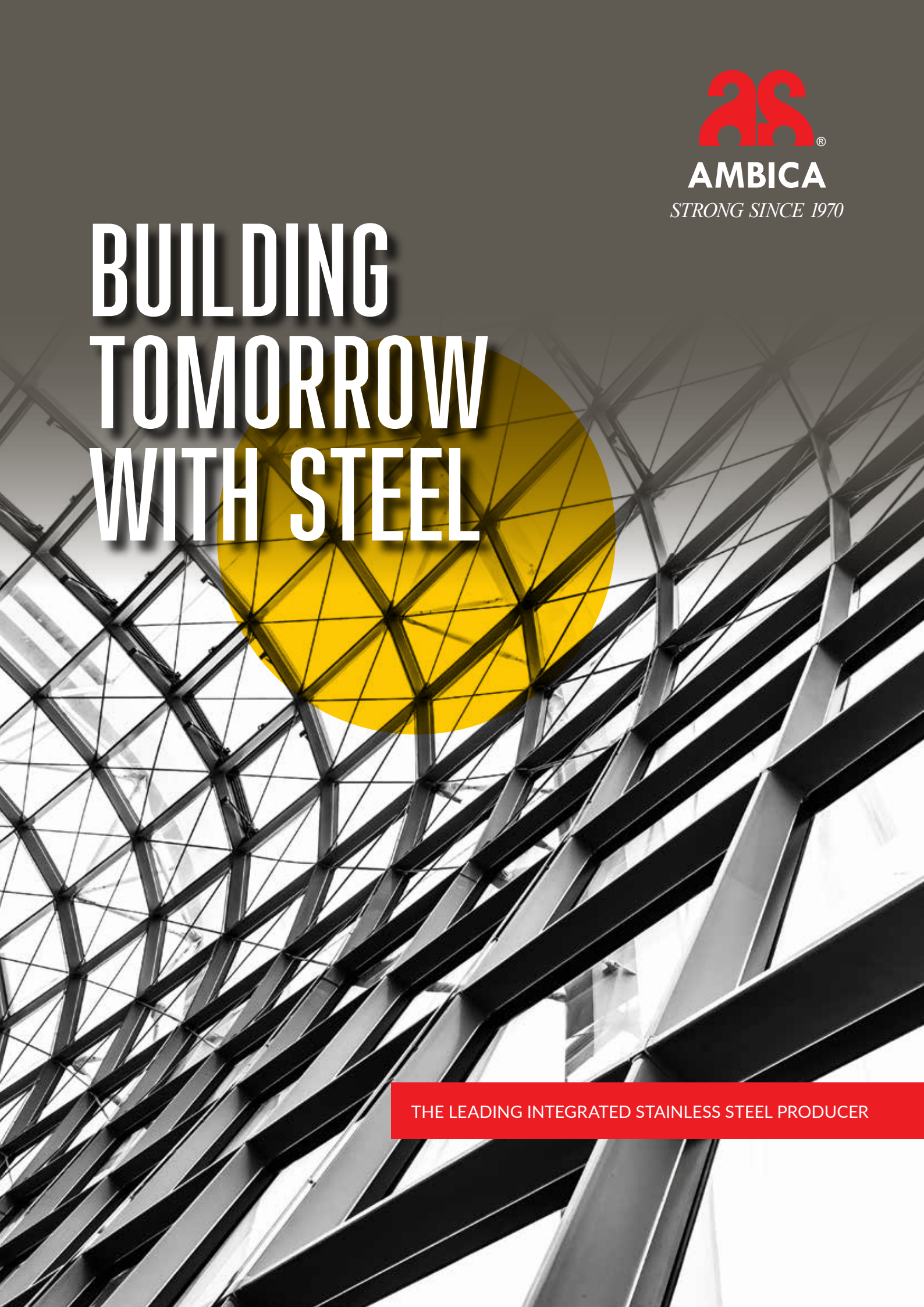
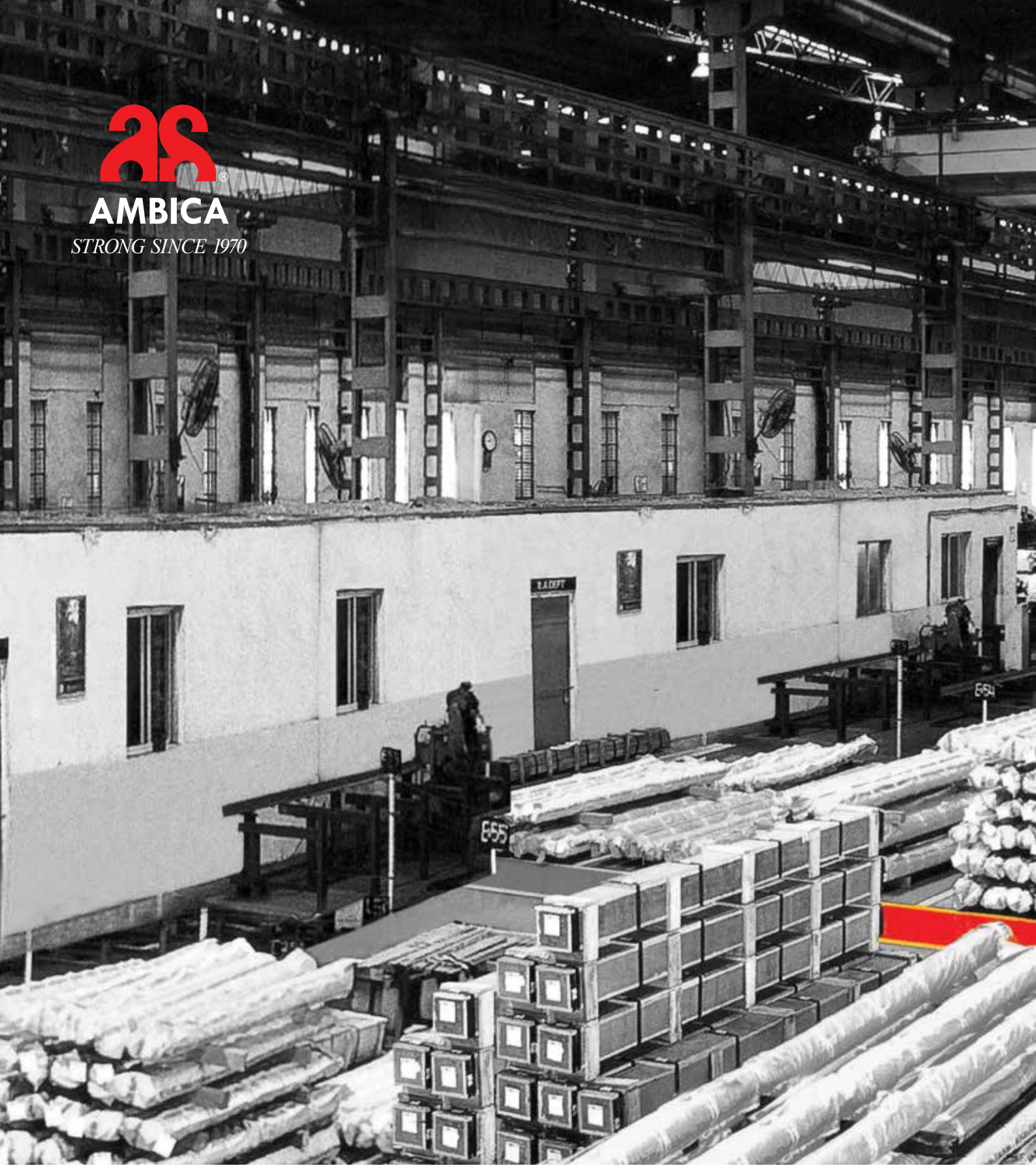
AMBICA

