



Physical Class Specification

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Revision History

Version	Changed by	Date	Change No.	Reason
None	David Paspas	None	NA	Mixing Vessel Fabrication Mechanical Items
None	David Paspas	None	NA	Storage Vessel Fabrication Mechanical Items



Index List

Class	Description	Make
	M1 Control Panel	N/A
	S1 Control Panel	N/A
	BFS Control Panel	N/A
mAGT	Vessel Mixer Agitator	Millipore
mASL	Pressure Switch	Festo
mBAV1	Ball Valve 1/2" (actuated)	Meca INOX
mBAV2	Ball Valve 1" (manual)	Meca INOX
mBAV3	Ball Valve 3/4" (actuated)	Meca INOX
mBAV4	Ball Valve 1-1/2" (actuated)	Meca INOX
mBAV5	Ball Valve 2" (actuated)	Meca INOX
mBAV6	Ball Valve 1/2" (manual)	Meca INOX
mBAV7	Ball Valve 2" (manual)	Meca INOX
mBV6	Butterfly Valve 4" (manual)	KSB AMRI
mBV7	Butterfly Valve 4" (actuated)	KSB AMRI
mCOUP	Hansen Couplings	Eaton
mCV	Pneumatic Control Valve	Samson
mDV	Shutoff valve for 1 inch pipe, triclamp, normally-open stainless steel actuator	Millipore
mDV1	Shutoff valve for 1 inch pipe, triclamp, normally-closed plastic actuator	Millipore
mDV14	Provided by Rieckermann Thailand (Manual Valve)	
mDV2	Shutoff valve for 1.5 inch pipe, triclamp, normally-closed plastic actuator	Millipore
mDV3	Shutoff valve for 2 inch pipe, triclamp, normally-closed plastic actuator (EPDM seat)	Millipore
mDV4	Tank outlet valve for 2 inch, butt weld, normally-closed plastic actuator	Millipore
mDV5	Provided by Rieckermann Thailand (Actuated Valve)	
mDV6	Shutoff valve for 2 inch pipe, triclamp, normally-closed plastic actuator (PTFE seat)	Millipore
mDV7	Shutoff valve for 1 inch pipe, triclamp, manual valve	Millipore
mESTOP	Emergency Stop	IDEC
mESTOP1	Emergency Stop	IDEC
mFILT	Vent Filter Housing Vent Filter Element	Millipore
mFILT1	Compressed Air Filter	Millipore
mFILT2	Filter Press	TBA by RT
mFILT3	Pre-Filter Housing Pre-Filter Element	Millipore
mFILT4	Sterile Filter Housing Sterile Filter Element	Millipore
mFILT5	Vacuum Pump Moisture Trap - not ordered yet	
mFXH	2" Flexible Hose for PW/WFI/PS Vessel Inlet (Hansen Coupling)	Dockweiler
mFXH1	2" Flexible Hose for Mixing Vessel Outlet (Ferrule Clamp)	Dockweiler



mFXH2	1" Flexible Hose (Ferrule Clamp)	Dockweiler
mGV	Gate Valve 4" (manual)	VMXZ4 (Dancomech)
mHE	Vent Filter Heating Element	Millipore
mHEX	Heat Exchanger	Allegheny Bradford Corporation
mHMI	TP1900 Comfort INOX Touch Screen HMI	Siemens
mLAF	Laminar Flow Cabinet	Esco
mLC1	Load Cells	Mettler Toledo
mMx	Mixing Vessel	Pharmafood Engineering
mPB	Push Button	Schneider
mPC	Batch PC	HP
mPG	Pressure gauge	Milipore
mPROX	Proximity sensor	ifm electronic gmbh
mPROX1	Proximity sensor	ifm electronic gmbh
mPRT	Batch Report Printer	HP
mPRV	Pressure Regulating Valve	Parker
mPT	Pressure Indicating Transmitter	Endress+Hauser
mRD	Bursting disc	Fike
mSB	Spray ball	Aerre Inox
mSG	Sight Glass Vessel Luminaire - w Light fitting	Max Muller AG
mSOL	SMS1 remote solenoid valve and digital input station	Festo
mSSP	Signal splitter	Amelec
mST	Steam trap	Spirax Sarco
mSy	Storage Vessel	Pharmafood Engineering
mT	Temperature probe c/w transmitter (with 35 mm neck)	Endress+Hauser
mT1	Temperature probe c/w transmitter (with 35 mm neck)	Endress+Hauser
mT2	Temperature probe c/w transmitter (with 35 mm neck)	Endress+Hauser
mTI	Temperature probe with Thermowell (Thermowell fabricated by JJK)	Endress+Hauser
mTT	Temperature Transmitter of Heating Jacket	Milipore
mTT1	Temperature Transmitter with Hygienic Thermowell	Endress+Hauser
mUPS	Un-interruptible Power Supply	APC by Schneider Electric
mVP	Vacuum pump	Elmo Rietschle



Class	Description
	S1 Control Panel

Equipment Data Sheet

Description	S1 Control Panel		Seals	N/A
Make	N/A		Surface Finish Certificates Required	No
Size	1600 x 1000 x 400		Material Certificates Required	No
Material	N/A	N/A	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	N/A
Model	N/A			
Datasheet				

Service Requirements	N/A
Functional Requirements	N/A
Control Requirements	N/A

Installation Requirements	N/A
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Tag	Description	P&ID
CPU1	Siemens S7-1500 CPU in M1 Cabinet	
CPU2	Siemens S7-1500 CPU in M2 Cabinet	
EA1010	M1 Vessel Agitator	A170810-PR-SMS-PID-001
EA2010	M2 Vessel Agitator	A170810-PR-SMS-PID-002
EC1001	M1 LP CA and HP CA supply, Vacuum and Vent	A170810-PR-SMS-PID-001
EC1002	M1 WFI and PS supply plus PW and PS supply	A170810-PR-SMS-PID-001
EC2001	M2 LP CA and HP CA supply, Vacuum and Vent	A170810-PR-SMS-PID-002
EC2002	M2 WFI and PS supply plus PW and PS supply	A170810-PR-SMS-PID-002
EC3001	S1 LP CA and HP CA supply, Vacuum and Vent	A170810-PR-SMS-PID-003
EC3002	S1 WFI and PS supply plus PW and PS supply	A170810-PR-SMS-PID-003
EC4001	S2 LP CA and HP CA supply, Vacuum and Vent	A170810-PR-SMS-PID-003
EC4002	S2 WFI and PS supply plus PW and PS supply	A170810-PR-SMS-PID-003
EE1013	M1 Main Unit Emergency Stop	A170810-PR-SMS-PID-001
EE1023	M1 Auxiliary Unit Emergency Stop	A170810-PR-SMS-PID-001
EE1033	M1 Auxiliary Unit Emergency Stop	A170810-PR-SMS-PID-001
EE1043	M1 Auxiliary Unit Emergency Stop	A170810-PR-SMS-PID-001
EE2013	M2 Main Unit Emergency Stop	A170810-PR-SMS-PID-002
EE2023	M2 Auxiliary Unit Emergency Stop	A170810-PR-SMS-PID-002
EE3013	S1 Main Unit Emergency Stop	A170810-PR-SMS-PID-003



EE3023	S1 Auxiliary Unit Emergency Stop	A170810-PR-SMS-PID-003
EE4013	S2 Main Unit Emergency Stop	A170810-PR-SMS-PID-003
EG1005	M1 gas filter heating, drain valve and temperature indicator	A170810-PR-SMS-PID-001
EG2005	M2 gas filter heating, drain valve and temperature indicator	A170810-PR-SMS-PID-002
EG3005	S1 gas filter heating, drain valve and temperature indicator	A170810-PR-SMS-PID-003
EG4005	S2 gas filter heating, drain valve and temperature indicator	A170810-PR-SMS-PID-003
EM1009	M1 load cell	A170810-PR-SMS-PID-001
EM2009	M2 load cell	A170810-PR-SMS-PID-002
ET1003	Manufacturing Filtration Line Heat Exchanger Temperature Control	A170810-PR-SMS-PID-001
ET2003	Manufacturing Filtration Line Heat Exchanger Temperature Control	A170810-PR-SMS-PID-002
EV1004	M1 vessel mounted equipment and valves	A170810-PR-SMS-PID-001
EV1008	M1 Vessel Inlet Connection	A170810-PR-SMS-PID-001
EV2004	M2 vessel mounted equipment and valves	A170810-PR-SMS-PID-002
EV2008	M2 Vessel Inlet Connection	A170810-PR-SMS-PID-002
EV3004	S1 vessel mounted equipment and valves	A170810-PR-SMS-PID-003
EV3008	S1 Vessel Inlet Connection	A170810-PR-SMS-PID-003
EV4004	S2 vessel mounted equipment and valves	A170810-PR-SMS-PID-003
EV4008	S2 Vessel Inlet Connection	A170810-PR-SMS-PID-003
EX1006	M1 CIP & SIP Drain	A170810-PR-SMS-PID-001
EX1011	SMFL1 CIP & SIP Drain Line	A170810-PR-SMS-PID-001
EX1014	MMFL1 filtration transfer line	A170810-PR-SMS-PID-001
EX1015	SMFL1 filtration transfer line	A170810-PR-SMS-PID-001
EX2006	M2 CIP & SIP Drain	A170810-PR-SMS-PID-002
EX2011	SMFL2 CIP & SIP Drain Line	A170810-PR-SMS-PID-002
EX2014	MMFL2 filtration transfer line	A170810-PR-SMS-PID-002
EX2015	SMFL2 filtration transfer line	A170810-PR-SMS-PID-002
EX3006	S1 Vessel CIP & SIP Drain	A170810-PR-SMS-PID-003
EX3007	S1 Vessel Transfer Lines	A170810-PR-SMS-PID-003
EX4006	S2 Vessel CIP & SIP Drain	A170810-PR-SMS-PID-003
EX4007	S2 Vessel Transfer Lines	A170810-PR-SMS-PID-003
EX7402	BFS1 Filling Machine	A170810-PR-SMS-PID-005
EX8402	BFS2 Filling Machine	A170810-PR-SMS-PID-006
PB74101	BFS1 Pause Software Push Button	A170810-PR-SMS-PID-005
PB84101	BFS2 Pause Software Push Button	A170810-PR-SMS-PID-006
PC1103	M1 Pressure Control	A170810-PR-SMS-PID-001
PC2103	M2 Pressure Control	A170810-PR-SMS-PID-002
PC3103	S1 Pressure Controller	A170810-PR-SMS-PID-003
PC4103	S2 Pressure Controller	A170810-PR-SMS-PID-003
PCM1	Mixing Vessel 1	
PCM2	Mixing Vessel 2	
PCS1	Storage Vessel S1	
PCS2	Storage Vessel S2	
PH1001	M1 Three Phase Relay	



PH2001	M2 Three Phase Relay	
PH3001	S1 Three Phase Relay	
TC1109	Manufacturing Filtration Line Inline Heat Exchanger Temperature Controller	A170810-PR-SMS-PID-001
TC2109	Manufacturing Filtration Line Inline Heat Exchanger Temperature Controller	A170810-PR-SMS-PID-002
VS1100	Mixing Vessels Vacuum System	A170810-PR-SMS-PID-004
VS3100	Storage Vessels Vacuum System	A170810-PR-SMS-PID-004



Class	Description
	BFS Control Panel

Equipment Data Sheet

Description	BFS Control Panel		Seals	N/A
Make	N/A		Surface Finish Certificates Required	No
Size	1600 x 1000 x 400		Material Certificates Required	No
Material	N/A	N/A	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	N/A
Model	N/A			
Datasheet				

