



# SISTEM DC90

Research, Consulting, Engineering and Technology Transfer, EARETHQUAKE ENGINEERING INNOVATION CENTER BELGRADE,  
E-mail: [dc90@Eunet.yu](mailto:dc90@Eunet.yu) [www.dc90.co.yu](http://www.dc90.co.yu), Smederevski put 67, tel/fax: 381 11 8526663, 381 11 8526655, PIB 100132505, Matični broj:  
17330314, Raiffeisenbank: 265-1100310000653-30.

<b>DESTINATION :</b>	<b>CANADA</b> <b>HYDRO-QUEBEC</b> <b>Hidro Quebec</b> Poste Mont-Royal, A/S J. Martineau 514- 232-2067, 3940 rue Jean-Talon Ouest Montreal QC CA, H3R 2G4  For clearance <b>Mr. Jan Hebert</b> A.W.W. Kyle Inc. 411, rue ds Recolets, RC Montreal (Quebec) H2Y 1W3 Tel (514) 289-2211, ext.3181 fax. (514) 288-9161, email. <a href="mailto:jhebert@affiliated.ca">jhebert@affiliated.ca</a> For information Catherine Maire 514-840-3000 poste 5409, email. <a href="mailto:cab_mtl@hydro.qc.ca">cab_mtl@hydro.qc.ca</a>
<b>RGQ</b>	<b>6100169688</b>
<b>REQUEST OF PROPOSAL:</b>	<b>13843769</b>

<b>EXPORTER:</b>	<b>SISTEM DC 90, d.o.o.</b> SMEDEREVSKI PUT STREET No 67 BELGRADE, SERBIA
<b>NUMBER pcs:</b>	<b>12</b>
<b>COMMERCIAL NAME:</b>	<b>STEEL ANCOR- CONNECTOR</b>
<b>TECHNICAL NAME :</b>	<b>DAMPER - CONNECTOR DC 90 SET</b> <b>" CANADA HQ ROYAL " TYPE</b>
<b>Btto:</b>	<b>960 kg</b>
<b>Ntto</b>	<b>984 kg</b>

# **Documentation about quality assurance**

**Belgrade, 2011, december**

## **Contents**

### **C. Documentation about quality assurance:**

1. Material Documentation
  - Attests for all built-in materials with mechanical characteristics including:
  - Metal pipes and
  - Welding electrodes
2. Documentation with proof of welder's qualification
  - Assurance of a valid completed welding exam-test
3. A statement from a responsible technical person about the control of all phases during manufacture.
4. Photo documentation

Trade name:

**Metal Anchor-connector**

**Technical Name:**

Damper-connector DC 90 sets („Canada HQ Royal“type)

## CUSTOMER ORDER

The Customer (HYDRO-QUEBEC) ordered to conduct the dynamic loading test on type “Kanada HQ ROYAL” damper (the absorber of seismic energy developed by “SYSTEM DC90”) according to the Test Program. The testing results of the delivered specimen should meet the quality requirements in the aspect of the energy damping.

## TESTING PROCEDURE

The testing is performed by means of AFS Servo-controlled Hydraulic System, Figure 1. The edges of the testing specimen are fixed by the jaw clutches designed for the round specimens, thus the influence of the deformations virtually has no effect on the testing results.



Figure 1. AFS, Servo-controlled Hydraulic System

The maximum range of the system is  $\pm 20\text{kN}$ . The System works in the following modes:

- Force (energy) control mode,
- Strain control mode,
- Actuator step control mode.

The testing is performed in the displacement control mode (the deformation of the testing specimen). In advance defined testing mode was input in PDP PC program, while the sinuous alteration of dislocation is realized by function generator. The recorded data (the values of the force and actuator step) measured by AFS System are transmitted to PC through A/D converter.

Microsoft EXCEL software has been used to process the obtained measured data.

The testing started at 0.5 Hz frequency level, the data acquisition frequency was 100 samples per second.

### 1. Material Documentation

Attests for all built-in materials with mechanical characteristics including:

Metal pipes and

Welding electrodes



PURCHASER: JEEP COMMERCE  
(kupac) BEOGRAD  
VILINE VODE B.B.  
TRADING CO: JEEP COMMERCE  
(izvoznik, primalac) BEOGRAD  
VILINE VODE B.B.  
PRODUCT: HOT ROLLED COILS  
(proizvod)  
DIMENSIONS: 5,000 X 1500 X  
(dimenzije, mm)  
QUALITY: S235JR / EN  
(kvalitet)  
Net Weight(kg): 13680  
DELIVERY CONDITIONS : AR  
(STANJE ISPORUKE)

CERTIFICATE No: 35866  
(uverenje broj)  
UGOVOR KUPCA  
CONTRACT No. 89-05/2010  
(ugovor broj.)  
T: HR+CE  
- EN 10051/1991  
  
PAGE No: 1  
(strana br)  
DATE OF ISSUE 05/05/2010  
(dat. izdavanja)  
ort: BG74170511151BG

MECHANICAL PROPERTIES - MEH.TEH.OSOBINE														
COIL No.	Heat No.													
PACK No.		Impact test										Bend test	Hardness	Melt
(kotur br.)	(garža)	Re	Rm	Re/	A	Kv						(tvrdoša)	furn	
paket br)			Rm	Elo	(Xilavost)									
				ng.	Sr.	Vr.	1	2	3	S			Način	
		MPa	MPa										Proiz	
				%	J	T°C	J	J	J	180	HRB	HV10		
0E29010	0147414	298	438	.68	35									

CHEMICAL COMPOSITION - HEMIJSKI SASTAV (%)															
HEAT No	C	Mn	Si	P	S	Al	Cu	Cr	Ni	Mo	Ti	V	Nb	N	Cev
Šarža br	X 100			X 1000			X 100			X 1000					X 100
0147414	13	80	10	14	10	38	4	4	2	4	1	2	2	2	27

We hereby declare that above mentioned products were manufactured in accordance with specifications and contract requirements.

