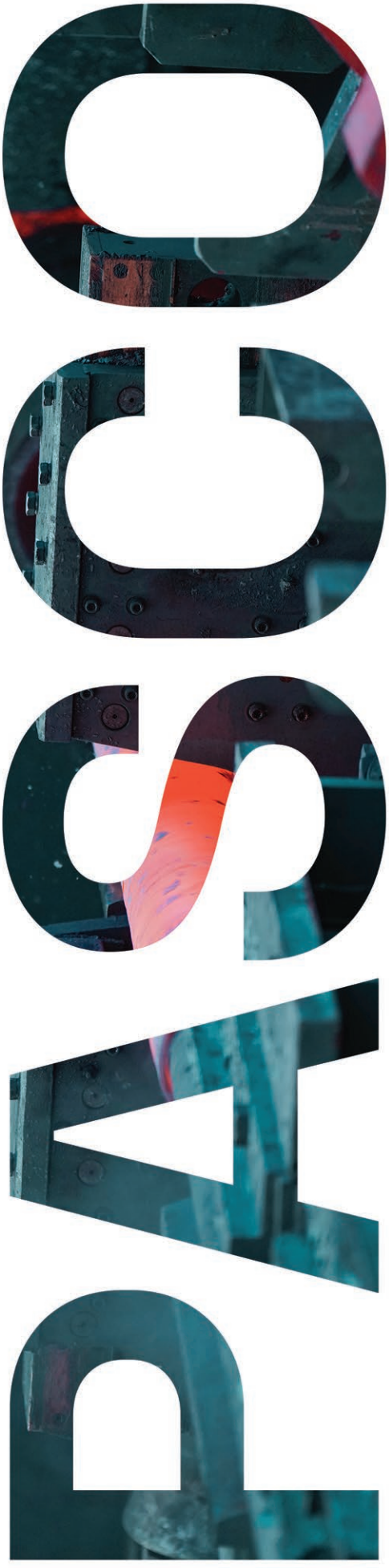

PASARGAD Alloy Steel Complex

www.pascosteel.com

Pasargad Alloy Steel Complex

State of the Art
Integrated Steel Plant,
Leading with

Reliability & Competitiveness

www.pascosteel.com

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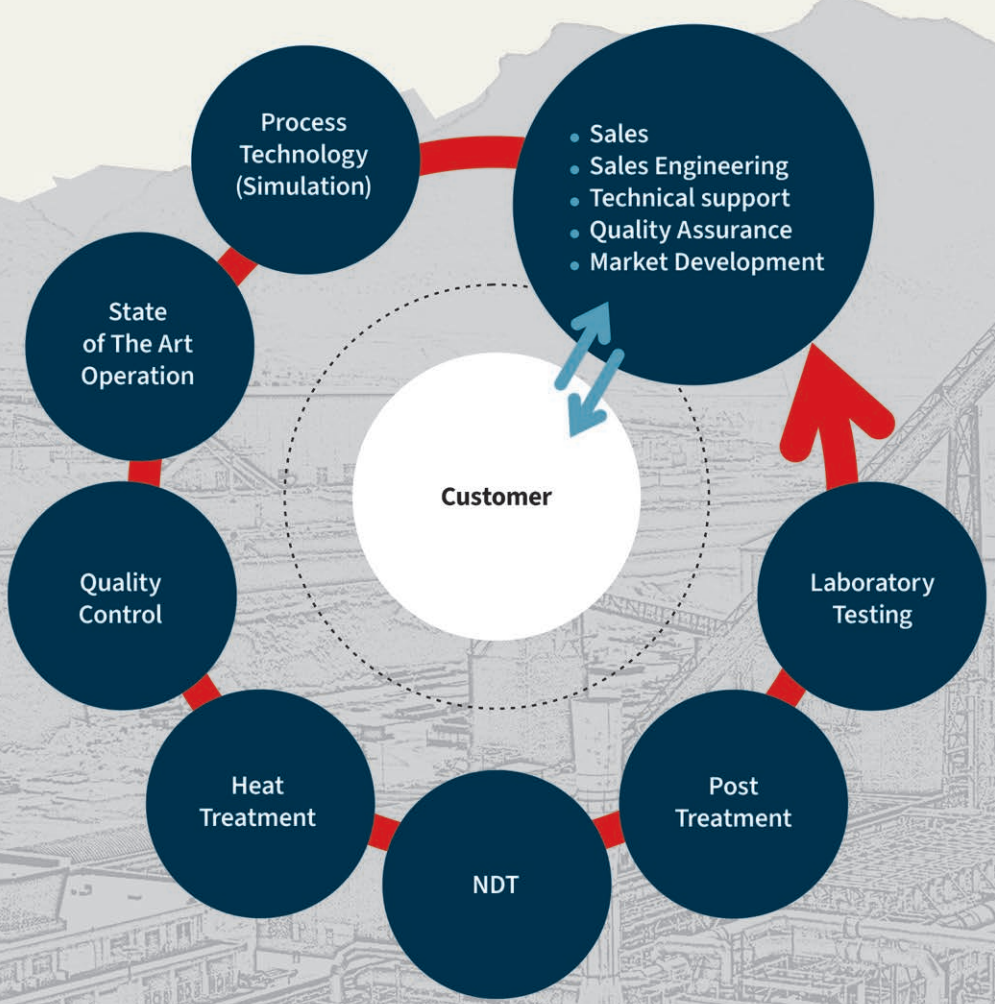
Our Vision

To create steel for a sustainable future and develop the downstream industries.

Our Mission

- Providing the best quality steel products and to be competitive in global markets.
- Products' quality assurance in compliance with the world standards to establish competitive place in the global markets.
- Helping self-sufficiency of our homeland, Iran, by implementing R&D program.
- Developing science and increasing level of theoretical and practical knowledge of our personnel by continuous training in the Pasargad Technical School.



PASARGAD Alloy Steel Complex

Pasargad Alloy Steel Complex (PASCO) is a leading private joint-stock company delivering different types of alloyed products near the city of Shiraz.
To ensure the delivery of quality products that meet customer requirements, PASCO is equipped with the latest fully automated facilities and technologies. These tools guarantee products of the highest precision and quality for our customers.

General Characteristics Of The Company

Site Information
Location: Shiraz, Iran
(68 Kilometers Southeast of Shiraz Central)
Available Ground: 3,000,000 m^2

Geographical Conditions
Altitude Above Sea Level: 1,589 meters
Distance to Nearest Seaport: Bandar Abbas 530 km

Ownership
PASCO is the largest steel producer in the private sector.

Market
To provide raw materials for the steel long product downstream industry in Iran and the export market.