STRONG SINCE 1970

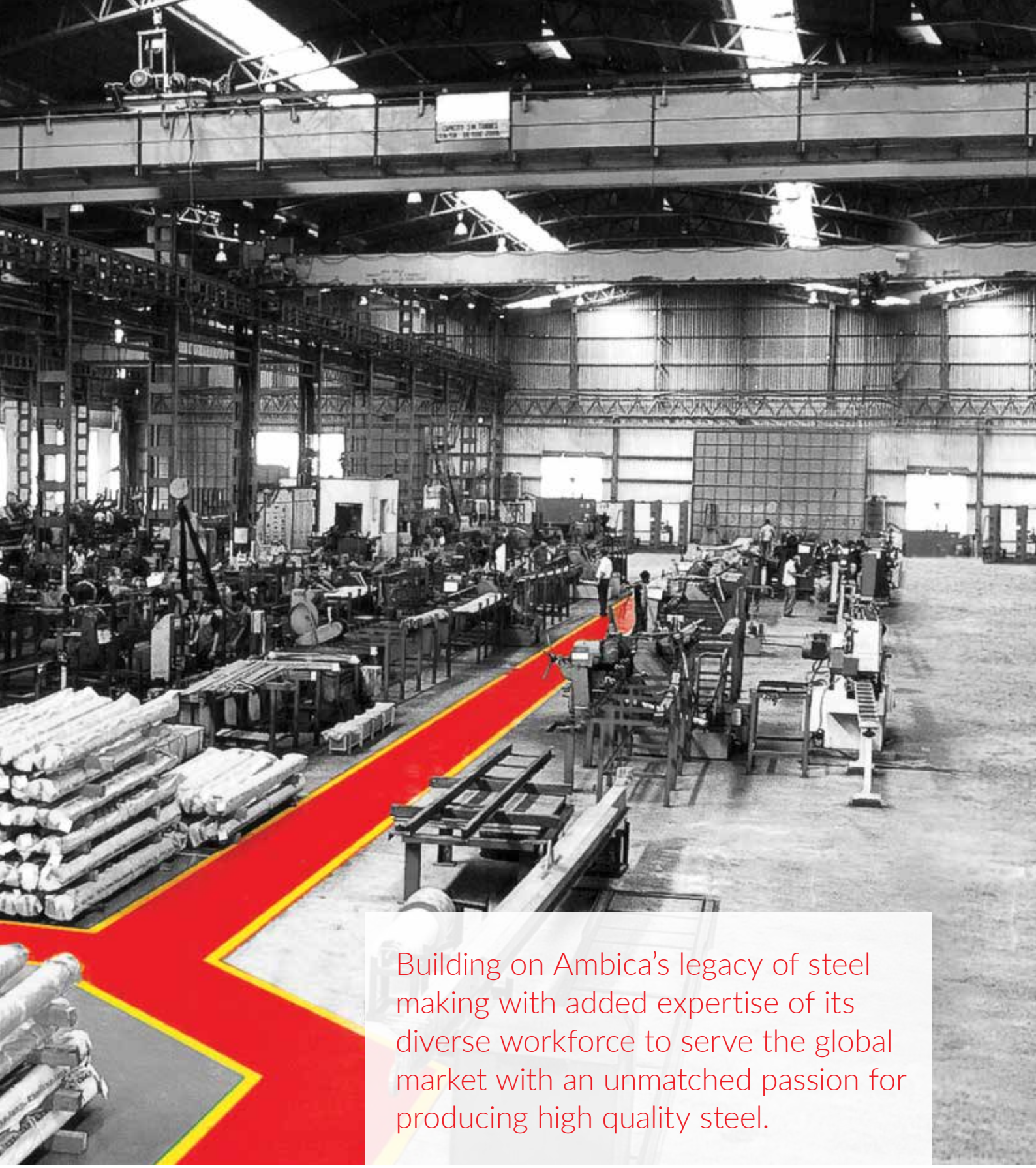
BUILDING TOMORROW WITH STEEL



THE LEADING INTEGRATED STAINLESS STEEL PRODUCER



5 decades of steel making



Building on Ambica's legacy of steel making with added expertise of its diverse workforce to serve the global market with an unmatched passion for producing high quality steel.

Fully Integrated plant is equipped with :

- Melting & Casting Shop
- Hot Rolling Mills
- Heat Treatments
- Cold Finishing

80,000+
tonnes annual melting capacity

Ambica is one of the most updated stainless steel mill in the world, employing a wide range of ultra-modern steel making technology. Melting data is monitored precisely through a strong production control system that ensures tight adherence to specified material properties such as purity levels, Chemical and Mechanical values.

Our team of specialists concentrates on the research and development activities to maintain our position of being the best in the industry.

1.25+
million metric tonnes produced

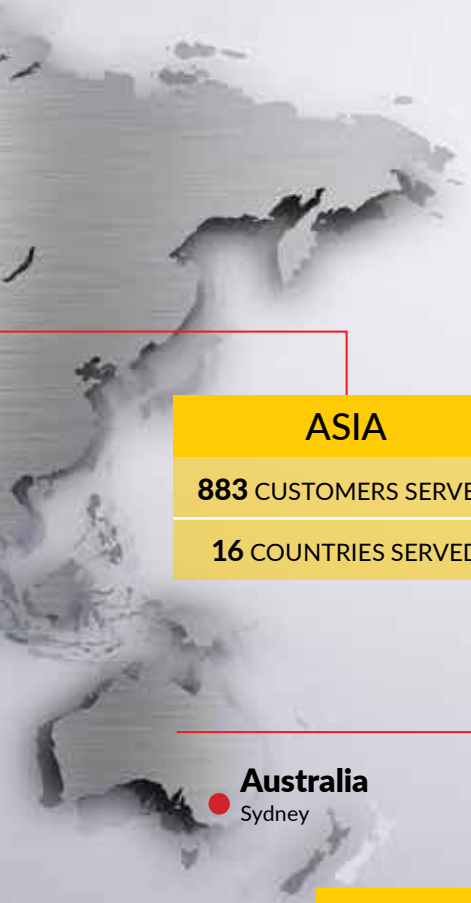
151+
number of grades produced

65
countries served

Ambica serves over 1,987 customers in 65 countries

AMBICA
STRONG SINCE 1970

Testimonials



ASIA

883 CUSTOMERS SERVED

16 COUNTRIES SERVED

Australia
Sydney

OCEANIA

55 CUSTOMERS SERVED

2 COUNTRIES SERVED

This is to certify that we have been procuring Stainless Steel 316/316L raw material from M/s Ambica Steels Limited, Ghaziabad from last 3 years.

The quality of the product supplied by M/s Ambica Steels Limited is up to the mark and as per our requirements. Mill Test Certificates accompany with all their suppliers.

Pre sales and Post sales support has been excellent.

Deliveries have been excellent.

Panam Engineers Limited
Khyati Trivedi

We are thankful to Ambica steels limited in helping us in reducing our procurement lead time for Bright bars in best possible manner. Kudos, to their highly professional.

Operation team and we highly recommend Ambica for their best in class product & services in Steel Industry.

Victora Auto Pvt. Ltd.
Gaurav Mann,
Purchase Manager

We are working with Ambica Steels since many years and experienced during that time a valuable partnership. We respect the quality of the material and the way Ambica is developing new products.

Jacquet Metal Services
Germany

Our company has been working with Ambica Steels Limited for the past 1.5 years as our most important supplier for stainless steel bars. It all started with the way they helped us in the time of need and it developed into healthy working relationship over time.

Our experience has been excellent with them as they not only provide good quality products but also provide excellent service without failure.

Venus Industrial Corporation
Rahul Gupta, COO

Certificates & Approvals

Approved Manufacturer for Steel Making Year 2015

Loyd's Register, London, U.K.

AS 9100 D (EN 9100:2009 and JISQ 9100) Year 2010

RW TÜV Systems GmbH, Germany

RoHS-Directive 2011/65/EC Year 2018

RW TÜV Systems GmbH, Germany

ISO 9001:2015 Year 2002

RW TÜV Systems GmbH, Germany

CE/CPR (305/2011) Year 2016

TÜV NORD CERT GmbH, Germany

OHSAS 18001:2007 Year 2006

TÜV NORD CERT Gmbh, Germany

Boiler Quality Steel Certification Year 2006

Central Boilers Board, India

NORSOK M-650 Year 2016

DNV GL Business Assurance India Pvt. Ltd., Chennai

Pressure Equipment Directive 2014/68/EU) Year 2003

RW TÜV Systems GmbH, Germany

AD 2000 Merkblatt W0 Year 2002

RW TÜV Systems GmbH, Germany

ISO 14001:2004 Year 2003

TÜV NORD CERT GmbH, Germany

REACH Regulation (EC1907/2006) Year 2013

RW TÜV Systems GmbH, Germany

IATF 16949:2016

TÜV NORD CERT GmbH, Germany

Quality Assurance

At the core of the functioning of Ambica Steels, lies a strong commitment towards quality. Ambica has been progressively innovative since the beginning and its products have stood test of the time. The organization has a legacy of delivering quality products at desired prices and that too within a defined time frame.

For guaranteeing quality at every step, we ensure that

- Perfectly documented work-procedures endorsed by the 3rd party accreditations, certifications and approvals
- In-house testing laboratories installed with ultra-modern equipment

At Ambica, we always study and evaluate our safety systems, and aim to become better than the industry's best.

Non-Destructive Testing Facilities

In order to meet the most demanding product specification, Ambica has installed an ultra-modern fully Automatic Ultrasonic Testing line as well as Magnetic Particle Inspection (MPI) machine.
These machines have enhanced our capabilities to detect any internal and/or external (surface and sub-surface) defects to a very greater extent, allowing us to keep our quality promise to our customers.

Radioactivity Contamination

Ambica has always been well aware of its responsibility of delivering the radiation-free products to its customers, and to endorse this principle the management had bought 2 radiation dosimeters almost eight years ago (Environmental Radiation Dosimeter is the instrument that is used to check the presence of radioactive contamination like photons & Gamma Radiation in steel scraps). Today, the company is also using RAD detectors with external sensors. These instruments can measure faster, and can measure much lower contamination levels with a higher degree of accuracy. This is in addition to Ambica's laboratory for the measurement of radiation through identification of nuclides (gamma spectroscopy with multi-channel analyzer). The quantification is shown in Bq/g and Bq/Kg.
At Ambica, each delivery of scrap is tested for radioactive contamination, which ensures that of all its raw materials are free from radioactive contamination. This procedure is being followed for last 8 years.

Besides, our state-of-the-art radiation check equipment installed at our entry gates ensure that all incoming / outgoing materials are free from contamination and provides a radiation free atmosphere for our employees are work in.

