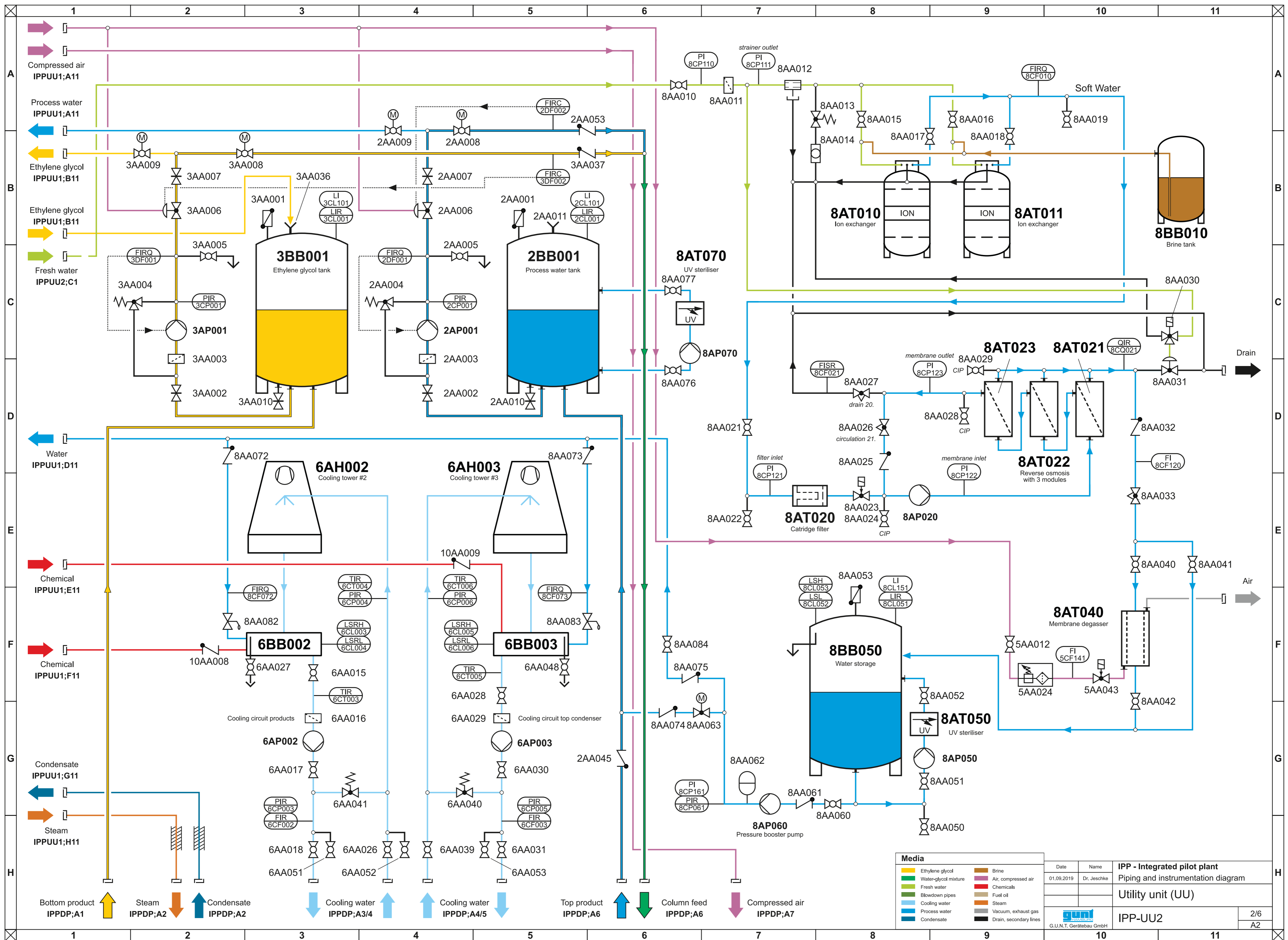


Media	
Yellow	Ethylene glycol
Green	Water-glycol mixture
Light Green	Fresh water
Blue	Blowdown pipes
Light Blue	Cooling water
Dark Blue	Process water
Light Blue	Condensate
Brown	Brine
Purple	Air, compressed air
Red	Chemicals
Orange	Fuel oil
White	Steam
Grey	Vacuum, exhaust gas
Black	Drain, secondary lines

