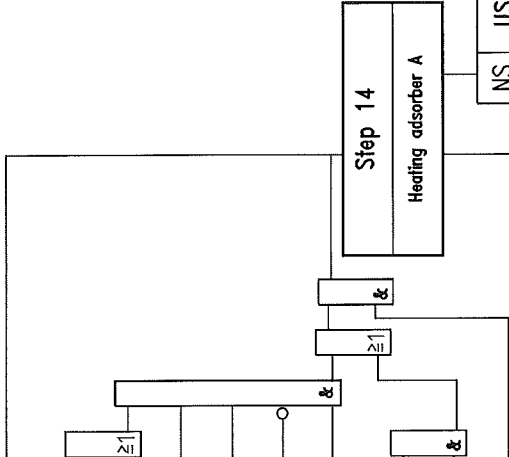


Rev.	Comment	Origin	Type	Signal-/TAG-No.	Pos.	Function	Pos.	Type	Signal-/TAG-No.	Destination	Comment	Rev.
	Preheating_A	from page no. 39/97	1	Step13	1		1	51				
			2		2			52				
			3		3			53				
			4		4			54				
	Time over	from page no. 39/92	1	Waitingtime13	5			55				
			6		6			56				
	Next step	Software push button	1	HS 15003	7			57				
			8		8			58				
	Enabling after start	from page no. 22/87	1	MS_Start_Ok	9			59				
			10		10			60				
	Adsorber A	from page no. 46/91	1	PL 15012	11			61				
			12		12			62				
	Stop sequence	Software button	1	HS 15002	13			63				
			14		14			64				
	Time over	from page no. 39/94	1	Minwaitingtime13	15			65				
			16		16			66				
			17		17			67				
	Next step	Software push button	1	HS 15003	18			68				
			19		19			69				
	Step without conditions	Hand control	1	HS 15005	20			70				
	Switch time valves	from page no. 45/90	1	MS_switch_time	21			71				
			22		22			72	1 Step14_US15013	to page no. 55/14	Open butterfly valve	
			23		23			73			UK 15013	
			24		24			74	1 Step14_US15021	to page no. 60/14	Open butterfly valve	
			25		25			75			UK 15021	
			26		26			76	1 Step14_US15026	to page no. 64/26	Open butterfly valve	
			27		27			77			UK 15026	
			28		28			78	1 Step14_US15012	to page no. 54/11	Open butterfly valve	
			29		29			79			UK 15012	
			30		30			80	1 Step14_US15014	to page no. 56/12	Open butterfly valve	
			31		31			81			UK 15014	
			32		32			82	1 Step14_US15028	to page no. 65/15	Open butterfly valve	
			33		33			83			UK 15028	
			34		34			84	1 Step14_US15040	to page no. 66/16	Reg. gas header on	
			35		35			85				
			36		36			86	1 Step14_T15043	to page no. 75/40	Controller on Auto	
			37		37			87				
			38		38			88	1 Step14_US15044	to page no. 76/9	Open butterfly valve	
			39		39			89			UK 15044	
			40		40			90	1 Step14_US15037	to page no. 77/12	Own regeneration	
			41		41			91			PCV 15037	
			42		42			92	1 Waitingtime14	to page no. 41/5	Time over	
			43		43			93	1	to page no. 48/16		
			44		44			94	1 Minwaitingtime14	to page no. 41/15	Time over	
			45		45			95				
			46		46			96	1 KC15001_TM14	Alarm	"Check time over"	
			47		47			97	1	to page no. 45/35; 48/30; 50/11; 52/10; 73/27		
			48		48			98	1 Step14	to page no. 41/2	Heating_A	



NS	US 15013	1
NS	US 15021	2
NS	US 15026	3
NS	US 15012	4
NS	US 15014	5
NS	US 15028	6
NS	US 15040	7
NS	TIC 15043	8
NS	US 15044	9
NS	US 15037	10
T	Waiting time = 150 min	11
T	Minwaitingtime = 120 min	12
T	Monitoring = 160 min	13

The times are set by
MS_Start_Ok = 0
on the initial value

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Function									
Comment	Origin	Type	Signal-/TAG-No.	Function	Pz	Type	Signal-/TAG-No.	Destination	Comment
Heating_A	from page no. 40/98	1	Step14		1	51			
		2			2	52			
		3			3	53			
		4			4	54			
Time over	from page no. 40/92	1	Waitingtime14		5	55			
		6			6	56			
Next step	Software push button	1	HS 15003		7	57			
Enabling after start	from page no. 22/89	1	MS_Start_Ok		8	58			
		9			9	59			
		10			10	60			
Adsorber A	from page no. 46/90	1	PL 15012		11	61			
Outlet reg. gas A	from page no. 48/62	1	TH 15011		12	62			
Stop sequence	Software button	1	HS 15002		13	63			
		14			14	64			
Time over	from page no. 40/94	1	Minwaitingtime14		15	65			
		16			16	66			
		17			17	67			
Next step	Software push button	1	HS 15003		18	68			
		19			19	69			
Step without conditions	Hand control	1	HS 15005		20	70			
Switch time valves	from page no. 45/91	1	MS_switch_time		21	71			
		22			22	72			
		23			23	73			
		24			24	74	1	Step15_US15045	to page no. 72/9
		25			25	75			Open butterfly valve UK 15045
		26			26	76	1	Step15_US15013	to page no. 55/15
		27			27	77			Open butterfly valve UK 15013
		28			28	78	1	Step15_US15021	to page no. 60/15
		29			29	79			Open butterfly valve UK 15021
		30			30	80	1	Step15_US15026	to page no. 64/27
		31			31	81			Open butterfly valve UK 15026
		32			32	82	1	Step15_US15012	to page no. 54/12
		33			33	83			Open butterfly valve UK 15012
		34			34	84	1	Step15_US15014	to page no. 56/13
		35			35	85			Open butterfly valve UK 15014
		36			36	86	1	Step15_US15028	to page no. 65/16
		37			37	87			Open butterfly valve UK 15028
		38			38	88			
		39			39	89			
		40			40	90	1	Step15_US15037	to page no. 77/16
		41			41	91			Own regeneration PCV 15037
		42			42	92	1	Waitingtime15	to page no. 42/5
		43			43	93	1		Time over to page no. 48/25
		44			44	94	1	Minwaitingtime15	to page no. 42/15
		45			45	95			Time over
		46			46	96	1	KC15001_TM15	Alarm
		47			47	97	1		"Check time over"
						98	1	Step15	to page 22/23;45/35;48/45;67/27;70/16;73/22
								to page no. 42/2	Cooling_A
The times are set by MS_Start_Ok = 0 on the initial value									
DRAWING NAME:					PROJECT NAME:				
MOL SIEVE STATION					ASU KOSICE				
COOLING ADSORBER A					MOL SIEVE STATION				
AIR LIQUIDE					PLANT PART				
Air Liquide AGS GmbH					Rev3 08.6.07 "as built"				
Füllingsweg 34					From Eicher				
47805 Krefeld					Rev2 02.2.06				
					DATE REVISIONS BY CHKD.				
					REPLACES:				
					PRJ. NO.				
					DRWG. NO.				
					K70101_041.dwg				
					DATE 17.06.2005				
					AUTHOR From				
					CHECK Eicher				
					STD.				
					Page no. 041				
					Of 230 Pages				
					REPLACED BY:				
					BASED:				

Rev.	Comment	Origin	Signal-/TAG-No.	Function	Signal-/TAG-No.	Destination	Comment	Rev.
1	Cooling_A	from page no. 41/98	Step15					51
2								52
3								53
4								54
5	Time over	from page no. 41/92	Waitingtime15					55
6								56
7	Next step	Software push button	HS 15003					57
8								58
9	Enabling after start	from page no. 22/91	MS_Start_Ok					59
10								60
11	Outlet reg. gas A	from page no. 48/71	TL 15011					61
12								62
13	Stop sequence	Software button	HS 15002					63
14								64
15	Time over	from page no. 41/94	Minwaitingtime15					65
16								66
17								67
18	Next step	Software push button	HS 15003					68
19								69
20	Step without conditions	Hand control	HS 15005					70
21								71
22	Switch time valves	from page no. 45/92	MS_switch_time					72
23								73
24								74
25								75
26								76
27								77
28								78
29								79
30								80
31								81
32								82
33								83
34								84
35								85
36								86
37								87
38								88
39								89
40								90
41								91
42								92
43								93
44								94
45								95
46								96
47								97
48								98

Step 16

Preparation pressurisation A

The times are set by MS_Start_Ok = 0 on the initial value

Step	Signal	Destination
1	NS US 15021	to page no. 60/16
2	NS US 15026	to page no. 64/28
3	NS US 15028	to page no. 65/17
4	T Waitingtime = 90 sec	to page no. 43/5
5	T Minwaitingtime = 60 sec	to page no. 43/15
6	T Monitoring = 120 sec	Alarm

Step 16

Preparation pressurisation A

Step	Signal	Destination
1	NS US 15021	to page no. 60/16
2	NS US 15026	to page no. 64/28
3	NS US 15028	to page no. 65/17
4	T Waitingtime = 90 sec	to page no. 43/5
5	T Minwaitingtime = 60 sec	to page no. 43/15
6	T Monitoring = 120 sec	Alarm

Step 16

Preparation pressurisation A

Step	Signal	Destination
1	NS US 15021	to page no. 60/16

Function																			
Rang	Comment	Origin	Type	Signal-/TAG-No.	Rang	Signal-/TAG-No.	Type	Signal-/TAG-No.	Destination	Comment	Rang	Comment	Origin	Type	Signal-/TAG-No.	Destination	Comment	Rang	Comment
	PrepPress_A	from page no. 42/97	1	Step16	1						51								
					2						52								
					3						53								
					4						54								
	Time over	from page no. 42/84	1	Waitingtime16	5						55								
					6						56								
	Next step	Software push button	1	HS 15003	7						57								
					8						58								
	Enabling after start	from page no. 22/93	1	MS_Start_Ok	9						59								
					10						60								
					11						61								
					12						62								
	Stop sequence	Software button	1	HS 15002	13						63								
					14						64								
	Time over	from page no. 42/86	1	Minwaitingtime16	15						65								
					16						66								
					17						67								
	Next step	Software push button	1	HS 15003	18						68								
					19						69								
	Step without conditions	Hand control	1	HS 15005	20						70								
					21						71								
	Switch time valves	from page no. 45/93	1	MS_switch_time	22						72								
					23						73								
					24						74								
					25						75								
					26						76								
					27						77								
					28						78	1	Step17_US15021	to page no. 60/17	Open butterfly valve				
					29						79				UK 15021				
					30						80	1	Step17_US15026	to page no. 64/29	Open butterfly valve				
					31						81				UK 15026				
					32						82	1	Step17_US15017	to page no. 58/13	Open butterfly valve				
					33						83				UK 15017				
					34						84	1	Step17_US15028	to page no. 65/18	Open butterfly valve				
					35						85				UK 15028				
					36						86	1	Waitingtime17	to page no. 44/5	Time over				
					37						87	1		to page no. 46/36					
					38						88	1	Minwaitingtime17	to page no. 44/15	Time over				
					39						89								
					40						90	1	KC15001_IM17	Alarm	"Check time over"				
					41						91								
					42						92								
					43						93								
					44						94								
					45						95								
					46						96								
					47						97	1	Step17	to page no. 44/2	Press_A				
											98	1		to page no. 45/39;	79/7				

Step 17
Pressurisation adsorber A

NS	US 15021	1
NS	US 15026	2
NS	US 15017	3
NS	US 15028	4
T	Waitingtime = 7 min	5
T	Minwaitingtime = 2 min	6
T	Monitoring = 15 min	7

