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TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

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EMT CCA

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1. GENERAL

1.1 REFERENCE

Ref.no	Document number	Description
1	E44_16_SDS002	Umbrella documentation for generic functions and rules, Software Design Specification
2	N.A.	N.A.
3	E44_16_LIS001	OPD message list
4	E44_16_LIS003	Abbreviation List

1.2 ABREVIATIONS

See ref. 4.

1.3 DESCRIPTION

This equipment module controls the pressurization of vessels and process lines.

This pressure is controlled in different process steps, in which the equipment is subjected to compressed air blowing or drying, steam injection, depressurizing and leak testing.

EMT properties	Description	
None-Self-Completing	EM is not automatically completed. Instead, it waits in "Ready to complete" state ("READY_TC") for an external "COMPLETE" command	
E_Type_Valve_VVentV02	Behaviour configuration flag for type of valve: 0 → NF 1 → NO	Value N.A.
E_Type_Valve_VShOfV01	Behaviour configuration flag for type of valve: 0 → NF 1 → NO	N.A.

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1.4 LIST OF VARIANTS

Variant	Description
1	
2	
3	
4	

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Variant	Description
5	
6	
7	
8	
9	

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1.5 CONTROL MODULES (BLOCK CONTACT)

Note: In certain case pressure could be controlled by a pressure control valve without internal PID controller. In this case we send the pressure setpoint to the device. Pressurizing and depressurizing is directly managed by the device.

In other case, a PID will be implemented in this EMT to control the pressure (in this case a pressure measurement is necessary).

CMT	Role Name	Display name	Instance Tag	Description
VivL	VShOfV01	Vessel_Shutoff_V01	VShOfV01	Vessel filter shutoff valve 1
VivL	AirInltV01	Filter_Air_Inlet_V01	AirInltV01	Filter air inlet shutoff valve 1
VivL	VVentV01	Vessel_Ventile_V01	VVentV01	Vessel filter ventilation valve 1 production area
VivL	VVentV02	Vessel_Ventile_V02	VVentV02	Vessel filter ventilation valve 2 technical area
VivL	FCndsV01	Filter_Condensate_V01	FCndsV01	Vessel filter inlet line condensate drain valve 1
VivL	FCndsV02	Filter_Condensate_V02	FCndsV02	Vessel filter condensate drain valve 2
VivAnL	AirInCV01	Filter_Air_Inlet_CV01	AirInCV01	Filter air inlet control valve 1
VivL	TLShOfV01	TransferLine_Shutoff_V01	TLShOfV01	Transfer line filter shutoff valve 1
VivL	TLDrnV01	TransferLine_Drain_V01	TLDrnV01	Transfer line filter drain valve 1
VivL	FTLFeedV01	Filter_TrslLine_Feed_V01	FTLFeedV01	Filter Transfer line feed valve 1
VivL	FHFInV01	Filter_HoseFlex_Inlt_V01	FHFInV01	Filter Hose flexible inlet valve 1
VivL	StmInltV01	Steam_Inlet_V01	StmInltV01	Steam inlet valve 1
PIDConL	PIC01	Pres_Regulation_PIC01	PIC01	Pressure regulation 1

The Heat Resistance (FHeatR01) is a CMT driven from the CFC of unit. It is running if CIP station is in caustic or for caustic vessel.

1.6 MEASUREMENTS AND SWITCHES

Generic Tag	Instance Tag	Description	Data type
PV_VesselPT02	PV_VesselPT02	Vessel Pressure 2	Real
PV_AirCVPT01	PV_AirCVPT01	Air control valve pressure 1	Real
PV_SIPDrnTT01	PV_SIPDrnTT01	SIP drain temperature 1	Real
PV_SIPDrnTT02	PV_SIPDrnTT02	SIP drain temperature 2	Real

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2. CHARACTERISTICS (INSTANCE ATTRIBUTES)

2.1 SETPOINTS (AND ACTUAL VALUES)

Name	CS	Data type	Mini	Maxi	Unit	Description
SP_Pres	2-5-6	Real	0.00	5.00	bar	Equipment Pressure setpoint
SP_MinPres	2-5	Real	1.00	2.50	bar	Pressure control setpoint low limit
SP_MaxPres	2-5	Real	2.00	4.50	bar	Pressure control setpoint high limit
SP_RampTime	2-5-6	Real	5	300	s	Pressure control setpoint ramp time
SP_F0	3	Real	0.0	300.0	min	Sterilizing value
SP_SIP_TT	3	Real	80.0	130.0	°C	Sterilization or sanitizing temperature
SP_SIP_MinTT	3	Real	80.0	130.0	°C	Sterilization minimum temperature
SP_SIP_MinPlateau	3	Real	80.0	121.0	°C	Sterilization minimum plateau temperature
SP_Timer_TTMini Plateau	3	Real	0	3600	s	Maximum time with steam trap temperature below sterilization minimum plateau temperature
SP_EndBlow_TT	5	Real	30.0	100.0	°C	Temperature threshold end of blowing after sterilization
SP_Plateau_Strt	3	Bool	-	-	-	Start sterilization plateau (0: Stop – 1: Start)
SP_Dest	2-3-4-5-8-9	Int	0	3	-	(*) Destination: 0 = No destination 1 = Pooling TL 2 = Hose flexible 3 = Both (Pooling TL – Hose flexible)

Notes:

(*) The list of the enumeration depends on the instance

Actual value of “SP_Plateau_Strt” is managed by the EM and set when the temperature of SIP is reached. Once the EPH detected the actual value of “SP_Plateau_Strt” of all EM involve on the sterilization process, the EPH enable the calculation of the F0 by using the “SP_Plateau_Strt” and timer of sterilization plateau is started.

During the sterilization plateau, if one temperature sensor of an EM is below the setpoint (SP_SIP_MinPlateau), the actual value of ‘SP_Plateau_Strt’ is reset, which causes the freezing of the:

- F0 calculation linked only to this sensor
- Sterilization plateau timer (via the EPH)

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F0 management:

F0 calculation is managed by a specific user block (See ref. 1).

All the following information are permanently connected in the CFC part to/from the user block 'F0_Calculation' with the SFC type.

This user block is only used in variant 1 and 2 and 7.

User Block F0_Calculation TT1 :

Inputs parameters affectation

Start control

- E_StartF0 := F0_Calc_StartF0

Reset control

- E_ResetF0 := F0_Calc_ResetF0

Hold control

- E_HoldF0 := F0_Calc_HoldF0

Values

- E_SP_F0 := SP_F0_Q
- E_PV_SIP_TT := PV_SIPDrnTT01
- E_SP_SIP_MinPlateau := SP_SIP_MinPI_Q
- E_SP_Timer_TTMiniPlateau := SP_TTMinPlat_Q
- E_SP_SIP_TT := SP_SIP_TT_Q
- E_SP_SIP_MinTT := SP_SIP_MinTT_Q

Outputs parameters affectation

Alarms

- F0_Calc_TT01_SIG_a := S_SIG_a
- F0_Calc_TT01_SIG_b := S_SIG_b

Values

- SP_F0_AI := S_F0*
- SP_TTMinPlat_AI := S_Timer_TTMiniPlateau**

This user block is only used in variant 2.

User Block F0_Calculation TT2 :

Inputs parameters affectation

Start control

- E_StartF0 := StartAndVariant2

Reset control

- E_ResetF0 := F0_Calc_ResetF0

Hold control

- E_HoldF0 := HoldAndVariant2

Values

- E_SP_F0 := SP_F0_Q
- E_PV_SIP_TT := PV_SIPDrnTT02
- E_SP_SIP_MinPlateau := SP_SIP_MinPI_Q
- E_SP_Timer_TTMiniPlateau := SP_TTMinPlat_Q
- E_SP_SIP_TT := SP_SIP_TT_Q
- E_SP_SIP_MinTT := SP_SIP_MinTT_Q

Outputs parameters affectation

Alarms

- F0_Calc_TT02_SIG_a := S_SIG_a
- F0_Calc_TT02_SIG_b := S_SIG_b

Values

- SP_F0_AI := S_F0*
- SP_TTMinPlat_AI := S_Timer_TTMiniPlateau**

* SP_F0_AI is equal to the lowest value S_F0 between the two-user block calculation when the EM is in variant 2 else for the variant 1 or variant 7 the SP_F0_AI is equal to the S_F0 of the User Block F0_Calculation TT1.

** SP_TTMinPlat_AI is equal to the highest value S_Timer_TTMiniPlateau between the two-user block calculation.

Ramp management:

At the rising edge of a ramp start, initialization of the ramp timer, the initial setpoint will be the measure and calculation of an increment. Then during all the ramp time this increment is added to the setpoint at every second.

Increment calculation:

Divide the difference between the setpoint and the measure by the Ramp time setpoint in second. So, you have an increment to use every second and added to the last setpoint.

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2.2 MACHINE PARAMETERS

All machine parameters are visible on SFC faceplate

Name	Data type	Description	Unit	Initial Value
MP_ExhaustTechRoom_Pres	Real	Pressure threshold to end depressurization to technical area (only if MP_Exhaust_Config = 1)	bar	1.50
MP_ExhaustCleanRoom_Pres	Real	Pressure threshold to end depressurization to production area	bar	1.05
MP_PresTol_AlmTime	Real	Timer when the pressure is out of tolerance (minimum or maximum)	s	60
MP_Exhaust_MaxTime	Real	Maximum time to remove Pressure from the Equipment	s	120
MP_SIPCooling_DeltaTT	Real	Temperature Hysteresis of SIP cooling for pulsing the steam trap valve	°C	2.5
MP_FilterTimer_TT	Real	Filtration timer for plateau temperature	s	10
MP_HoldError_SIPDrainTT	Real	Temperature threshold for Holding or Error (Depressurization by SIP Drain valve)	°C	80.0
MP_ExhaustSIPDrain_Pres	Real	Pressure threshold to end depressurization to SIP drain valve	bar	1.10
MP_SelfRegulValve	Bool	Self-Regulation on the control valve (1=SelfControlValve)	-	0
MP_SIPCooling_Hyst	Real	Pressure hysteresis for trap	bar	0.20
MP_SIPCooling_MinPT	Real	Minimum pressure during SIP cooling	bar	1.00
MP_SamplingAir_MaxTime	Real	Maximum time for air sampling	s	900
MP_SamplingAir_Particles	Real	Equipment pressure for a particular air sampling	bar	1.90
MP_SamplingAir_Microbio	Real	Equipment pressure for a microbiologic air sampling	bar	2.10
MP_SamplingAir_RampTime	Real	Pressure control ramp time for air sampling	s	15
MP_SamplingAir_TolPres	Real	Pressure tolerance for air sampling	bar	0.20
MP_SamplingAir_Leakage	Real	Pressure parameter for a leakage test	bar	1.50
MP_OpenRoute_Time	Real	Time before opening air route	s	5
MP_Exhaust_Config	Bool	Exhaust configuration number (0 : 1 exhaust – 1 : 2 exhausts)	-	1

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2.3 EXTERNAL INITIAL CONDITIONS (INSTANCE DEPENDENT)

Instance Tag	Description	Expected condition
EIC1	External Initial Condition 1	Info at 1
N.A.	N.A.	N.A.

2.4 EXTERNAL ERROR CONDITIONS (INSTANCE DEPENDENT)

Instance Tag	Description	Expected condition
EEC1	External Error Condition 1	No Fault
N.A.	N.A.	N.A.
N.A.	N.A.	N.A.

2.5 EXTERNAL EXCHANGES

Reference object	Input (from) / Output (to)	Data Type	Description
N.A.	Input		
N.A.	Output		

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N.A.	N.A.	EMT_CCA	N.A.

2.6 ALARM MESSAGES

Alarm classes and configuration of alarms are described in the umbrella documentation ref 1.

