

## ADCATHERM TRAY TYPE DEAERATORS TDG

### DESCRIPTION

The TDG series tray type thermal deaerators are designed to heat boiler feed water and reduce oxygen and carbon dioxide levels (oxygen levels in the feed water of less than 0,02 mg/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

Returning 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). Most of the dissolved gases are liberated from the water at this point, and they are released to the atmosphere through the flash steam vent line.

The deaerated water then falls to the storage vessel below, where a steam blanket ensures 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 equipment.  
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 completely in 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.

#### LIMITING CONDITIONS

PS – Maximum allowable pressure	0,5 bar
TS – Max. allowable temperature	120 °C

Minimum operating temp.: -10 °C.

Design code: AD – Merkblatt.

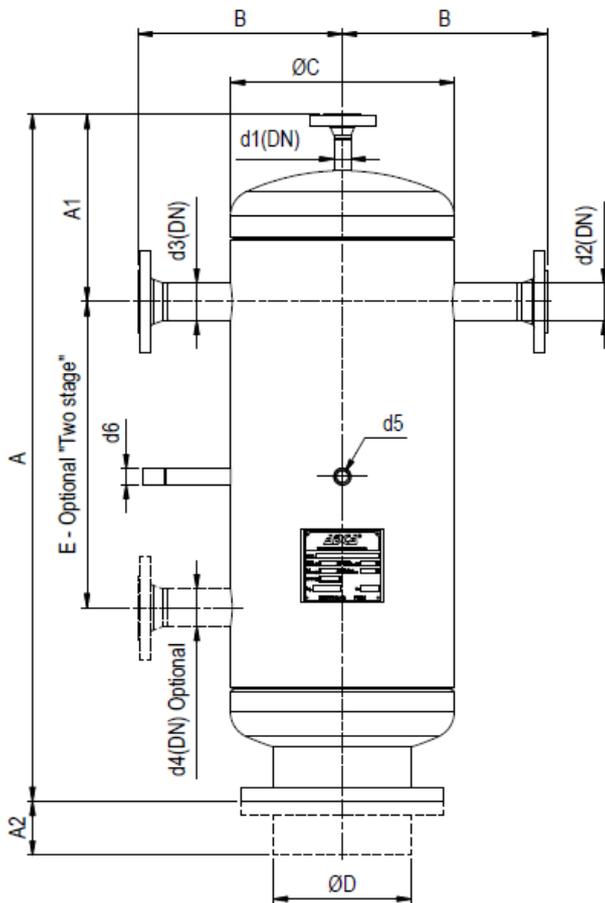
Other conditions and CE marking on request.

**DIMENSIONS (mm)**

MODEL	FLOW *	A	A1	A2	B	C	D	d1	d2	d3	d4	d5	d6	WEIGHT (kg)
<b>TDG-10</b>	1	950	265	250	260	220	220	DN 15	DN 25	DN 25	DN 50	G 1/2"	G 1/2"	47,2
<b>TDG-20</b>	2	950	265	250	290	273	220	DN 20	DN 25	DN 25	DN 50	G 1/2"	G 1/2"	56,1
<b>TDG-40</b>	4	1100	300	300	325	355	220	DN 20	DN 50	DN 50	DN 50	G 1/2"	G 1/2"	96,1
<b>TDG-60</b>	6	1250	320	300	380	457	273	DN 32	DN 50	DN 50	DN 80	G 1/2"	G 1/2"	163,4
<b>TDG-100</b>	10	1400	355	300	425	508	324	DN 32	DN 80	DN 80	DN 100	G 1/2"	G 1/2"	225,7
<b>TDG-140</b>	14	1550	380	300	475	610	407	DN 32	DN 80	DN 80	DN 100	G 1/2"	G 1/2"	330,4
<b>TDG-200</b>	20	1950	410	300	550	813	508	DN 32	DN 100	DN 100	DN 100	G 1/2"	G 1/2"	528,4

\* Maximum flow rate in m<sup>3</sup>/h (heating from 10 °C - 105 °C).