The times are set by
MS_Start_Ok = 0
on the initial value

PROJECT NAME		DRAWING NAME:		DATE	
ASU KOSICE		MOL SIEVE STATION		17.06.2005	
MOL SIEVE STATION		PRESSURISATION ADSORBER A		FUNCTION DIAGRAM	
Rev3 08.6.07 "as built"		Rev2 02.2.06		A3	
Rev3 08.6.07 "as built"		Rev2 02.2.06		SIZE	
Rev3 08.6.07 "as built"		Rev2 02.2.06		DRWG. NO.	
Rev3 08.6.07 "as built"		Rev2 02.2.06		PROJ. NO.	
Rev3 08.6.07 "as built"		Rev2 02.2.06		REPLACES:	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101_043.dwg	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
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Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06		K70101	
Rev3 08.6.07 "as built"		Rev2 02.2.06			

Function					Rang	
Comment	Origin	Type	Signal-/TAG-No.	Time	Step	
Press_A	from page no. 43/97	1	Step17	1	NS US 15016	
				2	NS US 15021	
				3	NS US 15026	
Time over	from page no. 43/86	1	Waitingtime17	4	NS US 15017	
				5	NS US 15028	
Next step	Software push button	1	HS 15003	6	T Waiting time = 65 sec	
				7	T Minwaitingtime = 10 sec	
Enabling after start	from page no. 22/95	1	MS_Start_Ok	8	T Monitoring = 75 sec	
Adsorber A	from page no. 46/79	1	PH 15012			
Stop sequence	Software button	1	HS 15002			
Time over	from page no. 43/88	1	Minwaitingtime17			
Next step	Software push button	1	HS 15003			
Step without conditions	Hand control	1	HS 15005			
Switch time valves	from page no. 45/94	1	MS_switch_time			
				</		

Function										Rang.	
Rang.	Comment	Origin	Signal-/TAG-No.	Step	Signal-/TAG-No.	Step	Signal-/TAG-No.	Step	Signal-/TAG-No.	Type	Comment
1										51	
2										52	
3	Initial position	from page no. 25/92	1	Initial position						53	
4										54	
5	DepressAB	from page no. 26/98	1	Step01						55	
6										56	
7	Parallel_B	from page no. 27/98	1	Step1						57	
8										58	
9	PreDepr_B	from page no. 28/98	1	Step2						59	
10										60	
11	Depress_B	from page no. 29/98	1	Step3						61	
12										62	
13	PreHeat_B	from page no. 30/97	1	Step4						63	
14										64	
15	Heating_B	from page no. 31/97	1	Step5						65	
16										66	
17	Cooling_B	from page no. 32/97	1	Step6						67	
18										68	
19	PrePress_B	from page no. 33/98	1	Step7						69	
20										70	
21	Press_B	from page no. 34/98	1	Step8						71	
22										72	
23	Ready_B	from page no. 35/98	1	Step9						73	
24										74	
25	Parallel_A	from page no. 36/98	1	Step10						75	Time over
26										76	to page no. 26/18
27	PreDepr_A	from page no. 37/98	1	Step11						77	to page no. 27/20
28										78	to page no. 28/24
29	Depress_A	from page no. 38/98	1	Step12						79	to page no. 29/22
30										80	to page no. 30/22
31	PreHeat_A	from page no. 39/98	1	Step13						81	to page no. 31/22
32										82	to page no. 32/22
33	Heating_A	from page no. 40/97	1	Step14						83	to page no. 33/22
34										84	to page no. 34/22
35	Cooling_A	from page no. 41/97	1	Step15						85	to page no. 35/22
36										86	to page no. 36/23
37	PrePress_A	from page no. 42/98	1	Step16						87	to page no. 37/24
38										88	to page no. 38/22
39	Press_A	from page no. 43/98	1	Step17						89	to page no. 39/22
40										90	to page no. 40/22
41	Ready_A	from page no. 44/98	1	Step18						91	to page no. 41/22
42										92	to page no. 42/22
43										93	to page no. 43/22
44										94	to page no. 44/22
45										95	
46										96	
47										97	
48										98	

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DRAWING NAME:

MOL SIEVE STATION

SWITCH TIME VALVES

AIR LIQUIDE

Air Liquide AGS GmbH

Füllingsweg 34

47805 Krefeld

ASU KOSICE

MOL SIEVE STATION

PROJECT NAME

PLANT

Rev3 08.6.07" as built"

Rev2 02.2.06" Fröhn

Rev1 02.2.06" Fröhn

Rev0 02.2.06" Fröhn

Rev4 02.2.06" Fröhn

Rev5 02.2.06" Fröhn

Rev6 02.2.06" Fröhn

Rev7 02.2.06" Fröhn

Rev8 02.2.06" Fröhn

Rev9 02.2.06" Fröhn

Rev10 02.2.06" Fröhn

Rev11 02.2.06" Fröhn

Rev12 02.2.06" Fröhn

Rev13 02.2.06" Fröhn

Rev14 02.2.06" Fröhn

Rev15 02.2.06" Fröhn

Rev16 02.2.06" Fröhn

Rev17 02.2.06" Fröhn

Rev18 02.2.06" Fröhn

Rev19 02.2.06" Fröhn

Rev20 02.2.06" Fröhn

Rev21 02.2.06" Fröhn

Rev22 02.2.06" Fröhn

Rev23 02.2.06" Fröhn

Rev24 02.2.06" Fröhn

Rev25 02.2.06" Fröhn

Rev26 02.2.06" Fröhn

Rev27 02.2.06" Fröhn

Rev28 02.2.06" Fröhn

Rev29 02.2.06" Fröhn

Rev30 02.2.06" Fröhn

Rev31 02.2.06" Fröhn

Rev32 02.2.06" Fröhn

Rev33 02.2.06" Fröhn

Rev34 02.2.06" Fröhn

Rev35 02.2.06" Fröhn

Rev36 02.2.06" Fröhn

Rev37 02.2.06" Fröhn

Rev38 02.2.06" Fröhn

Rev39 02.2.06" Fröhn

Rev40 02.2.06" Fröhn

Rev41 02.2.06" Fröhn

Rev42 02.2.06" Fröhn

Rev43 02.2.06" Fröhn

Rev44 02.2.06" Fröhn

Rev45 02.2.06" Fröhn

Rev46 02.2.06" Fröhn

Rev47 02.2.06" Fröhn

Rev48 02.2.06" Fröhn

DATE 17.06.2005

AUTHOR Fröhn

CHECK Echler

STD.

Page no. 045

Of 230 Pages

BASED

SIZE A3


FUNKTION DIAGRAM

DRWG. NO. K70101_045.dwg

PROJ. NO. K70101

REPLACES: REPLACED BY:

Rang.	Comment	Origin	Type	Signal-/TAG-No.	Function	Type	Signal-/TAG-No.	Destination	Comment	Rang.
1						51				
2						52				
3						53				
4	PrePress_A	from page no. 42/96 1 Step16				54	1 PH 15012_ERR	to page no. 22/15	Measure fail	
5						55				
6						56	1 PAH 15012ERR	Alarm OS	"Measure fail"	
7						57				
8	Reset	Software button	1 HS 15004			58				
9						59				
10						60				
11						61				
12	PreDepr_A	from page no. 37/96 1 Step11				62	1 PL 15012_ERR	to page no. 22/13	Measure fail	
13						63				
14						64	1 PAL 15012ERR	Alarm OS	"Measure fail"	
15						65				
16						66				
17						67				
18						68				
19						69				
20	Device failure	PCS	1 PT 15012_DF			70	1 P 12012_ERR	to page no. 22/11	Outlet adsorber A failure	
21						71				
22						72				
23						73				
24						74				
25						75				
26						76				
27						77				
28						78				
29						79	1	to page no. 44/11		
30						80	1	to page no. 28/9		
31	Adsorber A	Value > Max1	1 PH 15012_1			81	1 PH 15012	to page no. 27/30		
32						82				
33						83				
34						84				
35						85				
36	Time over	from page no. 43/87 1 Waitingtime17				86	1 PAL 15012	Alarm OS	"Fail press. build up adsorber A"	
37						87				
38						88				
39						89				
40						90	1	to page no. 41/11		
41						91	1	to page no. 40/11		
42						92	1	to page no. 39/11		
43	Adsorber A	Value < Min1	1 PL 15012_1			93	1 PL 15012	to page no. 27/11		
44						94				
45						95				
46						96				
47	Time over	from page no. 38/87 1 Waitingtime12				97	1 PAH 15012	Alarm OS	"Fail depressurisation adsorber A"	
48						98				


AIR LIQUIDE
Air Liquide AGS GmbH
Fühlingweg 34
47805 Krefeld

ASU KOSICE

MOL SIEVE STATION

DRAWING NAME:
MOL SIEVE STATION
PESSURE OUTLET ADSORBER A
P15012

PROJECT NAME:

PLANT
STOPPICH PART
Rev3 08.6.07 "as built"
Rev2 02.2.06
Frohn
Eichler
BY CHKD.

SIZE A3
DRWG. NO. K70101_046.dwg
PROJ. NO. K70101
REPLACES
DATE 17.06.2005
AUTHOR Frohn
CHECK Eichler
STD.
Page no. 046
Of 230 Pages
BASED:

Range	Comment	Origin	Type	Signal-/TAG-No.	Function	Pe	Signal-/TAG-No.	Destination	Comment	Range
1						51				
2						52				
3						53				
4	PrePress_B	from page no. 33/96	1	Step7		54	1	PH 15022_ERR	to page no. 22/21	Measure fail
5						55				
6						56	1	PAH 15022ERR	Alarm OS	"Measure fail"
7						57				
8	Reset	Software button	1	HS 15004		58				
9						59				
10						60				
11						61				
12	PreDepr_B	from page no. 28/96	1	Step2		62	1	PL 15022_ERR	to page no. 22/19	Measure fail
13						63				
14						64	1	PAL 15022ERR	Alarm OS	"Measure fail"
15						65				
16						66				
17						67				
18						68				
19						69				
20	Device failure	PCS	1	PT 15022_DF		70	1	P 15022_ERR	to page no. 22/17	Outlet adsorber B failure
21						71				
22						72				
23						73				
24						74				
25						75				
26						76				
27						77	1		to page no. 37/9	
28						78	1		to page no. 36/11	
29						79	1	PH 15022	to page no. 35/11	
30						80				
31	Adsorber B	Value > Max1	1	PH 15022_1		81				
32						82				
33						83				
34						84				
35						85				
36	Time over	from page no. 34/87	1	Waitingtime8		86	1	PAL 15022	Alarm OS	"Fail press. build up adsorber B"
37						87				
38						88				
39						89				
40						90	1		to page no. 32/11	
41						91	1		to page no. 31/11	
42						92	1		to page no. 30/11	
43	Adsorber B	Value < Min1	1	PL 15022_1		93	1	PL 15022	to page no. 27/13	
44						94				
45						95				
46						96				
47	Time over	from page no. 29/87	1	Waitingtime3		97	1	PAH 15022	Alarm OS	"Fail depressurisation adsorber B"
48						98				