Message	Description	EM in error (OSL error)	Class of Alarm
1	N.A.	N.A.	N.A.
2	Low pressure	Yes	GMP
3	High pressure	Yes	GMP
4	Too long time for depressurization	Yes	GMP
5	Steam trap temperature TT1 below Sterilization minimum plateau temperature setpoint (after timer)	Yes	GMP
6	Steam trap temperature TT1 below Sterilization minimum critical temperature	Yes	GMP
7	Steam trap temperature TT2 below Sterilization minimum plateau temperature setpoint (after timer)	Yes	GMP
8	Steam trap temperature TT2 below Sterilization minimum critical temperature	Yes	GMP
9	Too long time for air sampling	No	GMP
10	Too long time to reach pressure request	Yes	GMP

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3. SEQUENCE DESCRIPTION

3.1 CONTROL STRATEGIES

CS	Name	Description	Applicable Variant
1	OFF	All Pressure CM are in default position.	1-2-3-4-5-6-7-8-9
2	PresCtrl	Pressure control on the equipment to the setpoint with a ramp on the setpoint pressure. Also used during transfer with pressure to transfer line with or without filter or column and for drying the equipment during CIP.	1-2-3-4-5-6-7-8
3	SIP	Pressure route control during Sanitization and Sterilization with F0 calculation in case of sterilization. (SP_F0 = 0 in case of sanitization)	1-2-7
4	LeakageTest	To test if there are leaks on the Vessel and their lines.	1-2-7
5	BlowingSIP	Blowing to the SIP drain and through the vessel with a fixed opening % on the control valve.	1-2-7
6	BlowingTrsf Lines	Blowing/pressurizing the transfer line with pressure control.	4
7	Drain	Drain for the buffer distribution.	5
8	Ventil	Vessel depressurization with the 2 exhausts valves: First into technical area down to pressure threshold then switch into clean Room down to a second pressure threshold. Then the Vessel valve and the exhaust valve in the clean room stay open.	1-2-4-6-7-9
9	ExhaustSIP	Exhaust pressure to SIP condensate drain	1-2-7
10	VentilTL	Transfer line depressurization by exhaust valve in the technical area.	4

3.2 LIST OF SEQUENCES

Priority	Name	Description
1	ALL_CM_AUTO	Switch in AUTO mode all CM
1	IDLE	The idle sequence allows to switch the actuators to ventil the equipment according to an external authorization
1	STARTING	Check all initial conditions (CM in Automatic mode without fault and external initial condition are correct (see chapter 2.3))
1	RUN_CS1	OFF: All Pressure CM are in default position.
1	RUN_CS2	PresCtrl (Pressure Control): Pressure control on the equipment to the setpoint with a ramp on the setpoint pressure. Also used during transfer with pressure to transfer line with or without filter or column and for drying the equipment during CIP.

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Priority	Name	Description
1	RUN_CS3	SIP: Pressure route control during Sanitization and Sterilization with F0 calculation in case of sterilization.
1	RUN_CS4	Leakage Test: To test if there are leaks on the equipment and their lines.
1	RUN_CS5	Blowing SIP: Blowing to the SIP drain and through the equipment with pressure control.
1	RUN_CS6	Blowing Transfer Lines: Blowing/pressurizing the transfer line with pressure control.
1	RUN_CS7	Drain: Drain for the buffer distribution.
1	RUN_CS8	Ventil: Vessel depressurization with the 2 exhausts valves: First into technical area down to pressure threshold then switch into clean Room down to a second pressure threshold. Then the vessel valve and the exhaust valve in the clean room stay open
1	RUN_CS9	ExhaustSIP Exhaust pressure to SIP condensate drain
1	RUN_CS10	VentilTL: Transfer line depressurization by exhaust valve in the technical area.
2	AIR_SAMPLING	Air_Sampling: Test air sampling
1	HOLDING	Resetting the control values, switching CM's successively to the basic position
1	ERROR	Resetting the control values, switching CM's successively to the basic position
1	RESUMING	Control of CM are in Automatic mode (resuming is enabled only when there is no longer an error condition)
1	COMPLETING	Completion of processing, resetting the control values, switching CM's successively to the basic position, enabling operating mode selection.
1	ABORTING	Aborting of processing, resetting the control values, switching the actuators successively in the basic position, enabling operating mode selection
1	STOPPING	Stopping of processing, resetting the control values, switching the actuators successively in the basic position, enabling operating mode selection
3	CPU_START	CPU Start or restart

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3.3 GENERAL

Each sequence is triggered by start conditions and contain the treatments below:

- Pre-processing treatment: actions are executed every cycle of the sequence before the sequential treatment.
- Sequential treatment: actions are executed depending of the active step.
- Post-processing treatment: actions are executed every cycle of the sequence after the sequential treatment.

On steps sequence description below, the following symbol:

- “►” means target step after a resuming sequence.
- “(10s)” means the minimum time of the step (10 is an example value for 10 seconds).

EM Functioning MODE:

The EM has 2 functioning mode, AUTO or MANUAL. In AUTO mode the EM is controlled by an EPH. In MANUAL mode the EM is controlled by the SCADA interface (faceplate).

The EM can be switched in manual mode only in this following case:

- The EM is not acquired by EPH or (EM is acquired by EPH and the EM is not on Starting and EM is not on Run status).

3.4 OPERATOR DIALOG

Process and project specific Operator Dialog listed in the ref 3.

Area	Start number	End number
Common messages	1	500
Type messages	511	520

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3.5 INTERNAL INITIAL OR RESUMING CONDITIONS

Instance Tag	Description	Expected condition
VShOfV01	Vessel filter shutoff valve 1	Mode Auto
AirInltV01	Filter air inlet shutoff valve 1	Mode Auto
VVentV01	Vessel filter ventilation valve 1 production area	Mode Auto
VVentV02	Vessel filter ventilation valve 2 technical area	Mode Auto
FCndsV01	Vessel filter inlet line condensate drain valve 1	Mode Auto
FCndsV02	Vessel filter condensate drain valve 2	Mode Auto
AirInCV01	Filter air inlet control valve 1	Mode Auto
TLShOfV01	Transfer line filter shutoff valve 1	Mode Auto
TLDrnV01	Transfer line filter drain valve 1	Mode Auto
FTLFeedV01	Filter Transfer line feed valve 1	Mode Auto
FHFInV01	Filter Hose flexible inlet valve 1	Mode Auto
StmInltV01	Steam inlet valve 1	Mode Auto

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3.6 INTERNAL (CONTROL MODULE OR SFC TYPE) ERROR CONDITIONS

Error conditions trigger ERROR sequence.

Resuming of the sequence is not possible till the error conditions are activated.

Instance Tag	Description	Expected condition
VShOfV01	Vessel filter shutoff valve 1	No Fault
AirInItV01	Filter air inlet shutoff valve 1	No Fault
VVentV01	Vessel filter ventilation valve 1 production area	No Fault
VVentV02	Vessel filter ventilation valve 2 technical area	No Fault
FCndsV01	Vessel filter inlet line condensate drain valve 1	No Fault
FCndsV02	Vessel filter condensate drain valve 2	No Fault
AirInCV01	Filter air inlet control valve 1	No Fault
TLShOfV01	Transfer line filter shutoff valve 1	No Fault
TLDrnV01	Transfer line filter drain valve 1	No Fault
FTLFeedV01	Filter Transfer line feed valve 1	No Fault
FHFInV01	Filter Hose flexible inlet valve 1	No Fault
StmInItV01	Steam inlet valve 1	No Fault

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3.7 IDLE SEQUENCE

The input parameter 'InhibitionVentil' is used to inhibit the equipment Ventil (example of buffer allocation to not remove the pressure of the Buffer between distributions).

3.7.1 PRE-PROCESSING TREATMENT

Action
N.A.

3.7.2 SEQUENTIAL TREATMENT

Step	Comment		Action	
START	Transitions	Comment	Transition ok	Step
	TR_S_1	Vessel pressure (PV) > MP_ExhaustCleanRoom_Pres	PV_VesselPT02 > MP_ExhaustCleanRoom_Pres OR Not VentilRoute OR Not MEMO_Ventil	S00
S00	Inhibition Ventil		<p><u>Close valves:</u></p> <p>Filter air inlet shutoff valve 1 (AirInltV01)</p> <p>Transfer line filter shutoff valve 1 (TLShOfV01)</p> <p>Transfer line filter drain valve 1 (TLDrnV01)</p> <p>Vessel filter inlet line condensate drain valve 1 (FCndsV01)</p> <p>Vessel filter condensate drain valve 2 (FCndsV02)</p> <p>Filter Transfer line feed valve 1 (FTLFeedV01)</p> <p>Filter Hose flexible inlet valve 1 (FHFInV01)</p> <p>Steam inlet valve 1 (StmInltV01)</p> <p>IF Flag_InhibitionVentil THEN:</p> <p style="padding-left: 40px;">Vessel filter ventilation valve 1 production area (VVentV01)</p> <p style="padding-left: 40px;">Vessel filter ventilation valve 2 technical area (VVentV02)</p> <p style="padding-left: 40px;">Vessel filter shutoff valve 1 (VShOfV01)</p> <p><u>Stop regulation:</u></p> <p>Pressure regulation 1 (PIC01)</p> <p>Send the pressure setpoint at 0 to the Filter air inlet control valve 1 (AirInCV01)</p>	
	Transitions	Comment	Transition ok	Step
	TR00_1	Valves positions OK and Ventil Authorization	Valves positions OK AND NOT FLAG_InhibitionVentil	S10

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Step	Comment		Action	
S10	Ventil (by vent valve) - Route establishment		<u>Open valve:</u> Vessel filter shutoff valve 1 (VShOfV01)	
	Transitions	Comment	Transition ok	Step
	TR10_1	Valves positions OK and exhaust to technical room	Valves positions OK AND (PV_VesselPT02 >= the Pressure threshold to end depressurization to clean area (MP_ExhaustCleanRoom_Pres) OR NOT MP_Exhaust_Config)	S20
	TR10_2	Valves positions OK and exhaust to clean room	Valves positions OK AND MP_Exhaust_Config AND (PV_VesselPT02 < the Pressure threshold to end depressurization to clean area (MP_ExhaustCleanRoom_Pres) OR Variant = 7)	S40
S20	Ventil - Route establishment		<u>Open valve:</u> Vessel filter ventilation valve 2 technical area (VVentV02) <u>Close valve:</u> Vessel filter ventilation valve 1 production area (VVentV01)	
	Transitions	Comment	Transition ok	Step
	TR20_1	Valves positions OK	Valves positions OK	S30
S30	Exhaust to technical room		N.A.	
	Transitions	Comment	Transition ok	Step
	TR30_1	Vessel pressure (PV) < MP_ExhaustTechRoom_Pres	IF MP_Exhaust_Config and PV_VesselPT02 < the Pressure threshold to end depressurization to technical room (MP_ExhaustTechRoom_Pres) OR IF NOT MP_Exhaust_Config and PV_VesselPT02 < the Pressure threshold to end depressurization to clean area (MP_ExhaustCleanRoom_Pres)	S40
S40	Exhaust to clean room		IF MP_Exhaust_Config THEN: <u>Close valve:</u> Vessel filter ventilation valve 2 technical area (VVentV02) <u>Open valve:</u> Vessel filter ventilation valve 1 production area (VVentV01)	
	Transitions	Comment	Transition ok	Step
	TR40_1	Vessel pressure (PV) < MP_ExhaustCleanRoom_Pres	NOT MP_Exhaust_Config OR ((PV_VesselPT02 < the Pressure threshold to end depressurization to clean room (MP_ExhaustCleanRoom_Pres) OR variant = 7) AND Valves positions OK)	END

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment	Action
END	Ventil	RESET TimerMaxVesPres RESET Alarm "Too long time for depressurization" SET MEMO_Ventil

