VIMCO ROLLS (P) LTD

PIONEERS IN ROLLS
FOR ROLLING MILLS

PRODUCT CATALOGUE

ABOUT COMPANY

Vimco Rolls Pvt Ltd is a leading manufacturer of broad range of Rolls for Rolling Mills.

We started operations in the year 1972 and ever since, our metal rolls have been known to meet the highest quality standards of the industry. In our attempt to radically change the metal roll industry, we inaugurated a modern manufacturing unit in the year 2004 in Dera Bassi near Chandigarh. Our plant comprises of modern technology Digital Steel Melting Shop, Heat Treatment Furnace and state of the art Machine Shop.

Over the years, Vimco Rolls Pvt Ltd has emerged as one of the leading roll manufacturers in India. Together with a team of dedicated engineers and highly skilled workforce and professionals, our experienced owners are able to create and maintain a competitive spirit to meet customer demands across the country. We cater specifically to Hot and Cold Rolling Mills producing products like wire rod, TMT bar, round, strips, sections and other structural steel.

Our Product range includes

- Alloy Cast Steel Rolls
- Adamite Rolls
- SG Iron Pearlitic Rolls
- SG Iron Acicular Rolls
- Indefinite Chilled Cast Iron Rolls
- Double Poured Chilled Cast Iron Rolls.
- High Speed Steel Rolls
- Tungsten Carbide Roll Rings

OUR MISSION

Leading Manufacturer of High-quality Rolls

Vimco Rolls Pvt Ltd is synonymous with quality, durability, and reliability. Our mission is to be the leading manufacturer of high-quality Rolls. We continuously strive to improve our processes and services through continuous research to meet the demands of the industry and maintain the international market standards. All our processes are consistent with ISO 9001 : 2015 Certification. Our products are shipped after intensive quality control, and we guarantee a complete after-sales service.

OUR INFRASTRUCTURE

India's Leading Modern Manufacturing Facility for Rolls

Vimco Rolls Pvt Ltd comprises of a professional workforce and a team of engineers who are supervised by an experienced management team. Our winning combination of skills and resources has enabled us to succeed significantly over the years. We are happy to declare that we are one of India's leading modern manufacturing facility for rolls.

MANUFACTURING PROCESS FLOW

MELTING
Raw materials like Pig Iron, Steel, Roll Scrap & Alloys are added in Induction Furnace and melted

CHEMICAL ANALYSIS
Samples from each heat are sent to Chemical Lab for chemical analysis

CASTING
Molten metal is tapped & poured into moulds and left for cooling

HEAT TREATMENT
Cast Rolls are sent for heat treatment to enhance mechanical properties

PHYSICAL ANALYSIS
Final cast and heat treated Rolls are further examined for physical properties like microstructure & hardness

PRECISION MACHINING
After complete testing, Cast Rolls are sent to Machine Shop for final machining

FINAL INSPECTION
Finished Rolls are inspected according to specifications and cleared for dispatch

OUR INFRASTRUCTURE INCLUDES

Moulding and Pattern Shop

- Pneumatic Machines for making and fettling Patterns
- Chromite Sand Mixer
- Moulds and Chills
- Moulding Boxes in various sizes
- RCC Casting Pits

Heat Treatment

Heat Treatment is carried out in our Gas fired Annealing Furnace. In this process, Rolls are heated in mulitple stages controlled by Fully Automatic PLC to alter and achieve optimum physical properties for various applications. This automation ensures that quality is maintained and achieved consistently in every different batch. Following improvements are made to the Physical Properties of Rolls -

- Increased Hardness, Toughness, Wear Resistance
- Removes Internal Residual Stresses
- Refined Grain Size

Melting and Cast Shop

- Fully Digital Medium Frequency Induction Furnace with Twin Shells
- Ladle Refining through Argon Purging
- Digital Immersion Pyrometers
- Ladle Pre-Heaters

Machine Shop

Our Machine Shop is equipped with a broad range of Latest Machines and Tools necessary to shape the rolls to their precise dimensions and surface finish.

