TRAY TYPE DEAERATORS
TDG

DESCRIPTION

The ADCATherm 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.
The complete system consists of a storage vessel, a deaeration head 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 may 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).

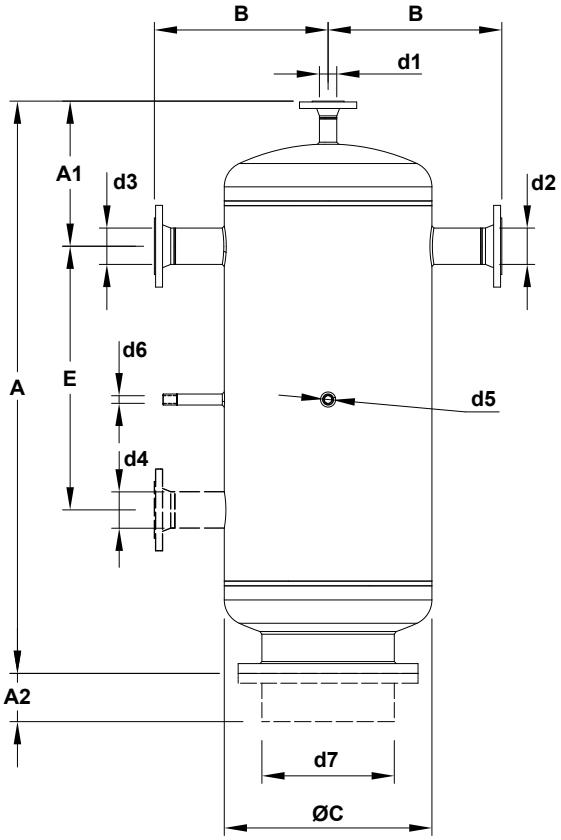
MAIN FEATURES

Turndown (max./min. flow) – 100:1.
Long life expectancy.
All internals in stainless steel, independently of body material.

OPTIONS:	Complete system including all the necessary components. Two-stage deaerators. Vent condenser for energy recovery.
USE:	Steam boiler feed water.
AVAILABLE MODELS:	TDGS – carbon steel. TDGSS – stainless steel.
SIZES:	TDG-10, TDG-20, TDG-40, TDG-60, TDG-100, TDG-140 and TDG-200.
CONNECTIONS:	Flanged EN 1092-1 or ASME B16.5. ISO or NPT threaded sockets. Others on 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 – Maximum allowable temperature	120 ºC

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



DIMENSIONS (mm)															
SIZE	**FLOW ***	**A**	**A1**	**A2**	**B**	**ØC**	**d1**	**d2**	**d3**	**d4*** **	**d5 ****	**d6 ****	**d7**	**E *** **	**WGT. (kg)**
TDG-10	1	950	265	250	260	220	DN 15	DN 25	DN 25	DN 50	1/2"	1/2"	DN 200	485	47,2
TDG-20	2	950	265	250	290	273	DN 20	DN 25	DN 25	DN 50	1/2"	1/2"	DN 200	415	56,1
TDG-40	4	1100	300	300	325	355	DN 20	DN 50	DN 50	DN 50	1/2"	1/2"	DN 200	490	96,1
TDG-60	6	1250	320	300	380	457	DN 32	DN 50	DN 50	DN 80	1/2"	1/2"	DN 250	550	163,4
TDG-100	10	1400	355	300	425	508	DN 32	DN 80	DN 80	DN 100	1/2"	1/2"	DN 300	645	225,7
TDG-140	14	1550	380	300	475	610	DN 32	DN 80	DN 80	DN 100	1/2"	1/2"	DN 400	720	330,4
TDG-200	20	1950	410	300	550	813	DN 32	DN 100	DN 100	DN 100	1/2"	1/2"	DN 500	890	528,4