Number Of Staff

3,000
employees
in the operational phase

1,500
employees
in the expansion project

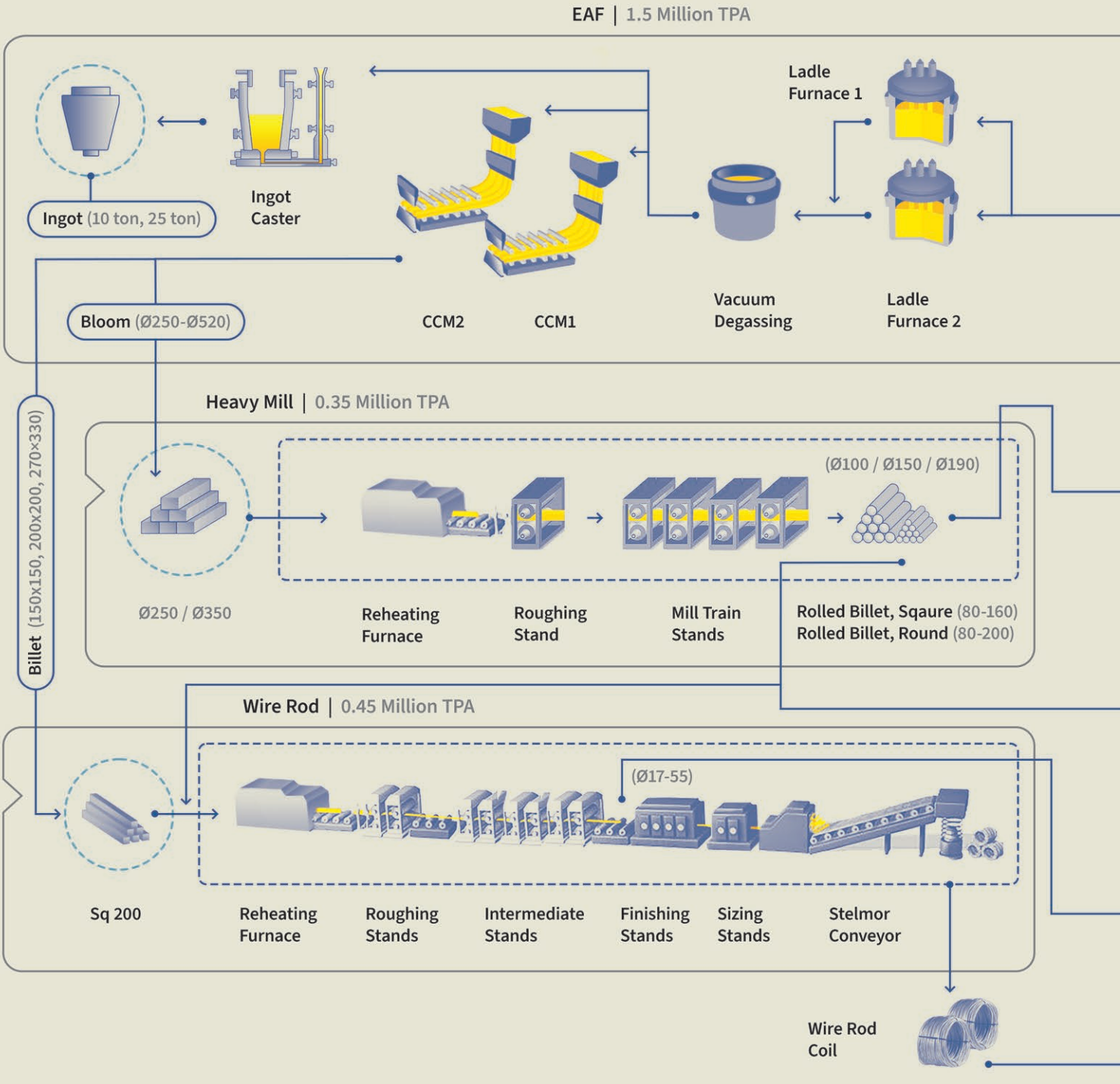
Production Plants

Iron Ore Concentration Plant	Pelletizing Plant	Direct Reduced Iron Plant
1.2 MTPA	3.4 MTPA	1.8 MTPA
Steelmaking Plant	Ingot Casting	Special Bar Quality Plant
1.5 MTPA	Ingots	0.45 MTPA
Wire Rod Mill Plant	Seamless Pipe Mill Plant	Heat Treatment and Finishing / Testing Line for Rolled Products
0.45 MTPA	0.15 MTPA	0.1 MTPA
Lime Calcination Plant	Electrode Graphitization Plant	
70,000 TPA	7000 TPA	

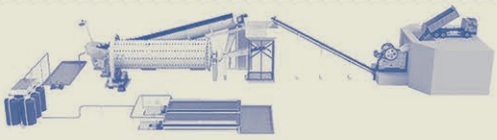
Production Process

The production process at PASCO starts from concentration of iron ore, including crushing and magnet separating. The pellets would be formed from iron ore concentrate in the pelletizing plant. The pellet is then converted into sponge iron (DRI), followed by melting in an electric arc furnace (EAF). Charging of DRI into the EAF would be conducted in both hot and cold condition. The process continues with secondary metallurgy, refining, and vacuum degassing, followed by continuous casting, rolling, heat treatment, and finishing operations after rolling.

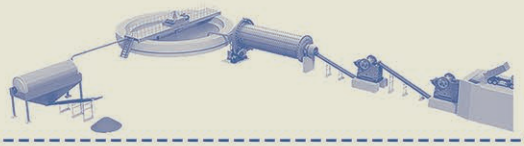
Mining



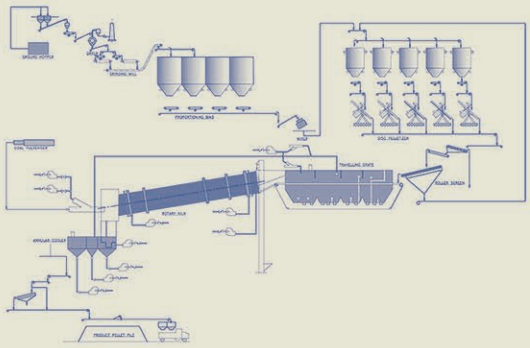
Concentration 1 (Recycle) | 0.4 Million TPA