MATERIAL MASS RADIOACTIVITY DOES NOT EXCEED VALUE OF 100 BQ/KG

QUALITY ASSURANCE  
OBEZBEĐENJE KVALITETA



of the entire page

381-26-226116  
INSPECTION 381-26-226116-1 Acc-EN 10204:2004  
Uverenje o ispitivanju

PURCHASER: ARCELORMITTAL DISTRIBUTIO  
(kupac): NOVI BEOGRAD  
MILUTINA MILANOVICA 25B  
TRADING CO: ARCELORMITTAL DISTRIBUTIO  
(izvoznik, primalac): NOVI BEOGRAD  
MILUTINA MILANOVICA 25B  
PRODUCT: HOT ROLLED SHEET  
(proizvod)  
DIMENSIONS: 10,000 X 1200 X 6000  
(dimenzije, mm)  
QUALITY: S235JR / EN 10025-2/2004  
(kvalitet)  
Net Weight(kg): 23950  
DELIVERY CONDITIONS: A1  
(STANJE ISPORUKE)

CERTIFICATE No: 34303  
(uverenje broj)  
UGOVOR RUPCA  
CONTRACT No: 133-03/041  
(ugovor broj)  
T: HANDE  
- EN 10052 CLASS A

PAGE No: 1  
(strana broj)  
DATE OF ISSUE 09/04/2011  
(dat. izdavanja)  
Transport: B009901

MECHANICAL PROPERTIES - MEH. OSOBINE											
COIL No.	Heat No.	Tensile strength				Impact test				Hardness	Weld
PACK No.		Rm	Rm	Rm	A	Kv				test	turn
(coil or bar)	(bars)	Re	Rm	Rm	ELo	(Nilavast)					
		MPa	MPa	MPa	%	kgf-cm	2	3	5		Hard
							1	2	3	180°	Prod.
N62633	846594	270	439	46	28						✓
N62636	846594	270	439	46	28						✓
N62637	846594	270	439	46	28						✓

CHEMICAL COMPOSITION - HEMIJSKI SASTAV (%)															
HEAT No	C	Mn	Si	P	S	Al	Cu	Cr	Ni	Mo	Ti	V	Nb	N	Dev
(bar)	X 100			X 1000			X 100			X 1000			X 1000		
846594	14	91	10	8	9	39	4	2	2	2	1	2	3	4	30
846594	14	91	10	8	9	39	4	2	2	2	1	2	3	4	30
846594	14	91	10	8	9	39	4	2	2	2	1	2	3	4	30

We hereby declare that above mentioned products were manufactured in accordance with specifications and contract requirements.

QUALITY ASSURANCE  
OSIGURARENJE KVALITETA



A01 STOMANA INDUSTRY S.A.  
I, Vladislav Vastanovic Str.  
2304 Petrik, BULGARIA



A02 Acc To : EN10204/3.1  
Date : 10.01.2011

A05 Customer : ThyssenKrupp Materials Serbia  
Consignee : ThyssenKrupp Materials Serbia  
A07 Customer Reference : RSA-5400044921  
B01 Product : Prime HR Steel Plates  
B08 Total No of pieces : 0008  
Total mass/kg : 20 491,000

A08 Order No : R8102306  
Lot No : 1,2  
Standard : EN 10025:2004, EN 10029, EN 10163, AD2000-W1/2006,  
MOV, CE, N+A  
Dispatched in Wagon/Truck No: P139906/10013NS  
Destination : SERBIA RS

No OF PIECES	No	DIMENSIONS/SIZE			MASS WEIGHT	HEAT CAST	BATCH No	STEEL		NUMBER COND	TEST PLATE	TENSION		MECHANICAL PROPERTIES							
		THICKNESS	WIDTH	LENGTH				GRADE	302			YIELD TENS. ELONG.	TEMP	IMPACT STRENGTH				TEST			
		mm	mm	mm	kg							MPa	°C	KV	CV1	CV2	CV3	CV4	CV5	CV6	CV7
0001	1	10.00	1500	6000	8490	A1503	A1503A	S235JR+N		B	A1503A0101	310	451	30	T	20	154	153	141	167	L
0002	1	10.00	2000	6000	3297	A1500	A1500C	S235JR+N		B	A1500C1701	289	449	24	T	20	122	129	112	124	L
0003	1	10.00	2000	6000	3768	A1500	A1500A	S235JR+N		B	A1500A0101	278	419	24	T	20	100	92	109	99	L
0004	2	10.00	1500	6000	4946	34341	34341D	S355J2+N		B	34341D1401	365	540	27	T	-20	172	187	195	175	L

HEAT/CASE/DEoxidation		C		Si		Mn		P		S		CTI		CHEMICAL COMPOSITION %		Fe		Al		V		Ti		Nb		N		As		Cu	
0001	A1503	0.130	0.230	0.030	0.010	0.012	0.009	0.280	0.060	0.110	0.019	0.035	0.003	0.000	0.000	0.000	0.000	0.017	0.264												
0002	A1500	0.140	0.200	0.250	0.013	0.017	0.012	0.290	0.090	0.110	0.022	0.029	0.002	0.000	0.000	0.000	0.000	0.013	0.281												
0003	34341	0.170	0.220	1.190	0.009	0.016	0.011	0.230	0.040	0.080	0.012	0.033	0.034	0.000	0.000	0.000	0.000	0.016	0.406												

WE HEREBY CERTIFY THAT THE ABOVE MENTIONED STEEL (HEAT NUMBER) HAS BEEN TESTED AND PROVED TO BE FREE OF RADIOACTIVITY.

KOPIJA VERNA ORIGINAL  
ThyssenKrupp Materials doo  
Indija, Srbija



A05 CHIEF DEPARTMENT  
TECHNICAL CONTROL  
ROLLED PLATES SHOP

\*3,650001301  
Page 1 / 1

A05 CHIEF DEPARTMENT  
TECHNICAL CONTROL  
STOMANA INDUSTRY S.A.











U. S. Steel Serbia, d.o.o.  
 Radnac, 11900 Smederevo  
 Serbia  
 Tel.: +381 - 26 - 220 110  
 +381 - 26 - 221 518

INSPECTION CERTIFICATE 3.1 acc. EN 10204:2004  
 -uverenje o ispitivanju-

PURCHASER: JEEP COMMERCE  
 (kupac) B E O G R A D  
 VILINE VODE S.B.  
 TRADING CO: JEEP COMMERCE  
 (izvoznik, prodalac) B E O G R A D  
 VILINE VODE S.B.  
 PRODUCT: HOT ROLLED SHEET  
 (proizvod)  
 DIMENSIONS: 14,000 X 1500 X 5000  
 (dimenzije, mm)  
 QUALITY: S235JR2 / EN 10025+NL/93  
 (kvalitet)  
 Net Weight(kg): 5000

CERTIFICATE No: 11915/  
 (uverenje broj)  
 UGOVOR KUPCA  
 CONTRACT No. 147/08-008  
 (ugovor broj)  
 T: HR  
 - EN 10051 CLASS A  
 PAGE No. 1  
 (strana b-)  
 DATE OF ISSUE 29/10/2008  
 (datum izdavanja)  
 Transport: BG65989599E13C

MECHANICAL PROPERTIES - MEH. TEH. OSOBINE									
COIL NO. PACK No. (kotur broj) paket broj	HEAT No. Šarža broj	Re	Rm	Re/Rm	Long. elong.	Impact test (kilavost)	Hardness Bend (tvrdoća) test	Melt furn.	natim. proiz.
		21	21						
		14/mm	14/mm		%	J	T°C	100	HRB HV10
P54991	113678	255	383	,64	35				V

CHEMICAL COMPOSITION - HEMIJSKI SAŽETAK (%)													
HEAT No. Šarža broj	C	Si	P	S	Al	Ca	Cr	Ni	Mo	Ti	V	INb	N
	X 100	X 100					X 100			X 100		X 100	X 100
113678	12	54	8	11	7	89	5	2	2	2	2	3	23

We hereby declare that above mentioned products were manufactured in accordance with specifications and contract requirements.

