

## **17.    Rozsah merania a Zoznam hraničných hodnôt**

TAG-NO.		DESIG- NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS	
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn			Td
E 13100		CURRENT DCAC PUMP P13100	0...120 A																	002		
EI																						
E 13200		CURRENT DCAC PUMP P13200	0...120 A																	002		
EI																						
E 14100		CURRENT CHILL TOWER PUMP P14100	0...50 A																	003		
EI																						
E 14200		CURRENT CHILL TOWER PUMP P14200	0...50 A																	003		
EI																						
E 24111		EFFECTIVE POWER MG24101	0...400 kW	A	PCS	3														007		
EISLL					10																	
E 24211		EFFECTIVE POWER MG24201	0...400 kW	A	PCS	3														008		
EISLL					10																	
E 61100		CURRENT LOX PUMP P61100	0...150 A																	012		
EI																						
Legend:																						
F = local, V = local cabinet, S = control room, PCS = process control system																						
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																						
2		24.02.2006	Frolm	Rev. 2	Project: K70101										AIR LIQUIDE				Drwg.- No.:			
3		16.11.2006	Möller	As Built	ASU No.09 Kosice																	
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td			
				threshold			threshold			threshold									
E 61200		CURRENT LOX PUMP P61200	0...150 A														012		
Ei																			
E 73101		CURRENT LIN PUMP P73101	0...100 A														037		
Ei																			
E 73201		CURRENT LIN PUMP P73201	0...100 A														037		
Ei																			
E 98012-3		EFFECTIVE POWER BAC	0...10 MW														006		
Ei																			
E 98012-4		EFFECTIVE POWER MAC	0...10 MW														001		
Ei																			
F 11074		ANTI SURGE CONTROLLER	0...150 mbar														001		
FIC																			
F 12005		CHILLED WATER FROM KA12001	0...50 m³/h				A	PCS	3						0,45	30s	002		
FICAL																			
Legend: F = local, V = local cabinet, S = control room, PCS = process control system																			
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																			
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TAG-NO.		DESIG- NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS							
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td									
				threshold			threshold			threshold			threshold															
F 13006		CHILLED WATER TO DC/AC	0...40 m³/h					A	PCS	3							0,5	5min		002								
FICAL										20																		
F 13007		COOLING WATER TO DC/AC	0...250 m³/h					A	PCS	3							0,6	30s		002								
FICAL										150																		
F 15035		AIR BEHIND SOL SIEVE	0...120000 Nm³/h 0...22,4 mbar										A	PCS	3		1,0	45s		004	K1 = 25354,628 P1 = 5,62 bar T1 = 23,1°C							
FICAL															10000													
F 15041		INLET REGENERATIO N GAS HEATERS	0...22000 Nm³/h 0...13,83 mbar					SA	PCS	3							0,6	45s		005	K1 = 5915,774 P1 = 1,17 bar T1 = 20°C							
FICAL										10000																		
F 16073		HP-AIR FROM BAC	0...65000 Nm³/h 0...40,19 mbar																	006	K1 = 10253,08 P1 = 57 bar T1 = 25°C							
FICAL																												
F 16074		ANTI SURGE CONTROLLER BAC	0...100 %																	006								
FICAL																												
F 20001		HP-GAN OUTLET COLDBOX	0...4500 Nm³/h 0...150 mbar														1: 0,6 2: 1,15	1: 5min 2: 20s		010	K1 = 365,842 P1 = 21 bar T1 = 20°C							
FICAL																												
Legend:																					F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (FP*) = Frost Protection recommended			
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Annotation on column "Hook Up":  
(FP\*) = Frost Protection recommended

F = local, V = local cabinet, S = control room, PCS = process control system

Legend:

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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn			Td		
F 20002		HP-GAN BLOW OFF	0...4500 Nm³/h														0,4	20s		010				
FIC																					K1 = 372,461 P1 = 21 bar T1 = 20°C			
F 20003		HP-GAN TO CUSTOMER	0...4500 Nm³/h 0...150 mbar																	010				
FI																					K1 = 8551,861 P1 = 1,15 T1 = 20°C			
F 20005		LP-GAN OUTLET COLD BOX	0...35000 Nm³/h 0...16,75 mbar	SA	PCS	1	A	PCS	3								1: 0,6 2: 1,15	1: 5min 2: 20s		010				
FICALSALL																								
F 20006		LP-GAN BLOW OFF	0...35000 Nm³/h														0,3	20s		010				
FIC																								
F 20011		GOX OUTLET COLD BOX	0...35000 Nm³/h 0...250 mbar	SA	PCS		A	PCS									1: 0,8 2: 1,15	1: 5min 2: 20s		010	K1 = 2206,150 P1 = 28 bar T1 = 20°C			
FICALSALL																								
F 20012		GOX BLOW OFF	0...35000 Nm³/h														0,5	20s		010				
FIC																								
F 20013		GOX TO CUSTOMER	0...35000 Nm³/h 0...250 mbar																	010	K1 = 2206,150 P1 = 28 bar T1 = 20°C			
FI																								
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp			Tn
F 22013		ULIN TO LP- COLUMN	0...35000 Nm³/h 0...125 mbar											0,3	20s		K1 = 3130,495 P1 = 4,7 bar T1 = -191,6°C	
FIC																		
F 22043		GOX FROM LP- COLUMN	0...500 Nm³/h 0...60 mbar											0,5	40s		K1 = 64,55 P1 = 1,38 bar T1 = -180°C	
FIC																		
F 23013		LIN PRODUCT TO STORAGE	0...5000 Nm³/h											1,0	15s		011	
FIC																		
F 23016		LOX TO STORAGE	0...5000 Nm³/h														011	
FI																		
F 23073		LIN PRODUCT TO DUMP	0...5000 Nm³/h											1,0	15s		011	
FIC																		
F 24101		AIR TO EXPANDER TURBINE 1	0...15000 Nm³/h 0...100 mbar											0,3	45s		K1 = 1500 P1 = 56,65 bar T1 = -91°C	
FIC																		
F 24201		AIR TO EXPANDER TURBINE 2	0...15000 Nm³/h 0...100 mbar											1,0	30s		K1 = 1500 P1 = 56,65 bar T1 = -91°C	
FIC																		
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn			Td								
F 40011		SIDEARM LIQUID FROM LP-COLUMN	0...30000 Nm³/h 0...50 mbar	threshold		threshold		threshold		threshold			0,3	2min		016 / 017	K1 = 4242,641 P1 = 1,35 bar T1 = -180,5°C									
FIC																										
F 40014		LAR TO PURE AR COLUMN	0...1000 Nm³/h	threshold		threshold		threshold		threshold			0,3	2min		017										
FIC																										
F 62030		PURGE GAS LOX TANK B62001	Nm³/h	threshold		threshold		threshold		threshold						032	local indicator									
FI																										
F 63033		LOX CONVERTER CYCLE	0...6000 Nm³/h 0...450 mbar	threshold		threshold		threshold		threshold						032	K1 = 306,586 P1 = 4,5 bar T1 = -181,8°C									
FI																										
F 64061			0...35000 Nm³/h 0...450 mbar	threshold		threshold		threshold		threshold			1,0	30s												
FIC																										
F 70041		MP-GAN TO CUSTOMER	0...35000 Nm³/h 0...150 mbar	threshold		threshold		threshold		threshold						020	K1 = 2857,738 P1 = 7,3 bar T1 = 26°C									
FIC																										
F 70074		ANTI SURGE CONTROLLER	0...100 %	threshold		threshold		threshold		threshold						019										
FIC																										
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio			threshold	W	Kp	Tn
F 72030		PURGE GAS LIN TANK B72001	Nm³/h																	035	local indicator
F 72071		PURGE GAS P72001	Nm³/h																	035	local indicator
F 77074		ANTI SURGE CONTROLLER	0...100 %																	020	
F 80001		COOLING WATER	0...2000 m³/h				A	PCS	3											023	
F 87020		BOXPURGE HE-BOX	2,5...35 Nm³/h																	024	local indicator
F 87021		BOXPURGE HE-BOX	2,5...35 Nm³/h																	024	local indicator
F 87060		BOXPURGE COLD-BOX	2,5...35 Nm³/h																	024	local indicator
Legend:																					
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	S/A	loc			prio	threshold	W	Kp	Tn	Td		
F 87061		BOXPURGE COLD-BOX	2,5...35 Nm³/h																		024	local indicator			
F 87062		BOXPURGE COLD-BOX	2,5...35 Nm³/h																		024	local indicator			
F 87063		BOXPURGE COLD-BOX	2,5...35 Nm³/h																		024	local indicator			
F 87064		BOXPURGE COLD-BOX	2,5...35 Nm³/h																		024	local indicator			
G 11010		GUIDE VANE MAC	0...100 %																		001				
G 11074		BLOW OFF VALVE MAC	0...100 %																		001				
G 11742		SHAFT POSITION GEARING MAC	-2...0...+2 mm																		027				
GIAHLSAHILL																									
Legend:																									
F = local, V = local cabinet, S = control room, PCS = process control system																									
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																									
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			S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold			W	Kp	Tn	Td
FUNCTION																				
G 16010	GUIDE VANE BAC STAGE 1	0...100 %																006		
GISOL																				
G 16733	POSITION MAIN SHAFT BAC	-2...+2 mm																028		
GIAHLSAHLL																				
G 24105	NOZZLE RING EXPANDER TURBINE 1	0...100 %																007		
GISOL																				
G 24205	NOZZLE RING EXPANDER TURBINE 2	0...100 %																008		
GISOL																				
G 70010	GUIDE VANE GAN COMPR. 1	0...100 %																019		
GISOL																				
G 70738	SHAFT POSITION GEARING NV1	-0,6...0,6 mm																021		
GIAHLSAHLL																				
G 70743	SHAFT POSITION GEARING NV1	-0,6...0,6 mm																021		
GIAHLSAHLL																				
Legend:																				
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				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio			threshold	W	Kp	Tn	Td
FUNCTION																						
G 77010		GUIDE VANE GAN COMPR. 2	0...100 %																020			
GISOL																						
G 77738		SHAFT POSITION GEARING NV2	-0,6...0,6 mm	SA	PCS	1	A	PCS	3	A	PCS	3	SA	PCS	1				022			
GIAHLSAHLL																						
G 77743		SHAFT POSITION GEARING NV2	-0,6...0,6 mm	SA	PCS	1	A	PCS	3	A	PCS	3	SA	PCS	1				022			
GIAHLSAHLL																						
H 16071		BLOW OUT VALVE BAC	0...100 %																006			
HIC																						
H 16073		AIR FROM BOOSTER	0...100 %																006			
HIC / GSHL																						
H 20013		PRESSURISATION ON GOX TO CUSTOMER 1	0...100 %																010			
HIC																						
H 20014		PRESSURISATION ON GOX TO CUSTOMER 2	0...100 %																010			
HIC																						
Legend:																	F = local, V = local cabinet, S = control room, PCS = process control system			Annotation on column "Hook Up*": (FP*) = Frost Protection recommended		
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			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn		
<b>H 20027</b>	<b>PRESSURISATION AIR TO MHE</b>	<b>0...100 %</b>																	<b>006</b>	
HIC																				
<b>H 21006</b>	<b>NL FROM B21002</b>	<b>0...100 %</b>																	<b>014</b>	
HIC																				
<b>H 21014</b>	<b>LIQUID AIR TO HP-COLUMN</b>	<b>0...100 %</b>																	<b>014</b>	
HIC																				
<b>H 24105</b>	<b>NOZZLE RING EXPANDER TURBINE 1</b>	<b>0...100 %</b>																	<b>007</b>	
HIC																				
<b>H 24205</b>	<b>NOZZLE RING EXPANDER TURBINE 2</b>	<b>0...100 %</b>																	<b>008</b>	
HIC / GIOL																				
<b>H 40005</b>	<b>LAR BLOW OUT CONDENSER B40001</b>	<b>0...100 %</b>																	<b>017</b>	
HIC																				
<b>H 40100</b>	<b>SPEED LAR PUMP P40100</b>	<b>0...100 %</b>																	<b>016</b>	
HIC / ESAL																				

