ADCAMAT POP and PPO14
How to select and size

SIZING OF THE SYSTEM

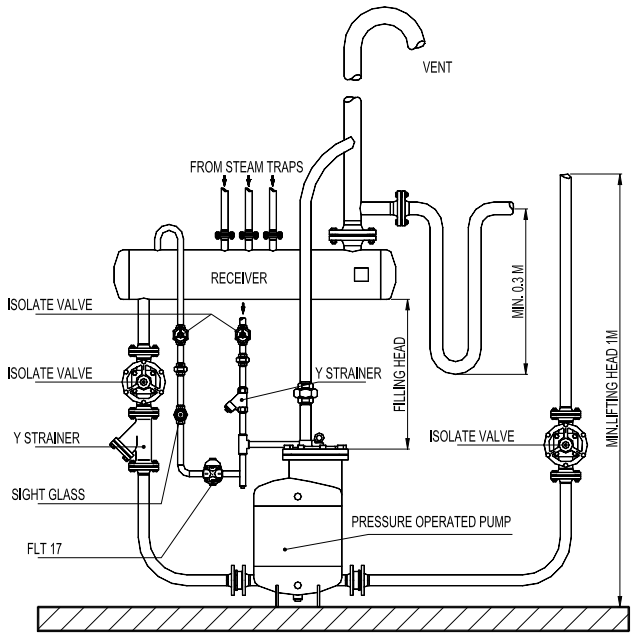
The discharge capacity of the pump is a function of:

1.Condensate load.....Kg/h

2.The pressure of operating medium (steam, compressed air or gas).

3.The total lift or back pressure the pump will have to exhaust against. This includes the change in fluid level elevation after the pump (0.0981bar/m of lift),plus pressure in the return piping, plus the pressure drop in bar caused by pipe friction, plus any other system component pressure drop the pump exhaust will have to overcome.

4.Filling head available (300 mm is recommended).



INSTALLATION

Fig.1 shows a typical example of installation of ADCAMAT automatic pump. For further details and instructions please contact the distributor.

RECEIVER

A receiver is recommended to temporarily hold the liquid and prevent any flooding of the equipment, while the pump is in the pumping cycle. A length of pipe of large diameter or a tank can also be used.

CAPACITY CORRECTION FACTOR FOR GASES OTHER THAN STEAM					
% Back press.vs. Motive Press.(BP/MP)	*10%*	*30%*	*50%*	*70%*	*90%*
Correction factor	**1,04**	**1,08**	**1,12**	**1,18**	**1,28**

Chart 2

SUGGESTED RECEIVER				
PUMP SIZE	*25*	*40*	*50*	*80 x 50*
PIPE SIZE W/ 1m LENGTH	**6"**	**8"**	**10"**	**12"**

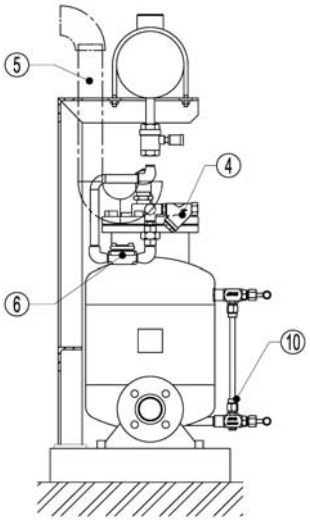
CAPACITY MULTIPLYING FACTORS FOR OTHER FILLING HEADS				
Filling Head mm	*PUMP SIZE*			
	25	*40*	*50*	*80 x 50*
150	0,7	0,7	0,7	0,9
300	1	1	1	1
600	1,2	1,2	1,2	1,08
900	1,35	1,35	1,35	1,2

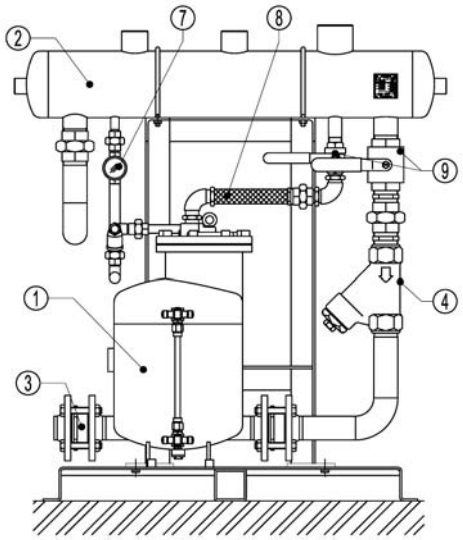
Chart 3

PACKAGED ADCAMAT AUTOMATIC PUMP (SUITABLE FOR STEAM SUPPLY) POPK-S

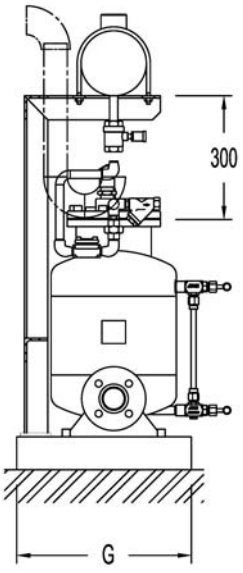
DESCRIPTION

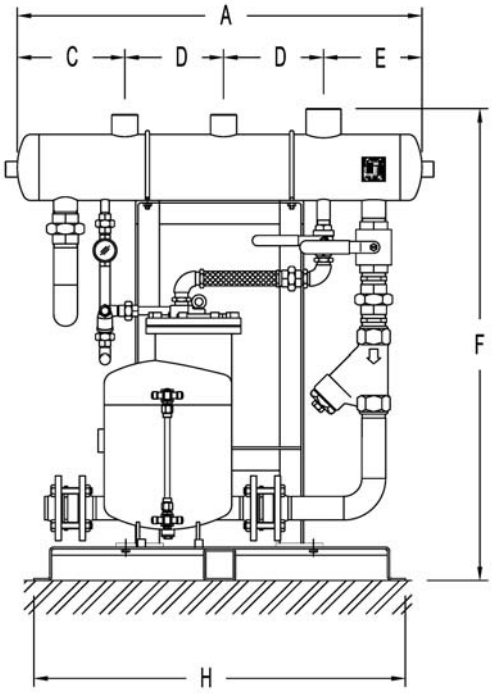
The POP-K packaged pump units can be used to lift or displace hot condensate and other liquids even in hazardous areas.
A POP-K packaged unit comprises an Adcamat pump, a vented receiver and all auxiliary items, compactly mounted on a metal frame piped and ready for connection.
Packaged units save time, work and site costs. In addition they ensure that installation of the pump is correct in every detail.
Two or more units can be connected in parallel to cope with flow rates beyond the capacity of a single pump.
Units operating with compressed air are also available.
For operating conditions and pumping capacity, please refer to information sheet IS 9.101 E and IS 9.105 E.
How to order : i.e. ADCAMAT POPK-S DN 40





MATERIALS	
POS.	**DESIGNATION**
1	Pump
2	Receiver
3	Metal frame
4	IS 16 Strainer
5	Overflow
6	TH21 Steam trap
7	SW12 Sigh glass
8	Flexible hose
9	Ball valves
10	LGC 135l Level gauges

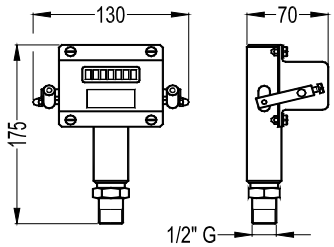




LIMITING CONDITIONS:
Receiver – Max. operating pressure: 0,5 bar
Pump: See IS 9.101 E
CONNECTIONS:
All connections are screwed except the pump connections which are flanged EN 1092-1 PN16.
Threaded flanges available on request.

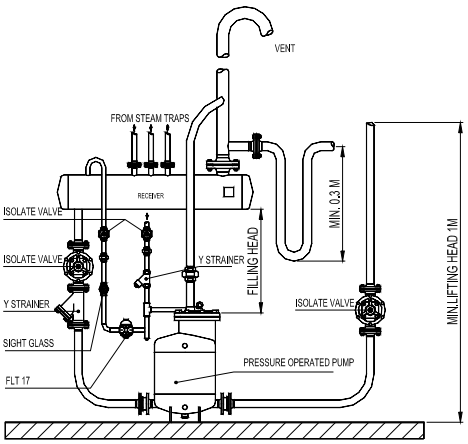
DIMENSIONS (mm)								
DN	**A**	**C**	**D**	**E**	**F**	**G**	**H**	**Wgt. Kgs**
25	990	255	250	235	1210	450	940	145
40	1090	305	250	285	1210	450	940	154
50	1120	320	250	296	1260	450	940	188
80x50	1140	330	250	310	1330	535	1040	230

STROKE COUNTER::
Available on request, it can be screwed directly into the top cover of the pump or above the pump through a ½" size pipe for easier reading (max.1m).

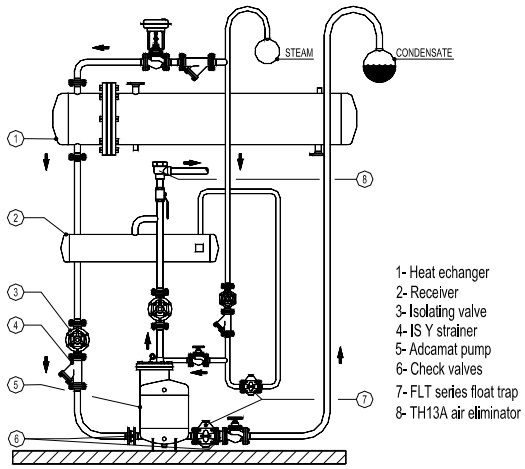


Condensate recovery - open system.
The pump removes high temperature condensate without cavitation problems.

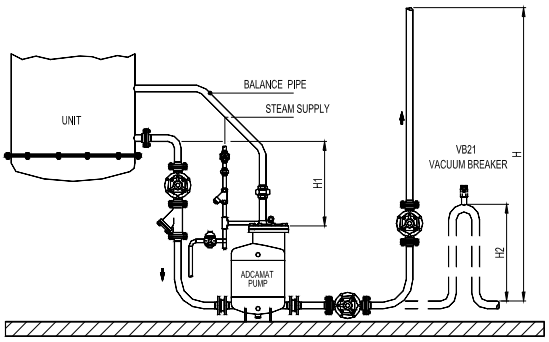
WARNING: Vent line must be unrestricted and self draining to the receiver.



Removal of condensate under pressure with POP pump and steam trap combination. When the steam pressure is sufficient to overcome back pressure the trap operates.
If the pressure decrease than the pressure operated pump start to operate removing the condensate by pumping through the float steam trap.



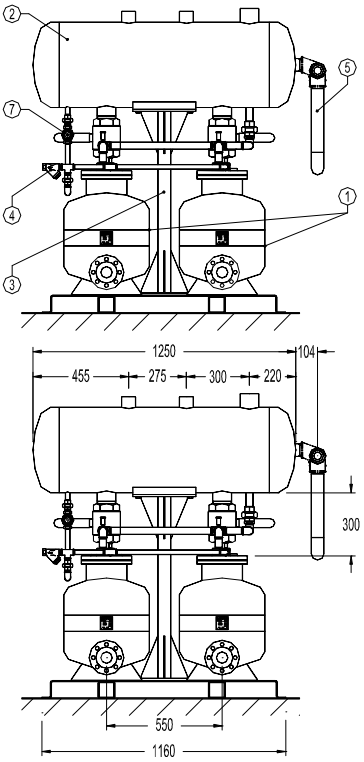
Drainage of a single unit under vacuum
(max. 0,2bar abs).
Head H1 must range between 1 and 2 m. The lift H must be the minimum possible but never less than 1 m (otherwise siphon is required as H2).
Use steam as operating medium (max. pressure 2-3 bar).



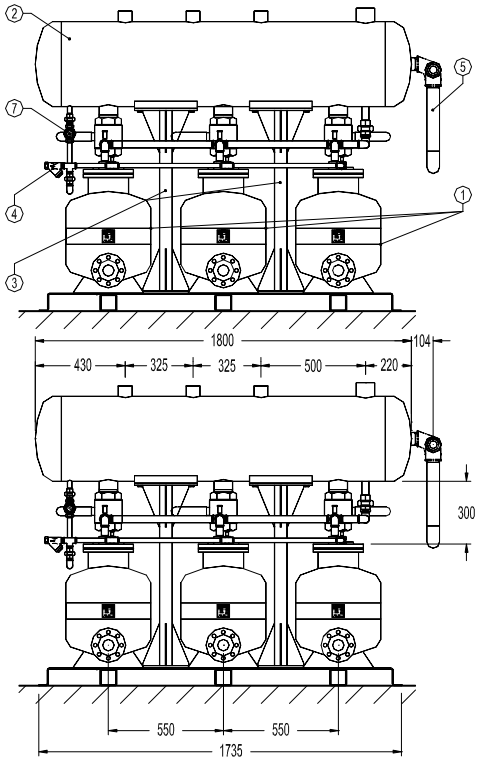
PACKAGED ADCAMAT AUTOMATIC PUMP
(SUITABLE FOR STEAM SUPPLY)
POPK-SD (Duplex) & POPK-ST (Triplex)

DESCRIPTION

A POPK-SD (Duplex) and POPK-ST (Triplex) packaged units comprises two or three Adcamat pumps in parallel, a vented receiver and all auxiliary items, compactly mounted on a metal frame piped and ready for connection.
For operating conditions and pumping capacity, please refer to information sheet IS 9.101 E and IS 9.105 E.

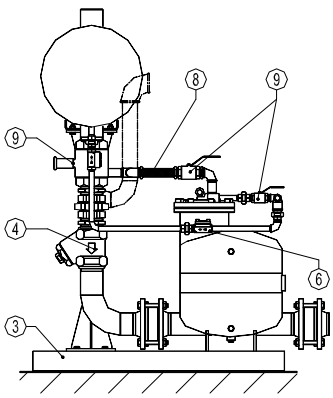


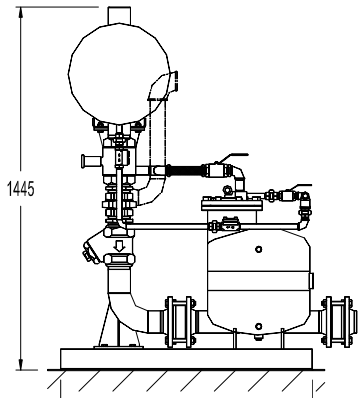
Duplex



Triplex

MATERIALS	
POS.	***DESIGNATION***
1	Pump
2	Reveiver
3	Metal frame
4	IS 16 Strainer
5	Overflow
6	TH21 Steam trap
7	SW12 Sigh glass
8	Flexible hose
9	Ball valves





Side view

LIMITING CONDITIONS:
Receiver – Max. operating pressure: 0,5 bar
Pump: See IS 9.101 E
CONNECTIONS:
All connections are screwed except the pump connections which are flanged EN 1092-1 PN16.
Threaded flanges available on request.

STEAM EQUIPMENT

ADCAMat

PRESSURE OPERATED PUMP
ADCAMAT POP-S
DN100

DESCRIPTION

The ADCAMAT POP (Pressure Operated Pump) fabricated carbon steel (stainless steel on request) is recommended in the transfer of high-temperature liquids such as condensate, oils and other liquids to a higher elevation or pressure.
The pump starts when there is something to pump and stops when there isn't.
Under certain conditions, it can drain a closed vessel under vacuum or pressure.
The pump can be operated by steam, compressed air or gas and can be used for lifting any kind of no corrosive liquids.
Connections are flanged or female screwed (with screwed flanges).

OPERATION

Liquid flows by gravity into the pump through an inlet check valve lifting a float which, at the upper limit of its travel, opens the supply valve which allows steam or compressed air to enter the pump body. Pressure in the pump builds up until just sufficient to overcome back pressure.
The pressurized liquid opens the outlet check valve and discharge commences. When the float reaches the minimum lower level it closes the steam or compressed air supply valve and opens the vent, allowing the liquid to fill the pump again.
As the amount of liquid discharged at each stroke is known, the total volume passed during a given period can be calculated by counting the number of strokes during that period. For this purpose a special counter is available which screws into a tapped connection on the top cover of the pump. This counter records the number of pumping strokes thus enabling the pump to function as a reliable flow meter.

MAIN FEATURES :	Non-electric requirements.
OPTIONS:	Duplex packaged design Stainless steel construction. Level gauge. Stroke counter.
USE :	To lift condensate or hot and cold liquids.
AVAILABLE MODELS :	ADCAMAT POP-S - carbon steel construction (Carbon steel version is sandblasted, metallized and black painted).
SIZES :	DN 100 x 100 (for smaller sizes see IS 9.101 E)
CONNECTIONS :	Flanged EN1092-1 PN16. Special flanges upon request. Female screwed ISO 7/1 Rp (BS21).
INSTALLATION :	Horizontal installation. See IMI installation and maintenance instructions.
MOTIVE GAS :	Steam or compressed air.

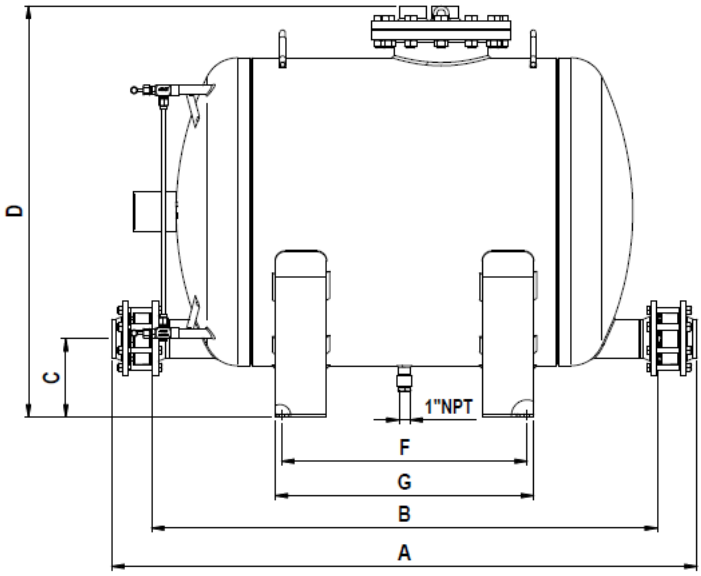
CE Marking :
This product have been designed for use on water, steam, air and other gases which are in Group 2 of the PED - European Pressure Equipment Directive 97/23/EC and it comply with those requirements.
This size fall within category IV.
The product carry the CE mark.

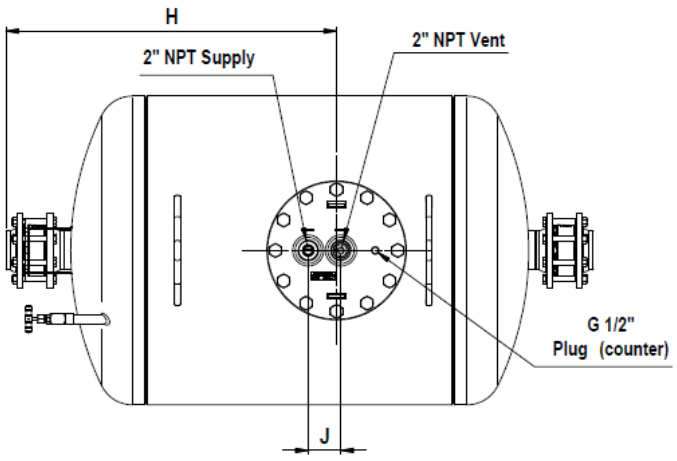
APPLICATION LIMITS	
Minimum density	0,80 kg/dm3
Maximum viscosity	5º Engler
Maximum motive pressure	10 bar
Minimum motive pressure	1 bar
Pump discharge per cycle DN100 to DN100	325 l

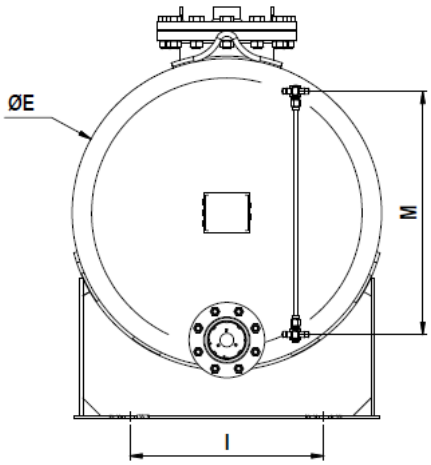
LIMITING CONDITIONS *		
POP-S		
	Press. bar	Temp. ºC
PN16	16	50
	14	100
	13	195
	12	250
ANSI Cl.150	16	50
	13	195

Minimum operating temp.: 20ºC

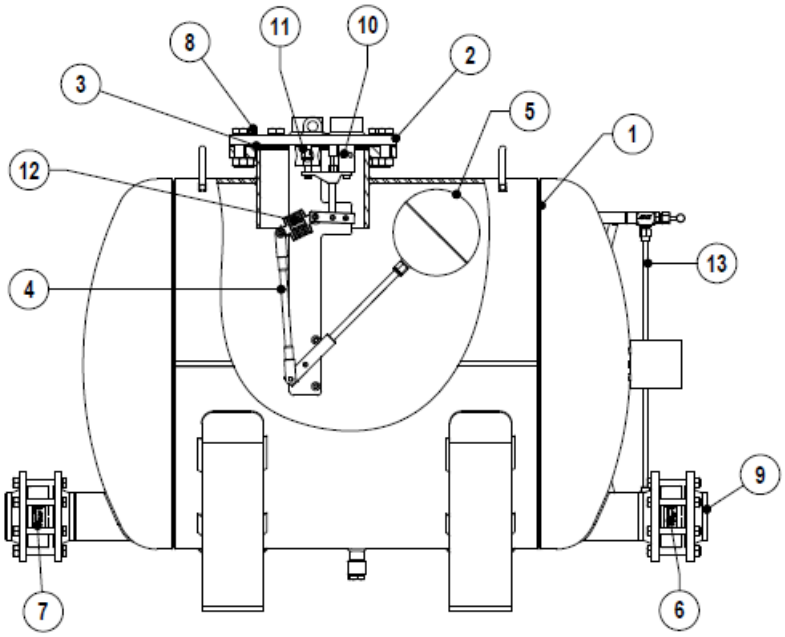
Design code: AD-Merkblatt







DIMENSIONS (mm)														
DN	A EN Flg.	A ANSI 150 lbs	B	C	D	ø E	F	G	H	I	J	M	Weight Kgs	VOL. dm3
100 (4")	1705	1760	1473	229	1200	900	715	753	960	564	95	710	565	1028



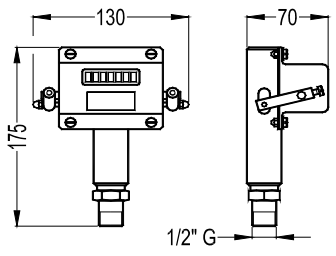
MATERIALS		
POS.	***DESIGNATION***	***MATERIAL - POP-S***
1	PUMP BODY	P265GH / 1.0425 ; P235GH / 1.0345 S235JR / 1.0038
2	COVER	GJS-400-15 / 0.7040
3	*COVER GASKET	NON ASBESTOS
4	INTERNAL MECHANISM	STAINLESS STEEL
5	*FLOAT	STAINLESS STEEL
6	*RD40 OUTLET CHECK VALVE	CF8M / 1.4408
7	*RD40 INLET CHECK VALVE	CF8M / 1.4408
8	BOLTS	STEEL 8.8
9	**PN16 EN 1092-1 FLANGES	P250GH / 1.0460
10	* MOTIVE INLET VALVE/SEAT ASSY	STAINLESS STEEL
11	* EXHAUST VALVE/SEAT ASSY	STAINLESS STEEL
12	* SPRINGS	INCONEL
13	*** LEVEL GAUGE COCKS/GLASS	SEE CATALOGUE IS LGC135.10

* Available spare parts

** Welding neck EN 1092-1 flanges. Threaded flanges on request.

*** Optional

Stroke counter :
Available on request, it can be screwed directly into the top cover of the pump or above the pump through a ½" size pipe for easier reading (max.1m).



How to select and size

SIZING OF THE SYSTEM

The discharge capacity of the pump is a function of:

1.Condensate load.....Kg/h
2.The pressure of operating medium (steam, compressed air or gas).
3.The total lift or back pressure the pump will have to exhaust against. This includes the change in fluid level elevation after the pump (0.0981bar/m of lift),plus pressure in the return piping, plus the pressure drop in bar caused by pipe friction, plus any other system component pressure drop the pump exhaust will have to overcome.
4.Filling head available (600 mm is recommended).

INSTALLATION – Open system

Fig.1 shows a typical example of installation of ADCAMAT automatic pump. For further details and instructions please contact the factory or our distributor.

RECEIVER

A receiver is recommended to temporarily hold the liquid and prevent any flooding of the equipment, while the pump is in the pumping cycle. A length of pipe of large diameter or a tank can also be used.

SUGGESTED RECEIVER			
PUMP SIZE	*DN 100 x DN 100*		
RECEIVER SIZE Diam x LENGTH	406 x 2000	640 x 1500	800 x 1500

Consult the factory for the correct selection

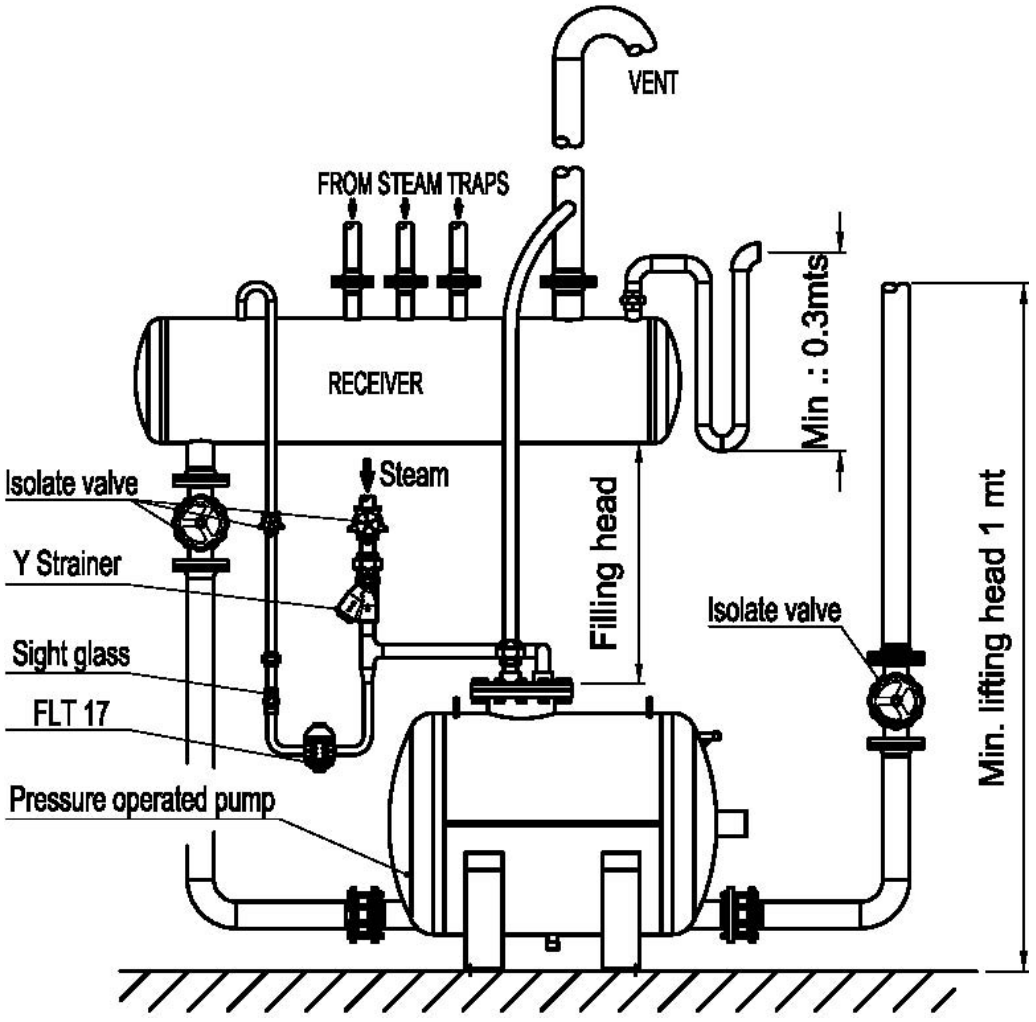


Fig.1

FLOW RATE IN Kg/h Installation with 600 mm filling head above the pump cover.		
Motive Pressure bar	**Total Lift bar**	**DN 100 x 100**
1	**0,35**	13130
1,7		16850
3,5		21900
5		24830
7		26880
10		29800
1,7	**1**	16630
3,5		20400
5		23050
7		25100
10		28200
2,5	**1,5**	13210
3,5		15150
5		17280
7		19100
10		21410
3,5	**3**	11860
4		12300
5		12900
7		13740
10		14980
4,5	**4**	11700
5		11840
7		12710
10		13760

Chart 1 (Based on liquid specific gravity 0,9 - 1,0)
Filling head is mesured from the bottom of receiver to top of pump cover.

CAPACITY CORRECTION FACTOR FOR GASES OTHER THAN STEAM					
% Back press.vs. Motive Press.(BP/MP)	***10%***	***30%***	***50%***	***70%***	***90%***
Correction factor	**1,04**	**1,08**	**1,12**	**1,18**	**1,28**

Chart 2

CAPACITY MULTIPLYING FACTORS FOR OTHER FILLING HEADS				
PUMPP SIZE	***FILLING HEAD mm***			
	150	***300***	***600***	***900***
DN 100 x 100	0,7	0,8	1	1,08

Chart 3

Example:

Condensate load	8500 Kg/h
Filling head	150 mm
Motive fluid	Compressed air
Available pressure	7 bar
Vertical lift after pump	10 m
Return piping pressure	1,2 bar
Piping friction pressure drop	Negligible

Calculations:
Total back pressure:1,2bar + (10mx0,0981) = 2,181bar
Pump choice, assuming steam as motive pressure at 7bar and a back pressure of 3bar, the DN100 pump has a capacity of 13740 kg/h according to Chart 1.

Correction for filling Head:
With 150 mm filling head the correction factor from chart 3 is 0,7. The corrected capacity is,
13740 Kgs/h x 0,7 = 9618 kg/h

Correction for air as a motive fluid:
The % back pressure 2,181bar/7bar = 31%
The correction factor from chart 2, is 1,08.
The corrected capacity is, 9618kg/h x 1,08 = 10387,44Kg/h, and so a DN100 pump is still recommended.

STEAM EQUIPMENT

AUTOMATIC PUMP AND STEAM TRAP
ADCAMAT APST
DN50 x 50

DESCRIPTION

The ADCAMAT APST (Automatic Pump and Steam Trap) fabricated in carbon steel or stainless steel is specially recommended where a “stall” condition may occur due to poor steam trap condensate discharge, caused by temporary insufficient differential pressure.

The equipment has the features of a float steam trap, combined with a pressure operated pump, in the same unit.

Whenever the steam trap function it’s not enough to drain the condensate, the pump function is activated (using external steam pressure) before water logging may occur, lifting the condensate to the condensate return system, avoiding water hammer and consequent noise and equipment damage , corrosion, unstable temperature control, etc,

Connections are flanged

FUNCTION

During the start-up, the pump ball float mechanism is in the closed position (bottom position) and the motive steam valve is closed, while the vent line is open.

The steam trap mechanism is at this stage modulating the condensate flow as it increases, but if the differential pressure decreases and the condensate level goes up , the pump mechanism starts to work and at the upper level the steam motive valve opens , closing at the same time the vent valve and consequently pressing the condensate to the outlet through the steam trap mechanism.

After the pump cycle, if the necessary differential pressure is available again the steam trap will restart the operation, otherwise the pump option will remain active.

MAIN FEATURES :	Non-electric requirements. No NPSH issues Operation under vacuum conditions Closed loop system, no motive or flash steam is lost.
OPTIONS:	Stainless steel construction. Level gauge.
USE :	Drain and lift condensate from heat exchangers (among others)
AVAILABLE MODELS :	ADCAMAT APST-S - Carbon steel construction ADCAMAT APST-SS – Stainless steel construction (Carbon steel version is sandblasted, metalized and black painted).
SIZES :	DN 50 x 50 ; DN 2” x 2”
CONNECTIONS :	Flanged EN1092-1 PN16. Special flanges upon request.
INSTALLATION :	Horizontal installation. See IMI installation and maintenance instructions.
MOTIVE GAS :	Saturated steam

CE Marking :

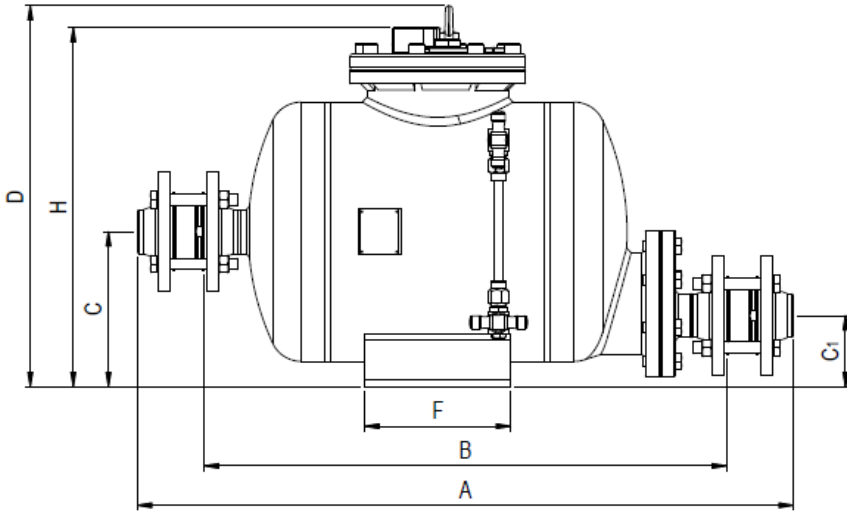
This product has been designed for use on water, steam, air and other gases which are in Group 2 of the PED - European Pressure Equipment Directive 97/23/EC and it complies with those requirements. All the sizes fall within category 2.The product carry the CE mark.

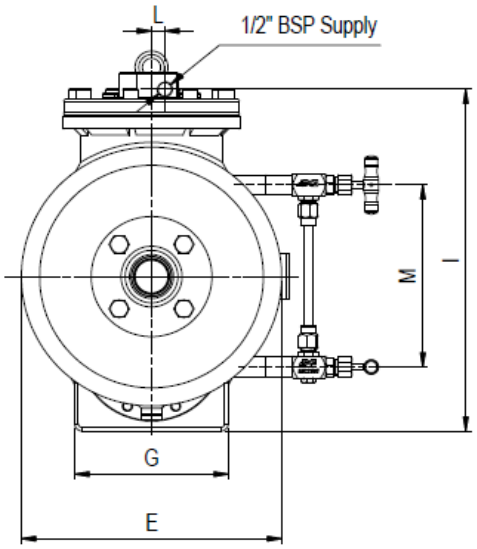
APPLICATION LIMITS	
Minimum density	0,80 kg/dm3
Maximum viscosity	5º Engler
Maximum motive pressure	10 bar
Minimum motive pressure	0,5 bar
Pump discharge per cycle	22 l

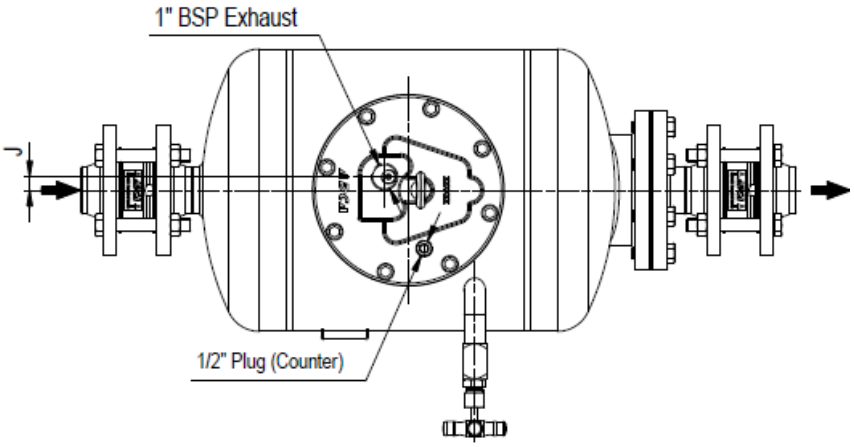
LIMITING CONDITIONS *					
APST-S			APST-SS		
	Press. bar	Temp. ºC		Press. bar	Temp. ºC
PN16	16	50	PN16	16	50
	14	100		16	100
	13	195		13	195
	12	250		12	250
ANSI Cl.150	16	50	ANSI Cl.150	16	50
	13	195		13	195

Minimum operating temp.: -10ºC; Design code: AD-Merkblatt

* Rating according to EN1092:2007

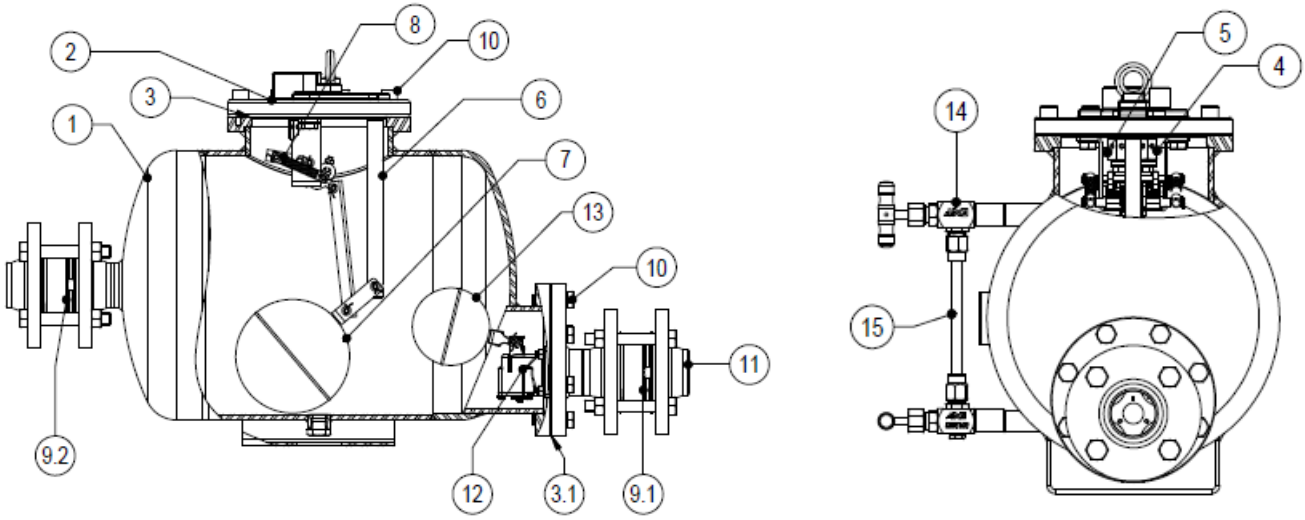






DIMENSIONS (mm)															
DN	A *	B	C	C1	D	E	F	G	H	I	J	L	M	Weight Kgs	VOL. dm3
50 x 50	900	716	212	97	522	356	200	210	492	470	17	18	250	84	57

* A - with welding neck EN 1092-1 flanges



MATERIALS			
POS.	***DESIGNATION***	***MATERIAL - APST-S***	***MATERIAL - APST-SS***
1	PUMP BODY	P265GH / 1.0425 ; P235GH / 1.0345 S235JR / 1.0038	AISI316 / 1.4401 ; AISI316L / 1.4406
2	TOP COVER	GJS-400-15 / 0.7040	CF8M / 1.4408
3	*COVER GASKET	NON ASBESTOS	NON ASBESTOS
3.1	*OUTLET COVER GASKET	NON ASBESTOS	NON ASBESTOS
4	*INLETVALVE/SEAT ASSY.	STAINLESS STEEL	STAINLESS STEEL
5	*EXHAUST VALVE/SEAT ASSY.	STAINLESS STEEL	STAINLESS STEEL
6	INTERNAL MECHANISM	STAINLESS STEEL	STAINLESS STEEL
7	*PUMP FLOAT	STAINLESS STEEL	STAINLESS STEEL
8	*SPRING ASSY.(2PCS)	INCONEL	INCONEL
9.1	*RD40 OUTLET CHECK VALVE	CF8M / 1.4408	CF8M / 1.4408
9.2	*RD40 INLET CHECK VALVE	CF8M / 1.4408	CF8M / 1.4408
10	BOLTS	STEEL 8.8	A2 - 70
11	**PN16 EN 1092-1 FLANGES	P250GH / 1.0460	AISI316 / 1.4401
12	*FLOAT TRAP MECHANISM	STAINLESS STEEL	STAINLESS STEEL
13	*STEAM TRAP FLOAT	STAINLESS STEEL	STAINLESS STEEL
14	LEVEL GAUGE COCKS	BRONZE / STAINLESS STEEL	STAINLESS STEEL
15	TUBE GLASS	BOROSILICATE	BOROSILICATE

* Available spare parts

** Welding neck EN 1092-1 flanges. Threaded flanges on request.

APST PUMP CAPACITY

Motive Pressure bar	Total Lift bar	FLOW RATE IN Kg/h Installation with 300 mm filling head above the pump cover. DN 50 x DN 50
1	0,35	2290
2		3130
3		3530
4		3810
5		3880
6		3910
8		3960
10		3970
2	1	2520
3		2960
4		3130
5		3170
6		3220
8		3250
10		3290
3	2	2440
4		2590
5		2800
6		2830
8		2850
10		2870
4	3	2330
5		2510
6		2530
8		2560
10		2620
5	4	2250
6		2430
8		2470
10		2510
6	5	2050
8		2150
10		2190
7	6	1850
8		1910
10		2120

CAPACITY MULTIPLYING FACTORS FOR OTHER FILLING HEADS

PUMP SIZE	FILLING HEAD mm			
	150	300	600	900
ALL	0,7	1	1,2	1,35

Filling head measured from the bottom of the receiver or centreline of the heat exchanger,to the top of the cover mechanism.
Consult factory for receiver sizing.

APST STEAM TRAP FLOW RATE CAPACITY IN Kgs/h

MODEL	SIZE	DIFFERENTIAL PRESSURE (bar)									
		0,1	0,3	0,5	0,7	1	1,5	2	4,5	7	10
APST-4,5	50 x 50	2400	5900	7550	9050	11000	14000	15500	22500		
APST-10	50 x 50	1800	3000	3900	4450	5000	6100	7100	10000	13750	16000

Important: motive pressure should not exceed the maximum available differential pressure at any circunstancies.
Lower steam trap discharge capacity available on request.

Sizing and Installation

SIZING

For correct sizing, please provide:

1.Condensate load (max.).....Kg/h

2.The pressure of operating motive steam ……..barg

3.The total lift or back pressure the pump will have to exhaust against. This includes the change in fluid level elevation after the pump (0.0981bar/m of lift),plus pressure in the return piping, plus the pressure drop in bar caused by pipe friction, and any other system component pressure drop the pump exhaust will have to overcome.

4.Installation head available from the base of the pump to the axis of equipment condensate outlet, if horizontal, or to the face of the outlet / bottom receiver , in case of vertical condensate outlet .