Service Requirements	N/A
Functional Requirements	N/A
Control Requirements	N/A

Installation Requirements	N/A
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Tag	Description	P&ID
CPU1	Siemens S7-1500 CPU in M1 Cabinet	
CPU2	Siemens S7-1500 CPU in M2 Cabinet	
EA1010	M1 Vessel Agitator	A170810-PR-SMS-PID-001
EA2010	M2 Vessel Agitator	A170810-PR-SMS-PID-002
EC1001	M1 LP CA and HP CA supply, Vacuum and Vent	A170810-PR-SMS-PID-001
EC1002	M1 WFI and PS supply plus PW and PS supply	A170810-PR-SMS-PID-001
EC2001	M2 LP CA and HP CA supply, Vacuum and Vent	A170810-PR-SMS-PID-002
EC2002	M2 WFI and PS supply plus PW and PS supply	A170810-PR-SMS-PID-002
EC3001	S1 LP CA and HP CA supply, Vacuum and Vent	A170810-PR-SMS-PID-003
EC3002	S1 WFI and PS supply plus PW and PS supply	A170810-PR-SMS-PID-003
EC4001	S2 LP CA and HP CA supply, Vacuum and Vent	A170810-PR-SMS-PID-003
EC4002	S2 WFI and PS supply plus PW and PS supply	A170810-PR-SMS-PID-003
EE1013	M1 Main Unit Emergency Stop	A170810-PR-SMS-PID-001
EE1023	M1 Auxiliary Unit Emergency Stop	A170810-PR-SMS-PID-001
EE1033	M1 Auxiliary Unit Emergency Stop	A170810-PR-SMS-PID-001
EE1043	M1 Auxiliary Unit Emergency Stop	A170810-PR-SMS-PID-001
EE2013	M2 Main Unit Emergency Stop	A170810-PR-SMS-PID-002
EE2023	M2 Auxiliary Unit Emergency Stop	A170810-PR-SMS-PID-002
EE3013	S1 Main Unit Emergency Stop	A170810-PR-SMS-PID-003



EE3023	S1 Auxiliary Unit Emergency Stop	A170810-PR-SMS-PID-003
EE4013	S2 Main Unit Emergency Stop	A170810-PR-SMS-PID-003
EG1005	M1 gas filter heating, drain valve and temperature indicator	A170810-PR-SMS-PID-001
EG2005	M2 gas filter heating, drain valve and temperature indicator	A170810-PR-SMS-PID-002
EG3005	S1 gas filter heating, drain valve and temperature indicator	A170810-PR-SMS-PID-003
EG4005	S2 gas filter heating, drain valve and temperature indicator	A170810-PR-SMS-PID-003
EM1009	M1 load cell	A170810-PR-SMS-PID-001
EM2009	M2 load cell	A170810-PR-SMS-PID-002
ET1003	Manufacturing Filtration Line Heat Exchanger Temperature Control	A170810-PR-SMS-PID-001
ET2003	Manufacturing Filtration Line Heat Exchanger Temperature Control	A170810-PR-SMS-PID-002
EV1004	M1 vessel mounted equipment and valves	A170810-PR-SMS-PID-001
EV1008	M1 Vessel Inlet Connection	A170810-PR-SMS-PID-001
EV2004	M2 vessel mounted equipment and valves	A170810-PR-SMS-PID-002
EV2008	M2 Vessel Inlet Connection	A170810-PR-SMS-PID-002
EV3004	S1 vessel mounted equipment and valves	A170810-PR-SMS-PID-003
EV3008	S1 Vessel Inlet Connection	A170810-PR-SMS-PID-003
EV4004	S2 vessel mounted equipment and valves	A170810-PR-SMS-PID-003
EV4008	S2 Vessel Inlet Connection	A170810-PR-SMS-PID-003
EX1006	M1 CIP & SIP Drain	A170810-PR-SMS-PID-001
EX1011	SMFL1 CIP & SIP Drain Line	A170810-PR-SMS-PID-001
EX1014	MMFL1 filtration transfer line	A170810-PR-SMS-PID-001
EX1015	SMFL1 filtration transfer line	A170810-PR-SMS-PID-001
EX2006	M2 CIP & SIP Drain	A170810-PR-SMS-PID-002
EX2011	SMFL2 CIP & SIP Drain Line	A170810-PR-SMS-PID-002
EX2014	MMFL2 filtration transfer line	A170810-PR-SMS-PID-002
EX2015	SMFL2 filtration transfer line	A170810-PR-SMS-PID-002
EX3006	S1 Vessel CIP & SIP Drain	A170810-PR-SMS-PID-003
EX3007	S1 Vessel Transfer Lines	A170810-PR-SMS-PID-003
EX4006	S2 Vessel CIP & SIP Drain	A170810-PR-SMS-PID-003
EX4007	S2 Vessel Transfer Lines	A170810-PR-SMS-PID-003
EX7402	BFS1 Filling Machine	A170810-PR-SMS-PID-005
EX8402	BFS2 Filling Machine	A170810-PR-SMS-PID-006
PB74101	BFS1 Pause Software Push Button	A170810-PR-SMS-PID-005
PB84101	BFS2 Pause Software Push Button	A170810-PR-SMS-PID-006
PC1103	M1 Pressure Control	A170810-PR-SMS-PID-001
PC2103	M2 Pressure Control	A170810-PR-SMS-PID-002
PC3103	S1 Pressure Controller	A170810-PR-SMS-PID-003
PC4103	S2 Pressure Controller	A170810-PR-SMS-PID-003
PCM1	Mixing Vessel 1	
PCM2	Mixing Vessel 2	
PCS1	Storage Vessel S1	
PCS2	Storage Vessel S2	
PH1001	M1 Three Phase Relay	



PH2001	M2 Three Phase Relay	
PH3001	S1 Three Phase Relay	
TC1109	Manufacturing Filtration Line Inline Heat Exchanger Temperature Controller	A170810-PR-SMS-PID-001
TC2109	Manufacturing Filtration Line Inline Heat Exchanger Temperature Controller	A170810-PR-SMS-PID-002
VS1100	Mixing Vessels Vacuum System	A170810-PR-SMS-PID-004
VS3100	Storage Vessels Vacuum System	A170810-PR-SMS-PID-004



Class	Description
mAGT	Vessel Mixer Agitator

Equipment Data Sheet

Description	Vessel Mixer Agitator			Seals	EPDM/PTFE
Make	Millipore			Surface Finish Certificates Required	Yes
Size	N/A			Material Certificates Required	Yes
Material	AISI	Stainless Steel	316L	Material Requirements	Stainless Steel 316L
Gasket	N/A			Surface Finish Required	@@SURFACEFINISH@@
Model	Merck Novaseptic GMP20000 Agitator set (inclusive with gearbox, motor & corresponding inverter)				
Datasheet	Proposed by Vessel Manufacturer				

Service Requirements	Motor: 0.75 4P kW 440V 50Hz, suitable for running with inverter
Functional Requirements	N/A
Control Requirements	VFD to have profinet connectivity

Installation Requirements	Magnetic Impeller
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Tag	Description	P&ID
AG1101	M1 Agitator	A170810-PR-SMS-PID-001
AG2101	M2 Agitator	A170810-PR-SMS-PID-002



Class	Description
mASL	Pressure Switch

Equipment Data Sheet

Description	Pressure Switch		Seals	N/A
Make	Festo		Surface Finish Certificates Required	N/A
Size	N/A		Material Certificates Required	N/A
Material	N/A	Aluminium (coated)	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	N/A
Model	PEV-1/4-SC-OD			
Datasheet	https://www.festo.com/net/SupportPortal/Files/320479/PEV-14-B-SC_2003-02c386354d3.pdf			

Service Requirements	N/A
Functional Requirements	1 - 12 bar. IP65
Control Requirements	N/A

Installation Requirements	G 1/4 pneumatic connection
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Tag	Description	P&ID
ASL1000	Instrument Air Switch	A170810-PR-SMS-PID-001
ASL2000	Instrument Air Switch	A170810-PR-SMS-PID-002
ASL3000	Instrument Air Switch	A170810-PR-SMS-PID-003
ASL4000	Instrument Air Switch	A170810-PR-SMS-PID-003

Class	Description
mBAV1	Ball Valve 1/2" (actuated)

Equipment Data Sheet

Description	Ball Valve 1/2" (actuated)			Seals	TFM 1600		
Make	Meca INOX			Surface Finish Certificates Required	No		
Size	1/2"			Material Certificates Required	Yes		
Material	ASTM	Stainless 316L	Steel	Material Requirements	Valve Ball: SS316L	Body: SS	316L
Gasket	PTFE/EPDM/USP approved material		Class 6/FDA	Surface Finish Required	@@SURFACEFINISH@@		
Model	Valve Model: Actuator Model: PA00S(4+4)			Model: PS4LBWNI			
Datasheet	http://www.meca-inox.com/site2016/wp-content/themes/glissando/downloads/catalogue%20V15%20FR-GB%202015_link.pdf						

Service Requirements	Press. 3 bar, Temp 160 degC
Functional Requirements	Normally Closed
Control Requirements	Pneumanitically Actuated Valve with Open & Closed feed back

Installation Requirements	Buttweld
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Tag	Description	P&ID
BAV1139	M1 Vent line drain valve	A170810-PR-SMS-PID-001
BAV1141	M1 Vent Filter AF1101 Drain valve	A170810-PR-SMS-PID-001
BAV2139	M2 Vent line drain valve	A170810-PR-SMS-PID-002
BAV2141	M2 Vent Filter AF1101 Drain valve	A170810-PR-SMS-PID-002
BAV3139	S1 Vent line drain valve	A170810-PR-SMS-PID-003
BAV3141	S1 Vent Filter AF3101 Drain valve	A170810-PR-SMS-PID-003
BAV4139	S2 Vent line drain valve	A170810-PR-SMS-PID-003
BAV4141	S2 Vent Filter AF3101 Drain valve	A170810-PR-SMS-PID-003



Class	Description
mBAV2	Ball Valve 1" (manual)

Equipment Data Sheet

Description	Ball Valve 1" (manual)			Seals	TFM 1600
Make	Meca INOX			Surface Finish Certificates Required	No
Size	1"			Material Certificates Required	Yes
Material	ASTM	Stainless 316L	Steel	Material Requirements	Valve Body: SS 316L Ball: SS316L
Gasket	PTFE/EPDM/USP approved material	Class	6/FDA	Surface Finish Required	@@SURFACEFINISH@@
Model	PS4LBWNI				
Datasheet	http://www.meca-inox.com/site2016/wp-content/themes/glissando/downloads/catalogue%20V15%20FR-GB%202015_link.pdf				

Service Requirements	Press. 3 bar, Temp 160 degC
Functional Requirements	N/A
Control Requirements	Manually Operated with no feed back

Installation Requirements	Buttweld
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Tag	Description	P&ID
BAV1121	M1 Compressed Air Supply Isolation Valve	A170810-PR-SMS-PID-001
BAV3121	S1 Compressed Air Supply Isolation Valve	A170810-PR-SMS-PID-003



Class	Description
mBAV3	Ball Valve 3/4" (actuated)

Equipment Data Sheet

Description	Ball Valve 3/4" (actuated)			Seals	TFM 1600
Make	Meca INOX			Surface Finish Certificates Required	No
Size	3/4"			Material Certificates Required	Yes
Material	ASTM	Stainless 316L	Steel	Material Requirements	Valve Body: Carbon Steel Ball: SS316L
Gasket	PTFE/EPDM/USP approved material	Class	6/FDA	Surface Finish Required	N/A
Model	Valve Model: PA05S(5+5) Model: PS4LBWNA				
Datasheet	http://www.meca-inox.com/site2016/wp-content/themes/glissando/downloads/catalogue%20V15%20FR-GB%202015_link.pdf				

Service Requirements	Press. 5 bar, Temp 30 degC
Functional Requirements	Normally Closed
Control Requirements	Pneumanitically Actuated Valve with Open & Closed feed back

Installation Requirements	Buttweld
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Tag	Description	P&ID
BAV1167	Manufacturing Filtration Line Cooling Water Supply Drain Valve	A170810-PR-SMS-PID-001
BAV1169	Manufacturing Filtration Line Cooling Water Return Drain Valve	A170810-PR-SMS-PID-001
BAV2167	Manufacturing Filtration Line Cooling Water Supply Drain Valve	A170810-PR-SMS-PID-002
BAV2169	Manufacturing Filtration Line Cooling Water Return Drain Valve	A170810-PR-SMS-PID-002

Class	Description
mBAV4	Ball Valve 1-1/2" (actuated)