- Heavy Duty All Geared Horizontal Lathe Machines
- CNC Horizontal Lathe Machines
- Horizontal Boring Machines
- Vertical Turning Lathe Machines
- Roll Grinding Machines
- Radial Drills

OUR PRODUCTS

Your Premier Rolls manufacturer in India

Vimco Rolls Pvt Ltd is a pioneer in the production of Rolls since more than 50 years. We offer a diverse range of grades tailored to meet the specific requirements of our customers. Armed with a team of dedicated engineers, highly skilled professionals and experienced owners, we handle all critical jobs and meet our customer's demands with ease. Over the past decades, we have established ourselves as a prominent player, excelling in competency, efficiency, performance, and delivery, solidifying our position as a Premier Rolls manufacturer in India. We are capable of producing rolls for a wide range of applications. Some of these are:

LONG PRODUCT MILLS

- Wire Rod Mills
- TMT Bar Mills
- MS and Alloy Steel Round Mills
- Light and Heavy Section Mills
- Structural Mills

FLAT PRODUCT MILLS

- Hot Strip Mills
- Plate Mills

ALLOY CAST STEEL ROLLS

ALLOY STEEL BASE (ADAMITE) ROLLS

SG IRON PEARLITIC ROLLS

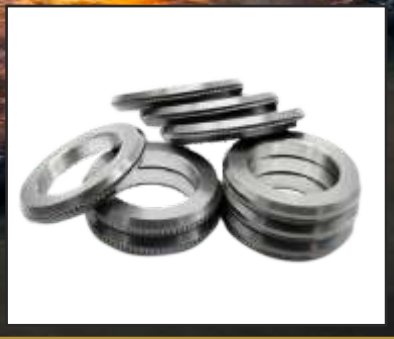
SG IRON ACICULAR ROLLS

INDEFINITE CHILLED (IC) ROLLS

INDEFINITE CHILLED DOUBLE POURED (ICDP) ROLLS

HIGH SPEED STEEL (HSS) ROLLS

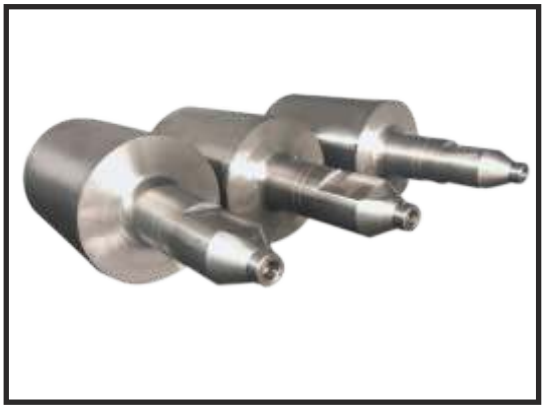
FORGED ROLLS

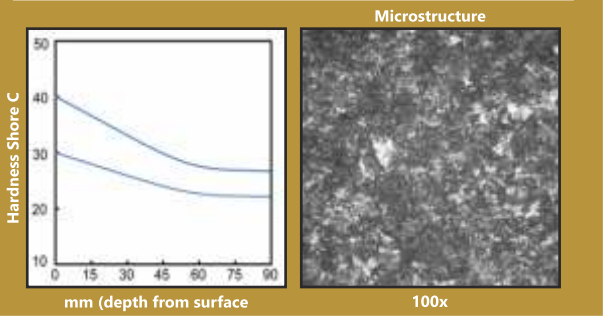


TUNGSTEN CARBIDE (TC) RINGS

ALLOY CAST STEEL ROLLS

Alloy Cast Steel Rolls are Hypo-eutectoid steel rolls having carbon in the range of 0.5% to 0.8% and are alloyed with Chromium and Molybdenum. These rolls undergo double annealing heat treatment process to help improve toughness and thermal shock resistance. Their microstructure is primarily fine pearlitic with spheroidized cementite. These rolls have high mechanical strength with good weldability.





Applications

- Roughing Stands for Medium and Heavy Section Mills.

Grades

- ACS-32 (30-35 Shore C)
- ACS-37 (35-40 Shore C)

Mechanical Properties

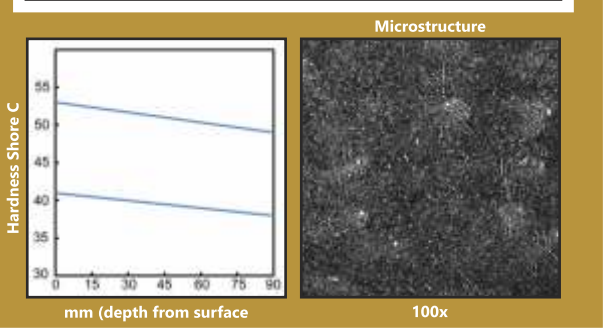
- Tensile Strength: 650-800 Kg/mm²
- Bending Strength: 750-1100 Kg/mm²