3.7.3 POST-PROCESSING TREATMENT

Action
<p><u>Too long time for depressurization alarm management:</u></p> <p>IF S10 or S20 or S30 or S40 steps THEN PRESET/START - TimerMaxVesPres (MP_Exhaust_MaxTime) ELSE RESET – TimerMaxVesPres</p> <p>If the timer "Maximum Vessel release pressure" reaches the alarm threshold (MP_Exhaust_MaxTime) then generate alarm message 4.</p> <p><u>Start control strategy Air Sampling</u></p> <p>IF Start_AirSampling THEN Set internal command start</p>

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.8 STARTING AND RESUMING SEQUENCE

3.8.1 PRE-PROCESSING TREATMENT

Action
<p>CI_OK: (Internal/External Initial conditions OK & EM Starting) OR (CMs in Auto & (EM in Resuming OR Resuming Error))</p> <p>RESET Route_OK (to EPH)</p> <p>RESET CS_Done (to EPH)</p>

3.8.2 SEQUENTIAL TREATMENT

Step	Comment		Action	
START	Transitions	Comment	Transition ok	Step
	=1	Always true	= 1	S00
S00 (1s)	N.A.		<p>IF Starting status THEN</p> <p>RESET TIMERS</p> <p>Reset Actual Values</p>	
	Transitions	Comment	Transition ok	Step
	TR00_1	Initial conditions OK	CI_OK	S20
	TR00_2	Initial conditions not OK	NOT CI_OK	S10
S10	Initial condition not OK		Generate Operator Dialog message 1 (Execute button possible only if all initial conditions are OK)	
	Transitions	Comment	Transition ok	Step
	TR10_1	Initial conditions OK and Operator validation	CI_OK AND operator execute button	S20
S20	<p>Lock manual mode on CM</p> <p>PRESET Memo target Sequence/Step</p>		<p>Disable switching mode button (auto/manu) of all CM</p> <p>Link all CM setpoint to external setpoint</p> <p>RESET MEMO_VENTIL</p> <p><i>PID Controller:</i></p> <p><i>Mode: = Output Tracking</i></p> <p><i>SP_Tracking := 0.0</i></p> <p>IF (EM in Resuming OR Resuming Error) THEN</p> <p>PRESET EM Sequence Number (TARGETSEQ) & EM Step Number (TARGETSTEP)</p>	

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment		Action	
	Transitions	Comment	Transition ok	Step
	==1	Always true	= 1	END
END				

3.8.3 POST-PROCESSING TREATMENT

Action
N.A.

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.9 RUN CS1 SEQUENCE (OFF)

3.9.1 DESCRIPTION

Pressure is off.

3.9.2 PRE-PROCESSING TREATMENT

Action
N.A.

3.9.3 SEQUENTIAL TREATMENT

Step	Comment		Action	
START ▶	CS1: OFF		N.A.	
	Transitions	Comment	Transition ok	Step
	=1	Always true	= 1	S00
S00	Close valves		<p><u>Close valves:</u></p> <p>Vessel filter shutoff valve 1 (VShOfV01)</p> <p>Filter air inlet shutoff valve 1 (AirInItV01)</p> <p>Vessel filter ventilation valve 1 production area (VVentV01)</p> <p>Vessel filter ventilation valve 2 technical area (VVentV02)</p> <p>Vessel filter inlet line condensate drain valve 1 (FCndsV01)</p> <p>Vessel filter condensate drain valve 2 (FCndsV02)</p> <p>Transfer line filter shutoff valve 1 (TLShOfV01)</p> <p>Transfer line filter drain valve 1 (TLDrnV01)</p> <p>Filter Transfer line feed valve 1 (FTLFeedV01)</p> <p>Filter Hose flexible inlet valve 1 (FHFInV01)</p> <p>Steam inlet valve 1 (StmInItV01)</p> <p><u>Stop regulation:</u></p> <p>Pressure regulation 1 (PIC01)</p> <p>Send the pressure setpoint at 0 to the Filter air inlet control valve 1 (AirInCV01)</p>	
	Transitions	Comment	Transition ok	Step
	TR00_1	Valves positions OK	Valves positions OK	S10
S10	Pressure OFF		<p>SET Route_OK (to EPH)</p> <p>SET CS_Done (to EPH)</p>	

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment		Action	
	Transitions	Comment	Transition ok	Step
	TR10_1	AlwaysFalse	Blocked transition – Waiting for CS change request	END
END	N.A.		N.A.	

3.9.4 POST-PROCESSING TREATMENT

Action
N.A.

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.10 RUN CS2 SEQUENCE (PRESCTRL)

3.10.1 DESCRIPTION

Pressure control on the equipment to the setpoint with a ramp on the setpoint pressure.

Used even during transfer with pressure to transfer line with or without filter or column.

Variant	Description of fluidic path
1	
2	
3	
4	

Document Title

EMT_CCA

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Variant	Description of fluidic path
5	
6	
7	
8	

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.10.2 PRE-PROCESSING TREATMENT

Action
Preposition Ramp at PV_VesselPT02

3.10.3 SEQUENTIAL TREATMENT

Step	Comment		Action	
START ►	CS2: PresCtrl		N.A.	
	Transitions	Comment	Transition ok	Step
	=1	Always true	= 1	S00
S00	Pressure Control – Open filter shutoff valve		RESET CS_Done (to EPH) RESET Route_OK (to EPH) <u>Close valves:</u> Vessel filter ventilation valve 1 production area (VVentV01) Vessel filter ventilation valve 2 technical area (VVentV02) Vessel filter inlet line condensate drain valve 1 (FCndsV01) Vessel filter condensate drain valve 2 (FCndsV02) Transfer line filter drain valve 1 (TLDrnV01) Steam inlet valve 1 (StmInltV01) <u>Open valves:</u> Vessel filter shutoff valve 1 (VShOfV01) <u>Open/Close valves:</u> IF Variant = 7 AND (SP_Dest = 1 OR SP_Dest = 3) THEN: Open Transfer line filter shutoff valve 1 (TLShOfV01) ELSE Close Transfer line filter shutoff valve 1 (TLShOfV01) IF SP_Dest = 1 OR SP_Dest = 3 THEN: Open Filter Transfer line feed valve 1 (FTLFeedV01) ELSE Close Filter Transfer line feed valve 1 (FTLFeedV01) IF SP_Dest = 2 OR SP_Dest = 3 THEN: Open Filter Hose flexible inlet valve 1 (FHFInV01) ELSE Close Filter Hose flexible inlet valve 1 (FHFInV01)	
	Transitions	Comment	Transition ok	Step
	TR00_1	Valves positions OK	Valves positions OK	S20

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment		Action	
S20	Ramp Time		<p>PRESET/START – TimerOpenRoute (MP_OpenRoute_Time)</p> <p>IF Filter air inlet shutoff valve 1 (AirInltV01) opened THEN SET Route_OK (to EPH)</p> <p><u>Ramp management:</u></p> <p>Start the ramp timer and calculation of the Pressure setpoint according to Vessel pressure setpoint (SP_Pres), measure (PV_VesselPT02) and Pressure control ramp time (SP_RampTime)</p> <p><u>Start regulation:</u></p> <p>Pressure regulation 1 (PIC01):</p> <p style="padding-left: 40px;">Mode := Auto</p> <p style="padding-left: 40px;">SP_Auto := Calculated pressure setpoint (according ramp)</p> <p style="padding-left: 40px;">PV := PV_VesselPT02</p> <p style="padding-left: 40px;">OUT → (See postprocessing)</p> <p>IF end of TimerOpenRoute (MP_OpenRoute_Time) THEN</p> <p style="padding-left: 40px;"><u>Open valve:</u></p> <p style="padding-left: 80px;">Filter air inlet shutoff valve 1 (AirInltV01)</p> <p>(On termination step)</p> <p>RESET TimerOpenRoute</p>	
	Transitions	Comment	Transition ok	Step
	TR20_1	End of Ramp Time	End of Ramp Time AND Route_OK (to EPH)	S30
S30	Pressure Control OK - Synchronization step (with EPHT)		<p>SET CS_Done (to EPH)</p> <p><u>Start regulation:</u></p> <p>Pressure regulation 1 (PIC01):</p> <p style="padding-left: 40px;">Mode := Auto</p> <p style="padding-left: 40px;">SP_Auto := SP_Pres</p> <p style="padding-left: 40px;">PV := PV_VesselPT02</p> <p style="padding-left: 40px;">OUT → (See postprocessing)</p>	
	Transitions	Comment	Transition ok	Step
	TR30_1	Pressure Setpoint change	Pressure setpoint (SP_Pres) <> Memorization Output value of the ramp AND SP_RampTime <> 0.0	S00
	TR30_2	AlwaysFalse	Blocked transition – Waiting for CS change request	END
END	N.A.		N.A.	

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.10.4 POST-PROCESSING TREATMENT

Action
<p><u>Alarm timer management:</u></p> <p>IF S30 step and the PV_VesselPT02 < the Pressure control setpoint low limit (SP_MinPres) THEN PRESET/START - TimerLowPress (MP_PresTol_AlmTime)</p> <p>ELSE RESET – TimerLowPress</p> <p>IF S30 step and the PV_VesselPT02 > the Pressure control setpoint high limit (SP_MaxPres) THEN PRESET/START - TimerHighPress (MP_PresTol_AlmTime)</p> <p>ELSE RESET – TimerHighPress</p> <p><u>Low pressure alarm management:</u></p> <p>If the timer “too low pressure” reaches the alarm threshold (MP_PresTol_AlmTime) then generate alarm message 2</p> <p><u>High pressure alarm management:</u></p> <p>If the timer “too high pressure” reaches the alarm threshold (MP_PresTol_AlmTime) then generate alarm message 3.</p> <p><u>Management of the control valve (AirInCV01) or PID output (PIC01):</u></p> <p>IF S20 Then</p> <p style="padding-left: 40px;">IF MP_SelfRegulValve THEN:</p> <p style="padding-left: 80px;">Send the calculated pressure setpoint (according to ramp) to the Filter air inlet control valve 1 (AirInCV01)</p> <p style="padding-left: 40px;">ELSE</p> <p style="padding-left: 80px;">OUT → Filter air inlet control valve 1 (AirInCV01)</p> <p style="padding-left: 80px;">Send the Output of PIC01 to the Filter air inlet control valve 1 (AirInCV01)</p> <p>ELSE</p> <p style="padding-left: 40px;">IF S30 Then</p> <p style="padding-left: 80px;">IF MP_SelfRegulValve Then:</p> <p style="padding-left: 120px;">Send the pressure setpoint (SP_Pres) to Filter air inlet control valve 1 (AirInCV01)</p> <p style="padding-left: 80px;">ELSE</p> <p style="padding-left: 120px;">OUT → Filter air inlet control valve 1 (AirInCV01)</p> <p style="padding-left: 120px;">Send the Output of PIC01 to the Filter air inlet control valve 1 (AirInCV01)</p> <p style="padding-left: 40px;">ELSE</p> <p style="padding-left: 80px;">IF NOT MP_SelfRegulValve THEN:</p> <p style="padding-left: 120px;">OUT → Filter air inlet control valve 1 (AirInCV01)</p> <p style="padding-left: 120px;">Send the Output of PIC01 to the Filter air inlet control valve 1 (AirInCV01)</p>

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.11 RUN CS3 SEQUENCE (SIP)

3.11.1 DESCRIPTION

Pressure route control during Sanitization and Sterilization with F0 calculation in case of sterilization.