**Legend:**

F = local, V = local cabinet, S = control room, PCS = process control system

Annotation on column "Hook Up":  
(FP\*) = Frost Protection recommended

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**AIR LIQUIDE**

Air Liquide AGS GmbH  
Füttingweg 34  
D-47805 Krefeld, Germany



TAG-NO.		DESIG-NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS																					
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio			threshold	W	Kp	Tn	Td																
H 61100		SPEED LOX PUMP P61100	0...100 %																	012																		
HIC / ESAL																																						
H 61200		SPEED LOX PUMP P61200	0...100 %																	012																		
HIC / ESAL																																						
H 70035		BLOW OUT VALVE GAN COMP. 1	0...100 %																	019																		
HIC																																						
H 70036		CHARGE GAN COMP. 1	0...100 %																	019																		
HIC																																						
H 71100		SPEED LIN PUMP P71100	0...100 %																	015																		
HIC / ESAL																																						
H 71200		SPEED LIN PUMP P71200	0...100 %																	015																		
HIC / ESAL																																						
H 73001		LIN LDCC FROM SUBCOOLER	0...100 %																	014																		
HIC																																						
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	W	Kp			Tn	Td	
H 73101		SPEED LIN BACK UP PUMP P73101	0...100 %																		037			
HIC																								
H 73201		SPEED LIN BACK UP PUMP P73201	0...100 %																		037			
HIC																								
H 77035		BLOW OUT VALVE GAN COMP. 2	0...100 %																		020			
HIC																								
H 77036		CHARGE GAN COMP. 2	0...100 %																		020			
HIC																								
L 11812		OIL CONTAINER MAC	0...100 %																		027			
LSAL																								
L 13003		LEVEL COOLING WATER DC/AC	0...100 %																		002			
LIAHLSAHH																								
L 13013		LEVEL COOLING WATER DC/AC	0...100 %																		002			
LIAHLSAHH																								
Legend:																								
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Annotation on column "Hook Up": (FP*) = Frost Protection recommended																								
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	threshold	W			Kp	Tn	Td							
L 14003		LEVEL CHILL TOWER	0...100 %	SA	PCS	1	A	PCS	3	A	PCS	3	SA	PCS	1	1,0				40min		003									
LIAHLSAHHLL				15	20	65	95																								
L 16812		OIL CONTAINER BAC	0...100 %				A	F														028									
LSAL							60																								
L 21003		LEVEL SUMP HP-COLUMN	0...100 %				A	PCS	3	A	PCS	3	SA	PCS	1	1,0				5min		014 / 017									
LIAHLSAHH							20	60	80																						
L 21060		LIQUID AIR SEPARATOR B21001	0...100 %				A	PCS	3	A	PCS	3				1,0				2min		009 / 013									
LIAHLL							15	65																							
L 22001		LEVEL SUMP LP-COLUMN	-49...231 %	SA	PCS	1	A	PCS	3	A	PCS	3	SA	PCS	1	100%				10s		014 / 011									
LIAHLSAHHLL				80	90	110	160																								
L 22002		LEVEL SUMP LP-COLUMN	-50...223 %													1,0				15s		014									
LIC																															
L 22011		LEVEL SUMP LP-COLUMN	65...130 %	SA	PCS	1	A	PCS	3	A	PCS	3				100%						014									
LIAHLSALL				80	90	110																									
Legend:																							F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (FP*) = Frost Protection recommended				
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			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn			Td									
FUNCTION			threshold			threshold			threshold			threshold																		
L 23076	LOX PRODUCT TO DUMP	-50...223 %														5,0	20min		011											
LIC																														
L 40007	LEVEL AR-COND. B40001	-46...233 %	SA	PCS	1	A	PCS	3	A	PCS	3	A	PCS	3	SA	PCS	1	100%	0,8	1min		017								
LIC4HLSAHLL			80			90			110			160																		
L 40017	LEVEL LOX BOILER B40001	65...129 %	SA	PCS	1	A	PCS	3	A	PCS	3	A	PCS	3								017								
LIAHLSALL			80			90			110																					
L 40053	LEVEL SUMP CAR COLUMN 1	0...100 %	SA	PCS	1	A	PCS	3	A	PCS	3	A	PCS	3	SA	PCS	1		0,3	20s		016								
LIC4HLSAHLL			30			35			65			78																		
L 43023	PURE AR COLUMN K43001	-26...138 %				A	PCS	3	A	PCS	3	A	PCS	3	SA	PCS	1	100%	0,3	20s		018								
LIC4HLSAHH						50			100			131																		
L 43027	LIQ. NITR. SEPARATOR B43001	3...151 %	SA	PCS	1	A	PCS	3	A	PCS	3	A	PCS	3	SA	PCS	1	100%	0,3	20s		018								
LIC4HLSAHLL			50			70			110			145																		
L 43027-1	LEVEL CONTROL VALVE AR CONDENSER	3...151 %																0,3	20s		018	X from L43027								
LIC																														
Legend:																							F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (FP*) = Frost Protection recommended			
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp			Tn	Td						
L 43033		PURE AR PRODUCT TO DUMP	-26...138 %												0,3	20s		018	X from L43023						
LIC																									
L 44007		LP LAR TANK 1 B44101	0...100 %															041							
LI																									
L 44105		LP LAR TANK 1 B44101	0...100 %	SA	PCS	1	A	PCS	3	A	PCS	3	SA	PCS	1			041							
LIAHLSAHLL																									
L 44205		LP LAR TANK 2 B44201	0...100 %	SA	PCS	1	A	PCS	3	A	PCS	3	SA	PCS	1			042							
LIAHLSAHLL																									
L 44207		LP LAR TANK 2 B44201	0...100 %															042							
LI																									
L 48015		HP LAR TANK B48001	0...100 %															044							
LI																									
L 48020		HP LAR TANK B48001	0...100 %	SA	PCS	1	A	PCS	3	A	PCS	3	SA	PCS	1			044							
LIAHLSAHLL																									
Legend: F = local, V = local cabinet, S = control room, PCS = process control system																									
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																									
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp			Tn	Td							
L 62005		LOX TANK B62001	0...100 %	SA	PCS		A	PCS		A	PCS		ZA	S	97,5		032									
LIAHLZAHHSALL				3																						
L 62006		OVERFLOW LOX TANK BL62001	94,37...100 %							A	PCS	3	ZA	S	1	95	032									
LAHZAHH																										
L 64030		WATER BATH VAPORIZER GOX	mm													034										
LZAL																										
L 72005		LIN TANK B72001	0...100 %	SA	PCS	1	A	PCS	3	A	PCS	3	ZA	S	1	95	035									
LIAHLZAHHSALL				3																						
L 72006		OVERFLOW LIN TANK B72001	93,6...100 %							A	PCS	3	ZA	S	1	95	035	Local indicator								
LAHZAHH																										
L 73002		MP LIN TANK B73001	0...100 %													038										
LI																										
L 73007		MP LIN TANK B73001	0...100 %	SA	PCS	1	A	PCS	3	A	PCS	3	SA	PCS	1	75	80	038								
LIAHLSAHHLL				10																						
Legend:																			F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (FP*) = Frost Protection recommended			
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn			Td			
L 73030		WATER BATH VAPORIZER GAN	mm																	039					
LZAL																									
L 73130		WATER BATH NAT. GAS VAP.	mm																	040					
LSAH																									
L 73131		WATER BATH NAT. GAS VAP.	mm																	040					
LZAL																									
L 73132		WATER BATH NAT. GAS VAP.	mm																	040					
LZALL																									
P 11007		AIR CHARGE 1ST STAGE MAC	-1,0...+0,5 bar																	001					
PI																									
P 11016		AIR BEHIND INTERCOOLER 1ST STAGE MAC	0...2,5 bar																	001					
PI																									
P 11026		AIR BEHIND INTERCOOLER 2ST STAGE MAC	0...2,5 bar																	001					
PI																									
Legend:																									
F = local, V = local cabinet, S = control room, PCS = process control system																									
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																									
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				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio			threshold	W	Kp	Tn	Td	
FUNCTION				threshold		threshold		threshold		threshold													
P 11036		AIR BEHIND INTERCOOLER 3RD STAGE MAC	0...8 bar												001								
PI																							
P 11041		AIR DISCHARGE 4TH STAGE MAC	0...8 bar				A	PCS	3						001	0,6	50s						
PICAL									4														
P 11505		COOLING WATER CHARGE MAC	0...10 bar						F	-					001				local indicator				
PI									3														
P 11590		COOLING WATER DISCHARGE MAC	0...10 bar												001				local indicator				
PI																							
P 11747		LUBE OIL BEARINGS MAC	0...2,5 bar	SA	PCS	1	A	PCS	3						027								
PIALSALL									1,2														
P 11752		SEAL GAS MAC	0...6 bar												027				local indicator				
PI																							
P 11754		SEAL GAS MAC	bar												027								
PIAHL																							
Legend:																							
F = local, V = local cabinet, S = control room, PCS = process control system																							
Annotation on column "Hook Up": (F/P*) = Frost Protection recommended																							
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TAG-NO.	DESIG-NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS			
			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio			threshold	W	Kp
P 11754	SEAL CHAMBER PRESSURE	0...50 mbar																	
PIAL																			027
P 11840	LUBE OIL MAC	0...6 bar																	027
PI																			local indicator
P 11854	LUBE OIL MAC	0...2,5 bar																	027
PIAL																			local indicator
P 13120	COOLING WATER TO DC/AC	0...10 bar																	002
PI																			local indicator
P 13220	COOLING WATER TO DC/AC	0...16 bar																	002
PI																			local indicator
P 14120	CHILLED WATER TO DC/AC	0...16 bar																	003
PI																			local indicator
P 14220	CHILLED WATER TO DC/AC	0...16 bar																	003
PI																			local indicator

**Legend:** F = local, V = local cabinet, S = control room, PCS = process control system

Annotation on column "Hook Up": (FP\*) = Frost Protection recommended

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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn			Td						
P 15010		AIR INLET MOL SIEVE	0...6 bar				A	PCS	3											004								
P1AL																												
P 15012		ADSORBER A15001	0...6 bar				S	PCS	3	S	PCS	3								004								
P1SHL																												
P 15022		ADSORBER A15002	0...6 bar				S	PCS	3	S	PCS	3								004								
P1SHL																												
P 15035		AIR BEHIND MOL SIEVE	0...6 bar				SA	PCS	1	A	PCS	3								004								
P1ALSALL																												
P 15037		AIR TO REGENERATIO N GAS HEATER	0...400 mbar																	004								
P1CAHSAHH																												
P 15041		WN2 TO REG. GAS HEATER	0...450 mbar																	005 / 003								
P1CAHL																												
P 16007		CHARGE PRESSURE BAC	0...7 bar				SA	PCS	1	A	PCS	3	A	PCS	3					006								
P1CAHLSAHHLL																												
Legend:																												
F = local, V = local cabinet, S = control room, PCS = process control system																												
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																												
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Annotation on column "Hook Up":  
(FP\*) = Frost Protection recommended

E = local V = local cabinet S = control room. PCS = process control system

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K70101

ASU No. 09 Kosice

**AIR LIQUIDE**

Drwg.-

**ir Liquide AGS GmbH**  
Füttingsweg 34  
D-47805 Krefeld, Germany

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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn	Td			
P 16015		AIR BEHIND INTERCOOLER 1ST STAGE BAC	0...15 bar																		006		
PI																							
P 16025		AIR BEHIND INTERCOOLER 2ND STAGE BAC	0...25 bar																		006		
PI																							
P 16035		AIR BEHIND INTERCOOLER 3RD STAGE BAC	0...50 bar																		006		
PI																							
P 16045-1		AIR DISCHARGE INTERCOOLER 4TH STAGE	0...70 bar										A	PCS	3	SA	PCS	1			006		
PICAHSAHH																							
P 16073		HP-AIR FROM BAC	-1...100 bar	SA	PCS	1	A	PCS	3	A	PCS	3									006		
PISÄHLALL																							
P 16505		COOLING WATER BAC	0...10 bar																		006	local indicator	
PI																							
P 16512		COOLING WATER BEHIND VW16001 BAC	0...10 bar																		006	local indicator	
PI																							
Legend:																							
F = local, V = local cabinet, S = control room, PCS = process control system																							
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																							
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TAG-NO.		DESIG- NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS							
FUNCTION				S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold			W	Kp	Tn	Td			
P 16522		COOLING WATER BEHIND VW16002	0...10 bar																006	local indicator				
PI																								
P 16532		COOLING WATER BEHIND VW16003	0...10 bar																006	local indicator				
PI																								
P 16542		COOLING WATER BEHIND VW16004	0...10 bar																006	local indicator				
PI																								
P 16590		COOLING WATER RETURN BAC	0...10 bar																006	local indicator				
PI																								
P 16623		LUBE OIL P16830 BAC	bar																028	local indicator				
PI																								
P 16751		SEAL GAS BAC	0...250 mbar				A	PCS	3										028					
PIAL																								
P 16752		SEAL GAS BAC	0...1,4 bar				-	A	-										028	local indicator				
PI																								
Legend:																	F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (FP*) = Frost Protection recommended			
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp			Tn
P 16824		LUBE OIL P16820 BAC	0... bar				-	F	-								028	local indicator
PI																		
P 16854		LUBE OIL BAC	0...4 bar	SA	PCS	1	A	PCS	3								028	
PISAL																		
P 16855		LUBE OIL BAC	0...4 bar														028	
PISAL							A	PCS	3									
P 16861		LUBE OIL HEADER	0... bar				-	F	-								028	local indicator
PI																		
P 16862		LUBE OIL SUPPLY	0... bar				-	F	-								028	local indicator
PI																		
P 16867		LUBE OIL MAIN MOTOR BAC	0...6 bar				-	F	-								028	local indicator
PI																		
P 16868		LUBE OIL MAIN MOTOR BAC	0...6 bar				-	F	-								028	local indicator
PI																		
Legend:																		
F = local, V = local cabinet, S = control room, PCS = process control system																		
Annotation on column "Hook Up": (F-P) = Frost Protection recommended																		
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TAG-NO.		DESIG- NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS																			
FUNCTION				S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold			W	Kp	Tn	Td															
P 20001		HP-GAN OUTLET COLD BOX	0...30 bar				A	PCS	3	A	PCS	3							010																	
PICAL																																				
P 20003		HP-GAN TO CUSTOMER	0...30 bar																010																	
PI																																				
P 20005		LP-GAN OUTLET COLD BOX	0...250 mbar				A	PCS	3										010																	
PICAL																																				
P 20011		GOX OUTLET COLD BOX	0...40 bar				A	PCS	3	A	PCS	3							010																	
PICAL																																				
P 20013		GOX TO CUSTOMER	0...40 bar																010																	
PI																																				
P 20015		GOX TO CUSTOMER 1	0...40 bar																010																	
PI																																				
P 20016		GOX TO CUSTOMER 2	0...40 bar																010																	
PI																																				
Legend:																	F = local, V = local cabinet, S = control room, PCS = process control system										Annotation on column "Hook Up": (FP*) = Frost Protection recommended									
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			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td		
P 21002	HP-COLUMN TOP	0...6 bar																	014	
P 22001	LP-COLUMN BOTTOM	0...600 mbar																	013	
P 24101	AIR TO EXPANDER TURBINE 1	0...70 bar																	007	
P 24102	AIR OUTLET EXPANDER TURBINE 1	0...10 bar																	007	H for deriming
P 24107	AIR INLET EXPANDER TURBINE 1	0...70 bar																	007	H for deriming
P 24108	AIR INLET EXPANDER TURBINE 1	0...100 bar																	007	local indicator
P 24110	AIR OUTLET EXPANDER TURBINE 1	0...100 bar																	007	local indicator

