VENMAN
SAVING ENERGY PRODUCTS

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ΠΙΣΤΟΠΟΙΗΤΙΚΑ

ΣΥΓΚΟΛΛΗΣΕΩΝ

Quality is not an act, it's a habit.

VENMAN
SAVING ENERGY PRODUCTS

ΕΓΚΡΙΣΗ ΔΙΑΔΙΚΑΣΙΑΣ ΣΥΓΚΟΛΛΗΣΗΣ & ΠΙΣΤΟΠΟΙΗΣΗ ΚΑΤΑΛΛΗΛΟΤΗΤΑΣ ΣΥΓΚΟΛΛΗΤΗ

Απευθύνεται σε όλους τους κατασκευαστές των οποίων οι κατασκευές περιλαμβάνουν συγκολλητα μέρη, με σκοπό την διασφάλιση της ποιότητας και της ασφάλειας κατασκευών, εργασιών και εργαζομένων. Παράλληλα η έγκριση διαδικασιών συγκόλλησης και η πιστοποίηση καταλληλότητας αποτελεί απαραίτητη απαίτηση όλων των Ευρωπαϊκών Οδηγιών που αναφέρονται στην κατασκευή μηχανημάτων και εξοπλισμών.

Η διαδικασία συγκόλλησης που χρησιμοποιεί ο κατασκευαστής, σύμφωνα με το Ευρωπαϊκό Πρότυπο EN 16514 πρέπει να αξιολογηθεί με την διενέργεια σειράς δοκιμών/ελέγχων έτσι ώστε να διασφαλίζεται η ποιότητα και η ασφάλεια των κατασκευών.

TÜV CERT

TÜV HELLAS
Member of RWTUV Group

Certificate No : TH–024/02 TÜV Hellas Order No. : 02.01.209

WELDING PROCEDURE ACCEPTANCE RECORD (WPAR)

Manufacturer	:	MEVACO S.A.	**Inspection Authority**	:	**TÜV Hellas (RWTÜV) S.A.**
Manufacturer Order No	:		**Location**	:	THESSALONIKI

TEST REPORT

Date of welding	:	29/11/2002			
Code / Testing Standard	:	EN 288-3	**Relevant WPS-No.**	:	MEVACO 02
Welding process	:	135 Automatic, single run			
Parent metal(s)	:	Group 1 (DC04 , EN 10130)			
Parent metal thickness [mm]	:	2,5	**Outside diameter [mm]**	:	390 mm
Welding position	:	PB (Pipe rotating)	**Welding current**	:	250 – 260 A / DC (+)
Joint type	:	Pipe fillet weld (TFW)	**Joint form** *[sketch]*		As per relevant WPS

Filler metal type	:	EN 440 : G3 Si 1 (Base Welding Wire / ERLIKON SA)
Shielding gas	:	Corgon 18 (82 % Ar, 18 % CO_2) / 8 – 10 l/min
Flux / Auxiliaries	:	%
Preheating	:	Min 10 °C
Post weld heat treatment	:	%
Other information	:	1. Wire feed speed = 13 m/min 2. Travel speed = 71 cm/min

It is certified that test welds were prepared, welded and tested satisfactorily in accordance with the requirements of the code / testing standard indicated above. The requirements are fulfilled.

Location	**Date of issue**	**The Inspector** / Expert of TÜV Hellas (RWTÜV) S.A.
THESSALONIKI	16.12.2002	P. CHATZIFOTIADIS

ΕΠΙΘΕΩΡΗΣΕΙΣ - ΠΙΣΤΟΠΟΙΗΣΕΙΣ
TÜV HELLAS A.E.
Μέλος του RWTUV Group
ΕΛ. ΒΕΝΙΖΕΛΟΥ 24 - 153 41 ΑΘΗΝΑ - 6540 195

TÜV CERT

TÜV HELLAS
Member of RWTUV Group

Certificate No : TH–024/02 TÜV Hellas Order No. : 02.01.209

WELDING PROCEDURE ACCEPTANCE RECORD (WPAR)

Manufacturer	:	MEVACO S.A.	**Inspection Authority**	:	**TÜV Hellas (RWTÜV) S.A.**
Manufacturer Order No	:		**Location**	:	THESSALONIKI

RANGE OF APPROVAL

Code / Testing Standard	:	EN 288-3	**Relevant WPS-No.**	:	MEVACO 02
Welding process	:	135 Automatic, single run			
Parent metal(s)	:	Group 1			
Thickness of parent metal	:	2,5 to 5,0 mm	**Outside diameter [mm]**	:	Ø≥195 mm
Welding position	:	All			
Joint type	:	PFW / TFW			
Welding current	:	DC(+)			
Filler metal type	:	Filler metals in the same group of tensile properties or with the same nominal chemical composition			
Shielding gas	:	Gas with the same nominal composition			
Flux / Auxiliaries	:	%			
Preheating	:	Min 10 °C			
Post weld heat treatment	:	%			
Other information	:	%			

Major modifications of the conditions laid down require a supplementary test. The validity of the requirements depends upon code or testing standard above.