Date	Name	IPP - Integrated pilot plant Piping and instrumentation diagram
01.09.2019	Dr. Jeschke	
		Utility unit (UU)
		IPP-UU1
		1/6
		A2

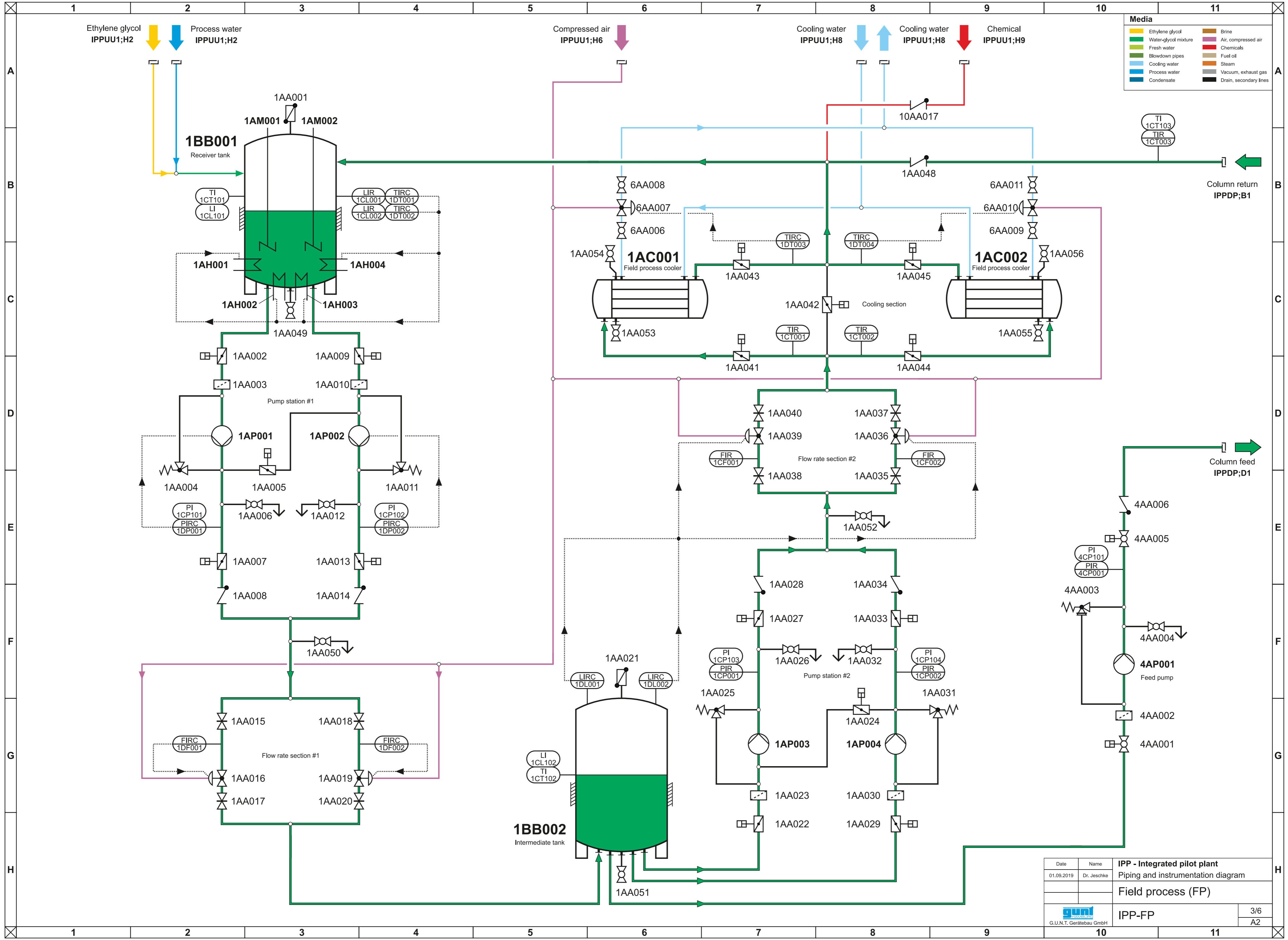
G.U.N.T. Gerätebau GmbH



Media	
█	Ethylene glycol
█	Water-glycol mixture
█	Fresh water
█	Blowdown pipes
█	Cooling water
█	Process water
