

27578

**MARCEGAGLIA**  
stabilimento di San Giorgio di Nogero

**CERTIFICATO DI CONTROLLO / INSPECTION CERTIFICATE 3.1 EN10204:2004**

Cliente / Customer: THYSSKRUPP MANNEX GMBH  
HATZPER STRASSE 30  
45149, ESSEN, DE

N° certificato / certificate no.: 02M260413  
data / date: 15/09/13  
pag./page: 1/2

Ordine cliente / customer order: 3131021054  
Materiale della ordinazione / order material: 3131021054  
DDI: del/of:

Stato di fornitura / Delivery condition: N normalizzato/normalized  
Elaborazione acciaio/Steelmaking process: BO2 basic oxygen

Marchiatura prodotto / marking of the product:  
(numero, dimensioni, qualità, codice / plate, dimensions, steel grade, next)

Id. Lamiera	Dimensioni	n°	DESCRIZIONE / DESCRIPTION				C	Mn	Si	S	P	ANALISI CHIMICA DI COLLATA IN %- HEAT CHEMICAL ANALYSIS IN %									
			Id. Plate	Dimensioni	n°	F.						Sp.	Cr	Ni	Cu	Al	Mo	Nb	V	TT	N
1	88.90 2438 6096	1	13EG0001924	88.90 2438 6096	1	227827	0.180	0.280	0.003	0.012	0.030	0.060	0.040	0.003	0.020	0.003	0.003	0.006	0.023	0.437	
2	88.90 2438 6096	1	13EG0001926	88.90 2438 6096	1	227827	0.170	0.350	0.003	0.012	0.040	0.070	0.040	0.003	0.020	0.002	0.004	0.005	0.022	0.427	
3	88.90 2438 6096	1	13EG0001930	88.90 2438 6096	1	227827	0.180	0.290	0.002	0.013	0.030	0.070	0.030	0.004	0.020	0.005	0.003	0.005	0.025	0.437	
4	88.90 2438 6096	1	13EG0001941	88.90 2438 6096	1	227808	0.170	0.200	0.006	0.012	0.030	0.060	0.030	0.006	0.020	0.002	0.003	0.004	0.022	0.429	
5	88.90 2438 6096	1	13EG0001948	88.90 2438 6096	1	227827	0.170	0.320	0.003	0.017	0.030	0.060	0.030	0.005	0.020	0.004	0.003	0.004	0.024	0.431	
6	88.90 2438 6096	1	13EG0001957	88.90 2438 6096	1	327652	0.170	0.200	0.006	0.012	0.030	0.060	0.030	0.006	0.020	0.004	0.003	0.004	0.024	0.431	
7	88.90 2438 6096	1	13EG0001957	88.90 2438 6096	1	327653	0.170	0.320	0.003	0.017	0.030	0.060	0.030	0.005	0.020	0.004	0.003	0.004	0.024	0.431	
8	88.90 2438 6096	1	13EG0001956	88.90 2438 6096	1	327808	0.170	0.320	0.003	0.017	0.030	0.060	0.030	0.005	0.020	0.004	0.003	0.004	0.024	0.431	

**PROVA DI TRAZIONE - TENSILE TEST**

C	Mn	Si	S	P	Cr	Ni	Cu	Al	Mo	Nb	V	TT	N	PROVA DI RESILIZIONE - IMPACT TEST							
														(1)	(2)	(3)	(4)				
1	0.180	0.280	0.003	0.012	0.030	0.060	0.040	0.003	0.020	0.003	0.003	0.006	0.023	0.437	1/4	L	-29	230	195	189	205
2	0.170	0.350	0.003	0.012	0.040	0.070	0.040	0.003	0.020	0.002	0.004	0.005	0.022	0.427	1/4	L	-29	375	167	170	171
3	0.180	0.290	0.002	0.013	0.030	0.070	0.030	0.004	0.020	0.005	0.003	0.005	0.025	0.437	1/4	L	-29	380	174	170	175
4	0.170	0.200	0.006	0.012	0.030	0.060	0.030	0.006	0.020	0.002	0.003	0.005	0.025	0.437	1/4	L	-29	184	190	178	184
5	0.170	0.320	0.003	0.017	0.030	0.060	0.030	0.005	0.020	0.004	0.003	0.004	0.022	0.429	1/4	L	-29	184	190	171	182
6	0.170	0.200	0.006	0.012	0.030	0.060	0.030	0.006	0.020	0.002	0.003	0.004	0.022	0.429	1/4	L	-29	187	217	226	210
7	0.170	0.200	0.006	0.012	0.030	0.060	0.030	0.006	0.020	0.002	0.003	0.004	0.022	0.429	1/4	L	-29	180	182	177	180
8	0.170	0.320	0.003	0.017	0.030	0.060	0.030	0.005	0.020	0.004	0.003	0.004	0.024	0.431	1/4	L	-29	197	182	240	206

