BOLDNESS WITH CARE

AB&CO BOILERS & HEATERS

Sustainable
Process Heating

Electric Steam Boilers
Industrial Design

AB&CO - TT BOILERS A/S
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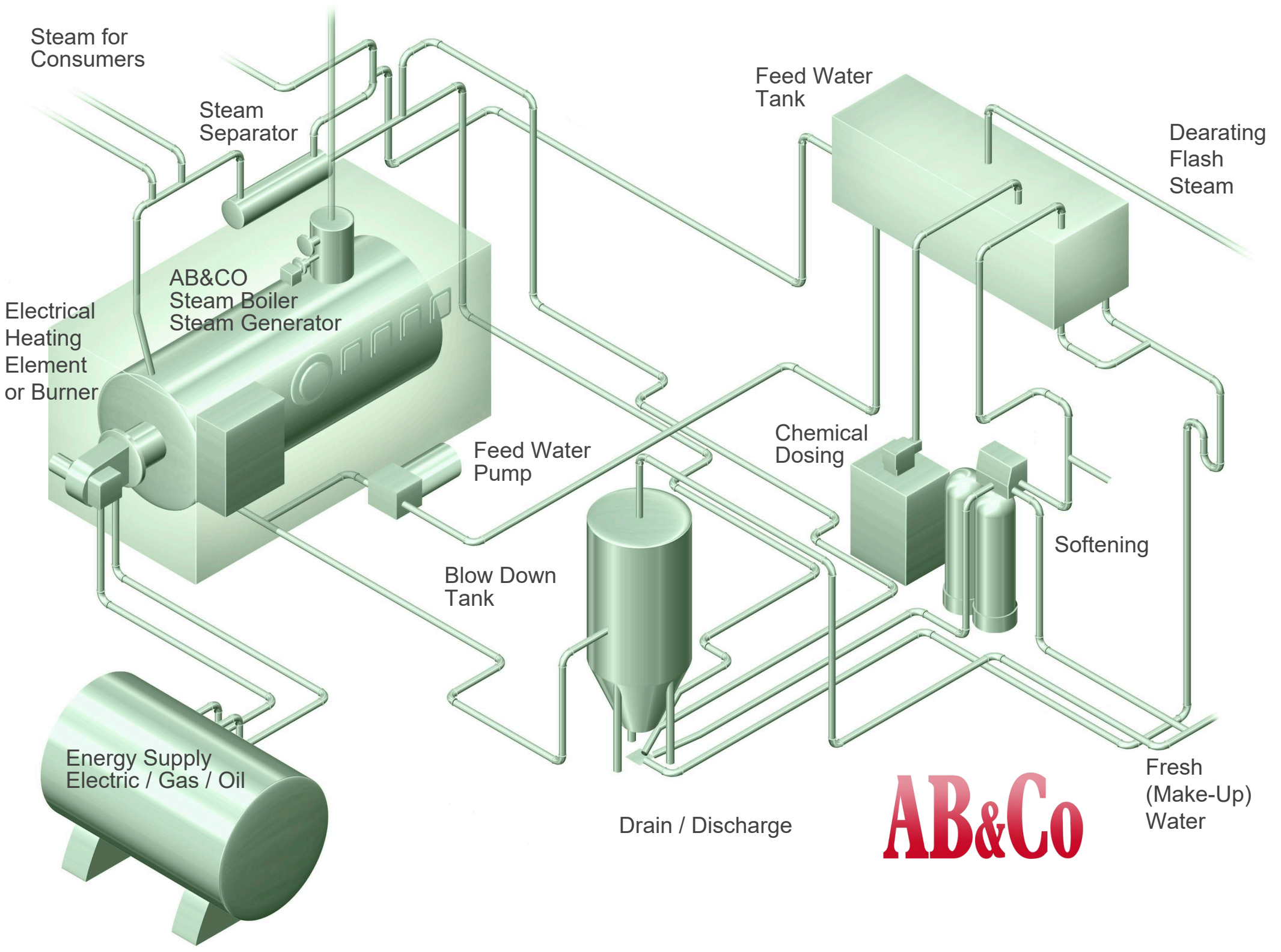
TT BOILERS AB&Co

