TEST REPORT

BRAIKO LTD
117 Zaichar St.
1309 Sofia
Bulgaria

МОНТАЖИ
ЦКЛ

1797 Sofia, Lazar Stanchev St. 9 (St. „165" №3)
T/F (02) 8707070; (02) 8710086; (02) 8700152
e-mail: ckl.montagi@abv.bg; ckl@montagi.com; www: montagi.com

REPORT № 448 / 21.05.2014

CERTIFICATE NR:	**1000101420/44023Y**
TYPE:	**DESTRUCTIVE TEST**
CONTRACTOR:	Braiko Ltd, 1309 Sofia, Zaichar St. 117, Bulgaria
DATE OF TEST:	15.05.2014
LANGUAGE:	ENGLISH
PROJECT:	**BRAIKO™ BRACKETS WITH SERRATIONS**
SUBPROJECT:	Tensile testing of assembled (by bolts) brackets with serrations according to drawing 0001_01, without coating.
BOLT CONNECTION:	M12, 5.8
BASE MATERIAL:	FLAT 60x10, S355 J2+M (Attachment 1)
COATING:	**NO COATING**
STANDARDS:	BS EN ISO 10025-2, DIN 933, DIN 934, DIN 125,
DRAWINGS:	0001_01 (Attachment 2), 0101_01 (Attachment 2), 0102_01 (Attachment 3)
SERRATIONS:	$\sphericalangle$ 60^0, step 2 mm
EQUIPMENT:	Table 1

Row №	title	type	Identification №
1.	Used machine	ZDM 40	282/28/73

RESULTS (TABLE 2)

1	*2*	*3*	*4*	*5*	*6*
			Tensile strength		
Row №	Sample №	acc. to drawing №	Limit of shear load (destruction) of the bolt connection M12, kg	Load limit of slipping and plastic deformation of the serrations, kg	Applied torque to the bolt connection M12, measured with a torque wrench, N/m**
1	1AU-BM	0001_01	5400	12300	15
2	2AU-BM	0001_01	8200	15800	23
3	3AU-BM	0001_01	5600	15400	35
4	4AU-BM	0001_01	6200	16200	40
5	5AU-BM	0001_01*	5200	5200	15

* The installation of a set 5AU-BM is made with only one Detail 2 (drawing 0102_01) .

** Each connection is tightened with the torque shown in column 6 in Table 2.

*** During the tensile test we observed the slipping of the serrations first (see column 5 of Table 2), than the loads were reduced and the bolted connection was tested without the influence of the serrations. (see results in column 4, Table 2)

Controlled by:

(Евгени Цветков / Evgeni Tsvetkov)

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TYPE:	DESTRUCTIVE TEST
CONTRACTOR:	Braiko Ltd, 1309 Sofia, Zaichar St. 117, Bulgaria
DATE OF TEST:	15.05.2014
LANGUAGE:	ENGLISH
PROJECT:	BRAIKO™ BRACKETS WITH SERRATIONS
SUBPROJECT:	Tensile testing of assembled (by bolts) brackets with serrations according to drawing 0001_01, with coating
BOLT CONNECTION:	M12, 5.8
BASE MATERIAL:	FLAT 60x10, S355 J2+M (Attachment 1)
COATING:	POWDER COATING
STANDARDS:	BS EN ISO 10025-2, DIN 933, DIN 934, DIN 125,
DRAWINGS:	0001_01 (Attachment 2), 0101_01 (Attachment 2), 0102_01 (Attachment 3)
SERRATIONS:	60^0, step 2 mm
EQUIPMENT:	Table 1

Row №	title	type	Identification №
1	Used machine	ZDM 40	282/28/73

RESULTS (TABLE 2)

1	*2*	*3*	*4*	*5*	*6*
				Tensile strength	
Row №	Sample №	acc. to drawing №	Limit of shear load (destruction) of the bolt connection M12, kg	Load limit of slipping and plastic deformation of the serrations, kg	Applied torque to the bolt connection M12, measured with a torque wrench, N/m**
1	1AU-PC	0001_01	-	8400	30
2	2AU-PC	0001_01	-	10600	40
3	3AU-PC	0001_01	-	13000	35
4	4AU-PC	0001_01	-	13200	40
5	5	0001_01*	-	14600	45

* The installation of a set 5AU-PC is made with only one Detail 2 (drawing 0102_01)

** Each connection is tightened with the torque shown in column 6 in Table 2.

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TYPE:	DESTRUCTIVE TEST
CONTRACTOR:	Braiko Ltd, 1309 Sofia, Zaichar St. 117, Bulgaria
DATE OF TEST:	15.05.2014
LANGUAGE:	ENGLISH
PROJECT:	BRAIKO™ BRACKETS WITH SERRATIONS
SUBPROJECT:	Tensile testing of assembled (by bolts) brackets with serrations according to drawing 0001_01, with coating.
BOLT CONNECTION:	M12, 5.8
BASE MATERIAL:	FLAT 60x10, S355 J2+M (Attachment 1)
COATING:	HOT DIP GALVANIZING
STANDARDS:	BS EN ISO 10025-2, DIN 933, DIN 934, DIN 125,
DRAWINGS:	0001_01 (Attachment 2), 0101_01 (Attachment 2), 0102_01 (Attachment 3)
SERRATIONS:	$\sphericalangle$ 60^0, step 2 mm
EQUIPMENT:	Table 1

Row №	title	type	Identification №
1.	Used machine	ZDM 40	282/28/73

RESULTS (TABLE 2)

1	2	3	4	5	6
				Tensile strength	
Row №	Sample №	acc. to drawing №	Limit of shear load (destruction) of the bolt connection M12, kg	Load limit of slipping and plastic deformation of the serrations, kg	Applied torque to the bolt connection M12, measured with a torque wrench, N/m**
1	1AU-GZn	0001_01	6200	-	30
2	2AU-Gzn	0001_01	-	9900	35
3	3AU-Gzn	0001_01	5400	-	35
4	4AU-GZn	0001_01	-	8000	40
5	5AU-GZn	0001_01*	6400	4000	50

* The installation of a set 5AU-GZn is made with only one Detail 2 (drawing 0102_01).