F = local, V = local cabinet, S = control room, PCS = process control system  
 Annotation on column "Hook Up":  
 (FP\*) = Frost Protection recommended

#### Legend:

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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn			Td	
				threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold							
P 24140		SEAL GAS EXPANDER TURBINE 1	0...40 bar				-	F	-							029	local indicator		
PI																			
P 24144		SEAL GAS EXPANDER TURBINE 1	0...25 bar	SA	PCS	1	A	PCS	3							029			
PIALSALL				1,0		20,7		2,0											
P 24145		BACK PRESSURE SEAL GAS	0...10 bar				-	F	-							029	local indicator		
PI				see PLL24145		see PL24145													
P 24169		LUBE OIL EXPANDER TURBINE 1	0...6 bar	-	F	-	-	F	-							029	local indicator		
PI				see PCS		see PCS													
P 24169		LUBE OIL EXPANDER TURBINE 1	0...6 bar	SA	PCS	1	A	PCS	3							029			
PISALSALL				1,8				2,1											
P 24201		AIR TO EXPANDER TURBINE 2	0...70 bar							A	PCS	3				008			
PISAH																			
P 24202		AIR OUTLET EXPANDER TURBINE 2	0...10 bar							A	PCS	3	S	PCS	1	008	H for deriming		
PIASHH																			
Legend:																			
F = local, V = local cabinet, S = control room, PCS = process control system																			
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																			
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			S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold	W	Kp	Tn	Td		
P 24207	PIAH	0...70 bar									A	PCS	3										008	H for deriming
P 24208	PI	0...100 bar									-	F	-										008	local indicator
P 24210	PI	0...10 bar									-	A	-										007	local indicator
P 24240	PI	0...10 bar																					030	local indicator
P 24244	PIALSALL	0...25 bar	SA	PCS	1		A	PCS	3														030	
P 24245	PI	0...10 bar																					030	local indicator
P 24269	PIALSALL	0...6 bar	SA	PCS	1		A	PCS	3														030	

Legend: F = local, V = local cabinet, S = control room, PCS = process control system

Annotation on column "Hook Up":  
(FP\*) = Frost Protection recommended

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			S/A	loc prio	S/A	loc prio	S/A	loc prio	S/A	loc prio	threshold	threshold	Td		
P 24269	LUBE OIL EXPANDER TURBINE 2	0...6 bar	-	F	-	F	-	-	-	-	-	-	-	030	local indicator
			see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS		
P 40003	CAR COLUMN C40002	0...600 mbar	-	-	-	-	-	-	-	-	-	-	-	017 / 016	
			see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS		
P 40007	LOX BOILER TOP	0...500 mbar	-	-	-	-	-	-	-	-	-	-	-	017	
			see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS		
P 40130	CHARGE PRESSURE P40100	0...6 bar	-	-	-	-	-	-	-	-	-	-	-	016	local indicator
			see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS		
P 40170	DISCHARGE CLOX PUMP P40100	0...10 bar	SA	PCS	1	A	PCS	3	A	PCS	3	SA	PCS	016	
			3,5	4,0	7,0	8									
P 43022	PURE AR COLUMN K43001 TOP	0...1000 mbar	-	-	-	-	-	-	-	-	-	-	-	018	
			see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS		
P 43028	LIQ. NTR. SEPARATOR B43001	0...2000 mbar	-	-	-	-	-	-	-	-	-	-	-	018	
			see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS	see PCS		

F = local, V = local cabinet, S = control room, PCS = process control system  
 Annotation on column "Hook Up":  
 (FP\*) = Frost Protection recommended

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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	W	Kp	Tn	Td			
P 44057		END PRESSURE P44001	0...10 bar																			042	local indicator	
PI																						042	local indicator	
P 44072		PURGE GAS TO P44001	0...6 bar																			041		
PICAHLSAHL				SA	PCS	1	A	PCS	3	A	PCS	3	SA	PCS	1									
P 44106		LP LAR TANK 1 B44001	0...6 bar																			041		
PSH																								
P 44107		LP LAR TANK 1 B44001	0...6 bar	-	F	-	-	F	-	-	F	-	-	F	-							041	local indicator	
PI																								
P 44205		LP LAR TANK 2 B44201	0...6 bar	SA	PCS	1	A	PCS	3	A	PCS	3	SA	PCS	1							042		
PICAHLSAHL																								
P 44207		LP LAR TANK 2 B44201	0...6 bar	-	F	-	-	F	-	-	F	-	-	F	-							042	local indicator	
PI																								
Legend:																								
F = local, V = local cabinet, S = control room, PCS = process control system																								
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																								
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Annotation on column "Hook Up":  
(FP\*) = Frost Protection recommended

F = local, V = local cabinet, S = control room, PCS = process control system

Legend:

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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td		
				threshold			threshold			threshold			threshold								
P 48004		HP LAR TANK B48001	0...40 bar							SA	S	1								044	
PSAH																					
P 48005		HP LAR TANK B48001	0...40 bar	SA	PCS	1	A	PCS	3	A	PCS	3	SA	PCS	1					044	
PIAHSAHILL				0,2			0,3			30			35								
P 48015		HP LAR TANK B48001	0...60 bar	-	F	-	-	F	-	-	F	-	-	F	-					044	local indicator
PI				0,2			0,3			30			35								
P 48050		END PRESSURE LAR PUMP P48001	0...40 bar	SA	PCS	1	A	PCS	3	A	PCS	3	SA	PCS	1					043	
PIAHLSAHILL				15			20			30			35								
P 48080		SEAL GAS P48001	bar																	043	
PIC																					
P 49020		HP-GAR TO CUSTOMER	0...40 bar				A	PCS	3											044	
PICAL																					
P 49021		HP-GAR DISCHARGE EVAPORIZERS	0...40 bar																	044	local indicator
PI																					


Legend:

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Annotation on column "Hook Up":  
(FP) = Frost Protection recommended

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			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td		
FUNCTION			threshold			threshold			threshold			threshold								
P 61130	CHARGE PRESSURE P61100	0...6 bar																	012	local indicator
PI																				
P 61170	DISCHARGE LOX PUMP P61100	0...40 bar	SA	PCS	1	A	PCS	3	A	PCS	3	SA	PCS	1					012	
PICAHLSAHHLL															15	26	30	32		
P 61230	CHARGE PRESSURE P61200	0...6 bar																	012	local indicator
PI																				
P 61270	DISCHARGE LOX PUMP P61200	0...40 bar	SA	PCS	1	A	PCS	3	A	PCS	3	SA	PCS	1					012	
PICAHLSAHHLL															15	26	30	32		
P 62004	PRESSURIZATIION LOX TANK B62001	bar																	032	
PIC																				
P 62005	LOX TANK B62001 BLOW OUT	-10...+250 mbar	A	PCS	1	A	PCS	3	A	PCS	3	SA	PCS	1					032	PIC62004, SP=30, KP=1, Tn=30s
PICAHLSAHHLL															5	10	160	180		
P 62006	LOX TANK BL62001	0...400 mbar										SA	F	1					032	
PSAHH																				

Legend:										F = local, V = local cabinet , S = control room, PCS = process control system										Annotation on column "Hook Up": (FP*) = Frost Protection recommended									
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	S/A	loc			prio	threshold	W	Kp	Tn	Td							
P 62011		END PRESSURE LOX PUMP P62001	0...10 bar				-	F	-												032	local indicator								
PI																														
P 62012		END PRESSURE LOX PUMP P62001	0...10 bar					SA	PCS	3											032									
PISAL																														
P 62032		TANK SHELL B62001	0...25 mbar																		032	local indicator								
PI																														
P 62170		O2 SEAL GAS P62001	0...0,6 bar																		032	local indicator								
PI																														
P 62171		O2 SEAL GAS P62001	bar																		032									
PIC																														
P 63033		END PRESSURE LOX PUMP P63001	0...6 bar																		032									
PIC																														
P 64050		GOX BEHIND WATER BATH VAPORIZER	0...40 bar														25	0,7	30s		034									
PICAHAHH																														
Legend:																	F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (FP*) = Frost Protection recommended									
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FUNCTION				S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold			W	Kp	Tn	Td					
P 64080		STEAM TO WATER BAD VAPORIZER GOX	0...25 bar	SA	PCS	1	A	PCS	3										034							
PIALSALL						7			10																	
P 64081		STEAM TO W64001	0...25 bar																034		local indicator					
PI																										
P 64101		LOX TO P64101	0...6 bar																033		local indicator					
PI																										
P 64150		END PRESSURE LOX PUMP P64101	0...40 bar	SA	PCS	1	A	PCS	3	A	PCS	3	A	PCS	1	29	0,7	15s		033						
PICAHLAHILL						20			25					35												
P 64170		O2 SEAL GAS P64101	bar																033		local indicator					
PI																										
P 64171		O2 SEAL GAS P64101	bar																033							
PIC																										
P 64201		LOX TO P64201	0...6 bar																033		local indicator					
PI																										
Legend:																	F = local, V = local cabinet , S = control room, PCS = process control system					Annotation on column "Hook Up": (FP*) = Frost Protection recommended				
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn			Td			
P 64250		END PRESSURE LOX PUMP P64201	0...40 bar	SA	PCS	1	A	PCS	3	A	PCS	3	A	PCS	1	29	0,7	15s		033					
PICAHLAHILL																									
P 64270		O2 SEAL GAS P64201	bar																033	local indicator					
PI																									
P 64271		O2 SEAL GAS P64201	bar																033						
PIC																									
P 70001		INLET GAN COMPRESSOR 1	0...250 mbar				A	PCS	3	A	PCS	1	SA	PCS	3					019					
PIAHLSAHH									50			50 ??			100										
P 70007		INLET GAN COMPRESSOR 1	0...2 bar									A	PCS	3	SA	PCS	1			019					
PIAHSAAH														1,05	1,10										
P 70015		GAN BEH. COOLER 1ST STAGE	0...2 bar																019						
PI																									
P 70025		GAN BEH. COOLER 2ND STAGE	0...4 bar																019						
PI																									
Legend:																									
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn			Td						
P 70031		GAN BEH. 3RD STAGE	0...10 Bar																	019								
PISAHAHH																												
P 70035		GAN BEH. COOLER 3RD STAGE	0...10 bar																	019								
PI																												
P 70036		GAN DISCHARGE GAN COMPR. 1	bar																	019								
PI																												
P 70041		MP-GAN TO CUSTOMER	0...10 bar																	020								
PICAH																												
P 70753		SEAL GAS N2 COMP.1	bar																	021								
PIAL																												
P 70854		LUBE OIL GAN COMP. 1	0...4 bar																	021								
PISALSALL																												
P 70855		LUBE OIL GAN COMP. 1	0...6 bar																	021	local indicator							
PI																												
Legend:																												
F = local, V = local cabinet, S = control room, PCS = process control system																												
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																												
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			S/A		loc	S/A		loc	S/A		loc	S/A		loc	W	Kp	Tn	Td			
			threshold	prio	threshold	prio	threshold	prio	threshold	prio	threshold	prio									
FUNCTION			-	F	-	-	F	-	-	-	-	-	-	-	-	-	-	-	-	-	local indicator
P 70867	LUBE OIL MAIN MOTOR GAN COMP. 1	0... 6 bar	1			1,4														021	local indicator
PI																					
P 70868	LUBE OIL MAIN MOTOR GAN COMP. 1	0... 6 bar	-	F	-	-	F	-	-	-	-	-	-	-	-	-	-	-	-	021	local indicator
PI			1			1,4														015	local indicator
P 71130	CHARGE PRESSURE P71100	0... 6 bar																		015	local indicator
PI																					
P 71170	DISCHARGE LIN PUMP P71100	0...40 bar	SA	PCS	1	A	PCS	3	A	PCS	3	SA	PCS	1						015	local indicator
PICAHLSAHHLL			10			19			23			25									
P 71230	CHARGE PRESSURE P71200	0... 6 bar																		015	local indicator
PI																					
P 71270	DISCHARGE LIN PUMP P71200	0...40 bar	SA	PCS	1	A	PCS	3	A	PCS	3	SA	PCS	1						015	local indicator
PICAHLSAHHLL			10			19			23			25									
P 72005	LIN TANK B72001 BLOW OUT	-10...+250 mbar	A	PCS	1	A	PCS	3	A	PCS	3	S	PCS	1	50	4	30s			035	local indicator
PICAHLSAHHLL			5			10			160			180									