Equipment Data Sheet

Description	Ball Valve 1-1/2" (actuated)			Seals	TFM 1600		
Make	Meca INOX			Surface Finish Certificates Required	No		
Size	1-1/2"			Material Certificates Required	Yes		
Material	ASTM	Stainless 316L	Steel	Material Requirements	Valve Ball: SS316L	Body: SS	316L
Gasket	PTFE/EPDM/USP approved material		Class 6/FDA	Surface Finish Required	@@SURFACEFINISH@@		
Model	Valve Model: PA10S(4+4)			Model: PS4LBWNI			
Datasheet	http://www.meca-inox.com/site2016/wp-content/themes/glissando/downloads/catalogue%20V15%20FR-GB%202015_link.pdf						

Service Requirements	Press. 5 bar, Temp 160 degC
Functional Requirements	Normally Closed
Control Requirements	Pneumanitically Actuated Valve with Open & Closed feed back

Installation Requirements	Buttweld
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Tag	Description	P&ID
BAV1143	M1 SIP Condensate Drain Valve	A170810-PR-SMS-PID-001
BAV1147	SMFL1 Filtration Line SIP Condensate Drain Valve	A170810-PR-SMS-PID-001
BAV1149	SMFL1 Filtration Line CIP Drain Valve	A170810-PR-SMS-PID-001
BAV2143	M2 SIP Condensate Drain Valve	A170810-PR-SMS-PID-002
BAV2147	SMFL2 Filtration Line SIP Condensate Drain Valve	A170810-PR-SMS-PID-002
BAV2149	SMFL2 Filtration Line CIP Drain Valve	A170810-PR-SMS-PID-002
BAV3143	S1 SIP Drain valve	A170810-PR-SMS-PID-003
BAV4143	S2 SIP Drain valve	A170810-PR-SMS-PID-003

Class	Description
mBAV5	Ball Valve 2" (actuated)

Equipment Data Sheet

Description	Ball Valve 2" (actuated)			Seals	TFM 1600		
Make	Meca INOX			Surface Finish Certificates Required	No		
Size	2"			Material Certificates Required	Yes		
Material	ASTM	Stainless 316L	Steel	Material Requirements	Valve Ball: SS316L	Body: SS	316L
Gasket	PTFE/EPDM/USP approved material	Class 6/FDA		Surface Finish Required	@@SURFACEFINISH@@		
Model	Valve Model: PA20S(5+5)			Model: PS4LBWNI			
Datasheet	http://www.meca-inox.com/site2016/wp-content/themes/glissando/downloads/catalogue%20V15%20FR-GB%202015_link.pdf						

Service Requirements	Press. 5 bar, Temp 160 degC
Functional Requirements	Normally Closed
Control Requirements	Pneumanitically Actuated Valve with Open & Closed feed back

Installation Requirements	Buttweld
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Tag	Description	P&ID
BAV1145	M1 CIP Drain Valve	A170810-PR-SMS-PID-001
BAV2145	M2 CIP Drain Valve	A170810-PR-SMS-PID-002
BAV3145	S1 CIP Drain valve	A170810-PR-SMS-PID-003
BAV4145	S2 CIP Drain valve	A170810-PR-SMS-PID-003



Class	Description
mBAV6	Ball Valve 1/2" (manual)

Equipment Data Sheet

Description	Ball Valve 1/2" (manual)			Seals	TFM 1600
Make	Meca INOX			Surface Finish Certificates Required	No
Size	1/2"			Material Certificates Required	Yes
Material	ASTM	Stainless 316L	Steel	Material Requirements	Valve Body: SS 316L Ball: SS316L
Gasket	PTFE/EPDM/USP approved material	Class	6/FDA	Surface Finish Required	@@SURFACEFINISH@@
Model	PS4LBWNI				
Datasheet	http://www.meca-inox.com/site2016/wp-content/themes/glissando/downloads/catalogue%20V15%20FR-GB%202015_link.pdf				

Service Requirements	Press. 3 bar, Temp 160 degC
Functional Requirements	N/A
Control Requirements	Manually Operated with no feed back

Installation Requirements	Orbital Welded
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Tag	Description	P&ID
BAV1101	M1 filter integrity test compressed air supply valve	A170810-PR-SMS-PID-001
BAV2101	M2 filter integrity test compressed air supply valve	A170810-PR-SMS-PID-002



Class	Description
mBAV7	Ball Valve 2" (manual)

Equipment Data Sheet

Description	Ball Valve 2" (manual)			Seals	TFM 1600
Make	Meca INOX			Surface Finish Certificates Required	No
Size	2"			Material Certificates Required	Yes
Material	ASTM	Stainless 316L	Steel	Material Requirements	Valve Body: SS 316L Ball: SS316L
Gasket	PTFE/EPDM/USP approved material	Class	6/FDA	Surface Finish Required	@@SURFACEFINISH@@
Model	PS4LBWNI				
Datasheet	http://www.meca-inox.com/site2016/wp-content/themes/glissando/downloads/catalogue%20V15%20FR-GB%202015_link.pdf				

Service Requirements	Press. 3 bar, Temp 160 degC
Functional Requirements	N/A
Control Requirements	Manually Operated with no feed back

Installation Requirements	Buttweld
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Tag	Description	P&ID
BAV1210	Mx Vacuum Pump 1 Isolation Valve	A170810-PR-SMS-PID-004
BAV1211	Mx Vacuum Pump 2 Isolation Valve	A170810-PR-SMS-PID-004
BAV3210	Sy Vacuum Pump 1 Isolation Valve	A170810-PR-SMS-PID-004
BAV3211	Sy Vacuum Pump 2 Isolation Valve	A170810-PR-SMS-PID-004



Class	Description
mBV6	Butterfly Valve 4" (manual)

Equipment Data Sheet

Description	Butterfly Valve 4" (manual)		Seals	EPDM
Make	KSB AMRI		Surface Finish Certificates Required	No
Size	4"		Material Certificates Required	No
Material	ASTM	Cast Iron	Material Requirements	Cast Iron
Gasket	EPDM		Surface Finish Required	N/A
Model	KABOAXBS4LN-100			
Datasheet	http://www.dancomech.com.my/product/456/KSB-AMRI---Butterfly-Valve-(Concentric-Type)/			

Service Requirements	Press. 5 bar, Temp 30 degC
Functional Requirements	N/A
Control Requirements	Manually Operated with no feed back

Installation Requirements	Flange
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Tag	Description	P&ID
BV1159	M1 Cooling Water Outlet TCV Outlet Isolation Hand Valve	A170810-PR-SMS-PID-001
BV1161	M1 Cooling Water Outlet TCV Inlet Isolation Hand Valve	A170810-PR-SMS-PID-001
BV2159	M2 Cooling Water Outlet TCV Outlet Isolation Hand Valve	A170810-PR-SMS-PID-002
BV2161	M2 Cooling Water Outlet TCV Inlet Isolation Hand Valve	A170810-PR-SMS-PID-002



Class	Description
mBV7	Butterfly Valve 4" (actuated)

Equipment Data Sheet

Description	Butterfly Valve 4" (actuated)		Seals	EPDM/PTFE
Make	KSB AMRI		Surface Finish Certificates Required	No
Size	4"		Material Certificates Required	No
Material	ASTM	Cast Iron	Material Requirements	Cast Iron
Gasket	EPDM		Surface Finish Required	N/A
Model	Valve: KABOAXBS4LN-100 Actuator: FSAS0053-F0507V17 Position Indicator: LSB-10007E2N2			
Datasheet	http://www.dancomech.com.my/product/456/KSB-AMRI---Butterfly-Valve-(Concentric-Type)/			

Service Requirements	Press. 5 bar, Temp 60 degC
Functional Requirements	N/A
Control Requirements	Pneumanitically Actuated Valve with Open & Closed feed back

Installation Requirements	Flange
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Tag	Description	P&ID
BV1151	Manufacturing Filtration Line Cooling Water Return Valve	A170810-PR-SMS-PID-001
BV1153	Manufacturing Filtration Line Cooling Water Supply Valve	A170810-PR-SMS-PID-001
BV2151	Manufacturing Filtration Line Cooling Water Return Valve	A170810-PR-SMS-PID-002
BV2153	Manufacturing Filtration Line Cooling Water Supply Valve	A170810-PR-SMS-PID-002



Class	Description
mCOUP	Hansen Couplings

Equipment Data Sheet

Description	Hansen Couplings			Seals	N/A
Make	Eaton			Surface Finish Certificates Required	No
Size	2"			Material Certificates Required	Yes
Material	AISI	Stainless Steel 316L		Material Requirements	Stainless Steel 316L
Gasket	EPDM			Surface Finish Required	N/A
Model	1. Female Socket: ML12H46-BS 1.1/2" modify to ferrule end (Qty: 4) 2. Male Plug: ML12H46-BS 1.1/2" modify to ferrule end (Qty: 12)				
Datasheet	http://www.vpcsolucionesindustriales.com.co/images/CatalogoEATON.pdf				

Service Requirements	6 bar
Functional Requirements	N/A
Control Requirements	N/A

Installation Requirements	Machine to remove BSP thread
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Tag	Description	P&ID
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Class	Description
mCV	Pneumatic Control Valve

Equipment Data Sheet

Description	Pneumatic Control Valve			Seals	N/A
Make	Samson			Surface Finish Certificates Required	No
Size	DN 80			Material Certificates Required	No
Material	AISI	Stainless 316L	Steel	Material Requirements	N/A
Gasket	NBR			Surface Finish Required	N/A
Model	Valve: Type Actuator: Type 3271				3241-1
Datasheet	Valve: https://www.samson.de/document/t80120en.pdf Actuator: https://www.samson.de/document/e83106en.pdf				

Service Requirements	Press. 3 bar Temp -10 to 220 degC
Functional Requirements	Normally Closed
Control Requirements	Pneumatically Actuated Control Valve

Installation Requirements	Flange
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Tag	Description	P&ID
TCV1157	Manufacturing Filtration Line cooling water supply valve	A170810-PR-SMS-PID-001
TCV2157	Manufacturing Filtration Line cooling water supply valve	A170810-PR-SMS-PID-002



Class	Description
mDV	Shutoff valve for 1 inch pipe, triclamp, normally-open stainless steel actuator

Equipment Data Sheet

Description	Shutoff valve for 1 inch pipe, triclamp, normally-open stainless steel actuator		Seals	EPDM/PTFE
Make	Millipore		Surface Finish Certificates Required	Yes
Size	1"		Material Certificates Required	Yes
Material	ASME	Stainless Steel 316L	Material Requirements	Stainless Steel 316L
Gasket	EPDM		Surface Finish Required	@@SURFACEFINISH@@
Model	Valve: Actuator: Diaphragm: Position Indicator: PA1251/SP			NU100/311-212 PA25/100 NA25/22
Datasheet	http://www.merckmillipore.com/SG/en/Products/8VKb.qB.qhAAAAFBLR8e15j1,nav			

Service Requirements	Press. 3 bar, Temp 160 degC
Functional Requirements	Normally Open
Control Requirements	Pneumatically Actuated Valve with Closed feed back

Installation Requirements	Tri-clamp
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Tag	Description	P&ID
DV1101	M1 Vent Valve	A170810-PR-SMS-PID-001
DV2101	M2 Vent Valve	A170810-PR-SMS-PID-002
DV3101	S1 Vent Valve	A170810-PR-SMS-PID-003
DV4101	S2 Vent Valve	A170810-PR-SMS-PID-003



Class	Description
mDV1	Shutoff valve for 1 inch pipe, triclamp, normally-closed plastic actuator

Equipment Data Sheet

Description	Shutoff valve for 1 inch pipe, triclamp, normally-closed plastic actuator		Seals	EPDM/PTFE
Make	Millipore		Surface Finish Certificates Required	Yes
Size	1"		Material Certificates Required	Yes
Material	ASME	Stainless Steel 316L	Material Requirements	Stainless Steel 316L
Gasket	EPDM		Surface Finish Required	@@SURFACEFINISH@@
Model	Valve: Actuator: Diaphragm: Position Indicator: PA1251/SP			NU100/311-212 PA25/111 NA25/22
Datasheet	http://www.merckmillipore.com/SG/en/Products/8VKb.qB.qhAAAAFBLR8e15j1,nav			

Service Requirements	Press. 3 bar, Temp 160 degC
Functional Requirements	Normally Closed
Control Requirements	Pneumatically Actuated Valve with closed feed back

