 AIR LIQUIDE	PRESSURE TEST CERTIFICATE	Project No. : K70101
		Project Name : ASU KOSICE TF
		Client :

Subcontractor : **VAM**
Subcontract No. : **5.6801**


VOEST MONTAGE

TEST NUMBER :

015/09/05

SYSTEM :

RISK CATEGORY :

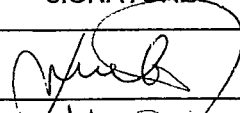
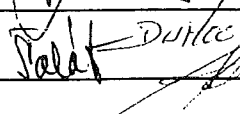
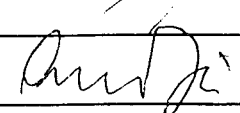
III.

PID No.	Line Size	Line No.	Area	Isometric No.	Material Class
010/010		250 O 20006	TF	250O20006	1.4541
010/010		25 O 20008	TF	25O20008	Monel
010/010		25 O 81020	TF	25O81020	1.4541

Test Pressure: 44 bar Test Duration: 30 min
Test Medium: N Manometers No.: 0 - 100 bar, 005991

Special requirements / comments: Od ventílov UK20013 a UK 20014 po napojenie do exist. potrubia.

Tlaková skúška bola preveđená za účasti inšpektora Technickej inšpekcie SR v Košiciach ale bez predlo-
ženého osvedčenia o konštrukčnej dokumentácii realizovanej stavby.

WITNESSED AND ACCEPTED ON BEHALF OF	WITNESS	SIGNATURE	DATE
	SUBCONTRACTOR		7.9.2005
	ALE		07/09/05
	CLIENT		
	NOTIFIED BODY		14.11.2005

E-FRM-9-5-8-9

VAM GmbH & Co Anlagentechnik und Montagen A. Bernoláka 10, Ružomberok		PROTOKOL O STAVEBNEJ A TLAKOVÝCH SKÚŠKACH ODOLNOSTI A TESNOSTI POTRUBIA č. 015/09/05			
Miesto stavby:		AIR LIQUIDE - U. S. STEEL s. r. o. Košice ASU No. 9 Košice			
Označenie skúšaného potrubia:		250 O 20006, 25 O 20008, 25 O 81020			
Prevádzkové podmienky:		Najvyšší pracovný pretlak: 4,0 MPa		Najvyššia pracovná teplota: - 196 °C	
Parametre rozvodu:		Menovitá svetlosť: DN 250, 25		Materiál: tr. 1.4541, Monel	
Potrubie bolo podrobené stavebnej a tlakovým skúškam podľa STN 130020, NV 576/02 a STN EN 13480					
Stavebná skúška		Skúška odolnosti		Skúška tesnosti	
Dátum skúšky:	07.09.05	Dátum skúšky:	07.09.05	Dátum skúšky:	07.09.05
- umiestnenie výstroja potrubia - funkcie uzatváracích zariadení - dokončenie a kvalita zvaračských prác - správnosť uloženia a jeho spádovanie - úplnosť dokumentácie		Skúšobný pretlak:	4,4 MPa	Skúšobný pretlak:	4,0 MPa
		Skúšobné médium:	N ₂	Skúšobné médium:	N ₂
		Skúšobná doba:	30 min.	Skúšobná doba:	po dobu prehliadky
		Použité meracie prístroje:		Použité meracie prístroje:	
		kontrolný deformačný manometer 0 – 10 MPa Ø 160 mm v. č. 005991		kontrolný deformačný manometer 0 – 10 MPa Ø 160 mm v. č. 005991	

Potrubie vyhovuje daným prevádzkovým podmienkam. Skúška odolnosti a tesnosti bola v zmysle hore uvedených nariadení a noriem úspešná.

Od ventilov UK20013 a UK 20014 po napojenie do exist. potrubia. Tlaková skúška bola prevedená za účasti inšpektora Technickej inšpekcie SR v Košiciach ale bez predloženého osvedčenia o konštrukčnej dokumentácii realizovanej stavby.