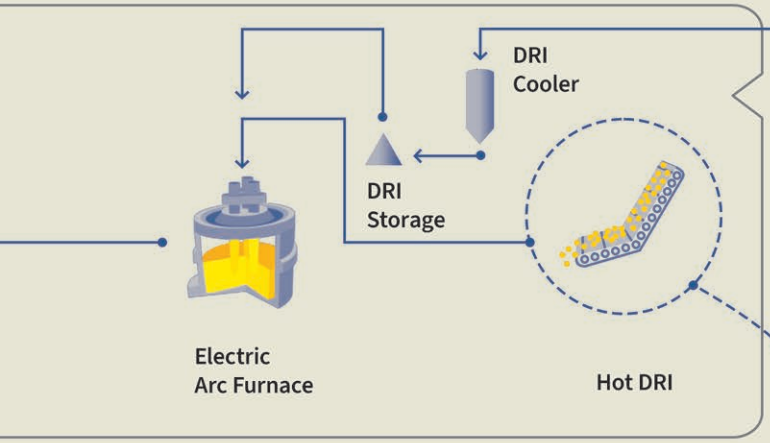
Concentration 2 | 1.2 Million TPA

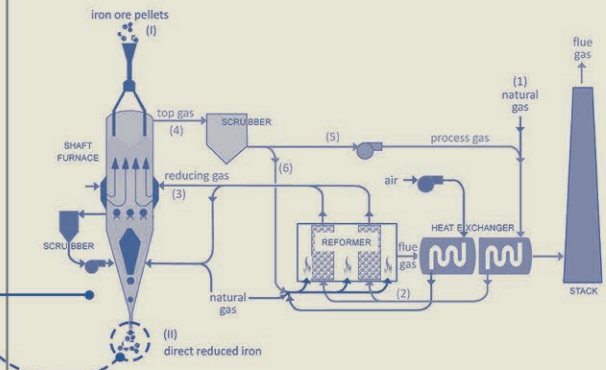


Pelletizing | 3.4 Million TPA

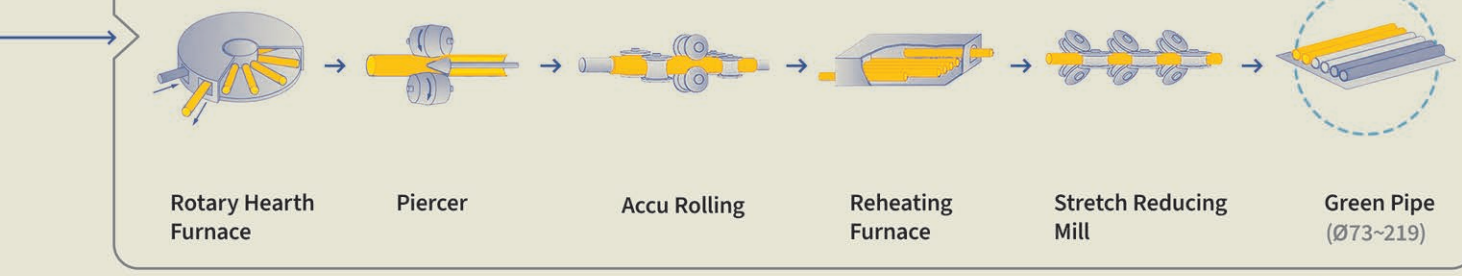


Direct Reduction Iron | 1.8 Million TPA

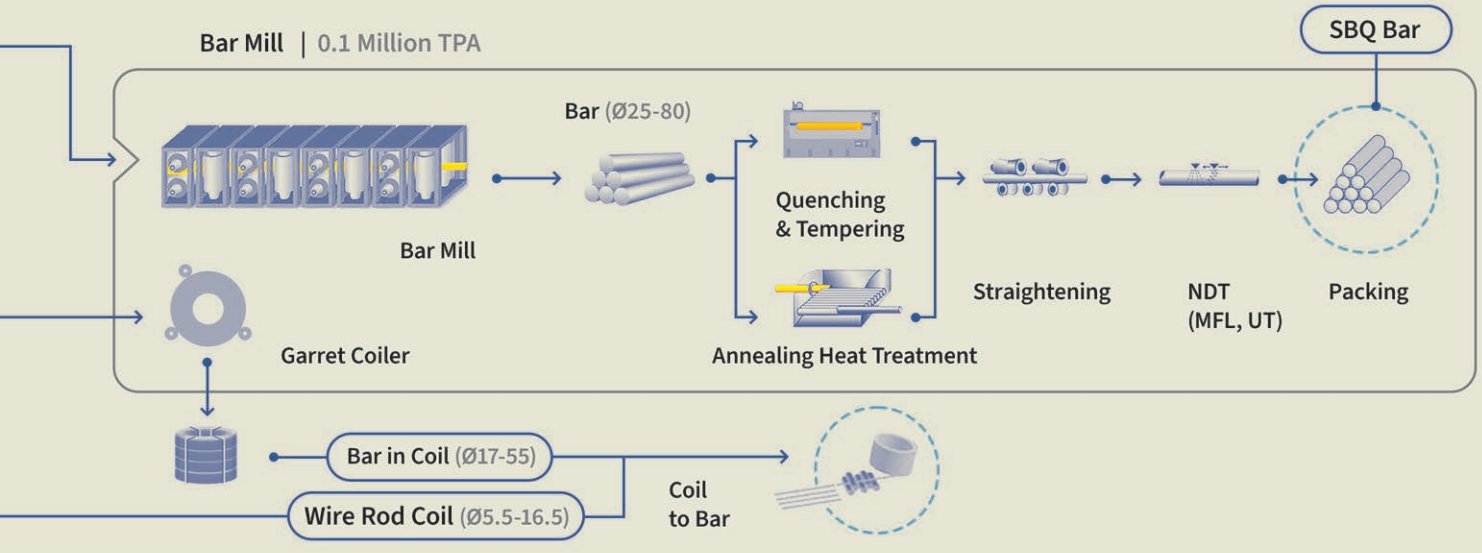




Seamless Pipe Mill | 0.15 Million TPA



Bar Mill | 0.1 Million TPA



Steelmaking

MELTING OPERATION

Our steels are produced by melting direct reduced iron and recyclable metallic scrap in an electric arc furnace (EAF) with a high degree of automation and a redundant system configuration, enabling significant flexibility and preventing bottlenecks.

SECONDARY METALLURGY

With the presence of two ladle furnaces and a twin vacuum degassing (VD) unit, PASCO has created a unique opportunity for enhanced process control, refining, and degassing.

At PASCO, our twin vacuum degassing (VD) unit is a pivotal component in our steel production process, significantly enhancing the quality of our steel products. Vacuum degassing is a critical refining process that removes unwanted gases, such as hydrogen and nitrogen, from molten steel. This is essential for producing high-quality steel with superior mechanical properties and reduced susceptibility to defects. Thanks to the state of the art technology combined with a comprehensive knowledge background in steel making, PASCO has established a national leading position in the filed of alloyed and quality steel production.

CONTINUOUS CASTING MACHINES

When the steel reaches the necessary temperature and chemical composition during secondary metallurgy, the melt would be continuously cast through two continuous caster machines. The casting is equipped with EMS (electromagnetic stirring machine) technology both at the molds and the final part of solidification to eliminate the metallurgical segregation. Additionally, aiming for a targeted enhancement of the internal microstructure, the strands are gradually rolled during the final phase of solidification through the application of force by some rolls, named MSR (Mechanical Soft Reduction) technology, compensating for local shrinkage that occurs during solidification. Consequently, there is a notable reduction in core segregation and center porosity.

Raw Materials	
DRI	Hot/Cold Charge
Scrap	Light & Heavy

Products				
Type of Casting	**Section**	**Size or Tonnage**	**Length**	**Sample Grades**
CCM1	Square Billet	130-200 mm	8-12 m	3Sp, 5Sp, RST34, SWRY11
CCM2	Round Bloom	250-520 mm	4-8 m	L80, 42CrMo4, A105
	Square Bloom	220 mm	8-12 m	S355J2, S275J2
	Rectangular Bloom	270x330 mm	6-8 m	R350HT, C60E, C45E
Ingot Casting	Ingot	10, 25 Ton	1.9, 2.8 m	42CrMo4, P355QH

Steel Making Equipment		
Electric Arc Furnace	220 Tons Capacity	1 Furnace
Ladle Furnace	150 Tons Capacity	2 Furnaces
Vacuum Degassing	Vacuum pumps	1 Unit
Continuous Casting Machine 1	6 Strands	1 Machine
Continuous Casting Machine 2	5 Strands Including MSR and EMS	1 Machine

SBQ Rolling Mill

Reheating Furnace

Blooms transferred from the continuous casting mills are evenly reheated to the optimal temperature for hot rolling.

Rolling Mill

The scale breaker and high-pressure descaler are utilized to eliminate scales from the blooms' surface. The entire forming process comprises several stages, which are executed by a series of successive rolling stands. The blooms are deformed heavily in the roughing mill and are rolled to the correct dimensions in the finishing mill.

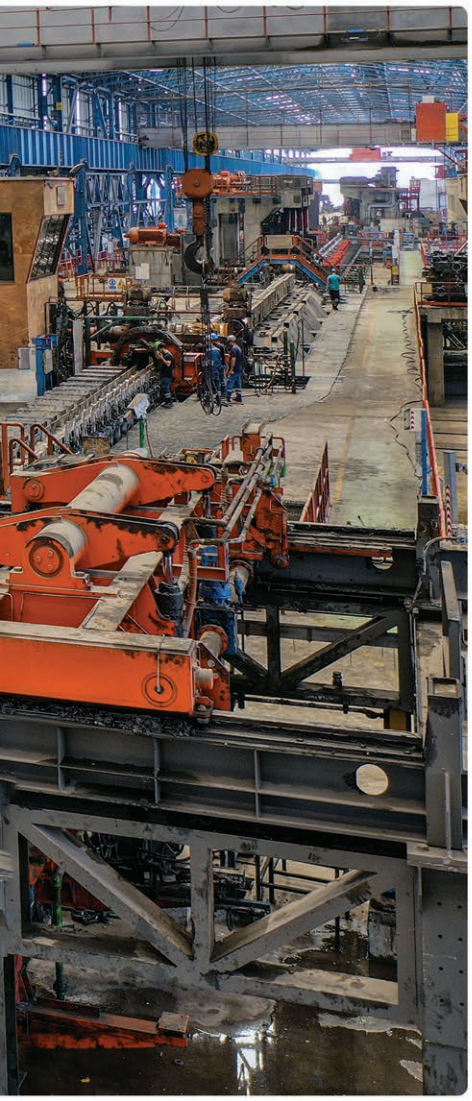
Cooling and Coiling

The SBQ bars and rolled billets are cooled to the desired temperature. The cooling rate and pattern are adjusted to control mechanical properties.

Raw Materials		
As cast Billet	□ 200/220 mm	Length 4.5-6.2 m
As cast Bloom	Ø 250/350mm	

Products				
Product Type	**Section**	**Size**	**Length**	**Sample Grades**
Rolled Billet	Squares/Rounds	□ 80-160 mm	3-12 m	A106, C60E, C45E
SBQ Bars	Rounds	Ø 25-160 mm	3-12 m	42CrMo4, 30MnVS6, 70Cr2

SBQ Rolling Mill Equipment		
Reheating furnace	Walking Beam	80 Tons/Hour
Rolling Stands	Roughing Mill (reversible system)	1 stand
	Finishing Mill (continuous type, H-V) (for large sections)	4 stands
	Finishing Mill (continuous type, H-V) (for small sections)	10 stands
Cutting	Abrasive saw, Metallic saw, Cold saw	3 Units



Heat Treatments and Post Treatments

Post treatment

Post treatment of PASCO supports your work not only by supplying special steel sections but also by offering additional processing steps such as straightening, chamfering, ultrasonic testing, electromagnetic testing, and special packing.

Heat treatments

To establish the necessary range of properties for both the finished product and the workpiece within the process chain, appropriate heat treatment is crucial. We are equipped with advanced furnaces that enable a variety of thermal treatments.

Annealing

After rolling, alloyed steel becomes hard and brittle, with the hard phases formed during cooling. To achieve the desired grain structure and enhance the mechanical properties, the material is reheated in a furnace and subjected to different cycles of heat treatments, including soft annealing, spheroidizing, and normalizing. This high-productivity manufacturing method can produce steel products with extra deep forgeability and machinability.

Hardening

Products which require high tensile properties and stiffness, undergo hardening and tempering. For this purpose, they are inductively heated to a temperature of approximately 1000°C and then quenched in a water shower, followed by inductively heating for tempering. This process imparts a combination of strength and toughness to the material.

Products				
Product Type	**Size**	**Length**	**Heat Treatments**	**Post Treatments**
Black Bar	Ø 25-80 mm	6, 12 m	Soft Annealing Spheroidizing Sub-critical Annealing Isothermal annealing Normalizing Quench/Tempering	Straightening Shot Blasting Chamfering Analysis Checking Ultrasonic Testing Electromagnetic Testing

Post Treatment Plant Equipment		
Heat treatment Facilities	Bogie furnace (50 Tons/Batch)	1 Furnace
	3-Bases Furnace (100 Tons/Batch)	1 Furnace
	Induction Quench/Tempering (5 Tons/Hour)	2 lines
Straightening	Multi-Roll Straightening (Delivering 1mm/m Straightness)	1 Machine
Shot Blasting	Delivering Surface Quality Sa 3	1 Machine
Chamfering	30^0, 45^0, 60^0	1 Machine
Non-Destructive Testing	Ultrasonic Testing (Including 24 Probes)	1 Unit
	Magnetic Flux Testing (Rotary system equipped with demagnetizer)	1 Unit

Wire Rod Rolling Mill

Reheating Furnace

Blooms/billets are evenly reheated to the optimal temperature for hot rolling in a modern furnace. To prevent decarburization, billets are preheated at a low temperature, followed by a complete heating process to achieve the appropriate temperature for the billets' rolling procedure.

Rolling Mill

The high-pressure descaler is utilized to eliminate scales from the bloom surface. The entire forming process comprises several stages, including roughing stands, intermediate stands, finishing stands, and sizing mill. The Blooms are deformed heavily in the roughing mill and are rolled to the correct dimensions in the finishing and sizing mill.

The rolling process must be meticulously controlled to adjust temperature, pressure, and deformation rate to achieve the desired characteristics of the customer. Additionally, surface roughness, dimensions, and deviations can be modified to prevent any defects.

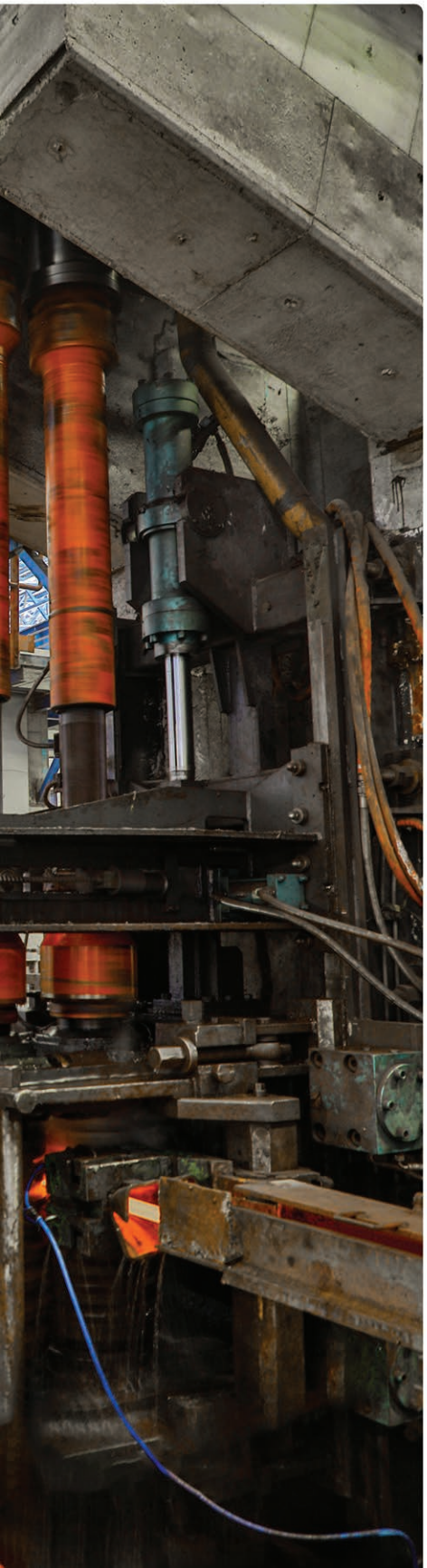
Before coiling, the section profile would be measured and monitored by a laser dimension control system.

Coiling, Cooling, and Compacting

The coiling would be done with a developed and modern laying head. Precise control of temperature, air volume, speed, opening and closing of slow-cooling sections are all variables influencing mechanical properties. Uniform fast cooling methods are employed for high carbon steel wires, while a slow-cooling method is applied for alloy and low carbon steel. Finally, compacting would be done with a vertical compactor.

Raw Materials		
As cast Billet	□ 150-200 mm	Length 6-9 m

Products				
Product Type	**Section**	**Size**	**Weight**	**Sample Grades**
Wire Rod Coil	Rounds	Ø 5.5-16.5 mm	2-2.5 ton	C45, SG2, C82D2, 55Cr3, 10B21
Bar in Coil	Rounds	Ø 17-55 mm	2-2.5 ton	10B21, 10B38, 54SiCr6



Wire Rod Mill Equipment		
Reheating Furnace	Walking Beam	80 Tons/Hour
Rolling Stands	Roughing Mill (continuous type, H-V)	6 Stands
	Intermediate Mill (continuous type, H-V)	14 Stands
	Finishing Mill (Vari-block system)	8 Stands
	Sizing Mill (Vari-block system)	4 Stands
Stelmor Conveyor	Equipped with cover and distributed fans	120m Length
Garret Coiler	Equipped with cover, distributed fans and quench tank	120m Length

Seamless Pipe Rolling Mill (According to ISO 11960 Standard)

Reheating Furnace

The reheating furnace is the initial stage in the seamless production process, where raw billets are heated to high temperatures. This heating is essential for making the material malleable, allowing it to be easily shaped in the subsequent rolling mill. The furnace operates with precision to ensure uniform heating, which is critical for achieving consistent quality in the final product.

Rolling Mill

The rolling mill shapes the material through a process of piercing, rolling with mandrel, and sizing which ensure that the final pipes achieve the desired dimensions and mechanical properties. These stages are vital for producing pipes that meet specific industrial standards and applications.

