

TEST- ANALYSIS	STANDARD
Tensile Test	TS EN ISO 6892-1*
	TS EN ISO 15630-1*
	TS EN ISO 15630-2
	TS EN ISO 15630-3*
	TS 708*
	ISO 15835-2
	BS 4449*
	BS 6744*
	BS 4482*
	BS 4483
	ASTM A370*, ASTM E8/E8M*
	ASTMA A615/A615M*
	ASTM A706 / A706M*
	DIN 488-2*
	NEN 6008*/BRL0501
	NBN A 24 - 301
	NF A35 - 80-1
	API 5L*, API1104*
	ISO 898-1*, ISO 4136*
	TS 5680*, AWS D1.1/D1.1M ISO 898-2
BS 5896* ASTM A416/A416M* ASTM A1061/1061M*	
SS560*, CS2* , MS146*	

	TS 3721* EN 10138-3
	ASME Section IX-QW150* TS EN 15566
	EN 10164
	GOST 12004*
Compression Test	DIN 50156 ASTM E9 888717 CZ
High Cycle Fatigue Test	TS EN ISO 15630-1* TS EN ISO 15630-2 TS 708* BS 4449* BS 6744 DIN 488-2* BRL 0501(NEEN 6008)* EN 10080 ISO 15835 DIN 50100 ISO 15835-2* ISO 3800-1* SS560*, CS2* GOST 52544* TU 14-1-5596* MS 146* ASTM E466*
Low Cycle Fatigue Test	SI 4446 SI 739 UNE 36065 PN-H-93220* EN ISO 15835 ISO 15835-2*

Rib Geometry Test	TS 708*
	TS EN ISO 15630-1*
	BS 4449*
	DIN 488-2*
	BRL 0501(NEN 6008)*
	NBN A24-301
	NF A35-80-1
	SS560*,CS2*
	TU 14-1-5596*
	GOST 52544*
	MS 146*
	BS 5896
	TS EN ISO 15630-3
	ASTM A706/A706M*
	ASTM A615/A615M*
Bend - Rebend Test	TS EN ISO 15630-1*
	TS EN ISO 15630-2
	TS EN ISO 15630-3
	TS 708*
	GOST 52544*
	BS 4449*
	BS 6744
	BS 4482
	BS 4483
	DIN 488-2*
	BRL 0501(NEEN 6008)*
	MS 146*
	ASTM A370* / ASTM E8*
	ASTM A615/615M*
	ASTM A706 / A706M*
Reverse Bend Test	NBN A24-301
	SS560*,CS2*
	TS 205 - ISO 7801*
	BS 5896*
3 Point Bend Test	TS EN ISO 15630-3*
	TS 3721*
	TS 205-1 EN ISO 7438*
	ASTME290
	ISO 5173*

Notch Impact Test (Charpy)	TS EN ISO 148-1*
	ASTM E23*
	ASTM A370*
CHEMICAL	
ANALYSIS	STANDARD
Chemical Analysis Sample Preparation	ASTM E1806*
	TS EN ISO 14284*
Chemical Analysis in Low Alloy Steels	ASTM E415*
Chemical Analysis in Stainless Steels	ASTM E1086*
Chemical Analysis of High Manganese Steels	ASTM E2209*
Chemical Analysis in Cast Iron	ASTM E1999*
Chemical Analysis in High Alloy Steels	JIS G1253*

Coal Sample Preparation	ASTM D2013/D2013M*
	TS 4744*
Determination of Total Moisture in Coal	ISO 589-B2*
Intrinsic Moisture in Coal	ASTM D7582*
Determination of Ash in Coal	ASTM D7582*
Determination of Volatile Matter in Coal	ASTM D7582*
Determination of Fixed Carbon in Coal	ASTM D7582*
Determination of Total Sulfur in Coal	ASTM D4239*
Determination of Total Carbon in Coal	ASTM D5373*
Determination of Hydrogen in Coal	ASTM D5373*
Determination of Calorific Value (Calorie) in Coal	TS ISO 1928*
Glow Loss Analysis in Ash	ASTM D7348
Sulfur Analysis in Ash	ASTM D5016
Analysis of Total Carbon in Ash	ASTM D5373*
Determination of Total Moisture in Coke	ISO 579
Body Moisture in Coke	ASTM D7582*
Determination of Coke Ash	ASTM D7582*
Determination of Volatile Matter in Coke	ASTM D7582*
Determination of Fixed Carbon in Coke	ASTM D7582*
Determination of Total Sulfur in Coke	ASTM D4239*

