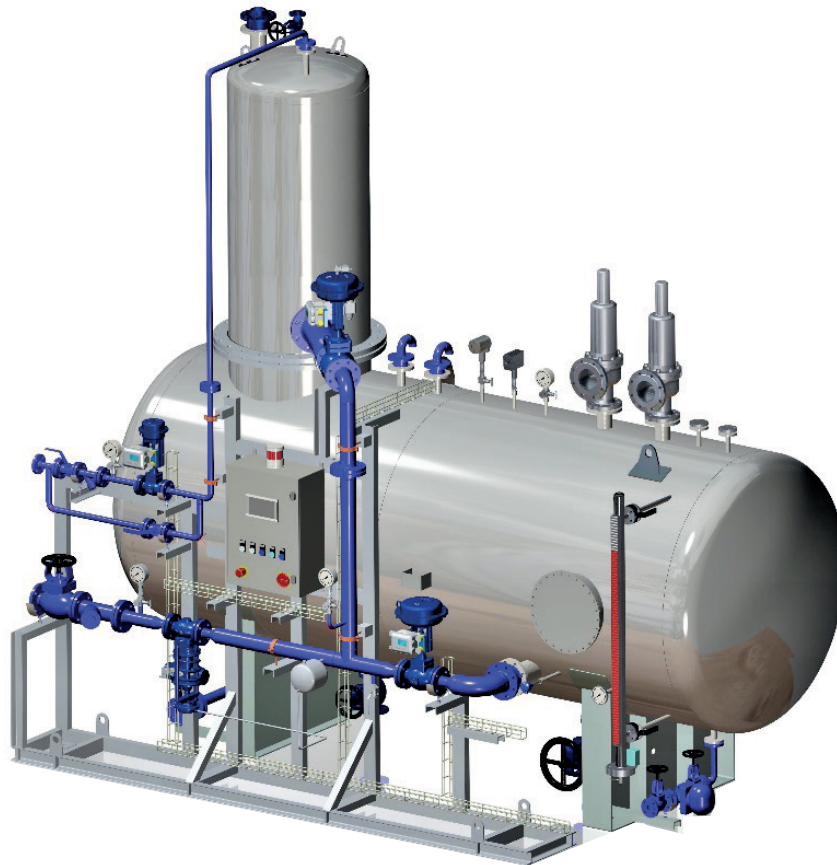




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PDA Pressurized Thermophysical Deaerator



Description

PDA Pressurised Thermophysical Deaerator series consists of pre-assembled units designed to heat the boiler feed water to a temperature above 100°C. Units operate by removing all dissolved gases and minimizing the use of chemicals. Different sizes are available, according to the quantity of feed water needed by the steam generators. Higher capacities are available on request. The unit is delivered tested and ready for installation and commissioning.

Versions available

Model	Tank volume	Useful capacity
PDA.03	3,000 liters	2,100 liters
PDA.05	5,000 liters	3,500 liters
PDA.08	8,000 liters	5,600 liters
PDA.10	10,000 liters	7,000 liters
PDA.12	12,000 liters	8,400 liters
PDA.15	15,000 liters	10,500 liters

Construction and features

- Complete, functional and safe system.
- Design studied to contain the overall dimensions and facilitate the operation of the equipment.
- Modulating control of pressure, temperature and level.
- Assembled package system complete with wired control panel on the unit's side.
- Process variables controlled by PLC logic.
- Configurable options to meet specific customer needs.
- Solution designed, built and tested by Spirax Sarco Italy.
- Unit classified as a whole and accompanied by a plate bearing the CE marking and the EC declaration of conformity.
- Widespread Spirax Sarco qualified assistance service.

Design conditions

Tank and deaerator head	Design Pressure (PS)	0.5 bar g
	Design Temperature (TS)	160°C
	Safety Valve calibration	0.5 bar g
Steam Loop	Design Pressure (PS)	12 bar g
	Design Temperature (TS)	191.7°C
Make-up water circuit	Design Pressure (PS)	10 bar g
	Design Temperature (TS)	99°C

Operating conditions of the plant related to the performance of the different units