Za objednávateľa



Za zhotoviteľa

V Košiciach dňa 7.9.2005

List1

VAM
VOEST MONTAGE

25 O – 20008				
Welding	DN	Q	Welder No	Protoc.No
1	Kap	33,7	96	73/2005
2	25	33,7	96	3314/2005
3	25	33,7	96	3314/2005
4	25	33,7	96	3314/2005
5	25	33,7	96	3314/2005
6	25	33,7	96	3314/2005

Rev. 20.07.05 M + L

Ausht 50
00200/PV6

Ausht 50
00600/PV6

Ausht 50
00300/PV6

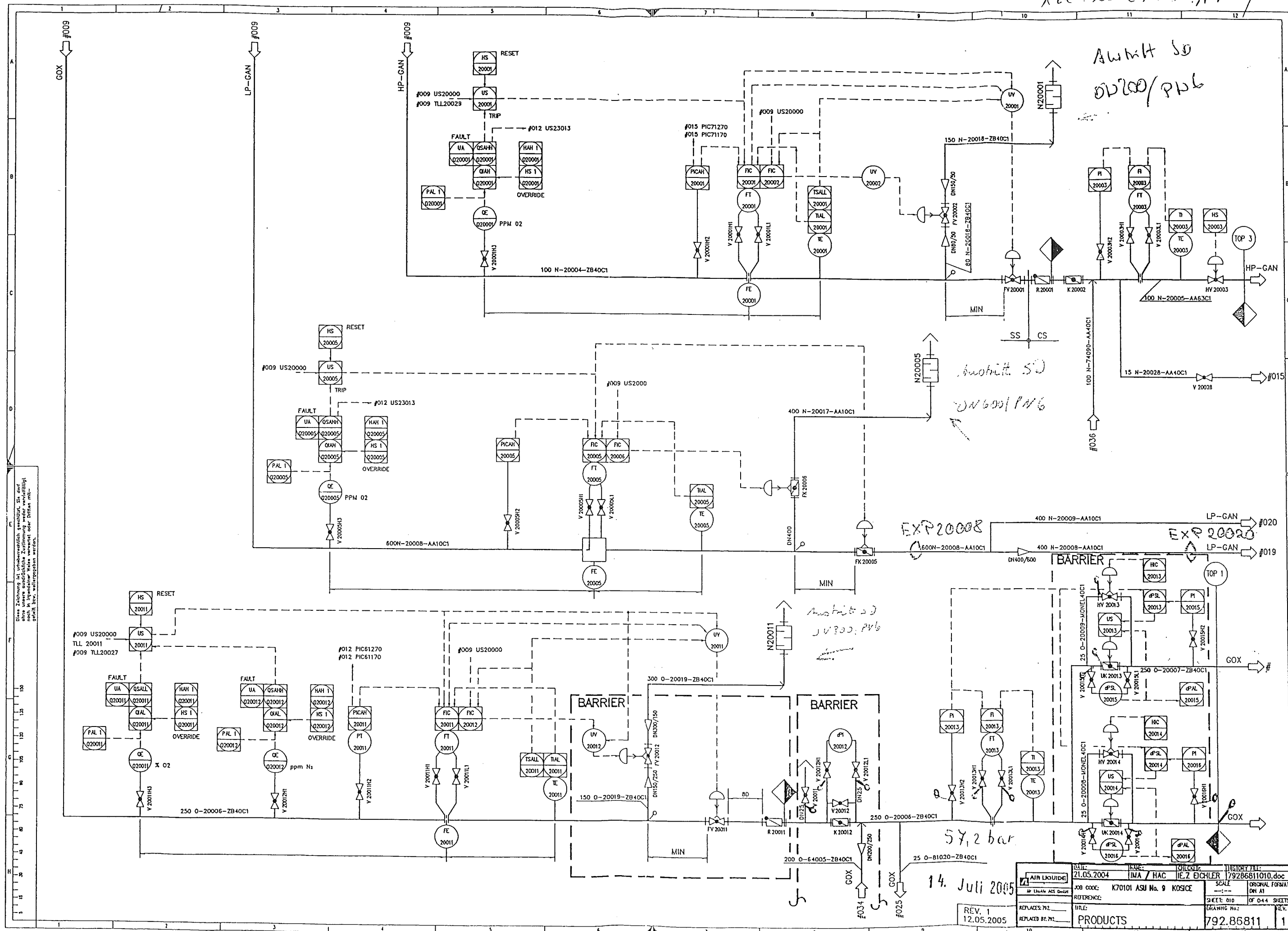
57,2 bar

14. Juli 2005

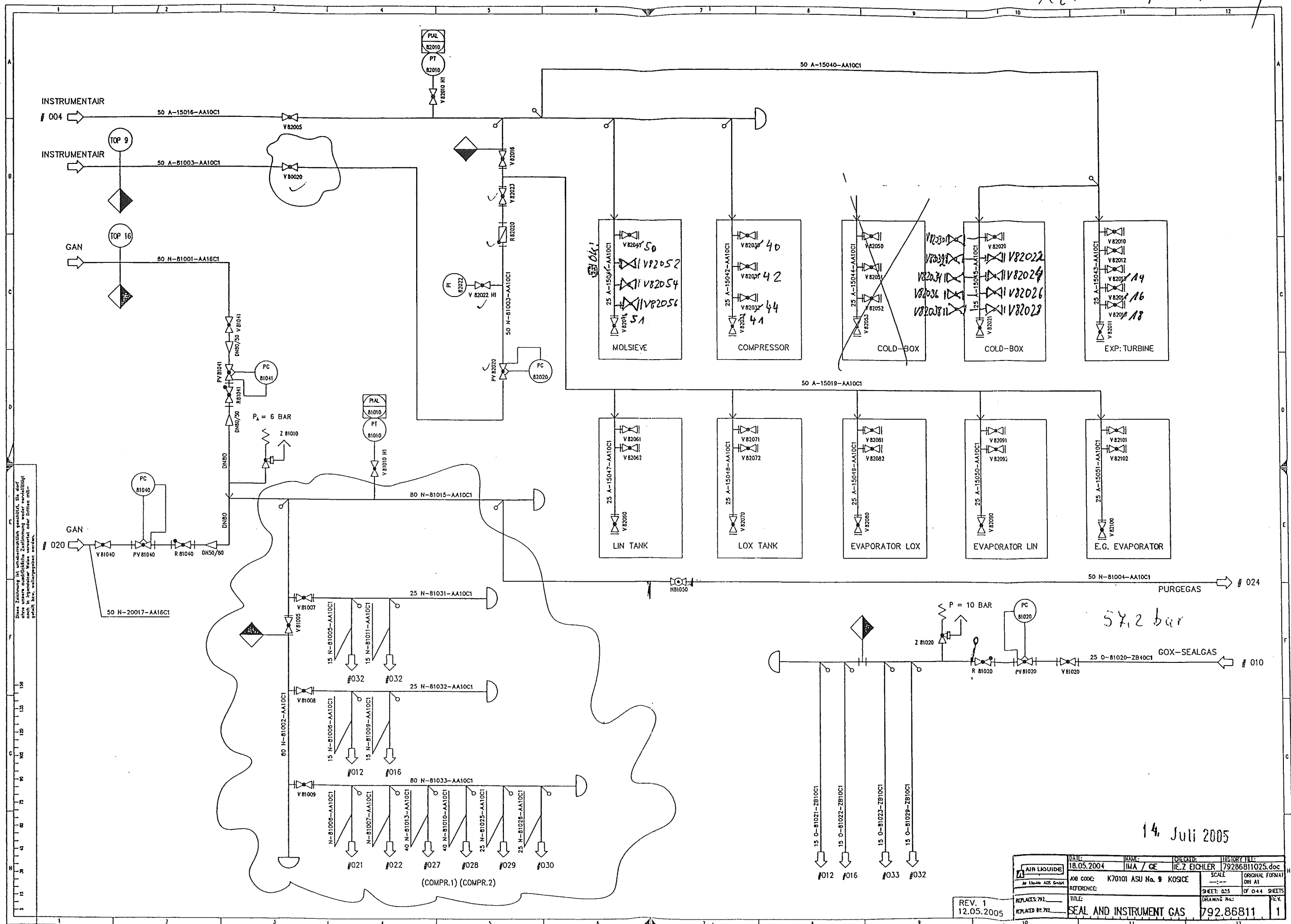
REV. 1
12.05.2005

DATE: 21.05.2004	NAME: IMA / HAC	CHECKED: IE 2 EICHLER	REVISION: 1
JOB CODE: K70101 ASU No. 9 KOSICE	SCALE: 1:1	ORIGINAL FORMAT: DIN A1	
REFERENCE:	TITLE: PRODUCTS	DRAWING No: 792.86811	SHEETS: 010 OF 044
REPLACES: 792	REPLACES BY: 792		