Installation Requirements	Ferrule (Tri-Clamp)
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Tag	Description	P&ID
DV1103	M1 HP CA Supply Valve	A170810-PR-SMS-PID-001
DV1105	M1 LP CA Supply Valve	A170810-PR-SMS-PID-001
DV1117	M1 Spray Ball 1 Valve	A170810-PR-SMS-PID-001
DV1119	M1 Spray Ball 2 Valve	A170810-PR-SMS-PID-001
DV2103	M2 HP CA Supply Valve	A170810-PR-SMS-PID-002
DV2105	M2 LP CA Supply Valve	A170810-PR-SMS-PID-002
DV2117	M2 Spray Ball 1 Valve	A170810-PR-SMS-PID-002
DV2119	M2 Spray Ball 2 Valve	A170810-PR-SMS-PID-002
DV3103	S1 HP CA Supply Valve	A170810-PR-SMS-PID-003
DV3105	S1 LP CA Supply Valve	A170810-PR-SMS-PID-003
DV3117	S1 Spray Ball 1 Valve	A170810-PR-SMS-PID-003
DV3119	S1 Spray Ball 2 Valve	A170810-PR-SMS-PID-003
DV4103	S2 HP CA Supply Valve	A170810-PR-SMS-PID-003



DV4105	S2 LP CA Supply Valve	A170810-PR-SMS-PID-003
DV4117	S2 Spray Ball 1 Valve	A170810-PR-SMS-PID-003
DV4119	S2 Spray Ball 2 Valve	A170810-PR-SMS-PID-003



Class	Description
mDV14	Provided by Rieckermann Thailand (Manual Valve)

Equipment Data Sheet

Description	Provided by Rieckermann Thailand (Manual Valve)		Seals	N/A
Make			Surface Finish Certificates Required	Yes
Size	N/A		Material Certificates Required	Yes
Material		N/A	Material Requirements	N/A
Gasket			Surface Finish Required	
Model				
Datasheet				

Service Requirements	N/A
Functional Requirements	N/A
Control Requirements	N/A

Installation Requirements	
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Tag	Description	P&ID
BV1175	MFL1 Filter Press Inlet Hand Valve	A170810-PR-SMS-PID-001
BV1177	MFL1 Filter Press Outlet Hand Valve	A170810-PR-SMS-PID-001
BV2175	MFL2 Filter Press Inlet Hand Valve	A170810-PR-SMS-PID-002
BV2177	MFL2 Filter Press Outlet Hand Valve	A170810-PR-SMS-PID-002



Class	Description
mDV2	Shutoff valve for 1.5 inch pipe, triclamp, normally-closed plastic actuator

Equipment Data Sheet

Description	Shutoff valve for 1.5 inch pipe, triclamp, normally-closed plastic actuator		Seals	EPDM/PTFE
Make	Millipore		Surface Finish Certificates Required	Yes
Size	1.5"		Material Certificates Required	Yes
Material	ASME	Stainless Steel 316L	Material Requirements	Stainless Steel 316L
Gasket	EPDM		Surface Finish Required	@@SURFACEFINISH@@
Model	Valve: Actuator: Diaphragm: Position Indicator: PA1251/SP			NU150/311-212 PA38/111 NA38/22
Datasheet	http://www.merckmillipore.com/SG/en/Products/8VKb.qB.qhAAAAFBLR8e15j1,nav			

Service Requirements	Press. 3 bar, Temp 160 degC
Functional Requirements	Normally Closed
Control Requirements	Pneumatically Actuated Valve with Closed feed back

Installation Requirements	Ferrule (Tri-Clamp)
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Tag	Description	P&ID
DV1135	SMFL1 Filtration Line filter outlet drain valve	A170810-PR-SMS-PID-001
DV1137	SMFL1 Filtration Line filter outlet valve	A170810-PR-SMS-PID-001
DV2135	SMFL2 Filtration Line filter outlet drain valve	A170810-PR-SMS-PID-002
DV2137	SMFL2 Filtration Line filter outlet valve	A170810-PR-SMS-PID-002



Class	Description
mDV3	Shutoff valve for 2 inch pipe, triclamp, normally-closed plastic actuator (EPDM seat)

Equipment Data Sheet

Description	Shutoff valve for 2 inch pipe, triclamp, normally-closed plastic actuator (EPDM seat)		Seals	EPDM/PTFE
Make	Millipore		Surface Finish Certificates Required	Yes
Size	2"		Material Certificates Required	Yes
Material	ASME	Stainless Steel 316L	Material Requirements	Stainless Steel 316L
Gasket	EPDM		Surface Finish Required	@@SURFACEFINISH@@
Model	Valve: Actuator: Diaphragm: Position Indicator: PA1251/SP			NU200/311-212 PA51/111 NA51/22
Datasheet	http://www.merckmillipore.com/SG/en/Products/8VKb.qB.qhAAAAFBLR8e15j1,nav			

Service Requirements	Press. 3 bar, Temp 160 degC
Functional Requirements	Normally Closed
Control Requirements	Pneumatically Actuated Valve with Closed feed back

Installation Requirements	Ferrule (Tri-Clamp)
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Tag	Description	P&ID
DV1107	M1 Vacuum valve	A170810-PR-SMS-PID-001
DV1171	MMFL1 Filtration Line filter inlet drain valve	A170810-PR-SMS-PID-001
DV1173	MMFL1 Inline Heat Exchanger inlet valve	A170810-PR-SMS-PID-001
DV2107	M2 Vacuum valve	A170810-PR-SMS-PID-002
DV2171	MMFL2 Filtration Line filter inlet drain valve	A170810-PR-SMS-PID-002
DV2173	MMFL2 Inline Heat Exchanger inlet valve	A170810-PR-SMS-PID-002
DV3107	S1 Vacuum valve	A170810-PR-SMS-PID-003
DV3123	S1 Transfer line valve from vessel	A170810-PR-SMS-PID-003
DV3125	S1 Transfer line valve from SMFL	A170810-PR-SMS-PID-003
DV3127	S1 Transfer line valve to drain	A170810-PR-SMS-PID-003
DV3129	S1 Transfer line valve to filling	A170810-PR-SMS-PID-003
DV4107	S2 Vacuum valve	A170810-PR-SMS-PID-003
DV4123	S2 Transfer line valve from vessel	A170810-PR-SMS-PID-003



DV4125	S2 Transfer line valve from SMFL	A170810-PR-SMS-PID-003
DV4127	S2 Transfer line valve to drain	A170810-PR-SMS-PID-003
DV4129	S2 Transfer line valve to filling	A170810-PR-SMS-PID-003



Class	Description
mDV4	Tank outlet valve for 2 inch, butt weld, normally-closed plastic actuator

Equipment Data Sheet

Description	Tank outlet valve for 2 inch, butt weld, normally-closed plastic actuator		Seals	EPDM/PTFE
Make	Millipore		Surface Finish Certificates Required	Yes
Size	2"		Material Certificates Required	Yes
Material	ASME	Stainless Steel 316L	Material Requirements	Stainless Steel 316L
Gasket	EPDM		Surface Finish Required	@@SURFACEFINISH@@
Model	Valve: Actuator: Diaphragm: Position Indicator: PA1251/SP			NU200/442-312 PA51/111 NA51/22
Datasheet	http://www.merckmillipore.com/SG/en/Products/8VKb.qB.qhAAAAFBLR8e15j1,nav			

Service Requirements	Press. 3 bar, Temp 160 degC
Functional Requirements	Normally Closed
Control Requirements	Pneumatically Actuated Valve with Closed feed back

Installation Requirements	Butt weld
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Tag	Description	P&ID
DV1121	M1 Outlet Valve	A170810-PR-SMS-PID-001
DV2121	M2 Outlet Valve	A170810-PR-SMS-PID-002
DV3121	S1 Outlet Valve	A170810-PR-SMS-PID-003
DV4121	S2 Outlet Valve	A170810-PR-SMS-PID-003



Class	Description
mDV5	Provided by Rieckermann Thailand (Actuated Valve)

Equipment Data Sheet

Description	Provided by Rieckermann Thailand (Actuated Valve)		Seals	
Make			Surface Finish Certificates Required	
Size			Material Certificates Required	
Material			Material Requirements	
Gasket			Surface Finish Required	
Model				
Datasheet				

Service Requirements	
Functional Requirements	N/A
Control Requirements	

Installation Requirements	
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Tag	Description	P&ID
DV1111	M1 WFI Supply Valve	A170810-PR-SMS-PID-001
DV1113	M1 PW Supply Valve	A170810-PR-SMS-PID-001
DV2111	M2 WFI Supply Valve	A170810-PR-SMS-PID-002
DV2113	M2 PW Supply Valve	A170810-PR-SMS-PID-002
DV3111	S1 WFI Supply Valve	A170810-PR-SMS-PID-003
DV3113	S1 PW Supply Valve	A170810-PR-SMS-PID-003
DV4111	S2 WFI Supply Valve	A170810-PR-SMS-PID-003
DV4113	S2 PW Supply Valve	A170810-PR-SMS-PID-003



Class	Description
mDV6	Shutoff valve for 2 inch pipe, triclamp, normally-closed plastic actuator (PTFE seat)

Equipment Data Sheet

Description	Shutoff valve for 2 inch pipe, triclamp, normally-closed plastic actuator (PTFE seat)		Seals	EPDM/PTFE
Make	Millipore		Surface Finish Certificates Required	Yes
Size	2"		Material Certificates Required	Yes
Material	ASME	Stainless Steel 316L	Material Requirements	Stainless Steel 316L
Gasket	PTFE		Surface Finish Required	@@SURFACEFINISH@@
Model	Valve: Actuator: Diaphragm: Position Indicator: PA1251/SP			NU200/311-212 PA51/111 NA51/25
Datasheet	http://www.merckmillipore.com/SG/en/Products/8VKb.qB.qhAAAAFBLR8e15j1,nav			

Service Requirements	Press. 3 bar, Temp 160 degC
Functional Requirements	Normally Closed
Control Requirements	Pneumatically Actuated Valve with Closed feed back

Installation Requirements	Ferrule (Tri-Clamp)
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Tag	Description	P&ID
DV1109	M1 PS Supply for WFI Loop	A170810-PR-SMS-PID-001
DV1115	M1 PS Supply for PW Loop	A170810-PR-SMS-PID-001
DV2109	M2 PS Supply for WFI Loop	A170810-PR-SMS-PID-002
DV2115	M2 PS Supply for PW Loop	A170810-PR-SMS-PID-002
DV3109	S1 PS Supply for WFI Loop	A170810-PR-SMS-PID-003
DV3115	S1 PS Supply for PW Loop	A170810-PR-SMS-PID-003
DV4109	S2 PS Supply for WFI Loop	A170810-PR-SMS-PID-003
DV4115	S2 PS Supply for PW Loop	A170810-PR-SMS-PID-003



Class	Description
mDV7	Shutoff valve for 1 inch pipe, triclamp, manual valve

Equipment Data Sheet

Description	Shutoff valve for 1 inch pipe, triclamp, manual valve		Seals	EPDM/PTFE
Make	Millipore		Surface Finish Certificates Required	Yes
Size	1"		Material Certificates Required	Yes
Material	ASME	Stainless Steel 316L	Material Requirements	Stainless Steel 316L
Gasket	EPDM		Surface Finish Required	@@SURFACEFINISH@@
Model	Valve: Actuator: Diaphragm: NA25/22			NA25/311-212 FA25/154
Datasheet				

Service Requirements	Press. 3 bar, Temp 160 degC
Functional Requirements	N/A
Control Requirements	N/A

Installation Requirements	Ferrule (Tri-Clamp)
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Tag	Description	P&ID
DV1120	M1 Compressed Air Supply Sanitary Valve	A170810-PR-SMS-PID-001
DV3120	S1 Compressed Air Supply Sanitary Valve	A170810-PR-SMS-PID-003



Class	Description
mESTOP	Emergency Stop

Equipment Data Sheet

Description	Emergency Stop		Seals	N/A
Make	IDEC		Surface Finish Certificates Required	No
Size	N/A		Material Certificates Required	No
Material	N/A	N/A	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	N/A
Model	HW1B-X401R			
Datasheet	http://eu.idec.com/en/download/download.aspx?download=EP14301EstopHW2			

Service Requirements	1 NC Signal when activated
Functional Requirements	Normally Closed
Control Requirements	Press button to activate EStop. The button is released by turning the key clockwise

Installation Requirements	N/A
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Tag	Description	P&ID
ES1100	M1 Emergency Stop mounted on M1 HMI	A170810-PR-SMS-PID-001
ES1101	M1 Emergency Stop mounted on M1/M2 Shared HMI	A170810-PR-SMS-PID-001
ES1200	M2 Emergency Stop mounted on M2 HMI Feed to M1	A170810-PR-SMS-PID-001
ES1201	M2 Emergency Stop mounted on M1/M2 Shared HMI Feed to M1	A170810-PR-SMS-PID-001
ES3100	S1 Emergency Stop mounted on S1 HMI	A170810-PR-SMS-PID-003
ES3400	S2 Emergency Stop mounted on S2 HMI Feed to S1	A170810-PR-SMS-PID-003



Class	Description
mESTOP1	Emergency Stop

Equipment Data Sheet

Description	Emergency Stop		Seals	N/A
Make	IDEC		Surface Finish Certificates Required	No
Size	N/A		Material Certificates Required	No
Material	N/A	N/A	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	N/A
Model	HW1B-X402R			
Datasheet	http://eu.idec.com/en/download/download.aspx?download=EP14301EstopHW2			

Service Requirements	2 NC Signal when activated
Functional Requirements	Normally Closed
Control Requirements	Press button to activate EStop. The button is released by turning the key clockwise

Installation Requirements	N/A
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Tag	Description	P&ID
ES2100	M2 Emergency Stop mounted on M2 HMI	A170810-PR-SMS-PID-002
ES2101	M2 Emergency Stop mounted on M1/M2 Shared HMI	A170810-PR-SMS-PID-002
ES4100	S2 Emergency Stop mounted on S2 HMI	A170810-PR-SMS-PID-003



Class	Description
mFILT	Vent Filter Element Filter Housing

Equipment Data Sheet

Description	Vent Filter Vent Filter Element	Housing	Seals	Silicone O ring/EPDM/PTFE
Make	Millipore		Surface Finish Certificates Required	Yes
Size	Inlet/Outlet: 1" Vent: 1/2" & Drain: 1/2" Heater: TBA (supplier to match with selected Vent filter)		Material Certificates Required	Yes
Material	ASME Housing: Stainless Steel 316L Filter Element: PTFE		Material Requirements	Stainless Steel 316L
Gasket	PTFE/EPDM/USP Class 6/FDA approved material		Surface Finish Required	@@SURFACEFINISH@@
Model	Housing: Filter Element: CTGB71TP3			H1UE7T1G01PC
Datasheet	S:\Projects\Projects17\A170810 - MPI SMS\05. Detailed Design\04. Working Documents\MPI.SMS\Quotations & PO\Data Sheets			

Service Requirements	10 Barg @140 deg C (Maximum)
Functional Requirements	trace heater: 240 V (50 hz)/ AB05/AB02 code 2 cartridge
Control Requirements	N/A

Installation Requirements	Ferrule (Tri-Clamp)
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Tag	Description	P&ID
AF1101	M1 Vent Filter	A170810-PR-SMS-PID-001
AF2101	M2 Vent Filter	A170810-PR-SMS-PID-002
AF3101	S1 Vent Filter	A170810-PR-SMS-PID-002
AF4101	S2 Vent Filter	A170810-PR-SMS-PID-003



Class	Description
mFILT1	Compressed Air Filter

Equipment Data Sheet

Description	Compressed Air Filter		Seals	Silicone O ring/EPDM/PTFE
Make	Milipore		Surface Finish Certificates Required	No
Size	50cm x 7cm dia		Material Certificates Required	No
Material	N/A	Pre-Filter: Polypropylene Housing: Stainless Steel 316L	Material Requirements	N/A
Gasket	EPDM		Surface Finish Required	@@SURFACEFINISH@@
Model	Filter: CTGB71TP3 (Aerex) Housing: H1AV7TG01PP			
Datasheet	Filter: http://www.merckmillipore.com/MY/en/product/Aerex-CTGB-Cartridge-Filter-10nbspm-0.2nbspm-Code-7,MM_NF-CTGB71TP3 Housing: http://www.merckmillipore.com/MY/en/product/Series-3000-Single-Round-Housings,MM_NF-C100748			

Service Requirements	10" Filter Element; 0.2 micron
Functional Requirements	Air Filter
Control Requirements	N/A

Installation Requirements	Ferrule (Tri-Clamp)
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Tag	Description	P&ID
FILT14	Mx Compressed Air Source Filter	A170810-PR-SMS-PID-001
FILT31	Sy Compressed Air Source Filter	A170810-PR-SMS-PID-003



Class	Description
mFILT2	Filter Press

Equipment Data Sheet

Description	Filter Press		Seals	
Make	TBA by RT		Surface Finish Certificates Required	
Size	N/A		Material Certificates Required	
Material			Material Requirements	N/A
Gasket			Surface Finish Required	
Model				
Datasheet				

Service Requirements	N/A
Functional Requirements	Liquid Filter
Control Requirements	N/A

Installation Requirements	N/A
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Tag	Description	P&ID
FILT11	MMFL1 Filter Press	A170810-PR-SMS-PID-001
FILT21	MMFL2 Filter Press	A170810-PR-SMS-PID-002



Class	Description
mFILT3	Pre-Filter Pre-Filter Element Housing

Equipment Data Sheet

Description	Pre-Filter Pre-Filter Element	Housing	Seals	Silicone O ring/EPDM/PTFE
Make	Milipore		Surface Finish Certificates Required	No
Size	50cm x 7cm dia		Material Certificates Required	No
Material	N/A	Pre-Filter: Polypropylene Housing: Stainless Steel 316L	Material Requirements	Housing:Stainless Steel 316L
Gasket	EPDM		Surface Finish Required	@@SURFACEFINISH@@
Model	Pre-Filter: Housing: H1AV7T2G01PP	CR0172006		(Polygard)
Datasheet	Filter: http://www.merckmillipore.com/MY/en/product/Polygard-CR-Cartridge-Filter-20nbspin.-1.0nbspm-Code-7-Silicone,MM_NF-CR0172006 Housing: http://www.merckmillipore.com/MY/en/product/Series-3000-Single-Round-Housings,MM_NF-C100748			

Service Requirements	20" Filter Element; 1.0 micron
Functional Requirements	Liquid Filter
Control Requirements	N/A

Installation Requirements	Ferrule (Tri-Clamp)
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Tag	Description	P&ID
FILT12	SMFL1 Pre Filter	A170810-PR-SMS-PID-001
FILT22	SMFL2 Pre Filter	A170810-PR-SMS-PID-002



Class	Description
mFILT4	Sterile Filter Sterile Filter Element Housing

Equipment Data Sheet

Description	Sterile Filter Sterile Filter Element	Housing	Seals	Silicone O ring/EPDM/PTFE
Make	Milipore		Surface Finish Certificates Required	No
Size	50cm x 7cm dia		Material Certificates Required	No
Material	N/A	Pre-Filter: Polypropylene Housing: Stainless Steel 316L	Material Requirements	Housing:Stainless Steel 316L
Gasket	EPDM		Surface Finish Required	@@SURFACEFINISH@@
Model	Filter: Housing: H1AV7T2G01PP	CVGL72TP3		(Durapore)
Datasheet	Filter: Housing:	http://www.merckmillipore.com/MY/en/products/biopharmaceutical-manufacturing/downstream-processing/sterile-filtration/sterile-liquid/durapore/.ymb.qB.PpQAAAFDBU94saSR,nav http://www.merckmillipore.com/MY/en/product/Series-3000-Single-Round-Housings,MM_NF-C100748		

Service Requirements	20" Filter Element; 0.22 micron
Functional Requirements	Liquid Filter
Control Requirements	N/A

Installation Requirements	Ferrule (Tri-Clamp)
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Tag	Description	P&ID
FILT13	SMFL1 Sterile Filter	A170810-PR-SMS-PID-001
FILT23	SMFL2 Sterile Filter	A170810-PR-SMS-PID-002



Class	Description
mFILT5	Vacuum Pump Moisture Trap - not ordered yet

Equipment Data Sheet

Description	Vacuum Pump Moisture Trap - not ordered yet		Seals	N/A
Make			Surface Finish Certificates Required	
Size	2"		Material Certificates Required	
Material		N/A	Material Requirements	N/A
Gasket			Surface Finish Required	
Model				
Datasheet				

Service Requirements	To Prevent Moisture from System from entering Vacuum Pump
Functional Requirements	N/A
Control Requirements	N/A

Installation Requirements	Ferrule (Tri-Clamp)
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Tag	Description	P&ID
FILT10	Mx Vacuum Pump Filter and Moisture Trap	A170810-PR-SMS-PID-004
FILT30	Sy Vacuum Pump Filter and Moisture Trap	A170810-PR-SMS-PID-004



Class	Description
mFXH	2" Flexible Hose for PW/WFI/PS Vessel Inlet (Hansen Coupling)

Equipment Data Sheet

Description	2" Flexible Hose for PW/WFI/PS Vessel Inlet (Hansen Coupling)		Seals	N/A
Make	Dockweiler		Surface Finish Certificates Required	Coupling: TRUE
Size	2"		Material Certificates Required	Yes
Material	USP/FDA	Hose: Silicon/PTFE/EPDM	Material Requirements	Silicon/PTFE/EPDM
Gasket	PTFE/EPDM/ any USP Class 7		Surface Finish Required	@@SURFACEFINISH@@
Model				
Datasheet				

Service Requirements	4 / - 1 bar Vacuum @ 150 Celcius
Functional Requirements	N/A
Control Requirements	with female hansen coupling connected at each end

Installation Requirements	Ferrule Clamp Ends of Hose Modified with Hansen Coupling
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Tag	Description	P&ID
FXH101	M1 Flexible Hose PW/WFI Supply	A170810-PR-SMS-PID-001
FXH301	S1 Flexible Hose PW/WFI Supply	A170810-PR-SMS-PID-003



Class	Description
mFXH1	2" Flexible Hose for Mixing Vessel Outlet (Ferrule Clamp)

Equipment Data Sheet

Description	2" Flexible Hose for Mixing Vessel Outlet (Ferrule Clamp)		Seals	N/A
Make	Dockweiler		Surface Finish Certificates Required	Ferrule: TRUE
Size	2"		Material Certificates Required	Yes
Material	USP/FDA	Hose: Silicon/PTFE/EPDM	Material Requirements	Silicon/PTFE/EPDM
Gasket	PTFE/EPDM/ any USP Class 7		Surface Finish Required	@@SURFACEFINISH@@
Model				
Datasheet				

Service Requirements	4 / - 1 bar Vacuum @ 150 Celcius
Functional Requirements	N/A
Control Requirements	Ferrule Clamp

Installation Requirements	Ferrule (Tri-Clamp)
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Tag	Description	P&ID
FXH103	M1 Flexible Hose Bottom Outlet	A170810-PR-SMS-PID-001
FXH203	M2 Flexible Hose Bottom Outlet	A170810-PR-SMS-PID-002



Class	Description
mFXH2	1" Flexible Hose (Ferrule Clamp)

Equipment Data Sheet

Description	1" Flexible Hose (Ferrule Clamp)		Seals	N/A
Make	Dockweiler		Surface Finish Certificates Required	Ferrule: TRUE
Size	1"		Material Certificates Required	Yes
Material	USP/FDA	Hose: Silicon/PTFE/EP DM	Material Requirements	Silicon/PTFE/EPDM
Gasket	PTFE/EPDM/ any USP Class 7		Surface Finish Required	@@SURFACEFINISH@@
Model				
Datasheet				

Service Requirements	4 / - 1 bar Vacuum @ 150 Celcius
Functional Requirements	N/A
Control Requirements	Ferrule Clamp

Installation Requirements	Ferrule (Tri-Clamp)
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Tag	Description	P&ID
FXH102	M1 Flexible Hose Vent Filter	A170810-PR-SMS-PID-001
FXH104	M1 Flexible Hose Sterile Filter Outlet	A170810-PR-SMS-PID-001
FXH105	M1 Flexible Hose Filter Press Outlet	A170810-PR-SMS-PID-001
FXH106	M1 Flexible Hose Filter Press Inlet	A170810-PR-SMS-PID-001
FXH107	M1 Flexible Hose Sterile Filter Inlet	A170810-PR-SMS-PID-001
FXH202	M2 Flexible Hose Vent Filter	A170810-PR-SMS-PID-002
FXH204	M2 Flexible Hose Sterile Filter Outlet	A170810-PR-SMS-PID-002
FXH205	M2 Flexible Hose Filter Press Outlet	A170810-PR-SMS-PID-002
FXH206	M2 Flexible Hose Filter Press Inlet	A170810-PR-SMS-PID-002
FXH207	M2 Flexible Hose Sterile Filter Inlet	A170810-PR-SMS-PID-001