ΕΠΙΘΕΩΡΗΣΕΙΣ - ΠΙΣΤΟΠΟΙΗΣΕΙΣ
TÜV HELLAS A.E.
Μέλος του RWTÜV Group
ΕΝ ΒΕΝΤΕΛΟΥΜ ΒΟΗΝΑ

Location	**Date of issue**	**The Inspector / Expert of TÜV Hellas (RWTÜV) S.A.**
THESSALONIKI	16.12.2002	P. CHATZIFOTIADIS

TÜV CERT

TÜV HELLAS
Member of RWTUV Group

Certificate No : TH–024/02 TÜV Hellas Order No. : 02.01.209

WELDING PROCEDURE ACCEPTANCE RECORD (WPAR)

Manufacturer	: MEVACO S.A.	**Inspection Authority**	: **TÜV Hellas (RWTÜV) S.A.**
Manufacturer Order No	:	**Location**	: THESSALONIKI

TEST RESULTS

NON DESTRUCTIVE TESTING

TEST METHOD	REQUIREMENTS	RESULT / ATTACHMENT / SHEET
VISUAL EXAMINATION	EN 970 / EN 25817	ACCEPTABLE
RADIOGRAPHIC EXAMINATION	%	%
ULTRASONIC EXAMINATION	%	%
PENETRANT EXAMINATION	EN 571-1 / EN 1289	ACCEPTABLE
MAGNETIC PARTICLE TEST	%	%

TENSILE TEST

Specimen No Area	Dimensions [mm]	Test temperature °C	ReH/Rp1,0 /Rp0,2 N/mm^2	R_m N/mm^2	L_o [mm]	A %	Z %	Fracture position	Appearance of fracture / Remarks

BEND TESTS

Root pass in tensile zone (R), Cover pass in tensile zone (F) Side bend test (SB)

Specimen No Area	Dimensions [mm]	Appearance of fracture Remarks	Bending angle [Grad]	Specimen Nr. Area	Bending angle [Grad]	Appearance of fracture Remarks:	Bending Elong. L_o [mm]	Bending Elong. [%]

IMPACT TESTS Specimen type :

Specimen No. Area	Dimensions mm	Test temperature	Notch position	Values J / J/cm^2			Mean Value J / J/cm^2	Appearance of fracture Requirements:

WELD METAL ANALYSIS (%)

Specimen No. Area	C	Si	Mn	P	S	Cr	Ni	Mo			

HARDNESS TESTS : % **FRACTURE TESTS** : %

MACRO STRUCTURE : ACCEPTABLE **MICRO STRUCTURE** : %

REMARKS :
1. LIQUID PENETRANT TEST REPORT : GATS Report No. T02.081.PT.001
2. MACRO TEST REPORT : GATS Report No. T02.081.MACRO.001

ΕΠΙΘΕΩΡΗΣΕΙΣ - ΠΙΣΤΟΠΟΙΗΣΕΙΣ
TÜV HELLAS A.E.
Member of RWTUV Group
ΒΕΝΙΖΕΛΟΥ 24 - 153 41 ΑΘΗΝΑ - 6540 195

Location	Date of issue	The Inspector / Expert of TÜV Hellas (RWTUV) S.A.
THESSALONIKI	16.12.2002	P. CHATZIFOTIADIS

TÜV CERT

TÜV HELLAS
Member of RWTUV Group

Certificate No : TH–023/02 TÜV Hellas Order No. : 02.01.209

WELDING PROCEDURE ACCEPTANCE RECORD (WPAR)

Manufacturer	:	MEVACO S.A.	**Inspection Authority**	:	**TÜV Hellas (RWTÜV) S.A.**
Manufacturer Order No	:		**Location**	:	THESSALONIKI