5.Maximum steam pressure on the process equipment (heat exchanger, for example) ……barg

6.Minimum temperature of the medium to be heated..ºC

7.Controlled temperature of medium to be heated…...ºC

RECEIVER

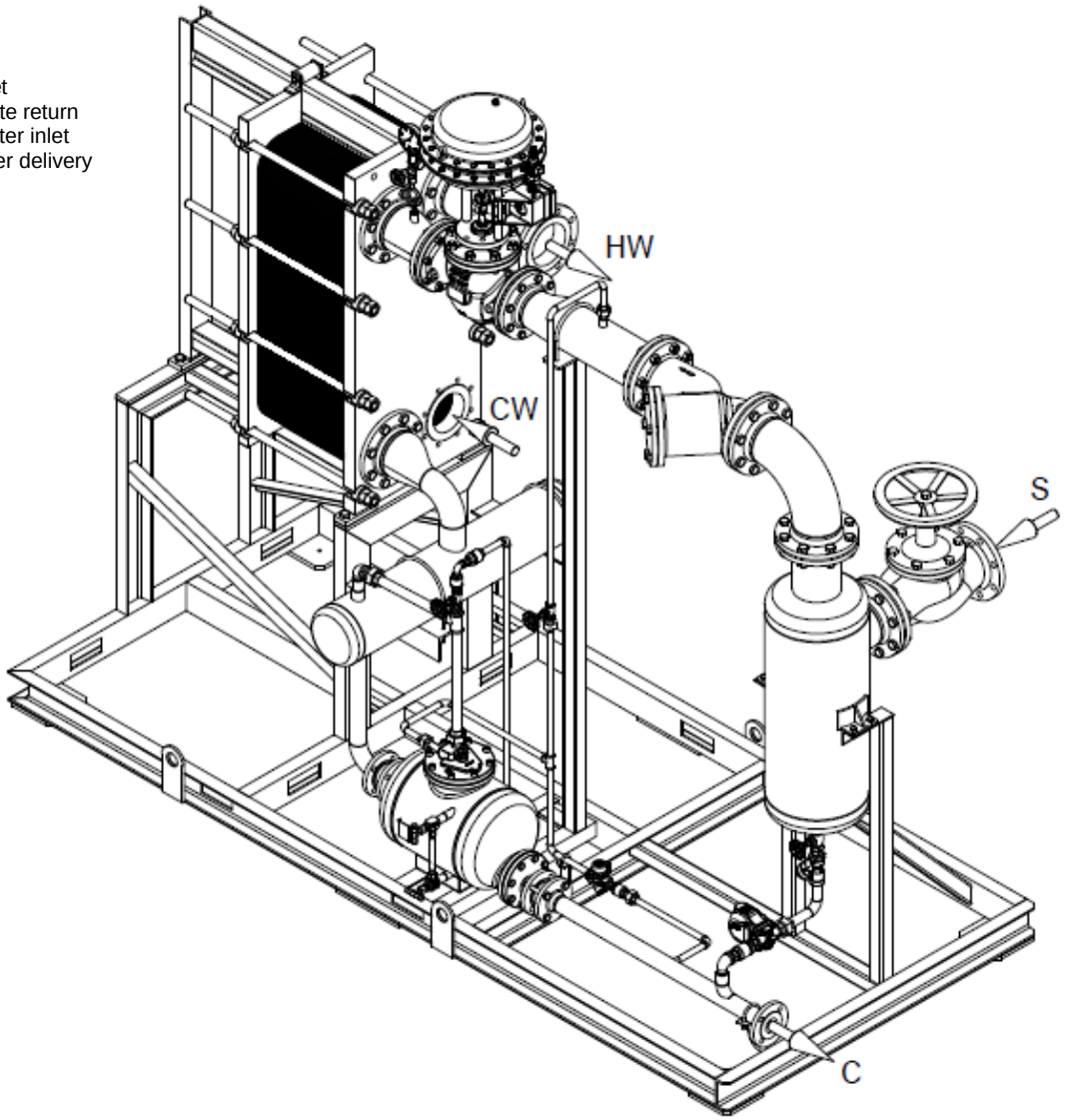
A receiver is recommended to temporarily hold the liquid and prevent any flooding of the equipment, while the pump is in the pumping cycle. A length of pipe of large diameter can be used.

INSTALLATION – Closed loop system

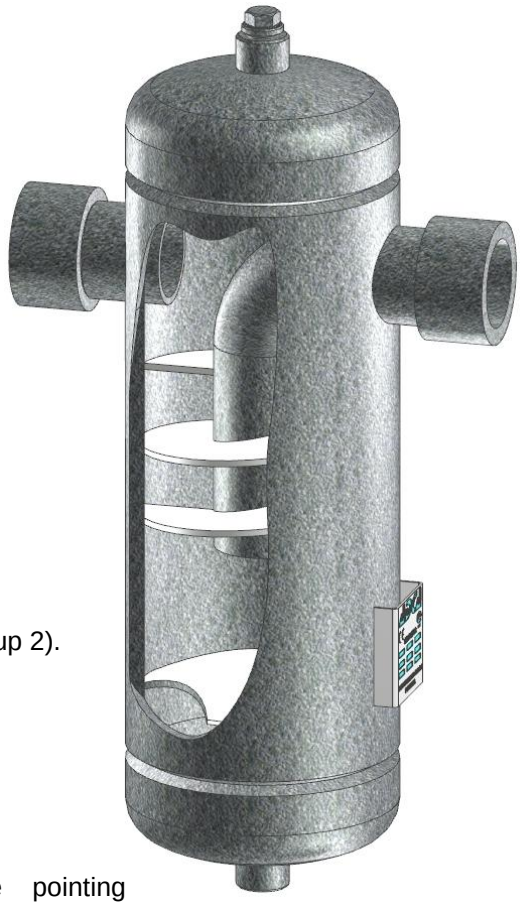
Fig.1 shows a typical installation example of ADCAMAT APST (Automatic Pump & Steam Trap) applied to a large capacity skid mounted ADCATHERM PWHU (Packaged Water Heating Unit).

Fig.1

S – Steam inlet
C – Condensate return
CW – Cold water inlet
HW – Hot water delivery



HUMIDITY SEPARATORS
S16/S PN 16



DESCRIPTION
S-16 series centrifugal separators remove moisture from steam and compressed air pipelines. Steam and compressed air passing through the separator and as a result of centrifugal forces, impact and swirling effects, separate the particles with a heavier specific gravity, such as water and oil droplets, moisture in suspension, dirt and scale.
The condensate collected at the bottom of the separator, must be automatically drained by a suitable steam or compressed air trap.
Connections are threaded.

MAIN FEATURES
Several possibilities of installation.
No moving parts.

OPTIONS: Zinc plated (compressed air)
Condensate flanged connection.

USE: Steam, compressed air and other gases (Group 2).

AVAILABLE MODELS: S16/S - carbon steel body.

SIZES: DN ½" to DN 2".

PIPE CONNECTIONS: Screwed BSP or NPT

INSTALLATION: Always with the condensate discharge pointing downwards.
See IMI, installation and maintenance instructions.

HOW TO SELECT: Generally, in an existing plant it is advisable to fit a separator of the same size of the pipe line. Pressure drop is normally negligible. For approximate pressure drop calculation please consult.

LIMITING CONDITIONS **		
Rating	Press. bar	Temp. ºC
PN16	16	50
	14	100
	13 *	195
	12	250

*PMO-Max.operating pressure for saturated steam. Minimum operating temp.: -10ºC. Design code: AD-Merkblatt

** Rating according to EN1092:2007.

CE MARKING - GROUP 2 GASES CAT.		
RATING	SIZE	CAT.
PN16	DN 1/2" to DN 1"	SEP
	DN 11/4" to DN 2"	1

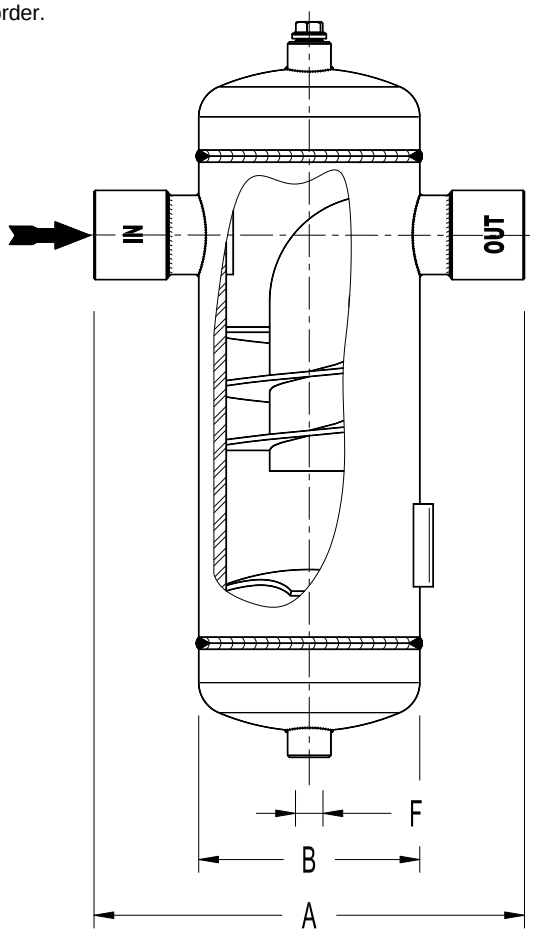
CE Marking: This product have been designed for use on water steam, air and other gases which are in Group 2 of the PED-European Pressure Equipment Directive 97/23/EC and it comply with those requirements.
The product carries the CE mark when falling in category 1 and above.

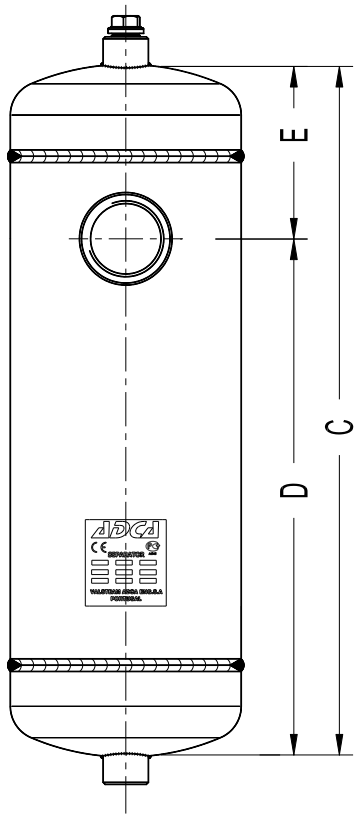
APPROXIMATE DIMENSIONS (mm)								
DN	A	B	C	D	E	F **	VOL. dm3	WGT Kg
1/2"	218	114	260	185	70	1/2"	2	5
3/4"	218	114	260	185	75	1/2"	2,5	6
1"	230	114	300	200	100	1/2"	3	7
11/4"	263	140	395	285	110	1/2"	5	12
11/2"	263	140	435	325	110	1/2"	5,7	13,8
2"	322	168	505	385	120	1/2"	10,5	19,5

Weight and dimensions to be confirmed in case of order.
** F-screwed drain connection as standard.Alternatively can be supplied flanged EN1092-1 or ANSI on the same class of main dimensions.
Consult factory for certified dimensions. Dimensions subject to change without notice.
Note: the top of separator is supplied with a threaded connection with size not exceding the size of drain one. This connection is always supplied closed with a threaded socket. It can be used for air vent or balancing pipe connection.

MATERIALS	
DESIGNATION	MATERIAL
Body	EN10216-2 / P235GH / 1.0325
Heads	EN10028-2 / P265GH / 1.0425
Inlet / Outlet pipes	EN10216-2 / P235GH / 1.0325
Sockets Inlet / Outlet	ASTM A105 / 1.0432
Sockets	ASTM A105 / 1.0432
Internals	EN10025-2 / S235JR / 1.0038

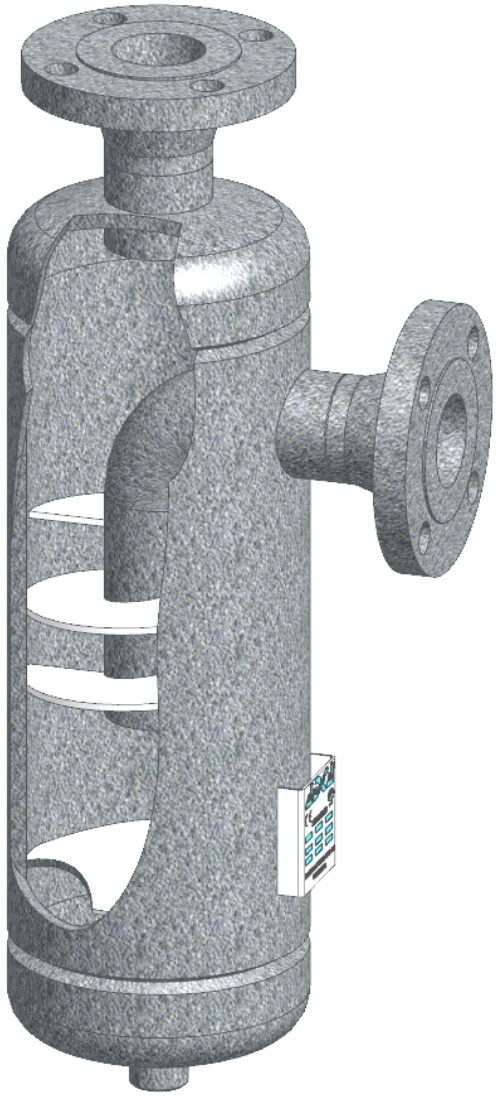
EN10204 3.1 certificate available if requested with the order.





HUMIDITY SEPARATORS
S25/S HV and VH
PN16 – PN40

DESCRIPTION
S-25 HV and VH series centrifugal separators remove moisture from steam and compressed air pipelines. Steam and compressed air passing through the separator and as a result of centrifugal forces, impact and swirling effects, separate the particles with a heavier specific gravity, such as water and oil droplets, moisture in suspension, dirt and scale.
The condensate collected at the bottom of the separator, must be automatically drained by a suitable steam or compressed air trap.
Connections are flanged.



MAIN FEATURES
Several possibilities of installation.
No moving parts.

OPTIONS:	Zinc plated fabricated carbon steel construction (compressed air) Condensate flanged connection.
USE:	Steam, compressed air and other gases (Group 2).
AVAILABLE MODELS:	S25/S HV or VH - carbon steel body. S25/SZ HV or VH - zinc plated body
SIZES:	DN15 to DN200.
PIPE CONNECTIONS:	Flanged EN1092-1 PN16 and PN40 ANSI Class 150 lbs and Class 300 lbs Female screwed BSP or NPT on request.
INSTALLATION:	Always with the condensate discharge pointing downwards. See IMI, installation and maintenance instructions.
HOW TO SELECT:	Generally, in an existing plant it is advisable to fit a separator of the same size of the pipe line. Pressure drop is normally negligible. For approximate pressure drop calculation please consult.

LIMITING CONDITIONS **											
Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC
PN16	16	50	ANSI Cl.150 lbs	16	50	PN25 ANSI CL.300lbs	25	50	PN40 ANSI CL.300lbs	40	50
	14	100		14	100		23	100		37	100
	13 *	195		13 *	195		20 *	216		31 *	239
	12	250		-	-		17	300		27	300

*PMO-Max.operating pressure for saturated steam. Minimum operating temp.: -10ºC. Design code: AD-Merkblatt

** Rating according to EN1092:2007.

CE MARKING - GROUP 2 GASES CATEGORIES								
RATING	SIZE	CAT.	RATING	SIZE	CAT.	RATING	SIZE	CAT.
PN16	DN15 to DN25	SEP	PN25	DN15	SEP	PN40	DN15 to DN32	1
	DN32 to DN50	1		DN20 to DN40	1		DN40 to DN80	2
	DN65 to DN125	2		DN50 to DN100	2		DN100 to DN150	3
	DN150 to DN200	3		DN125 to DN150	3		DN200	4

CE Marking

This product have been designed for use on water steam, air and other gases which are in Group 2 of the PED-European Pressure Equipment Directive 97/23/EC and it comply with those requirements.
The product carries the CE mark when falling in category 1 and above.

APPROXIMATE DIMENSIONS (mm)													
FLANGED EN 1092-1 - ANSI													
SIZE DN	*J PN16*	*J PN25*	*J PN40*	*J 150lbs*	*J 300lbs*	*B*	*C*	*D*	*E*	*H*	*F*	*VOL. * dm3*	*WGT ** Kg*
15	115	115	115	125	130	114	260	185	75	140	1/2"	2	5
20	115	115	115	128	132	114	260	185	75	147	1/2"	2,5	6
25	115	115	115	131	137	114	300	200	100	157	1/2"	3	7
32	130	130	130	145	152	140	395	285	110	188	1/2"	5	12
40	130	130	130	147	154	140	435	325	110	195	1/2"	5,7	13,8
50	155	155	155	170	177	168	505	385	120	207	1/2"	10,5	19,5
65	190	197	197	215	221	219	550	410	140	261	3/4"	18,5	32
80	200	205	205	220	230	219	610	462	148	295	3/4"	25	38
100	235	245	245	260	267	273	715	528	187	345	3/4"	35,4	57
125	268	280	280	303	311	324	845	630	215	435	1"	50	81,5
150	283	303	303	316	326	356	962	692	270	475	1"	75	153
200	303	320	329	343	352	406	1170	880	290	500	1"	140	195

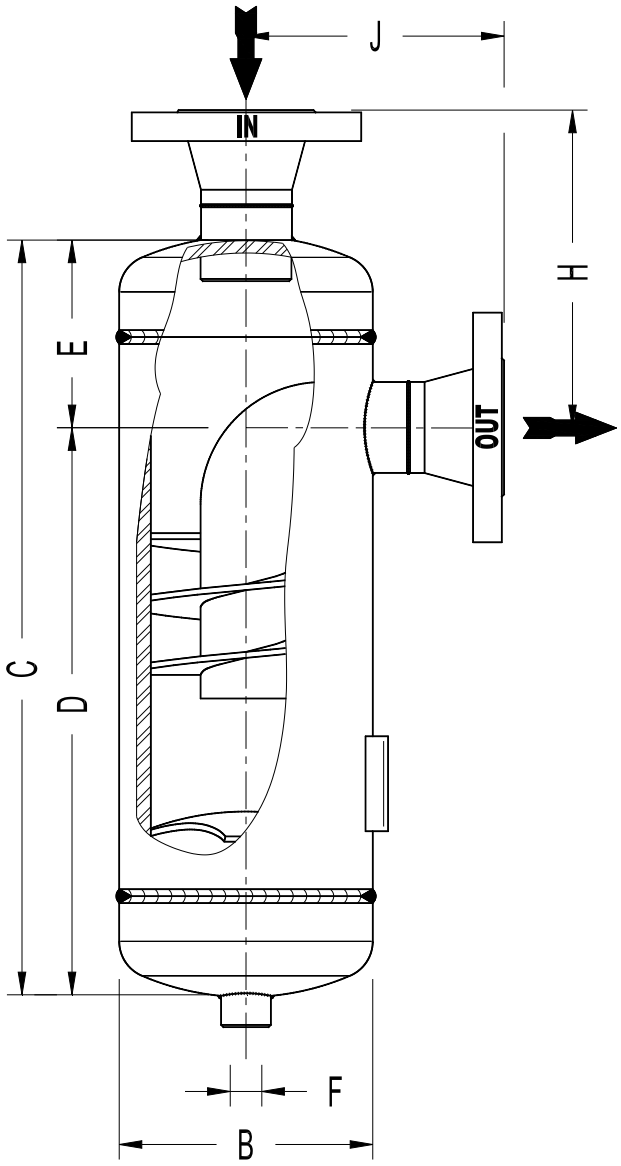
* Volume correspond to the class PN16 design.Classes PN25 and above may have slightly lower volumes.
** Weight correspond to the class PN16 design.
F-screwed drain connection as standard.Alternatively can be supplied flanged EN1092-1 or ANSI on the same class of main dimensions.
Consult factory for certified dimensions. Dimensions subject to change without notice.

MATERIALS	
DESIGNATION	***MATERIAL***
Body	EN10216-2 / P235GH / 1.0325
Heads	EN10028-2 / P265GH / 1.0425
Inlet / Outlet pipes	EN10216-2 / P235GH / 1.0325
EN flanges	EN10222-2 / P250GH / 1.0460
ANSI flanges	ASTM A105 / 1.0432
Sockets	ASTM A105 / 1.0432
Internals	EN10025-2 / S235JR / 1.0038

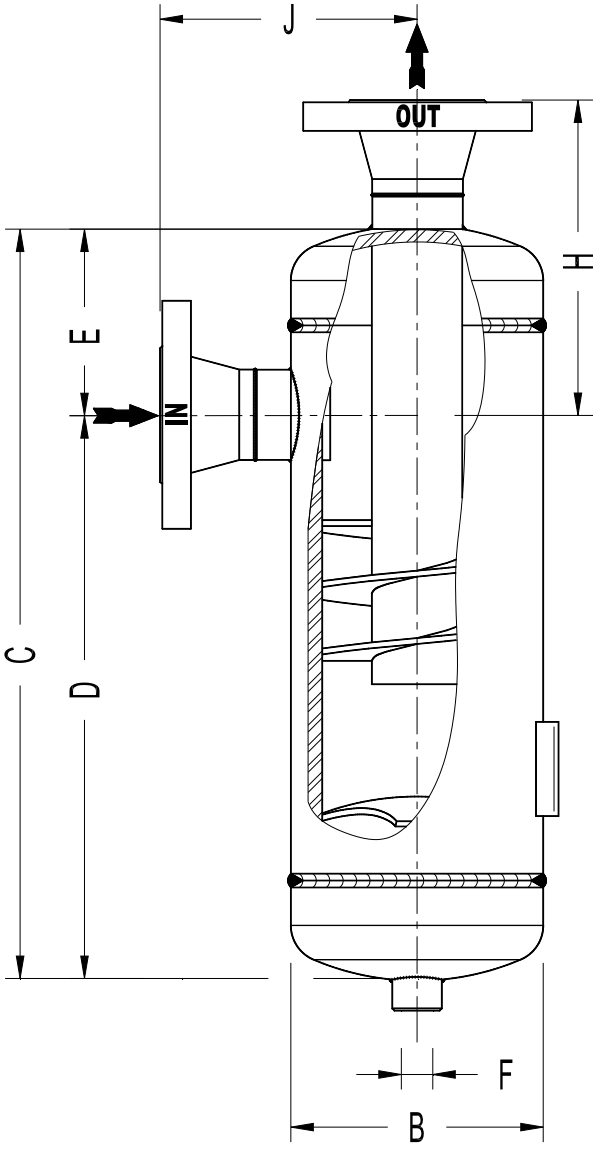
EN10204 3.1 certificate available if requested with the order.

FLANGE CONNECTIONS			
Rating	***Sep. SIZE***	***EN STD.***	***ANSI STD.***
PN16	* DN15 to DN50	EN1092-1 PN40	ANSI B16.5 Cl.150 lbs
PN16	DN65 to DN300	EN1092-1 PN16	ANSI B16.5 Cl.150 lbs
PN25	DN15 to DN150	EN1092-1 PN40	ANSI B16.5 Cl.300 lbs
PN25	DN200 to DN300	EN1092-1 PN25	ANSI B16.5 Cl.300 lbs
PN40	DN15 to DN300	EN1092-1 PN40	ANSI B16.5 Cl.300 lbs

* Flanges EN1092-1 PN16 and PN40 from DN15 to DN50 has the same number and size of holes.



VH - Direct vertical inlet / Horizontal outlet



HV – Direct horizontal inlet / Vertical outlet

HUMIDITY SEPARATORS
S25/S
PN16 – PN40

DESCRIPTION
S-25 series centrifugal separators remove moisture from steam and compressed air pipelines. Steam and compressed air passing through the separator and as a result of centrifugal forces, impact and swirling effects, separate the particles with a heavier specific gravity, such as water and oil droplets, moisture in suspension, dirt and scale.
The condensate collected at the bottom of the separator, must be automatically drained by a suitable steam or compressed air trap.
Connections are flanged.

MAIN FEATURES
Several possibilities of installation.
No moving parts.

OPTIONS:	Zinc plated (compressed air) Condensate flanged connection.
USE:	Steam, compressed air and other gases (Group 2).
AVAILABLE MODELS:	S25/S - carbon steel body. S25/SZ - zinc plated body
SIZES:	DN15 to DN300.
PIPE CONNECTIONS:	Flanged EN1092-1 PN16 and PN40 ANSI Class 150 lbs and Class 300 lbs Female screwed BSP or NPT on request.
INSTALLATION:	Always with the condensate discharge pointing downwards. See IMI, installation and maintenance instructions.
HOW TO SELECT:	Generally, in an existing plant it is advisable to fit a separator of the same size of the pipe line. Pressure drop is normally negligible. For approximate pressure drop calculation please consult.

LIMITING CONDITIONS **											
Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC
PN16	16	50	ANSI Cl.150 lbs	16	50	PN25 ANSI CL.300lbs	25	50	PN40 ANSI CL.300lbs	40	50
	14	100		14	100		23	100		37	100
	13 *	195		13 *	195		20 *	216		31 *	239
	12	250		-	-		17	300		27	300

*PMO-Max.operating pressure for saturated steam. Minimum operating temp.: -10ºC. Design code: AD-Merkblatt

** Rating according to EN1092:2007.

CE MARKING - GROUP 2 GASES CATEGORIES								
RATING	SIZE	CAT.	RATING	SIZE	CAT.	RATING	SIZE	CAT.
PN16	DN15 to DN25	SEP	PN25	DN15	SEP	PN40	DN15 to DN32	1
	DN32 to DN50	1		DN20 to DN40	1		DN40 to DN80	2
	DN65 to DN125	2		DN50 to DN100	2		DN100 to DN150	3
	DN150 to DN200	3		DN125 to DN150	3		DN200 to DN300	4
	DN250 to DN300	4		DN200 to DN300	4		-	

CE Marking

This product have been designed for use on water steam, air and other gases which are in Group 2 of the PED-European Pressure Equipment Directive 97/23/EC and it comply with those requirements.
The product carries the CE mark when falling in category 1 and above.

APPROXIMATE DIMENSIONS (mm)																		
FLANGED EN1092-1 - ANSI																		
SIZE DN	*A PN16*	*A PN25*	*A PN40*	*A 150 lbs*	*A 300 lbs*	*B*	*C*	*D*	*E*	*J*	*L PN16*	*A PN25*	*L PN40*	*L 150 lbs*	*L 300 lbs*	*F*	*VOL. * dm3*	*WGT ** Kg*
15	230	230	230	250	259	114	260	185	75	115	144	144	144	135	130	1/2"	2	5
20	230	230	230	255	264	114	260	180	80	115	136	136	136	123	119	1/2"	2,5	6
25	230	230	230	262	274	114	300	215	85	135	142	142	142	126	120	1/2"	3	7
32	260	260	260	290	303	140	395	285	110	155	194	194	194	200	215	1/2"	5	12
40	260	260	260	294	307	140	435	325	110	165	243	243	243	226	220	1/2"	5,7	13,8
50	310	310	310	341	354	168	505	380	125	190	281	281	281	265	259	1/2"	10,5	19,5
65	380	394	394	430	442	219	550	410	140	240	275	268	268	250	244	3/4"	18,5	32
80	400	416	416	440	459	219	610	462	148	260	306	298	298	286	277	3/4"	25	38
100	470	490	490	520	530	273	715	528	187	330	326	313	313	302	293	3/4"	35,4	57
125	535	561	561	605	622	324	845	630	215	403	380	367	367	346	337	1"	50	81,5
150	565	605	605	633	652	356	960	690	270	457	428	408	408	394	385	1"	75	153
200	605	641	650	685	700	406	1170	880	290	545	485	467	459	446	436	1"	140	195
250	720	756	790	784	815	508	1540	1140	400	671	714	696	679	682	666	11/2"	280	321
300	840	868	914	913	944	610	1700	1172	528	800	662	648	625	626	597	11/2"	400	465

* Volume correspond to the class PN16 design.Classes PN25 and above may have slightly lower volumes.

** Weight correspond to the class PN16 design.

F-screwed drain connection as standard.Alternatively can be supplied flanged EN1092-1 or ANSI on the same class of main dimensions.

Consult factory for certified dimensions. Dimensions subject to change without notice.

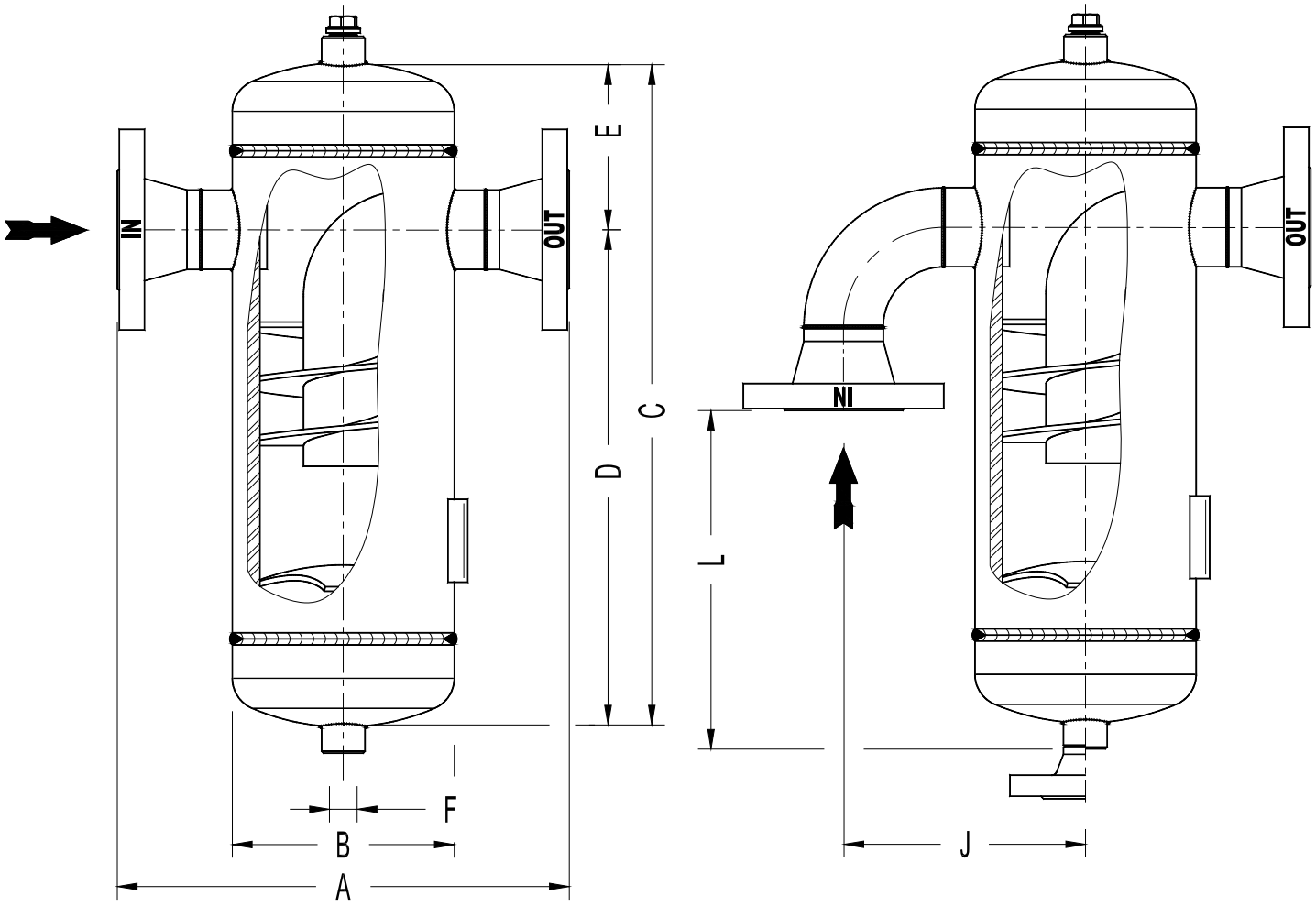
Note: the top of separator is supplied with a threaded connection with size not exceding the size of drain one. This connection is always supplied closed with a threaded socket. It can be used for air vent or balancing pipe connection.

MATERIALS	
DESIGNATION	***MATERIAL***
Body	EN10216-2 / P235GH / 1.0325
Heads	EN10028-2 / P265GH / 1.0425
Inlet / Outlet pipes	EN10216-2 / P235GH / 1.0325
EN flanges	EN10222-2 / P250GH / 1.0460
ANSI flanges	ASTM A105 / 1.0432
Sockets	ASTM A105 / 1.0432
Internals	EN10025-2 / S235JR / 1.0038

EN10204 3.1 certificate available if requested with the order.

FLANGE CONNECTIONS			
Rating	***Sep. SIZE***	***EN STD.***	***ANSI STD.***
PN16	* DN15 to DN50	EN1092-1 PN40	ANSI B16.5 Cl.150 lbs
PN16	DN65 to DN300	EN1092-1 PN16	ANSI B16.5 Cl.150 lbs
PN25	DN15 to DN150	EN1092-1 PN40	ANSI B16.5 Cl.300 lbs
PN25	DN200 to DN300	EN1092-1 PN25	ANSI B16.5 Cl.300 lbs
PN40	DN15 to DN300	EN1092-1 PN40	ANSI B16.5 Cl.300 lbs

* Flanges EN 1092-1 PN16 and PN40 from DN15 to DN50 has the same number and size of holes.



EVH-Elbow vertical inlet / horizontal outlet

HUMIDITY SEPARATORS
S25/SS (Stainless steel)
PN16 – PN40

DESCRIPTION
S-25SS series centrifugal separators remove moisture from steam and compressed air pipelines. Steam and compressed air passing through the separator and as a result of centrifugal forces, impact and swirling effects, separate the particles with a heavier specific gravity, such as water and oil droplets, moisture in suspension, dirt and scale.
The condensate collected at the bottom of the separator, must be automatically drained by a suitable steam or compressed air trap.
Connections are flanged.

MAIN FEATURES
Several possibilities of installation.
No moving parts.

OPTIONS:	Condensate flanged connection.
USE:	Steam, compressed air and other gases (Group 2).
AVAILABLE MODELS:	S25/SS - Stainless steel body.
SIZES:	DN15 to DN300.
PIPE CONNECTIONS:	Flanged EN1092-1 PN16 and PN40 ANSI Class 150 lbs and Class 300 lbs Female screwed BSP or NPT on request.
INSTALLATION:	Always with the condensate discharge pointing downwards. See IMI, installation and maintenance instructions.
HOW TO SELECT:	Generally, in an existing plant it is advisable to fit a separator of the same size of the pipe line. Pressure drop is normally negligible. For approximate pressure drop calculation please consult.

LIMITING CONDITIONS **											
Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC
PN16	16	50	ANSI Cl.150 lbs	16	50	PN25 ANSI CL.300lbs	25	50	PN40 ANSI CL.300lbs	40	50
	16	100		16	100		25	100		40	100
	13 *	195		13 *	195		21 *	217		32 *	240
	12	250		-	-		18	300		30	300

*PMO-Max.operating pressure for saturated steam. Minimum operating temp.: -10ºC. Design code: AD-Merkblatt

** Rating according to EN1092:2007.

CE MARKING - GROUP 2 GASES CATEGORIES								
RATING	SIZE	CAT.	RATING	SIZE	CAT.	RATING	SIZE	CAT.
PN16	DN15 to DN25	SEP	PN25	DN15	SEP	PN40	DN15 to DN32	1
	DN32 to DN50	1		DN20 to DN40	1		DN40 to DN80	2
	DN65 to DN125	2		DN50 to DN100	2		DN100 to DN150	3
	DN150 to DN200	3		DN125 to DN150	3		DN200 to DN300	4
	DN250 to DN300	4		DN200 to DN300	4		-	

CE Marking

This product have been designed for use on water steam, air and other gases which are in Group 2 of the PED-European Pressure Equipment Directive 97/23/EC and it comply with those requirements.
The product carries the CE mark when falling in category 1 and above.

APPROXIMATE DIMENSIONS (mm)												
FLANGED EN1092-1 - ANSI												
SIZE DN	*A PN16*	*A PN25*	*A PN40*	*A 150lbs*	*A 300lbs*	*B*	*C*	*D*	*E*	*F*	*VOL. * dm3*	*WGT ** Kg*
15	230	230	230	250	259	114	260	185	75	1/2"	2	5
20	230	230	230	255	264	114	260	185	75	1/2"	2,5	6
25	230	230	230	262	274	114	300	200	100	1/2"	3	7
32	260	260	260	290	306	140	395	285	110	1/2"	5	12
40	260	260	260	294	307	140	435	320	115	1/2"	5,7	13,8
50	310	310	310	341	354	168	505	385	120	1/2"	10,5	19,5
65	380	394	394	430	442	219	550	410	140	3/4"	18,5	32
80	400	416	416	440	459	219	610	462	148	3/4"	25	38
100	485	511	511	533	553	273	715	528	187	3/4"	35,4	57
125	535	561	561	605	622	324	845	630	215	1"	50	81,5
150	585	605	605	635	652	356	962	692	270	1"	75	153
200	605	641	657	685	703	406	1170	880	290	1"	140	195
250	720	756	790	784	815	508	1540	1140	400	11/2"	280	321
300	840	868	914	913	944	610	1700	1172	528	11/2"	400	465

* Volume correspond to the class PN16 design.Classes PN25 and above may have slightly lower volumes.

** Weight correspond to the class PN16 design.

F-screwed drain connection as standard.Alternatively can be supplied flanged EN1092-1 or ANSI on the same class of main dimensions.

Consult factory for certified dimensions. Dimensions subject to change without notice.

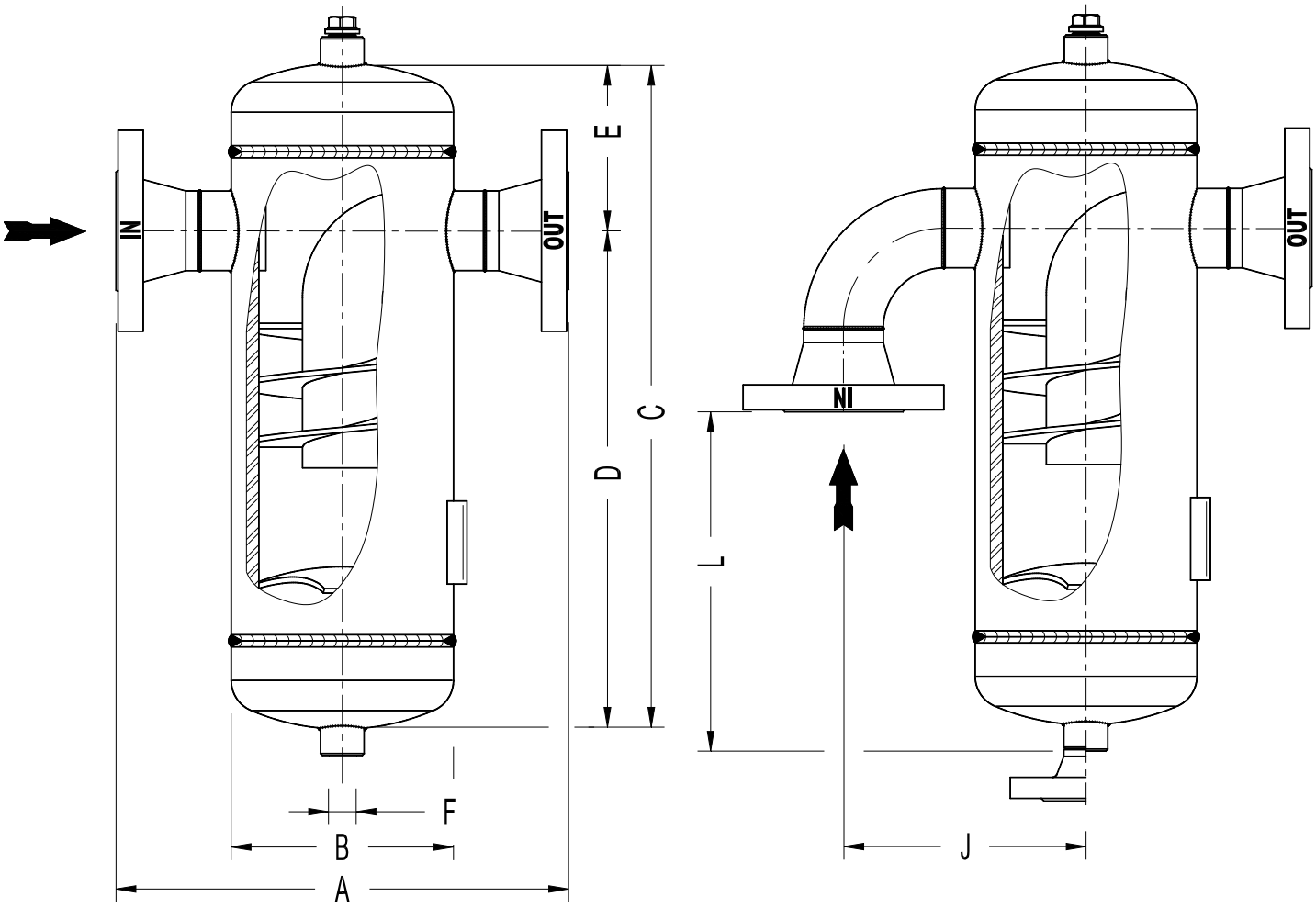
Note: the top of separator is supplied with a threaded connection with size not exceding the size of drain one. This connection is always supplied closed with a threaded socket. It can be used for air vent or balancing pipe connection.

MATERIALS	
DESIGNATION	***MATERIAL***
Body	EN10216-5 / ASTM A312TP316L
Heads	EN10028-7 / ASTM A403 WP316L
Inlet / Outlet pipes	EN10216-5 / ASTM A312TP316L
EN flanges	EN10222-5 / ASTM A182 F316/316L
ANSI flanges	ASTM A182 F316/316L
Sockets	AISI 304 (1.4301) / AISI316 (1.4401)
Internals	EN10272 / ASTM A479/A276-316/316L

EN10204 3.1 certificate available if requested with the order.

FLANGE CONNECTIONS			
Rating	***Sep. SIZE***	***EN STD.***	***ANSI STD.***
PN16	* DN15 to DN50	EN1092-1 PN40	ANSI B16.5 Cl.150 lbs
PN16	DN65 to DN300	EN1092-1 PN16	ANSI B16.5 Cl.150 lbs
PN25	DN15 to DN150	EN1092-1 PN40	ANSI B16.5 Cl.300 lbs
PN25	DN200 to DN300	EN1092-1 PN25	ANSI B16.5 Cl.300 lbs
PN40	DN15 to DN300	EN1092-1 PN40	ANSI B16.5 Cl.300 lbs

* Flanges EN 1092-1 PN16 and PN40 from DN15 to DN50 has the same number and size of holes.



EVH-Elbow vertical inlet / horizontal outlet

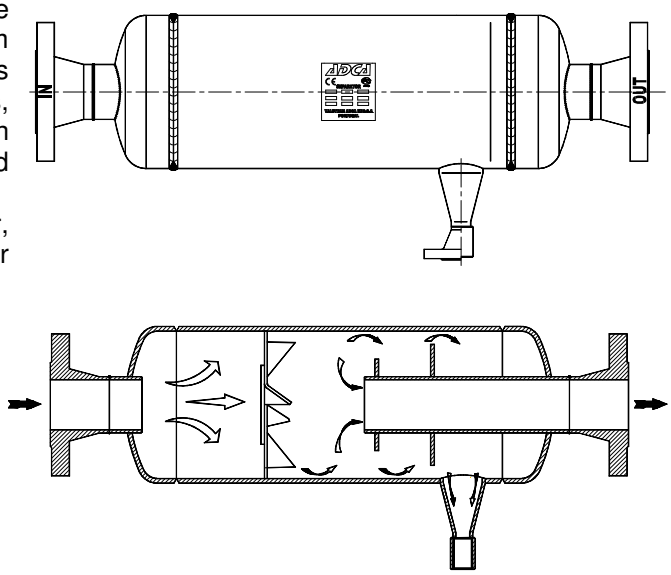
HUMIDITY SEPARATORS
SH 25
PN16 – PN40

DESCRIPTION

SH-25 series horizontal centrifugal separators remove moisture from steam and compressed air pipelines. Steam and compressed air passing through the separator and as a result of centrifugal forces, impact and swirling effects, separate the particles with a heavier specific gravity, such as water and oil droplets, moisture in suspension, dirt and scale.

The condensate collected at the bottom of the separator, must be automatically drained by a suitable steam or compressed air trap.

Connections are threaded or flanged.



MAIN FEATURES

In-line design

No moving parts.

OPTIONS:	Condensate flanged connection.
USE:	Steam, compressed air and other gases (Group 2).
AVAILABLE MODELS:	SH25/S - carbon steel body.
SIZES:	DN15 to DN100.
PIPE CONNECTIONS:	Flanged EN1092-1 PN16 and PN40 ANSI Class 150 lbs and Class 300 lbs Female screwed BSP or NPT on request.
INSTALLATION:	Always with the condensate discharge pointing downwards. See IMI, installation and maintenance instructions.
HOW TO SELECT:	Generally, in an existing plant it is advisable to fit a separator of the same size of the pipe line. Pressure drop is normally negligible. For approximate pressure drop calculation please consult.

LIMITING CONDITIONS **											
Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC
PN16	16	50	ANSI Cl.150 lbs	16	50	PN25 ANSI CL.300lbs	25	50	PN40 ANSI CL.300lbs	40	50
	14	100		14	100		23	100		37	100
	13 *	195		13 *	195		20 *	216		31 *	239
	12	250		-	-		17	300		27	300

*PMO-Max.operating pressure for saturated steam. Minimum operating temp.: -10ºC. Design code: AD-Merkblatt

** Rating according to EN1092:2007.

CE MARKING - GROUP 2 GASES CATEGORIES								
RATING	SIZE	CAT.	RATING	SIZE	CAT.	RATING	SIZE	CAT.
PN16	DN15 to DN25	SEP	PN25	--	SEP	PN40	DN15 to DN32	1
	DN32 to DN50	1		DN15 to DN40	1		DN40 to DN80	2
	DN65 to DN100	2		DN50 to DN100	2		DN100	3

CE Marking

This product have been designed for use on water steam, air and other gases which are in Group 2 of the PED-European Pressure Equipment Directive 97/23/EC and it comply with those requirements.
The product carries the CE mark when falling in category 1 and above.

APPROXIMATE DIMENSIONS (mm)													
FLANGED EN1092-1 - ANSI												THREADED	
SIZE DN	A PN16	A PN25	A PN40	A 150lbs	A 300lbs	B	E	F	G	VOL. * dm3	WGT ** Kg	C	WGT ** Kg
15	365	365	365	384	394	114	136	1/2"	115	2,1	4,1	357	2,7
20	370	370	370	395	404	114	138	1/2"	115	2,2	4,8	362	2,8
25	390	390	390	421	434	114	138	1/2"	115	2,4	5,2	396	2,9
32	475	475	475	505	521	140	148	1/2"	130	4,6	8	487	4,6
40	515	515	515	549	562	140	152	1/2"	130	5,1	9	521	4,7
50	590	590	590	621	634	168	166	1/2"	143	8,7	11,6	606	6,5
65	656	670	670	706	718	219	196	3/4"	180	16,3	20,4	--	--
80	724	740	740	764	783	219	200	3/4"	180	18,6	21,7	--	--
100	824	850	850	872	891	273	217	3/4"	207	28,5	31	--	--

* Volume correspond to the class PN16 design.Classes PN25 and above may have slightly lower volumes.

** Weight correspond to the class PN16 design.

F-screwed drain connection as standard.Alternatively can be supplied flanged EN1092-1 or ANSI on the same class of main dimensions.

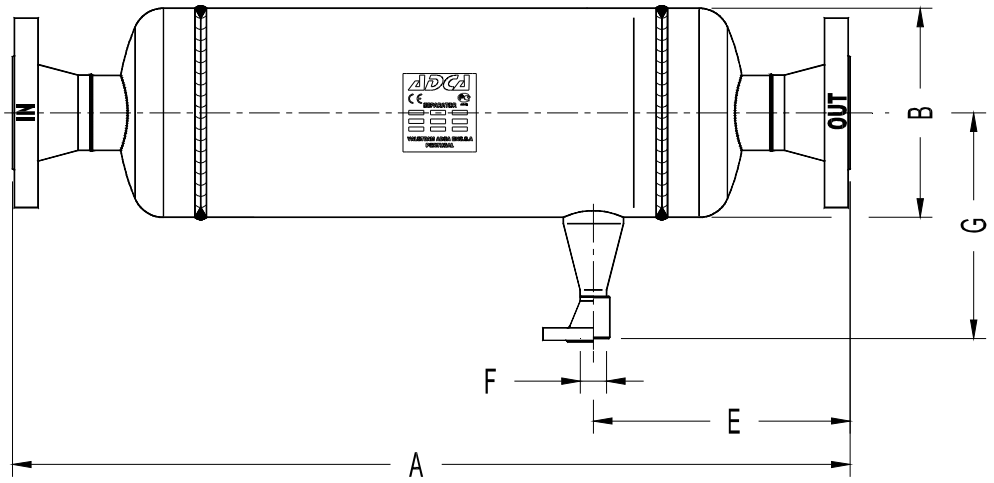
Consult factory for certified dimensions. Dimensions subject to change without notice.

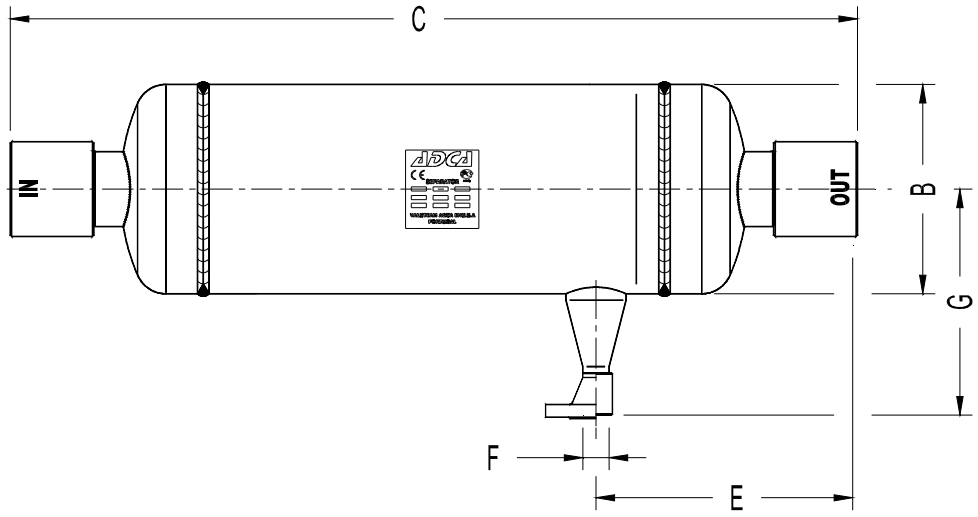
MATERIALS	
DESIGNATION	***MATERIAL***
Body	EN10216-2 / P235GH / 1.0325
Heads	EN10028-2 / P265GH / 1.0425
Inlet / Outlet pipes	EN10216-2 / P235GH / 1.0325
EN flanges	EN10222-2 / P250GH / 1.0460
ANSI flanges	ASTM A105 / 1.0432
Sockets	ASTM A105 / 1.0432
Internals	EN10025-2 / S235JR / 1.0038

EN10204 3.1 certificate available if requested with the order.

FLANGE CONNECTIONS			
Rating	***Sep. SIZE***	***EN STD.***	***ANSI STD.***
PN16	* DN15 to DN50	EN1092-1 PN40	ANSI B16.5 Cl.150 lbs
PN16	DN65 to DN100	EN1092-1 PN16	ANSI B16.5 Cl.150 lbs
PN25	DN15 to DN100	EN1092-1 PN40	ANSI B16.5 Cl.300 lbs
PN40	DN15 to DN100	EN1092-1 PN40	ANSI B16.5 Cl.300 lbs

* Flanges EN 1092-1 PN16 and PN40 from DN15 to DN50 has the same number and size of holes.





HUMIDITY SEPARATOR AND STRAINER
SF251/S
PN16 – PN40

DESCRIPTION

SF-251/S series centrifugal separators remove moisture from steam and compressed air pipelines. Steam and compressed air passing through the separator and as a result of centrifugal forces, impact and swirling effects, separate the particles with a heavier specific gravity, such as water and oil droplets, moisture in suspension, dirt and scale.
The condensate collected at the bottom of the separator, must be automatically drained by a suitable steam or compressed air trap.
Connections are flanged.

MAIN FEATURES

Several possibilities of installation.
No moving parts.
Stainless steel strainer screen included

OPTIONS:	Condensate threaded connection. Special tailor made designs
USE:	Steam, compressed air and other gases (Group 2).
AVAILABLE MODELS:	SF251/S - carbon steel body.
SIZES:	DN15 to DN100.
PIPE CONNECTIONS:	Flanged EN1092-1 PN16 and PN40 ANSI Class 150 lbs and Class 300 lbs Female screwed BSP or NPT on request.
INSTALLATION:	Always with the condensate discharge pointing downwards. See IMI, installation and maintenance instructions.
HOW TO SELECT:	Generally, in an existing plant it is advisable to fit a separator of the same size of the pipe line. Pressure drop is normally negligible. For approximate pressure drop calculation please consult.

LIMITING CONDITIONS **											
Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC
PN16	16	50	ANSI Cl.150 lbs	16	50	PN25 ANSI CL.300lbs	25	50	PN40 ANSI CL.300lbs	40	50
	14	100		14	100		23	100		37	100
	13 *	195		13 *	195		20 *	216		31 *	239
	12	250		-	-		17	300		27	300

*PMO-Max.operating pressure for saturated steam. Minimum operating temp.: -10ºC. Design code: AD-Merkblatt

** Rating according to EN1092:2007.

CE MARKING - GROUP 2 GASES CATEGORIES					
RATING	SIZE	CAT.	RATING	SIZE	CAT.
PN16	DN15 to DN25	SEP	PN40	DN15 to DN32	1
	DN32 to DN50	1		DN40 to DN80	2
	DN65 to DN100	2		DN100	3

CE Marking

This product has been designed for use on water steam, air and other gases which are in Group 2 of the PED-European Pressure Equipment Directive 97/23/EC and it complies with those requirements.
The product carries the CE mark when falling in category 1 and above.

APPROXIMATE DIMENSIONS (mm)													
FLANGED EN1092-1-2 - ANSI													
SIZE DN	*A PN16*	*A PN40*	*A 150lbs*	*A 300lbs*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*VOL. * dm3*	*WGT ** Kg*
15	230	230	250	259	114	385	285	100	DN15	1/2"	235	2	21
20	230	230	255	264	114	385	285	100	DN15	1/2"	235	2,6	22,4
25	230	230	262	274	114	385	285	100	DN15	1/2"	235	3	24
32	260	260	290	303	140	520	410	110	DN15	1/2"	270	5,3	36
40	260	260	294	307	140	520	410	110	DN15	1/2"	270	6	38
50	310	310	341	354	168	590	460	130	DN15	1/2"	300	11	52,5
65	380	400	430	448	219	710	550	160	DN20	3/4"	375	19,3	94
80	400	410	440	453	219	710	550	160	DN20	3/4"	375	26	102,5
100	470	490	518	532	273	815	610	205	DN20	3/4"	450	37	169

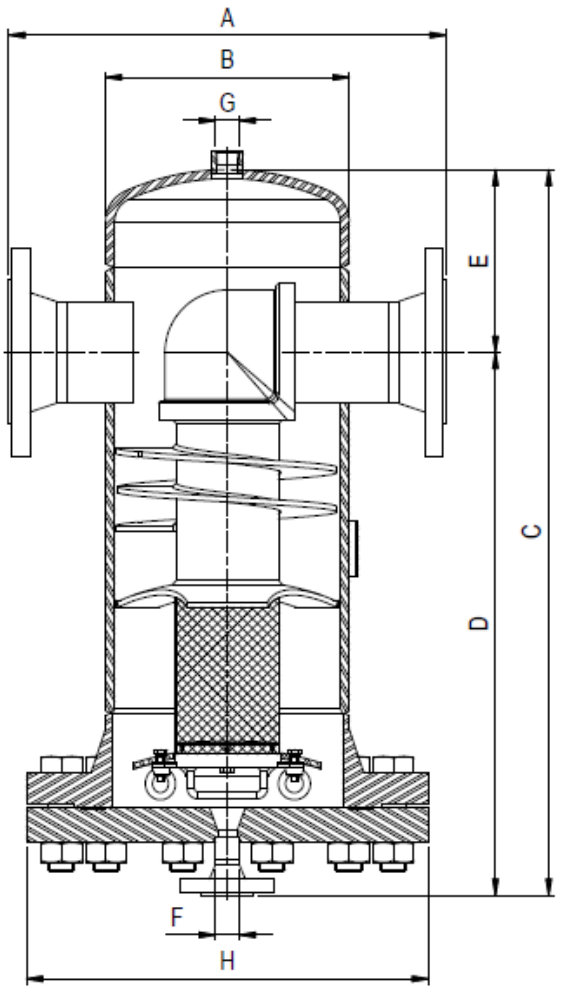
* Volume correspond to the PN16 design class.Classe PN40 may have slightly lower volumes.
** Weight correspond to the class PN16 design.
F and G -connections can be supplied with alternative threads or flanges.
Consult factory for certified dimensions. Dimensions subject to change without notice.
Note: the top of the separator is supplied with a threaded connection with a size not exceding the size of drain. This connection is always supplied closed with a threaded socket. It can be used for air vent or balancing pipe connection.

MATERIALS	
DESIGNATION	**MATERIAL**
Body	EN10216-2 / P235GH / 1.0325
Heads	EN10028-2 / P265GH / 1.0425
Inlet / Outlet pipes	EN10216-2 / P235GH / 1.0325
EN flanges	EN10222-2 / P250GH / 1.0460
ANSI flanges	ASTM A105 / 1.0432
Sockets	ASTM A105 / 1.0432
Internals	EN10025-2 / S235JR / 1.0038
Strainer screen	AISI 304 / 1.4301

EN10204 3.1 certificate available if requested with the order.

FLANGE CONNECTIONS			
Rating	**Sep. SIZE**	**EN STD.**	**ANSI STD.**
PN16	* DN15 to DN50	EN1092-1 PN40	ANSI B16.5 Cl.150 lbs
PN16	DN65 to DN100	EN1092-1 PN16	ANSI B16.5 Cl.150 lbs
PN40	DN15 to DN100	EN1092-1 PN40	ANSI B16.5 Cl.300 lbs

* Flanges EN 1092-1 PN16 and PN40 from DN15 to DN50 has the same number and size of holes.



SAMPLE COOLERS
SC32 – SC132

DESCRIPTION

ADCA sample coolers are specially designed to cool samples of boiler water or steam for analysis.
Sample coolers prevent steam flashing-off from hot pressurised liquid samples, which can be dangerous and will result in an incorrect water sample.
This device may be used for boiler water analysis and other sampling or cooling applications compatible with construction materials.

MAIN FEATURES

Corrosion-resistant body and internals.
Self draining sample (inlet top, outlet bottom).

OPTIONS:
Sample inlet valve.
Cooling water inlet valve.
Temperature indicator
Bolted top plate.
Different connection sizes and materials under request against extra price.
Double coil high pressure design for larger capacities

USE: Steam boilers and hot water systems.

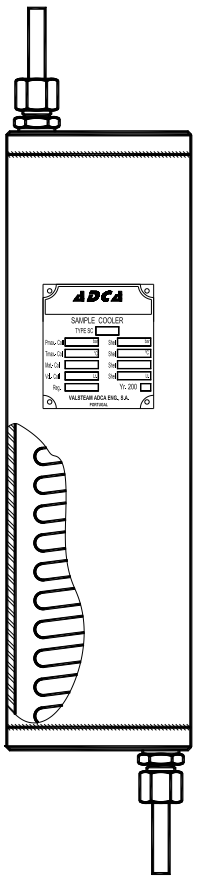
AVAILABLE MODELS: SC32/SS - SC132/SS - stainless steel body and coil.

SIZES AND CONNECTIONS :
SC32 – SC132
Cooling water inlet/outlet : 1/2” on body (BSP or NPT)
Sample tube inlet/outlet : 8 mm O/D

INSTALLATION: Vertical installation.

OPERATION: Cooling water must be in its maximum flow before open or close the sample inlet valve, in order to avoid the risk of scalding.
The sample valve must also be closed before the cooling water valve.

PERFORMANCE: 30 to 60 kg/hr of sample water at ≈ 30ºC with 1m3/h -15ºC inlet cooling water (boilers up to 20 bar-220ºC), for other pressures, temperatures and /or certified figures please consult.



LIMITING CONDITIONS				
	BODY		COIL	
Model	Pressure bar	Related Temp. ºC	Pressure bar	Related Temp. ºC
SC32 - SC132	20	120	110	400
			90	450

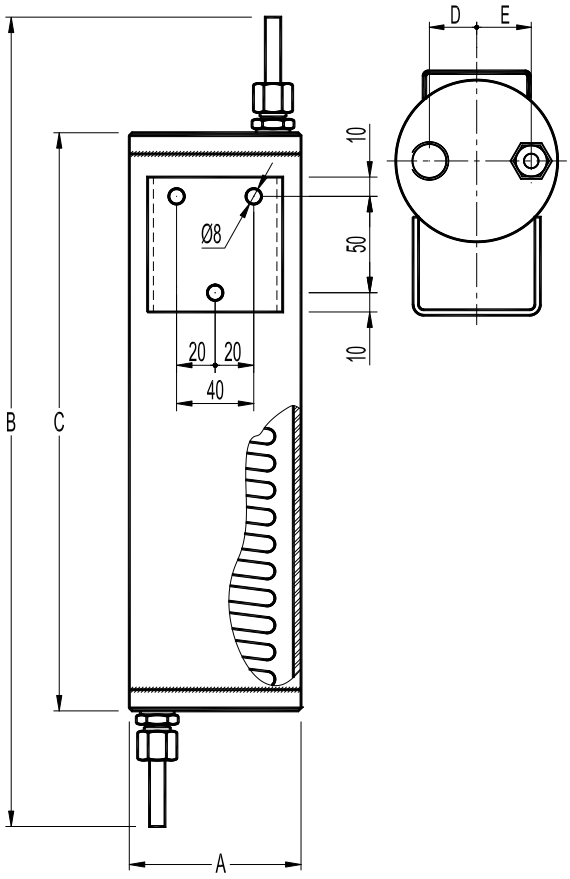
Minimum operating temperature : -10ºC
Design code : AD - Merkblatt

DIMENSIONS (mm)						
MODEL	**A**	**B**	**C**	**D**	**E**	**WGT Kg**
SC 32	90	420	300	26	30	3,9
SC 132	90	520	400	26	30	4,8

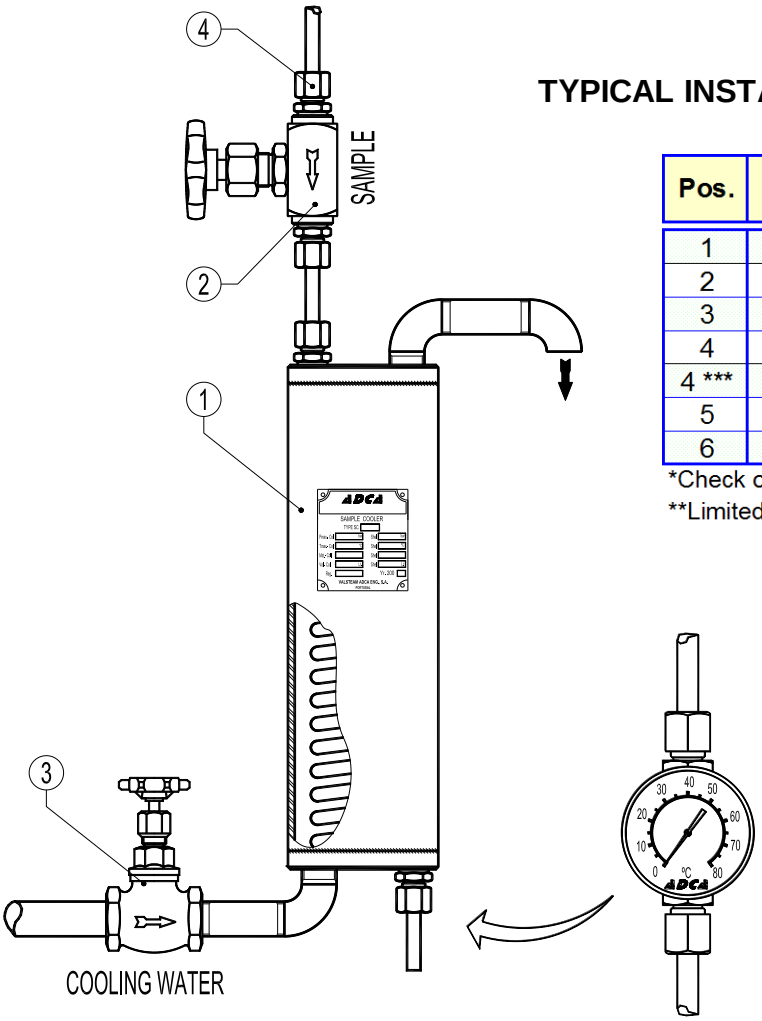
MATERIALS	
DESIGNATION	**MATERIAL**
	SC32 - SC132
Body	AISI 304 / 1.4301
Covers	AISI 304 / 1.4301
Coil	AISI 316L / 1.4404
Compression fittings *	Fe / Zn 12 - ISO 2081 - Cl. L
Discharge tube	ASI 316L / 1.4404
Thermometer connector	AISI 316 / 1.4401

EN10204 3.1 certificate available if requested with the order.

* Stainless steel available against extra price



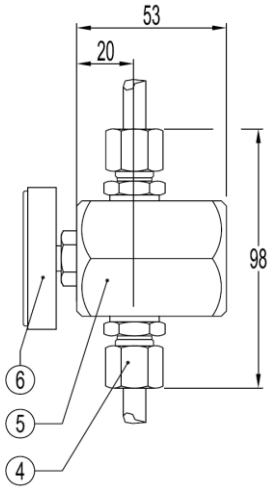
TYPICAL INSTALLATION



Pos.	Designation
1	Sample Cooler
2	* Sample inlet valve NV-400
3	Cooling water inlet valve ADCA GV32B
4	**Comp. fitting DN1/4"x 8 (2) Fe/Zn - ISO 2081 - Cl.L
4 ***	**Comp. fitting DN1/4"x 8 (2) Cl. S (316Ti / 1.4571)
5	Thermometer connector
6	Bimetal thermometer

*Check operating conditions, see catalogue

Limited to max. 400 ºC ; * Option, against extra price.



SAMPLE COOLERS
SC 32F – SC 132F
(With Funnel)

DESCRIPTION

ADCA sample coolers are specially designed to cool samples of boiler water or steam for analysis.
Sample coolers prevent steam flashing-off from hot pressurised liquid samples, which can be dangerous and will result in an incorrect water sample.
This device may be used for boiler water analysis and other sampling or cooling applications compatible with construction materials.

MAIN FEATURES
Corrosion-resistant body and internals.

OPTIONS:
Sample inlet valve.
Cooling water inlet valve.
Temperature indicator
Compression fittings
Bolted top plate.
Different connection sizes and materials under request against extra price.

USE:
Steam boilers.
Hot water systems.

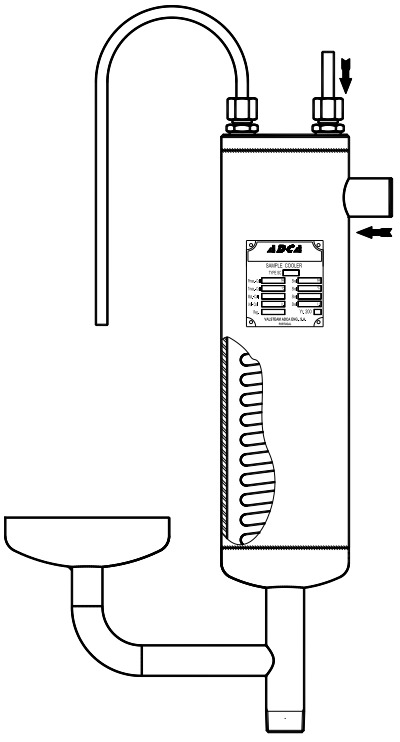
AVAILABLE MODELS:
SC32F/SS and SC132F/SS - stainless steel body and coil.

SIZES AND CONNECTIONS:
Cooling water body inlet 1/2", outlet ¾" (BSP or NPT)
Sample tube inlet/outlet: 8 mm O/D

INSTALLATION:
Vertical installation.

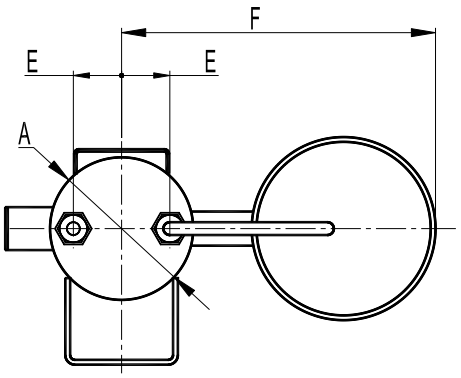
OPERATION:
Cooling water must be in its maximum flow before open or close the sample inlet valve, in order to avoid the risk of scalding.
The sample valve must also be closed before the cooling water valve.

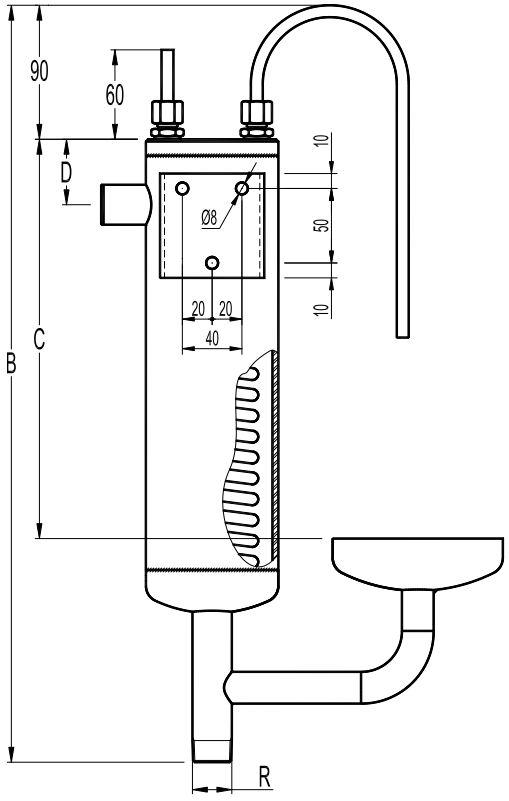
PERFORMANCE:
30 to 60 l/hr of sample water at ≈ 30ºC with 1m3/h - 15ºC inlet cooling water (boilers up to 20 bar-220ºC), for other pressures, temperatures and /or certified figures please consult.



LIMITING CONDITIONS				
	BODY		COIL	
Model	Pressure bar	Related Temp. ºC	Pressure bar	Related Temp. ºC
SC32F - SC132F	20	120	110	400
			90	450

Minimum operating temperature : -10ºC
Design code : AD - Merkblatt





DIMENSIONS (mm)								
MODEL	***A***	***B***	***C***	***D***	***E***	***F***	***R***	***WGT Kg***
SC 32F	90	490	340	43	30	195	3/4"	4,5
SC 132F	90	590	340	43	30	195	3/4"	5,5

MATERIALS	
DESIGNATION	***MATERIAL***
Body and Funnel	AISI 304 / 1.4301
Covers	AISI 304 / 1.4301
Coil	AISI 316L / 1.4404
Compression fittings *	Fe / Zn 12 - ISO 2081 - Cl. L
Discharge tube	ASI 316L / 1.4404
Thermometer connector	AISI 316 / 1.4401

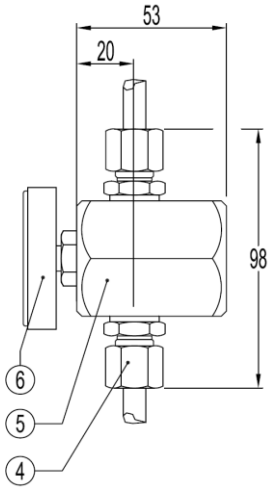
EN10204 3.1 certificate available if requested with the order.

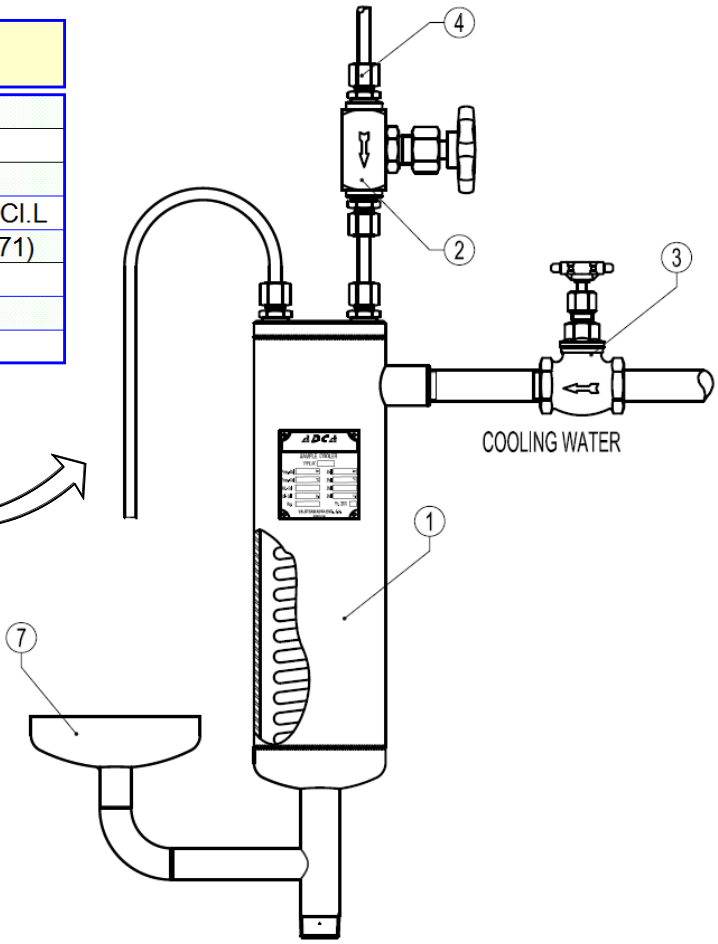
* Stainless steel available against extra price

Pos.	Designation
1	Sample Cooler
2	*Sample inlet valve NV-400
3	Cooling water inlet valve ADCA GV32B
4	**Comp.fittings DN1/4"x8 (2) Fe/Zn - ISO 2081 - Cl.L
4***	**Comp.fittings DN1/4"x8 (2) Cl. S (316Ti / 1.4571)
5	Thermometer connector
6	Bimetal thermometer
7	Funnel

* Check operaring conditions, see catalogue

** Limited to max. 400 °C ; Option,against extra price.





SAMPLE COOLERS
SC 32B – SC 132B
(Bolted Cover)

DESCRIPTION

ADCA sample coolers are specially designed to cool samples of boiler water or steam for analysis.
Sample coolers prevent steam flashing-off from hot pressurised liquid samples, which can be dangerous and will result in an incorrect water sample.
This device may be used for boiler water analysis and other sampling or cooling applications compatible with the construction materials.

MAIN FEATURES
Corrosion-resistant body and internals.

OPTIONS: Sample inlet valve.
Cooling water inlet valve.
Temperature indicator
Compression fittings
Different connection sizes and materials under request against extra price.

USE: Steam boilers.
Hot water systems.

AVAILABLE MODELS: SC32B/SS and SC132B/SS - stainless steel body and coil.

SIZES AND CONNECTIONS: Cooling water body inlet 1/2”, outlet 1/2” (BSP or NPT)
Sample tube inlet/outlet: 8 mm O/D

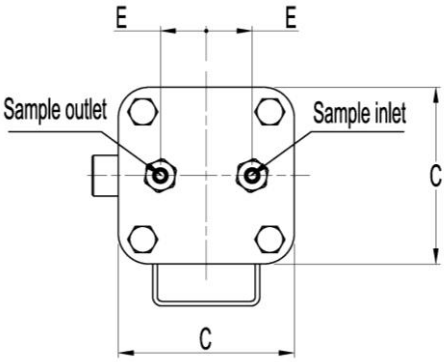
INSTALLATION:
Vertical installation.

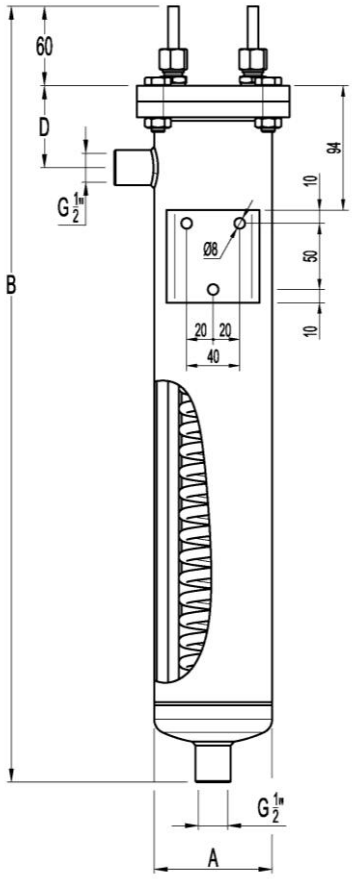
OPERATION:
Cooling water must be in its maximum flow before open or close the sample inlet valve, in order to avoid the risk of scalding.
The sample valve must also be closed before the cooling water valve.

PERFORMANCE:
30 to 60 l/hr of sample water at ≈ 30ºC with 1m3/h - 15ºC inlet cooling water (boilers up to 20 bar-220ºC), for other pressures, temperatures and /or certified figures please consult.

LIMITING CONDITIONS				
	BODY		COIL	
Model	Pressure bar	Related Temp. ºC	Pressure bar	Related Temp. ºC
SC32B - SC132B	20	120	110	400
			90	450

Minimum operating temperature : -10ºC
Design code : AD - Merkblatt





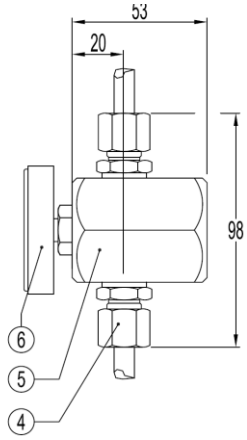
DIMENSIONS (mm)						
MODEL	*A*	*B*	*C*	*D*	*E*	*WGT Kg*
SC 32B	90	485	115	62	30	4,5
SC 132B	90	585	115	62	30	5,9

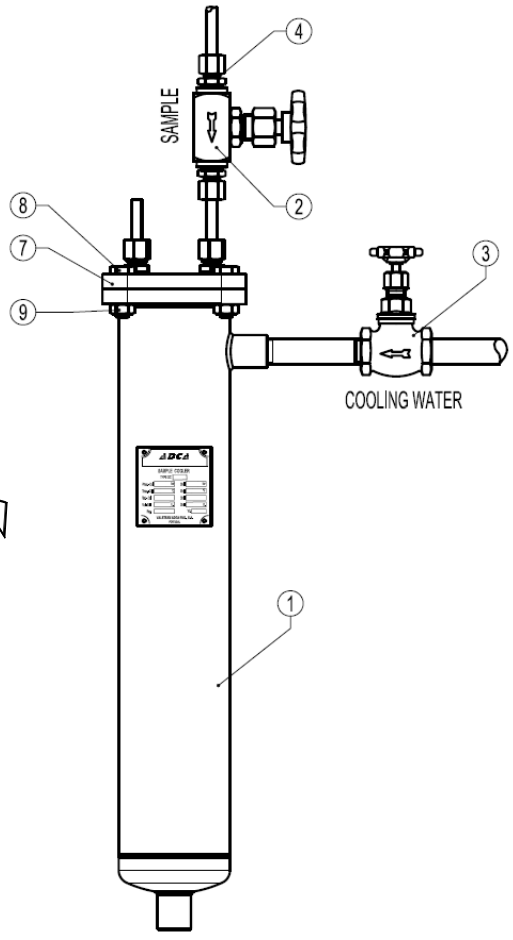
MATERIALS	
DESIGNATION	*MATERIAL*
Body	AISI 304 / 1.4301
Covers	AISI 304 / 1.4301
Coil	AISI 316L / 1.4404
Compression fittings *	Fe / Zn 12 - ISO 2081 - Cl. L
Discharge tube	ASI 316L / 1.4404
Thermometer connector	AISI 316 / 1.4401
Bolts and Nuts	St.Steel A2-70

EN10204 3.1 certificate available if requested with the order.
* Stainless steel available against extra price

Pos.	Designation
1	Sample Cooler
2	*Sample inlet valve NV-400
3	Cooling water inlet valve ADCA GV32B
4	**Comp.fittings DN1/4"x8 (2) Fe/Zn - ISO 2081 - Cl.L
4***	**Comp.fittings DN1/4"x8 (2) Cl. S (316Ti / 1.4571)
5	Thermometer connector
6	Bimetal thermometer
7	Cover
8	Bolts
9	Nuts

* Check operaring conditions, see catalogue
** Limited to max. 400 ºC ; ***Option,against extra price.





SAMPLE COOLERS
SC332 – SC432 – SC532

DESCRIPTION
ADCA sample coolers are specially designed to cool samples of boiler water or steam for analysis.
Sample coolers prevent steam flashing-off from hot pressurised liquid samples, which can be dangerous and will result in an incorrect water sample.
This device may be used for boiler water analysis and other sampling or cooling applications compatible with construction materials.

MAIN FEATURES
Corrosion-resistant body and internals.
Counter-current flow for better performance

OPTIONS:
Sample inlet valve.
Cooling water inlet valve.
Temperature indicator
Bolted top plate.
Different connection sizes and materials under request against extra price.

USE: Steam boilers and hot water systems.

AVAILABLE MODELS: SC332/SS – SC432/SS – SC532/SS - stainless steel body and coil.

SIZES AND CONNECTIONS :
SC332 and SC332H
Cooling water inlet/outlet : 1/2" (BSP or NPT)
Sample tube inlet/outlet : 10 mm O/D
SC432 and SC532 ; SC432H and SC532H
Cooling water inlet/outlet : 3/4" (BSP or NPT)
Sample tube inlet/outlet : 10 mm O/D

INSTALLATION: Vertical installation.

OPERATION: Cooling water must be in its maximum flow before open or close the sample inlet valve, in order to avoid the risk of scalding.
The sample valve must also be closed before the cooling water valve.

PERFORMANCE: 30 to 60 kg/hr of sample water at ≈ 30ºC with 15ºC inlet cooling water, for certified figures please consult.

LIMITING CONDITIONS							
SC332 - SC432 - SC532				SC332H - SC432H - SC532H			
BODY		COIL		BODY		COIL	
Pressure bar	Related Temp. ºC	Pressure bar	Related Temp. ºC	Pressure bar	Related Temp. ºC	Pressure bar	Related Temp. ºC
20	120	130	300	20	120	280	300
		120	400			268	400
		110	450			260	450
		100	500			245	550

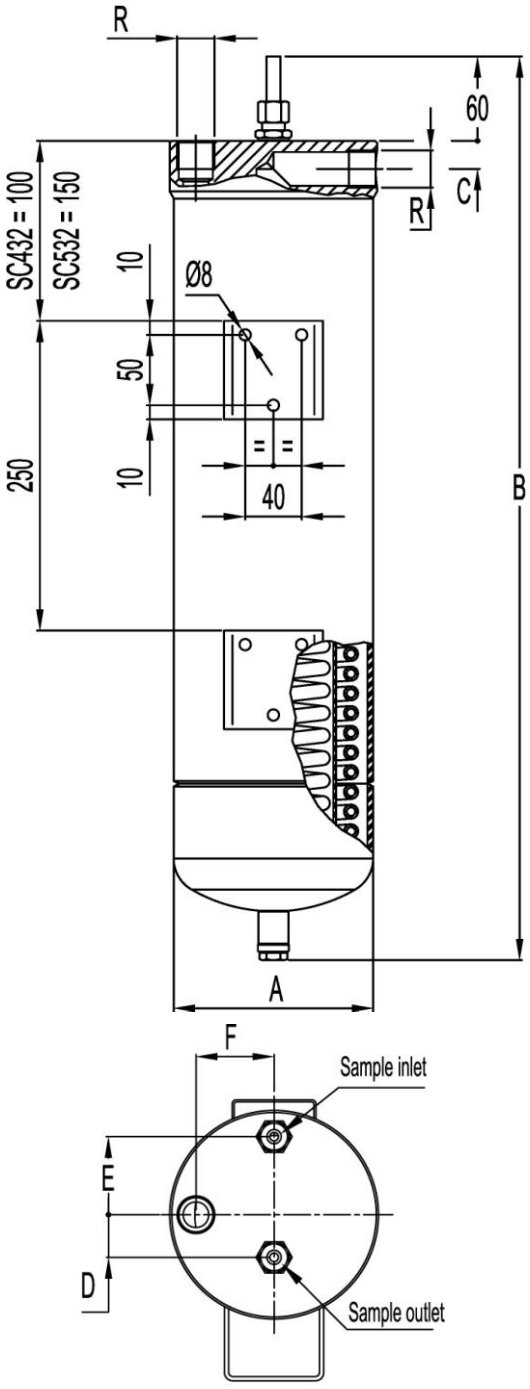
Minimum operating temperature : -10ºC
Design code : AD - Merkblatt

DIMENSIONS (mm)							
MODEL	***A***	***B***	***C***	***D***	***E***	***F***	***WGT Kg***
SC332	90	610	15	18	35	35	9
SC432	140	585	20	30	55	55	18,3
SC532	140	685	20	30	55	55	22,3

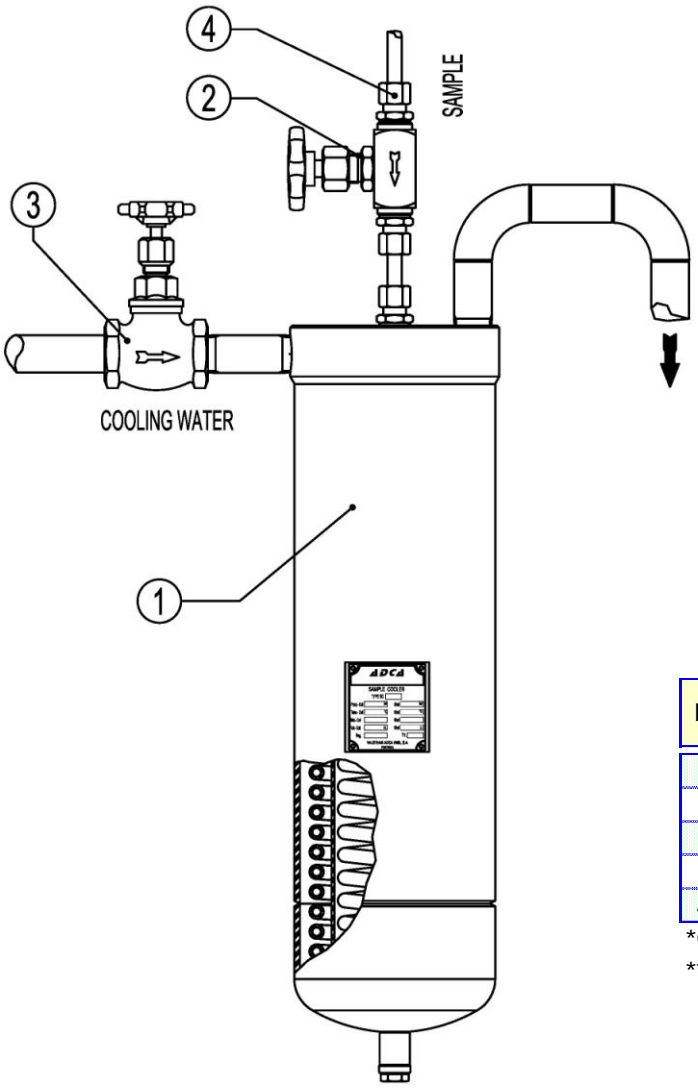
Note: same dimensions for the version "H" (higher temperatre)

MATERIALS	
DESIGNATION	***MATERIAL***
	SC332 - SC432 - SC532
Body	AISI 304 / 1.4301 or AISI 316 / 1.401
Cover	AISI 304 / 1.4301 or AISI 316 / 1.401
Coil	AISI 316Ti / 1.4571
Compression fittings *	Fe / Zn 12 - ISO 2081 - Cl. L
Discharge tube	AISI 316Ti / 1.4571

EN10204 3.1 certificate available if requested with the order.
Same materials for the version"H", except the coil thickness.
* Stainless steel available against extra price



TYPICAL INSTALLATION



Pos.	Designation
1	Sample Cooler
2	* Sample inlet valve NV-400
3	Cooling water inlet valve ADCA GV32B
4	**Comp. fitting DN1/4"x 10 (2) Fe/Zn - ISO 2081 - Cl.L
4 ***	**Comp. fitting DN1/4"x 10 (2) Cl. S (316Ti / 1.4571)

*Check operating conditions, see catalogue
Limited to max. 400 ºC ; * Option, against extra price.

