

AIR LIQUIDE	<b>PRESSURE TEST CERTIFICATE</b>	Project No. : K70101
		Project Name : ASU KOSICE TF
		Client :

Subcontractor : VAM  
Subcontract No. : 5.6801



TEST NUMBER : 04/08/05

SYSTEM :

RISK CATEGORY : I.

PID No.	Line Size	Line No.	Area	Isometric No.	Material Class
037/040		80 NL 73001	TF	80NL73001	1.4541
038/039		80 NL 73003	TF	80NL73003	1.4541
039/039		25 NL 73005	TF	25NL73005	1.4541
037/037		80 NL 73101	TF	80NL73101	1.4541
037/035		80 NL 73102	TF	80NL73102	1.4541

Test Pressure: 35,7 bar      Test Duration: 30 min  
Test Medium: N      Manometers No.: 0 - 60 bar, 031224

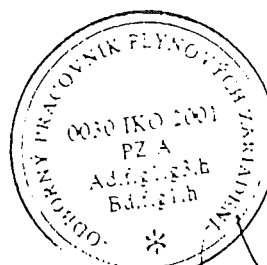
Special requirements / comments:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

WITNESSED AND ACCEPTED ON BEHALF OF	WITNESS	SIGNATURE	DATE
	SUBCONTRACTOR		10.8.2005
	ALE		18/10/05
	CLIENT		
	NOTIFIED BODY		

VAM GmbH & Co Anlagentechnik und Montagen A. Bernoláka 10, Ružomberok		<b>PROTOKOL O STAVEBNEJ A TLAKOVÝCH SKÚŠKACH ODOLNOSTI A TESNOSTI POTRUBIA č. 04/08/05</b>			
Miesto stavby:		AIR LIQUIDE - U. S. STEEL s. r. o. Košice ASU No. 9 Košice			
Označenie skúšaného potrubia:		80 NL 73001, 80 NL 73003, 25 NL 73005, 80 NL 73101, 80 NL 73102			
Prevádzkové podmienky:		Najvyšší pracovný pretlak: 2,5 MPa		Najvyššia pracovná teplota: - 196 ° C	
Parametre rozvodu:		Menovitá svetlosť: DN 25, 80		Materiál: tr. 1.4541	
Potrubie bolo podrobené stavebnej a tlakovým skúškam podľa STN 130020, NV 576/02 a STN 38 6461					
Stavebná skúška		Skúška odolnosti		Skúška tesnosti	
Dátum skúšky:	10.8.2005	Dátum skúšky:	10.8.2005	Dátum skúšky:	10.8.2005
<ul style="list-style-type: none"> <li>- umiestnenie výstroja potrubia</li> <li>- funkcie uzatváracích zariadení</li> <li>- dokončenie a kvalita zvaračských prác</li> <li>- správnosť uloženia a jeho spádovanie</li> <li>- úplnosť dokumentácie</li> </ul>		Skúšobný pretlak:	3,57 MPa	Skúšobný pretlak:	2,5 MPa
		Skúšobné médium:	N <sub>2</sub>	Skúšobné médium:	N <sub>2</sub>
		Skúšobná doba:	30 min.	Skúšobná doba:	po dobu prehliadky
		Použité meracie prístroje: kontrolný deformačný manometer 0 – 6 MPa  Ø 160 mm  v. č. 031224		Použité meracie prístroje: kontrolný deformačný manometer 0 – 6 MPa  Ø 160 mm  v. č. 031224	

