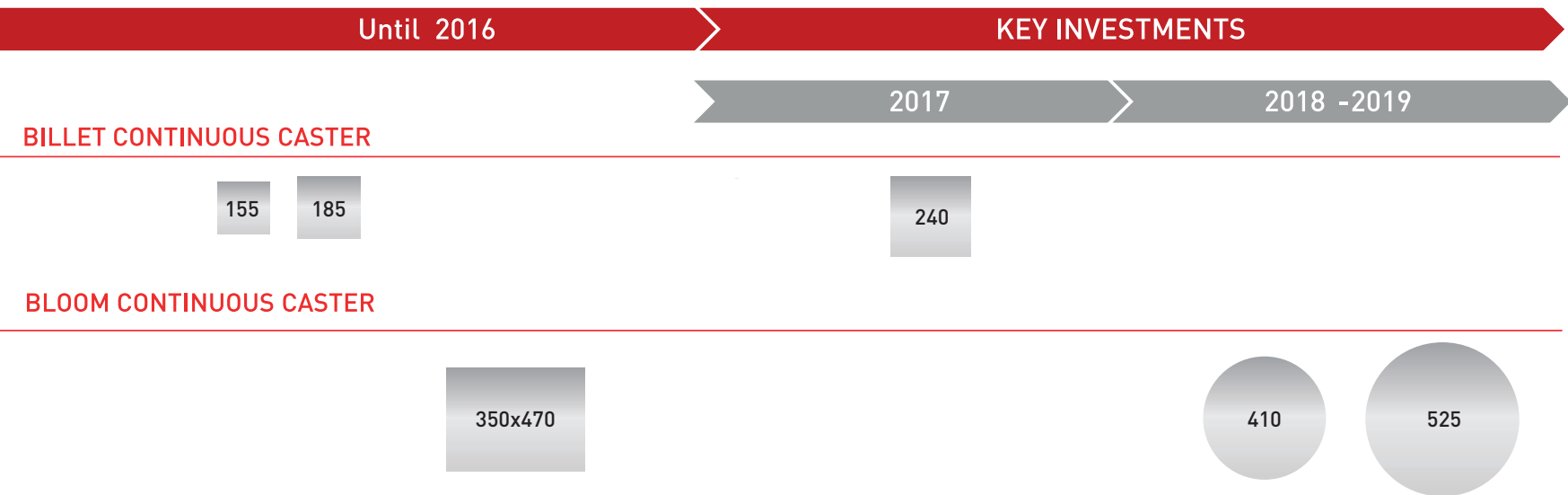


Semi Finished Products



“In the spirit of continuous improvement of its processes, facilities and product portfolio, Sidenor decided to invest in the Continuous Casters. The new formats will allow the company to reach new market shares and offer new products and specific solutions for individual customers”





As part of a programme of continuous improvement of its processes and facilities, Sidenor has invested in the continuous casting and in the rolling mill of Basauri. The new billet size of 240x240 mm will allow a greater reduction which will result in an improvement of the metallurgical characteristics of the bars such as: inclusionary cleanliness, grain size, metallurgical purity ...