QUALITY ASSURANCE  
 OBEZBEĐENJE KVALITETA

TEM DC 90

izdelava in servisiranje, komunalno  
izdelava in servisiranje tehnologije

grad. 13.05.2001

elektrode jesenice



ELEKTRODA JESENICE, d.o.o.  
Črna Potokarjeva 8, SI-4270 Jesenice  
Tel: +386 (0)4 594 19 00  
Fax: +386 (0)4 594 14 00  
E-mail: elektrode@elektrode.si  
www.elektrode.si

KUPNIK / Buyer / Purchaser  
HUYER B&B  
RIE KOVACENTRA 7/4  
11000 BEOGRAD  
SRBIJA

Potrdilo o kvaliteti / Werkszeugnis /  
Test report

Šifra / No. 71-02-00589  
Datum / Datum / Date 28.04.02

Naziv / Naziv / Name

KUPNIK / WAREHOUSE / QUANTITY

STANJE / Status / Product

Dobavni list / Lieferant / Delivery Note

Dokazilo priloženo / Certificate attached / Certificate of Delivery

ZECA

71-02-00589

Mehaničke lastnosti / Mechanische Eigenschaften / Mechanical properties							GLINTFA VARR	
Šifra / No.	Ime / Name	Norma / Standard	Merilo / Measure	Merilo / Measure	Merilo / Measure	Merilo / Measure	2) IZLOŽBA	3) IZLOŽBA
770210	2.056.5	VAC 40	0.80	0.40	0.40-0.50	0.20	0.47	-40 °C
770210	2.056.5	VAC 40	0.80	0.40	0.40-0.50	0.20	0.47	-40 °C
401851	2.056.5	VAC 60	0.80	0.40	0.40-0.50	0.20	0.47	-40 °C
770210	2.056.5	VAC 40	0.80	0.40	0.40-0.50	0.20	0.47	-40 °C

Kemijska analiza / Chemische Zusammensetzung / Chemical Composition													
Šifra / No.	Ime / Name	% C	% Si	% Mn	% P	% S	% Cu	% Ni	% Mo	% Nb	% Ti	% Al	% Fe
770210	VAC 40	0.80	0.40	1.35	0.025	0.025							
770210	VAC 40	0.80	0.40	1.35	0.025	0.025							
401851	VAC 60	0.80	0.40	1.35	0.025	0.025							
770210	VAC 40	0.80	0.40	1.35	0.025	0.025							

sij

10



**ZAVOD ZA ZAVARIVANJE, A.D.**  
**INSTITUT DE SOUDURE - WELDING INSTITUTE**



11050 BEOGRAD, Grčića Milenka 67

tel: 011/2851-079,

fax: 2850-648,

e-mail: office@zzz.co.rs,

WWW.ZZZ.CO.RS

**IZVEŠTAJ O ISPITIVANJU ZATEZANJEM**  
**TENSILE TEST REPORT**

Izdaje: ZAVOD ZA ZAVARIVANJE - LABORATORIJA  
Issued by: WELDING INSTITUTE - LABORATORY

Datum izdavanja: 07.11.2011.  
Date of issue:

Broj: 121.156

Sirana: 1 od 1  
Page: of

Naručilac:  
Customer:

SISTEM DC 90 Co. Ltd. - Beograd

Zahtev naručilaca:  
Order No.:

zahtev od 03.11.2011.

Mesto ispitivanja:  
Testing place:



Radni nalog br.:

1.2.025

Predmet ispitivanja:  
Object to be tested:

**UZORAK ČELIČNOG MATERIJALA ZA ISPITIVANJE ZATEZANJEM**

**PODACI O PREDMETU ISPITIVANJA / DETAILS OF THE TEST ITEM**

Oznaka / fabr. br.:

/

Datum prijema uzorka:

03.11.2011.

Interni oznaka:

uz. 748

Osnovni materijal:

/

Mere (mm):

t = 10

Dodatni materijal:

/

Parent material:

Dimenzije (mm):

/

Filter material:

/

Postupak zavarivanja:

/

Položaj zavarivanja:

/

Vrsta spoja:

/

Welding process:

Welding position:

/

Radna temp. / pritisak:

/

Heat treatment:

Vreme eksploatacije:

/

Working temp. / pressure:

/

**PODACI O POSTUPKU ISPITIVANJA / TEST PROCEDURE**

Datum ispitivanja:

07.11.2011.

Uzorakovanje:

2 epruvete

Test date:

Sampling:

Metoda:

SRPS EN 10002-1:1996

Napomena:

dostavljene su mašinski obrađene epruvete

Procedure:

Note:

**TEHNIČKI PODACI / TECHNICAL DATA**

Uređaj:

Univerzalna kitalica: VEB Leipzig, WPM ZD 40

Pribor:

paknovi

Device:

Accessories:

Opseg opterećenja:

0 - 200

Epruveta:

/

Loading range:

kN

Test specimen:

**REZULTATI ISPITIVANJA / TEST RESULTS**

Oznaka epruvete Designation of test specimen	Mesto uzimanja epruvete Location of test specimen	Pravac uzimanja epruvete Orientation of test specimen	Mere epruvete Dimensions of test specimen		Temperatura Temperature	Napona rečenja Upper yield strength	Maksimalna sila Maximum load	Zatezna čvrstoća Tensile strength	Plošna merna dužina Original gauge length	Krajnja merna dužina Final gauge length	Mesto preloma Location of break
			a x b (mm)	(°C)		Re (N/mm <sup>2</sup> )	Fm (N)	Rm (N/mm <sup>2</sup> )	L <sub>0</sub> (mm)	L <sub>b</sub> (mm)	
748 - 1	OM	/	10,1 x 27,3	18	/	/	115000	/	94	127	OM
- 2	OM	/	10,1 x 27,5	18	/	/	116000	/	94	128	OM

OM - osnovni materijal/parent material; ZS - završeni spoj/weld joint; MS - metal šava/weld metal; ZUT - zona uticaja toplote/heat affected zone  
L - podužni/longitudinal; T - poprečni/transverse

**MISLENJA I TUMAČENJA / OPINIONS AND INTERPRETATIONS**

Ispitao / Operator

Željko Pavlov, dipl. ing.