GENERAL SPECIFICATIONS | ELECTRIC STEAM BOLERS | Type L-DH

AB&CO Model	STEAM RATE KG/H		STEAM RATE HP		THERMAL POWER		NUMBER STAGES	AMPERS			TRANSPORT WEIGHT	DIMENSIONS			STEAM OUTLET
	Feed water* 103 °C	Feed water* 20 °C	Feed water* 103 °C	Feed water* 20 °C				230 V	400 V	690 V		Length (A)	Width (B)	Height*** (C)	
	kg/h	*kg/h*	*HP*	*HP*	*kW*	*kCal/h*		*A*	*A*	*A*	*kg*	*mm*	*mm*	*mm*	*V*
L-DH-18 kW	28	24	1,8	1,5	18	15.480	1	46	27	N.A.	350	1.400	1.090	1.300	1/2"
L-DH-24 kW	37	32	2,4	2,0	24	20.640	2	61	35	N.A.	375	1.400	1.090	1.300	1/2"
L-DH-30 kW	46	40	2,9	2,6	30	25.800	2	76	44	N.A.	400	1.400	1.090	1.300	1/2"
L-DH-42 kW	64	56	4,1	3,6	42	36.120	2	106	61	N.A.	550	1.400	1.190	1.300	1/2"
L-DH-54 kW	83	72	5,3	4,6	54	46.440	2	136	79	N.A.	600	1.400	1.290	1.300	1/2"
L-DH-66 kW	101	88	6,5	5,6	66	56.760	3	166	96	N.A.	625	1.400	1.290	1.300	1/2"
L-DH-96 kW	147	128	9,4	8,2	96	82.560	3	242	139	N.A.	800	2.095	1.350	1.725	3/4"
L-DH-120 kW	184	160	11,8	10,2	120	103.200	3	302	174	N.A.	900	2.095	1.450	1.725	3/4"
L-DH-132 kW	202	176	12,9	11,2	132	113.520	3	332	191	N.A.	925	2.095	1.450	1.725	3/4"
L-DH-160 kW	245	213	15,7	13,6	160	137.600	3	403	232	N.A.	1.075	2.095	1.450	1.725	DN25
L-DH-180 kW	275	240	17,6	15,3	180	154.800	3	453	261	N.A.	1.100	2.095	1.450	1.725	DN25
L-DH-220 kW	337	293	22	18,7	220	189.200	4	553	318	N.A.	1.250	2.450	1.650	2.115	DN32
L-DH-280 kW	428	373	27	23,9	280	240.800	4	704	405	N.A.	1.450	2.450	1.650	2.115	DN32
L-DH-336 kW	514	447	33	28,6	336	288.960	4	845	486	N.A.	1.500	2.450	1.650	2.115	DN40
L-DH-400 kW	612	533	39	34,1	400	344.000	4	1.006	579	N.A.	1.600	2.450	1.725	2.190	DN40
L-DH-500 kW	765	666	49	42,6	500	430.000	4	1.257	723	N.A.	1.700	2.450	1.725	2.190	DN50
L-DH-600 kW	918	799	59	51,1	600	516.000	4	1.508	867	N.A.	1.800	2.450	1.800	2.250	DN50
L-DH-640 kW	979	852	63	54,5	640	550.400	4	1.609	925	N.A.	1.900	2.200	2.050	2.200	DN50
L-DH-720 kW	1.102	959	71	61,3	720	619.200	4	1.810	1.041	N.A.	3.500	3.900	2.200	2.250	DN50
L-DH-800 kW	1.224	1.065	78	68,2	800	688.000	4	2.011	1.157	N.A.	3.600	3.900	2.200	2.250	DN65