Diese Zeichnung ist urheberrechtlich geschützt. Sie darf ohne schriftliche Genehmigung der IMA nicht weitergegeben werden.
nach in irgendeiner Weise verändert oder diffundiert.
geteilt bzw. weitergegeben werden.



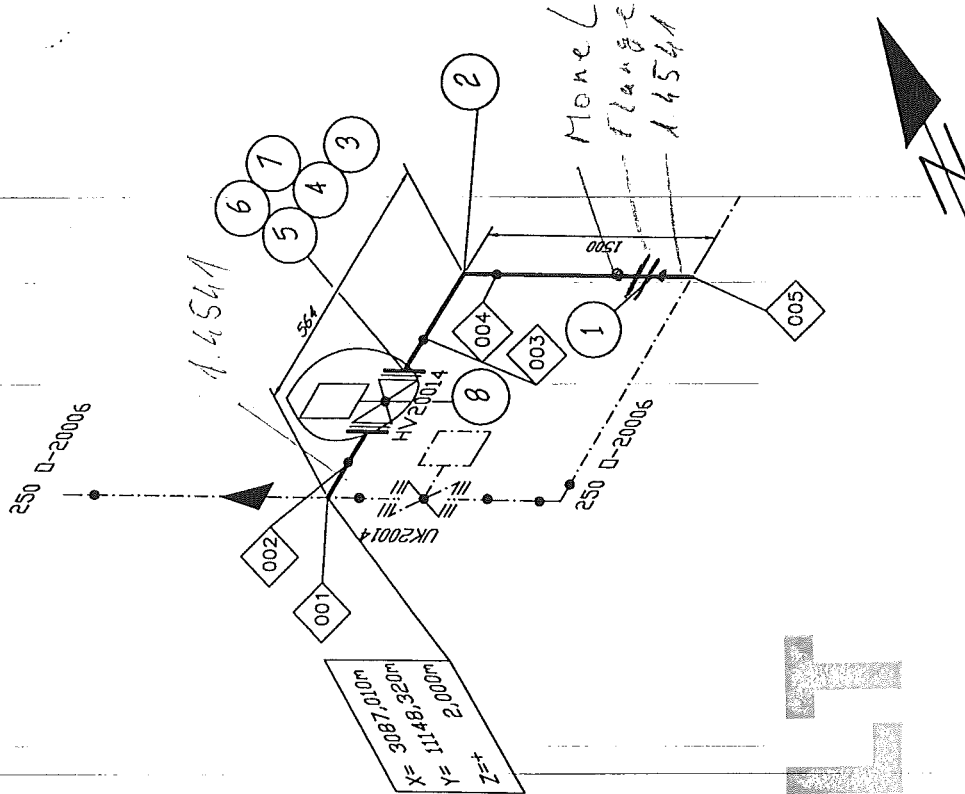
APR - MAY 1951



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authorization and it is strictly prohibited
to disclose it to any third parties.