Heat Treatments

After the rolling process, the pipes undergo heat treatment, which is crucial for enhancing their strength and durability. This process involves carefully controlled heating and cooling cycles bringing about tempered martensite in the microstructure of the material. Heat treatment improves the mechanical properties of the pipes, making them suitable for high-stress applications.

Post Treatments

The post-treatment includes various processes such as inspection, quality control, beveling, and threading. These steps ensure that the pipes meet stringent quality standards and are free from defects. Moreover, other complementary tests like drift test, hydrotest, and make-up test guarantee reliability and performance of the pipes in their intended applications such as OCTG pipes.

Raw Materials		
As Rolled Billet	Ø 110-190 mm	Length 1.2-3.1 m

Products				
Product Type	**Outer Diameter**	**thickness**	**Length**	**Sample Grades**
Mechanical pipe	73-219.1 mm	4.5-20 mm	6 , 12 m	A53(A,B), A106(A,B,C) A209(T1,T1a,T1b), A333(1,4,6,10)
Structural Pipe	73-219.1 mm	4.5-20 mm	6 , 12 m	A500(A,B,C,D)
Line Pipe	73-219.1 mm	4.5-20 mm	6 , 12 m	X42, X52, X46, X60
OCTG Pipe	73-219.1 mm	4.5-20 mm	6 , 12 m	J55, K55, N80, L80, P110, H40

Seamless Pipe Plant Equipment		
Reheating Furnace	Rotary Hearth	25 Ton/Hours
Piercer	Working with plug and conic inclined rolls	1 Stand
Accu Mill	Working with mandrel	1 Stand
Intermediate Furnace	Walking Beam	25 Ton/Hours
Stretch Reduced Mill (SRM)	Finished Pipe (Sizing the outer diameter and thickness)	14 stands
Cold Straightener	Multi-Roll Straightening (Delivering 1mm/m Straightness)	1 Machine
Heat Treatment Lines	2 Walking Beam Furnaces + 1 Quenching Head System	25 Ton/Hours
Hot Straightener	Multi-Roll Straightening (Delivering 1mm/m Straightness)	1 Machine
Non-Destructive Testing	Ultrasonic Testing (Rotary system, 32 probes)	1 Machine
	Eddy Current Testing (Stationary)	1 Machine
	Magnetic Particle Inspection (Manual)	1 Unit
Beveling	30^0, 37.5^0, 45^0, 60^0	1 Machine
Hydrotesting	600-1300 bar	1 Machine
Threading Line	Buttress Type New VAM Type	2 Machines
	Drift Test	1 Unit
	Make Up Test	1 Unit
	Lubrication Station	1 Unit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Welding Steel

Welding steel refers to a category of steel specifically formulated to have good weldability characteristics. These steels generally contain low to moderate carbon content and are designed to be easily fused together using various welding processes without suffering from significant defects, such as cracking or excessive distortion.

Name	Material NO.	Analysis				
		C	Si	Mn	P	S
SWRY11	-	Max 0.09	Max 0.05	0.35-0.65	Max 0.025	Max 0.025
RST34	-	Max 0.15	Max 0.12	0.20-0.50	Max 0.025	Max 0.025
SG2	1.5125	0.6-1	0.80-0.90	1.40-1.50	Max 0.015	Max 0.015

Cold Heading Quality Steel

The cold heading is a generic term describing the continuous productions of fasteners of parts by upsetting from wire or wire rod in the coil form. The operation is carried out on specially designed horizontal presses equipped with means of feeding wire from coil, straightening, cutting to length and thence finally forming fastener in one or more blows. The presses range from relatively simple machines equipped with a single punch and die, forming the part in a single blow, to complex multi-die / punch machines with integral means for transferring the part through the die sequence

Name	Material NO.	Analysis									
		C	Si	Mn	P	S	Cr	Ni	Cu	Mo	B
SAE10B21	-	0.18-0.23	0.15-0.30	0.60-0.90	Max 0.030	Max 0.050	-	-	-	-	0.0005-0.0030
SAE10B35	-	0.32-0.38	0.15-0.30	0.60-0.90	Max 0.030	Max 0.050	-	-	-	-	0.0005-0.0030
SAE10B38	-	0.35-0.42	0.15-0.30	0.60-0.90	Max 0.030	Max 0.050	-	-	-	-	0.0005-0.0030
36CrNiMo4	1.6511	0.32-0.40	Max 0.40	0.50-0.80	Max 0.35	Max 0.35	0.90-1.20	0.90-0.12	-	0.15-0.30	-
37MnB5	1.5538	0.35-0.40	Max 0.30	1.15-1.45	Max 0.025	Max 0.025	Max 0.30	-	Max 0.25	-	0.0008-0.0050

Based on our extensive expertise, we are pleased to advise you on alternative steel grades or modifications to better meet your specific requirements. In doing so, we consistently strive to achieve enhanced mechanical properties and improve machinability or corrosion resistance. Furthermore, our engineers are happy to guide you on how heat treatment, specific microstructures, and the grain size of the profile can ultimately influence performance. All business processes adhere to international quality standards. Additionally, our supply plants hold certifications in various industries, including automotive and oil and gas.

Our engineers have specifically developed unique steel grades tailored to your needs, combining enhanced mechanical properties with outstanding machinability. Utilizing profiles made from these steel grades can significantly prolong the lifespan of your machining tools.

Steel for Constructional and Structural Uses

Steel for general and welding structures is produced and used for constructing iron frameworks, as well as the structures of bridges, ships, cars, and more. Using quenched and tempered steels are suitable for components subjected to high static and dynamic loading, such as crankshaft. The quenching and tempering treatment brings about a combination of strength, toughness, and a higher fatigue limit.

Name	Analysis										
	C	Si	Mn	P	S	Cr	Ni	B	Mo	V	Cu
S275J2	Max 0.22	-	Max 1.2	Max 0.04	Max 0.04	-	-	-	-	-	-
S355JR	Max 0.22	Max 0.55	Max 1.6	Max 0.04	Max 0.04	-	-	-	-	-	-
C45E	0.42-0.50	Max 0.4	0.50-0.80	Max 0.035	Max 0.040	Max 0.40	Max 0.10	Max 0.40	-	-	-
42CrMo4	0.38-0.45	Max 0.40	0.60-0.90	Max 0.035	Max 0.035	0.90-1.20	-	-	0.15-0.30	-	-
50CrMo4	0.46-0.54	Max 0.40	0.50-0.80	Max 0.035	Max 0.035	0.90-1.20	-	-	0.15-0.30	-	-
30CrNiMo8	0.26-0.34	Max 0.40	0.30-0.60	Max 0.035	Max 0.035	1.80-2.20	1.80-2.20	-	0.30-0.50	-	-
35CrMo4	0.32-0.37	0.20-0.40	0.60-0.80	-	-	0.90-1.10	-	-	-	-	-
50MnSi4	0.45-0.53	0.70-1.0	0.90-1.20	Max 0.035	Max 0.035	-	-	-	-	-	-
38MnB5	0.36-0.42	Max 0.40	1.15-1.45	Max 0.035	Max 0.040	-	-	0.0008-0.0050	-	-	-
A105	Max 0.35	0.10-0.35	0.60-1.05	Max 0.035	Max 0.040	Max 0.30	Max 0.40	-	Max 0.12	Max 0.08	Max 0.40
A106 Gr.B	Max 0.30	Min 0.10	0.29-1.06	Max 0.048	Max 0.058	-	-	-	-	-	-
A53	Max 0.30	-	Max 1.20	Max 0.05	Max 0.045	Max 0.40	Max 0.40	-	Max 0.15	Max 0.08	Max 0.40

High Carbon Steel

There is a steady demand of high strength steel wires, strengthened by the drawing of high carbon pearlitic steel for bridge cables, PC strands, wire ropes, and steel cords. These wires should have an exceptional drawability and an appropriate work hardening rate, simultaneously, to achieve the desired mechanical properties by drawing and stranding.

Name	Material NO.	Analysis								
		C	Si	Mn	P	S	Cr	Ni	Al	Mo
C80D	1.0622	0.078-0.83	0.10-0.30	0.50-0.80	Max 0.035	Max 0.035	Max 0.15	Max 0.20	Max 0.010	Max 0.050
C72D	1.0617	0.70-0.75	0.10-0.30	0.50-0.80	Max 0.035	Max 0.035	Max 0.15	Max 0.20	Max 0.010	Max 0.050
C67S	1.1231	0.65-0.73	0.15-0.35	0.60-0.90	Max 0.025	Max 0.025	Max 0.40	Max 0.40	-	Max 0.100
C60	1.0601	0.57-0.65	Max 0.40	0.60-0.90	Max 0.045	Max 0.045	Max 0.40	Max 0.40	-	Max 0.100

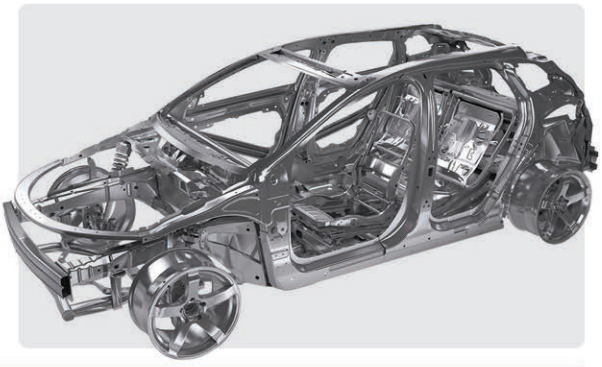
Spring Steel

Spring steels should have high yield strength, great tensile strength, and fatigue strength. On the other hand, these steels should have the capacity to be formed, shaped, and post heat treated, enabling them to be used for a number of industrial applications. The mentioned properties would be achieved by addition of some elements such as C, Cr, and Si.

Name	Material NO.	Analysis								
		C	Si	Mn	P	S	Cr	Ni	V	Mo
55Cr3	1.7176	0.52-0.59	0.25-0.50	0.70-1.10	Max 0.030	Max 0.03	0.70-1.00	-	-	-
51CrV4	1.8159	0.47-0.55	Max 0.40	0.70-1.10	Max 0.035	Max 0.035	0.90-1.20	-	0.10-0.25	-
52CrMoV4	1.7701	0.48-0.56	0.15-0.40	0.70-1.00	Max 0.030	Max 0.03	0.90-1.20	-	0.07-0.15	0.15-0.25
60SiCr7	1.7108	0.55-0.66	1.50-1.80	0.70-1.00	Max 0.035	Max 0.035	0.20-0.40	-	-	-
54SiCr6	1.7102	0.50-0.58	1.20-1.60	0.50-0.80	Max 0.025	Max 0.025	0.50-0.80	-	-	-
38Si7	1.5023	0.35-0.42	1.50-1.80	0.50-0.80	Max 0.030	Max 0.030	-	-	-	-
65Mn4	1.1240	0.60-0.70	0.25-0.50	0.90-1.20	Max 0.035	Max 0.035	-	-	-	-
52SiCrNi5	1.7117	0.49-0.56	1.20-1.50	0.70-0.90	Max 0.025	Max 0.025	0.70-1.00	0.50-0.70	-	-
CK75	1.1248	0.70-0.80	0.15-0.35	0.60-0.80	Max 0.035	Max 0.035	-	-	-	-
CK67	1.1231	0.65-0.72	0.15-0.35	0.60-0.90	Max 0.035	Max 0.035	-	-	-	-

High Strength Low Alloy Steel

HSLA is produced by incorporating precipitation hardening elements, such as Ti or Nb, into low carbon steel. These precipitates enhance yield strength and impact resistance by suppressing dislocation movement.



Name	Material NO.										
		C	Si	Mn	P	S	Cr	Al	V	Mo	N
15MnV5	1.5213	0.12-0.18	0.30-0.60	1.10-1.40	Max 0.035	Max 0.035	-	Min 0.030	0.10-0.20	-	-
19MnVS6	1.5217	0.15-0.22	0.15-0.8	1.20-1.60	Max 0.025	0.020-0.060	Max 0.30	-	0.08-0.20	Max 0.080	0.010-0.020
30MnVS6	1.1302	0.26-0.33	0.15-0.80	1.20-1.60	Max 0.025	0.020-0.060	Max 0.30	-	0.08-0.20	Max 0.080	0.010-0.020
38MnVS6	1.1303	0.34-0.41	0.15-0.80	1.20-1.60	Max 0.025	0.020-0.060	Max 0.30	-	0.080-0.200	Max 0.080	0.010-0.020
46MnVS3	1.1305	0.42-0.49	0.15-0.80	0.60-1.00	Max 0.025	0.020-0.060	Max 0.3	-	0.080-0.20	Max 0.080	0.010-0.020

Typically, HSLA is utilized for reinforcing structures that demand high strength.

Ball Mill Steel Grade

Ball mill steel grade refers to a specific category of steel used in the manufacturing of grinding media, such as balls, rods, or other shapes, that are utilized in ball mills for grinding materials. These steel grades are engineered to provide high hardness, wear resistance, and toughness, allowing them to effectively crush and grind materials, such as ores and minerals, in mining and industrial processes.

Name	Material NO.	Analysis					
		C	Si	Mn	P	S	Cr
70Cr2	-	0.65-0.75	0.15-0.30	0.75-0.90	Max 0.020	Max 0.020	0.50-0.70

Oil and Gas Industry

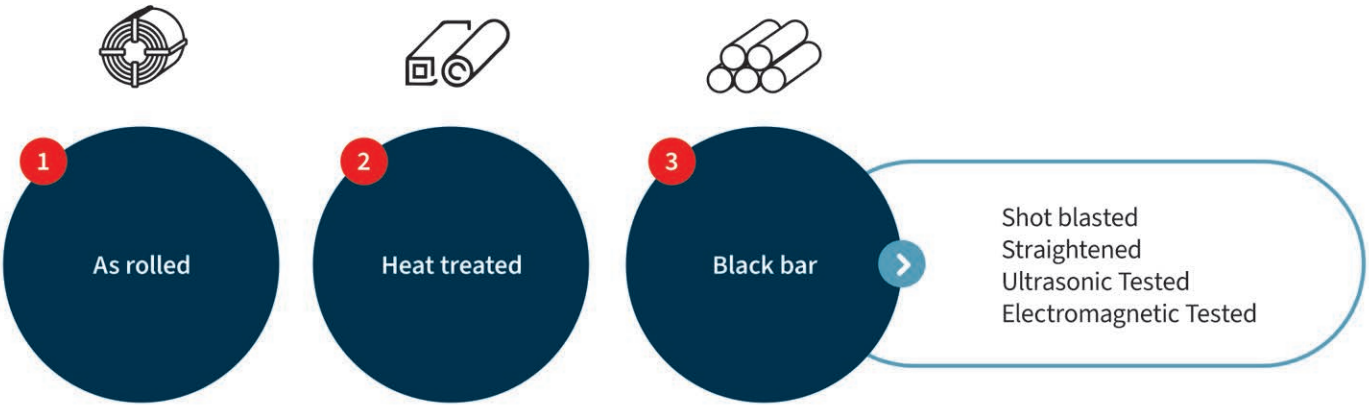
Oil and gas steel grades refer to a specialized category of steel specifically designed for use in the oil and gas industry. According to the ISO 11960 standard, these steels are engineered to withstand the harsh conditions encountered in exploration, drilling, extraction, and transportation processes, including high pressures, corrosive environments, and extreme temperatures.

These grades are categorized in to two groups of line pipe grades and OCTG grades.