CHEMICAL COMPOSITION

Grade	Hardness (Shore C)	C%	Mn%	Si%	S%	P%	Cr%	Mo%
ACS-33, ACS-38	30-40	0.5-0.8	0.5-1.0	0.3-0.7	0.05 Max	0.05 Max	0.8-1.2	0.2-0.5

ALLOY STEEL BASE (ADAMITE) ROLLS

Alloy Steel Base (Adamite) Rolls are Hyper-eutectoid steel rolls having higher carbon content, ranging from 1.0% to 2.0%. and alloyed with Nickel, Chromium and Molybdenum. The addition of Cr, Ni, Mo and other elements and a multi stage heat treatment process (Annealing) followed by tempering cycle develops a high wear and fire cracking resistance together with a constant hardness along the working layer. The microstructure consists of fine pearlitic matrix with spheroidized carbide. A unique characteristic of these rolls is that they have uniform hardness from the surface to the core.



Applications

- Roughing stands for TMT Bar, Wire Rod and Hot Strip Mills
- Roughing, Intermediate and Finishing stands for Section and Structural Mills
- Rail Mills, Universal Beam Mills, and Billet Mills.

Grades

- AD-42 (40-45 Shore C)
- AD-47 (45-50 Shore C)

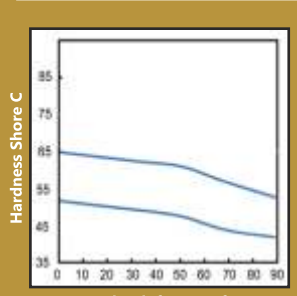
Mechanical Properties

- Tensile Strength: 500-700 Kg/mm²
- Bending Strength: 750-1000 Kg/mm²

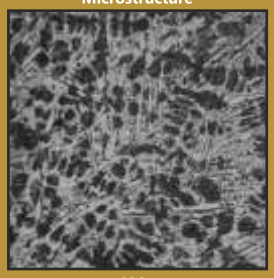
CHEMICAL COMPOSITION

Grade	Hardness (Shore C)	C%	Mn%	Si%	S%	P%	Cr%	Ni%	Mo%
AD-42	40-45	1.4-1.6	0.5-0.8	0.4-0.7	0.05 Max	0.05 Max	0.8-1.2	0.4-0.8	0.2-0.4
AD-47	45-50	1.6-1.9	0.6-1.0	0.4-0.7	0.05 Max	0.05 Max	1.0-1.5	0.8-1.2	0.2-0.5
AD-52	50-55	1.6-2.1	0.7-1.0	0.3-0.7	0.05 Max	0.05 Max	1.1-1.6	1.0-1.5	0.2-0.5

SPHEROIDAL GRAPHITE IRON (PEARLITIC) ROLLS



Microstructure



Spheroidal Graphite Iron Pearlitic Rolls are structurally characterized as having graphite in nodular form. They have advantages over normal Cast Iron Rolls which have graphite in the form of flakes. They have good strength, high-temperature performance and anti accident performance with small hardness drop on the work layer. Their microstructure consists of nodular graphite and different carbides in a pearlitic matrix.

Applications

- Roughing and Intermediate stands of TMT Bars Mills and Wire Rod mills.
- Intermediate and Finishing Stands of Structure and Strip Mills

Grades

- SGP-52 (50-55 Shore C)
- SGP-57 (55-60 Shore C)
- SGP-62 (60-65 Shore C)