TEST REPORT

Date of welding	:	29/11/2002			
Code / Testing Standard	:	EN 288-3	**Relevant WPS-No.**	:	MEVACO 01
Welding process	:	135 Automatic, single run			
Parent metal(s)	:	Group 1 (DC04 , EN 10130)			
Parent metal thickness [mm]	:	2,5	**Outside diameter [mm]**	:	-
Welding position	:	PA	**Welding current**	:	160 – 165 A / DC (+)
Joint type	:	Plate square butt weld (PBW)	**Joint form** *[sketch]*		As per relevant WPS

Filler metal type	:	EN 440 : G3 Si 1 (Base Welding Wire / ERLIKON SA)
Shielding gas	:	Corgon 18 (82 % Ar, 18 % CO_2) / 8 – 10 l/min
Flux / Auxiliaries	:	%
Preheating	:	Min 10 °C
Post weld heat treatment	:	%
Other information	:	1. Wire feed speed = 8 m/min 2. Travel speed = 35 cm/min

It is certified that test welds were prepared, welded and tested satisfactorily in accordance with the requirements of the code / testing standard indicated above. The requirements are fulfilled.

Location	**Date of issue**	**The Inspector** / Expert of TÜV Hellas (RWTÜV) S.A.
THESSALONIKI	16.12.2002	P. CHATZIFOTIADIS

ΕΠΙΘΕΩΡΗΣΕΙΣ - ΠΙΣΤΟΠΟΙΗΣΕΙΣ
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TÜV CERT

TÜV HELLAS
Member of RWTUV Group

Certificate No : TH–023/02 TÜV Hellas Order No. : 02.01.209

WELDING PROCEDURE ACCEPTANCE RECORD (WPAR)

Manufacturer	:	MEVACO S.A.	**Inspection Authority**	:	**TÜV Hellas (RWTÜV) S.A.**
Manufacturer Order No	:		**Location**	:	THESSALONIKI

RANGE OF APPROVAL

Code / Testing Standard	:	EN 288-3	**Relevant WPS-No.**	:	MEVACO 01
Welding process	:	135 Automatic, single run			
Parent metal(s)	:	Group 1			
Thickness of parent metal	:	2,0 to 2,8 mm	**Outside diameter [mm]**	:	Ø > 500 mm
Welding position	:	All			
Joint type	:	PBW ss/mb , ss/nb, bs/gg, bs/ng / PFW / TBW ss/mb , ss/nb / TFW / T-butt welds in plate ss / bs			
Welding current	:	DC (+)			
Filler metal type	:	Filler metals in the same group of tensile properties or with the same nominal chemical composition			
Shielding gas	:	Gas with the same nominal composition			
Flux / Auxiliaries	:	%			
Preheating	:	Min 10 °C			
Post weld heat treatment	:	%			
Other information	:	%			

Major modifications of the conditions laid down require a supplementary test. The validity of the requirements depends upon code or testing standard above.

TÜV HELLAS A.E.
Μέλος του RWTUV Group

Location	**Date of issue**	**The Inspector / Expert of TÜV Hellas (RWTÜV) S.A.**
THESSALONIKI	16.12.2002	P. CHATZIFOTIADIS

TÜV CERT

TÜV HELLAS
Member of RWTUV Group

Certificate No : TH–023/02 TÜV Hellas Order No. : 02.01.209

WELDING PROCEDURE ACCEPTANCE RECORD (WPAR)

Manufacturer : MEVACO S.A. Inspection Authority : TÜV Hellas (RWTÜV) S.A.
Manufacturer Order No : Location : THESSALONIKI

TEST RESULTS

NON DESTRUCTIVE TESTING

TEST METHOD	REQUIREMENTS	RESULT / ATTACHMENT / SHEET
VISUAL EXAMINATION	EN 970 / EN 25817	ACCEPTABLE
RADIOGRAPHIC EXAMINATION	EN 1435 / EN 25817	ACCEPTABLE
ULTRASONIC EXAMINATION	%	%
PENETRANT EXAMINATION	EN 571-1 / EN 1289	ACCEPTABLE
MAGNETIC PARTICLE TEST	%	%

TENSILE TEST

Specimen No Area	Dimensions [mm]	Test temperature °C	ReH/Rp1,0 /Rp0,2 N/mm^2	R_m N/mm^2	L_o [mm]	A %	Z %	Fracture position	Appearance of fracture / Remarks
1	2,3×24,2		293	347				B.M	ACCEPTABLE
2	2,4×24,2		300	352				B.M	ACCEPTABLE