Legend:

F = local, V = local cabinet, S = control room, PCS = process control system

Annotation on column "Hook Up":  
(FP\*) = Frost Protection recommended

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 Annotation on column "Hook Up":  
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				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio			threshold	W	Kp	Tn	Td																						
FUNCTION				threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold																																	
P 72006		LIN TANK B72001	0...400 mbar																035																									
PSAHH																																												
P 72011		END PRESSURE LIN PUMP P72001	0...10 bar																035	local indicator																								
PI																																												
P 72012		END PRESSURE LIN PUMP P72001	0...10 bar																035																									
PISAL																																												
P 72032		TANK SHELL B72001	0...15 mbar																035	local indicator																								
PI																																												
P 73002		REFILL GAN RESERVOIR	0...25 bar																038																									
PISAL																																												
P 73002		IMP LIN TANK B73001	0...25 bar																038	local indicator																								
PI																																												
P 73005		IMP LIN TANK B73001 BLOW OUT	bar																038																									
PIC																																												
Legend:																			F = local, V = local cabinet, S = control room, PCS = process control system										Annotation on column "Hook Up": (FP*) = Frost Protection recommended															
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn			Td
P 73006		MP LIN TANK B73001	0...25 bar																	038		
PSAH																						
P 73007		HP-GAN RESERVOIR B73002	0...25 bar				S	PCS	3	S	PCS	3								038		
PISAHL																						
P 73009		HP-GAN RESERVOIR B73002	0...25 bar				-	F	-	-	F	-								038	local indicator	
PI																						
P 73015		MP LIN TANK B73001	0...25 bar				A	PCS	3	A	PCS	3	SA	PCS	1	7,5	2	45s		038	PIC73005, w=9,5, Kp=2, Tn=20s	
PICAHL/SAHL																						
P 73050		GAN BEHIND WATER BATH VAPORIZER	0...25 bar							A	H	3				5,8	1,9	30s		039		
PICAH																						
P 73080		STEAM TO WATER BATH VAPORIZER GAN	0...25 bar	SA	PCS	1	A	PCS	3											039		
PIALSALL																						
P 73081		STEAM TO WATER BATH VAPORIZER GAN	0...25 bar																	039	local indicator	
PI																						
Legend: F = local, V = local cabinet, S = control room, PCS = process control system																						
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td																											
P 73101		LIN TO P73101	0...6 bar														037	local indicator																									
PI																																											
P 73150		END PRESSURE LIN PUMP P73101	0...25 bar	SA	PCS	1	A	PCS	3	A	PCS	3	SA	PCS	1	25	1,5	20s	037																								
PICAHL5AHLL				4				6				8				15																											
P 73158		GAN BEHIND W73101	0...25 bar										A	PCS	3	SA	PCS	1	5,8	2,5	30s	040	local indicator																				
PICA5SAHH								6																																			
P 73201		LIN TO P73201	0...6 bar															037																									
PI																																											
P 73250		END PRESSURE LIN PUMP P73201	0...25 bar	SA	PCS	1	A	PCS	3	A	PCS	3	SA	PCS	1	25	3	20s	037																								
PICAHL5AHLL				4				6				8				15																											
P 74090		OUTLET PRESSURE HP-GAN	0...40 bar				A	PCS	3	A	PCS	3				15	3,5	25s	036																								
PICA5AHL								10,5				27																															
P 74101		LIN TO P74101	0...6 bar															036				local indicator																					
PI																																											
Legend:																	F = local, V = local cabinet, S = control room, PCS = process control system																										
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																																											
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn			Td					
P 74150		END PRESSURE LIN PUMP P74101	0...40 bar	SA	PCS	1	A	PCS	3	A	PCS	3	A	PCS	3	SA	PCS	1	22	1	30s		036				
PIAHLSAHLL																											
P 74170		N2 SEAL GAS P74101	bar																			036	local indicator				
PI																											
P 74171		N2 SEAL GAS P74101	bar																			036					
PIC																							local indicator				
P 74201		LIN TO P74201	0...6 bar																			036					
PI																											
P 74250		END PRESSURE LIN PUMP P74201	0...40 bar	SA	PCS	1	A	PCS	3	A	PCS	3	A	PCS	3	SA	PCS	1	22	1	30s		036				
PIAHLSAHLL																											
P 74270		N2 SEAL GAS P74201	bar																			036	local indicator				
PI																											
P 74271		N2 SEAL GAS P74201	bar																			036					
PIC																											
Legend:																											
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			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	W	Kp			Tn	Td	
<b>P 77001</b>	<b>INLET GAN COMPRESSOR 2</b>	<b>0...250 mbar</b>																			<b>020</b>		
PIAHLSAHH																							
<b>P 77007</b>	<b>INLET GAN COMPRESSOR 2</b>	<b>0...2 bar</b>																				<b>020</b>	
PI																							
<b>P 77015</b>	<b>GAN BEH. COOLER 1ST STAGE</b>	<b>0...2 bar</b>																				<b>020</b>	
PI																							
<b>P 77025</b>	<b>GAN BEH. COOLER 2ND STAGE</b>	<b>0...4 bar</b>																				<b>020</b>	
PI																							
<b>P 77031</b>	<b>GAN BEH. 3RD STAGE</b>	<b>0...10 bar</b>																				<b>020</b>	
PISAHAHH																							
<b>P 77035</b>	<b>GAN BEH. COOLER 3RD STAGE</b>	<b>bar</b>																				<b>020</b>	
PI																							
<b>P 77036</b>	<b>GAN DISCHARGE GAN COMPR. 2</b>	<b>bar</b>																				<b>020</b>	
PI																							

**Legend:** F = local, V = local cabinet, S = control room, PCS = process control system  
 Annotation on column "Hook Up": (P\*) = Frost Protection recommended

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FUNCTION				S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold	W	Kp	Th			Td				
P 77753		SEAL GAS N2 COMP.2	bar																022						
PIAL																									
P 77854		LUBE OIL GAN COMP. 2	0...4 bar	SA	PCS	1	A	PCS	3										022						
PISALSALL																									
P 77855		LUBE OIL GAN COMP. 2	0...6 bar	-	F	-	-	F	-										022	local indicator					
PI																									
P 77867		LUBE OIL MAIN MOTOR GAN COMP. 2	0...6 bar	-	F	-	-	F	-										022	local indicator					
PI																									
P 77868		LUBE OIL MAIN MOTOR GAN COMP. 2	0...6 bar	-	F	-	-	F	-										022	local indicator					
PI																									
P 80001		COOLING WATER	0...6 bar				A	PCS	3										023						
PIAL																									
P 81010		PURGE GAS HEADER	0...10 bar				A	PCS	3										025						
PIAL																									
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td		
				threshold			threshold			threshold								
P 82010		INSTRUMENT GAS HEADER	0...10 bar				A	PCS	3								025	
PIAL																		
P 82022		GAN TO INSTRUMENT AIR	0...6 bar				-	F	-								025	local indicator
PI																		
P 84010		STEAM FROM CUSTOMER	0...25 bar				A	PCS	3	A	PCS	3					031	
PIAHL																		
P 87012		PURGE GAS TO COLD BOX	0...400 mbar				A	PCS	3								024	
PIAL																		
P 87025		TOP HE-BOX	-10...+25 mbar				A	PCS	3	A	PCS	3					024	
PIAHL																		
P 87065		TOP COLD-BOX	-10...+25 mbar				A	PCS	3	A	PCS	3					024	
PIAHL																		
PD 10000		AIR FILTER MAC	0...60 mbar							A	PCS	3	SA	PCS	1		001	
PDIAHSAHH																		

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Annotation on column "Hook Up":  
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 Annotation on column "Hook Up": (FP\*) = Frost Protection recommended

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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td						
PD 11812		VACUUM MONITOR OIL CONTAINER MAC	mbar														027					
PDIAH																	027	local indicator				
PD 13004		DIFF.-PRESSURE DC/AC	0...60 mbar							A	PCS	3	SA	PCS	1		002					
PDIAHSAHH																	002	local indicator				
PD 13110		CW FILTER F13110	0...1,6 bar														002					
PDI																	002	local indicator				
PD 13210		CW FILTER F13210	0...1,6 bar														002					
PDI																	002	local indicator				
PD 14010		CW FILTER F14010	0...1,6 bar														003					
PDI																	003	local indicator				
PD 14110		CW FILTER F14110	0...1,6 bar														003					
PDI																	003	local indicator				
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FUNCTION				S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold			W	Kp	Tn	Td			
PD 14210		CW FILTER F14210	0...1,6 bar																003	local indicator				
PDI																								
PD 15031		AIR FILTER BEHIND MOL SIEVE	0...150 mbar						A	PCS	3								004					
PDIAH													50											
PD 16812		VACUUM MONITOR OIL CONTAINER BAC	-15...15 mbar				A	PCS	3										028					
PDIAL																								
PD 16846		OIL FILTERS BAC	0...1,6 bar							A	PCS	3							028	local indicator				
PDIAH														0,8										
PD 20012		GOX BARRIER K20012	0...40 bar																010	local indicator				
PDI																								
PD 20015		DIFF.- PRESSURE UK20013	0...40 bar							S	F	3							010					
PDSH														2										
PD 20016		DIFF.- PRESSURE UK20014	0...40 bar							S	F	3							010					
PDSH															2									
Legend:																	F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (FP) = Frost Protection recommended			
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	threshold	W			Kp	Tn	Td						
PD 21003		DIFF. PRESS. HP-COLUMN	0...300 mbar																			014								
PDIAH																														
PD 22001		DIFF. PRESS. LP-COLUMN	0...100 mbar																			013								
PDIAH																														
PD 24141		DIFF.-PRESS SEAL GAS TURBINE 1	0...2000 mbar	SA	PCS	1	A	PCS	3													029								
PDIALSALL																														
PD 24169		DIFF.-PRESS OILFILTER	bar																			029	local indicator							
PDIAH																														
PD 24241		DIFF.-PRESS SEAL GAS TURBINE 2	0...2000 mbar	SA	PCS	1	A	PCS	3													030								
PDIALSALL																														
PD 24269		DIFF.-PRESS OILFILTER AF24268	bar																			030	local indicator							
PDIAH																														
PD 40003		CAR COLUMN K40002	0...150 mbar																			017								
PDIAH																														
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PD 40053		DIFF. PRESS. CAR COLUMN K40001	0...150 mbar														016	
PDIAH										A	PCS	3						
PD 43021		DIFF. PRESS. PURE AR COLUMN C43001	0...300 mbar														018	
PDICAH										A	PCS	3						
PD 64060		GOX PRODUCT	0...3 bar														034	
PDI																		
PD 70846		OIL FILTERS GAN COMP. 1	0...4 bar														021	local indicator
PDIAH										A	F	3						
PD 77846		OIL FILTERS GAN COMP. 2	0...4 bar														022	local indicator
PDIAH										A	F	3						
Q 15038		PPM CO2 IN AIR BEHIND MOL SIEVE	0...5 ppm														004	
QIAHAH										A	PCS	3	SA	PCS	1			
Q 15038_2		PPM CO2 IN AIR BEHIND MOL SIEVE	0...50 ppm														004	
QIAHAH										A	PCS	3	SA	PCS	1			
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn			Td				
Q 15043		PPM H2O IN REGENERATIO N GAS	0...10 ppm																	005						
QIAHAHH																										
Q 16055		PPM H2O IN HPAIR	0...10 ppm																	006						
QIAHAHH																										
Q 20001		PPM O2 IN HP- GAN OUTLET COLDBOX	0...10 ppm																	010						
QIAHAHH																										
Q 20001_2		PPM O2 IN HP- GAN OUTLET COLDBOX	0...1000 ppm																	010						
QIAHAHH																										
Q 20005		PPM O2 IN LP- GAN OUTLET COLDBOX	0...10 ppm																	010						
QIAHAHH																										
Q 20005_2		PPM O2 IN LP- GAN OUTLET COLDBOX	0...1000 ppm																	010						
QIAHAHH																										
Q 20011		% O2 IN GOX OUTLET COLDBOX	98...100 %																	010						
QIALSALL																										
Legend:																										
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	W	Kp			Tn	Td		
Q 20011_2		% O2 IN GOX OUTLET COLD BOX	0...100 %	SA	PCS	1	S	PCS	3												010				
QIALSALL																									
Q 20012		PPM N2 IN GOX OUTLET COLD BOX	0...100 ppm							A	PCS	3	SA	PCS	1						010				
QIAHSAHH																	1								
Q 20012_2		PPM N2 IN GOX OUTLET COLD BOX	0...1000 ppm							A	PCS	3	SA	PCS	1						010				
QIAHSAHH																	1								
Q 20029		%O2 IN WASTE GAS EX MHE	0...5 %							A	PCS	3									009				
QIAH																									
Q 20029_2		%O2 IN WASTE GAS EX MHE	0...100 %							A	PCS	3									009				
QIAH																									
Q 21004		% O2 IN HP- COLUMN	0...100 %							A	PCS	3									014				
QICAH																									
Q 21004_2		% O2 IN HP- COLUMN	0...100 %							A	PCS	3									014				
QICAH																									
Legend:																									
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FUNCTION				S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold			W	Kp	Tn	Td			
Q 22011_T		ANALYTIC VAPORIZER	0...50 °C																014					
TIC																								
Q 23013		PPM O2 IN LIN TO STORAGE	0...10 ppm							A	PCS	3		SA	PCS	1			011					
QIAHSAHH																								
Q 23013_2		PPM O2 IN LIN TO STORAGE	0...1000 ppm							A	PCS	3		SA	PCS	1			011					
QIAHSAHH																								
Q 23013_T		ANALYTIC VAPORIZER	0...50 °C																011					
TIC																								
Q 23016		% O2 IN LOX TO STORAGE	98...100 %	SA	PCS	1	A	PCS	3										011					
QIALSALL						99,5																		
Q 23016_2		% O2 IN LOX TO STORAGE	0...100 %	SA	PCS	1	A	PCS	3										011					
QIALSALL						99,5																		
Q 23016_T		ANALYTIC VAPORIZER	0...50 °C																011					
TIC																								
Legend:																	F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (FP*) = Frost Protection recommended			
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			S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold	W	Kp	Tn	Td		
<b>Q 40011</b>	% O2 IN SIDEARM LIQUID	80...100 %					A	PCS	3	A	PCS	3										016		
QICAHL																								
<b>Q 40011_2</b>	% O2 IN SIDEARM LIQUID	0...100 %					A	PCS	3	A	PCS	3						90%				016		
QICAHL																								
<b>Q 40012</b>	PPM O2 IN CAR COLUMN K40002	0...10 ppm								A	PCS	3	SA	PCS	1							017		
QIAHSAHH																								
<b>Q 40012_2</b>	PPM O2 IN CAR COLUMN K40002	0...1000 ppm								A	PCS	3	SA	PCS	1							017		
QIAHSAHH																								
<b>Q 40014_T</b>	ANALYTIC VAPORIZER	0...50 °C																				017		
TIC																								
<b>Q 43033</b>	PPM O2 IN LAR PRODUCT	0...10 ppm								A	PCS	3	SA	PCS	1							018		
QIAHSAHH																								
<b>Q 43033_2</b>	PPM O2 IN LAR PRODUCT	0...1000 ppm								A	PCS	3	SA	PCS	1							018		
QIAHSAHH																								

