ARKA KAPAK

TOSYALI Filmaşin ve İnşaat Demiri

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OSMANİYE
FİLMAŞİN VE İNŞAAT DEMİRİ ÜRETİM TESİSLERİ

Organize Sanayi Bölgesi P.K
80950 Toprakkale / OSMANİYE
Tel: 0 328 826 81 01

KAPAK

TOSYALI Filmaşin ve İnşaat Demiri

WIRE ROD AND DEBAR MILL

sayfa 2

“Türkiye’nin Global Çelik Üreticisi”

Global Steel Producer of Turkey

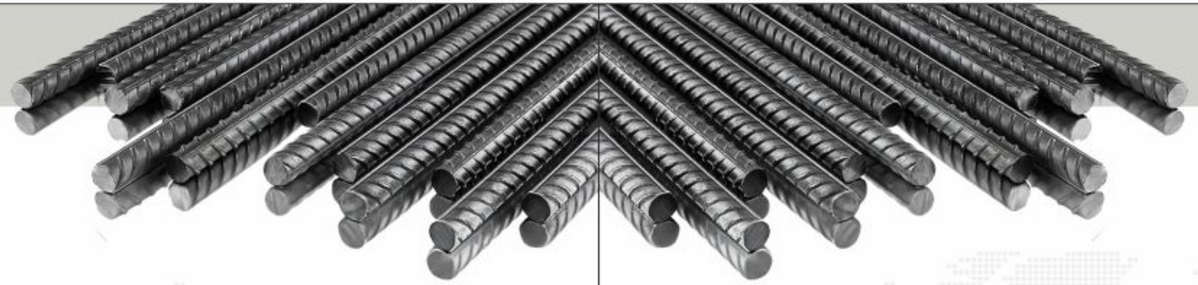
sayfa 3

DEMİR ÇELİKTE
TÜRKİYE’NİN DÜNYADAKİ GURURU,
TÜRKİYE’NİN GELECEĞİ

TURKEY’S GLOBAL PRIDE AND FUTURE IN IRON AND STEEL

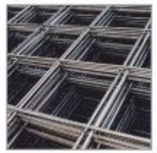
sayfa 4

sayfa 5



GENERAL SPECIFICATIONS OF WIRE ROD AND DEBAR MILL

- 600.000 tons/year capacity
- From 5,5 mm to 25 mm size range of wire rod.
- From 8 mm to 32 mm size range of debar.
- 8-10-12-14-16 mm size range of Debar in Coil.
- 110 m/sec rolling speed.
- 150x150 ve 160x160 billet
- Wire rod coil ;
  Weight min 2050 max 2400 kg
  Outside dia. 1250 mm
  Inside dia. 850 mm
  Height 1700-2200 mm (for 150x150 billet)
  Height 2000-2500 mm (for 160x160 billet)



QUALITY OF WIRE ROD PRODUCT;

- Mesh
  - SAE1008-SAE1010
- Wire/Galvanized Wire
  - SAE1006-SAE1008
- Thin Wire
  - SAE1006
- Nail
  - SAE1010 – SAE1018
- Welding wire
  - S1-S2-SG2-SG3
- Bolt and nut productions
  - 20MnB4- 27MnB4-30MNB4
- Spring
  - SAE1045-SAE1065
- PC Strand
  - SAE 1080

sayfa 6

125 TON/H WALKING BEAM TYPE REHEATING FURNACE

Decarburization control and homogeneous heating (head and bottom side temperature difference 30C°) of billet with the ability to control billet charge interval.

- Thanks to automatic combustion system the yield of combustion increases.
- Heating time tracking with billet monitoring program

