METSELL

Rolls for Rolling Long Products

Rolls for Re-Bar, Profile & Wire Rod Mill

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ABOUT US

Who We Are

At **METSELL**, we specialize in supplying premium rolls for long products, including rebar, profile, and wire rod mills. With years of industry experience, we have established ourselves as a trusted partner in the steel sector.

What We Offer

Our product range includes:

- **Rolls for Rebar:** Engineered for strength and precision to ensure optimal production.
- **Rolls for Profile:** Designed for versatility and performance across various profiles.
- **Rolls for Wire Rod:** Crafted to provide superior quality and surface finish.

Our Commitment

At **METSELL**, customer satisfaction is at the heart of everything we do. Our knowledgeable team works closely with you to tailor solutions that fit your specific needs. We are committed to continuous improvement and innovation, ensuring our products evolve with industry demands.

Why Choose Us?

- **Quality Assurance:** Rigorous testing and quality control ensure the highest standards.
- **Expert Support:** Our experienced professionals are always available to assist you.
- **Reliable Partnership:** We build lasting relationships based on trust and collaboration.

Explore our catalog and discover how METSELL can support your success in the long products market. Together, let's drive your production capabilities to new heights!

Product Portfolio

Product Range (Roll and Ring)		
Cast Method	**Material**	**Size (mm)**
Centrifugal Cast	HSS	300*500-900*2000
	High Cr Iron	400*600-900*2000
	High Cr Steel	500*650-1200*2000
	Indefinite Chill	300*500-900*2000
	Spheroidal Graphite Iron	300*500-900*2000
	Adamite	300*500-900*2000
Static Cast	Alloy Steel	≤30t, 1400
	Adamite	≤30t, Φ≤ 1400
	Spheroidal Graphite Iron	≤30t, ≤ 1400

Roll Type	
Centrifugal Composite Roll or Ring	Ni Cr Mo Spheroidal Graphite Cast Iron I
	Ni Cr Mo Spheroidal Graphite Cast Iron II
	Pearlitic Spheroidal Graphite Cast Iron I
	Pearlitic Spheroidal Graphite Cast Iron II
	Pearlitic Spheroidal Graphite Cast Iron III
	Acicular Spheroidal Graphite Cast Iron I
	Acicular Spheroidal Graphite Cast Iron II
	Non-consecutive-carbide Bainite Spheroidal Graphite Cast Iron
	High Cr Cast Iron
	AD140 Adamite
	AD160 Adamite
	AD180 Adamite
	H Beam Ring I
	H Beam Ring II
	High Speed Steel
	Semi-HSS
	Alloy Cast Steel
	Cr4
	High Cr Iron
	High Cr Steel
	ICDP
Static Cast Roll or Ring	Ni Cr Mo Spheroidal Graphite Cast Iron I
	Ni Cr Mo Spheroidal Graphite Cast Iron II
	Pearlitic Spheroidal Graphite Cast Iron I
	Pearlitic Spheroidal Graphite Cast Iron II
	Pearlitic Spheroidal Graphite Cast Iron III
	AD140 Adamite
	AD160 Adamite
	AD180 Adamite
	GS140 Graphite Steel
	GS160 Graphite Steel
	Alloy Cast Steel
	Cr4