Class	Description
mGV	Gate Valve 4" (manual)

Equipment Data Sheet

Description	Gate Valve 4" (manual)		Seals	Graphite
Make	VMXZ4 (Dancomech)		Surface Finish Certificates Required	No
Size	3"		Material Certificates Required	No
Material	AISI	Cast Iron	Material Requirements	Cast Iron
Gasket	Graphite		Surface Finish Required	N/A
Model	VMXZ4-5141P16F1-080			
Datasheet	http://www.dancomech.com.my/product/604/VMX---Gate-Valve/			

Service Requirements	Press. 5 bar, Temp 30 degC
Functional Requirements	N/A
Control Requirements	Manually Operated with no feed back

Installation Requirements	Flange
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Tag	Description	P&ID
GV1165	M1 Cooling Water Inlet Bypass Hand Valve	A170810-PR-SMS-PID-001
GV2165	M2 Cooling Water Inlet Bypass Hand Valve	A170810-PR-SMS-PID-002



Class	Description
mHE	Vent Filter Heating Element

Equipment Data Sheet

Description	Vent Filter Heating Element		Seals	N/A
Make	Millipore		Surface Finish Certificates Required	N/A
Size	N/A		Material Certificates Required	N/A
Material	N/A	NA	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	N/A
Model	HJ230-104/270			
Datasheet	Specification\HJ230-104270 Drawing (Heating Jacket).pdf			

Service Requirements	Operating	Material:	230	VAC	+/-10%,
	Power Consumption: max. 70 W				
Functional Requirements	IP Rating: IP 54				
Control Requirements	N/A				

Installation Requirements	N/A
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Tag	Description	P&ID
HE1101	M1 Electric Heating Element	A170810-PR-SMS-PID-001
HE2101	M2 Electric Heating Element	A170810-PR-SMS-PID-002
HE3101	S1 Electric Heating Element	A170810-PR-SMS-PID-003
HE4101	S2 Electric Heating Element	A170810-PR-SMS-PID-003
TI1101	M1 Vent Filter Temperature Indicator	A170810-PR-SMS-PID-001
TI2101	M2 Vent Filter Temperature Indicator	A170810-PR-SMS-PID-002
TI3101	S1 Vent Filter Temperature Indicator	A170810-PR-SMS-PID-003
TI4101	S2 Vent Filter Temperature Indicator	A170810-PR-SMS-PID-003



Class	Description
mHEX	Heat Exchanger

Equipment Data Sheet

Description	Heat Exchanger			Seals	N/A
Make	Allegheny Bradford Corporation			Surface Finish Certificates Required	Tube Side: TRUE
Size	N/A			Material Certificates Required	Tube side: TRUE
Material	ASME	Stainless 316L	Steel	Material Requirements	Tube Side: 316L
Gasket	Shell: EPDM Tube: EPDM O-ring	O-ring		Surface Finish Required	@@SURFACEFINISH@@
Model	Shell & Tube Heat Exchanger Shell (Chilled Water): 34,100 kg/hr Tube (Process Water): 2,850 kh/hr				
Datasheet	C:\Users\sin.khc\Documents\datasource\MPI\Specification\Heat Exchanger				

Service Requirements	Shell Side: 4 bar @ 10 Celcius Tube Side: 4 bar @ 80 Celcius
Functional Requirements	Process Side Cooling from 80 Celcius to 20 Celcius
Control Requirements	N/A

Installation Requirements	Shell Side: Flange Tube Side: Ferrule (Tri-Clamp)
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Tag	Description	P&ID
HEX1	M1 In Line Heat Exchanger	A170810-PR-SMS-PID-001
HEX2	M2 In Line Heat Exchanger	A170810-PR-SMS-PID-002



Class	Description
mHMI	TP1900 Comfort INOX Touch Screen HMI

Equipment Data Sheet

Description	TP1900 Comfort INOX Touch Screen HMI	Seals	N/A
Make	Siemens	Surface Finish Certificates Required	No
Size		Material Certificates Required	No
Material	N/A	Stainless Steel 316L (Enclosure)	INOX stainless steel front
Gasket	N/A	Surface Finish Required	N/A
Model	6AV2144-8UC10-0AA0		
Datasheet	https://mall.industry.siemens.com/mall/en/WW/Catalog/Product/6AV2144-8UC10-0AA0		

Service Requirements	N/A						
Functional Requirements	SIMATIC FRONT, INTERFACE, MEMORY, COMFORT V11 SP2	HMI MEMBRANE IP66K, MPI/PROFIBUS WINDOWS	TP1900 COVERING 19" DP CE	COMFORT DP 6.0,	INOX DISPLAY, WIDESCREEN-TFT-DISPLAY, INTERFACE, CONFIGURABLE	STAINLESS PROTECTION 24 MB FROM	STEEL CLASS PROFINET USER WINCC
Control Requirements	24 VDC, 32 W, X86 processor, 2 port industrial ethernet interfaces, 2 usb port (usb 2.0)/1 usb mini B (5 pole), profinet/profinet IO/EtherNetIP/IRT/MRP/profibus/MPI/TCPIP/DHCP/SNMP/DCP/LLDP (protocols), HTTP/HTTPS/HTML/XML/CSS/JavaScript (WEB characteristics), upt 128 MB MMC and up to 2 GB SD card						

Installation Requirements	N/A
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Tag	Description	P&ID
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Class	Description
mLAF	Laminar Flow Cabinet

Equipment Data Sheet

Description	Laminar Flow Cabinet		Seals	N/A
Make	Esco		Surface Finish Certificates Required	No
Size	900 x 700		Material Certificates Required	Yes
Material	N/A	Stainless Steel 316L	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	N/A
Model	Airstream Gen 3			
Datasheet	http://www.escoglobal.com/product/laminar-flow-cabinets/airstream-gen-3-laminar-flow-clean-benches-vertical-stainless-steel-side-wall/LVS/			

Service Requirements	Clean Air
Functional Requirements	ISO Class 3 Workzone
Control Requirements	N/A

Installation Requirements	N/A
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Tag	Description	P&ID
LAF101	M1 Laminar Air Flow	A170810-PR-SMS-PID-001
LAF201	M2 Laminar Air Flow	A170810-PR-SMS-PID-002



Class	Description
mLC1	Load Cells

Equipment Data Sheet

Description	Load Cells		Seals	N/A
Make	Mettler Toledo		Surface Finish Certificates Required	N/A
Size	N/A		Material Certificates Required	N/A
Material	N/A	Stainless Steel 316L	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	N/A
Model	Load Cell: SWC415 PM SS Precision Junction Box: AJB540S Analog Scale: AC350; 30076689			
Datasheet	https://www.mt.com/my/en/home/products/Industrial_Weighing_Solutions/AutomPrecision/load-cell-and-weigh-module/compression/SWC515-pinmount.html			

Service Requirements	Mounted on side of vessel
Functional Requirements	7.5 tonnes
Control Requirements	With feedback to terminal module

Installation Requirements	N/A
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Tag	Description	P&ID
LC1101	M1 Load Cell	A170810-PR-SMS-PID-001
LC1102	M1 Load Cell	A170810-PR-SMS-PID-001
LC1103	M1 Load Cell	A170810-PR-SMS-PID-001
LC2101	M2 Load Cell	A170810-PR-SMS-PID-002
LC2102	M2 Load Cell	A170810-PR-SMS-PID-002
LC2103	M2 Load Cell	A170810-PR-SMS-PID-002



Class	Description
mMx	Mixing Vessel

Equipment Data Sheet

Description	Mixing Vessel	Seals	N/A
Make	Pharmafood Engineering	Surface Finish Certificates Required	Yes
Size	ID 2500 x SL 2440	Material Certificates Required	Yes
Material	ASME SEC. VIII. DIV.1	Stainless Steel 316L	Material Requirements Stainless Steel 316L
Gasket	PTFE/EPDM/ any USP Class 6	Surface Finish Required	@@SURFACEFINISH@@
Model	Mixing Vessel 13,000 L		
Datasheet	A170810-PR-CA-001 rev: B		

Service Requirements	4 / - 1 bar Vacuum @ 150 Celcius
Functional Requirements	Mixer Installed
Control Requirements	Pneumatically Actuated Tank bottom outlet valve

Installation Requirements	3 side lugs support
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Tag	Description	P&ID
M1	Manufacturing Vessel 1	A170810-PR-SMS-PID-001
M2	Manufacturing Vessel 2	A170810-PR-SMS-PID-002



Class	Description
mPB	Push Button

Equipment Data Sheet

Description	Push Button		Seals	N/A
Make	Schneider		Surface Finish Certificates Required	No
Size	N/A		Material Certificates Required	No
Material	N/A	N/A	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	N/A
Model	XB5 Illuminated White Push Button NO/NC Spring Return			
Datasheet	https://uk.rs-online.com/web/p/push-button-complete-units/6096338/?origin=PSF_421270 alt			

Service Requirements	Integral LED/IP67/circular head
Functional Requirements	1NO + 1NC
Control Requirements	24 V AC/DC

Installation Requirements	Panel Mount
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Tag	Description	P&ID
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Class	Description
mPC	Batch PC

Equipment Data Sheet

Description	Batch PC		Seals	N/A
Make	HP		Surface Finish Certificates Required	No
Size	N/A		Material Certificates Required	No
Material	N/A	N/A	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	N/A
Model	dc7900 Convertible Minitower			
Datasheet	http://www.hp.com/ctg/Manual/c01549447.pdf			

Service Requirements	HP L1710 17-inch LCD Monitor SING			
Functional Requirements	Intel Core 2 Duo E8400 Processor (3.0 GHz, 6 MB L2 cache, 1333 MHz FSB), 4GB PC2-6400 (DDR2-800) 2x2GB, 320GB SATA 3.5 1st Hard Drive			
Control Requirements	N/A			

Installation Requirements	N/A			
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Tag	Description	P&ID
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Class	Description
mPG	Pressure gauge

Equipment Data Sheet

Description	Pressure gauge		Seals	N/A
Make	Milipore		Surface Finish Certificates Required	No
Size	to match selected vent filter housing		Material Certificates Required	Yes
Material	AISI	Stainless Steel 316L	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	@@SURFACEFINISH@@
Model	P90005			
Datasheet	http://www.merckmillipore.com/MY/en/search/P90005?search=&TrackingSearchType=SB+-+Search+Box&SearchContextPageletUUID=&SearchTerm=P90005			

Service Requirements	0 - 1,100 Kpa
Functional Requirements	N/A
Control Requirements	N/A

Installation Requirements	Ferrule (Tri-Clamp)
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Tag	Description	P&ID
PG1101	M1 Vent Filter Outlet Pressure	A170810-PR-SMS-PID-001
PG2101	M2 Vent Filter Outlet Pressure	A170810-PR-SMS-PID-002
PG3101	S1 Vent Filter Outlet Pressure	A170810-PR-SMS-PID-002
PG4101	S2 Vent Filter Outlet Pressure	A170810-PR-SMS-PID-003



Class	Description
mPROX	Proximity sensor

Equipment Data Sheet

Description	Proximity sensor		Seals	N/A
Make	ifm electronic gmbh		Surface Finish Certificates Required	No
Size	M12x1 or M18x1		Material Certificates Required	No
Material	N/A	N/A	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	N/A
Model	IGT200			
Datasheet	IGT200-00_EN-GB.pdf			

Service Requirements	@@SERVICEREQUIREMENTS@@			
Functional Requirements	Normally Open			
Control Requirements	3 Wire DC PNP			

Installation Requirements	IP68; IP 69K; M18 connector			
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Tag	Description	P&ID
ZSC1101	M1 Manway Close Indicator	A170810-PR-SMS-PID-001
ZSC2101	M2 Manway Close Indicator	A170810-PR-SMS-PID-002
ZSC3101	S1 Manway Close Indicator	A170810-PR-SMS-PID-003
ZSC4101	S2 Manway Close Indicator	A170810-PR-SMS-PID-003



