

PIPING AND INSTRUMENTATION DIAGRAM

PROJECT N° : L43374
N° COMMESSA :

PLANT TYPE : LNG LIQUEFACTION PLANT
TIPO IMPIANTO : IMPIANTO LIQUEFAZIONE LNG

LOCATION : RENZENHOF (Germany)
LOCALITA' : RENZENHOF (Germania)

CUSTOMER : BIOPLUS LNG GmbH
CLIENTE :

SHEET	DESCRIPTION
1A	Cover sheet
2A	Instrument and valve legend
3A	Symbols sheet
4A	Revisions
4A-1	Revisions
10	Natural gas inlet
11	NG reduction station for steam boiler
15	Natural gas treatment and dryer
16	Steam condensation and condensate subcooling
20	Liquefier cold box LNG
22	Liquefier cold box LNG
23	Liquefier cold box LNG
25	Nitrogen recycle compressor
26	Nitrogen booster
27	Nitrogen turbine
30	LNG storage
31	LNG storage
32	LNG truck loading pump
33	LNG truck loading pump
34	Truck loading bay
35	Truck loading bay
36	NG regeneration cooler
37	NG regeneration heater
37A	NG regeneration compressor
37B	NG regeneration compressor
38	HC heater
38A	BOG compressor
38B	BOG compressor

SHEET	DESCRIPTION
39A	Vent
39B	Hot flare
40	Liquid nitrogen storage
41	Liquid nitrogen storage
42	Nitrogen distribution system
43	Instrument air distribution system
50	Steam boiler
51	Chiller
60	Instrument air package
65	Cooling water system
66	Cooling water system
67	Cooling water system
68	Demi water package
70	Thermal oxidizer
74	Analysis pumps
75	Analysis room
80	Motors control typical
81	Heaters control typical
82	ESD valves typical

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Projekt - Nr.				Standort / Projektname								
DG-001115				LNG LIQUEFACTION PLANT								
Datum		Name		Zeichnungsbenennung								
Erst.	22.02.24	CAGLIONI		 PIPING AND INSTRUMENTATION DIAGRAM ROHRLEITUNGEN UND INSTRUMENTIERUNGSDIAGRAMM								
Gepr.	22.02.24	SORU										
Freig.	22.02.24	ANTONELLI										
Schutzvermerk		Blattgr.	Maßst. 1/	F-Tech	Standortkurzname	A-Art	Anl-Nr	A-Teil	D-Art	Lfd.-Nr	Blatt	Änd
ISO 16016 beachten		-	-	520	REZH	700	001	000	SRI	002	01+	0F
Urspr.: I20784 Rev.0F				Ers.f.:				Ers.d.:				

VALVE LEGEND CODE

FIRST LETTER / FUNCTION		TAG NUMBER	LAST LETTERS / FLUID
MANUAL VALVE	AUTOMATIC VALVE	MANUAL OR AUTOMATIC VALVE	MANUAL VALVE
A BYPASS B CONTROL C CONTROL	SEE INSTRUMENT LEGEND CODE IDENTIFICATIONS LETTERS	SEE INSTRUMENT LEGEND CODE AREA IDENTIFICATION NUMBERS	SEE FLUID LEGEND CODE
D DRAINS			
E			
F			
G			
H HIGH PRESSURE DIFFERENTIAL TAP			
I			
J SIGHT GLASS			
K FILTER			
L LOW PRESSURE DIFFERENTIAL TAP			
M			
N			
O			
P PRESSURE TAP			
Q			
R			
S SAMPLE			
T THAW			
U			
V VENT			
W			
X SHUTOFF			
Y CHECK VALVE			
Z			

INSTRUMENT LEGEND CODE

IDENTIFICATIONS LETTERS				
FIRST LETTER / FUNCTION		SUCCEEDING LETTERS		
MEASURED VARIABLE	MODIFIER	PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSYS		ALARM	
B	FLAME DETECTOR			
C	CONDUCTIVITY		CONTROL	
D	DENSITY	DIFFERENTIAL		
E	VOLTAGE (E.F.M.)		PRIMARY ELEMENT	
F	FLOW RATE	RATIO		
G	GAUGING		GLASS	
H	HAND CONTROL			HIGH
I	CURRENT (ELECTR.)		INDICATE	
J	POWER	SCAN		
K	TIME		CONTROL STATION	
L	LEVEL		LIGHT	LOW
M	MOISTURE			MIDDLE OR INTERM.
N	PNEUMATIC		PNEUMATIC	PNEUMATIC
O			ORIFICE	
P	PRESSURE OR VACUUM		POINT	
Q	QUANTITY OR EVENT	INTEGR.OR TOTALIZE		
R	RADIOACTIVITY		RECORD	
S	SPEED OR FREQUENCY	SAFETY		SWITCH
T	TEMPERATURE		TRANSMITTER	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION		VALVE	
W	WEIGHT OR FORCE		WELL	
X	UNCLASSIFIED	AXIS X	UNCLASSIFIED	UNCLASSIFIED
Y		AXIS Y		RELAY OR COMPUTE
Z	POSITION	AXIS Z		UNCLASSIFIED FINAL CONTROL ELEMENT

FLUID LEGEND CODE

ITEM	FLUID	ITEM	FLUID	ITEM	FLUID	ITEM	FLUID
	OILS		WATER		PROCESS GAS AND LIQUID		CRYOGENIC GAS AND LIQUID
GO	GAS OIL	HW	HOT WATER	CO	CARBON OXIDE	RL	LIQUID ARGON
DO	DIATERMIC OIL	SW	SALT WATER	K	CARBON DIOXIDE	HPN	HIGH PRESSURE NITROGEN
LO	LUBE OIL	TW	TREATED WATER	NO	NITROGEN OXIDE	HPO	HIGH PRESSURE OXYGEN
	AIR AND GAS GENERAL USE	UW	UTILITIES WATER	FF	FIRE FOAM	HPR	HIGH PRESSURE ARGON
G	GAS (GENERAL)	BW	BOILER FEED WATER / DEMI	FL	FOAMING LIQUID	LA	LIQUID AIR
IG	INSTRUMENT GAS	IW	SERVICE WATER	CH	CHEMICAL	KL	KETTLE
NG	NATURAL GAS / METHANE / BIOMETHANE		CONDENSATE AND STEAM	GY	GLYCOL	E	HELIUM
PG	PURGE GAS	S	STEAM (GENERAL)	BO	BLOW DOWN	X	OXYGEN
FG	FUEL GAS	KS	HIGH PRESSURE STEAM	SG	SLUDGES	LOX	LIQUID OXYGEN
GF	FLUORURATE GAS	WS	MEAN PRESSURE STEAM	DR	DRAINS	GOX	GAS OXYGEN
TG	THAW GAS	LS	LOW PRESSURE STEAM	V	ATMOSPHERE DISCHARGED	KG	ENRICHED GAS
RG	REGENERATION GAS	KC	HIGH PR.STEAM COND.	P	PROPANE/PROPYLENE	CL	CRYOGENIC LIQUID
GR	REFRIGERATING GAS	WC	MEAN PR.STEAM COND.	GV	GASES MIXTURE	LNG	NATURAL GAS / METHANE / BIOMETHANE LIQUID
LR	REFRIGERATING LIQUID	LC	LOW PR.STEAM COND.	HC	HYDROCARBONS	NGL	NGL NATURAL GAS LIQUID
A	AIR (GENERAL)	CD	CONDENSATE DISCHARGE	Ra	AMINE RICH		 BIOGAS
CA	COMPRESSED AIR		PROCESS GAS AND LIQUID	La	AMINE POOR	BGLP	BIOGAS LOW PRESSURE < 0.5 bar
UA	UTILITIES AIR		PROCESS GAS AND LIQUID		CRYOGENIC GAS AND LIQUID	BGHP	BIOGAS HIGH PRESSURE
	WATER		PROCESS GAS AND LIQUID	LIN	LIQUID NITROGEN		
W	WATER (GENERAL)	D	ACETYLENE	WLIN	LIQUID NITROGEN IMPURE		
CW	COOLING WATER	NH3	AMMONIA	N	NITROGEN		
DW	DRINKING WATER	Q	ETHYLENE	WN	WASTE NITROGEN		
FW	FIRE FIGHTING WATER	H	HYDROGEN	R	ARGON		
				RR	WASTE ARGON		
				RP	PURE ARGON		

AREA IDENTIFICATION NUMBERS

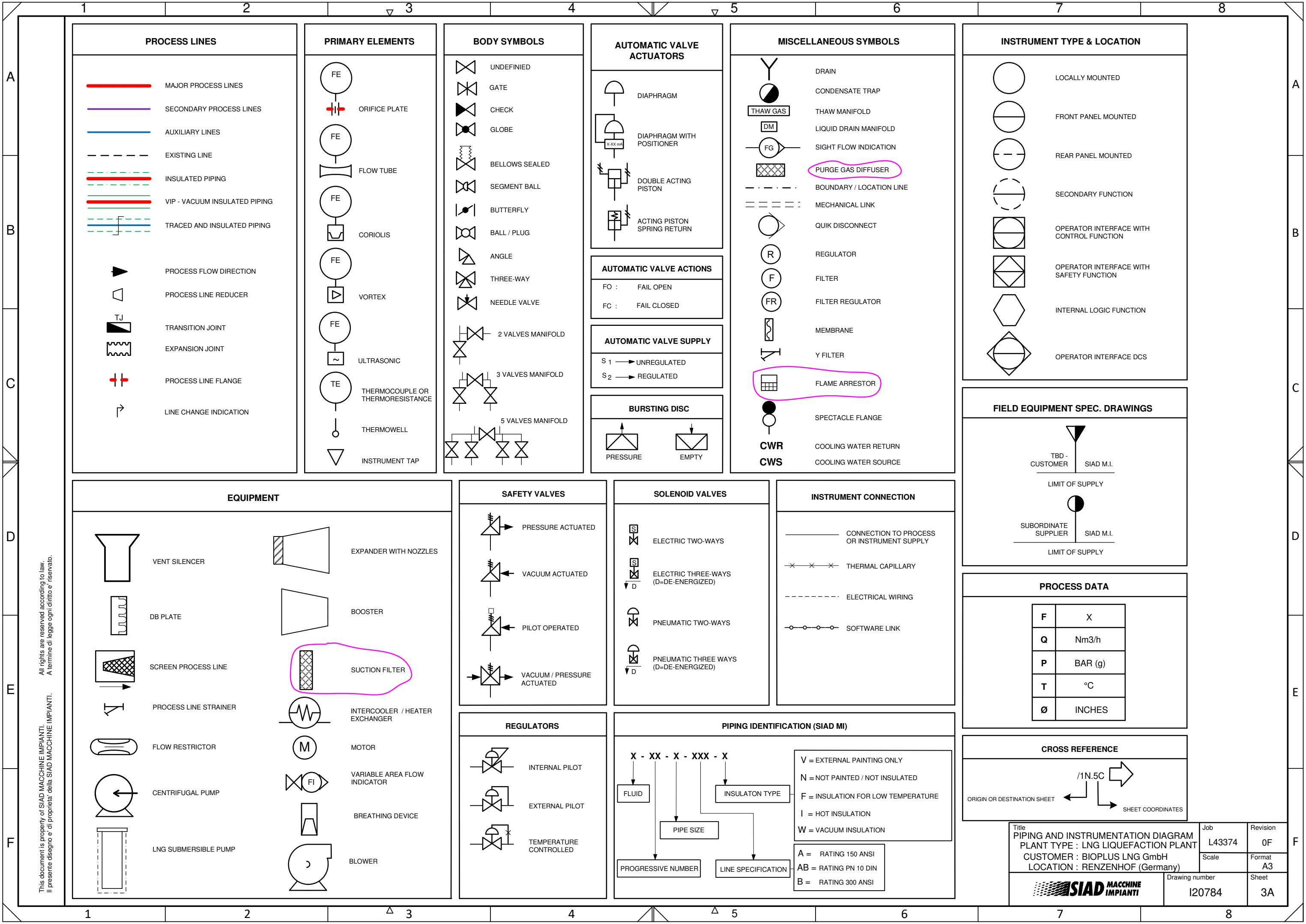
	NUMBER	AREA
FISCAL METER 433	-	FISCAL METER
GAS TREATMENT 598	100 - 199	AVAILABLE FOR GAS TREATMENT
	200 - 299	AVAILABLE FOR GAS TREATMENT
	300 - 399	AVAILABLE FOR GAS TREATMENT
	400 - 499	AVAILABLE FOR GAS TREATMENT
	500 - 599	NG REGENERATION HEATER + REGENERATION COMPRESSOR
LIQUEFACTION 599	600 - 699	NATURAL GAS INLET
	700 - 739	COLD BOX LNG
	740 - 749	RECYCLE COMPRESSOR
	750 - 759	WARM TURBINE
UTILITIES tbd	760 - 769	COLD TURBINE
	770 - 799	AIR DISTRIBUTION SYSTEM
	800 - 899	WATER AND DEMI WATER CIRCUIT
	900 - 999	HC HEATER + BOG COMPRESSOR
	1000 - 1099	ANALYZERS
VENT 730	1100 - 1299	CHILLED WATER CIRCUIT
	1300 - 1499	AVAILABLE
	1500 - 1599	STEAM SYSTEM
	1600 - 1699	VENT AND THERMAL OXIDIZER
STORAGE 646	1700 - 1799	LIQUID NITROGEN STORAGE, NITROGEN DISTRIBUTION SYSTEM
	1800 - 1899	AVAILABLE
	1900 - 1999	LNG STORAGE AND TRUCK LOADING
	2000 - 2299	AVAILABLE

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Title PIPING AND INSTRUMENTATION DIAGRAM PLANT TYPE : LNG LIQUEFACTION PLANT		Job L43374	Revision 0D
CUSTOMER : BIOPUS LNG GmbH LOCATION : RENZENHOF (Germany)		Scale A3	Format A3
Drawing number I20784		Sheet 2A	





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PROCESS LINES

- MAJOR PROCESS LINES
- SECONDARY PROCESS LINES
- AUXILIARY LINES
- EXISTING LINE
- INSULATED PIPING
- VIP - VACUUM INSULATED PIPING
- TRACED AND INSULATED PIPING
- PROCESS FLOW DIRECTION
- PROCESS LINE REDUCER
- TRANSITION JOINT
- EXPANSION JOINT
- PROCESS LINE FLANGE
- LINE CHANGE INDICATION

PRIMARY ELEMENTS

- ORIFICE PLATE
- FLOW TUBE
- CORIOLIS
- VORTEX
- ULTRASONIC
- THERMOCOUPLE OR THERMORESISTANCE
- THERMOWELL
- INSTRUMENT TAP

BODY SYMBOLS

- UNDEFINED
- GATE
- CHECK
- GLOBE
- BELLOWS SEALED
- SEGMENT BALL
- BUTTERFLY
- BALL / PLUG
- ANGLE
- THREE-WAY
- NEEDLE VALVE
- 2 VALVES MANIFOLD
- 3 VALVES MANIFOLD
- 5 VALVES MANIFOLD

AUTOMATIC VALVE ACTUATORS

- DIAPHRAGM
- DIAPHRAGM WITH POSITIONER
- DOUBLE ACTING PISTON
- ACTING PISTON SPRING RETURN

AUTOMATIC VALVE ACTIONS

- FO : FAIL OPEN
- FC : FAIL CLOSED

AUTOMATIC VALVE SUPPLY

- S1 -> UNREGULATED
- S2 -> REGULATED

BURSTING DISC

- PRESSURE
- EMPTY

MISCELLANEOUS SYMBOLS

- DRAIN
- CONDENSATE TRAP
- THAW MANIFOLD
- LIQUID DRAIN MANIFOLD
- SIGHT FLOW INDICATION
- PURGE GAS DIFFUSER
- BOUNDARY / LOCATION LINE
- MECHANICAL LINK
- QUIK DISCONNECT
- REGULATOR
- FILTER
- FILTER REGULATOR
- MEMBRANE
- Y FILTER
- FLAME ARRESTOR
- SPECTACLE FLANGE
- CWR - COOLING WATER RETURN
- CWS - COOLING WATER SOURCE

INSTRUMENT TYPE & LOCATION

- LOCALLY MOUNTED
- FRONT PANEL MOUNTED
- REAR PANEL MOUNTED
- SECONDARY FUNCTION
- OPERATOR INTERFACE WITH CONTROL FUNCTION
- OPERATOR INTERFACE WITH SAFETY FUNCTION
- INTERNAL LOGIC FUNCTION
- OPERATOR INTERFACE DCS

EQUIPMENT

- VENT SILENCER
- DB PLATE
- SCREEN PROCESS LINE
- PROCESS LINE STRAINER
- FLOW RESTRICTOR
- CENTRIFUGAL PUMP
- LNG SUBMERSIBLE PUMP
- EXPANDER WITH NOZZLES
- BOOSTER
- SUCTION FILTER
- INTERCOOLER / HEATER EXCHANGER
- MOTOR
- VARIABLE AREA FLOW INDICATOR
- BREATHING DEVICE
- BLOWER

SAFETY VALVES

- PRESSURE ACTUATED
- VACUUM ACTUATED
- PILOT OPERATED
- VACUUM / PRESSURE ACTUATED

SOLENOID VALVES

- ELECTRIC TWO-WAYS
- ELECTRIC THREE-WAYS (D=DE-ENERGIZED)
- PNEUMATIC TWO-WAYS
- PNEUMATIC THREE WAYS (D=DE-ENERGIZED)

INSTRUMENT CONNECTION

- CONNECTION TO PROCESS OR INSTRUMENT SUPPLY
- THERMAL CAPILLARY
- ELECTRICAL WIRING
- SOFTWARE LINK

FIELD EQUIPMENT SPEC. DRAWINGS

TBD - CUSTOMER / SIAD M.I.

LIMIT OF SUPPLY

SUBORDINATE SUPPLIER / SIAD M.I.

LIMIT OF SUPPLY

PROCESS DATA

F	X
Q	Nm3/h
P	BAR (g)
T	°C
Ø	INCHES

CROSS REFERENCE

ORIGIN OR DESTINATION SHEET

SHEET COORDINATES

/1N.5C

REGULATORS

- INTERNAL PILOT
- EXTERNAL PILOT
- TEMPERATURE CONTROLLED

PIPING IDENTIFICATION (SIAD MI)

X - XX - X - XXX - X

FLUID | INSULATION TYPE | PIPE SIZE | LINE SPECIFICATION

PROGRESSIVE NUMBER

- V = EXTERNAL PAINTING ONLY
- N = NOT PAINTED / NOT INSULATED
- F = INSULATION FOR LOW TEMPERATURE
- I = HOT INSULATION
- W = VACUUM INSULATION
- A = RATING 150 ANSI
- AB = RATING PN 10 DIN
- B = RATING 300 ANSI

Title: PIPING AND INSTRUMENTATION DIAGRAM
 PLANT TYPE : LNG LIQUEFACTION PLANT
 CUSTOMER : BIOPUS LNG GmbH
 LOCATION : RENZENHOF (Germany)

Job: L43374
 Scale: A3
 Drawing number: I20784

Revision: 0F
 Format: A3
 Sheet: 3A

SIAD MACCHINE IMPIANTI

1						2						3						4						5						6						7						8																																																																																																																																																																																																																																																																																																																																																																																																																																															
REVISION	SHEET	ALTERATIONS	DATE	DRAWN	CHECKED	REVISION	SHEET	ALTERATIONS	DATE	DRAWN	CHECKED	REVISION	SHEET	ALTERATIONS	DATE	DRAWN	CHECKED	REVISION	SHEET	ALTERATIONS	DATE	DRAWN	CHECKED	REVISION	SHEET	ALTERATIONS	DATE	DRAWN	CHECKED	REVISION	SHEET	ALTERATIONS	DATE	DRAWN	CHECKED	REVISION	SHEET	ALTERATIONS	DATE	DRAWN	CHECKED																																																																																																																																																																																																																																																																																																																																																																																																																																																
0A	All	Issue for approval	03/02/2023	M. Caglioni	F. Soru	0C	1A	Issue for approval	13/03/2023	M. Caglioni	F. Soru	0D	1A	Issue for approval	08/05/2023	M. Caglioni	F. Soru																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
0B	1A	Issue for approval	23/02/2023	M. Caglioni	F. Soru		3A						2A						2A						3A						3A						4A						4A						10						10						11						11						15						15						16						16						20						20						22						22						23						23						25						25						26						26						27						27						30						30						31						31						32						32						33						33						34						34						35						35						36						36						37						37						37A						37A						37B						37B						38						38						38A						38A						38B						38B						39A						39A						39B						39B						40						40						41						41						42						42						50						50						51						51						65						65						70						70						70						68						68						74						74						75						75				


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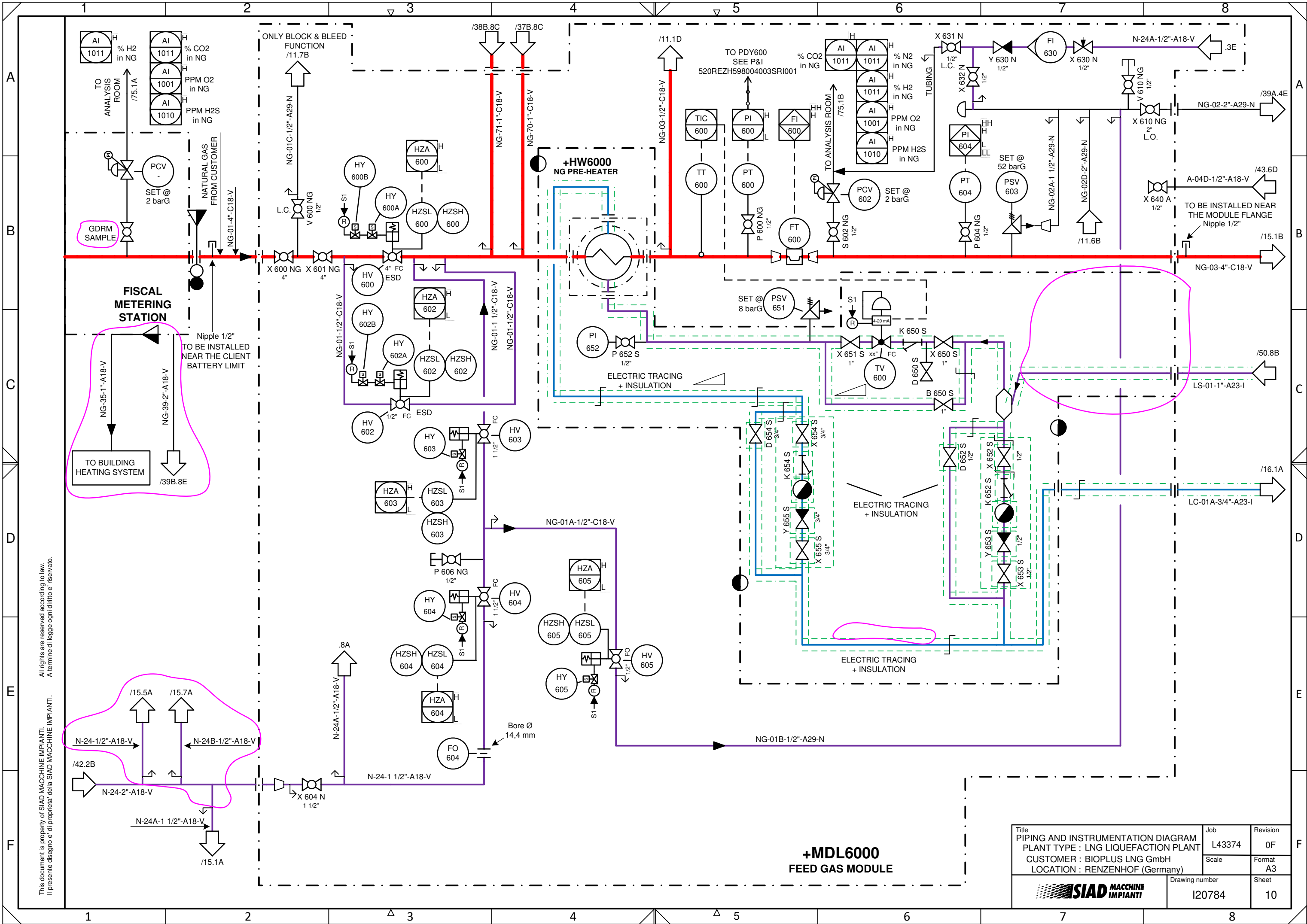
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CUSTOMER : BIOPUS LNG GmbH		Scale	Format A3
LOCATION : RENZENHOF (Germany)		Drawing number I20784	Sheet 4A



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A	REVISION	SHEET	ALTERATIONS	DATE	DRAWN	CHECKED		
	0E	1A 3A 4A 4A-1 10 11 15 20 22 23 25 26 27 30 31 34 35 37 38 39A 39B 42 43 50 51 65 68 70 74 75	Modified	12/09/2023	M. Caglioni	F. Soru		
B	0F	1A 3A 4A-1 10 11 15 16 20 23 25 26 27 30 31 32 33 34 35 36 37 37A 37B 38 38A 38B 39A 39B 40 41 42 43 50 51 60 65 66 67 68 70 75	Modified	22/02/2024	M. Caglioni	F. Soru		
C								
D								
E								
F								
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CUSTOMER : BIOPLUS LNG GmbH LOCATION : RENZENHOF (Germany)		Scale	Format A3
		Drawing number I20784	Sheet 4A-1