PROJECT NAME		ASU KOSICE		DRAWING NAME:		FUNCTION DIAGRAM		DATE 17.06.2005	
PLANT		MOL SIEVE STATION		MOL SIEVE STATION		MOL SIEVE STATION		AUTHOR From	
PART		MOL SIEVE STATION		PRESSURE OUTLET ADSORBER B		PRESSURE OUTLET ADSORBER B		CHECK Etchler	
Slippich		Air Liquide AGS GmbH		Air Liquide AGS GmbH		Air Liquide AGS GmbH		STD.	
From Etchler		Füllingsweg 34		Füllingsweg 34		Füllingsweg 34		K70101_047.dwg	
Rev2.02.2.08		47805 Krefeld		47805 Krefeld		47805 Krefeld		K70101	
NO FILE NO REV DATE REVISIONS BY CHKD.		MOL SIEVE STATION		PRESSURE OUTLET ADSORBER B		PRESSURE OUTLET ADSORBER B		Page no. 047	
								230 Pages	
								REPLACED BY:	
								BASED:	

Rev.	Comment	Origin	Signal-/TAG-No.	Function	Size	Signal-/TAG-No.	Destination	Comment	Rev.
1					51				1
2					52				2
3					53	1 T 15011_BLOCK	to page no. 22/23	Device failure	3
4					54				4
5	Device failure	PCS	1 T 15011_DF		55				5
6					56				6
7					57				7
8					58				8
9	Reset	Software button	1 HS 15004		59				9
10					60				10
11	Outl. reg gas ads.A	Value > Max1	1 TH 15011_1		61				11
12					62	1 TH 15011	to page no. 41/12	Outl. reg.gas ads. A	12
13					63				13
14					64				14
15					65				15
16	Time over	from page no. 40/93	1 Waitingtime14		66	1 TAL 15011ERR	Alarm OS	"Failure Heating A"	16
17					67				17
18					68				18
19					69				19
20					70				20
21	Outl. reg gas ads.A	Value < Min	1 TL 15011_1		71	1 TL 15011	to page no. 42/11	Outl. reg.gas ads. A	21
22					72				22
23					73				23
24					74				24
25	Time over	from page no. 41/93	1 Waitingtime15		75	1 TAH 15011ERR	Alarm OS	"Failure Cooling A"	25
26					76				26
27					77				27
28					78				28
29					79				29
30	Heating_A	from page no. 40/97	1 Step14		80				30
31					81				31
32					82				32
33					83				33
34					84				34
35					85				35
36					86				36
37					87				37
38	Trip mole sieve	from page no. 21/66	1 US 15000		88				38
39					89				39
40					90				40
41	Outl. reg. gas ads.A	Value > Max2	1 THH 15011_1		91				41
42					92				42
43					93				43
44					94				44
45	Cooling_A	from page no. 41/97	1 Step15		95	1 TAHH 15011ERR	Alarm OS	"Temp. peak low"	45
46					96				46
47					97	1 THH15011ERR			47
48					98				48

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Rang	Comment	Origin	Type	Signal-/TAG-No.	Function	Pz	Type	Signal-/TAG-No.	Destination	Comment
						1				
						2				
						3				
						4				
	Device failure	PCS	1 T 15021_DF			5				
						6			to page 22/25	Device failure
						7				
						8				
	Reset	Software button	1 HS 15004			9				
						10				
	Outfl. reg gas ads.B	Value > Max1	1 TH 15021_1			11				
						12				
						13				
						14				
						15				
	Time over	from page no. 31/93	1 Waitingtime5			16				
						17				
						18				
						19				
						20				
	Outfl. reg gas ads.B	Value < Min	1 TL 15021_1			21				
						22				
						23				
						24				
	Time over	from page no. 32/93	1 Waitingtime6			25				
						26				
						27				
						28				
						29				
	Heating_B	from page no. 31/97	1 Step5			30				
						31				
						32				
						33				
						34				
						35				
						36				
						37				
	Trip mole sieve	from page no. 21/68	1 US 15000			38				
						39				
						40				
	Outfl. reg. gas ads.B	Value > Max2	1 THH 15021_1			41				
						42				
						43				
						44				
	Cooling_B	from page no. 32/97	1 Step6			45				
						46				
						47				
						48				

The diagram illustrates the control logic for the ASU KOSICE and MOL SIEVE STATION. It includes several interlocking conditions represented by AND (&) and OR (≥1) symbols. Key components include a 5s timer, a 3h timer, and various status signals like 'Device failure', 'Time over', 'Heating_B', 'Trip mole sieve', and 'Cooling_B'. The logic is organized into two main sections: one for the ASU KOSICE and another for the MOL SIEVE STATION, each with its own set of interlocking rules.

PROJECT NAME		DRAWING NAME:	
ASU KOSICE	AIR LIQUIDE	MOL SIEVE STATION	FUNKTION DIAGRAM
		SIZE A3	DATE 17.06.2005
		DRV/G. NO.	AUTHOR From
		PRDJ. NO.	CHECK Eichler
		REPLACES:	STD.
		K70101_049.dwg	Page no. 049
		K70101	of 230 Pages
		REPLACED BY:	BASED IN

Rev3 08.6.07 "as built"

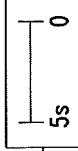
Rev2 02.2.06

From Silpatich PART


From Eichler

By CHK.D.


Rang.	Comment	Origin	Type	Signal-/TAG-No.	Function	Signal-/TAG-No.	Destination	Comment	Rang.
1									51
2									52
3									53
4	Outlet reg.gas ads.A Value > Min		1	TL 15011_1					54
5									55
6									56
7									57
8									58
9									59
10									60
11	Heating_A from page no. 40/97 1 Step14					TAL 15011	Alarm OS	"Temperature reg. gas low"	61
12									62
13									63
14									64
15									65
16									66
17									67
18									68
19									69
20									70
21									71
22									72
23									73
24									74
25									75
26									76
27									77
28									78
29									79
30									80
31	Outlet reg.gas ads. A Value > Max2		1	THH 15011_1		THH 15011	to sheet 69/16		81
32									82
33									83
34						TAHH 15011	Alarm	"Temp. reg.gas too high"	84
35	Reset Software button		1	HS 15004					85
36									86
37									87
38									88
39									89
40									90
41									91
42									92
43									93
44									94
45									95
46									96
47									97
48									98



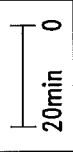
5s




&



S 110
111 R



20min 0



&

Outlet reg.gas ads.A Value > Min

Heating_A from page no. 40/97 1 Step14

to sheet 69/16

Alarm

"Temp. reg.gas too high"

ASU KOSICE

MOL SIEVE STATION

PROJECT NAME

PLANT PART

Rev3 08.6.07 as built

Rev2 02.2.06

FOR MILETIF NOUREV DATE REVISIONS BY CHKD.

AIR LIQUIDE

Air Liquide AGS GmbH

Filingsweg 34

47805 Krefeld

DRAWING NAME:

MOL SIEVE STATION

TEMPERATURE OUTLET REGENERATION

GAS ADSORBER A T15011

DATE 17.06.2005

AUTHOR Frohn

CHECK Eichler

STD.

Page no. 050

Of 230 Pages

BASE D1

SIZE A3

FUNKTION DIAGRAM

DRWG. NO. K70101_050.dwg

PROJ. NO. K70101

REPLACES: REPLACED BY:

Rang.	Comment	Origin	Signal-/TAG-No.	Typ	Function	Typ	Signal-/TAG-No.	Destination	Comment	Rang.
						51				
						52				
						53				
	Outlet reg.gas ads.B Value > Min		1 TL 15021_1			54				
						55				
						56				
						57				
						58				
						59				
						60				
	Heating_B	from page no. 31/97 1 Step5				61	1 TAL 51021	Alarm OS	"Temperature reg. gas low"	
						62				
						63				
						64				
						65				
						66				
						67				
						68				
						69				
						70				
						71				
						72				
						73				
						74				
						75				
						76				
						77				
						78				
						79				
						80				
	Outlet reg.gas ads. B Value > Max2		1 THH 15021			81	1 THH 15021	to sheet 69/18		
						82				
						83				
	Reset	Software button	1 HS 15004			84	1 TAHH 15021	Alarm	"Temp. reg.gas too high"	
						85				
						86				
						87				
						88				
						89				
						90				
						91				
						92				
						93				
						94				
						95				
						96				
						97				
						98				

DATE	17.06.2005
AUTHOR	From
CHECK	Echler
STD.	
Page no.	051
of	230
PAGES	
REPLACES	REPLACED BY
SIZE	A3
DRWG. NO.	K70101_051.dwg
PRD.J. NO.	K70101
DATE	17.06.2005
AUTHOR	From
CHECK	Echler
STD.	
Page no.	051
of	230
PAGES	
REPLACES	REPLACED BY

Rank	Comment	Origin	Signal-/TAG-No.	Signal-/TAG-No.	Destination	Comment	Rank
							51
							52
							53
							54
	Outlet reg. gas header	Value < Min	1 TL 15043				55
							56
							57
							58
							59
	Heating_A	from page no. 40/97 1 Step14					60
	Heating_B	from page no. 31/97 1 Step5		TAL 15043	Alarm OS	"Temp. outlet reg. gas header low"	61
							62
							63
							64
							65
							66
							67
							68
							69
							70
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							78
							79
	Outlet reg. gas header	Value > Max2	1 THHL 15043	THH 15043	to page no. 66/20		80
							81
							82
	Reset	Software button	1 HS 15004	TAHH 15043	Alarm OS	"Temp. reg.gas too high"	83
							84
							85
							86
							87
							88
							89
							90
							91
							92
							93
							94
							95
							96
							97
							98

Function

Diagram

Rang	Comment	Origin	Signal-/TAG-No.	Ref.	Function	Type	Signal/TAG-No.	Destination	Comment	Rang
1				1		51				51
2				2		52				52
3	Trip mol sieve	from page no. 21/70	1 US 15000	3		53				53
4				4		54				54
5				5		55				55
6				6		56				56
7				7		57				57
8				8		58				58
9				9		59				59
10	Parall_B	from page no. 27/78	1 Step1_US15011	10		60				60
11	PreDepr_B	from page no. 28/80	1 Step2_US15011	11		61				61
12	Depress_B	from page no. 29/80	1 Step3_US15011	12		62				62
13	PreHeat_B	from page no. 30/82	1 Step4_US15011	13		63				63
14	Heating_B	from page no. 31/74	1 Step5_US15011	14		64				64
15	Cooling_B	from page no. 32/78	1 Step6_US15011	15		65				65
16	PrePress_B	from page no. 33/78	1 Step7_US15011	16		66				66
17	Press_B	from page no. 34/78	1 Step8_US15011	17		67				67
18	Ready_B	from page no. 35/80	1 Step9_US15011	18		68				68
19	Parall_A	from page no. 36/78	1 Step10_US15011	19		69				69
20				20		70				70
21				21		71				71
22	Air Inlet mol sieve	P-Transmitter	E PT 15010	22		72				72
23				23		73				73
24	Adsorber A	P-Transmitter	E PT 15012	24		74				74
25				25		75				75
26	Constant	0,3 bar	E US 15011_K1	26		76				76
27				27		77				77
28				28		78				78
29				29		79				79
30				30		80				80
31				31		81				81
32				32		82				82
33				33		83				83
34				34		84				84
35				35		85				85
36				36		86				86
37	Inlet adsorber A	End position switch	1 GH 15011	37		87				87
38				38		88				88
39	Inlet adsorber A	End position switch	1 GL 15011	39		89				89
40				40		90				90
41				41		91				91
42				42		92				92
43				43		93				93
44				44		94				94
45				45		95				95
46				46		96				96
47				47		97				97
						98				98

US 15011

PROJECT NAME		ASU KOSICE		MOL SIEVE STATION	
DATE		17.06.2005		DATE	
AUTHOR		Frohn		AUTHOR	
CHECK		Eichler		CHECK	
STD.		STD.		STD.	
Page no. 053		Page no. 053		Page no. 053	
Of 230 Pages		Of 230 Pages		Of 230 Pages	
BASED		BASED		BASED	