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Products

High speed steel roll for bar mill

SGP for Bar mill middle stands

SGA for Bar mill finishing stands

SGP for rough stand

Adamite roll for section mill

High Cr cast iron roll for plate and strip mill

ICDP for plate and strip mill

Cast steel roll for section mill

Cr4 steel roll for plate and strip mill

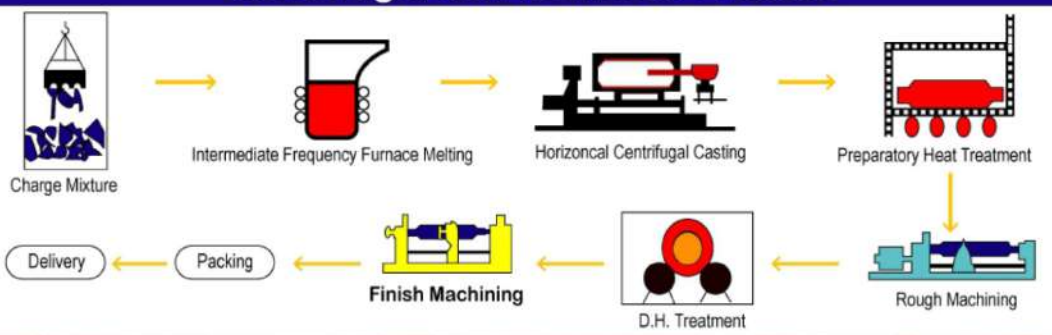
SGP ring for cantilever rolling mill

High speed steel ring

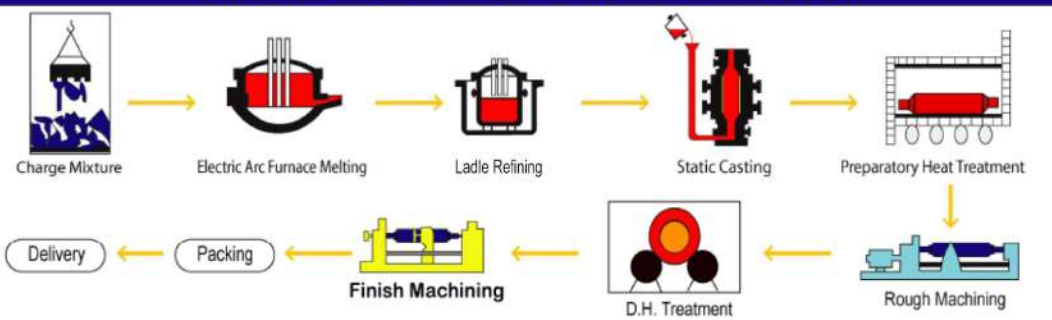
H-beam steel ring

Technical Process

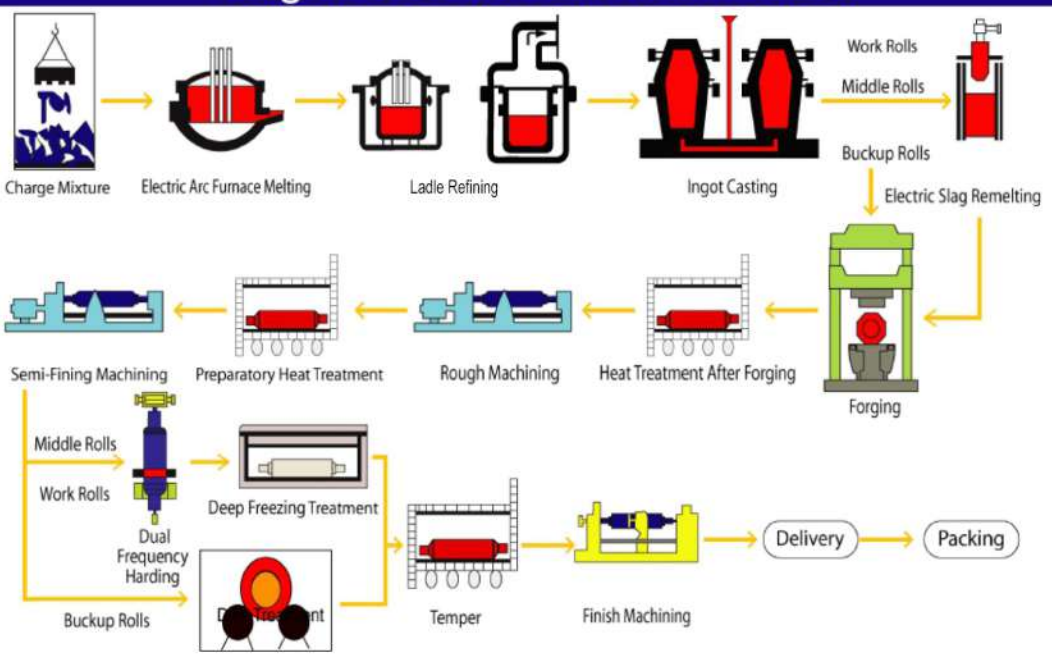
Centrifugal Roll Technical Process



3.2 Cast Steel Roll Technical Process



Forged Steel Roll Technical Process



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Quality Control

- Rm testing and suppliers assessment
- Regular evaluation and management of suppliers
- Skillful technicians and operators
- Advanced and mature technology
- Intelligent, automatic and digitized plant
- Quality information management system
- Standard inspection procedures and methods