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

Za objednávateľa



Za zhotoviteľa

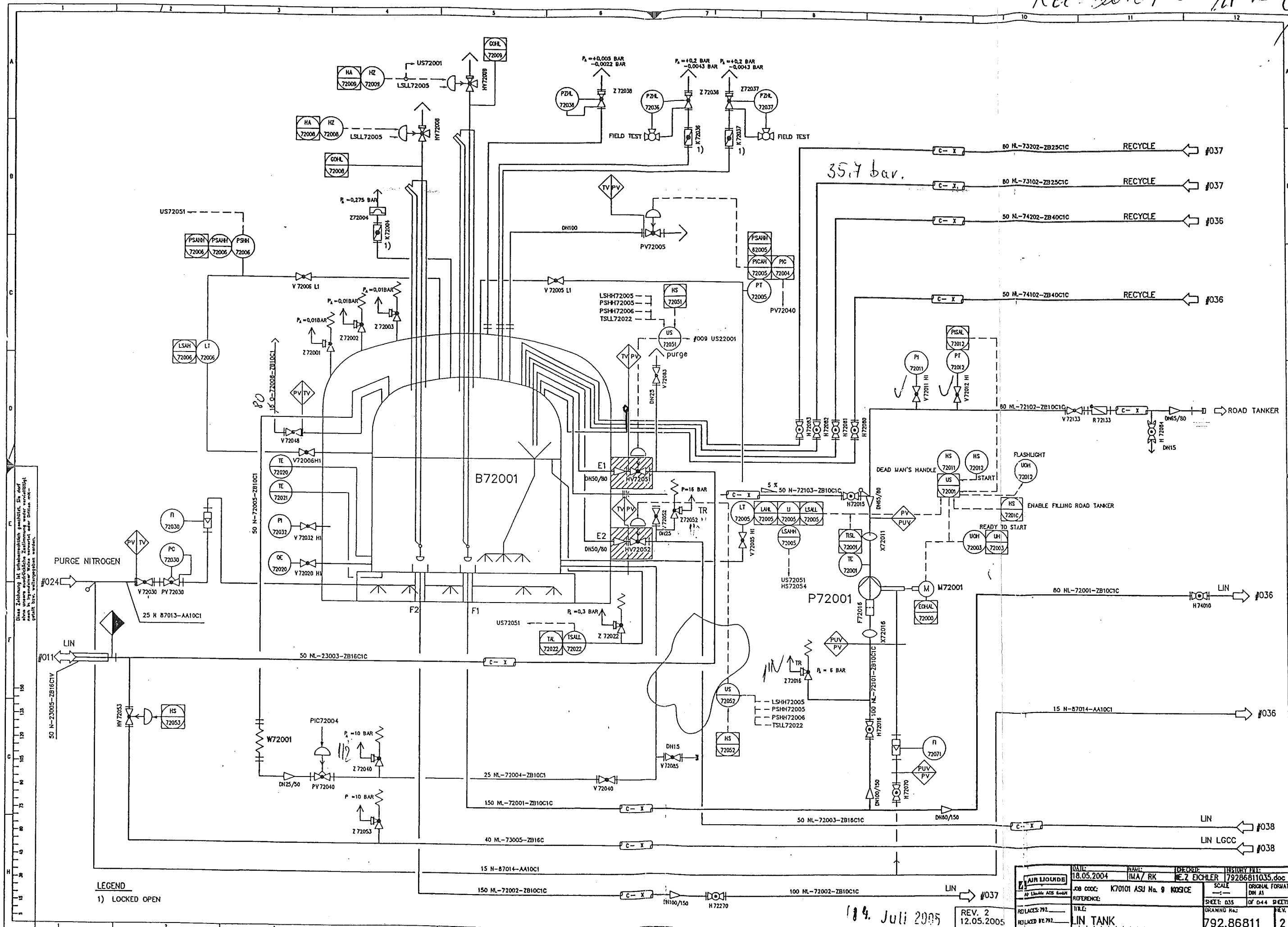
V Košiciach dňa 10.8.2005

**VAM**

VOEST MONTAGE

80 NL – 73102				
Welding	DN	Diameter	Welder No	Protoc.No
1	80	88,9	96	
2	80	88,9	96	
3	80	88,9	96	
4	80	88,9	96	
5	80	88,9	96	
6	80	88,9	96	3129/2005
7	80	88,9	96	3129/2005
8	80	88,9	96	
9	80	88,9	96	3129/2005
10	80	88,9	96	3178/2005
11	80	88,9	96	3129/2005
12	80	88,9	97	
13	80	88,9	97	
14	80	88,9	97	
15	1/2"	15	97	