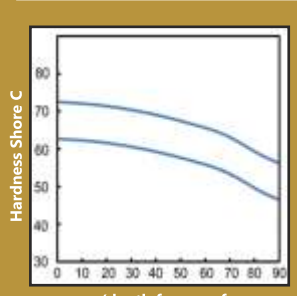
Mechanical Properties

- Tensile Strength: 450-600 Kg/mm^2
- Bending Strength: 800-1100 Kg/mm^2

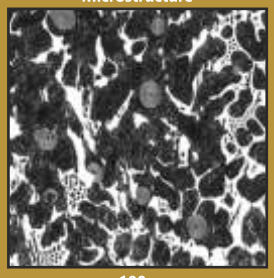
CHEMICAL COMPOSITION

Grade	Hardness (Shore C)	C%	Mn%	Si%	S%	P%	Cr%	Ni%	Mo%
SGP-52	50-55	3.0-3.3	0.4-0.7	1.5-2.0	0.02 Max	0.05 Max	0.4-0.6	1.4-1.7	0.2-0.4
SGP-57	55-60	3.0-3.4	0.4-0.7	1.5-1.8	0.02 Max	0.05 Max	0.4-0.7	1.5-1.8	0.2-0.5
SGP-62	60-65	3.1-3.5	0.4-0.7	1.5-1.8	0.02 Max	0.05 Max	0.4-0.7	1.6-2.0	0.2-0.5

SPHEROIDAL GRAPHITE IRON (ACICULAR) ROLLS



Microstructure



Spheroidal Graphite Iron Bainitic Acicular/Bainitic Rolls are alloyed with higher % of Ni and Mo resulting in bainitic matrix with increased carbide content. These rolls have higher strength, toughness and wear resistance than SGI Pearlitic Rolls. These rolls are popularly known as "Acicular" Rolls due their graphite and carbide constituents being in an acicular (needle like) bainitic matrix. These rolls are capable of higher hardness and have high hardness penetration. They find applications in a wide range of mills. Sufficient water cooling is necessary for their best performance.

Applications

- Intermediate and Finishing Mill stands for TMT Bar Mills, Rail and Structural Mills.
- Intermediate and Finishing Stands of Wire rod and Strip Mills

Grades

- SGA-62 (60-65 Shore C)
- SGA-67 (65-70 Shore C)
- SGA-72 (70-75 Shore C)

Mechanical Properties

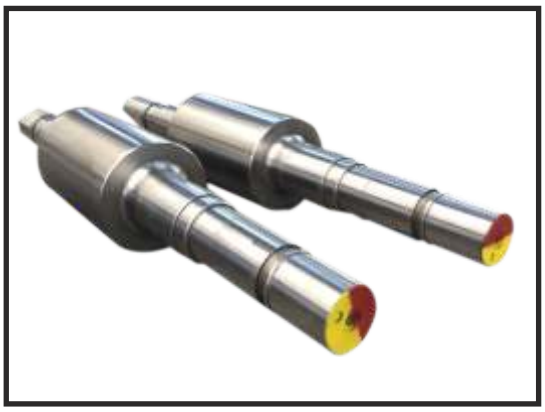
- Tensile Strength: 450-600 Kg/mm^2
- Bending Strength: 800-1100 Kg/mm^2

CHEMICAL COMPOSITION

Grade	Hardness (Shore C)	C%	Mn%	Si%	S%	P%	Cr%	Ni%	Mo%
SGA-62	60-65	3.0-3.4	0.4-0.7	1.3-1.6	0.02 Max	0.05 Max	0.4-0.7	2.0-2.5	0.4-0.7
SGA-67	65-70	3.1-3.5	04-0.7	1.2-1.5	0.02 Max	0.05 Max	0.4-0.8	2.5-3.0	0.6-0.9
SGA-72	70-75	3.2-3.6	0.4-0.7	1.2-1.5	0.02 Max	0.05 Max	0.4-0.8	2.8-3.4	0.8-1.0

INDEFINITE CHILLED (IC) CAST IRON ROLLS

Indefinite Chilled CI Rolls are static cast rolls having a small hardness gradient in the working layer. The microstructure of these rolls varies from pearlitic to bainitic to martensitic controlled by the content of alloy elements. Desired hardness can be achieved by finding the right balance of graphite and carbides in the matrix by adjusting the chemical composition. These rolls are superior to Normal CI and Clear Chill CI rolls. The presence of flake graphite in the matrix enhances their resistance to wear, spalling and fire cracking making them suitable for products that require an excellent surface finish. Adequate water cooling is necessary.



Applications

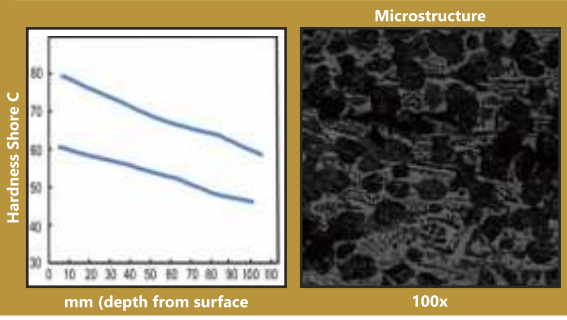
- Intermediate/Finishing stand of Wire Rod Mills, TMT Mills and Structural Mills.
- Finishing stand of Strip, Sheet and Flat rolling mills.