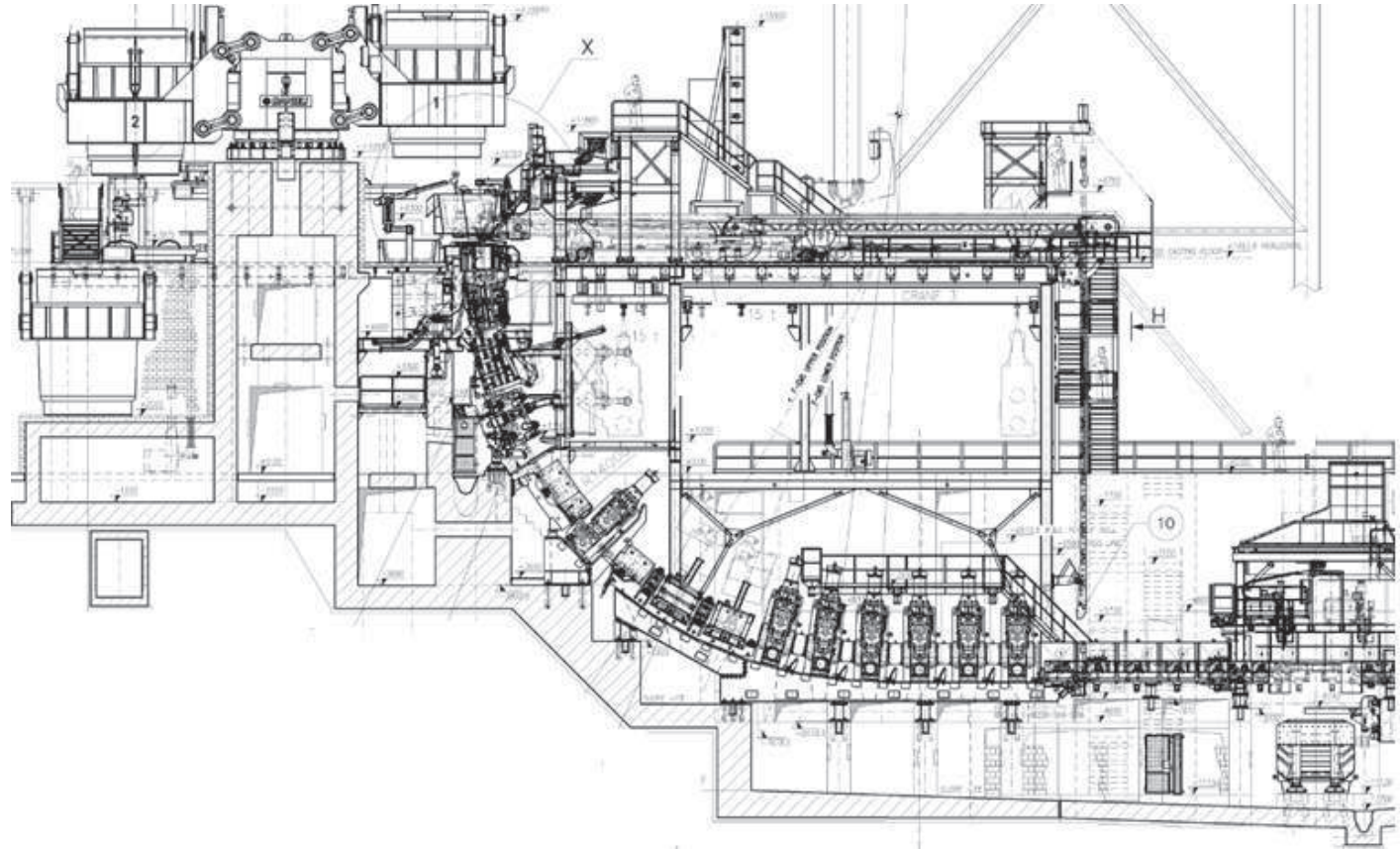
The objective is the better performance of the steel manufactured by Sidenor in our customers' applications.

Investment timetable: winter 2017; first product supplies, first quarter 2018.

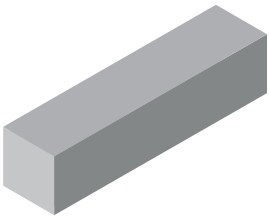
In this spirit of continuous improvement of its processes, facilities and product portfolio, Sidenor decided to invest in the Bloom Caster. The new round bloom formats of 410 and 525 mm diameter will allow the company to reach new market shares and offer new products and specific solutions for individual customers.

The company aims to provide individual solutions considering our customers' characteristics like location, lead time, stock necessity and, as always, quality guaranties.

Investment timetable: winter 2018; first product supplies, first quarter 2019.