** Each connection is tightened with the torque shown in column 6 in Table 2.

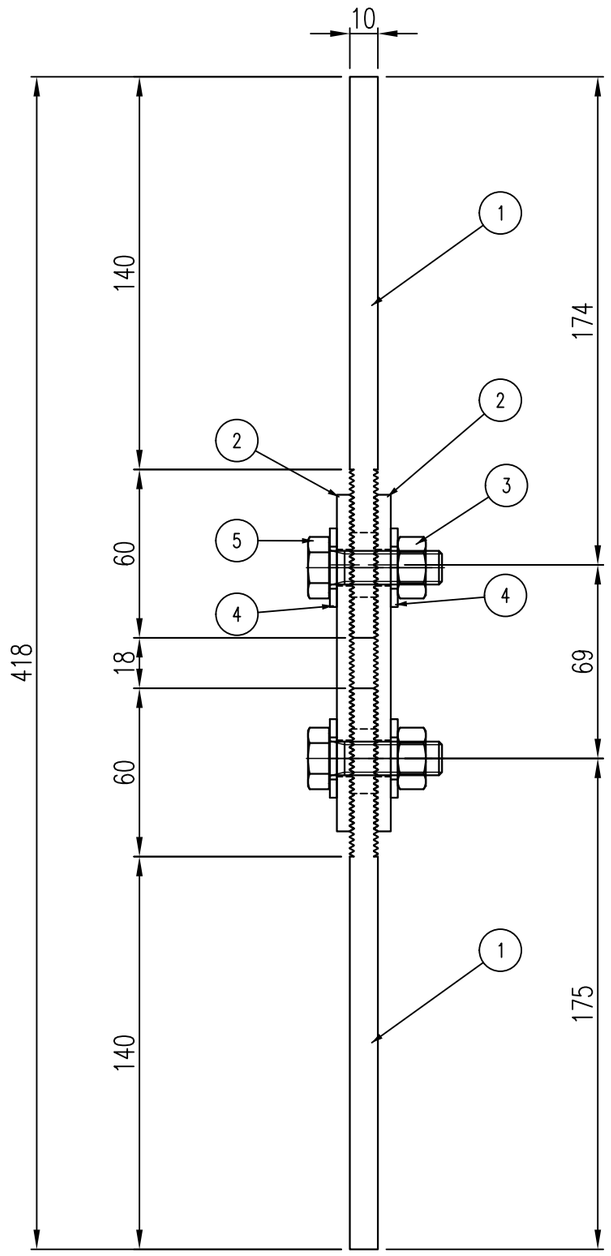
*** During the tensile test we observed the slipping of the serrations first (see column 5 of Table 2), than the loads were reduced and the bolted connection was tested without the influence of the serrations. (see results in column 4, Table 2)

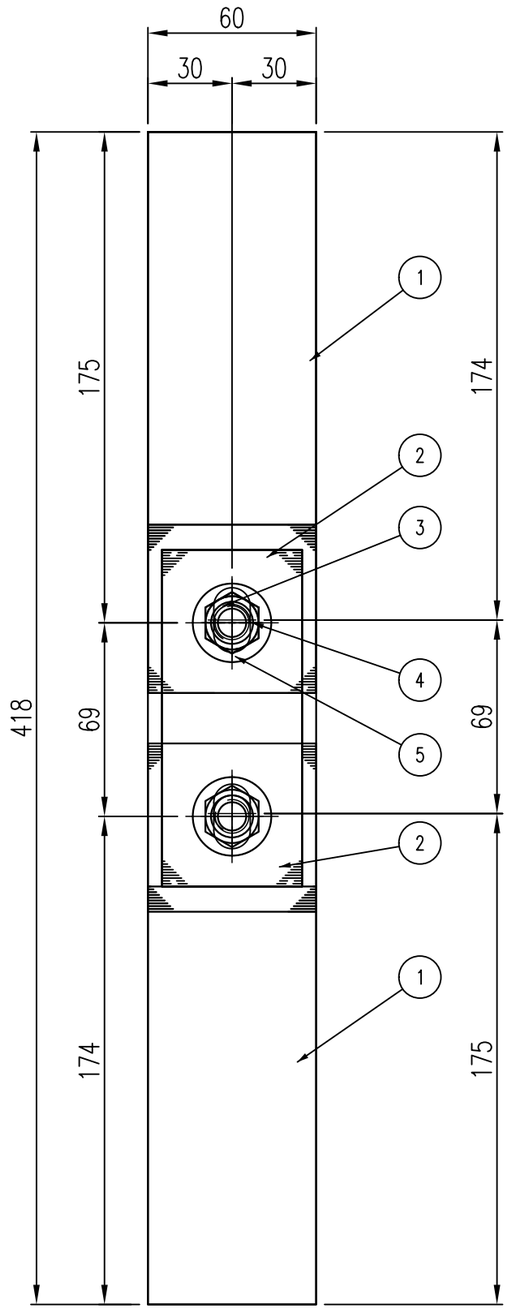
Controlled by:

(Евгени Цветков / Evgeni Tsvetkov)