Our Quality & Testing Facilities

Metallurgical Testing

- Hand Held XRF machine for Sorting
- Spectro for Testing Chemical Composition
- Radioactivity
- LECO Gas Analyzer
- Microscope for checking Granular Structure

Non-Destructive Testing

- Ultrasonic Testing
- MPI

Mechanical Property Testing

- Tensile Tests
- Impact tests-Charpy
- Hardness tests - Rockwell & Brinell
- Surface Roughness

Awards & Accolades

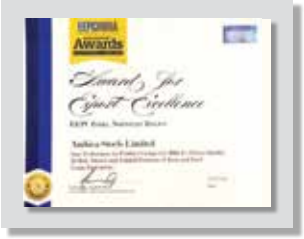
India's Most Admired Brand in Iron & Steel Category
Year - 2018-19

ACMA - Certificate of Membership
Year - 2018-19

Certificate of Participation in Wire & Tube, Mumbai, India Year - 2018

Award for outstanding contribution towards the promotion of Indo-German economic relation
Year - 2018

Certificate for outstanding contribution towards the promotion of Indo-German economic relation
Year - 2018



EEPC India - Award for Export Excellence
Year - 2016-17

EEPC India - Star Performer in Rolled, Drawn and Folded Products of Iron & Steel Large Enterprise
Year – 2015-16

EEPC India - Shield for Star Performer in Rolled, Drawn and Folded Products of Iron & Steel Large Enterprise
Year - 2015-16

Bureau of International Recycling Gold Membership Certificate
Year - 2015

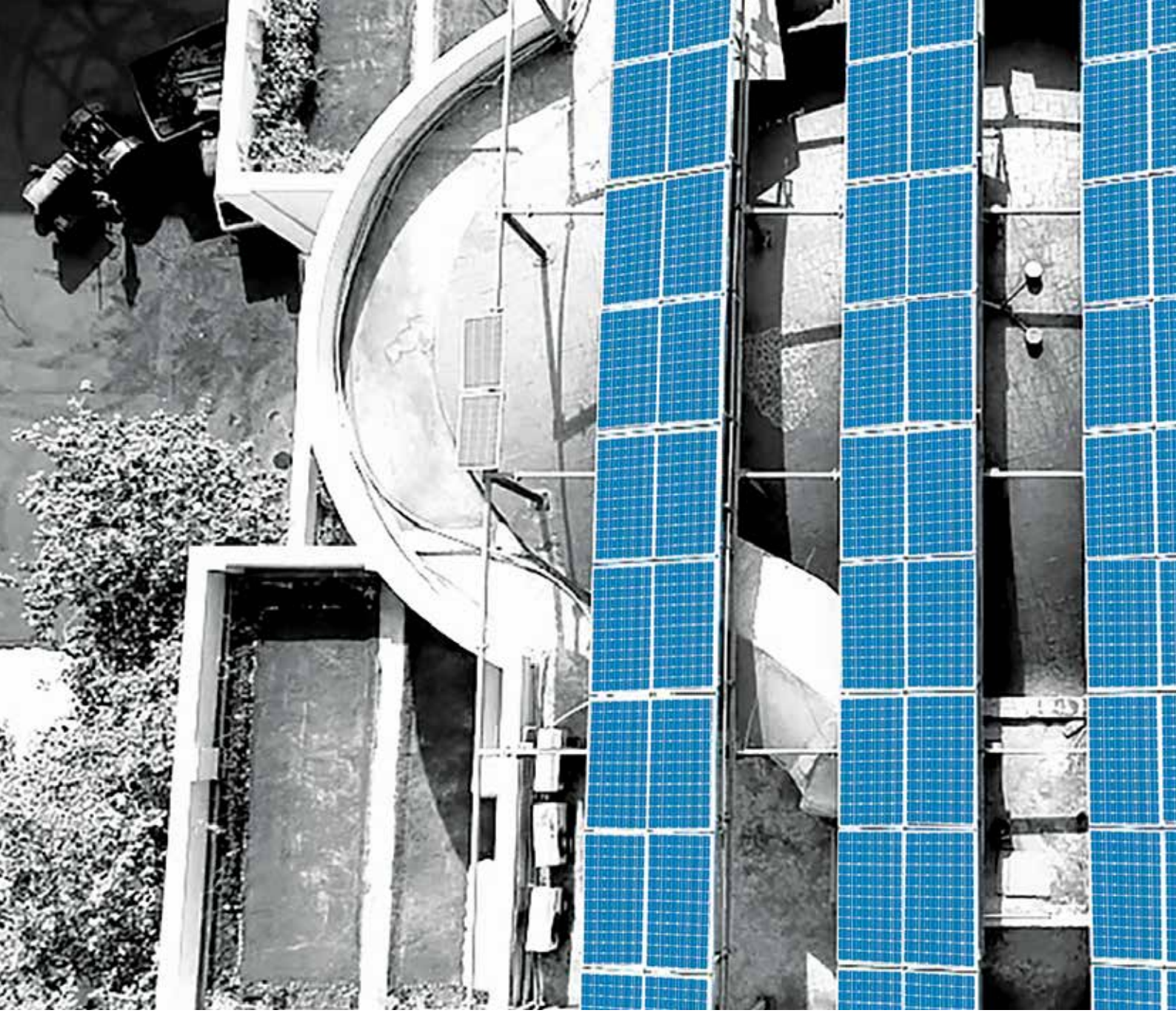
Government of India - Star Export House Recognition Certificate
Year - 2015

CII – Certificate of Participation at 28th Quality Circle Competition
Year - 2015

EEPC India - 44th National Award for Export Excellence
Year - 2011-12

EEPC India - Award for Export Excellence
Year 2007-08

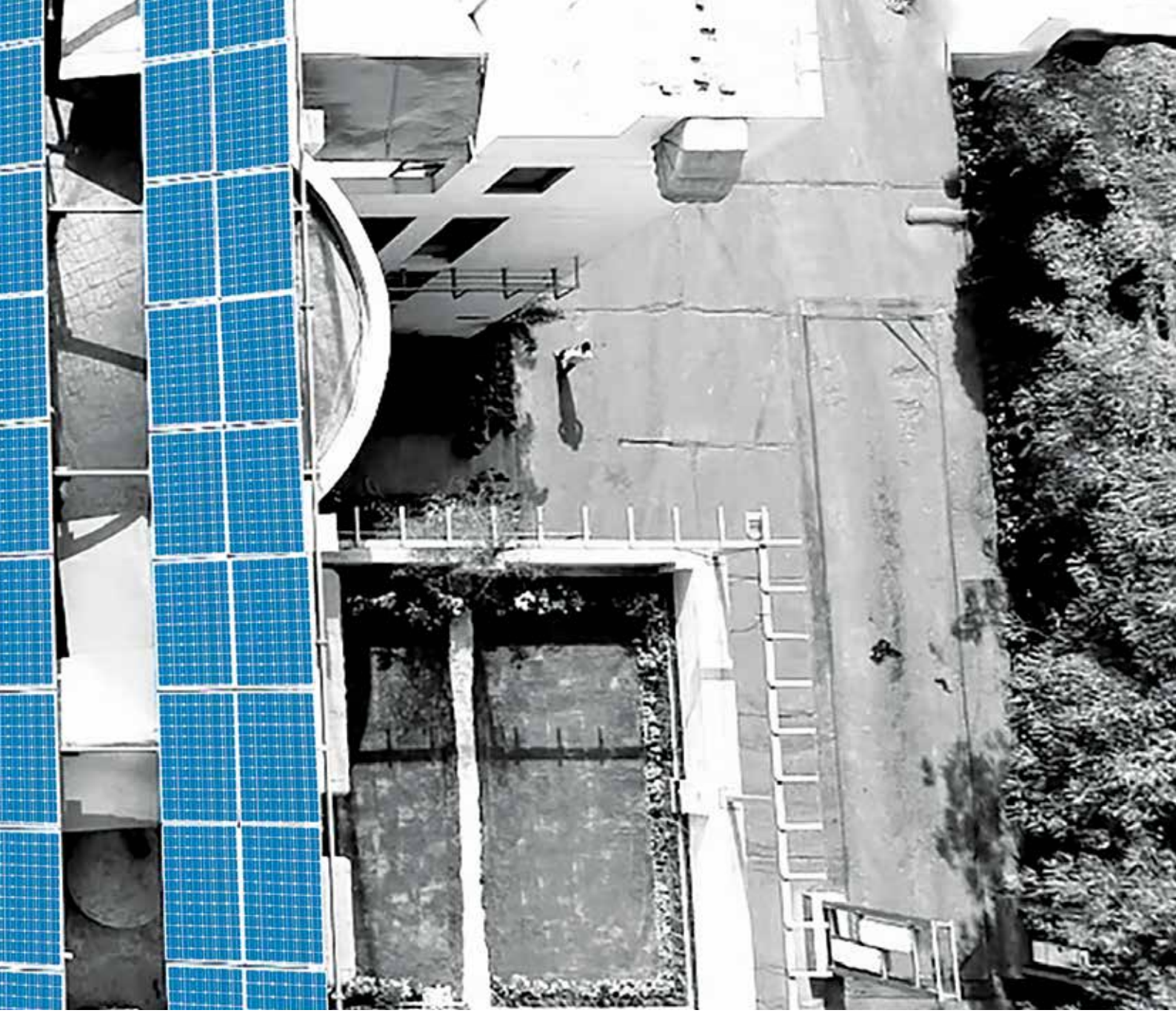
Material Recycling Association of India - Membership Certificate



Committed to long-term Sustainable Growth

Ambica Steels is one of the first stainless steel long products mills in India to successfully implement the Environmental Management Systems (EMS) in line with the requirements of ISO 14001, in the year 2003.

Conforming to the best environmental standards, we conduct regular environmental impact assessments for Water, Air, Soil Quality and the local Ecosystem.