STEAM INJECTORS
SI 20

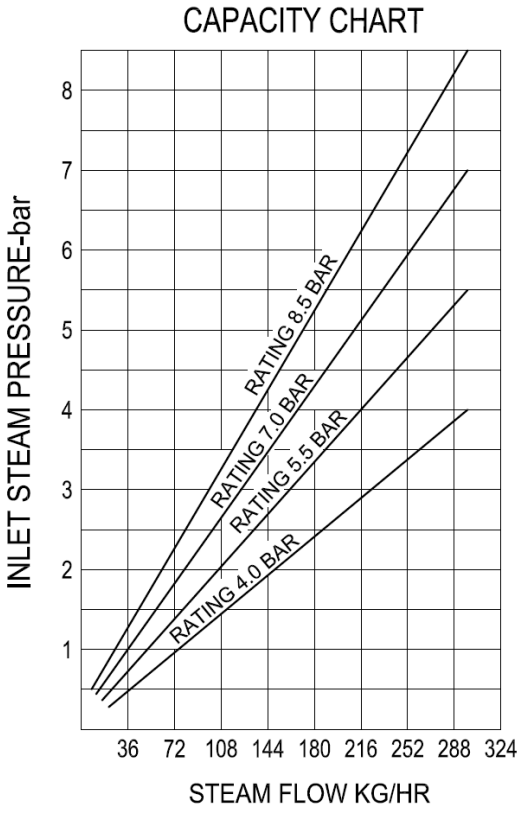
DESCRIPTION

The SI20 series steam injectors from ADCA are injection condensers. They ensure low noise and vibration and rapid heating of still or flowing fluids in basins and vessels due to direct steam injection.
Steam enters through the inlet housing, passes along the centre of the heater, through holes in the inner rings, through spaces between the element plates where it condensates under light load and partly condensates under heavy load to be discharged through the serrated periphery of the element plates. Under heavy load if any steam pass through the periphery of the element plates, will do so in very small jets and will condensate in the surrounding liquid with very little noise and vibration.
Connections are female screwed.

MAIN FEATURES

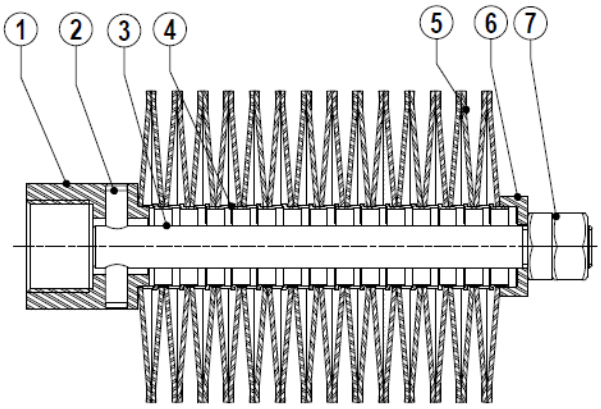
Quiet operation.
Corrosion-resistant.
No moving parts.

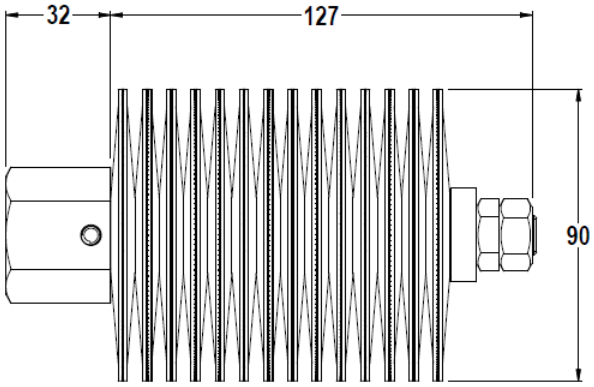
OPTIONS:	Complete system including vacuum breaker and self operated controller. Different capacities and design available under request.
USE:	Direct steam injection heating systems. See IMI installation and maintenance instructions.
AVAILABLE MODELS:	SI 20-4; SI 20-5,5; SI 20-7; SI 20-8,5
SIZES:	3/4".
CONNECTIONS:	Female screwed ISO 7/1 Rp (BS21)
INSTALLATION:	Horizontal or vertical installation.
LIMITING CONDITIONS:	PMO: Max. operating pressure 8,5 bar TMO: Max. operating temperature 180 ºC



Example: We require the injection of 950Kg/hr of steam with a pressure of 5bar. Assuming 20% pressure drop across the control valve, therefore the steam supply to the injectors will be 4bar. From the injector capacity chart we see that the 4bar injector will pass 293Kg/hr and 950 divided by 293=3,24.
Three injectors of this size will barely cope, so we recommend installing four injectors, which will meet the demand.
The pressure rating is stamped on the inlet housing (1). The SI 20 injector is made in one size and if one device does not pass sufficient steam, two or more should be fitted to a common supply pipe.

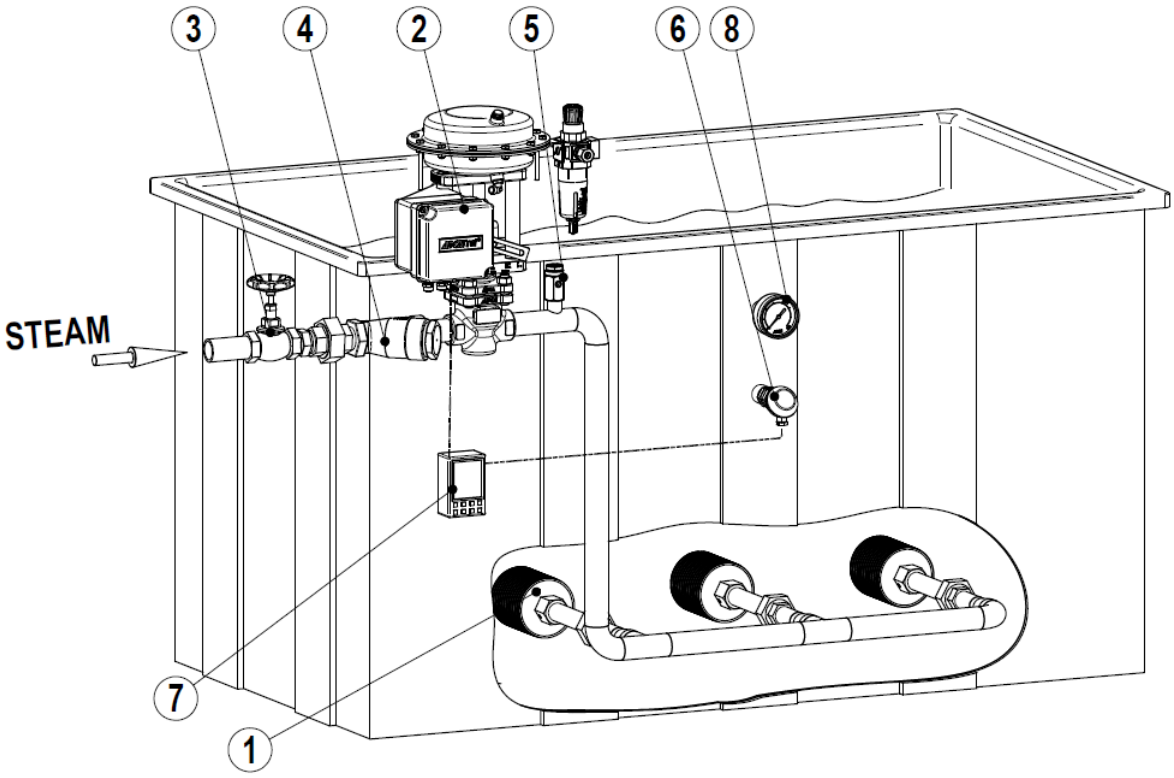
MATERIALS		
POS. Nr.	**DESIGNATION**	**MATERIAL**
1	Inlet housing	AISI304 / 1.4301
2	Cross pin	AISI304 / 1.4301
3	Tie-rod	AISI304 / 1.4301
4	Inner rings	AISI304 / 1.4301
5	Element plates	AISI304 / 1.4301
6	Retaining plate	AISI304 / 1.4301
7	Retaining nut	AISI304 / 1.4301





Position	Designation
1	ADCA SI-20 steam injector
2	Adcatrol V25 control valve and positioner
3	GV32B Bronze globe valve
4	Adca IS140 Y strainer
5	ADCA VB21 vacuum breaker
6	PT100 resistance thermometer
7	Temperature controler
8	Temperature indicator

Typical Installation



STEAM INJECTORS
SI 115

DESCRIPTION

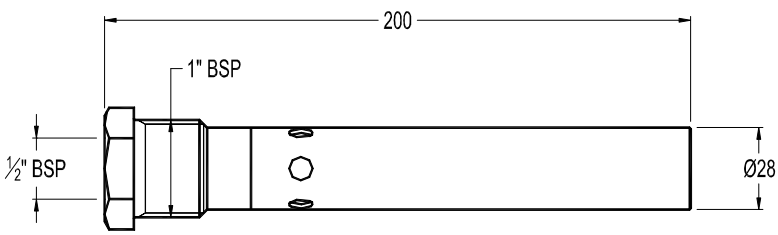
The SI series steam injectors from ADCA are injection condensers. They ensure low noise and vibration and rapid heating of still or flowing fluids in basins and vessels due to direct steam injection.
Steam enters through the inlet housing, passes along the centre of the heater, mixing with the cool water which drawn in through radial holes.
Connections are female screwed.

MAIN FEATURES

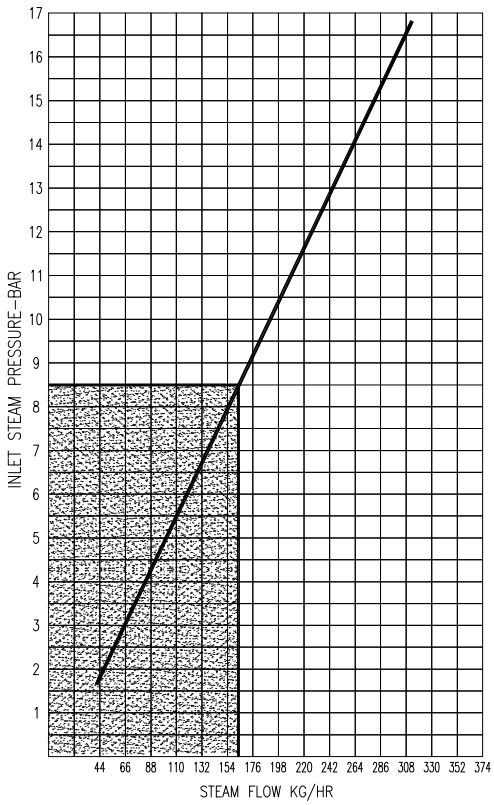
Quiet operation.
Corrosion-resistant.
No moving parts.

OPTIONS:	Complete system including vacuum breaker and self operated controller. Different capacities and design available under request.
USE:	Direct steam injection heating systems. See IMI installation and maintenance instructions.
AVAILABLE MODELS:	SI-115
SIZES:	1/2”
CONNECTIONS:	Female screwed ISO 7/1 Rp (BS21)
INSTALLATION:	Horizontal installation.
LIMITING CONDITIONS:	Body design conditions : PN 25 Max. operating pressure : 17 bar Max. recommended water temp: 95 ºC
MATERIALS:	Austenitic stainless steel throughout AISI316 / 1.4401

How to order: i.e. SI-115DN 1/2” BSP



CAPACITY CHART
(With the vessel at atmospheric pressure)



Selection under shadow area is recommended for quietist operation

Example: We require the injection of 230Kg/hr of steam with a pressure of 5,5bar. From the injector capacity chart we see that at 5,5bar the injector will pass 110Kg/hr and 230 divided by 110=2,09.
Two injectors will barely cope, so, we recommend installing three injectors, which will meet the demand.

STEAM - WATER MIXERS
ADCAMIX MX20

DESCRIPTION

The steam/water Adcamix mixers provide cheap, instant source of low pressure hot water by using existing steam and cold water supplies.
The mixer incorporates a safety device to ensure that live steam cannot be accidentally ejected, even if for some reason the cold water supply fails.
The temperature of water at the outlet of the Adcamix is easily controlled by using water and steam valves fitted to the inlets.
Connections are female screwed.

MAIN FEATURES

Safety device against accidentally steam ejection
Non return valves included
Complete stainless steel construction
Quiet operation

OPTIONS: Alternative steam valve if live steam is required, e.g. for sterilisation.

ACCESSORIES:
Stainless steel pedestal.
Adjustable spray gun
Couple of steam/water valves
Hot water/steam hose
Stainless suspension for hose

USE : Saturated steam and cold water.

AVAILABLE MODELS : MX 20
SIZES : 3/4" x 3/4"
CONNECTIONS : Female screwed ISO 7/1Rp (BS21)

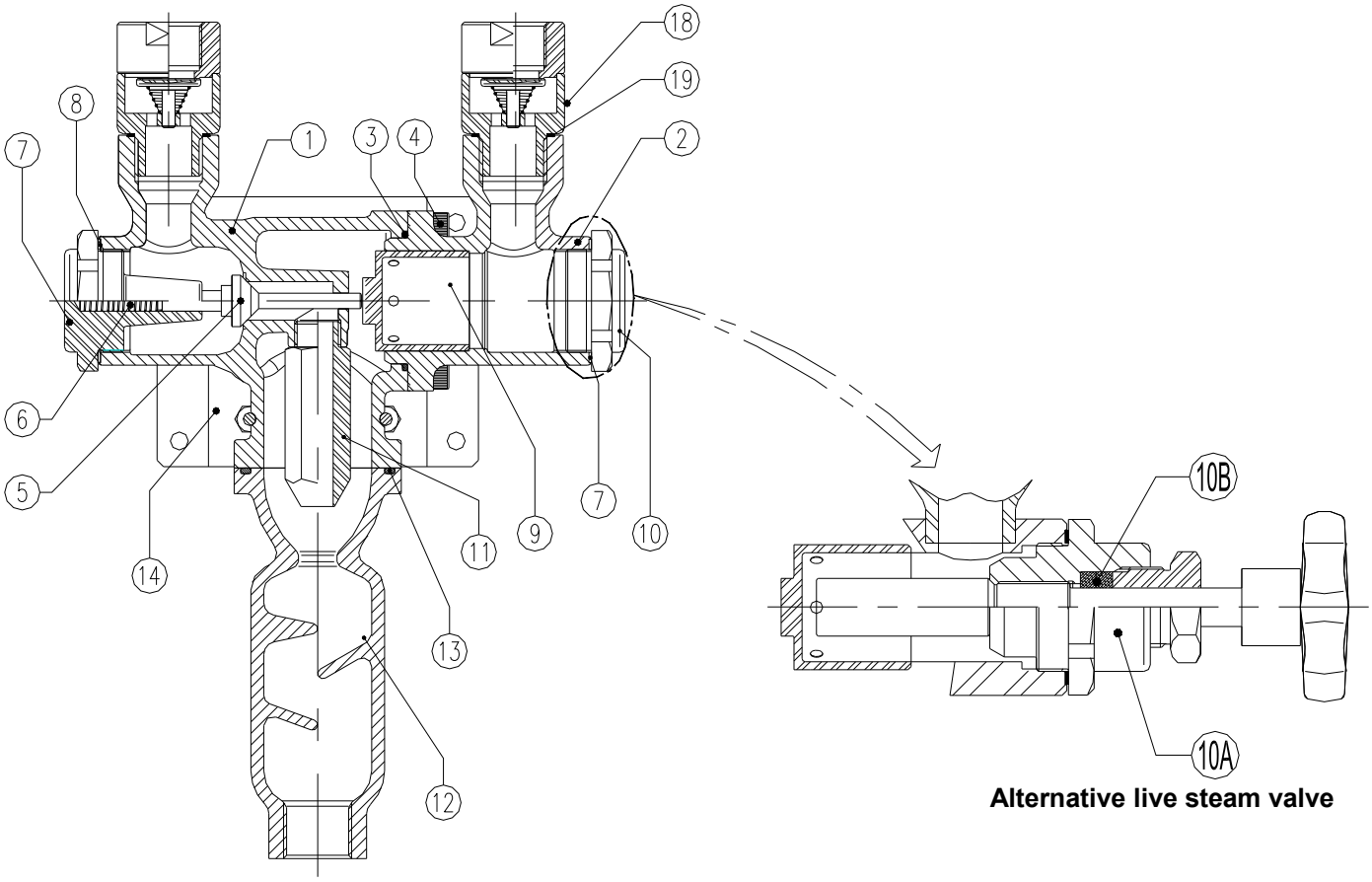
INSTALLATION : Vertical wall installation.
See IMI installation and maintenance instructions.

FLOW RATE CAPACITY - HOT WATER FLOW l/h							
STEAM PRESSURE	***HOT WATER OUTLET TEMPERATURE***						
bar	***40°C***	***50°C***	***60°C***	***70°C***	***80°C***	***90°C***	***95°C***
2,5	1900	1400	1150	900	700	650	600
3	2250	1600	1230	1030	900	800	700
4	2700	2000	1550	1250	1000	850	800
5	3250	2300	1800	1500	1250	900	850
6	3900	2900	2250	1800	1500	1200	1100
7	4200	3100	2400	1950	1600	1300	1200
8	4800	3500	2700	2100	1800	1550	1280
9	5200	3900	3000	2450	2000	1700	1600
10	5900	4100	3250	2700	2250	1900	1750

APPLICATION LIMITS	
Minimum steam pressure	2,5 bar
Maximum steam pressure	10 bar

Steam pressure equal to or no more than 3 times the water pressure.
Water pressure must not be higher than steam pressure.

Produced in accordance with Article 3, paragraph 3 of the PED - European Pressure Equipment Directive - 97/23/EC. **IS 9.800 E 01.14**

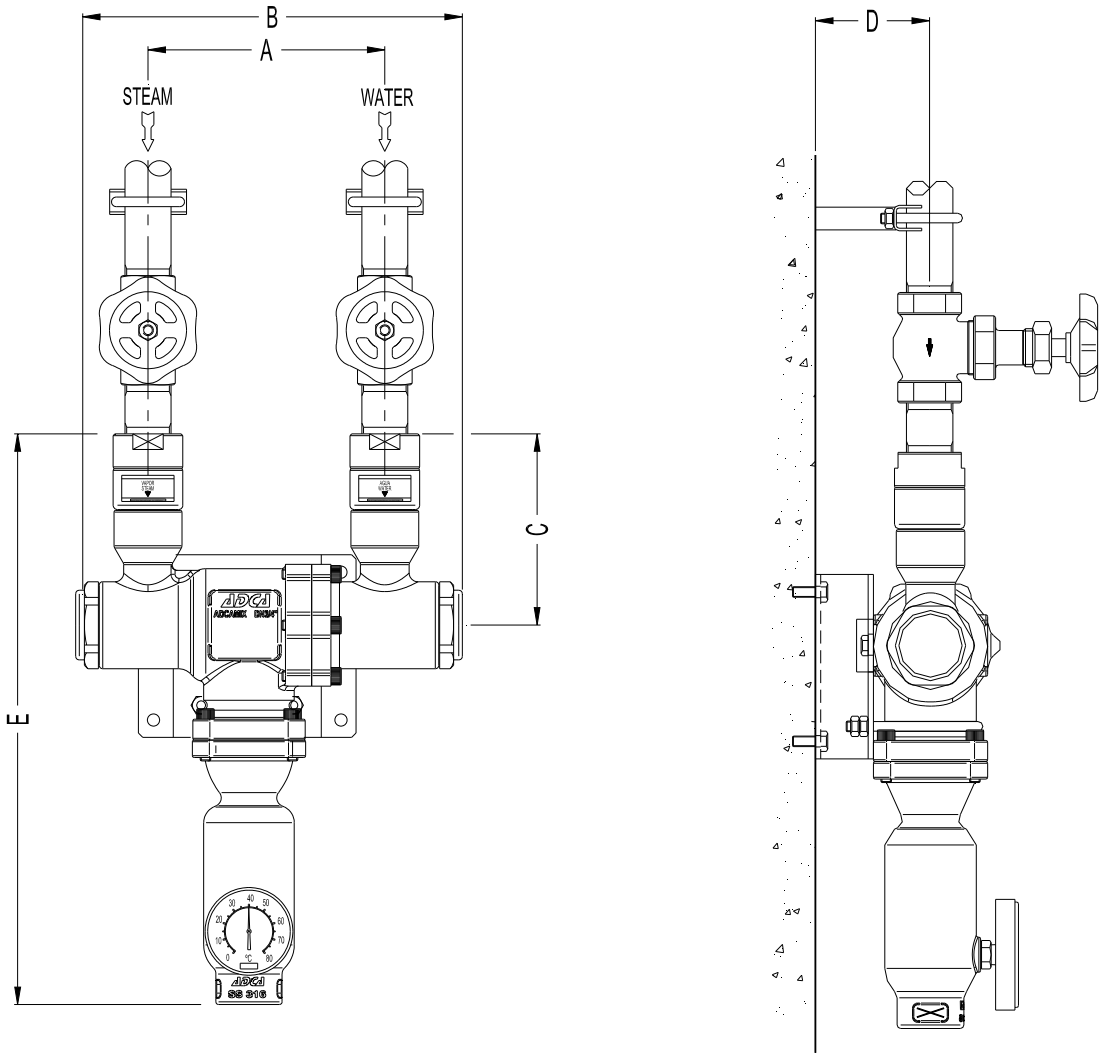


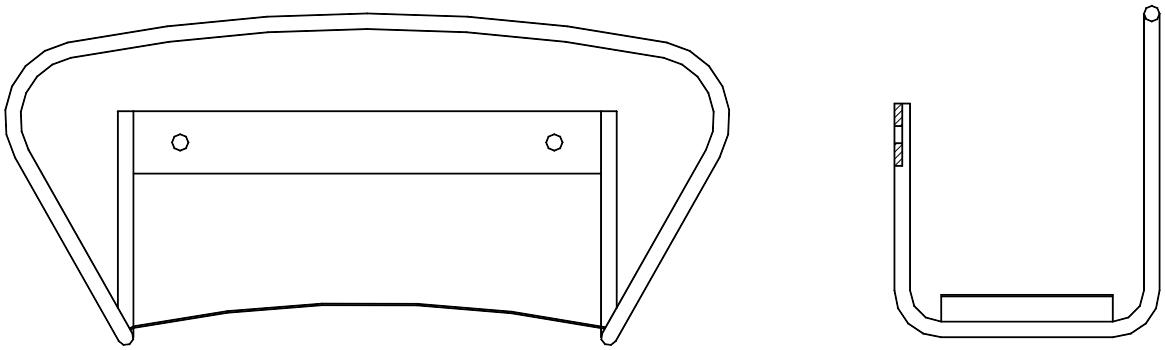
Alternative live steam valve

MATERIALS		
POS.	***DESIGNATION***	***MATERIAL***
1	Steam body	CF8M / 1.4408
2	Water body	CF8M / 1.4408
3	* Gasket	NBR
4	Bolts	A2-70
5	* Steam valve	St.St./Graphite
6	* Valve spring	AISI 302 / 1.4300
7	Steam cover	AISI 316 / 1.4401
8	* Gasket	PTFE
9	* Piston	AISI 316 / 1.4401
10	Water cover	AISI 316 / 1.4401
10A	Steam valve	AISI 316 / 1.4401
10B	* Paking	PTFE
11	Steam nozzle	AISI 316 / 1.4401
12	Mixing chamber	CF8M / 1.4408
13	* Gasket	VITON
14	Support	AISI 304 / 1.4301
18	* Check valve	AISI 316 / 1.4401
19	* Gasket	PTFE

*Available spare parts

VALVE DIMENSIONS (mm)						
DN	***A***	***B***	***C***	***D***	***E***	***Wgt Kg***
3/4"	135	220	110	57,5	330	5,3





Stainless steel suspension for hose

STEAM EQUIPMENT

WATER SAVING JET-SPRAY GUN
ADCAMIX SG20

DESCRIPTION

The SG20 water-saving gun is specially recommended to be used along with the Adcamix MX20 steam to water mixers. By using this gun, water and energy costs can be considerably reduced and it also contributes to the environment protection avoiding the use of chemicals in the cleaning process.

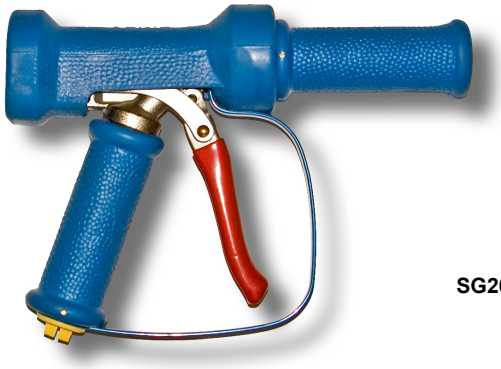
The valve is opened and closed by operating the lever which regulates the flow from a mist to a concentrated jet.

The lock catch facilitates the continuous operation.

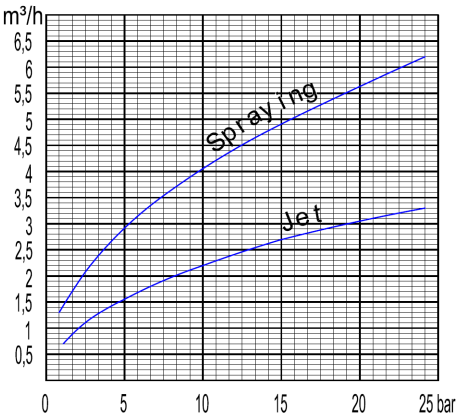
The valve is designed for industrial use, it is extremely robust. It is protected against shock, heat and cold by caustic and acid-resistant rubber cladding.

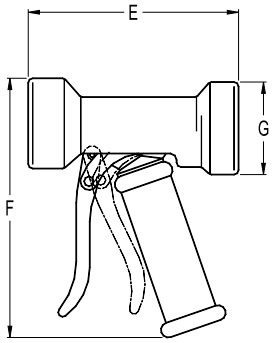
SG20

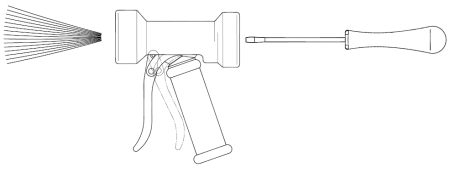
OPTIONS:	Stainless steel valve Different colours against extra price
USE :	Cold and hot water.
AVAILABLE MODELS :	SG20 (+50ºC); SG20H (+95ºC)
SIZES :	½”

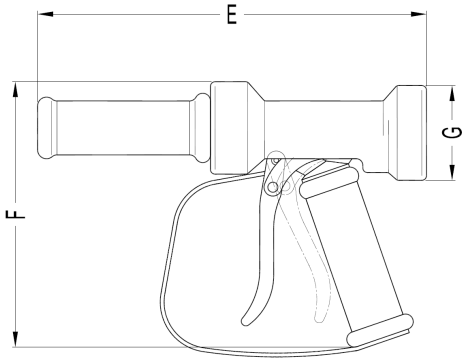


SG20H







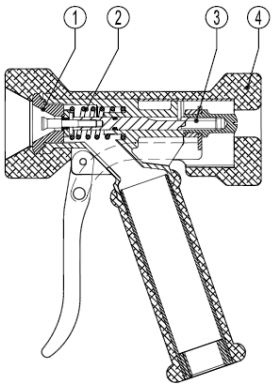


How to adjust the water jet:

-Press the trigger until it stops.

-Turn left with a screwdriver the screw on the opposite side of the water outlet to achieve the desired water jet.

(Hang the spray gun between the trigger and the handle).



MATERIALS		
POS.	***DESIGNATION***	***MATERIAL***
1	Jet	Brass
2	Spring	St.Steel
3	Valve	Brass
4	External protection	Rubber

SPRAY GUN DIMENSIONS (mm)					
MODEL	***DN***	***E***	***F***	***G***	***Wgt Kg***
SG20	1/2"	141	167	62	0,95
SG20H	1/2"	250	167	62	0,98

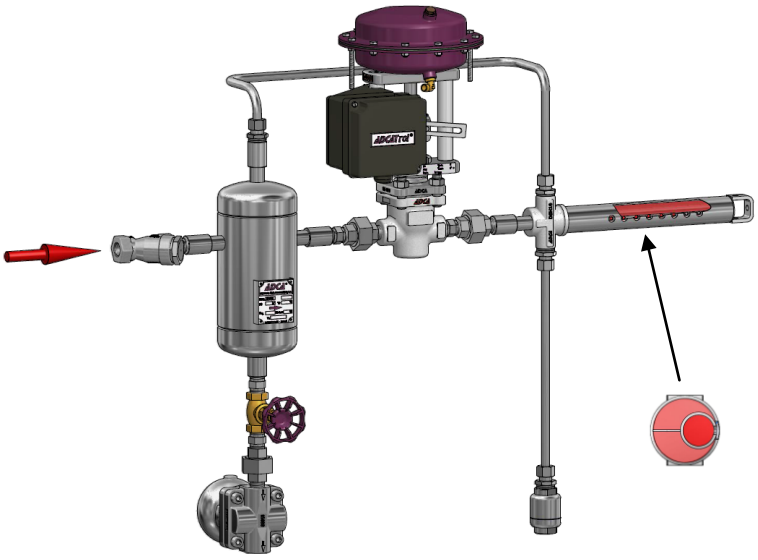
VALSTEAM ADCA

We reserve the right to change the design and material of this product without notice.

DIRECT STEAM INJECTION HUMIDIFIERS
DSH Series

DESCRIPTION

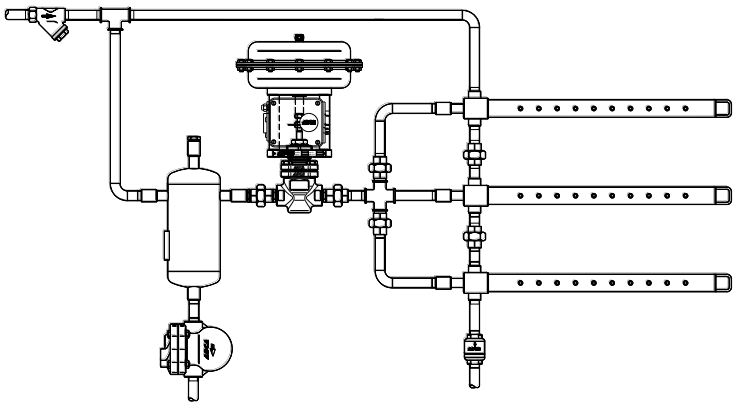
The DSH direct steam injector humidifiers assure highly efficient steam release into the air stream. Each humidifier is designed for your specific capacity, steam pressure and duct width requirements. Single and multiple injection tube units are available to meet the most demanding applications.
High quality control valves and actuators assure accurate response and metering of steam flow, and, we can usually supply the system with your preference valve/actuator combination or we may factory mount them for you.
Connections are female screwed or flanged.



Single tube design

PRINCIPLE OF OPERATION

Single tube and multiple tube humidifiers operate with the same basic design. The steam enters the humidifier separator through the strainer. Separation of the steam and condensate is achieved by the action of our S25 centrifugal separator (special version).Inside the separator, the combination of steam and condensate is directed into the drain baffle and condensate then drains to the bottom of the separator and is removed from the system by a float and thermostatic steam trap.
The steam, free of condensate, then flows out the separator to the injection tube. The steam connection to the outer jacket is recommended to be directly from the steam system in case of multiple tube design and can be taken from the top of the separator in case of single tube design.



Multiple tube design

MAIN FEATURES

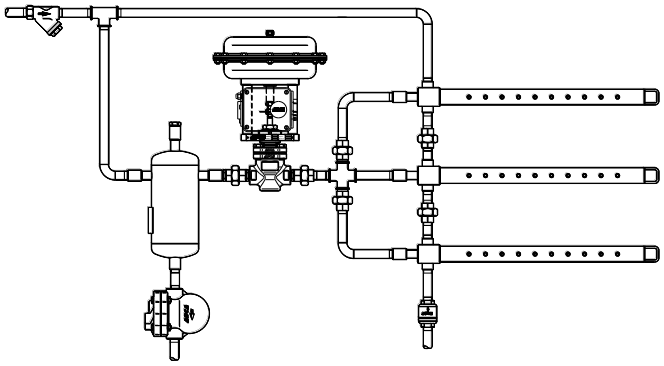
Complete stainless steel injection tube and separator construction.
Quiet operation.

OPTIONS:	Single or multiple tube systems
ACCESSORIES:	Steam traps and strainer.
USE :	Saturated steam.
AVAILABLE MODELS :	DSH15-10; DSH20-20; DSH25-20; DSH 40-30.
SIZES:	DN 1/2” to DN 11/2”
CONNECTIONS:	Female screwed ISO 7/1 Rp (BS21). Flanged connections upon request.
INSTALLATION:	Horizontal installation in horizontal or vertical air ducts. See IMI installation and maintenance instructions.

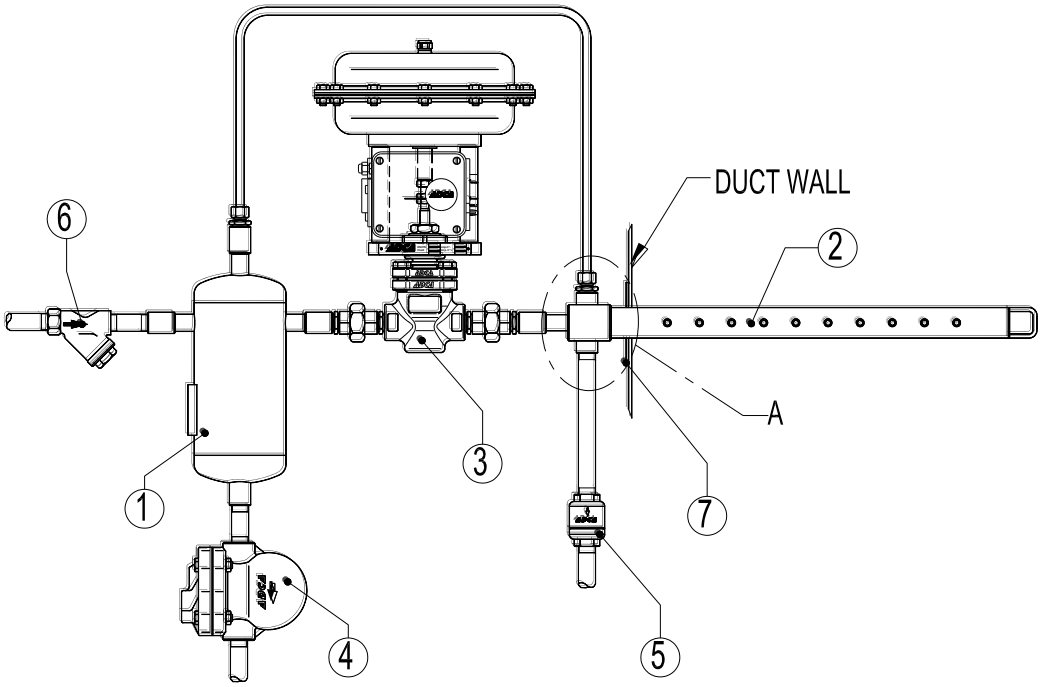
LIMITING CONDITIONS	
Separator body design conditions PN6	
PS - Maximum Allowable Pressure	4 bar
TS - Maximum Allowable Temperature	152 ºC

Minimum operating temp.: -10ºC. Design code: AD-Merkblatt
Other conditions and CE marking on request.

When using multiple tube pipe design, the injection tubes are piped and trapped separately to ensure that the additional resistance created by extra piping does not reduce the steam supply to the humidifier and also to provide extra trap capacity to handle the additional condensate created within the multiple injection tube steam jackets.



MULTIPLE TUBE HUMIDIFIER	
Recommended Quantity of Tubes	
Duct Height (mm)	***Nr. of Tubes***
up to 900	2
920 - 1200	3
1220 - 1800	4
1820 - 2400	5
above 2400	6



MATERIALS		
POS.	***DESIGNATION***	***MATERIAL***
1	STEAM SEPARATOR	STAINLESS STEEL
2	INJECTION TUBE	STAINLESS STEEL
3	* ADCATROL VALVE	ON REQUEST
4	* ADCA FLT STEAM TRAP	ST.STEEL / CAST IRON
5	* ADCA TSS22 STEAM TRAP	STAINLESS STEEL
6	ADCA IS16 STRAINER	CAST IRON
7	FIXING PLATES	STAINLESS STEEL

* Available spare parts.

DIMENSIONS																
MODEL	*DN*	*A*	*ØB*	*C*	*D*	*ØE*	*F*	*ØG*	*H*	*I*	*ØJ*	*L*	*T*	*U*	*V*	*R*
DSH15-10	1/2"	230	114	253	145	1/2"	*	38	76	**	1/2"	M10	100	50	228	19
DSH20-20	3/4"	230	114	248	150	1/2"		51	89		3/4"	M10	110	55	100	25,4
DSH25-20	1"	266	140	250	160	3/4"		51	89		3/4"	M10	110	55	100	25,4
DSH40-30	11/2"	304	168	365	185	3/4"		76	121		11/4"	M10	130	75	120	38,3

* F - Depending from valve selection

** I - Special tube lenghts are available, consult factory for details.

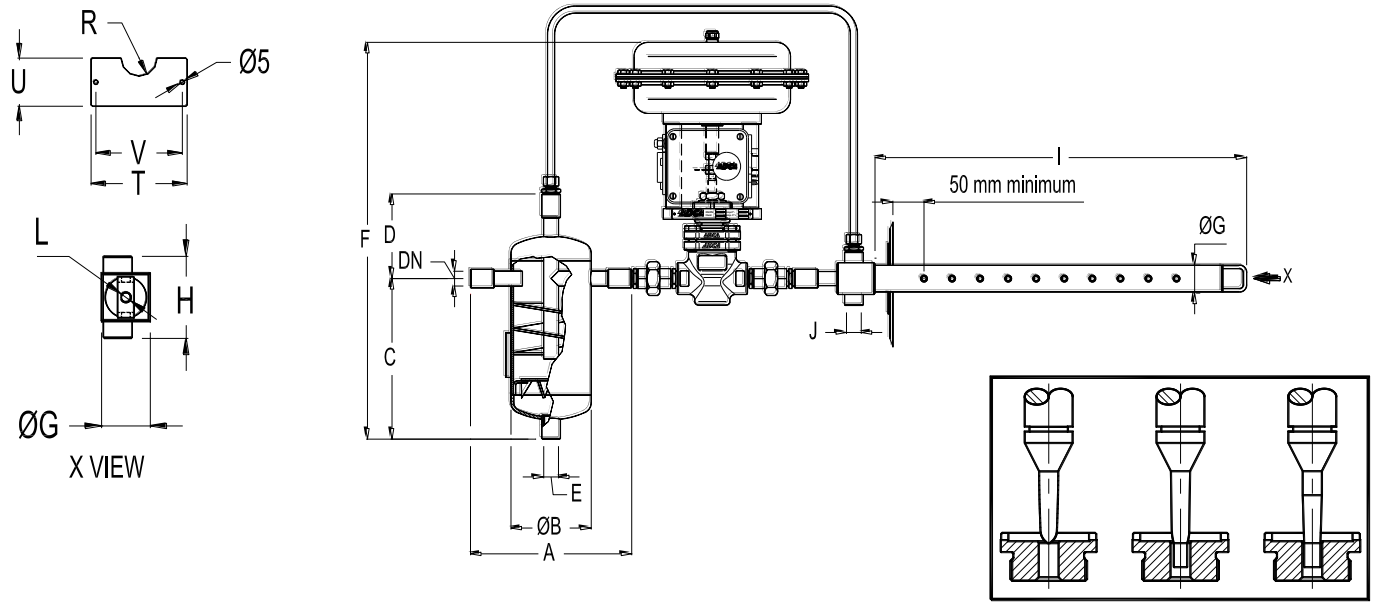
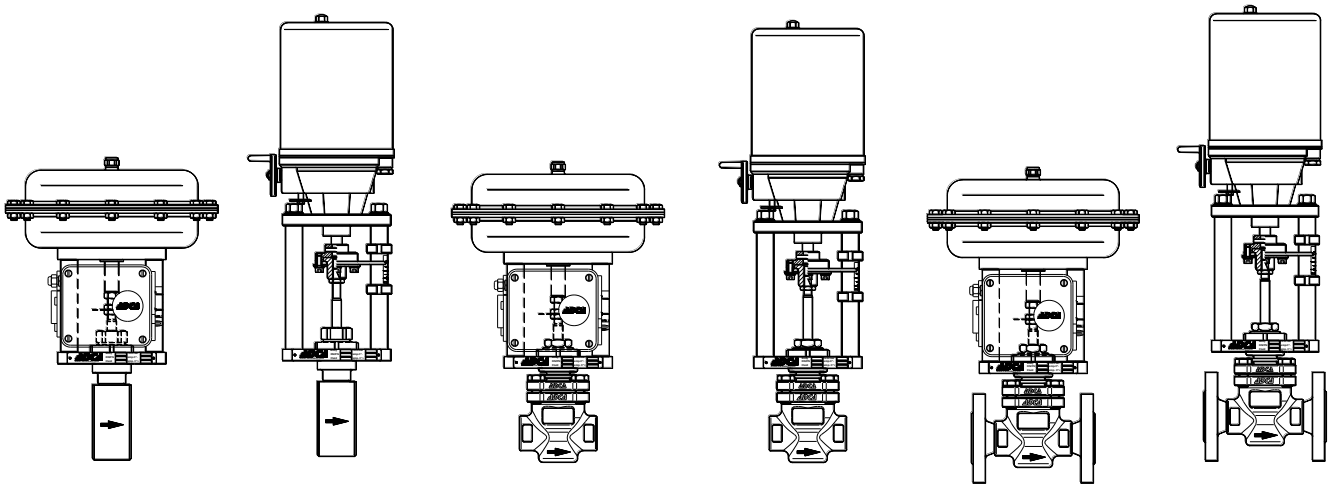


Fig.1

VALVES AND ACTUATORS

Adcatrol line offer a large range of control valve options (Fig.2) for electric or pneumatic fine control, including low flow designs (Fig.1). Please ask for specific documentation according to your selection.



PWV / EWV Wafer type **PV25 / EV25 Threaded** **PV25 / EV25 Flanged**

Fig.2

SELECTION AND CAPACITY TABLES

TABLE 1 - INJECTION TUBE HUMIDIFIER, SEPARATOR / VALVE STEAM CAPACITY IN Kg / h

MODEL	VALVE (Kv - DN)	STEAM PRESSURE TO HUMIDIFIER SUPPLY CONNECTION (in barg)																						
		0,14	0,20	0,27	0,35	0,40	0,48	0,55	0,60	0,68	0,75	0,80	0,90	0,95	1,00	1,35	1,70	2,00	2,40	2,70	3,00	3,50	3,75	4,00
DSH 15	0,09 - 1/2"	0,75	0,85	1	1,2	1,3	1,4	1,5	1,6	1,65	1,75	1,8	1,9	1,95	2	2,3	2,6	2,85	3	3,3	3,5	3,65	3,85	4
	0,19 - 1/2"	1,59	1,9	2,37	2,54	2,81	2,99	3,22	3,45	3,63	3,8	3,9	4	4,4	4,5	4,98	5,9	6,4	6,8	7,3	7,7	8,2	8,6	9
	0,35 - 1/2"	2,9	3,5	4,2	4,5	5	5,5	5,9	6,4	6,8	6,8	7,3	7,3	7,7	8,2	9	10,5	11,4	12,3	13,2	14	15	15,5	16,5
	0,65 - 1/2"	5,5	6,5	7,7	8,6	9,5	10,5	11	11,8	12,5	12,7	13,6	14	14,5	15	17,3	19,5	21,3	22,7	24,5	25,8	27,2	28,6	30
	0,80 - 1/2"	6,8	8,2	9,5	10,9	12,3	13,2	14	15	15,4	16,3	17,3	17,7	18,2	19	21,8	24,5	26,7	29	30,8	32,7	34,5	36,3	38
	1,20 - 1/2"	9,5	10,9	13,2	15	16,3	17,7	19	20	21,3	22,3	23,2	24	25	25,8	30	33,5	36,3	39,5	42,2	45	47,2	49,5	51,7
	1,50 - 1/2"	12,7	15	18,2	20	22,3	23,5	25,4	27,2	28,6	30	31,3	32,6	33,5	34,5	40	44,9	48,5	52,6	56,3	59,8	63	66,3	69,5
	1,90 - 1/2"	15,9	18,6	22,7	25	27,7	30	32,2	34	35,8	37,2	39	40,8	42	43	50,3	55,8	60,8	66,3	70,8	74,8	78,9	83	87
	2,80 - 1/2"	23,5	27,7	33	37,2	40,8	43,5	47,2	49,9	52,6	54,8	57,6	59,8	62,2	63,5	74	82	89,8	97	103,8	110,7	116,6	122,5	128
	3,80 - 1/2"	31,7	37,6	44,5	50	54,8	59	64	67,5	71,2	74	78	80,8	83,9	86	100	110,6	120,7	131,5	140,6	148,8	156,5	164,7	172,8
DSH 20	4,75 - 3/4"	38,5	47	55,8	62,5	68	73	79,8	84,4	88,9	92,5	96,6	100,7	104,8	107	124,8	138,4	151	163	174,6	185	195	204	214
	5,3 - 3/4"	43,5	53	62,5	70,3	76,6	82,5	89,8	95	99,8	104,4	108,9	113,4	117,5	120	140,5	155,6	168,8	182,8	196,9	208	220	230,5	240
	6,5 - 3/4"	52,6	64,5	75,3	84,4	92,5	99,8	108	115	120	125,6	131	137	141,5	145	170	187	204	221	238	251,8	265,4	278,5	290,4
DSH 25	7,00 - 1"	55,8	70,3	81,7	92,5	101,2	108,9	118,4	124,8	131,6	137,5	142	148,8	155	158,4	185	201	221,3	240	258,5	273,5	288	303	319
	8,60 - 1"	68	85,8	99,8	112,5	123	133	143,8	152	160,5	167,8	172,4	181,5	187,8	191,8	225,5	245	267	293	315	331,4	349	367,5	385,5
	10,30 - 1"	81,7	103,5	120	134,3	147,9	159	172	182	191,5	200	207	211	223	230	270	294	324	351	375	397	-	-	-
DSH40	17,20 - 32	136	170	199	224	245	264	286	302	318	334	340	350	369	378	449	481	535	580	624	662	-	-	-
	24,00 - 40	190	232	278	311	343	368	396	420	444	465	473	488	512	528	627	673	743	806	867	927	-	-	-

TABLE 2 - INJECTION TUBE STEAM CAPACITY IN Kg / h

MODEL	STEAM PRESSURE TO HUMIDIFIER SUPPLY CONNECTION (in barg)																							
	0,14	0,20	0,27	0,35	0,40	0,48	0,55	0,60	0,68	0,75	0,80	0,90	0,95	1,00	1,35	1,70	2,00	2,40	2,70	3,00	3,50	3,75	4,00
10	43	52	61	69	76	82	88	95	102	108	114	120	125	131	137	143	149	155	160	166	172	178	184
20	84	100	121	140	154	168	182	197	210	222	235	248	260	273	285	298	311	324	337	349	362	375	387
30	151	189	222	260	300	309	333	357	381	405	429	453	477	501	525	549	573	597	621	645	670	693	718

Model Nomenclature:

DSH15 . 10 . 200 . 1

- 1 — QTY. OF INJECTION TUBES
- 200 — TUBE LENGHT (IN mm)
- 10 — TUBE MODEL
- DSH15 — SEPARATOR MODEL

Example (simple tube) :

Total humidification load 36Kg/h at 1,35 bar
Number of injection tubes required : 1
Duct width : 200 mm
From Table 1 you will see that a Model DSH 15 separator is required with valve Kv = 1,5. From Table 2 you will see that a Model 10 injection tube, at 1,35bar, can emit the required tube humidification load.
The correct model code would be : DSH15.10.200.1
Control valve code if supplied, should be according to the selected model.

Example (multiple tube) :

Total humidification load 180Kg/h at 1,7 bar
Number of injection tubes required : 2
Injection tube humidification capacity : 90 Kg/h
Duct width : 1200 mm
From Table 1 you will see that a Model DSH20 separator is required with valve Kv=6,5.
From table 2 you will see that a Model 10 injection tube, at 1,7bar, can emit the required tube humidification load.
The correct model code would be : DSH20.10.1200.2

EXHAUST HEADS
EH

DESCRIPTION

The EH Exhaust Head is designed to protect the personnel from injury and exterior of buildings from the harmful effects of steam ejection to atmosphere. The head is fitted to the end of a vertical exhaust pipe and thus breaks the beat and muffles the noise of escaping steam whilst effectively retaining the moisture for draining.
Connections are female screwed or flanged.

MAIN FEATURES
Stainless steel separating element.
Quite operation.
Reduces discharge velocity.

OPTIONS: Corrosion protection (metal abrasive blasted, metalized and painted).
Complete stainless steel construction.

USE: Opened vertical steam vent pipes in blowdown vessels, boiler feedtanks, etc.

CAUTION: Not recommended for safety valves outlets.

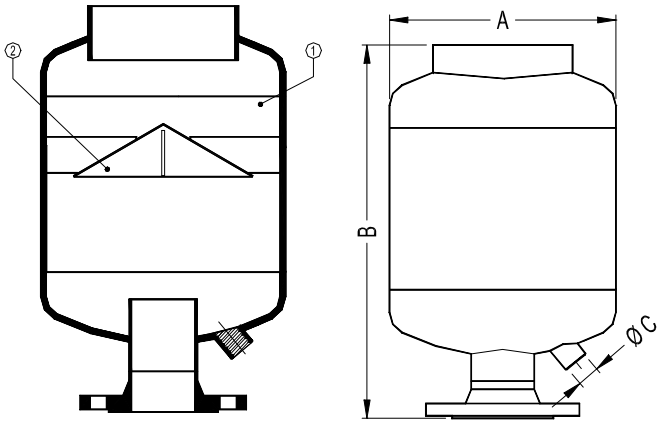
AVAILABLE MODELS: EH/S - carbon steel body.
EH/SZ - metalized and painted.
EH/SS - stainless steel body.

SIZES: Screwed: DN1" to DN4".
Flanged: DN25 to DN150.

CONNECTIONS: Female screwed ISO 7/1Rp(BS21)
Flanged EN 1092-1 PN16 or ANSI Class 150.

INSTALLATION: Vertical installation. The drain should be piped to a safe position.
The exhaust head should be selected so that it is the same nominal size as the vent pipe.

How to order: i.e.EH/S PN16 DN 65



DIMENSIONS (mm)				
FLANGED EN 1092-1				
SIZE DN	*A*	*B*	*C*	*WGT Kg*
25	168	345	1/2"	15
32	168	345	1/2"	16
40	168	400	1/2"	18
50	273	450	3/4"	26
65	273	450	3/4"	28
80	273	495	3/4"	29
100	273	495	1"	33
125	356	525	1"	42
150	356	525	1"	48
200	508	650	11/2"	95
250	508	650	11/2"	110

Note:
Dimensions are subject to change without notice.
Consult factory for certified dimensions.
Other sizes and designs can be supplied under request.

LIMITING CONDITIONS	
PS - Maximum Allowable Pressure	0,5 bar

Minimum operating temp.: -10ºC. Design code: AD-Merkblatt
Other conditions and CE marking on request.

MATERIALS	
DESIGNATION	*MATERIAL*
Body	Carbon steel P235GH / 1.0305
Separating element	Stainless steel AISI304 / 1.4301

FLASH VESSELS
RV

DESCRIPTION

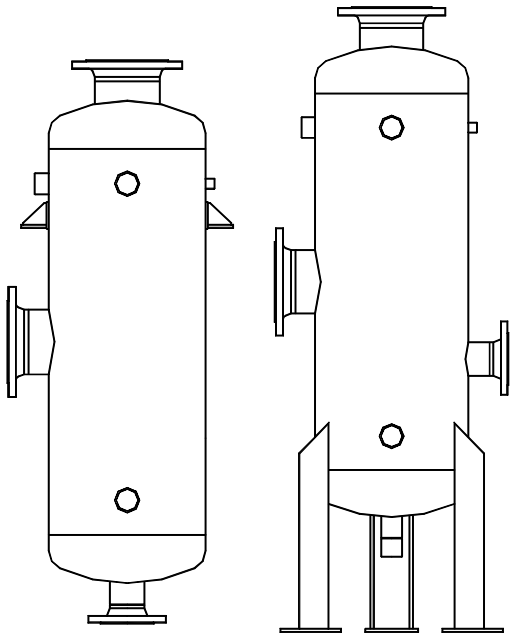
The flash vessel is the main component in any flash recovery system. It can be used in all steam plants where high pressure condensate is reduced to a lower pressure, so that flash steam is formed by re-evaporation. This steam can be used in low pressure process or heating equipments.
Connections are flanged or screwed on request.

MAIN FEATURES

Several possibilities of installation and special sizes and types (available on request).

OPTIONS:	Complete stainless steel construction. Installation supports on body (without supporting feet).
USE:	High pressure condensate. Boiler blowdown heat recovery systems.
AVAILABLE MODELS:	RV…A/S; RV…L/S - carbon steel body. RV…A/SS; RV…L/SS - st. steel body. (A-angle ; L-inline connections)
SIZES:	RV06, RV08, RV12, RV16 and RV18
CONNECTIONS:	Flanged EN 1092-1 PN 16 Special flanges upon request.
INSTALLATION:	Vertical installation. Horizontal condensate inlet and outlet or alternative horizontal inlet and vertical condensate outlet. See AD (Assembling drawing)

CE MARKING		
GROUP 2 GASES CATEGORIES		
RATING	SIZE	CAT.
PN16	RV06	2
	RV08	2
	RV12	3
	RV16	3
	RV18	3



RV…A RV…L

CE Marking: This product have been designed for use on water steam, air and other gases which are in Group 2 of the PED European Pressure Equipment Directive 97/23/EC and it comply with those requirements. The product carries the CE mark when falling in category 1 and above.

SIZING: It is necessary to know the pressure on the steam traps or boiler pressure in the case of blowdown heat recovery, the flash steam pressure (desired or existing) and the condensate or blowdown flow rate.

Auxiliary equipment is recommended such as steam trap, safety valve, pressure gauge, pressure reducing valve, etc.

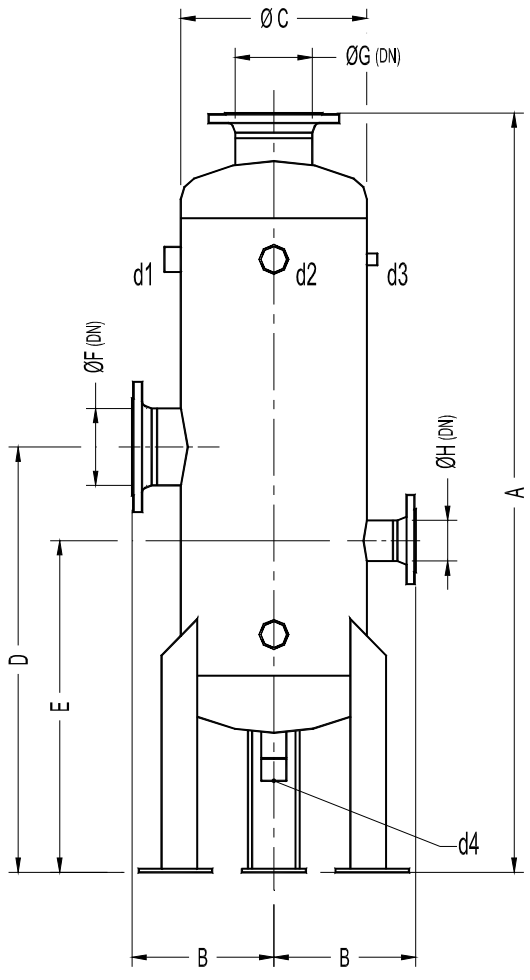
LIMITING CONDITIONS **										
RV						RV/SS					
Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC
PN16	16	50	ANSI Cl.150 lbs	16	50	PN16	16	50	ANSI CL.150lbs	16	50
	14	100		14	100		16	100		16	100
	13 *	195		13 *	195		13*	195		13 *	195
	12	250		-	-		12	250		-	-

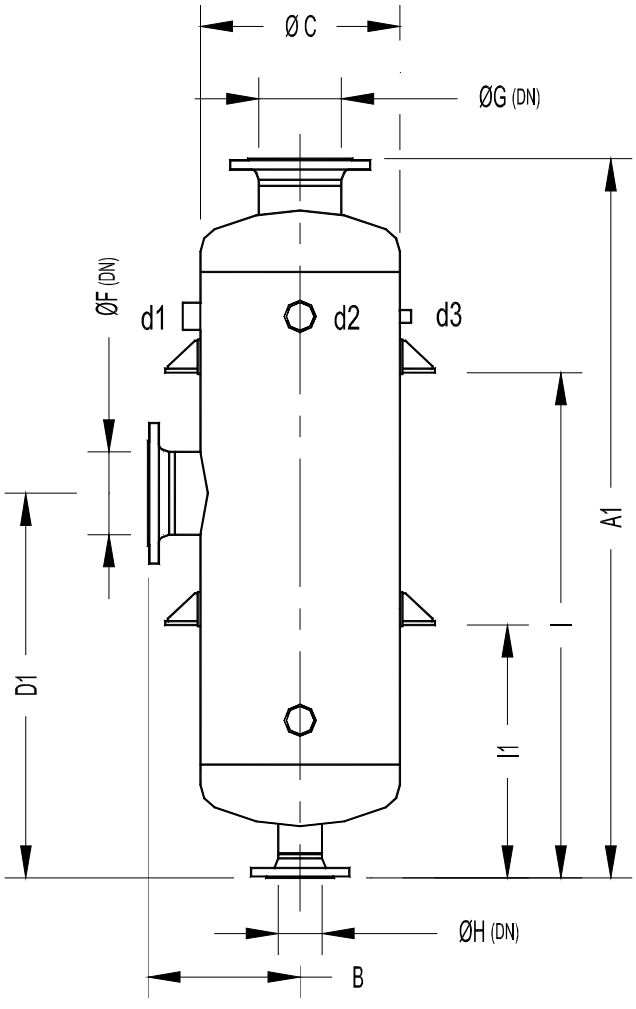
*PMO-Max.operating pressure for saturated steam. Minimum operating temp.: -10ºC. Design code: AD-Merkblatt

** Rating according to EN1092:2007.

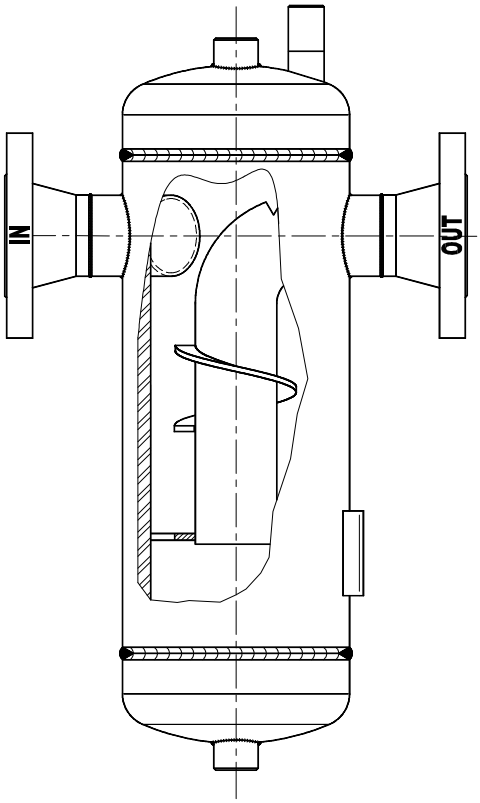
APPROXIMATE DIMENSIONS (mm)																	
FLANGED EN 1092-1 - ANSI																	
MODEL	*A*	*A1*	*B*	*C*	*D*	*D1*	*E*	*F*	*G*	*H*	*I*	*I1*	*d1*	*d2*	*d3*	*d4*	*WGT Kg*
RV 06	1400	1200	185	170	800	600	635	50	50	50	853	-	3/4"	2"	1/2"	1"	80
RV 08	1500	1300	210	220	810	610	645	80	80	50	908	-	1"	2"	1/2"	1"	125
RV 12	1540	1340	265	325	830	630	660	100	100	50	908	-	11/2"	2"	1/2"	1"	195
RV 16	1660	1460	310	410	930	730	725	150	150	80	990	-	11/2"	2"	1/2"	11/2"	290
RV 18	1610	1410	330	460	965	765	755	150	150	80	-	485	2"	2"	1/2"	11/2"	385

Consult factory for certified dimensions. Dimensions subject to change without notice.
Other sizes can be supplied on request.





CENTRIFUGAL AIR AND DIRT SEPARATORS
For liquid systems
AS – AS/F

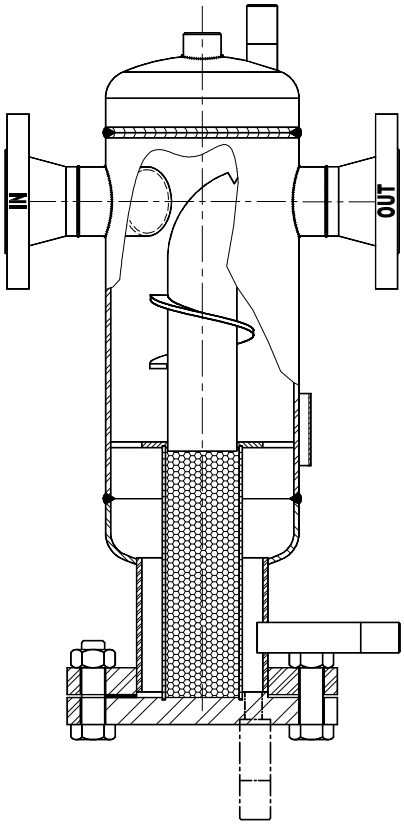


DESCRIPTION

The AS centrifugal air and dirt separators are designed for use in the flow line of a hydronic heater or cooling system. The operation is based on the principle of centrifugal force, instead of relying on low velocity separation, offering the advantage of efficient separation in a smaller vessel.

ADCA AS units provides maximum separation efficiency while minimizing space requirements.
The inside strainer protects against any dirt present in the system such as sand, welding residues, etc. The strainer screen position has a particular advantage compared with external pipe strainers because the dirt is removed from the water flow and is collected in the reservoir bottom avoiding pressure drop increasing.
Connections are female screwed or flanged.

OPTIONS:	Galvanised and complete stainless steel construction.
USE:	To remove air and dirt in hydronic heating, cooling and pumping systems.
AVAILABLE MODELS:	AS/S - carbon steel body. AS/SZ - zinc plated body. AS/SS - stainless steel body AS/SF - carbon steel with strainer
SIZES:	Screwed: DN11/4” to DN2”. Flanged: DN32 to DN300
CONNECTIONS:	Female screwed ISO 7/1Rp(BS21) Flanged EN 1092-1 or ANSI Special flanges upon request.
INSTALLATION:	The AS separators should be installed at the highest temperature and lowest pressure points where solubility is lower. Ideally they should be installed after boilers or heat exchangers, before chillers and before pump suction. Horizontal installation always with the drain discharge pointing downwards. An ADCA AE series air eliminator is recommended to remove the air.



LIMITING CONDITIONS AS/S **										
Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC
PN16	16	50	ANSI Cl.150 lbs	16	50	PN25 ANSI CL.300lbs	25	50	PN40 ANSI CL.300lbs	40	50
	14	100		14	100		23	100		37	100
	13	195		13	195		20	216		31	239
	12	250		-	-		17	300		27	300

LIMITING CONDITIONS AS/SS **										
Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC
PN16	16	50	ANSI Cl.150 lbs	16	50	PN25 ANSI CL.300lbs	25	50	PN40 ANSI CL.300lbs	40	50
	16	100		16	100		25	100		40	100
	13	195		13	195		21	217		32	240
	12	250		-	-		18	300		30	300

Minimum operating temp.: -10ºC. Design code: AD-Merkblatt ** Rating according to EN1092:2007.

CE MARKING - GROUP 2 LIQUIDS CATEGORIES								
RATING	SIZE	CAT.	RATING	SIZE	CAT.	RATING	SIZE	CAT.
PN16	DN32 to DN300	SEP	PN25	DN32 to DN250	SEP	PN40	DN32 to DN200	SEP
	-	-		DN300	1		DN250 to DN300	1

CE Marking: This product has been designed for use on water and other liquids which are in Group 2 of the PED-European Pressure Equipment Directive 97/23/EC and it comply with those requirements. The product carries the CE mark when falling in category 1 and above.

FLANGE CONNECTIONS			
Rating	*Sep. SIZE*	*EN STD.*	*ANSI STD.*
PN16*	DN32 to DN50	EN1092-1 PN40	ANSI B16.5 Cl.150 lbs
PN16	DN65 to DN300	EN1092-1 PN16	ANSI B16.5 Cl.150 lbs
PN25	DN32 to DN150	EN1092-1 PN40	ANSI B16.5 Cl.300 lbs
PN25	DN200 to DN300	EN1092-1 PN25	ANSI B16.5 Cl.300 lbs
PN40	DN32 to DN300	EN1092-1 PN40	ANSI B16.5 Cl.300 lbs

* Flanges EN 1092-1 PN16 and PN40 from DN32 to DN50 has the same number and size of holes.

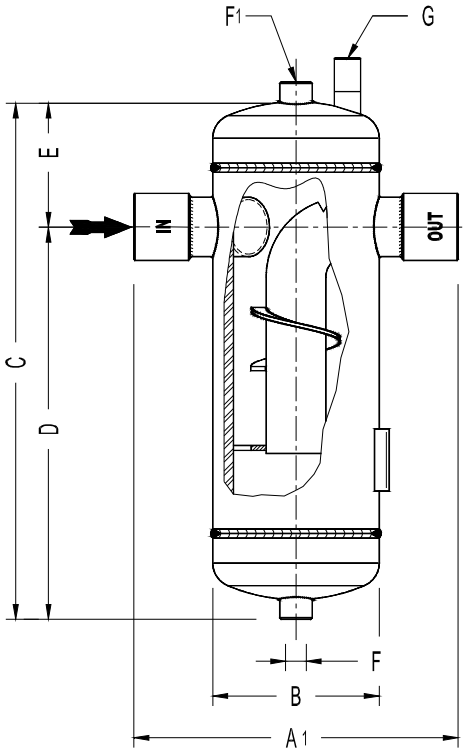
MATERIALS	
DESIGNATION	*MATERIAL*
Body	EN10216-2 / P235GH / 1.0325
Heads	EN10028-2 / P265GH / 1.0425
Inlet / Outlet pipes	EN10216-2 / P235GH / 1.0325
EN Flanges	EN10222-2 / P250GH / 1.0460
ANSI flanges	ASTM A105 / 1.0432
Sockets	ASTM A105 / 1.0432
Internals	EN10025-2 / S235JR / 1.0038
Strainer	AISI304 / 1.4301

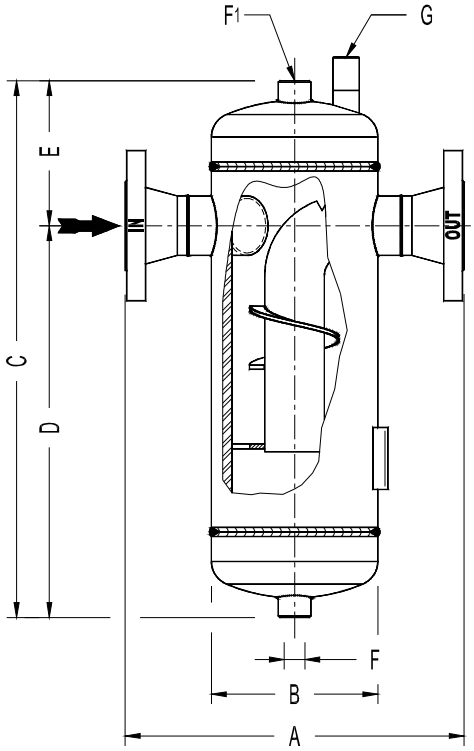
APPROXIMATE DIMENSIONS (mm)																		
FLANGED EN1092-1 - ANSI																		
SIZE DN	*A1 PN16*	*A PN16*	*A PN25*	*A PN40*	*A 150lbs*	*A 300lbs*	*B*	*C*	*C1*	*D*	*D1*	*E*	*F*	*F 1*	*G*	*H*	*VOL. * dm3*	*WGT ** Kg*
32	263	260	260	260	290	306	140	395	495	285	385	110	3/4"	1/2"	1/2"	3/4"	6	13
40	263	260	260	260	294	307	140	435	535	325	425	110	3/4"	1/2"	1/2"	3/4"	6,7	14,3
50	322	310	310	310	341	354	168	505	605	385	485	120	3/4"	1/2"	1/2"	3/4"	11,7	21
65	-	380	394	394	430	442	219	550	670	410	530	140	1"	3/4"	3/4"	1"	19,8	31,5
80	-	400	416	416	440	459	219	610	730	462	582	148	1"	3/4"	3/4"	1"	27	40
100	-	485	511	511	533	553	273	715	835	528	648	187	11/4"	3/4"	3/4"	11/4"	38	59,8
125	-	535	561	561	605	622	324	845	995	630	780	215	11/4"	1"	1"	11/4"	54	84
150	-	585	605	605	635	652	356	962	1112	692	842	270	11/2"	1"	1"	11/2"	79	161
200	-	605	641	657	685	703	406	1170	1320	880	1030	290	11/2"	1"	1"	11/2"	146	202
250	-	720	756	790	784	815	508	1540	1710	1140	1310	400	11/2"	1"	1"	11/2"	288	330
300	-	840	868	914	913	944	610	1700	1870	1172	1342	528	11/2"	1"	1"	11/2"	412	475

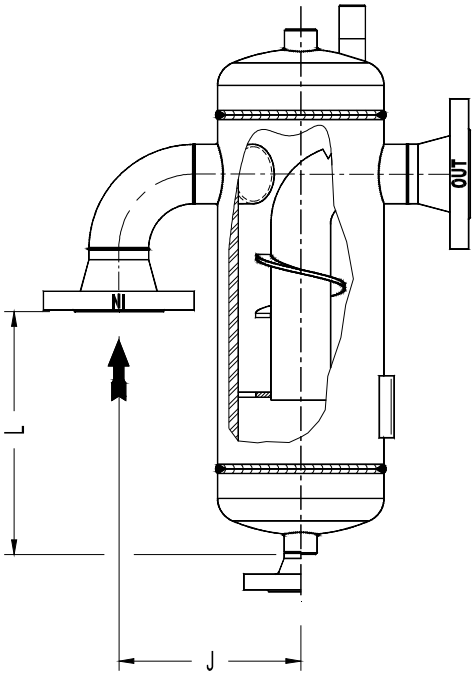
* Volume correspond to the class PN16 AS/F design.Classes PN25 and above may have slightly lower volumes.

** Weight correspond to the class PN16 design.

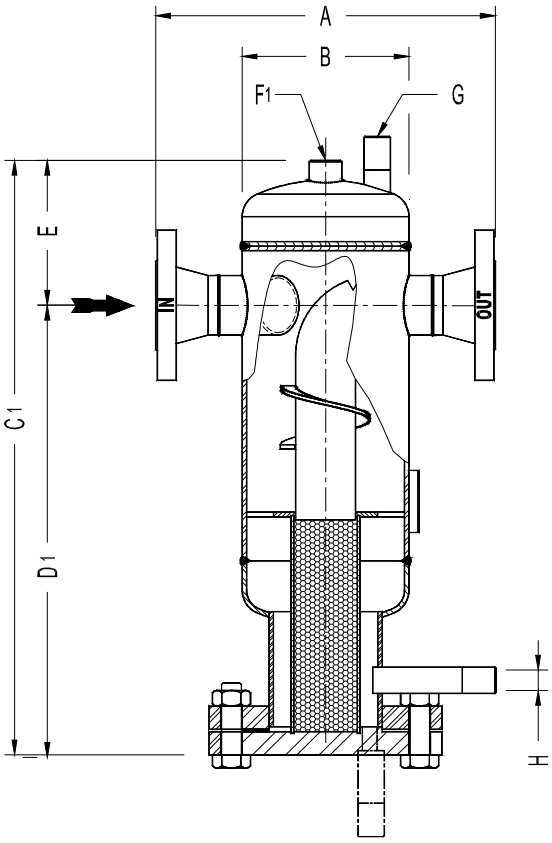
F, F1, H -screwed drain connection as standard.Alternatively can be supplied flanged EN1092-1 or ANSI on the same class of main dimensions. Consult factory for certified dimensions. Dimensions subject to change without notice.







Version EVH



F	Drain connection
F1	Automatic air eliminator connection
G	Manual start up air drain connection
H	Strainer drain connection

ADCATHERM
SHELL AND TUBE & PLATE HEAT EXCHANGERS

DESCRIPTION

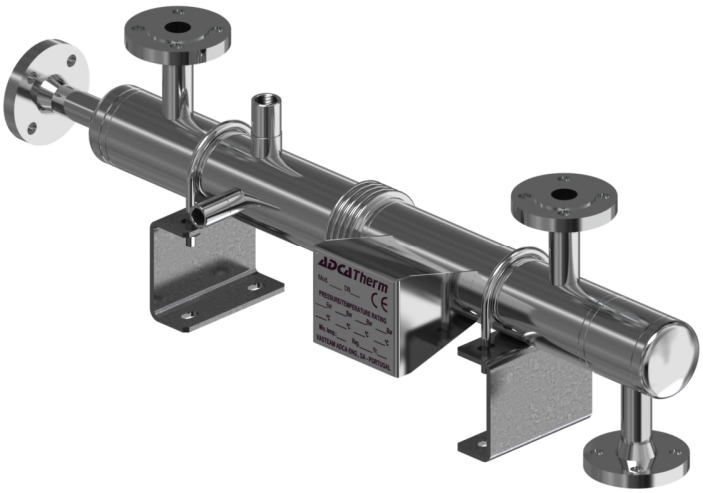
Adcatherm heat exchangers are divided by several lines from the traditional shell and tube to the PHE (plate heat exchangers) and offer solutions for many different industrial heat transfer applications.

MAIN FEATURES

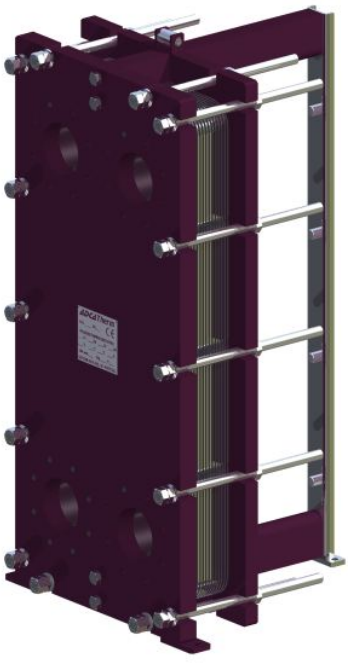
Different kinds of materials and designs available, according to the application.

OPTIONS:	Packaged units, heating coils, special designs
USE:	Steam, water, hot condensate and other fluids compatible with the construction.
AVAILABLE MODELS:	STSH/STSV – Shell and tube sealed STH/STV – Shell and tube bolted PAT – Plate heat exchangers (gasketed and bolted)
ORDER REQUIREMENTS:	Type of fluids and correspondent pressures Flow rates Inlet and outlet temperatures Output

STV



STSH



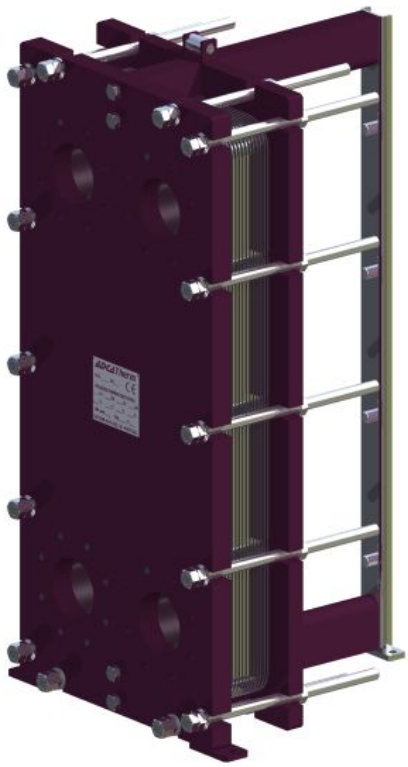
PAT

CE

STEAM EQUIPMENT

ADCATherm

ADCATHERM - PAT Series
Plate heat exchangers



DESCRIPTION
The ADCATHERM PAT – plate heat exchangers (gasketed and bolted), consists of varying number of pressed plates, clamped together between a fixed plate and a movable plate, all assembled in a metal frame.

MAIN FEATURES
Corrosion-resistant stainless steel plates
Highly efficient heat transfer (K-values much higher comparing with shell and tube design)
Less area required for installation
Low liquid content
Additional capacity available by fitting extra transfer plates

OPTIONS : Special designs and materials (titanium, etc).
Brazed construction
Thermal insulation.
Stainless steel frame

USE : Steam, water, hot condensate and other fluids compatible with the construction.

AVAILABLE MODELS: PAT – Bolted plate heat exchanger

CONNECTIONS : Threaded BS21
Flanged according to EN 1092-1 and ANSI B16.5 150#

INSTALLATION: Vertical installation or horizontal on request

ORDER REQUIREMENTS: Hot fluid pressure and temperature
Inlet and outlet cold fluid temperature
Mass flow or heat duty.
See inquiry sheet.

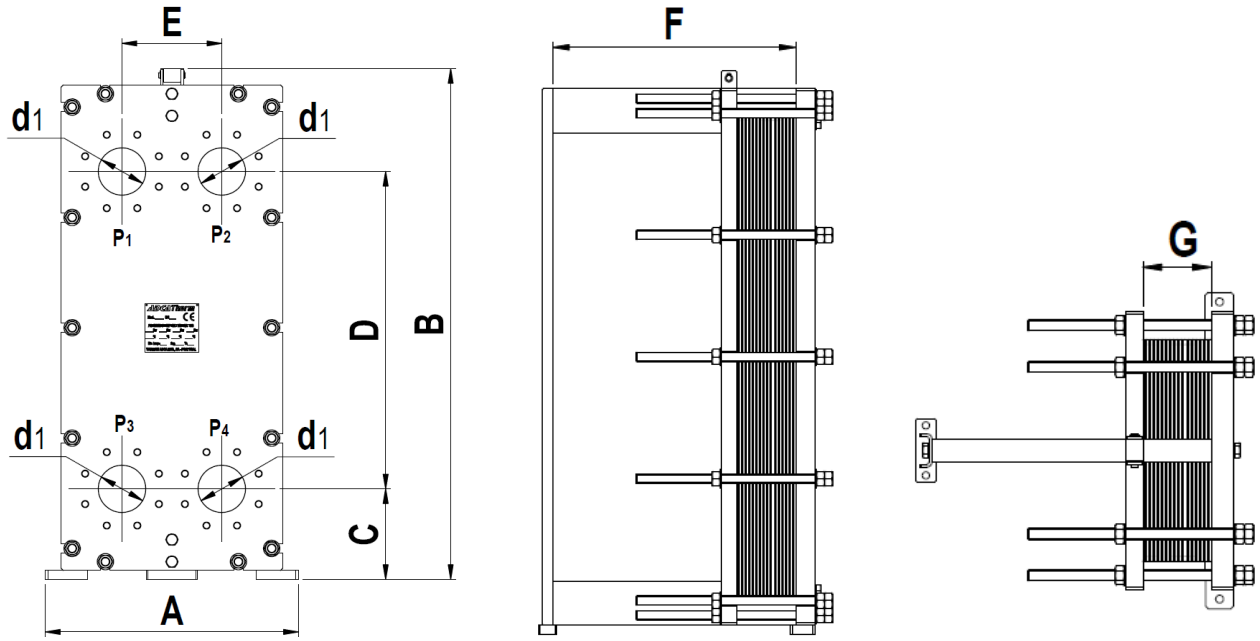
LIMITING CONDITIONS **					
Rating	Sealing Material	Temp. ºC	Rating	Sealing Material	Temp. ºC
PN6 PN10 PN16	NBR	150	PN25	NBR	150
	EPDM	160		EPDM	150
	VITON - S	195*		VITON - S	150

*With special frame design.
Min. Oper. temp.: -20°C. Design code: AD-2000 Merkblatt HP0
** Rating according to EN1092:2007.

MATERIALS	
DESIGNATION	***MATERIAL***
Plates	AISI316L / 1.4404; AISI304 / 1.4301; Titanium ASTM 265 B Grade 1
Frame	P250GH / 1.0460; AISI304 / 1.4301; AISI316 / 1.4401
Gaskets and RubberLiner	NBR; EPDM; VITON - S
Flanges	P250GH / 1.0460; AISI316 / 1.4401
Tightening bolts	AISI304 / 1.4301; AISI316 / 1.4401

EN 10204 3.1 certificate available if requested w ith the order.

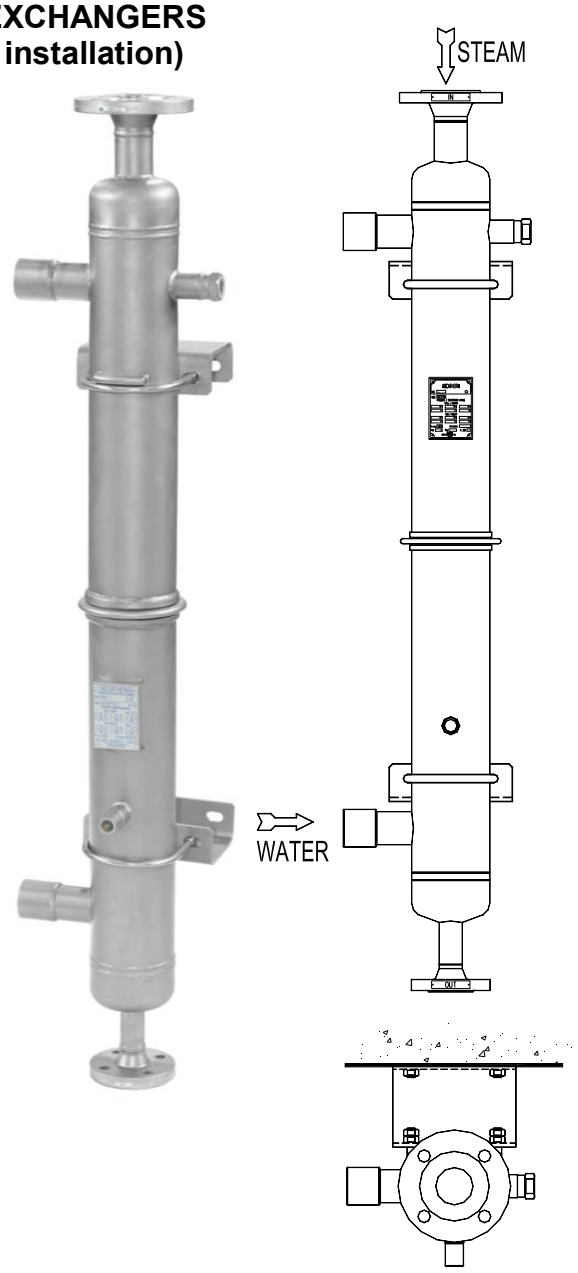
CE Marking :
This product has been designed for use on water and steam which are in Group 2 of the PED-European Pressure Equipment Directive 97/23/EC and it comply with those requirements. The product carries the CE mark when applicable. The CE marking will vary from Cat. I up to Cat. IV, depending on the PAT model, number of plates and pressure ratting. On the smaller sizes it will be SEP, it will not carry the CE marking.



DIMENSIONS											
Model	*PN (bar)*	*A*	*B*	*C*	*D*	*E*	*F**	*G***	*d1*	*W (m2)*	*W1 (m2)*
PAT 05	10 to 16	185	470	45	381	70	250 - 1000	K x 2,7	1"	6	0,04
PAT 09	10 to 16	185	765	45	676	70	250 - 1000	K x 2,7	1"	12	0,08
PAT 10	10 to 25	310	733	128	494	126	250 - 1000	K x 2,9	2"	20	0,1
PAT 16	10 to 25	310	933	128	694	126	250 - 1000	K x 2,9	2"	30	0,16
PAT 22	10 to 25	310	1182	128	894	126	250 - 1000	K x 2,9	2"	45	0,21
PAT 31	10 to 25	480	1332	204	894	225	500 - 3000	K x 3,1	100	150	0,3
PAT 40	10 to 25	480	1579	204	1141	225	500 - 3000	K x 3,1	100	200	0,4
PAT 41	10 to 25	620	1470	225	941	290	500 - 4000	K x 3,5	150	280	0,4
PAT 42	10 to 25	620	1470	225	941	290	500 - 4000	K x 3,1	150	315	0,4
PAT 50	10 to 25	480	1826	204	1388	225	500 - 3000	K x 3,1	100	250	0,5
PAT 60	10 to 25	620	1835	225	1306	290	500 - 4000	K x 3,5	150	420	0,6
PAT 62	10 to 25	620	1835	225	1306	290	500 - 4000	K x 3,1	150	450	0,6
PAT 70	10 to 25	760	1740	285	1130	395	500 - 4000	K x 3,1	200	355	0,7
PAT 71	10 to 25	480	2320	204	1882	225	500 - 3000	K x 3,1	100	350	0,7
PAT 80	10 to 25	620	2200	225	1671	290	500 - 4000	K x 3,5	150	560	0,8
PAT 81	6 to 25	980	1930	365	1100	480	1780 - 5280	K x 3,7	300	640	0,8
PAT 82	10 to 25	620	2200	225	1671	290	500 - 4000	K x 3,1	150	600	0,8
PAT 100	10 to 25	760	2100	285	1490	395	500 - 4000	K x 3,1	200	700	1
PAT 112	10 to 25	620	2687	225	2157	290	500 - 4000	K x 3,1	150	840	1,15
PAT 120	6 to 25	980	2320	365	1490	480	1780 - 5280	K x 3,7	300	960	1,2
PAT 130	10 to 25	760	2460	285	1850	395	500 - 4000	K x 3,1	200	910	1,3
PAT 150	6 to 16	1370	2500	480	1466	672	1980 - 5980	K x 4,0	500	1600	1,5
PAT 160	6 to 25	980	2710	365	1879	480	1780 - 5280	K x 3,7	300	1280	1,6
PAT 190	6 to 25	980	3100	365	2267	480	1780 - 5280	K x 3,7	300	1520	1,9
PAT 200	6 to 16	1370	2855	480	1822	672	1980 - 5980	K x 4,0	500	1600	2
PAT 205	10 to 25	480	1160	204	719	225	500 - 2500	K x 3,1	100	105	0,21
PAT 250	6 to 16	1370	3211	480	2178	672	1980 - 5980	K x 4,0	500	2000	2,5
PAT 300	6 to 16	1370	3567	480	2534	672	1980 - 5980	K x 4,0	500	2400	3
PAT 405	10 to 25	760	1380	285	770	395	500 - 4000	K x 3,1	200	300	0,41

*Minimum and maximum possible measures; **Distance between frames: K=number of plates; W – Maximum total surface area (m2).
W1 – Surface area per plate (m2); d1 to d4 connections sized according with the flow conditions.
Consult factory for certified dimensions and weight. Other sizes and designs can be supplied under request.
The pipe connections are sized considering the correct thermal insulation possibility .The insulation it's not included but it is recommended to be done after the installation.

ADCATHERM – STS Series
SHELL AND TUBE HEAT EXCHANGERS
(Steam to water – Vertical installation)



DESCRIPTION
The ADCA-STS series steam to water shell and tube heat exchangers are shorter and lighter than the alternative shell and tube exchangers manufactured with smooth pipes. The use of extruded low fin tube has the advantage that it can improve the external surface and thermal performance.

MAIN FEATURES
Corrosion-resistant stainless steel low finned tube bundle and shell construction.
Straight tubes for easy cleaning.
Expansion bellow in the shell avoiding excessive tube stresses caused by thermal expansion and contraction.

OPTIONS:	Horizontal installation
USE:	Steam, water, hot condensate and other fluids compatible with the construction.
AVAILABLE MODELS:	STSV – Vertical installation STSH – Horizontal installation (optional)
INSTALLATION:	Vertical or horizontal (different condensate heads execution).
ORDER REQUIREMENTS:	Steam pressure and temperature Inlet and outlet water temperature Water mass flow or heat exchanged.

CE Marking :
This product have been designed for use on water and steam which are in Group 2 of the PED-European Pressure Equipment Directive 97/23/EC and it comply with those requirements.
The product carries CE mark.