KCC 30.07.05 M 11

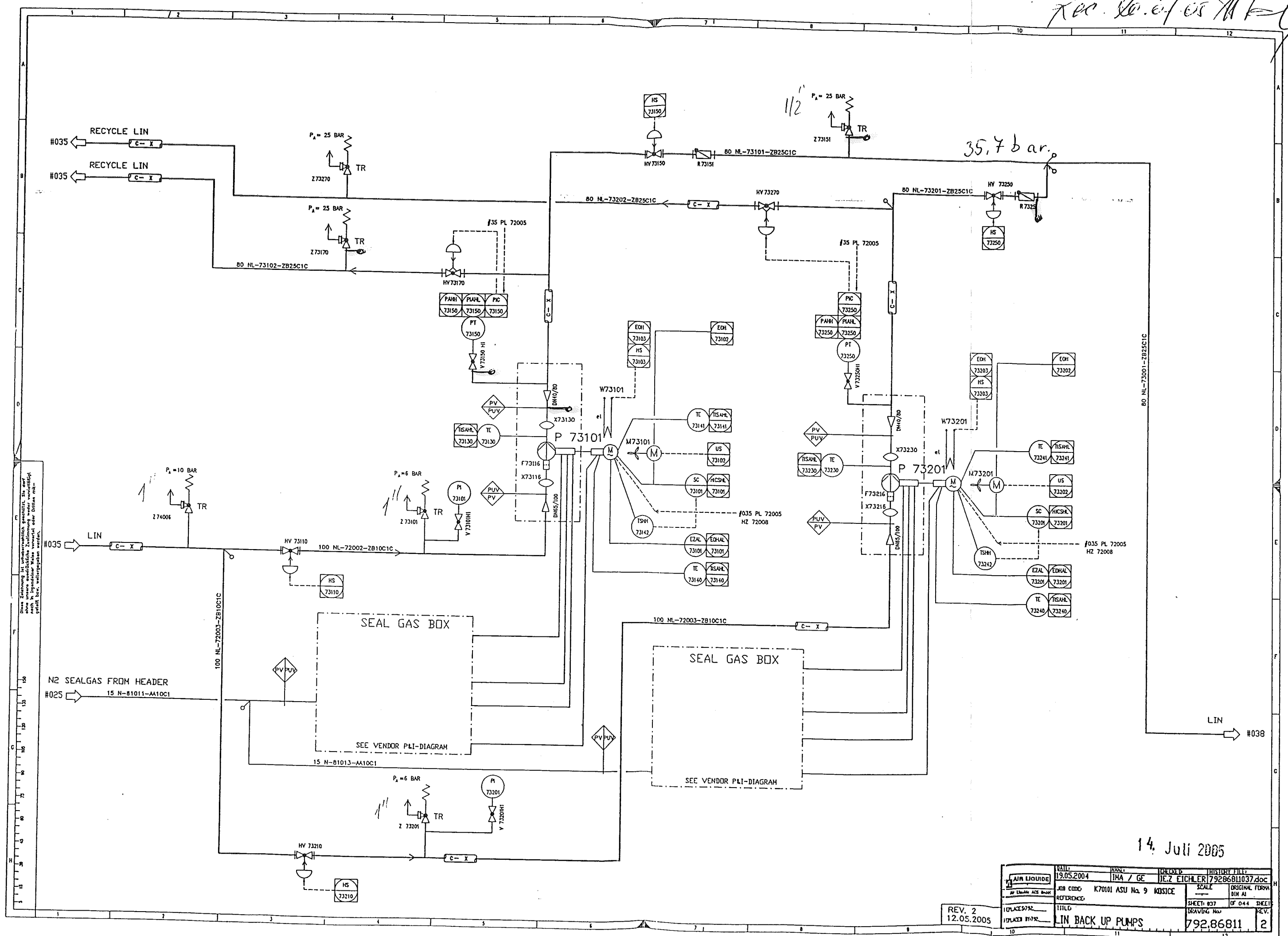


LEGEND  
1) LOCKED OPEN

18. Juli 2005  
REV. 2  
12.05.2005

DATE: 18.05.2004	MADE: IMA/ RK	DECK: ME 2 EICHLER	HISTORY FILE: 79286811035.doc
JOB CODE: K70101 ASU No. 9	KOSICE	SCALE: 1:1	ORIGINAL FORMAT: DIN A1
REFERENCE: 792	TITLE: LIN TANK	SHEET: 035	OF 044 SHEETS
REPLACES 792	REPLACES 792	DRAWING No:	792.86811
			2