**PROVA DI RESILIZIONE - IMPACT TEST**

Forma Shape: 1/4 T RT 524  
 Spessore Thickness: 36,5 ± 1,0mm  
 Raggio Roundness: 370 ± 25,5 ± 10mm  
 Rapp. d'aspetto Aspect Ratio: 1/1

**ANALISI CHIMICA DI COLLATA IN %- HEAT CHEMICAL ANALYSIS IN %**

Elementi principali: C, Mn, Si, S, P, Cr, Ni, Cu, Al, Mo, Nb, V, Ti, N, NbV, Ceq

Limite di tolleranza: acc. To ASTM A20 (1/2 ASTM A20)  
 - slab sizes: acc. To ASTM A20 5.3 (reduction ratio 3:1)  
 - thickness tolerance: acc. To ASTM A20 Table 1 + 554.4  
 - chemical composition: acc. To ASTM/ASME A5A 516 (ed 2010) Table 1 + 554.4

**CONTROLLI ULTRASONORO - ULTRASONIC CONTROL**

CONDUZIONI DI SUPERFICIE - ACCOMPAGNATE

APPARECCHIATURA	SERIAL NO.	N° SERIE	CONDUZIONI DI SUPERFICIE	AS ROLLED	Colata Heat	Riferimento Standard of reference	ASME SA578	Classe accettabilità Acceptance criteria	Estro Result	Indicazioni Indications	ACCORDING TO SPECIFICATION	
											Reticolo Reticule	Barili Barils
GILARDINO ROG/700	1001268	1001268			227827	ASME SA578	Level C	OK	Not founded	100%	DP25/2	
					227827	ASME SA578	Level C	OK	Not founded	100%	DP25/2	
					227827	ASME SA578	Level C	OK	Not founded	100%	DP25/2	
					227827	ASME SA578	Level C	OK	Not founded	100%	DP25/2	
					327652	ASME SA578	Level C	OK	Not founded	100%	DP25/2	
					327653	ASME SA578	Level C	OK	Not founded	100%	DP25/2	
					227808	ASME SA578	Level C	OK	Not founded	100%	DP25/2	

**TARATURA - CALIBRATION**

Secondo la norma EN 10204:2004

**CONDIZIONI DI PROVA - TESTING CONDITIONS**

Temperatura: 910 ± 10°C, soaking time: 30 min, cooling in still air

Impatto: acc. To ASTM A20-2010 53

**REMARKS**

La lamiera sopra elencata è stata verificata secondo i requisiti della specifica di riferimento. / The certifying that the above mentioned plates are completed with the order prescription.

Quality Control

MARCEGAGLIA S.p.A.  
Stabilimento di San Giorgio di Nogero

M. D'AMICO  
L. PARAVANO



Via E. Fermi, 13 33058 San Giorgio di Nogaro - UD - Italy  
 Prodotto/Produkt: Lamiere da treno - Hot Rolled Plate  
 Norma/Normal: ASTM A516 Ed2010 ASME SA516 ed2010 N  
 Qualita'/Steel Grade: Grade 70

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 cliente/Customer: THYSSEKRUPP MANNEX GMBH  
 HATZPER STRASSE 30  
 48159, ESSERT, DE

N° certificato / certificate no: 0304350013  
 data /date: 15/04/13  
 ordine cliente / customer's order: 16 02 2013  
 riferimento ordine / order ref: 1310219194  
 consegna: del/of:

Stato di fornitura / Delivery conditions: N normalizzato/normalized  
 Esasperazione visibile / maximum percent of break open:

Id. Lamiera / Plate ID	Dimensioni / Dimensions	n° / No.	Descrizione / Description	Pesa / Weight	Campione / Sample	PROVA DI TRAZIONE - TENSILE TEST			PROVA DI RESILLENZA - IMPACT TEST			TEST								
						Forma / Shape	Temp. / Temp.	Res. / Res.	Temp. / Temp.	Res. / Res.	Temp. / Temp.	Res. / Res.	Temp. / Temp.	Res. / Res.						
13E6001924	3.50 96 240	1	227827	10.37	13E6002672	Cyl	1/4	RT	76	53	36.4	10mm	1	1/4	L	-20	170	144	139	151
13E6001926	3.50 96 240	1	227827	10.37	13E6002670	Cyl	1/4	RT	77	54	34.5	10mm	1	1/4	L	-20	133	123	125	126
13E6001930	3.50 96 240	1	227827	10.37	13E6002671	Cyl	1/4	RT	77	53	34.5	10mm	1	1/4	L	-20	133	123	125	129
13E6001941	3.50 96 240	1	227827	10.37	13E6002665	Cyl	1/4	RT	77	51	33.5	10mm	1	1/4	L	-20	136	140	131	136
13E6001938	3.50 96 240	1	227827	10.37	13E6002669	Cyl	1/4	RT	77	53	34.0	10mm	1	1/4	L	-20	136	140	126	134
13E6001948	3.50 96 240	1	227827	10.37	13E6002660	Cyl	1/4	RT	77	54	33.7	10mm	1	1/4	L	-20	138	160	157	155
13E6001957	3.50 96 240	1	227827	10.37	13E6002700	Cyl	1/4	RT	75	53	35.0	10mm	1	1/4	L	-20	133	134	133	133
13E6001951	3.50 96 240	1	227827	10.37	13E6002690	Cyl	1/4	RT	76	54	36.0	10mm	1	1/4	L	-20	145	134	177	152
13E6001956	3.50 96 240	1	227827	10.37	13E6002686	Cyl	1/4	RT	76	51	34.2	10mm	1	1/4	L	-20	145	136	164	148