МОНТАЖИ ЕАД - ЦКЛ - София * Централно управление *

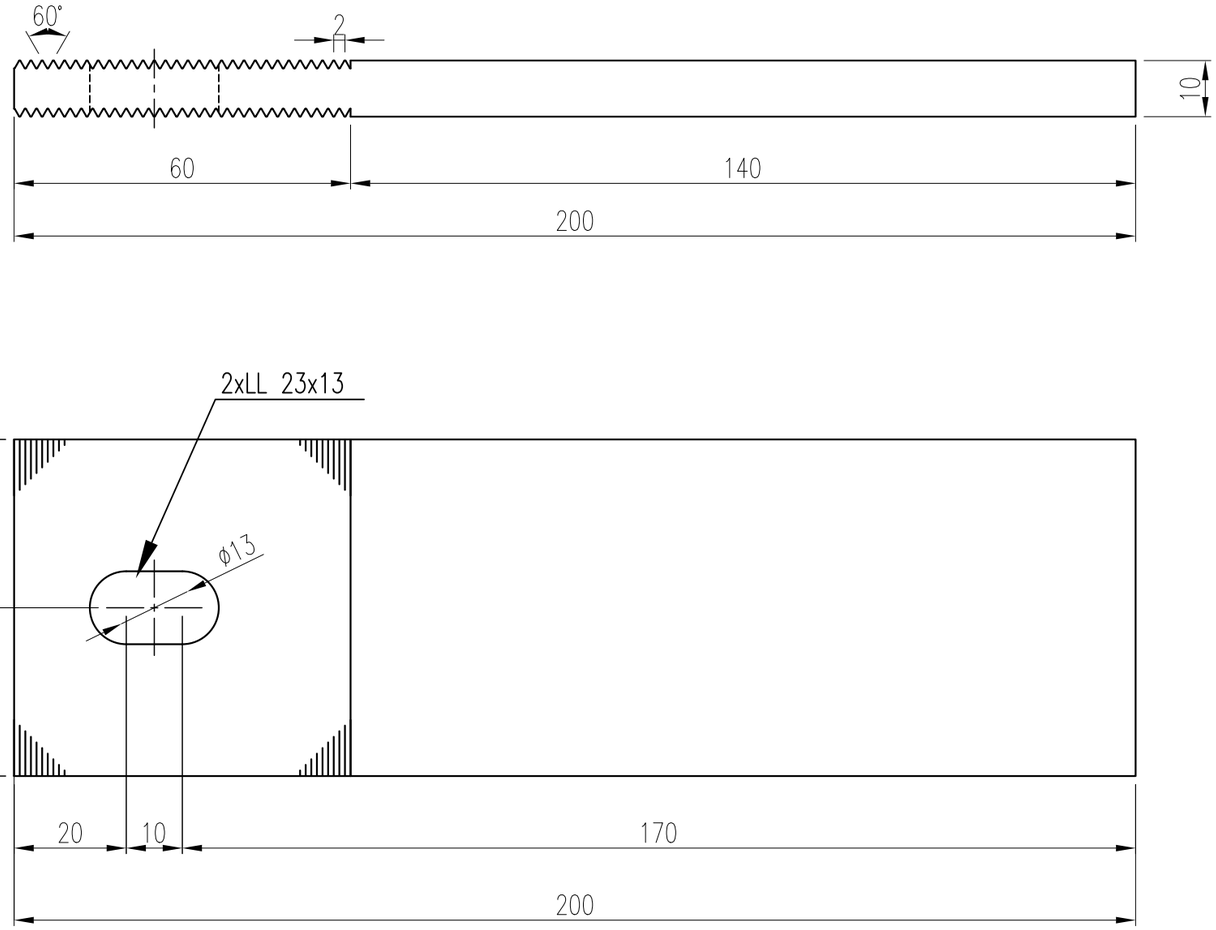
REPORT_450_2014.05.21_EN,DE,BG_01





Elements	
1	2xElement with serration_1
2	2xElement with serration_2
3	2xNut DIN934
4	4xWasher DIN125
5	2x Screw M12

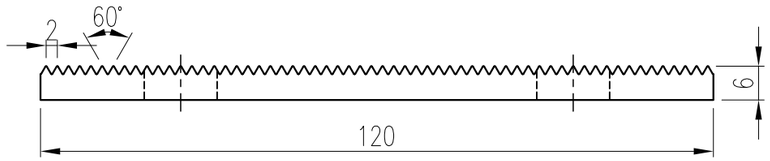
LAST CH.: 22-04-2014	DRAWING TITLE: TEST ELEMENTS WITH SERRATIONS	–	–	–	–	
DATE: 16-04-2014	–	–	–	–	–	
SCALE: 1 : 20 @ A3	PROJECT NAME: RILLEN	–	–	–	–	
BRAIKO LTD 117 Zaichar St, 1309, Sofia tel.: +359 (2) 421 55 00 fax: +359 (2) 421 55 50 email: office@braiko.com web: www.braiko.com	PROJECT NR.: 140099	REV. DESCRIPTION	DRAWN	DATE	NR.	
	CONTRACT NR.: – PACKAGE NR.: –	MATERIAL	WEIGHT	QUANTITY	UNIT	
	CLIENT: –	S355 J2+M	–	–	–	
	DESIGNER: N.Mitsev	DWG Nr. 0001		REV. 01		