L-DH-960 kW	1.469	1.278	94	81,8	960	825.600	4	2.413	1.388	N.A.	3.800	3.900	2.275	2.250	DN65
L-DH-1040 kW	1.591	1.385	102	88,6	1.040	894.400	4	2.614	1.503	N.A.	4.000	3.900	2.275	2.250	DN65
L-DH-1200 kW	1.836	1.598	118	102,2	1.200	1.032.000	4	3.016	1.735	N.A.	4.250	4.050	2.275	2.250	DN80
L-DH-1280 kW	1.959	1.704	125	109,1	1.280	1.100.800	4	3.217	1.850	N.A.	4.500	4.050	2.275	2.250	DN80
L-DH-1360 kW	2.081	1.811	133	115,9	1.360	1.169.600	8	3.418	1.966	1.140	8.500	4.050	3.150	3.200	DN80
L-DH-1700 kW	2.601	2.263	166	144,8	1.700	1.462.000	10	4.273	2.457	1.425	9.000	4.050	3.150	3.200	DN80
L-DH-2000 kW	3.060	2.663	196	170,4	2.000	1.720.000	10	N.A.	2.891	1.676	13.500	4.050	3.950	3.400	DN80
L-DH-2400 kW	3.673	3.195	235	204,5	2.400	2.064.000	10	N.A.	3.469	2.011	14.000	5.900	4.100	4.100	DN100
L-DH-2800 kW	4.285	3.728	274	238,6	2.800	2.408.000	10	N.A.	4.047	2.346	14.500	5.900	4.100	4.100	DN100
L-DH-3200 kW	4.897	4.260	313	272,6	3.200	2.752.000	10	N.A.	4.625	2.681	15.000	7.500	3.800	3.400	DN100
L-DH-3600 kW	5.509	4.793	353	306,7	3.600	3.096.000	10	N.A.	2 x 2.530**	3.017	15.600	7.500	3.800	3.400	DN125
L-DH-4000 kW	6.121	5.325	392	340,8	4.000	3.440.000	10	N.A.	2 x 2.890**	3.352	16.200	7.500	3.800	3.400	DN125
L-DH-4800 kW	7.345	6.390	470	409,0	4.800	4.128.000	10	N.A.	2 x 3.620**	4.022	18.000	8.000	4.350	3.950	DN125
L-DH-5600 kW	8.569	7.455	548	477,1	5.600	4.816.000	10	N.A.	2 x 4.200**	4.692	20.100	8.000	4.490	4.100	DN150
L-DH-6000 kW	9.181	7.988	588	511,2	6.000	5.160.000	10	N.A.	2 x 4.336**	2 x 2.515**	22.500	8.000	4.590	4.200	DN150
L-DH-7000 kW	10.712	9.319	686	596,4	7.000	6.020.000	10	N.A.	N.A.	2 x 2.940**	23.800	8.000	4.590	4.200	DN150
L-DH-8000 kW	12.242	10.650	783	681,6	8.000	6.880.000	10	N.A.	N.A.	2 x 3.355**	25.500	10.000	4.790	4.400	DN200
L-DH-9000 kW	13.772	11.981	881	766,8	9.000	7.740.000	10	N.A.	N.A.	2 x 3.355**	27.000	10.000	4.790	4.400	DN200
L-DH-10000 kW	15.302	13.313	979	852,0	10.000	8.600.000	10	N.A.	N.A.	2 x 4.200**	28.500	11.500	4.790	4.400	DN200