Rev. 2 of 05 M K L



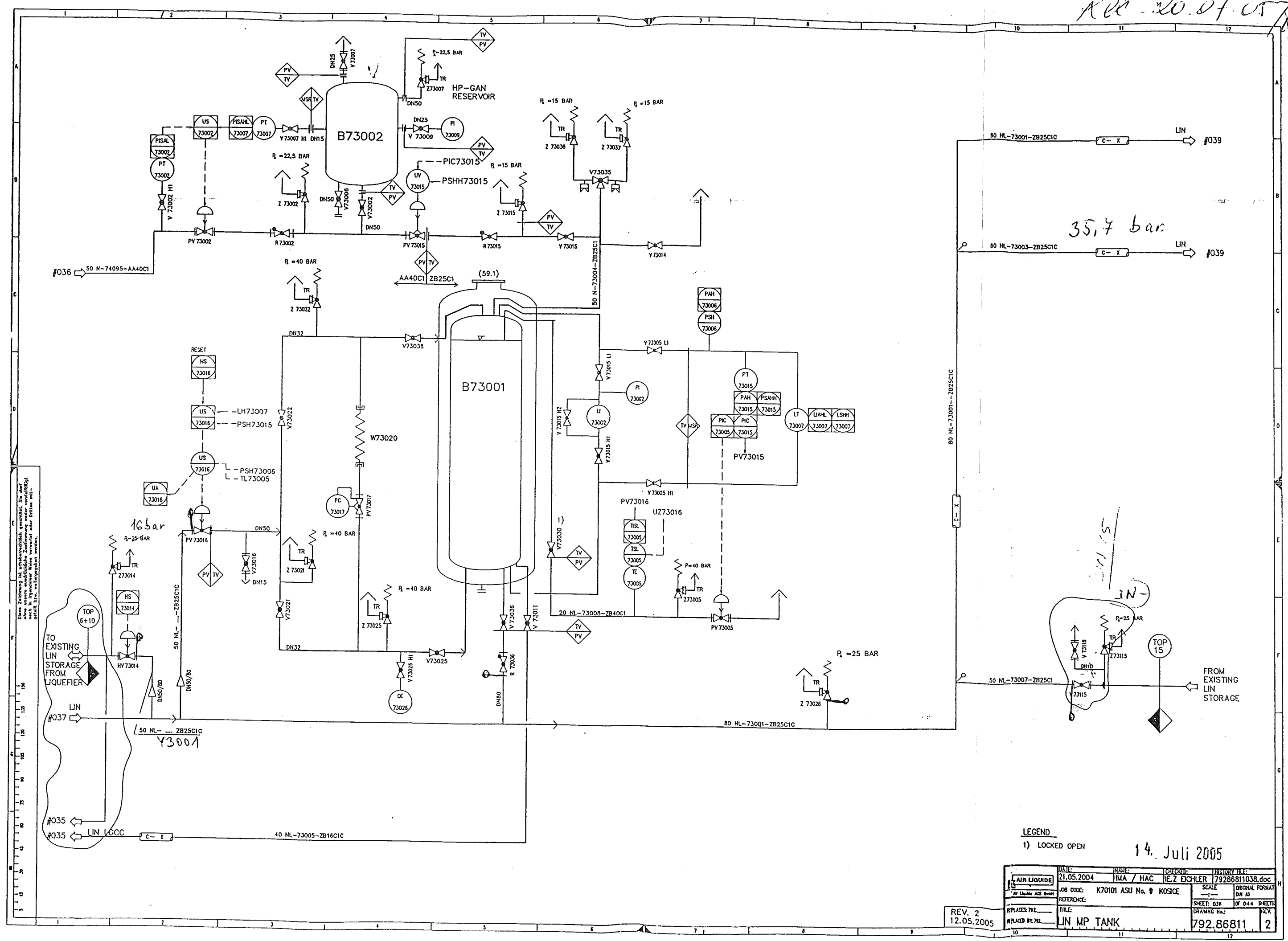
Das Diagramm ist ein Prozessflussdiagramm (PFD) für die Lin Back Up Pumps. Es zeigt die Anordnung und den Betrieb der Pumpen und zugehörigen Ausrüstung. Die Linien stellen die Prozessströme dar, und die Symbole stellen die verschiedenen Ausrüstungskomponenten dar. Die Beschriftungen geben die Identifizierung der Komponenten und die Prozessbedingungen an.

REV. 2  
12.05.2005

DATE	19.05.2004	REV.	1/1	DESIGNED BY	IEZ EICHLER	FILE	79286811037.doc
APP. LINEAR ACS		JOB CODE	K70101 ASU No. 9	MOJICE	SCALE	ORIGINAL FORM	BIN A1
10/12/2002		REFERENCE			SHEET	037	OF 044
10/12/2002		TITLE	LIN BACK UP PUMPS		DRAWING No.	792,86811	2

14. Juli 2005

Rev. 20.07.05



LEGEND  
1) LOCKED OPEN

14. Juli 2005

DATE: 21.05.2004	NAME: BMA / HAC	CHECKED: HEZ EICHLER	PROJECT: 79286811038.doc
JOB CODE: K70101 ASU No. 9	KOSICE	SCALE: 1:1	ORIG. FORMAT: DIN A3
REFERENCE:		SHEET: 038	OF 044 SHEETS
TITLE: LIN MP TANK		DRAWING No.:	792.86811
REV. 2	12.05.2005		2

Handwritten note at top right: *ABC. 10.01.05 / P*

Handwritten note at bottom left: *14. Juli 2005*

Handwritten note at bottom center: *REV. 2 12.05.2005*

Handwritten note at bottom right: *792.86811*

Technical drawing of a steam bath system (W 73001) and associated piping, valves, and instruments.

The drawing includes a grid system (A-J, 1-12) and a scale bar (0-12).

Key components and labels:

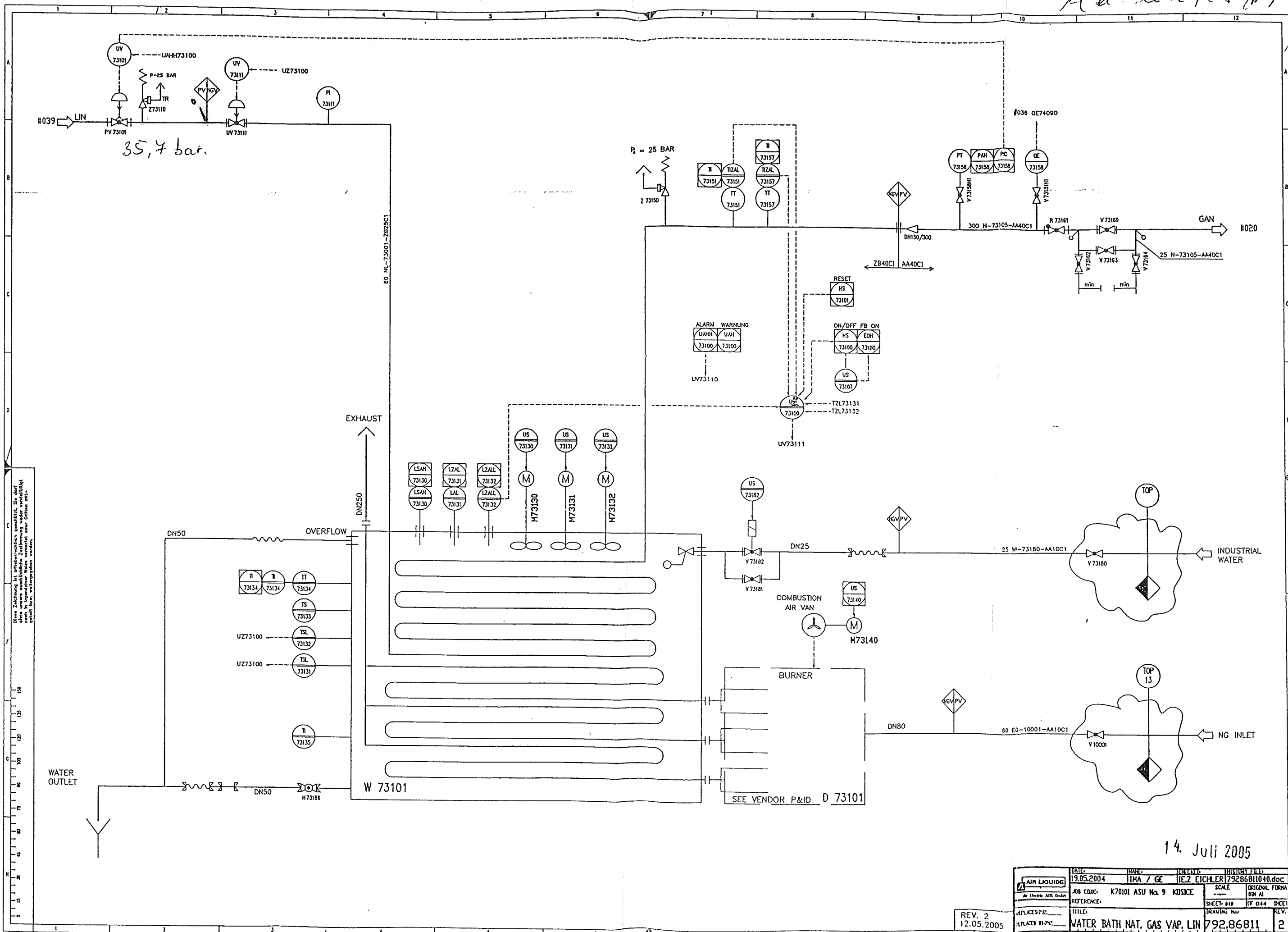
- W 73001**: Steam bath unit.
- B73090**: Tank or vessel.
- INDUSTRIAL WATER**: Water supply line.
- STEAM**: Steam supply line.
- DRAIN**: Drainage line.
- Valves**: V73001, V73002, V73003, V73004, V73005, V73006, V73007, V73008, V73009, V73010, V73011, V73012, V73013, V73014, V73015, V73016, V73017, V73018, V73019, V73020, V73021, V73022, V73023, V73024, V73025, V73026, V73027, V73028, V73029, V73030, V73031, V73032, V73033, V73034, V73035, V73036, V73037, V73038, V73039, V73040, V73041, V73042, V73043, V73044, V73045, V73046, V73047, V73048, V73049, V73050, V73051, V73052, V73053, V73054, V73055, V73056, V73057, V73058, V73059, V73060, V73061, V73062, V73063, V73064, V73065, V73066, V73067, V73068, V73069, V73070, V73071, V73072, V73073, V73074, V73075, V73076, V73077, V73078, V73079, V73080, V73081, V73082, V73083, V73084, V73085, V73086, V73087, V73088, V73089, V73090, V73091, V73092, V73093, V73094, V73095, V73096, V73097, V73098, V73099, V73100, V73101, V73102, V73103, V73104, V73105, V73106, V73107, V73108, V73109, V73110, V73111, V73112, V73113, V73114, V73115, V73116, V73117, V73118, V73119, V73120, V73121, V73122, V73123, V73124, V73125, V73126, V73127, V73128, V73129, V73130, V73131, V73132, V73133, V73134, V73135, V73136, V73137, V73138, V73139, V73140, V73141, V73142, V73143, V73144, V73145, V73146, V73147, V73148, V73149, V73150, V73151, V73152, V73153, V73154, V73155, V73156, V73157, V73158, V73159, V73160, V73161, V73162, V73163, V73164, V73165, V73166, V73167, V73168, V73169, V73170, V73171, V73172, V73173, V73174, V73175, V73176, V73177, V73178, V73179, V73180, V73181, V73182, V73183, V73184, V73185, V73186, V73187, V73188, V73189, V73190, V73191, V73192, V73193, V73194, V73195, V73196, V73197, V73198, V73199, V73200, V73201, V73202, V73203, V73204, V73205, V73206, V73207, V73208, V73209, V73210, V73211, V73212, V73213, V73214, V73215, V73216, V73217, V73218, V73219, V73220, V73221, V73222, V73223, V73224, V73225, V73226, V73227, V73228, V73229, V73230, V73231, V73232, V73233, V73234, V73235, V73236, V73237, V73238, V73239, V73240, V73241, V73242, V73243, V73244, V73245, V73246, V73247, V73248, V73249, V73250, V73251, V73252, V73253, V73254, V73255, V73256, V73257, V73258, V73259, V73260, V73261, V73262, V73263, V73264, V73265, V73266, V73267, V73268, V73269, V73270, V73271, V73272, V73273, V73274, V73275, V73276, V73277, V73278, V73279, V73280, V73281, V73282, V73283, V73284, V73285, V73286, V73287, V73288, V73289, V73290, V73291, V73292, V73293, V73294, V73295, V73296, V73297, V73298, V73299, V73300, V73301, V73302, V73303, V73304, V73305, V73306, V73307, V73308, V73309, V73310, V73311, V73312, V73313, V73314, V73315, V73316, V73317, V73318, V73319, V73320, V73321, V73322, V73323, V73324, V73325, V73326, V73327, V73328, V73329, V73330, V73331, V73332, V73333, V73334, V73335, V73336, V73337, V73338, V73339, V73340, V73341, V73342, V73343, V73344, V73345, V73346, V73347, V73348, V73349, V73350, V73351, V73352, V73353, V73354, V73355, V73356, V73357, V73358, V73359, V73360, V73361, V73362, V73363, V73364, V73365, V73366, V73367, V73368, V73369, V73370, V73371, V73372, V73373, V73374, V73375, V73376, V73377, V73378, V73379, V73380, V73381, V73382, V73383, V73384, V73385, V73386, V73387, V73388, V73389, V73390, V73391, V73392, V73393, V73394, V73395, V73396, V73397, V73398, V73399, V73400, V73401, V73402, V73403, V73404, V73405, V73406, V73407, V73408, V73409, V73410, V73411, V73412, V73413, V73414, V73415, V73416, V73417, V73418, V73419, V73420, V73421, V73422, V73423, V73424, V73425, V73426, V73427, V73428, V73429, V73430, V73431, V73432, V73433, V73434, V73435, V73436, V73437, V73438, V73439, V73440, V73441, V73442, V73443, V73444, V73445, V73446, V73447, V73448, V73449, V73450, V73451, V73452, V73453, V73454, V73455, V73456, V73457, V73458, V73459, V73460, V73461, V73462, V73463, V73464, V73465, V73466, V73467, V73468, V73469, V73470, V73471, V73472, V73473, V73474, V73475, V73476, V73477, V73478, V73479, V73480, V73481, V73482, V73483, V73484, V73485, V73486, V73487, V73488, V73489, V73490, V73491, V73492, V73493, V73494, V73495, V73496, V73497, V73498, V73499, V73500, V73501, V73502, V73503, V73504, V73505, V73506, V73507, V73508, V73509, V73510, V73511, V73512, V73513, V73514, V73515, V73516, V73517, V73518, V73519, V73520, V73521, V73522, V73523, V73524, V73525, V73526, V73527, V73528, V73529, V73530, V73531, V73532, V73533, V73534, V73535, V73536, V73537, V73538, V73539, V73540, V73541, V73542,