**Legend:** F = local, V = local cabinet, S = control room, PCS = process control system

Annotation on column "Hook Up":  
(FP\*) = Frost Protection recommended

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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn			Td																						
Q 43033_7		ANALYTIC VAPORIZER	0...50 °C																	018																								
TIC																																												
Q 43034_1		PPM H2 IN LAR	0...10 vpm																	018																								
QI																																												
Q 43034_2		PPM N2 IN LAR	0...10 ppm																	018																								
QIAHSAHH																																												
Q 43034_3		PPM CO2 IN LAR	0...5 ppm																	018																								
QIAH																																												
Q 43034_4		PPM CO IN LAR	0...2 ppm																	018																								
QIAHSAHH																																												
Q 43034_5		PPM NMHC IN LAR	0...2 ppm																	018																								
QIAHSAHH																																												
Q 43034_6		PPM CH4 IN LAR	0...2 ppm																	018																								
QI																																												
Legend:																					F = local, V = local cabinet, S = control room, PCS = process control system										Annotation on column "Hook Up": (FP*) = Frost Protection recommended													
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn			Td
				threshold		threshold		threshold		threshold								
Q 64051		% O2 IN GOX OUTLET W64001	98...100 %	SA	PCS	1	A	PCS	3							034		
QIALSALL				99,5				99,6										
Q 64051_2		% O2 IN GOX OUTLET W64001	0...100 %													034		
QI																		
Q 74090		PPM O2 IN MP GAN	0...10 ppm							A	PCS	3	A	PCS	1	036		
QIAHSAHH															10			
Q 74090_2		PPM O2 IN MP GAN	0...1000 ppm													036		
QI																		
S 24124		SPEED EXPANDER TURBINE 1	0...50000 rpm	SA	PCS	1	SA	PCS	3	SA	PCS	3	SA	PCS	1	029	HARD SWITCH: SHH = 37964	
SISAHLSAHHLL				500				50							38000			
S 24224		SPEED EXPANDER TURBINE 2	0...50000 rpm/m in	SA	PCS	1	A	PCS	3	A	PCS	3	A	PCS	1	030	HARD SWITCH: SHH = 37964	
SISAHLSAHHLL				500				50							38000			
S 73101		SPEED LIN BACKUP PUMP P73100	0...84 Hz				S	PCS	4							037		
SISL																		
Legend:																		
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Annotation on column "Hook Up": (FP) = Frost Protection recommended																		
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FUNCTION				S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold			W	Kp	Tn	Td							
S 73201		SPEED LIN BACKUP PUMP P73200	0...84 HZ				S	PCS	4										037									
SISL																												
T 11007		AIR INLET MAC	-30...60 °C																001									
TI																												
T 11011		AIR INLET VW11011	0...160 °C							A	PCS	3							001									
TIAH																												
T 11012		AIR INLET VW11012	0...160 °C							A	PCS	3							001									
TIAH																												
T 11016		AIR OUTLET VW11011	0...160 °C							A	PCS	3							001									
TIAH																												
T 11017		AIR OUTLET VW11012	0...160 °C							A	PCS	3							001									
TIAH																												
T 11021		AIR INLET VW11021	0...160 °C							A	PCS	3							001									
TIAH																												
Legend:																	F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (FP*) = Frost Protection recommended							
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp			Tn	Td
T 11022		AIR INLET VW11022	0...160 °C						A	PCS	3						001		
TIAH																			
T 11026		AIR OUTLET VW11021	0...160 °C						A	PCS	3						001		
TIAH																			
T 11027		AIR OUTLET VW11022	0...160 °C						A	PCS	3						001		
TIAH																			
T 11031		AIR INLET VW11031	0...160 °C						A	PCS	3						001		
TIAH																			
T 11032		AIR INLET VW11032	0...160 °C						A	PCS	3						001		
TIAH																			
T 11036		AIR OUTLET VW11031	0...160 °C						A	PCS	3						001		
TIAH																			
T 11037		AIR OUTLET VW11032	0...160 °C						A	PCS	3						001		
TIAH																			
Legend:																	Annotation on column "Hook Up": (FP*) = Frost Protection recommended		
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Annotation on column "Hook Up":  
(P\*) = Frost Protection recommended

F = local, V = local cabinet, S = control room, PCS = process control system

Legend:

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FUNCTION				S/A	loc	prio	S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold	W			Kp
T 11041		AIR DISCHARGE 4TH STAGE MAC	0...160 °C																		001	
TIAHSAHH																						
T 11505		COOLING WATER MAC	0...60 °C																		001	local indicator
TI																						
T 11515		COOLING WATER BEHIND VW11011	0...60 °C																		001	local indicator
TI																						
T 11516		COOLING WATER BEHIND VW11012	0...60 °C																		001	local indicator
TI																						
T 11525		COOLING WATER BEHIND VW11021	0...60 °C																		001	local indicator
TI																						
T 11526		COOLING WATER BEHIND VW11022	0...60 °C																		001	local indicator
TI																						
T 11535		COOLING WATER BEHIND VW11031	0...60 °C																		001	local indicator
TI																						
Legend:																						
F = local, V = local cabinet, S = control room, PCS = process control system																						
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																						
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp			Tn	Td	
T 11536		COOLING WATER BEHIND VW11032	0...60 °C														001	local indicator		
TI																				
T 11621		COOLING WATER RETURN MOTOR MAC	0...60 °C														001	local indicator		
TI																				
T 11632		COOLING WATER RETURN OIL- COOLER MAC	0...60 °C														001	local indicator		
TI																				
T 11701		BEARING MAIN MOTOR MAC	0...150 °C							A	PCS	3					027			
TIAH																				
T 11703		BEARING MAIN MOTOR MAC	0...150 °C							A	PCS	3					027			
TIAH																				
T 11715		MOTOR WINDING U MAC	0...200 °C							A	PCS	3	SA	PCS	1		027			
TIAHSAHH																				
T 11718		MOTOR WINDING V MAC	0...200 °C							A	PCS	3	SA	PCS	1		027			
TIAHSAHH																				
Legend:																	Annotation on column "Hook Up": (FP*) = Frost Protection recommended			
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			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio			W	Kp	Tn	Td
FUNCTION			threshold		threshold		threshold		threshold											
T 11721	MOTOR WINDING W MAC	0...200 °C							A	PCS	3	SA	PCS	1					027	
TIAHSAHH																				
T 11730	BEARING MAIN SHAFT MAC	0 .. 160 °C							A	PCS	3	SA	PCS	1					027	
TIAHSAHH																				
T 11733	BEARING MAIN SHAFT MAC	0...160 °C							A	PCS	3	SA	PCS	1					027	
TIAHSAHH																				
T 11735	BEARING MAIN SHAFT MAC	0...160 °C							A	PCS	3	SA	PCS	1					027	
TIAHSAHH																				
T 11737	BEARING MAC	0...160 °C							A	PCS	3	SA	PCS	1					027	
TIAHSAHH																				
T 11740	BEARING MAC	0...160 °C							A	PCS	3	SA	PCS	1					027	
TIAHSAHH																				
T 11743	BEARING MAC	0...160 °C							A	PCS	3	SA	PCS	1					027	
TIAHSAHH																				

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F = local, V = local cabinet, S = control room, PCS = process control system

Annotation on column "Hook Up":  
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F = local, V = local cabinet, S = control room, PCS = process control system

Annotation on column "Hook Up":  
(FPR) = Frost Protection recommended

**Legend:**

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			S/A	loc	S/A	loc	S/A	loc	S/A	loc	W	Kp	Tn	Td		
T 11745	BEARING MAC	0...160 °C													027	
TIAHSAHH																
T 11747	BEARING MAC	0...160 °C													027	
TIAHSAHH																
T 11810	OIL HEATING W11810 MAC	°C													027	
TCAH																
T 11814	LUBE OIL TANK MAC	0...120 °C													027	
TIAHLSLL																
T 11854	LUBE OIL MAC	0...100 °C													027	
TIAHL																
T 11855	LUBE OIL MAC	0...60 °C													027	local indicator
TI																
T 12003	CHILLED WATER TO KA12001	0...60 °C													002 / 003	
TICAL																
Legend: F = local, V = local cabinet, S = control room, PCS = process control system																
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	W			Kp	Tn	Td		
T 12072		COOLING WATER TO KA12002	0...60 °C															002	local indicator			
TI																						
T 13005		AIR BEHIND DC/AC	-30...+50 °C															002				
TIAHSAHH																						
T 13026		CHILLED WATER TO DC/AC	-30...+50 °C															002				
TIAHL																						
T 15011		REGEN GAS DISCHARGE A15001	0...250 °C															004				
TIAHLSAHH																						
T 15021		REGEN GAS DISCHARGE MS15002	0...250 °C															004				
TIAHLSAHH																						
T 15035		AIR BEHIND MOL SIEVE	0...100 °C															004				
TIAHSAHH																						
T 15040		REGENERATIO N GAS HEATER HE15001	0...250 °C															005				
TZHSAH																						
Legend:																	F = local, V = local cabinet, S = control room, PCS = process control system			Annotation on column "Hook Up": (FP*) = Frost Protection recommended		
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				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio			threshold	W	Kp	Tn	Td		
FUNCTION				threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold								
T 15043	REGENERATIO N GAS		0...250 °C						A	PCS	3		A	PCS	3	SA	PCS	1		005				
TIAHLSAHH																								
T 16007	AIR INLET BAC		0...60 °C										A	PCS	3	S	PCS	1		006				
TIAHLAHH																								
T 16011	AIR BEHIND 1ST STAGE BAC		0...60 °C																	006				
TI																				local indicator				
T 16012	AIR BEHIND 1ST STAGE BAC		0...60 °C																	006				
TI																								
T 16015	AIR BEHIND 1ST STAGE VW16001		0...60 °C										A	PCS	3	SA	PCS	1		006				
TIAHSAHH																								
T 16016	AIR BEHIND 1ST STAGE VW16001		0...60 °C																	006				
TI																				local indicator				
T 16021	AIR BEHIND 2ND STAGE BAC		0...200 °C																	006				
TI																								
Legend:																	F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (F-P*) = Frost Protection recommended			
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp			Tn
T 16041		AIR BEHIND 4TH STAGE BAC	0...200 °C														006	
Ti																	006	local indicator
T 16042		AIR BEHIND 4TH STAGE BAC	0...60 °C														006	
Ti																	006	
T 16045		AIR BEHIND 4TH STAGE VW16004	0...60 °C														006	
TIAHSAHH									A	PCS	3	A	PCS	1			006	
T 16046		AIR BEHIND 4TH STAGE VW16004	0...60 °C														006	local indicator
Ti																	006	local indicator
T 16512		COOLING WATER BEHIND VW16001	0...60 °C														006	local indicator
Ti																	006	local indicator
T 16522		COOLING WATER BEHIND VW16002	0...60 °C														006	local indicator
Ti																	006	local indicator
T 16532		COOLING WATER BEHIND VW16003	0...60 °C														006	local indicator
Ti																	006	local indicator