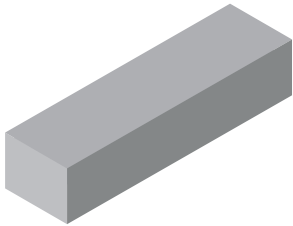


CC Square Section



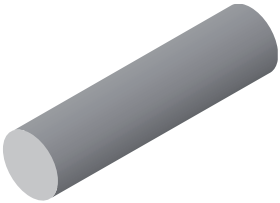
Dimensional Size (mm)	Weight (Kg/m)	Length (m)
240 x 240	451	6-11,9
185 x 185	267	6-11,9
155 x 155	187	6-11,9

CC Rectangular Section



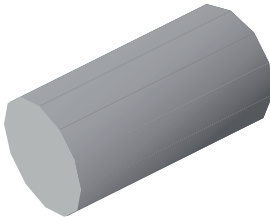
Dimensional Size (mm)	Weight (Kg/m)	Length (m)
350 x 470	1.290	7,5 máx

CC Round Section



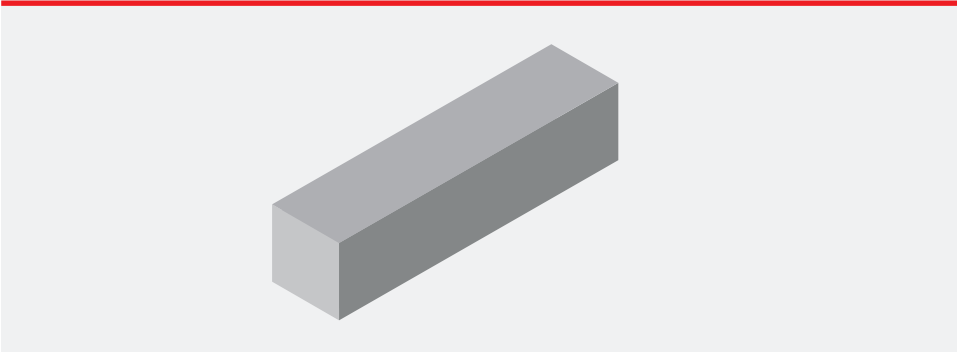
Dimensional Size (mm)	Weight (Kg/m)	Length (m)
Ø 525	1.699	6
Ø 410	1.036	8

Ingots



Ingot Type	Length (Kg)
Square	2.500 - 3.000
Poligonal	4.000 - 65.000

CC Square Section



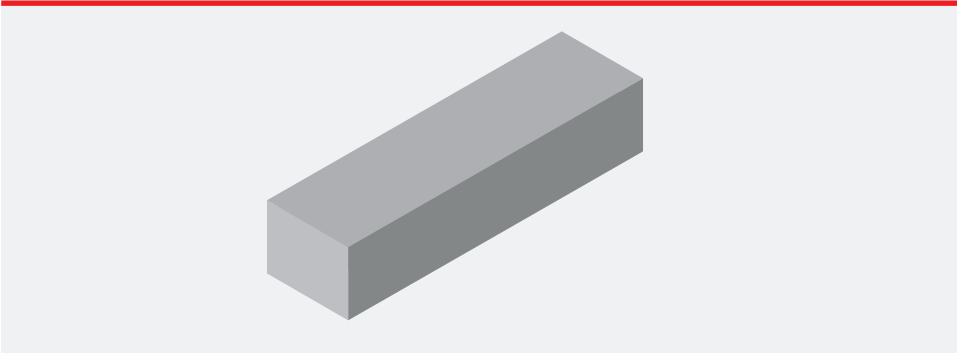
CC Square Section 240 mm

Dimensional Size (mm)	Weight (Kg/m)	Length (m)
240 x 240	451	6-11,9
185 x 185	267	6-11,9
155 x 155	187	6-11,9

Size and Shape tolerances

Dimensional Size (mm)	± 2 mm.
Out of Squareness/Romboidicity	< 4%
Corner Radius	6 mm. approximately
Concavity or Convexity	<1,5 % from the side
Maximum Twist	4º/m. 12º in the whole Length
Straightness	5 mm./m
Length Tolerance	± 50 mm.

