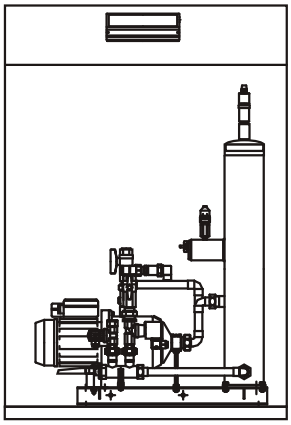
PRESSURE STEP DE-AERATOR
Model ASPE



ASPE

APPLICATIONS

Pressure step de-aerators are designed to provide active de-aeration of micro-bubbles and dissolved air from heating and cooling systems in high rise buildings.

This model is designed to create the most favourable conditions for efficient air removal where centrifugal or micro-bubble air separators can not be used, for example when the system head is too great.

The basic operation involves isolating a volume of the system water in the de-aeration vessel, inducing a pressure drop with a pump to liberate dissolved air, venting and final return of the de-aerated water to the system.

They can be used accordingly for the following applications:-

Low Temperature Heating (LTHW)
Chilled Water (CHW)
Condenser Water (Cond.W)

System Press. Min. (Bar)	System Press. Max. (Bar)	System Connections	Width Depth Height (mm)	Number Of Pumps	Product Code (MODEL)
1.0	6.0	1/2" BSPF	480 x 330 x 800	2	ASPE-4 A high pressure model is also available ASPE-5

COMMISSIONING

Always follow the Commissioning Guide.

We recommend that commissioning is carried out by an experienced commissioning engineer within the 12-month warranty period.

A commissioning service can be offered upon request.

SPECIFICATION

ASPE-4 - Heating and cooling model providing automatic vacuum de-aeration removing dissolved air, programmable microprocessor control, facility to connect to BMS, with enclosure as standard.

Noise Rating	= <75 dB(A) approx.
System Connections	= DN15 (1/2") BSPP
Weight	= 50 kg approx.
Dimesions (L x W x H)	= 480 x 330 x 800 mm
Power Supply	= 230V 50Hz
Full Load Current	= 2 x 3.4 Amps
Power Used	= 2 x 0.5 kW
Fuse Rating	= 13 Amps
Safety Rating	= IP54
Maximum Turbo Runtime	= 168 hours (1 week)
Maximum Normal Downtime	= 180 minutes (3 hours)
Control Interface	= RS 485
Volt Free Contacts	= Common Fault Contact

OPERATING PARAMETERS

The user may select between two de-aeration modes:

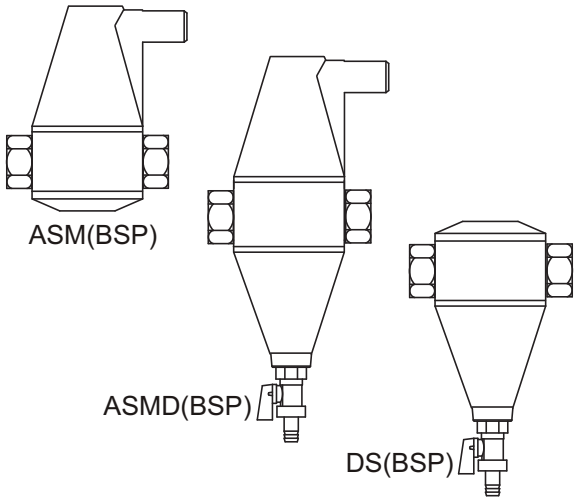
Turbo de-aeration - quick and efficient de-aeration directly after installation without any breaks between the de-aeration intervals.

Normal de-aeration - energy-saving mode with longer intervals between the de-aeration cycles. De-aeration takes place only when necessary.

Maximum System Volume	= 300,000 litres
Operating Pressure Range, PS	= 1 to 6 Bar
Maximum Installation Pressure	= 6 Bar
System De-aeration Range	= 0 to 90 ºC
Ambient Temperature Range	= 0 to 45 ºC

NOTE: Connections to the system pipework must be made to the side of the horizontal pipe, never to the top or bottom of the pipe. Ingress of debris will prevent this equipment from operating.

BRASS SEPARATORS (THREADED)
Model ASM, ASMD + DS



APPLICATIONS

Brass separators are designed to remove air, air and dirt, or dirt only from heating and cooling systems.

These models slow the velocity of the water in its enlarged chamber, where the water impacts onto a dynamic concentrator.

For air separation, the concentrator merges bubbles and micro-bubbles using the principles of cohesion, which then float to the top of the brass chamber from where they are vented to the outside.

For dirt separation, the concentrator allows dirt particles heavier than water to sink to the bottom of the brass chamber, where they can be drained off periodically through the bottom drain valve.

They can be used accordingly for the following applications:-

Low Temperature Heating (LTHW)
Chilled Water (CHW)
Condenser Water (Cond.W)
Solar Heating Systems

Nominal Size DN (mm)	Installation Length (mm)	Overall Height (mm)	Chamber Diameter (mm)	Maximum Flow Rate (l/s)	Product Code (MODEL-SIZE-ENDS)
22	98	151	71	0.5	ASM-022-COMP
20	88	151	71	0.5	ASM-020-BSPF
25	100	171	80	0.7	ASM-025-BSPF
32	114	192	87	1.2	ASM-032-BSPF
40	114	192	87	2.1	ASM-040-BSPF
50	131	214	93	2.9	ASM-050-BSPF
22	111	283	71	0.5	ASMD-022-COMP
20	90	283	71	0.5	ASMD-020-BSPF
25	104	315	80	0.7	ASMD-025-BSPF
32	114	345	87	1.2	ASMD-032-BSPF
40	114	345	87	2.1	ASMD-040-BSPF
22	114	196	71	0.5	DS-022-COMP
20	88	196	71	0.5	DS-020-BSPF
25	100	216	80	0.7	DS-025-BSPF
32	114	237	87	1.2	DS-032-BSPF
40	114	237	87	2.1	DS-040-BSPF
50	131	255	93	2.9	DS-050-BSPF

SPECIFICATION

ASM (BSPF) - Brass chamber with female threaded connections to ISO7. With integral automatic air vent.

ASMD (BSPF) - Brass chamber with female threaded connections to ISO7. With integral automatic air vent and integral bottom drain valve.

DS (BSPF) - Brass chamber with female threaded connections to ISO7. With integral bottom drain valve.

Also available with COMPRESSION end connections to EN1254 Part 2 at 22mm nominal size.

ASM when suffixed “(SOLAR)” indicates accordance with SOLAR systems, as they incorporate a manual bleed valve for safety, because there is a real risk of the solar fluid turning to vapour in the event of a pressure drop.

OPERATING PARAMETERS

Threaded and Compression End models

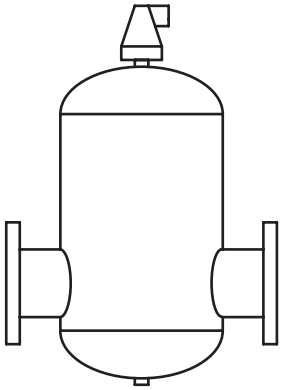
Operating Temperature, TS	= 110 ºC.
Operating Pressure, PS	= 10 Barg.
Cold Test Pressure, PT	= 15 Barg.
Max’ Water Velocity	= 1.5m/s.

SOLAR Systems model

Working Temperature	= 180 ºC.
Max’ Water Velocity	= 1.5m/s.

Flow rates are based on water flow at 1.5m/s velocity through EN10255 Medium Series pipes up to DN50.

MICRO-BUBBLE AIR SEPARATORS
Model ASM



ASM

APPLICATIONS

Micro-bubble air separators are designed to remove air from heating and cooling systems.

This model slows the velocity of the water in its enlarged chamber, where the water impacts onto a dynamic concentrator. The concentrator merges bubbles and micro-bubbles using the principles of cohesion, which then float to the top from where they are vented to the outside.

They can be used accordingly for the following applications:-

Low Temperature Heating (LTHW)
Chilled Water (CHW)
Condenser Water (Cond.W)

Nominal Size DN (mm)	Installation Length (mm)	Overall Height (mm)	Chamber Diameter (mm)	Maximum Flow Rate (l/s)	Product Code (MODEL-SIZE-ENDS)
50	350	480	175	2.9	ASM-050-PN16
65	350	480	175	5.0	ASM-065-PN16
80	470	645	270	7.5	ASM-080-PN16
100	470	645	270	11.8	ASM-100-PN16
125	635	805	360	18.4	ASM-125-PN16
150	635	805	360	26.5	ASM-150-PN16
200	774	970	450	47.1	ASM-200-PN16
250	990	1285	600	73.6	ASM-250-PN16
300	1016	1450	600	106.0	ASM-300-PN16
350	1214	1600	800	144.3	ASM-350-PN16
400	1220	1770	800	188.5	ASM-400-PN16
500	1580	2090	1000	294.5	ASM-500-PN16
600	1870	2485	1200	424.1	ASM-600-PN16

The data above is for non PED and SEP applications only.

SPECIFICATION

ASM (PN16) - Standard flow rate model having a red powder coated steel vessel with steel flanged connections to EN1092 PN16. With top mounted brass automatic air vent and bottom mounted drain plug.

Also available with WELD ends.

Conforms with PED* 97/23/EC. *Pressure Equipment Directive.

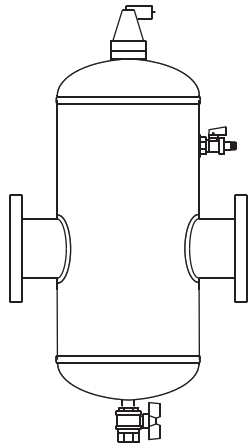
OPERATING PARAMETERS

Standard Flow Rate Flanged and Weld End models
Operating Temperature, TS = 110°C.
Operating Pressure, PS = 10 Barg.
Cold Test Pressure, PT = 15 Barg.
Max' Water Velocity = 1.5m/s.

NOTE: the above maximum water velocity is recommended for high separation efficiency; water velocities up to 3.0m/s and thus higher flow rates can be accommodated, but this will result in a reduction of separation efficiency and an increase in pressure loss, unless you use the High Flow Rate model. The efficiency of air removal in heating and cooling water systems follows Henry's Law.

High Flow Rate Flanged and Weld End models
Operating Temperature, TS = 110°C.
Operating Pressure, PS = 10 Barg.
Cold Test Pressure, PT = 15 Barg.
Max' Water Velocity = 3.0m/s.

MICRO-BUBBLE AIR & DIRT SEPARATORS
Model ASMD



ASMD

APPLICATIONS

Micro-bubble air and dirt separators are designed to remove air and dirt from heating and cooling systems.

This model slows the velocity of the water in its enlarged chamber, where the water impacts onto a dynamic concentrator. The concentrator merges bubbles and micro-bubbles using the principles of cohesion, which then float to the top from where they are vented to the outside.

Simultaneously, dirt particles heavier than water sink to the bottom of the chamber, where they can be drained off periodically through the bottom drain valve.

They can be used accordingly for the following applications:-

Low Temperature Heating (LTHW)
Chilled Water (CHW)
Condenser Water (Cond.W)

Nominal Size DN (mm)	Installation Length (mm)	Overall Height (mm)	Vessel Diameter (mm)	Maximum Flow Rate (l/s)	Product Code (MODEL-SIZE-ENDS)
40	295	610	137	1.9	ASMD-040-PN16
50	350	695	160	3.5	ASMD-050-PN16
65	350	695	160	5.5	ASMD-065-PN16
80	470	850	213	7.5	ASMD-080-PN16
100	470	850	213	13	ASMD-100-PN16
125	635	1125	330	20	ASMD-125-PN16
150	635	1125	330	30	ASMD-150-PN16
200	775	1380	405	50	ASMD-200-PN16
250	890	1680	480	80	ASMD-250-PN16
300	1005			113	ASMD-300-PN16
350	1128			140	ASMD-350-PN16
400	1226			180	ASMD-400-PN16
450	2320			235	ASMD-450-PN16
500	2540			295	ASMD-500-PN16
600	2980			425	ASMD-600-PN16

The data above is for non PED and SEP applications only.