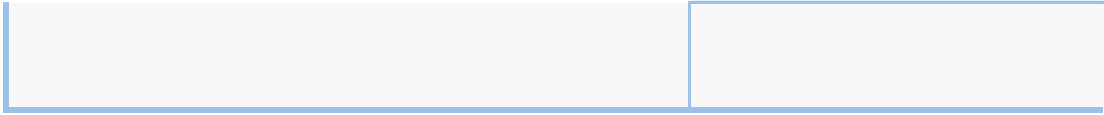
Determination of Total Carbon in Coke	ASTM D5373*
Determination of Hydrogen in Coke	ASTM D5373*
Determination of Heating Value (Calorie) in Coke	TS ISO 1928*
Graphite Moisture Analysis	ASTM C562
Determination of Graphite Ash	ASTM C561
Determination of Graphite Total Sulfur	ASTM D4239
Determination of Graphite Total Carbon	ASTM D5373
Oxidation Mass Loss Test in Graphite and Manufactured Carbon	ASTM C1519
Determination of Graphite Hydrogen	ASTM D5373
Determination of Graphite Heating Value (Calorie)	TS ISO 1928*
Determination of Carbon in Brick	ISO 26845
Determination of Sulfur in Carbon Black	ASTM D1619
Determination of Carbon in Petroleum Products and Oils	ASTM D5291
Determination of Hydrogen in Petroleum Products and Oils	ASTM D5292
Determination of Sulfur in Petroleum Products and Oils	ASTM D1552
Determination of Organic (TOC) and Total Carbon (TC) After Dry Combustion in Soil	ISO 16694
Determination of Sulfur in Soil by Dry Burning	ISO 15178
Determination of Heat of Combustion in Liquid Hydrocarbons	ASTM D240
Determination of Galvanized Coating Weight	EN 10346*

Determination of Coating Weight of Zinc and Zinc Alloys	ISO 7989:1-2*
Determination of Electrolytic Tin Plating Weight	TS EN 10202
MICROSTRUCTURE/	
ANALYSIS	STANDARD
Metallographic Sample Preparation	ASTM E3*
Microstructure Analysis	ASTM E3*
	ASTM E45*/ ISO 4967
	ASTM E112*/ ISO 643
	ASTM E1382
Macrostructure Analysis	ASTM E3*
	ASTM E381*
Decarburization Depth Measurement	EN 13674-1(9.1.4)*
	ASTM E1077*
	ISO 3887*
Determination of Graphite Shape Distribution and Dimensions in Cast Iron	
Inclusion Determination	ASTM E45*
	DIN 50602*
	EN ISO 10247*
Mean Grain Size Measurement	ASTM E112* ISO 643*
Determination of Austenite Amount	
Coating Thickness Measurement in Paints	ASTM B487
Galvanized Coating Thickness Measurement	ASTM B487
Coating Thickness Measurement	EN 10143
Weld Seam and HAZ Region Examination	TS EN 1321

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Scanning Electron Microscope (SEM)	Imaging
	Elementary Analysis
	Elementer Analiz
Jominy Test	ASTM A255* ISO 642*
Macrohardness Measurement in Welded Materials	TS EN ISO 9015-1*
Microhardness Measurement in Welded Materials	TS EN ISO 9015-2:2011
Macro Hardness Measurement	TS EN ISO 6506-1* ASTM E10*
	TS EN ISO 6507-1* ASTM E92
	TS EN ISO 9015-1* TS EN ISO 6508-1* ASTM E18*
	TS EN ISO 6507-1* ASTM E384*
Hardened Surface Layer Thickness Measurement	ASTM E384*
TEST - ANALYSIS	
Fracture Analysis	Standard if available
Wear Analysis	Standard if available

Corrosion Analysis	Standard if available
PILOT SCALING	
TEST - ANALYSIS	
Melting Induction Furnace (50 Kg Capacity)	"Alloy steels, stainless steels"
Annealing (Up to 1300 C°)	Programmable temperature
	Programmable temperature
Long Product Rolling (Hot)	Hot rolling from 22mm bil and out
Flat Product Rolling (Hot-Cold)	Hot-cold rolling from 22
APPLICATION	
On-site sampling service (Inner City)	
On-site sampling service (Out of City)	
Photographing (Mechanical and Chemical Tests)	
Interpretation of Test Results	
Report in Foreign Language	
REFRACTION	
APPLICATION	