Class	Description
mPROX1	Proximity sensor

Equipment Data Sheet

Description	Proximity sensor		Seals	N/A
Make	ifm electronic gmbh		Surface Finish Certificates Required	No
Size	M12x1		Material Certificates Required	No
Material	N/A	N/A	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	N/A
Model	IFT200			
Datasheet	https://www.ifm.com/gb/en/product/IFT200			

Service Requirements	@@SERVICEREQUIREMENTS@@
Functional Requirements	Normally Open
Control Requirements	3 Wire DC PNP

Installation Requirements	IP68; IP 69K; M12 connector
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Tag	Description	P&ID
ZSC1103	M1 WFI Supply Flowpath Indicator	A170810-PR-SMS-PID-001
ZSC1105	M1 PW Supply Flowpath Indicator	A170810-PR-SMS-PID-001
ZSC1107	M1 inlet line Flowpath Indicator	A170810-PR-SMS-PID-001
ZSC1109	SMFL1 Filtration Line outlet Flowpath Indicator	A170810-PR-SMS-PID-001
ZSC1111	SMFL1 Filtration Outlet CIP & SIP Flowpath Indicator	A170810-PR-SMS-PID-001
ZSC1113	MMFL1 Filtration Inlet Flowpath Indicator	A170810-PR-SMS-PID-001
ZSC1115	MMFL1 Filtration Inlet CIP & SIP Flowpath Indicator	A170810-PR-SMS-PID-001
ZSC2103	M2 WFI Supply Flowpath Indicator	A170810-PR-SMS-PID-002
ZSC2105	M2 PW Supply Flowpath Indicator	A170810-PR-SMS-PID-002
ZSC2107	M2 inlet line Flowpath Indicator	A170810-PR-SMS-PID-002
ZSC2109	SMFL2 Filtration Line outlet Flowpath Indicator	A170810-PR-SMS-PID-002
ZSC2111	SMFL2 Filtration Outlet CIP & SIP Flowpath Indicator	A170810-PR-SMS-PID-002
ZSC2113	MMFL2 Filtration Inlet Flowpath Indicator	A170810-PR-SMS-PID-002
ZSC2115	MMFL2 Filtration Inlet CIP & SIP Flowpath Indicator	A170810-PR-SMS-PID-002
ZSC3103	S1 WFI Supply Flowpath Indicator	A170810-PR-SMS-PID-003
ZSC3105	S1 PW Supply Flowpath Indicator	A170810-PR-SMS-PID-003
ZSC3107	S1 Inlet line Flowpath Indicator	A170810-PR-SMS-PID-003
ZSC3111	VTL1 to M1 Flowpath Indicator	A170810-PR-SMS-PID-003
ZSC3113	VTL1 to M2 Flowpath Indicator	A170810-PR-SMS-PID-003



ZSC3115	S1 to F1P1 Flowpath Indicator	A170810-PR-SMS-PID-003
ZSC3117	S1 to F2P1 Flowpath Indicator	A170810-PR-SMS-PID-003
ZSC4103	S2 WFI Supply Flowpath Indicator	A170810-PR-SMS-PID-003
ZSC4105	S2 PW Supply Flowpath Indicator	A170810-PR-SMS-PID-003
ZSC4107	S2 Inlet line Flowpath Indicator	A170810-PR-SMS-PID-003
ZSC4111	VTL2 to M1 Flowpath Indicator	A170810-PR-SMS-PID-003
ZSC4113	VTL2 to M2 Flowpath Indicator	A170810-PR-SMS-PID-003
ZSC4115	S2 to F1P1 Flowpath Indicator	A170810-PR-SMS-PID-003
ZSC4117	S2 to F2P1 Flowpath Indicator	A170810-PR-SMS-PID-003



Class	Description
mPRT	Batch Report Printer

Equipment Data Sheet

Description	Batch Report Printer		Seals	N/A
Make	HP		Surface Finish Certificates Required	No
Size	N/A		Material Certificates Required	No
Material	N/A	N/A	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	N/A
Model	HP Color LaserJet CP3525dn			
Datasheet	http://www.printerworks.com/DataSheets/CP3525datasheet.pdf			

Service Requirements	HP 3 Years Next Business Day Onsite CP3525 series HW Supp			
Functional Requirements	Print: Up to 30 ppm black & Up to 30 ppm colour; Up to 600 x 600 dpi; Up to 75,000 pages duty cycle; 384 MB; 1 embedded HP Jetdirect 10/100/1000 Base-T Ethernet, 1 USB-B Plug and Play; 515 MHz processor speed; Duplex			
Control Requirements	N/A			

Installation Requirements	N/A			
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Tag	Description	P&ID
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Class	Description
mPRV	Pressure Regulating Valve

Equipment Data Sheet

Description	Pressure Regulating Valve		Seals	Nitrile
Make	Parker		Surface Finish Certificates Required	No
Size	1"		Material Certificates Required	No
Material	N/A	Aluminium	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	N/A
Model	P3NRA98BNN			
Datasheet	https://www.parker.com/literature/Literature %20Files/pneumatic/Literature/PDN1000US_Products/PDN1000-3_Products/PDN1000-3US_P3NR.pdf			

Service Requirements	Operating Inlet: 6 to 7 Outlet: 2 to 3 bar	Range: bar
Functional Requirements	N/A	
Control Requirements	Manually Operated with no feed back	

Installation Requirements	Fabricate both end with 1 inch SS316 ferrule adaptor
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Tag	Description	P&ID
PRV1101	M1 HP Compressed Air Pressure Regulating Valve	A170810-PR-SMS-PID-001
PRV1103	M1 LP Compressed Air Pressure Regulating Valve	A170810-PR-SMS-PID-001
PRV2101	M2 HP Compressed Air Pressure Regulating Valve	A170810-PR-SMS-PID-002
PRV2103	M2 LP Compressed Air Pressure Regulating Valve	A170810-PR-SMS-PID-002
PRV3101	S1 HP Compressed Air Pressure Regulating Valve	A170810-PR-SMS-PID-003
PRV3102	S1 LP Compressed Air Pressure Regulating Valve	A170810-PR-SMS-PID-003



Class	Description
mPT	Pressure Indicating Transmitter

Equipment Data Sheet

Description	Pressure Indicating Transmitter		Seals	N/A
Make	Endress+Hauser		Surface Finish Certificates Required	No
Size	1-1/2"		Material Certificates Required	Yes
Material	AISI	N/A	Material Requirements	N/A
Gasket	Membrane AISI 316		Surface Finish Required	Ra < 0.38 um
Model	PMP55-4JXF0/0			
Datasheet	https://portal.endress.com/wa001/sap(bD1lbiZjPTIwMA==)/bc/bsp/euh/dla/extern/detail.htm?no_heading=x&xmaster=x&xdesign=x&language=en&key=DLA000000000000005000498675301000			

Service Requirements	10 bar - 40 bar
Functional Requirements	With Local Display
Control Requirements	4 - 20 mA output/supply voltage 11.5 - 45 VDC

Installation Requirements	Ferrule (Tri-Clamp)
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Tag	Description	P&ID
PI1103	M1 Vessel Pressure	A170810-PR-SMS-PID-001
PI2103	M2 Vessel Pressure	A170810-PR-SMS-PID-002
PI3103	S1 Vessel Pressure	A170810-PR-SMS-PID-003
PI4103	S2 Vessel Pressure	A170810-PR-SMS-PID-003



Class	Description
mRD	Bursting disc

Equipment Data Sheet

Description	Bursting disc			Seals	N/A
Make	Fike			Surface Finish Certificates Required	Yes
Size	1 1/2" (DN40)			Material Certificates Required	Yes
Material	ASME	Stainless Steel	316L	Material Requirements	N/A
Gasket	Silicone Platinum Cured			Surface Finish Required	@@SURFACEFINISH@@
Model	Axis SC				
Datasheet	S:\Projects\Projects17\A170810 - MPI SMS\05. Detailed Design\04. Working Documents\MPI.SMS\Quotations & PO\Data Sheets				

Service Requirements	Mixing Vessel: 4 bar @ 150 deg C Storage Vessel: 3 bar @ 150 deg C
Functional Requirements	Full vacuum
Control Requirements	With burst indicator

Installation Requirements	Ferrule (Tri-Clamp)
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Tag	Description	P&ID
RD1101	M1 Burst Disc	A170810-PR-SMS-PID-001
RD2101	M2 Burst Disc	A170810-PR-SMS-PID-002
RD3101	S1 Burst Disc	A170810-PR-SMS-PID-003
RD4101	S2 Burst Disc	A170810-PR-SMS-PID-003



Class	Description
mSB	Spray ball

Equipment Data Sheet

Description	Spray ball			Seals	N/A
Make	Aerre Inox			Surface Finish Certificates Required	Yes
Size	3/4"			Material Certificates Required	Yes
Material	AISI	Stainless Steel	316L	Material Requirements	N/A
Gasket	N/A			Surface Finish Required	@@SURFACEFINISH@@
Model	TR-C-weld end				
Datasheet	S:\Projects\Projects17\A170810 - MPI SMS\05. Detailed Design\04. Working Documents\MPI.SMS\Quotations & PO\Data Sheets				

Service Requirements	4,100 - 6,300 liter per hour at 1 - 3 bar
Functional Requirements	360 degree spray pattern
Control Requirements	N/A

Installation Requirements	Ferrule (Tri-Clamp) on Vessel
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Tag	Description	P&ID
XW1117	M1 Spray Ball 1	A170810-PR-SMS-PID-001
XW1119	M1 Spray Ball 2	A170810-PR-SMS-PID-001
XW2117	M2 Spray Ball 1	A170810-PR-SMS-PID-002
XW2119	M2 Spray Ball 2	A170810-PR-SMS-PID-002
XW3117	S1 Spray Ball 1	A170810-PR-SMS-PID-002
XW3119	S1 Spray Ball 2	A170810-PR-SMS-PID-002
XW4117	S2 Spray Ball 1	A170810-PR-SMS-PID-003
XW4119	S2 Spray Ball 2	A170810-PR-SMS-PID-003



Class	Description
mSG	Sight Glass Vessel Luminare - w Light fitting

Equipment Data Sheet

Description	Sight Glass Vessel Luminare - w Light fitting		Seals	N/A
Make	Max Muller AG		Surface Finish Certificates Required	No
Size	to match selected sight glass		Material Certificates Required	No
Material	AISI	Stainless Steel 316L / GLASS	Material Requirements	N/A
Gasket	Corrosion & Alteration resistant		Surface Finish Required	@@SURFACEFINISH@@
Model	BKVLR 100HD			
Datasheet	miniLUX BKVLR.pdf			

Service Requirements	24 VDC/VAC 100 Watt
Functional Requirements	N/A
Control Requirements	N/A

Installation Requirements	IP65
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Tag	Description	P&ID
XLC1101	M1 Vessel Light	A170810-PR-SMS-PID-001
XLC2101	M2 Vessel Light	A170810-PR-SMS-PID-002
XLC3101	S1 Vessel Light	A170810-PR-SMS-PID-002
XLC4101	S2 Vessel Light	A170810-PR-SMS-PID-003



Class	Description
mSOL	SMS1 remote solenoid valve and digital input station

Equipment Data Sheet

Description	SMS1 remote solenoid valve and digital input station		Seals	N/A
Make	Festo		Surface Finish Certificates Required	No
Size	N/A		Material Certificates Required	No
Material	N/A	N/A	Material Requirements	All aluminium alloys used contain less than 7.5 % magnesium (Mg) by mass housing
Gasket	N/A		Surface Finish Required	N/A
Model	MPA-FB-VI			
Datasheet	https://www.festo.com/net/et_ee/SupportPortal/default.aspx?q=530411			

Service Requirements	6 bar Dried compressed air of quality class 5 to DIN ISO 8573-1 lubricated or unlubricated, Max operating pressure 10 bar and maximum control pressure 8 bar
Functional Requirements	24 VDC +/- 25%, 8A power supply per supply contact, 2.5 A max current loading of the valve voltage, max switching frequency 10 Hz, 50% Max pulse ratio at 10 Hz, safety class 3, IP 54
Control Requirements	Profinet