A vertical scale from 0 to 150. The scale is divided into three sections: 'H' (0-50), 'C' (50-100), and 'F' (100-150). The numbers 0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, and 150 are marked along the scale.

REV. 2  
12.05.2005

<div style="border: 1px solid black; padding: 2px;"> <div style="border: 1px solid black; display: inline-block; width: 15px; height: 15px; margin-right: 5px;"></div> <div style="border: 1px solid black; padding: 2px;">AIR LIQUIDE</div> </div>	DATE	MARK	CHECKED	HISTORY FILE
	19.05.2004	IMA / GE	IEZ EICHLER	79286811039.doc
<div style="border: 1px solid black; padding: 2px;"> <div style="border: 1px solid black; display: inline-block; width: 15px; height: 15px; margin-right: 5px;"></div> <div style="border: 1px solid black; padding: 2px;">Air Liquide AZS DGMH</div> </div>	JOB CODE	SCALE		ORIGINAL FORM
	K70101 ASU Na 9 KOSICE			BN AI
REFERENCE:		SHEET: 839	OF 044	SHEET
REPLACES/92	TITLE	DRAWING NO		REV.
XL 1601 01792		792.86811		2
	WATER BATH STEAM VAP. LIN			
10	11	12		

REV. 20.04.05 / FL



Bitte Zeichnung in Kopie übermitteln, geändert, für den  
also unsere vollständige Zustimmung erforderlich ist.  
nicht in irgendeiner Weise verändert oder Distanz mit-  
geht, hier, weitergegeben werden.