Variant	Description of fluidic path
1	
2	
7	

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.11.2 PRE-PROCESSING TREATMENT

Action
<p><u>Management timer filter:</u></p> <p>PRESET - FilterTimer_TT (MP_FilterTimer_TT)</p> <p>IF Variant 1 OR Variant 7 THEN</p> <p> IF S10 AND SIP drain temperature 1 (PV_SIPDrnTT01) > SIP temperature setpoint (SP_SIP_TT)</p> <p> OR S20 AND SIP drain temperature 1 (PV_SIPDrnTT01) > SP_SIP_MinPlateau THEN</p> <p> START - FilterTimer_TT (MP_FilterTimer_TT)</p> <p> ELSE</p> <p> RESET - FilterTimer_TT</p> <p>IF Variant 2 THEN</p> <p> IF S10 AND SIP drain temperature 1 (PV_SIPDrnTT01) > SIP temperature setpoint (SP_SIP_TT)</p> <p> AND SIP drain temperature 2 (PV_SIPDrnTT02) > SIP temperature setpoint (SP_SIP_TT)</p> <p> OR S20 AND SIP drain temperature 1 (PV_SIPDrnTT01) > SP_SIP_MinPlateau</p> <p> AND SIP drain temperature 2 (PV_SIPDrnTT02) > SP_SIP_MinPlateau THEN</p> <p> START - FilterTimer_TT (MP_FilterTimer_TT)</p> <p> ELSE</p> <p> RESET - FilterTimer_TT</p>

3.11.3 SEQUENTIAL TREATMENT

Step	Comment		Action	
START ►	CS3: SIP			
	Transitions	Comment	Transition ok	Step
	=1	Always true	= 1	S00

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment	Action
S00	SIP - Route establishment	<p>RESET CS_Done (to EPH) RESET Route_OK (to EPH)</p> <p><u>Open valves:</u></p> <p>Vessel filter shutoff valve 1 (VShOfV01) Vessel filter inlet line condensate drain valve 1 (FCndsV01) Vessel filter condensate drain valve 2 (FCndsV02) Steam inlet valve 1 (StmInltV01)</p> <p><u>Close valves:</u></p> <p>Vessel filter ventilation valve 1 production area (VVentV01) Vessel filter ventilation valve 2 technical area (VVentV02) Filter air inlet shutoff valve 1 (AirInltV01) Transfer line filter drain valve 1 (TLDrnV01)</p> <p><u>Open/Close valves:</u></p> <p>IF Variant = 7 AND (SP_Dest = 1 OR SP_Dest = 3) THEN: Open Transfer line filter shutoff valve 1 (TLShOfV01) ELSE Close Transfer line filter shutoff valve 1 (TLShOfV01) IF SP_Dest = 1 OR SP_Dest = 3 THEN: Open Filter Transfer line feed valve 1 (FTLFeedV01) ELSE Close Filter Transfer line feed valve 1 (FTLFeedV01) IF SP_Dest = 2 OR SP_Dest = 3 THEN: Open Filter Hose flexible inlet valve 1 (FHFInV01) ELSE Close Filter Hose flexible inlet valve 1 (FHFInV01)</p> <p><u>Stop regulation:</u></p> <p>Pressure regulation 1 (PIC01) Send the pressure setpoint at 0 to Filter air inlet control valve 1 (AirInCV01)</p>
	Transitions	Comment
	TR00_1	Valves positions OK
		Transition ok
S10	Waiting Temperature plateau	<p>SET Route_OK (to EPH) SP_Plateau_Strt (Actual value): = FilterTimer_TT_OUT (Management of the Timer in Pre-processing)</p>
	Transitions	Comment
	TR10_1	Plateau (start F0 calculation)
		Transition ok
		Step
		S10
		S20

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment		Action	
S20	F0 calculation		SP_Plateau_Strt (Actual value): = FilterTimer_TT_OUT. (Management of the Timer in Pre-processing) <u>F0 management</u> F0_Calc_StartF0 := TRUE (See notes on chapter 2.1). If SP_F0 = 0 or SP_F0(PV) >= SP_F0(SP) then SET CS_Done (to EPH)	
	Transitions	Comment	Transition ok	Step
	TR20_1	AlwaysFalse	Blocked transition – Waiting for CS change request	END
END	N.A.		N.A.	

3.11.4 POST-PROCESSING TREATMENT

Action
<p><u>Fault management (The management of the condition is done outside of the SFC Type via the calculation block F0):</u></p> <p>Alarm “Steam trap temperature TT1 below Sterilization minimum plateau temperature” Generate alarm message 5 := S_SIG_a (See notes on chapter 2.1).</p> <p>Alarm “Steam trap temperature TT1 below Sterilization minimum critical temperature” Generate alarm message 6 := S_SIG_b (See notes on chapter 2.1).</p> <p>Alarm “Steam trap temperature TT2 below Sterilization minimum plateau temperature” Generate alarm message 7 := S_SIG_a (See notes on chapter 2.1).</p> <p>Alarm “Steam trap temperature TT2 below Sterilization minimum critical temperature” Generate alarm message 8 := S_SIG_b (See notes on chapter 2.1).</p>

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.12 RUN CS4 SEQUENCE (LEAKAGETEST)

3.12.1 DESCRIPTION

Open the filter shutoff valve to test if there are leaks on the Vessel and their lines.

Variant	Description of fluidic path
1	
2	
7	

3.12.2 PRE-PROCESSING TREATMENT

Action
N.A.

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.12.3 SEQUENTIAL TREATMENT

Step	Comment		Action	
START ►	CS4: LeakageTest		N.A.	
	Transitions	Comment	Transition ok	Step
	=1	Always true	= 1	S00
S00	Leakage Test - Route establishment		<p><u>Close valves:</u> Filter air inlet shutoff valve 1 (AirInltV01) Vessel filter ventilation valve 1 production area (VVentV01) Vessel filter ventilation valve 2 technical area (VVentV02) Transfer line filter drain valve 1 (TLDrnV01) Vessel filter inlet line condensate drain valve 1 (FCndsV01) Vessel filter condensate drain valve 2 (FCndsV02) Steam inlet valve 1 (StmInltV01)</p> <p><u>Open valves:</u> Vessel filter shutoff valve 1 (VShOfV01)</p> <p><u>Open/Close valves:</u> IF Variant = 7 AND (SP_Dest = 1 OR SP_Dest = 3) THEN: Open Transfer line filter shutoff valve 1 (TLShOfV01) ELSE Close Transfer line filter shutoff valve 1 (TLShOfV01) IF SP_Dest = 1 OR SP_Dest = 3 THEN: Open Filter Transfer line feed valve 1 (FTLFeedV01) ELSE Close Filter Transfer line feed valve 1 (FTLFeedV01) IF SP_Dest = 2 OR SP_Dest = 3 THEN: Open Filter Hose flexible inlet valve 1 (FHFInV01) ELSE Close Filter Hose flexible inlet valve 1 (FHFInV01)</p> <p><u>Stop regulation:</u> Pressure regulation 1 (PIC01) Send the pressure setpoint at 0 to the Filter air inlet control valve 1 (AirInCV01)</p>	
	Transitions	Comment	Transition ok	Step
	TR00_1	Valves positions OK	Valves positions OK	S10
S10	Leakage test in Progress		SET Route_OK (to EPH) SET CS_Done (to EPH)	
	Transitions	Comment	Transition ok	Step
	TR10_1	AlwaysFalse	Blocked transition – Waiting for CS change request	END

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment	Action
END	N.A.	N.A.

3.12.4 POST-PROCESSING TREATMENT

Action
N.A.

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.13 RUN CS5 SEQUENCE (BLOWINGSIP)

3.13.1 DESCRIPTION

Blowing to the SIP drain and through the vessel with pressure control

Variant	Description of fluidic path
1	
2	
7	

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.13.2 PRE-PROCESSING TREATMENT

Action
Preposition Ramp at PV_VesselPT02

3.13.3 SEQUENTIAL TREATMENT

Step	Comment		Action	
START ►	CS5: BlowingSIP		N.A.	
	Transitions	Comment	Transition ok	Step
	=1	Always true	= 1	S00
S00	Blowing SIP - Route establishment		<p><u>Open valves:</u></p> <p>Vessel filter shutoff valve 1 (VShOfV01)</p> <p>Vessel filter inlet line condensate drain valve 1 (FCndsV01)</p> <p><u>Close valves:</u></p> <p>Vessel filter ventilation valve 1 production area (VVentV01)</p> <p>Vessel filter ventilation valve 2 technical area (VVentV02)</p> <p>Vessel filter condensate drain valve 2 (FCndsV02)</p> <p>Transfer line filter drain valve 1 (TLDrnV01)</p> <p>Steam inlet valve 1 (StmInltV01)</p> <p><u>Open/Close valves:</u></p> <p>IF Variant = 7 AND (SP_Dest = 1 OR SP_Dest = 3) THEN:</p> <p> Open Transfer line filter shutoff valve 1 (TLShOfV01)</p> <p>ELSE</p> <p> Close Transfer line filter shutoff valve 1 (TLShOfV01)</p> <p>IF SP_Dest = 1 OR SP_Dest = 3 THEN:</p> <p> Open Filter Transfer line feed valve 1 (FTLFeedV01)</p> <p>ELSE</p> <p> Close Filter Transfer line feed valve 1 (FTLFeedV01)</p> <p>IF SP_Dest = 2 OR SP_Dest = 3 THEN:</p> <p> Open Filter Hose flexible inlet valve 1 (FHFInV01)</p> <p>ELSE</p> <p> Close Filter Hose flexible inlet valve 1 (FHFInV01)</p>	
	Transitions	Comment	Transition ok	Step
	TR00_1	Valves positions OK	Valves positions OK	S20

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment		Action	
S20	Ramp Time		<p>PRESET/START – TimerOpenRoute (MP_OpenRoute_Time)</p> <p>IF Filter air inlet shutoff valve 1 (AirInltV01) opened THEN SET Route_OK (to EPH)</p> <p><u>Ramp management:</u></p> <p>Start the ramp timer and calculation of the Pressure setpoint according Vessel pressure setpoint (SP_Pres), measure (PV_VesselPT02) and Pressure control ramp time (SP_RampTime)</p> <p><u>Start regulation:</u></p> <p>Pressure regulation 1 (PIC01):</p> <p>Mode := Auto</p> <p>SP_Auto := Calculated pressure setpoint (according ramp)</p> <p>PV := PV_VesselPT02</p> <p>OUT → (See postprocessing)</p> <p>IF end of TimerOpenRoute (MP_OpenRoute_Time) THEN</p> <p><u>Open valve:</u></p> <p>Filter air inlet shutoff valve 1 (AirInltV01)</p> <p>(On termination step)</p> <p>RESET TimerOpenRoute</p>	
	Transitions	Comment	Transition ok	Step
	TR20_1	End of Ramp Time	End of Ramp Time AND Route_OK (to EPH)	S30
S30	Waiting SIP cooling temperature		<p><u>Start regulation:</u></p> <p>Pressure regulation 1 (PIC01):</p> <p>Mode := Auto</p> <p>SP_Auto := SP_Pres</p> <p>PV := PV_VesselPT02</p> <p>OUT → (See postprocessing)</p> <p><u>Open/Close valve:</u></p> <p>IF PV_VesselPT02 > MP_SIPCooling_MinPT + MP_SIPCooling_Hyst THEN</p> <p>Open the Vessel filter inlet line condensate drain valve 1 (FCndsV01)</p> <p>IF PV_VesselPT02 < MP_SIPCooling_MinPT THEN</p> <p>Close the Vessel filter inlet line condensate drain valve 1 (FCndsV01)</p>	
	Transitions	Comment	Transition ok	Step
	TR30_1	End of blowing SIP cooling	SIP drain temperature 1 (PV_SIPDrnTT01) < the temperature threshold “End of blowing after sterilization” (SP_EndBlow_TT)	S40

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment		Action	
S40	Synchronization step (with EPHT)		SET CS_Done (to EPH) <u>Start regulation:</u> Pressure regulation 1 (PIC01): Mode := Auto SP_Auto := SP_Pres PV := PV_VesselPT02 OUT → (See postprocessing) <u>Open / Close valve:</u> If SIP drain temperature 1 (PV_SIPDrnTT01) > the temperature threshold "End of blowing after sterilization" (SP_EndBlow_TT) + MP_SIPCooling_DeltaTT AND PV_VesselPT02 > MP_SIPCooling_MinPT + MP_SIPCooling_Hyst THEN Open the Vessel filter inlet line condensate drain valve 1 (FCndsV01) IF SIP drain temperature 1 (PV_SIPDrnTT01) < the temperature threshold "End of blowing after sterilization" (SP_EndBlow_TT) OR PV_VesselPT02 < MP_SIPCooling_MinPT THEN Close the Vessel filter inlet line condensate drain valve 1 (FCndsV01)	
	Transitions	Comment	Transition ok	Step
	TR40_1	AlwaysFalse	Blocked transition – Waiting for CS change request	END
END	N.A.		N.A.	

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.13.4 POST-PROCESSING TREATMENT

Action
<p><u>Alarm timer management:</u></p> <p>IF (S30 or S40 step) and the PV_VesselPT02 < the Pressure control setpoint low limit (SP_MinPres) THEN PRESET/START - TimerLowPress (MP_PresTol_AlmTime)</p> <p>ELSE</p> <p>RESET – TimerLowPress</p> <p>IF (S30 or S40 step) and the PV_VesselPT02 > the Pressure control setpoint high limit (SP_MaxPres) THEN PRESET/START - TimerHighPress (MP_PresTol_AlmTime)</p> <p>ELSE</p> <p>RESET – TimerHighPress</p> <p><u>Low pressure alarm management:</u></p> <p>If the timer “too low pressure” reaches the alarm threshold (MP_PresTol_AlmTime) then generate alarm message 2.</p> <p><u>High pressure alarm management:</u></p> <p>If the timer “too high pressure” reaches the alarm threshold (MP_PresTol_AlmTime) then generate alarm message 3.</p> <p><u>Management of the control valve (AirInCV01) or PID output (PIC01):</u></p> <p>IF S20 Then</p> <p> IF MP_SelfRegulValve THEN:</p> <p> Send the calculated pressure setpoint (according ramp) to the Filter air inlet control valve 1 (AirInCV01)</p> <p> ELSE</p> <p> OUT → Filter air inlet control valve 1 (AirInCV01)</p> <p> Send the Output of PIC01 to the Filter air inlet control valve 1 (AirInCV01)</p> <p>ELSE</p> <p> IFS30 or S40 Then</p> <p> IF MP_SelfRegulValve Then:</p> <p> Send the pressure setpoint (SP_Pres) to Filter air inlet control valve 1 (AirInCV01)</p> <p> ELSE</p> <p> OUT → Filter air inlet control valve 1 (AirInCV01)</p> <p> Send the Output of PIC01 to the Filter air inlet control valve 1 (AirInCV01)</p> <p> ELSE</p> <p> IF NOT MP_SelfRegulValve THEN:</p> <p> OUT → Filter air inlet control valve 1 (AirInCV01)</p> <p> Send the Output of PIC01 to the Filter air inlet control valve 1 (AirInCV01)</p>

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.14 RUN CS6 SEQUENCE (BLOWINGTRSFLLINES)

3.14.1 DESCRIPTION

Blowing/pressurizing the transfer line with pressure control.

Variant	Description of fluidic path
4	

3.14.2 PRE-PROCESSING TREATMENT

Action
Preposition Ramp at PV_AirCVPT01

3.14.3 SEQUENTIAL TREATMENT

Step	Comment	Action
START	CS6: BlowingTrsfLines	N.A.
►	Transitions	Transition ok
	Comment	Step
=1	Always true	= 1
		S00

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment		Action	
S00	Blowing Transfer Line – Open transfer line shutoff valve		<p><u>Open valve:</u> Transfer line filter shutoff valve 1 (TLShOfV01)</p> <p><u>Close valves:</u> Vessel filter shutoff valve 1 (VShOfV01) Vessel filter ventilation valve 1 production area (VVentV01) Vessel filter ventilation valve 2 technical area (VVentV02) Vessel filter inlet line condensate drain valve 1 (FCndsV01) Vessel filter condensate drain valve 2 (FCndsV02) Transfer line filter drain valve 1 (TLDrnV01) Filter Transfer line feed valve 1 (FTLFeedV01) Filter Hose flexible inlet valve 1 (FHFInV01) Steam inlet valve 1 (StmInltV01)</p>	
	Transitions	Comment	Transition ok	Step
	TR00_1	Valves positions OK	Valves positions OK	S20
S20	Ramp Time		<p>PRESET/START – TimerOpenRoute (MP_OpenRoute_Time)</p> <p>IF Filter air inlet shutoff valve 1 (AirInltV01) opened THEN SET Route_OK (to EPH)</p> <p><u>Ramp management:</u> Start the ramp timer and calculation of the Pressure setpoint according Vessel pressure setpoint (SP_Pres), measure (PV_AirCVPT01) and Pressure control ramp time (SP_RampTime)</p> <p><u>Start regulation:</u> Pressure regulation 1 (PIC01): Mode := Auto SP_Auto := calculated pressure setpoint (according ramp) PV := PV_AirCVPT01 OUT → (See postprocessing)</p> <p>IF end of TimerOpenRoute (MP_OpenRoute_Time) THEN <u>Open valve:</u> Filter air inlet shutoff valve 1 (AirInltV01) (On termination step) RESET TimerOpenRoute</p>	
	Transitions	Comment	Transition ok	Step
	TR20_1	End of Ramp Time	End of Ramp Time AND Route_OK (to EPH)	S30

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment	Action
S30	Synchronization step (with EPHT)	SET CS_Done (to EPH) <u>Start regulation:</u> Pressure regulation 1 (PIC01): Mode := Auto SP_Auto := SP_Pres PV := PV_AirCVPT01 OUT → (See postprocessing)
	Transitions	Transition ok
	TR30_1	Blocked transition – Waiting for CS change request
END	N.A.	N.A.

3.14.4 POST-PROCESSING TREATMENT

Action
<p><u>Management of the control valve (AirInCV01) or PID output (PIC01):</u></p> <p>IF S20 THEN</p> <p> IF MP_SelfRegulValve THEN:</p> <p> Send the calculated pressure setpoint (according ramp) to the Filter air inlet control valve 1 (AirInCV01)</p> <p> ELSE</p> <p> OUT → Filter air inlet control valve 1 (AirInCV01)</p> <p> Send the Output of PIC01 to the Filter air inlet control valve 1 (AirInCV01)</p> <p>ELSE</p> <p> IF S30 THEN</p> <p> IF MP_SelfRegulValve THEN:</p> <p> Send the pressure setpoint (SP_Pres) to Filter air inlet control valve 1 (AirInCV01)</p> <p> ELSE</p> <p> OUT → Filter air inlet control valve 1 (AirInCV01)</p> <p> Send the Output of PIC01 to the Filter air inlet control valve 1 (AirInCV01)</p> <p>IF NOT (S20 OR S30) THEN</p> <p> ELSE</p> <p> IF NOT MP_SelfRegulValve THEN:</p> <p> OUT → Filter air inlet control valve 1 (AirInCV01)</p> <p> Send the Output of PIC01 to the Filter air inlet control valve 1 (AirInCV01)</p>

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.15 RUN CS7 SEQUENCE (DRAIN)

3.15.1 DESCRIPTION

Drain for the buffer distribution.

Variant	Description of fluidic path
5	

3.15.2 PRE-PROCESSING TREATMENT

Action
N.A.

3.15.3 SEQUENTIAL TREATMENT

Step	Comment	Action
START	CS7: Drain	N.A.
►	Transitions	Comment
	►	Always true
	=1	Transition ok
		= 1
		S00

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment		Action	
S00	Drain - Route establishment		<p><u>Open valves:</u> Transfer line filter drain valve 1 (TLDrnV01)</p> <p><u>Close valves:</u> Vessel filter shutoff valve 1 (VShOfV01) Filter air inlet shutoff valve 1 (AirInltV01) Vessel filter ventilation valve 1 production area (VVentV01) Vessel filter ventilation valve 2 technical area (VVentV02) Vessel filter inlet line condensate drain valve 1 (FCndsV01) Vessel filter condensate drain valve 2 (FCndsV02) Transfer line filter shutoff valve 1 (TLShOfV01) Filter Transfer line feed valve 1 (FTLFeedV01) Filter Hose flexible inlet valve 1 (FHFInV01) Steam inlet valve 1 (StmInltV01)</p> <p><u>Stop regulation:</u> Pressure regulation 1 (PIC01) Send the pressure setpoint at 0 to the Filter air inlet control valve 1 (AirInCV01)</p>	
			Transitions	Step
			Comment	
			Transition ok	
	TR00_1	Valves positions OK	Valves positions OK	S10
S10	Synchronization step (with EPHT)		<p>SET Route_OK (to EPH) SET CS_Done (to EPH)</p>	
	Transitions	Comment	Transition ok	Step
	TR10_1	AlwaysFalse	Blocked transition – Waiting for CS change request	END
END	N.A.		N.A.	

3.15.4 POST-PROCESSING TREATMENT

Action
N.A.

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.16 RUN CS8 SEQUENCE (VENTIL)

3.16.1 DESCRIPTION

Vessel depressurization with the 2 exhausts valves: First into technical area down to pressure threshold then switch into clean Room down to a second pressure threshold. Then the Vessel valve and the exhaust valve in the clean room stay open.

Variant	Description of fluidic path
1	
2	
4	

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Variant	Description of fluidic path
6	
7	
9	

3.16.2 PRE-PROCESSING TREATMENT

Action
N.A.

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.16.3 SEQUENTIAL TREATMENT

Step	Comment		Action	
START ►	CS8: Ventil		N.A.	
	Transitions	Comment	Transition ok	Step
	=1	Always true	= 1	S00
S00	Ventil – vent valve		<p><u>Close valves:</u></p> <p>Filter air inlet shutoff valve 1 (AirInltV01)</p> <p>Vessel filter inlet line condensate drain valve 1 (FCndsV01)</p> <p>Vessel filter condensate drain valve 2 (FCndsV02)</p> <p>Transfer line filter drain valve 1 (TLDrnV01)</p> <p>Steam inlet valve 1 (StmInltV01)</p> <p>IF Variant <> 7 THEN</p> <p> Close Transfer line filter shutoff valve 1 (TLShOfV01)</p> <p><u>Stop regulation:</u></p> <p>Pressure regulation 1 (PIC01)</p> <p>Send the pressure setpoint at 0 to the Filter air inlet control valve 1 (AirInCV01)</p>	
	Transitions	Comment	Transition ok	Step
	TR00_1	Valves positions OK	Valves positions OK	S10
S10	Ventil - Route establishment		<p><u>Open valves:</u></p> <p>Vessel filter shutoff valve 1 (VShOfV01)</p> <p><u>Open/Close valves:</u></p> <p>IF Variant = 7 AND (SP_Dest = 1 OR SP_Dest = 3) THEN:</p> <p> Open Transfer line filter shutoff valve 1 (TLShOfV01)</p> <p>ELSE</p> <p> Close Transfer line filter shutoff valve 1 (TLShOfV01)</p> <p>IF SP_Dest = 1 OR SP_Dest = 3 THEN:</p> <p> Open Filter Transfer line feed valve 1 (FTLFeedV01)</p> <p>ELSE</p> <p> Close Filter Transfer line feed valve 1 (FTLFeedV01)</p> <p>IF SP_Dest = 2 OR SP_Dest = 3 THEN:</p> <p> Open Filter Hose flexible inlet valve 1 (FHFInV01)</p> <p>ELSE</p> <p> Close Filter Hose flexible inlet valve 1 (FHFInV01)</p>	

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

	Transitions	Comment	Transition ok	Step
	TR10_1	Valves positions OK and exhaust to technical room	Valves positions OK AND (PV_VesselPT02 > the Pressure threshold to end depressurization to clean area (MP_ExhaustCleanRoom_Pres) OR NOT MP_Exhaust_Config)	S20
	TR10_2	Valves positions OK and exhaust to clean room	Valves positions OK AND MP_Exhaust_Config AND PV_VesselPT02 <= the Pressure threshold to end depressurization to clean area (MP_ExhaustCleanRoom_Pres)	S40
S20	Ventil - Route establishment		<u>Open valve:</u> Vessel filter ventilation valve 2 technical area (VVentV02)	
	Transitions	Comment	Transition ok	Step
	TR20_1	Valves positions OK	Valves positions OK	S30
S30	Exhaust to technical room		N.A.	
	Transitions	Comment	Transition ok	Step
	TR30_1	Vessel pressure (PV) < MP_ExhaustTechRoom_Pres	MP_Exhaust_Config and PV_VesselPT02 < the Pressure threshold to end depressurization to technical room (MP_ExhaustTechRoom_Pres) OR NOT MP_Exhaust_Config and PV_VesselPT02 < the Pressure threshold to end depressurization to clean area (MP_ExhaustCleanRoom_Pres)	S40
S40	Exhaust to clean room		SET Route_OK (to EPH) IF MP_Exhaust_Config THEN: <u>Close valve:</u> Vessel filter ventilation valve 2 technical area (VVentV02) <u>Open valve:</u> Vessel filter ventilation valve 1 production area (VVentV01)	
	Transitions	Comment	Transition ok	Step
	TR40_1	Vessel pressure (PV) < MP_ExhaustCleanRoom_Pres	NOT MP_Exhaust_Config OR (PV_VesselPT02 < the Pressure threshold to end depressurization to clean room (MP_ExhaustCleanRoom_Pres) AND Valves positions OK)	S50
S50	Ventil - Synchronization step (with EPHT)		SET CS_Done (to EPH)	
	Transitions	Comment	Transition ok	Step
	TR50_1	AlwaysFalse	Blocked transition – Waiting for CS change request	END
END	N.A.		N.A.	

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.16.4 POST-PROCESSING TREATMENT

Action
<p><u>Too long time for depressurization alarm management:</u></p> <p>IF S10 or S20 or S30 or S40 steps THEN PRESET/START - TimerMaxVesPres (MP_Exhaust_MaxTime) ELSE RESET – TimerMaxVesPres</p> <p>If the timer “Maximum Vessel release pressure” reaches the alarm threshold (MP_Exhaust_MaxTime) then generate alarm message 4.</p>

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.17 RUN CS9 SEQUENCE (EXHAUSTSIP)

3.17.1 DESCRIPTION

Exhaust pressure to SIP condensate drain.

Variant	Description of fluidic path
1	
2	
7	

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.17.2 PRE-PROCESSING TREATMENT

Action
N.A.

3.17.3 SEQUENTIAL TREATMENT

Step	Comment		Action	
START	CS9: ExhaustSIP		N.A.	
►	Transitions	Comment	Transition ok	Step
	=1	Always true	= 1	S00
S00	Exhaust SIP - Route establishment		<p><u>Open valves:</u></p> <p>Vessel filter inlet line condensate drain valve 1 (FCndsV01)</p> <p>Vessel filter shutoff valve 1 (VShOfV01)</p> <p><u>Open/Close valves:</u></p> <p>IF Variant = 7 AND (SP_Dest = 1 OR SP_Dest = 3) THEN:</p> <p> Open Transfer line filter shutoff valve 1 (TLShOfV01)</p> <p>ELSE</p> <p> Close Transfer line filter shutoff valve 1 (TLShOfV01)</p> <p>IF SP_Dest = 1 OR SP_Dest = 3 THEN:</p> <p> Open Filter Transfer line feed valve 1 (FTLFeedV01)</p> <p>ELSE</p> <p> Close Filter Transfer line feed valve 1 (FTLFeedV01)</p> <p>IF SP_Dest = 2 OR SP_Dest = 3 THEN:</p> <p> Open Filter Hose flexible inlet valve 1 (FHFInV01)</p> <p>ELSE</p> <p> Close Filter Hose flexible inlet valve 1 (FHFInV01)</p> <p><u>Close valves:</u></p> <p>Vessel filter ventilation valve 1 production area (VVentV01)</p> <p>Vessel filter ventilation valve 2 technical area (VVentV02)</p> <p>Transfer line filter drain valve 1 (TLDrnV01)</p> <p>Vessel filter condensate drain valve 2 (FCndsV02)</p> <p>Filter air inlet shutoff valve 1 (AirInltV01)</p> <p>Steam inlet valve 1 (StmInltV01)</p> <p><u>Stop regulation:</u></p> <p>Pressure regulation 1 (PIC01)</p> <p>Send the pressure setpoint at 0 to the Filter air inlet control valve 1 (AirInCV01)</p>	

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment		Action	
	Transitions	Comment	Transition ok	Step
	TR00_1	Valves positions OK	Valves positions OK	S10
S10	Exhaust SIP in Progress		SET Route_OK (to EPH)	
	Transitions	Comment	Transition ok	Step
	TR10_1	Vessel pressure (PV) < MP_ExhaustSIPDrain_Pres	PV_VesselPT02 < the Pressure threshold to end depressurization to SIP drain valve (MP_ExhaustSIPDrain_Pres)	S20
S20	Waiting for a new CS		SET CS_Done (to EPH)	
	Transitions	Comment	Transition ok	Step
	TR20_1	AlwaysFalse	Blocked transition – Waiting for CS change request	END
END	N.A.		N.A.	

3.17.4 POST-PROCESSING TREATMENT

Action
<p><u>Too long time for depressurization alarm management:</u></p> <p>IF S10 step THEN PRESET/START - TimerMaxVesPres (MP_Exhaust_MaxTime)</p> <p>ELSE RESET – TimerMaxVesPres</p> <p>If the timer “Maximum Vessel release pressure” reaches the alarm threshold (MP_Exhaust_MaxTime) then generate alarm message 4.</p>

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment	Action
S00	Close valves	<p><u>Close valves:</u></p> <p>Vessel filter ventilation valve 1 production area (VVentV01)</p> <p>Transfer line filter drain valve 1 (TLDrnV01)</p> <p>Vessel filter condensate drain valve 2 (FCndsV02)</p> <p>Filter air inlet shutoff valve 1 (AirInltV01)</p> <p>Vessel filter shutoff valve 1 (VShOfV01)</p> <p>Vessel filter inlet line condensate drain valve 1 (FCndsV01)</p> <p>Filter Transfer line feed valve 1 (FTLFeedV01)</p> <p>Filter Hose flexible inlet valve 1 (FHFInV01)</p> <p>Steam inlet valve 1 (StmInltV01)</p> <p><u>Stop regulation:</u></p> <p>Pressure regulation 1 (PIC01)</p> <p>Send the pressure setpoint at 0 to the Filter air inlet control valve 1 (AirInCV01)</p>
	Transitions	Transition ok
	TR00_1	Valves positions OK
S10	Exhaust technical area - Route establishment	<p><u>Open valves:</u></p> <p>Vessel filter ventilation valve 2 technical area (VVentV02)</p> <p>Transfer line filter shutoff valve 1 (TLShOfV01)</p>
	Transitions	Transition ok
	TR10_1	Valves positions OK
S20	Waiting for a new CS	<p>SET Route_OK (to EPH)</p> <p>SET CS_Done (to EPH)</p>
	Transitions	Transition ok
	TR20_1	Blocked transition – Waiting for CS change request
END	N.A.	N.A.

3.18.4 POST-PROCESSING TREATMENT

Action
N.A.

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.19 RUN SEQUENCE (AIR_SAMPLING)

3.19.1 DESCRIPTION

This sequence will be linked with WINCC faceplate. It will be available if the Flag AirSampling_Allow is equal to 1 and we have a self-regulation on the control valve (MP_SelfRegulValve =1)

The flag will be calculated in the life cycle of the EM in the CFC. It is set at 1 when the EM is in Idle state, or the control strategy is OFF.

Variant	Description of fluidic path
1	
2	
3	

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Variant	Description of fluidic path
4	
5	
6	
7	

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.19.2 PRE-PROCESSING TREATMENT

Action
Preposition Ramp at PV_AirCVPT01

3.19.3 SEQUENTIAL TREATMENT

Step	Comment		Action	
START ►	Air_Sampling		RESET Start_AirSampling	
	Transitions	Comment	Transition ok	Step
	=1	Always true	= 1	S00
S00	OPD message: Connect your device to perform the air sampling. Choose the type of sampling and press execute. <i>Notes:</i> OPD display the option box: - Particular sampling - Microbiologic sampling		Generate Operator Dialog message 511 (one option is necessary to execute) IF Particles THEN : MEMO_SamplingType := MP_SamplingAir_Particles IF Microbio THEN : MEMO_SamplingType := MP_SamplingAir_Microbio	
	Transitions	Comment	Transition ok	Step
	TR00_1	OPD execute button	OPD execute button	S10
S10	Route establishment		<u>Close valves:</u> Vessel filter ventilation valve 1 production area (VVentV01) Vessel filter ventilation valve 2 technical area (VVentV02) Vessel filter inlet line condensate drain valve 1 (FCndsV01) Vessel filter condensate drain valve 2 (FCndsV02) Transfer line filter shutoff valve 1 (TLShOfV01) Transfer line filter drain valve 1 (TLDmV01) Vessel filter shutoff valve 1 (VShOfV01) Filter Transfer line feed valve 1 (FTLFeedV01) Filter Hose flexible inlet valve 1 (FHFIInV01) Steam inlet valve 1 (StmInltV01) <u>Stop regulation:</u> Pressure regulation 1 (PIC01)	
	Transitions	Comment	Transition ok	Step
	TR10_1	Valves positions OK	Valves positions OK	S20

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment		Action	
S20	Route establishment		<u>Open valve:</u> Filter air inlet shutoff valve 1 (AirInltV01)	
	Transitions	Comment	Transition ok	Step
	TR20_1	Valves positions OK	Valves positions OK	S30
S30	Ramp Time		<u>Ramp management:</u> Start the ramp timer and calculation of the Pressure setpoint according to sampling pressure setpoint (MEMO_SamplingType), and Pressure control ramp time (MP_SamplingAir_RampTime) <u>Start regulation:</u> Send the calculated pressure setpoint (according to ramp) to the Filter air inlet control valve 1 (AirInCV01)	
	Transitions	Comment	Transition ok	Step
	TR30_1	End of Ramp Time and Pressure Ok	End of Ramp Time AND (PV_AirCVPT01 <= MEMO_SamplingType + MP_SamplingAir_TolPres) AND (PV_AirCVPT01 >= MEMO_SamplingType - MP_SamplingAir_TolPres)	S40
S40	Pressure Control OK OPD message: You can perform the air sampling. Execute only when the air sampling is completed. Notes: OPD display: - Pressure setpoint (MEMO_SamplingType) - Air control valve pressure 1 (PV_AirCVPT01)		<u>Start regulation:</u> Send the pressure setpoint (MEMO_SamplingType) to Filter air inlet control valve 1 (AirInCV01) Generate Operator Dialog message 512 (Execute button possible) OPD display: - Pressure setpoint (MEMO_SamplingType) - Air control valve pressure 1 (PV_AirCVPT01)	
	Transitions	Comment	Transition ok	Step
	TR40_1	OPD Execute button	OPD Execute button	S50
S50	Depressurization		<u>Stop regulation:</u> Send the pressure setpoint at 0 to the Filter air inlet control valve 1 (AirInCV01)	
	Transitions	Comment	Transition ok	Step
	TR50_1	Pressure Ok	PV_AirCVPT01 <= MP_ExhaustCleanRoom_Pres	S60
S60	OPD message: Do you want to perform another air sampling?		Generate Operator Dialog message 513 (Execute is allow only when Yes or No is selected)	