	M
	Slag
	The
	Cri
	Ball M
Grinding and Enrichment Services	R
	Enrichm
	Supplier / U
On-site Sampling and Product Compliance Tests	
	On-site ap
R&D/P&D Activities	



MCHANICAL TEST LABORATORY

	EXPLANATION
Rebar	$\varnothing \leq 25\text{mm}$
	$25\text{mm} < \varnothing < 40\text{mm}$
	$\varnothing = 40\text{ mm}$
	$\varnothing 50\text{mm}$
Prestressing Steels	Prestressed Bar $\leq 36\text{mm}$
	Prestressed Wire
	Prestressed Concrete Strand
Bolt	M6 - M16 (250 kN)
	M18-M25 (600kN)
	M25+
Prepared Samples (Acc. To Tensile Test Standards)	$\varnothing 1 - 16\text{ mm}$ (round samples)
	$\varnothing 16+ \text{ mm}$ (round samples)
	0- 5 mm (flat samples)
	6-15 mm (flat samples)
	15+ mm (flat samples)
Proof Load Test	750 kN
Proof Load Test	751-1000kN

Proof Load Test	1001-1500
Proof Load Test	1501-2500
Z test (Flat Products)	
Shear Test	
	-
Bolt	2×10^6
	5×10^6
	10×10^6
Rebar (2 Million)	$\varnothing \leq 20 \text{ mm}$
	$20 \text{ mm} < \varnothing < 32 \text{ mm}$
	$\varnothing = 32 \text{ mm}, 36 \text{ mm}$
	$\varnothing \geq 40 \text{ mm}$
Rebar (3 Million)	$\varnothing \leq 20 \text{ mm}$
	$20 \text{ mm} < \varnothing \leq 32 \text{ mm}$
	$\varnothing \geq 40 \text{ mm}$
Rebar (5 Million)	$6 \text{ mm} < \varnothing < 20 \text{ mm}$
	$20 \text{ mm} \leq \varnothing < 32 \text{ mm}$
	$\varnothing = 32 \text{ mm}, 36 \text{ mm}$
	$\varnothing = 40 \text{ mm}$
	$\varnothing = 50 \text{ mm}$
Obtaining S-N Curves	Appropriate equipment supply will be evaluated for the material type.
	Coupler System Experiments
	Ribbed Construction Steel

		Rebars, Coils, Hot Spooled Coils, Intended Wires
	Bend	-
	Rebend	Test sample \leq 25 mm
		25-40 mm
		40 mm test sample
		50 mm test sample
		Wires, Intended Wires
		-
		Room Temperature

		(-20°C)
		(-40°C)
		(-80°C)

AND COAL ANALYSIS LABORATORY

	EXPLANATION	
	Chemical Analysis by Optical Emission Spectrometer in All Iron and Steel Alloys (C, Mn, Si, P, S, Ni, Cr, Cu, Mo, V, Ti, Al, Nb, W, As, Sn, Co, Pb, B, Sb, Ta, Zr, Bi, Ca, Mg, Se, Te, Zn, Ce, La, N, O, Fe)	
	Austenitic Stainless Steel, Martensitic Stainless Steel, Ferritic Stainless Steel, Duplex Stainless Steel	
	Gray cast iron, Tempered Cast Iron, Nodular Cast Iron and White Cast Iron	
	"Cold Work Tool Steels Hot Work Tool Steels High Speed Steels Plastic Mold Steels"	

Lignite coal, sub-bituminous coal, hard coal, anthracite coal

	-
	-
	-

Metallurgical coke and petro coke (calcined petro coke and uncalcined petro coke)

	-
Graphite / Arc Furnace, Crucible Furnace electrodes etc.	
	-
Glow Loss	
	-
	-
	-
	-
	-
	-
	-
Bomb Calorimeter	-
	-

		-
		-

AL AND MATERIAL ANALYSIS LABORATORY

EXPLANATION	
	Sample Cutting
	Bakelite Resin Casting
	Conductive Bakelite Resin for SEM
	In addition sample preparation fee is added.
	In addition sample preparation fee is added.
	By optical method after hardness measurement
	Optical Method
Metal Oxides Sulfurs Silicates	6 sample preparation fees are added for Optical Method/Test
Austenite / Ferrite	Optical Method
	Optical Method
	Optical Method
	SEM Analysis
	Optical Method
	SEM Analysis
Oxide Coatings	Optical Method
	Optical Method