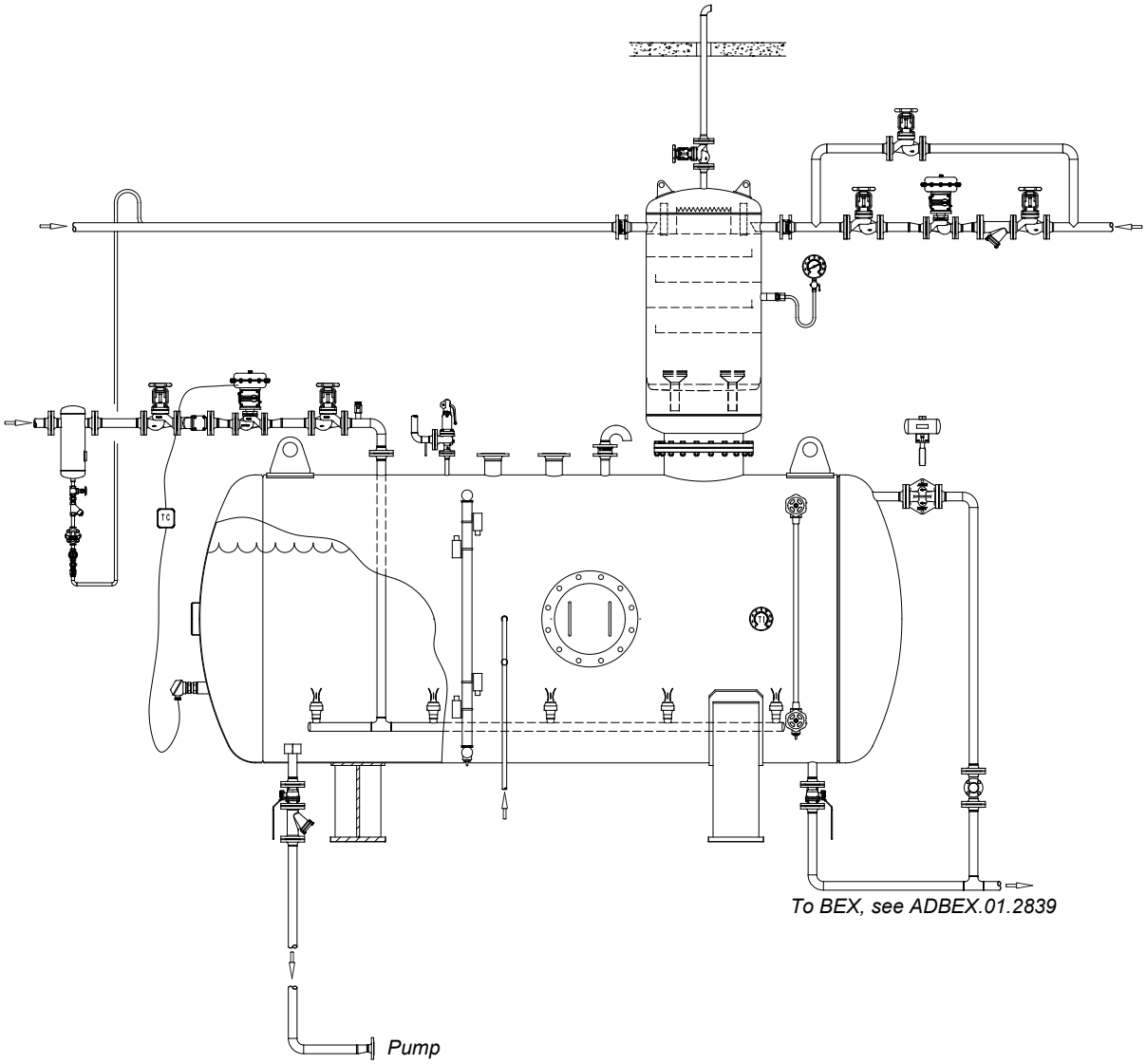
d1 – vent; d2 – soft water inlet; d3 – condensate return; d4 – steam injection; d5 and d6 – instrument / sensor connection; d7 – tank.
* Maximum flow rate in m³/h (heating from 10 ºC to 105 ºC).
** As standard, in units manufactured with EN 1092-1 flanges, the drain connection is female threaded ISO 7 Rp. In models with ASME B16.5 flanges, this connection is female threaded NPT. Alternatively, EN 1092-1 or ASME B16.5 flanged drain connections can be supplied (ASME in the same class as main connections).
*** Optional.
Remarks: Certified dimensions supplied after complete data evaluation.