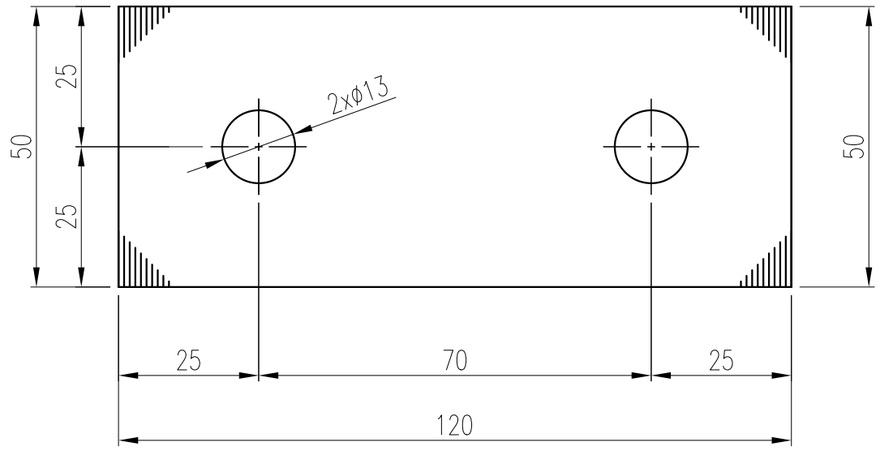


1 / 0001 **Detail 1**

Scale: 1:1

LAST CH.: 17-04-2014	**DRAWING TITLE:** TEST ELEMENT WITH SERRATION 1	–	–	–	–
DATE: 16-04-2014	–	–	–	–	–
SCALE: 1 : 1 @ A4	**PROJECT NAME:** RILLEN	–	–	–	–
BRAIKO LTD 117 Zaichar St, 1309, Sofia tel.: +359 (2) 421 55 00 fax: +359 (2) 421 55 50 email: office@braiko.com web: www.braiko.com	**PROJECT NR.:** 140099	**REV.**	**DESCRIPTION**	**DRAWN**	**DATE** / **NR.**
	CONTRACT NR.: – **PACKAGE NR.:** –	**MATERIAL**		**WEIGHT**	**QUANTITY** / **UNIT**
	CLIENT: –	S355 J2+M		–	30 / –
	DESIGNER: N.Mitsev	**DWG Nr.** 0101			**REV.** 01





2
0001

Detail 2

Scale: 1:1

LAST CH.: 17-04-2014	**DRAWING TITLE:** TEST ELEMENT WITH SERRATION 2	–	–	–	–
DATE: 16-04-2014	–	–	–	–	–
SCALE: ———0–	**PROJECT NAME:** RILLEN	–	–	–	–
BRAIKO LTD 117 Zaichar St, 1309, Sofia tel.: +359 (2) 421 55 00 fax: +359 (2) 421 55 50 email: office@braiko.com web: www.braiko.com	**PROJECT NR.:** 140099	**REV. DESCRIPTION**	**DRAWN**	**DATE**	**NR.**
	CONTRACT NR.: – **PACKAGE NR.:** –	**MATERIAL**	**WEIGHT**	**QUANTITY**	**UNIT**
	CLIENT: –	S355 J2+M	–	30	–
	DESIGNER: N.Mitsev	**DWG Nr.** 0102		**REV.** 01	

A01
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707 02 Ostrava-Kunčice
Ceská republika
TEL.: +420-595682303

A02
INSPECTION CERTIFICATE "3.1" EN 10204:2004

Z02
Ostrava,17.05.2013

A03 Document No.
1000101420

A04
ArcelorMittal

A07 Purchaser's Order No. and/or Item No.
ANGEL05-AMO

A08 Manufacturer's Job No.
1453 09032 0 3

A09 Supplier's Order No.
3100136487/250

A10 Delivery Advise No.
8100472821/ 000070 14/13/501179

A06 Customer/consignee
Angel Stoilov 96 Jsc
str. "Rogoshko shose" Nr6a
4003 Plovdiv
Bulgaria

Product, Dimensions, Steel designation, Condition, Terms of Delivery, Any supplementary requirements:

B01,B02,B03,B04,B05,B09
FLAT BARS P- 60X10 acc.to EN 10058:2003 Length 6100 mm + 100 /- 0 S355J2+M ACCORDING TO EN 10025-2/2004

B13	Actual weight	2.430,000 KG

C71 Chemical Analysis of Liquid Alloy (%)

B07 Heat No.	Test type	C70	C [%]	MN [%]	SI [%]	P [%]	S [%]	N [%]	CU [%]	NI [%]	CR [%]	MO [%]	V [%]	AL [%]	B [%]	TI [%]	NB [%]	B08	
			>0 <0.2	>0 <1.6	>0 <0.55	>0 <0.025	>0 <0.025		>0 <0.55									Pieces	Bunches
44023Y	H	0	0.1390	1.2700	0.1970	0.0120	0.0150	0.0040	0.0300	0.0250	0.0340	0.0070	0.0610	0.0040	0.0000	0.0000	0.0000		1

B07 Heat No.	Test type	C70	AS [%]	SN [%]	CA [%]	CEV [%]
44023Y	H	0	0.0040	0.0030	0.0016	0.3747

1 Continuation see Attachment

0.0000 means that the measured value is under the instrument detection limit (IDL).

5 Test results			2 Tensile test acc.to EN ISO 6892-1:2009			4 Charpy impact test acc.to EN ISO 148-1:2010				
Heat No.	C00 Specimen No.	C02	C11 Yield or proof limit	C12 Tensile strength	C13 Elongation A5	C03 Test temperature (°C)	C40 KV2 C41 7.50			
					A5	°C	C04 min	C04 max	J (J/cm2)	
	C04 Regulation		>355	>470 <630	22.0	-20.00	21.0			
							C43	C42		
44023Y	20083608	0	371	512	28.5					
44023Y	20083610	0				-20.00	153	152	158	148

1 Continuation see Attachment

6 Bend test according to EN ISO 7438:2005

C52	Bend Test	
C53	Rebend test	

"АНГЕЛ СТОИЛОВ 96" АД
ВЯРНО С ОРИГИНАЛА
Клиент:.....
по поръчка №.....

