



**ABTC**



Company  
Presentation

 **sidenor**

**ACEROS  
ESPECIALES**

<b>Production Centres</b>	Basauri	Vitoria	Reinosa	Azkoitia	Downstream Units
<b>SPECIAL STEELS</b>					
Rolled					
Cold Finished					
Forged					
<b>STAINLESS STEELS</b>					
Rolled					
Cold Finished					
Forged					
<b>HEAVY F&amp;C</b>					
Forgings					
Castings					
<b>ROLLING MILL ROLLS</b>					
Forged Rolls					

**PRODUCTS**



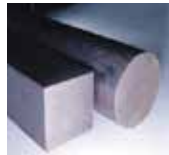
**HOT ROLLED BARS**

- Rounds
- RCS
- Flats



**WIRE ROD**

- Coils



**FORGED BARS**

- Rounds
- RCS
- Flats

**GRADES**

CARBON

ALLOYED

MICRO  
ALLOYED

FREE  
CUTTING

- International specifications (SAE, DIN, AFNOR and others)
- Customers specifications

**APPLICATIONS AUTOMOTIVE**

**POWERTRAIN**



Conrods



Gears



Crankshafts

- Camshafts
- Bearings
- Fasteners
- Shafts

**SUSPENSION**



Coil springs



Leaf springs



Stabilizer bars

- Shock absorbers
- Clamps
- Fasteners

**STEERING**



Gear racks



Wheel hubs

- Bearings
- Shafts
- Fasteners

**APPLICATIONS NON-AUTOMOTIVE**



**ENERGY  
(OIL AND GAS)**



**ENERGY  
(WIND POWER)**



**RAILWAY**



**OFF HIGHWAY  
EQUIPMENT**

**PRODUCTS**



**HOT ROLLED BARS**  
• Rounds



**WIRE ROD**  
• Coils



**FORGED BARS**  
• Rounds  
• RCS  
• Flats

**GRADES**

AUSTENITIC

MARTENSITIC

FERRITIC

Expertise in AISI grades  
(304, 316, 303, 316-Ti, 321, 420 and others)

**APPLICATIONS**



**FOOD INDUSTRY**  
Industrial mixer beater



**FOOD INDUSTRY**  
Conveyor oven



**PETROCHEMICAL / CHEMICAL INDUSTRY**  
Industrial filters



**MEDICAL EQUIPMENT**



**ENERGY (OIL AND GAS)**



**AUTOMOTIVE**



**BUILDINGS**

## PRODUCTS



## GRADES



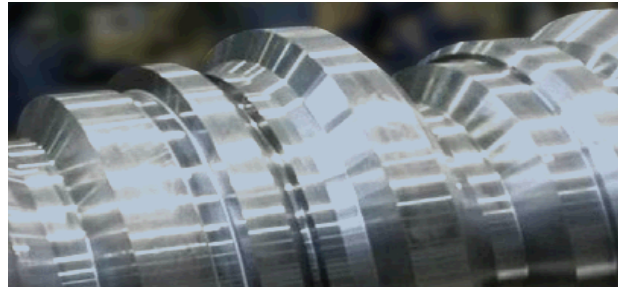
3% Cr FORGED STEEL  
5% Cr FORGED STEEL

- Grades developed to achieve specific mechanical properties.
- Grades and characteristics customized to our customers rolling mills.

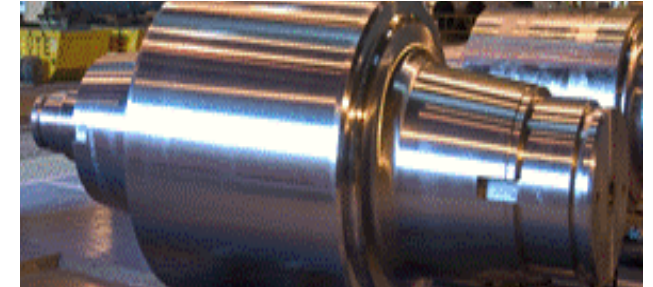
## APPLICATIONS



**WORK ROLLS FOR COLD STRIP MILLS**



**ROLLS FOR ROUGHING STANDS OF LONG PRODUCTS**



**BUCK UP ROLLS FOR HOT AND COLD STRIP MILLS**

## FORGINGS (3- 70 TON)



Crankshafts  
(CGF and Built-up)