We operate responsibly to protect our environment

Every drop of water used in the manufacturing process is recycled and used for greening our offices.

By using an effective dust collection system, we keep the emission of gases and chemicals from the steelmaking processes to minimum.

A 100 KW roof top solar panel installation for Eco – friendly power generation.

Hot Finished Products

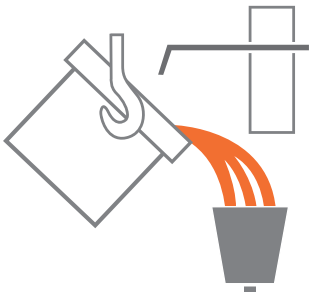
Hot Rolled Bars

Forging Quality Ingots & Continuous Cast Billets

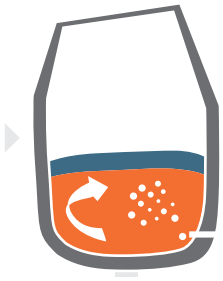
22MT Melt Size	**2** Rolling Mills
6 Billet Sizes	**140** Sizes Rolled
13 Ingots Sizes	**849** Employees

Manufacturing Process

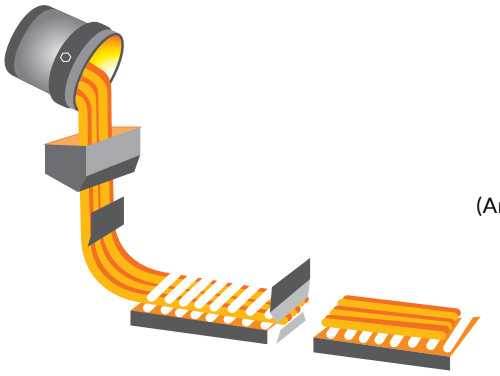
Stainless Scraps
+
Alloys & Virgin Metals



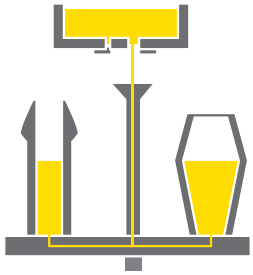
Electric Melting
Furnace (22MT)



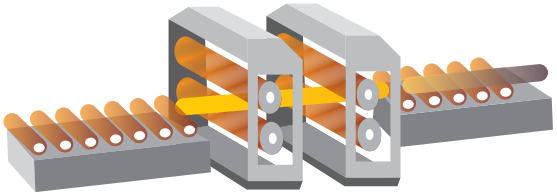
AOD Refining
(Argon Oxygen Decarburization)



Continuous
Billets Casting



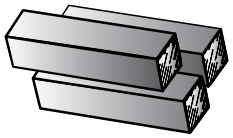
Ingot Casting
(Bottom Pouring)



Rws (X2)

Hot Rolled Bars

Forging Quality
Ingots



Hot Rolled Bars

Ambica offers Hot Rolled Bars are primarily consumed in forging industry And Due to their superior formability and machinability, Ambica's Hot rolled bars are used in various applications such as flanges, shafts, fittings and fasteners.

Hot Rolled bars sizes	16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 42, 45, 47, 50, 53, 56, 58, 60, 63, 65, 68, 70, 73, 75, 80, 83, 85, 90, 95, 100, 105, 110, 120, 125.
RCS Sizes	50, 55, 60, 63, 70, 75, 80, 90, 100, 115.
Size tolerances	EN 10060 and ASTM A 484
Length	2 meters - 8 meters (8 to 26 feet)
Ultrasonic Test	100% tested through Digital Ultrasonic Flaw Detector, as per ASTM A-388, EN 10308 (class 1 to 4)
Crack Test	Magnetic particle Inspection (MPI)
Surface Finish	Hot Rolled (Black Surface) in spot ground condition. Free of surface defects/cracks
Heat Treatment	Annealed, Solution Annealed, Quenched & Tempered (QT), Double Ageing/Double Tempering

Forging Quality Ingots & Continuous Cast Billets

Ingot Size (in mm)	Ingot Size (in inch)	Ingot Weight (in KG)	Ingot Weight (in MT)	Ingot Weight (in lbs)
254x305x1524	10”x12”x60”	900	0.9	1984
356x406x1854	14”x16”x73”	1950	2	4299
406x508x1900	16”x20”x75”	2950	3	6504
508x610x1900	20”x24”x75”	4000	4	8818
533x711x1930	21”x28”x76”	5100	5.1	11023
686x762x1780	27”x30”x70”	6050	6.1	13228
813x965x2030	32”x38”x80”	10000	10	22046
965x1219x1980	38”x48”x78”	14300	14.3	30865
1067x1321x2058	42”x52”x81”	18000	18	39683
1067x1321x2490	42”x52”x98”	22500	22.5	48502
400 Ø x 2490	16”x98”	2200	2.2	4850

Ambica’s Billets / Blooms are a perfect solution for re-rolling, forging and ring rolling applications.

Sizes	100x100, 120x120, 140x140, 160x160, 200x200, 220x250 mm
	4x4", 4.75x4.75", 5.5x5.5", 6.25x6.25", 8x8", 8.5x10"
Length	2 metres - 8 metres (8 to 26 feet)
Straightness	8 mm/meter max
Surface Finish	As Cast Condition (Black Surface) in spot or fully ground condition

Duplex & Special Steels

Ambica is the largest producer of Duplex Stainless Steel Long Products in India. Ambica produces these materials for a wide variety of applications and industrial sectors. These user segments are the benchmark for quality. Every piece is continually and stringently checked for quality and certified.

Ambica's steels are melted, casted and formed with perfection and care. Due to its two-phase microstructure, Duplex steels are extremely tough to produce. It took Ambica many years of continuous trials and errors, before gaining a complete control over this grade. The dual phase structure demands a perfect balance in the chemistry of these steels. Duplex steels also show an irregular behavior when undergoing various hot working processes. But thanks to the strong determination of our Research and Development team, as Ambica now enjoys the reputation of being one of the most reliable supplier of Duplex materials in domestic as well as the international market.

APPLICATIONS

- Bridges
- Pressure vessels
- Heat exchangers
- Water heaters
- Seawater systems
- Flue-gas cleaning
- Desalination plants
- Pulp and paper industry
- Cargo tanks and pipe systems in chemical tankers
- Firewalls and blast walls on the offshore platforms
- Components for structural design

Special grades
1.4122
1.4114
1.4418
430 FR

PREN -Pitting Resistance Equivalent Number	
SS Grade	PREN
316L / 1.4404	>24
2304 / 1.4362	>25
F-51 / 1.4462/S31803	>31
F-60/1.4462/S32205	>35
F-53/1.4410/S32750	>40

S.No	Products Offered
1	Bright Round Bars
2	Precision Round Bars
3	Hot Rolled Bars
4	Billets
5	Ingots


Heat no# S-5618
Grade# F51/1-4462
Insp. Seal
RKS
www.ambicasteels.com

S.No	Heat Treatments Offered
1	Solution Annealing
2	H1025
3	H1075
4	H1150
5	H1150D
6	H1150M
7	H900
8	H925
9	P1070

S.No	Products Offered
1	Bright Round Bars
2	Precision Round Bars
3	Hot Rolled Bars
4	HRAP Flat Bars
5	HRAP Square Bars
6	Billets
7	Ingots

S.No	Specifications
1	AMS 5643R
2	DIN/EN 10088-3
3	ASTM A 564
4	AMS 5622
5	AMS 5640

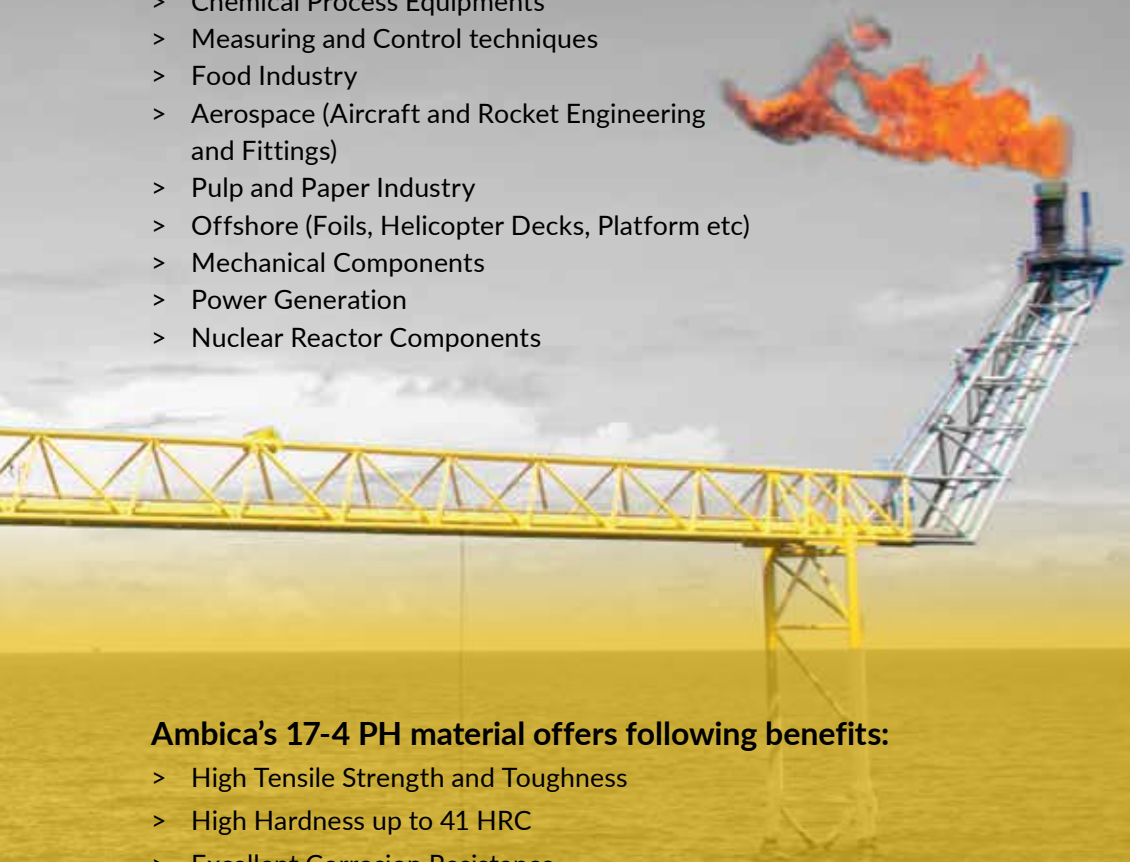
Precipitation Hardening Steels

Ambica specializes into the production of 17-4 steels (also known as 1.4542 and AISI 630). This is a precipitation hardening martensitic stainless steel with Cu and Nb/Cb additions. The grade combines a very high strength, hardness and corrosion resistance.