Name	Application	Analysis								
		C	Si	Mn	P	S	Cr	Mo	Ni	Cu
K55	Casing and Tubing (OCTG)	0.30-0.33	0.20-0.30	1.10-1.30	Max 0.020	Max 0.015	0.10-0.25	0.065-0.095	Max 0.25	Max 0.20
L80-Type1		Max 0.43	Max 0.45	Max 1.9	Max 0.030	Max 0.030	0.15-0.30	-	Max 0.25	-
N80		0.30-0.33	0.20-0.30	1.20-1.60	Max 0.020	Max 0.010	0.30-0.45	0.065-0.095	Max 0.20	Max 0.20
C90		Max 0.35	-	Max 1.20	Max 0.020	Max 0.010	Max 1.50	0.25-0.85	Max 0.99	-
C110		Max 0.35	-	Max 1.20	Max 0.020	Max 0.005	0.4-1.50	0.25-1.00	Max 0.99	-
P110		0.30-0.33	0.20-0.30	1.20-1.50	Max 0.020	Max 0.015	0.30-0.45	0.065-0.095	Max 0.20	Max 0.30
X42	Line Pipe	Max 0.26	-	Max 1.30	Max 0.030	Max 0.030	-	-	-	-
X52		Max 0.28	Max 0.45	Max 1.50	Max 0.025	Max 0.015	-	-	-	Max 0.50
X60		Max 0.26	-	Max 1.40	Max 0.030	Max 0.030	-	-	-	-

Delivery Condition

At Pasargad Alloy Steel Complex, we take pride in our commitment to deliver high-quality steel products to meet the needs of our customers. Our delivery conditions are designed to ensure efficiency, safety, and satisfaction. Based on customers' requirements, we could offer various delivery conditions satisfying their needs. Hence, we recognize that some applications require additional processing of steel materials after fabrication. Our delivery conditions include options for post-treatment processes based on customer requirements, such as various types of heat treatment, end finishes, and also final product straightness control.



End Finishes

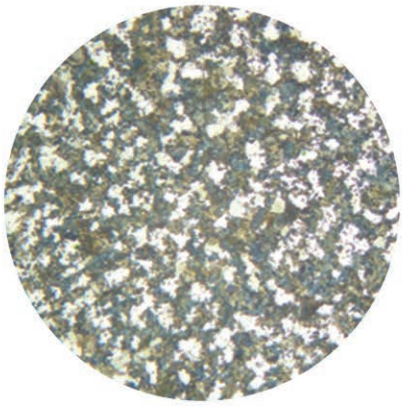
- Abrasively cut
- Chamfered
- Sawn and deburred

Type of Heat Treatments

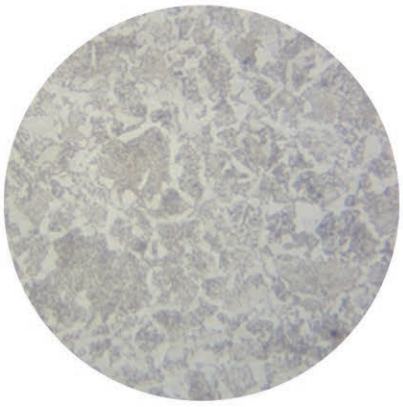
- Soft Annealing (+A)
- Spheroidized Annealing (+AC)
- Normalizing (+N)
- Annealing for cold shearing (+S)
- Stress relief Annealing (+SR)
- Quench/Tempering (+QT)
- Treated to be in hardness range (+TH)
- Treated to obtain ferrite-pearlite structure in the hardness range (+FP)

Straightness

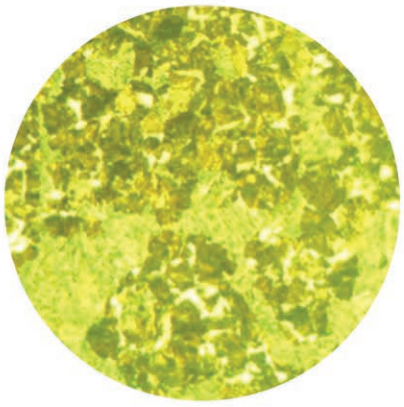
- As rolled
- Straightened to DIN EN 10060
- Tighter tolerance by arrangement (max. 1mm/m)



42CrMo4
Normalized



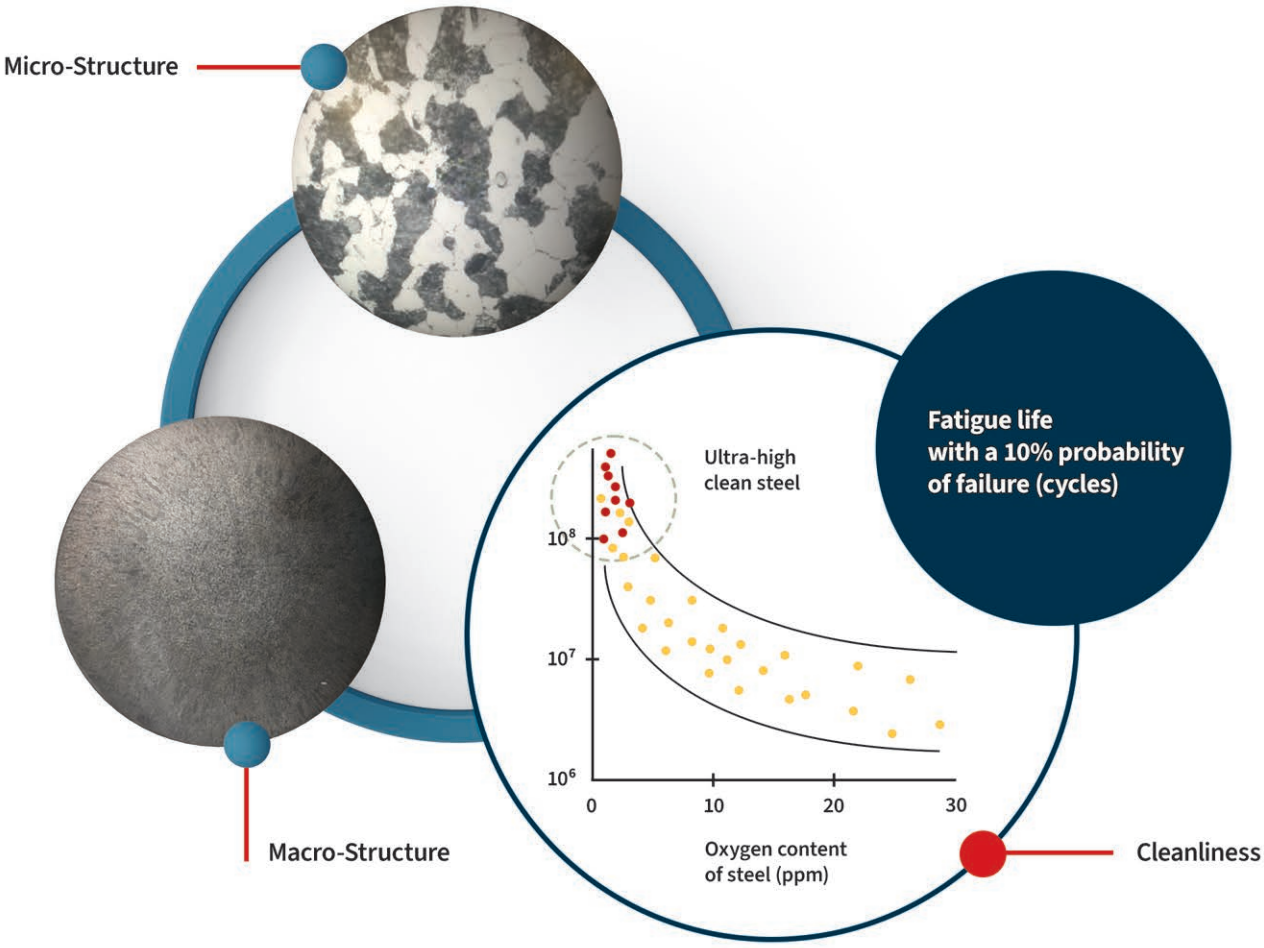
C45E
Spheroidized



42CrMo4
Ferritic Pearlitic Structure

Quality Assurance

At PASCO, quality assurance is a cornerstone of our manufacturing process, ensuring that every steel product meets the highest standards of excellence. Our unwavering focus on quality not only enhances the performance of our steel but also assures our clients that they are receiving products that meet the most stringent requirements.