Energy shafts

Parts for heavy  
machinery

Crushing shafts

## CASTINGS (5-140 TON)



Parts for  
machinery

Turbine  
Casing

Kiln Tyres  
and Rollers

Crushers

Parts for  
Shipbuilding

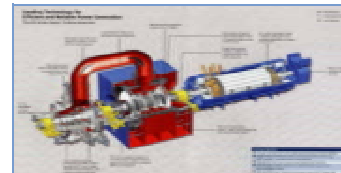
## APPLICATIONS



2 AND 4 STROKE  
DIESEL ENGINES



SHIPBUILDING



GAS & STEAM TURBINES



GENERATORS



WIND MILLS



CEMENT PLANTS



MINING



ROLLING MILLS



PROCESS EQUIPMENTS





**ENGINEERING STEELS**

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Carbon Steels

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Free Cutting Steels

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Cold Forming Steels

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Spring Steels

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Microalloyed Steels

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Chain Steels

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Alloy Steels

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Bearing Steels

**TOOL STEELS**

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Cold Working Steels

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Hot Working Steels

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Steels for moulds of plastic materials

**STAINLESS STEELS**

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Austenitic Steels

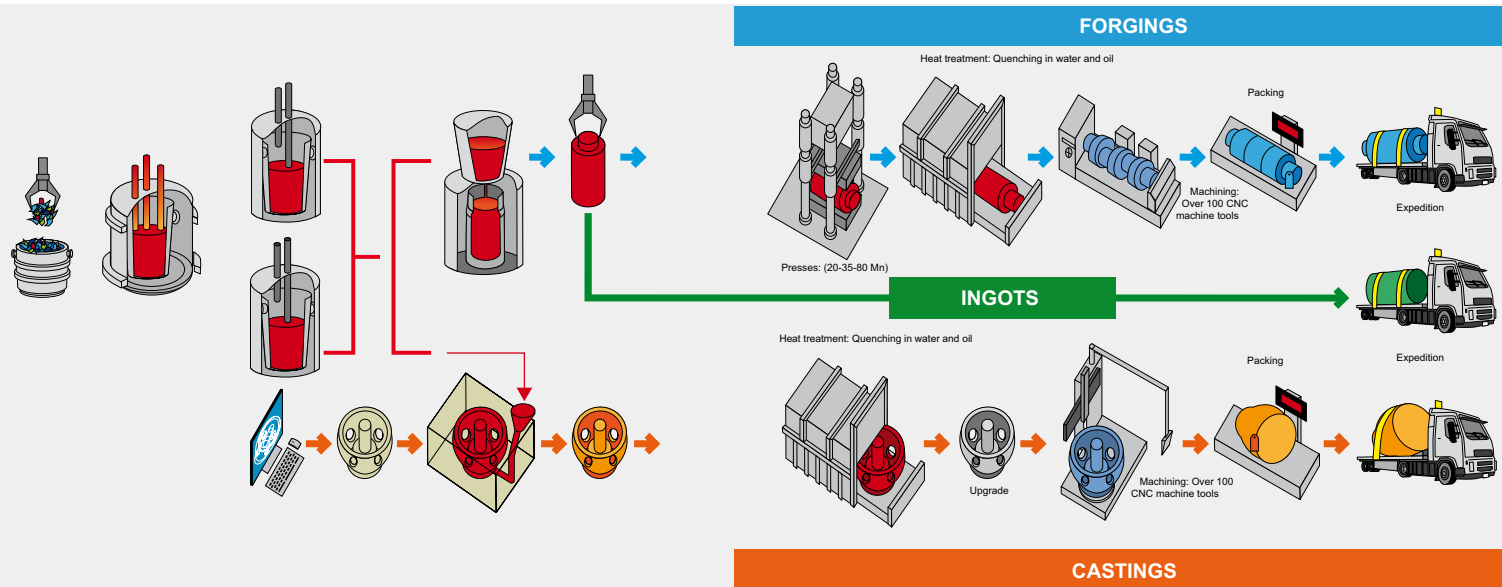
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Martensitic Steels