SPECIFICATION

ASMD - Standard flow rate model having a blue powder coated steel vessel with steel flanged connections to EN1092 PN16. With a top mounted brass automatic air vent, side mounted brass fast bleed valve and a bottom mounted brass drain valve.

Also available with WELD ends.

ASMDH - High flow rate model having a blue powder coated steel vessel with steel flanged connections to EN1092 PN16. With a top mounted brass automatic air vent, side mounted brass fast bleed valve and a bottom mounted brass drain valve.

Also available with WELD ends.

Conforms with PED* 97/23/EC. *Pressure Equipment Directive.

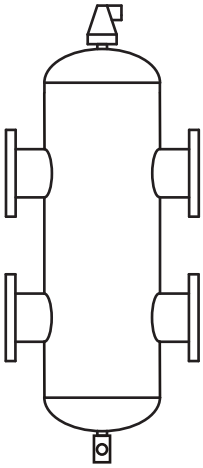
OPERATING PARAMETERS

Standard Flow Rate Flanged and Weld End models
Operating Temperature, TS = 110°C.
Operating Pressure, PS = 10 Barg.
Cold Test Pressure, PT = 15 Barg.
Max' Water Velocity = 1.5m/s.

NOTE: the above maximum water velocity is recommended for high separation efficiency; water velocities up to 3.0m/s and thus higher flow rates can be accommodated, but this will result in a reduction of separation efficiency and an increase in pressure loss, unless you use the High Flow Rate model. The efficiency of air removal in heating and cooling water systems follows Henry's Law.

High Flow Rate Flanged and Weld End models
Operating Temperature, TS = 110°C.
Operating Pressure, PS = 10 Barg.
Cold Test Pressure, PT = 15 Barg.
Max' Water Velocity = 3.0m/s.

HEADER AND AIR & DIRT SEPARATOR
Model HADS



HADS

APPLICATIONS

Combined low loss header and micro-bubble air and dirt separators are designed to correct hydraulic imbalance, whilst removing air and dirt from heating and cooling systems.

This model includes two dynamic concentrators which merge bubbles and micro-bubbles using the principles of adhesion, which then float to the top from where they are vented to the outside.

Simultaneously, dirt particles heavier than water sink to the bottom of the chamber, where they can be drained off periodically through the bottom drain valve.

A perforated sheet encourages effective hydraulic balancing.

They can be used accordingly for the following applications:-

Low Temperature Heating (LTHW)
Chilled Water (CHW)
Condenser Water (Cond.W)

Nominal Size DN (mm)	Installation Length (mm)	Overall Height (mm)	System Capacity (kW)	Maximum Flow Rate (m^3/hr)	Product Code (MODEL-SIZE-ENDS)
50	350	950	100-200	5-15	HADS-050-PN16
65	350	950	180-330	10-17	HADS-065-PN16
80	470	1265	300-450	15-30	HADS-080-PN16
100	470	1265	400-770	25-55	HADS-100-PN16
125	635	1767	700-1200	35-80	HADS-125-PN16
150	774	2175	1000-1700	55-120	HADS-150-PN16
200	1000	2895	1500-2800	90-200	HADS-200-PN16
250	1220	3646	2500-4500	110-350	HADS-250-PN16
300	1220	3646	4200-6400	150-500	HADS-300-PN16
350	1580	4525	6000-7700	200-600	HADS-350-PN16
400	1870	5115	7000-10000	250-800	HADS-400-PN16

The data above is for non PED and SEP applications only.

SPECIFICATION

HADS (PN16) - Steel chamber with steel flanged connections to EN1092 PN16. With top mounted brass automatic air vent and bottom mounted drain valve.

Tested by TNO Institute of Environmental and Energy Technology and Delft University of Technology.

Nominal size DN150 and larger are fitted with feet as standard.

Also available with WELD ends.

Conforms with PED* 97/23/EC. *Pressure Equipment Directive.

OPERATING PARAMETERS

Flanged and Weld End models
Operating Temperature, TS = 110°C.
Operating Pressure, PS = 10 Barg.
Cold Test Pressure, PT = 15 Barg.
Max' Water Velocity = 1.5m/s.

NOTE: The efficiency of air removal in heating and cooling water systems follows Henry's Law.