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment		Action	
	Transitions	Comment	Transition ok	Step
	TR60_1	OPD Execute/NO button	OPD Execute button and NO	S70
	TR60_2	OPD Execute/YES button	OPD Execute button and YES	S00
S70	OPD message: Close the air sampling manual valve then execute to start the air leakage test.		Generate Operator Dialog message 514 (Execute button possible)	
	Transitions	Comment	Transition ok	Step
	TR70_1	OPD Execute button	OPD Execute button	S80
S80	Leakage test		<p><u>Ramp management:</u></p> <p>Start the ramp timer and calculation of the Pressure setpoint according to leakage test pressure setpoint (MP_SamplingAir_Leakage), and Pressure control ramp time (MP_SamplingAir_RampTime)</p> <p><u>Start regulation:</u></p> <p>Send the calculated pressure setpoint (according to ramp) to the Filter air inlet control valve 1 (AirInCV01)</p>	
	Transitions	Comment	Transition ok	Step
	TR80_1	End of Ramp Time	End of Ramp Time AND (PV_AirCVPT01 <= MP_SamplingAir_Leakage + MP_SamplingAir_TolPres) AND (PV_AirCVPT01 >= MP_SamplingAir_Leakage - MP_SamplingAir_TolPres)	S90
S90	OPD message: Execute to confirm that there is no leakage?		<p><u>Start regulation:</u></p> <p>Send the pressure setpoint (MP_SamplingAir_Leakage) to Filter air inlet control valve 1 (AirInCV01)</p> <p>Generate Operator Dialog message 515 (Execute button possible)</p>	
	Transitions	Comment	Transition ok	Step
	TR90_1	OPD Execute button	OPD Execute button	S100
S100	Depressurization		<p><u>Stop regulation:</u></p> <p>Send the pressure setpoint at 0 to the Filter air inlet control valve 1 (AirInCV01)</p>	
	Transitions	Comment	Transition ok	Step
	TR100_1	Pressure Ok	PV_AirCVPT01 <= MP_ExhaustCleanRoom_Pres	S110
S110	Close valve		<p><u>Close valves:</u></p> <p>Filter air inlet shutoff valve 1 (AirInltV01)</p>	

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment		Action	
	Transitions	Comment	Transition ok	Step
	TR110_1	AlwaysFalse	Blocked transition – Waiting for CS change request	END
END	N.A.		N.A.	

3.19.4 POST-PROCESSING TREATMENT

Action
<p><u>Too long time for air sampling alarm management:</u></p> <p>IF current step >= 0 THEN: PRESET/START - TimerMaxAirSampling (MP_SamplingAir_MaxTime) ELSE RESET – TimerMaxAirSampling</p> <p>If the timer “Maximum Air Sampling time” reaches the alarm threshold (MP_SamplingAir_MaxTime) then generate alarm message 9.</p> <p><u>Too long time for pressure request alarm management:</u></p> <p>IF S30 or S80 steps THEN PRESET/START - TimerMaxTimePres (MP_PresTol_AlmTime) ELSE RESET – TimerMaxTimePres</p> <p>If the timer “Maximum time pressure” reaches the alarm threshold (MP_PresTol_AlmTime) then generate alarm message 10.</p> <p><u>Too long time for depressurization alarm management:</u></p> <p>IF S50 and or S100 steps THEN PRESET/START - TimerMaxDepress (MP_Exhaust_MaxTime) ELSE RESET – TimerMaxDepress</p> <p>If the timer “Maximum depressurization time” reaches the alarm threshold (MP_Exhaust_MaxTime) then generate alarm message 4.</p> <p><u>Complete control strategy Air Sampling</u></p> <p>IF S110 AND Filter air inlet shutoff valve 1 (AirInltV01) closed THEN Set internal command complete</p>

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.20 HOLDING AND ERROR SEQUENCE

Holding sequence can be trigger by the holding request (operators). Error sequence can be trigger by the external error conditions, the internal error conditions, and alarms with the parameter EM in error set to yes. If one of these sequences is triggered, then LockError is set to 1 else is set to 0.

3.20.1 PRE-PROCESSING TREATMENT

Action
N.A.

3.20.2 SEQUENTIAL TREATMENT

Step	Comment	Action
START (1s)	Reset alarms Unlock manual mode on CM	Reset Alarms Enable switching mode button (auto/manu) of all CM (except all PIDConL) Liberation of all CM setpoint from external setpoint (except all PIDConL) <u>Stop regulation:</u> Pressure regulation 1 (PIC01) Send the pressure setpoint at 0 to the Filter air inlet control valve 1 (AirInCV01)
	Transitions	Transition ok
	=1	= 1
S00	Ventil (By vent valve or SIP drain valve according to temperature)	Reset Operator Dialog message RESET Route_OK (to EPH) RESET CS_Done (to EPH) RESET SP_Plateau_Strt (Actual value) RESET Command Start Ramp RESET – TimerLowPress RESET – TimerFilterTT RESET – TimerHighPress RESET – TimerMaxVesPres RESET - TimerOpenRoute F0_Calc_HoldF0 := True F0_Calc_StartF0 := False <u>Close valves:</u> Filter air inlet shutoff valve 1 (AirInItV01) Transfer line filter shutoff valve 1 (TLShOfV01)

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment		Action	
			Transfer line filter drain valve 1 (TLDrnV01) Vessel filter condensate drain valve 2 (FCndsV02) Filter Transfer line feed valve 1 (FTLFeedV01) Filter Hose flexible inlet valve 1 (FHFInV01) Steam inlet valve 1 (StmInltV01) Enable switching mode button (auto/manu) of all PIDConL CM Liberation of all PIDConL CM setpoint from external setpoint (on termination step) F0_Calc_HoldF0 := False	
	Transitions	Comment	Transition ok	Step
	TR00_1	Valves positions OK and normal temperature (no SIP)	Valves positions OK AND (PV_SIPDrnTT01 <= MP_HoldError_SIPDrainTT AND NOT (PIC01) in AUTO	S10
	TR00_2	Valves positions OK and high temperature (during SIP)	Valves positions OK AND (variant 1 OR variant 2 OR variant 7) AND (PV_SIPDrnTT01 > MP_HoldError_SIPDrainTT AND NOT (PIC01) in AUTO	S110
S10	Ventil (by vent valve) - Route establishment		<u>Close valves:</u> Vessel filter inlet line condensate drain valve 1 (FCndsV01) Filter Transfer line feed valve 1 (FTLFeedV01) Filter Hose flexible inlet valve 1 (FHFInV01)	
	Transitions	Comment	Transition ok	Step
	TR10_1	Valves positions OK	Valves positions OK	S20
S20	Ventil (by vent valve) - Route establishment		<u>Open valve:</u> Vessel filter shutoff valve 1 (VShOfV01)	
	Transitions	Comment	Transition ok	Step
	TR20_1	Valves positions OK and exhaust to technical room	Valves positions OK AND Variant <> 7 AND (PV_VesselPT02 > the Pressure threshold to end depressurization to clean area (MP_ExhaustCleanRoom_Pres) OR NOT MP_Exhaust_Config)	S30
	TR20_2	Valves positions OK and exhaust to clean room	Valves positions OK AND MP_Exhaust_Config AND (PV_VesselPT02 <= the Pressure threshold to end depressurization to clean area (MP_ExhaustCleanRoom_Pres) OR Variant = 7)	S50

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment		Action	
S30	Ventil - Route establishment		<u>Open valve:</u> Vessel filter ventilation valve 2 technical area (VVentV02)	
	Transitions	Comment	Transition ok	Step
	TR30_1	Valves positions OK	Valves positions OK	S40
S40	Exhaust to technical room		N.A.	
	Transitions	Comment	Transition ok	Step
	TR40_1	Vessel pressure (PV) < MP_ExhaustTechRoom_Pres	MP_Exhaust_Config and PV_VesselPT02 < the Pressure threshold to end depressurization to technical room (MP_ExhaustTechRoom_Pres) OR NOT MP_Exhaust_Config and PV_VesselPT02 < the Pressure threshold to end depressurization to clean area (MP_ExhaustCleanRoom_Pres)	S50
S50	Exhaust to clean room		IF MP_Exhaust_Config THEN: <u>Close valve:</u> Vessel filter ventilation valve 2 technical area (VVentV02) <u>Open valve:</u> Vessel filter ventilation valve 1 production area (VVentV01)	
	Transitions	Comment	Transition ok	Step
	TR50_1	Vessel pressure (PV) < MP_ExhaustCleanRoom_Pres AND Valves positions OK	NOT MP_Exhaust_Config OR ((PV_VesselPT02 < the Pressure threshold to end depressurization to clean room (MP_ExhaustCleanRoom_Pres) OR variant = 7) AND Valves positions OK)	S60
S60	Waiting for no external fault		RESET - TimerMaxVesPres Reset Alarm message 4	
	Transitions	Comment	Transition ok	Step
	TR60_1	No external error conditions	NOT LockError and PIDs not in AUTO	END
S110	Ventil (by SIP drain valve) - Route establishment		<u>Close valve:</u> Vessel filter ventilation valve 1 production area (VVentV01) Vessel filter ventilation valve 2 technical area (VVentV02)	
	Transitions	Comment	Transition ok	Step
	TR110_1	Valves positions OK	Valves positions OK	S120

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment	Action
S120	Ventil (by SIP drain valve) - Route establishment	<p><u>Open valve:</u> Vessel filter shutoff valve 1 (VShOfV01)</p> <p><u>Open/Close valves:</u> IF Variant = 7 AND (SP_Dest = 1 OR SP_Dest = 3) THEN: Open Transfer line filter shutoff valve 1 (TLShOfV01) ELSE Close Transfer line filter shutoff valve 1 (TLShOfV01) IF SP_Dest = 1 OR SP_Dest = 3 THEN: Open Filter Transfer line feed valve 1 (FTLFeedV01) ELSE Close Filter Transfer line feed valve 1 (FTLFeedV01) IF SP_Dest = 2 OR SP_Dest = 3 THEN: Open Filter Hose flexible inlet valve 1 (FHFInV01) ELSE Close Filter Hose flexible inlet valve 1 (FHFInV01)</p>
	Transitions	Transition ok
	Comment	Step
	TR120_1	Valves positions OK Valves positions OK S130
S130	Ventil (by SIP drain valve) - Route establishment	<p><u>Open valves:</u> Vessel filter inlet line condensate drain valve 1 (FCndsV01)</p>
	Transitions	Transition ok
	Comment	Step
S140	TR130_1	Valves positions OK Valves positions OK S140
	Ventil (by SIP drain valve) – Waiting for depressurization	N.A.
	Transitions	Transition ok
S140	Comment	Step
	TR140_1	Vessel pressure (PV) < MP_ExhaustSIPDrain_Pres PV_VesselPT02 < the Pressure threshold to end depressurization to SIP drain valve (MP_ExhaustSIPDrain_Pres) S10
END	N.A.	N.A.

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.20.3 POST-PROCESSING TREATMENT

Action
<p><u>Too long time for depressurization alarm management:</u></p> <p>IF S10 or S20 or S30 or S40 or S50 or S140 steps THEN PRESET/START - TimerMaxVesPres (MP_Exhaust_MaxTime)</p> <p>ELSE RESET – TimerMaxVesPres</p> <p>If the timer “Maximum Vessel release pressure” reaches the alarm threshold (MP_Exhaust_MaxTime) then generate alarm message 4.</p>

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.21 STOPPING AND ABORTING AND COMPLETING SEQUENCE

3.21.1 PRE-PROCESSING TREATMENT

Action
N.A.