Production Range	Basauri	Vitoria	Reinosa	Azkoitia	Downstream Units
Continuous casting billet	185x185 mm, 155 x 155 mm, 240 x 240 mm	-	-	-	-
Bloom	350 x 470 mm	-	-	-	-
Ingot	-	-	Up to 140 Tonnes	-	-
Wire rod	-	5,5 - 38* mm	-	-	5,5 - 38* mm
Hot rolled bars	29 - 100 mm	-	100 - 230 mm	20 - 220 mm	-
Hot rolled billet	-	-	70 - 230 mm	60 - 200 mm	-
Square bars	-	-	90 - 170 mm	-	-
Hot rolled flat bars	-	-	135 - 172 x 92 - 170 mm	6 - 60 x 50 - 130 mm	-
Peeled bars	22 - 100 mm	23 - 35 mm	98 - 212 mm	19 - 60	10 - 125 mm
Cold drawn bars 	-	8 - 35 mm	-	-	5 - 50 mm
Cold drawn bars 	-	-	-	-	5 - 41 mm
Cold drawn bars 	-	-	-	-	8 - 40 mm
Ground bars	-	-	-	-	7 - 65 mm
Cold drawn bar to bar 	-	-	-	-	30 - 75 mm
Cold drawn bar to bar 	-	-	-	-	22 - 65 mm
Cold drawn bar to bar 	-	-	-	-	20 - 40 mm
Cold drawn wire	-	-	-	-	1,5 - 38 mm
Lopin	Length: 50 - 1.800 mm	Length: 190 - 1.800 mm	-	-	Length: 150 - 1.000 mm
Forged bars	-	-	220 - 1.500 mm	-	-
Turned forged bars	-	-	212 - 1.500 mm	-	-
Forged flats	-	-	From 4 to 46 Tonnes	-	-

\*Surface condition: Pickled, Phosphated, Reactive Soaped





**PRODUCTION RANGE**

FORGED PARTS (3-70 TON)  
 CASTED PARTS ( 5-140 TON)

**FORGE**

1 Forging press, 8000 t.  
 1 Forging press, 3000 t.  
 1 Forging press, 1800 t.  
 Heating furnaces and auxiliary systems

**CASTING**

Different moulding (pit and box)  
 Core making  
 Burring and welding bays

**H. TREATMENT**

22 heat treatment furnaces of different dimensions up to 16 m long and 300 tonnes working capacity

Auxiliary facilities for quenching in water and oil

Special facilities for rolls hardening

**MECHANICAL WORKSHOPS**

Over 100 machine-tools for different machining process. Capacity up to 120 t.

Assembly installations

Machining line for built-up crankshafts

Machining line for monobloc crankshafts

Machining line for work rolls

Assembly sections



## ENGINEERING STEELS

Carbon Steels

Free Cutting Steels

Spring Steels

Microalloyed Steels

Alloy Steels

Bearing Steels

CARBON	FREE CUTTING	SPRING STEELS	COLD HEADING	MICRO ALLOYS	ALLOY STEELS	BEARING STEELS
C35	11SMn30	51CrV4	C4C/C10C/C15C	38MnSiV6	42CrMo4-Pb	100Cr6
C35Pb	11SMnPb30	56Si7	19/20MnB5	38MnVS5	34CrNiMo6	100CrMn6
C 45	44SMn28	60SiCr8	34MnB5	30MnVS6	39NiCrMo3-Pb	100CrMo7
C45 Pb	44SMn28Pb	52CrMoV4	23/35B2	TL-1438	30CrNiMo8	
ST 523	46S20	52SiCrNi5	16MnCr5		31CrMoV9	
SAE1040	46SPb20		41CrS4		42CrAlMo7	
			42CrMoS4		16CrNi4-Pb	
			32CrB4		18NiCrMo5-Pb	