BEND TESTS

Root pass in tensile zone (R), Cover pass in tensile zone (F) Side bend test (SB)

Specimen No Area	Dimensions [mm]	Appearance of fracture Remarks	Bending angle [Grad]	Specimen Nr. Area	Bending angle [Grad]	Appearance of fracture Remarks:	Bending Elong. Lo [mm]	Bending Elong. [%]
FBB 1	2,5×20	ACCEPTABLE	120°					
FBB 2	2,5×20	ACCEPTABLE	120°					
RBB 1	2,5×20	ACCEPTABLE	120°					
RBB 2	2,5×20	ACCEPTABLE	120°					

IMPACT TESTS

Specimen type :

Specimen No. Area	Dimensions mm	Test temperature	Notch position	Values J / J/cm^2			Mean Value J / J/cm^2	Appearance of fracture Requirements:

WELD METAL ANALYSIS (%)

Specimen No. Area	C	Si	Mn	P	S	Cr	Ni	Mo			

HARDNESS TESTS : % FRACTURE TESTS : %

MACRO STRUCTURE : ACCEPTABLE MICRO STRUCTURE : %

REMARKS :
1. RADIOGRAPHIC REPORT : GATS Report No. T.02.081.RT002
2. LIQUID PENETRANT TEST REPORT : GATS Report No. T02.081.PT.001
3. TENSILE TEST CERTIFICATE : GATS Report No. T02.081.001
4. BEND TEST REPORT : GATS Report No. T02.081.BT.001
5. MACRO TEST REPORT : GATS Report No. T02.081.MACRO.002

ΕΠΙΘΕΩΡΗΣΕΙΣ - ΠΙΣΤΟΠΟΙΗΣΕΙΣ
TÜV HELLAS
Μέλος του RWTUV Group
ΣΤΡΑΤΗΓΟΥ ΤΑΒΕΛΟΥ 24 - 153 41 ΑΘΗΝΑ - 6540

Location	Date of issue	The Inspector / Expert of TÜV Hellas (RWTÜV) S.A.
THESSALONIKI	16.12.2002	P. CHATZIFOTIADIS

TÜV CERT

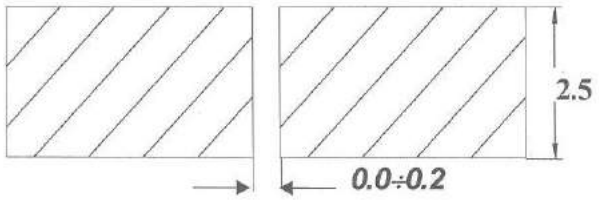
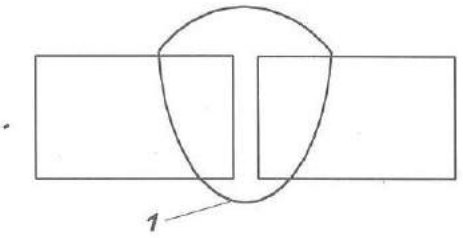
TÜV HELLAS
Member of RWTUV Group

TUV Order Num. : 02.01.209/TH-026/02

Manufacturer's welding procedure specification (WPS)

Location	:	THESSALONIKI	**Examiner or test body**	:	**TÜV HELLAS S.A.**
WPS Reference No	:	MEVACO 01	**Parent Material**	:	DC 04, EN 10130
WPAR No	:	%	**Material Thickness (mm)**	:	2,5 mm
Manufacturer	:	MEVACO S.A.	**Outside Diameter (mm)**	:	%
Welder's Name	:	%	**Welding Position**	:	PA
Welding Process	:	135 Automatic	**Joint Type**	:	Plate square butt weld (PBW)
Code Testing Std	:	**EN 288-2**	**Method of Preparation and Cleaning**	:	%

WELD PREPARATION DETAILS (SKETCH)*: (all dimensions are in mm)

Joint Design	Welding Sequences
	

WELDING DETAILS

Run	Process	Size of Filler Metal	Current A	Voltage V	Type of current/ Polarity	Wire Feed Speed	Travel Speed *
1	135	1,0	160 – 165	%	DC (+)	8 m/min	35 cm/min

Filler Metal Classification and trade name : EN 440 : G3 Si 1 / ERLIKON S.A. BASE WELDING WIRE
Any Special Baking of Drying : %