FUNCTION DIAGRAM

SIZE A3

DRWG. NO. K70101_053.dwg

PROJ. NO. K70101

REPLACES: REPLACED BY:

FUNKTION DIAGRAM

[illegible]

[illegible]

Rev.	Comment	Origin	Type	Signal-/TAG-No.	Function	Rev.
1						1
2						2
3						3
4						4
5						5
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9						9
10						10
11						11
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48						48

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Function				Drawing Name:			
Rang	Comment	Origin	Signal-/TAG-No.	Typ	Signal-/TAG-No.	Destination	Comment
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11	PreHeat_A	from page no. 39/88	1 Step13_US15014				
12	Heating_A	from page no. 40/80	1 Step14_US15014				
13	Cooling_A	from page no. 41/84	1 Step15_US15014				
14	PrePress_A	from page no. 42/95	1 Step16_US15014				
15							
16							
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48							

SIZE	A3	FUNKTION DIAGRAM	DATE	17.06.2005
DRWG. NO.		K70101_056.dwg	AUTHOR	Frohn
PROJ. NO.		K70101	CHECK	Eichler
REPLACES		REPLACED BY:	STD.	
			Page no.	056
			OF	230 Pages
			BASED	

[illegible]

Rank	Comment	Origin	Type	Signal-/TAG-No.	Function	Signal-/TAG-No.	Destination	Comment	Rank
									51
									52
									53
									54
									55
									56
									57
									58
									59
									60
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Press_B from page no. 34/82 1 Step8_US15017

Ready_B from page no. 35/86 1 Step9_US15017

Press_A from page no. 43/82 1 Step17_US15017

Ready_A from page no. 44/86 1 Step18_US15017

PROJECT NAME		ASU KOSICE		DRAWING NAME:	
				MOL SIEVE STATION	
				PRESSURISATION BUTTERFLY VALVE	
				ADSORBER A/B - US15017	

Rev3 08.6.07 as built

Rev2 02.2.06

Rev1 02.2.06

DATE

17.06.2005

17.06.2005

17.06.2005

DATE	17.06.2005	17.06.2005	17.06.2005
AUTHOR	Frohn	Frohn	Frohn
CHECK	Eichler	Eichler	Eichler
STD.			
DATE	17.06.2005	17.06.2005	17.06.2005
17.06.2005			
17.06.2005			

Rev3 08.6.07 as built

Rev2 02.2.06

Rev1 02.2.06

DATE

17.06.2005

17.06.2005

17.06.2005

DATE	17.06.2005	17.06.2005	17.06.2005
AUTHOR	Frohn	Frohn	Frohn
CHECK	Eichler	Eichler	Eichler
STD.			
DATE	17.06.2005	17.06.2005	17.06.2005
17.06.2005			
17.06.2005			

Function										Range
Range	Comment	Origin	Type	Signal-/TAG-No.	Pin	Pin	Signal-/TAG-No.	Destination	Comment	Range
					1	51				
					2	52				
					3	53				
					4	54				
					5	55				
					6	56				
					7	57				
					8	58				
					9	59				
					10	60				
	Parall_B	from page no. 27/86	1	Step1_US15018	11	61				
	PreDepr_B	from page no. 28/84	1	Step2_US15018	12	62				
	Depress_B	from page no. 29/84	1	Step3_US15018	13	63				
	PreHeat_B	from page no. 30/90	1	Step4_US15018	14	64				
	Heating_B	from page no. 31/82	1	Step5_US15018	15	65				
	Cooling_B	from page no. 32/86	1	Step6_US15018	16	66				
	PrePress_B	from page no. 33/82	1	Step7_US15018	17	67				
	Press_B	from page no. 34/84	1	Step8_US15018	18	68				
	Ready_B	from page no. 35/88	1	Step9_US15018	19	69				
	Parall_A	from page no. 36/82	1	Step10_US15018	20	70				
					21	71				
	Trip mol sieve	from page no. 21/72	1	US 15000	22	72				
					23	73				
					24	74				
					25	75				
					26	76				
					27	77				
					28	78				
					29	79				
					30	80				
					31	81				
					32	82				
					33	83	1	US 15018	to page no. 5/9	
					34	84				
					35	85	1	US 15018	Solenoid valve	
					36	86			Open butterfly valve	UK 15018
					37	87				
					38	88				
					39	89				
					40	90				
					41	91				
					42	92				
					43	93				
					44	94				
					45	95				
					46	96				
					47	97				
						98				

PROJECT NAME		DRAWING NAME		SIZE		FUNKTION DIAGRAM		DATE	
ASU KOSICE		MOL SIEVE STATION		A3		K70101_059.dwg		17.06.2005	
MOL SIEVE STATION		PRESSURISATION BUTTERFLY VALVE		DRWG. NO.		K70101		AUTHOR	
MOL SIEVE STATION		ADSORBER A - US15018		PROJ. NO.		REPLACES		CHECK	
Rev3 08.6.07 as built		Air Liquide ACS GmbH		REV. NO.		REV. NO.		EITHER	
Rev2 02.2.06		Füllingsweg 34		BY		BY		STD.	
Rev1 01.1.04		47805 Krefeld		CHKD.		CHKD.		Page no. 059	
JOB NO. FILE NO.		REV. DATE		REV. DATE		REV. DATE		Page no. 230	
								Page no. 230	
								Page no. 230	

Function										Range
Range	Comment	Origin	Type	Signal-/TAG-No.	Pa	Pa	Type	Signal-/TAG-No.	Destination	Comment
51							51			
52							52			
53							53			
54							54			
55							55			
56							56			
57							57			
58							58			
59							59			
60							60			
61							61			
62							62			
63							63			
64							64			
65							65			
66							66			
67							67			
68							68			
69							69			
70							70			
71							71			
72							72			
73							73			
74							74			
75							75			
76							76			
77							77			
78							78			
79							79			
80							80			
81							81			
82							82			
83							83	1 US 15021	to page no. 37/16	
84							84			
85							85	1 US 15021	Solenoid valve	Open butterfly valve UK 15021
86							86			
87							87			
88							88			
89							89	1 US 15021_CB	Alarm OS	"Check back error"
90							90			
91							91			
92							92			
93							93	1 US 15021_RT	Alarm OS	"Running time error"
94							94			
95							95			
96							96			
97							97			
98							98			

PROJECT NAME	ASU KOSICE	DRAWING NAME	MOL SIEVE STATION
PLANT		DRAWING NO.	K70101_060.dwg
Rev3 08.6.07 "as built"		PROJ. NO.	K70101
Rev2 02.2.08		REPLACES	REPLACED BY:
JOB NO. FILE NO. REV. DATE REVISIONS BY CHKD.			

DATE	17.06.2005
AUTHOR	Fromm
CHECK	Eichler
STD.	
Page no.	060
Of	230 Pages
BASED	

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[illegible]

Rang	Comment	Origin	Type	Signal-/TAG-No.	Function	Size	Signal-/TAG-No.	Destination	Comment	Rang
										51
										52
										53
										54
										55
										56
										57
										58
										59
										60
										61
										62
										63
										64
										65
										66
										67
										68
										69
										70
										71
										72
										73
										74
										75
										76
										77
										78
										79
										80
										81
										82
										83
										84
										85
										86
										87
										88
										89
										90
										91
										92
										93
										94
										95
										96
										97
										98

PreHeat_B from page no. 30/88 1 Step4_US15024

Heating_B from page no. 31/80 1 Step5_US15024

Cooling_B from page no. 32/84 1 Step6_US15024

PrePress_B from page no. 33/94 1 Step7_US15024

ASU KOSICE

MOL SIEVE STATION

PROJECT NAME

PLANT PART

Rev3 08.6.07 as built

Rev2 02.2.06

FROM ECHLER

REVISIONS BY CHKD.

DATE 17.06.2005

AUTHOR Frohm

CHECK Eicher

STD.

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BASED:

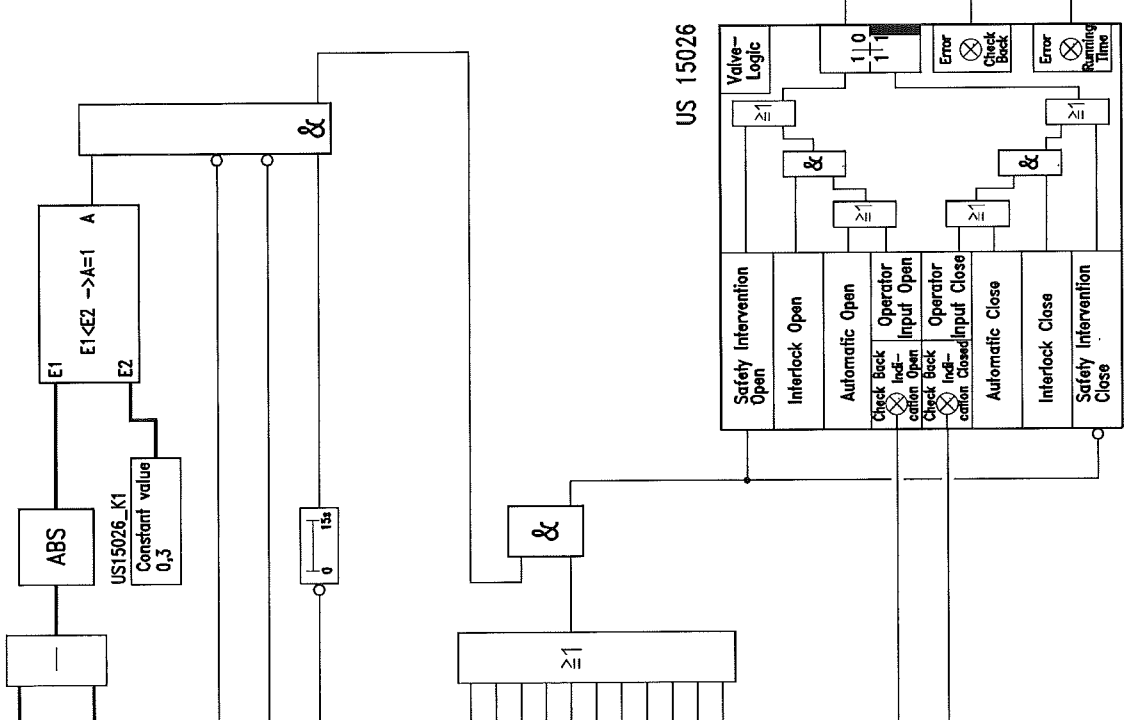
FUNKTION DIAGRAM

K70101_063.dwg

K70101

REPLACES:

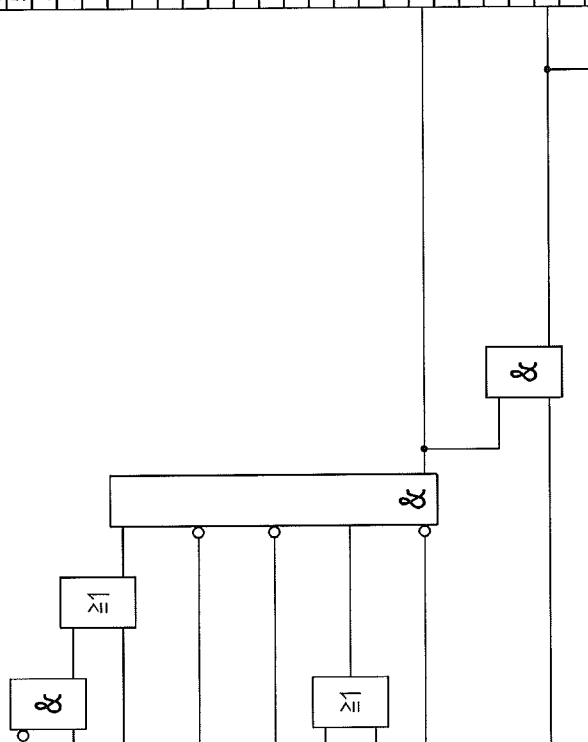
Rev.	Comment	Origin	Type	Signal-/TAG-No.	Pin	Function	Pin	Type	Signal-/TAG-No.	Destination	Comment	Rev.
1	Pressure adsorber A	P-transmitter	E P 15022		1		51					
2					2		52					
3					3		53					
4					4		54					
5	Press. outlet molsieve	P-transmitter	E P 15035		5		55					
6					6		56					
7					7		57					
8					8		58					
9					9		59					
10	Device failure	PCS	1 P 15022_DF		10		60					
11					11		61					
12	Device failure	PCS	1 P 15035_DF		12		62					
13					13		63					
14	Trip molsieve	from page no. 21/72	1 US 15000		14		64					
15					15		65					
16					16		66					
17					17		67					
18					18		68					
19					19		69					
20	Parall_B	from page no. 27/84	1 Step1_US15026		20		70					
21	Ready_B	from page no. 35/84	1 Step9_US15026		21		71					
22	Parall_AB	from page no. 36/84	1 Step10_US15026		22		72					
23	PreDeptr_A	from page no. 37/82	1 Step11_US15026		23		73					
24	Depress_A	from page no. 38/82	1 Step12_US15026		24		74					
25	PreHeat_A	from page no. 39/84	1 Step13_US15026		25		75					
26	Heating_A	from page no. 40/76	1 Step14_US15026		26		76					
27	Cooling_A	from page no. 41/80	1 Step15_US15026		27		77					
28	PrePress_A	from page no. 42/80	1 Step16_US15026		28		78					
29	Press_A	from page no. 43/80	1 Step17_US15026		29		79					
30	Ready_A	from page no. 44/84	1 Step18_US15026		30		80					
31					31		81	1		to page no. 36/17		
32					32		82					
33					33		83	1		to page no. 37/17		
34					34		84					
35					35		85	1	US 15026	Solenoid valve	Open butterfly valve UK 15026	
36					36		86					
37	Outlet adsorber B	End position switch	1 GH 15026		37		87					
38					38		88					
39	Outlet adsorber B	End position switch	1 GL 15026		39		89					
40					40		90	1	US 15026_CB	Alarm OS	"Check back error"	
41					41		91					
42					42		92					
43					43		93					
44					44		94	1	US 15026_RT	Alarm OS	"Running time error"	
45					45		95					
46					46		96					
47					47		97					
							98					



DATE	17.06.2005
AUTHOR	From
CHECK	Etcher
STD.	
Page no.	064
Of	230 Pages
BASED	
SIZE	A3
FUNKTION DIAGRAM	
DRVG. NO.	K70101_064.dwg
PROJ. NO.	K70101
REPLACES	REPLACED BY:
DRAWING NAME:	MOL SIEVE STATION
	OUTLET ADSORBER B
AIR LIQUIDE	
ASU KOSICE	
PLANT	
Rev3 08.6.07 "as built"	From Stöckli
Rev2 02.2.06	From Etcher
NO FILE NO	REV
DATE	REVISIONS
BY	CHKD.

[illegible]

Function										Type		Signal-/TAG-No.	Destination	Comment
Comment	Origin	Signal-/TAG-No.	Symbol	Pin	Pin	Pin	Pin	Pin	Pin	Pin	Pin			
				1						51				
				2						52				
				3						53				
				4						54				
				5						55				
				6						56				
				7						57				
				8						58				
				9						59				
				10						60				
				11						61				
				12						62				
				13						63				
				14						64				
				15						65				
				16						66				
				17						67				
				18						68				
				19						69				
				20						70	1	US 15040		
				21						71				
				22						72				
				23						73				
				24						74				
				25						75	1	US 150408	to page no. 067/7	
				26						76				
				27						77	1	US 150408	to page no. 075/35	
				28						78				
				29						79				
				30						80				
				31						81				
				32						82				
				33						83				
				34						84				
				35						85				
				36						86				
				37						87				
				38						88				
				39						89				
				40						90	1	HS 15004	Contact	Reset shut down relay US 15040
				41						91				
				42						92				
				43						93				
				44						94				
				45						95				
				46						96				
				47						97				
				48						98				



DATE 17.06.2005		AUTHOR From		CHECK Etchler		STD.		Page no. 066		Of 230 Pages	
SIZE A3		FUNKTION DIAGRAM		K70101_066.dwg		K70101		REPLACES:		REPLACED BY:	
DRWG. NO.		PRJ. NO.		REPLACES:		K70101		REPLACED BY:		K70101	
DRAWING NAME:		MOL SIEVE STATION		HEATING REGENERATION GAS		HEATER W15001 - US 15040		Air Liquide AGS GmbH		Füttingweg 34	
PROJECT NAME		ASU KOSICE		MOL SIEVE STATION		Rev3 08.6.07 "as built"		Frohn Etchler		BY CHKD.	
JOB NO. FILE NO.		REV. DATE		REVISIONS		Rev2 02.2.06		Frohn Etchler		BY CHKD.	

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SIZE	A3	FUNKTION DIAGRAM	DATE	17.06.2005
			AUTHOR	Frohn
			CHECK	Eichler
			STD.	
DRWG. NO.		K70101_067.dwg		
PROJ. NO.		K70101	Page no.	067
REPLACES:			Of	230 Pages
REPLACED BY:			BASED:	

Function				Signal-/TAG-No.		Type		Signal-/TAG-No.		Destination		Comment	
Comment	Origin	Type	Signal-/TAG-No.	Signal-/TAG-No.	Type	Signal-/TAG-No.	Signal-/TAG-No.	Destination	Comment				
			1		51								
			2		52								
			3		53								
			4		54								
			5		55								
			6		56								
			7		57								
			8		58								
			9		59								
			10		60								
			11		61								
			12		62								
			13		63								
			14		64								
			15		65								
			16		66								
			17		67								
			18		68								
			19		69								
			20		70								
			21		71								
			22		72								
			23		73								
			24		74								
			25		75								
			26		76								
			27		77								
			28		78								
			29		79								
			30		80								
			31		81								
			32		82								
			33		83								
			34		84								
			35		85								
			36		86								
			37		87								
			38		88								
			39		89								
			40		90								
			41		91								
			42		92								
			43		93								
			44		94								
			45		95								
			46		96								
			47		97								
					98								

DATE

17.06.2005

AUTHOR

Frohn

CHECK

Eichler

STD.

Page no.

068

OF

230

PAGES

SIZE

A3

DRWG. NO.

K70101_068.dwg

PROJ. NO.

K70101

REPLACES:

REPLACED BY:

DATE

17.06.2005

AUTHOR

Frohn

CHECK

Eichler

STD.

Page no.

068

OF

230

PAGES

DRAWING NAME:

MOL SIEVE STATION

SPARE

AIR LIQUIDE

Air Liquide AGS GmbH

Füllingsweg 34

47805 Krefeld

ASU KOSICE

MOL SIEVE STATION

PROJECT NAME

PLANT

as built"

Rev3 08.6.07"

Rev2 02.2.06

NO REVISIONS

DATE

BY

CHKD.

as built"

Rev3 08.6.07"

Rev2 02.2.06

NO REVISIONS

DATE

BY

CHKD.

Function									
Comment	Origin	Type	Signal-/TAG-No.	Typ	Signal-/TAG-No.	Destination	Comment		
			1	51					
			2	52					
			3	53					
			4	54					
			5	55					
			6	56					
			7	57					
			8	58					
			9	59					
			10	60					
			11	61					
			12	62					
			13	63					
			14	64					
			15	65					
			16	66					
			17	67					
			18	68					
			19	69					
			20	70					
			21	71					
			22	72					
			23	73					
			24	74					
			25	75					
			26	76					
			27	77					
			28	78					
			29	79					
			30	80					
			31	81					
			32	82					
			33	83					
			34	84					
			35	85					
			36	86					
			37	87					
			38	88					
			39	89					
			40	90					
			41	91					
			42	92					
			43	93					
			44	94					
			45	95					
			46	96					
			47	97					
				98					
PROJECT NAME				DRAWING NAME					
ASU KOSICE				MOL SIEVE STATION					
PLANT PART				SPARE					
Rev3 08.6.07" as built"				AIR LIQUIDE					
Rev2 02.2.06				Air Liquide AGS GmbH					
JOB NO: FILE NO: REV: DATE				Füllingsweg 34					
BY				47805 Krefeld					
CHKD.									
REVISIONS									
DATE									
BY									
CHKD.									
REPLACES:				REPLACED BY:					
PRD.J. NO.				K70101					
DRWG. NO.				K70101_069.dwg					
SIZE A3				FUNKTION DIAGRAM					
AUTHOR: From				DATE 17.06.2005					
CHECK: Eichler				STB.					
Page no. 069				Page no. 069					
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BASED:				BASED:					

Function			
Comment	Origin	Signal-/TAG-No.	Typ
		1	51
		2	52
		3	53
		4	54
		5	55
		6	56
		7	57
		8	58
		9	59
		10	60
		11	61
		12	62
		13	63
		14	64
		15	65
		16	66
		17	67
		18	68
		19	69
		20	70
		21	71
		22	72
		23	73
		24	74
		25	75
		26	76
		27	77
		28	78
		29	79
		30	80
		31	81
		32	82
		33	83
		34	84
		35	85
		36	86
		37	87
		38	88
		39	89
		40	90
		41	91
		42	92
		43	93
		44	94
		45	95
		46	96
		47	97
			98

PROJECT NAME		DRAWING NAME	
ASU KOSICE		MOL SIEVE STATION	
PLANT PART		SPARE	
Rev3 08.6.07 as built	From	AIR LIQUIDE	
Rev2 02.2.06	From	Air Liquide AGS GmbH	
Rev1 01.1.05	From	Fidingsweg 34	
Rev0 01.1.05	From	47805 Krefeld	
DATE	17.06.2005	DATE	
AUTHOR	From	AUTHOR	
CHECK	Eichler	CHECK	
STD.		STD.	
Page no.	070	Page no.	
Of	230	Of	
REPLACES		REPLACES	
REPLACED BY		REPLACED BY	