3.21.2 SEQUENTIAL TREATMENT

Step	Comment		Action	
START (1s)	Reset alarms Unlock manual mode on CM		Reset Alarms Enable switching mode button (auto/manu) of all CM (except all PIDConL) Liberation of all CM setpoint from external setpoint (except all PIDConL) <u>Stop regulation:</u> Pressure regulation 1 (PIC01) Send the pressure setpoint at 0 to the Filter air inlet control valve 1 (AirInCV01)	
	Transitions	Comment	Transition ok	Step
	=1	Always true	= 1	S00
S00	Ventil (By vent valve or SIP drain valve according to temperature)		Reset Operator Dialog message RESET Route_OK (to EPH) RESET CS_Done (to EPH) RESET SP_Plateau_Strt (Actual value) RESET Command Start Ramp RESET – TimerLowPress RESET – TimerFilterTT RESET – TimerHighPress RESET – TimerMaxVesPres RESET - TimerOpenRoute RESET – Start_AirSampling F0_Calc_HoldF0 := True F0_Calc_StartF0 := False <u>Close valves:</u> Filter air inlet shutoff valve 1 (AirInlV01) Transfer line filter shutoff valve 1 (TLShOfV01) Transfer line filter drain valve 1 (TLDrnV01)	

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment		Action	
			Vessel filter condensate drain valve 2 (FCndsV02) Filter Transfer line feed valve 1 (FTLFeedV01) Filter Hose flexible inlet valve 1 (FHFInV01) Steam inlet valve 1 (StmInltV01) Enable switching mode button (auto/manu) of all PIDConL CM Liberation of all PIDConL CM setpoint from external setpoint (on termination step) F0_Calc_HoldF0 := False	
	Transitions	Comment	Transition ok	Step
	TR00_1	Valves positions OK and normal temperature (no SIP) and aborting command	Valves positions OK AND (PV_SIPDrnTT01 <= MP_HoldError_SIPDrainTT AND EM aborting AND NOT (PIC01) in AUTO	S10
	TR00_2	Valves positions OK and high temperature (during SIP)	Valves positions OK AND (variant 1 OR variant 2 OR variant 7) AND PV_SIPDrnTT01 > MP_HoldError_SIPDrainTT AND NOT (PIC01) in AUTO	S110
	TR00_3	Valves positions OK and normal temperature (no SIP) and (completing or stopping command)	Valves positions OK AND (PV_SIPDrnTT01 <= MP_HoldError_SIPDrainTT AND (EM completing OR EM stopping) AND NOT (PIC01) in AUTO	END
S10	Ventil (by vent valve) - Route establishment		<u>Close valves:</u> Vessel filter inlet line condensate drain valve 1 (FCndsV01) Filter Transfer line feed valve 1 (FTLFeedV01) Filter Hose flexible inlet valve 1 (FHFInV01)	
	Transitions	Comment	Transition ok	Step
	TR10_1	Valves positions OK	Valves positions OK	S20
S20	Ventil (by vent valve) - Route establishment		<u>Open valve:</u> Vessel filter shutoff valve 1 (VShOfV01)	

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment		Action	
	Transitions	Comment	Transition ok	Step
	TR20_1	Valves positions OK and exhaust to technical room	Valves positions OK AND Variant <> 7 AND (PV_VesselPT02 > the Pressure threshold to end depressurization to clean area (MP_ExhaustCleanRoom_Pres) OR NOT MP_Exhaust_Config)	S30
	TR20_2	Valves positions OK and exhaust to clean room	Valves positions OK AND MP_Exhaust_Config AND (PV_VesselPT02 <= the Pressure threshold to end depressurization to clean area (MP_ExhaustCleanRoom_Pres) OR Variant = 7)	S50
S30	Ventil - Route establishment		<u>Open valve:</u> Vessel filter ventilation valve 2 technical area (VVentV02)	
	Transitions	Comment	Transition ok	Step
	TR30_1	Valves positions OK	Valves positions OK	S40
S40	Exhaust to technical room		N.A.	
	Transitions	Comment	Transition ok	Step
	TR40_1	Vessel pressure (PV) < MP_ExhaustTechRoom_Pres	MP_Exhaust_Config and PV_VesselPT02 < the Pressure threshold to end depressurization to technical room (MP_ExhaustTechRoom_Pres) OR NOT MP_Exhaust_Config and PV_VesselPT02 < the Pressure threshold to end depressurization to clean area (MP_ExhaustCleanRoom_Pres)	S50
S50	Exhaust to clean room		If MP_Exhaust_Config then: <u>Close valve:</u> Vessel filter ventilation valve 2 technical area (VVentV02) <u>Open valve:</u> Vessel filter ventilation valve 1 production area (VVentV01)	
	Transitions	Comment	Transition ok	Step
	TR50_1	Vessel pressure (PV) < MP_ExhaustCleanRoom_Pres AND Valves positions OK	(NOT MP_Exhaust_Config OR ((PV_VesselPT02 < the Pressure threshold to end depressurization to clean room (MP_ExhaustCleanRoom_Pres) OR variant = 7) AND Valves positions OK)) AND PIDs not in AUTO	END
S110	Ventil (by SIP drain valve) - Route establishment		<u>Close valve:</u> Vessel filter ventilation valve 1 production area (VVentV01) Vessel filter ventilation valve 2 technical area (VVentV02)	

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment		Action	
	Transitions	Comment	Transition ok	Step
	TR110_1	Valves positions OK	Valves positions OK	S120
S120	Ventil (by SIP drain valve) - Route establishment		<p><u>Open valve:</u> Vessel filter shutoff valve 1 (VShOfV01)</p> <p><u>Open/Close valves:</u> IF Variant = 7 AND (SP_Dest = 1 OR SP_Dest = 3) THEN: Open Transfer line filter shutoff valve 1 (TLShOfV01) ELSE Close Transfer line filter shutoff valve 1 (TLShOfV01) IF SP_Dest = 1 OR SP_Dest = 3 THEN: Open Filter Transfer line feed valve 1 (FTLFeedV01) ELSE Close Filter Transfer line feed valve 1 (FTLFeedV01) IF SP_Dest = 2 OR SP_Dest = 3 THEN: Open Filter Hose flexible inlet valve 1 (FHFInV01) ELSE Close Filter Hose flexible inlet valve 1 (FHFInV01)</p>	
	Transitions	Comment	Transition ok	Step
	TR120_1	Valves positions OK	Valves positions OK	S130
S130	Ventil (by SIP drain valve) - Route establishment		<p><u>Open valves:</u> Vessel filter inlet line condensate drain valve 1 (FCndsV01)</p>	
	Transitions	Comment	Transition ok	Step
	TR130_1	Valves positions OK	Valves positions OK	S140
S140	Ventil (by SIP drain valve) – Waiting for depressurization		N.A.	
	Transitions	Comment	Transition ok	Step
	TR140_1	Vessel pressure (PV) < MP_ExhaustSIPDrain_Pres	PV_VesselPT02 < the Pressure threshold to end depressurization to SIP drain valve (MP_ExhaustSIPDrain_Pres)	S10
END	N.A.		<p>RESET Alarm “Too long time for depressurization”.</p> <p>RESET EM Sequence Number (MEMO_TARGETSEQ) & EM Step Number (MEMO_TARGETSTEP)</p> <p>SET internal command RESET</p>	

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.21.3 POST-PROCESSING TREATMENT

Action
<p><u>Too long time for depressurization alarm management:</u></p> <p>IF S10 or S20 or S30 or S40 or S50 or S140 steps THEN PRESET/START - TimerMaxVesPres (MP_Exhaust_MaxTime)</p> <p>ELSE RESET – TimerMaxVesPres</p> <p>If the timer “Maximum Vessel release pressure” reaches the alarm threshold (MP_Exhaust_MaxTime) then generate alarm message 4.</p>

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

3.22 CPU_RESTART

3.22.1 PRE-PROCESSING TREATMENT

Action
N.A.

3.22.2 SEQUENTIAL TREATMENT

Step	Comment	Action
START (1s)	Stand by position for all CM	<p><u>Stop regulations:</u></p> <p>Pressure regulation 1 (PIC01)</p> <p>Send the pressure setpoint at 0 to the Filter air inlet control valve 1 (AirInCV01)</p> <p><u>Close valves:</u></p> <p>Filter air inlet shutoff valve 1 (AirInIV01)</p> <p>Vessel filter inlet line condensate drain valve 1 (FCndsV01)</p> <p>Vessel filter condensate drain valve 2 (FCndsV02)</p> <p>Transfer line filter shutoff valve 1 (TLShOfV01)</p> <p>Transfer line filter drain valve 1 (TLDrnV01)</p> <p>Filter Transfer line feed valve 1 (FTLFeedV01)</p> <p>Filter Hose flexible inlet valve 1 (FHFinV01)</p> <p>Steam inlet valve 1 (StmInIV01)</p> <p><u>Open valve:</u></p> <p>Vessel filter ventilation valve 1 production area (VVentV01)</p> <p><u>Open valve / close:</u></p> <p>Vessel filter ventilation valve 2 technical area (VVentV02): = E_Type_Valve_VVentV02</p> <p>Vessel filter shutoff valve 1 (VShOfV01) := E_Type_Valve_VShOfV01</p> <p>RESET Alarms</p> <p>RESET Route_OK (to EPH)</p> <p>RESET CS_Done (to EPH)</p> <p>RESET Operator Dialog message (= 0)</p> <p>RESET Command Start Ramp</p> <p>F0_Calc_HoldF0 := True</p> <p>F0_Calc_StartF0 := False</p> <p>RESET – TimerLowPress</p>

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

Step	Comment		Action	
			RESET – TimerFilterTT RESET – TimerHighPress RESET – TimerMaxVesPres RESET - TimerOpenRoute RESET – Start_AirSampling RESET SP_Plateau_Strt (Actual value) (on termination step) F0_Calc_HoldF0 := False	
	Transitions	Comment	Transition ok	Step
	=1	Always true	=1	S00
S00	MANUAL mode on CM		Switching to manual mode all CM	
	Transitions	Comment	Transition ok	Step
	TR00_1	Always true	=1	END
END	Unlock MANUAL mode on CM		Enable switching mode button (auto/manu) of all CM Liberation of all CM setpoint from external setpoint Set internal command reset (on termination step) RESET TRIG_CPU_RESTART. RESET EM Sequence Number (MEMO_TARGETSEQ) & EM Step Number (MEMO_TARGETSTEP)	

3.22.3 POST-PROCESSING TREATMENT

Action
N.A.

TPA	Unit	Equipment Module Type	Variant
N.A.	N.A.	EMT_CCA	N.A.

ANNEXE A : FOLLOW-UP OF MODIFICATIONS

Version	Effective from	Description of modifications
V03	See first page	§3.14.4 : Modification of Management of the control valve (AirInCV01) or PID output (PIC01) as CS2 §3.19.4 : Change AND by OR on Too long time for depressurization alarm management
V02	N.A.	Update Vessel pressure (PV) with the right tag PV_VesselPT02 §3.10.3 : S30 modification of action and TR30_1 modification of transition ok §3.20.2 and §3.21.2 : TR20_1 modification of transition ok §3.21.2 : Modification of action
V01	N.A.	(P01E) : Removing of CMT 'HFZS01' For variant 7 : valve VShOfV01 become TLShOfV01 (change CS consequently) (P01D) : Variant 7 : Valve inversion (AirInCV01 and AirInItV01) / Add event valve VVentV02 / VShOfV01 becomes NC valve / Add valve StmInItV01 Add parameter 'MP_Exhaust_Config' and change all sequence with ventil consequently CS 'PresCtrl' & 'BlowingSIP' & 'BlowingTrsfLines' : Pressure must be done on CV (with timer) before opening route – Add MP_OpenRoute_Time (P01C) : Variant 10 become variant 7 (P01B) : Addition of new variant (10) §1.4 - §3.1 Add new control modules for variant 10 §1.5 - §3.5 - §3.6 then add new control modules in the sequential treatment of all the sequences Addition of the air sampling sequence (modification §2.2 - §2.6 - §3.2 - §3.7.3 - §3.21.2) creation of the complete §3.19 Add hysteresis (§2.2 - §3.13.3) (P01A) : Modification of variant (1-3-4-5) §1.4 Addition of new variant (9) §1.4 - §3.1 Modification S30 and S40 of CS5 (BlowingSIP) §3.13.3
V00	N.A.	Original version CTO-FDS-01003-Unit-EMT_CCA-2.0 (issue of Corporate Library)