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F = local, V = local cabinet, S = control room, PCS = process control system

Annotation on column "Hook Up":  
(FP\*) = Frost Protection recommended

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			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	W	Kp			Tn
T 16542	COOLING WATER BEHIND VW16004	0...60 °C																		006	local indicator
T 16632	COLLING WATER BEHIND W16842	0...60 °C																		028	local indicator
T 16701	BEARING MAIN MOTOR BAC	0...150 °C																		028	
T 16703	BEARING MAIN MOTOR BAC	0...150 °C																		028	
T 16715	MOTOR WINDING U BAC	0...200 °C																		028	
T 16718	MOTOR WINDING V BAC	0...200 °C																		028	
T 16721	MOTOR WINDING W BAC	0...200 °C																		028	

**Legend:** F = local, V = local cabinet, S = control room, PCS = process control system  
 Annotation on column "Hook Up": (FP\*) = Frost Protection recommended

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			S/A	loc	S/A	loc	S/A	loc	S/A	loc	S/A	loc	prio	threshold			W	Kp
FUNCTION																		
T 16730	BEARING MAIN SHAFT BAC	0...150 °C																028
TIAHSAHH																		
T 16733	BEARING MAIN SHAFT BAC	0...150 °C																028
TIAHSAHH																		
T 16734	BEARING MAIN SHAFT BAC	0...150 °C																028
TIAHSAHH																		
T 16735	BEARING MAIN SHAFT BAC	0...150 °C																028
TIAHSAHH																		
T 16736	BEARING 1ST STAGE BAC	0...150 °C																028
TIAHSAHH																		
T 16738	BEARING 2ND STAGE BAC	0...150 °C																028
TIAHSAHH																		
T 16740	BEARING 3RD STAGE BAC	0...150 °C																028
TIAHSAHH																		

**Legend:**

F = local, V = local cabinet, S = control room, PCS = process control system

Annotation on column "Hook Up":  
(FP\*) = Frost Protection recommended

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				S/A		loc		prio		S/A		loc		prio				W	Kp	Tn	Td
				threshold		threshold		threshold		threshold		threshold		threshold							
FUNCTION																					
T 16743		BEARING 4TH STAGE BAC	0...150 °C													028					
TIAHSAHH																					
T 16810		OIL HEATING W16810 BAC	0...100 °C													028					
TCAHSHH																					
T 16812		LUBE OIL TANK BAC	°C													028					
TI																	local indicator				
T 16813		LUBE OIL TANK BAC	0...60 °C													028					
TI																					
T 16854		LUBE OIL BAC	0...100 °C													028					
TIAHLSAHH																					
T 16855		LUBE OIL BAC	0...60 °C													028					
TI																	local indicator				
T 20001		HP-GAN OUTLET COLDBOX	-50...+50 °C													010					
TIALSLL																					
Legend:																					
F = local, V = local cabinet, S = control room, PCS = process control system																					
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																					
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TAG-NO.	DESIG-NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS
			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td		
	FUNCTION		threshold			threshold			threshold			threshold								
T 20003	HP-GAN TO CUSTOMER	-20...+40 °C																	010	
TI																				
T 20004	HP-LIN FROM LIN-PUMPS	-200...+50 °C																	009	
TI																				
T 20005	LP-GAN OUTLET COLDBOX	-50...+50 °C	SA	PCS	1	A	PCS	3											010	
TIALSALL																				
T 20006	AIR TO HP-COLUMN C21001	-200...+50 °C																	009	
TI																				
T 20007	HP-LOX FROM LOX-PUMPS	-200...+50 °C																	009	
TI																				
T 20008	HP-AIR OUTLET MHE	-200...+50 °C																	009	
TIC																				
T 20009	WASTE N2 INLET MHE	-200...+50 °C																	009	
TI																				
Legend:																				
F = local, V = local cabinet, S = control room, PCS = process control system																				
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																				
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			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	W	Kp			Tn	Td
FUNCTION			threshold			threshold			threshold			threshold										
T 20010	GAN FROM W2301	-200...+50 °C																		009		
TI																						
T 20011	GOX OUTLET COLDBOX	-50...+50 °C	SA	PCS	1	A	PCS	3												010		
TIALSALL																						
T 20013	GOX TO CUSTOMER	-20...+40 °C																		010		
TI																						
T 20023	LP-GAN OUTLET COLDBOX	-50...+50 °C				A	PCS	3												009		
TIAL																						
T 20025	HP-GAN OUTLET COLDBOX	-50...+50 °C	ZA	S	1	A	PCS	3												009		
TIALZALL																						
T 20026	HP-GAN OUTLET COLDBOX	-50...+50 °C	ZA	S	1	A	PCS	3												009		
TIALZALL																						
T 20027	GOX OUTLET COLDBOX	-50...+50 °C	ZA	S	1	A	PCS	3												009		
TIALZALL																						
Legend:																		Annotation on column "Hook Up": (FP*) = Frost Protection recommended				
F = local, V = local cabinet, S = control room, PCS = process control system																		Drwg.-No.:				
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn			Td											
T 20028		GOX OUTLET COLDBOX	-50...+50 °C	ZA	S	1	A	S	3												009												
TIALZALL																																	
T 20029		WASTE N2 OUTLET MHE	-50...+50 °C				A	PCS	3												009												
TIAL																																	
T 21006		LIN TO B21002	-200...+50 °C																		014												
Ti																																	
T 23013		LIN PRODUCT TO STORAGE	-200...+50 °C																		011												
Ti																																	
T 23014		CRUDE LOX BEHIND SUBCOOLER	-200...+50 °C																		011												
Ti																																	
T 23015		LIQUID AIR BEHIND SUBCOOLER	-200...+50 °C																		011												
Ti																																	
T 24101		AIR TO EXPANDER TURBINE 1	-150...+50 °C	S	PCS	1	A	PCS	3												007	*) LL = 37,253 * LN(P24101/P24102 + P24101 - P24102) + 26,688 - 273,15											
TIALSLL																																	
Legend:			F = local, V = local cabinet, S = control room, PCS = process control system																		Annotation on column "Hook Up": (FP*) = Frost Protection recommended												
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				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn			Td									
FUNCTION				threshold			threshold			threshold			threshold																		
T 24102	AIR OUTLET EXPANDER TURBINE 1	-200...+50 °C																		007	*) LL = -0,2332 * P24102*2 + 4,8877 * P24102 + 79,942 - 273,15										
TIAL																															
T 24120	BEARING EXPANDER TURBINE 1	-50...+150 °C																		029											
TIAHSAHH																															
T 24121	BEARING EXPANDER TURBINE 1	-50...+150 °C																		029											
TIAHSAHH																															
T 24122	BEARING EXPANDER TURBINE 1	-50...+150 °C																		029											
TIAHSAHH																															
T 24123	BEARING EXPANDER TURBINE 1	-50...+150 °C																		029											
TIAHSAHH																															
T 24130	COOLING WATER REFLUX TURBINE 1	0...60 °C																		029	local indicator										
TI																															
T 24151	OIL BEHIND GEARBOX TURBINE 1	0...100 °C																		029											
TI																															
Legend:																															
F = local, V = local cabinet, S = control room, PCS = process control system																															
Annotation on column "Hook Up": (-P*) = Frost Protection recommended																															
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			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn		
FUNCTION			threshold		threshold		threshold		threshold							
T 24160	OIL HEATING W24160 TURBINE 1	0...100 °C						A	PCS	3	SA	PCS	1	029		
TCAHSAHH													80			
T 24161	OIL CONTAINER EXPANDER TURBINE 1	0...100 °C				A	PCS	3						029		
TAL																
T 24162	OIL CONTAINER EXPANDER TURBINE 1	0...120 °C												029	local indicator	
Tl																
T 24168	OIL BEHIND OILFILTER TURBINE 1	0...120 °C												029	local indicator	
Tl																
T 24169	LUBE OIL EXPANDER TURBINE 1	0...100 °C	A	PCS	3	A	PCS	3	A	PCS	3	SA	PCS	1	029	
TIAHLSAHILL																
T 24171	BEARING MOTOR TURBINE 1	0...+150 °C						A	PCS	3	SA	PCS	1	029		
TIAHSAHH																
T 24173	BEARING MOTOR TURBINE 1	0...+150 °C						A	PCS	3	SA	PCS	1	029		
TIAHSAHH																
Legend: F = local, V = local cabinet, S = control room, PCS = process control system																
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td		
T 24175		MOTOR WINDING U TURBINE 1	0...+200 °C																029		
TIAHSAHH										A	PCS	3									
T 24176		MOTOR WINDING V TURBINE 1	0...+200 °C																029		
TIAHSAHH										A	PCS	3									
T 24177		MOTOR WINDING W TURBINE 1	0...+200 °C																029		
TIAHSAHH										A	PCS	3									
T 24201		AIR TO EXPANDER TURBINE 2	-150...+50 °C	S	PCS	1	A	PCS	3										008	*) LL = 37,253 * LN(P24201/P24202 + P24201 - P24202) + 26,688 - 273,15	
TIALSLL																					
T 24202		AIR OUTLET EXPANDER TURBINE 2	-200...+50 °C				A	PCS	3										008	*) LL = -0,2332 * P24202^2 + 4,8877 * P24202 + 79,942 - 273,15	
TIAL																					
T 24220		BEARING EXPANDER TURBINE 2	-50...+150 °C				A	PCS	3										030		
TIAHSAHH																					
T 24221		BEARING EXPANDER TURBINE 2	-50...+150 °C				A	PCS	3										030		
TIAHSAHH																					