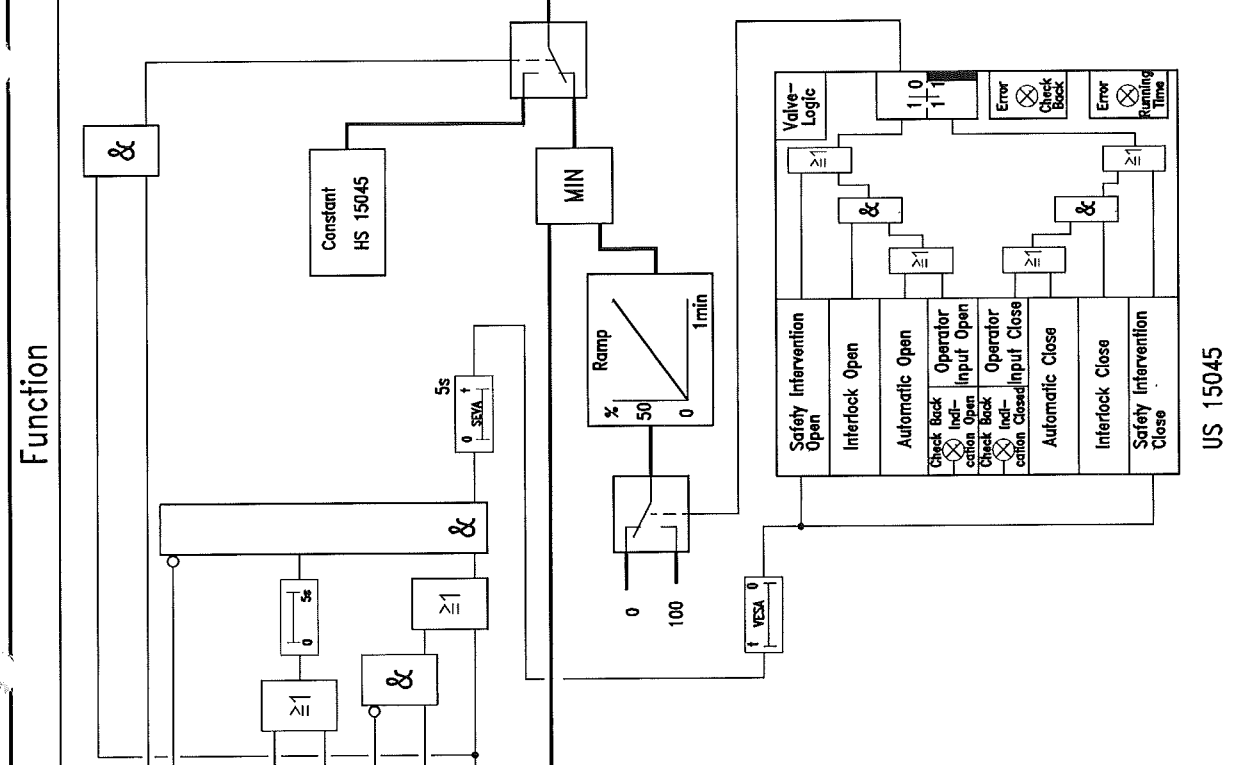
Function					
Comment	Origin	Type	Signal-/TAG-No.	Pin	Pin
				1	51
				2	52
				3	53
				4	54
				5	55
				6	56
				7	57
				8	58
				9	59
				10	60
				11	61
				12	62
				13	63
				14	64
				15	65
				16	66
				17	67
				18	68
				19	69
				20	70
				21	71
				22	72
				23	73
				24	74
				25	75
				26	76
				27	77
				28	78
				29	79
				30	80
				31	81
				32	82
				33	83
				34	84
				35	85
				36	86
				37	87
				38	88
				39	89
				40	90
				41	91
				42	92
				43	93
				44	94
				45	95
				46	96
				47	97
					98

PROJECT NAME				DRAWING NAME:			
				MOL SIEVE STATION			
				SPARE			
				Air Liquide AGS GmbH Füllingsweg 34 47805 Krefeld			
				PLANT PART			
				Rev3 08.6.07 "as built"			
				Rev2 02.2.06			
JOB NO.	FILE NO.	REV	DATE	BY	CHKD.	REVISIONS	

SIGNAL / TAG-NO.	SIZE	A3	FUNKTION DIAGRAM	DATE	17.06.2005
	DRVG. NO.	K70101_071.dwg	CHECK	Eichler	
	PRLJ. NO.	K70101	STB.		
	REPLACES:	REPLACED BY:			

Page no.	Of
071	230 Pages

Rev.	Comment	Origin	Type	Signal-/TAG-No.	Position	Function	Type	Signal-/TAG-No.	Destination	Comment	Rev.
1					51						51
2					52						52
3					53						53
4	Manual control	Software button	1	HS 15045	54						54
5	Outlet reg. gas heat. Temp. switch > Max	0 TH 15040			55						55
6					56						56
7					57						57
8					58						58
9	Cooling_A	from page no. 41/74	1	Step15_US15045	59						59
10					60						60
11	Cooling_B	from page no. 32/74	1	Step6_US15045	61						61
12					62						62
13	Trip cold box	from page no. 21/86	1	US 15000	63						63
14					64						64
15	Enabeling after start	from page no. 22/97	1	MS_start_ok	65						65
16					66						66
17	Self regeneration	Software switch on	1	HS 15006	67						67
18					68						68
19					69						69
20	Inlet reg. heater	from page no. 73/70	E	FIC 15041_Y	70		E UC 15045	Positioner 4...20mA = 0-100%	Butterfly valve UK 15045		70
21					71				Bypass regeneration gas		71
22					72						72
23					73						73
24					74						74
25					75						75
26					76						76
27					77						77
28					78						78
29					79						79
30					80						80
31					81						81
32					82						82
33					83						83
34					84						84
35					85						85
36					86						86
37					87						87
38					88						88
39					89						89
40					90						90
41					91						91
42					92						92
43					93						93
44					94						94
45					95						95
46					96						96
47					97						97
48					98						98



PROJECT NAME	ASU KOSICE	DRAWING NAME	MOL SIEVE STATION	DATE	17.06.2005
PLANT	MOL SIEVE STATION			AUTHOR	From
Rev3 08.6.07 as built				CHECK	Eichler
Rev2 02.2.06				STD.	
JOB NO. FILE NO. REV. DATE				DRVG. NO.	K70101_072.dwg
				PROJ. NO.	K70101
				REPLACES	REPLACED BY:
				SIZE	A3
					FUNKTION DIAGRAM
					Page no. 072
					230 Pages
					BASED:

Function					Page	Signal-/TAG-No.	Destination	Comment
					51			
					52			
					53			
					54			
					55			
					56			
					57			
					58			
					59			
					60			
					61			
					62			
					63			
					64			
					65			
					66			
					67			
					68	E FIC 15041_Out	to page no. 076/20	Output Y controller
					69			0-100%
					70	E FIC 15041_Out	to page no. 072/20	
					71			
					72			
					73			
					74			
					75			
					76			
					77			
					78			
					79			
					80			
					81			
					82			
					83			
					84			
					85			
					86			
					87			
					88			
					89			
					90			
					91			
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					93			
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					95			
					96			
					97			
					98			

DATE 17.06.2005		AUTHOR From		FUNKTION DIAGRAM	
CHECK Etchler		STD.		SIZE A3	
Page no. 073		K70101_073.dwg		DRVG. NO.	
230 Pages		K70101		PROJ. NO.	
BASED		REPLACES		REPLACED BY	

DRAWING NAME:		MOL SIEVE STATION	
INLET REGENERATION GAS HEATER		FIC 15041	

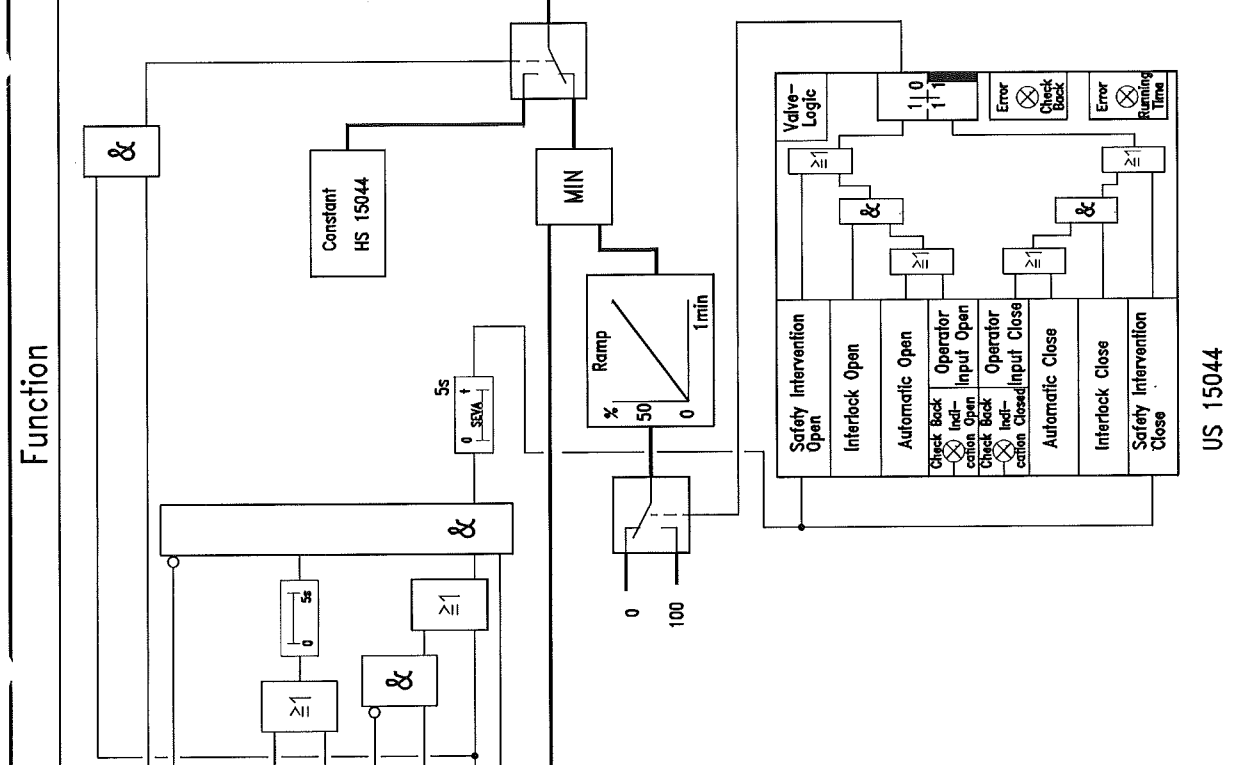
PROJECT NAME		ASU KOSICE	
PLANT		MOL SIEVE STATION	

Rev3 08.6.07 "as built"		From Etchler	
Rev2 02.2.06		From Etchler	
JOB NO. FILE NO.		REVISIONS	
BY		CHKD.	

Function																	
Rang.	Comment	Origin	Type	Signal-/TAG-No.	Ref.					Ref.	Signal-/TAG-No.	Origin	Type	Comment	Rang.		
					1					51							
					2					52							
					3					53							
					4					54							
					5					55							
					6					56							
					7					57							
					8					58							
					9					59							
					10					60							
					11					61							
					12					62							
					13					63							
					14					64							
					15					65							
					16					66							
					17					67							
					18					68							
					19					69							
					20					70							
					21					71							
					22					72							
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					39					89							
					40					90							
					41					91							
					42					92							
					43					93							
					44					94							
					45					95							
					46					96							
					47					97							
					48					98							
										PROJECT NAME		DRAWING NAME		DATE		17.05.2005	
										ASU KOSICE		MOL SIEVE STATION		AUTHOR		From	
										MOL SIEVE STATION		SPARE		CHECK		Etchler	
										PLANT PART		AIR LIQUIDE		STD.			
										Rev3 08.6.07" as built"		Air Liquide AGS GmbH		DRWG. NO.		K70101_074.dwg	
										Rev2 02.2.06		Füttingsweg 34		PROJ. NO.		K70101	
										BY CHKD.		47805 Krefeld		REPLACES		REPLACED BY:	
JOB NO. FILE NO.										REV.		DATE		REVISED		BASED	