█	Condensate
█	Brine
█	Air, compressed air
█	Chemicals
█	Fuel oil
█	Steam
█	Vacuum, exhaust gas
█	Drain, secondary lines

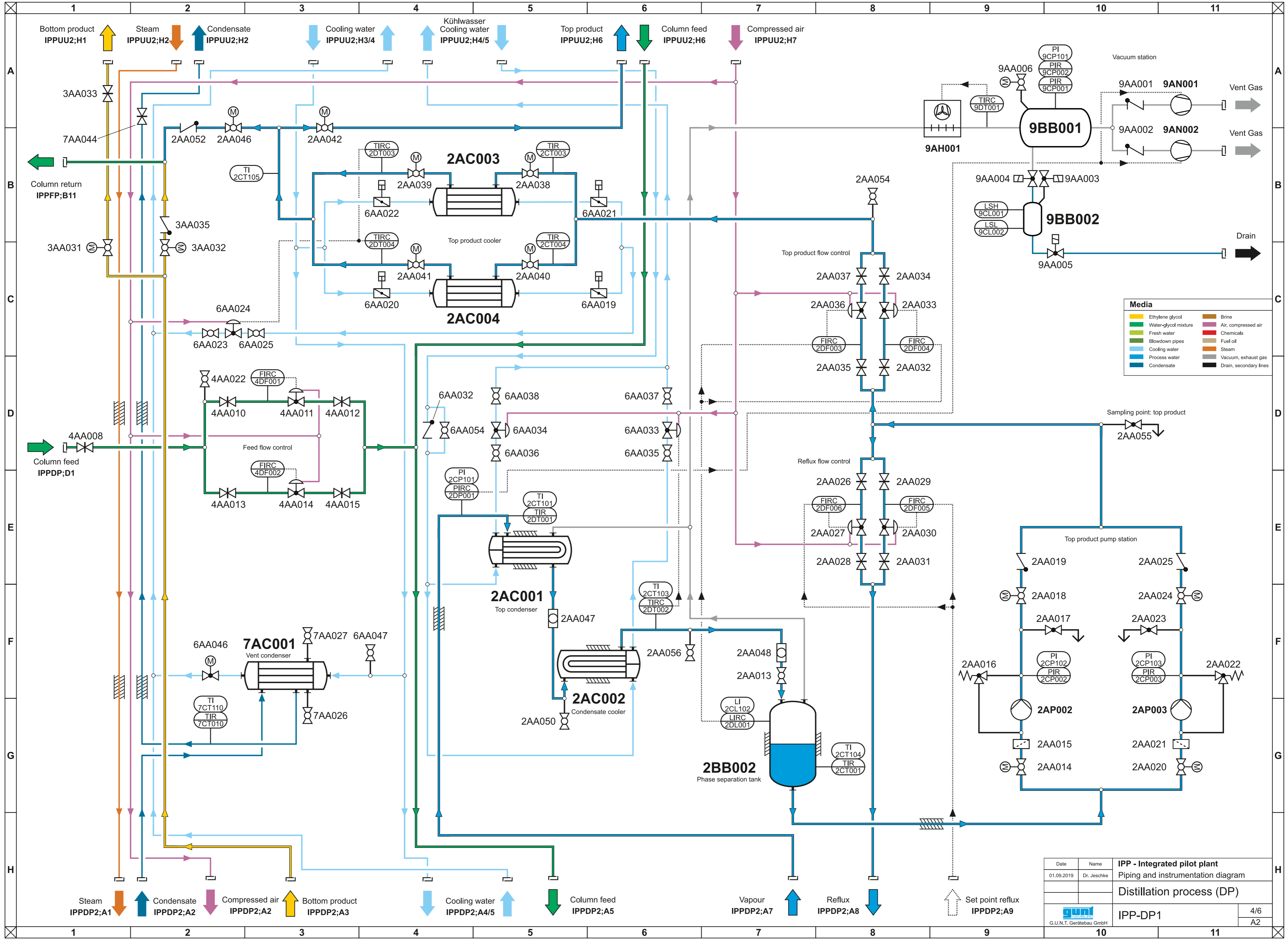
Date	Name	IPP - Integrated pilot plant
01.09.2019	Dr. Jeschke	
		Piping and instrumentation diagram
		Utility unit (UU)
		IPP-UU2
		2/6
		A2