CE MARKING - GROUP 2 GASES CATEGORIES			
RATING	**MODEL**	**CATEGORY Tube side**	**CATEGORY Shell side**
PN 16	STSV 3.075 to 8.150	1	SEP

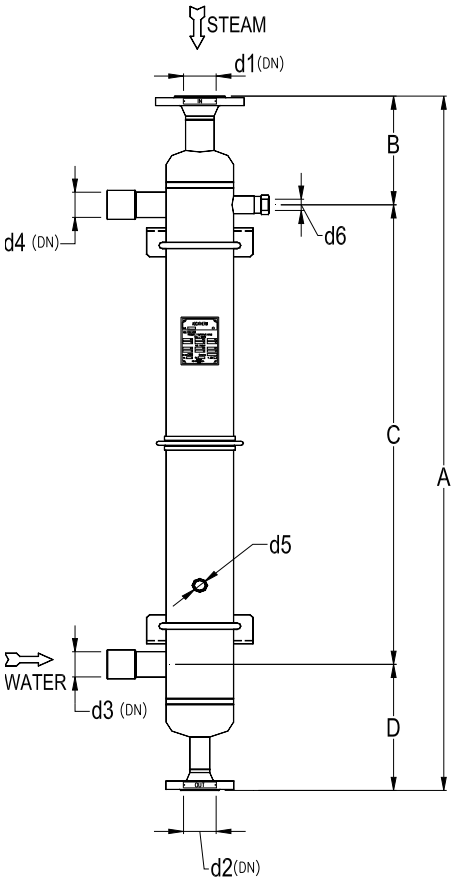
LIMITING CONDITIONS (Tube and shell)**					
Rating	**Press. bar**	**Temp. ºC**	**Rating**	**Press. bar**	**Temp. ºC**
PN16	16	50	ANSI CL.150lbs	16	50
	16	100		16	100
	13 *	195		13 *	195
	12	250		-	-

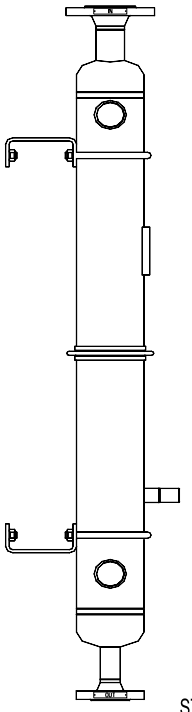
*PMO-Max.operating pressure for saturated steam.
Minimum operating temp.: -10°C. Design code: AD-Merkblatt
** Rating according to EN1092:2007.

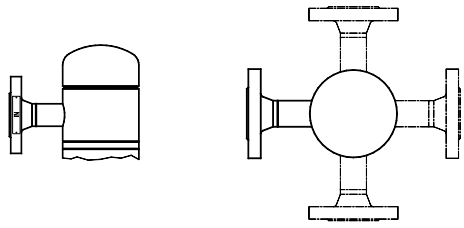
MATERIALS	
DESIGNATION	***MATERIAL***
Tube bundle	AISI316L / 1.4404
Tubesheet	AISI316L / 1.4404
Heads and shell	AISI316L / 1.4404
Inlet / Outlet pipes	AISI316L / 1.4404
EN flanges	AISI316L / 1.4404
ANSI Flanges	AISI316L / 1.4404
Sockets	AISI316L / 1.4404
Suports	AISI304 / 1.4301

EN 10204 3.1 certificate available if requested with the order.

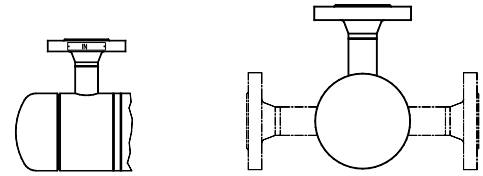
CE

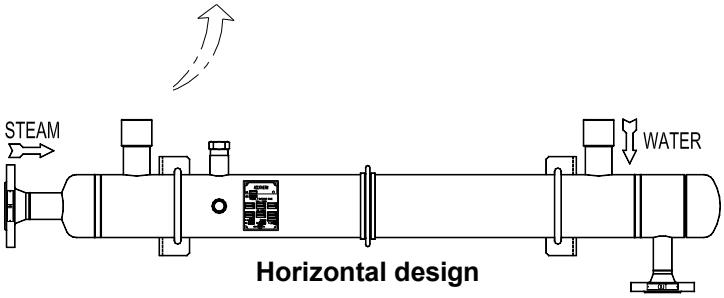




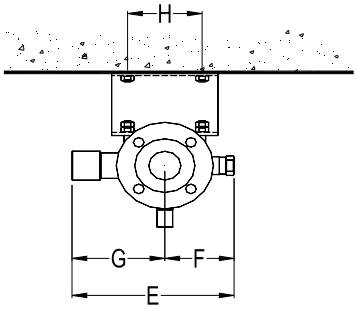


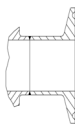
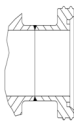
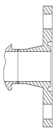
Alternative steam inlets





Horizontal design



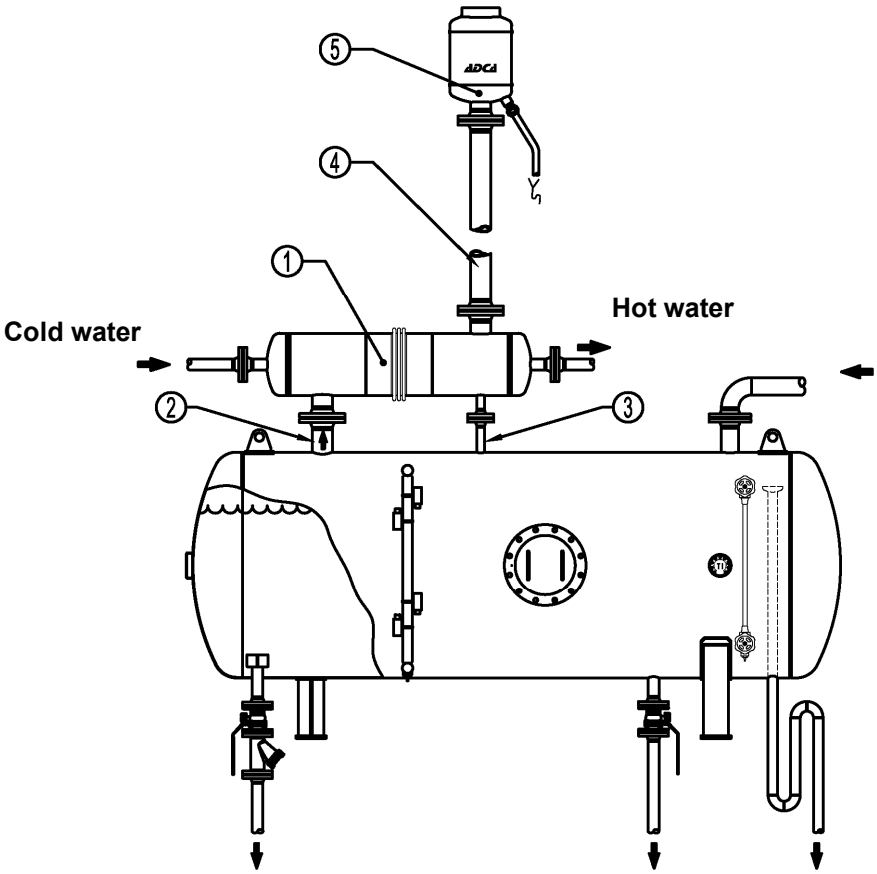
Alternative connections		
Clamp	*Round thread*	*Flange*
		

Different designs and dimensions on request.

Model	DIMENSIONS													
	A	B	C	D	E	F	G	H	d1*	d2*	d3*	d4*	d5	d6
STSV 3.075	1048	225	590	225	250	105	145	110	40	25	11/2"	11/2"	1/2"	3/4"
STSV 3.100	1290	225	840	225	250	105	145	110	40	25	11/2"	11/2"	1/2"	3/4"
STSV 3.150	1790	225	1340	225	250	105	145	110	40	25	11/2"	11/2"	1/2"	3/4"
STSV 4.075	1070	240	590	240	274	117	157	126	40	25	11/2"	11/2"	1/2"	3/4"
STSV 4.100	1320	240	840	240	274	117	157	126	40	25	11/2"	11/2"	1/2"	3/4"
STSV 4.150	1820	240	1340	240	274	117	157	126	40	25	11/2"	11/2"	1/2"	3/4"
STSV 5.075	1090	250	590	250	300	130	170	151	50	40	2"	2"	1/2"	3/4"
STSV 5.100	1340	250	840	250	300	130	170	151	50	40	2"	2"	1/2"	3/4"
STSV 5.150	1840	250	1340	250	300	130	170	151	50	40	2"	2"	1/2"	3/4"
STSV 6.075	1120	265	590	265	330	145	185	181	65	40	2"	2"	1/2"	3/4"
STSV 6.100	1370	265	840	265	330	145	185	181	65	40	2"	2"	1/2"	3/4"
STSV 6.150	1870	265	1340	265	330	145	185	181	65	40	2"	2"	1/2"	3/4"
STSV 8.075	1150	280	590	280	380	170	210	231	80	50	21/2"	21/2"	1/2"	3/4"
STSV 8.100	1400	280	840	280	380	170	210	231	80	50	21/2"	21/2"	1/2"	3/4"
STSV 8.150	1900	280	1340	280	380	170	210	231	80	50	21/2"	21/2"	1/2"	3/4"

* Connections shown are only indicative. Final sizes will be attributed after order and considering the effective flow rates.

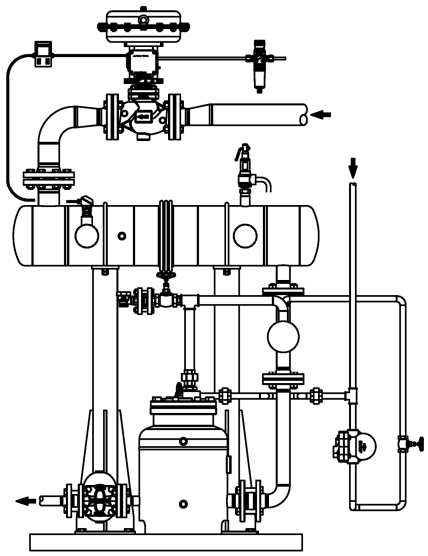
TYPICAL INSTALLATION AS FLASH STEAM VENT CONDENSER
(Steam to the shell)



POS.	MATERIALS
1	STS Heat exchanger
2	Receiver vent
3	Drain (condensate)
4	Vent to atmosphere
5	EH - Exhaust head

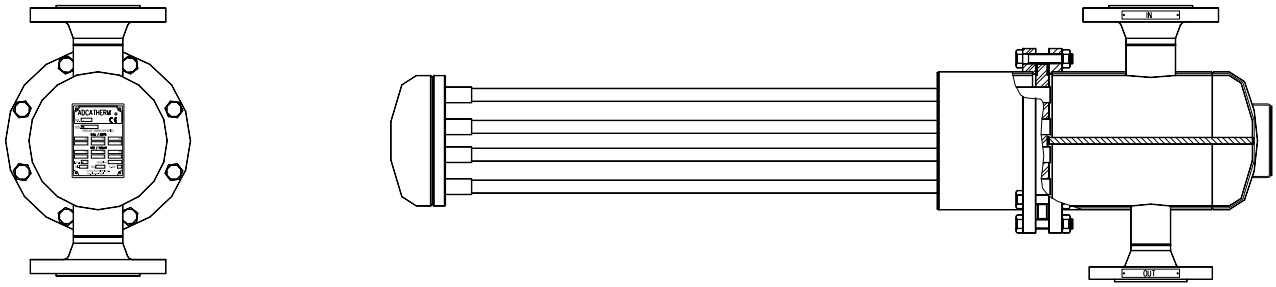
Flash steam vents energy recovery. When heating water or another process fluid using this steam which is normally wasted, both boiler operation period and energy consumption are reduced, consequently reducing also the pollution emissions.

TYPICAL INSTALLATION AS A PART OF “PWHU”
(Packaged Water Heating Unit)



The PWHU unit allows several options for the preparation of hot water for consumption or heating. It can be supplied complete with the feed water system, expansion and recirculation for closed circuit operation, or simply prepared to supply process hot water.
For drawing simplifying purposes some components and accessories have been omitted.

ADCATHERM - R Series
Tubular Heating Coils
(Steam to water)



DESCRIPTION

The ADCA-R series steam to water tubular heating coils, are shorter and lighter than the alternative tubular heating coils manufactured with smooth pipes. The use of extruded low fin tube, has the advantage that it can improve the external surface and thermal performance.

MAIN FEATURES

Corrosion-resistant stainless steel low finned tube bundle construction.
Straight tubes for easy cleaning.
Floating head at the end of the tube bundle, avoiding tube stresses caused by thermal expansion and contraction.

OPTIONS : Special designs.

USE : Steam, water, hot condensate and other fluids compatible with the construction.

AVAILABLE MODELS: R5, R6, R8 and R10

CONNECTIONS : Flanged according to EN 1092-1 or ANSI standards.
Screwed on request.

INSTALLATION: Horizontally on vertical or horizontal vessels.
Steam runs inside the tubes and process water outside.

ORDER REQUIREMENTS: See inquiry sheet.

CE Marking :
This product has been designed for use on water and steam which are in Group 2 of the PED-European Pressure Equipment Directive 97/23/EC and it comply with those requirements. The product carries the CE mark.

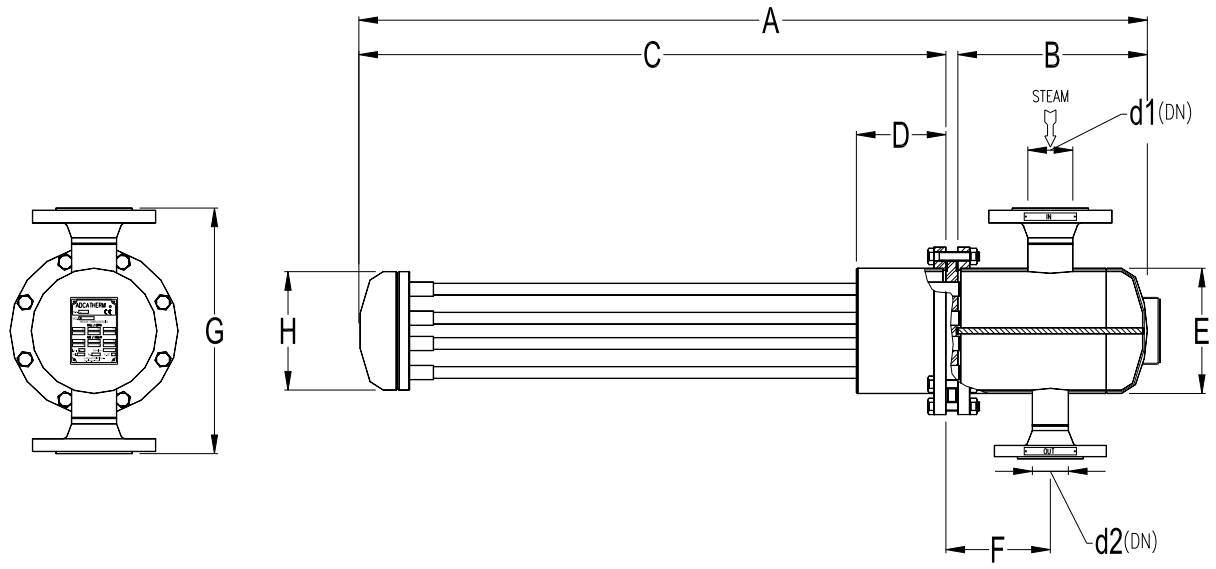
LIMITING CONDITIONS **					
Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC
PN16	16	50	ANSI Cl.150 lbs	16	50
	14	100		14	100
	13 *	195		13 *	195
	12	250		-	-

*PMO-Max.operating pressure for saturated steam.
Minimum operating temp.: -10ºC. Design code: AD-Merkblatt
** Rating according to EN1092:2007.

MATERIALS	
DESIGNATION	*MATERIAL*
Tube bundle	AISI316L / 1.4404
Tubesheet	AISI316 / 1.4401
Heads	S235 JRG2 / 1.0038 ; P235GH / 1.0305
Inlet / Outlet pipes	P235GH / 1.0305
EN flanges	P250GH / 1.0460
ANSI Flanges	ASTM A105 / 1.0432
Sockets	ASTM A105 / 1.0432
Suports	S235 JRG2 / 1.0038

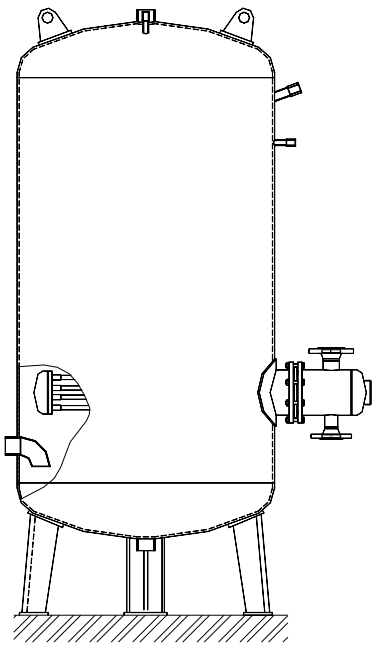
EN 10204 3.1 certificate available if requested with the order.

CE MARKING - GROUP 2 GASES CATEGORIES		
RATING	MODEL	CAT.
PN16	R5.075 to R5.150	1
	R6.075 to R6.150	1
	R8.075 to R8.150	2
	R10.075 to R10.150	2

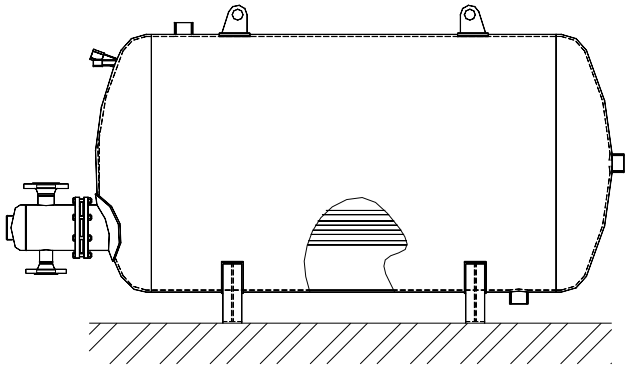


DIMENSIONS										
Model	***A***	***B***	***C***	***D***	***E***	***F***	***G***	***H***	***d1***	***d2***
R5.075	1010	234	762	120	139	145	340	128	40	25
R5.100	1260	234	1012	120	139	145	340	128	40	25
R5.150	1760	234	1512	120	139	145	340	128	40	25
R6.075	1040	254	770	120	168	145	368	157	65	40
R6.100	1290	254	1020	120	168	145	368	157	65	40
R6.150	1790	254	1520	120	168	145	368	157	65	40
R8.075	1060	264	780	130	220	145	420	204	80	50
R8.100	1310	264	1030	130	220	145	420	204	80	50
R8.150	1810	264	1530	130	220	145	420	204	80	50
R10.075	1097	304	775	130	273	145	473	257	80	50
R10.100	1347	304	1025	130	273	145	473	257	80	50
R10.150	1847	304	1525	130	273	145	473	257	80	50

d1 and d2 connections sized according with the flow conditions.
Dimensions are subject to change without notice.
Since each coil is built to suit specific plant requirements please consult factory for certified dimensions and weight.
Other sizes and designs can be supplied under request.



Vertical vessel



Horizontal vessel

HEATING COILS FAX INQUIRY

Please send the inquiry for your *AdcaTherm* steam to water heating coil (for existing vessels) with the following parameters:

STORAGE HOT WATER VESSELS – CLOSED TYPE		
	TUBE SIDE	VESSEL SIDE
FLUID	SATURATED STEAM	WATER
OPERATING PRESSURE	bar	bar
INITIAL TEMPERATURE	----------	° C
FINAL TEMPERATURE	----------	° C
VESSEL CAPACITY	----------	Kg or m3
RECOVERY PERIOD (In minutes)	‘	
HEAT EXCHANGED (Option)	KW or	Kcal/h
VESSEL TYPE (Please select)	HORIZONTAL	VERTICAL
AVAILABLE DIMENSIONS (Send a sketch)	Straight length mm	Diameter mm

Remarks : A coil in a cylindrical vertical vessel should be as close to but not exceeding the diameter of the vessel as possible. A coil in a horizontal vessel is typically approximately 2/3 the length of the vessel

SEMI – INSTANTANEOUS HOT WATER HEATER	
If the vessel is also operating as semi-instantaneous hot water heater, please confirm :	
HOT WATER CONSUMPTION	m3
INCOMING COLD WATER TEMPERATURE	° C
DESIRED HOT WATER TEMPERATURE	° C
LENGTH OF TIME (IN MINUTES)	‘

INSTANTANEOUS HOT WATER HEATER	
If the vessel is also operating as instantaneous hot water heater, please confirm:	
HOT WATER CONSUMPTION	m3/h
INCOMING COLD WATER TEMPERATURE	° C
DESIRED HOT WATER TEMPERATURE	° C

Remarks: If the instantaneous hot water consumption is greater than three times the storage capacity of the vessel, then the heating coil may be baffled to allow for an integral pump to force circulate water over the heating coil. We may also recommend the vessel capacity. In this case please supply all the consumption details such as quantity of water and temperatures.

Your company name:	
Contact :	
Address :	
Country :	
Tel.:	Fax.:
E-mail:	Web-page:

ADCA
STEAM EQUIPMENT

ADCATherm

ADCATHERM - STH Series
Shell and Tube Heat Exchangers
(Steam to water - Horizontal installation)

DESCRIPTION

The ADCA-ST series steam to water shell and tube heat exchangers are shorter and lighter than the alternative shell and tube exchangers manufactured with smooth pipes. The use of extruded low fin tubes, has the advantage that it can improve the external surface and thermal performance.

MAIN FEATURES

Corrosion-resistant stainless steel low finned tube bundle construction.
Straight tubes for easy cleaning.
Floating head at the end of the tube bundle, avoiding tube stresses caused by thermal expansion and contraction.

OPTIONS : Vertical installation, see STV catalogue.

USE : Steam, water, hot condensate and other fluids compatible with the construction.

AVAILABLE MODELS: STH/S – Carbon steel shell
STH/SS – Complete st. steel

CONNECTIONS : Flanged or screwed, according to EN 1092-1 or ANSI standards.

INSTALLATION: Floor, wall, hanging from the ceiling.
Steam runs inside the tubes and process water outside.

ORDER REQUIREMENTS: Steam pressure and temperature
Inlet and outlet water temperature
Water mass flow or heat exchanged.
See inquiry sheet.

LIMITING CONDITIONS **					
Rating	Press. bar	Temp. ºC	Rating	Press. bar	Temp. ºC
PN16	16	50	ANSI Cl.150 lbs	16	50
	14	100		14	100
	13 *	195		13 *	195
	12	250		-	-

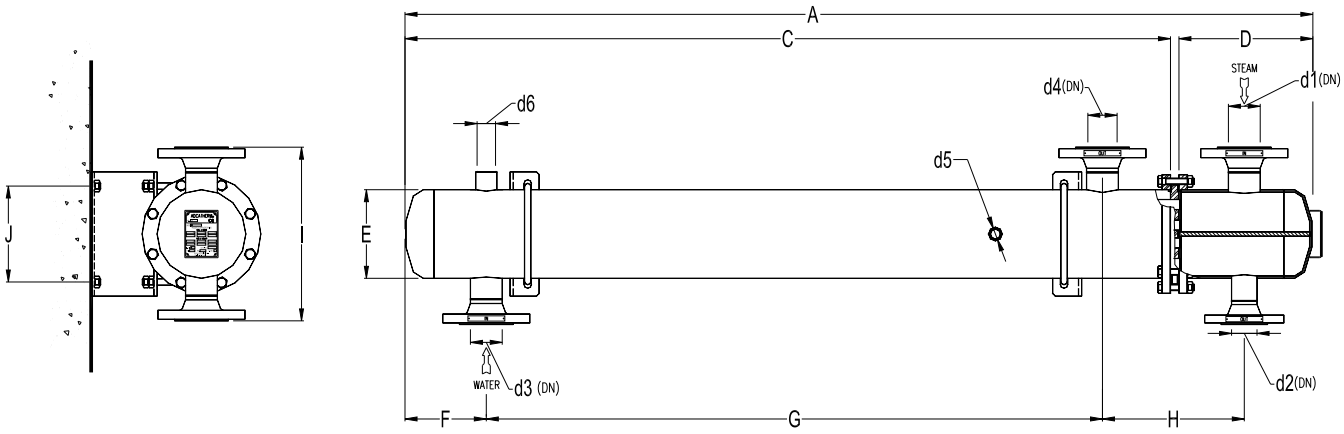
*PMO-Max.operating pressure for saturated steam.
Minimum operating temp.: -10ºC. Design code: AD-Merkblatt
** Rating according to EN1092:2007.

CE MARKING - GROUP 2 GASES CATEGORIES			
RATING	MODEL	CATEGORY Tube side	CATEGORY Shell side
PN16	STH4.075 to 4.150	1	SEP
	STH5.075 to 5.150	1	SEP
	STH6.075 to 6.150	1	SEP
	STH8.075 to 8.150	2	SEP
	STH10.075 to 10.150	2	SEP

CE Marking :
This product has been designed for use on water and steam which are in Group 2 of the PED-European Pressure Equipment Directive 97/23/EC and it comply with those requirements. The product carries the CE mark.

MATERIALS		
DESIGNATION	*STH/S*	*STH/SS*
Tube bundle	AISI316L / 1.4404	AISI316L / 1.4404
Tubesheet	AISI316 / 1.4401	AISI316 / 1.4401
Heads and shell	S235 JRG2 / 1.0038 ; P235GH / 1.0305	AISI316 / 1.4401; AISI316L / 1.4404
Inlet / Outlet pipes	P235GH / 1.0305	AISI316 / 1.4401
EN flanges	P250GH / 1.0460	AISI316 / 1.4401
ANSI Flanges	ASTM A105 / 1.0432	AISI316 / 1.4401
Sockets	ASTM A105 / 1.0432	AISI316 / 1.4401
Suports	S235 JRG2 / 1.0038	AISI304 / 1.4301

EN 10204 3.1 certificate available if requested with the order.



DIMENSIONS															
Model	**A**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**d1**	**d2**	**d3**	**d4**	**d5**	**d6**
STH4.075	965	785	166	114	120	550	207	314	116	50	25	50	50	1/2"	3/4"
STH4.100	1215	1035	166	114	120	800	207	314	116	50	25	50	50	1/2"	3/4"
STH4.150	1715	1535	166	114	120	1300	207	314	116	50	25	50	50	1/2"	3/4"
STH5.075	1050	790	245	140	160	510	276	340	150	65	40	65	65	1/2"	3/4"
STH5.100	1300	1040	245	140	160	760	276	340	150	65	40	65	65	1/2"	3/4"
STH5.150	1800	1540	245	140	160	1260	276	340	150	65	40	65	65	1/2"	3/4"
STH6.075	1093	820	255	168	180	500	288	368	180	65	40	65	65	1/2"	3/4"
STH6.100	1343	1070	255	168	180	750	288	368	180	65	40	65	65	1/2"	3/4"
STH6.150	1843	1570	255	168	180	1250	288	368	180	65	40	65	65	1/2"	3/4"
STH8.075	1176	840	320	220	197	487	304	420	230	80	50	80	80	1/2"	1"
STH8.100	1426	1090	320	220	197	737	304	420	230	80	50	80	80	1/2"	1"
STH8.150	1926	1590	320	220	197	1237	304	420	230	80	50	80	80	1/2"	1"
STH10.075	1185	855	306	273	205	448	356	473	285	80	50	80	80	1/2"	1"
STH10.100	1435	1105	306	273	205	698	356	473	285	80	50	80	80	1/2"	1"
STH10.150	1935	1605	306	273	205	1198	356	473	285	80	50	80	80	1/2"	1"

∅ d1 to d4 connections sized according with the flow conditions.
Dimensions are subject to change without notice.
Consult factory for certified dimensions and weight.
Other sizes and designs can be supplied under request.
The pipe connections are sized considering the correct thermal insulation possibility .The insulation it's not included but it is recommended to be done after the installation.

HEAT EXCHANGER FAX INQUIRY

Please send the inquiry for your *AdcaTherm* steam to water heat exchanger with the following parameters:

	TUBE SIDE		SHELL SIDE	
FLUID	SATURATED STEAM		WATER	
OPERATING PRESSURE	bar		bar	
INLET TEMPERATURE	º C *		º C	
OUTLET TEMPERATURE	º C *		º C	
FLOW RATE	Kg/h *		Kg/h or m3/h	
HEAT EXCHANGED (Option)	KW or		Kcal/h	
MODEL REQUIRED (Please select)	STH (Horizontal)		STV(Vertical)	

Remarks :
* Not necessary in case of saturated steam.
STH – Horizontal installation ; STV – Vertical installation.

Your company name:	
Contact :	
Address :	
Country :	
Tel.:	Fax.:
E-mail:	Web-page:

STEAM EQUIPMENT

ADCATherm

ADCATHERM - STV Series
Shell and Tube Heat Exchangers
(Steam to water - Vertical installation)

DESCRIPTION

The ADCA-ST series steam to water shell and tube heat exchangers are shorter and lighter than the alternative shell and tube exchangers manufactured with smooth pipes. The use of extruded low fin tubes, has the advantage that it can improve the external surface and thermal performance.

MAIN FEATURES

Corrosion-resistant stainless steel low finned tube bundle construction.
Straight tubes for easy cleaning.
Floating head at the end of the tube bundle, avoiding tube stresses caused by thermal expansion and contraction.

OPTIONS : Horizontal installation, see STH catalogue.

USE : Steam, water, hot condensate and other fluids compatible with the construction.

AVAILABLE MODELS: STV/S – Carbon steel shell
STV/SS – Complete st. steel

CONNECTIONS : Flanged or screwed, according to EN 1092-1 or ANSI standards.

INSTALLATION: Wall mounting or floor with special supports.
Steam runs inside the tubes and process water outside.

ORDER REQUIREMENTS: Steam pressure and temperature
Inlet and outlet water temperature
Water mass flow or heat exchanged.

LIMITING CONDITIONS **					
Rating	**Press. bar**	**Temp. ºC**	**Rating**	**Press. bar**	**Temp. ºC**
PN16	16	50	ANSI Cl.150 lbs	16	50
	14	100		14	100
	13 *	195		13 *	195
	12	250		-	-

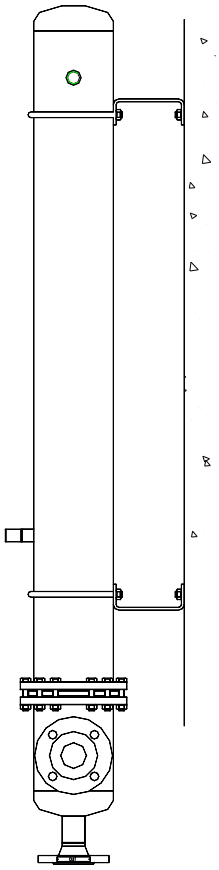
*PMO-Max.operating pressure for saturated steam.
Minimum operating temp.: -10ºC. Design code: AD-Merkblatt
** Rating according to EN1092:2007.

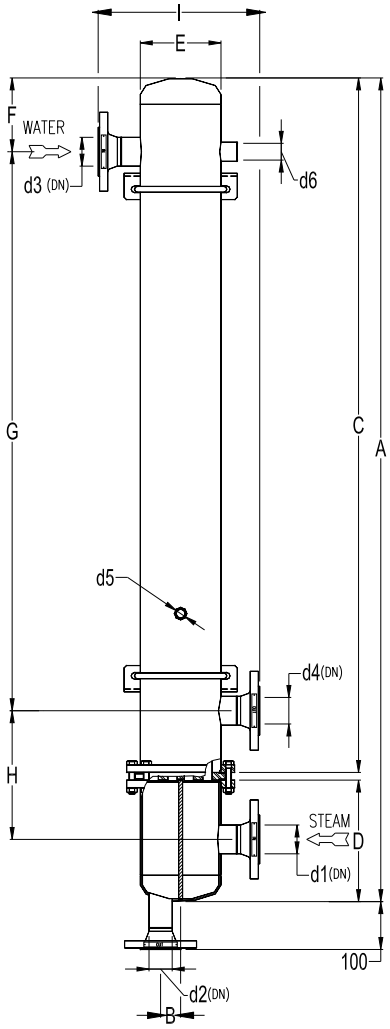
CE MARKING - GROUP 2 GASES CATEGORIES			
RATING	**MODEL**	**CATEGORY Tube side**	**CATEGORY Shell side**
PN16	STV4.075 to 4.150	1	SEP
	STV5.075 to 5.150	1	SEP
	STV6.075 to 6.150	1	SEP
	STV8.075 to 8.150	2	SEP
	STV10.075 to 10.150	2	SEP

CE Marking :
This product has been designed for use on water and steam which are in Group 2 of the PED-European Pressure Equipment Directive 97/23/EC and it comply with those requirements. The product carries the CE mark.

MATERIALS		
DESIGNATION	***STV/S***	***STV/SS***
Tube bundle	AISI316L / 1.4404	AISI316L / 1.4404
Tubesheet	AISI316 / 1.4401	AISI316 / 1.4401
Heads and shell	S235 JRG2 / 1.0038 ; P235GH / 1.0305	AISI316 / 1.4401; AISI316L / 1.4404
Inlet / Outlet pipes	P235GH / 1.0305	AISI316 / 1.4401
EN flanges	P250GH / 1.0460	AISI316 / 1.4401
ANSI Flanges	ASTM A105 / 1.0432	AISI316 / 1.4401
Sockets	ASTM A105 / 1.0432	AISI316 / 1.4401
Suports	S235 JRG2 / 1.0038	AISI304 / 1.4301

EN 10204 3.1 certificate available if requested with the order.





DIMENSIONS															
Model	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**d1**	**d2**	**d3**	**d4**	**d5**	**d6**
STV4.075	965	28	785	166	114	120	550	207	314	50	25	50	50	1/2"	3/4"
STV4.100	1215	28	1035	166	114	120	800	207	314	50	25	50	50	1/2"	3/4"
STV4.150	1715	28	1535	166	114	120	1300	207	314	50	25	50	50	1/2"	3/4"
STV5.075	1050	35	790	245	140	160	510	276	340	65	40	65	65	1/2"	3/4"
STV5.100	1300	35	1040	245	140	160	760	276	340	65	40	65	65	1/2"	3/4"
STV5.150	1800	35	1540	245	140	160	1260	276	340	65	40	65	65	1/2"	3/4"
STV6.075	1093	40	820	255	168	180	500	288	368	65	40	65	65	1/2"	3/4"
STV6.100	1343	40	1070	255	168	180	750	288	368	65	40	65	65	1/2"	3/4"
STV6.150	1843	40	1570	255	168	180	1250	288	368	65	40	65	65	1/2"	3/4"
STV8.075	1176	55	840	320	220	197	487	304	420	80	50	80	80	1/2"	1"
STV8.100	1426	55	1090	320	220	197	737	304	420	80	50	80	80	1/2"	1"
STV8.150	1926	55	1590	320	220	197	1237	304	420	80	50	80	80	1/2"	1"
STV10.075	1185	60	855	306	273	205	448	356	473	80	50	80	80	1/2"	1"
STV10.100	1435	60	1105	306	273	205	698	356	473	80	50	80	80	1/2"	1"
STV10.150	1935	60	1605	306	273	205	1198	356	473	80	50	80	80	1/2"	1"

∅ d1 to d4 connections sized according with the flow conditions.
Dimensions are subject to change without notice.
Consult factory for certified dimensions and weight.
Other sizes and designs can be supplied under request.
The pipe connections are sized considering the correct thermal insulation possibility .The insulation it's not included but it is recommended to be done after the installation.

HEAT EXCHANGER FAX INQUIRY

Please send the inquiry for your *AdcaTherm* steam to water heat exchanger with the following parameters:

	TUBE SIDE	SHELL SIDE
FLUID	SATURATED STEAM	WATER
OPERATING PRESSURE	bar	bar
INLET TEMPERATURE	° C *	° C
OUTLET TEMPERATURE	° C *	° C
FLOW RATE	Kg/h *	Kg/h or m3/h
HEAT EXCHANGED (Option)	KW or	Kcal/h
MODEL REQUIRED (Please select)	STH (Horizontal)	STV(Vertical)

Remarks :
* Not necessary in case of saturated steam.
STH – Horizontal installation ; STV – Vertical installation.

Your company name:	
Contact :	
Address :	
Country :	
Tel.:	Fax.:
E-mail:	Web-page:

ADCATHERM
STEAM TO WATER HEATING SYSTEMS

GENERAL

The *AdcaTherm* series offers several solutions for water heating in a safe and efficient way, from compact instant production systems to semi-instantaneous or even storage systems.
Either for room heating, consumption water or process water, Valsteam ADCA will always have a solution to offer you.

DESCRIPTION

PWHU – Packaged Water Heating Unit
Complete system conceived for instant production of heated water using steam as primary fluid. Ready to work, just needs the connections to the respective fluids.
This system is ideal whenever there is enough available energy for instant heating.

Main features:
Rust free, hot water available (using austenitic stainless steel design)
Ready and easy to install, saving design time, floor space and assembling time.
Installation and commissioning time reduction.

WAVE – Water Heating Vessel
Namely for production of consumable hot water, domestic or industrial. The necessary amount of steam for instantaneous production might not be available at all times. In these cases, it's necessary to foresee a buffer tank (semi-instantaneous system) or even a storage tank (storage system).

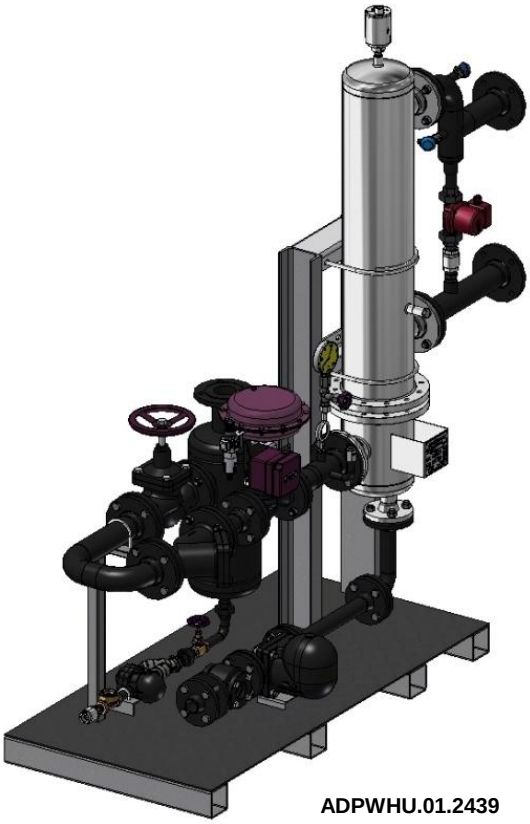
Main features:
Ready and easy to install, saving design and assembling time.
Installation and commissioning time reduction.
Extra water for peak periods, reducing need for extra boiler power. The system can be designed for the amount of energy available, not compromising the remaining process.

OPTIONS:	Different kinds of materials and designs available according to the application, see ADPWHU.07.5871
USE:	Steam, water, hot condensate and other fluids compatible with the construction.
AVAILABLE MODELS:	PWHU, WAVE-P (packaged) AND WAVE-S (split system)
ORDER REQUIREMENTS:	Kind of application Flow rates or detailed utilization (number of baths in a set period of time, for instance) Inlet and outlet temperatures Type of fluids and corresponding pressures Power (output) or information that can allow its determination Room available for installation and other limitative elements, if existing.

Some of an extensive range of *AdcaTherm* skids already manufactured

ADPWHU.10.6359

ADPWHU.12.6371



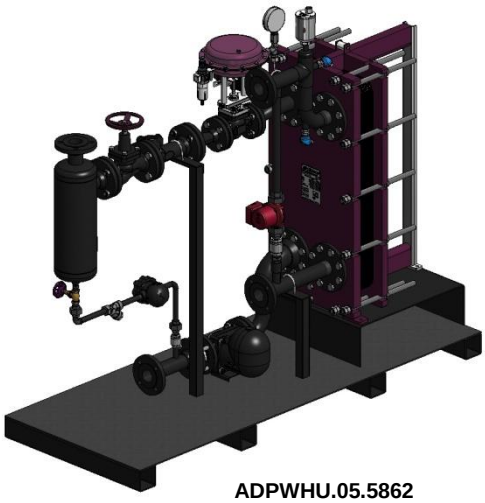
ADPWHU.01.2439

ADPWHU.11.6370

CE

ADPWHU.03.5857

ADPWU.06.5870



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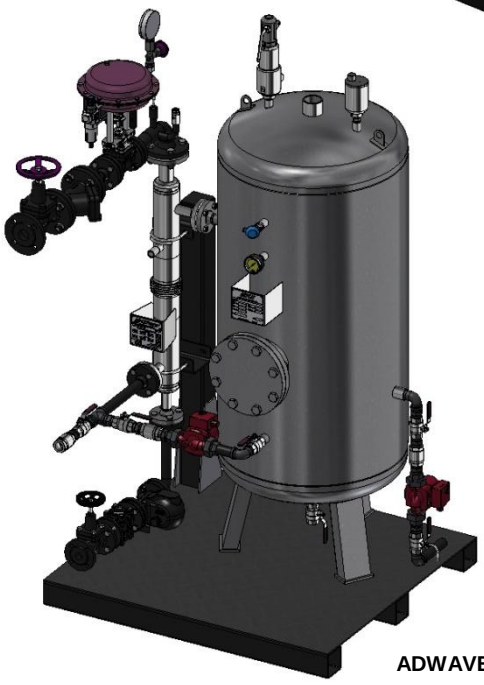
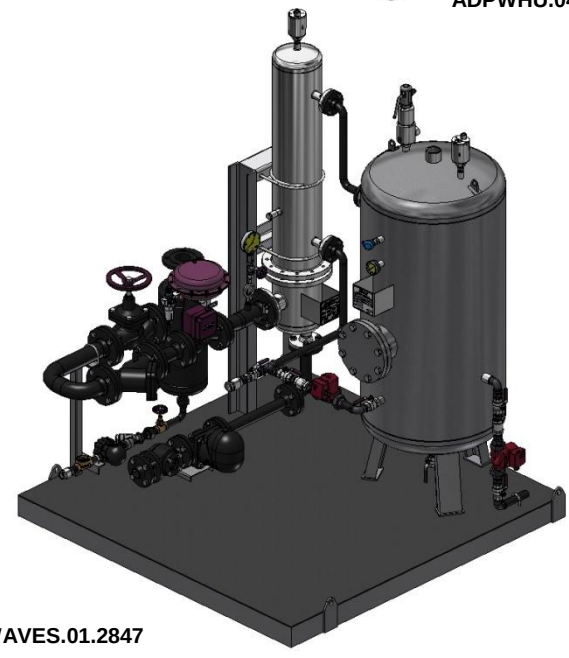
ADPWHU.04.5858



ADWAVEP.02.2848



ADWAVES.01.2847

CE

BLOWDOWN EXPANSION AND COOLING UNIT
BEX

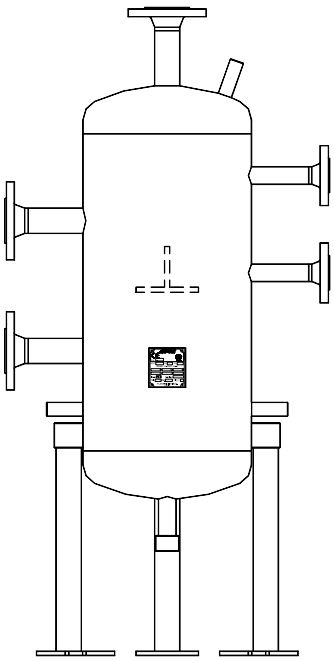
DESCRIPTION AND OPERATION

The Adca blowdown and cooling units are used in the modern boiler houses to cool hot waste water and steam boiler blowdown before to discharge into a pit or drain. The waste water is discharged into the unit which is at atmospheric pressure and the cooling water enters via a control valve controlled by a thermostat, mixing with the hot water.
If flash steam can not be recovered or discharged to atmosphere an additional condensing water spray system (optional) can be supplied. This one is fitted in the top of the unit and can be controlled directly either by another thermostat or the same command used for the automatic blowdown valve control.

MAIN FEATURES

Prevents thermal pollution
Overflow with siphon breaker
Easy to install
Reduces the flow of flash steam.

OPTIONS:	Stainless steel construction. Complete system including all the necessary equipments (stop and check valves, thermostats, exhaust head, etc) Manifold with several inlets for multi-boiler installations. Manhole or handhole for inspection.
USE:	Boiler blowdown and hot waste water.
AVAILABLE MODELS:	BEX30, 40, 50, 60 and 80.
CONNECTIONS:	Female screwed. Flanged EN 1092-1 PN16 or ANSI. Different connections on request.
CONSTRUCTION:	Carbon steel or stainless steel under request.
INSTALLATION:	Vertical installation. Final dimensions and connections according to the supplied drawing. The inlet of blowdown tank is always higher than the boiler discharge valves. Therefore, the connecting pipe should have provisions made at a low point to drain the boiler.



DIMENSIONS										
Model	***A***	***B***	***d1***	***d2***	***d3***	***d4***	***d5 ****	***d6***	***d7***	***WEIGHT Kgs***
BEX30	1245	312	40	40	40	25	25	G1"	G1/2"	**
BEX40	1275	355	50	50	50	25	25	G1"	G1/2"	**
BEX50	1430	455	80	50	80	25	25	G1"	G1/2"	**
BEX60	1930	455	100	65	100	25	25	G1"	G1/2"	**
BEX80	2260	550	150	100	150	40	40	G11/2"	G1/2"	**

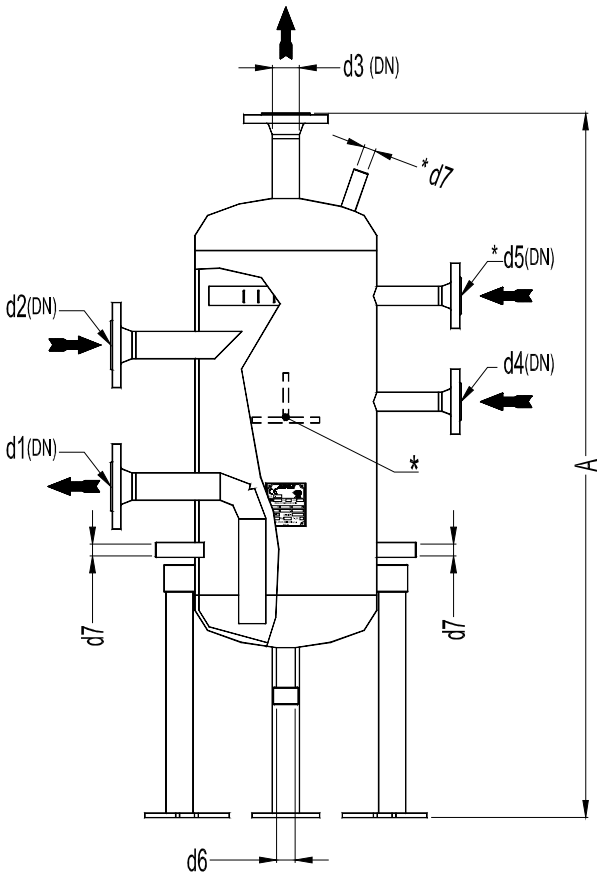
*Optional ; ** Weight to be confirmed .

SELECTION TABLE					
Hot water flow rate kgs/h	***300***	***600***	***1500***	***3000***	***5000***
Model	**BEX30**	**BEX40**	**BEX50**	**BEX60**	**BEX80**

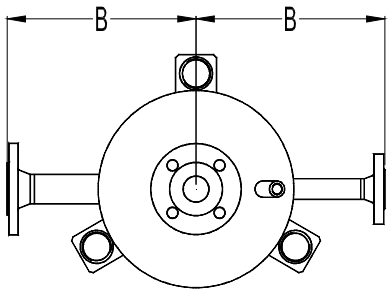
LIMITING CONDITIONS	
PS - Maximum Allow able Pressure	0,5 bar
TS - Maximum Allow able Temperature	120 ºC

Minimum operating temp.: -10ºC. Design code: AD-Merkblatt

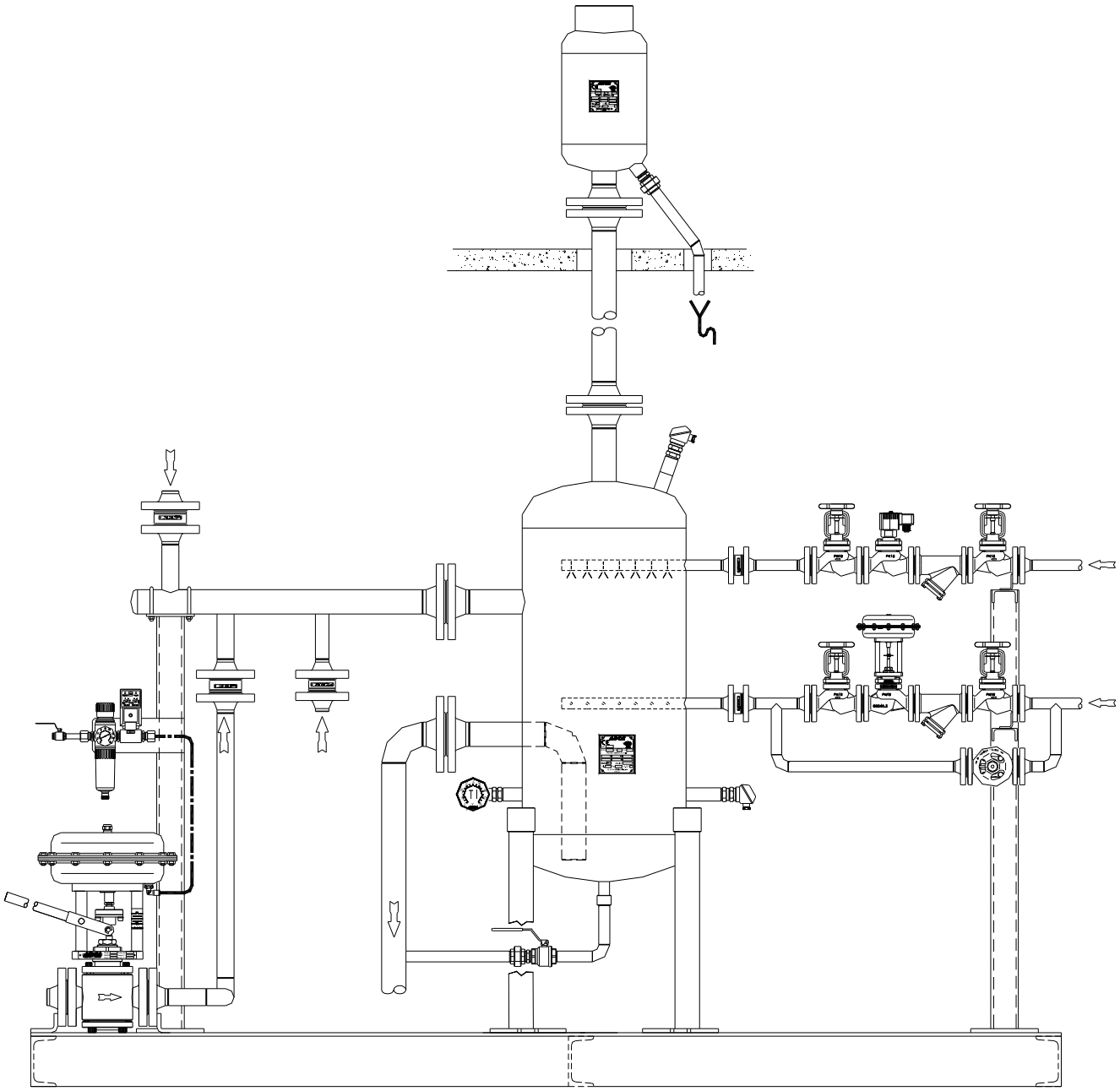
Other conditions and CE marking on request.



CONNECTIONS		
POS.	***DESIGNATION***	***Rating***
d1	Drain outlet	PN16
d2	Blowdown inlet	PN16
d3	Venting outlet	PN16
d4	Cooling water inlet	PN16
d5	Flash steam cooling water	PN16
d6	Drain	PN16
d7	Thermostat/thermometer connections	PN16



TYPICAL INSTALLATION



In case of order or inquiry please refer the required item numbers (see assembling drawing ADBEX.01.2839)

BLOWDOWN EXPANSION VESSEL
BV

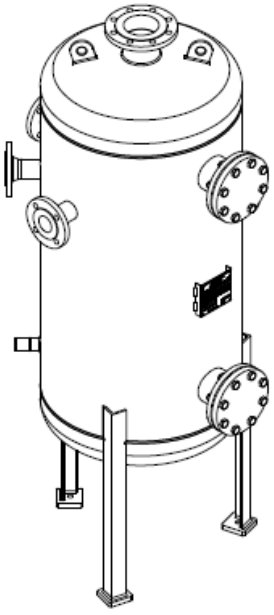
DESCRIPTION AND OPERATION

The Adca blowdown vessels are used in the modern boiler houses to cool hot waste water and steam boiler blowdown before to discharge into a pit or drain. The waste water is discharged into the unit which is at atmospheric pressure
If flash steam can not be recovered or discharged to atmosphere an additional condensing water spray system (optional) can be supplied. This one is fitted in the top of the unit and can be controlled directly by a thermostat.

MAIN FEATURES

Prevents thermal pollution
Overflow with siphon breaker
Easy to install

OPTIONS:	Water injection cooling system Stainless steel construction. Complete system including all the necessary equipments (stop and check valves, thermostats, exhaust head, etc) Manifold with several inlets for multi-boiler installations. Manhole or handhole for inspection.
USE:	Boiler blowdown and hot waste water.
AVAILABLE MODELS:	BV3, 4, 5, 6 and 7.
CONNECTIONS:	Flanged EN 1092-1 PN16 or ANSI. Different connections on request.
CONSTRUCTION:	Carbon steel or stainless steel under request.
INSTALLATION:	Vertical installation. Final dimensions and connections according to the supplied drawing. The inlet of blowdown tank is always higher than the boiler discharge valves. Therefore, the connecting pipe should have provisions made at a low point to drain the boiler.



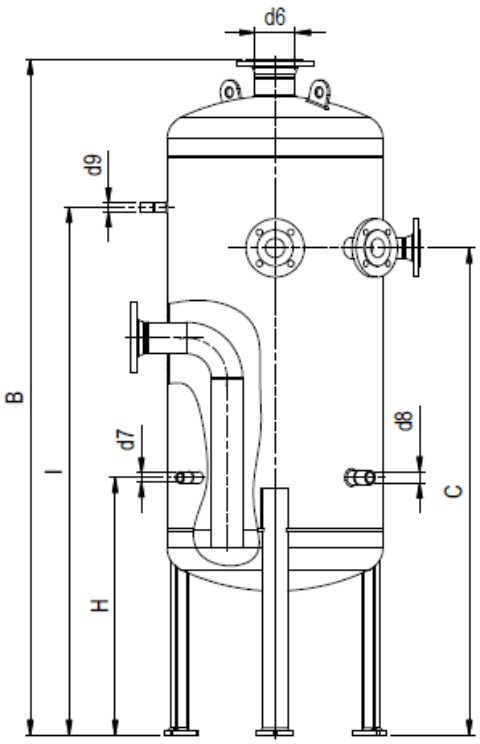
CE MARKING - GROUP 2 GASES CATEGORIES		
PRESSURE	**MODEL**	**CATEGORY**
7 bar	BV3	3
	BV4 to BV7	4

CE

DIMENSIONS

Model	A	B	C	E	F	G	H	I	J	STW lts *	WEIGHT Kgs **
BV3	508	1845	1345	1080	701	795	700	1430	357	114	176
BV4	610	1914	1380	1125	730	788	730	1495	361	175	210
BV5	762	1995	1415	1165	761	810	760	1540	357	284	322
BV6	914	2115	1470	1220	785	841	785	1565	304	473	447
BV7	1220	2254	1544	1294	819	885	839	1664	319	856	865

*Standing water ; ** Weight to be confirmed .



SIZE CONNECTIONS

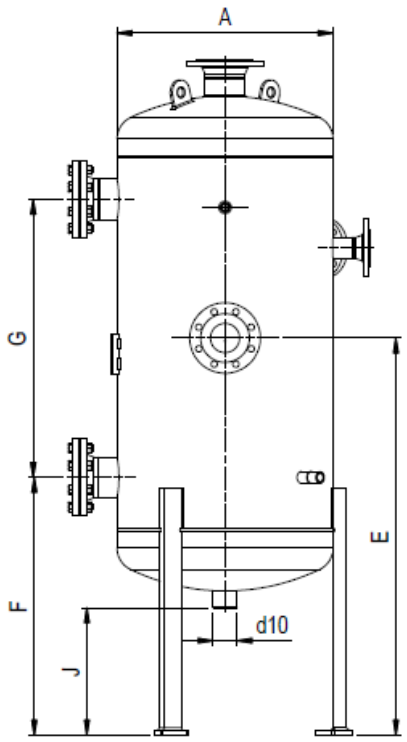
Model	d1	d2	d3	d4	d5	d6	d7	d8	d9	d10
BV3	50	50	50	80	100	100	3/4"	1"	1/2"	2"
BV4	50	50	50	80	100	100	3/4"	1"	1/2"	2"
BV5	50	50	50	100	100	150	3/4"	1"	1/2"	2"
BV6	50	50	50	100	100	150	3/4"	1"	1/2"	2"
BV7	50	50	50	150	150	200	3/4"	1"	1/2"	2"

LIMITING CONDITIONS

PS - Maximum Allowable Pressure	7 bar
TS - Maximum Allowable Temperature	180 °C

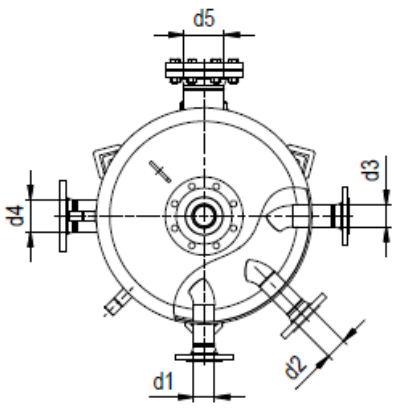
Minimum operating temp.: 20°C. Design code: AD-Merkblatt

Other conditions on request.



CONNECTIONS

POS.	DESIGNATION	Rating
d1	Blow down inlet	PN16
d2	Blow down inlet	PN16
d3	Blow down inlet	PN16
d4	Blow down outlet	PN16
d5	Hand hole	PN16
d6	Venting outlet	PN16
d7	Cooling water inlet	PN16
d8	Thermostat connection	PN16
d9	Pressure gauge connection	PN16
d10	Drain	PN16

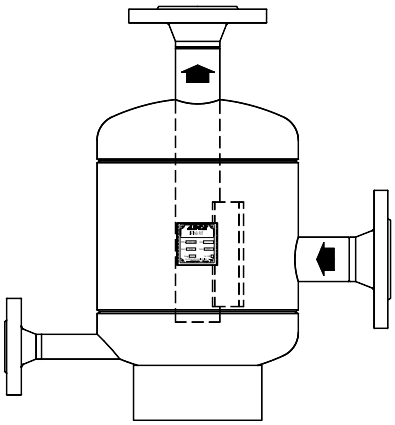


LIFTING POTS
LIPO

DESCRIPTION AND OPERATION

LIPO condensate lifting pots are used for rising condensate pipes eliminating steam and water hammering.
When the condensate is elevated to the condensate main in a higher level, the flash steam formed at a steam trap's outlet condenses in contact with colder condensate and steam bubbles implode, reducing its volume while passing to the liquid state. Vacuum is then suddenly formed and when filled again with the incoming condensate, it causes water hammer.
The air and flash steam cushion formed in the upper part of the lifting pot absorbs any shock while, in the bottom the condensate operates as a sealing liquid.

OPTIONS:	Stainless steel construction.
USE:	Condensate lines where condensate has to be lifted.
SIZES:	DN 15 to DN100
CONNECTIONS:	Flanged EN1092-1 or ANSI. Different connections on request.
CONSTRUCTION:	Carbon steel or stainless steel under request.
INSTALLATION:	Vertical installation (inlet/outlet angle connections) The differential pressure must be enough to overcome the pressure head and pipe friction.



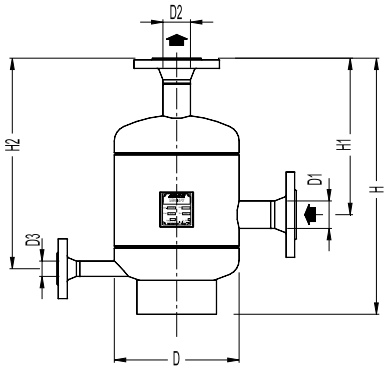
LIMITING CONDITIONS		
	Flanged PN16	**Flanged PN40**
PS - Maximum Allow able Pressure	12 bar	18 bar
TS - Maximum Allow able Temperature	250ºC	250ºC

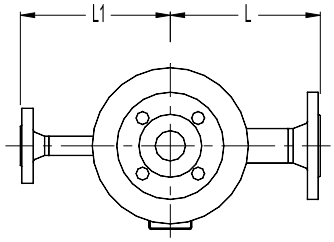
Minimum operating temp.: -10ºC. Design code: AD-Merkblatt
Other conditions on request.

CE MARKING (PED - European Directive 97/23/EC)		
12 bar	**18 bar**	**Category**
DN 15 to 50	DN 15 to 50	1 (CE Marked)
DN 65 to 100	DN 65 to 100	2 (CE Marked)

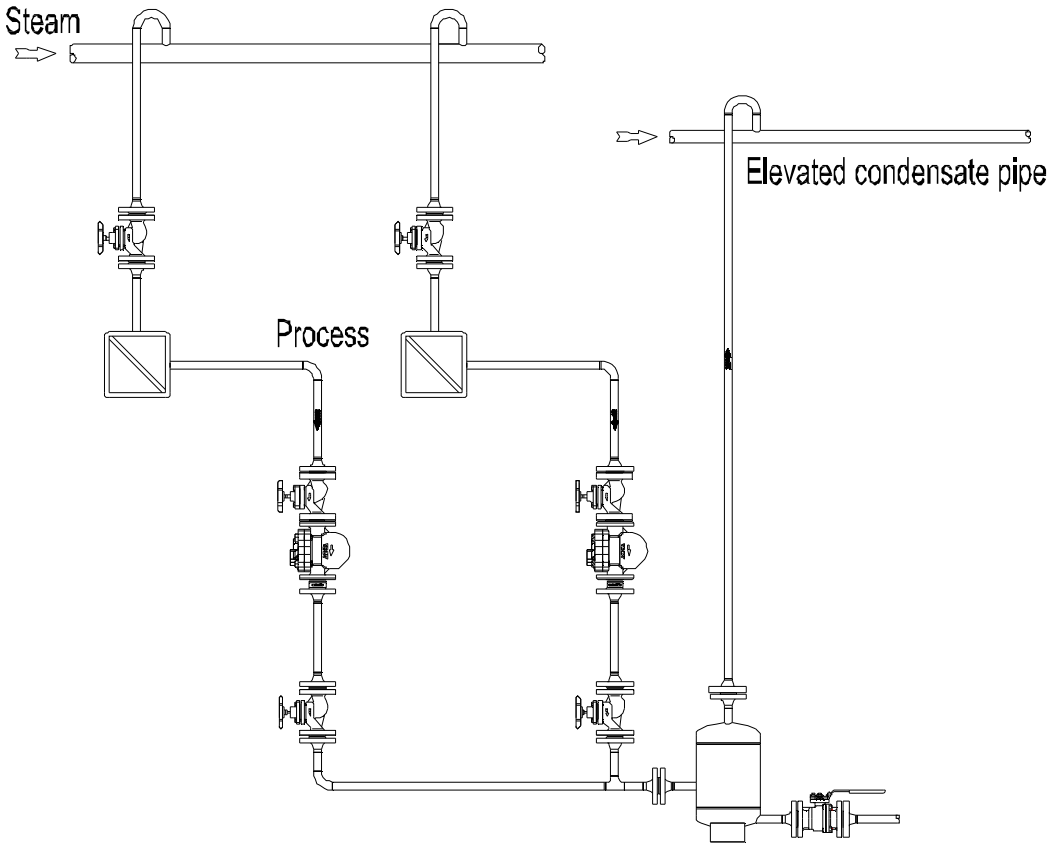
DIMENSIONS (mm)										
DN	***H***	***H1***	***H2***	***L***	***L1***	***D***	***D1***	***D2***	***D3***	***WEIGHT ****
15	384	240	325	180	180	170	DN15	DN15	DN15	9
20	384	240	325	180	180	170	DN20	DN20	DN15	10
25	384	240	325	180	180	170	DN25	DN25	DN15	11
32	450	275	370	210	210	220	DN32	DN32	DN20	18,5
40	450	275	370	210	210	220	DN40	DN40	DN20	19
50	450	275	370	210	210	220	DN50	DN50	DN20	21
65	630	425	540	240	240	275	DN65	DN65	DN20	35
80	630	400	540	240	240	275	DN80	DN80	DN20	38
100	660	400	545	350	350	400	DN100	DN100	DN20	72

* Weight in kgs to be confirmed .





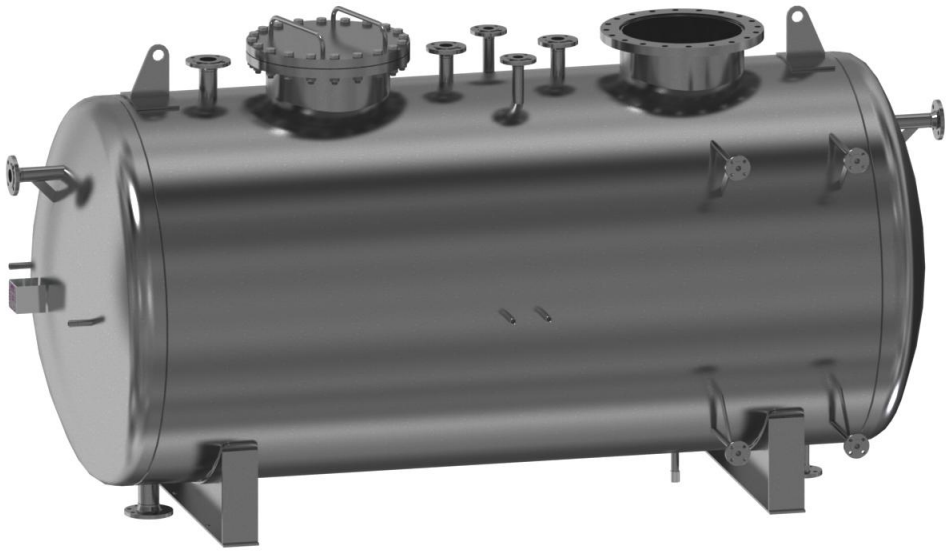
TYPICAL INSTALLATION



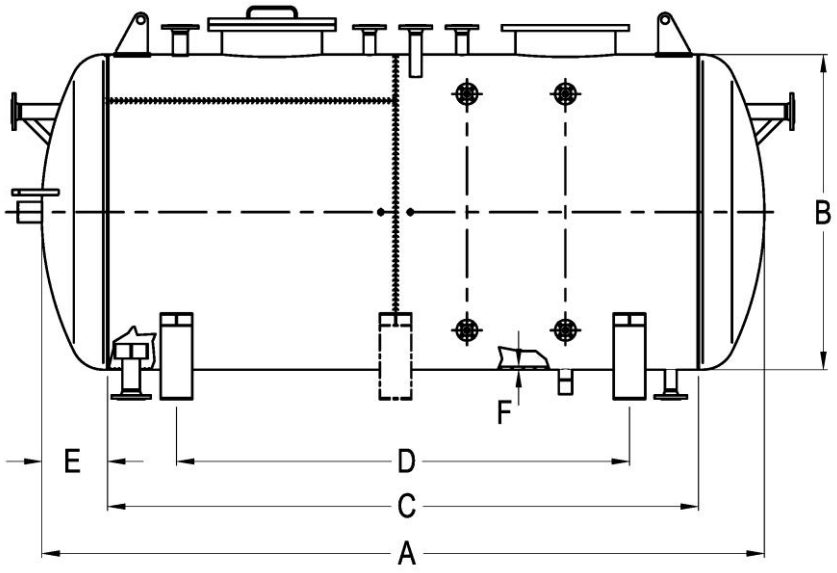
ADCATHERM BOILER FEED TANKS
BFT

DESCRIPTION

The BFT boiler feed tank is one of the most important devices in a boiler room. Its main function is to store the make-up water and condensate, assuring a reserve of treated water to supply the steam boilers.
The make-up water has to be softened to prevent scale formation on the boiler and the oxygen must also be removed so that corrosion in the boiler and steam system is avoided (this situation is normally handled by specialists).
The consumption of chemicals used to eliminate the oxygen can be drastically reduced if used one of the several ADCAtherm thermal degasification processes (ADG, TDG, FCD) for the removal of oxygen and other non-condensable gases (mainly carbon dioxide).
Even if you choose not to use one of the mentioned systems, the ADCATherm boiler feed tanks will always be optimized according to the existing needs, therefore being able to include water pre-heating as well as other features obvious to a true steam expert , but not to a simple tank manufacturer.



MAIN FEATURES:	Sandblasted and metalized internally and externally (externally painted). Prevents energy wasting Can be installed on new or existing systems
OPTIONS:	Vertical and special designs for different applications. Complete stainless steel construction. Complete system including all the necessary equipments. Vent condenser for energy recover
USE:	Steam boiler feed water
AVAILABLE MODELS:	BFT – Standard horizontal design BFT/ADG or TDG – Vessel and correspondent deaerator dome BFTV – Special vertical design
CONNECTIONS:	Flanges EN1092-1 PN16 or ANSI. Sockets BSP or NPT Different connections on request.
CONSTRUCTION:	Carbon steel with internal stainless steel components or complete stainless steel under request.
INSTALLATION:	See ADG/TDG catalogues for typical installations. Horizontal standard or vertical (on request). Final dimensions and connections according to the drawing supplied after order confirmation. Insulation (not included) recommended after installation.



MAIN DIMENSIONS

MODEL	CAPACITY * Liters	A mm	B mm	C mm	D mm	E mm	F mm	WEIGHT * kgs
BFT-500	537	1800	640	1500	900	150	4	180
BFT-750	856	1860	800	1500	900	180	5	290
BFT-1000	1107	2360	800	2000	1200	180	5	350
BFT-1250	1336	1920	960	1500	900	210	5	360
BFT-1500	1698	2420	960	2000	1200	210	5	410
BFT-2000	2248	2480	1080	2000	1200	240	6	570
BFT-2500	2706	2980	1080	2500	1500	240	6	665
BFT-3000	3068	2560	1280	2000	1200	280	7	795
BFT-3500	3711	3060	1280	2500	1500	280	7	920
BFT-4000	4176	2660	1500	2000	1200	330	8	1160
BFT-5000	5060	3160	1500	2500	1500	330	8	1335
BFT-6000	5943	3660	1500	3000	1800	330	8	1510

* Approximate
Pipe connections and location approved after order confirmation.
Consult factory for certified dimensions. Dimensions subject to change without notice.

MATERIALS

DESIGNATION	MATERIAL
Cylindrical shell	EN10025 / S235JR / 1.0038
Domed ends	EN10025 / S235JR / 1.0038
Inlet / Outlet pipes	EN10216-2 / P235GH / 1.0325
EN flanges	EN10222-2 / P250GH / 1.0460
ANSI flanges	ASTM A105 / 1.0432
Sockets	ASTM A105 / 1.0432
Internals	EN10028-7 / AISI316 / 1.4401
Supports	EN10025 / S235JR / 1.0038
Bolts	Steel 8.8

EN10204 3.1 certificate available if requested with the order.

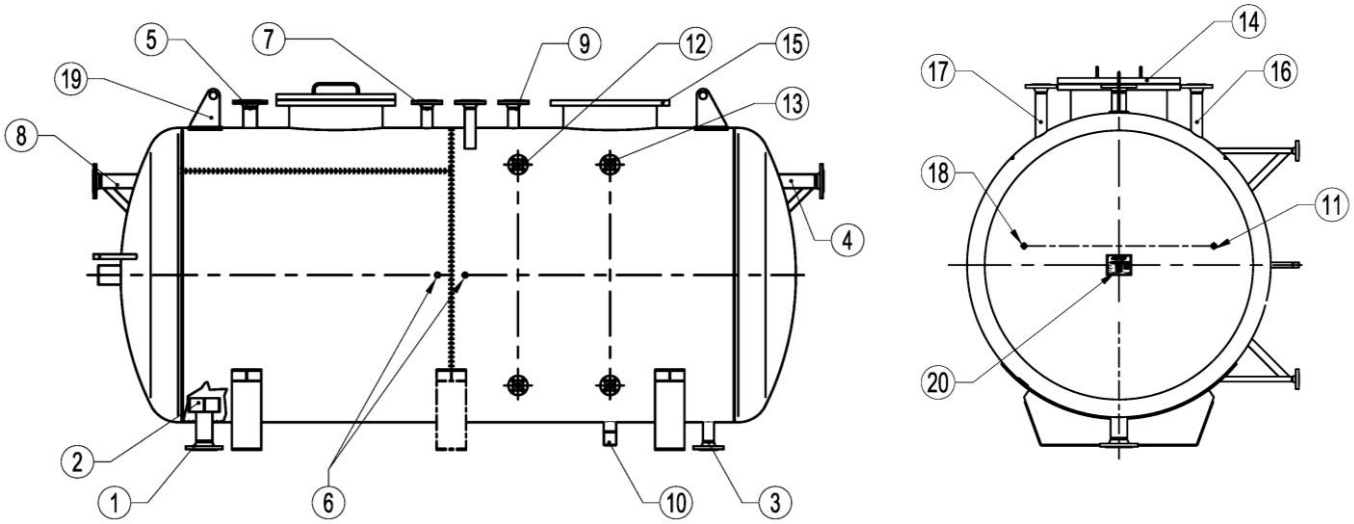
THERMAL DEAERATOR DATA INQUIRY

Make-up water pressure	bar
Make-up water temperature	°C
Make-up water flow rate	Kgs/h
Condensate return pressure	bar
Condensate temperature	°C
Condensate flow rate	Kgs/h
Saturated heating steam pressure	bar
Feed water tank required capacity	m3
Max.dearated water flow required	Kgs/h

LIMITING CONDITIONS

PS - Maximum Allowable Pressure	0,5 bar
TS - Maximum Allowable Temperature	120 °C

Minimum operating temp.: -10°C. Design code: AD-Merkblatt
Other conditions and CE marking on request.
Remarks: calculations have been made for 6bar at 120°C



CONNECTIONS *		
POS.	***DESIGNATION***	***REMARKS***
1	Boiler feed pump supply	Larger diameter to optimise pressure loss (preventing cavitation)
2	Anti vortex	
3	Drain	To be connected to BEX (always at a lower level than the feed tank)
4	Overflow	Float trap or "U" bend (only for atmospheric)
5	Heating steam	Can be located in the domed ends
6	Chemical dosing	Can be located in the domed ends
7	Condensate return	Only if not connected to a deaerator dome
8	Soft water inlet	Only if not connected to a deaerator dome
9	Vent outlet	Only if not connected to a deaerator dome
10	Recirculating pump	Recommended for atmospheric design only
11	Temperature indicator	Can be located in the domed ends
12	Level indicator	Can be located in the domed ends
13	Level controller	Can be located in the domed ends
14	Headhole	DN 300 PN6 Up to 1000 lts
14	Manhole	DN 500 PN6 1250 lts and above
15	Dome flange	For ADG or TDG
16	Vacuum valve	Only for pressurized system
17	Safety valve	Only for pressurized system
18	Temperature control	Suitable for electrical or self operated valve control
19	Lifting eyes	
20	Name plate	

* Sizes to be designed according to the real flow conditions

ADCATHERM ATMOSPHERIC SEMI – DEAERATORS
ADG

DESCRIPTION

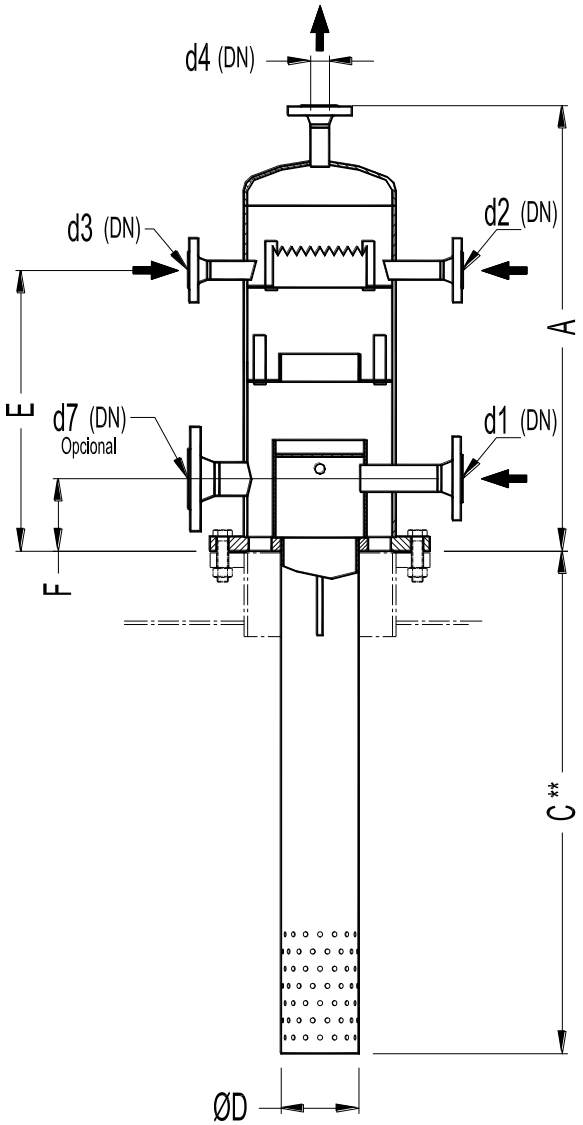
Adcatherm atmospheric semi-deaerators are designed to heat boiler feed water and to reduce oxygen and carbon dioxide (oxygen values in the feed water of less than 1,6mg/l , can be achieved). Remaining oxygen can be completely removed using oxygen scavenging chemicals.
Basically the complete system consists of a storage vessel, a deaeration head section and a vent.

OPERATION
Hot return condensate is injected in the bottom of the storage vessel using an adequate sparger pipe and softened make-up water is introduced in the deaerator head to be heated by a contact cascade flash steam heating system (counter-current flow) coming from the vessel. A part of the dissolved gases are liberated from the water at this point, and then to the atmosphere trough the flash steam vent line.
The semi-deaerated water then falls to the storage vessel below, where a steam injection system will provide an additional deaeration.
The complete unit is supplied including all the necessary instrumentation for temperature and level control, to be described in our offer, depending on the operation conditions (see table 1).

MAIN FEATURES:	Prevents energy wasting Easy to install Can be installed on new or existing systems Reduces the flow of flash steam from the vessel venting pipe Long life expectancy
OPTIONS:	Complete stainless steel construction. Complete system including all the necessary equipments. Vent condenser for energy recover
USE:	Steam boiler feed water
AVAILABLE MODELS:	ADG – Deaerator head
CONNECTIONS:	Flanges EN1092-1 PN16 or ANSI. Sockets BSP or NPT Different connections on request.
CONSTRUCTION:	Carbon steel with internal stainless steel components or complete stainless steel under request.
INSTALLATION:	Deaerator head - vertical installation. Storage vessel – cylindrical horizontal design Final dimensions and connections according to the drawing supplied after order confirmation.

DIMENSIONS														
Model	**A mm**	**B mm**	**C mm**	**D Diam.**	**E mm**	**F mm**	**d1 DN**	**d2 DN**	**d3 mm**	**d4 DN**	**d5 DN**	**d6* DN**	**d7* DN**	**WEIGHT kgs**
ADG150	585	184	**	80	310	100	50	25	25	40	1/2"	50	50	***
ADG200	670	210	**	120	350	120	80	32	25	50	1/2"	65	65	***
ADG250	760	237	**	140	360	150	100	50	25	65	1/2"	80	80	***
ADG300	720	425	**	170	400	150	100/150	65	40	80	1/2"	100	100	***
ADG400	780	510	**	220	490	180	150	80	40	100	1/2"	125	125	***

d1-Hot condensate inlet; d2-Cold water make-up; d3-Recirculating pump connection;d4-Vent;
d5-Pressure gauge connection; d6-Optional cold condensate return; d7-Flash steam.
*Optional; ** Dimensions on request (Standard: 950,1200,1600,2100mm); *** Weight to be confirmed
Sizes and dimensions approved after order confirmation.



SELECTION TABLE					
Max. Steam Generation (kgs/h)	***5000***	***10000***	***20000***	***30000***	***50000***
Model	**ADG150**	**ADG200**	**ADG250**	**ADG300**	**ADG400**

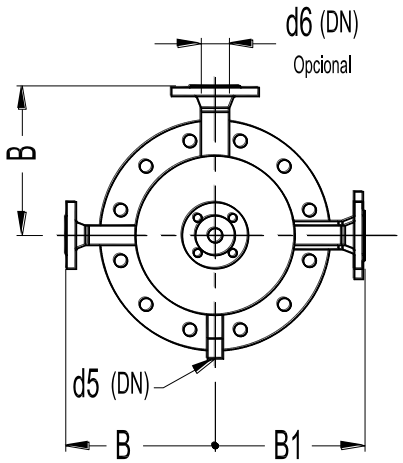
The length of immersion tube to be deffined according to the vessel design.

THERMAL DEAERATOR DATA INQUIRY		
Make-up water pressure		bar
Make-up water temperature		ºC
Make-up water flow rate		Kgs/h
Condensate return pressure		bar
Condensate temperature		ºC
Condensate flow rate		Kgs/h
Saturated heating steam pressure		bar
Feed water tank required capacity		m3
Max.dearated water flow required		Kgs/h

Table 1

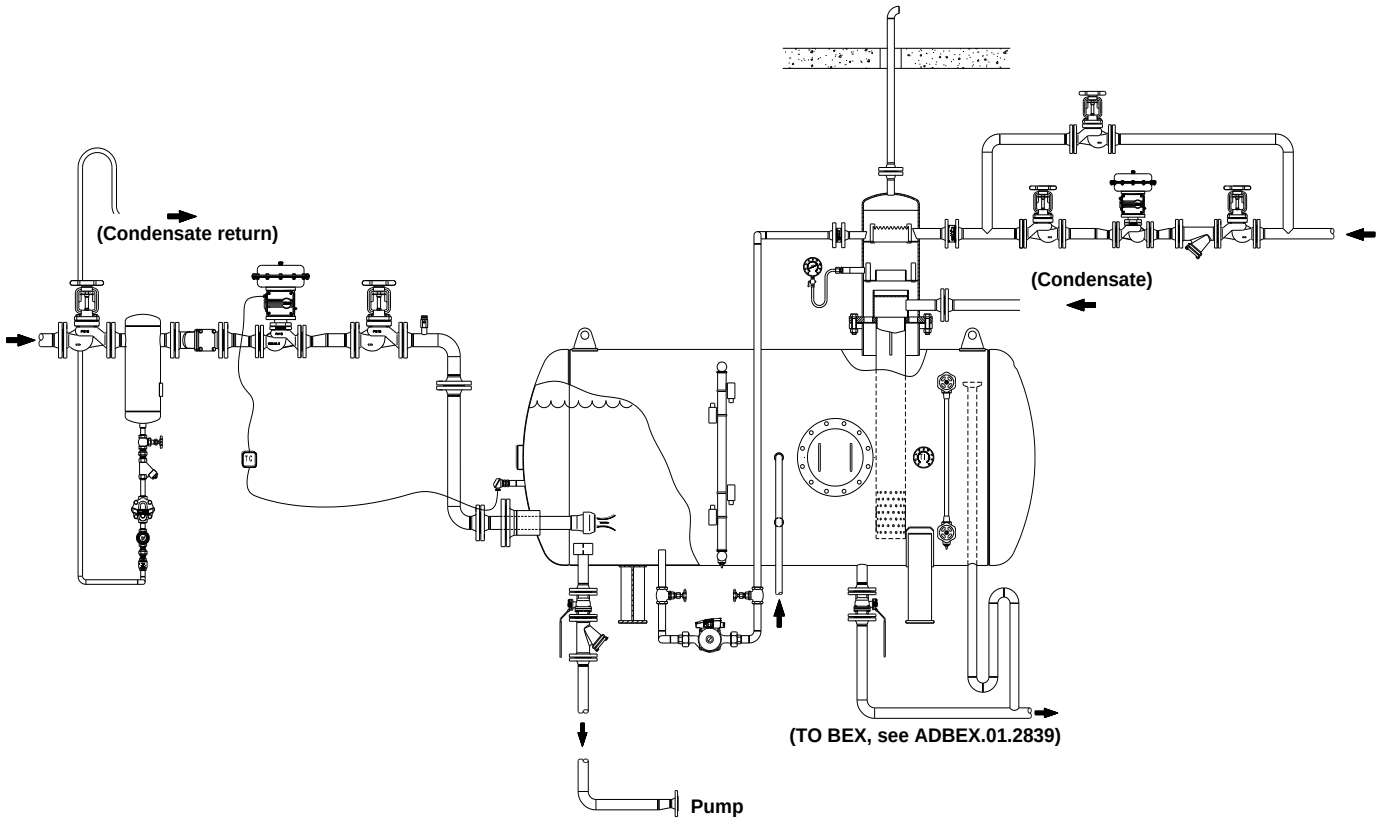
LIMITING CONDITIONS	
PS - Maximum Allow able Pressure	0,5 bar
TS - Maximum Allow able Temperature	120 ºC

Minimum operating temp.: -10ºC. Design code: AD-Merkblatt
Other conditions and CE marking on request.



TYPICAL INSTALLATIONS

SEMI - DEAERATOR SYSTEM WITH COLD MAKE UP WATER



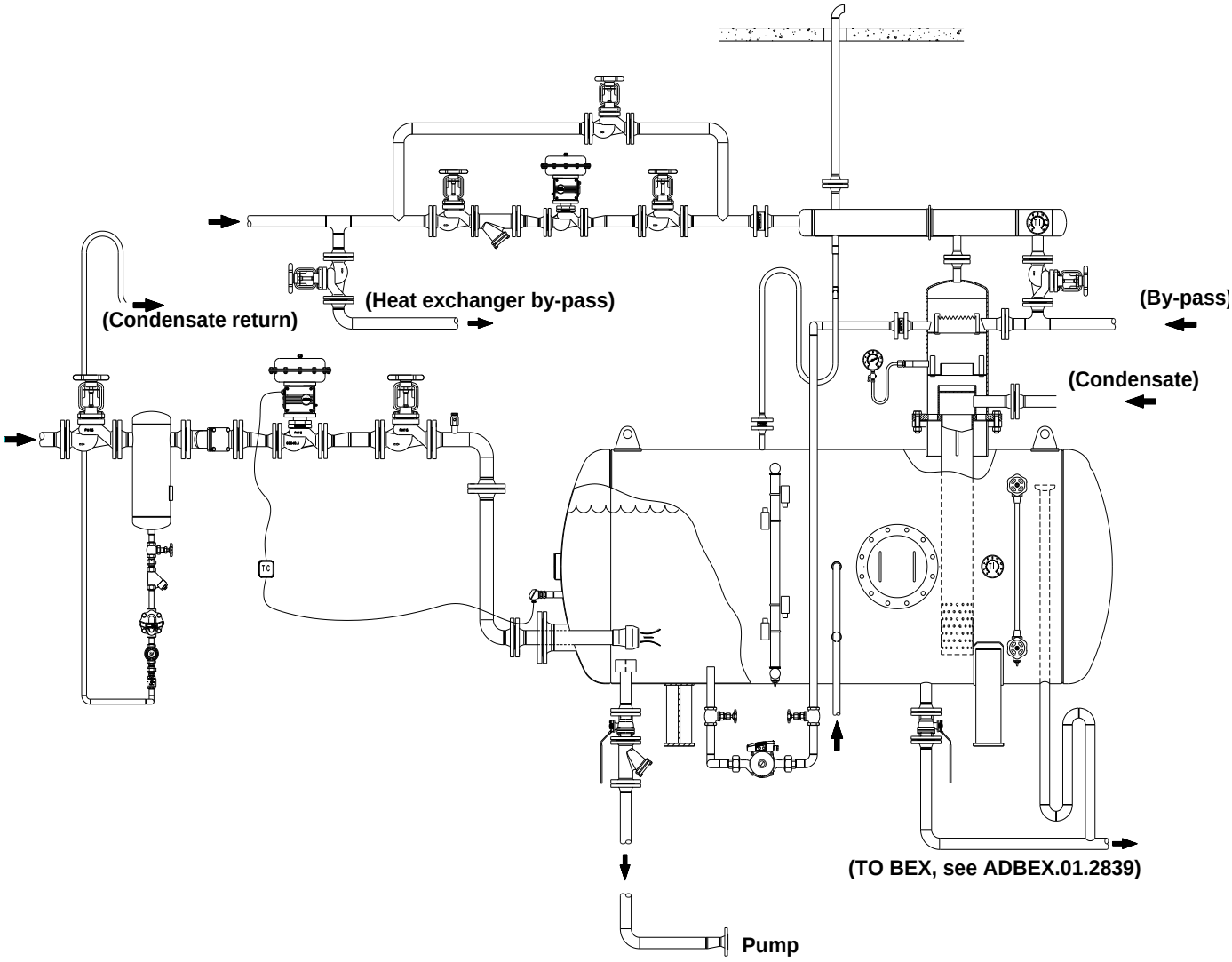
Atmospheric deaerator provides an economical system to preheat boiler feed water and drive off dissolved gasses.