Grades

- ICCI-I (55-60 Shore C)
- ICCI-II (60-65 Shore C)
- ICCI-III (65-70 Shore C)
- Bainitic Chill (70-75 Shore C)

Mechanical Properties

- Tensile Strength: 200-400 Kg/mm^2
- Bending Strength: 250-400 Kg/mm^2



CHEMICAL COMPOSITION

Grade	Hardness (Shore C)	C%	Mn%	Si%	S%	P%	Cr%	Ni%	Mo%
ICCI-I	55-60	3.0-3.4	0.4-0.7	0.7-1.0	0.05 Max	0.05 Max	0.5-1.0	0.5-1.2	0.1-0.3
ICCI-II	60-65	3.0-3.4	0.4-0.7	0.7-1.0	0.05 Max	0.05 Max	0.7-1.0	1.2-1.6	0.1-0.3
ICCI-III	65-70	3.1-3.5	0.4-0.7	0.7-1.0	0.05 Max	0.05 Max	0.8-1.1	1.6-2.0	0.1-0.3
B Chill	70-75	3.2-3.5	0.4-0.7	0.8-1.2	0.05 Max	0.05 Max	1.0-1.3	2.0-2.5	0.2-0.4

INDEFINITE CHILLED DOUBLE POURED (ICDP) ROLLS

ICDP Rolls are characterized by having a hard alloyed iron working layer and a soft grey iron/nodular iron core. The matrix on the surface generally is bainitic with the amount of flaky graphite reducing towards the centre of the roll. These rolls are made using both Spin and Static cast procedures together. Due to presence of flake graphite in the matrix and the core being made of soft iron, these rolls provide a combination of excellent mechanical properties, strength and high wear resistance. This makes them suitable for products where surface finish is very critical and roll's resistance to fracture is important.

Applications

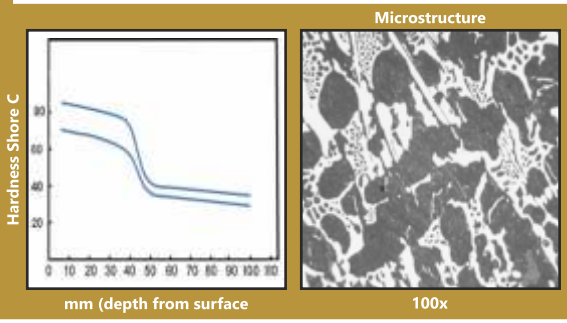
- Intermediate/Finishing stand of Wire Rod Mills, TMT Mills and Structural Mills
- Finishing stand of Strip, Sheet and Flat rolling mills.