150
135
120
105
90
75
60
45
30
15
5

ASBULT



Welding No.	DN	Ø	Welder No.	Protoc No.
001	25	33.7		
002	25	33.7		
003	25	33.7		
004	25	33.7		
005	25	33.7		

Remarks:

- Responsibility of the assembling company:
- Situation of mounting seams
 - Situation of pass-lengths
 - Check of measure details and pipe courses on the construction site
 - Situation of the spindle at valve

Accompanying drawings:

- 250 0-20006

Accompanying lists:

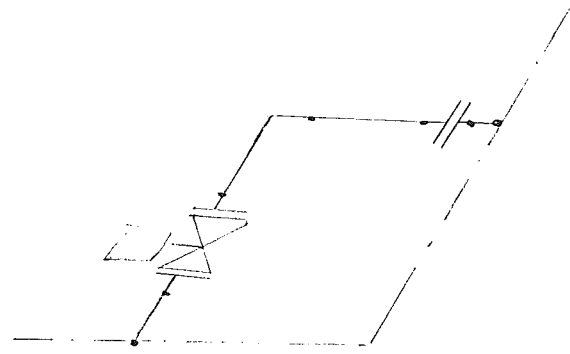
- Parts list:
25 0-20008

Pipe Standard:

- AL Standard No.:
50006 / MONEL 40C1

Rev	Revisions	Date	Name	proved
B	diverse	06.06.05	WIP/Rad.	
A		13.04.05	WIP/Rad.	

Date :	03.03.2005	Name :	WIP/Rad.	History file:	79287106.doc
Job code:		K70101		Scale	Original format
Reference:		ASU Kosice		Sheet: 001	of 001 Sheets
Title:		25 0-20008		Drawing No.:	792.87106 B
Replaces:		79		Rev.	
Replaced by:		79			



Velding	DN	φ
1		
2		
3		
4		
5		

AS BUILT

25-0-20008

Made by : Ing. Supak
Date : 11.10.2005
revision : 0

VAM **Anlagentechnik und Montagen**
01 - 5 - 6801 - 01 KOSICE AIR LIQUIDE TANKFARM - AS BUILT
Line Number : 25 O-20008 MONEL ZB40C1

	Weight (kg)
pipe mat.:	9,32
con. valves	20,00
man. valves:	-
pr. supports:	-
sek. supports	-
summe:	29,32

AS BUILT

VAM Anlagentechnik und Montagen
01 - 5-6801-01 KOSICE AIR LIQUIDE TANKFARM

Stückliste 01 25 O-20008 MONEL ZB40C1 Revision: B

Teilenummer	NW1	NW2	Teilbezeichnung	Einzelgew.	Menge	EP-Lieferung	EP-Montage	gesamt	Stunden ges.
-------------	-----	-----	-----------------	------------	-------	--------------	------------	--------	--------------

FEHLER diese Liste bitte nur mit Menu 1 sortiert nach BG - Leitung - Rokis verwenden

ELBOW14	25	2	Elbow 90°, type 3 Monel 33,7x2	0,09 kg	1,00				
FLANGE7	25	0	Welding neck flange 1.4541 DIN EN 1092-1	1,00 kg	2,00				
FLANGE8	25	0	Welding neck flange Monel	1,00 kg	2,00				
GASKET7	25	2	Gasket Graphite w. CrNi-Inlay DIN EN 1514-1 70x2x35x		3,00				
NUT5	12	0	Hexagon nut A4-70 DIN EN ISO 4032	0,02 kg	12,00				
PIPE3A	25	2	PIPE, WELDED Monel 33,7x2,77	1,58 kg	2,00				
PIPE9	25	2	Pipe 1.4541 DIN EN ISO 1127 33,7x2	1,58 kg	0,40				
SCREW10	12	0	HEXAGON HEAD SCREW A4-70 DIN EN ISO 4014 55	0,10 kg	12,00				
WASH7	13	0	WASHER B A4-70		8,00				
Summe: 01 25 O-20008 MONEL ZB40C1				9,32 kg					

Liefersumme:
Montagesumme:
Gesamtsumme:
Gesamt-Stunden:

VAM Anlagentechnik und Montagen
01 - 5-6801-01 KOSICE AIR LIQUIDE TANKFARM

Stückliste 01 25 O-20008 MONEL ZB40C1 Revision: B									
Teilenummer	NW1	NW2	Teilebezeichnung	Einzelgew.	Menge	EP-Lieferung	EP-Montage	gesamt	Stunden ges.
FEHLER diese Liste bitte nur mit Menu 1 sortiert nach BG - Leitung - Rokls verwenden									
Gesamtgewicht:				9,32 kg					
** Ende der Ausgabe									

AS BUILT

VAM Anlagentechnik und Montagen
01 - 5-6801-01 KOSICE AIR LIQUIDE TANKFARM

Stückliste 01 25 O-20008 CON VALBY AL Revision: B									
---	--	--	--	--	--	--	--	--	--


Teilenummer	NW1	NW2	Teilebezeichnung	Einzelgew.	Menge	EP-Lieferung	EP-Montage	gesamt	Stunden ges.
-------------	-----	-----	------------------	------------	-------	--------------	------------	--------	--------------

FEHLER diese Liste bitte nur mit Menu 1 sortiert nach BG - Leitung - Rokls verwenden

CHV20014	25	0	CONTROL VALVE HV20014 by AL-AGS	20,00 kg	1,00				
Summe: 01 25 O-20008 VALVES BY AL				20,00 kg					

Liefersumme:	
Montagesumme:	
Gesamtsumme:	
Gesamt-Stunden:	
Gesamtgewicht:	20,00 kg
** Ende der Ausgabe	

AS
23 JUL
2005

 CONSULTING&CONTROL OF WELDING s.r.o. Dlhá 88 01009 Žilina, Slovakia tel/fax:041/5006699 mobil:0905 253 069 e-mail:c-cw@c-cw.sk		Protokol o kapilárnej skúške <i>Penetrant testing protocol</i>		Protokol /Report 73/ 2005	
				List.č. /Sheet No. 1 / 1	
		Výrobca/Producer AIR LIQUIDE			
		Objednávateľ/ Customer: USS Košice			
Popis zvaru/ Description of weld 25-O20008			Číslo výkresu/ Drawing No.: AIR LIQUIDE		
Priemer/ Diameter Hrúbka/ Thickness	Druh zvaru/ Type of weld Druh výroby/ Mode of operation	Materiál/ Material Rozsah kontroly/ Range of control	Požadovaný stupeň kvality Permitted degree of quality 1		
Luxmeter/Luxmeter LX105		Skúška bola vykonaná podľa/ Examination acc to:			
Druh osvetlenia Illumination mixed	Intenzita svetla Light intensity 1000lx	STN EN571-1 Hodnotenie podľa/ Valuation of imperf. acc to: STN EN 1289			
Penetračný materiál Penetrant type Penetrant Penetrant Helling-Nordtest Kontrastrot 88	Čistič Cleaner Vývojka Entwicker Rainiger 87 Entwicler 89	Penetračný čas Time of action Vyvolávací čas Time of developpm 20min 20min	Teplota Temperature 20 °C		
Číslo zvaru Weld No	Číslo zvarača Welder No	Rozmer Dimension	Chyba Defect	Veľkosť chyby Dimension of defects	Hodnotenie Valuation
1	96				1
Poznámka Remark					

General evaluation:
ZVAR VYHOVEL

Dátum skúšky/ Date of examination 3. 9. 2005 Miesto skúšky/ Place of examination Košice	Skúšku vykonal Name of exam. Ing. Pavol Višňovský 025/05/II	Vyhodnotil Valuated Ing. Pavol Višňovský 025/05/II	Dňa Date 3. 9. 2005 Signature and stamp
--	---	--	---

CONSULTING & CONTROL
OF WELDING
Ing. Pavol Višňovský
Dlhé Pole 323, 013 32 ŽILINA
IČO: 33857920 DIČ: 6902178437/691

CONSULTING & CONTROL OF WELDING

Ing. Pavol Višňovský

Dlhé Pole 323

013 32 Žilina

tel: +421 - 41 - 500 66 97

fax: +421 - 41 - 500 66 99

c-cw@c-cw.sk

Protokol o skúške prežiarením Radiographic examination report

Protokol/Report:

3314/2005

List č./Sheet No. 1/1

Výrobca/Producer **VAM GmbH**

Objednávateľ/Customer **US Steel Košice**

Popis zvaru/Description of weld	USS / VAM GmbH
---------------------------------	----------------

Číslo výkresu / Drawing No.: 25-0-20008

Priemer Diameter	25	Druh zvaru Weld type	V	Materiál / Material	1.45.41	Požadovaný stupeň kvality Permitted degree of quality
Hrúbka Thickness	2	Druh výroby Mode of operation		Rozsah kontroly Range of control		

Zdroj/Source	Ir192
--------------	-------

Aktivita žiariča / Intensity	45 Ci
------------------------------	-------

Skúška vykonaná podľa/Examination acc. to: STN EN 444, STN EN 14 35

Hodnotenie podľa/Valuation of imperf.acc to: STN EN 12 517, STN EN 13 480.5

Velkosť ohniska/Focal spot size	3x1,8	Ohnisková
vzdialenosť/Focal distance	300	

Druh filmu/Film type

Mierka/|Q|: 10FEEN

Vzdialenosť povrch-film

AGFA D5: Druh fólií

Expozičný čas / Exposure time

Distance surface-film

Screen type:0.027

56sec

0-1 mm

[illegible]

Celkové hodnotenie / General evaluation: ALL WELDS ACCEPTED

Dátum skúšky/Date of examination 3.8.2005	Skúšku vykonal/Name of exam.: Miroslav Orčo 04/10531	Vyhodnotil / Valuated Miroslav Orčo 04/10531	Dňa / Date 4.8.2005 Signature and stamp
---	--	--	--

Vysvetlivky / Notes: V : Zvar vyhovel / WELD ACCEPTED
N : Zvar nevyhovel / WELD NOT ACCEPTED
R : Opravovaný zvar / REPAIRED WELD

**CONSULTING & CONTROL
OF WELDING**
Ing. Pavol VIŠŇOVSKÝ
Dlhé Pole 323, 013 32 ŽILINA
IČO:33857920 DIČ: 6902178437/691

Terraspan Pipe Fittings Ltd

The Nickel Alloy Specialists

135 MANOR FARM ROAD, GREET
BIRMINGHAM B11 2HT
ENGLAND

Telephone UK :0121-707 9921
FACSIMILE UK :0121-708 1752
FACSIMILE INTL :() 44 121 708 1752
E-MAIL: pipes@terraspan.co.uk
Website: www.terraspan.co.uk

CERTIFICATE OF CONFORMITY / TEST ACCORDING TO BS EN 10204 3.1

Order details

Customer:	Philip Cornes & Co Ltd
Order Number:	B32504870
Date:	21 July 2005
TPF Ref:	105938
Invoice No:	37449
Item Number:	1

Product details

Quantity:	4
Description:	1" NB sch10 90DEG LR elbow
Fitting material specification:	ASTM B366 WPNC UNS No 4400
Cast No:	BYE7531
Batch No:	TBN1531