Environmental product declaration: EPD-BFS-2010111-E

CE
1020/06
1020 - CPD - 070029501
EN 10025-1

Hot-rolled structural steel products
acc. to EN 10025-1:2004

Designed for the following applications:
civil and machine engineering

Weldability:
guaranteed through carbon equivalent (Cev)

C93 The mass activity ionizing radiation value in liquid alloy analysis does not exceed 100 Bq/kg. — B06, Z04

Z01 The Manufacturer confirms that such Product is in duly compliance with Order's requirements, the Purchase Contract's requirements and that it has been tested in duly compliance with technical requirements

D01 The inspection and the test were caried out on the delivered product or on a product test unit.

Z02, Z03,A05

ArcelorMittal
ArcelorMittal Ostrava a.s.
Vratimovská 689, 707 02 Ostrava-Kunčice
Issued for reception document IČ: 45193258 017

WORKS INSPEKTOR
IDENTIFICATION No.: 14
Ing. Radim Srubar
PHONE: +420 595682303
replaces seal and signature
Issued by: Ilona Filipkova

AC 32 00061732 /12 ЛЛ. 2013

Liste des indications des champs selon la norme EN 10168 et leur traduction.
Seznam označení polí v EN 10168 a jejich příslušné překlady.
Verzeichnis der Feldbezeichnungen gemäss der Norm EN 10168 und ihre Übersetzung.

Signe numérique / Číselný znak / Numerisches Zeichen	Marquage des champs, Označení pole, Feldbezeichnung French	Česky	German
1	Suite ci-joint	Pokračování v příloze	Fortsetzung in der Alange
2	Essai de traction selon EN ISO 6892-1:2009	Zkouška tahem dle EN ISO 6892-1:2009	Zugversuch gm. EN ISO 6892-1:2009
3	Essai de dureté selon EN ISO 6506-1:2005	Zkouška tvrdosti dle EN ISO 6506-1:2005	Härteprüfung gm. EN ISO 6506-1:2005
4	Essai de flexion par choc selon EN ISO 148-1:2010	Zkouška rázem v ohybu dle EN ISO 148-1:2010	Schlagbiegeversuch gm. EN ISO 148-1:2010
5	Résultats d'essais	Výsledky zkoušek	Prüfungsergebnisse
6	Essai de pliage selon EN ISO 7438:2005	Zkouška ohybem dle EN ISO 7438:2005	Biegeversuch gm. EN ISO 7438:2005
A01	Usine du fabricant	Výrobní závod	Herstellerwerk
A02	Type de document de contrôle	Druh dokumentů kontroly	Art der Prüfdokumente
A03	Numéro de document	Číslo dokumentu	Dokument-Nr.
A04	Marque du producteur	Značka výrobce	Herstellerzeichen
A05	Auteur du document de contrôle	Vystavovatel dokumentu kontroly	Aussteller des Prüfdokumentes
A06	Acheteur/destinataire	Odběratel/příjemce	Abnehmer/Empfänger
A07	Numéro de la commande du client ou numéro du poste de commande	Číslo objednávky odběratele popřípadě číslo položky	Bestell-Nr. des Abnehmers, bzw. Posten-Nr.
A08	Numéro de la commande de l'usine du fabricant	Číslo zakázky výrobce	Herstellerauftrags-Nr.
A09	Numéro de la commande de fournisseur	Číslo objednávky dodavatele	Lieferantenauftrags-Nr.
A10	Avis de livraison No.	Číslo dodacího návěstí	Lieferungs-Aviso Nr.
B01	Produit	Výrobek	Erzeugnis
B02	Désignation de l'acier	Označení oceli	Stahlbezeichnung
B03	Exigences supplémentaires	Jakékoliv doplňující požadavky	Jede Zusatzanforderung
B04	Etat de produit au moment de livraison	Stav výrobku při dodání	Lieferzustand des Erzeugnisses
B05	Traitement (thermique) de référence des échantillons	Referenční (tepelné) zpracování vzorků	Referenzbehandlung (Wärmebehandlung) von Proben
B06	Marquage des produits	Značení výrobků	Erzeugnismarkierung
B07	Numéro de la coulée	Číslo tavby	Schmelz-Nr.
B08	Nombre de pièces, faisceaux	Kusy, svazky	Stücke, Bunde
B09	Dimensions du procuit	Rozměry výrobku	Erzeugnismaße
B12	Masse théorique	Teoretická hmotnost	Theoretisches Gewicht
B13	Masse réelle	Skutečná hmotnost	Ist-Gewicht
C00	Identification de l'échantillon	Číslo vzorku	Probe-Nr.
C02	Orientation des échantillons (0-longitudinal, 1 -transversal)	Směr zkušebních vzorků, těles (0 -podélný, 1 -příčný)	Probenrichtung (0 - länglich, 1 - querdurch)
C03	Température d'essai(°C)	Zkušební teplota (°C)	Prüftemperatur (°C)
C04	Prescription	Předpis	Vorschrift
C11	Limite apparente ou limite élastique conventionnelle	Výrazná nebo smluvní mez kluzu	Ausgeprägte oder vertragliche Dehngrenze
C12	Résistance á la traction	Pevnost v tahu	Zugfestigkeit
C13	Allongement	Tažnost	Bruchdehnung
C14	Agt[%]	Agt[%]	Agt[%]
C30	Méthode d'essai	Zkušební postup	Prüfverfahren
C31	Valeurs individuelles	Jednotlivé hodnoty	Einzelwerte
C32	Valuers moyenne	Průměrná hodnota	Mittelwert
C40	Forme de l'échantillon	Tvar zkušebního tělesa	Probekörperform
C41	Largeur de l'échantillon	Šírka zkušebního tělesa	Probekörperbreite
C42	Valeurs individuelles	Jednotlivé hodnoty	Einzelwerte
C43	Valeur moyenne	Průměrná hodnota	Mittelwert
C50	Contraction	Kontrakce	Einschnürung
C51	Rapport Rm/Re	Poměr Rm/Re	Verhältnis Rm/Re
C52	Essai de pliage (X-satisfaisante, O-non satisfaisante)	Zkouška ohybem (X-vyhověla, O-nevyhověla)	Bruchprobe (X-Konformität, O-Nicht-konformität)
C53	Essai de pliage- dépliage	Zpětný ohyb	Rückbiegeversuch
C54	Surface relative de nervure fr	Vztažná plocha žebra fr	Bezogene Rippenflache fr
C55	kg/m	kg/m	kg/m
C56	Re act/Re nom	Re act/Re nom	Re ist/Re nenn
C70	Mode de production de l'acier (0 -Convertisseur á oxygéne-coulée continue)	Způsob výroby oceli (0 -kyslíkový proces-kontislitek)	Stahlherstellungsverfahren (0-Sauerstoffverfahren-kontinuierlich gegossenes Stranggus)
C71	Analyse chimique de la coulée (%)	Tavební chemická analýza (%)	Schmelzanalyse (%)
C93	Valeur de l'activité de masse du rayonnement ionisant dans l'analyse de la coulée ne dépasse pas 100 Bq/kg.	Hodnota hmotnostní aktivity ionizujícího záření v tavební analýze nepřesahuje 100 Bq/kg.	Massenaktivitätswert derionisierenden Strahlung in der Schmelzanalyse übersteigt nicht 100 Bq/kg.
D01	Le contrôle et les essais ont été réalisés sur le produit fourni ou sur l'unité d'essai du fabricant.	Kontrola a zkoušky byly provedeny na dodávaném výrobku nebo výrobní zkušební jednotce.	Kontrolle und Prüfungen wurden am gelieferten Produkt oder an der Produktionsprüfeinheit durchgeführt.
Z01	Le fabricant confirme que ce produit est conforme aux exigences de la commande, du contrat d'achat et qu'il a été soumis aux essais selon les exigences techniques de la commande.	Výrobce potvrzuje, že tento výrobek je v souladu s požadavkem objednávky, kupní smlouvy a byl zkoušen, kontrolován v souladu s technickými požadavky objednávky.	Der Hersteller bestätigt, daß dieses Produkt mit den Anforderungen der Bestellung und des Kaufvertrages konform ist und dass es in Übereinstimmung mit den technischen Anforderungen der Bestellung geprüft und kontrollien wurde.
Z02	Date d'émission et validation	Datum vydání a ověření platnosti	Datum der Ausstellung und der Bestätigungsbeglaubigung
Z03	Timbre du contrôleur	Razítko zástupce kontroly	Stempel des (der) Abnahmebeauftragten
Z04	Marquage CE	Označení CE	CE-Zeichen
Z05	Représentant autorisé du client	Pověřený zástupce odběratele	Beauftragter Vertreter des Abnehmers