Media	
█	Ethylene glycol
█	Water-glycol mixture
█	Fresh water
█	Blowdown pipes
█	Cooling water
█	Process water
█	Condensate
█	Brine
█	Air, compressed air
█	Chemicals
█	Fuel oil
█	Steam
█	Vacuum, exhaust gas
█	Drain, secondary lines

Date	Name	IPP - Integrated pilot plant	
01.09.2019	Dr. Jeschke	Piping and instrumentation diagram	
		Field process (FP)	
		IPP-FP	
		3/6	
		A2	














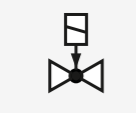











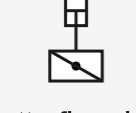


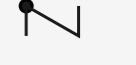



Media




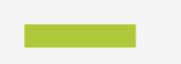








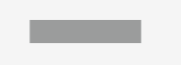
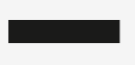
Yellow	Ethylene glycol	Brown	Brine
Green	Water-glycol mixture	Pink	Air, compressed air
Light blue	Fresh water	Red	Chemicals
Dark blue	Blowdown pipes	Grey	Fuel oil
Blue	Cooling water	Black	Vacuum, exhaust gas
Purple	Process water	Black	Drain, secondary lines
Orange	Condensate		

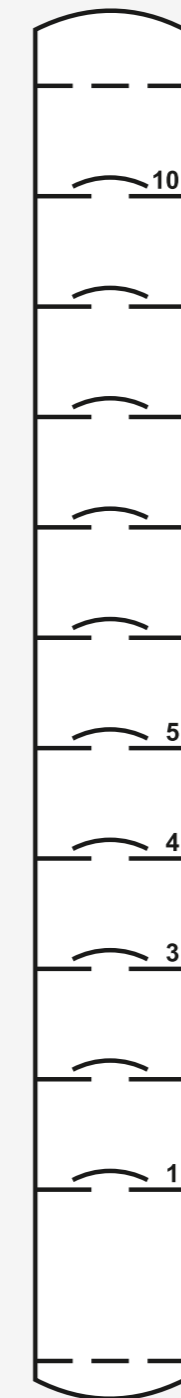
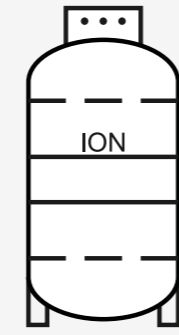
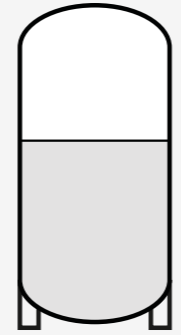
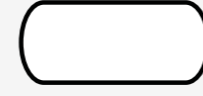