Grades

- IC-III
- IC-IV
- IC-V

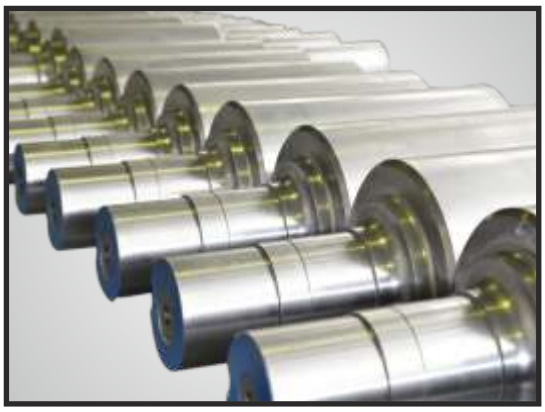
Mechanical Properties

- Tensile Strength: 400-500 N/mm^2
- Bending Strength: 700-1000 N/mm^2

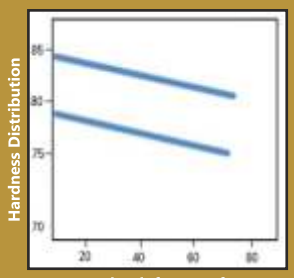


CHEMICAL COMPOSITION

Grade	Hardness (Shore C)	C%	Mn%	Si%	S%	P%	Cr%	Ni%	Mo%
IC-III	Shell	3.0-3.6	0.4-1.2	0.6-1.2	0.05 max	0.050 max	0.7-1.2	2.0-3.0	0.2-1.0
IC-IV	Shell	3.0-3.6	0.4-1.2	0.6-1.5	0.05 max	0.05 Max	1.0-2.0	3.0-4.0	0.2-1.0
IC-V	Shell	3.0-3.6	0.4-1.2	0.6-1.5	0.05 max	0.05 Max	1.0-2.0	3.0-4.8	0.2-2.0
	Core	3.1-3.5	0.6-0.9	1.2-1.5	0.05 max	0.05 Max	0.2-0.5	0.4-1.0	



Microstructure



HIGH SPEED STEEL (HSS) ROLLS

High Speed Steel Rolls, produced by horizontal centrifugal casting process, are all compound rolls with high speed steel as the work layer and nodular iron as the core. The material of HSS contains plenty of alloyed elements such as Mo, V, W, Cr etc. The high hardened eutectic carbides & second carbides, such as MC, M2C, M6C evenly distributed in tempered martensitic matrix, make the wear and thermal cracking resistance very excellent. Besides, the resistance of surface roughing is also good. In conditions of hot strip rolling, the contact points between steel strip and the work rolls can form a thin adherent oxide film on the roll surface, which plays a good role in the wear features and the quality of the strip surface.

Advantages over Conventional Cast Iron Rolls

- **Increase in Pass life of Roll:** It is estimated that the useful life of HSS rolls is almost 5-6 times more than that of conventional rolls. Meaning that over all cost of rolls consumed per tonne of finished steel produced is much less.
- **Increase in Efficiency & Output of Mill:** The regular change of roll pass after wearing out consumes a lot of time and results in production loss and huge energy loss. Because of the longer pass life of the HSS rolls the time required for repetitive changing of roll pass is considerably reduced.
- **Better Surface finish of Product:** Since the passes of the HSS rolls have a greater resistance to wear and tear, the shapes of the grooves are stably maintained. Due to higher wear resistance property compared to conventional rolls, the frictional impact during each pass is minimum which results in better quality of rolled product for a longer tenure.

Applications

- Finishing stands for TMT Bar and Wire Rod Mills
- Slitting and Dog bone stands of Rebar Mills

Grades

- Semi-HSS (80-85 Shore C)
- HSS (80-85 Shore C)

Mechanical Properties

- Tensile Strength: ≥350 Kg/mm²

CHEMICAL COMPOSITION

Grade	Hardness (Shore C)	C%	Mn%	Si%	Cr%	Ni%	Mo%	V%	Nb%
Semi-HSS	80-85	0.6-1.2	0.5-1.0	0.8-1.5	3.0-9.0	0.2-1.2	2.0-5.0	0.4-3.0	0.1-8.0
HSS	80-85	1.5-2.2	0.4-1.2	0.3-1.0	3.0-8.0	0.1-1.5	2.0-8.0	2.0-9.0	0.1-3.0

TUNGSTEN CARBIDE (TC) RINGS

Tungsten Carbide roll (ring) or TC ring is a tool material which contains Tungsten Carbide and Cobalt. These rings are used for extended life in applications where long rolling campaigns are required. These rings are primarily applied in high-speed wire production lines, seamless pipe stretch reducing mill and three-dimensional rolls for cold-rolled ribbed steel bar. Their extreme hardness makes them suitable for wire rods finishing blocks and some shaping applications. They have a mass diameter ≤480mm and thickness ≤130mm.

Characteristics of Tungsten Carbide

- Tungsten Carbide is the most wear resistant metal on earth
- Due to their extremely high hardnesstungsten carbide rings can keep their shape and luminescence in tact longer for any other ring on the market.
- Compared with other materials, TC is much better in terms of heat-resistance, wear-resistance and strength.
- These rings are highly efficient and have a long service life.

