

pharma loop

THE MODULAR SOLUTION FOR THE STORAGE AND DISTRIBUTION OF WATER FOR PHARMACEUTICAL PROCESS.

**Purified water
Highly purified water
Water for injection**

- **Water quality guaranteed at user points**
- **Reduced manufacturing dead line period**
- **Cost saving solution**
- **Concept completely approved**
- **Fully modular**



CONSTRUCTIONS COMPLIANT WITH:
GMP, GAMP, cGMP, USP, European Pharmacopeia, and compliant with CFR21 part 11

Storage module



- Maintaining and guaranteed the quality of water
- Reduce peak consumptions
- Ultra-hygienic design. No retention zone. Totally drainable
- Permanent spray of all surfaces in contact with the product
- Connecting cabinet to allow easy installation

Process function:

Level data
Alarm levels data
Sterilised filter on vessel vent
Vessel protection against high or low pressure
Easy sampling

Working pressure : Atmospheric or Pressurised

Technical description:

Stainless steel AISI 316L (1,4404)
Construction code: Codap PED

Surface finish : plates cold laminated 2B, erased welding points

- Entirely stripped and passivated
- Legs with sting plates
- Heat protection (Model MSP)

Internal finish for all surfaces in contact with product:

- Plates cold laminated 2B Ra<0.8 µm or electropolished plates Ra<0.4 µm
- Erased welds polished Ra<0.8 µm or electropolished plates Ra<0.4 µm

Nozzles finish

- Extruded clamp fitting

Equipment:

- Manhole
- Removable sprayball
- Inlet nozzle
- Outlet nozzle
- Spare nozzle
- Vent nozzle
- 4 level sensors
- All nozzles fitted with clamps
- Sampling valve

Vessel range:

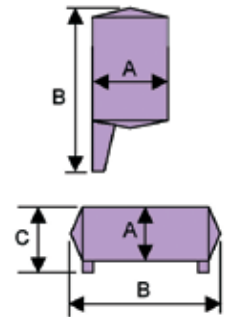
Type of disinfection	Vessel range	Service pressure	Service temperature
Ozone sanitisation	MSA	Atm	20°C
80°C sanitisation	MSA	Atm	20°C - 80°C
121°C stérilisation	MSP	-1 / +3 bars	121°C

Purified water vertical storage vessel

Working capacity	liter	1.000	1.500	2.000	2.500	3.000	4.000	5.000	6.000	8.000	10.000	12.000	15.000	20.000	25.000
Shell diameter (*)	A (mm)	1.150	1.150	1.270	1.430	1.590	1.590	1.800	1.590	1.850	2.050	2.250	2.540	2.540	2.860
Total height (*)	B (mm)	1.900	2.400	2.400	2.500	2.500	3.000	3.000	4.000	4.000	4.100	4.100	4.200	5.200	5.300

Purified water horizontal storage vessel

Working capacity	liter	1.000	1.500	2.000	2.500	3.000	4.000	5.000	6.000	8.000	10.000	12.000	15.000	20.000	25.000
Shell diameter (*)	A (mm)	950	1.150	1.150	1.270	1.430	1.509	1.500	1.590	1.650	1.800	2.000	2.250	2.100	2.350
Total length height(*)	B (mm)	1.800	1.900	2.400	2.400	2.450	2.500	3.500	3.500	4.600	4.600	4.700	4.700	6.700	6.800
Total height(*)	C (mm)	1.450	1.650	1.650	1.770	1.930	2.009	2.000	2.090	2.150	2.300	2.500	2.750	2.600	2.850



Options:

- Continous level data on vessel
- Cold insulation Armaflex
- CO₂ trap on vessel vent
- O₂ destruction on vessel vent
- Rockwool hot insulation with isoxal or stainless steel cover
- Rupture disk with switch
- Assistance to the qualification (IQ/OQ)

Documentations included:

- Plans following French norms
- Traceability
- Calculation notes (pressure vessels)
- Surface roughness certificate
- Welding book
- Constructor's file

(*) Isolation for, add 200 mm - Atmospheric vessel: MSA - Pressure vessel: MSP

Distribution module

- Compact and easy to be integrate
- Maintaining the water quality guaranteed
- Ensure minimum velocity in case of maximum consumption
- Pressure at user points
- Water temperature guaranteed
- Sanitisation or sterilisation of the storage and the distribution loop
- Automatic control of the installation
- Tested in our workshops



Process function:

Water quality control in the return loop
 Totally drainable unit no dead leg
 Temperature control
 Conductivity control
 Heating and cooling (according to module)
 Ozone production and control

Module	Type of disinfection
O	Ozone sanitisation
SA 80	Sanitisation 80°C
ST 121	Sterilisation 121°C