A01
ArcelorMittal Ostrava a.s.
Vratimovská 689
707 02 Ostrava-Kunčice
Ceská republika
TEL.: +420-595682303
FAX.: +420-595682114

A02
INSPECTION CERTIFICATE
"3.1"
EN 10204:2004

Z02
Ostrava,17.05.2013

A03
A04

Document No.
1000101420

A04
ArcelorMittal

B07 Heat No.	ID	B07 Heat No.	ID	B07 Heat No.	ID
44023Y	3041225089				

"АНГЕЛ СТОИЛОВ 96" АД
ВЯРНО С ОРИГИНАЛА
Клиент:.....
по поръчка №.....

Z02, Z03,A05

ArcelorMittal
ArcelorMittal Ostrava a.s.
Vratimovská 689, 707 02 Ostrava-Kunčice
Issued on inspection document 017

WORKS INSPEKTOR
IDENTIFICATION No. 14
Ing. Radim Srubar
PHONE: +420 595682303

replaces seal and signature
Issued by: Ilona Filipkova

Л А Т И Н К А ЕООД

Пловдив
София ул.Пиротска 132, тел.:02/8220 655
Факс; 9200 457

ДЕКЛАРАЦИЯ ЗА СЪОТВЕТСТВИЕ

Латинка ЕООД, представлявано от Йордан Ангелов Ризов в качеството си на управител на дружеството с Булстат 115 333 855 и адрес на регистрация гр.Пловдив ул."Иван Гешев"33

Наименование: ДИН 933/м12х45-машинен болт цинк
ДИН 934/м12-гайка цинк

Удостоверявам,на базата на съответните сертификати за качество и съответствие от производителите и нашите доставчици,че стоките посочени в тази декларация са произведени В съответствие с посочените по-долу стандарти:

- ISO 9001:2000

При промени в конструкцията и предназначението на продукта,настоящата декларация става невалидна.

София,15.05.2014

Управител:Йодан Ризов

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TECHNICAL DATA SHEET

PURAL PES 5L2311113T000 (EX 5023A1011) BEIGE SM HG TS TF HMF X 1011CA - QUALICOAT P-0238

Composition

Powder based on polyester saturated carboxylated resins and hardeners alternative to TGIC chosen for their characteristics of outdoor resistance.Formulated with pigments and additives specifically selected for the high resistance to UV rays and weathering agents

Recommended uses

Powder dedicated to outdoor exposition where expresses its remarkable qualities of resistance to chalking and color variation at the best.It is indicated for coating of aluminium and iron windows in building, lighting elements, bodies for agricultural and industrial machinery.

Substrate pre-treatment

Powders adhere to most metal surfaces provided these are dry, clean and degreased. A chemical pre-treatment of the surface is required in order to improve the resistance against the corrosion, based on the kind of metallic support.

Application

This powder is suitable for use with electrostatic spraying equipments whose voltage is between 40 and 90 KV. Where acronym "TS" is present, our products are working also with triboelectical guns.
A difference of thickness of applied coating can generate modification of the appearance of hardened coating.In case of products having special effects, the use of overspray is not advised except for bonded products.