Mechanical results taken from mill certificate

Base material specification:	ASTM B165 UNS No 4400
Yield:	245
Tensile:	610
Units of stress:	MPa
Elongation %:	77.3
Reduction of area %:	
Hardness:	
Heat treatment:	900DEG C annealed

Chemical analysis taken from mill certificate (%)

Nickel [Ni]:	63.7	Sulphur [S]:	<0.001
Copper [Cu]:	32.4	Molybdenum [Mo]:	
Chromium [Cr]:		Carbon [C]:	0.13
Iron [Fe]:	2.46	Cobalt [Co]:	
Phosphorus [P]:		Aluminium [Al]:	
Manganese [Mn]:	1.0	Magnesium [Mg]:	
Silicon [Si]:	0.27	Titanium [Ti]:	



Certificate Nr: 961983

Signed

M. D. Phillips

M. D. Phillips
Terraspan Pipe Fittings Ltd
Quality Control



SPECIAL METALS WIGGIN LIMITED

Holmer Road, Hereford, England HR4 9SL
Tel: +44 (0)1432 382200 Fax: +44 (0)1432 264030
Reg. in England No. 36721

INSPECTION CERTIFICATE

Quality System Compliance :-
EN 10204/DIN 50 049 - 3.1.B
ISO 9002 - AFAQ
ISO/TS 16949 (by agreement) - AFAQ
CAA (B2, B4) Approval No. A1/2388/47
TUV Approval to AD - (Ankiatt WO/TRG 100
RA9000:SABBa Approval No. 1508
For tests performed by IncoTest :-
ISO/IEC 17025 - UKAS, CAA (B4)



Certificate No. 1228741

Dated 31/05/2002

Page No. 1 of 1

CONSIGNEE WITH GOODS

Product Description & Dimensions

MONEL alloy 400, Cold Drawn Pipe, Cold Drawn, Annealed.
1.0 NB SCH 40 X 197 / 276 IN NOMINAL

Our Reference No.	Quantity	Weight or Length	MW Batch No.	Cast No.	Incoming Certificate No.	Advice Note
FAC2212/01	32	185.2 M	FAC2212/01	BYE7531		A19818

Specifications:

ASTM B 166 ISS 93 UNS N04400

Chemical Composition Weight % (except where stated ppm)

	C	Si	Mn	S	Cu	Fe	Ni*
	0.13	0.27	1.0	<0.001	32.4	2.46	63.7
Max	0.3	0.5	2.0	0.024	34.0	2.5	63.0
Min					28.0		

Test Report No.

705644A

Mechanical Tests

Test Report No.	Temp. °C	0.2% PS MPa	Ten.Str. MPa	%Elong. on 50mm
705644A	20	245	610	77.3

Heat treatment

Batch & test piece: Annealed 900 C continuous furnace

Other tests - remarks

Induction air melted, Powdered slag (uphill) cast.
Castcode NDM.
Visual and dimensional examination satisfactory.

* Ni determined by difference.
Hydrostatic test satisfactory to 8 MPa
Positive material identification test satisfactory.

End of certificate



1228741

050728 Rev 3/1/02

Certified that, unless otherwise stated above, the whole of the above-mentioned materials have been manufactured, tested and inspected in accordance with the terms of the contract/order applicable thereto and conform fully to the standards/specification quoted hereon and the requirements of:

BS EN ISO 9002.

Signed

for and on behalf of SPECIAL METALS WIGGIN LIMITED
Authorized Signatory

C.L. Pockett

Date 31/05/2002

BRIGHTWAY, CORRONEL, FERRY, INCOCLAD, INCOLOY, INCONEL, INCOTHERM, INCO-WELD, KOTHERM, MAXORB, MONEL, NILO, NILOMAG, NIMONIC, NIOOTHERM, NI-SPAN, UDIMET & WIGGIN are Trade Marks of Special Metals Corporation