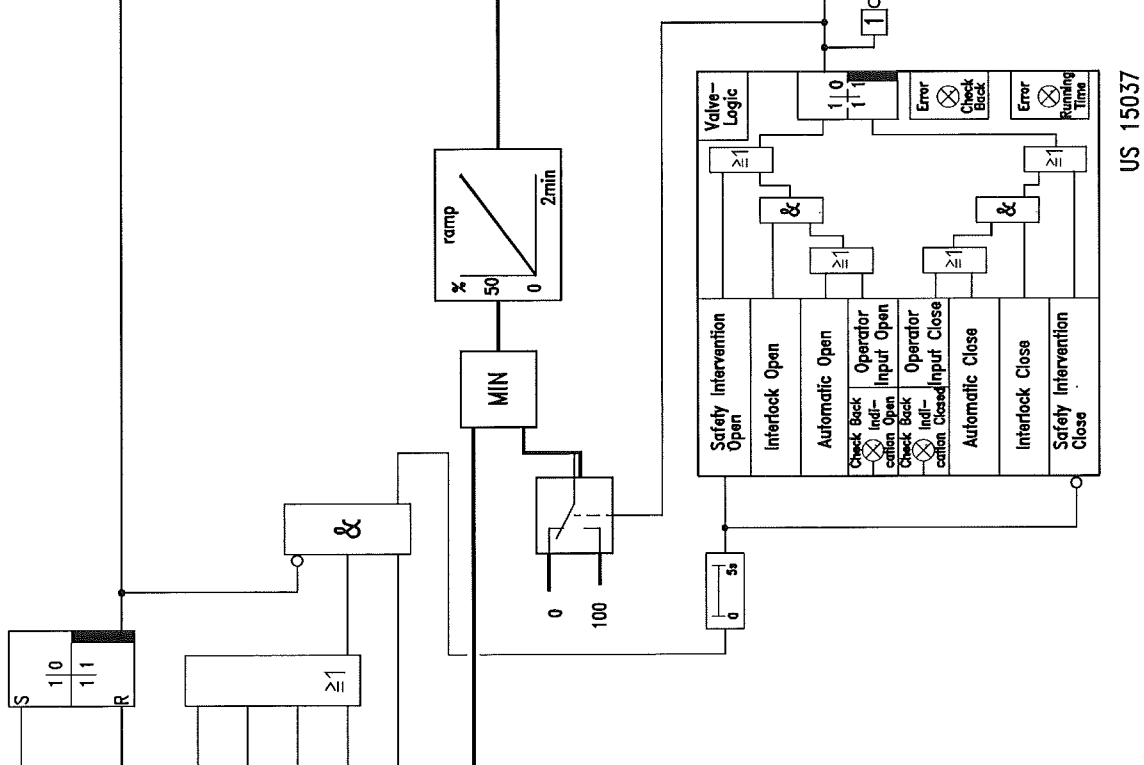
[illegible]

Rank	Comment	Origin	Type	Signal-/TAG-No.	Pin	Type	Signal-/TAG-No.	Destination	Comment	Rank
1					51					51
2					52					52
3					53					53
4	Manual control	Software switch	1 HS 15044		54					54
5	Outlet reg. gas heat.	Temp. switch > Max	0 TH 15040		55					55
6					56					56
7					57					57
8					58					58
9	Heating_A	from page no. 40/88	1 Step14_US15044		59					59
10					60					60
11	Heating_B	from page no. 31/88	1 Step5_US15044		61					61
12					62					62
13	Trip cold box	from page no. 21/74	1 US 15000		63					63
14					64					64
15	Enabeling after start	from page no. 22/97	1 MS_start_ok		65					65
16					66					66
17	Self regeneration	Software switch on	1 HS 15006		67					67
18		Software switch	1 HS 15008		68					68
19					69					69
20	Inlet reg. heater	from page no. 73/68	E FIC 15041_Y		70	E	UC 15044	Positioner 4...20mA = 0-100%	Butterfly valve UK 15044	70
21					71				Air to reg.gas header	71
22					72				W15001	72
23					73					73
24					74					74
25					75					75
26					76					76
27					77					77
28					78					78
29					79					79
30					80					80
31					81					81
32					82					82
33					83					83
34					84					84
35					85					85
36					86					86
37					87					87
38					88					88
39					89					89
40					90					90
41					91					91
42					92					92
43					93					93
44					94					94
45					95					95
46					96					96
47					97					97
48					98					98



PROJECT NAME				DRAWING NAME:				DATE 17.06.2005			
ASU KOSICE				MOL SIEVE STATION				AUTHOR From			
MOL SIEVE STATION				INLET REGENERATION GAS				CHECK Etchler			
Rev3 08.6.07 as built				US 15044				STD.			
Rev2 07.2.06				Air Liquide AGS GmbH				Page no. 076			
JOB NO. FILE NO. REV. DATE				Förlingsweg 34				OF 230 Pages			
				47805 Krefeld				REPLACES:			
				ASU KOSICE				K70101_076.dwg			
				MOL SIEVE STATION				K70101			
				US 15044				REPLACED BY:			
				FUNCTION DIAGRAM				BASED:			

Rev.	Comment	Origin	Signal-/TAG-No.	Pin	Function	Pin	Type	Signal-/TAG-No.	Destination	Comment	Rev.
1				1		51					
2				2		52					
3	Reset self regenerat.	Software button	1 HS 15037	3		53					
4				4		54					
5				5		55					
6				6		56					
7	Self regeneration gas Value > Max2		1 PHH 15037	7		57	1 PAHH 15037	Alarm OS	Air supply reg.gas. header pressure too high		
8				8		58					
9				9		59					
10	Heating_A	from page no. 31/90	1 Step5_US15037	10		60					
11				11		61					
12	Heating_B	from page no. 40/90	1 Step14_US15037	12		62					
13				13		63					
14	Cooling_A	from page no. 32/90	1 Step6_US15037	14		64					
15				15		65					
16	Cooling_B	from page no. 41/90	1 Step15_US15037	16		66					
17				17		67					
18	Self regeneration	Software switch on	1 HS 15006	18		68					
19				19		69					
20				20		70					
21	Self reg. gas	Output signal Y	E PIC 15037_Y	21		71					
22		0-100%		22		72	1 PV 15037	Positioner 0-100% / 4-20mA	Self regeneration gas		
23				23		73					
24				24		74					
25				25		75					
26				26		76					
27				27		77					
28				28		78					
29				29		79					
30				30		80					
31				31		81					
32				32		82					
33				33		83					
34				34		84					
35				35		85	1 PIC 15037	Controller automatic	Air supply reg. gas header		
36				36		86					
37				37		87	1 PIC 15037	Controller manual; Y = 0%			
38				38		88					
39				39		89					
40				40		90					
41				41		91					
42				42		92					
43				43		93					
44				44		94					
45				45		95					
46				46		96					
47				47		97					
						98					



DATE	17.06.2005
AUTHOR	Frohn
CHECK	Echler
STD.	
Page no.	077
Of	230 Pages
BASED	
SIZE	A3
DRWG. NO.	K70101_077.dwg
PROJ. NO.	K70101
REPLACES	REPLACED BY:
DRAWING NAME:	MOL SIEVE STATION
PROJECT NAME	ASU KOSICE
PLANT PART	MOL SIEVE STATION
Rev3 08.6.07 as built	
Rev2 02.2.06	
NO/REV DATE	REVISED BY CHKD.
Rev3 08.6.07 as built	
Rev2 02.2.06	
NO/REV DATE	REVISED BY CHKD.

Function					
Comment	Origin	Signal-/TAG-No.	Symbol	Type	Comment
			1	E1	
			2	E2	
Air behind molsieve	PD-transmitter	E FT 15035	3	E3	
			4		
Air behind molsieve	P-transmitter	E PT 15035	5		
			6		
Owen regeneration	Software switch	HS 15006	7		
			8		
Air outlet molsieve	P1100	E TE 15035	9		
			10		
Waste N2 outlet MHE	P1100	E TE 20029	11		
			12		
			13		
			14		
Trip MAC	from page no. 2/69	US1000	15		
Partial trip MAC	From page no. 4/65	US1000_dyn_2	16		
			17		
			18		
			19		
			20		
			21		
			22		
			23		
			24		
			25		
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			48		

FIC 15035

```

graph TD
    E1[E1] --> PT[PT-compensation]
    E2[E2] --> PT
    E3[E3] --> PT
    PT --> PI[PI - Controller]
    PI --> Y[Control output Y]
    Y --> Valve[Valve Actuator]
    Manual[Manual mode switch] --> Valve
    LogicGate[Logic Gate &] --> Valve
    Timer[Timer Block] --> LogicGate
  
```

PI - Controller

X Input signal
W ext. Setpoint
Y Start value

Control output Y
PI algorithm
Control derivation

Manual mode
Automatic mode
Slave mode

20%
0%

DATE 17.06.2005
AUTHOR Frohn
CHECK Eichler
STD.
Page no. 078
Df 230 Pages
BASED:

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Function					Typ	Signal/TAG-No.	Destination	Comment
					51			
					52			
					53			
Controller Auto		from page no. 78/73	1	F15035_SMA	54			
Pressur. adsorber B		from page no. 34/98	1	Step8	55			
Pressur. adsorber A		from page no. 43/98	1	Step17	56			
					57			
					58			
Constant		0,0527		E F15035_K2	59			
					60			
Constant		0,2354		E F15035_K1	61			
					62			
					63			
					64			
					65			
					66			
					67			
Guide vane position		G-Transmitter		E G11010_J	68			
					69			
					70			
					71			
					72			
					73			
					74			
					75			
					76			
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					86			
					87			
					88			
					89			
					90	E U 11010_0	Positioner 0...100% = 4...20mA	Guide vane MAC
					91			
					92			
					93			
					94			
					95			
					96			
					97			
					98			
<div> <div>Handsteller</div> <div>HIC</div> <div>Y Stellwert</div> <div>Y Stellwert Y</div> <div>Y Stellw. Vorg.</div> <div>durchschalten</div> <div>Hand ein</div> <div>Status Hand</div> <div>Auto ein</div> <div>Status Auto</div> </div> <div> <div>+</div> <div>1</div> <div>*</div> <div>110s</div> <div>YESA 0</div> <div>0%</div> <div>0,042%/s rising</div> <div>D</div> <div>0%</div> <div>MAX</div> <div>+</div> <div>D</div> <div>3%/s rising</div> </div>					FUNCTION DIAGRAM			
					SIZE	A3		
					DATE	17.06.2005		
					AUTHOR	Frohn		
					CHECK	Eichler		
PROJECT NAME					DRWG. NO.	K70101_079.dwg		
ASU KOSICE					PROJ. NO.	K70101		
MOL SIEVE STATION					REPLACES	REPLACED BY:		
AIR LIQUIDE								
Air Liquide AGS GmbH								
Füllingsweg 34								
47805 Krefeld								
MOL SIEVE STATION								
FIC 15035								
Rev3 08.6.07 "as built"								
Rev2 02.2.06								
JOB NO. FILE NO. REV. DATE REVISIONS								
BY								
CHKD.								
PLANT								
SHIP								
PART								
Frohn								
Eichler								
Page no. 079								
Of 230 Pages								
BASED IN								

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[illegible]