Working Procedure	Inspection Items	Inspection Method
Electric Arc Furnace Melting	Chemical composition	Optical Emission Spectrometer, Carbon and Sulfur Analyzer, X-ray fluorescence analyzer
Casting	Temperature, Speed and Rotary Speed of Bracket	Armoure dthermocouples, electronicscales, stopwatches, tachometers
Roll neck specimen	Chemical composition Porosity, segregation, inclusions, liq uefaction,banded carbide, reticulated carbide, pearlite rating	Heat treatment test furnace, pickling tank, image analyzer (Zeiss)
Finish Machining	Size and appearance quality	Digital micrometer, micrometer, prototype, digitalcaliper, roughnessmeter, eddy current flaw detector
	Intrinsic Quality	Ultrasonic Tester
	Hardness of roll body, neck and shoulder	Hardness Tester (LD & HS)
Marking	Marking quality	Digital Engraving Machine
Packing	Antirust Oil, Packaging, Shipping marks	Professional Inspection

Centrifugal Casting Definite Chilled Cast Iron Roll & Ring

PROPERTIES The mechanical properties are improved due to the presence of chilled surface structure & the change of pinetree- like structure. The hardness & the type of matrix of roll depend on the conditions of application. The roll produced with centrifugal method basically eliminates the presence of graphite in its work layer while the core is made of nodular cast iron, increasing as a result, both the wear-resistant & the breaking strength.

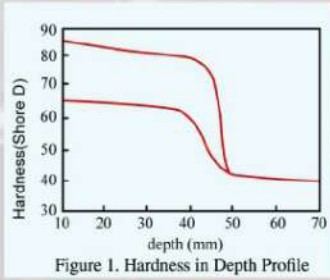

Figure 1. Hardness in Depth Profile

Microstructure

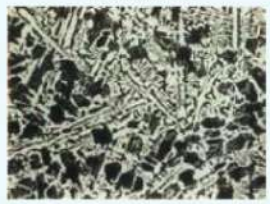
Figure 2. Mag.×100

MECHANICAL PROPERTIES	
Hardness of Shell	HSD65-85
Hardness of Neck	HSD35-48
Tensile Strength of Core	• 450MPa

CHEMICAL ANALYSIS							
Grade	Hardness (HSD)	C	Si	Mn	Ni	Cr	Mo
Chilled I	65-75	3.0/3.5	0.25/0.5	0.3/0.8	0.8/2.0	0.4/1.0	0.2/0.6
Chilled II	65-80	3.0/3.5	0.25/0.5	0.3/0.8	2.0/3.0	0.5/1.2	0.2/0.6
Chilled III	70-85	3.0/3.5	0.25/0.5	0.3/0.8	3.0/4.5	0.6/1.5	0.2/0.6

APPLICATIONS For wire, bar and small section or light-duty material roll mills.

Centrifugal Casting Alloy Indefinite Chill Cast Iron Roll & Ring

PROPERTIES The shell has a remarkable mechanical performance. With virtually no fall off in hardness due to the quantity of graphite it remains basically unchanged throughout the working layer. The hardness of roll depends mainly on the type of matrix, namely sorbite, bainite or martensite.