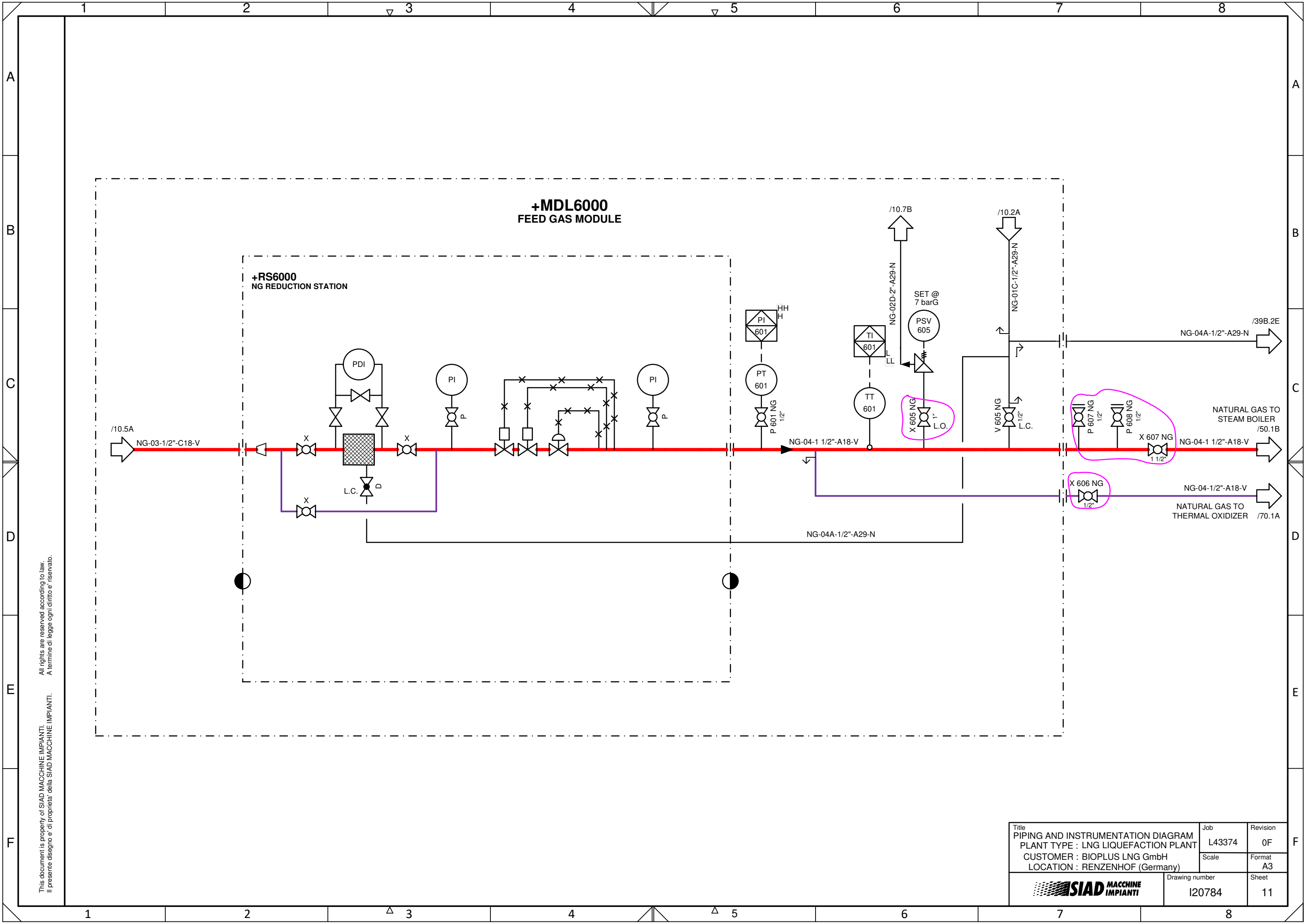


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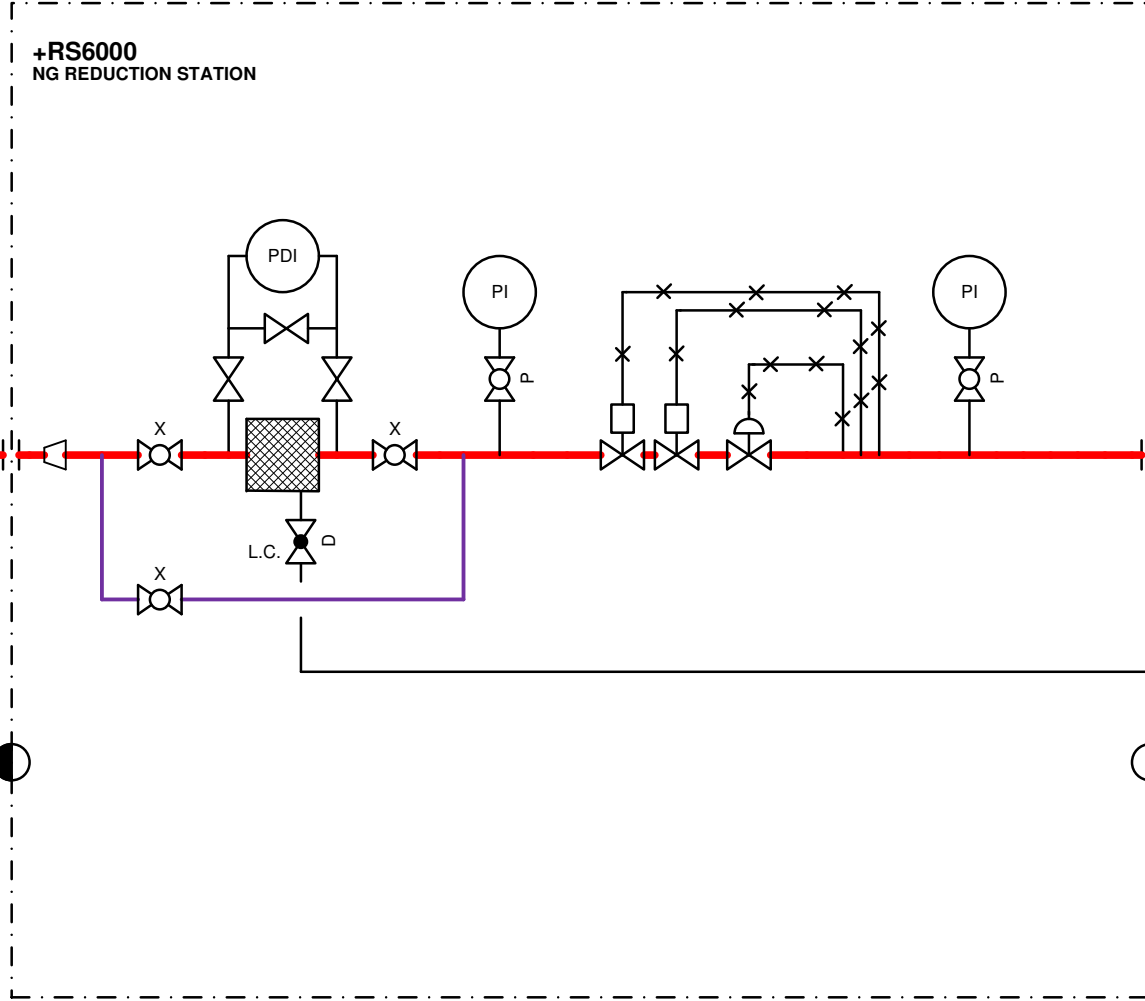
**+MDL6000
FEED GAS MODULE**

Title PIPING AND INSTRUMENTATION DIAGRAM PLANT TYPE : LNG LIQUEFACTION PLANT CUSTOMER : BIOPUS LNG GmbH LOCATION : RENZENHOF (Germany)	Job	Revision
	L43374	0F
	Scale	Format
	A3	
Drawing number	Sheet	
I20784	10	



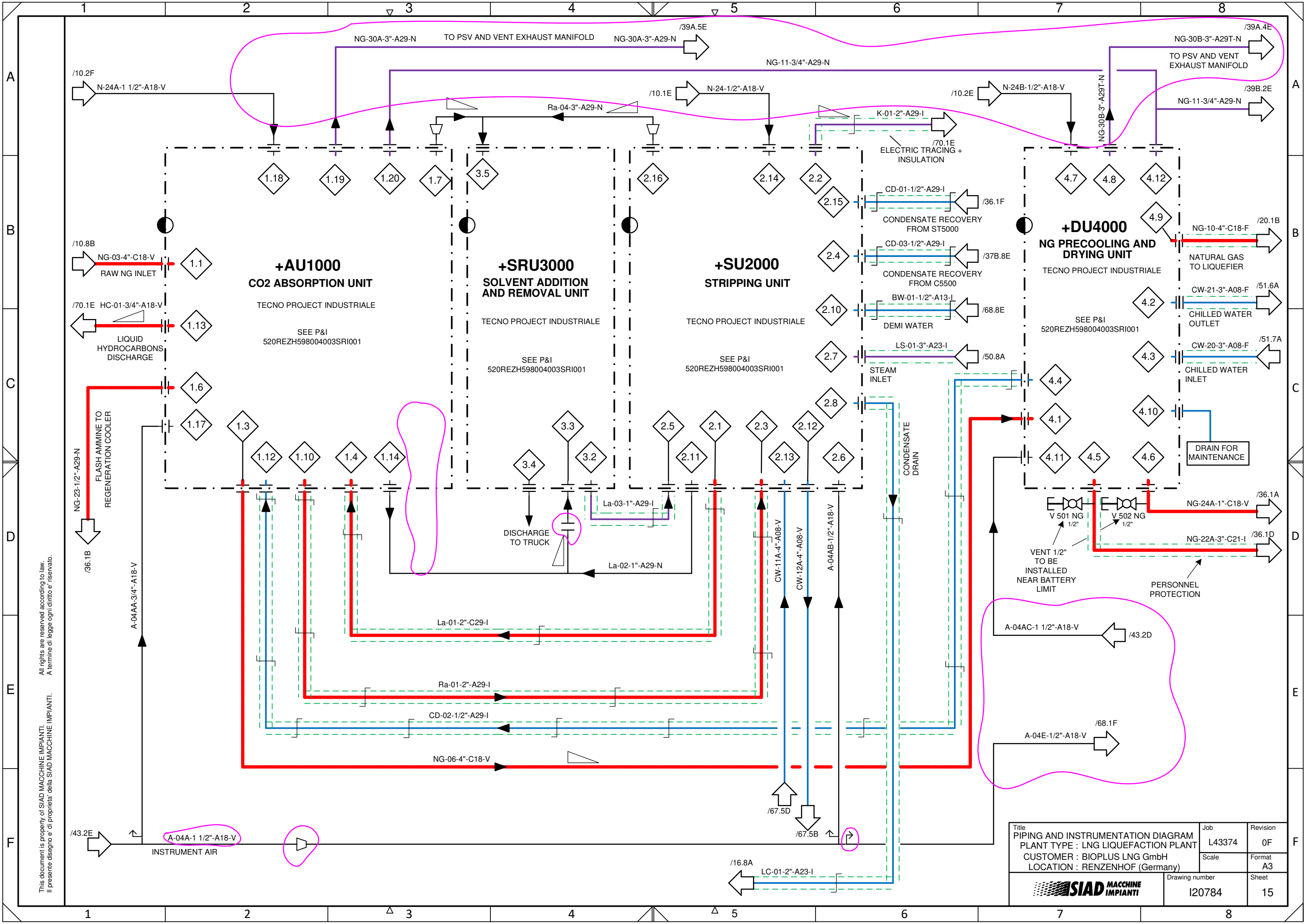


**+MDL6000
FEED GAS MODULE**



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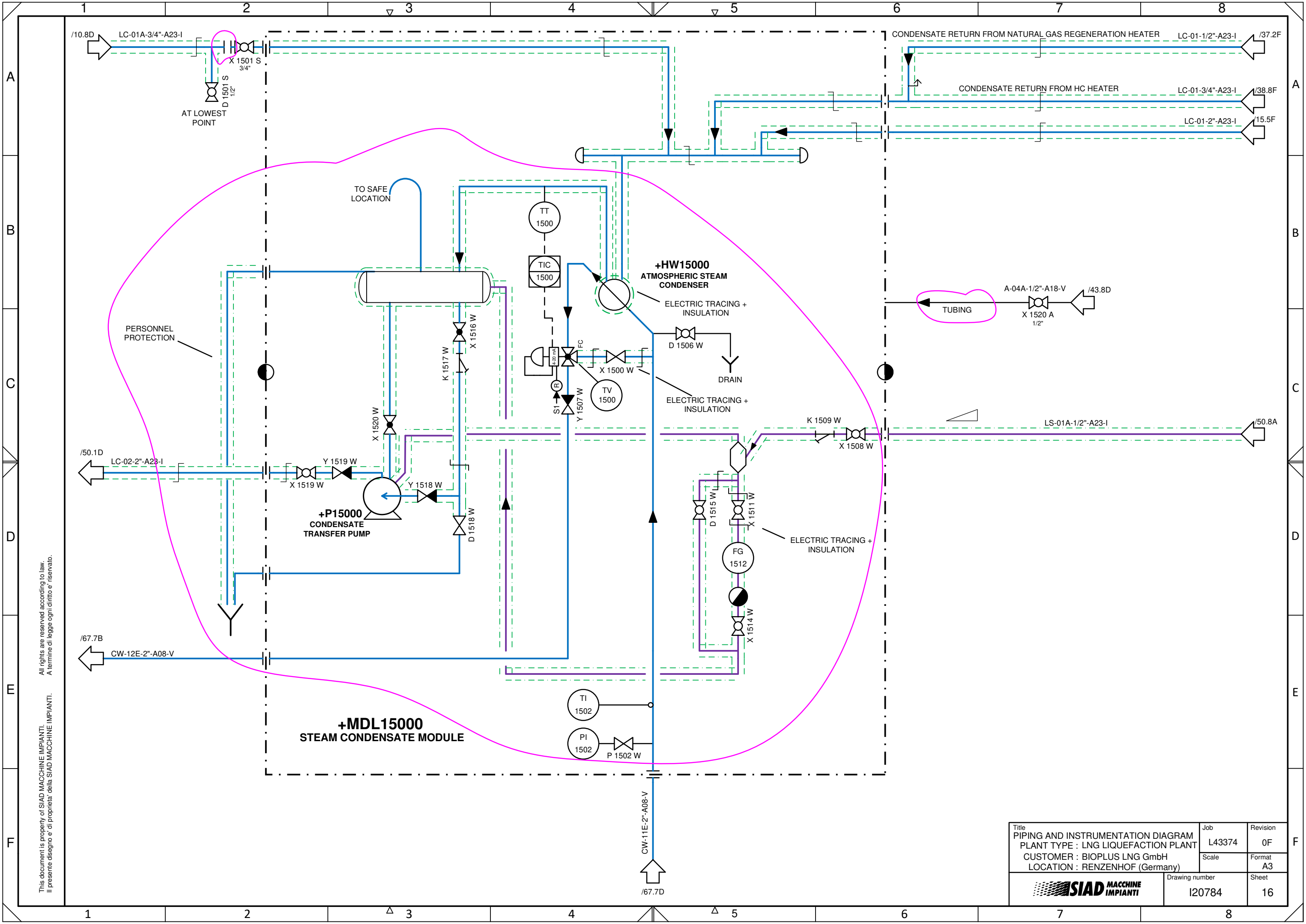
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	L43374	0F
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	Drawing number	Sheet
	I20784	11



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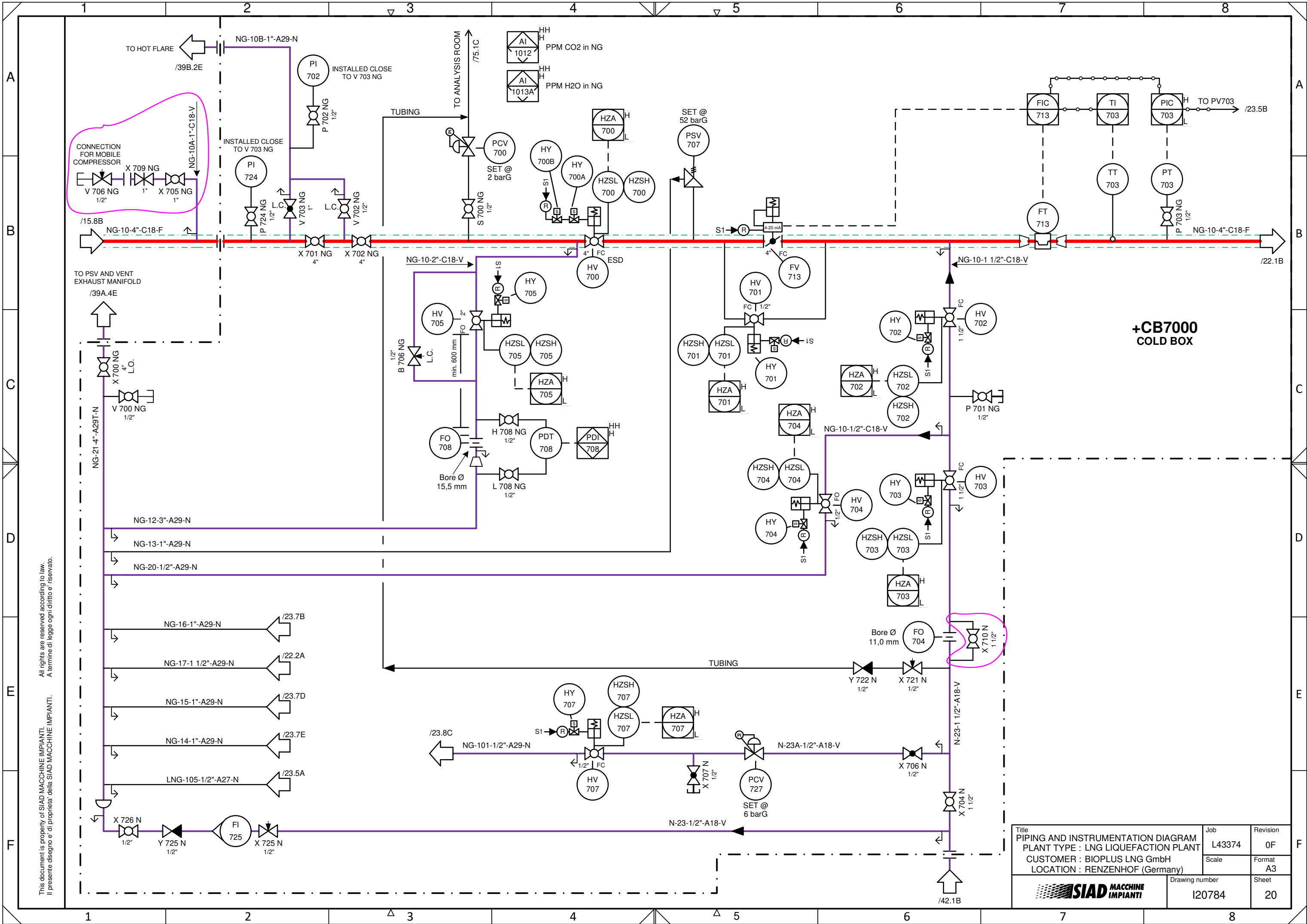
Title PIPING AND INSTRUMENTATION DIAGRAM Plant Type : LNG LIQUEFACTION PLANT Customer : BIOPUS LNG GmbH Location : RENZENHOF (Germany)	Job	Revision
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Drawing number	Sheet	
I20784	15	





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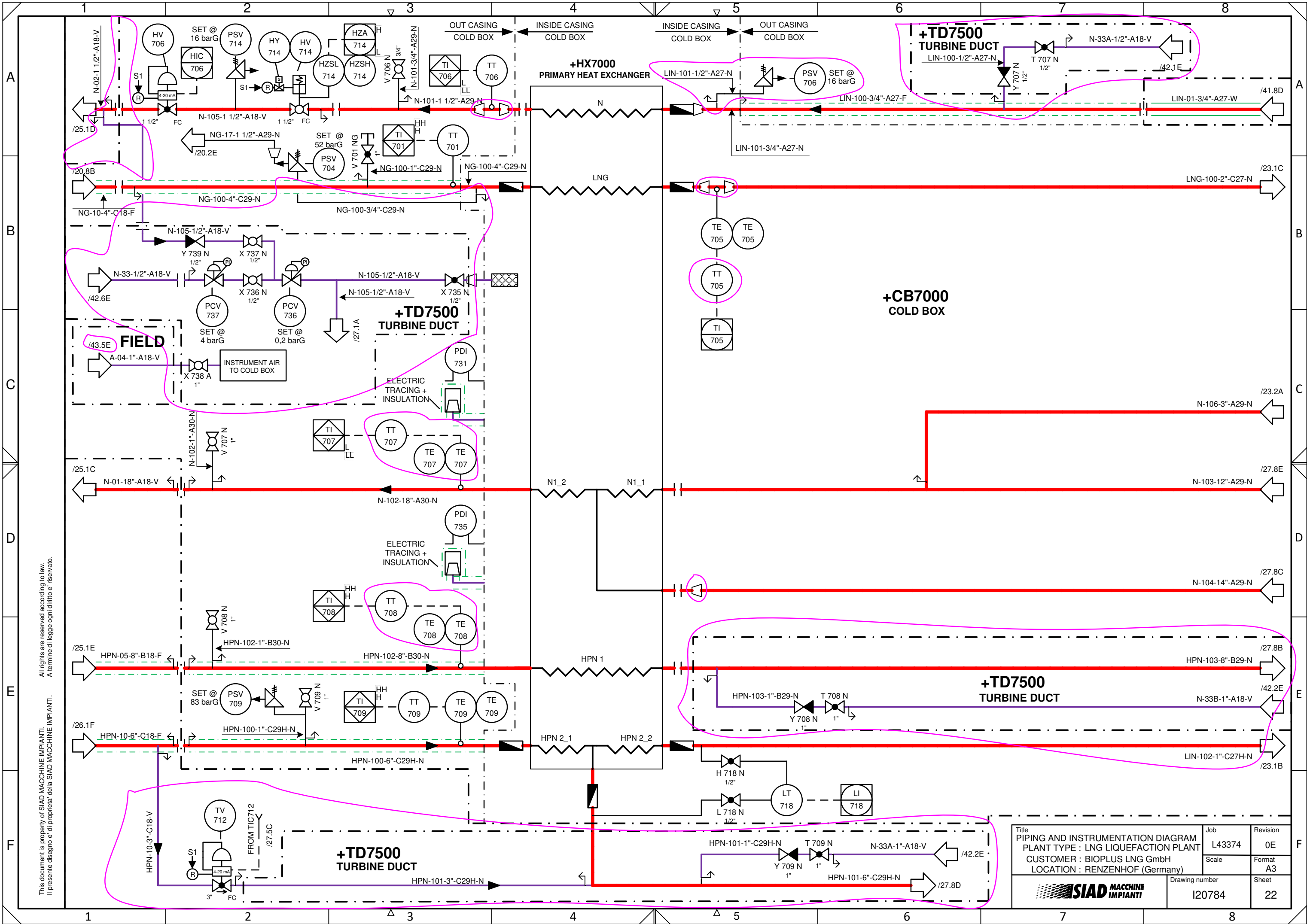
Title PIPING AND INSTRUMENTATION DIAGRAM PLANT TYPE : LNG LIQUEFACTION PLANT CUSTOMER : BIOPUS LNG GmbH LOCATION : RENZENHOF (Germany)	Job	Revision
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Drawing number	Sheet	
I20784	16	



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PLANT TYPE : LNG LIQUEFACTION PLANT		Scale	Format A3
CUSTOMER : BIOPUS LNG GmbH		LOCATION : RENZENHOF (Germany)	
Drawing number I20784		Sheet 20	

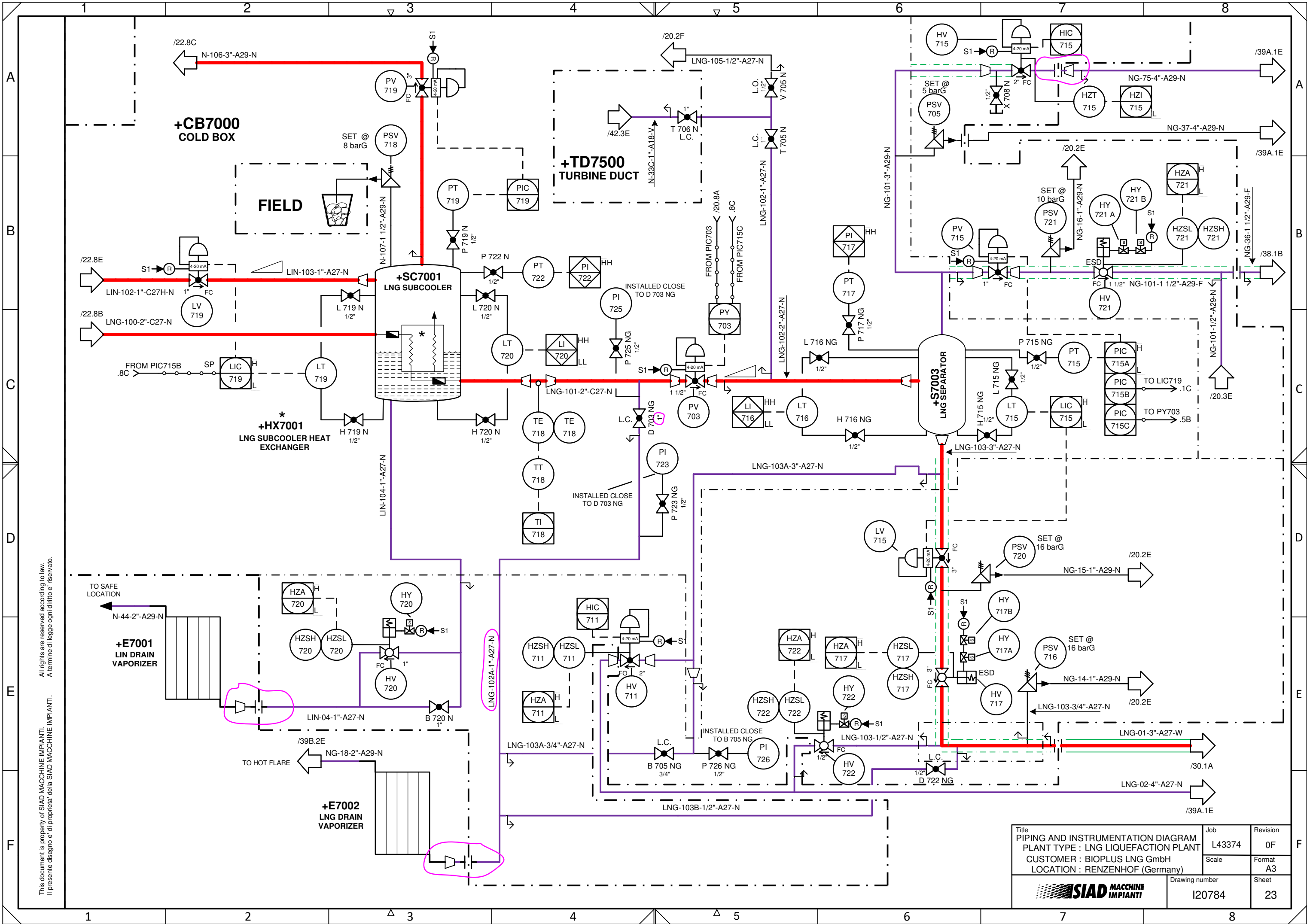




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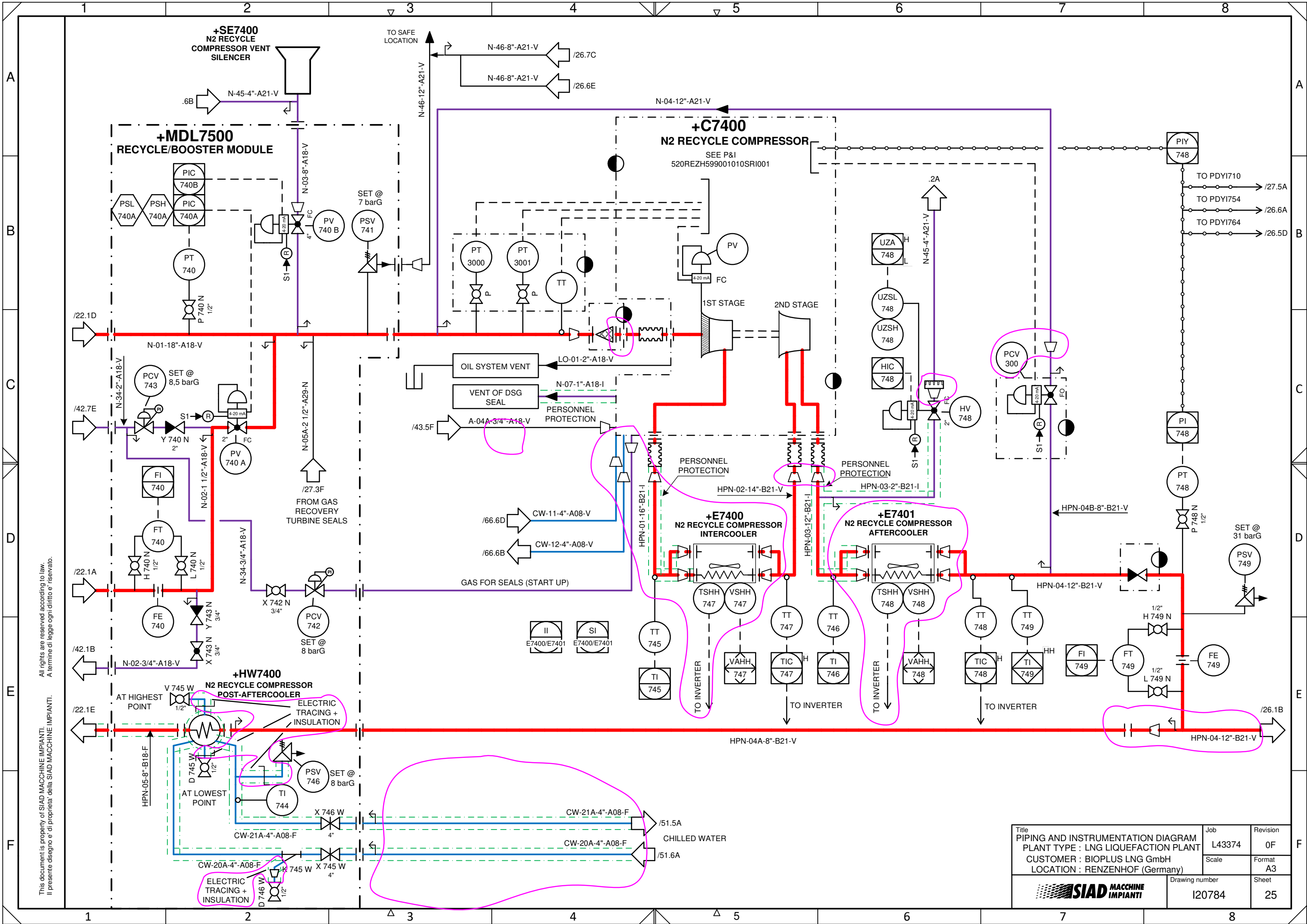




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	Scale	Format
	A3	A3
Drawing number	Sheet	
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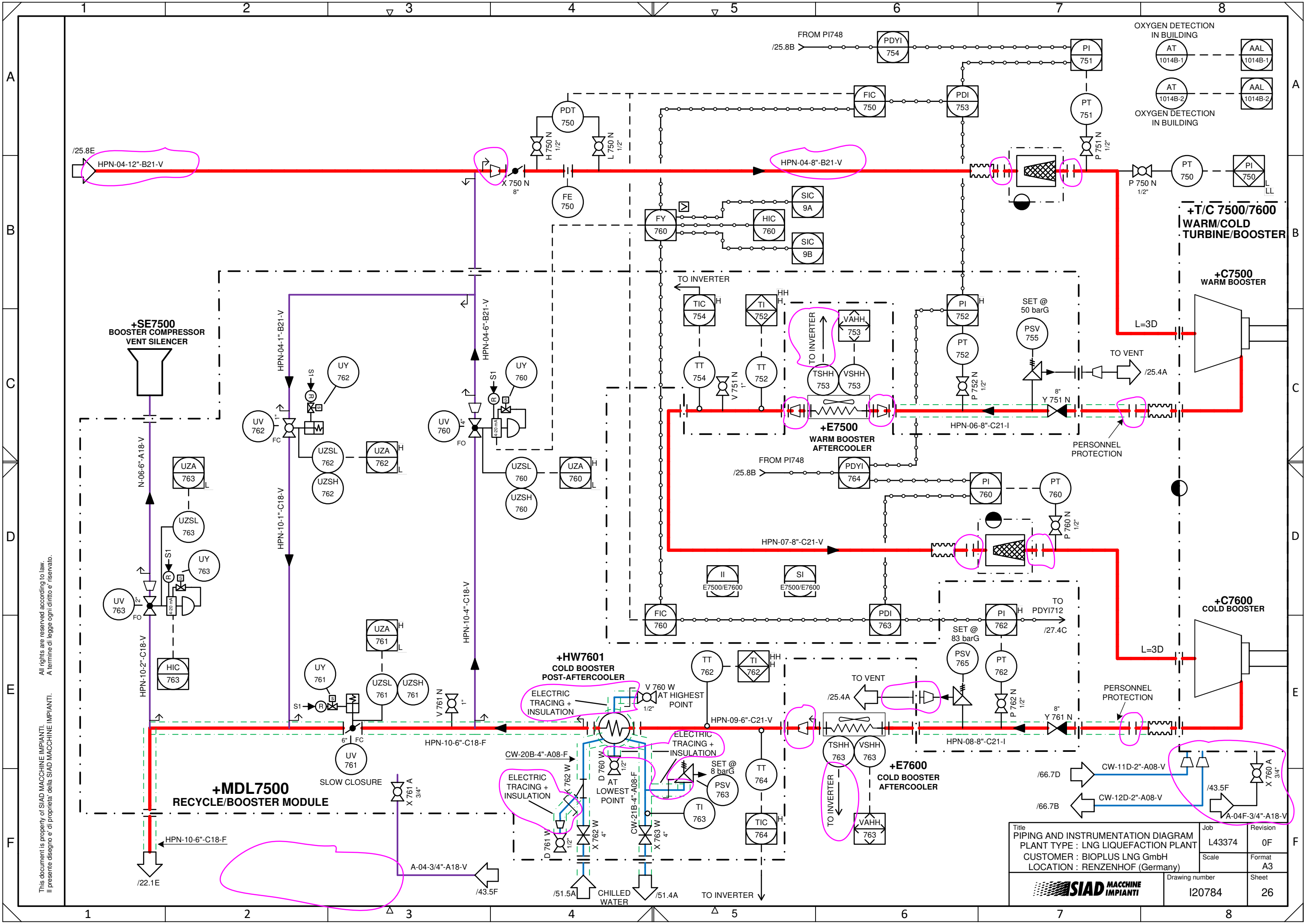




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	L43374	0F
	Scale	Format
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Drawing number 120784		Sheet 25

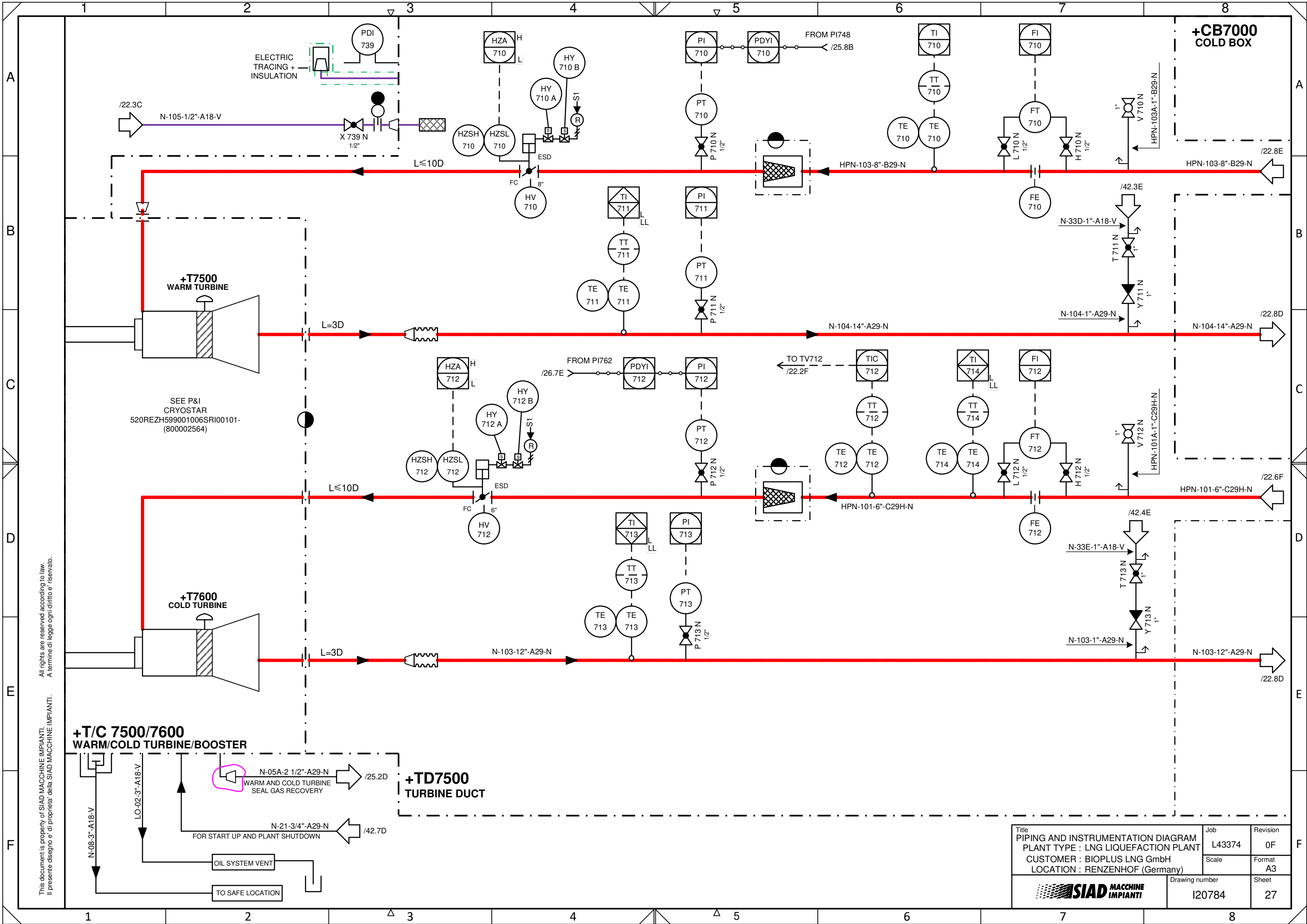




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	Scale	Format A3
	Drawing number I20784	Sheet 26

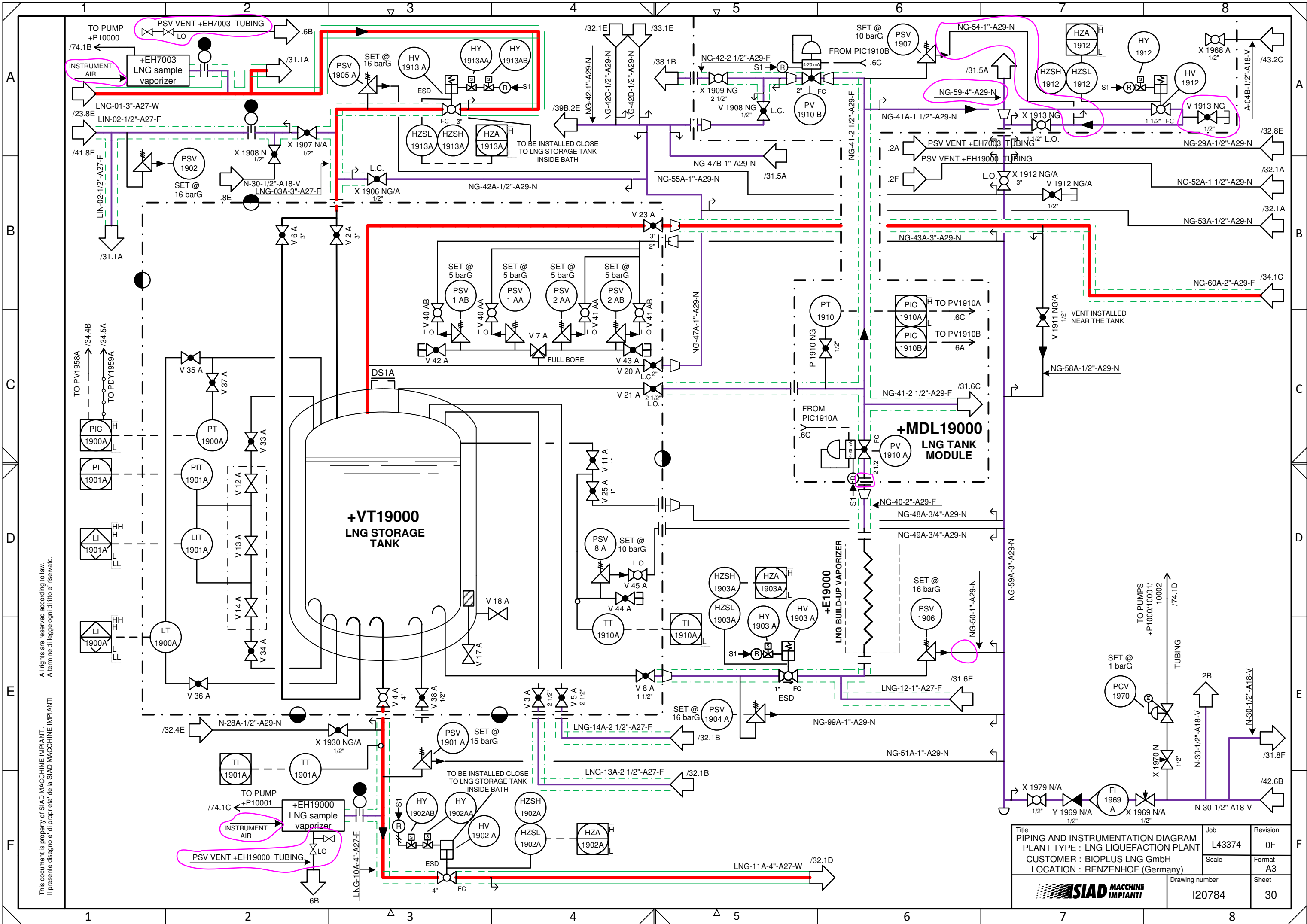




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Title PIPING AND INSTRUMENTATION DIAGRAM PLANT TYPE : LNG LIQUEFACTION PLANT CUSTOMER : BIOPUS LNG GmbH LOCATION : RENZENHOF (Germany)	Job	Revision
	L43374	0F
	Scale	Format
	A3	
	Drawing number	Sheet
	I20784	27

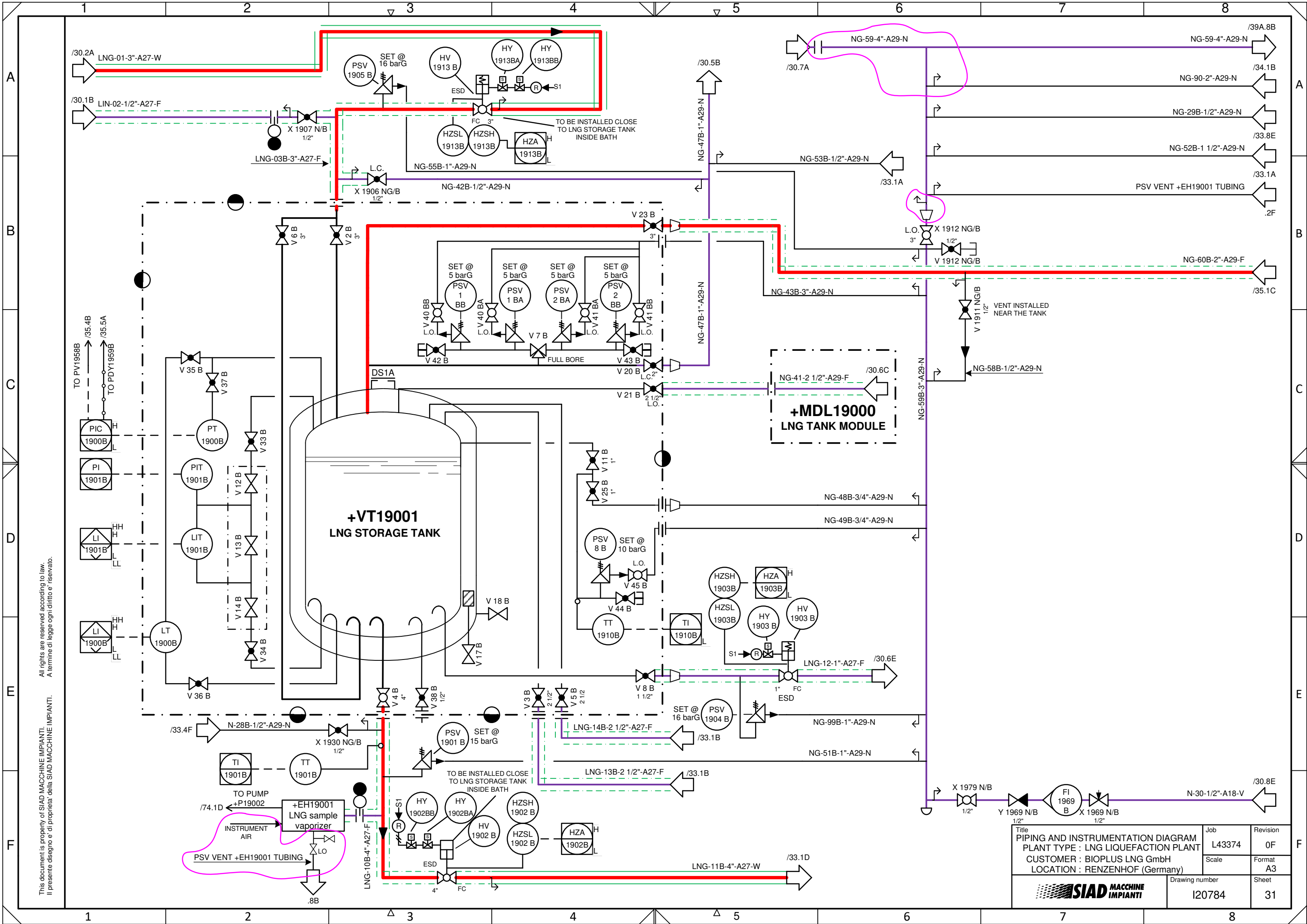


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Title PIPING AND INSTRUMENTATION DIAGRAM		Job L43374	Revision 0F
PLANT TYPE : LNG LIQUEFACTION PLANT		Scale	Format A3
CUSTOMER : BIOPUS LNG GmbH		LOCATION : RENZENHOF (Germany)	
Drawing number I20784		Sheet 30	



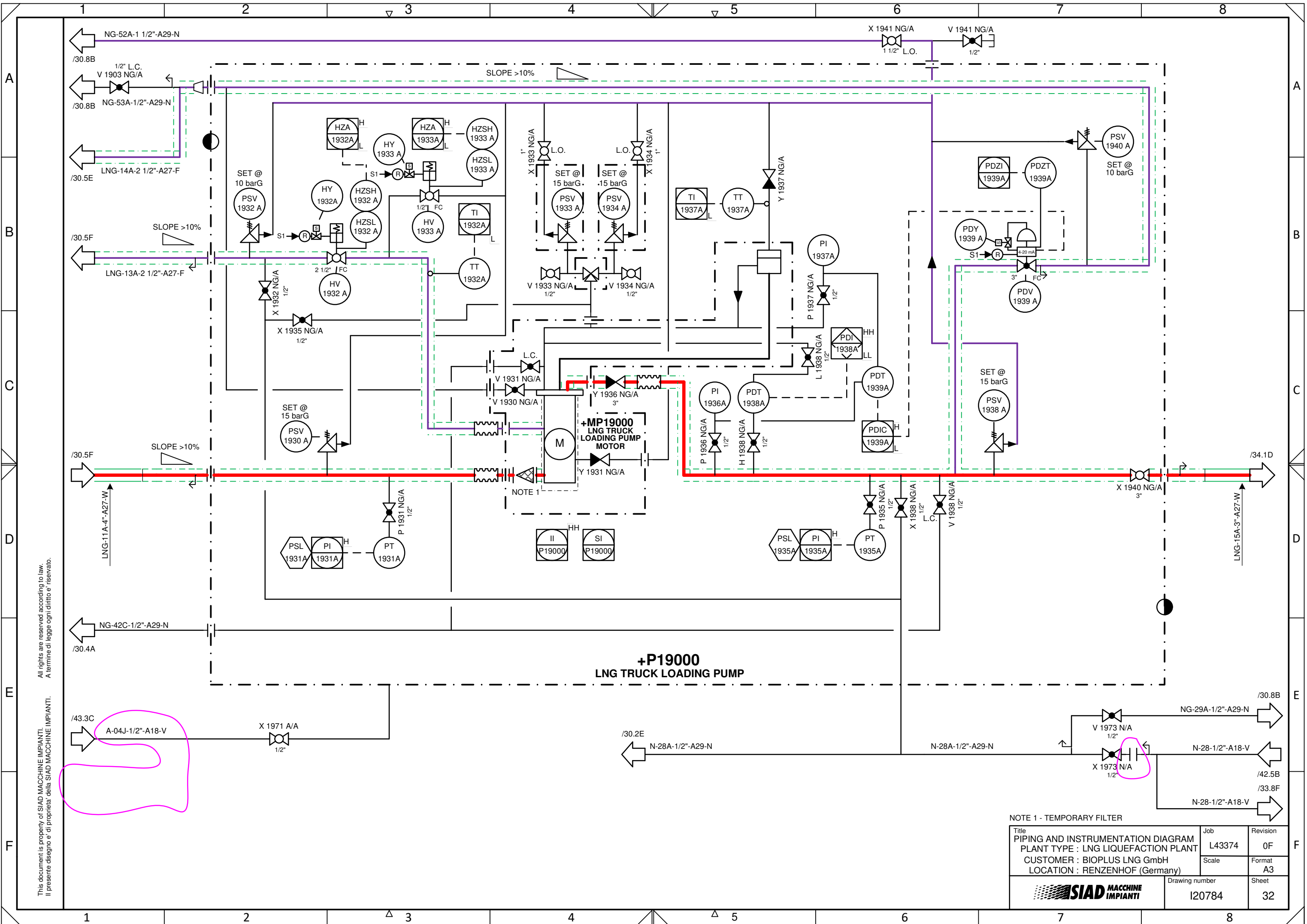


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Title PIPING AND INSTRUMENTATION DIAGRAM PLANT TYPE : LNG LIQUEFACTION PLANT CUSTOMER : BIOPUS LNG GmbH LOCATION : RENZEHOF (Germany)	Job	Revision
	L43374	0F
	Scale	Format
	A3	
Drawing number	Sheet	
I20784	31	

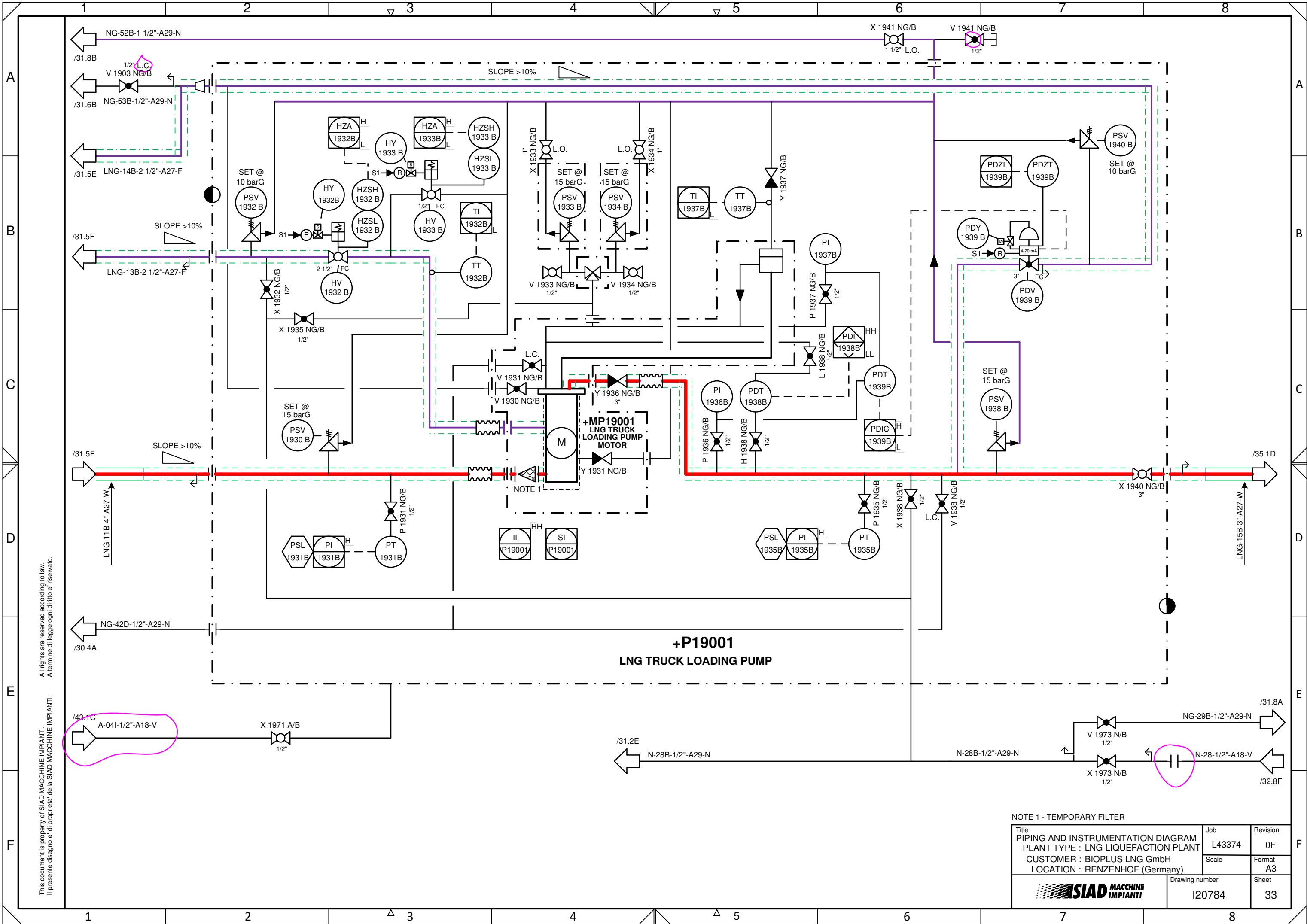




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NOTE 1 - TEMPORARY FILTER

Title PIPING AND INSTRUMENTATION DIAGRAM	Job L43374	Revision 0F
PLANT TYPE : LNG LIQUEFACTION PLANT	Scale	Format A3
CUSTOMER : BIOPUS LNG GmbH	Drawing number I20784	Sheet 32
LOCATION : RENZEHOF (Germany)		

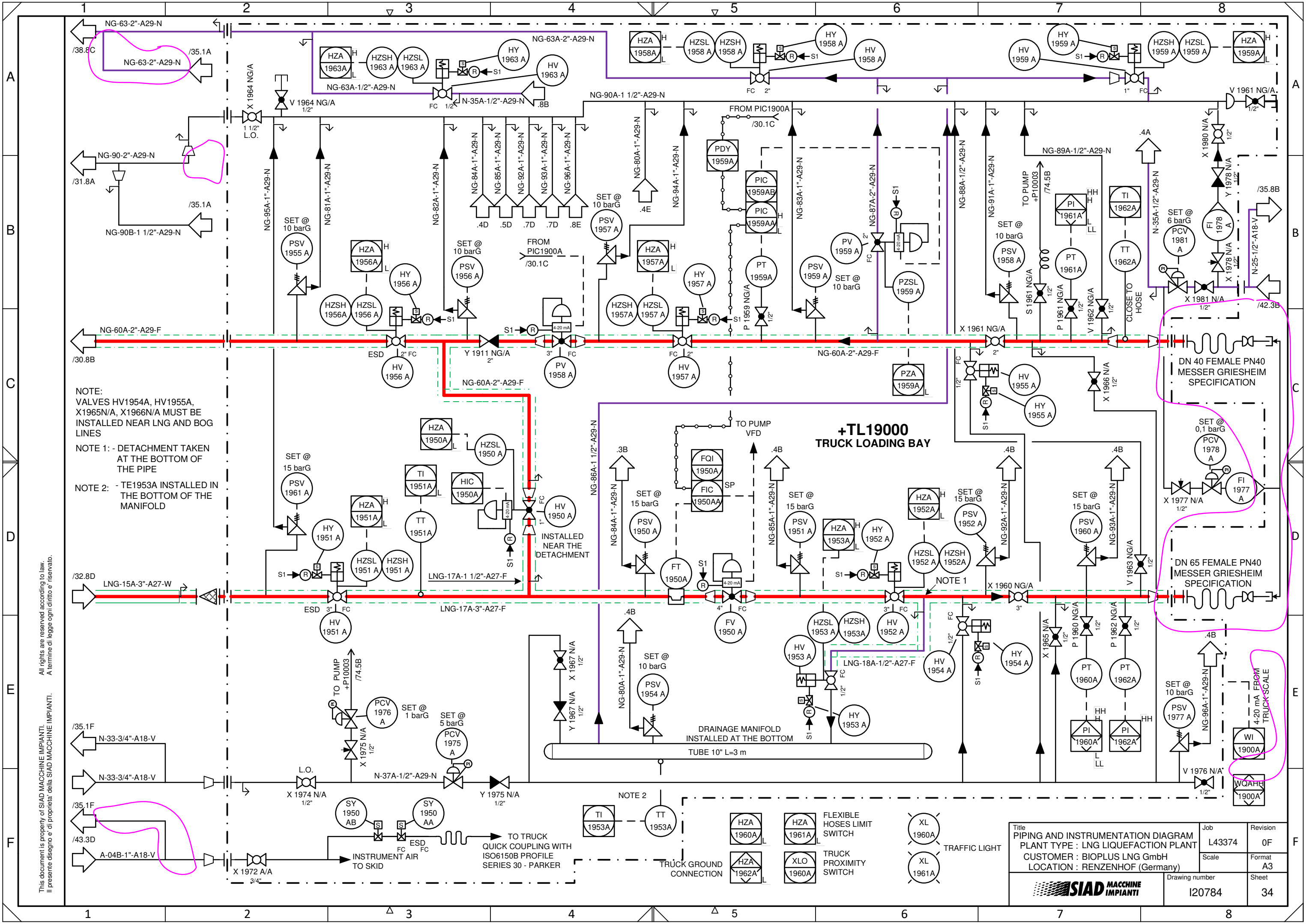


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NOTE 1 - TEMPORARY FILTER

Title PIPING AND INSTRUMENTATION DIAGRAM		Job L43374	Revision 0F
PLANT TYPE : LNG LIQUEFACTION PLANT		Scale	Format A3
CUSTOMER : BIOPUS LNG GmbH		LOCATION : RENZEHOF (Germany)	
Drawing number I20784		Sheet 33	





NOTE:
 VALVES HV1954A, HV1955A,
 X1965N/A, X1966N/A MUST BE
 INSTALLED NEAR LNG AND BOG
 LINES

NOTE 1: - DETACHMENT TAKEN
 AT THE BOTTOM OF
 THE PIPE

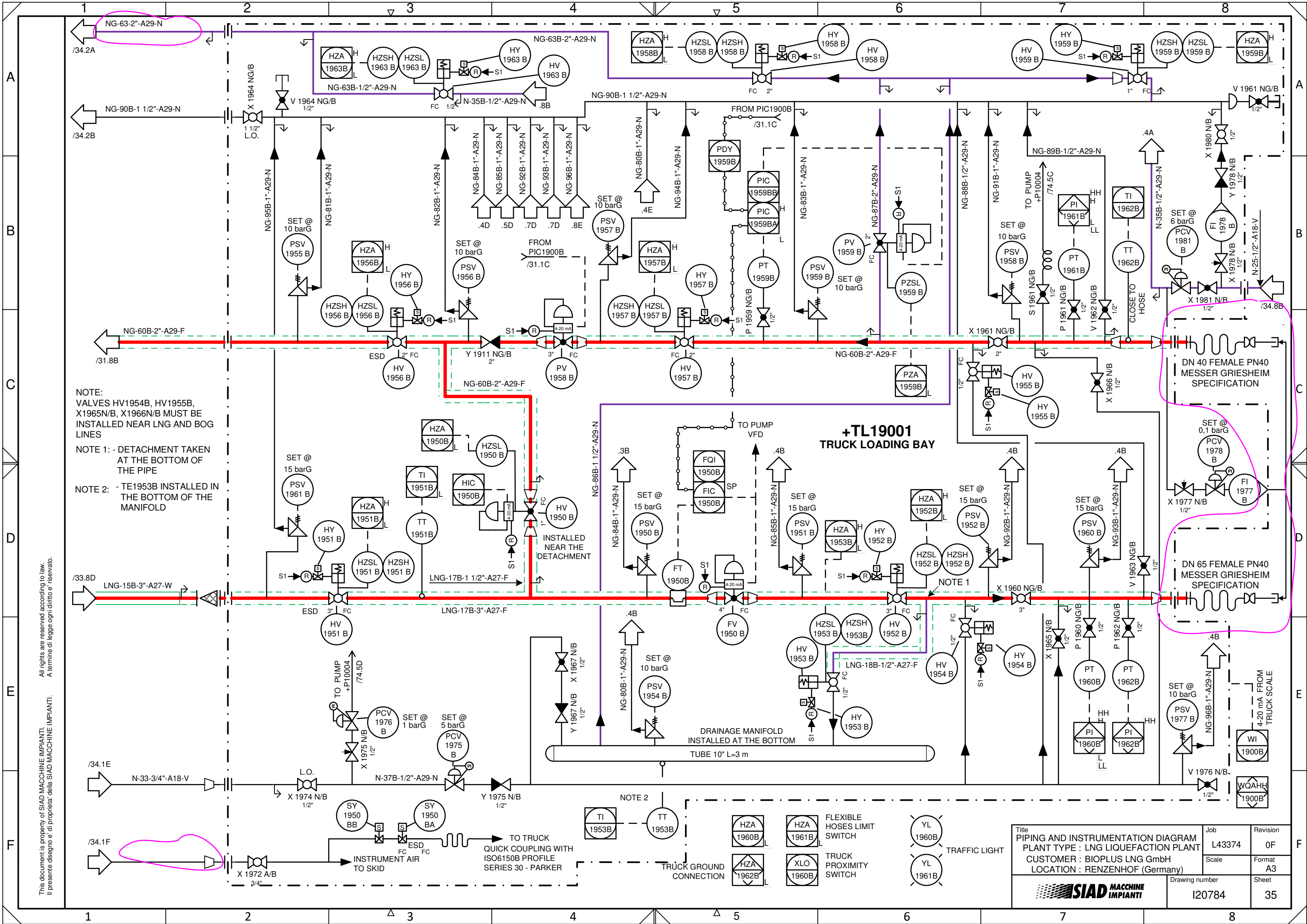
NOTE 2: - TE1953A INSTALLED IN
 THE BOTTOM OF THE
 MANIFOLD

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Title PIPING AND INSTRUMENTATION DIAGRAM		Job L43374	Revision 0F
PLANT TYPE : LNG LIQUEFACTION PLANT		Scale A3	Format A3
CUSTOMER : BIOPUS LNG GmbH		Drawing number I20784	Sheet 34
LOCATION : RENZENHOF (Germany)			





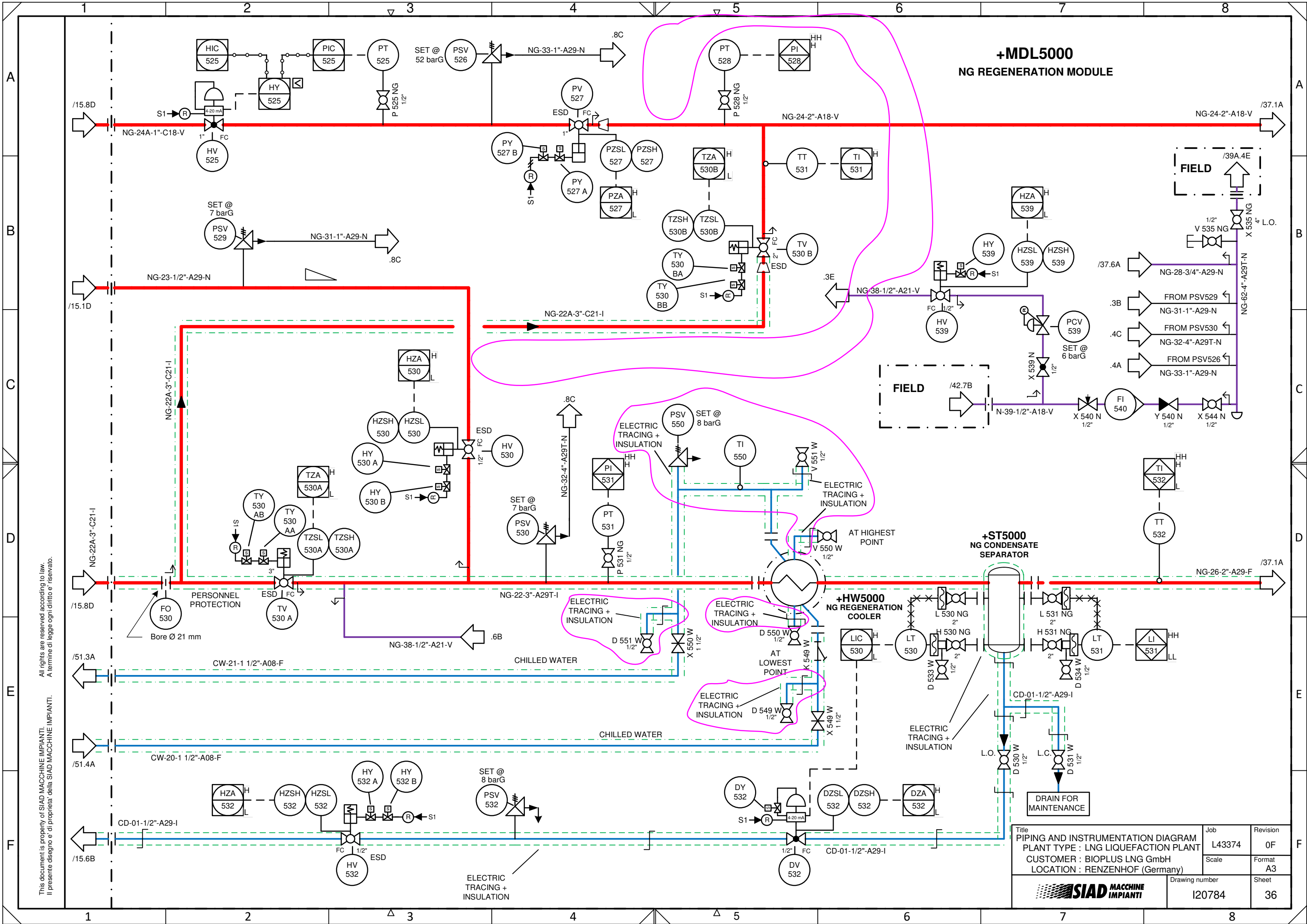
NOTE:
 VALVES HV1954B, HV1955B,
 X1965N/B, X1966N/B MUST BE
 INSTALLED NEAR LNG AND BOG
 LINES

NOTE 1: - DETACHMENT TAKEN
 AT THE BOTTOM OF
 THE PIPE

NOTE 2: - TE1953B INSTALLED IN
 THE BOTTOM OF THE
 MANIFOLD

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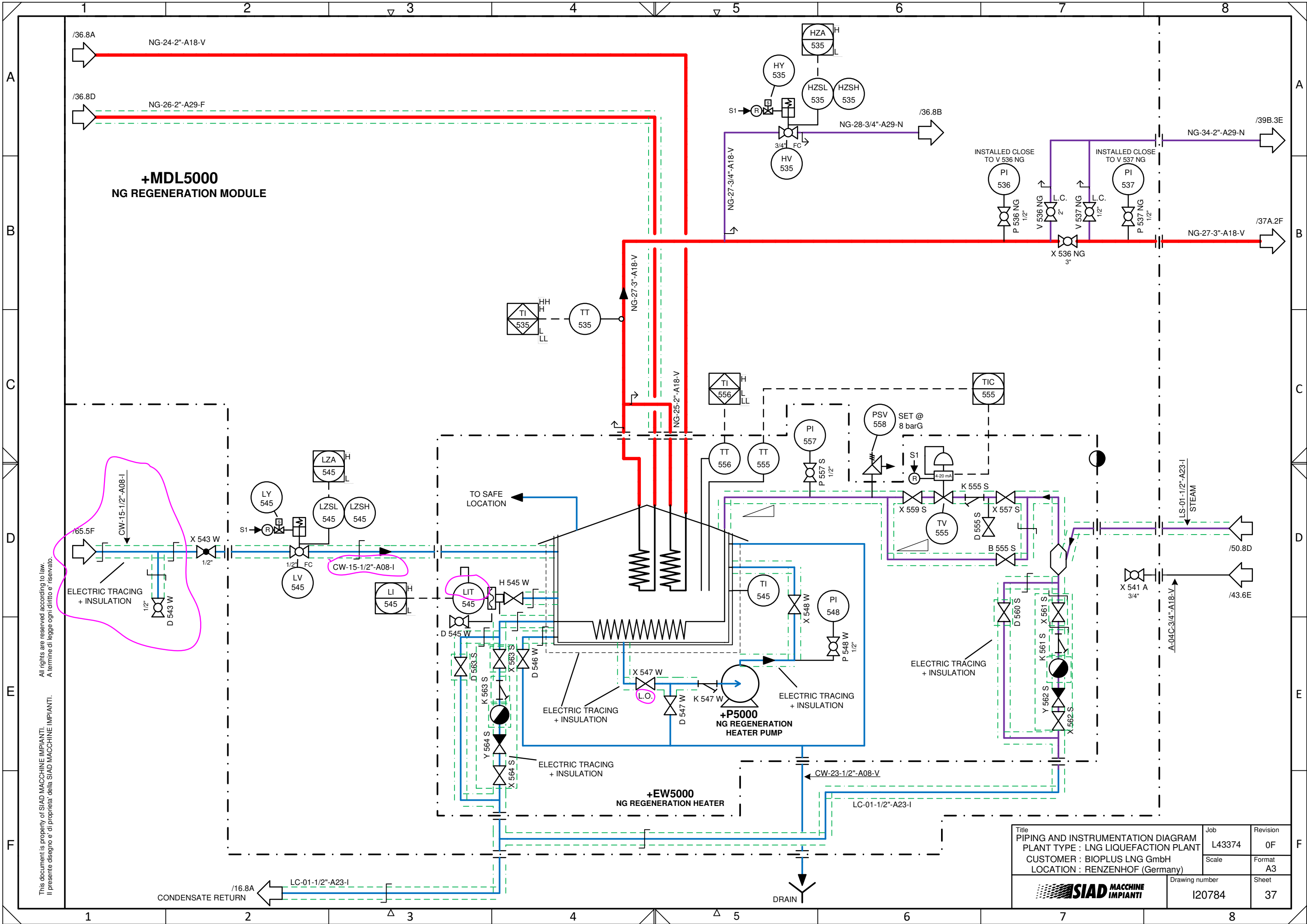
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Drawing number I20784		Scale A3	Format A3
Sheet 35		SIAD MACCHINE IMPIANTI	



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Title PIPING AND INSTRUMENTATION DIAGRAM PLANT TYPE : LNG LIQUEFACTION PLANT CUSTOMER : BIOPUS LNG GmbH LOCATION : RENZENHOF (Germany)		Job L43374	Revision 0F
Drawing number I20784		Scale A3	Sheet 36





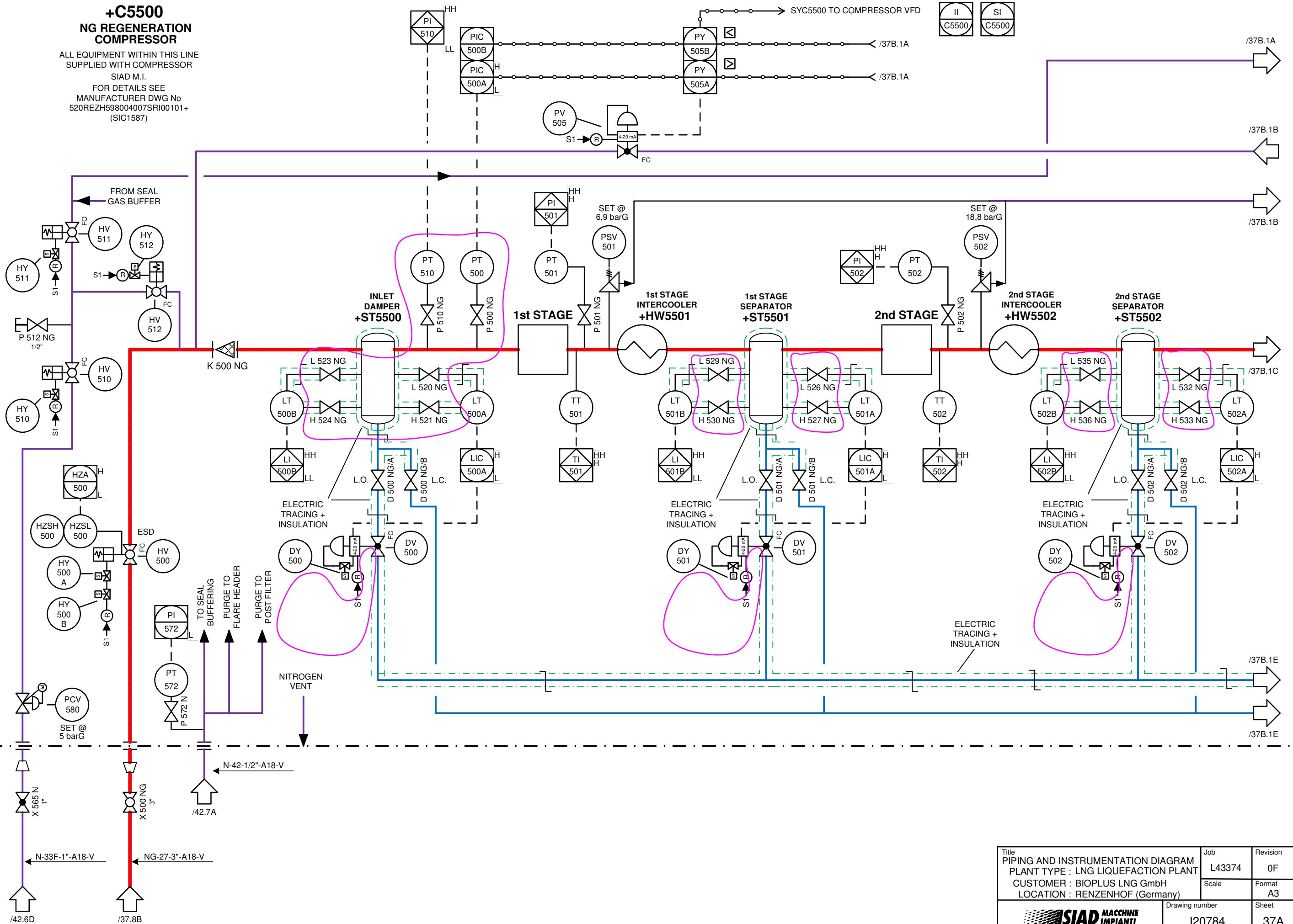
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Title PIPING AND INSTRUMENTATION DIAGRAM PLANT TYPE : LNG LIQUEFACTION PLANT CUSTOMER : BIOPUS LNG GmbH LOCATION : RENZENHOF (Germany)	Job	Revision
	L43374	0F
	Scale	Format
	A3	
Drawing number	Sheet	
I20784	37	



**+C5500
NG REGENERATION
COMPRESSOR**

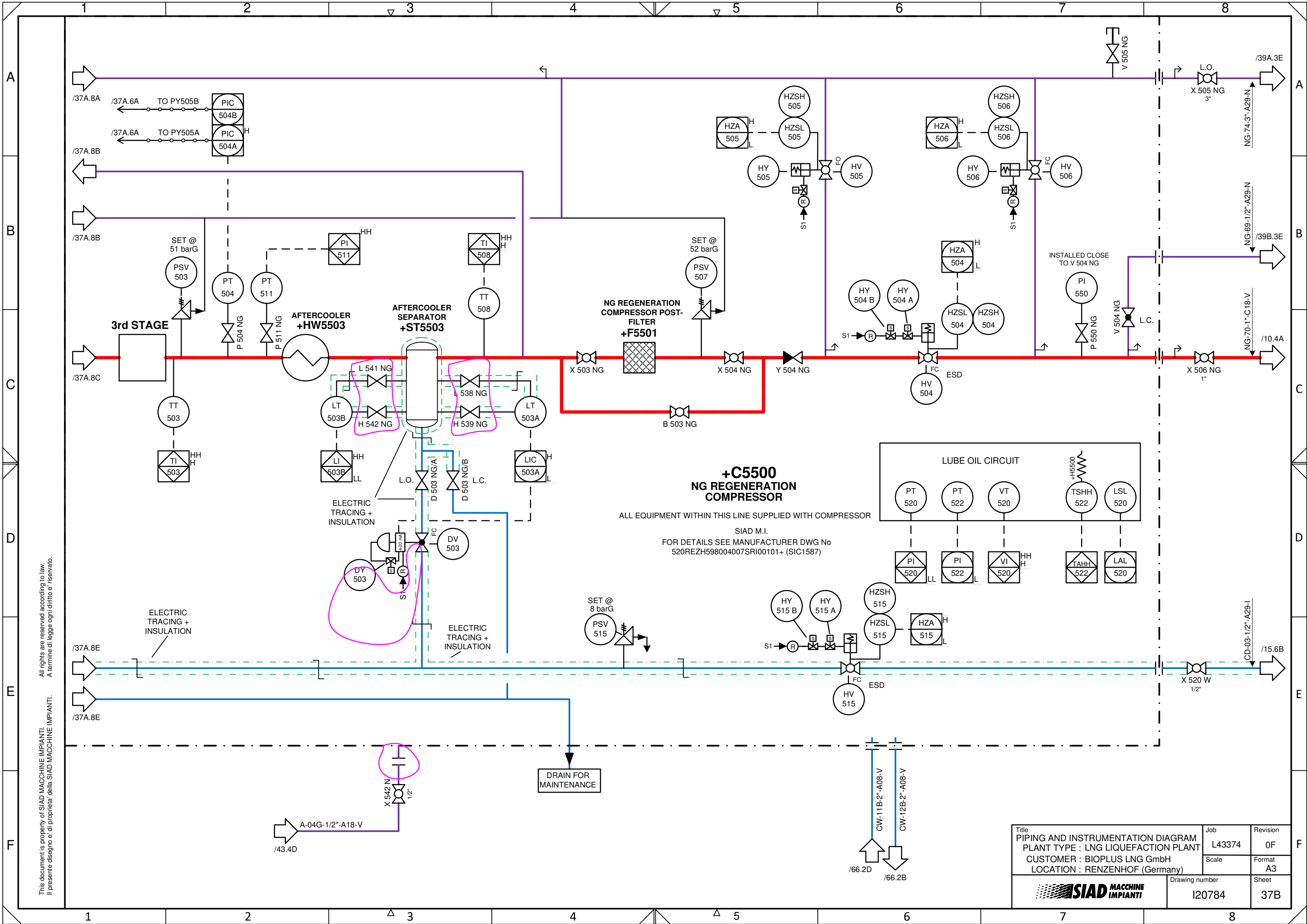
ALL EQUIPMENT WITHIN THIS LINE
SUPPLIED WITH COMPRESSOR
SIAD M.I.
FOR DETAILS SEE
MANUFACTURER DWG No
520REZH598004007SRI00101+
(SIC1587)



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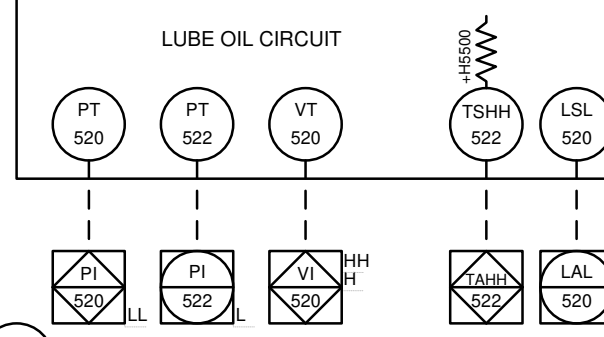
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PLANT TYPE : LNG LIQUEFACTION PLANT		Scale	Format A3
CUSTOMER : BIOPUS LNG GmbH		LOCATION : RENZHOFF (Germany)	
Drawing number I20784		Sheet 37A	



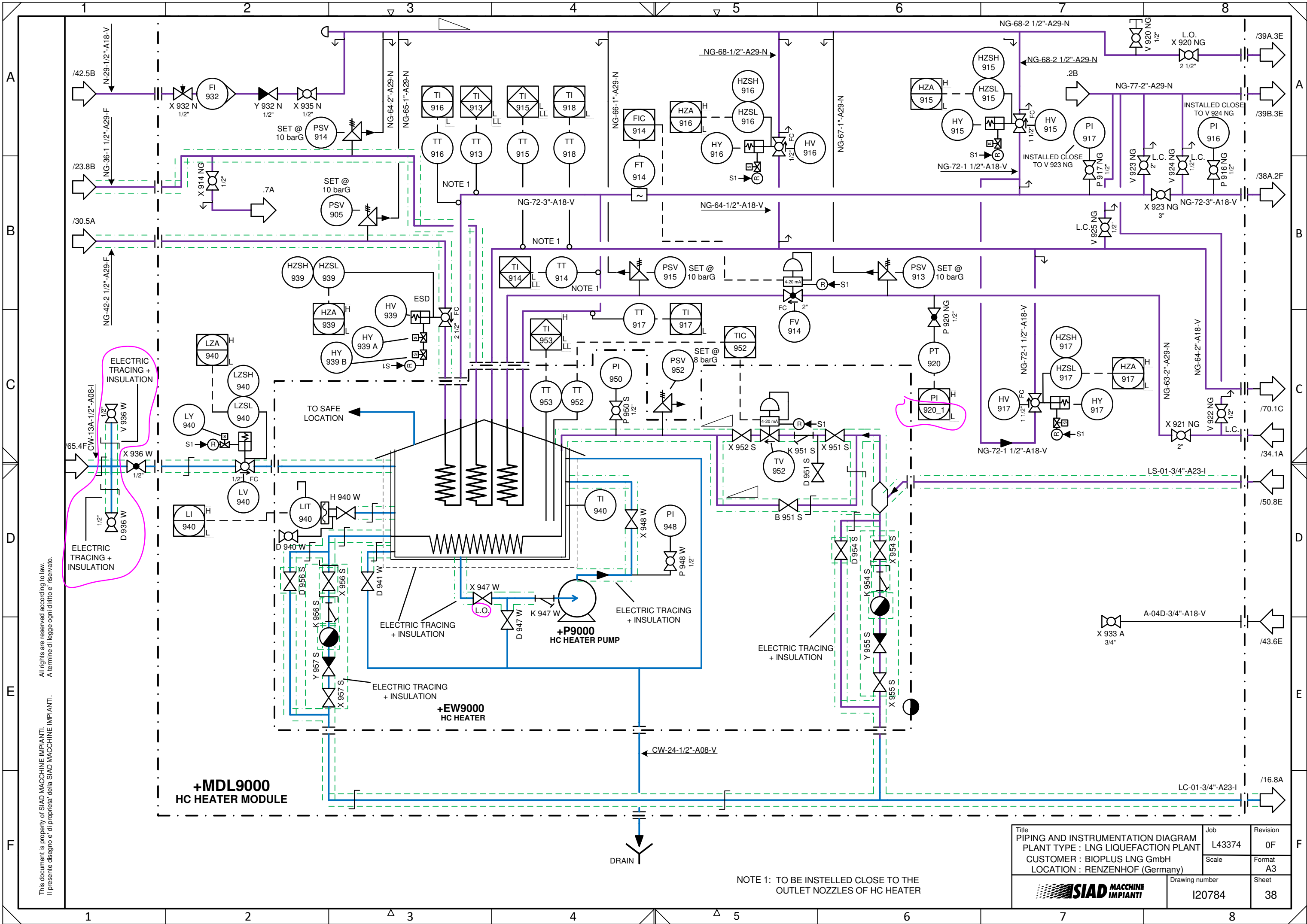


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**+C550
 NG REGENERATION
 COMPRESSOR**
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Title PIPING AND INSTRUMENTATION DIAGRAM PLANT TYPE : LNG LIQUEFACTION PLANT CUSTOMER : BIOPUS LNG GmbH LOCATION : RENZEHOF (Germany)	Job	Revision
	L43374	0F
	Scale	Format
	A3	
	Drawing number	Sheet
	I20784	37B



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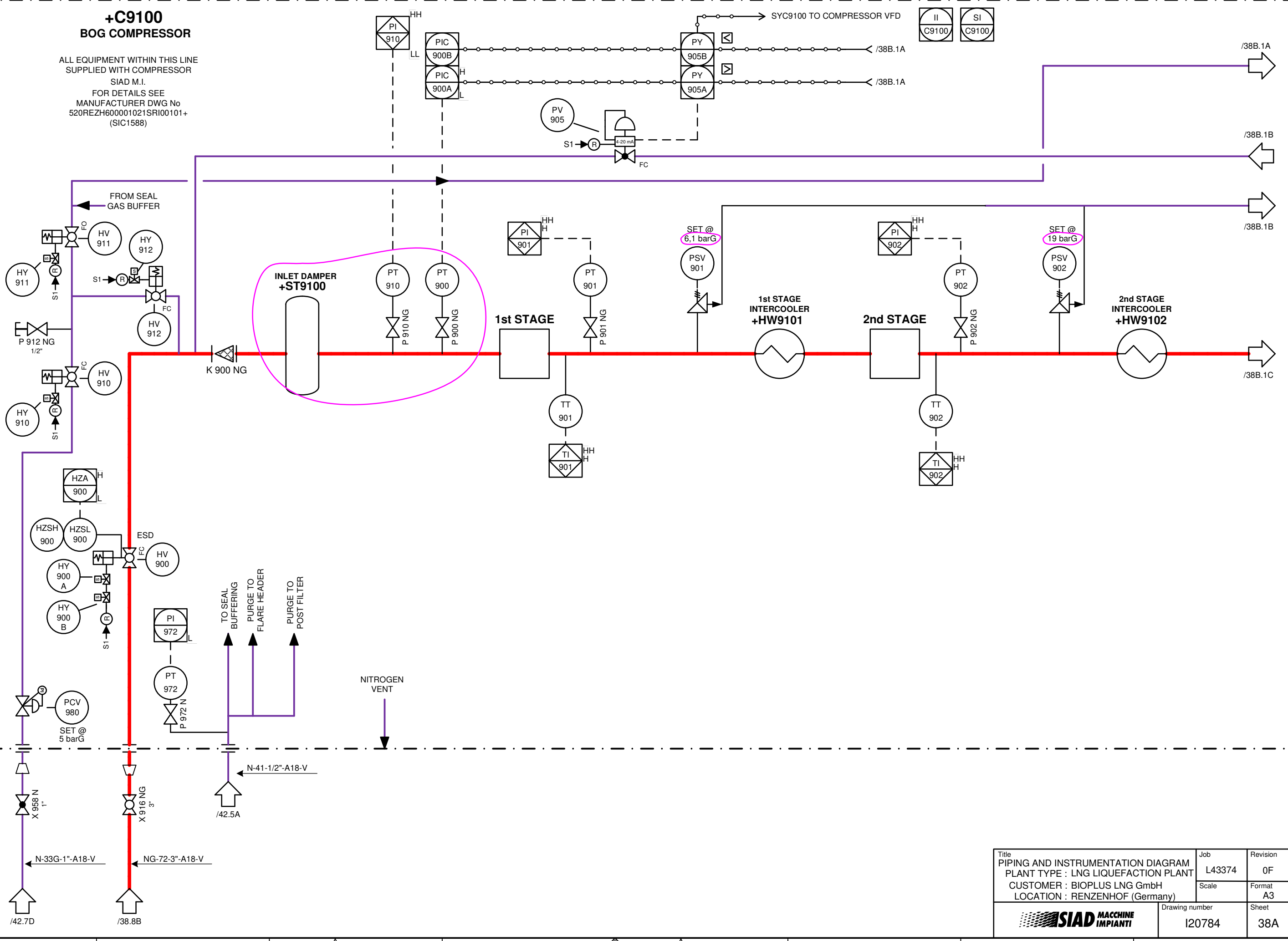
NOTE 1: TO BE INSTALLED CLOSE TO THE OUTLET NOZZLES OF HC HEATER

Title PIPING AND INSTRUMENTATION DIAGRAM		Job L43374	Revision 0F
PLANT TYPE : LNG LIQUEFACTION PLANT		Scale	Format A3
CUSTOMER : BIOPUS LNG GmbH		LOCATION : RENZENHOF (Germany)	
Drawing number I20784		Sheet 38	



**+C9100
BOG COMPRESSOR**

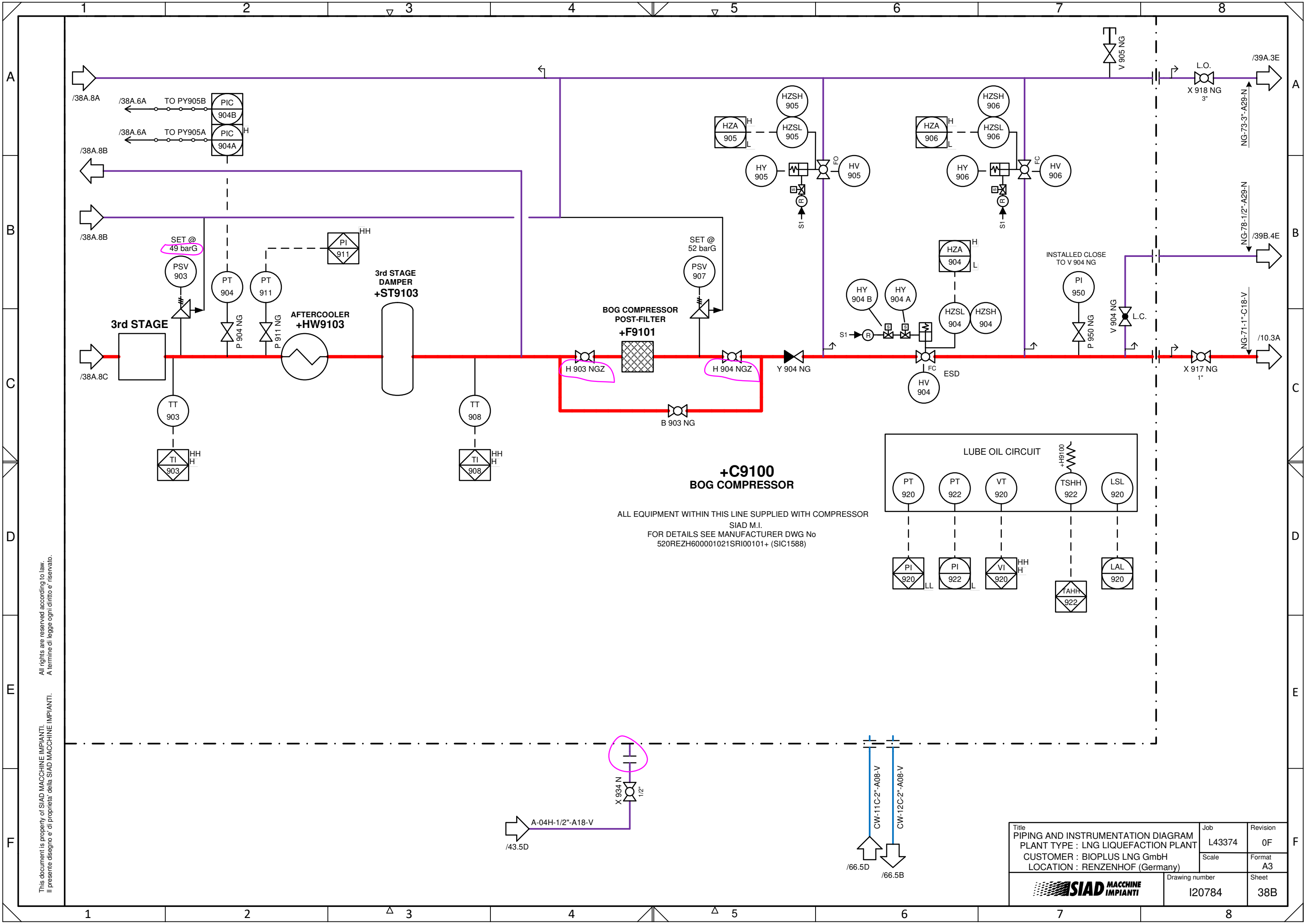
ALL EQUIPMENT WITHIN THIS LINE
SUPPLIED WITH COMPRESSOR
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520REZH600001021SRI00101+
(SIC1588)



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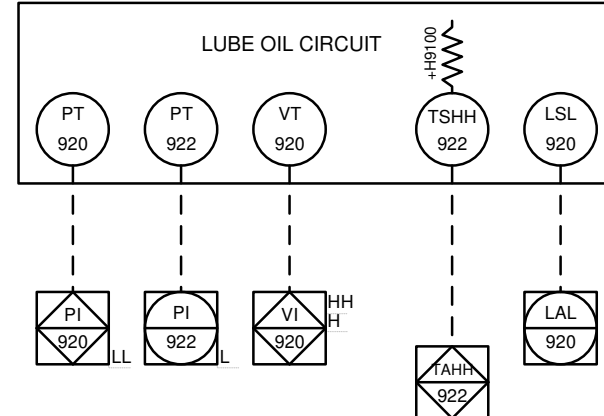
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	L43374	0F
	Scale	Format
	A3	A3
Drawing number	Sheet	
I20784	38A	



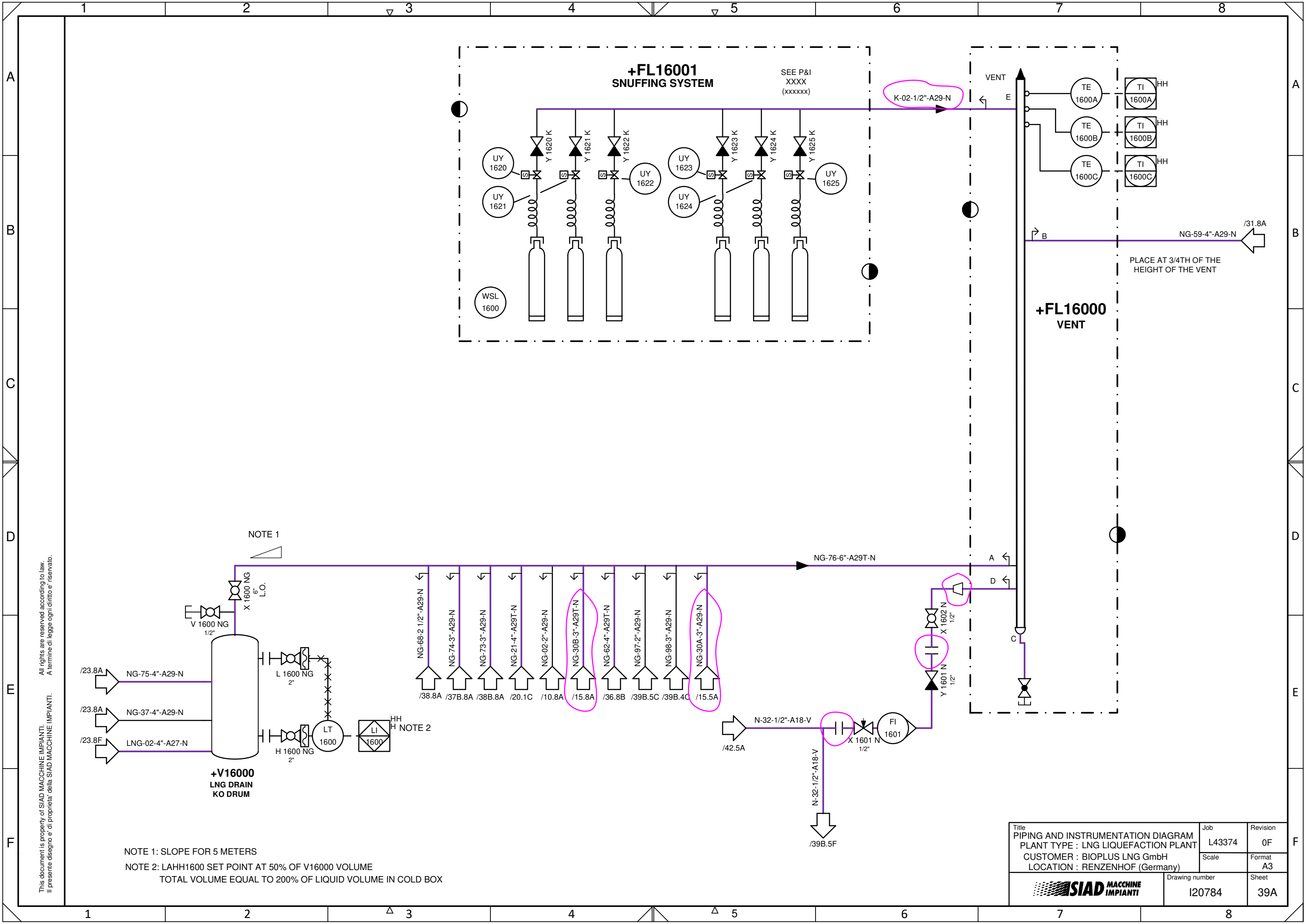


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+C9100
BOG COMPRESSOR
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 520REZH600001021SR100101+ (SIC1588)



	Title PIPING AND INSTRUMENTATION DIAGRAM PLANT TYPE : LNG LIQUEFACTION PLANT CUSTOMER : BIOPUS LNG GmbH LOCATION : RENZEHOF (Germany)		Job L43374	Revision 0F
			Scale A3	Format A3
	Drawing number I20784		Sheet 38B	



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NOTE 1

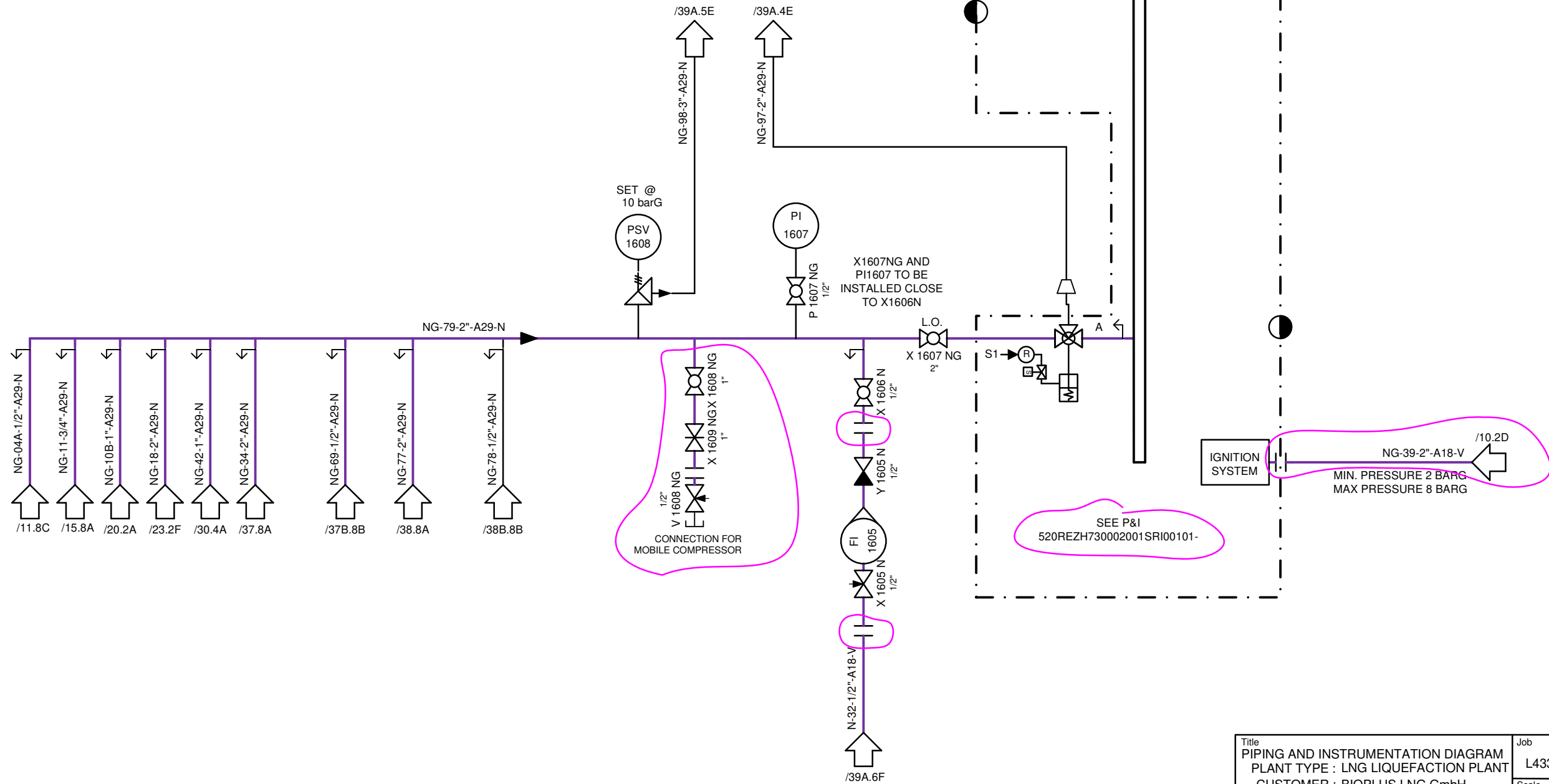
NOTE 1: SLOPE FOR 5 METERS
 NOTE 2: LAHH1600 SET POINT AT 50% OF V16000 VOLUME
 TOTAL VOLUME EQUAL TO 200% OF LIQUID VOLUME IN COLD BOX

Title PIPING AND INSTRUMENTATION DIAGRAM Plant Type : LNG LIQUEFACTION PLANT Customer : BIOPUS LNG GmbH Location : RENZENHOF (Germany)	Job	Revision
	L43374	0F
	Scale	Format
Drawing number I20784		Sheet 39A



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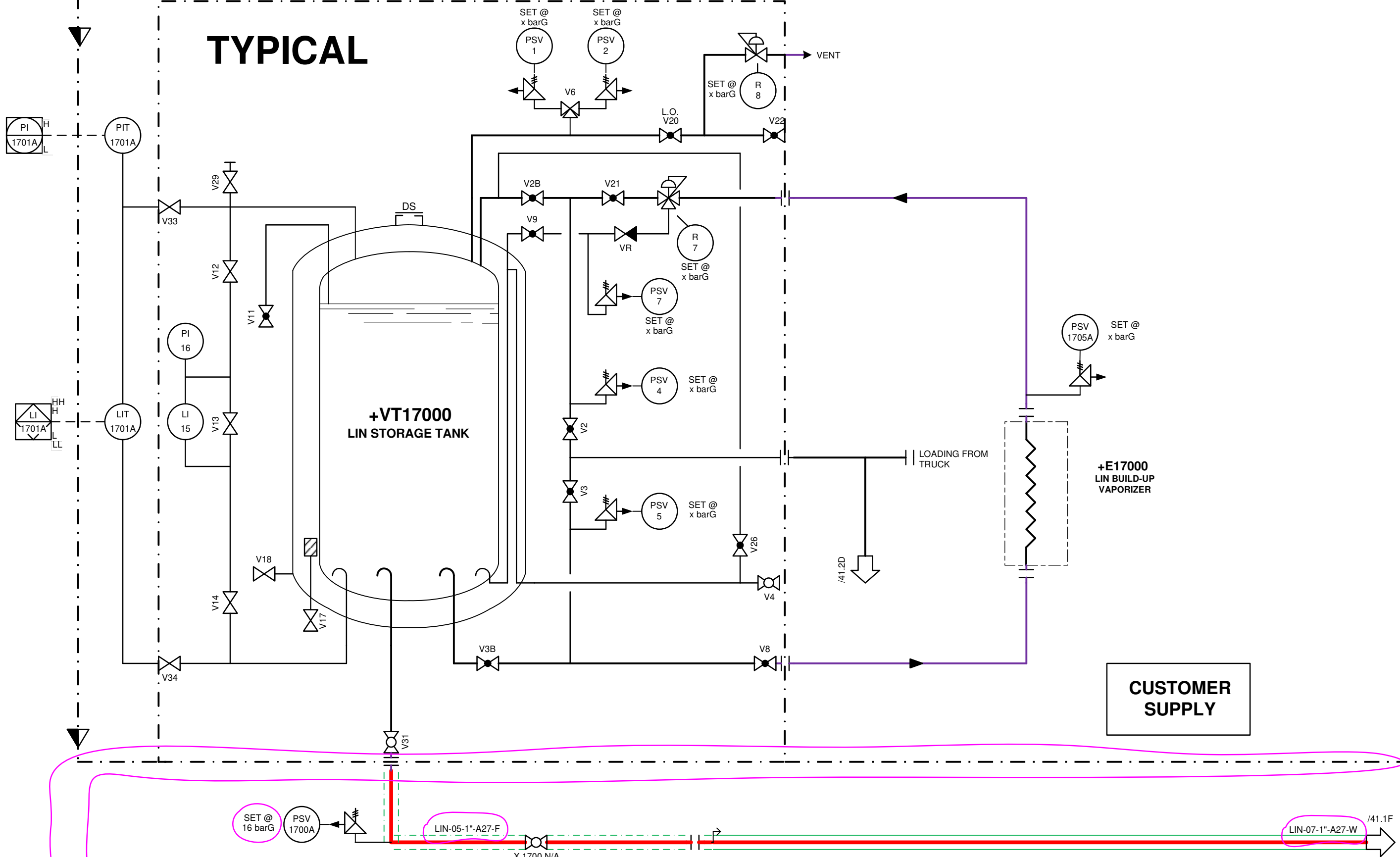
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Title PIPING AND INSTRUMENTATION DIAGRAM PLANT TYPE : LNG LIQUEFACTION PLANT CUSTOMER : BIOPUS LNG GmbH LOCATION : RENZENHOF (Germany)	Job L43374	Revision 0F
	Scale A3	Format A3
Drawing number I20784		Sheet 39B



TYPICAL



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Title PIPING AND INSTRUMENTATION DIAGRAM PLANT TYPE : LNG LIQUEFACTION PLANT CUSTOMER : BIOPUS LNG GmbH LOCATION : RENZENHOF (Germany)	Job	Revision
	L43374	0F
	Scale	Format
	A3	A3
Drawing number I20784	Sheet	40



TYPICAL

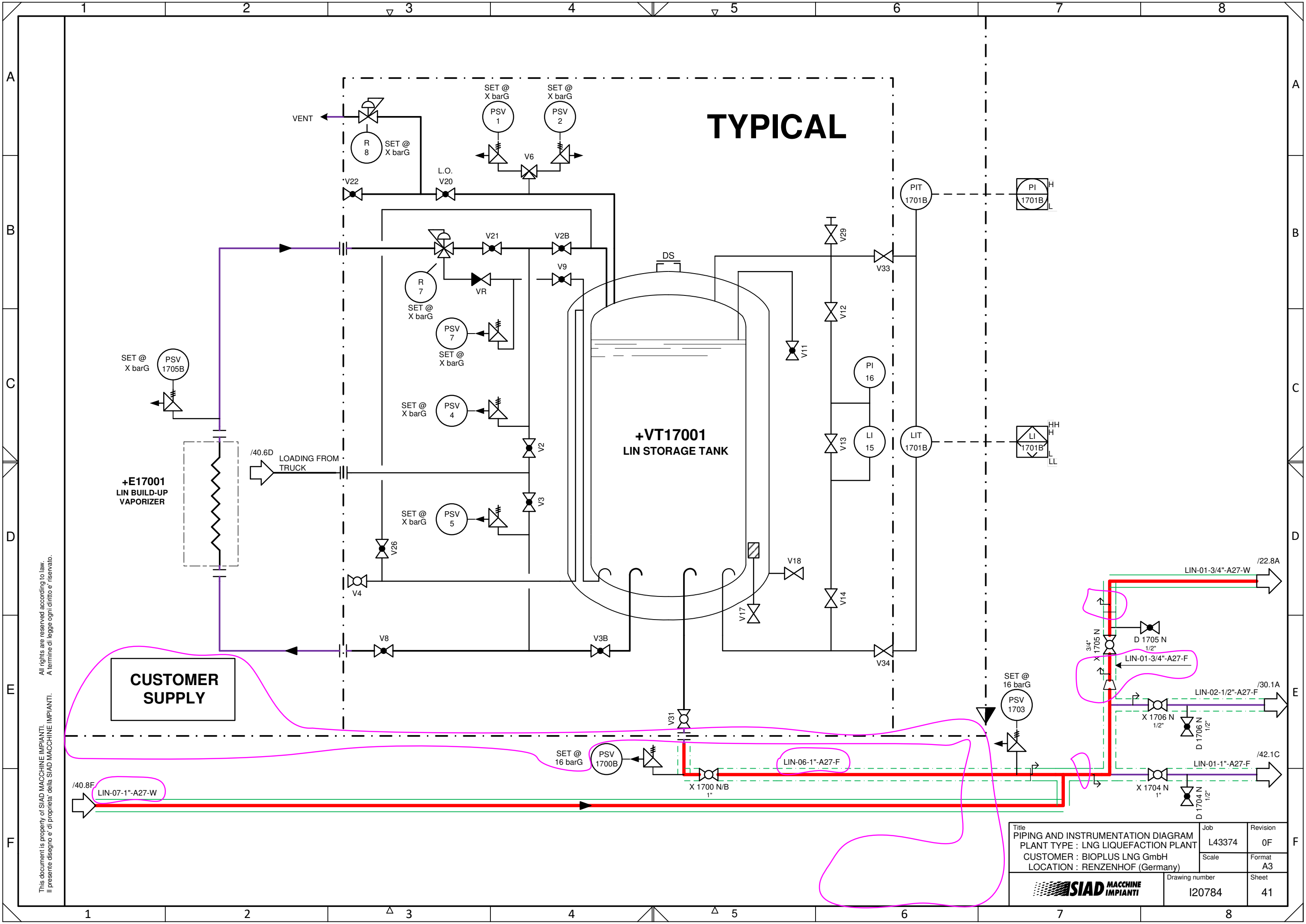
**+VT17001
LIN STORAGE TANK**

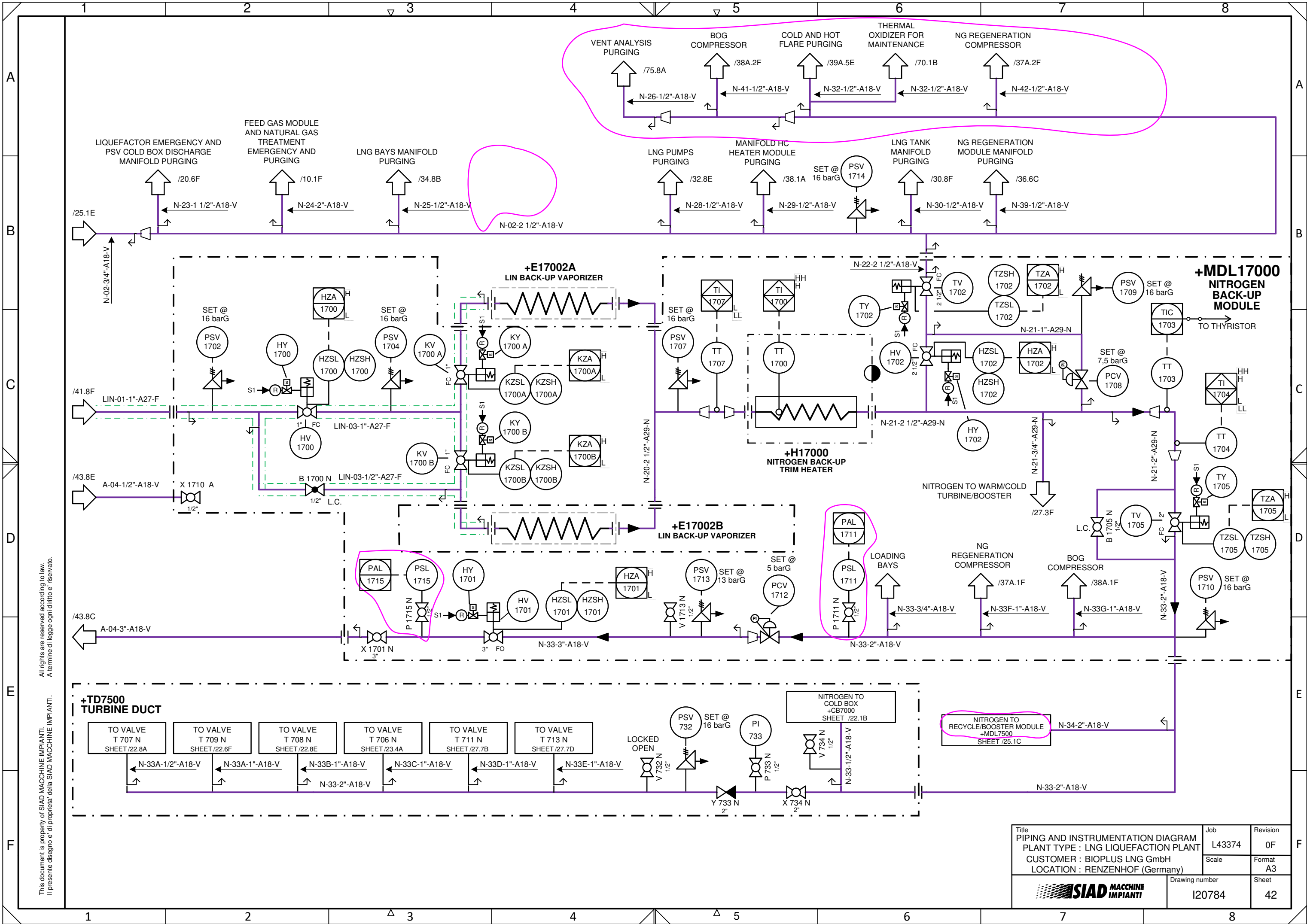
**+E17001
LIN BUILD-UP
VAPORIZER**

**CUSTOMER
SUPPLY**

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Title PIPING AND INSTRUMENTATION DIAGRAM Plant Type : LNG LIQUEFACTION PLANT Customer : BIOPUS LNG GmbH Location : RENZENHOF (Germany)	Job	Revision
	L43374	0F
	Scale	Format
	A3	A3
Drawing number	Sheet	
I20784	41	

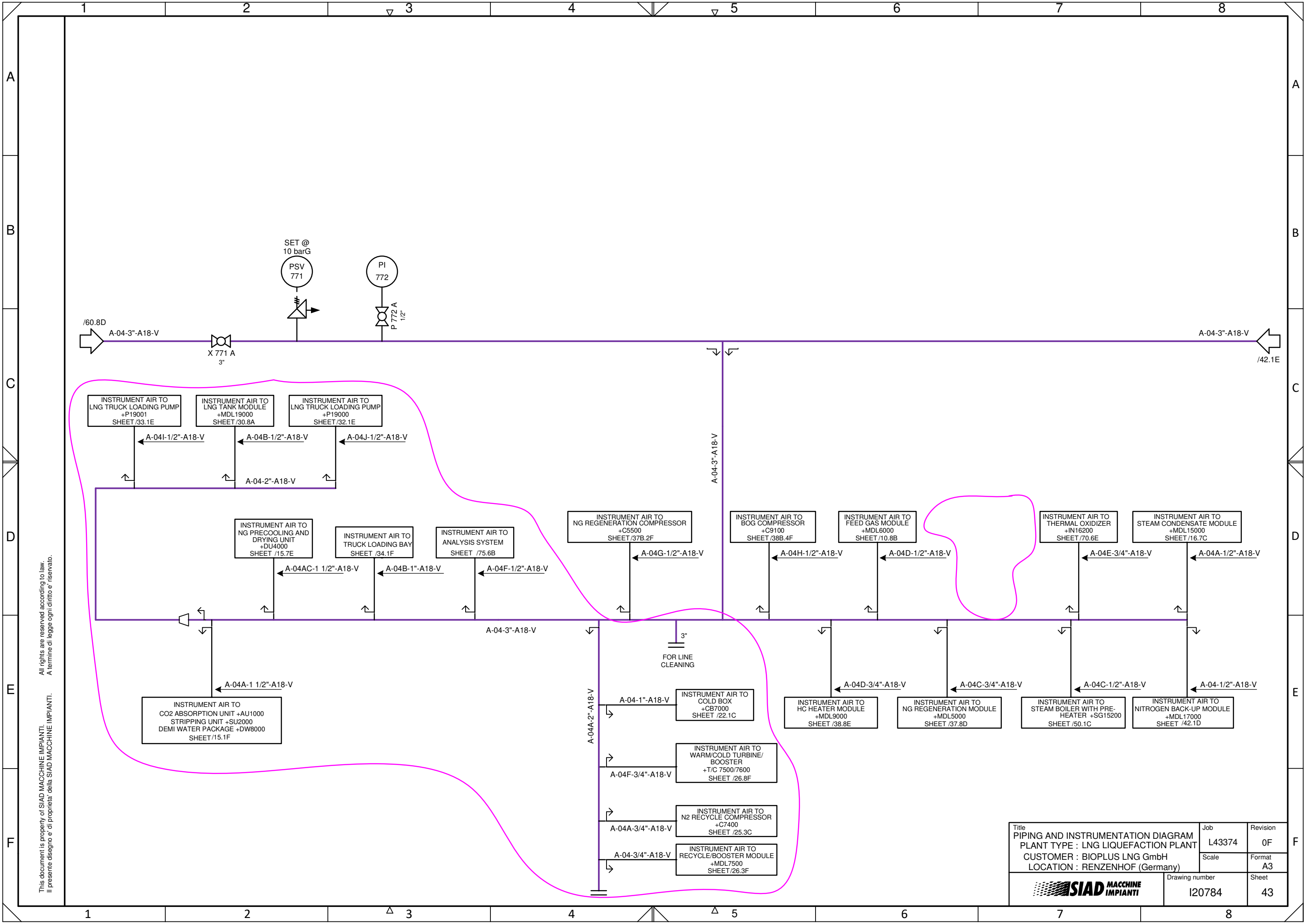




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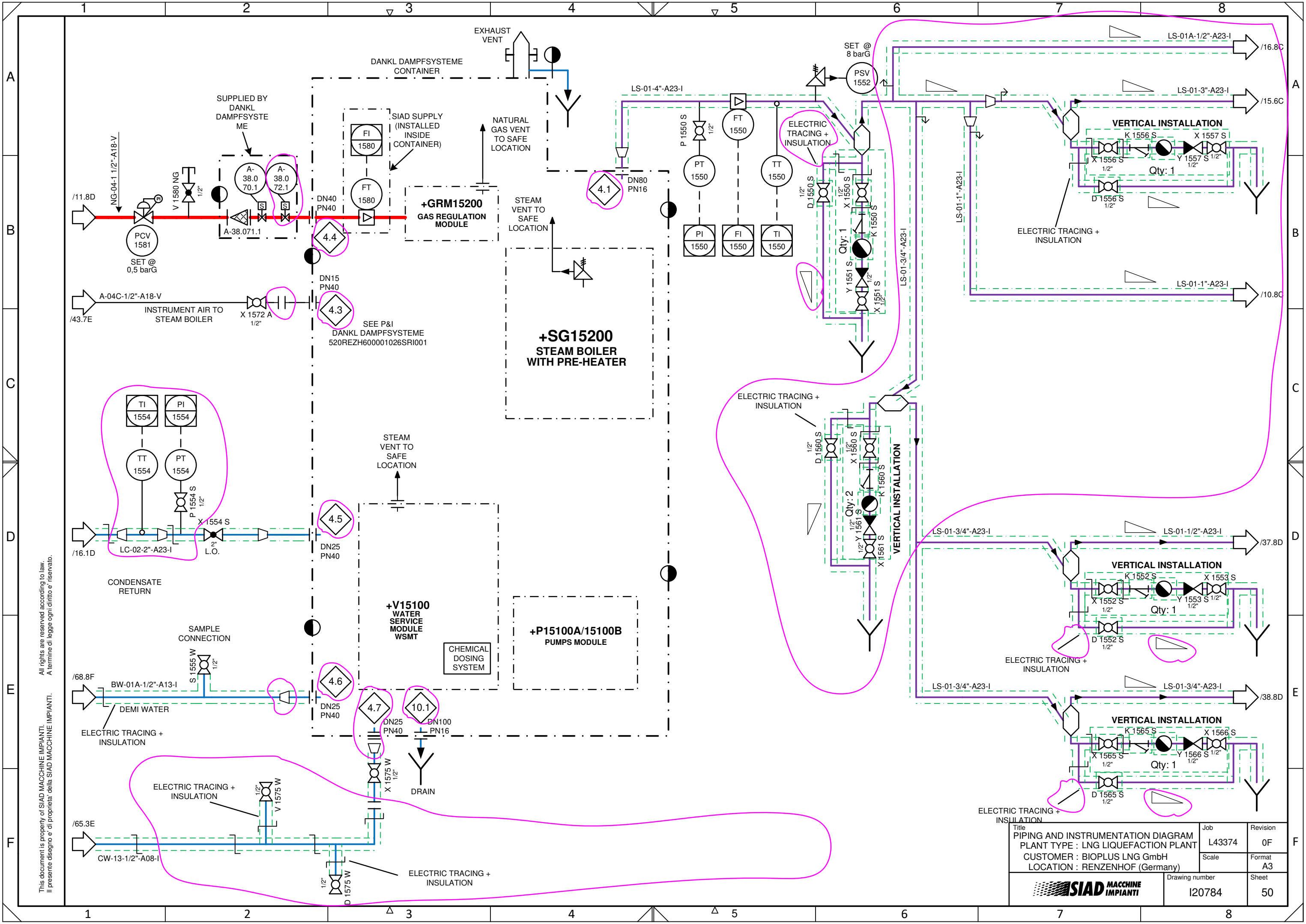
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Title PIPING AND INSTRUMENTATION DIAGRAM PLANT TYPE : LNG LIQUEFACTION PLANT CUSTOMER : BIOPUS LNG GmbH LOCATION : RENZENHOF (Germany)		Job L43374	Revision 0F
Drawing number I20784		Scale A3	Sheet 42



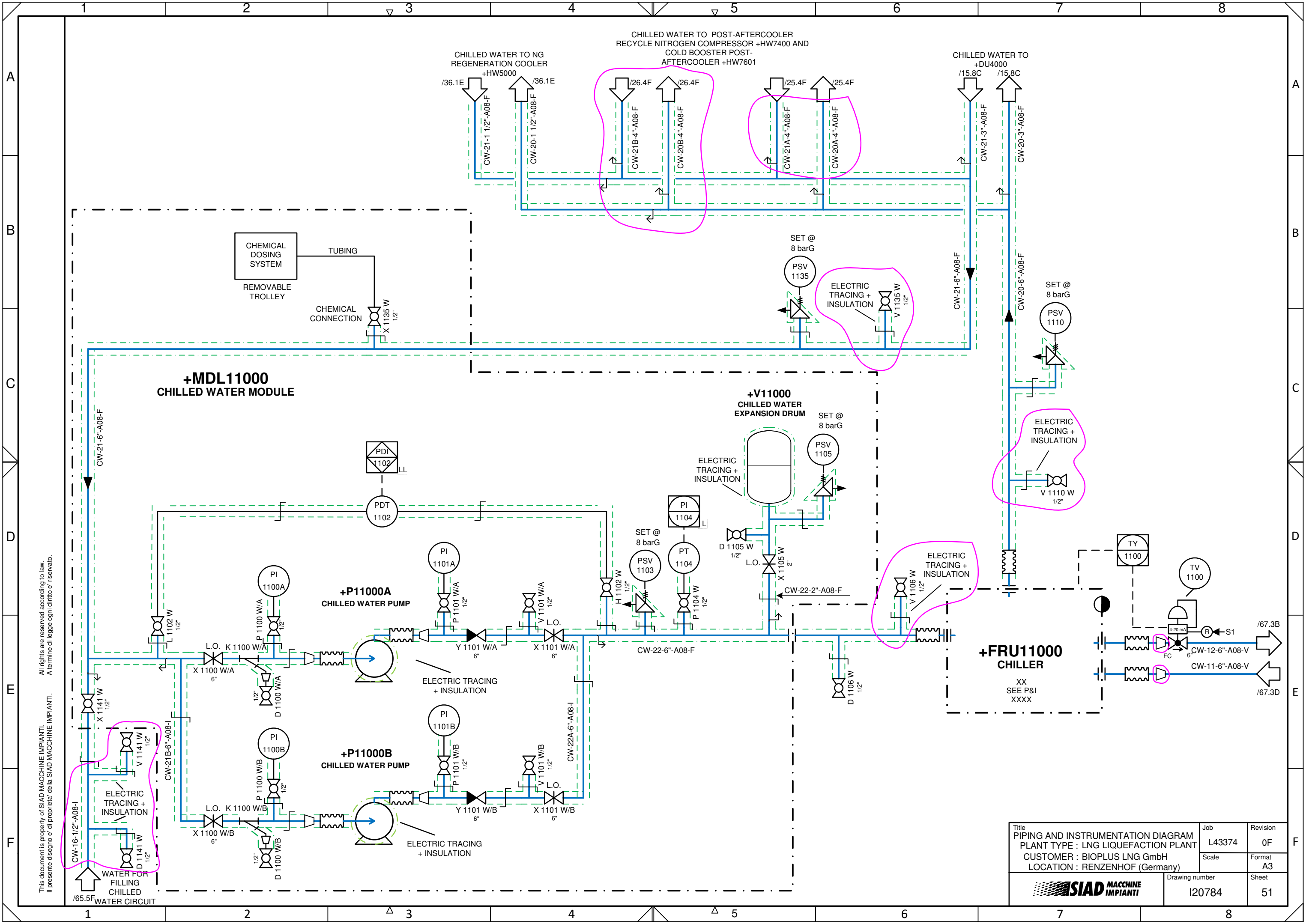
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	Drawing number I20784		Scale A3	Sheet 43



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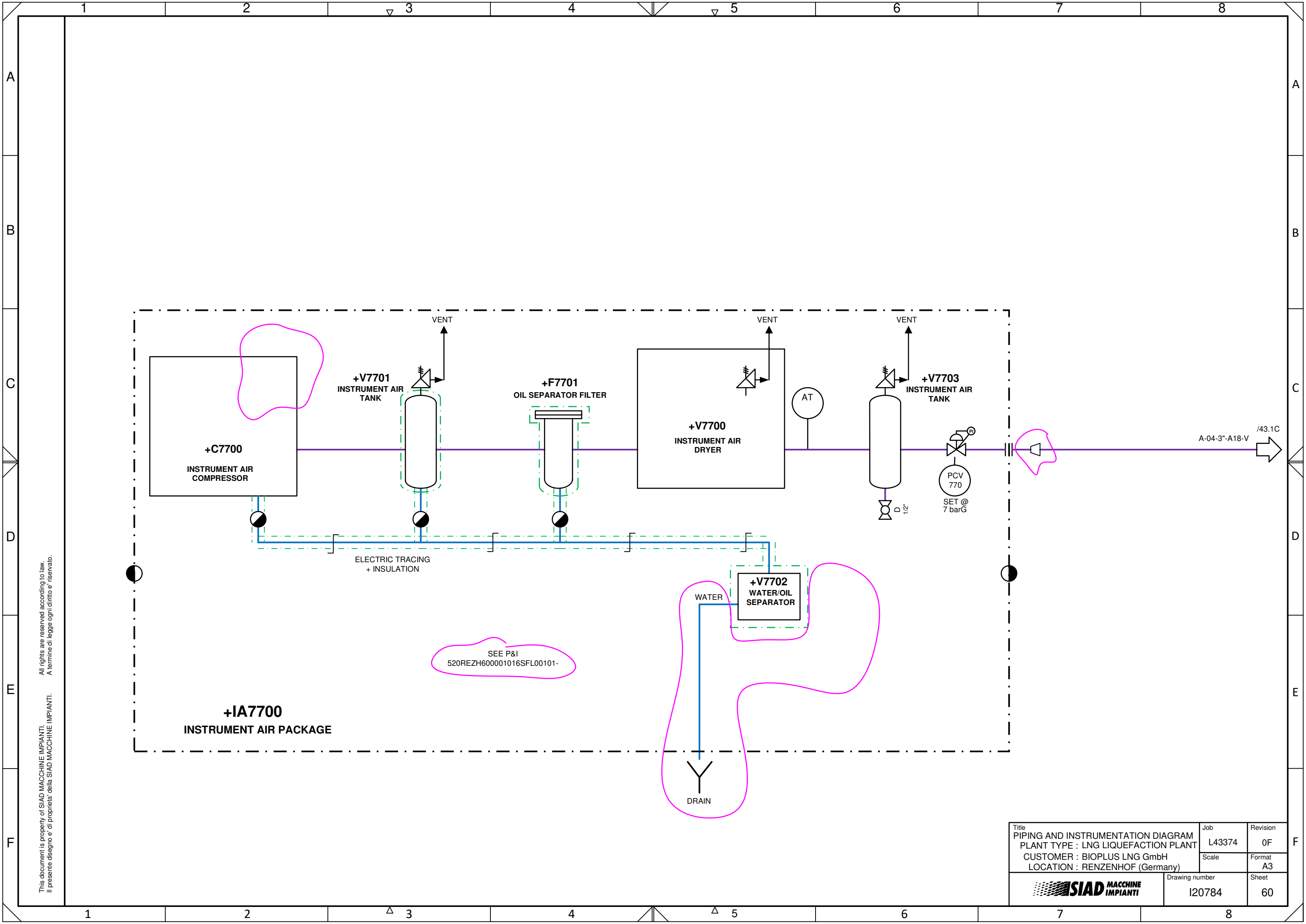
Title PIPING AND INSTRUMENTATION DIAGRAM		Job L43374	Revision 0F
Plant Type PLANT TYPE : LNG LIQUEFACTION PLANT		Scale	Format A3
Customer CUSTOMER : BIOPUS LNG GmbH		Location LOCATION : RENZENHOF (Germany)	
		Drawing number I20784	Sheet 50



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Title PIPING AND INSTRUMENTATION DIAGRAM		Job L43374	Revision 0F
PLANT TYPE : LNG LIQUEFACTION PLANT		Scale	Format A3
CUSTOMER : BIOPUS LNG GmbH		LOCATION : RENZEHOF (Germany)	
Drawing number I20784		Sheet 51	

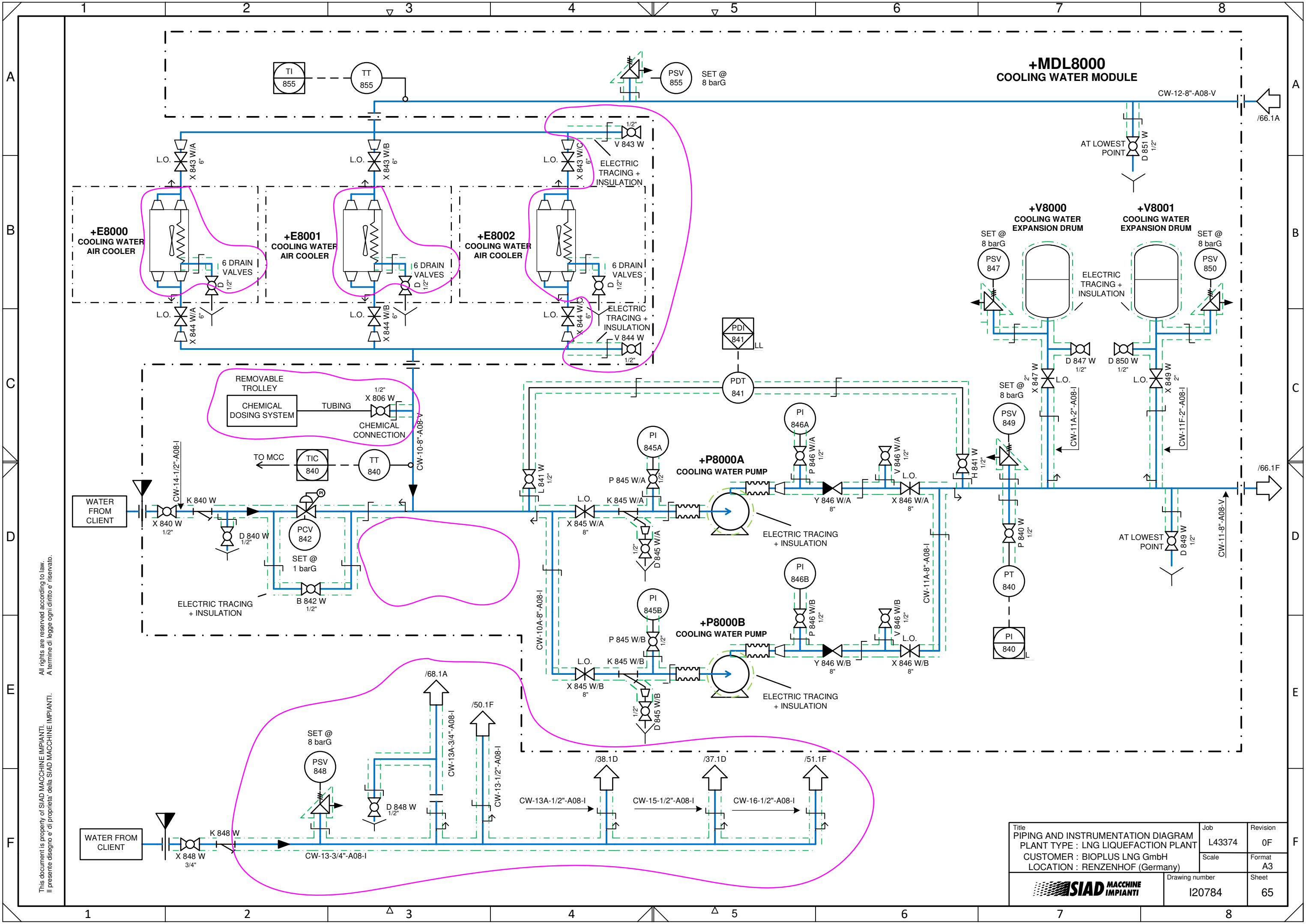




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Title PIPING AND INSTRUMENTATION DIAGRAM PLANT TYPE : LNG LIQUEFACTION PLANT CUSTOMER : BIOPPLUS LNG GmbH LOCATION : RENZENHOF (Germany)	Job	Revision
	L43374	0F
	Scale	Format
Drawing number I20784		Sheet
		60



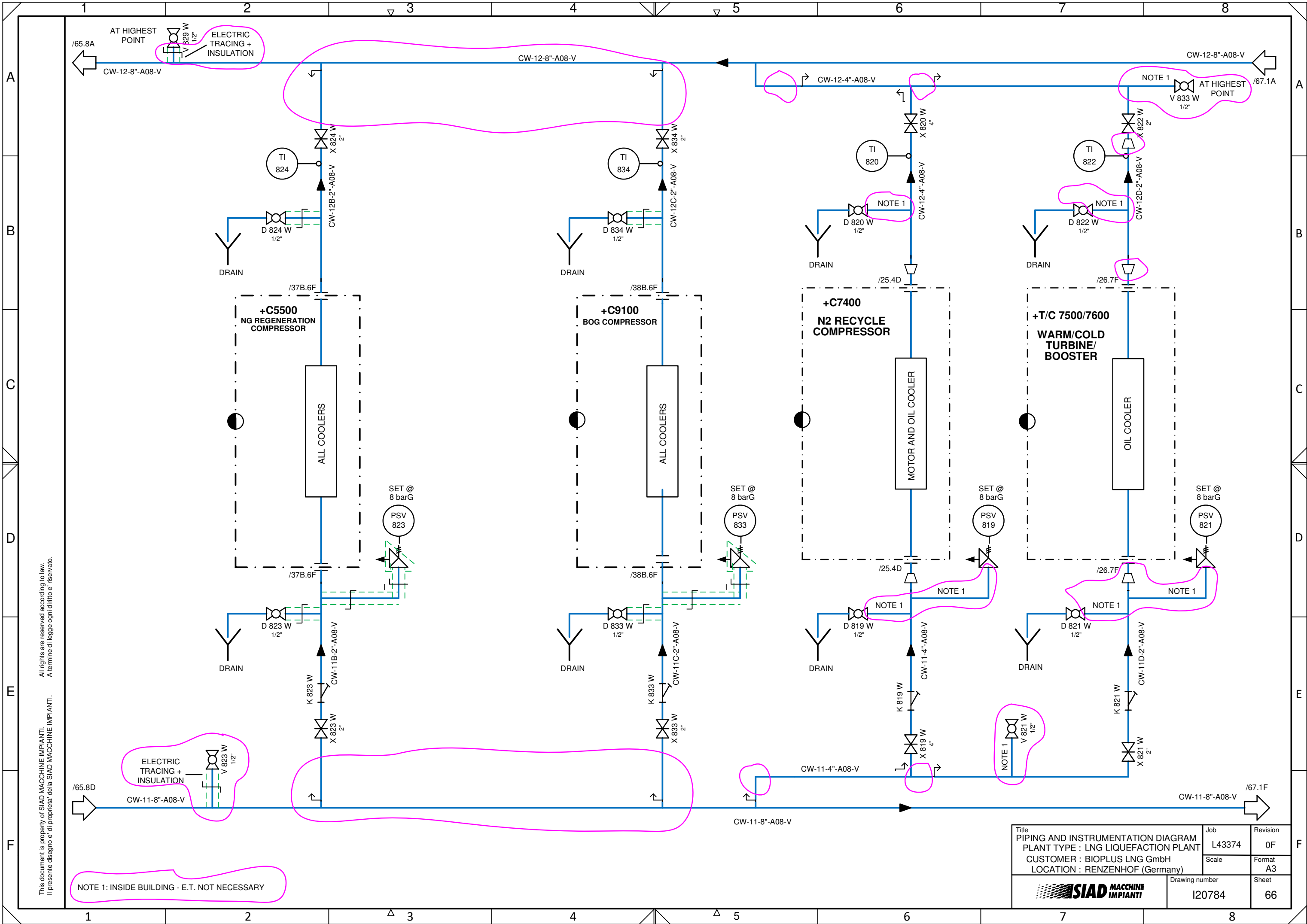


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Title PIPING AND INSTRUMENTATION DIAGRAM PLANT TYPE : LNG LIQUEFACTION PLANT CUSTOMER : BIOPUS LNG GmbH LOCATION : RENZEHOF (Germany)	Job	Revision
	L43374	0F
	Scale	Format
	A3	
Drawing number 120784		Sheet 65



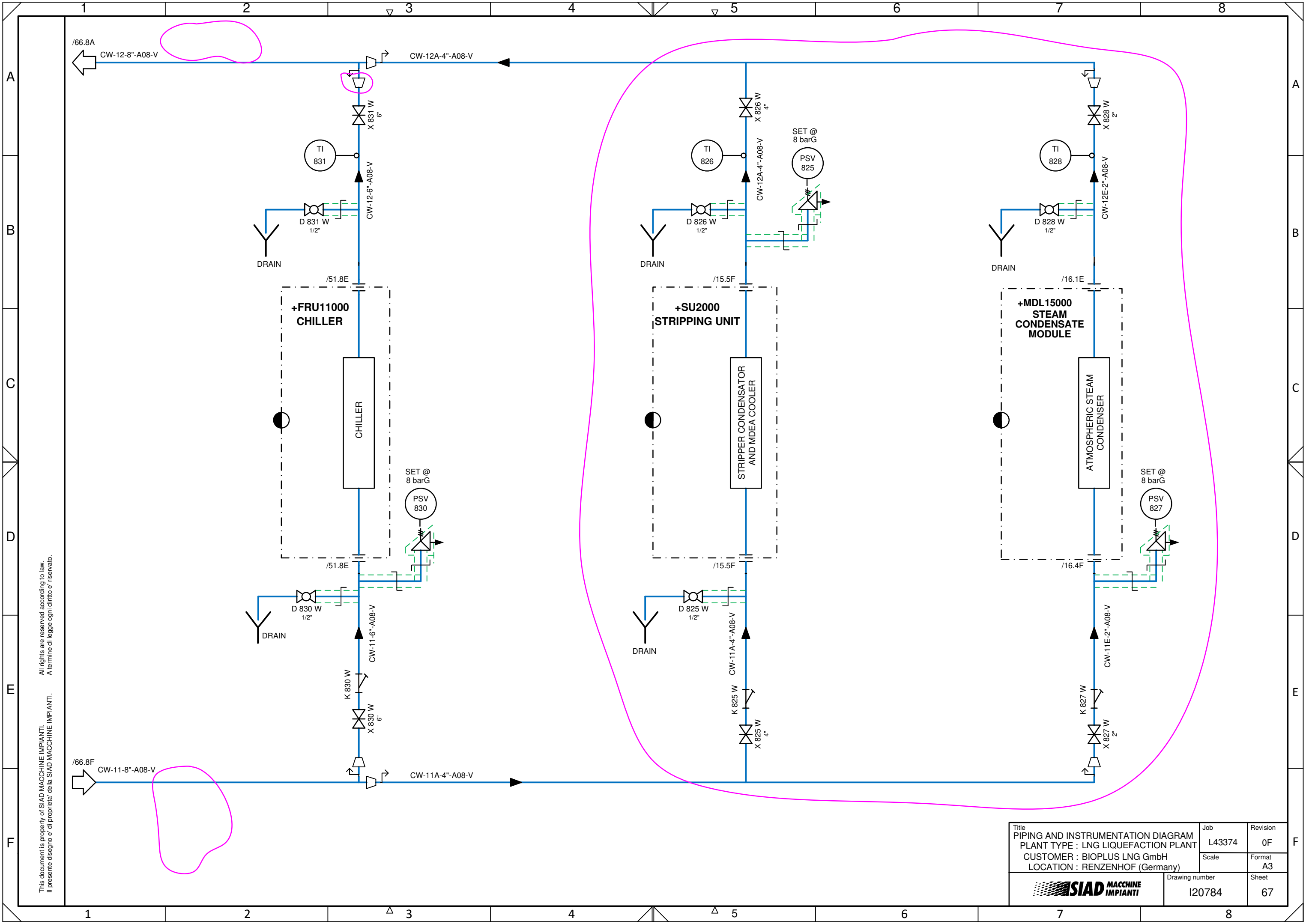


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NOTE 1: INSIDE BUILDING - E.T. NOT NECESSARY

Title PIPING AND INSTRUMENTATION DIAGRAM PLANT TYPE : LNG LIQUEFACTION PLANT CUSTOMER : BIOPUS LNG GmbH LOCATION : RENZENHOF (Germany)	Job	Revision
	L43374	0F
	Scale	Format
	A3	
Drawing number 120784		Sheet 66

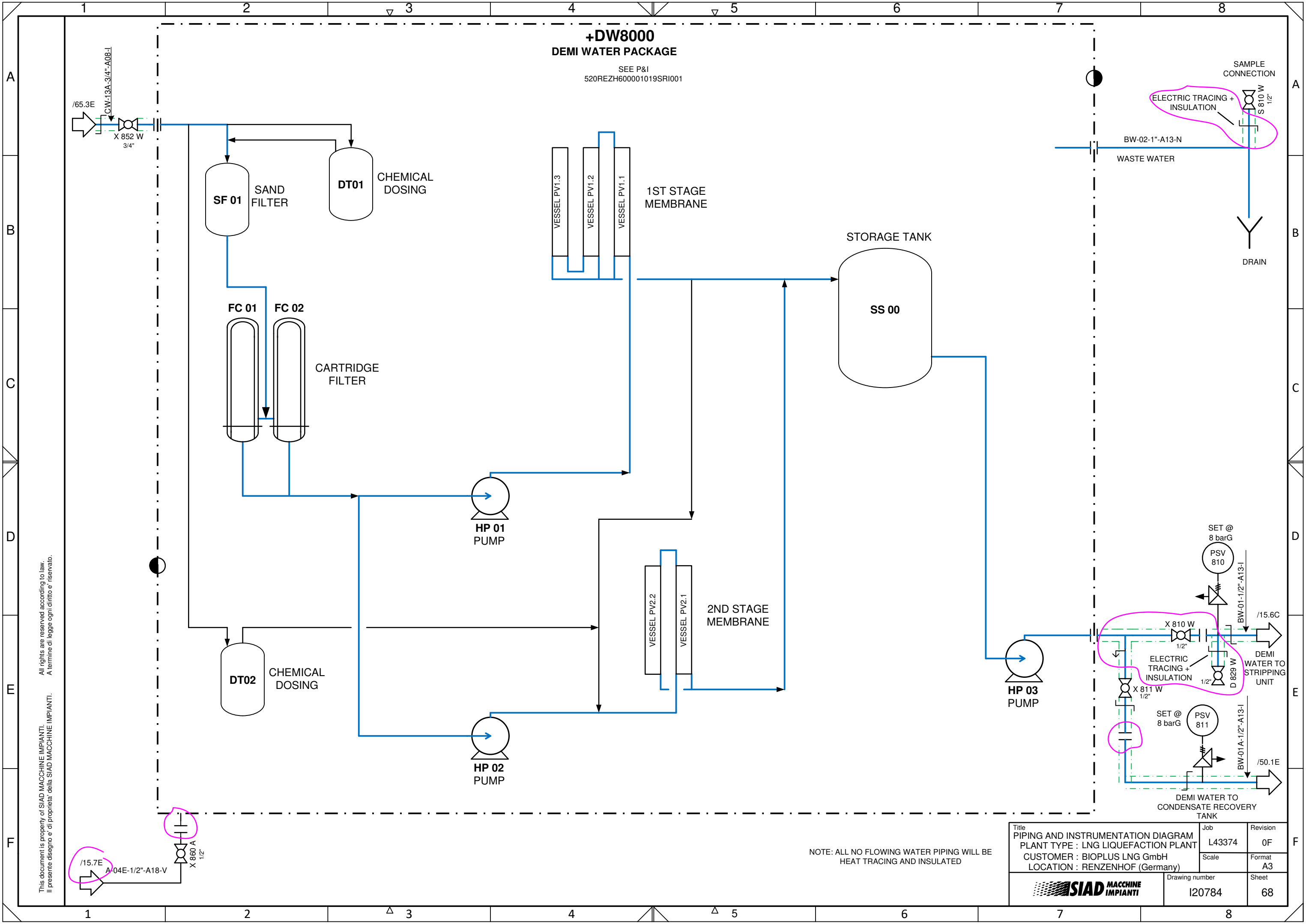




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Title PIPING AND INSTRUMENTATION DIAGRAM PLANT TYPE : LNG LIQUEFACTION PLANT CUSTOMER : BIOPUS LNG GmbH LOCATION : RENZEHOF (Germany)	Job	Revision
	L43374	0F
	Scale	Format
Drawing number 120784		Sheet
		67





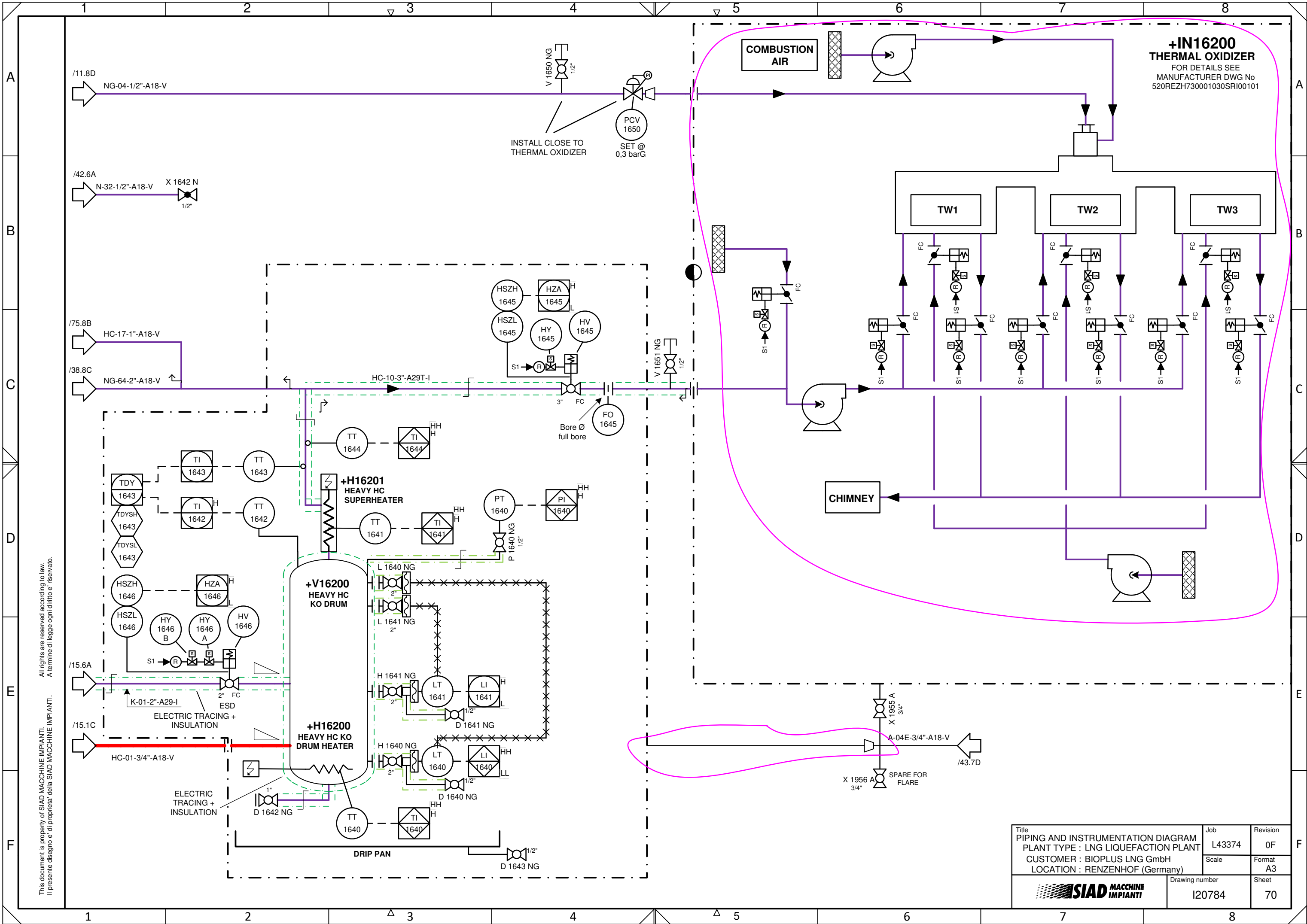
+DW8000
DEMI WATER PACKAGE
 SEE P&I
 520REZH600001019SRI001

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NOTE: ALL NO FLOWING WATER PIPING WILL BE
 HEAT TRACING AND INSULATED

Title PIPING AND INSTRUMENTATION DIAGRAM Plant Type : LNG LIQUEFACTION PLANT Customer : BIOPUS LNG GmbH Location : RENZHOFF (Germany)	Job	Revision
	L43374	0F
	Scale	Format
	A3	
Drawing number 120784		Sheet 68



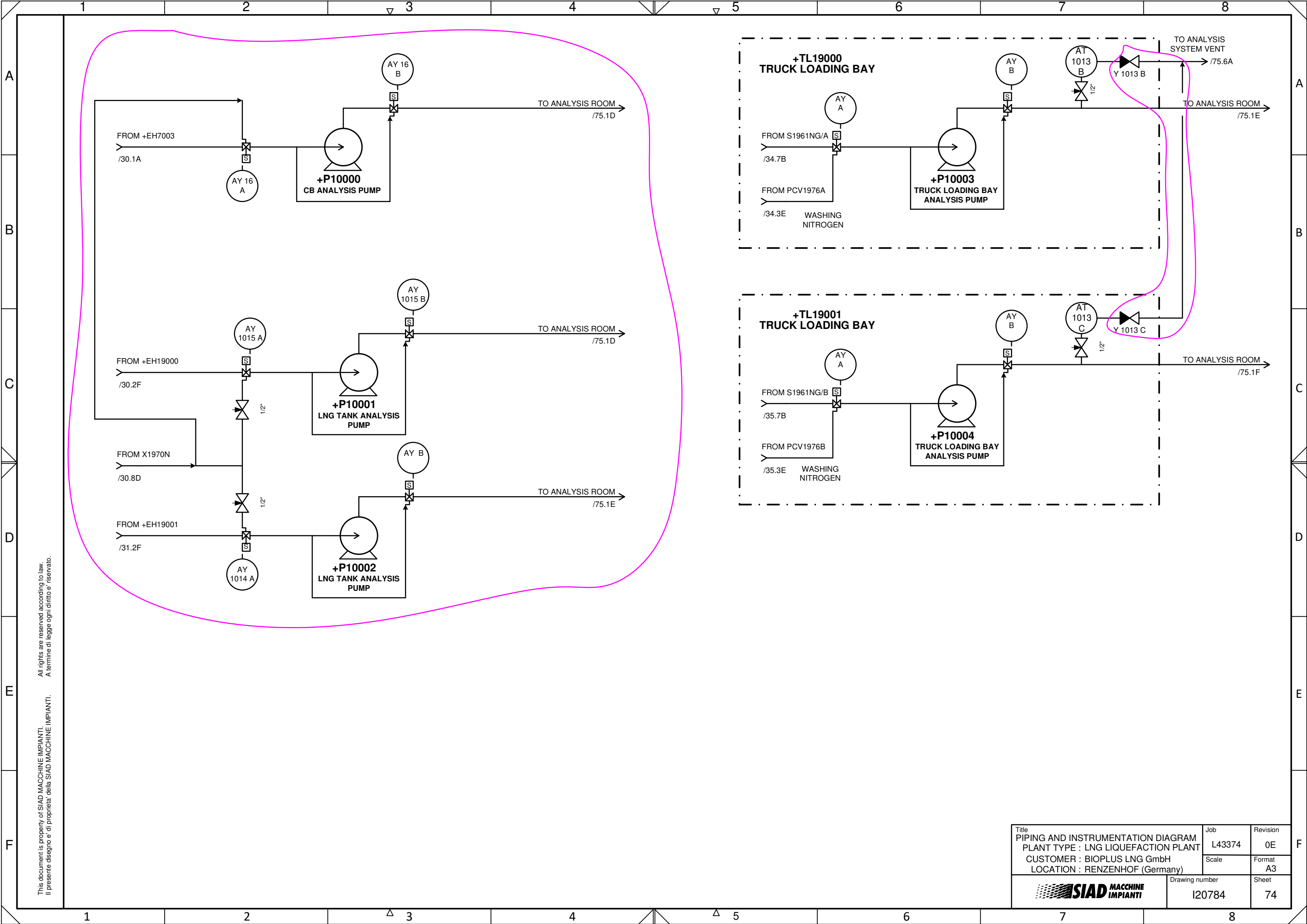


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+IN16200
THERMAL OXIDIZER
 FOR DETAILS SEE
 MANUFACTURER DWG No
 520REZH730001030SRI00101

Title PIPING AND INSTRUMENTATION DIAGRAM PLANT TYPE : LNG LIQUEFACTION PLANT CUSTOMER : BIOPUS LNG GmbH LOCATION : RENZEHOF (Germany)	Job	Revision
	L43374	0F
	Scale	Format
	A3	A3
Drawing number	Sheet	
I20784	70	



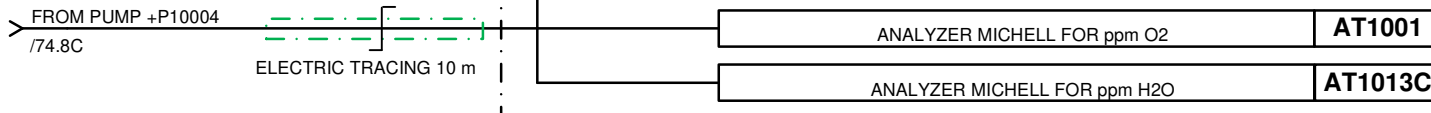
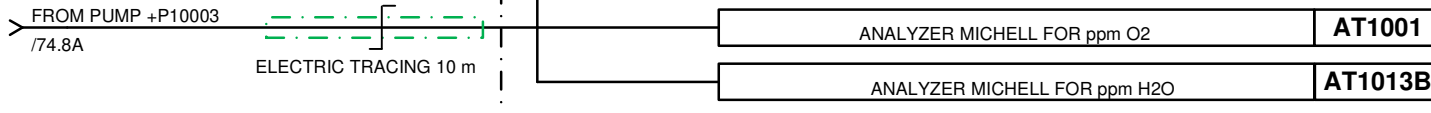
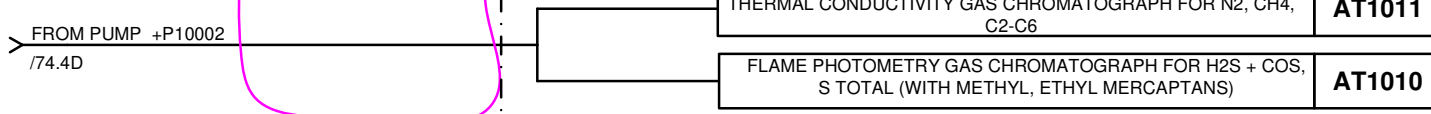
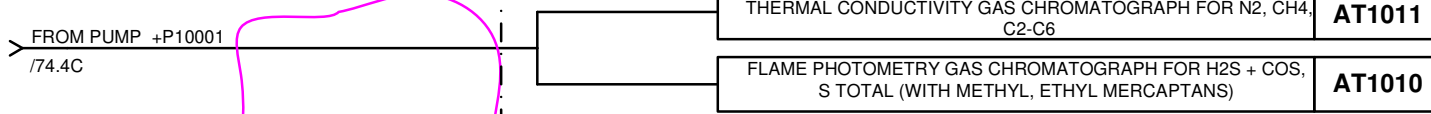
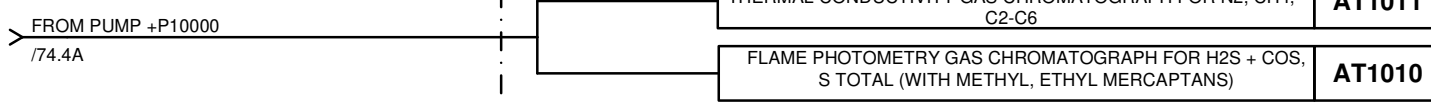
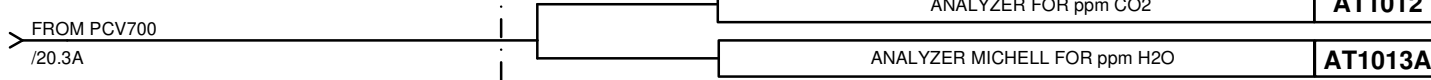
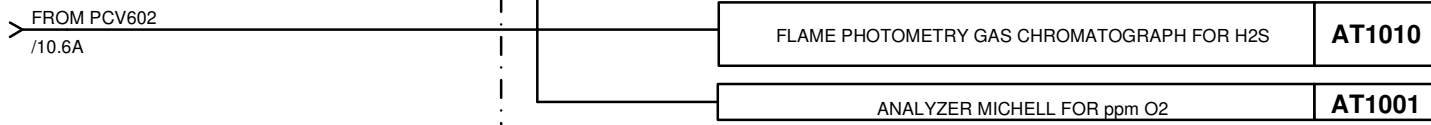
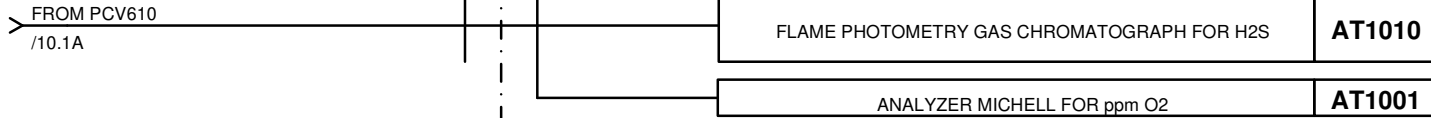


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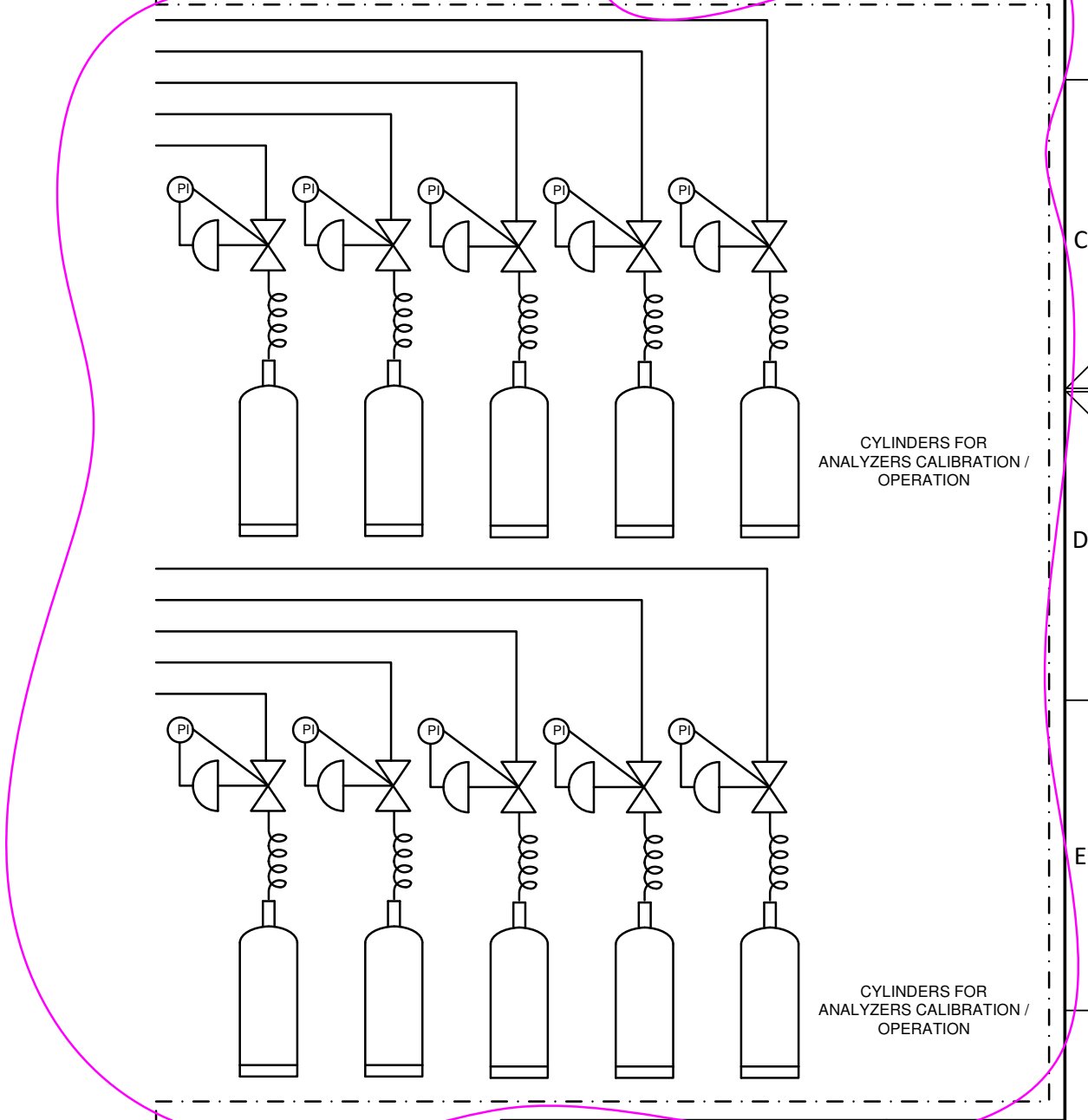
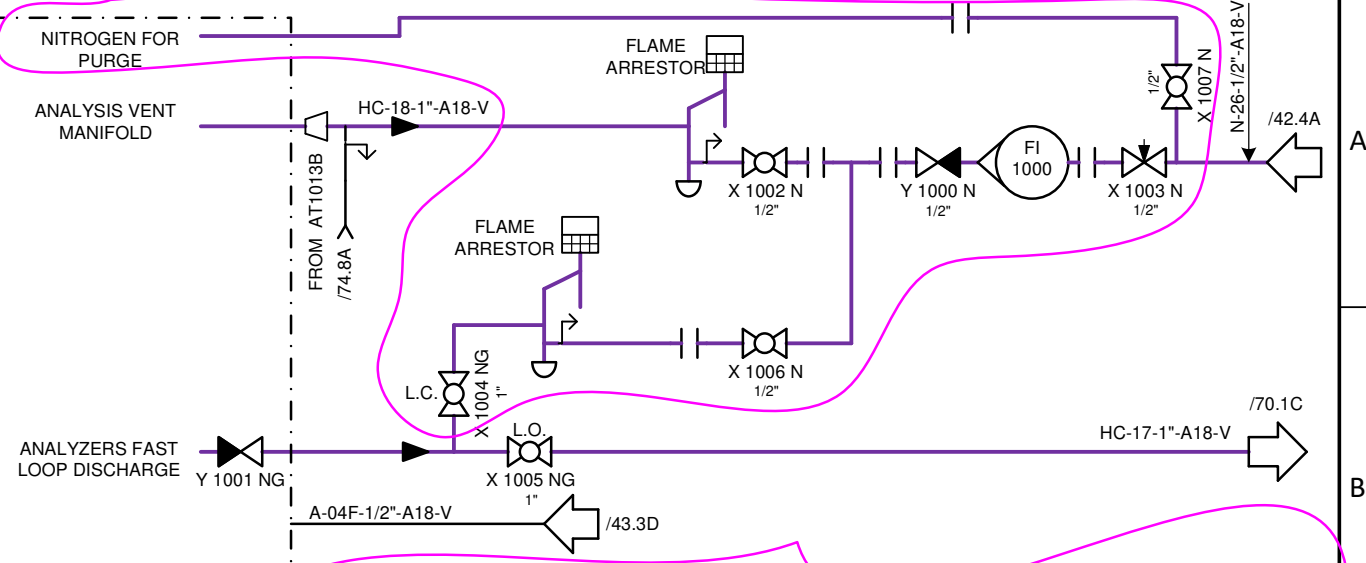
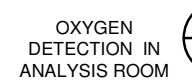
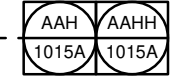
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	L43374	0E
	Scale	Format
Drawing number I20784		Sheet 74



ANALYSIS SYSTEM



SEE P&I
180REZH646001000SRI00101

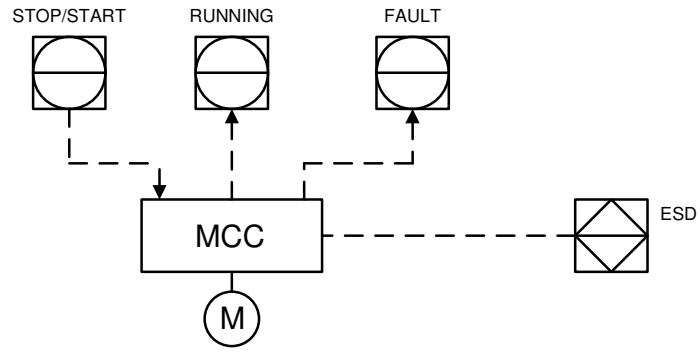


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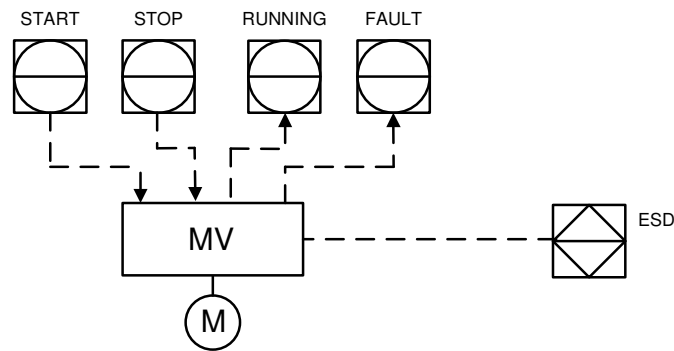
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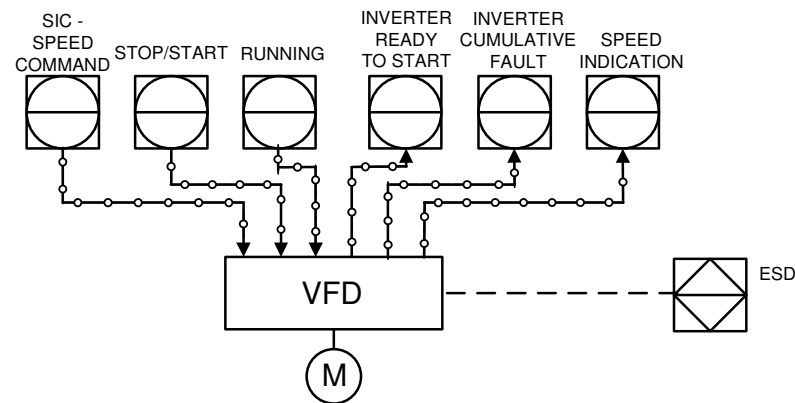
TYPE 1 - LV MOTOR
TYPICAL



TYPE 2 - MV MOTOR
TYPICAL



TYPE 8 - LV MOTOR UNDER VFD

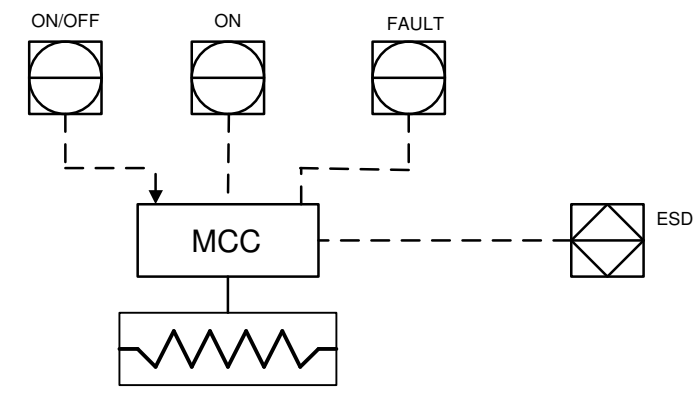


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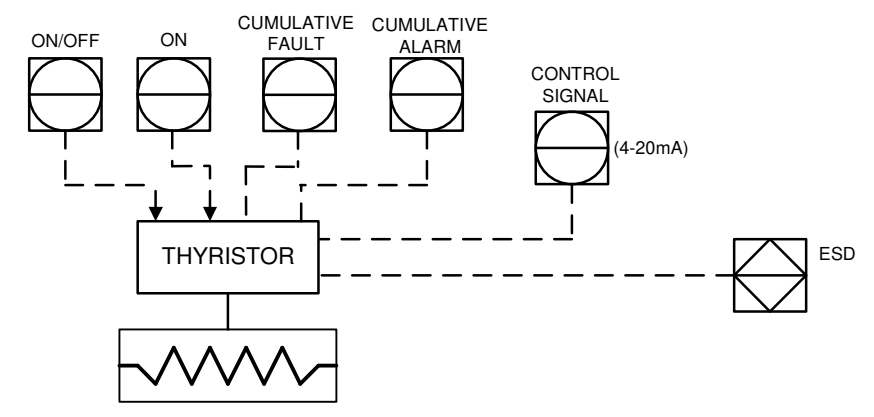
Title PIPING AND INSTRUMENTATION DIAGRAM PLANT TYPE : LNG LIQUEFACTION PLANT CUSTOMER : BIOPUS LNG GmbH LOCATION : RENZENHOF (Germany)	Job	Revision
	L43374	0A
Drawing number I20784	Scale	Format
		A3
Sheet 80		



TYPE 3 – HEATERS ON/OFF
TYPICAL



TYPE 4 – HEATERS WITH THYRISTOR
TYPICAL

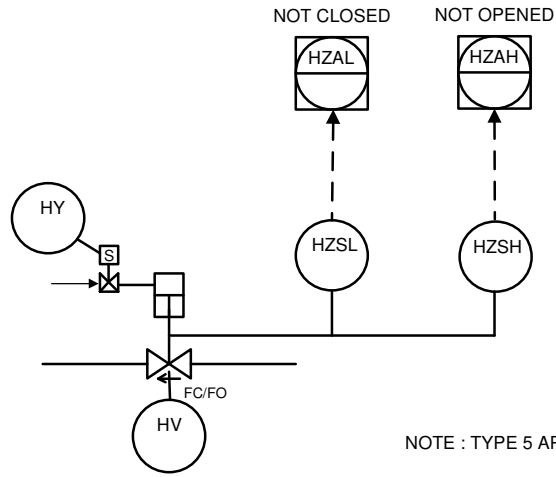


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	Scale	Format A3
Drawing number I20784		Sheet 81

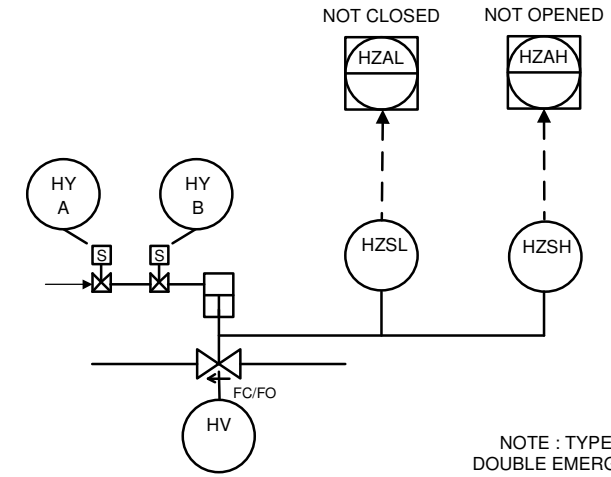


TYPE 5 – ON/OFF VALVE (ESD)
TYPICAL



NOTE : TYPE 5 APPLICABLE TO ESD VALVES WITH EMERGENCY TRIP ONLY

TYPE 5A – ON/OFF VALVE (ESD)
TYPICAL



NOTE : TYPE 5A APPLICABLE TO ESD VALVES THAT HAVE DOUBLE EMERGENCY AND PROCESS TRIP (SAFETY FUNCTION)

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	Scale	Format A3
Drawing number I20784		Sheet 82