1) Ispettivo/Inspector: J. Ferrero, 2) Controllo/Inspector: L. Bognard, 3) Testista/Tester: N. Tascioni  
 - fully killed, fine grain steel  
 - dimensional check and visual examination of the surface conditions without objection  
 - No heat repair performed on plates  
 - Heat treatment: temperature 930 +/- 10°C, soaking times 30 min/1hr, cooling in still air  
 - Impact test acc. To ASTM A20-2010 §5  
 - MERCURY FREE

Campione / Sample	ANALISI CHIMICA DI COATA In % - HEAT CHEMICAL ANALYSIS In %										ANALISI CHIMICA DI PRODOTTO In % - PRODUCT CHEMICAL ANALYSIS In %											
	C	Mn	Si	S	P	Cr	Ni	Cu	Zn	Al	Mo	Nb	V	Ti	N	Nb+V	Ceq	Temp. / Temp.	Res. / Res.	Temp. / Temp.	Res. / Res.	
227827	0.180	1.460	0.280	0.012	0.030	0.030	0.050	0.040	0.003	0.003	0.003	0.003	0.003	0.003	0.005	0.023	0.437	227827	0.002	0.004	0.002	0.427
227827	0.170	1.450	0.003	0.012	0.040	0.030	0.070	0.040	0.003	0.003	0.003	0.003	0.003	0.003	0.005	0.025	0.437	227827	0.002	0.004	0.002	0.427
227827	0.180	1.470	0.290	0.001	0.019	0.030	0.020	0.050	0.030	0.004	0.020	0.005	0.003	0.003	0.005	0.025	0.437	227827	0.002	0.004	0.002	0.427
227827	0.170	1.470	0.200	0.006	0.012	0.030	0.030	0.060	0.030	0.006	0.020	0.002	0.003	0.003	0.004	0.022	0.429	227827	0.002	0.004	0.002	0.429
227827	0.170	1.450	0.330	0.003	0.017	0.050	0.050	0.070	0.030	0.005	0.020	0.004	0.003	0.003	0.004	0.024	0.431	227827	0.002	0.004	0.002	0.431

APPARECCHIATURA / EQUIPMENT	N° SERIE / SERIAL NO.	CONDIZIONI DI SUPERFICIE / SURFACE CONDITIONS		COUPLANT	MODALITA' OPERATIVA / PROCEDURE		TARATURA / CALIBRATION	
		AS ROLLED	AS ROLLED		ACCORDING TO SPECIFICATION	ACCORDING TO SPECIFICATION	RECORD	RECORD
GIARDONI RDG700	1001288	OK	OK	Water	OK	OK	100%	100%
Id. Lamiera / Plate ID	n° / P.zit	227827	227827	ASME SA578	OK	OK	100%	100%
13E6001924	3.50 96 240	227827	227827	ASME SA578	OK	OK	100%	100%
13E6001926	3.50 96 240	227827	227827	ASME SA578	OK	OK	100%	100%
13E6001930	3.50 96 240	227827	227827	ASME SA578	OK	OK	100%	100%
13E6001941	3.50 96 240	227827	227827	ASME SA578	OK	OK	100%	100%
13E6001938	3.50 96 240	227827	227827	ASME SA578	OK	OK	100%	100%
13E6001948	3.50 96 240	227827	227827	ASME SA578	OK	OK	100%	100%
13E6001957	3.50 96 240	227827	227827	ASME SA578	OK	OK	100%	100%
13E6001952	3.50 96 240	227827	227827	ASME SA578	OK	OK	100%	100%
13E6001956	3.50 96 240	227827	227827	ASME SA578	OK	OK	100%	100%

Il cliente/Il cliente che le lamiere sopra elencate sono conformi alle prescrizioni dell'ordine. / We certify that the above mentioned plates are compliant with the order specification.  
 Quality Control  
 CLAUD. DE GUARIGLAI  
 15/04/2013  
 1310219194