The steam injector can be supplied with the flanges and pipe, ready to adapt to existing vessels.

The feed water is re-circulated using a low power re-circulating pump which will improve thermal efficiency by reducing the temperature stratification.

For more detailed information please see assembling drawing ADADGV.01.2844

SEMI-DEAERATOR SYSTEM WITH VENT CONDENSER



Atmospheric deaerator including Adcatherm-STS series complete stainless steel heat exchanger. Make up water crossing the heat exchanger will condense the flash steam, preventing energy waste and better performance of the whole system.

The steam injector can be supplied with the flanges and pipe, ready to adapt to existing vessels.

The feed water is re-circulated using a low power re-circulating pump which will improve thermal efficiency by reducing the temperature stratification.

For more detailed information please see assembling drawing ADADGV.02.2845

ADCATHERM TRAY TYPE DEAERATORS
TDG

DESCRIPTION

Adcatherm thermal deaerators are designed to heat boiler feed water and to reduce oxygen and carbon dioxide (oxygen values in the feed water of less than 0,02mg/l - 0,02 ppm, can be achieved). Remaining oxygen can be completely removed using oxygen scavenging chemicals.
Basically the complete system consists of a storage vessel, a deaeration section and a vent.

OPERATION

Return condensate and softened make-up water are introduced in the deaerator dome to be heated by a contact cascade steam heating system (counter-current flow). The majority of dissolved gases are liberated from the water at this point and they are liberated to atmosphere trough the flash steam vent line.
The deaerated water then falls to the storage vessel below, where a steam blanket ensure that no gases are reabsorbed.
A sparger pipe is installed inside the tank at the bottom level providing the necessary heating energy. A second low pressure steam supply can also be necessary.
The complete unit is supplied including all the necessary instrumentation for temperature, pressure and level control, to be described in our offer depending on the operation conditions (see table 1).

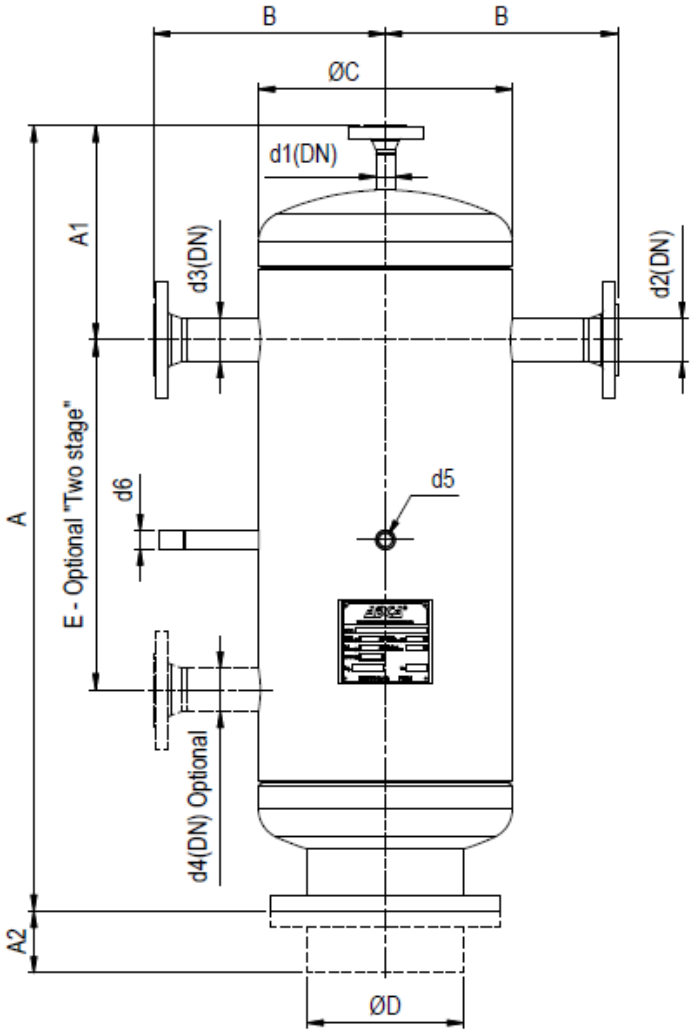
MAIN FEATURES:	Turndown (max./min flow) – 100:1 Long life expectancy
OPTIONS:	Complete stainless steel construction. Complete system including all the necessary equipments. Two stage deaerators Vent condenser for energy recover
USE:	Steam boiler feed water
AVAILABLE MODELS:	TDG – Deaerator dome
CONNECTIONS:	Flanges EN 1092-1 or ANSI. Sockets BSP or NPT Different connections on request.
CONSTRUCTION:	Carbon steel with internal stainless steel components or complete stainless steel under request.
INSTALLATION:	Deaerator dome - vertical installation. Storage vessel – cylindrical horizontal design Final dimensions and connections according to the drawing supplied after order confirmation.

DIMENSIONS (mm)									
MODEL	***FLOW ****	***A***	***A1***	***A2***	***B***	***C***	***D***	***d1***	***WEIGHT***
TDG-10	1	950	265	250	260	220	220	DN15	**
TDG-20	2	950	265	250	290	280	220	DN20	**
TDG-40	4	1100	300	300	325	350	220	DN20	**
TDG-60	6	1250	320	300	380	460	350	DN32	**
TDG-100	10	1400	355	300	425	550	350	DN32	**
TDG-140	14	1550	380	300	475	650	550	DN32	**
TDG-200	20	1950	410	300	550	800	550	DN32	**

*Maximum flow rate in m3/h (heating from 10º - 105 ºC)

** Weight in kgs to be confirmed .

d1 to d6 and certified dimensions supplied after complete data evaluation.



Deaerator dome

THERMAL DEAERATOR DATA INQUIRY		
Make-up water pressure		bar
Make-up water temperature		ºC
Make-up water flow rate		Kgs/h
Condensate return pressure		bar
Condensate temperature		ºC
Condensate flow rate		Kgs/h
Saturated heating steam pressure		bar
Feed water tank required capacity		m3
Max.dearated water flow required		Kgs/h

Table 1

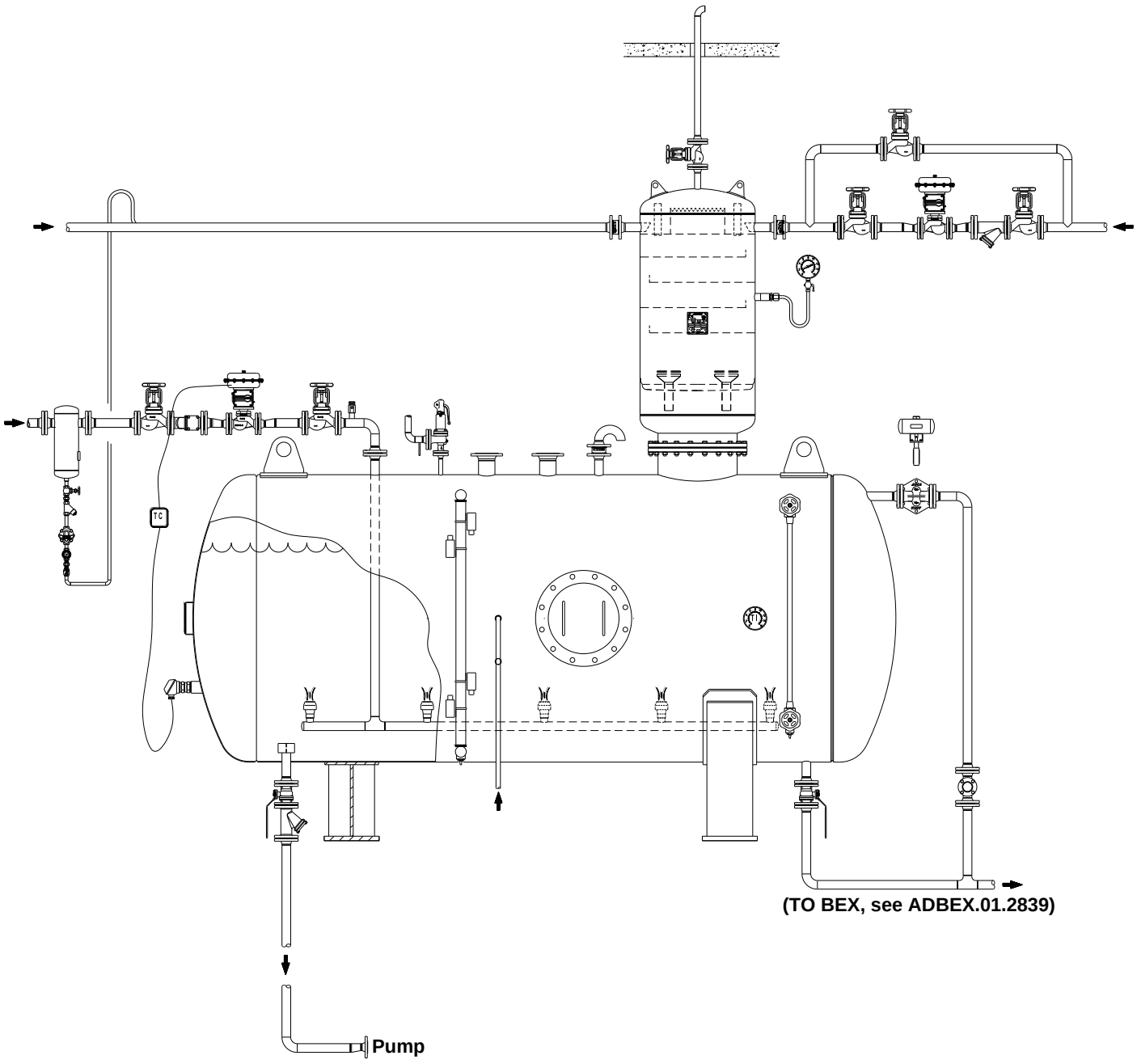
LIMITING CONDITIONS	
PS - Maximum Allow able Pressure	0,5 bar
TS - Maximum Allow able Temperature	120 ºC

Minimum operating temp.: -10ºC. Design code: AD-Merkblatt

Other conditions and CE marking on request.

TYPICAL INSTALLATIONS

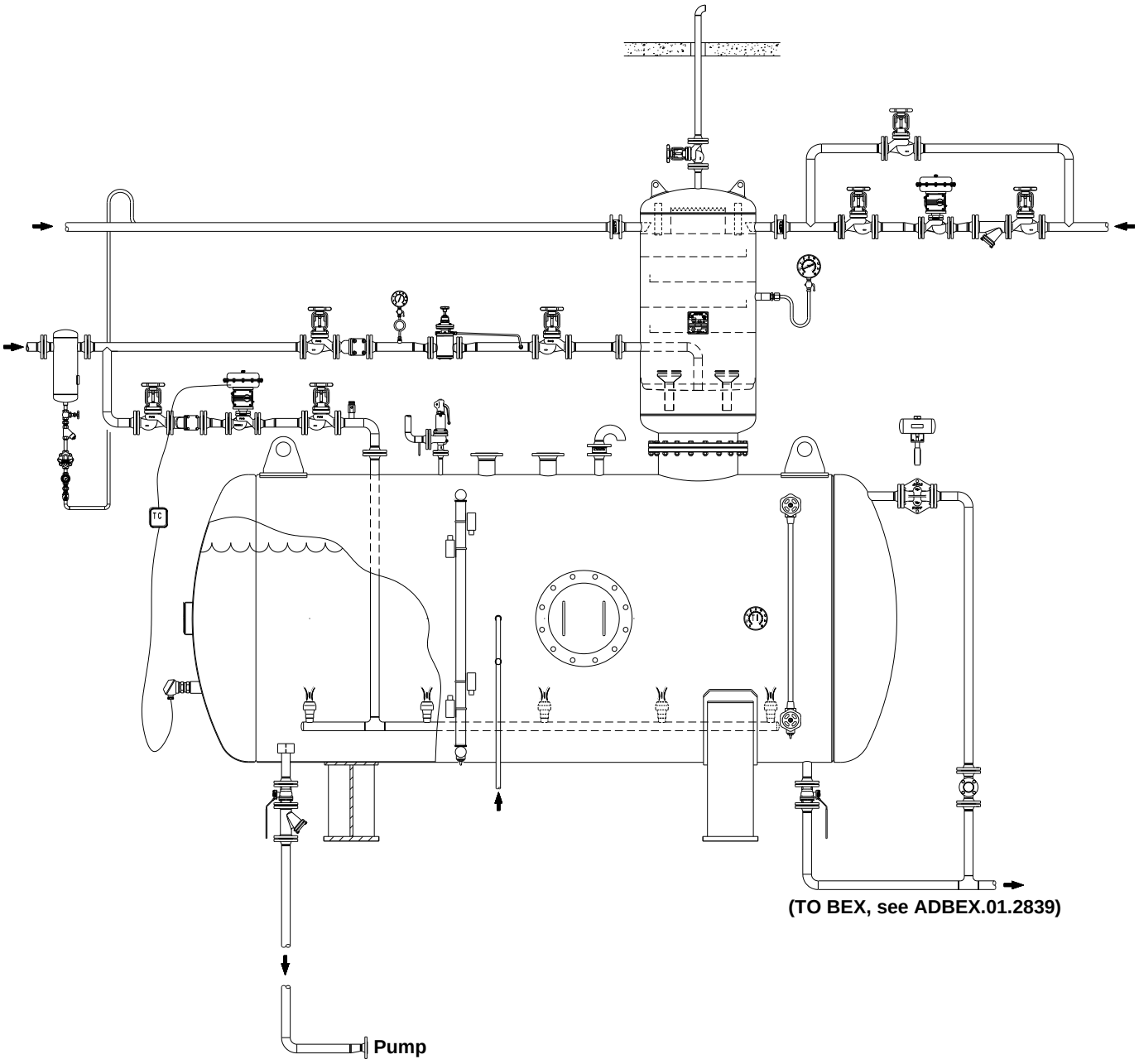
THERMAL DEAERATOR SYSTEM WITH COLD MAKE UP WATER
(without steam dome injection)



If a high percentage of hot condensate is recovered the direct steam injection in the deaerator tower is normally unnecessary, the heating steam supplied trough the steam injection system is in most cases enough.

For more detailed information please see assembling drawing ADTDGV.04.2843

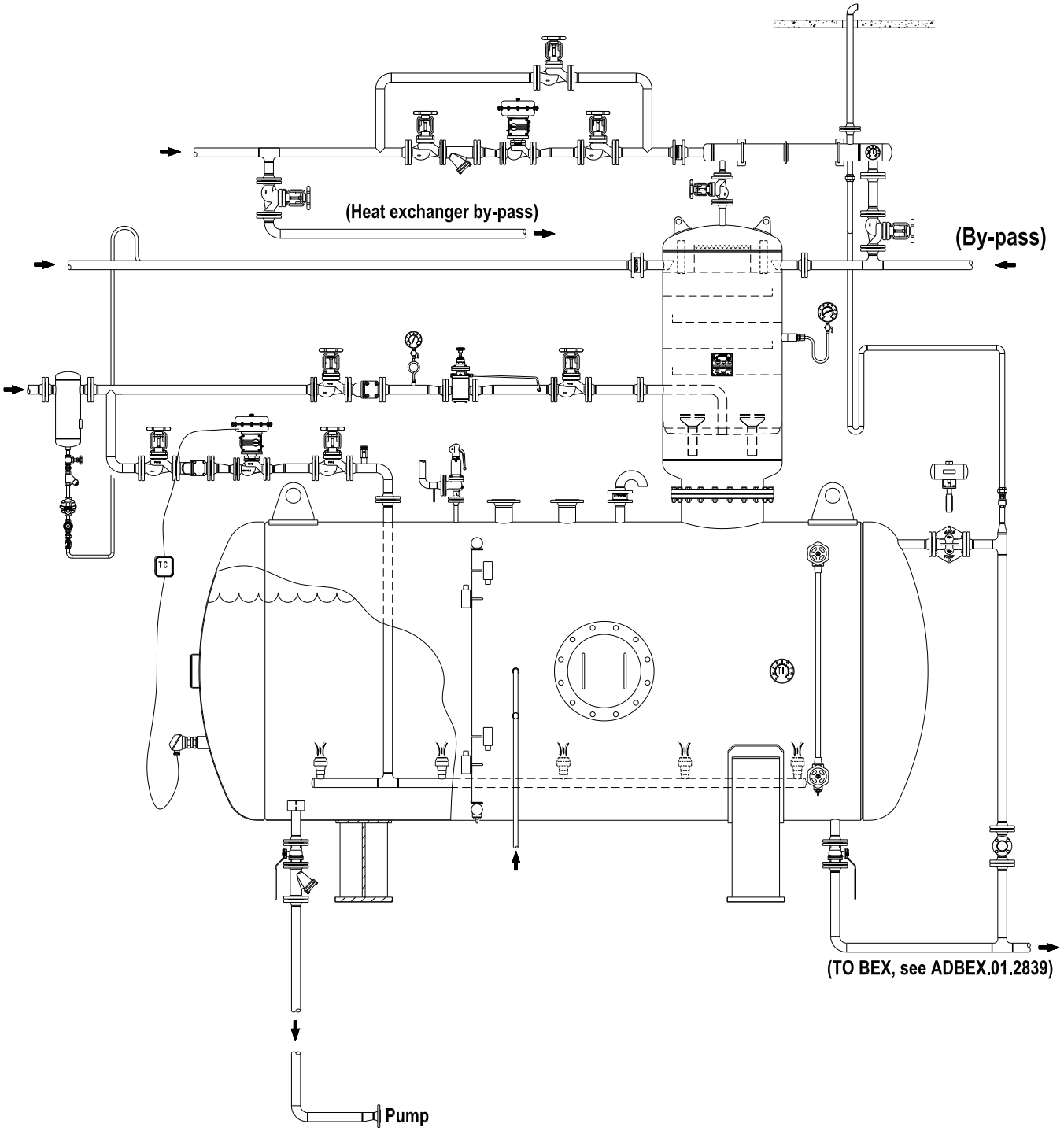
THERMAL DEAERATOR SYSTEM WITH COLD MAKE UP WATER
(with dome steam injection)



In those systems where condensate return is negligible and or high flow rates are involved an additional dome steam injection should be provided.

For more detailed information please see assembling drawing ADTDGV.01.2597

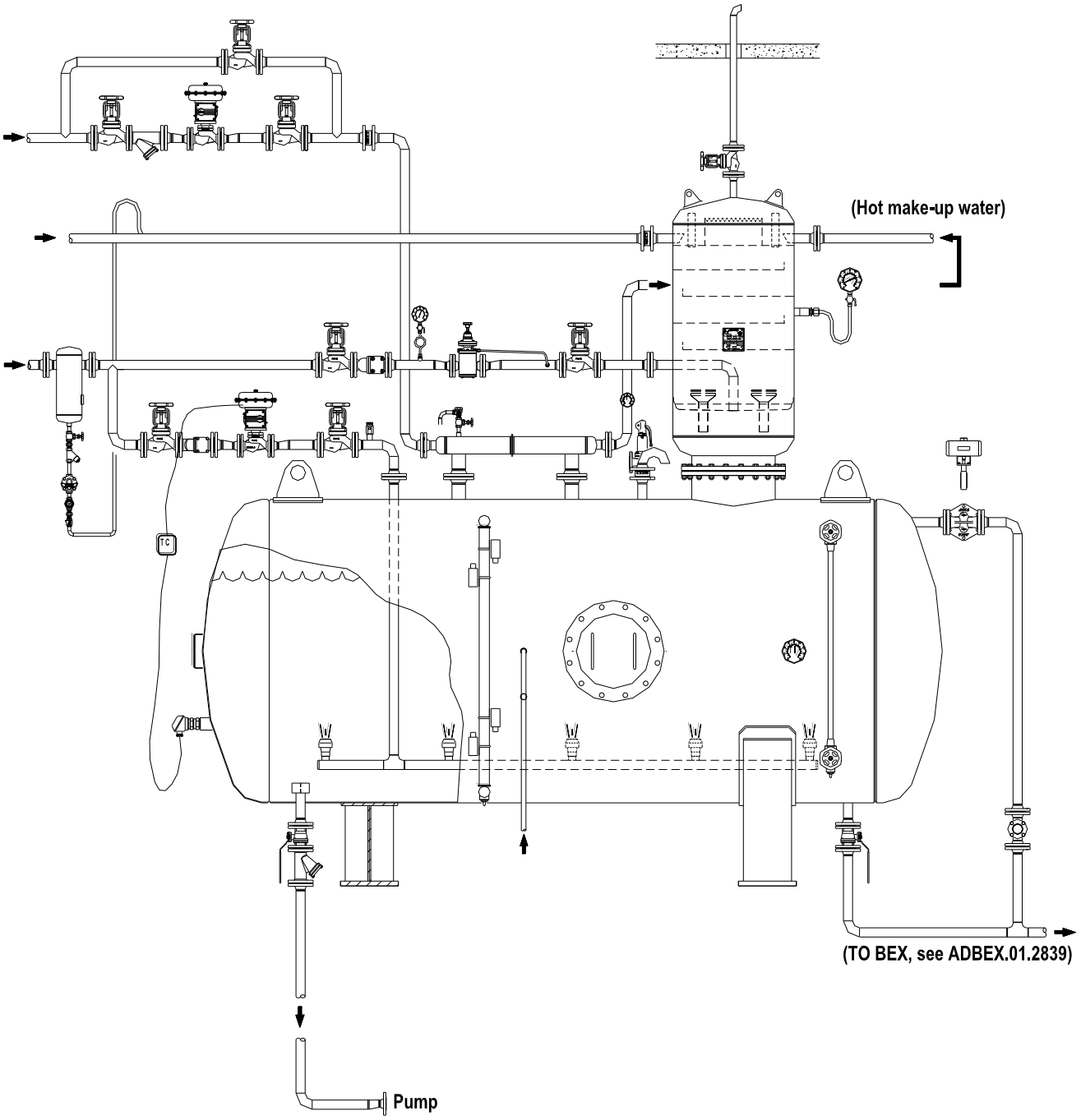
THERMAL DEAERATOR SYSTEM WITH VENT CONDENSER



Thermal deaerator including Adcatherm –STS series complete stainless steel heat exchanger. Make up water crossing the heat exchanger will condense the flash steam, preventing energy waste and better performance of the whole system.

For more detailed information please see assembling drawing ADTDGV.02.2841

THERMAL DEAERATOR SYSTEM WITH PRE-HEATING MAKE UP WATER HEAT EXCHANGER



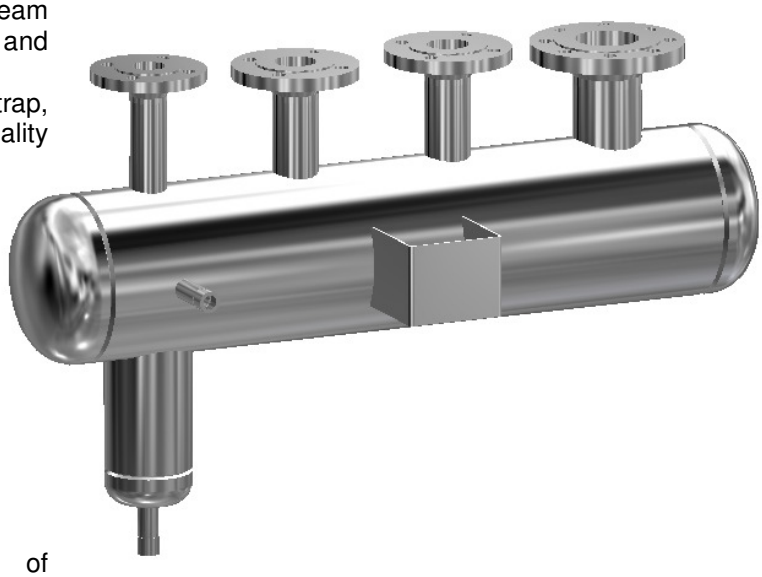
Thermal deaerator with low pressure steam to water Adcatherm-STS complete stainless steel heat exchanger, providing make up water heating.

For more detailed information please see assembling drawing ADTDGV.03.2842

STEAM DISTRIBUTION MANIFOLD
MAS

DESCRIPTION

MAS series steam distribution manifolds place the steam supply valves in one location, providing cost savings and easy control of different steam lines.
The drain connection with automatic steam trap, discharge any condensate formed, providing high quality dry steam.
Connections are flanged or threaded.



MAIN FEATURES

Several installation possibilities
Reduced field assembly costs by means of prefabrication.

OPTIONS:	Complete units including valves , pressure gauge and steam trap station Different designs
USE:	Saturated or superheated steam Water, compressed air and other fluids (on request)
AVAILABLE MODELS:	MAS-H – Horizontal steam distribution manifold MAW-H – Horizontal liquid manifold MAG-H – Horizontal gas manifold
SIZES:	DN100 to DN300.
PIPE CONNECTIONS:	Flanged EN 1092-1 PN16 and PN40 ANSI Class 150 lbs and Class 300 lbs Female screwed BSP or NPT on request.
INSTALLATION:	Always with the condensate connection pointing downwards.
DESIGN CODE:	AD Merkblatt
INQUIRY INFORMATION:	Kind of fluid, maximum operating pressure and temperature Manifold diameter (dimension B) Number of connections from left to right using suffix “I” and “O” to identify the inlets and outlets. Example: MAS-H B-168 with 1 DN100- I + 2 DN50-O + 1 DN40-O Condensate connection d1 Other relevant information like insulation thickness, instrumentation connections, etc. Note: In case of order an approval drawing shall be sent before manufacturing

CE Marking

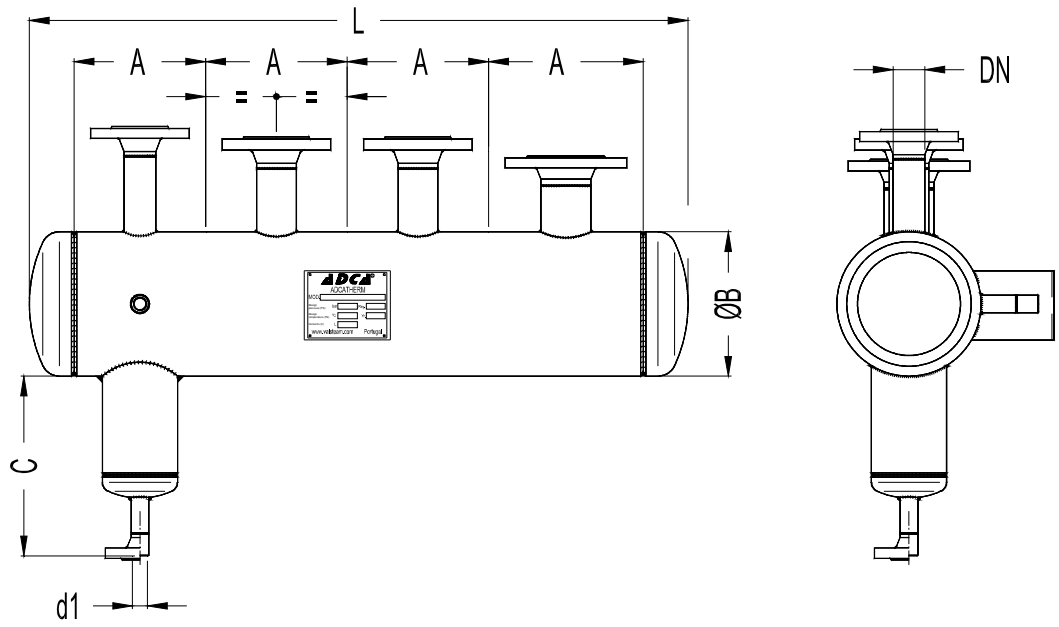
This product have been designed for use on water steam, air and other gases which are in Group 2 of the PED-European Pressure Equipment Directive 97/23/EC and it must comply with those requirements.
The product carries the CE mark when falling in category 1 and above.
Since this is not a standard product which can have different volumes and operation conditions, the conformity assessment has to be carried out case by case.

STANDARD MATERIALS	
DESIGNATION	***MATERIAL***
Body	EN10216-2 / P235GH / 1.0325
Heads	EN10028-2 / P265GH / 1.0425
Inlet / Outlet pipes	EN10216-2 / P235GH / 1.0325
DIN flanges	EN10222-2 / P250GH / 1.0460
ANSI flanges	ASTM A105 / 1.0432
Sockets	ASTM A105 / 1.0432
* Internals	EN10025-2 / S235JR / 1.0038

EN10204 3.1 certificate available if requested with the order.
* If any.

FLANGE CONNECTIONS			
Rating	***SIZE***	***EN STD.***	***ANSI STD.***
PN16	* DN15 to DN50	EN 1092-1 PN40	ANSI B16.5 Cl.150 lbs
PN16	DN65 to DN300	EN 1092-1 PN16	ANSI B16.5 Cl.150 lbs
PN25	DN15 to DN150	EN 1092-1 PN40	ANSI B16.5 Cl.300 lbs
PN25	DN200 to DN300	EN 1092-1 PN25	ANSI B16.5 Cl.300 lbs
PN40	DN15 to DN300	EN 1092-1 PN40	ANSI B16.5 Cl.300 lbs

* Flanges EN 1092-1 PN16 and PN40 from DN15 to DN50 has the same number and size of holes.



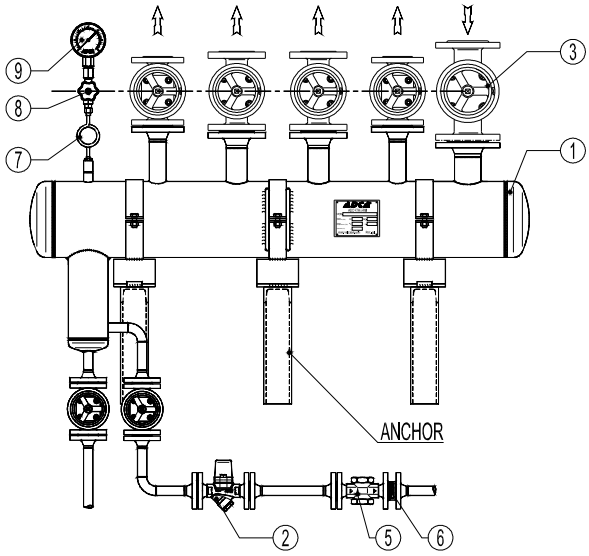
APPROXIMATE DIMENSIONS (mm)														
EN 1092-1 FLANGES														
DN	***15***	***20***	***25***	***32***	***40***	***50***	***65***	***80***	***100***	***125***	***150***	***200***	***250***	***300***
A (mm)	145	155	165	190	200	215	235	250	270	300	335	395	455	510

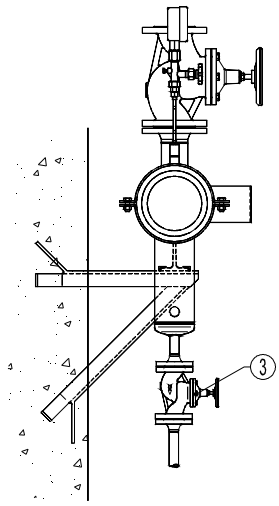
Suggested dimensions for standard EN 1092-1 PN16-40 flanged globe valves.

APPROXIMATE DIMENSIONS (mm)							
STANDARD PIPES							
Ø B	***114***	***140***	***168***	***220***	***275***	***325***	***357***
D (mm)	40	45	55	70	80	90	105
DN *	65	80	100	150	200	250	300

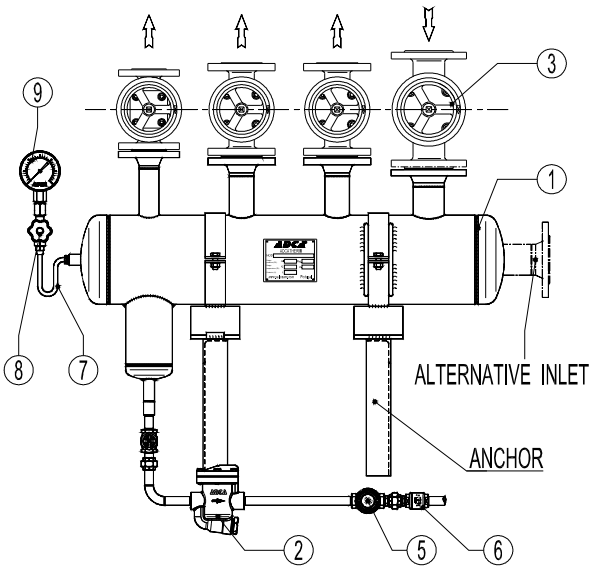
* Maximum recommended size connection.

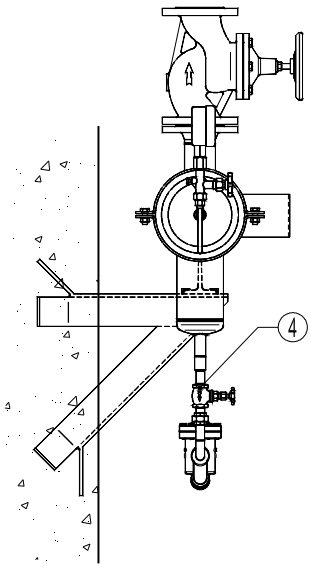
TYPICAL INSTALLATIONS



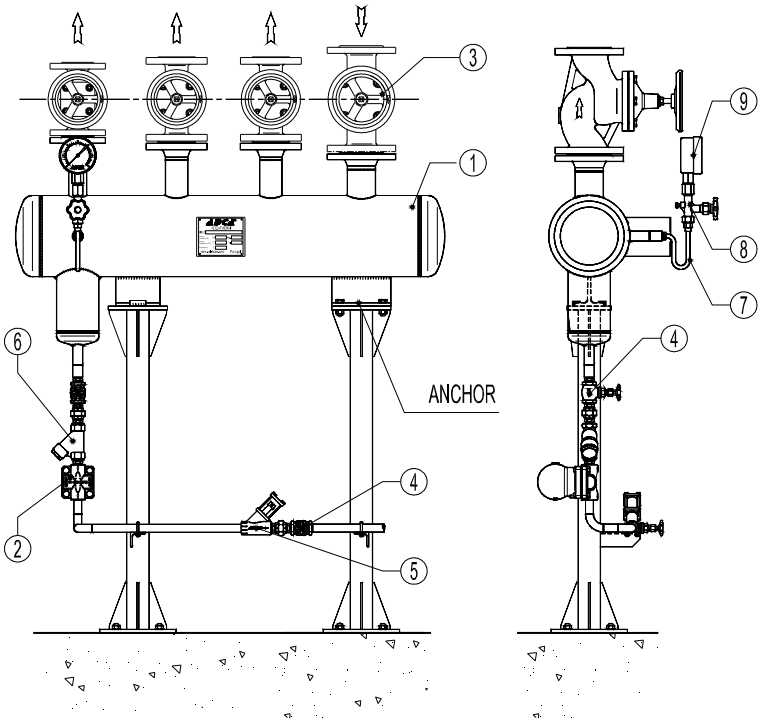


MATERIALS	
Pos. Nr.	***REFERENCE***
1	MAS-H - Manifold
2	BM32 - Bimetallic steam trap
3	VF16 - Bellow seal valve
5	DW40 - Sight glass
6	RD40 - Check valve
7	GSC-40 Gauge siphon
8	GC-400 - Gauge cock
9	MAN-100 - Pressure gauge



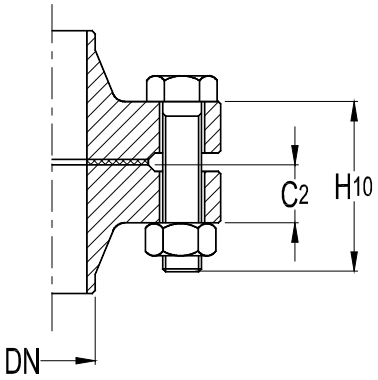


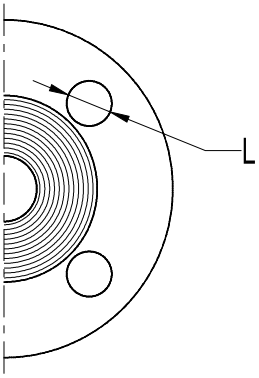
MATERIALS	
Pos. Nr.	***REFERENCE***
1	MAS-H - Manifold
2	IB12 - Inverted bucket trap
3	VF16 - Bellow seal valve
4	GV32B - Globe valve
5	SW12 - Sight glass
6	RT25 - Check valve
7	GSU40- Gauge siphon
8	GC-400 - Gauge cock
9	MAN-100 - Pressure gauge



MATERIALS	
Pos. Nr.	***REFERENCE***
1	MAS-H - Manifold
2	FLT17LC - Float steam trap *
3	VF16 - Bellow seal valve
4	GV32B - Globe valve
5	SCK - Sight checker
6	IS16 - Y strainer
7	GSU40- Gauge siphon
8	GC-400 - Gauge cock
9	MAN-100 - Pressure gauge

* Recommended for low pressure only.





BOLTING DIMENSIONS FOR FLANGES

DN	EN 1092-1 Type 11 PN16					EN 1092-1 Type 11 PN25					EN 1092-1 Type 11 PN40				
	C2	*Ø L*	*Bolting*		*H 10*	*C2*	*Ø L*	*Bolting*		*H 10*	*C2*	*Ø L*	*Bolting*		*H 10*
			Nr.	*Size*				*Nr.*	*Size*				*Nr.*	*Size*	
15	16	14	4	M12	50	16	14	4	M12	50	16	14	4	M12	50
20	18	14	4	M12	55	18	14	4	M12	55	18	14	4	M12	55
25	18	14	4	M12	55	18	14	4	M12	55	18	14	4	M12	55
32	18	18	4	M16	55	18	18	4	M16	55	18	18	4	M16	55
40	18	18	4	M16	55	18	18	4	M16	55	18	18	4	M16	55
50	18	18	4	M16	55	20	18	4	M16	60	20	18	4	M16	60
65	18	18	4*	M16	55	22	18	8	M16	65	22	18	8	M16	65
80	20	18	8	M16	60	24	18	8	M16	70	24	18	8	M16	70
100	20	18	8	M16	60	24	22	8	M20	75	26	22	8	M20	75
125	22	18	8	M16	65	26	26	8	M24	80	28	26	8	M24	90
150	22	22	8	M20	70	28	26	8	M24	90	30	26	8	M24	90
200	24	22	12	M20	75	30	26	12	M24	90	36	30	12	M27	110
250	26	26	12	M24	80	32	30	12	M27	100	42	33	12	M30	120
300	28	26	12	M24	90	34	30	16	M27	100	52	33	16	M30	140

* Flange EN 1092-1 DN65 PN16 with 4 holes as standard. Flange with 8 holes upon request.

Motive Pressure bar	Total Lift bar	FLOW RATE IN Kg/h Installation with 300 mm filling head above the pump cover			
		DN 25 x DN 25	DN 40 x DN 40	DN 50 x DN 50	DN 80 x DN 50
1	0,35	840	1490	2320	4480
2		1030	1520	3160	5240
3		1140	1640	3560	5640
4		1180	1680	3840	5840
5		1240	1740	3910	5900
6		1270	1760	3940	5980
8		1300	2200	3990	6030
10		1310	2205	4000	6080
2	1	805	1560	2550	4080
3		940	1790	2990	4720
4		1080	1930	3160	5080
5		1110	2010	3200	5280
6		1140	2090	3250	5400
8		1180	2190	3280	5490
10		1190	2200	3320	5560
3	2	780	1495	2470	3510
4		900	1690	2620	3950
5		1000	1820	2830	4230
6		1040	1910	2860	4740
8		1100	2010	2880	4880
10		1110	2060	2900	4960
4	3	740	1400	2360	3480
5		860	1545	2540	3640
6		910	1675	2560	3720
8		970	1805	2590	4050
10		980	1850	2650	4110
5	4	720	1335	2280	2690
6		820	1480	2460	2860
8		910	1675	2500	3190
10		930	1760	2540	3380
6	5	680	1290	2080	2520
8		740	1530	2180	2740
10		810	1630	2220	2860
7	6	660	1230	1880	1940
8		730	1370	1940	2240
10		820	1490	2150	2360

Chart 1 (Based on liquid specific gravity 0,9 - 1,0)

Example:

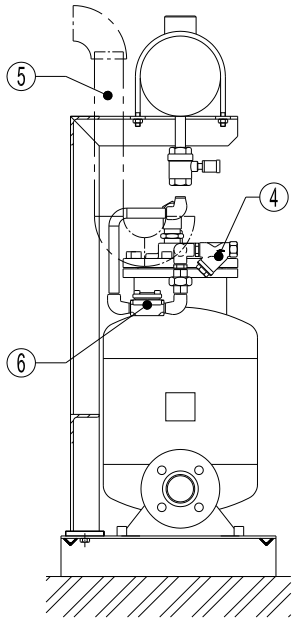
Condensate load	1800 Kg/h
Filling head	150 mm
Motive fluid	Compressed air
Available pressure	8 bar
Vertical lift after pump	6 m
Return piping pressure	1,5 bar
Piping friction pressure drop	Negligible

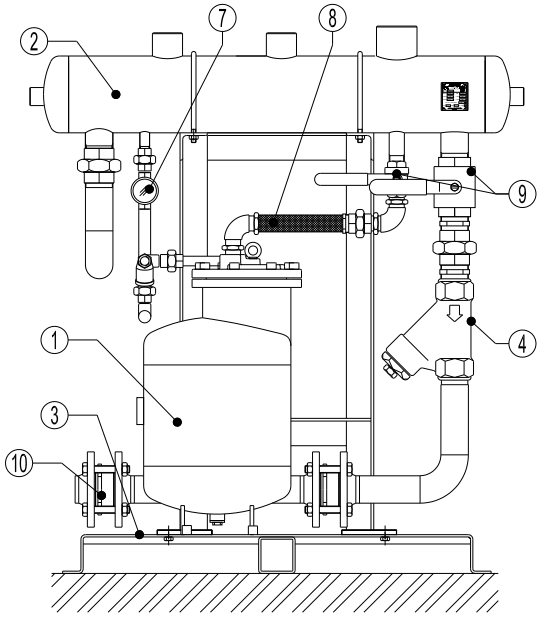
Calculations:
Total back pressure:1,5bar + (6mx0,0981)= 2,09bar
Pump choice, assuming steam as motive pressure at 8bar and a back pressure of 3bar, the DN50 pump has a capacity of 2590 kg/h according to Chart 1.

Correction for filling Head:
With 150 mm filling head the correction factor from chart 3 is 0,7. The corrected capacity is, 2590Kgs/h x 0,7 = 1813 kg/h

Correction for air as a motive fluid:
The % back pressure 2,09bar/8bar = 30%
The correction factor from chart 2, is 1,08.
The corrected capacity is, 1813kg/h x 1,08=1958Kg/h, and so a DN50 pump is still recommended.

PACKAGED AUTOMATIC PUMP UNIT
(Suitable for steam supply)





MATERIALS		
POS.	***DESIGNATION***	***MODEL***
1	Adcamat pump	POP or PPO series
2	Receiver	-
3	Metal frame	-
4	Y Strainer	IS16
5	Overflow	-
6	Steam trap	FLT or TH series
7	Sigh glass	SW
8	Flexible hose	St.Steel
9	Ball valve	St.Steel
10	Check valves	RD40

The ADCAMAT Packaged unit comprises an Adcamat POP or PPO14 pump, a vented receiver and all auxiliary items, compactly mounted on a metal frame piped and ready for connection.
Packaged units save time, work and site costs. In addition they ensure that installation of the pump is correct in every detail.
Two or more units can be connected in parallel to cope with flow rates beyond the capacity of a single pump. A DUPLEX PACKAGED assembly is also available, consisting of two pumps installed in the same packaged.
Units operating with compressed air are also available.