## BARS

ROUND (mm)	Maltzaga	Polinyà
Cold drawn	5-35	5-50
Cold drawn bar to bar	30-75	-
Peeled	10-125	14-80
Ground	-	7-65

HEX (mm)	Maltzaga	Polinyà
Cold drawn	6-32	5-41
Cold drawn bar to bar	22-65	-

SQUARES (mm)	Maltzaga	Polinyà
Cold drawn	11-25	8-40
Cold drawn bar to bar	20-40	-

## TOLERANCES

Cold Drawn	h9/h10
Peeled	h9/h10
Ground	h6/h8
Profiles	h11

## OTHER CONDITIONS

Length 2.800 mm to 7.000mm  
 Straightness up to 0,5mm/m  
 Chamfer both sides (0,5mm to 8mm)  
 Bundles 1.000 Kg to 1.500Kg  
 Technical conditions EN 10277-1

## WIRE

D Coil (mm)	D wire (mm)		Weight (Kg)
	interior	exterior	
5-10	500	950	750/1500
10-38	800	1250	750/1500

D Coil (mm)	D wire (mm)		Weight (Kg)
	interior	exterior	
1,5-3	520	950	300/500
3-9	520	950	500/750
9-11,70	520	950	500/750
	750	1100	750/1500
11,70-15	750	1100	750/1500

## SURFACE CONDITION

Pickled  
 Phosphate  
 Reactive Soaped

## Other Services:

- Cutting to length (Lopin)
- Chamfering and facing
- Internal defects by Ultrasonic Test from 10 mm diameter, Surface defect control (Circograph/Defectomat/Magnaflux) and dimension control by laser, identification and packing according to client's specifications.
- Chemical and metallurgical laboratories. Metallography and quality control

The success resulting from implementing and maintaining quality management system designed to continually improve the effectiveness and efficiency of organizational performance, is supported by the official certifications and approvals ISO TS 16949, ISO 9001, PECAL AQAP/2120...





**Spring steels:** high strength and weight reduction

**Bearing steels:** inclusion cleanliness

**Case hardening steels:** final components' quality

**Piston steels:** higher efficiency engines

**Drop forging steels:** characteristics assurance

**Fastener steels:** mechanical properties guaranteed

**Mooring chain steels:** deeper waters – higher latitude

**Tool steels:** steels for plastic injection moulds

**Enhanced machinability:** with similar mechanical properties

**Steels for conrods:** high strength and splittable fracture

**Steels for segments/sprockets:** high wear resistant

sidenor	PRODUCT DATA SHEET		STEEL:
	ISOCEM®	CRV	
New family of case hardening steels with high hardenability.			
<b>APPLICATION:</b>			
<ul style="list-style-type: none"> <li>Case hardened components that are quenched with low severity cooling fluids (high pressure gases, etc...)</li> <li>Components that exhibit distortions after heat treatment.</li> <li>Replacement of high alloyed gears requiring performance.</li> </ul>			
<b>ADVANTAGES:</b>			
Reduced distortion	When gas quenching (GQ) low distortion generated in comparison with oil quenching.		
Cost reduction	Savings in raw material. Reduction of machining operations related to the correction of defects (grinding, shotblasting...)		
Dimensional accuracy	Hardening behavior in the component in order to ensure case mechanical requirements.		
Increased quality	Uniform behavior in heat treatment. Low expansion and low grain size (> 7 μm). Absence of scale and impingement oxidation (IO). Substitution of quenching oils by clean gases (H <sub>2</sub> , N <sub>2</sub> ). Process steps for case quenching, cooling and oil recycling are eliminated.		
Clean and ecological process			
<b>APPLIED TECHNOLOGY:</b>			
<ul style="list-style-type: none"> <li>Optimized process of low pressure carburizing and gas quenching at different pressures (0-20bars).</li> <li>Controlled gas carburizing and oil quenching processes.</li> <li>Improved hardenability by means of thermal chemical composition.</li> <li>Feasibility of excellent improvement: AEC/ANEC/AT technologies.</li> </ul>			
Clean the environment and improve the steel and steel component quality.			