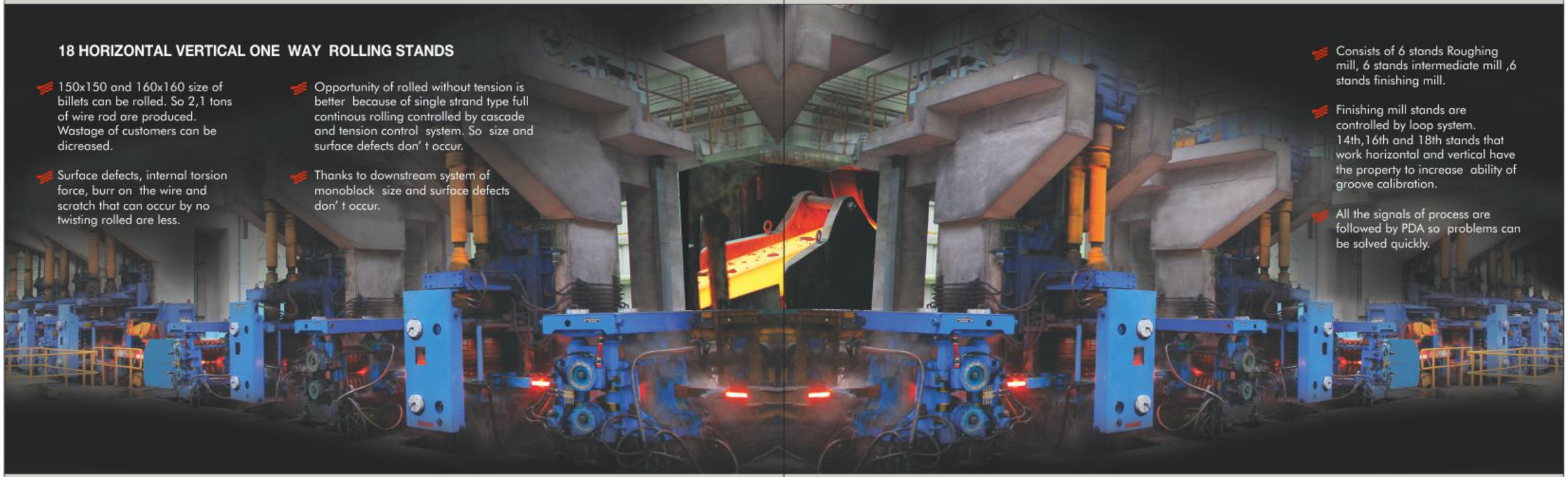
sayfa 7

DESCALER

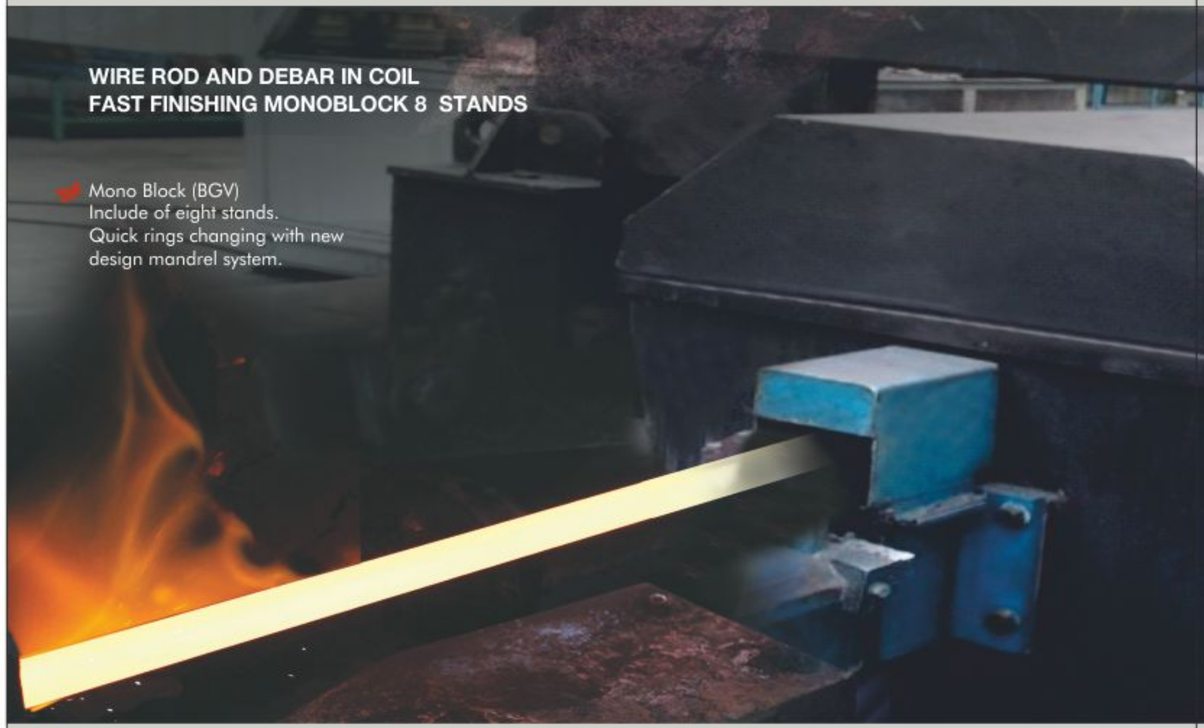
Preventing surface defects by cleaning scale layer formed on the four surfaces of billet for all the quality before rolling

