (G10310)	0.28	0.34			0.60	0.90		0.025		0.025		0.003	0.015										0.008
	10B33 (G10340)	0.28	0.32	0.15	0.30	0.80	0.95		0.025		0.025		0.003	0.015										0.008
JIS-G3507- 2010	10B35 (G10350)	0.32	0.38			0.60	0.90		0.025		0.025		0.003	0.015										0.008
	SWRCH 6R		0.08						0.025		0.025													
	SWRCH 8R		0.10						0.025		0.025													
	SWRCH 10R	0.08	0.13			0.30	0.60		0.025		0.025													
	SWRCH 12R	0.10	0.15			0.30	0.60		0.025		0.025													
	SWRCH 15R	0.13	0.18			0.30	0.60		0.025		0.025													
	SWRCH 17R	0.15	0.20			0.30	0.60		0.025		0.025													
	SWRCH 6A	0.06	0.08			0.10	0.25	0.40	0.025		0.025				0.020									
	SWRCH 8A	0.10	0.10			0.10	0.30	0.50	0.025		0.025				0.020									
	SWRCH 10A	0.08	0.13			0.10	0.30	0.50	0.025		0.025				0.020									
SWRCH 12A	0.10	0.15			0.10	0.30	0.50	0.025		0.025				0.020										
SWRCH 15A	0.13	0.18			0.10	0.30	0.60	0.025		0.025				0.020										
SWRCH 16A	0.13	0.18			0.10	0.70	0.90	0.025		0.025				0.020										
SWRCH 18A	0.15	0.20			0.10	0.60	0.90	0.025		0.025				0.020										
SWRCH 19A	0.15	0.20			0.10	0.70	1.00	0.025		0.025				0.020										
SWRCH 20A	0.18	0.23			0.10	0.30	0.60	0.025		0.025				0.020										
SWRCH 22A	0.10	0.10			0.10	0.70	1.00	0.025		0.025				0.020										

### MECHANICAL PROPERTIES

Standard	Grade	Tensile Strength, N/mm <sup>2</sup>		Elongation, %		Reduction Area, %	
		min	max	min	max	min	max
ASTM A510/ A510M - SAE J403:2001	10B17 (G10170)						
	10B20 (G10200)						
	10B21 (G10210)						
	10B22 (G10220)						
	10B25 (G10250)						
	10B26 (G10260)						
	10B29 (G10290)						
	10B30 (G10300)						
	10B31 (G10310)						
	10B33 (G10340)						
JIS-G3507- 2010	10B35 (G10350)						
	SWRCH 6R						
	SWRCH 8R						
	SWRCH 10R						
	SWRCH 12R						
	SWRCH 15R						
	SWRCH 17R						
	SWRCH 6A						
	SWRCH 8A						
	SWRCH 10A						
SWRCH 12A							
SWRCH 15A							
SWRCH 16A							
SWRCH 18A							
SWRCH 19A							
SWRCH 20A							
SWRCH 22A							

- Chemical composition and mechanical properties can be adjusted as per customer requirements  
 - Other elements can be added to achieve required mechanical and metallurgical properties

## PRODUCT RANGE: COLD HEADING - CHQ (3/3)

### CHEMICAL COMPOSITION, %

Standard	Grade	C		Si		Mn		P		S		B		Al		N		Tensile Strength, N/mm <sup>2</sup>		Elongation, %		Reduction Area, %		
		min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	
JIS-G3507- 2010	SWRCH 25A	0.22	0.28	0.10	0.30	0.30	0.60		0.025		0.025													
	SWRCH 10K	0.08	0.13	0.10	0.35	0.30	0.60		0.025		0.025													
	SWRCH 12K	0.10	0.15	0.10	0.35	0.30	0.60		0.025		0.025													
	SWRCH 15K	0.13	0.18	0.10	0.35	0.30	0.60		0.025		0.025													
	SWRCH 16K	0.13	0.18	0.10	0.35	0.60	0.90		0.025		0.025													
	SWRCH 17K	0.15	0.20	0.10	0.35	0.30	0.60		0.025		0.025													
	SWRCH 18K	0.15	0.20	0.10	0.35	0.60	0.90		0.025		0.025													
	SWRCH 20K	0.18	0.23	0.10	0.35	0.30	0.60		0.025		0.025													
	SWRCH 22K	0.18	0.23	0.10	0.35	0.70	1.00		0.025		0.025													
	SWRCH 24K	0.19	0.25	0.10	0.35	1.35	1.65		0.025		0.025													
ESA	SWRCH 25K	0.22	0.28	0.10	0.35	0.30	0.60		0.025		0.025													
	SWRCH 27K	0.22	0.29	0.10	0.35	1.20	1.50		0.030		0.035													
	SWRCH 30K	0.27	0.33	0.10	0.35	0.60	0.90		0.030		0.035													
	SWRCH 33K	0.30	0.36	0.10	0.35	0.60	0.90		0.030		0.035													
	SWRCH 35K	0.32	0.38	0.10	0.35	0.60	0.90		0.030		0.035													
	SWRCH 38K	0.35	0.41	0.10	0.35	0.60	0.90		0.030		0.035													
	SWRCH 40K	0.37	0.43	0.10	0.35	0.60	0.90		0.030		0.035													
	SWRCH 41K	0.36	0.44	0.10	0.35	1.35	1.65		0.030		0.035													
	SWRCH 43K	0.40	0.46	0.10	0.35	0.60	0.90		0.030		0.035													
	SWRCH 45K	0.42	0.48	0.10	0.35	0.60	0.90		0.030		0.035													
SWRCH 48K	0.45	0.51	0.10	0.35	0.60	0.90		0.030		0.035														
SWRCH 50K	0.40	0.53	0.10	0.35	0.60	0.90		0.030		0.035														
AISI/SAW 1008 CHQ	0.32	0.36	0.15	0.25	0.80	0.90		0.025		0.025														
AISI/SAW 1045 CHQ	0.45	0.48	0.15	0.35	0.70	0.80		0.025		0.025														

### MECHANICAL PROPERTIES

Standard	Grade	Tensile Strength, N/mm <sup>2</sup>		Elongation, %		Reduction Area, %	
		min	max	min	max	min	max
JIS-G3507- 2010	SWRCH 25A						
	SWRCH 10K						
	SWRCH 12K						
	SWRCH 15K						



# WELDING ELECTRODES

Our commitment to excellence in the welding industry is underscored by our specialized steel welding grades, designed to ensure seamless compatibility and integrity between the welded joint and the base metal across a spectrum of applications.

Our comprehensive range of steel wire products caters to a variety of welding electrode applications, including:

- Solid wires for Metal Active Gas (MAG) and Metal Inert Gas (MIG) welding
- Carbon steel electrodes and fluxes for Submerged Arc Welding (SAW)
- Carbon steel filler metals for Gas Shielded Arc Welding (GSAW)
- Electrodes for Stick welding (SMAW)

## Mechanical and Metallurgical properties:

- Secure the desired mechanical properties through precise adjustments of carbon (C%), manganese (Mn%), and micro-alloying elements percentages, ensuring the welded joint meets specific strength and ductility requirements.

## Dimensions and Tolerances:

Uniformity in Dimensions: Our wire rods are characterized by their uniform and consistent dimensions, ensuring reliability and precision in manufacturing processes.

## Material Quality:

- Low sulfur (S%) and phosphorus (P%) contents, as well as minimal tramp elements, ensuring unparalleled steel cleanliness.
- Minimize the risk of oxidation in the welded joint, a critical consideration in the selection of welding materials, depending on the welding process and the type of protection used, whether it be shielding gas or flux. This is achieved by fine-tuning the percentages of carbon (C%), silicon (Si%), aluminum (Al%), or titanium (Ti%).
- Enhance the performance of weld joints and electrodes, optimizing nitrogen (N%) and silicon (Si%) levels to improve welding quality and joint integrity.

**Size range (Dia):** 5.5 -13.0mm

# PRODUCT RANGE: WELDING ELECTRODES

Standard	Grade	CHEMICAL COMPOSITION, %											MECHANICAL PROPERTIES								
		C	Si		Mn		P		S		B		Al		N		Tensile Strength, N/mm <sup>2</sup>	Elongation, %	Reduction of Area, %		
		min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	
ISO14341:2020	G2Si (SG1)	0.06	0.14	0.50	0.80	0.90	1.30	0.020	0.020	0.020	0.020										
	G3Si 1 (SG2)	0.06	0.14	0.70	1.00	1.30	1.60	0.020	0.020	0.020	0.020										
	G3Si 2 (SG2-Si)	0.06	0.14	1.00	1.30	1.30	1.60	0.020	0.020	0.020	0.020										
	G4Si 1 (SG3)	0.06	0.08	0.85	0.10	1.60	1.70	0.020	0.020	0.020	0.020										
ISO14171:2010	S1	0.05	0.15		0.15	0.35	0.60	0.025	0.025	0.025	0.025										
	S2	0.07	0.15		0.15	0.80	1.30	0.025	0.025	0.025	0.025										
	S3	0.07	0.15		0.15	1.30	1.75	0.025	0.025	0.025	0.025										
	S1Si	0.07	0.15	0.15	0.40	0.35	0.60	0.025	0.025	0.025	0.025										
	S2Si	0.07	0.15	0.15	0.40	0.80	1.30	0.025	0.025	0.025	0.025										
AWS A5.17/ A5.17M:2007	S2Si2	0.07	0.15	0.40	0.60	0.80	1.30	0.025	0.025	0.025	0.025										
	S3Si	0.07	0.15	0.15	0.40	1.30	1.85	0.025	0.025	0.025	0.025										
	EL8		0.10		0.07	0.25	0.60	0.025	0.025	0.025	0.025										
	EL8K		0.10	0.10	0.25	0.25	0.60	0.025	0.025	0.025	0.025										
	EL12	0.04	0.14		0.10	0.25	0.60	0.025	0.025	0.025	0.025										
AWS A5.18/ A5.18M:2005	EM11 K	0.07	0.15	0.65	0.85	1.00	1.50	0.025	0.025	0.025	0.025										
	EM12	0.06	0.15		0.10	0.80	1.25	0.025	0.025	0.025	0.025										
	EM12 K	0.07	0.10	0.15	0.30	0.80	1.25	0.025	0.025	0.025	0.025										
	ER70S-2	0.07	0.07	0.40	0.70	0.90	1.40	0.020	0.020	0.020	0.020										
JIS-G3503-2006	ER70S-3	0.07	0.09	0.65	0.75	1.05	1.40	0.020	0.020	0.020	0.020										
	ER70S-4	0.06	0.15	0.65	0.85	1.00	1.50	0.020	0.020	0.020	0.020										
	ER70S-6	0.06	0.08	0.80	0.90	1.40	1.50	0.020	0.020	0.020	0.020										
	SWRY 11	0.05	0.08		0.03	0.40	0.60	0.025	0.025	0.025	0.025										
IS 6419:2000	SWRY 21	0.10	0.15		0.03	0.40	0.60	0.025	0.025	0.025	0.025										
	IS-52	0.06	0.15	0.45	0.70	0.90	1.40	0.025	0.025	0.025	0.025										
	IS-53	0.07	0.15	0.65	0.85	1.00	1.50	0.025	0.025	0.025	0.025										
	IS-54	0.07	0.15	0.80	1.15	1.40	1.85	0.025	0.025	0.025	0.025										
IS 2879:1998	EWR		0.10		0.03	0.38	0.62	0.025	0.025	0.025	0.025										
	EWNR		0.10		0.03	0.38	0.62	0.025	0.025	0.025	0.025										
ESA	LC MIG (XE400P)	0.04	0.10		0.12	0.35	0.60	0.025	0.025	0.025	0.025										
	SWRY 11 B	0.05	0.08		0.03	0.40	0.60	0.025	0.025	0.025	0.025										

- Chemical composition and mechanical properties can be adjusted as per customer requirements  
 - Other elements can be added to achieve required mechanical and metallurgical properties



# CABLE ARMOURING

Our wire rod products are specifically used to enhance the structural integrity and safety of electrical cable systems, particularly those utilized in external or underground projects within the construction and telecommunications industries. Our products are meticulously designed to safeguard electric cables against mechanical damages, ensuring reliability and durability in critical infrastructure.

Our portfolio includes wire rods tailored for a variety of cable applications, conforming to the highest industry standards, such as:

- **Land cables and telecommunications** compliant with BS EN 10257-1:2011 specifications.
- **Cable armouring** materials designed to provide additional protection against environmental and mechanical stress.
- **Aluminum-conductor steel reinforced (ACSR)** cable materials, offering enhanced strength and conductivity for power transmission.
- **Submarine cables** as per BS EN 10257-2:2011, engineered for optimal performance and longevity under marine conditions.

## Advantages of Our Cable Armour Wire Rod Products:

### Mechanical and Metallurgical Properties

- **Exceptional Crush Resistance:** Engineered for durability, our wire rods provide robust protection for cables subjected to high stress and pressure, particularly in underground and external applications.
- **High Ductility and Impact Resistance:** Our products exhibit superior ductility and resistance to impact, ensuring they maintain their integrity & functionality even under challenging conditions.

### Material Quality

- **Optimized Chemical Composition:** We offer customized solutions with varying silicon (Si) content to meet specific resistivity performance requirements. Exceptionally low sulfur (S%) and phosphorus (P%) levels in our materials guarantee a product of the highest quality with superior steel cleanliness levels.

**Size range (Dia):** 5.5 -13.0 mm

## PRODUCT RANGE: CABLE ARMOURING - CAQ

Standard	Grade	CHEMICAL COMPOSITION, %										MECHANICAL PROPERTIES										
		C		Si		Mn		P		S		B		Al		Tensile Strength, N/mm <sup>2</sup>		Elongation, %		Reduction Area, %		
		min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	
ASTM A510/ A510M	AISI/ SAE1005	0.45	0.06	0.05	0.10	0.35	0.030	0.030	0.030	0.030	0.030							400	28			
	AISI/ SAE1045	0.64	0.50	0.15	0.30	0.90	0.030	0.030	0.030	0.025								850	14		40	
	AISI/ SAE 1065	0.67	0.69	0.15	0.30	0.90	0.025	0.025	0.025	0.025	0.025							1050	11		30	
IS7887:1992	AISI/ SAE 1070	0.60	0.72	0.15	0.30	0.90	0.025	0.025	0.025	0.025	0.025							400	11		30	
	Grade 1 (Mod)		0.06			0.35												450	30		70	
IS7904:2018	Grade 2 (Mod)		0.08			0.40				0.025												70
	HC 62	0.60	0.65	0.10	0.35	0.90	0.030	0.030	0.030	0.030	0.030											
	HC 67	0.65	0.70	0.10	0.35	0.90	0.030	0.030	0.030	0.030	0.030											
	HC 72	0.70	0.75	0.10	0.35	0.90	0.030	0.030	0.030	0.030	0.030											
ESA	HC 77	0.73	0.78	0.10	0.35	0.90	0.030	0.030	0.030	0.030	0.030											
	AISI/ SAE1006 CAQ		0.06		0.05	0.45	0.025	0.025	0.025	0.025	0.025											
	AISI 1005 - B		0.06	0.05	0.10	0.35	0.030	0.030	0.030	0.030	0.001	0.002						400	30		70	
																		400	28			

- Chemical composition and mechanical properties can be adjusted as per customer requirements  
 - Other elements can be added to achieve required mechanical and metallurgical properties



## PRODUCT CERTIFICATION

**Emirates Steel's Integrated Management System** (quality, environment, health, safety, sustainability, innovation and products have been certified by globally recognized certification bodies.

Emirates Steel holds **50+ certifications**, product licenses and quality marks.

We have adopted **UK Cares Dynamic QR Code verification technology** to assure fast and seamless traceability of products.



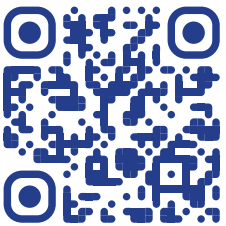
(Ü-mark)





# حديد الإمارات أركان emirates steel arkan

## CONTACT US



 PO Box 9022, Abu Dhabi Industrial City  
Musaffah, Abu Dhabi

 +971 2 551 1187

 [sales@emiratessteel.com](mailto:sales@emiratessteel.com)

## FOLLOW US



[www.emiratessteelarkan.com](http://www.emiratessteelarkan.com)