ISOCEM®

sidenor	PRODUCT DATA SHEET		STEEL:
	NANOCEM	NANOCEM PLUS	CASE HARDENING
Case hardening steels that guarantee a fine grained structure.			
<b>APPLICATION:</b>			
<ul style="list-style-type: none"> <li>Components that require a fine grain structure after carburizing.</li> <li>High temperature carburization on rollers or conventional bearings.</li> <li>Components with increased hardened case depth.</li> </ul>			
<b>ADVANTAGES:</b>			
High temperature carburizing	Chance to increase the carburizing temperature carburizing a fine grain structure.		
Shorter the treatment time	The high temperature speeds up the carbon diffusion in the austenite and this shortens the process.		
Increased case depth	The higher diffusion rate allows obtaining a deeper case, increasing the component quality.		
Costs reduction	Increased productivity and less quality control.		
<b>APPLIED TECHNOLOGY:</b>			
<ul style="list-style-type: none"> <li>Micro-alloying addition of elements such as Al, N, Nb or Ti that favor micro-precipitates that are able to retard the austenite grain growth.</li> <li>In conventional carburizing processes it is prevented the formation of all defects in the proper amount, size and distribution.</li> <li>Forming of Ti and Nb based nitrides/precipitates stable for the carburizing at higher temperatures.</li> </ul>			
Clean the environment and improve the steel and steel component quality.			

NANOCEM

sidenor	PRODUCT DATA SHEET		STEEL:
	MGC3	42SiCrMo	
Quenched and tempered (QAT) steel with high temperature oxidation resistance.			
<b>APPLICATION:</b>			
<ul style="list-style-type: none"> <li>Engine Pistons for cars, trucks &amp; ships (EURO-VI diesel engines working at very high temperatures and pressures. MGC3 steel withstands high mechanical and thermal loads generating very little a scale).</li> </ul>			
<b>ADVANTAGES:</b>			
High Oxidation Resistance	10-20 times less scale than current quenched steels.		
High Tensile Strength	900-1200 MPa.		
Forgeable & Corrosion	Suitable for hot forging.		
<b>APPLIED TECHNOLOGY:</b>			
<ul style="list-style-type: none"> <li>High Silicon alloying promotes a duplex layer on the surface that prevents the oxidation.</li> <li>Balanced alloying keeps a reasonable toughness and low grain size.</li> </ul>			
Clean the environment and improve the steel and steel component quality.			

MGC3

## HIGH PERFORMANCE STEELS:

New and improved steel grades  
 Consistent bar quality  
 Advanced metallurgy  
 Cleanliness  
 High performance properties: fatigue, high resistance, machinability, wear,...

## HEALTH & SAFETY

Occupational safety and health management systems  
 Responsible practices regarding people and the environment  
 Laboral risk prevention

## RECYCLING

Sustainable manufacturing  
 Circular economy  
 Respect for the environment

## INDUSTRY 4.0

Process control  
 Monitoring/sensors  
 Advanced technologies  
 Simulation and modeling

## FLEXIBILITY

Immediate adaptation to the increasingly changing logistics needs of the market  
 Flexibility in product design and production processes  
 Reduction of response times in the launch of new products  
 Customer Technical Assistance

## R&D

More than 30 years dealing with:

- Special Steel New Products Design
- Special Steel Production Processes
- Forging and Casting Technology
- Quality Improvement
- Productivity Increase
- Environmental Protection
- Technological Surveillance
- Technological Assistance
- Cost optimization at the value chain
- Partnership with customers

46 highly qualified engineers and scientists

Laboratory equipped with state of the art facilities for product characterization and physical simulation



Thank you for  
your attention