18 HORIZONTAL VERTICAL ONE WAY ROLLING STANDS

- 150x150 and 160x160 size of billets can be rolled. So 2,1 tons of wire rod are produced. Wastage of customers can be dicreased.
- Surface defects, internal torsion force, burr on the wire and scratch that can occur by no twisting rolled are less.
- Opportunity of rolled without tension is better because of single strand type full continous rolling controlled by cascade and tension control system. So size and surface defects don' t occur.
- Thanks to downstream system of monoblock size and surface defects don' t occur.



- Consists of 6 stands Roughing mill, 6 stands intermediate mill ,6 stands finishing mill.
- Finishing mill stands are controlled by loop system. 14th,16th and 18th stands that work horizontal and vertical have the property to increase ability of groove calibration.
- All the signals of process are followed by PDA so problems can be solved quickly.



WIRE ROD AND DEBAR IN COIL FAST FINISHING MONOBLOCK 8 STANDS

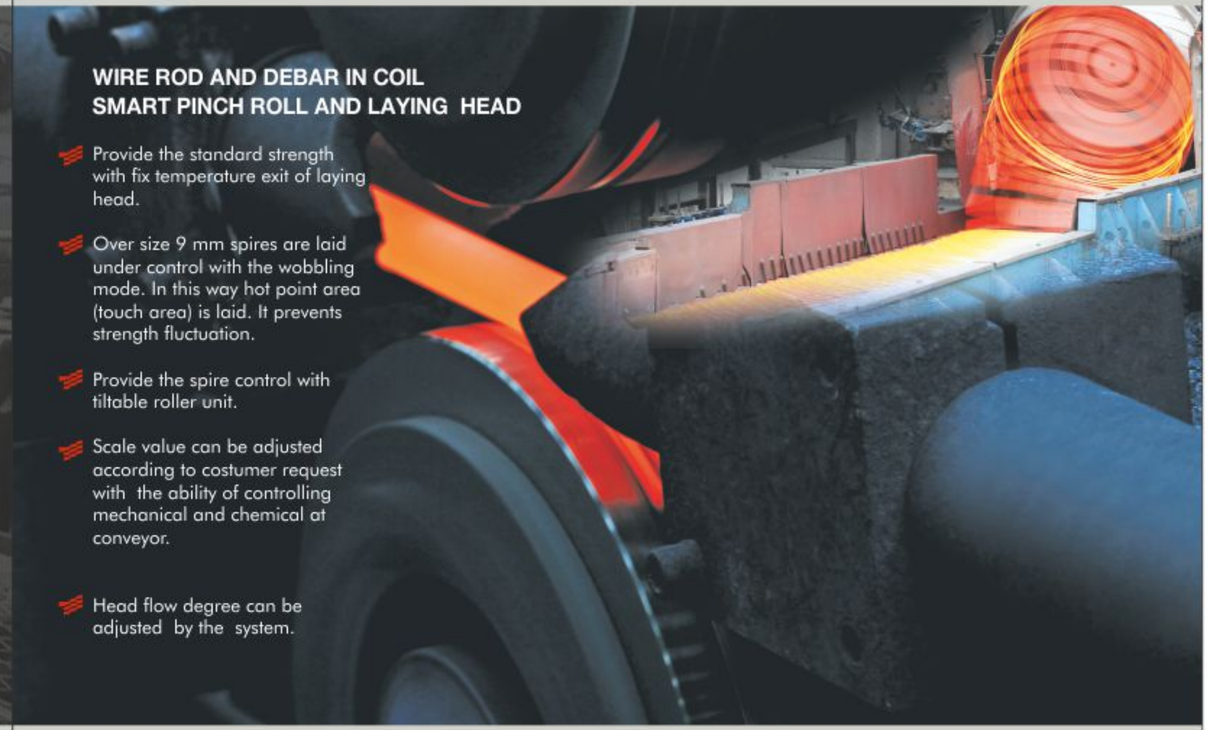
- Mono Block (BGV)
  Include of eight stands.
  Quick rings changing with new design mandrel system.