Overio / Verified by

Vladan Ačimović, dipl. ing. (IWE)



Odobrio / Approved by

Vladimir Vuković, dipl. ing. (EWE, IWI-C)

Rezultati ispitivanja se odnose samo na ispitani uzorak. Ovaj izveštaj se ne sme reprodukovati, ni celim, ni delom, bez pismene saglasnosti laboratorije Zavoda za Zavarivanje.  
The results relate only to the items tested. The test report shall not be reproduced except in full, without written approval of the laboratory of Zavod za Zavarivanje.  
DB LAB-05 Rev. 1



**INTERNATIONAL INSTITUTE OF WELDING**  
A world of joining experience



**ZAVOD ZA ZAVARIVANJE, A.D.**  
INSTITUT DE SOUDURE - WELDING INSTITUTE



11050 BEOGRAD, Grčica Milenka 67 tel: 011/2851-079, fax: 2850-648, e-mail: office@zzz.co.rs, www.zzz.co.rs

**IZVEŠTAJ O ISPITIVANJU ZATEZANJEM**  
**TENSILE TEST REPORT**

Izdaje: ZAVOD ZA ZAVARIVANJE - LABORATORIJA  
Issued by: WELDING INSTITUTE - LABORATORY

Datum izdavanja: 07.11.2011.  
Date of issue:

Broj: 121.156  
No.:

Strana: 1 od 1  
Page: of

Naručilac:

SISTEM DC 90 Co. Ltd. - Beograd

Zahtev naručioca:

zahtev od 03.11.2011.

Mesto ispitivanja:

Testing place:



Radni nalog br.:

1.2.025

Order No.:

Predmet ispitivanja:

Object to be tested:

UZORAK ČELIČNOG MATERIJALA ZA ISPITIVANJE ZATEZANJEM

**PODACI O PREDMETU ISPITIVANJA / DETAILS OF THE TEST ITEM**

Oznaka / fabr. br. / Identification:	/	Datum prijema uzorka / Date of receipt:	03.11.2011.	Interna oznaka / Internal designation:	uz. 748
Osnovni materijal: / Parent material:	/	Mere (mm) / Dimensions (mm):	t = 10	Dodatni materijal: / Filler material:	/
Postupak zavarivanja: / Welding process:	/	Položaj zavarivanja: / Welding position:	/	Vrsta spoja: / Weld type:	/
Termička obrada: / Heat treatment:	/	Vreme eksploatacije: / Service period:	/	Radna temp. / pritisak: / Working temp. / pressure:	/

**PODACI O POSTUPKU ISPITIVANJA / TEST PROCEDURE**

Datum ispitivanja: / Test date:	07.11.2011.	Uzorkovanje: / Sampling:	2 epruvete
Metoda: / Procedure:	SRPS EN 10002-1:1996	Napomena: / Note:	dostavljene su mašinski obrađene epruvete

**TEHNIČKI PODACI / TECHNICAL DATA**

Uredaj: / Device:	Univerzalna kidalica: VEB Leipzig, WPM ZD 40	Pribor: / Accessories:	paknovi
Opseg opterećenja: / Loading range:	0 - 200 kN	Epruveta: / Test specimen:	1

**REZULTATI ISPITIVANJA / TEST RESULTS**

Oznaka epruvete / Designation of test specimen	Mesto uzimanja epruvete / Location of test specimen	Pravac uzimanja epruvete / Orientation of test specimen	Mere epruvete / Dimensions of test specimen	Temperatura / Temperature	Napon tečenja / Upper yield strength	Maksimalna sila / Maximum load	Zatezna čvrstoća / Tensile strength	Početa merna dužina / Original gauge length	Krajnja merna dužina / Final gauge length	Mesto preloma / Location of break
			axb (mm)	(°C)	Re (N/mm <sup>2</sup> )	Fm (N)	Rm (N/mm <sup>2</sup> )	L <sub>0</sub> (mm)	L <sub>f</sub> (mm)	
748 -1	OM	/	10,1 x 27,3	18	/	115000	/	94	127	OM
-2	OM	/	10,1 x 27,5	18	/	116000	/	94	128	OM

OM - osnovni materijal/parent material; ZS - završeni spoj/welded joint; MŠ - metal šava/weld metal; ZUT - zona uticaja toplote/heat affected zone  
L - podužni/longitudinal; T - poprečni/transverse

**MIŠLJENJA I TUMAČENJA / OPINIONS AND INTERPRETATIONS**

Ispitao / Operator  
*Vukob*  
Željko Pavlov, dipl. ing.

Overio / Verified by  
*Vladan Jeremić*  
Vladan Jeremić, dipl. ing. (IWE)