Function

Function									
Comment	Origin	Signal-/TAG-No.	Typ	Signal-/TAG-No.	Destination	Comment			
			51						
			52						
Reset Trip BAC	Software reset button	HS 16000	53						
			54	UA 16000	Alarm OS	Trip BAC			
			55						
			56						
Oil pressure BAC	Value < Min2	1 PLL 16854	57	US 16000	to page no. 81/44	Trip booster air compressor			
			58						
Oil circuit BAC	Value > Max2	1 THH 16854	59	US 16000	to page no. 85/23	Ready to start			
			60			UH 16003			
			61	US 16000	to page no. 90/7	Open anti surge valve			
			62			US 16074			
			63	US 16000	to page no. 96/36	Close Air to MHE			
			64			US 16073			
			65	US 16000	to page no. 95/28	Open blow off valve			
			66			US 16071			
Vibration	Value > Max2	1 XHH 16736	67	US 16000_dyn	to page no. 100/22	Produce trip cold box			
Vibration	Value > Max2	1 XHH 16737	68			US 20000			
Vibration	Value > Max2	1 XHH 16738	69						
Vibration	Value > Max2	1 XHH 16740	70						
Vibration	Value > Max2	1 XHH 16741	71						
Vibration	Value > Max2	1 XHH 16743	72						
Vibration	Value > Max2	1 XHH 16744	73	US 16000	to page no. 91/11	Motor heading on			
			74						
			75	US 16000	to page no. 92/29	PIC 16007 man/7=100%			
			76						
Bull gear j.brg. DE	Value > Max2	1 THH 16730	77	US 16000	to page no. 97/19	PIC 16045 man/7=0%			
Bull gear j.brg. NDW	Value > Max2	1 THH 16733	78						
Bull gear thr.brg. inb.	Value > Max2	1 THH 16734	79						
Bull gear thr.brg. outb.	Value > Max2	1 THH 16735	80						
Shaft 1 j.brg. NDE	Value > Max2	1 THH 16736	81						
Shaft 1 j.brg. DE	Value > Max2	1 THH 16738	82						
Shaft 2 j.brg. NDE	Value > Max2	1 THH 16740	83						
Shaft 2 j.brg. DE	Value > Max2	1 THH 16743	84						
			85						
Bearing main motor	Value > Max2	1 THH 16701	86						
Bearing main motor	Value > Max2	1 THH 16703	87						
			88						
Motor winding U	Value > Max2	1 THH 16715	89						
Motor winding V	Value > Max2	1 THH 16718	90						
Motor winding W	Value > Max2	1 THH 16721	91						
			92						
			93						
Main motor BAC off		0 EH16001_dyn	94						
			95						
			96						
			97						
Trip conditions BAC	from page no. 83/79	1 US 16000_1	98						

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Function										행	호
Comment	Origin	Signal-/TAG-No.	행	호	Signal-/TAG-No.	Destination	Comment	SIZE	A3	FUNKTION DIAGRAM	DATE 17.06.2005
			1	51							AUTHOR Frohn
			2	52							CHECK Echler
			3	53							STD.
			4	54							
Start BAC	from page no. 80/82	1 HS 16001	5	55	1 US 16001_dyn						Page no. 083
			6	56							Of 230 Pages
			7	57							BASED
Emergency shut down	Contact ESD-relay	1 HA 92002	8	58							
			9	59							
			10	60							
Inlet 1. stage BAC	Value > Max2	1 THH 16007	11	61							
Outlet 1. stage BAC	Value > Max2	1 THH 16015	12	62							
Outlet 2. stage BAC	Value > Max2	1 THH 16025	13	63							
Outlet 3. stage BAC	Value > Max2	1 THH 16035	14	64							
Outlet 4. stage BAC	Value > Max2	1 THH 16045	15	65							
			16	66							
Charge press. BAC	Value < Min2	1 PLL 16007	17	67							
			18	68							
Air discharge BAC	Value > Max2	1 PHH 16045	19	69							
			20	70							
			21	71							
			22	72							
			23	73							
			24	74							
			25	75							
			26	76							
			27	77							
			28	78							
Surge protection BAC	from page no. 93/76	1 USHHH 16045	29	79	1 US 16000_1	to page no. 82/47	Trip conditions BAC				
			30	80							
			31	81							
			32	82							
			33	83							
			34	84							
			35	85							
			36	86							
			37	87							
			38	88							
			39	89							
			40	90							
			41	91							
			42	92							
			43	93							
			44	94							
			45	95							
			46	96							
			47	97							
			48	98							

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DRAWING NAME:		BOOSTER AIR COMPRESSOR (BAC)		TRIP CONDITIONS BAC US16000.1	
PROJECT NAME		ASU KOSICE		AIR LIQUIDE	
PLANT		Booster Air Compressor		Air Liquide AGS GmbH Füllingsweg 34 47805 Krefeld	
Rev3 08.6.07 as built	Frohn	Shoichi	Shoichi		
Rev2 02.2.06	Frohn	Echler	Echler		
JOB NO. FILE NO	REV	DATE	REVISIONS	BY	CHKD.

Function				Signal-/TAG-No.		Destination		Comment	
Comment	Origin	Tag	Signal-/TAG-No.	Tag	Signal-/TAG-No.	Destination	Comment		
				51					
				52					
				53					
				54					
				55					
Reset Trip BAC	Software push button	1	HS 16000	56	1	UA 16000_2	Alarm OS		
				57					
				58					
Trip DC/AC	from page no. 15/55	1	US13000_dyn	59	1	US 16000_2	Controller manual, Y=100%		
				60			manual		
Trip mol sieve	from page no. 21/82	1	US15000	61	1	US 16000_2	to page no. 85/5		
				62			Ready to start		
				63					
				64					
				65					
				66					
Trip cold box one shot	from page no.101/95	1	US20000_dyn	67	1	US16000_2	to page no. 90/9		
				68			Open anti surge valve		
				69			US 16074		
				70	1	US16000_2_dyn	to page no. 97/17		
				71			Position guide vane		
				72			PIC 16045 on "Man"		
				73	1	US16000_2	to page no. 96/39		
				74			Close HP-air to MHE		
				75			HK 16073		
				76	1	US16000_2	to page no. 95/2		
				77			open blow off valve		
				78			BAC		
				79					
				80					
				81					
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				83					
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as built

Rev2 02.2.06

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Rev3 08.6.07

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Rev2 02.2.06

Frohn

Function				Function			
Comment	Origin	Signal-/TAG-No.	Type	Comment	Signal-/TAG-No.	Type	Comment
			51				
			52				
Trip mol sieve	from page no. 21/84	1 US 15000	3				
			53				
Partial Trip BAC	from page no. 84/62	1 US 16001_2	5				
			54				
			55				
Charge pressure BAC Y = 100%			56				
			57				
			58				
Air beh. mol sieve	Value > Max	1 PH 15035	9				
			10				
			11				
			12				
Guide vane BAC	Closed	1 GL 16010	13				
			14				
Anti surge valve BAC	Opened	1 GH 16074	15				
			16				
Oil pressure BAC	Value < Min	1 PL 16855	17				
			18				
Oil circuit BAC	Value < Min	1 TL 16854	19				
			20				
Level oil Tank	Level switch > Min	1 LL 16812	21				
			22				
Trip BAC	from page no. 82/59	1 US 16000	23				
			24				
BAC main drive	Check back signal	1 EH 16001	25				
			26				
Enabling main motor	from page no. 86/73	1 UH 16003_2	27				
disabled			28				
Collective alarm	Contact from MCC	0 EH 16004	29				
			30				
Cooling water	Value < Min	1 FL 80001	31				
			32				
Aux. oilpump exp.1	Check back signal	1 EH 24163	33				
			34				
Aux. oilpump exp.2	Check back signal	1 EH 24263	35				
			36				
Seal gas BAC	Value < Min	1 PL 16751	37				
			38				
Air from booster	Y < 1%	1 HIC 16073	39				
			40				
Air from BAC closed	End position switch	1 GL 16073	41				
			42				
HP-air outlet MHE	Y < 1%	1 TIC 20008	43				
			44				
Blow out valve BAC	End position switch	1 GL 16071	45				
			46				
Blow out valve BAC	Y-Value < 1%	1 HIC 16071	47				
			48				



&

DRAWING NAME:		PROJECT NAME:		DATE: 17.06.2005	
BOOSTER AIR COMPRESSOR (BAC)		ASU KOSICE		AUTHOR: Fröh	
READY TO START UH16003		AIR LIQUIDE		CHECK: Eichler	
		Air Liquide AGS GmbH		STD:	
		Füllingsweg 34		K70101_085.dwg	
		47805 Krefeld		K70101	
				Page no. 085	
				250 Pages	
				REPLACES:	
				BASED:	

[illegible]

Range	Comment	Origin	Type	Signal-/TAG-No.	Function	Signal-/TAG-No.	Destination	Comment	Range
	BAC main drive on	Check back signal	1	EH 16001					
				</					

Range	Comment	Origin	Type	Signal-/TAG-No.	Pos	Function	Pos	Type	Signal-/TAG-No.	Destination	Comment	Range
					1							51
					2							52
					3							53
					4							54
	Oil pressure BAC	Value < Min1	1	PL 16854	5							55
					6							56
					7							57
					8							58
					9							59
	BAC main drive on	Check back signal	1	EH 16001	10							60
					11							61
					12							62
					13							63
					14							64
					15							65
					16							66
					17							67
					18							68
	Seal gas BAC	Value < Min1	1	PL 16751	20					to page no. 89/10	Oil demister BAC on	69
					21							70
					22							71
	Aux. oil pump on	Check back signal	1	EH 16820	24					Signal to MCC	Aux. oil pump BAC on	72
					25							73
					26							74
					27							75
					28							76
					29					Alarm OS	"Check back error"	77
					30						Aux. oil pump BAC	78
					31							79
					32							80
					33					Alarm OS	"Running time error"	81
					34						Aux. oil pump BAC	82
					35							83
					36							84
					37							85
					38							86
					39							87
					40							88
	Reset Trip BAC	Software reset button	1	HS 16000	41							89
					42							90
					43							91
					44							92
					45							93
					46							94
					47							95
												96
												97
												98

Function

HS 16820

T1 = Run down time
T2 = Relubrication time
T3 = Start up time

PROJECT NAME	ASU KOSICE	DRAWING NAME	BOOSTER AIR COMPRESSOR (BAC)	DATE	17.06.2005
PLANT	BOOSTER AIR COMPRESSOR	AIR LIQUIDE	AUXILIARY OIL PUMP HS16820	AUTHOR	From
Rev3 08.6.07 "as built"		Air Liquide AGS GmbH		CHECK	Eichler
Rev2 02.2.08		Fulingsweg 34		STD.	
JOB NO. FILE NO. REV. DATE REVISIONS	BY CHKD.	47805 Krefeld		PROJ. NO.	K70101
				REPLACES	REPLACED BY:
				SIZE	A3
				DRVG. NO.	K70101_088.dwg
				Page no.	088
				Of	230 Pages
				BASED	

Range	Comment	Origin	Type	Signal-/TAG-No.	Pol.	Function		Pol.	Type	Signal-/TAG-No.	Destination	Comment	Range		
					1	<div> </div>		51							
					2			52							
					3			53							
					4			54							
					5			55							
					6			56							
					7			57							
					8			58							
					9			59							
					10			60							
					11			61							
					12			62							
					13			63							
					14			64							
					15			65							
					16			66	1	HS 16803	Signal to MCC	Oil demister BAC on			
					17			67							
					18			68							
					19			69							
					20			70							
					21			71	1	HS 16803_CB	Alarm OS	"Check back error"			
					22			72				Oil demister BAC			
					23			73							
					24			74							
					25			75	1	HS 16803_RT	Alarm OS	"Running time error"			
					26			76				Oil demister BAC			
					27			77							
					28			78							
					29			79							
					30			80							
					31			81							
					32			82							
					33			83							
					34			84							
					35			85							
					36			86							
					37			87							
					38			88							
					39			89							
					40			90							
					41			91							
					42			92							
					43			93							
					44			94							
					45			95							
					46			96							
					47			97							
								98							
					DRAWING NAME:				FUNKTION DIAGRAM						
					PROJECT NAME				DATE 17.06.2005						
					ASU KOSICE				AUTHOR From						
									CHECK Eichler						
									STD.						
									K70101_089.dwg						
									K70101						
									Page no. 089						
									Of 230 Pages						
									REPLACES						
									REPLACED BY:						
									BASED:						