Type	O/ SA 80/ ST 121	MD 5-8	MD 8-16	MD 16-25	MD 25-40
Flowrate (mini/maxi)	m ³ /h	5 à 8	8 à 16	16 à 25	25 à 40
Maximum tape	m ³ /h	4	9	15	25
Pressure guarantee at user point	Bars	> 2	> 2	> 2	> 2

Type		MD 5-8	MD 8-16	MD 16-25	MD 25-40
Height	(mm)	2 150	2 150	2 150	2 150
Depth	(mm)	2 500	2 500	2 500	3 000
Length	(mm)	1 600	1 600	1 600	1 800

Pump(s) power	(kW)	4	15	15	18,5
Diameter of the loop	(mm)	DN 40	DN 50	DN 65	DN 80
Piping	316 L stainless steel orbital welding - SMS or ISO standards				
Finition	Ra < 1 µm or Ra < 0.4 µm				

Utilities:	
Electricity :	220 / 380 V ; 50Hz
Compressed air: (instrument)	6 bars dry and dust free
Clean compressed air:	3 bars

Skid	304 stainless steel
Control cabinet	Painted steel

Utility needs	MD 5-8		MD 8-16		MD 16-25		MD 25-40	
	Cooling water 6/12°C (m ³ /h)	Steam 3 bars (kg/h)	Cooling water 6/12°C (m ³ /h)	Steam 3 bars (kg/h)	Cooling water 6/12°C (m ³ /h)	Steam 3 bars (kg/h)	Cooling water 6/12°C (m ³ /h)	Steam 3 bars (kg/h)
Ozone sanitisation	2,7	/	6	/	9	/	14	/
Sanitisation 85°C	3	50	6	65	11	130	14	160
Sanitisation 121°C	1,5	50	3	80	6	160	7,5	200

Options:

- Secure pump
- Recorder - CFR 21 part 11 compliant
- Assistance to the qualification (IQ/OQ)
- TOC control

Documentations included:

- PID according to international standard
- Traceability
- Technical and maintenance file
- As built isometrics

Loop and user point module



- High grade quality piping with material certificates
- Customer assistance for loop sizing and studies
- Orbital welding
- Designed for classified area
- Easy to connect on site

Process functionality:

Designed for optimum operators safety at users points
 Multi temperature user points available
 PLC control of tap points available
 No dead leg
 Link to PLC via field bus or conventional wiring

Piping	316 L Stainless steel orbital welding - SMS or ISO standards						
Loop diameter	DN 40	/	DN50	/	DN60	/	DN80
Diaphragm and joint	EPDM						

Operator user point

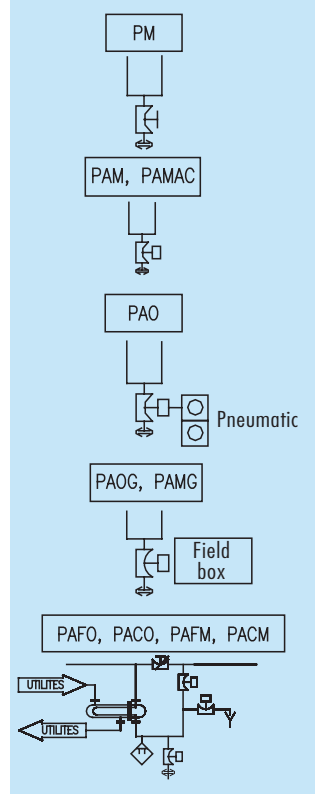
	Réf.	Function	Flowrate m ³ /h	Control	Remarks
Without management by PLC	PM	Manual valve	From 0,5 to 3	Manual	No operators safety control
	PAO	Automatic valve with pneumatic remote control			
With management by PLC	PAOG	Automatic valve with field bus interface	From 0,5 to 1,5	Remote control	
	PAFO	Automatic valve for cooling down from 80°C to 25°C			
	PACO	Automatic valve for heating up from 25°C to 80°C			

User point machine

	Réf.	Function	Flowrate m ³ /h	Control	Remark
Without management by PLC	PAM	Automatic valve	From 0,5 to 3	Piloting contact	Turning tape one prohibited during disinfection
	PAMAC	Automatic valve		Pneumatic control	
With management by PLC	PAMG	Automatic valve with pneumatic control box	From 0,5 to 1,5	Digital contact	
	PAFM	Automatic valve for cooling down from 80°C to 25°C			
	PACM	Automatic valve for heating up from 25°C to 80°C			

Water contact surfaces : steel 316L Ra<0,8µm (SMS) or Ra<0,4µm

Symbols



Options:

- Assistance to the qualification (IQ/OQ)
- Hot or cold insulation

Documentations included:

- Traçability
- As built isometric
- Technical and maintenance files
- PID scheme according to international standards