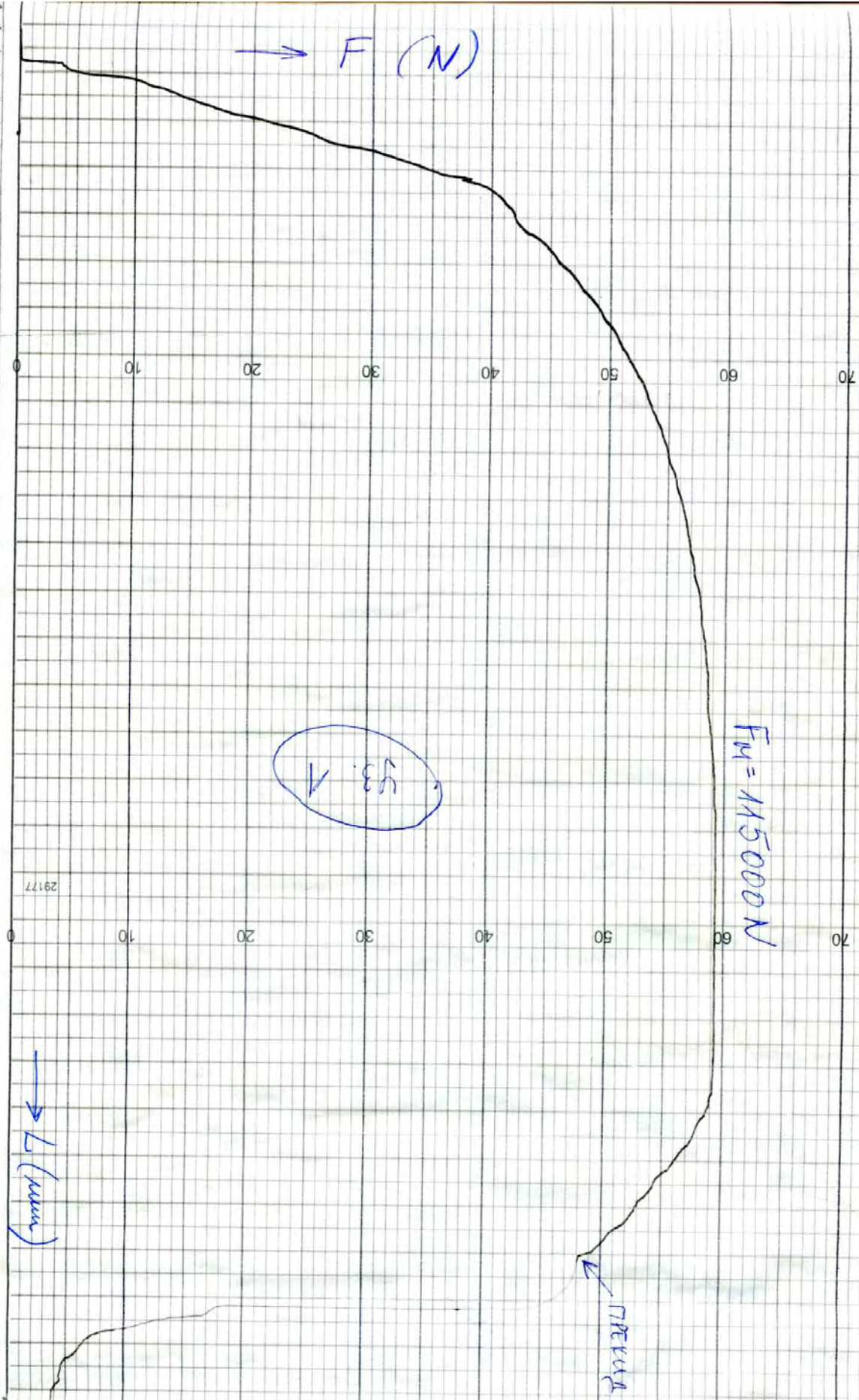
Odobrio / Approved by  
*Vladimir Vuković*  
Vladimir Vuković, dipl. ing. (IWE, IWI-C)

Rezultati ispitivanja se odnose samo na ispitani uzorak. Ovaj izveštaj se ne sme reprodukovati, izuzev u celosti, bez pismene saglasnosti laboratorije Zavoda za zavarivanje.  
The results relate only to the items tested. The test report shall not be reproduced except in full, without written approval of the laboratory of Zavod za zavarivanje.  
OB-LAB-05 Rev 1