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



Deaerator dome

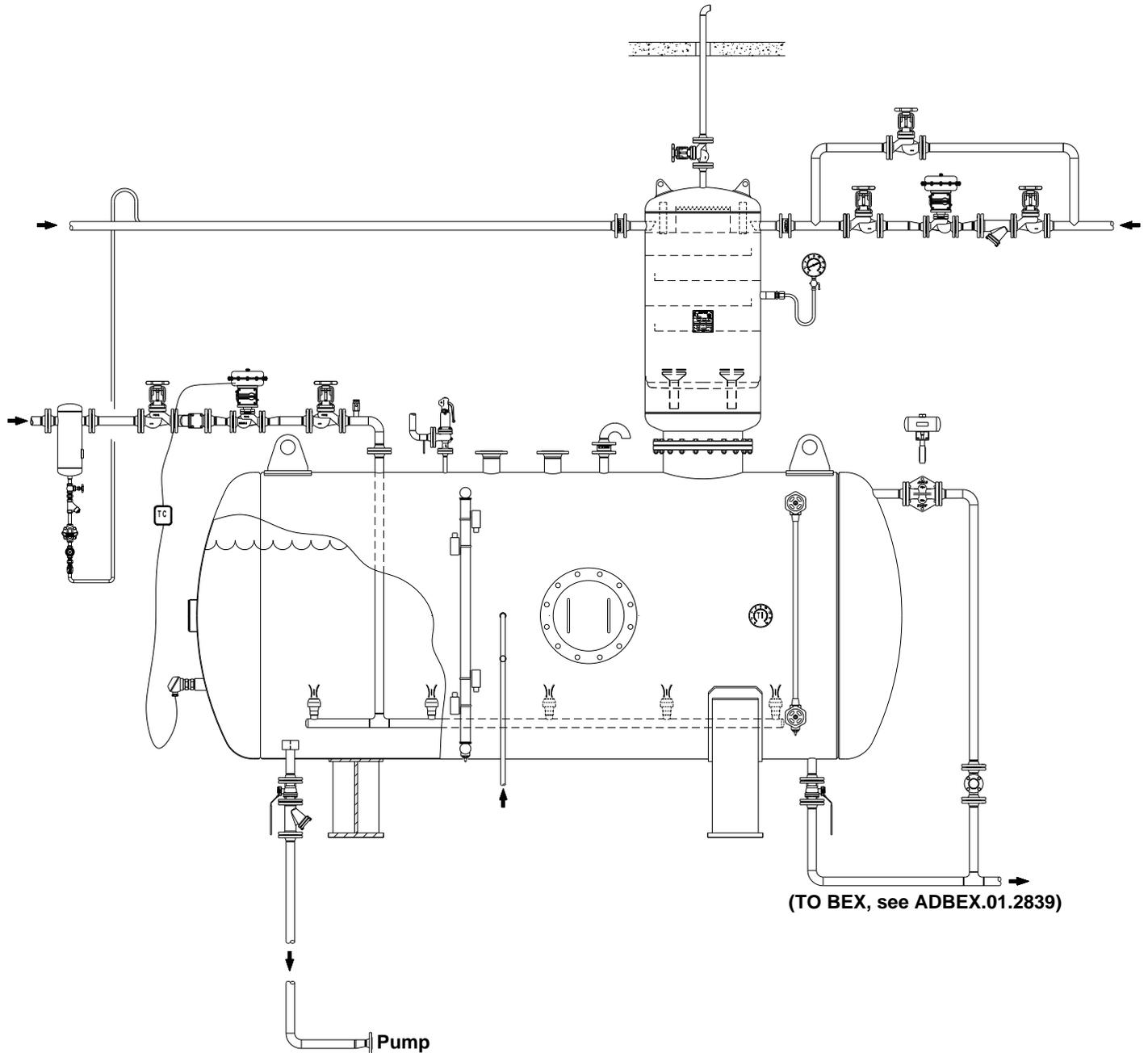
**THERMAL DEAERATOR DATA INQUIRY**

Make-up water pressure		bar
Make-up water temperature		°C
Make-up water flow rate		kg/h
Condensate return pressure		bar
Condensate temperature		°C
Condensate flow rate		kg/h
Saturated heating steam pressure		bar
Feed water tank required capacity		m <sup>3</sup>
Max. deaerated water flow required		kg/h

Table 1

## TYPICAL INSTALLATIONS

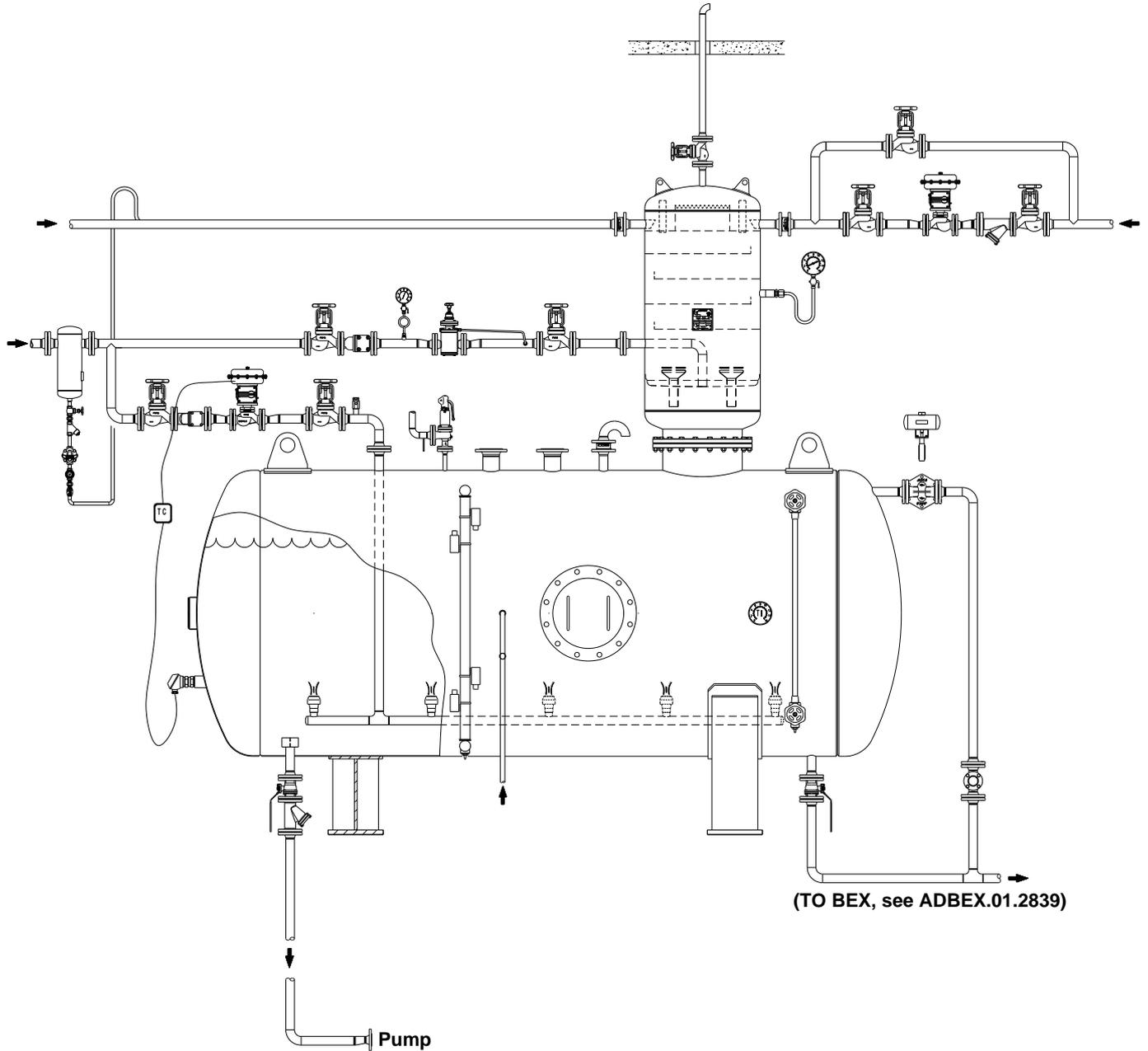
### THERMAL DEAERATOR SYSTEM WITH COLD MAKE UP WATER (without dome steam injection)



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

For more detailed information please consult assembly drawing ADTDGV.04.2843.