WİRE ROD AND DEBAR IN COIL SMART WATER COOLING SYSTEM

- There are 9 water boxes from the exit of 18 th stand to laying head.
- According to qualities and rolling size cooling procedures are applied .
- Water boxes can adjust set value of temperature around +/- 5 °C automatically. It provides the value of required strength.
- Required dry head and dry tail spire can be adjusted.

WIRE ROD IN COIL
SIZING MODULE BLOCK (TMB1+TMB2)

- Max. 0,16 mm ovality with Oval- Round+ False Round – Round groove set.
- Great physical structure with the thermomechanical rolling at 810-860 C° entry temperature of sizing block.
- It is the most important thing to minimize ovality for customer requests. Only our premises has this property .
- Sizing module block (TMB)applied at the first time in Turkey.
- 110 m/sec finishing speed.
- Quick pass and changing size
- Varieties of production.



WIRE ROD AND DEBAR IN COIL
SMART PINCH ROLL AND LAYING HEAD

- Provide the standard strength with fix temperature exit of laying head.
- Over size 9 mm spires are laid under control with the wobbling mode. In this way hot point area (touch area) is laid. It prevents strength fluctuation.
- Provide the spire control with tiltable roller unit.
- Scale value can be adjusted according to costumer request with the ability of controlling mechanical and chemical at conveyor.
- Head flow degree can be adjusted by the system.

WIRE ROD AND DEBAR IN COIL STELMORE LINE - CONVEYOR

- Roller alignment allows the centering of the windings thereby obtaining uniform windings.
- Air nozzles tear film air cooling allowing high power and rapid cooling is achieved.

WIRE ROD AND DEBAR IN COIL REFORMING TUBE AND EASY DOWN SYSTEM

- Thanks to easy down type reform station which is gone down with metarial flow;
- Better shape of coils
- Opened easily coil for using,
- Without spire defect,
- Without frictional defects products are produced.

WIRE ROD AND DEBAR IN COIL
COIL PACKING SYSTEM PF LINE

- Head tail balance is done more effectively.
- Wire rod and rebar in coils are packed with arrangeable compactor pressure.
- Wire rod and rebar in coils are traced with RF_ID.
- Production is traced with coil number, barcode and weighing by level 2. So, from billet to wire rod coil is followed and archived backward all the parameter and value.

DEBAR
COUNTER SYSTEM AND ADJUSTABLE LENGTH

- Length range : 6 m to 12 m.
- Precision o f counter;
  %0,01 (Size > Ø14)
  %0,02 (Size ≤Ø14)
- Thanks to bar seperator system can be seperated each groups without stopping production.

DEBAR
COOLING WATER

- Flow Capacity of water 650 m^3/hour.
- Pressure Capacitiy 18 bar .
- Cooling system can adjust set value of pressure or flow. It provides the value of required strength.

METALLOGRAPHY LABORATORY

Microstructures results:

With residual determination process in ASTM E45,ISO 4967,DIN 50602,JIS G 0555,EN 10247 standards, determination can be made sulfide, alumina, silicate and globular.

In ASTM A247, ASTM B46.1, ASTM B487, ASTM E1077,ASTM E112 / E1382, ASTM E1245, AST E1268,ASTM E45, ASTM E562, DIN17230,ISO 945 standarts determination can be made cell count, fiber length, grain size, layer thickness, nodularity, particle size, phase area, porosity, shape analysis and surface roughness.

With multiple sample holder can be calculated total residue values until 12 sample. Reports of different samples can be analyzed in different tissues.