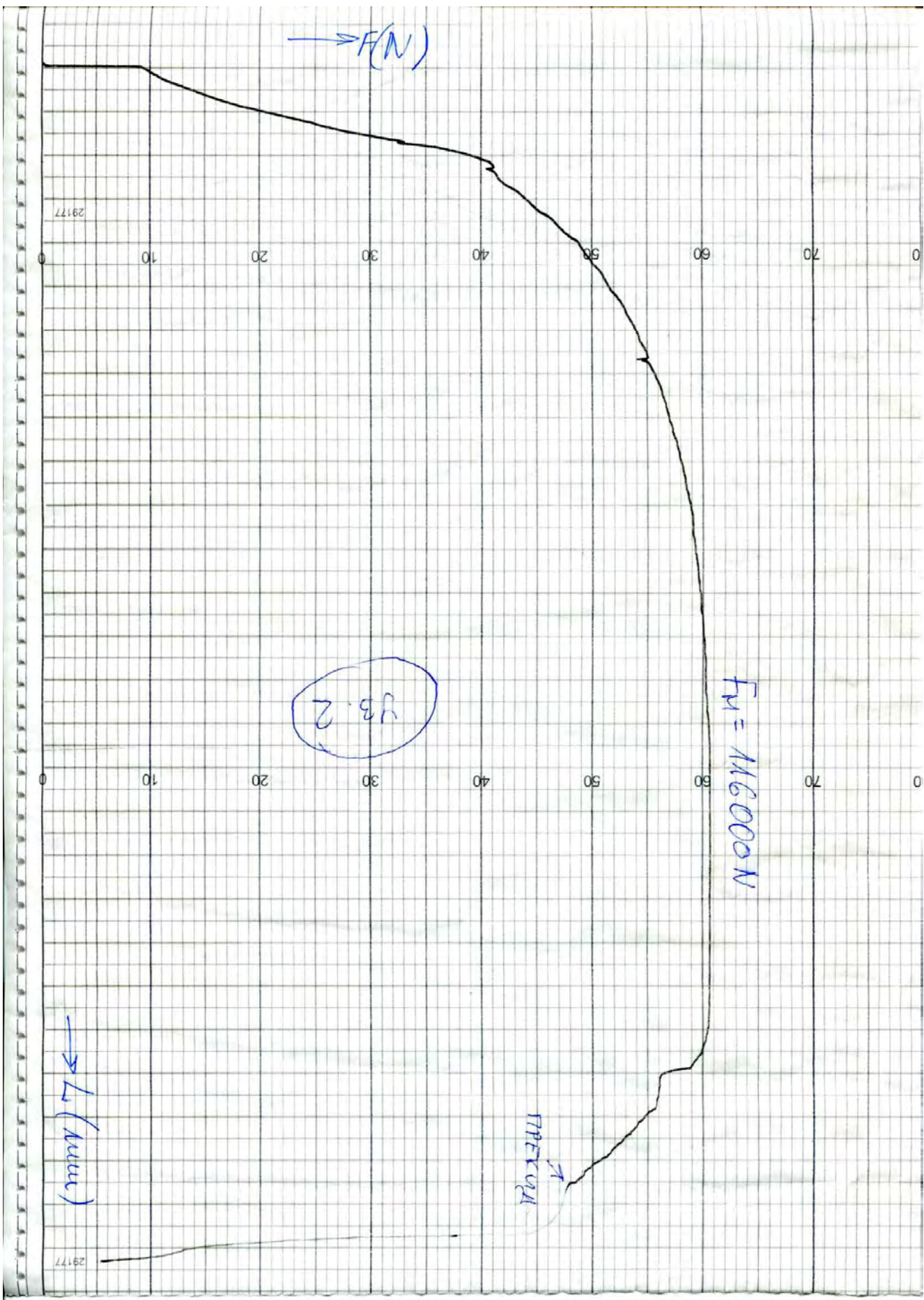


INTERNATIONAL INSTITUTE OF WELDING  
A world of joining experience











## 2.Documentation with proof of welder's qualification

Assurance of a valid completed welding exam-test



### ZAVOD ZA ZAVARIVANJE A.D. INSTITUT DE SOUDURE - WELDING INSTITUTE

11127 BEOGRAD, Grđica Milenka 67, tel: 011/2851-079, fax: 2850-648, e-mail: office@zzz.co.rs www.zzz.co.rs

#### UVERENJE O STRUČNOJ OSPOSOBLJENOSTI ZAVARIVAČA Welder Approval Test Certificate

Oznaka: EN 287-1:2008 141 T BW 6 S t4.0 D108 H-L045 ss nb  
Designation: EN 287-1:2008 111 T BW 6 B t6.0 D108 H-L045 ss mb

Proizvođačka WPS (ako je primenljiva):

Manufacturer's WPS (if applicable):

Ime i prezime zavarivača: MILAN (Dobrivoje) GRUJČIĆ

Welder's name:

Identifikacija: 1612977771012

Identification:

Datum i mesto rođenja: 16.12.1977. Valjevo

Date and place of birth:

Poslodavac: Lično

Employer:

Pravilo / standard: SRPS EN 287-1:2008

Code / Testing Standard:

Poznavanje struke:

Job knowledge:

Nije ispitano

Not tested

Žig zavarivača:

Welder's brand:

Isprava identifikacije: JMBG

Method of identification:

Broj: 1071/10

Number:

Fotografija  
(ako se zahteva)  
Photograph  
(if required)

	Podaci o ispitnom uzorku Weld test details	Područje odobrenja Range of approval
Postupak zavarivanja / Welding process	141   111	141   111
Lim ili cevi / Plate or pipe	T	T,P
Tip spoja: / Joint type	BW	BW,FW
Grup(a)e osnovnog materijala / Parent metal group(s)	6	1.1,1.2,1.3,1.4,2.3,4,5,6,7,9,11
Dodatni materijal/Oznaka / Filler metal type/Designation	S   B	S,M   A,B,RA,RB,RC,RR,R
Zaštitni gas / Shielding gas	EN439-I1	EN439-I1
Pomoćni materijal / Auxiliaries	-	-
Debljina materijala (mm) / Test piece thickness (mm)	4   6	3 mm do 8 mm **   3 mm do 12 mm **
Spoljni prečnik cevi (mm) / Pipe outside diameter (mm)	108	>= 54 mm
Položaj zavarivanja / Welding position	H-L045	H-L045,PA,PC,PF,PE,PB,PD
Žigljenje/podloška // Gouging / backing	ss, nb   ss, mb	ss nb,ss mb,bs   ss mb,bs FW:sl,ml
		FW:sl,ml

\*\* Područje odobrenja za kombinaciju / Range of approval for combination 141/ 111 t= 10.00 3 mm do 20 mm

Vrsta ispitivanja Type of test	IZVRŠENO I PRIHVATLJIVO Performed and acceptable	NE ZAHTEVA SE Not required
Vizuelno / Visual	X	-
Radiografijom / Radiography	X	-
MP - PT / MT - PT	-	X
Makrostrukturno / Macro	-	X
Prelomom / Fracture	-	X
Savijanjem / Bend	-	X
Dodatna ispitivanja* / Additional tests*	-	X

\*) Priloži poseban list, ako je potrebno / Append separate sheet if require

Produženje uverenja od strane ispitnog tela za 2 godine.

Provision for approval by examiner or examination body for following 2 years.

Datum Date	Potpis Signature	Funkcija Position or title

Ispitno telo: Zavod za Zavarivanje a.d. Beograd  
Examination body:

Ispitiyač / Examiner: Overava / Approved

Z. Zasić dipl.ing. IWE

Datum izdavanja: 02.11.2010.

Date of issue:

Mesto: Beograd

Location:

Uverenje važi do: 25.10.2012.

Validity of approval until:

Produženje uverenja od strane poslodavca/koordinatora za 6 mes.  
Provision for approval by employer/ordinator for the following 6 months

Datum Date	Potpis Signature	Funkcija Position or title



ČLAN MEĐUNARODNOG INSTITUTA ZA ZAVARIVANJE  
MEMBRE DE L'INSTITUT INTERNATIONAL DE SOUDURE  
MEMBER OF THE INTERNATIONAL INSTITUTE OF WELDING

### **3. A statement from a responsible technical person about the control of all phases during manufacture.**

Descriptions for manufacturing processes of Damper types **HQ ROYAL**

1. Aquisition and transportation of all materials; steel tubes and tin, lead, paints, packaging polystirl etc.
2. Marking, measuring, and cutting the material to fit the dimensions within the required tolerance for each element separately in accordance with technical specifications and normatives.
3. Cleaning, degreasing, removing of corrosion and precise machine processing of parts and surfaces up to the required tolerances and geometry.
4. Placing of element assembly in tools. Geomerty control.
5. Placing of element assembly in tools. Geometry control. Connecting and securing of elements. Repeated control of geometry via modern electronic measuring devices with 0.01 mm precision.
6. Welding by CO<sub>2</sub> process.
7. Thermic processing of weld by regime. Gradual heating of materials followed by release. Whole process lasts 6,00 hours.
8. Painting of elements with coatings, thoroughly and finally with a total of 3 layers.
9. Packing and labeling into smaller packages and then into packages for aerial transport.
10. Delivery to the Nikola Tesla airport-Belgrade

I hereby state that I have performed the integral control of.