CC Rectangular Section



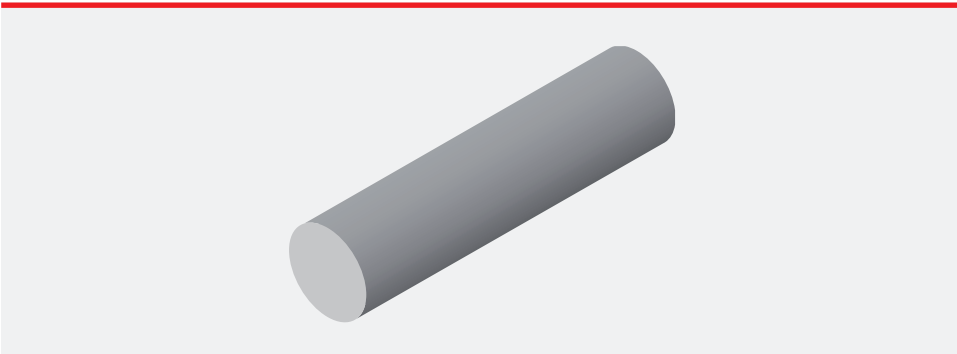
Bloom 350 x 470 mm

Dimensional Size (mm)	Weight (Kg/m)	Length (m)
350 x 470	1.290	7,5 máx

Size and Shape tolerances

Dimensional Size (mm)	± 1 mm.
Out of Squareness/Romboidicity	< =1,5%
Corner Radius	8 mm approximately
Concavity or Convexity	<1,0 % from the side
Maximum Twist	4º/metro. 12º in the whole Length
Straightness	<=4 mm/m
Length Tolerance	± 25 mm.

CC Round Section



CC Round Section 410 mm

Dimensional Size (mm)	Weight (Kg/m)	Length (m)
Φ 525	1.699	6
Φ 410	1.036	8

Size and dimensional tolerances

$T_D = \Phi - \Phi_{\text{Nominal}}$

0- / + 10mm

Roundness/Ovality

$\leq 2\%$

Straightness

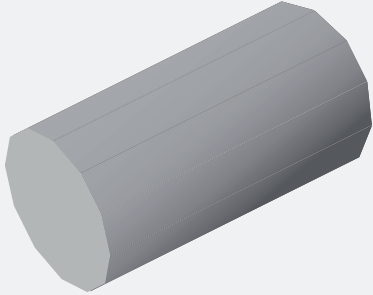
3,5 mm/m

Planicity

$\Phi 410\text{mm} \leq 70\text{mm}$
 $\Phi 525\text{mm} \leq 90\text{mm}$

Length Tolerance

-0/+50 mm

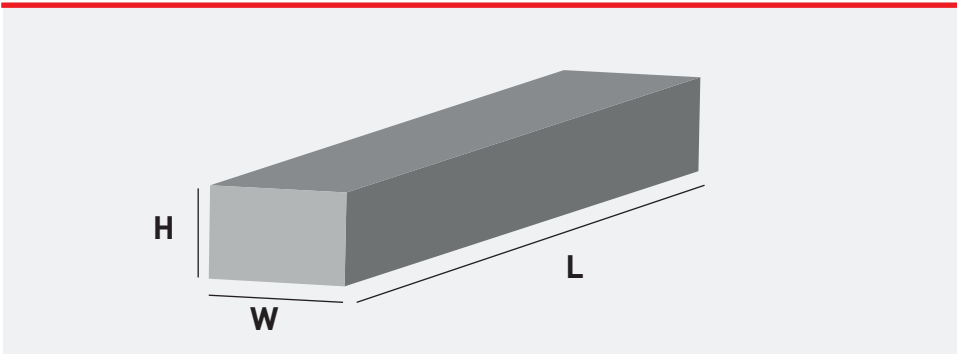


Poligonal Ingots

Ingot (Weight and Shape)

Ingot tipe (Weight /Tn)	Shape
L-2,5	Square
L-2,7	Square
L-3	Square
BKT 4/5,5	Poligonal
BKT 7/10	Poligonal
BKT 11/15	Poligonal
BKT 17/23	Poligonal
CKT 24/30	Poligonal
CKT 31/40	Poligonal
CKT 41/53	Poligonal
CKT 54/65	Poligonal