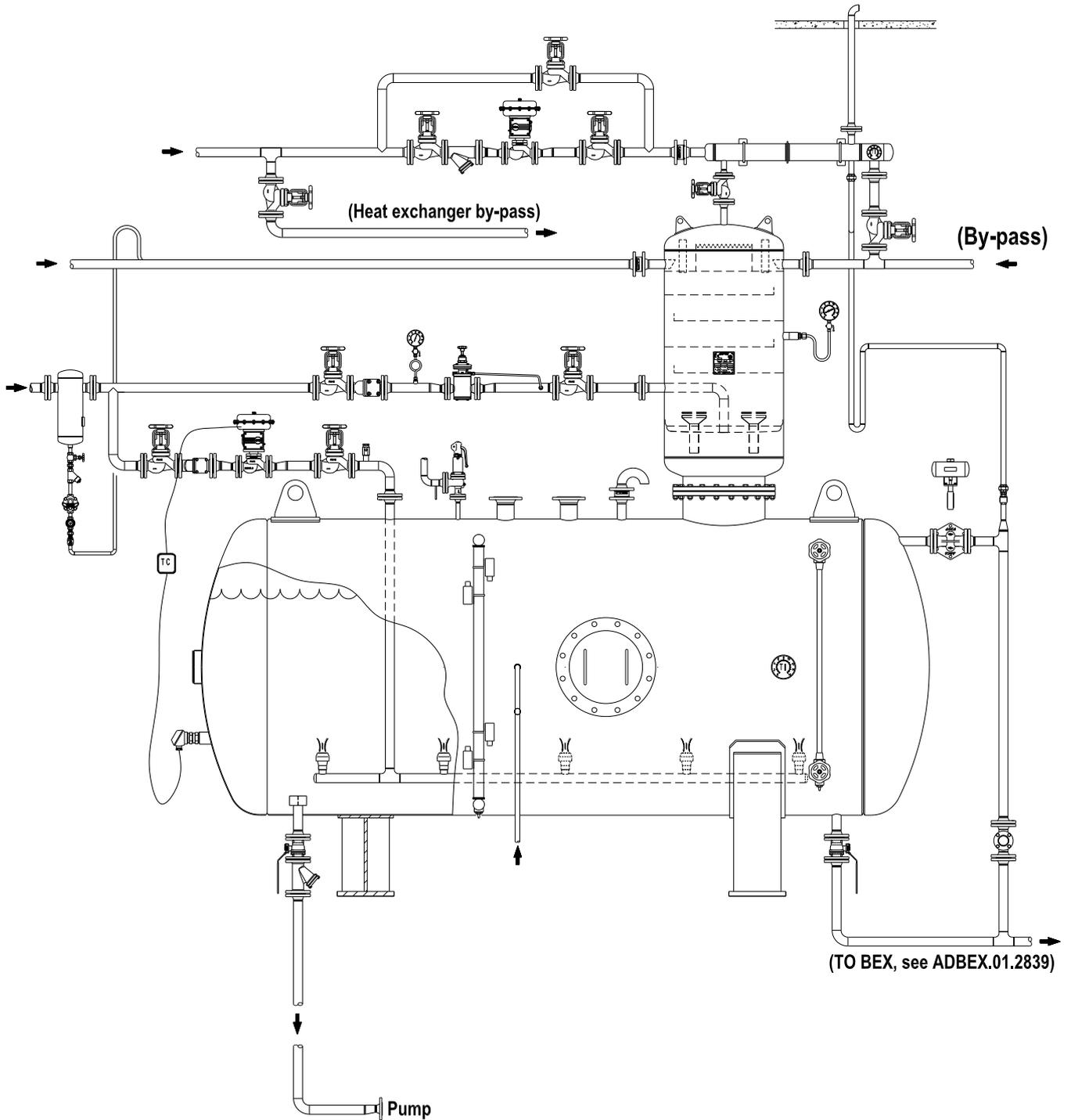
**THERMAL DEAERATOR SYSTEM WITH COLD MAKE UP WATER  
 (with dome steam injection)**



In 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 consult assembly drawing ADTDGV.01.2597.