Gas Flux	**: shielding**	: Corgon 18 (82 % Ar, 18 %CO_2)	**Other information***	:	%
	backing	: %	**Torch angle**	:	%
Gas Flow Rate	**: shielding**	: 8-10 LIT / MIN	**Pulse welding details**	:	%
	backing	: %	**Stand off distance**	:	%
Tungsten Electrode Type/Size		: %	**Plasma welding details**	:	%
Details of Back Gouging/Backing		: %	**Oscillation : amplitude, frequency, dwell time**	:	%

Preheat Temperature : min 10° C
Interpass Temperature : %
Post-Weld heat treatment and/or Ageing Time, Temperature, Method : %
Heating and Cooling Rates* : %

ΕΠΙΘΕΩΡΗΣΕΙΣ - ΠΙΣΤΟΠΟΙΗΣΕΙΣ
TÜV HELLAS A.E.
Μέλος του RWTUV Group
ΣΕΒΑΣΤΕΙΑΣ 24 - 153 41 ΑΘΗΝΑ - 195

Manufacturer
Name, date and signature

TUV HELLAS (RWTUV) S.A.
P. CHATZIFOTIADIS
INSPECTOR

**If required*

TÜV CERT

TÜV HELLAS
Member of RWTUV Group

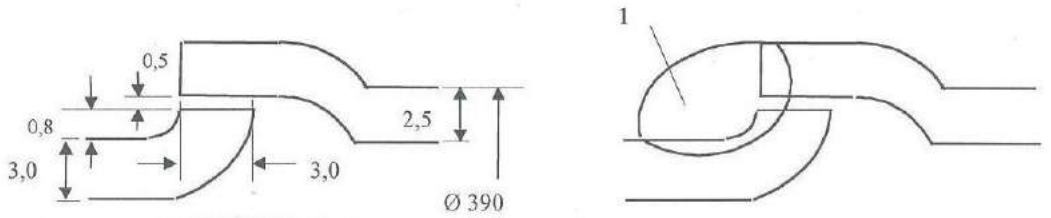
TUV Order Num. : 02.01.209/TH-027/02

Manufacturer's welding procedure specification (WPS)

Location	:	THESSALONIKI	**Examiner or test body**	:	**TÜV HELLAS S.A.**
WPS Reference No	:	MEVACO 02	**Parent Material**	:	DC 04, EN 10130
WPAR No	:	%	**Material Thickness (mm)**	:	2,5 mm / 3,0 mm
Manufacturer	:	MEVACO S.A.	**Outside Diameter (mm)**	:	390 mm
Welder's Name	:	%	**Welding Position**	:	PB (pipe rotating)
Welding Process	:	135 Automatic	**Joint Type**	:	Pipe fillet weld (TFW)
Code Testing Std	:	**EN 288-2**	**Method of Preparation and Cleaning**	:	%

WELD PREPARATION DETAILS (SKETCH)*: (all dimensions are in mm)

Joint Design | **Welding Sequences**



WELDING DETAILS

Run	Process	Size of Filler Metal	Current A	Voltage V	Type of current/ Polarity	Wire Feed Speed	Travel Speed *
1	135	1,0	250 – 260	%	DC (+)	13 m/min	71 cm/min

Filler Metal Classification and trade name : EN 440 : G3 Si 1 / ERLIKON S.A. BASE WELDING WIRE
Any Special Baking of Drying : %

Gas Flux : shielding : Corgon 18 (82 % Ar, 18 % CO_2)
backing : %
Gas Flow Rate : shielding : 8-10 LIT / MIN
backing : %
Tungsten Electrode Type/Size : %
Details of Back Gouging/Backing : %

Preheat Temperature : min 10° C
Interpass Temperature : %
Post-Weld heat treatment and/or Ageing : %
Time, Temperature, Method : %
Heating and Cooling Rates* : %

Other information* : %
Torch angle : %
Pulse welding details : %
Stand off distance : %
Plasma welding details : %
Oscillation : amplitude, frequency, dwell time : %

ΕΠΙΘΕΩΡΗΣΕΙΣ - ΠΙΣΤΟΠΟΙΗΣΕΙΣ ΤΥΠΟΥ
TÜV HELLAS A.E.
Μέλος του RWTUV Group
ΕΛ. ΒΕΝΙΖΕΛΟΥ 24 - 153 41 ΑΘΗΝΑ

Manufacturer
Name, date and signature

TUV HELLAS (RWTUV) S.A.
P. CHATZIFOTIADIS
INSPECTOR

**If required*