Legend:										F = local, V = local cabinet , S = control room, PCS = process control system										Annotation on column "Hook Up": (FP*) = Frost Protection recommended										
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TAG-NO.		DESIG-NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS			
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn			Td		
T 24222		BEARING EXPANDER TURBINE 2	-50...+150 °C																	030				
TIAHSAHH																								
T 24223		BEARING EXPANDER TURBINE 2	0...+150 °C																	030				
TIAHLSAHH																								
T 24230		COOLING WATER REFLUX TURBINE 2	0...60 °C																	030	local indicator			
TI																								
T 24251		OIL BEHIND GEARBOX TURBINE 2	0...100 °C																	030				
TIAHLSHH																								
T 24260		OIL HEATING W24260 TURBINE 2	°C																	030				
TCAHSAHH																								
T 24261		OIL CONTAINER EXPANDER TURBINE 2	0...120 °C																	030	local indicator			
TIAL																								
T 24262		OIL CONTAINER EXPANDER TURBINE 2	0...100 °C																	030				
TI																								
Legend:																								
F = local, V = local cabinet, S = control room, PCS = process control system																								
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																								
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			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp			Tn	Td
FUNCTION			threshold		threshold		threshold		threshold									
T 24268	OIL BEHIND OILFILTER TURBINE 2	0...100 °C													030	local indicator		
TI																		
T 24269	LUBE OIL EXPANDER TURBINE 2	0...100 °C	SA	PCS	3	A	PCS	3	A	PCS	3	SA	PCS	1	030			
TIAHSAHLL			5		20		52		55									
T 24271	BEARING MOTOR TURBINE 2	0...+150 °C							A	PCS	3	SA	PCS	1	030			
TIAHSAH							105		115									
T 24273	BEARING MOTOR TURBINE 2	0...+150 °C							A	PCS	3	SA	PCS	1	030			
TIAHSAH							105		115									
T 24275	MOTOR WINDING U TURBINE 2	0...+200 °C							A	PCS	3	SA	PCS	1	030			
TIAHSAH							120		135									
T 24276	MOTOR WINDING V TURBINE 2	0...+200 °C							A	PCS	3	SA	PCS	1	030			
TIAHSAH							120		135									
T 24277	MOTOR WINDING W TURBINE 2	0...+200 °C							A	PCS	3	SA	PCS	1	030			
TIAHSAH							120		135									
Legend:																		
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			S/A	loc prio threshold	S/A	loc prio threshold	S/A	loc prio threshold	S/A	loc prio threshold	W	Kp	Tn	Td		
T 40009	CR-LOX BEHIND B40001	-200...+50 °C													017	
TIAH								A PCS 3								
T 40011	SIDEARMLIQUID FROM LP-COLUMN	-200...+50 °C													016	
Ti																
T 40013	LAR PREPRODUCT DISCHARGE CAR-COLUMN	-200...+50 °C													017	
Ti																
T 40014	LAR BEHIND CONDENSER BL40001	-200...+50 °C													017	
Ti																
T 40130	COOLING DOWN TEMP. P40100	-200...+50 °C				S PCS 3									016	
TiSL																
T 40140	BEARING TEMP. P40100	-100...+50 °C	S PCS 1	A PCS 3											016	
TALSLL			XX	XX												
T 40141	BEARING TEMP. P40100	-100...+100 °C	S PCS 1	A PCS 3											016	
TIAHSHLL			XX	XX												
Legend: F = local, V = local cabinet, S = control room, PCS = process control system Annotation on column "Hook Up": (FP*) = Frost Protection recommended																
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FUNCTION				S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold	W	Kp	Tn	Td				
T 43034		LAR PRODUCT TO STORAGE	-200...+50 °C																	018			
TI																							
T 44104		OVERFLOW LP LAR TANK 1 B44101	-200...+50 °C					SA	PCS	1										041			
TISAL																							
T 44204		OVERFLOW LP LAR TANK 2 B44201	-200...+50 °C					SA	PCS	1										042			
TISAL																							
T 48004		OVERFLOW HP LAR TANK B48001	-200...+50 °C					SA	PCS	1										044			
TISAL																							
T 48050		COOL DOWN TEMP. P48001	-200...+50 °C					S	PCS	4										043			
TISL																							
T 49020		HP-GAR DISCHARGE EVAPORIZERS	-40...+60 °C	ZA	S	1	A	PCS	3											044			
TICALZALL																							
T 49021		HP-GAR DISCHARGE EVAPORIZERS	-40...+60 °C	ZA	S	1	A	PCS	3											044			
TIALZLL																							
Legend:																							
F = local, V = local cabinet, S = control room, PCS = process control system																							
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																							
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FUNCTION				S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold	W	Kp	Tn	Td																							
T 61130		COOLING DOWN TEMP. P61100	-200...+50 °C					S	PCS	3									012																							
TISL																																										
T 61140		BEARING TEMP. P61100	-200...+50 °C	S	PCS	1	A	PCS	3										012																							
TALSLL																																										
T 61141		BEARING TEMP. P61100	-100...+150 °C	S	PCS	1	A	PCS	3	A	PCS	3	S	PCS	1				012																							
TIAHLSHLL																																										
T 61230		COOLING DOWN TEMP. P61200	-200...+50 °C					S	PCS	3									012																							
TISL																																										
T 61240		BEARING TEMP. P61200	-200...+50 °C	S	PCS	1	A	PCS	3										012																							
TALSLL																																										
T 61241		BEARING TEMP. P61200	-100...+150 °C	S	PCS	1	A	PCS	3	A	PCS	3	S	PCS	1				012																							
TIAHLSHLL																																										
T 62001		COOLING DOWN TEMP. P62001	-200...+50 °C					S	PCS	4									032																							
TISL																																										
Legend:																							F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (FP) = Frost Protection recommended															
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TAG-NO.		DESIG- NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS		
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn			Td	
T 62020		LOX TANK B62001	-200...+50 °C													032			
Ti																			
T 62021		BOTTOM LOX TANK B62001	-200...+50 °C													032			
Ti																			
T 62022		OVERFLOW PIPE LOX TANK B62001	-200...+50 °C	ZA	S	1	A	PCS	3							032			
TALZALL																			
T 62041		SEAL LEAKAGE	-200...+50 °C	SA	PCS	1	A	PCS	3							032			
TIALSALL																			
T 63001		COOL DOWN TEMP. P63001	-200...+50 °C				S	PCS	4							032			
TISL																			
T 63041		SEAL LEAKAGE	-200...+50 °C	SA	PCS	1	A	PCS	3							032			
TIALSALL																			
T 64030		LOX WATER BATH VAPORIZER	0...100 °C													034	local indicator		
Ti																			
Legend:																			
F = local, V = local cabinet, S = control room, PCS = process control system																			
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																			
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TAG-NO.	DESIG-NATION	RANGE	LL		L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS
			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp		
<b>FUNCTION</b>																			
<b>T 64031</b>	<b>WATER BATH VAPORIZER GOX</b>	<b>0...100 °C</b>																	
TICSAHL																			
<b>T 64032</b>	<b>WATER BATH VAPORIZER GOX</b>	<b>0...100 °C</b>																	
TISAHL																			
<b>T 64050</b>	<b>GOX BEHIND WATER BAD VAPORIZER</b>	<b>-40...+60 °C</b>																	
TIALZALL																			
<b>T 64051</b>	<b>GOX BEHIND WATER BAD VAPORIZER</b>	<b>-40...+60 °C</b>																	
TIALZALL																			
<b>T 64130</b>	<b>COOL DOWN TEMP. P64101</b>	<b>-200...+50 °C</b>																	
TISLAH																			
<b>T 64140</b>	<b>SEAL LEAKAGE LOX PUMP P64101</b>	<b>-200...+100 °C</b>																	
TIALSALL																			
<b>T 64141</b>	<b>SEAL LEAKAGE LOX PUMP P64101</b>	<b>-200...+50 °C</b>																	
TIALSALL																			

**Legend:**

F = local, V = local cabinet, S = control room, PCS = process control system

Annotation on column "Hook Up":  
(FP\*) = Frost Protection recommended

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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	W	Kp			Tn
T 64230		COOL DOWN TEMP. P64201	-200...+50 °C				SA	PCS	4												033	
TISLAH																						
T 64240		SEAL LEAKAGE LOX PUMP P64201	-200...+50 °C	S	PCS	1	A	PCS	3												033	
TIALSALL																						
T 64241		SEAL LEAKAGE LOX PUMP P64201	-200...+50 °C	SA	PCS	1	A	PCS	3												033	
TIALSALL																						
T 70001		INLET GAN COMPRESSOR 1	0...60 °C																		019	
TI																						
T 70015		GAN BEH. COOLER 1ST STAGE	0...200 °C							A	PCS	3	SA	PCS	1						019	
TIAHSAHH															60							
T 70025		GAN BEH. COOLER 2ND STAGE	0...200 °C							A	PCS	3	SA	PCS	1						019	
TIAHSAHH															60							
T 70035		GAN BEH. COOLER 3RD STAGE	0...200 °C							A	PCS	3	SA	PCS	1						019	
TIAHSAHH															60							

Legend:				F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (FP*) = Frost Protection recommended									
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Legend: F = local, V = local cabinet, S = control room, PCS = process control system

Annotation on column "Hook Up": (EP\*) = Frost Protection recommended

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				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	W	Kp		
FUNCTION				threshold			threshold			threshold			threshold								
T 70041	TIAL	MP-GAN TO CUSTOMER	-20...+40 °C																	020	
T 70512	TI	COOLING WATER BEH. VW70001	0...60 °C																	019	local indicator
T 70522	TI	COOLING WATER BEH. VW70002	0...60 °C																	019	local indicator
T 70532	TI	COOLING WATER BEH. VW70003	0...60 °C																	019	local indicator
T 70621	TI	COOLING WATER BEH. MOTOR	0...60 °C																	019	local indicator
T 70701	TIAHSAHH	BEARING MAIN MOTOR GAN COMP. 1	0...150 °C																	021	
T 70703	TIAHSAHH	BEARING MAIN MOTOR GAN COMP. 1	0...150 °C																	021	

Legend:

F = local, V = local cabinet, S = control room, PCS = process control system

Annotation on column "Hook Up":  
(FP\*) = Frost Protection recommended

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				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio			threshold	W
FUNCTION				threshold	threshold	threshold	threshold	threshold	threshold	threshold	threshold								
T 70715	MOTOR WINDING U COMP. 1	0...200 °C																	021
TIAHSAHH																			
T 70718	MOTOR WINDING V COMP. 1	0...200 °C																	021
TIAHSAHH																			
T 70721	MOTOR WINDING W COMP. 1	0...200 °C																	021
TIAHSAHH																			
T 70736	BEARING 1.ST STAGE GAN COMP. 1	0...200 °C																	021
TIAHSAHH																			
T 70737	BEARING 1.ST STAGE GAN COMP. 1	0...200 °C																	021
TIAHSAHH																			
T 70738	BEARING 2.ND STAGE GAN COMP. 1	0...200 °C																	021
TIAHSAHH																			
T 70739	BEARING 2.ND STAGE GAN COMP. 1	0...200 °C																	021
TIAHSAHH																			

Legend:

F = local, V = local cabinet , S = control room, PCS = process control system

Annotation on column "Hook Up":  
(FP\*) = Frost Protection recommended

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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	W	Kp			Tn	Td
T 70740		BEARING 3.RD STAGE GAN COMP. 1	0...200 °C									A	PCS	3	SA	PCS	1					021	
TIAHSAHH																							
T 70741		BEARING 3.RD STAGE GAN COMP. 1	0...200 °C									A	PCS	3	SA	PCS	1					021	
TIAHSAHH																							
T 70742		BEARING 4.TH STAGE GAN COMP. 1	0...200 °C									A	PCS	3	SA	PCS	1					021	
TIAHSAHH																							
T 70743		BEARING 4.TH STAGE GAN COMP. 1	0...200 °C									A	PCS	3	SA	PCS	1					021	
TIAHSAHH																							
T 70810		OIL HEATING W11810 GAN COMP. 1	°C																				
TCSAH																							
T 70815		OIL HEATING W70815 GAN COMP. 1	°C																				
TCSAH																							
T 70854		LUBE OIL GAN COMP. 1	0...100 °C					A	PCS	3	A	PCS	3	SA	PCS	1						021	
TIAHLSAHH																							
Legend:			F = local, V = local cabinet, S = control room, PCS = process control system																	Annotation on column "Hook Up": (FP*) = Frost Protection recommended			
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	W			Kp	Tn	Td		
T 71130		COOLING DOWN TEMP. P71100	-200...+50 °C				S	PCS	3									015				
TISL																						
T 71140		BEARING TEMP. P71100	-200...+50 °C	S	PCS	1	A	PCS	3									015				
TALSLL																						
T 71141		BEARING TEMP. P71100	-100...+150 °C	S	PCS	1	A	PCS	3	A	PCS	3	S	PCS	1			015				
TIAHLSHLL																						
T 71230		COOLING DOWN TEMP. P71200	-200...+50 °C				S	PCS	3									015				
TISL																						
T 71240		BEARING TEMP. P71200	-200...+50 °C	S	PCS	1	A	PCS	3									015				
TALSLL																						
T 71241		BEARING TEMP. P71200	-100...+150 °C	S	PCS	1	A	PCS	3	A	PCS	3	S	PCS	1			015				
TIAHLSHLL																						
T 72001		COOLING DOWN TEMP. P72101	-200...+50 °C				S	PCS	4									035				
TISL																						
Legend:																	F = local, V = local cabinet, S = control room, PCS = process control system			Annotation on column "Hook Up": (FP*) = Frost Protection recommended		
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn			Td						
T 72022		OVERFLOW PIPE LIN TANK B72001	-200...+50 °C	ZA	S	1	A	PCS	3											035								
TALZALL																												
T 73005		OVERFLOW MP LIN TANK BL73001	-200...+50 °C	SA	PCS	1	A	PCS	3											038								
TIALSAL																												
T 73031		WATER BATH VAPORIZER GAN	0...100 °C				SA	PCS	3	A	PCS	1				40/60	0,6	2min 45s		039	TIC73051, W=0°C, Kp=3, Tn=20s							
TICSAHL																												
T 73032		WATER BATH VAPORIZER GAN	0...100 °C				SA	PCS	1	A	PCS	3								039								
TISAHL																												
T 73051		GAN BEHIND WATER BATH VAPORIZER	-40...+60 °C	ZA	S	1	A	PCS	3						0	3	20s			039								
TIALZALL; TIC																												
T 73057		GAN BEHIND WATER BATH VAPORIZER	-40...+60 °C	ZA	S	1	A	PCS	3											039								
TIALZALL																												
T 73130		COOL DOWN TEMP. P73101	-200...+50 °C				S	PCS	4	A	PCS	3								037								
TISLAH																												
Legend:																					F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (FP*) = Frost Protection recommended			
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			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	S/A	loc			prio	threshold	W	Kp	Tn	Td			
FUNCTION			threshold		threshold		threshold		threshold																
T 73131	WATER BATH NAT. GAS VAP. LIN	°C													040										
TSL																									
T 73132	WATER BATH NAT. GAS VAP. LIN	°C													040										
TSL																									
T 73133	WATER BATH NAT. GAS VAP. LIN	°C													040										
TSL																									
T 73134	WATER BATH NAT. GAS VAP. LIN	0...100 °C													040										
TI																									
T 73135	WATER BATH NAT. GAS VAP. LIN	0...100 °C													040					local indicator					
TI																									
T 73140	SEAL LECKAGE LIN BACK UP PUMP P73101	-200...+50 °C	SA	PCS	1	A	PCS	3							037										
TIALSALL																									
T 73141	SEAL LEAKAGE LIN BACK UP PUMP P73101	-200...+50 °C	SA	PCS	1	A	PCS	3							037										
TIALSALL																									
Legend:																F = local, V = local cabinet, S = control room, PCS = process control system					Annotation on column "Hook Up": (FP*) = Frost Protection recommended				
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FUNCTION				S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold	W	Kp	Tn			Td									
T 73151		GAN BEHIND W73101	°C	ZA	S		A	PCS											040											
TIALZALL				-10																										
T 73157		GAN BEHIND W73101	°C	ZA	S		A	PCS											040											
TIALZALL				-10																										
T 73159		GAN BEHIND WBV	-40...100 °C	SA	PCS	1	A	PCS	3						0	3	20s		040											
TICALSALL				-20																										
T 73230		COOL DOWN TEMP. P73201	-200...+50 °C				S	PCS	4	A	PCS	3							037											
TISLAH																														
T 73240		SEAL LEACKAGE LIN BACK UP PUMP P73102	-200...+50 °C	SA	PCS	1	A	PCS	3										037											
TIALSALL				-150																										
T 73241		SEAL LEACKAGE LIN BACK UP PUMP P73201	-200...+50 °C	SA	PCS	1	A	PCS	3										037											
TIALSALL				-150																										
T 74090		GAN BEHIND AIR EVAPORATOR S	-40...+60 °C	ZA	S	1	A	PCS	3										036											
TIALZALL				-40																										
Legend:																							F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (FP) = Frost Protection recommended			
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	threshold	W	Kp	Tn	Td		
T 74095		GAN BEHIND AIR EVAPORATORS	-40...+60 °C	ZA	S	1	A	PCS	3									-2.0	1	30s		036	
TICALZALL																							
T 74130		COOL DOWN TEMP. P74101	-200...+50 °C				S	PCS	4	A	PCS	3										036	
TISLAH																							
T 74140		SEAL LEAKAGE LIN PUMP P74101	-200...+50 °C	S	PCS	1	A	PCS	3													036	
TIALSALL																							
T 74141		SEAL LEAKAGE LIN PUMP P74101	-200...+50 °C	S	PCS	1	A	PCS	3													036	
TIALSALL																							
T 74230		COOL DOWN TEMP. P74201	-200...+50 °C				SA	PCS	4	A	PCS	3										036	
TISLAH																							
T 74240		SEAL LEAKAGE LIN PUMP P74201	-200...+50 °C	SA	PCS	1	A	PCS	3													036	
TIALSALL																							
T 74241		SEAL LEAKAGE LIN PUMP P74201	-200...+50 °C	SA	PCS	1	A	PCS	3													036	
TIALSALL																							

Legend:

F = local, V = local cabinet, S = control room, PCS = process control system

Annotation on column "Hook Up": (FP) = Frost Protection recommended

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			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td		
			threshold			threshold			threshold			threshold								
T 77001	INLET GAN COMPRESSOR 2	0...60 °C																	020	
TI																				
T 77015	GAN BEH. COOLER 1ST STAGE	0...200 °C							A	PCS	3	SA	PCS	1					020	
TI														60						
T 77025	GAN BEH. COOLER 2ND STAGE	0...200 °C							A	PCS	3	SA	PCS	1					020	
TI														60						
T 77035	GAN BEH. COOLER 3RD STAGE	0...200 °C							A	PCS	3	SA	PCS	1					020	
TI														60						
T 77512	COOLING WATER BEH. VW77001	0...60 °C																	020	local indicator
TI																				
T 77522	COOLING WATER BEH. VW77002	0...60 °C																	020	local indicator
TI																				
T 77532	COOLING WATER BEH. VW77003	0...60 °C																	020	local indicator
TI																				
Legend: F = local, V = local cabinet, S = control room, PCS = process control system																				
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																				
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FUNCTION				S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold	W	Kp	Tn	Td									
T 77621		COOLING WATER MOTOR COMP. 2	0...60 °C																020	local indicator								
TI																												
T 77701		BEARING MAIN MOTOR GAN COMP. 2	0...150 °C							A	PCS	3	A	PCS	1				022									
TIAHSAHH																												
T 77703		BEARING MAIN MOTOR GAN COMP. 2	0...150 °C							A	PCS	3	A	PCS	1				022									
TIAHSAHH																												
T 77715		MOTOR WINDING U COMP. 2	0...200 °C							A	PCS	3	A	PCS	1				022									
TIAHSAHH																												
T 77718		MOTOR WINDING V COMP. 2	0...200 °C							A	PCS	3	A	PCS	1				022									
TIAHSAHH																												
T 77721		MOTOR WINDING W COMP. 2	0...200 °C							A	PCS	3	A	PCS	1				022									
TIAHSAHH																												
T 77736		BEARING 1.ST STAGE GAN COMP. 2	0....200 °C							A	PCS	3	A	PCS	1				022									
TIAHSAHH																												
Legend:																												
F = local, V = local cabinet , S = control room, PCS = process control system																												
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																												
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			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn			Td
FUNCTION																					
T 77737	BEARING 1.ST STAGE GAN COMP. 2	0...200 °C																		022	
TIAHSAHH																					
T 77738	BEARING 2.ND STAGE GAN COMP. 2	0...200 °C																		022	
TIAHSAHH																					
T 77739	BEARING 2.ND STAGE GAN COMP. 2	0...200 °C																		022	
TIAHSAHH																					
T 77740	BEARING 3.RD STAGE GAN COMP. 2	0...200 °C																		022	
TIAHSAHH																					
T 77741	BEARING 3.RD STAGE GAN COMP. 2	0...200 °C																		022	
TIAHSAHH																					
T 77742	BEARING 4.TH STAGE GAN COMP. 2	0...200 °C																		022	
TIAHSAHH																					
T 77743	BEARING 4.TH STAGE GAN COMP. 2	0...200 °C																		022	
TIAHSAHH																					
Legend:																					
F = local, V = local cabinet, S = control room, PCS = process control system																					
Annotation on column "Hook Up": (FPr) = Frost Protection recommended																					
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TAG-NO.	DESIG-NATION	RANGE	LL		L		H		HH		CONTROLLER SETTINGS				P&I SHEET	REMARKS		
			S/A	loc	prio	threshold	S/A	loc	prio	threshold	S/A	loc	prio	threshold			W	Kp
<b>T 77810</b>	<b>OIL HEATING</b> <b>W11810 GAN</b> <b>COMP. 2</b>	°C																
TCAH																		022
<b>T 77815</b>	<b>OIL HEATING</b> <b>W77815 GAN</b> <b>COMP. 2</b>	°C																
TCSAH																		022
<b>T 77854</b>	<b>LUBE OIL</b> <b>GAN COMP. 2</b>	0...100 °C																
TIAHLSAHH																		022
<b>T 80001</b>	<b>COOLING</b> <b>WATER</b>	0...60 °C																
TIAH																		023
<b>T 80010</b>	<b>COOLING</b> <b>WATER</b> <b>REFLIX</b>	0...60 °C																
TIAH																		023
<b>T 84010</b>	<b>STEAM FROM</b> <b>CUSTOMER</b>	0...250 °C																
TIAHL																		031
<b>T 87038</b>	<b>BOTTOM HE-</b> <b>BOX</b>	-50...+50 °C																
TIAL																		024


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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	threshold	W	Kp	Tn			Td		
T 87078		BOTTOM COLD-BOX	-50...+50 °C				A	PCS	3											024				
TIAL									0															
T 90008		DUMP VAPORIZER OUTLET	-200...+50 °C																	026				
TIC																								
T 90010		DUMP VAPORIZER OUTLET	-200...+50 °C	S	PCS	1	A	PCS	3											026				
TIALSLL									-20															
T 90013		DUMP VAPORIZER SUMP	-200...+50 °C	S	PCS	1	A	PCS	3											026				
TIALSLL									-20															
X 11740		VIBRATION GEARING MAC	0...200 µm							A	PCS	3	SA	PCS	1					027				
XIAHSAHH															94									
X 11743		VIBRATION GEARING MAC	0...200 µm							A	PCS	3	SA	PCS	1					027				
XIAHSAHH															94									
X 11745		VIBRATION MAIN SHAFT MAC	0...200 µm							A	PCS	3	A	PCS	1					027				
XIAHSAHH															94									
Legend:																								
F = local, V = local cabinet, S = control room, PCS = process control system																								
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																								
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FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td									
				threshold			threshold			threshold			threshold															
X 11747		VIBRATION MAIN SHAFT MAC	0...200 µm							A	PCS	3		SA	PCS	1					027							
XIAHSAHH																94												
X 16736		VIBRATION X 1ST STAGE BAC	0...125 µm							A	PCS	3		SA	PCS	1					028							
XIAHSAHH																38,2												
X 16737		VIBRATION Y 1ST STAGE BAC	0...125 µm							A	PCS	3		SA	PCS	1					028							
XIAHSAHH																38,2												
X 16738		VIBRATION X 2ND STAGE BAC	0...200 µm							A	PCS	3		SA	PCS	1					028							
XIAHSAHH																38,2												
X 16739		VIBRATION Y 2ND STAGE BAC	0...200 µm							A	PCS	3		SA	PCS	1					028							
XIAHSAHH																38,2												
X 16740		VIBRATION X 3RD STAGE BAC	0...200 µm							A	PCS	3		SA	PCS	1					028							
XIAHSAHH																36,7												
X 16741		VIBRATION Y 3RD STAGE BAC	0...200 µm							A	PCS	3		SA	PCS	1					028							
XIAHSAHH																36,7												
Legend:																												
F = local, V = local cabinet, S = control room, PCS = process control system																												
Annotation on column "Hook Up": (FP*) = Frost Protection recommended																												
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TAG-NO.		DESIG-NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS
FUNCTION				S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td		
				threshold				threshold				threshold									
X 16743	XIAHSAHH	VIBRATION X 4TH STAGE BAC	0...200 µm								A	PCS	3	SA	PCS	1				028	
X 16744	XIAHSAHH	VIBRATION Y 4TH STAGE BAC	0...200 µm								A	PCS	3	SA	PCS	1				028	
X 24124	XIAHSAHH	VIBRATION EXPANDER TURBINE 1	0...125 µm								A	PCS	3	SA	PCS	1				029	
X 24224	XIAHSAHH	VIBRATION EXPANDER TURBINE 2	0...125 µm								A	PCS	3	SA	PCS	1				030	
X 70736	XIAHSAHH	VIBRATION 1ST STAGE GAN COMP. 1	0...125 µm								A	PCS	3	SA	PCS	1				021	
X 70738	XIAHSAHH	VIBRATION 2ND STAGE GAN COMP. 1	0...125 µm								A	PCS	3	SA	PCS	1				021	
X 70740	XIAHSAHH	VIBRATION 3RD STAGE GAN COMP. 1	0...125 µm								A	PCS	3	SA	PCS	1				021	

Legend:				F = local, V = local cabinet , S = control room, PCS = process control system				Annotation on column "Hook Up": (FP*) = Frost Protection recommended									
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Legend:										F = local, V = local cabinet , S = control room, PCS = process control system										Annotation on column "Hook Up": (FP*) = Frost Protection recommended														
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TAG-NO.	DESIG-NATION	RANGE	LL			L			H			HH			CONTROLLER SETTINGS				P&I SHEET	REMARKS
			S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	S/A	loc	prio	W	Kp	Tn	Td		
FUNCTION			threshold			threshold			threshold			threshold								
X 70742	VIBRATION FREE END GAN COMP. 1	0...125 µm							A PCS 3			SA PCS 1							021	
XIAHSAHH																				
X 77736	VIBRATION 1ST STAGE GAN COMP. 2	0...125 µm							A PCS 3			SA PCS 1							022	
XIAHSAHH																				
X 77738	VIBRATION 2ND STAGE GAN COMP. 2	0...125 µm							A PCS 3			SA PCS 1							022	
XIAHSAHH																				
X 77740	VIBRATION 3RD STAGE GAN COMP. 2	0...125 µm							A PCS 3			SA PCS 1							022	
XIAHSAHH																				
X 77742	VIBRATION FREE END GAN COMP. 2	0...125 µm							A PCS 3			SA PCS 1							022	
XIAHSAHH																				

Legend:				F = local, V = local cabinet, S = control room, PCS = process control system				Annotation on column "Hook Up": (FP*) = Frost Protection recommended			
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