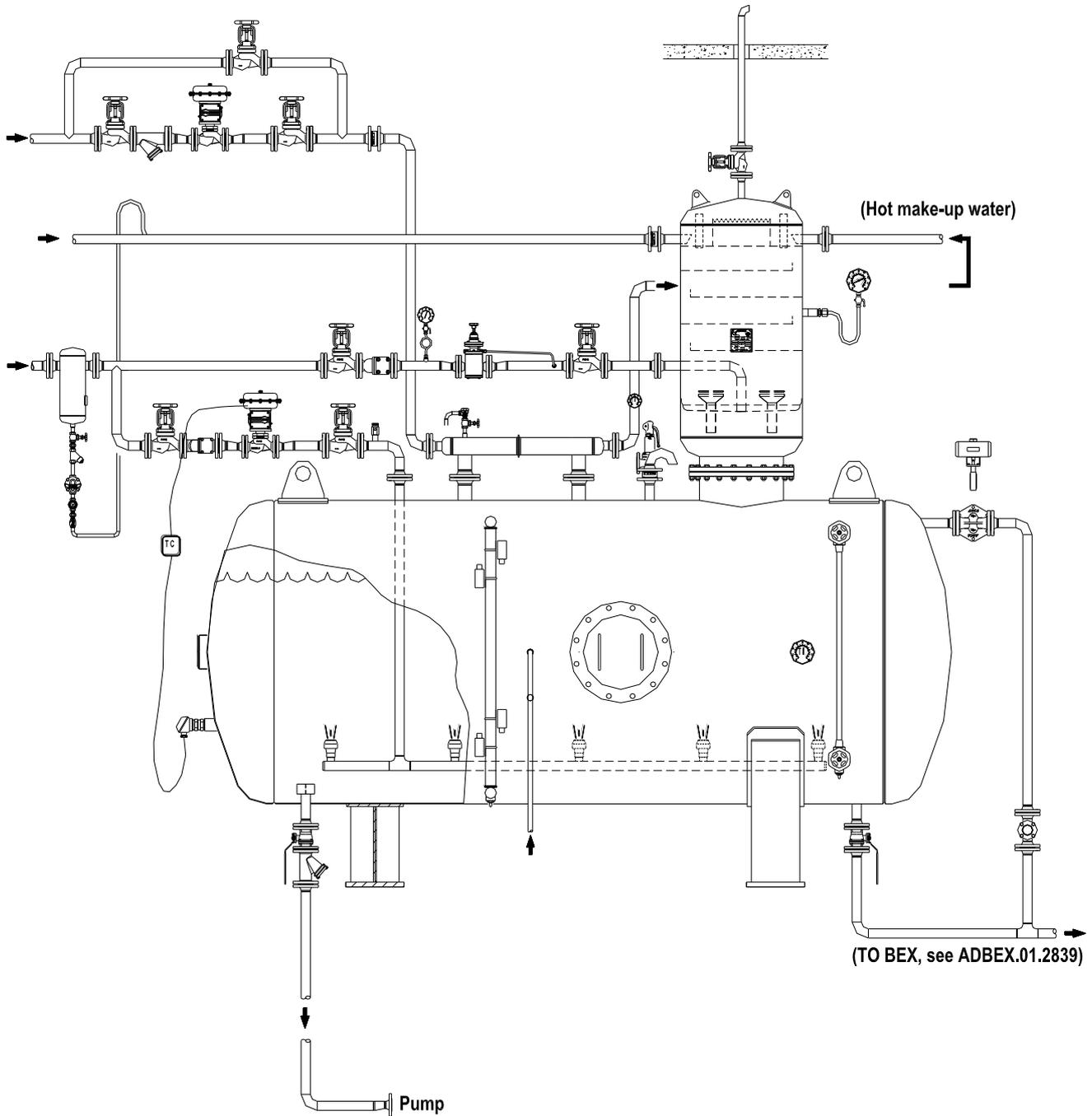
**THERMAL DEAERATOR SYSTEM WITH VENT CONDENSER**



Thermal deaerators, 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 increasing performance of the whole system.

For more detailed information please consult assembly 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.