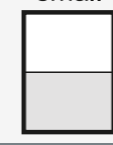

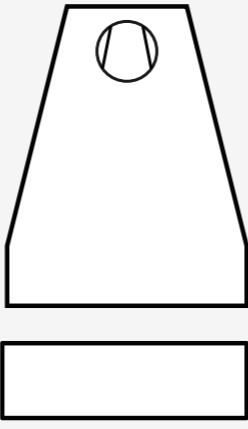



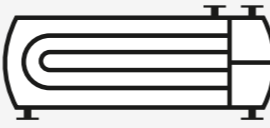

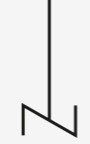


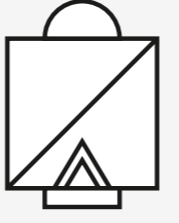

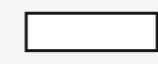

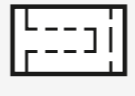

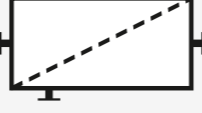



Date	Name	IPP - Integrated pilot plant	
01.09.2019	Dr. Jeschke	Piping and instrumentation diagram	
		Distillation process (DP)	
		IPP-DP1	4/6
			A2

guni
G.U.N.T. Gerätebau GmbH

Instrumentation			
			
Measuring point with local display	Measuring point with remote display		


Valves and fittings			
			
Ball valve	Vent valve	Minimum flow valve	Condensate trap
			
3-way valve	Valve, motor drive	Safety valve	Drain
			
Gate valve	Valve, solenoid drive	Draw-off fitting	Air preparation unit
			
Valve, manual drive	Valve, diaphragm drive	Spray nozzle	Surge tank
			
Float valve	Valve, continuous adjusting behaviour	Sight glass	Silencer
			
Valve	Butterfly valve, piston drive	Strainer	Compensator, flanged
			
Non-return valve	Ball valve, piston drive	Backflow protection	Funnel

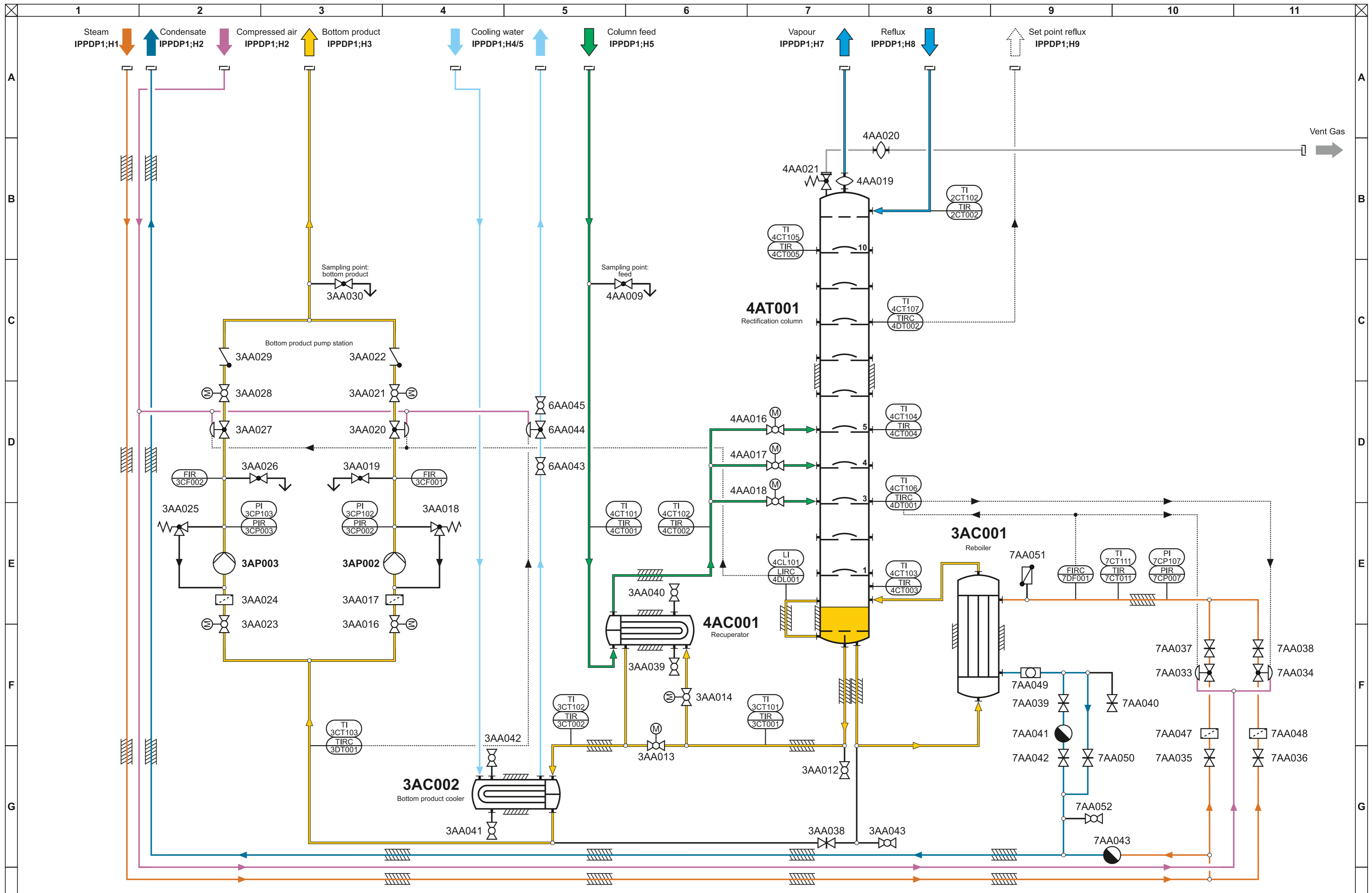
Media						
						
Cooling water	Water / process water	Condensate	Fresh water	Water-glycol mixture	Blowdown pipes	Ethylene glycol
						
Steam	Chemicals	Fuel oil	Brine	Air, compressed air	Vacuum, exhaust gas	Drain, secondary lines

Main components					
Column with bubble cap trays 	Ion exchanger 	Tank, large 	Tank, horizontal 	Pump 	
			Tank, small 	Membrane pump 	
		Wet cooling tower with tank 	Heat exchanger, shell and tube, 1 pass 	Impact separator 	Compressor 