- materials,
- processes,
- geometry and
- final control

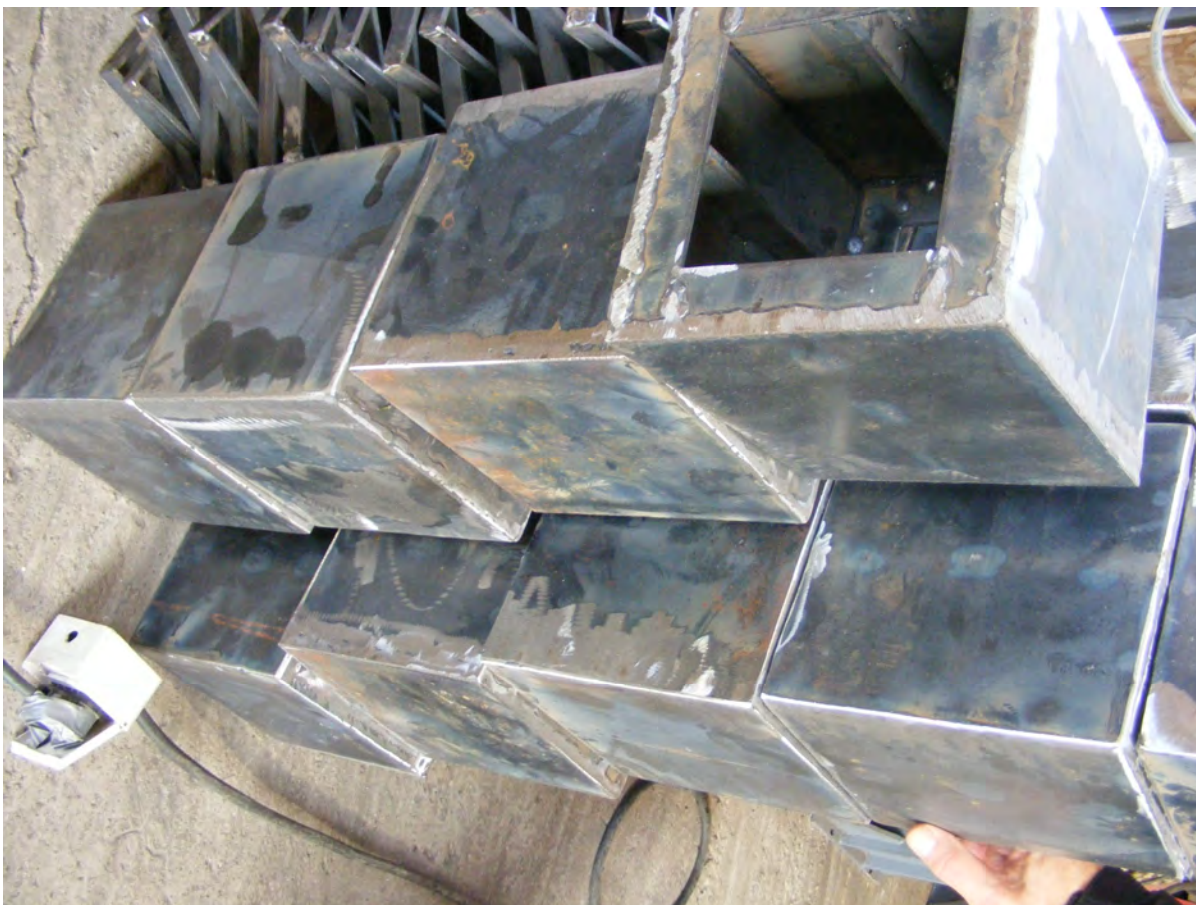
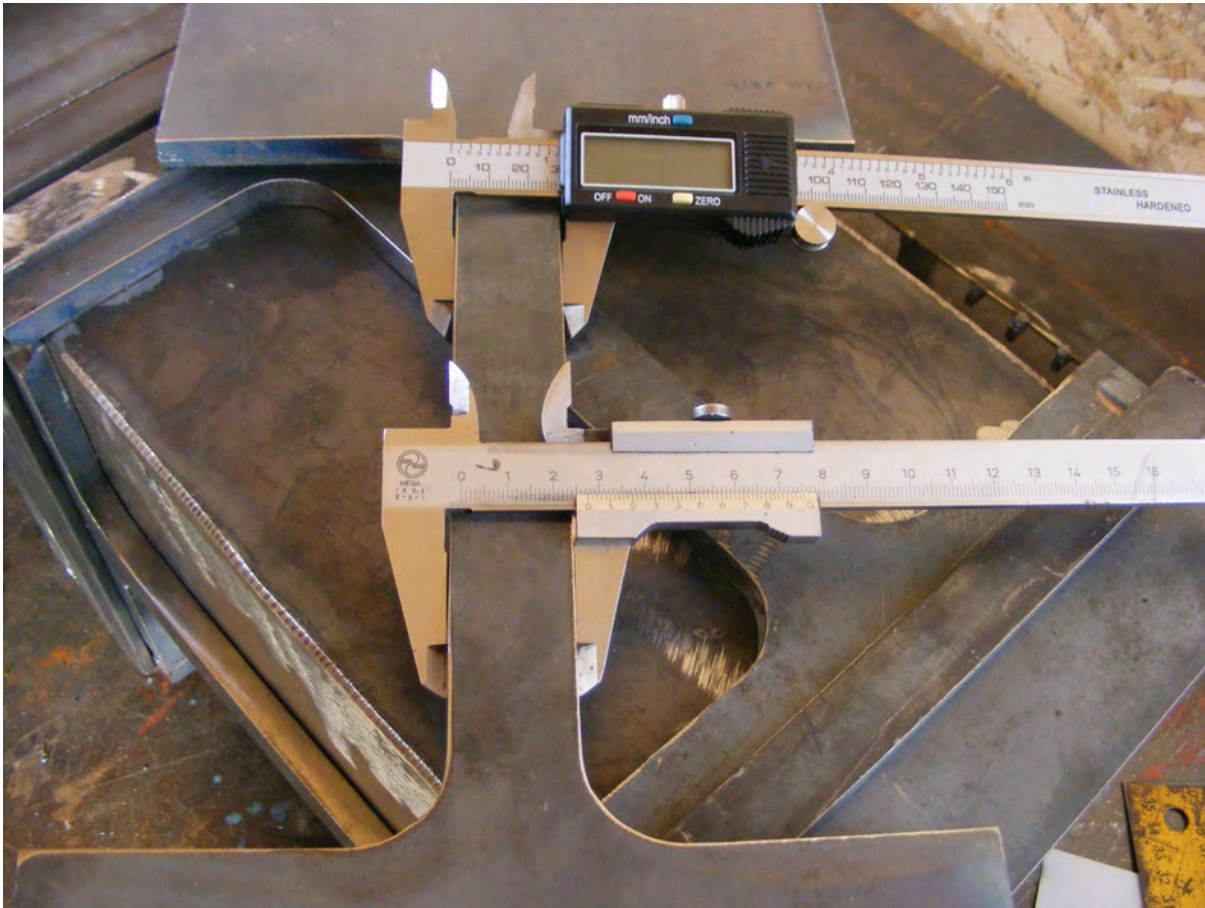
Sistem DC 90-Radijus Mionica, Serbia

CEO

Radivojević Slobodan, mechanical.eng.



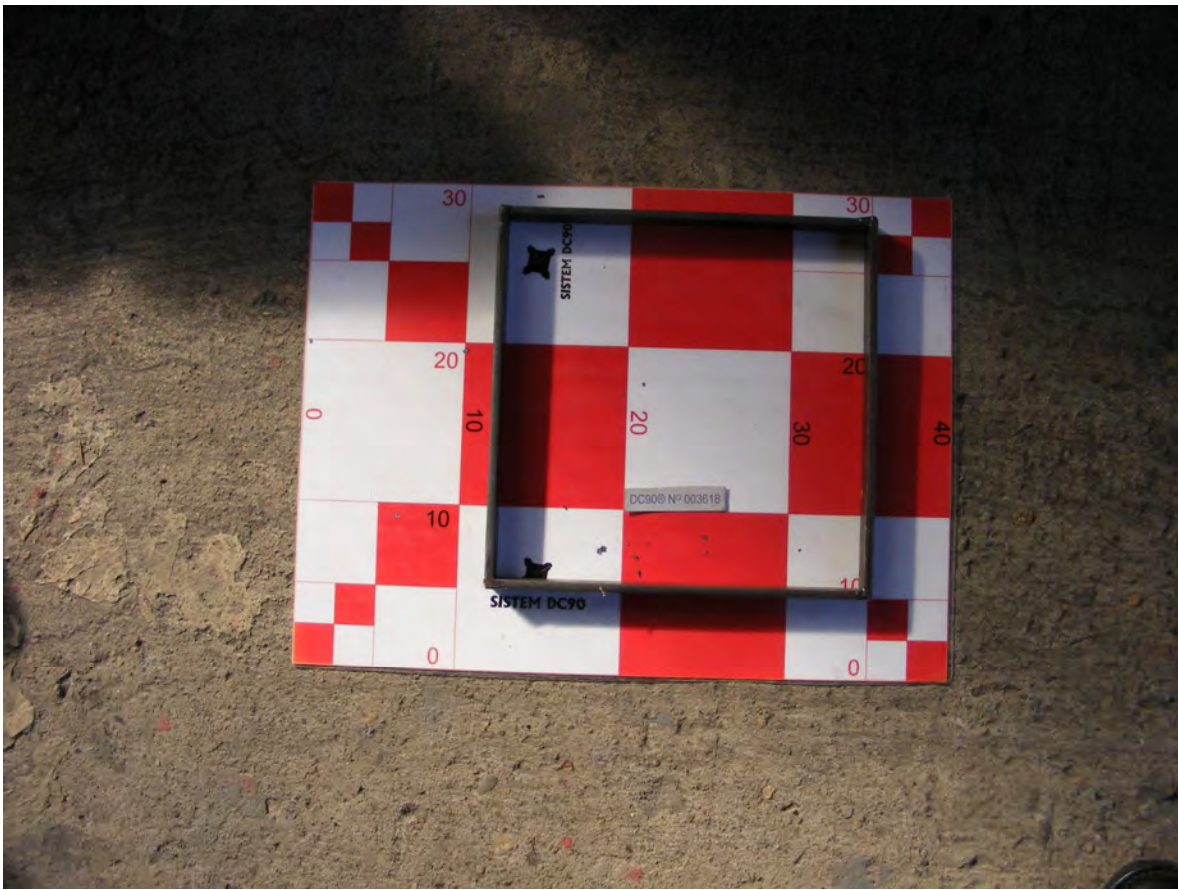
#### 4. Photo documentation



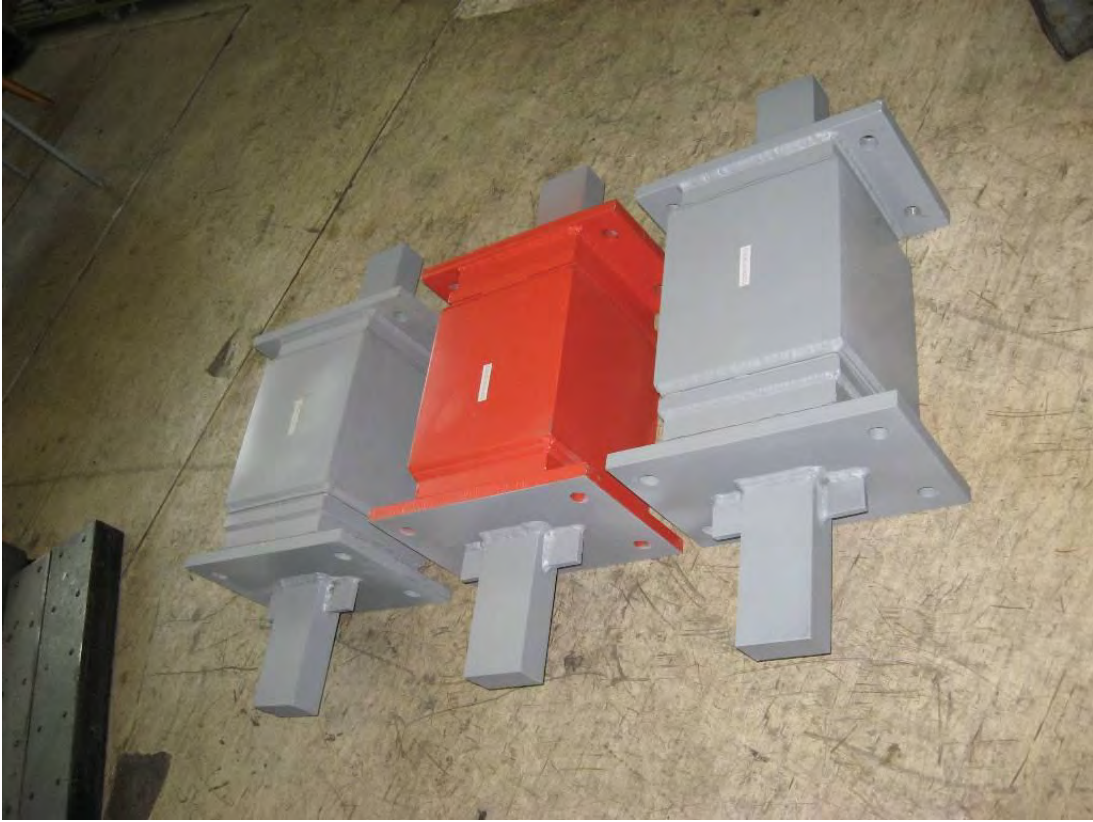
















Report is prepared by

*Zoran Petrašković*

Zoran Petrašković, B.Sc.C.E.



ON BEHALF OF Sistem DC90, c.ltd.  
DIRECTOR

Dragana Obrenović