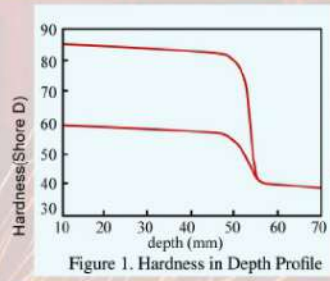

Figure 1. Hardness in Depth Profile

Microstructure


Figure 2. Mag.×100

MECHANICAL PROPERTIES	
Hardness of Shell	HSD60-85
Hardness of Neck	HSD35-48
Tensile Strength of Core	• 450MPa

CHEMICAL ANALYSIS							
Grade	Hardness (HSD)	C	Si	Mn	Ni	Cr	Mo
Indenite I	60-70	3.0/3.5	0.5/1.0	0.5/1.0	0.5/1.0	0.5/1.0	0.2/0.6
Indenite II	62-72	3.0/3.5	0.5/1.0	0.5/1.0	1.0/2.0	0.5/1.0	0.2/0.6
Indenite III	65-75	3.0/3.5	0.5/1.0	0.5/1.0	2.0/3.0	0.7/1.2	0.2/0.6
Indenite IV	70-85	3.0/3.5	0.5/1.0	0.5/1.0	3.0/5.0	1.0/2.0	0.2/0.6

APPLICATIONS

For the finishing stands of continuous rolling mill of strip & bar, the pre-finishing stands of high speed wire, the intermediate& the front of finishing stands of small section, also utilized in thin plate & straightening roll.

Centrifugal and Static Casting Spheroidal Graphite Cast Iron Roll & Ring

PROPERTIES Thanks to its higher content of Ni & Mo alloys, pearlite, bainite & martensite matrix with excellent performance are produced. The roll has the higher conductivity of thermal & high tensile strength Becuase the graphite is in spheroidal form. A dense net primary cementite with high wear-resistance is produced through changing the heat treatment technology and the composition of the structure with bainite, martensite and acicular nodular.

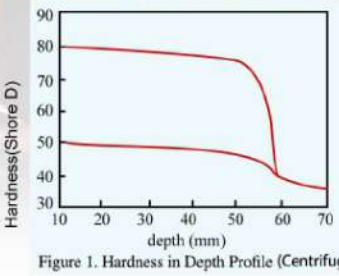

Figure 1. Hardness in Depth Profile (Centrifugal)

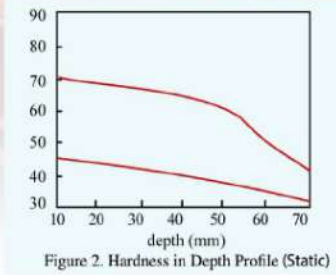

Figure 2. Hardness in Depth Profile (Static)

Microstructure

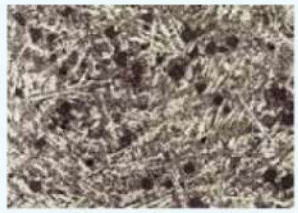
Figure 3. Mag.× 100

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MECHANICAL PROPERTIES	Centriugal	Static
Hardness of Shell	HSD50-80	HSD45-70
Hardness of Neck	HSD35-48	HSD35-55
Tensile Strength of Core	≥ 450MPa	≥ 300MPa

CHEMICAL ANALYSIS								
Grade	Hardness (HSD)	C	Si	Mn	Ni	Cr	Mo	Mg
SGP I	50-65	2.9/3.4	1.2/1.8	0.4/1.0	0.5/1.0	0.2/0.6	0.2/0.6	≥ 0.04
SGP II	50-70	2.9/3.4	1.2/1.8	0.4/1.0	1.0/3.0	0.2/1.2	0.2/0.6	≥ 0.04
SGA	60-80	3.0/3.5	1.2/1.8	0.4/1.0	3.0/4.5	0.2/1.2	0.6/1.0	≥ 0.04

APPLICATIONS Roughing & intermediate stands of various type of continuous rolling mill, finishing stands of bar mill, section mill, finishing stands & back up rolls of strip mills, also suitable for stainless-steel strip hot mills.

Centrifugal Casting High Speed Steel Roll and Ring

PROPERTIES The shell is a high carbon alloy steel containing Cr, Mo, W, V and Nb. The microstructure consists of complex carbides embedded in a tempered martensitic matrix. The carbon control and a complex heat treatment allows the optimization of wear resistance, thermal fatigue resistance & oxide film formation, whilst maintaining low residual stress values.