Polymerization conditions

180°C x 20 min. **(piece temperature)**

Characteristics after polymerization (application on steel panel)

Erichsen Drawing:	**>= 5 mm**	**ISO 1520**
Mandrel Bend Test:	**>= 4 mm**	**ISO 1519**
Impact Resistance:	**>= 2,5 Nm**	**ASTM D2794**
Buchholz Hardness:	**>= 80**	**ISO 2815**
Cross Cut Test:	**Gt0**	**ISO 2409**
Gloss 60°:	**L=80-100 gloss; SL=60-80 gloss; SO=30-60 gloss; O=10-30 gloss; OO=0-10 gloss**	**ISO 2813**

Chemical resistance

The product has good resistance to most 10% acids and to ethylalcohol at room temperature (25°C).
For specific requests we invite you to contact our technical assistance.

Corrosion resistance (application on iron-phosphate bonder)

Humidity Chamber:	**After 500 hours no change.**	**ISO 6270**
Kesternich:	**After 10 cycles no loss of adhesion.**	**ISO 3231**
Salt Spray:	**After 1000 hours < 1 mm penetration.**	**ISO 9227**

Accelerated ageing (QUV-B) (313 nm) with QUV/SE cycle 4 hours, condensation at 40°C/4 h irradiation 50°C (0,75 W/m²/nm. Application on aluminium panel)

Test:	**QUV-B (313 nm) after 300 hours loss gloss <= 50%.**

Storage

A storage life of at least 6 months from date of loading can be expected provided the boxes remain sealed and stored in a cool dry area below 30°C.

Notes:

- **The above data are the results of careful researches and our long experience, nevertheless considering the large number of factors concurring to determine the values in the present technical data sheet, the utilizer will have the duty to effect the best conditions so as to get the best result.**
- **This product is destined only to professional applicators working in an industrial installation. The manipulation of the product from the utilizer must be conform to laws concerning the use of powder coatings and to information described in our technical data sheet sent together with the product itself.**

Revision 1/January. 2010

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TECHNICAL DATA SHEET

DURPOL EE 9L1870353T000 (EX 9088A6361) GREY SM GL TS HMF X R7035

Composition

Powder based on polyester saturated carboxylated resins hardened in stoichiometrically relation with epoxy resins and formulated with pigments and inert fillers appropriate to guarantee good resistances in places do not exposed to direct weathering agents.

Recommended uses

Powder indicated for a wide range of artefacts having excellent aesthetic finishing level and good resistance to yellowing such as: radiators, domestic appliances, tools, metallic furniture, scaffolding, indoor lighting, electric cabinets, office equipment.In order to obtain a good protection, it is necessary to spray an average thickness of 70- 80 micron.

Substrate pre-treatment

Powders adhere to most metal surfaces provided these are dry, clean and degreased. A chemical pre-treatment of the surface is required in order to improve the resistance against the corrosion, based on the kind of metallic support.

Application

This powder is suitable for use with electrostatic spraying equipments whose voltage is between 40 and 90 KV. Where acronym "TS" is present, our products are working also with triboelectical guns.
A difference of thickness of applied coating can generate modification of the appearance of hardened coating.In case of products having special effects, the use of overspray is not advised except for bonded products.

Polymerization conditions

180°C x 15 min. (piece temperature)

Characteristics after polymerization (application on steel panel)

Erichsen Drawing:	>= 5 mm	ISO 1520
Mandrel Bend Test:	>= 4 mm	ISO 1519
Impact Resistance:	>= 2.5 Nm	ASTM D2794
Buchholz Hardness:	>= 80	ISO 2815
Cross Cut Test:	Gt0	ISO 2409
Gloss 60°:	80 - 100 gloss	ISO 2813

Chemical resistance

The product has good resistance to most 10% acids and to ethylalcohol at room temperature (25°C).
For specific requests we invite you to contact our technical assistance.

Corrosion resistance (application on iron-phosphate bonder)

Humidity Chamber:	After 500 hours no change.	ISO 6270
Kesternich:	After 10 cycles no loss of adhesion.	ISO 3231
Salt Spray:	After 1000 hours < 1 mm penetration.	ISO 9227

Accelerated ageing (QUV-B) (313 nm) with QUV/SE cycle 4 hours, condensation at 40°C/4 h irradiation 50°C (0,75 W/m²/nm. Application on aluminium panel)

Test:	Not applicable.

Storage

A storage life of at least 6 months from date of loading can be expected provided the boxes remain sealed and stored in a cool dry area below 30°C.

Notes:

- **The above data are the results of careful researches and our long experience, nevertheless considering the large number of factors concurring to determine the values in the present technical data sheet, the utilizer will have the duty to effect the best conditions so as to get the best result.**
- **This product is destined only to professional applicators working in an industrial installation. The manipulation of the product from the utilizer must be conform to laws concerning the use of powder coatings and to information described in our technical data sheet sent together with the product itself.**

Revision 2/September. 2013

EUROPOLVERI S.p.A.

Quality Certificate

№ A180-02/13.05.2014

Client	Supplier
Braiko Ltd. Zaichar 117 Sofia, Bulgaria	**Galco JSC** Garata Str. 1 BG-2400 Radomir Bulgaria
Hot-dip Galvanizing:	Braiko Ltd. Your Ref. #140099 Project: Rillenstandard\Test

#140099

Zeichnung - Position	Stück	Material			Referenzwert der Bauteilhöhe	Bezugswert der Erzeugnisdicke	Verweilzeit	Konstruktionsklasse	Detailklasse	Vertrauenszone*[1]
		Norm	Stahl	Güte						
101	10	EN 10025-2	S355	J2	60 mm	10 mm	-	Ia	C	1
102	10	EN 10025-2	S355	J2	50 mm	6 mm	-	Ia	C	1

we hereby confirm that the products delivered to our client:

BRIKO Ltd.