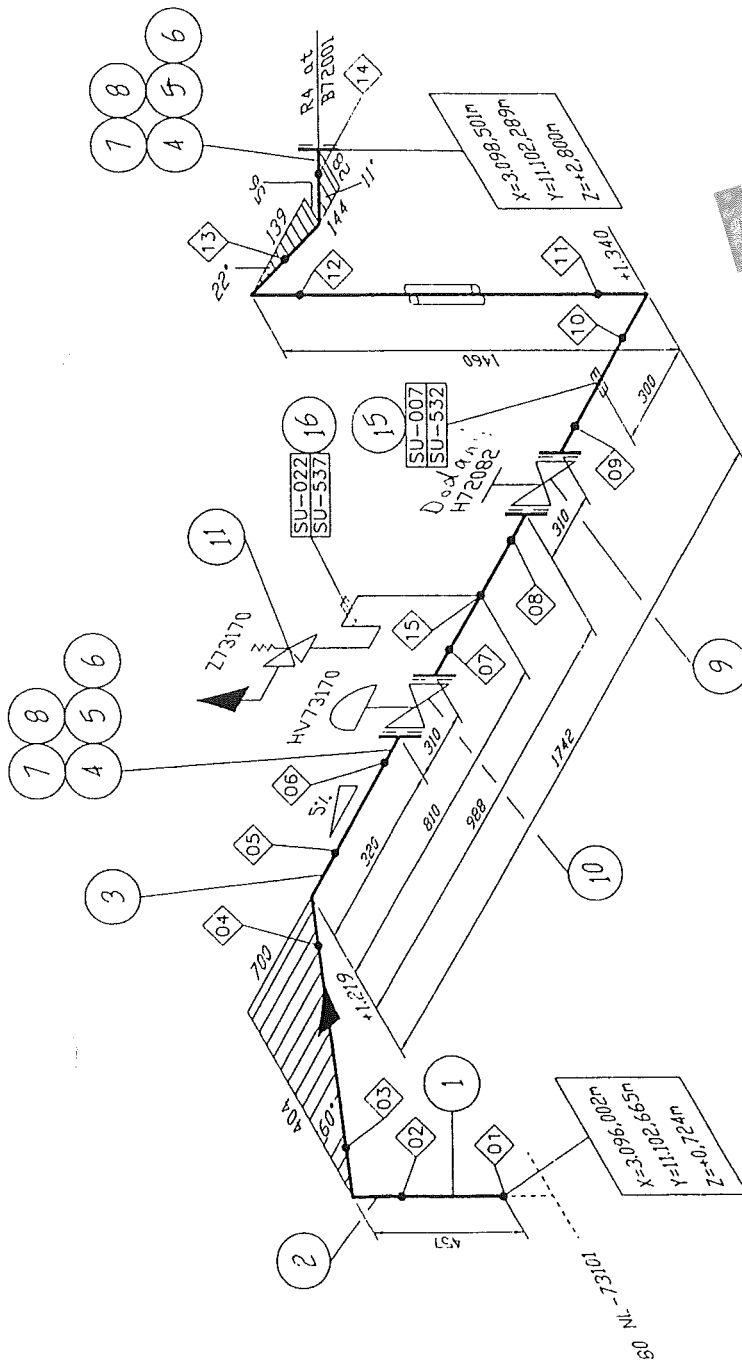
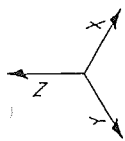
REV. 2  
12.05.2005

DATE	19.05.2004	NAME	IMA / GE	CHECKED	THISTURY TILL
AIR LIQUIDE					
JOB CODE	K70101 ASU No. 9	SCALE	ORIGINAL FORM		
REFERENCE					
TITLE	WATER BATH NAT. GAS VAP. LIN 792.86811				
REPLACES					
REPLACES					
SHEET	040	OF	044	SHEET	2



This drawing is protected by copyright.  
It may not be copied or used without our written  
authorization and it is strictly prohibited  
to disclose it to any third parties.

1 2 3 4 5 6 7 8



Welding No.	DN	Diameter	Welder No.	Protocol No.
01	80	88.9		
02	80	88.9		
03	80	88.9		
04	80	88.9		
05	80	88.9		
06	80	88.9		
07	80	88.9		
08	80	88.9		
09	80	88.9		
10	80	88.9		
11	80	88.9		
12	80	88.9		
13	80	88.9		
14	80	88.9		
15	80	88.9		

*Rev. 2004.10.27*

### 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 spindles at valve

### Accompanying drawings:

- 80 NL-73101 ZB25C1C

### Accompanying lists:

- Parts list:
- 80 NL-73102 ZB25C1C

### Pipe standard:

- AL Standard No.:
- 50026 (ZB25C1)

B	diff. Changes	16.04.05	Re/IES	Gr's
A	diff. Changes	18.01.05	Re/IES	Gr's
Rev	Revisions	Date	Name	proved