With motorized table:
160mm2 field scans in less than 2.5 minutes can be given total results, It can be scan multiple samples on the table in order, Achieved by making the surface of the auto focus images that can be overlaid on top of different levels.

All measurement results are described in correction with ASTM E45-11, DIN 50602 - 10247, ISO 4967, JIS G 0555 can be administered in accordance with the standards reports.

N8,00MM - N32,00MM DEFORMED REINFORCING STEEL BARS

COUNTRY	STANDART	GRADE	Chemical Features (max.) %								Mechanical Features (min.)			
			C	Mn	Si	P	S	N	Cu	CE	(Field Point) Re : N/mm² (Kg/mm²)	(Tensile Strength) Rm : N/mm² (Kg/mm²)	(Ratio) Rm/Re	(Elongation) %
TURKIYE	TS 708/2012	S 220 (2462)	0,25			0,050	0,050				220 (22,44)	344 (34,60)	1,20	16 (Lo=5d)
		S 420	0,40			0,050	0,050				420 (42,8) 1,04(105,60)	550 (51,0)		16 (Lo=5d)
		B 420S	0,22	0,09		0,050	0,050	0,012	0,80	0,60	420 (42,8)	Rm/Re 1,08		12 (Lo=50) (1%Ag) Min. 3
		B 420C	0,22	0,09		0,050	0,050	0,012	0,80	0,60	420 (42,8) 1,04(105,60)	Rm/Re 1,18	>= 1,15 >1,20	12 (Lo=5d) 1%Ag Min. 7,5
		B 500S	0,22	0,09		0,050	0,050	0,012	0,80	0,60	500 (51,0)	Rm/Re 1,08		12 (Lo=50) (1%Ag) Min. 3
		B 500C	0,22	0,09		0,050	0,050	0,012	0,80	0,60	550 (61,0) - 650 (66,3)	Rm/Re 1,18	>= 1,15 >1,20	12 (Lo=5d) 1%Ag Min. 7,5
ENGLAND	BS 4482:2005	GR 250	0,27			0,050	0,050	0,012	0,35	0,42	250 (25,5)	Rm/Re 1,15	1,15	Ag % : 8 (min)
	BS 4449: 1997	GR 250	0,25			0,050	0,050	0,012		0,42	250 (25,5)	Rm/Re 1,15	1,15	22 (Lo= 5d)
	BS 4449: 1997	GR 460	0,30			0,050	0,050	0,012		0,51	460 (46,92)	Rm/Re 1,08	1,08	14 (Lo= 5d)
	BS 4449: 2005	B500S	0,22			0,050	0,050	0,012	0,35	0,50	500 (51,0) - 650 (66,3)	Rm/Re 1,08	1,08	Ag % : 5 (min)
	BS 4449: 2005	B500C	0,22			0,050	0,050	0,012	0,35	0,50	500 (51,0) - 650 (66,3)	Rm/Re 1,15	>1,10 >1,20	Ag % : 7,5 (min)
USA	ASTM- A 615/615- A 615M/615M	GR 40				0,060	0,060				280 (40,6)	420 (60,9) Rm/Re 1,50		Bar No 3 4 5 6 7 8 9 10 11 14 18 Ag % 11 9 8 7 6 5 4 3 2 1 0,5
		GR 60				0,060	0,060				420 (60,9)	620 (90,0) Rm/Re 1,47		3,4,5,6 9 7,8 8 9,10,11 7 14 6
		GR 75				0,060	0,060				550 (79,8)	690 (100,1) Rm/Re 1,25		3,4,5,6,7,8 7 9,10,11,14 6