Model	Plant steam generation	Condensate return 80°C	Demineralized make-up water 15°C	Steam	System autonomy
PDA.03	5,000 kg/h	3,000 kg/h	1,600 kg/h	400 kg/h	min. 20 minutes
PDA.05	10,000 kg/h	6,000 kg/h	3,200 kg/h	800 kg/h	min. 20 minutes
PDA.08	15,000 kg/h	9,000 kg/h	4,800 kg/h	1,200 kg/h	min. 20 minutes
PDA.10	20,000 kg/h	12,000 kg/h	6,300 kg/h	1,700 kg/h	min. 20 minutes
PDA.12	25,000 kg/h	15,000 kg/h	7,900 kg/h	2,100 kg/h	min. 20 minutes
PDA.15	30,000 kg/h	18,000 kg/h	9,500 kg/h	2,500 kg/h	min. 20 minutes

Materials

Designation	Material	
Tank	Body	Carbon steel
	Steam diffuser tube	Stainless steel
	Chemical additives input	Stainless steel
	Saddles	Coated Carbon steel
Deaerator head	Body	AISI 304 Stainless steel
	Internal plates	AISI 316 Stainless steel
Steam line – Design Temperature (TS)	Carbon Steel	
Make-up water line	Stainless steel	
Carpentry of the control panel	Sheet metal painted according to our standard RAL 7035	
Unit Chassis	Mild steel Fe 360 painted according to our std RAL 5010	

Technical Data

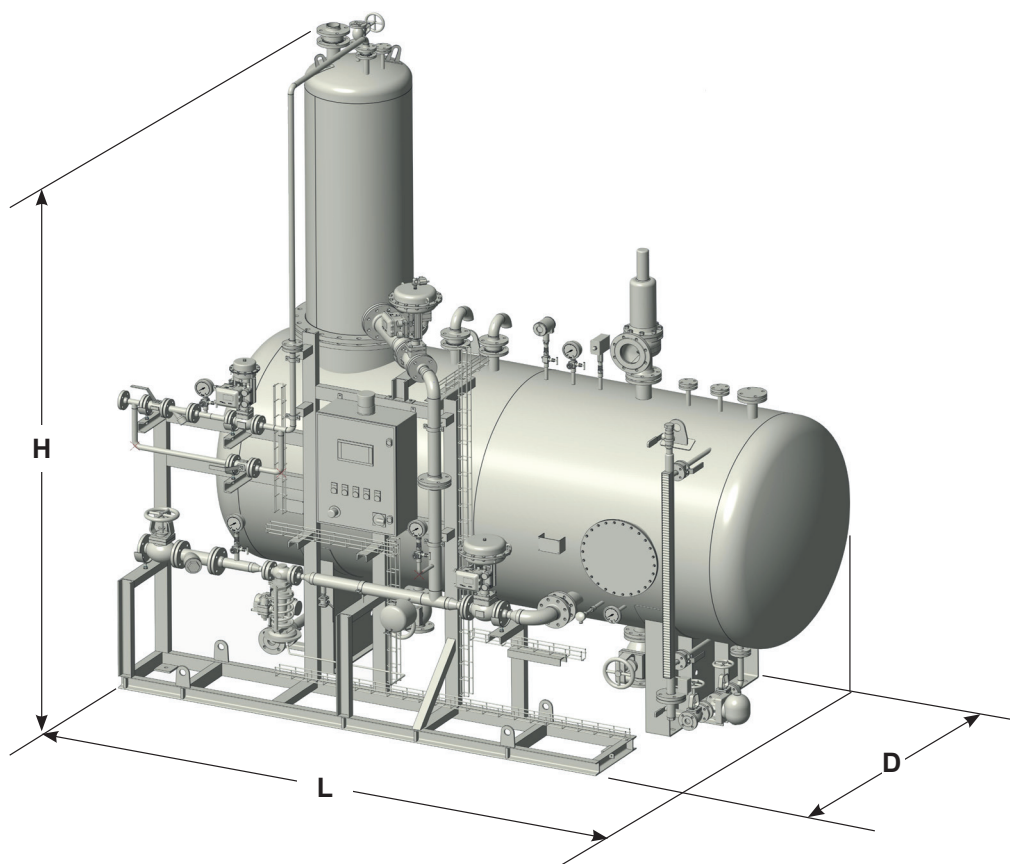
Air supply	Compressed air pressure minimum 5 bar - max 13 bar to the valve reducing filters
Power supply	Voltage 230V single phase -50 / 60Hz
	Installed power 0.4 kW