Mechanical properties can be optimized with various heat treatments. Very high yield strength up to 1000-1100 MPa (145-160 ksi) can be achieved.

APPLICATIONS

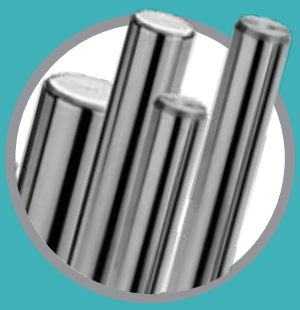
- Oil and Gas Industry
- Pump and Valves in high pressure components
- Chemical Process Equipments
- Measuring and Control techniques
- Food Industry
- Aerospace (Aircraft and Rocket Engineering and Fittings)
- Pulp and Paper Industry
- Offshore (Foils, Helicopter Decks, Platform etc)
- Mechanical Components
- Power Generation
- Nuclear Reactor Components



Ambica's 17-4 PH material offers following benefits:

- High Tensile Strength and Toughness
- High Hardness up to 41 HRC
- Excellent Corrosion Resistance
- Suitable for Forging and Welding
- Good machinability
- Good Oxidation Resistance.
- Close hardness range of 29-33 HRC
- Ambica's 17-4 material has good resistance to sulphide stress cracking at Rockwell C 33 hardness (max) as per NACE MR-01-75
- AS 9100 C / EN 9100 C approved materials

Cold Finished Products



Bright Round Bars

Hexagon and Square Bars

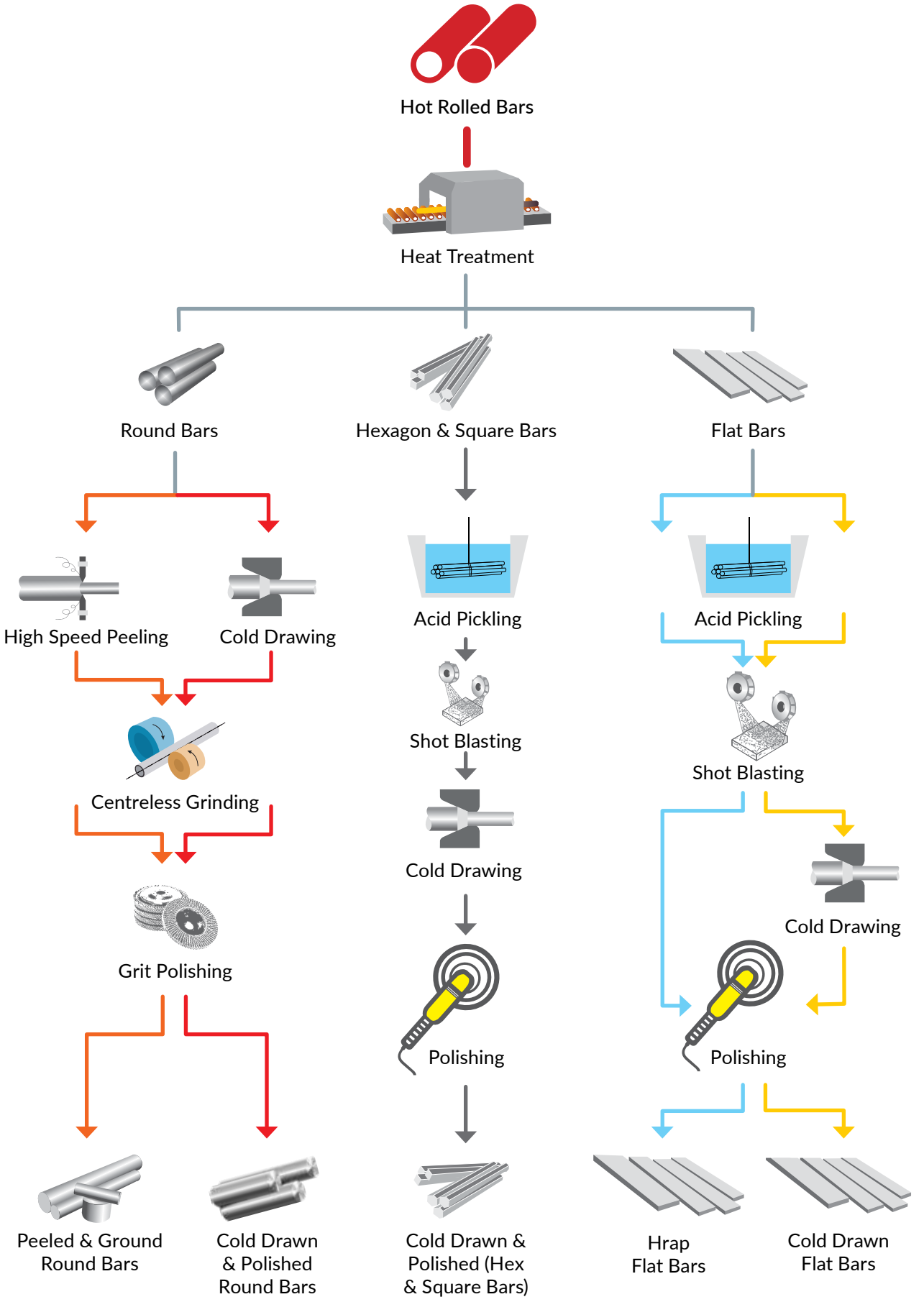
Precision Round Bars

HRAP Flat Bars

Cold Drawn Flat Bars

2 Chamfering Machines	**14** Grinding Machines
3 Cold Drawing Machines	**3** Section Straightening Machines
5 Peeling Machines	**263** Employee
7 Straightening Machines	

Manufacturing Process



Bright Round Bars

With Bright Bar processing facility of more than 50,000 tons per year, Ambica is one of the largest producers of cold finished bars in India.

Ambica offers high-quality “Improved Machining (IM)” stainless steel bright round bars. The key to improved machinability lies in the special melting process adopted by Ambica, with a greater control upon non-metallic inclusion in the liquid metal.

Size range	5 mm - 105 mm (3/16 inch to 4-1/8 inch)
Size tolerances	h9, h10, h11, k12, k13, A-484, EN 10060, DIN-1013, etc.
Length	2 metres - 6 metres
Chamfering	Available in 30 degrees to 60 degrees through fully automatic both-end chamfering machine
Crack Test	Magnetic particle Inspection (MPI), Eddy Current Testing
Ultrasonic Test	100% tested through Digital Ultrasonic Flaw Detector, as per ASTM A-388, EN 10308 (class 1 to 4)
Length Tolerance	Available in special cut to length bars with tolerance of 50 mm (2 inches)
Straightness	Max upto 0.5 MM/M (0.006 inch/feet)
Surface Finish	Centreless Ground & Belt Polished upto Ra value 0.5 microns (24 RMS) and 240-320 Grit Polished
Heat Treatment	Annealed, Solution Annealed, Quenched & Tempered (QT), Double Ageing/Double Tempering

Hexagon And Square Bars

Ambica offers very high-quality “Improved Machining (IM)” stainless steel Hexagon and Square bars.

Each batch of Squares / Hexagons is heat treated under a very controlled thermometry followed with a rapid quenching process in order to arrive at the most reliable product with an increased consistency in the mechanical properties and a very high machinability.