		GR 80				0,060	0,060				560 (81,2)	690 (100,1) Rm/Re 1,23		3,4,5,6,7,8 7 9,10,11,14 6
USA	ASTM- A 706/706- A 706M/706	GR 60	0,30	1,50	0,50	0,035	0,045			0,55	420 (60,9) 480 (69,6) 550 (79,8) 585 (84,8)	550 (79,8) 690 (100,1) 690 (100,1) 690 (100,1)	1,25	Bar No 3 4,5,6 7,8,9,10,11 14,18 Ag % 14 12 10 10
		GR 80	0,30	1,50	0,50	0,035	0,045			0,55	560 (81,2) 600 (87,0) 670 (96,8)	690 (100,1) 690 (100,1) 690 (100,1)	1,25	Bar No 3 4,5,6 7,8,9,10,11 14,18 Ag % 12 10 10 10
FRANCE	NF A35-016 (1990) NF A 35-016-1 (2000)	FeE 400	0,22			0,050	0,050	0,012		0,50	400 (40,8)	440 (44,9)	1,05	14 Ag % : 5 (min)
		B500B	0,22			0,050	0,050	0,012	0,60	0,50	500 (51,0) - 650 (66,3)	Rm/Re 1,08	1,08	Ag % : 5 (min)
GERMANY	DIN 488 (1986)	St/ 125/145			0,05	0,050	0,050				125 (12,8)	340 (34,7)		18
		Bst 420 S	0,22			0,050	0,050	0,012			420 (42,8)	500 (51,0)	1,08	10 (Lo= 10d)
		Bst 500 S	0,22			0,050	0,050	0,012			500 (51,0)	550 (56,1)	1,05	10
GERMANY- NEW	DIN 488 (2009)	B500B	0,22			0,050	0,050	0,012	0,60	0,50 (%Ceq (IIW28) 0,47 (%Ceq (CEN)	500 (51,0) - 650 (66,3)	Rm/Re 1,08	1,08	Ag % : 5 (min)
GREECE	ELOT 971 ELOT 1421.0 TS 10080:2005	B 500S	0,22		0,60	0,050	0,050	0,012			500 (51,0)	550 (56,1)	1,10	14 (Lo=5d)
		B 500B	0,22			0,050	0,050	0,012			500 (51,0)	550 (56,1)	1,10	12 (Lo = 5d)
		S 220				0,050	0,050				220 (22,4)	340 (34,7)		24 (Lo = 5d)
		B500C (Indicative) (Stainless)	0,22			0,050	0,050	0,012		0,50	500 (51,0) Rm/Re/Re nominal =1,20	575 (58,55)	>=1,15 >=1,35	Ag % : 7,5 (min)
SPAIN	UNE 36 068:94 (1994) UNE 36 065:2000	B 400 S	0,22			0,050	0,050	0,012		0,50	400 (40,8)	440 (44,9)	1,05	14 (Lo = 5d)
		B 500 SD	0,22			0,050	0,050	0,012		0,50	500 (51,0)	550 (56,1)	1,05	12 (Lo = 5d) Ag % 5
		B 500 SD	0,22			0,050	0,050	0,012		0,50	500 (51,0) Rm/Re/Re nominal =1,20	575 (58,55)	>=1,15 >=1,35	16 (Lo = 5d) Ag % : 8 (min)
PORTUGAL	DIN 1045:2000 UNE 36 068:94 UNE 36 065:2000	A 400 NR	0,22			0,050	0,050	0,012		0,50	400 (40,8)	480 (48,92)	1,20	Ag % : 8 (min)
		A 500 NR	0,22			0,050	0,050	0,012		0,50	500 (51,0)	550 (56,1)	1,08	Ag % : 5 (min)
		A 400 NR SD	0,22			0,050	0,050	0,012		0,50	400 (40,8) Rm/Re (1,15-1,35	480 (48,96) Rm/Re (1,15-1,35		Ag % : 8 (min)