			Heat exchanger, shell and tube, 2 passes 	Oil separator 	Stirrer 
				UV steriliser 	Heater 
		Steam generator 	Cooling unit 	Instrument air header 	Isolation, tank 
				Filter, cartridge 	Isolation, pipe 
		Filter / membrane, reverse osmosis 	Filter / membrane, degassing 	Filter 	Eye wash station, safety shower 


KKS-Tags	
Leading number	Aggregate key
1 Field process	A Aggregate
2 Process water	AA Valves, fittings
3 Ethylene glycol	AC Heat exchanger
4 Feed	AH Heater
5 Compressed air	AM Stirrer
6 Cooling water	AN Compressor
7 Steam	AP Pump
8 Water	AT Unit for cleaning, drying, filtration or separation
9 Vacuum	B Apparatus
10 Chemicals	BB Storage unit (tank)
	C Direct measuring circuit
	CF Flow rate
	CL Level
	CP Pressure
	CT Temperature
	CQ Quality
	D Control loop
	DF Flow rate
	DL Level
	DP Pressure
	DT Temperature

DIN 10628 Tags	
1st letter	Subsequent letters
F Flow	C Control
L Level	F Fraction
P Pressure	H High
Q Quality	I Indication
T Temperature	L Low
	Q Sum
	R Registered
	S Switch

Date	Name	IPP - Integrated pilot plant	
01.09.2019	Dr. Jeschke	Piping and instrumentation diagram	
		Explanation and symbols	
		IPP-ES	6/6
G.U.N.T. Gerätebau GmbH			A2



Media	
Yellow	Ethylene glycol
Green	Water-glycol mixture
Light Green	Fresh water
Light Blue	Cooling water
Orange	Process water
Purple	Condensate
Brown	Brine
Pink	Air, compressed air
Red	Chemicals
Grey	Fuel oil
White	Steam
Black	Vacuum, exhaust gas
Black	Drain, secondary lines

Date	01.09.2019	Name	Dr. Jeschke	IPP - Integrated pilot plant Piping and instrumentation diagram Distillation process (DP)
 G.U.N.T. Gerätebau GmbH				
IPP-DP2				5/6
				A2