Dimensions / weights (approximate) in mm and kg

Model - Size	L Lenght	D Depth	H Height	Empty weight	Operating weight
PDA.03 - 3.000 l	3,400 mm	1,890 mm	3,531 mm	1,350 kg	3,450 kg
PDA.05 - 5.000 l	3,869 mm	1,965 mm	3,931 mm	1,770 kg	5,270 kg
PDA.08 - 8.000 l	4,515 mm	2,180 mm	4,316 mm	2,600 kg	8,200 kg
PDA.10 - 10.000 l	4,892 mm	2,290 mm	4,439 mm	3,200 kg	10,200 kg
PDA.12 - 12.000 l	5,419 mm	2,435 mm	4,966 mm	3,500 kg	11,900 kg
PDA.15 - 15.000 l	5,469 mm	2,610 mm	5,233 mm	3,900 kg	14,400 kg

Note:

1. In order to allow easy access to the unit, it is recommended to leave a respect distance, free of obstacles, of at least 800mm on the front and on the two side sides.
2. The above dimensions and weights refer to the basic version without options.



Flanged connections according to UNI-EN 1092-1 PN16 / 40

	PDA.03	PDA.05	PDA.08	PDA.10	PDA.12	PDA.15
Degassed water to boilers	DN80	DN80	DN80	DN100	DN100	DN100
Primary steam line	DN50	DN50	DN65	DN80	DN80	DN80
Injection steam to head	DN80	DN100	DN150	DN150	DN200	DN200
Injection steam to tank	DN80	DN80	DN100	DN125	DN150	DN150
Condensate return	DN40	DN80	DN80	DN80	DN100	DN100
Make-up water	DN25	DN25	DN25	DN40	DN40	DN40
Manual blowdown	DN50	DN50	DN50	DN80	DN80	DN80
Automatic blowdown	DN50	DN50	DN50	DN80	DN80	DN80
Mechanical overflow (for leaks)	DN25	DN25	DN25	DN25	DN25	DN25
Vent for non-condensable gasses	DN15	DN15	DN40	DN40	DN50	DN50
Safety Valve drain	DN80	DN80	2xDN80	2xDN80	2xDN100	2xDN100
Chemical additives inputs	2xDN20	2xDN20	2xDN20	2xDN20	2xDN20	2xDN20

Nomenclature and Selection Guide

The product designation depends on the characteristics of the main elements and the options, as exemplified in the following table:

Basic configuration			
Design	E	EN	E
	A	ASME	
Volume / Useful capacity	03	3,000 liters / 2,100 liters	03
	05	5,000 liters / 3,500 liters	
	08	8,000 liters / 5,600 liters	
	10	10,000 liters / 7,000 liters	
	12	12,000 liters / 8,400 liters	
	15	15,000 liters / 10,500 liters	
Design conditions	0	0.5 bar g / 110°C	0
	1	3 bar g / 160°C	
Tank material	CS	Carbon steel	CS
	SS	AISI 304 stainless steel	
Type of valve actuators	PN	Pneumatic (fail safe)	PN
	EL	Electric (fail safe)	
Controller	P0	PLC EATON XV 102 series + 7" touch screen display	P0
	P1	PLC Siemens S7 1200 series + 7" touch screen display	
Communication interface	C0	Modbus TCP / IP	C0
	C1	Modbus RTU	
	C2	BACnet MS / TP	
	C3	Profibus DP	
	C4	Profinet	
Electrical control panel	0	Carpentry in painted metal sheet according our standard RAL7035	0
	1	Metal sheet carpentry painted RAL7035 with double door, IP65 protection degree	
	2	Carpentry in AISI 304 stainless steel	
	3	Carpentry in AISI 304 stainless steel with double door, degree of protection IP65	
Insulation	0	Excluded	2
	1	Rock wool with aluminum sheet coating	
	2	Rock wool with AISI 304 stainless steel sheet coating	
Options			
Lock valve on primary steam line	0	Excluded	PN
	PN	PN pneumatic valve	
	EL	EL electric valve	
Condensate separator on primary steam line	0	Excluded	0
	1	Condensate separator complete with Blowdown Unit	
Certification	0	Excluded (Max Pressure Design 0.5 bar g)	1
	1	PED Certification (For 3 bar g Design Conditions)	
	2	3.1 Certifications	
	3	Welding Certifications	
	4	Certification for seismic zone	
Test	0	Excluded	0
	1	FAT (Factory Acceptance Test) attended by the Customer	
	2	PMI by customer specification	
	3	PDI (Pre-Delivery Inspection)	
	4	SAT performed by our engineers	
Smart diagnostics	N	not present	I1
	I1	System Diagnostics	
Customizing	O	Our Standard (basic version)	O
	S	Customer-tailored package	

Selection example

E	03	0	-	CS	PN	P0	C0	0	2	-	PN	0	1	0	I1	O
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