THERMAL DEAERATOR DATA INQUIRY	
Make-up water pressure	bar
Make-up water temperature	ºC
Make-up water flow rate	kg/h
Condensate return pressure	bar
Condensate temperature	ºC
Condensate flow rate	kg/h
Saturated heating steam pressure	bar
Feed water tank required capacity	m^3
Maximum deaerated water flow required	kg/h

Table 1

TYPICAL INSTALLATION

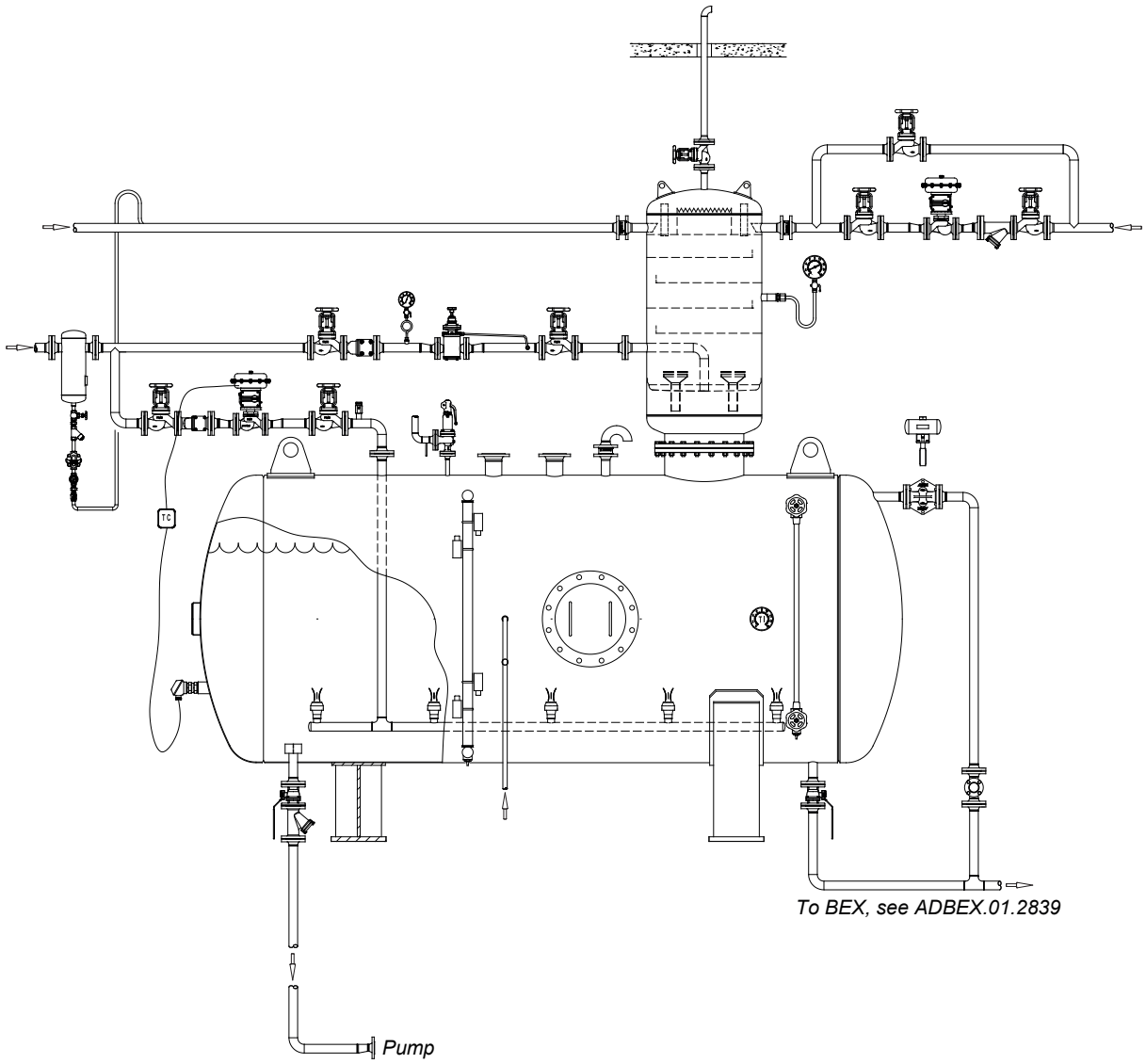
THERMAL DEAERATOR SYSTEM WITH COLD MAKE-UP WATER (WITHOUT DOME STEAM INJECTION)



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.