Installation Requirements	In cabinet, complete with all required components for the purpose
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Tag	Description	P&ID
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Class	Description
mSSP	Signal splitter

Equipment Data Sheet

Description	Signal splitter		Seals	N/A
Make	Amelec		Surface Finish Certificates Required	No
Size	Enclosure: 50w x 75h x 110d		Material Certificates Required	No
Material	N/A	N/A	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	N/A
Model	ADM221X RTD			
Datasheet	S:\Projects\Projects17\A170810 - MPI SMS\05. Detailed Design\04. Working Documents\MPI.SMS\Quotations & PO\Data Sheets			

Service Requirements	To split 1 incoming PT100 input into 2 Output Signals
Functional Requirements	Output 1: RTD Output 2: 4-20mA
Control Requirements	Supply voltage: 24Vdc / 115Vac / 230Vac

Installation Requirements	Din rail / Surface (optional Panel Mount)
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Tag	Description	P&ID
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Class	Description
mST	Steam trap

Equipment Data Sheet

Description	Steam trap			Seals	EPDM/PTFE
Make	Spirax Sarco			Surface Finish Certificates Required	Yes
Size	1/2" & 1 1/2"			Material Certificates Required	Yes
Material	AISI	Stainless 316L	Steel	Material Requirements	Stainless Steel 316L
Gasket	N/A			Surface Finish Required	@@SURFACEFINISH@@
Model	BT6-B				
Datasheet	http://www.spiraxsarco.com/global/us/Products/Documents/BT6-B_Sanitary_Balanced_Pressure_Thermostatic_Steam_Trap-Technical_Information.pdf				

Service Requirements	N/A
Functional Requirements	N/A
Control Requirements	N/A

Installation Requirements	Ferrule (Tri-Clamp)
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Tag	Description	P&ID
ST1101	M1 CA Supply Line Drain Steam Trap	A170810-PR-SMS-PID-001
ST1103	M1 Vent Filter Drain Line Steam Trap	A170810-PR-SMS-PID-001
ST1105	M1 Outline Line Steam Trap	A170810-PR-SMS-PID-001
ST1107	SMFL1 Filtration Line Steam Trap	A170810-PR-SMS-PID-001
ST2101	M2 CA Supply Line Drain Steam Trap	A170810-PR-SMS-PID-002
ST2103	M2 Vent Filter Drain Line Steam Trap	A170810-PR-SMS-PID-002
ST2105	M2 Outline Line Steam Trap	A170810-PR-SMS-PID-002
ST2107	SMFL2 Filtration Line Steam Trap	A170810-PR-SMS-PID-002
ST3101	S1 CA Supply Line Drain Steam Trap	A170810-PR-SMS-PID-002
ST3103	S1 Vent filter drain line steam trap	A170810-PR-SMS-PID-002
ST3105	S1 Outlet Line steam trap	A170810-PR-SMS-PID-002
ST4101	S2 CA Supply Line Drain Steam Trap	A170810-PR-SMS-PID-003
ST4103	S2 Vent filter drain line steam trap	A170810-PR-SMS-PID-003
ST4105	S2 Outlet Line steam trap	A170810-PR-SMS-PID-003



Class	Description
mSy	Storage Vessel

Equipment Data Sheet

Description	Storage Vessel			Seals	N/A
Make	Pharmafood Engineering			Surface Finish Certificates Required	Yes
Size	ID 2500 x SL 2438			Material Certificates Required	Yes
Material	ASME SEC. VIII. DIV.2	Stainless 316L	Steel	Material Requirements	Stainless Steel 316L
Gasket	PTFE/EPDM/ any USP Class 7			Surface Finish Required	@@SURFACEFINISH@@
Model	Storage Vessel 13,000 L				
Datasheet	A170810-PR-GA-002 rev:A				

Service Requirements	3 / - 1 bar Vacuum @ 150 Celcius
Functional Requirements	No Mixer Installed
Control Requirements	Pneumatically Actuated Tank bottom outlet valve

Installation Requirements	3 leg support with 3 leg support bracing
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Tag	Description	P&ID
S1	Storage Vessel 1	A170810-PR-SMS-PID-003
S2	Storage Vessel 2	A170810-PR-SMS-PID-003



Class	Description
mT	Temperature probe c/w transmitter (with 35 mm neck)

Equipment Data Sheet

Description	Temperature probe c/w transmitter (with 35 mm neck)		Seals	N/A
Make	Endress+Hauser		Surface Finish Certificates Required	Yes
Size	1-1/2"		Material Certificates Required	Yes
Material	N/A	N/A	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	@@SURFACEFINISH@@
Model	TMR35-A1BBDBAC2CBA			
Datasheet	TI00123REN_1416.pdf			

Service Requirements	0 - 150 deg C					
Functional Requirements	Pt 100 sensing element with class A accuracy (DIN EN 60751)					
Control Requirements	4 - 20 mA output signal					

Installation Requirements	Tri-Clamp (line mounted; tundish/drain)
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Tag	Description	P&ID
TI1111	SMFL1 Drain Temperature Indicator	A170810-PR-SMS-PID-001
TI2111	SMFL2 Drain Temperature Indicator	A170810-PR-SMS-PID-002



Class	Description
mT1	Temperature probe c/w transmitter (with 35 mm neck)

Equipment Data Sheet

Description	Temperature probe c/w transmitter (with 35 mm neck)		Seals	N/A
Make	Endress+Hauser		Surface Finish Certificates Required	No
Size	2"		Material Certificates Required	No
Material	N/A	Stainless Steel 316L	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	@@SURFACEFINISH@@
Model	TMR35-A1BBDLAC2CBA			
Datasheet	TI00123REN_1416.pdf			

Service Requirements	0 - 150 deg C					
Functional Requirements	Pt 100 sensing element with class A accuracy (DIN EN 60751)					
Control Requirements	4 - 20 mA output signal					

Installation Requirements	Tri-Clamp (line mounted; tundish/drain)
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Tag	Description	P&ID
TI1107	M1 Drain Temperature Indicator	A170810-PR-SMS-PID-001
TI2107	M2 Drain Temperature Indicator	A170810-PR-SMS-PID-002
TI3107	S1 Drain temperature	A170810-PR-SMS-PID-003
TI4107	S2 Drain temperature	A170810-PR-SMS-PID-003



Class	Description
mT2	Temperature probe c/w transmitter (with 35 mm neck)

Equipment Data Sheet

Description	Temperature probe c/w transmitter (with 35 mm neck)		Seals	N/A
Make	Endress+Hauser		Surface Finish Certificates Required	No
Size	1"		Material Certificates Required	No
Material	N/A	Stainless Steel 316L	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	@@SURFACEFINISH@@
Model	TMR35-A1BDDMC2CBA			
Datasheet	TI00123REN_1416.pdf			

Service Requirements	0 - 150 deg C					
Functional Requirements	Pt 100 sensing element with class A accuracy (DIN EN 60751)					
Control Requirements	4 - 20 mA output signal					

Installation Requirements	Tri-Clamp (line mounted; vent filter)
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Tag	Description	P&ID
TI1103	M1 Vent Filter top outlet temperature	A170810-PR-SMS-PID-001
TI2103	M2 Vent Filter top outlet temperature	A170810-PR-SMS-PID-002
TI3103	S1 Vent Filter top outlet temperature	A170810-PR-SMS-PID-003
TI4103	S2 Vent Filter top outlet temperature	A170810-PR-SMS-PID-003



Class	Description
mTI	Temperature probe with Thermowell (Thermowell fabricated by JJK)

Equipment Data Sheet

Description	Temperature probe with Thermowell (Thermowell fabricated by JJK)		Seals	N/A
Make	Endress+Hauser		Surface Finish Certificates Required	Thermowell: TRUE Temperature: FALSE
Size	NPT 1/2"		Material Certificates Required	Thermowell: TRUE Temperature: FALSE
Material	N/A	Thermowell: Stainless Steel 316L	Material Requirements	Thermowell: Stainless Steel 316L
Gasket	N/A		Surface Finish Required	@@SURFACEFINISH@@
Model	Omnigrad T TR24			
Datasheet	https://www.endress.com/en/Field-instruments-overview/Temperature-measurement-thermometers-transmitters/Pt100-thermometer-modular-design-TR24			

Service Requirements	@@SERVICEREQUIREMENTS@@
Functional Requirements	PT 100 sensing element
Control Requirements	4 - 20 mA output signal

Installation Requirements	Welded
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Tag	Description	P&ID
TI1105	M1 Temperature Indicator	A170810-PR-SMS-PID-001
TI2105	M2 Temperature Indicator	A170810-PR-SMS-PID-002
TI3105	S1 Temperature Indicator	A170810-PR-SMS-PID-003
TI4105	S2 Temperature Indicator	A170810-PR-SMS-PID-003



Class	Description
mTT	Temperature Transmitter of Heating Jacket

Equipment Data Sheet

Description	Temperature Transmitter of Heating Jacket		Seals	N/A
Make	Milipore		Surface Finish Certificates Required	No
Size	To match Filter Housing		Material Certificates Required	No
Material	N/A	N/A	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	N/A
Model	Type 2 Wire PT100 (Milipore)			
Datasheet	Specification\HJ230-104270 Drawing (Heating Jacket).pdf			

Service Requirements	PT100 3W 0 - 150 deg C
Functional Requirements	N/A
Control Requirements	PT100

Installation Requirements	N/A
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Tag	Description	P&ID
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Class	Description
mTT1	Temperature Transmitter with Hygienic Thermowell

Equipment Data Sheet

Description	Temperature Transmitter with Hygienic Thermowell		Seals	N/A
Make	Endress+Hauser		Surface Finish Certificates Required	No
Size	1-1/2"		Material Certificates Required	No
Material	N/A	N/A	Material Requirements	Stainless Steel 316L
Gasket	N/A		Surface Finish Required	@@SURFACEFINISH@@
Model	TM411			
Datasheet	http://endress.org.ua/pdf/MTR44.pdf			

Service Requirements	0 - 150 deg C					
Functional Requirements	Pt 100 sensing element with class A accuracy (DIN EN 60751)					
Control Requirements	4 - 20 mA output signal					

Installation Requirements	Tri-Clamp (line mounted; product contact)
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Tag	Description	P&ID
TI1109	Manufacturing Filtration Line Inline Heat Exchanger Temperature	A170810-PR-SMS-PID-001
TI2109	Manufacturing Filtration Line Inline Heat Exchanger Temperature	A170810-PR-SMS-PID-002



Class	Description
mUPS	Un-interruptible Power Supply

Equipment Data Sheet

Description	Un-interruptible Power Supply		Seals	N/A
Make	APC by Schneider Electric		Surface Finish Certificates Required	No
Size	N/A		Material Certificates Required	No
Material	N/A	N/A	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	N/A
Model	APC Back-UPS CS 500VA, 230V			
Datasheet	CLII-9BLHVF_R0_EN.pdf			

Service Requirements	N/A
Functional Requirements	Protects connected loads from surges, spikes, lightning, and other power disturbances. Reserves power capacity and run time for connected equipment that require battery back-up while providing surge only protection for less critical equipment.
Control Requirements	Interface Port DB-9 RS-232, USB

Installation Requirements	N/A
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Tag	Description	P&ID
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Class	Description
mVP	Vacuum pump

Equipment Data Sheet

Description	Vacuum pump		Seals	N/A
Make	Elmo Rietschle		Surface Finish Certificates Required	No
Size	2"		Material Certificates Required	No
Material	N/A	N/A	Material Requirements	N/A
Gasket	N/A		Surface Finish Required	N/A
Model	VC 202			
Datasheet	http://vactech.com.my/wp-content/uploads/2014/02/VC-202-VC-303.pdf			

Service Requirements	Oil Rotary Vane
Functional Requirements	@@FUNCTIONALREQUIREMENTS@@
Control Requirements	N/A

Installation Requirements	Threaded 2" BSP
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Tag	Description	P&ID
VP1000	Mx Vacuum Pump 1	A170810-PR-SMS-PID-004
VP1001	Mx Vacuum Pump 2	A170810-PR-SMS-PID-004
VP3000	Sy Vacuum Pump 1	A170810-PR-SMS-PID-004
VP3001	Sy Vacuum Pump 2	A170810-PR-SMS-PID-004