		Macro Review
	1 hour joint work	Joint Work
	Max. 10 image	Per Sample / Experiment
	pointwise / Area Analysis	
	Elementary Mapping	Up to 5 elements
	Determination of Depth of Hardenability	Hardness Measurement After Heat Treatment
		Macrohardness Measurement After Macro Etching
		Microhardness Measurement After Macro Etching
	Brinell Hardness	2,5HBW62,5 2,5HBW187,5 5HBW750 10HBW3000
	Vickers Hardness	HV5, HV10, HV30
	Rockwell Hardness	Rockwell-C (HRC)
	Vickers Hardness	HV0,1-HV0,3-HV0,5-HV1
		Optical Method

FAILURE ANALYSIS

EXPLANATION

	Mechanical, Chemical and Microstructural Studies	Including Expert / Academic Evaluation
	Mechanical, Chemical and Microstructural Studies	Including Expert / Academic Evaluation

	<p>Chemical and Microstructural Investigation and Corrosion Tests</p>	<p>Including Expert / Academic Evaluation</p>
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STEEL PRODUCTION LABORATORY

EXPLANATION

Steel, cast iron casting (Price may increase according to casting recipe)"

Temperature and time control up to 1300 °C with 1 °C precision (20x20x30cm - 12lt internal volume)

Temperature and time control up to 1300 °C with 1 °C precision (50x50x80cm - 187lt internal volume)

Rolling mill up to 16mm and 8mm diameter with load, compression ratio, inlet and outlet temperature measurement and speed control

2mm Slab to 1mm thickness with load, compression ratio and speed control

OTHER SERVICES

EXPLANATION

Post-production / Sampling from Stock / Field

Pricing Per Experiment

By Product Standard

English

FACTORY LABORATORY SERVICES

EXPLANATION

MC, High Alumina
Low Cement Vibrating Concretes
Fire Concretes
Shotcrete
Knitting Mortars
Precast Concretes
e, Chamotte, Anadalusite, Magnesia, Quavartz, Zircon (XRF)
: Preparation (Crushing, Grinding, Screening, Drying)
"Cold Compression Strength (ASTM C133) (Excluding sample preparation fee)"
"3 Point Bend Test (Excluding sample preparation fee)"
Apparent Density (ASTM C830)
Apparent Porosity (ASTM C 830)
Water Absorption (ASTM C 20)
XRF Chemical Analysis (Excluding sample preparation fee)
Fire Loss (Glow Loss)
SK Refractory Test (ASTM C 24 – 01)
Heat Treatment (max 1550°C)

Moisture (Humidity) Determination (ASTM C830)

Microstructure Analysis

Macrostructure review

SEM Analysis (Hourly rate.)

Corrosion Test on Refractory (ASTM C 621 – 84)

Thermal Shock Test (10 cycles) (ASTM C 1171 – 05)

Crushing in Jaw Crusher (Maximum 10 Kg sample)

Ball Mill Grinding (Daily fee and maximum 4 Kg sample)

Ring Mill Grinding (Maximum 300 gram sample)

Separation in Magnetic Separator (Maximum 10 Kg sample)

Sieve Analysis (Dry) (ASTM C 92 – 95)

Client Sampling Service (Varies according to km and day.)

Product Certificate Conformity Evaluation

Application supervision (Varies according to km and day.)

Prescription studies

Product development

Cost reduction studies

Pilot scale production

Project Writing

UNIT PRICE (€)
40
45
50
80
50
50
50
40
45
70
40
45
40
45
50
80
90

100
140
50
60
60
600
900
1650
450
470
600
700
500
650
750
550
650
700
800
1000
180
100

60

40

45

50

60

75

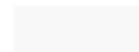
50

130

60

75
90
120
UNIT PRICE (€)
25
60
80
80
80
80

30
35
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35
35
35
40
35
40
45
45
45
45
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30
30
60
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35
30
120
30
60
120
40
30
30
40
30
40
80
75

110
160
85
160
85
250
330
330
70
80
20
UNIT PRICE (€)
Pricing Based on Business Scope
Pricing Based on Business Scope

Pricing Based on Business Scope

UNIT PRICE (€)

1050

100

120

420

420

UNIT PRICE (€)

350

600

30

100

140

UNIT PRICE (€)

1350

1350

75

45

40

30

40

40

40

75

75

75

120

15
110
110
100
250
250
45
80
25
45
20
250
Pricing Based on Business Scope
600
Pricing Based on Business Scope