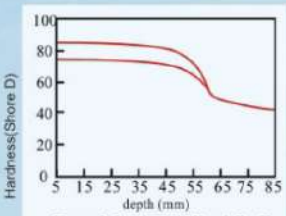

Figure 1. Hardness in Depth Profile

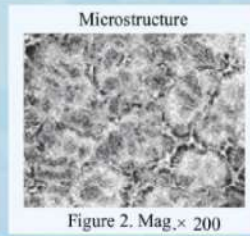

Figure 2. Mag.× 200

MECHANICAL PROPERTIES	
Hardness of Shell	HSD75-85
Hardness of Neck	HSD35-48
Tensile Strength of Core	≥ 450MPa

CHEMICAL ANALYSIS							
C	Si	Mn	Cr	Mo	W	V	Nb
1.6/2.3	0.3/0.9	0.2/0.8	3.0/6.0	3.0/6.0	1.0/4.0	2.0/6.0	1.0/3.0

APPLICATIONS Widely used as the F5 and F6 work roll for hot strip mills, the pre-finishing stands of high-speed wire mills and the finishing stands of bar mills.

Centrifugal Casting High Chrome Cast Iron Roll

PROPERTIES Thanks to its high content of M7C3 type carbide in the range of 20-30% & discontinuous network distribution of carbide, the roll offers a high wear resistance performance. The matrix consist of tempered martensitic & sorbite with finely-dispersed secondary carbides (M7C3-M23C6 and M3C types), increasing therefore the wear resistance of roll, The Cr_2O_3 enriched oxide film on the roll surfaces is highly resistant to oxidization & plastic strain, making the roll extremely suitable for steel hot rolling process.

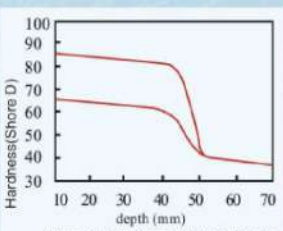

Figure 1. Hardness in Depth Profile

Figure 2. Mag.× 100

MECHANICAL PROPERTIES	
Hardness of Shell	HSD65-85
Hardness of Neck	HSD35-48
Tensile Strength of Core	≥ 450MPa

CHEMICAL ANALYSIS					
C	Si	Mn	Cr	Mo	Mo
2.4/3.0	0.4/0.6	0.8/1.2	16.0/20.0	1.0/1.6	1.0/2.0

APPLICATIONS Mainly used for the front 3 and 4 final finishing stands and the later roughing stands of continuous strip mill.

Centrifugal & Static Casting Steel Base Adamite Roll & Ring

PROPERTIES The microstructure consist of matrix and carbide with carbon content of 1.3-2.3%, depending on content of alloy and heat treatment process. The matrix consists of Pearlite or Bainite. The centrifugal roll has virtually no fall off in the hardness throughout the shell as well as and is highly wear and high temperature resistance and high load resistance etc.

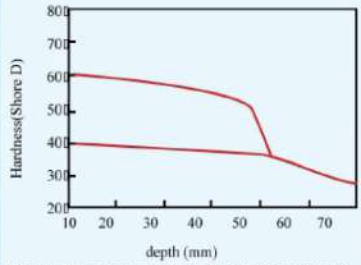

Figure 1. Hardness in Depth Profile (Centrifugal)

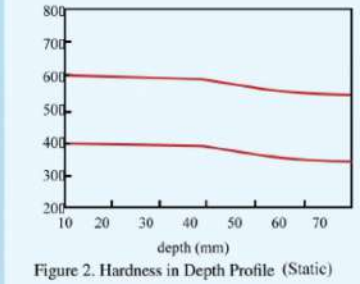

Figure 2. Hardness in Depth Profile (Static)

Microstructure

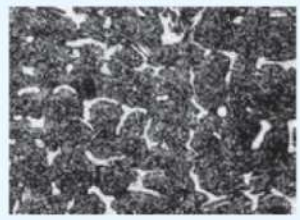
Figure 3. Mag.× 100

MECHANICAL PROPERTIES	Centrifugal	Static
Hardness of shell	HSD40-65	HSD40-65
Hardness of Neck	HSD35-50	HSD40-55
Tensile Strength of Core	≥ 550Mpa	≥ 550Mpa

CHEMICAL ANALYSIS							
C	Si	Mn	Ni	Cr	Mo	Nb	V
0.5/0.6	0.4/0.5	0.45/0.55	0.4/0.5	1.6/4.0	0.3/0.8	0.15/0.2	0.15/0.2

APPLICATIONS The front finishing stands of section mill & hot strip mill & intermediate stands of bar & wire mill.

Centrifugal and Static Casting Spheroidal Graphite (SG) Acicular Structure with Non Continuous Carbide Cast Iron Roll & Ring

PROPERTIES

Improve in wear resistance & thermal fatigue resistance. The high fracture toughness reduces the degree of fire cracking & helps to extend the campaign time. The high strength spheroidal graphite core overcomes the high loads.

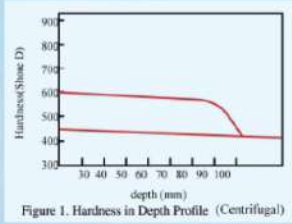

Figure 1. Hardness in Depth Profile (Centrifugal)

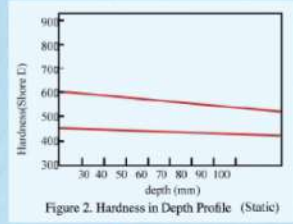

Figure 2. Hardness in Depth Profile (Static)


Figure 3. Mag.× 500

MECHANICAL PROPERTIES	Centrifugal	Static
Hardness of Shell	HSD45-60	HSD45-60
Hardness of Neck	HSD38-50	HSD40-55
Tensile Strength of Core	≥ 500Mpa	≥500Mpa

CHEMICAL ANALYSIS					
C	Si	Mn	Ni	Cr	
3.0/3.4	1.5/2.5	0.8/1.0	2.5/4.5	≤ 0.20	Mo 0.7/1.0

APPLICATIONS For roughing rod/bar mills.

Centrifugal Casting High Chrome Cast Iron Roll

PROPERTIES The hardness is very uniformity in truly no fall off at the working depth with best wear resistance and machining performance. Its shell has W, Mo,V, Cr and Ti with high content as well as especially heat treatment get a carbide + sorbite + bainite structure.

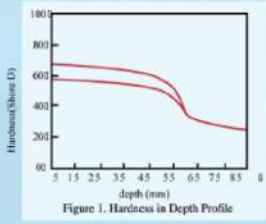

Figure 1. Hardness in Depth Profile

Microstructure

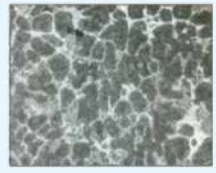
Figure 2. Mag.× 200

MECHANICAL PROPERTIES	
Hardness of Shell	HSD70-85
Hardness of Neck	HSD35-48
Tensile Strength of Core	≥ 450MPa

CHEMICAL ANALYSIS									
C	Si	Mn	Cr	Mo	W	V	Nb	Ti	B
1.6/2.3	0.3/0.9	0.2/0.8	2.0/5.0	2.0/5.0	1.0/4.0	2.0/6.0	1.0/3.0	0.5/1.5	
2.0/2.5	1.0/1.5	0.2/0.8	18/22	0.6/1.0	0.1/0.3	0.2/0.6		0.1/0.3	0.02/0.06

APPLICATIONS Widely used in the intermediate and stands of bar mill.

METSELL

Samples for Inspection

Samples for chemical composition analysis

Metallographic specimens of forged steel rolls

Ring sample from casting roll for test

Quality Inspection Equipments

Electron scanning electron microscopy (Hitachi, Japan)

Image analyzer (Zeiss, Germany)

Plasma emission spectrometer (American thermoelectricity)

X-ray spectrometer (Shimadzu, Japan)

Photoelectric Direct Reading Spectrometer (Spark, Germany)

Combined Hydroger, Oxygen and Nitrogen Measuring Instrument (Rico, USA)

Photoelectric Direct Reading Spectrometer (German Hyperspectral)

Carbon and sulphar analyzer (Shanghai Yanrun)

Universal Testing Machine (Jinan Trial)

Shore hardness tester (Fuji, Japan)

Ultrasonic test (General Electric, America)

On-line eddy current detector (Shanghai Minghuan)

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