Our dedicated quality assurance team employs a rigorous testing and inspection regime, utilizing a wide array of advanced equipment to monitor and verify quality at every stage of production. This includes spectrometers for precise chemical composition analysis, ultrasonic testers for assessing material integrity, and mechanical properties testing machines that evaluate the strength and durability of our steel products. Additionally, we implement non-destructive testing methods to ensure that our materials are free from defects without compromising their structural integrity. By integrating these sophisticated tools and techniques into our quality assurance processes, PASCO guarantees both the consistency and reliability of our steel products, reinforcing our commitment to customer satisfaction and industry compliance.

- Spectrometry (ASTM E415)
- ONH Test (EN ISO 14284)
- Decarburization Test (ASTM E1077, ISO 3887)
- Tensile Test (ASTM E21, ASTM E8, ISO 1 -6892, ISO 2-6892)
- Impact Test (ASTM E21, ISO 148)
- Bending Test (EN ISO 1-15630, ISIR 3132)
- Cleanliness Test (ASTM E45, DIN 50602, ISO 4967, EN 10247)
- Jominy Test (ASTM A255, ISO 642)
- Macro Etch Test (GOST R50228, ASTM E381)
- Sulfur Print Test (ASTM E1180, ISO 4968)
- Hardness Test (ISO 1-6508, ISO 1-6506, ISO 1-6507, ASTM E18, ASTM E10, ASTM E92, ISIRI 7809, ISIRI 7810, ISIRI 7811)
- Metallography (ASTM E112)
- Cold Compression Strength (ASTM E382)
- Tumbler and Abrasion Index (ASTM E279)
- Porosity (ASTM C 20)
- Size Distribution Test (ASTM E13-276 -ASTM D293 - ASTM C136 - ASTM A610 -ASTM C15-110)
- Blaine Number (ISO 10070)
- Thermogravimetric Analysis (ASTM D15-7582)
- X-ray Fluorescence (XRF) Test (ASTM-E22-1621)
- Gas Chromatography Test (GC) (ASTM D1945)
- pH Test (ASTM D1287)
- Density Test (ASTM D287)
- Viscosity Test (ASTM D445)
- Flash Point Test (ASTM D92)
- Total Acid Number Test (ASTM D974 - ASTM D664)
- Oil Moisture Test (ASTM D6304)
- Test to Measure Water Content in Oil (ASTM D95)
- pH, Electrical Conductivity (EC), Total Dissolved Solid (TDS) Tests (ASTM D18-1293)
- Turbidity Test (ASTM D1889)
- Creep Test (ASTM E139, ASTM E2714)
- Torsion Test (ISO 7800, ASTM A938)
- Upset (IS 10167)
- Corrosion Tests (NACE TM0284, NACE TM0177)

ISO 9001:2015

ISO 45001:2018

ISO 14001:2015

ISO 10002:2018

ISO 10004:2018

ISO 29001:2020

BIS

Featured lab equipment at PASCO

Thermo, ispark 8860

XRF

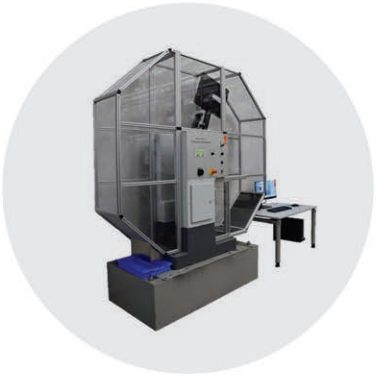
Thermo, 3460

Tumbler Index Test

CCS Test

LECO, ONH 836

Impact Test



Tensile Test

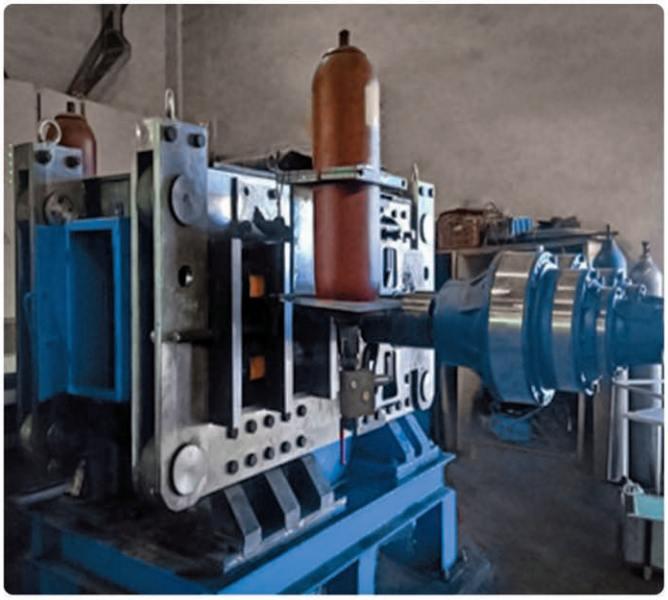
Hardness Test

Creep Test

Research and Development Department (R&D)

At PASCO, our Research and Development (R&D) unit plays a crucial role in driving innovation and efficiency in steel production. Equipped with state-of-the-art facilities, our R&D unit features an iron ore concentration pilot, a pelletizing pilot, a Direct Reduced Iron (DRI) pilot, and a steel-making pilot. The iron ore concentration pilot allows us to optimize ore refinement processes, improving the quality and yield of raw materials. Our pelletizing plant focuses on transforming fine iron ore into high-quality pellets, enhancing the efficiency of subsequent reduction processes. The DRI pilot enables us to explore advanced methods for producing iron while reducing greenhouse gas emissions. Finally, the steel-making pilot allows for the testing of new alloys and production techniques, ensuring that we remain at the forefront of technological advancements in the steel industry. This comprehensive R&D approach not only enhances our production capabilities but also supports our commitment to sustainability and innovation.

Pelletizing Pilot Equipments



DRI Pilot Equipments

Training & Skill Development for the Employees

Our Training & Skill Development program at PASCO is dedicated to enhance employee skills vital for the steel manufacturing process. By collaboration with top educational universities and industry experts, we aim to foster knowledgeable workforces contributing to operational excellence, safety, and innovation in steelmaking. To achieve this goal, the company has established a well-equipped training center. In order to increase the experimental ability of the personnel, the integrated training unit that is equipped with a specialized pneumatic and hydraulic workshop, a welding, cutting and modern machining workshop, an electronic laboratory, an industrial electrical workshop, a PLC training workshop, a computer workshop and relevant software, an amphitheater hall, the language teaching library and laboratory was built next to the factory.

Social Responsibility

Our CSR efforts are rooted in our company philosophy, aiming to support local communities surrounding our factory. We focus on the following key areas:

Reducing environmental impacts;
Care for local communities and charity services;
Care for employees' livelihood and their families;
Care for customers' demand and fair trade;
Improvement and safety of worker's space;
Compliance with laws and regulations in all and every operation;
School building in deprived areas.

Green Environment and Efforts

At PASCO, we are dedicated to advance sustainable practices within the steel manufacturing industry. Our facility adheres to ISO 14001 standards, ensuring the implementation of effective environmental management systems. By focusing on energy efficiency, waste reduction, and the use of recycled materials, we strive to minimize our environmental impact. Our commitment to green initiatives reflects our responsibility to the community and the planet, making every steel product not just a testament to quality, but also a step towards a more sustainable future.

THIS IS JUST FOR NOW, WE WILL HAVE NEW SURPRISES TOMORROW.

www.pascosteel.com

Central Office: No. 3, Nasim Alley, Aghdasieh St.(Movahed Danesh),
Tehran, 19577-35653, IRAN +98 21 427 83 000 +98 21 427 83 200

Production plants: Pasargad Alloy Steel Complex, Km 68 Shiraz-Jahrom Road,
Fars Province, 7165139916, IRAN +98 71 371 92 000

www.pascosteel.com info@pascosteel.com