Date: 27.10.2004		Name: Reid./IES		Checked: Hr. Gans		History file: 79287106.doc	
Job code: K70101		Reference: ASU Kosice		Scale: ---:---		Original format: Dkt A3	
Replaces: 79		Replaced by: 79		Sheet: 001 of 001		Sheet: 1 of 1	
Title: 80 NL-73102		Drawing No.: 792.87106		Drawing No.: 792.87106		Drawing No.: B	

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 : 80 NL-73102 ZB25C1**

	Weight (kg)
pipe mat.:	50,63
con. valves	77,00
man. valves:	34,80
pr. supports:	6,40
sek. supports	49,91
summe:	218,74

AS BUILT

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

Stückliste 01 80 NL-73102 ZB25C1 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 - Rokis verwenden

ELBOW12	80	2,3	Elbow 90°, type 3 1.4541 DIN 2605-1 88,9x2,3	0,89 kg	3,00				
ELBOW3	80	2,3	Elbow 30°, type 3 1.4541 DIN 2605-1 88,9x2,3	0,35 kg	1,00				
FLANGE6	80	0	Welding neck flange 1.4541 DIN EN 1092-1	5,00 kg	5,00				
GASKET6	80	2	Gasket Graphite w. CrNi-Inlay DIN EN 1514-1 142x2x90x		5,00				
HEXNUT2	16	0	Hexagon head nut A2-70 DIN EN ISO 4032	0,03 kg	40,00				
PIPE15	15	1,5	PIPE, SEAMLESS 1.4541	0,51 kg	1,50				
PIPE3	80	2,3	Pipe, welded 1.4541 DIN EN ISO 1127 88,9x2,3	4,98 kg	3,00				
SCREW4A	16	0	Hexagon head screw A2-70 DIN EN ISO 4014 70	0,14 kg	40,00				
SOCKET1	15	0	socket piece G1/2" by AL-AGS	0,10 kg	1,00				
SWAG8	0	0	X 1/2" AD2KL15GE12 1.4571 swagelok		1,00				
WASH1	17	0	Washer B A2-70		40,00				
Summe: 01 80 NL-73102 ZB25C1				50,63 kg					

Stückliste 01 80 NL-73102 ZB25C1    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									

Liefersumme:	
Montagesumme:	
Gesamtsumme:	
Gesamt-Stunden:	
Gesamtgewicht:	50,63 kg
** Ende der Ausgabe	

ASBUILT

Stückliste 01 80 NL-73102 CON VAL BY AL Revision:

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

CHV73170	80	0	Control valve; HV73170 assembling only	77,00 kg	1,00				
Summe: 01 80 NL-73102 CON VAL BY AL				77,00 kg					

Liefersumme:  
Montagesumme:  
Gesamtsumme:  
Gesamt-Stunden:  
Gesamtgewicht:  
\*\* Ende der Ausgabe

77,00 kg

ASBUILT

Stückliste 01 80 NL-73102 MAN VAL BY AL Revision:

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

S0H72082	80	0	Shut-off valve, H72082 assembling only	33,60 kg	1,00				
SVZ73170	0	0	Safety valve, Type MG84, Z73170 AL No. 54101	1,20 kg	1,00				
Summe: 01 80 NL-73102 MAN VAL BY AL				34,80 kg					

Liefersumme:	
Montagesumme:	
Gesamtsumme:	34,80 kg
Gesamt-Stunden:	
Gesamtgewicht:	
** Ende der Ausgabe	

ASBUILT

Stückliste 01 80 NL-73102 PRI SUP 000000 Revision:

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

SU007	80	0	HALTERUNGEN PRO ROHRLEITUNG X6CRNIT18-10 / S137-2	6,40 kg	1,00				
Summe: 01 80 NL-73102 PRI SUP 000000				6,40 kg					

Liefersumme:	
Montagesumme:	
Gesamtsumme:	
Gesamt-Stunden:	
Gesamtgewicht:	6,40 kg
** Ende der Ausgabe	

AS BUILT

Stückliste 01 80 NL-73102 SEK SUP 000000 Revision:									
--	--	--	--	--	--	--	--	--	--

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

SU532	0	0	SUPPORT DWG.792.87247 SHEET532 SI37-2	38,61 kg	1,00				
SU537	0	0	SUPPORT DWG.792.87247 SHEET537 SI37-2	11,30 kg	1,00				
Summe: 01 80 NL-73102 SEK SUP 000000				49,91 kg					

Liefersumme:	
Montagesumme:	
Gesamtsumme:	
Gesamt-Stunden:	
Gesamtgewicht:	49,91 kg
** Ende der Ausgabe	

AS BUILT



**Celkové hodnotenie / General evaluation: ALL WELDS ACCEPTED**

**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: 3847920 DIČ: 6902178437/bm



56/02 Signature and stamp  
**CONSULTING & CONTROL  
OF WELDING**  
Ing. Pavol VIŠŇOVSKÝ  
Dlhé Pole 323, 013 32 ŽILINA  
IČO: 33857920 DIČ: 6902178437/691