		A 500 NR SD	0,22			0,050	0,050	0,012		0,50	500 (51,0)-650 (66,3)			Ag % : 8 (min)
NORWAY	NS 3576:1981	B500C	0,22	1,30	0,55	0,050	0,050	0,012		0,50	500 (51,0)	575 (58,6)	1,15	Ag % : 5 (min)
SWITZERLAND	SIA 162/1 1989	BSt500S	0,22			0,050	0,050	0,012		0,50	500 (51,0)		1,05	Ag % : 5 (min)
			0,24	ø ≤ 25mm		0,050	0,050	0,012		0,50	500 (51,0)		1,08	Ag % : 5 (min)
SWEDEN	SS 1920/1991:2010	B500B	0,22			0,050	0,050	0,012		0,50	500 (51,0)	550(51,08	1,08	Ag % : 5 (min)
ITALY	UNI 10 080 14.01.2005	B450C	0,22			0,050	0,050	0,012	0,60	0,50	450 (45,9) - 562,5 (57,3)	540 (55,1)	>1,15 >1,35	Ag % : 7,5 (min)
KOREA	STAS-438-1-89	PC 52	0,20	1,60	0,55	0,045	0,045			0,50	5*1,0MM 5*2,0 *10*10MM 10*2,0 12-40MM 520(53,1) 5*1,0MM 4(0)(0,4)+(14-28 40MM 2*2,0 12-40MM 520(53,1) 8*1,0MM 2(0)(0,8)+(14-40MM 2*2,0 (0,8)	510 (52,02)		20 (Lo = 5d)
		PC 60	0,27	1,35	0,55	0,045	0,045					590 (60,16)		16 (Lo = 5d)
		GB 37	0,23	0,70	0,07	0,045	0,045					360 (36,72)		28 (Lo = 5d)
POLAND	PN-ISO 6935-2:1996 (ACC. TO DIN 488)	Ba 500 S	0,22			0,050	0,050	0,012		0,50	500 (51,0)	550 (56,1)	1,05	10
BULGARIA	BDS 12 52-1:1987 and BS 16:2005:2010	BSt500	0,22			0,050	0,050	0,012	0,50	0,50	500 (51,0) - 625 (63,7)	550 (56,1)	1,08	Ag % : 5 (min)
HOLLAND	NEN 6008	FEB 500 HWL	0,22			0,050	0,050	0,012		0,50	500 (51,0) Yield and Tensile Max Deviation 6% ≤ 8 : 20N/mm2 Yield and Tensile Max Deviation 6% > 8 : 25N/mm2	550 (56,1)		Ag % : 3,5 (min) December 2.0
		NEN 7400:2006	CA-50								500 (51,0)	Rm/Re 1,08	1,10	8 (LO=10d) (1%Ag) Min. 3
PARAGUAY	Pnm 4 IET 89	AP 420 DN	0,38	1,50	0,50	0,050	0,050			0,50	420 (42,88)	582 (61,1)	1,10	18 (Lo = 10d)
		AP 500 DN	0,38	1,50	0,50	0,050	0,050			0,50	500 (51,0)	650 (66,1)	1,10	8 (Lo = 10d)
SOUTH KOREA(BRAZIL)	KS D 3504:2002	SD 400				0,050	0,050				400 (40,8)	560 (57,1)		18 (Lo = 8 Dia)
		SD 500				0,050	0,050				500 (51,0)	629 (63,24)		12 (Lo = 8 Dia)(16%) 14 (Lo=2d) (20%)
SERBIA	SI 4449 PART 3	S 400	0,38			0,050	0,050			0,60	400 (40,8) - 528 (53,7)	560 (57)	1,25	12 (Lo = 10d)
		S 450N	0,24			0,050	0,050			0,55	450 (45,9) - 528 (53,7)	580 (59,1)	1,25	12 (Lo = 10d)
						P+S = MAX. 0,080								

sayfa 22

sayfa 23

TOSYALI Filmaşin ve İnşaat Demiri

Wire Rod And Debar

MILL'S TEST CERTIFACATE

TOSÇELİK Filmaşin ve İnşaat Demir Üretim Tesisleri	TÜV AUSTRIA TS-105-01 / TSE TS708 14.0.30.4.01.00/TSE15947	FİLMAŞİN VE İNŞAAT DEMİRİ ÜRETİM TESİSLERİ KALİTE YÖNETİM SİSTEMİ / WIRE ROD AND REBAR MANUFACTURING FACILITIES QUALITY MANAGEMENT SYSTEM MILL'S TEST CERTIFACATE	Doküman Numarası / Document Number : 1.07/FRM.KK.34 Yürürlük Tarihi / Activision Date : 02.01.2015 Revizyon Tarihi / Revision Date : 22.03.2016 Revizyon Numarası / Revision Number : 02 Sayfa / Page : 1 / 1 Tarih / Date : 24.03.2016
Alıcı / Buyer :		Fiş Numarası / Receipt Number :	Ağırlık / Weight :
Ürün Grubu / Product Group :		Gemi Adı / Ship Name :	Araç Plakası / Licence Plate :

Sıra Numarası / Row Number	Döküm Numarası / Heat Number	Kalite/ Quality	Çap / Diameter (mm)	%C	%Mn	%Si	%P	%S	%Cr	%Cu	%Al	%N	%Mo	%Sn	%Ni	%B	% Uzama / % Elongation	Akma Mukavemeti / Yield Point (N/mm²)	Çekme Mukavemeti / Tensile Strength (N/mm²)
1		20MnB4		0,23	1,07	0,14	0,0081	0,0054	0,188	0,052	0,0349	0,0046	0,0063	0,0030	0,0442	0,0029	32	400	567
																	31	412	560
																	32	416	567
2		27MnB4		0,25	1,06	0,13	0,0082	0,0067	0,185	0,065	0,0357	0,065	0,0056	0,0032	0,0315	0,0031	30	407	566
																	29	422	567
																	31	415	577

Sıra Numarası / Row Number	Döküm Numarası / Heat Number	Kalite / Quality	Çap / Diameter (mm)	%C	%Mn	%Si	%P	%S	% Uzama / % Elongation	Akma Mukavemeti / Yield Point (N/mm²)	Çekme Mukavemeti / Tensile Strength (N/mm²)
1		SAE 1006		0,06	0,27	0,020	0,004	0,011	45	259	372
									43	251	368
									45	248	359
2		SAE 1008		0,07	0,44	0,153	0,009	0,024	40	315	436
									39	304	428
									40	310	423
3		SAE 1010		0,09	0,42	0,166	0,006	0,016	40	296	420
									39	305	432
									39	300	426
4											
5											

Sıra Numarası / Row Number	Döküm Numarası / Heat Number	Kalite / Quality	Çap / Diameter (mm)	%C	%Mn	%Si	%P	%S	% Uzama / % Elongation	Çekme Mukavemeti / Tensile Strength (N/mm²)
1		1045		0,41	0,61	0,20	0,007	0,007	22	750
									21	746
									23	743
2		1065		0,66	0,62	0,21	0,007	0,011	18	961
									17	953
									19	968

Sıra Numarası / Row Number	Döküm Numarası / Heat Number	Kalite / Quality	Çap / Diameter (mm)	%C	%Mn	%Si	%P	%S	% Uzama / % Elongation	Akma Mukavemeti / Yield Point (N/mm²)	Çekme Mukavemeti / Tensile Strength (N/mm²)
1		SG2		0,07	1,46	0,882	0,013	0,012	30	420	548
									28	408	537
									29	418	545

CERTIFICATE

TÜV AUSTRIA

Quality Management System as per TS EN ISO 9001:2008

In accordance with TÜV AUSTRIA QMS procedures, it is hereby certified that

TOSÇELİK

TOSÇELİK PROFİL VE SAC ENDÜSTRİSİ A.Ş.
Organize Sanayi Bölgesi
80950 TOPRAKKALE / OSMANİYE

applies a management system in line with the above standard for the following scope:

The manufacturing of rebar and wire rod in accordance with regulatory requirement and customer request for iron and steel industry.

Certificate No. T-105.01
Excluding: 7.3 Design and development
7.5.2 Validation of processes for production and service provision
7.5.4 Customer property

Valid until 06.03.2018

Ankara, 07.03.2015

TÜV certification was conducted in accordance with TÜV AUSTRIA QMS auditing and certification procedures and is subject to regular surveillance audits.

TÜV AUSTRIA BGS BELGELENDİRME EĞİTİM VE GÖZETİM HİZMETLERİ A.Ş.
Geçiştepe Atif Kansu Cad. 1270 Sok. No: 10/5-6 06520 Balgat / ANKARA
www.tarkiye.com

TÜRK STANDARDLARI ENSTİTÜSÜ
TÜRK STANDARDLARINA UYGUNLUK BELGESİ
TURKISH STANDARDS INSTITUTION
CERTIFICATE OF CONFORMITY TO TURKISH STANDARDS

Mahsulün Tanımı / Description of the Work

TSE