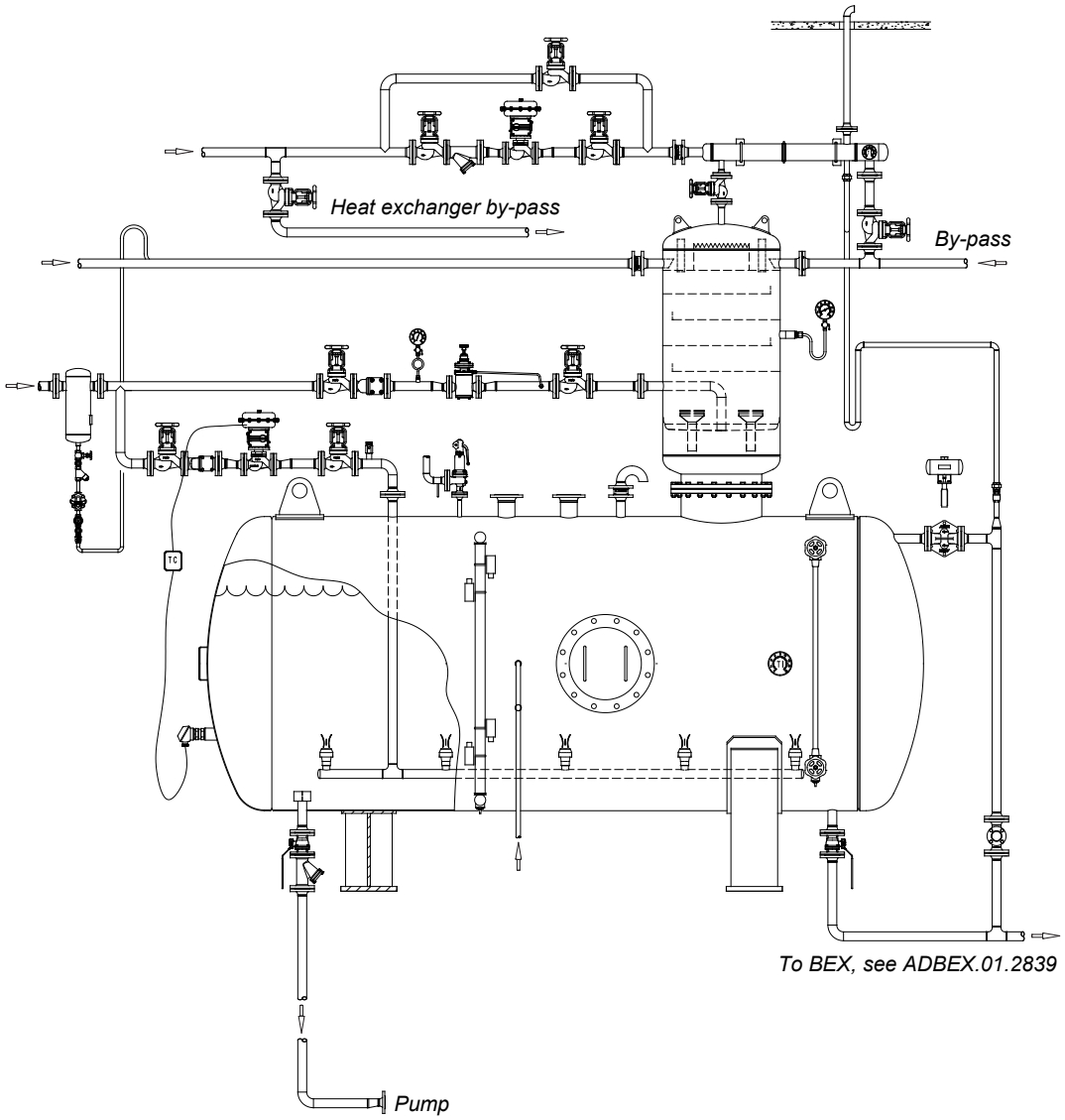
THERMAL DEAERATOR SYSTEM WITH COLD MAKE-UP WATER (WITH DOME STEAM INJECTION)



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.