Cold Drawn Hex/ Square Bars	
Hexagon Sizes	12 mm - 46 mm (1/2 inch - 1 3/4 inch)
Square Sizes	12 mm - 40 mm (1/2 inch - 1 3/4 inch)
Size tolerances	h11, ASTM A484
Length	2 metres - 6 metres
Chamfering	Available in 30 degrees to 60 degrees through fully automatic both-end chamfering machine (Only in Hexagon bars)
Crack Test	Magnetic particle Inspection (MPI)
Ultrasonic Test	100% tested through Digital Ultrasonic Flaw Detector, as per ASTM A-388, EN 10308 (class 1 to 4)
Length Tolerance	Available in special cut to length bars with tolerance of 50 mm (2 inches)
Surface Finish	Cold Drawn Condition and Belt Polished condition
Heat Treatment	Solution Annealed, Annealed
Grades	AISI : 303, 304L, 316L, 316Ti, 321, 410, 430 F, 430, 416
	DIN : 1.4305, 1.4307, 1.4404, 1.4571, 1.4541, 1.4104, 1.4016,1.4005

HRAP Square Bars	
HRAP Square Sizes	14, 15, 16, 17, 18, 20, 21, 22, 23.5, 25, 26.5, 28, 30, 32, 34, 36, 38, 40, 42 mm
	0.55”, 0.59”, 0.62”, 0.66”, 0.70”, 0.78”, 0.82”, 0.86”, 0.92”, 1”, 1.04”, 1.10”, 1.18”, 1.25”, 1.33”, 1.41”, 1.50”, 1.57”, 1.65”.
Size tolerances	ASTM A 484 and EN 10059
Length	2 metres - 6 metres (8 to 20 feet
Crack Test	Magnetic particle Inspection (MPI)
Ultrasonic Test	100% tested through Digital Ultrasonic Flaw Detector, as per ASTM A-388, EN 10308 (class 1 to 4)
Length Tolerance	Available in special cut to length bars with tolerance of 100 mm (4 inches)
Surface Finish	HRAP Condition
Heat Treatment	Solution Annealed, Annealed
Grades	AISI : 303, 304L, 316L, 316Ti, 321, 410, 430, 430 F, 630/17-4 PH
	DIN : 1.4305, 1.4307, 1.4404, 1.4571, 1.4541, 1.4006, 1.4104, 1.4016, 1.4542

HRAP Flat Bars

Size tolerances	ASTM A 484 and EN 10058
Length	2 metres - 6 metres (8 to 20 feet)
Length Tolerance	Available in special cut to length bars with tolerance of 100 mm (4 inches)
Surface Finish	HRAP Condition
Heat Treatment	Solution Annealed
Grades	AISI: 303, 304L, 316L, 316Ti, 321, 630/17-4 PH, F 51
	DIN: 1.4305, 1.4307, 1.4404, 1.4571, 1.4541, 1.4542, 1.4821, 1.4462

			Thickness									
			4 mm	5 mm	6 mm	8 mm	10 mm	12 mm	15 mm	20 mm	25 mm	30 mm
			-	3/16”	1/4”	5/16”	3/8”	1/2”	5/8”	3/4”	1”	1.1/4”
Width	38 mm	1.1/2”	✘	✓	✓	✓	✓	✓	✓	✓	✓	✘
	40 mm	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	45 mm	1.3/4”	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	50 mm	2”	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	60 mm	-	✘	✓	✓	✓	✓	✓	✓	✓	✓	✓
	65 mm	2.1/2”	✘	✓	✓	✓	✓	✓	✓	✓	✓	✓
	70 mm	-	✘	✓	✓	✓	✓	✓	✓	✓	✓	✓
	75 mm	3”	✘	✓	✓	✓	✓	✓	✓	✓	✓	✓
	80 mm	-	✘	✓	✓	✓	✓	✓	✓	✓	✓	✓
	90 mm	3.1/2”	✘	✓	✓	✓	✓	✓	✓	✓	✘	✘
	100 mm	4”	✘	✓	✓	✓	✓	✓	✓	✓	✘	✘
	110 mm	-	✘	✘	✘	✓	✓	✓	✓	✓	✓	✘
	120 mm	4.3/4”	✘	✘	✘	✓	✓	✓	✓	✓	✓	✘
	125 mm	5”	✘	✘	✘	✓	✓	✓	✓	✓	✓	✘
	130 mm	5.1/8”	✘	✘	✘	✓	✓	✓	✓	✓	✓	✘
	150 mm	6”	✘	✘	✘	✓	✓	✓	✓	✓	✓	✘

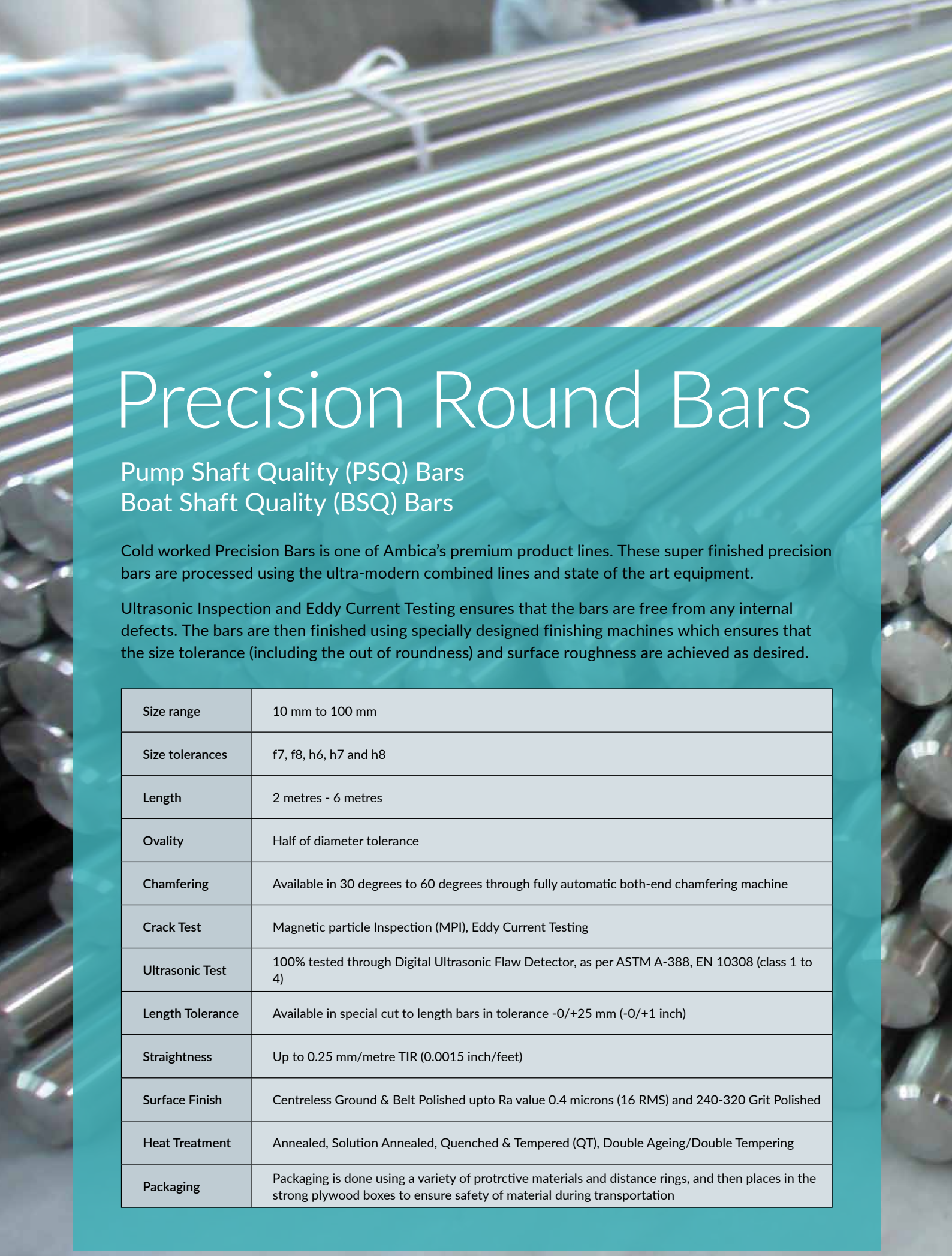
Cold Drawn Flat Bars

Ambica is one of the largest producer of cold finished bars in India. Drawing is a metal working process in which metal is drawn through a die to reduce its diameter and increase its length, it stretches thinner, into a desired shape and thickness. It uses tensile forces to stretch metal. Drawing is usually done at room temperature, thus classified as a cold working process. It also alters the mechanical properties of the metal. Cold drawn cross-sections are more precise and have a better surface finish than hot extruded parts.

Size tolerances	h11 and ASTM A 484
Length	2 metres - 6 metres (8 to 20 feet)
Length Tolerance	Available in special cut to length bars in tolerance -0/+50 mm (-0/+2 inch)
Surface Finish	Cold Drawn and Belt Polished Condition
Heat Treatment	Solution Annealed
Grades	AISI : 303, 304L, 316L, 316Ti, 321
	DIN : 1.4305, 1.4307, 1.4404, 1.4571, 1.4541

Size Chart

WIDTH (mm)	4 mm	5 mm	6 mm	8 mm	10 mm	12 mm	15 mm	16 mm	20 mm	25 mm	30 mm	31.75 mm
40 mm	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-
45 mm	-	-	-	✓	-	-	✓	-	✓	-	-	-
50 mm	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-
60 mm	-	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	-
63.5 mm	-	-	-	-	-	-	-	-	-	-	-	✓
70 mm	-	-	-	✓	✓	✓	✓	-	✓	-	✓	-
80 mm	-	✓	✓	✓	✓	✓	✓	-	✓	-	✓	-
90 mm	-	-	-	✓	✓	✓	✓	-	-	-	-	-
100 mm	-	-	✓	✓	✓	✓	✓	-	✓	-	-	-



Precision Round Bars

Pump Shaft Quality (PSQ) Bars
Boat Shaft Quality (BSQ) Bars

Cold worked Precision Bars is one of Ambica's premium product lines. These super finished precision bars are processed using the ultra-modern combined lines and state of the art equipment.

Ultrasonic Inspection and Eddy Current Testing ensures that the bars are free from any internal defects. The bars are then finished using specially designed finishing machines which ensures that the size tolerance (including the out of roundness) and surface roughness are achieved as desired.

Size range	10 mm to 100 mm
Size tolerances	f7, f8, h6, h7 and h8
Length	2 metres - 6 metres
Ovality	Half of diameter tolerance
Chamfering	Available in 30 degrees to 60 degrees through fully automatic both-end chamfering machine
Crack Test	Magnetic particle Inspection (MPI), Eddy Current Testing
Ultrasonic Test	100% tested through Digital Ultrasonic Flaw Detector, as per ASTM A-388, EN 10308 (class 1 to 4)
Length Tolerance	Available in special cut to length bars in tolerance -0/+25 mm (-0/+1 inch)
Straightness	Up to 0.25 mm/metre TIR (0.0015 inch/feet)
Surface Finish	Centreless Ground & Belt Polished upto Ra value 0.4 microns (16 RMS) and 240-320 Grit Polished
Heat Treatment	Annealed, Solution Annealed, Quenched & Tempered (QT), Double Ageing/Double Tempering
Packaging	Packaging is done using a variety of protrctive materials and distance rings, and then places in the strong plywood boxes to ensure safety of material during transportation

HRAP Angle Bars

Size tolerances	ASTM A 484 and EN 10056
Length	2 metres - 6 metres (8 to 20 feet)
Length Tolerance	Available in special cut to length bars in tolerance -0/+100 mm (-0/+4 inch)
Surface Finish	HRAP Condition
Heat Treatment	Solution Annealed
Grades	AISI : 304L and 316L
	DIN : 1.4307 and 1.4404

			Thickness			
			3 mm	4 mm	5 mm	6 mm
			1/8"	-	3/16"	1/4"
SIZE	25 x 25 mm	1" x 1"	✓	✓	✓	✓
	30 x 30 mm	-	✓	✓	✓	✓
	32 x 32 mm	1.1/4" x 1.1/4"	✓	✓	✓	✓
	35 x 35 mm	-	✓	✓	✓	✓
	40 x 40 mm	1.1/2" x 1.1/2"	✘	✓	✓	✓
	45 x 45 mm	-	✘	✓	✓	✓
	50 x 50 mm	2" x 2"	✓	✓	✓	✓
	55 x 55 mm	-	✘	✘	✓	✓
	60 x 60 mm	-	✘	✘	✓	✓

Stainless Steel Grades

Grades			Reference Chemistry (%)										
Type	EN	ASTM	C	Si	Mn	P	S	Cr	Mo	Ni	N2	Other	
AUSTENITIC	1.4305	303	max 0.10	max 1	max 2	max 0.045	0.15 - 0.35	17.0-19.0		8.0-10.0	max 0.11	Cu-1.0 max	R Hx Sq F B
	1.4301	304	max 0.07	max 1	max 2	max 0.045	max 0.030	18.0-20.0		8.0-10.5	max 0.11		R Hx Sq F B In
	1.4307	304 L	max 0.03	max 1	max 2	max 0.045	max 0.030	18.0-20.0		8.0-10.5	max 0.11		R Hx Sq F B In
	1.4306	304 L	max 0.03	max 1	max 2	max. 0.045	max 0.030	18.0-20.0		10.0-12.0	max. 0.11		R Hx Sq F B In
	1.4948	304 H	0.04-0.08	max 1	max 2	max 0.035	max 0.015	18.0-20.0		8.0-10.5	max. 0.11		R Hx Sq F B In
	1.4311	304 LN	max 0.03	max 1	max 2	max 0.045	max 0.030	17.5-19.5		8.5-11.5	0.12-0.22		R B In
	---	304 N	max 0.08	max 1	max 2	max 0.045	max 0.030	18.0-20.0		8.0-11.0	0.10-0.16		R B In
	---	309	max 0.20	max 0.75	max 2	max 0.045	max 0.030	22.0-24.0		12.0-15.0			R B In
	1.4828	X15CrNiSi20-12	max 0.20	1.5 - 2.5	max 2	max. 0.045	max 0.015	19.0-21.0		11.0-13.0	max 0.11		R B In
	1.484	310	max 0.25	max 1	max 2	max 0.045	max 0.030	24.0-26.0		19.0-22.0			R B In
	1.4845	310 S	max 0.08	max 1.5	max 2	max 0.045	max 0.030	24.0-26.0		19.0-22.0			R B In
	1.4401	316	max 0.07	max 1	max 2	max 0.045	max 0.030	16.5-18.5	2.0 - 2.5	10.0-13.0	max 0.11		R Hx Sq F B In
	1.4404	316 L	max 0.03	max 1	max 2	max 0.045	max 0.030	16.5-18.5	2.0 - 2.5	10.0-13.0	max 0.11		R Hx Sq F B In
	1.4571	316 Ti	max 0.08	max 1	max 2	max 0.045	max 0.030	16.5-18.5	2.0 - 2.5	10.5-13.5		Ti = 5(C+N) - 0.70	R Hx Sq F B In
	1.4919	316 H	0.04-0.08	max 1	max 2	max 0.035	max 0.015	16.5-18.5	2.0 - 2.5	10.0-13.0	max 0.11	B = 0.0015 -0.0050	R Sq B In
	1.4406	316 LN	max 0.03	max 1	max 2	max 0.045	max 0.015	16.5-18.5	2.0 - 2.5	10.0-12.0	0.12-0.22		R B In

Grades			Reference Chemistry (%)										
Type	EN	ASTM	C	Si	Mn	P	S	Cr	Mo	Ni	N2	Other	
	1.4432	316 L	max 0.03	max 1	max 2	max 0.045	max 0.030	16.5-18.5	2.5 - 3.0	10.5-13.5	max 0.11		R Hx Sq F B In
	1.4435	316 L	max 0.03	max 1	max 2	max 0.045	max 0.030	17.0-19.0	2.5 - 3.0	12.5-15.0	max 0.11		R Hx Sq F B In
	1.4436	316 L	max 0.05	max 1	max 2	max 0.045	max 0.030	16.5-18.5	2.5 - 3.0	10.5-13.5	max 0.11		R Hx Sq F B In
	1.3952	X2CrNiMoN 18-14-3	max 0.03	max 1	max 2	max 0.045	max 0.015	16.5-18.5	2.5 - 3.0	13.0-15.0	0.15-0.25		R B
	1.4438	317 L	max 0.03	max 1	max 2	max 0.045	max 0.030	17.5-19.5	3.0 - 4.0	13.0-16.0	max 0.11		R B In
	1.4541	321	max 0.08	max 1	max 2	max 0.045	max 0.030	17.0-19.0		9.0 - 12.0		Ti = 5(C+N) - 0.70	R Hx Sq F B
	1.4878	321 H	0.04-0.10	max 1.0	max 2	max 0.045	max 0.030	17.0-19.0		9.0 - 12.0			R Sq B In
	1.4550	347	max 0.08	max 1	max 2	max 0.045	max 0.030	17.0-19.0		9.0 - 12.0		Cb = 10xC - 1.10	R B In
	---	347 H	0.04-0.10	max 1	max 2	max 0.045	max 0.030	17.0-20.0		9.0 - 13.0			R B In
	Nitronic 50	XM-19	max 0.06	max 1	4.0 - 6.0	max 0.045	max 0.030	20.5-23.5	1.5 - 3.0	11.5 - 13.5	0.20-0.40	Cb = 0.10 - 0.30, V= 0.10 - 0.30	R B In
DUPLEX	1.4462	F 51	max 0.03	max 1	max 2	max 0.030	max 0.020	21.0-23.0	2.5 - 3.5	4.5 - 6.5	0.08-0.20		R F B In
	1.4410	F 53	max 0.03	max 0.8	max 1.2	max 0.035	max 0.020	24.0-26.0	3.0 - 5.0	6.0 - 8.0	0.24-0.32	max 0.5	R B In
	1.4501	F 55	max 0.03	max 1	max. 1	max 0.030	max 0.100	24.0-26.0	3.0 - 4.0	6.0 - 8.0	0.20-0.30	W = 0.50 - 1.00,0.5 - 1.0	In
	1.4460	329	max 0.05	max 1	max 2	max 0.035	max 0.030	25.0-28.0	1.3 - 2.0	4.5 - 4.6	0.05-0.30		R B In
	1.4462	F 60	max 0.03	max 1	max 2	max 0.030	max 0.015	22.0-23.0	3.0 - 3.5	4.5 - 6.5	0.14-0.20		R B In
	1.4362	2304	max 0.03	max 1	max 2	max 0.035	max 0.015	22.0-24.0	0.1 - 0.6	3.5 - 5.5	0.05-0.20	0.1 - 0.6	R B In
	1.4821	---	0.10-0.20	0.8 - 1.5	max 2	max 0.040	max 0.015	24.5-26.5		3.5 - 5.5	max 0.11		R F B In