Applications

- Bar & Wire rod mills
- Hot Strip Mill, Cold Strip Mill, Section mill, Plate rolling mill, Seamless Pipe rolling mill
- High-speed finishing mill roll sleeve

STANDARD GRADES OF TUNGSTEN CARBIDE

Wc%	Co/Ni%	Density (g/cm³)	Hardness (HRA)	Bending Strength (N/mm²)	Compressive Strength(N/mm²)
94	6	14.9	88.0	2300	4200
92	8	14.7	87.5	2400	4100
90	10	14.4	87.5	2400	3500
88	12	14.3	86.5	2300	3400
85	15	14.2	85.0	2700	3300
82	18	13.7	83.5	2600	3200
80	20	13.5	82.5	2500	3100
75	25	13.1	80	2400	3000
70	30	12.8	78.0	2200	2900

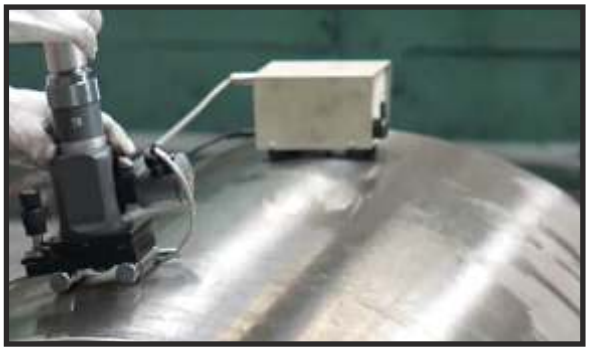
QUALITY THAT SPEAKS OF EXCELLENCE

QUALITY ASSURANCE

Vimco Rolls Pvt Ltd is dedicated to achieving the highest quality standards through cutting-edge infrastructure and technology. All the cast rolls are thoroughly checked at various stages of production to ensure that the best quality product reaches our customers. A team of trained and experienced engineers and technicians inspects the rolls using multiple equipment in our testing facilities and laboratories.

METALLURGICAL QUALITY

Vimco Rolls Pvt Ltd places a high value on preserving metallurgical quality at all stages of production. We use the following equipment to evaluate the composition and test the qualities of our products to ensure they fulfil the necessary specifications and standards.



Physical Testing

- Hardness Testers (Portable and Laboratory Sets)
- Metallurgical Microscope
- Ultrasonic Testing Machine

Chemical Testing

- Complete Chemical Lab for Wet Analysis
- Optical Emission Spectrometer (OES)
- Portable NITON XRF Analyser Gun

TECHNOLOGY THAT MEETS PERFECTION

Vimco Rolls Pvt Ltd is dedicated to achieving precision in machining that plays a crucial role in the quality of the rolls. At Vimco Rolls Pvt Ltd, we use state of the art machines such as Computerised Numerical Control (CNC) machines to control the dimensions of the rolls with utmost precision. We use Mitutoyo micrometers of all ranges to accurately measure the dimensions of machined rolls. Such instruments allow us to maintain tight tolerances and ensure that the final sizes are within the required specifications.

ISO 9001 : 2015 Quality Management System

Registration Certificate

This is to certify that

VIMCO ROLLS PRIVATE LIMITED

HARIPUR HINDUAN ROAD, VILLAGE SUNDRAN, DERA BASSI, DISTT. MOHALI - 140507, PUNJAB, INDIA.

has been assessed by RAPL and found to comply with the requirements of

ISO 9001 : 2015
Quality Management Systems

For the following activities:

MANUFACTURING OF HIGHLY ALLOYED METAL ROLLS FOR ROLLING MILLS.

Certificate Number: E2024038237
Date of certification: 02/03/2024
1st Surveillance on or before: 01/03/2025
IInd Surveillance on or before: 01/03/2026
Certification Valid Until: 01/03/2027

Director (Certification)
Royal Assessments Pvt. Ltd.

IAF EGAC Accredited
QMS Certification CAB# 119012

OUR CLIENTS

BEEKAY Inspired by Steel
SHRI BAJRANG POWER AND ISPAT LTD.
KAMDHENU GROUP
AARTI GROUP ASHOKA SINCE 1991
SHREE GANESH METALIKS LTD.
GIS MARUTI TMX 550
AGROHA TMT
MEENAKSHI TMT
RADHA TMT
SAPL
PULKIT TMT BARS
PRIMEGOLD
GOEL TMT
HIRA
Bhumika
SHAURYA
ARUN PLUS TMT
PANKAJ GROUP
MONG TMT BAR
NIRMAN TMT
SND SRI NAVDURGA GROUP
JDS
GBR TMT THE STRENGTH WITHIN
KB TMT
SINGHAL
PRESIDENT TMT
BMM
DIAMOND TMT 500
Special Steel Industries
ASR

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