Roughed Billet / Flat Bars



Flat Bars

Height (H)	Width (W)	Length (m)
80 – 300 mm	115 – 500 mm	up to 14.000 mm

Size and dimensional tolerances

Size Tolerance	+ 3 (H) / + 4 (W) mm
US Manual Control	Class 4 / 3 / 2 (Depending on the Reduction Ratio)
Round Corner (According to height ± 1 mm)	Approx 20 mm (Depending on the final size)
Straightness	≤ 4 mm/m
Length Tolerance	+100 mm.

Chemical Analysis

Steel	Werkstoff-Nr.	C	Mn	Si	P	S	Cr	Ni	Mo	V	Al
18CrNiMo7-6	6587	0,14	0,4	0,15	-	-	1,5	1,4	0,25		
		0,19	0,6	0,4	0,035	0,035	1,8	1,7	0,35		
42CrMo4	7225	0,38	0,5				0,9		0,15		
		0,45	0,8	0,4	0,035	0,035	1,2	0,6	0,3		
A350 LF2/S355	565		0,9	0,1							
		0,2	1,65	0,5	0,035	0,03	0,45	0,85	0,45	0,1	0,02
C50	540	0,47	0,6								
		0,55	0,9	0,4	0,045	0,045	0,4	0,4	0,1		
25CrMo4	7218	0,22	0,6				0,9		0,15		
		0,29	0,9	0,4	0,035	0,03	1,2		0,3		
34CrNiMo6	6582	0,3	0,5				1,3	1,3	0,15		
		0,38	0,8	0,4	0,035	0,035	1,7	1,7	0,3		
ASTM A-182 F5	7362	0,06	0,3	0,3			4		0,45		
		0,15	0,6	0,5	0,03	0,03	6		0,65		
ASTM A-182 F9	7386	0,07	0,3	0,25			8		0,9		
		0,15	0,6	1	0,025	0,02	10		1,1		
ASTM A-182 F91	4903	0,08	0,3	0,2			8		0,85	0,18	
		0,12	0,6	0,5	0,02	0,01	9,5	0,4	1,05	0,25	0,04
ASTM A-182 F11	7380	0,08	0,4				2		0,9		
		0,15	0,7	0,4	0,035	0,03	2,5	0,5	1,1		
ASTM A-182 F22	7335	0,1	0,4				0,8		0,4		
		0,18	0,7	0,4	0,035	0,03	1,15		0,8		



Renewable Energy



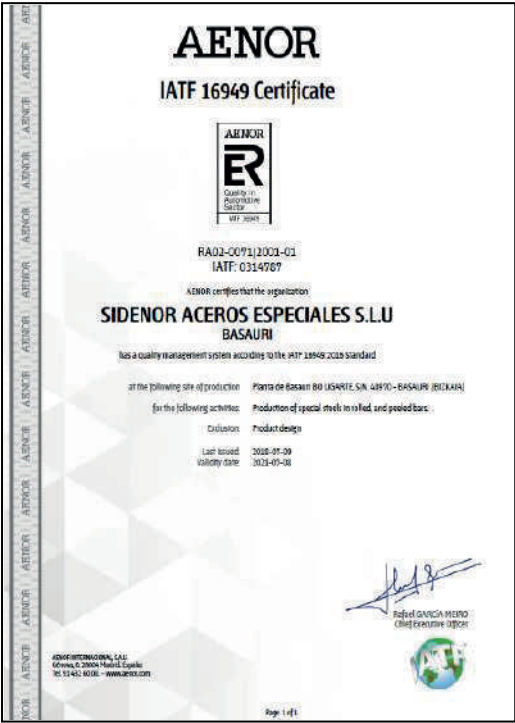
Railway Systems



Oil&Gas



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...



Thank you very much



Sidenor

Barrio Ugarte s/n
48970 Basauri, Spain

sidenor-direccion-comercial@sidenor.com