R Round bar Hx Hexagon bar F Flat bar Sq Square bar B Billets In Ignots

Grades			Reference Chemistry (%)										
Type	EN	ASTM	C	Si	Mn	P	S	Cr	Mo	Ni	N2	Other	
MARTENSITIC	1.4003	403	max 0.03	max 1	max 1.5	max 0.040	max 0.0.30	10.5 - 12.5		0.30 - 1.0			R B In
	1.4006	410	0.08 - 0.15	max 1	max 1.5	max 0.040	max 0.030	11.5 - 13.5		max 0.75			R Hx Sq B In
	---	410 S	max 0.08	max 1	max 1	max 0.04	max 0.030	11.5 - 13.5		max 0.6			B In
	1.4005	416	0.06 - 0.15	max 1	max 1.5	max 0.040	0.15 - 0.35	12.0 - 14.0	max 0.60				R B In
	1.4021	420	0.16 - 0.25	max 1	max 1.5	max 0.040	max 0.030	12.0 - 14.0					R B In
	1.4028	420 B	0.26 - 0.35	max 1	max 1.5	max 0.040	max 0.030	12.0 - 14.0					R B In
	1.4034	420 C	0.43 - 0.50	max 1	max 1	max 0.040	max 0.030	12.5 - 14.5					R B In
	20X13(GOST)		0.16-0.25	max 0.8	max 0.8	max 0.030	max 0.025	12.0-14.0	max 0.30	max 0.60			R B In
	30X13(GOST)		0.26-0.35	max 0.8	max 0.8	max 0.030	max 0.025	12.0-14.0	max 0.30	max 0.60			R B In
	40X13(GOST)		0.36-0.45	max 0.8	max 0.8	max 0.030	max 0.025	12.0-14.0	max 0.30	max 0.60			R B In
	1.4104		0.10 - 0.17	max 1	max 1.5	max 0.040	0.15 - 0.35	15.50 - 17.5	0.2 - 0.6				R Hx B In
	1.4057	431	0.12 - 0.22	max 1	max 1.5	max 0.040	max 0.030	15.0 - 17.0		1.5 - 2.5			R B In
	---	431 S29	0.12 - 0.20	max 1	max 1	max 0.040	max 0.030	15.0 - 18.0		2.0 - 3.0			B In
	1.4313	F6-NM	max 0.05	max 0.7	max 1.5	max 0.040	max.0.015	12.0 - 14.0	0.3 - 0.7	3.5 - 4.5	min 0.02		R B In
	1.4913	X19CrMoVNbN 11-1	0.17 - 0.23	max 0.5	0.4 - 0.9	max 0.025	max 0.015	10.0 - 11.5	0.5 - 0.8	0.2 - 0.6	0.05 - 0.10	Al = max 0.02 B = max 0.0015 Nb = 0.25 - 0.55V = 0.10 - 0.3	R B In
	1.4923	X22CrMoV12-1	0.18 - 0.24	max 0.5	0.40- 0.90	max 0.025	max 0.015	11.0 - 12.5	0.8 - 1.2	0.3 - 0.8		V = 0.25 - 0.35	R Hx B In
	1.4122	X39CrMo17-1	0.33 - 0.45	max 1	max 1.5	max 0.040	max 0.030	15.5 - 17.5	0.8 - 1.3	max 1.00			R B In

Grades			Reference Chemistry (%)										
Type	EN	ASTM	C	Si	Mn	P	S	Cr	Mo	Ni	N2	Other	
	1.4418	**---**	max 0.06	max 0.7	max 1.5	max 0.040	max 0.015	15.0 - 17.0	0.8 - 1.5	4.0 - 6.0	max 0.02		R B
	1.4031	**---**	0.36 - 0.42	max 1	max 1	max 0.040	max 0.030	12.5 - 14.5					R B
FERRITIC	**1.4002**	**405**	max 0.08	max 1	max 1	max 0.040	max 0.030	11.5 - 14.5		max 0.50		Al = 0.10 – 0.30	R B
	1.4512	**409**	max 0.03	max 1	max 1	max 0.040	max 0.020	10.5-11.70		max 0.50		Ti = 6 (C+N) - 0.50	R B
	---	**409 Nb**	max 0.030	max 1	max 1	max 0.040	max 0.030	10.5 - 11.70		0.75 - 1.0	max 0.04	Nb = 10x (C+N) - 0.080	R Hx Sq B
	1.4105	**409 Ti**	max 0.08	max 1.5	max 1.5	max 0.040	max 0.020	10.5 - 11.70		max 0.50		Ti = 6 (C+N) - 0.50	R B
	1.4016	**430**	max 0.12	max 1	max 1	max 0.040	max 0.030	16.0 - 18.0					R Hx B In
	---	**430 F**	max 0.12	max 1	max 1.25	max 0.060	min 0.150	16.0 - 18.0					
	1.4511	**430 LNb**	max 0.05	max 1	max 1	max 0.040	max 0.030	16.0 - 18.0				Nb = 12xC - 1.0	R B In
	1. 4510	**439 Ti**	max 0.05	max 1	max 1	max 0.045	max 0.030	16.0 - 18.0				Ti = 7xc - 1.20	R Sq B In
	1.4114		0.015-0.025	max 1	max 0.6	max 0.030	0.020-0.030	17.50-19.50	1.50-2.50	max 0.30			R B
	1.4509	**441**	max 0.03	max 1	max 1	max 0.040	max 0.015	17.5 - 18.5				Nb = 0.3 - 1.0,Ti = 0.1 - 0.6	R B In
PH	**1.4542**	**17-4 PH / 630**	max 0.07	max 1	max 1	max 0.040	max 0.030	15.0 - 17.5	max 0.60	3.0 - 5.0		Nb+Ta = 0.15 - 0.45,3.0 - 5.0	R Hx Sq F B In
	1.4594	**---**	max 0.07	max 0.7	max 1	max 0.040	max 0.015	13.0 - 15.0	1.20-2.0	5.0 - 6.0		Nb = 0.15 - 0.60,1.2 - 2.0	In

R Round bar Hx Hexagon bar F Flat bar Sq Square bar B Billets In Ignots

Location:
UPSIDC Industrial Area,
Sahibabad

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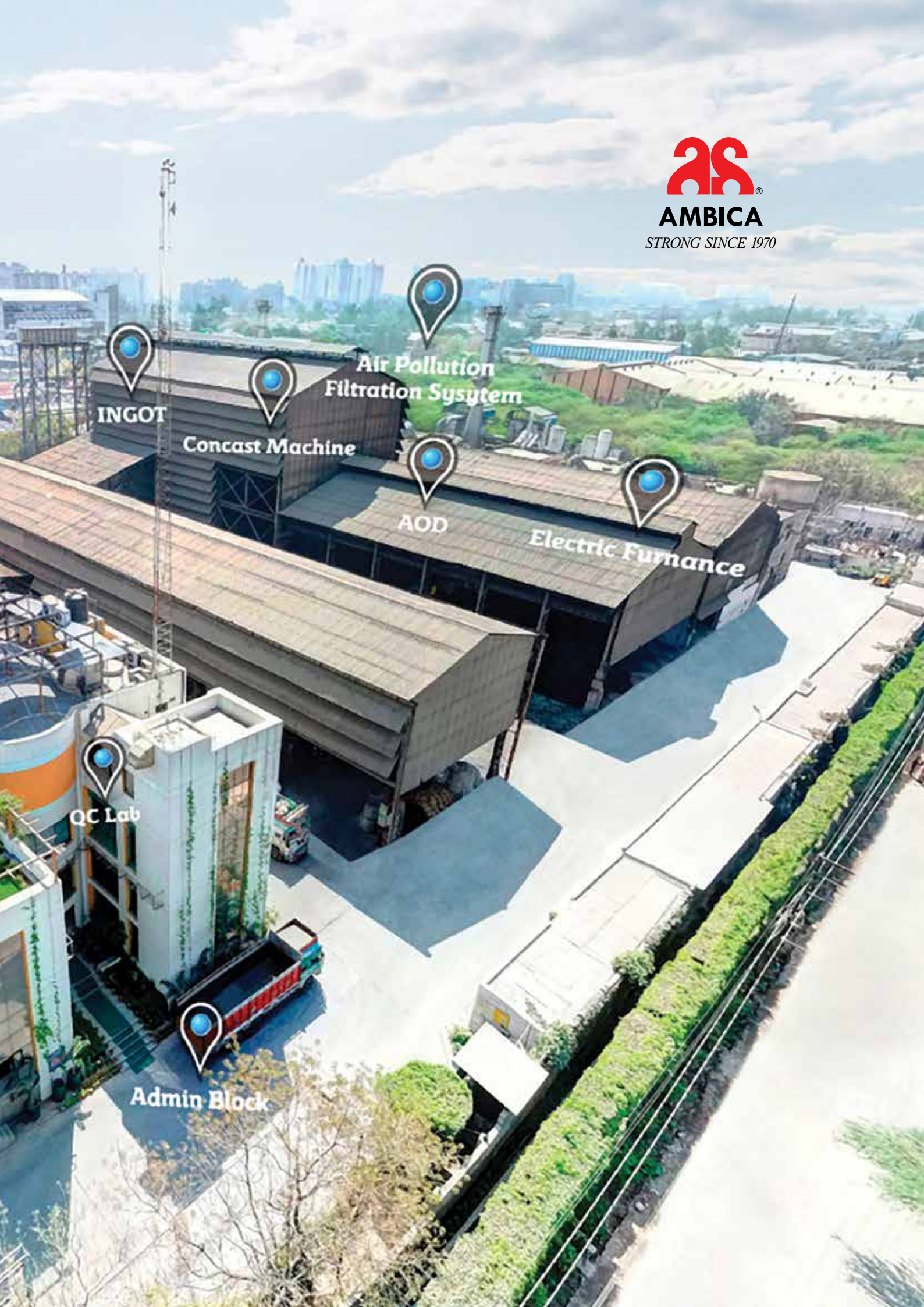
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