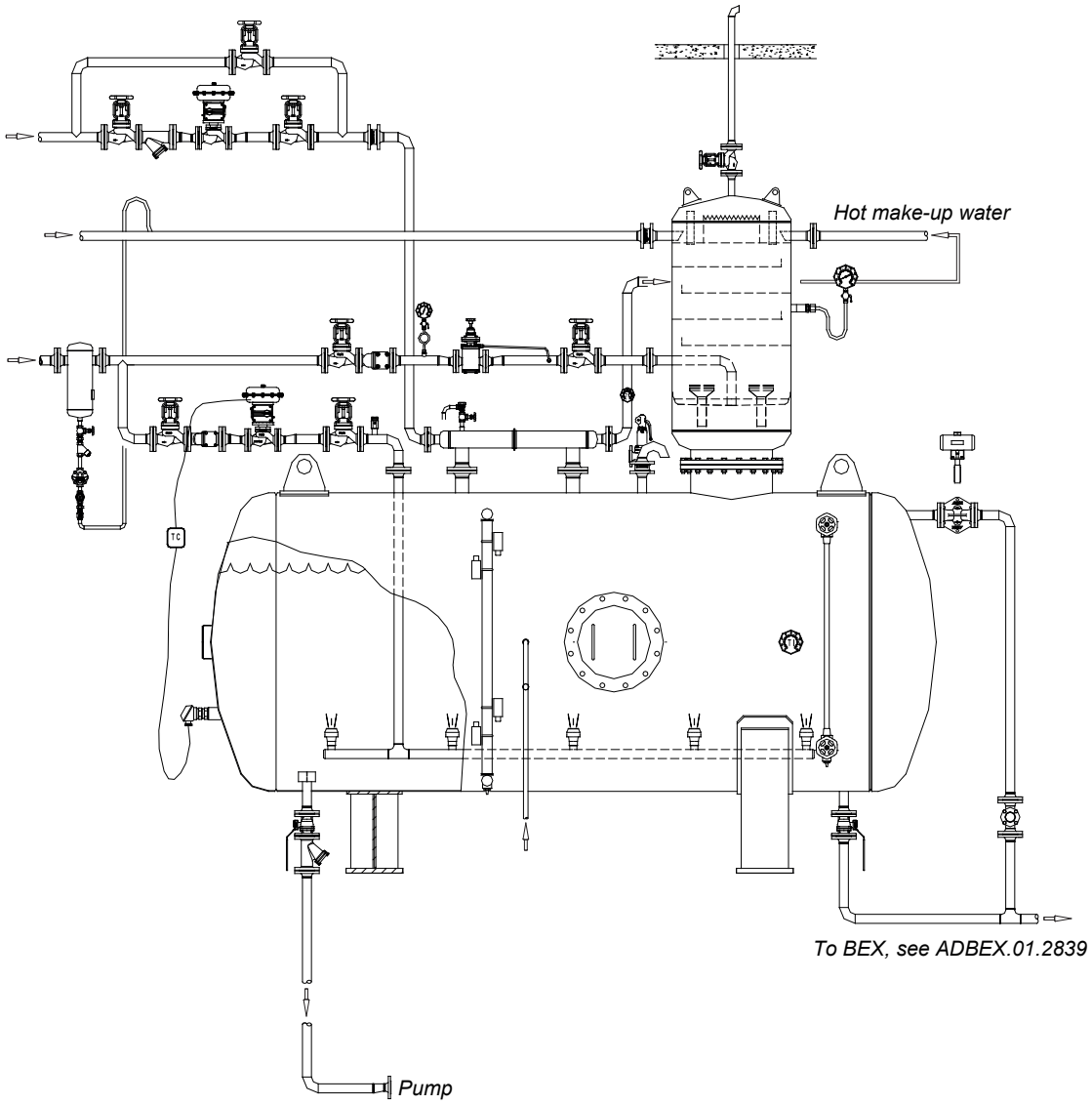
THERMAL DEAERATOR SYSTEM WITH VENT CONDENSER



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 see 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 assembly drawing ADTDGV.03.2842.