Are Hot-dip galvanized according to the EN ISO 1461 and fulfill the requirement for zinc layer thickness as required.

All final test and inspections are conducted according to our QMS as implemented to

EN ISO 9001:2008

The items are ready for shipment.

Accompanying papers: Declaration of conformity, Zinc coating measurement Protocol

i.A. I. Dimitrov

dipl.-Eng. D. Dimitrov
Galco JSC

GALKO PLC Radomir

A Company of the BERG-GROUP Cologne/Germany
GALCO JSC
1 Garata str.
2400 Radomir
Bulgaria
Telephone: 00359 777 80210
Fax: 00359 777 80339
e-mail: info@galco-ad.com
EI Bank Radomir
BIC: BUIB BG SF
IBAN: BG74BUIB7837
1450084909
Chairman:
Dipl.-Eng. Dimitar Dimitrov
Comm. Reg. Pernik 371/96
VAT-ID: BG 113032757

Declaration of Conformity

The undersigned, Dimitar Dimitrov, CEO of Galco JSC, company located in Garata Street No. 1, BG-2400 Radomir, declare with all responsibilities, that the products:

Your Ref. #140099

Project: Rillenstandard\Test

Made/delivered by our customer:

BRAIKO Ltd., Zaichar Str. 117, Sofia, Bulgaria

were Hot-Dip Galvanized according to the European Standard for Hot dip galvanized coatings on fabricated iron steel articles BDS EN ISO 1461 as well as with the regulation for main requirements and estimation of building products, security regulation and other regulations for estimation of compliance.

This declaration is a part of the Certificate for Quality № A180-02/13.05.2014.

With undersigning this declaration I confirm that I am aware of my responsibilities according the Article 313 of the Penalty Code of Bulgaria.

i.A. I. Dimitrov

dipl.-Eng. D. Dimitrov
Galco JSC

GALKO AD * Radomir * GALKO PLC

A Company of the BERG-GROUP Cologne/Germany

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EI Bank Radomir
BIC: BUIB BG SF
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1450084909

Chairman:
Dipl.-Eng. Dimitar Dimitrov
Comm. Reg. Pernik 371/96
VAT-ID: BG 113032757

Report

This protocol has been made to meet the special requierment of our customer:

"Braiko" Ltd., Sofia

BG203005054

The current protocol has been made on 13.05.2014 in order to summarize the messurment of the zinc coat thickness on the details from Project #140099 that are being Hot-Dip Galvanized according to EN-ISO 1461, 6.2.3, Table 2.

Detail №	**Thickness of the material**	**Local Values (5 point)**					**Present Value (mean)**
0101	10mm	89,65	87,41	90,38	97,44	82,14	89,404
0102	6mm	84,98	81,95	82,45	88,78	83,12	84,256

The thickness of the Zinc layer was measured according to the electromagnetic method given in БДС EN ISO 1461:2009.
Measured values and present value in μm.
Measurement equipment: QuaNix 1500.

The measurement was made by

Controller: D. Dimitrov

Galco JSC

ГАЛКО АД * Radomir * GALKO PLC

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1309 Sofia
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Fax. +359 (2) 421 11 44
e-mail: office@braiko.com

Bestellspezifikation DAsT 022

#14099

Zeichnung-Position	Stück	Material			Referenzwert der Bauteilhöhe	Bezugswert der Erzeugnisdicke	Verweilzeit	Konstruktionsklasse	Detailklasse	Vertrauenszone*1
		Norm	Stahl	Güte						
101	10	EN 10025-2	S355	J2	60 mm	10 mm	-	Ia	C	**1**
102	10	EN 10025-2	S355	J2	50 mm	6 mm	-	Ia	C	**1**
durchschnittliche Schichtdicke (Mindestwert):		**85 µm**								

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Z. Direktor
12.05.2014

Das ÜZ-Zeichen ist vor Beginn der Verzinkungsarbeiten dem Auftraggeber zuzusenden.
Zinkbadklasse 1
*1 Sichtprüfung und Magnetpulverprüfung sind gemäß DAST 022 zu dokumentieren.
Vertrauenszone 1:
100% Sichtkontrolle
Vertraue

Bestellspezifikation für eine Feuerverzinkung nach DASt-Richtlinie 022 - Anlage 1 -

entspr. Abschnitt 4.3 (1) der DASt-Richtlinie 022

Allgemeine Angaben: Braiko Ltd	
Datum: 12.05.2014	
Auftragsnummer: ЦП-2014-522	Spezifikationsnummer: #140099
Auftraggeber (z. B. Stahlbauunternehmen): Braiko Ltd 1309 Sofia	Auftragnehmer: Galko AG Garata Str. 1 BG-2400 Radomir
Ansprechpartner Auftraggeber: Hr. Kopankov	Ansprechpartner Auftragnehmer: Ivan Dimitrov

Prüfprotokoll für visuelle Prüfung (nach Abschnitt 4.7)

Tag der Prüfung:	Prüfer:	Bauteil/Prüfpunkt	Befund
13.05.2014	I. Dimitrov	#140099	i. O.

Datum: 13.05.2014 Unterschrift: I. Dimitrov

MT-Prüfung (nach Anlage 3)

Typ:	magnet. Feldstärke:
Magnetisierungs-gerät:	Polabstand:
Prüfmittel:	ggf. Untergrundfarbe:

Prüfprotokoll für MT-Prüfung (nach Anlage 3)

Tag der Prüfung:	Prüfer:	Bauteil/Prüfpunkt	Befund

Datum: Unterschrift: