



**Our future depends on the trust
and success of our clients!**

WOOSIN STEEL

www.woosinsteel.com

Your Trust and Success, Our Tomorrow

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Woosin Steel was founded in 1994 in Seongseo Industrial Complex, Daegu, Korea under the name of Woosin Kangup.

The Cold Heading Quality Wire produced by Woosin Steel is used as the key raw material in the Cold Forming Process of bolts, nuts, shafts, pipes, and other components, which are the most basic and necessary parts used in all industries.

Keeping in mind that the high quality of basic components is the key factor for the reliability and high performance of the main parts in the automobile and other industries, Woosin Steel is committed to maintaining the best quality assurance system. The company pours its greatest effort into managing the raw materials, manufacturing processes, and final products.

Woosin Steel is leading efforts to conserve the environment by acquiring high-efficiency, environmentally-friendly facilities and developing new manufacturing processes. It is also preparing for further innovations in the near future.

Based on its achievements over the last 20 years, Woosin Steel is leaping toward its new future as Korea's main manufacturer of basic components for the automobile, electricity, construction, and machinery industries for next 100 years. We never allow ourselves to forget that our future depends on the trust and success of our clients.



Brief History

- 1994. 01 Established Woosin Kangup Co., Ltd., (Seongseo, Daegu)
- 2000. 03 Changed name to Woosin Steel Co., Ltd.,
- 2004. 12 ISO9001 Certified
- 2009. 05 MAIN-BIZ Certified
- 2012. 08 INNO-BIZ Certified
- 2013. 11 Moved to New Plant in Yeongcheon Industrial Complex (21,500㎡)
- 2016. 09 TS16949 Certified
- 2017. 10 ISO14001 Certified

Company Overview

Site area : 21,500㎡

Building area : 11,760㎡

Annual production capacity : 100,000 tons



Main Products

Woosin Steel is a fast-growing, professional manufacturer of Cold Heading Quality Wire. We take great pride in the high quality of our products, and are actively investing in state-of-the-art facilities and the development of new technologies and products.

Produced Steel Grade

Use	Steel Grade		Process
	AISI/SAE	JIS	
Pin , Screw	1008-1010	SWRM8~10	HD
Bolt, Nut	1006~1045 4115~4140	SWRCH6A~10A SWRCH10A~45K(F)	HD, RAIP, (S)AIP, PASAIP
Bolt, Piston Pin , Safty Bolt	5130~5147	SCM415~440(H)	(S)AIP, SAIP, PASAIP, PSASAIP
High Tension Bolt , Crank Shaft	52100	SCr415~445(H)	(S)AIP, SAIP, PASAIP, PSASAIP
Bearing	51B20	SUU2	PASAIP
Bolt, Construction High Tension Bolt	10B21~10B38	SCr420B~440B	HD, (S)AIP

Available size **2.0~55.0mm** Discontinued **100~2,500kg**



CHQ WIRE

CHQ WIRE refers to the wire required for Cold Heading or Cold Forging, which is a type of metal forming process. A strict standard is required in quality control of the materials' mechanical properties, scale, and surface treatment.

Surface Treatment Technology

Bonderizing Coating (BRL : Bonderite + Lube)

This is a CHQ coating process in which phosphate is formed on the surface of metal through a chemical reaction, thereby increasing thermal stability and lubricant retention capacity.

Non-bonderizing Coating (NoP : Non-Phosphate Coating)

This is a CHQ coating process in which brittle fractures caused by phosphorizing during after-treatment is prevented by a mineral coating substance from which phosphorus has been removed.

SMART Coating (SMART : BR + Polymer Coating)

This is an environmentally-friendly CHQ coating process that offers improved processability and lower manufacturing costs by combining a polymer method with the existing Bonderizing Coating process.

Typical Process

HD	W/R - PC - SKP - PK
(S)AIP	W/R - P - SA - PC - SKP - PK
RAIP	W/R - P - WD - RA - PC - SKP - PK
SAIP	W/R - P - WD - SA - PC - SKP - PK
PASAIP	W/R - P - LA - P - WD - SA - PC - SKP - PK
PSASAIP	W/R - P - SA - P - WD - SA - PC - SKP - PK
SAPC	W/R - P - SA - PC - PK

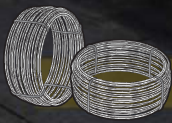
W/R	Wire Rod
P	Pickling
PC	Pickling&Coating
WD	Wire Drawing
SKP	Skin Pass
LA	Low TemperatureAnnealing
RA	Regular Annealing
SA	Spheroidized Annealing
PK	Packing

Manufacturing Process

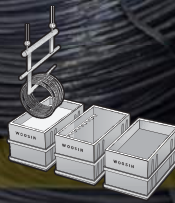
High-quality products are manufactured through a heat treatment and pickling & coating which maximize cold figuration plasticity, thus meeting the needs of our clients.

품질은 인격 생산성은 시명
삼 (주) 포진스틸

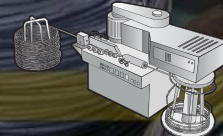
Process Chart



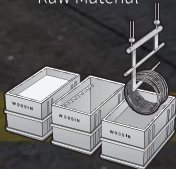
Raw Material



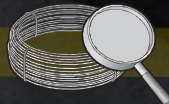
Pickling



Wire Drawing (WD)



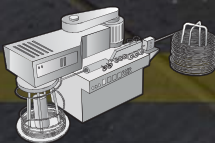
Pickling & Coating



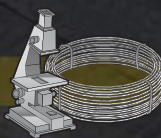
Inspection



Annealing



Skin Pass (SKP)



Inspection



Packing



Annealing

The cold plasticity of pearlite tissue in the raw material is maximized by reducing solidity and improving ductility through spheroidization annealing

Equipment	Quantity	Capacity per Charge (ton)	CAPA (ton/year)
Batch Type STC	4	32	46,000
Bell Type Electric	5	8	15,000



Pickling & Coating Process

Not only does Woosin Steel have a pickling & coating facility with maximum energy efficiency, but it also runs the Dual Process utilizing both sulfuric and hydrochloric acids, thus meeting the various needs of our clients and guaranteeing differentiated coating quality.

1st Pickling & Coating (CA, BCA)

Calcic coating removes scale from raw materials and prevents corrosion.

2nd Pickling & Coating (BRL, SMART, NoP)

This coating removes scale from materials and prevents burning (seizure) during the Cold Heading process

Manufacturing Process II

Woosin Steel produces the best quality products to meet the needs of its clients through continuous investment and innovation, acquiring the first and only drawing facility in Korea capable of 55mm-diameter linear processing of raw materials.





Drawing

The clients' thickness and mechanical property requirements are met by the process of letting the pickled & coated material go through the dies. Woosin Steel operates the only drawing facility in Korea capable of manufacturing 55mm products under an automatic control system.

Equipment	Available Size	Quantity	CAPA(ton/year)
Bull-Block	13.0~55.0mm	4	98,400
G-Block	4.0~13.0mm	4	
Coiller	3.0~5.0mm	2	

WD

Spheroidization during heat treatment promoted through the segmentation of pearlite tissue by cold wire drawing, thus improving diametrical variations of the material

SKP

The clients' needs are met by precision drawing.



Quality Control

The best products can only be made under strict quality control. We always provide the products of the very best quality to our clients by operating an active quality control system. Our clients' satisfaction is always our top priority and the basis of our business.



Thickness Tolerance Unit of Measurement : mm

Process	Thickness (mm)	Tolerance	Diametrical Variation
HD, RAIP, (S)AIP, SAIP, PASAIP, PSASAIP	Under 3.00	+0, -0.020	MAX 0.010
	3.01~6.00	+0, -0.025	MAX 0.013
	6.01~10.00	+0, -0.030	MAX 0.015
	10.01~18.00	+0, -0.040	MAX 0.020
	Over 18.01	+0, -0.050	MAX 0.025
Form	~6.00	±0.05	MAX 0.020
tetragonal, pentagonal, hexagonal, etc	6.01~18.00	±0.08	MAX 0.025
	Over 18.01	±0.10	MAX 0.030

Surface Defect Unit of Measurement : mm

Process	Tolerance
RAF, S)AF, SAF, PASAF	Below 0.05
S)AIP, SAIP, PASAIP, PSASAIP	Below 0.05

Spheroidization Rate Unit of Measurement : %

Classification	Spheroidization Rate
RAF, RAIP, S)AIP	70±10
SAF, SAIP	More than 80
PASAF, PASAIP, PSASAIP	More than 90

Decarburized Layer Depth Unit of Measurement : mm

Thickness(mm)	FERRITE Decarburization Depth(DMF)	TOTAL Decarburization Depth(DMT)
8.00 이하	Max 0.02	Max 0.08
8.01~14.00	Max 0.03	Max 0.10
14.01~20.00	Max 0.04	Max 0.12
20.01 이상	Max 0.05	Max 0.18

Product Quality Inspection

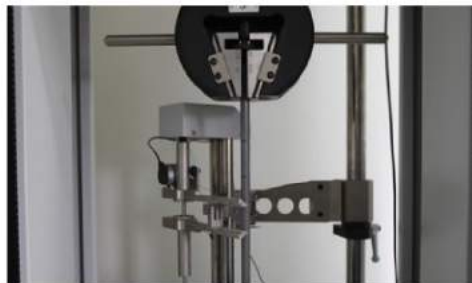
The surface quality and purity of our products are subject to strict manufacturing process and product control conducted in accordance with the company's high standards. The latest equipment, such as tension testers, hardness testers, metallographs, and magnetic particle testers are utilized to conduct these inspections.



Microscopic Test

The surface of metal is inspected and analyzed with reflected rays.

- 2 metallographs
- Manufacturer: Olympus Optical
- Model: CK40M-F200
- Tested Aspect: Spheroidization, DmF, DmT



Tension Test Equipment

The mechanical property of the metallic material is tested by measuring the load and deformation under tensile load.

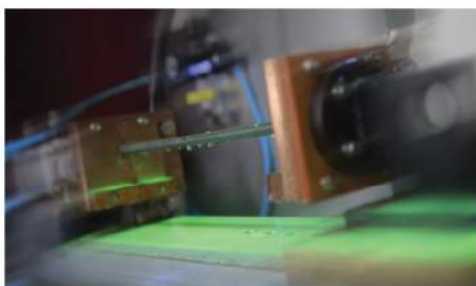
- 3 metal stretchers
- Manufacturer: Daekyung Tech
- Model: DTU-900 MHA
- Tested Aspect: Tensile, compression, and flexure tests



Componential Analysis Equipment

Thirty metallic components and carbon content are measured by generating sparks on the surface of the tested material.

- Manufacturer: SPECTRO Analytical instruments GmbH
- Model: SPECTRO MAXx
- Tested Aspect: Physical and chemical composition of the product



Magnetic Particle Test (MPT) Equipment

Measurement of the depth of surface and internal defects

- 1 magnetic particle tester
- Manufacturer : ETECH
- Model : EQ 3000003
- Tested Aspect : Surface defect



Hardness Test

The hardness of metallic materials is measured by the depth of insertion through pressure.

- 2 hardness testers
- Manufacturer : SamilPercision
- Model : SR-400(Rockwell)
- Tested Aspect : Material hardness

Certification



Environmental protection

Woosin Steel complies with the country's environmental regulations, and minimizes its pollutant and greenhouse gas emissions through its environmentally-friendly facilities and energy-efficient manufacturing processes, thereby leading the environmental protection effort.





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