*Steam rate at 4 bar and feed water at indicated temperature. **Electric supply by two independent connections with same power. ***Height for boilers without steam superheater. N.A. Not available

Values are meant for guidance only and they are subject to alterations without prior notice by AB&CO.


Steam for Consumers
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Sustainable Process Heating

Electric Steam Boiler

Survey All Models

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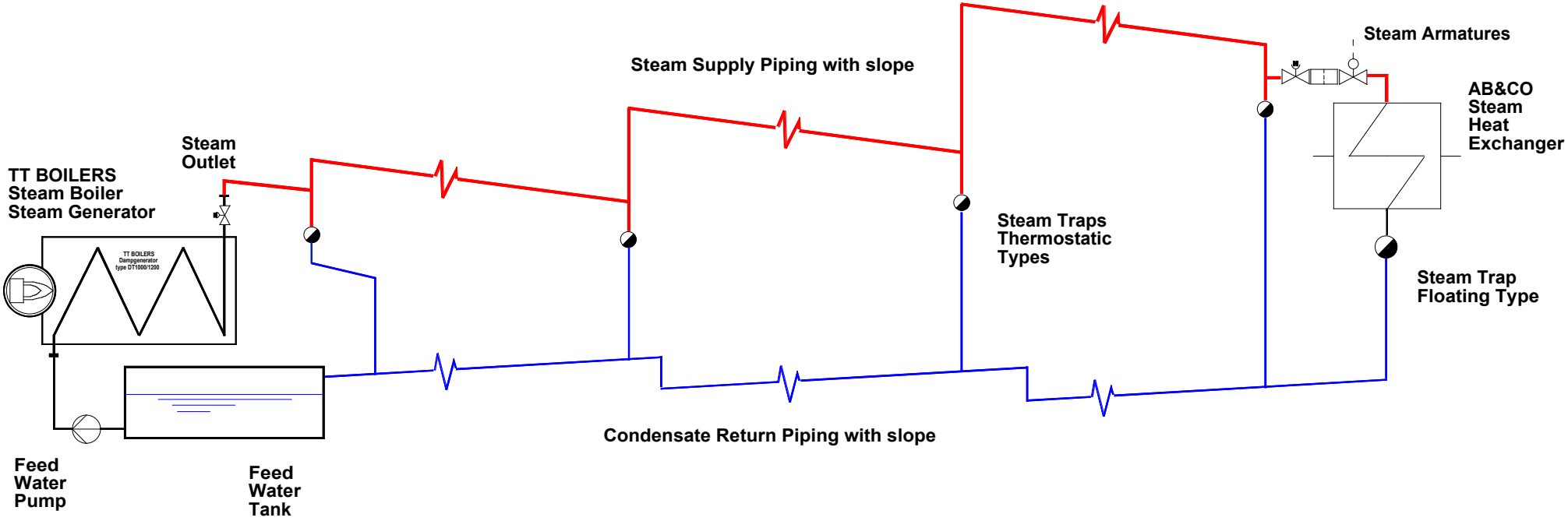
PRELIMINEARY SKETCH - NOT BINDING

This is an illustration of the slope (inclination) of steam supply line and condensate return line.

NOTE!
This is an incomplete PI-diagram, where most required steam and condensate instrumentation is omitted - and it therefore focusing only on the piping issue.



AB&CO TT BOILERS Copenhagen • Denmark		SUBJECT/THEMA: Guideline Steam & Condensate Piping	
AB&CO REF. NO.:	DRWG.: steamcon	PROJECT/PROJEKT:	Only CAD corrections
DATE/DATO: 06.02.15	SIGN.:	CLIENT/KLIENT:	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ELECTRIC STEAM BOILERS
UP TO 10 MW

AB&Co

BOLDNESS WITH CARE

TECHNICAL BULLETIN
Steam Boilers

The Principle in a Steam Boiler
Steam Pressure & Operation

The working principle in any steam boiler and steam generator is in short, that amount of steam from the boiler is automatically adjusted to the amount of steam being called for at the consumer (whether it is a reactor, tank, vessel, heat exchanger or another steam-consuming device). The consumer pulls steam from the boiler – the boiler does not push the steam out to the consumer.

The consumption of steam equals condensation of steam – and what happen here is that a large volume steam becomes a small volume of water. This creates a pull of steam – a demand of steam. This process lead to a small decrease in steam pressure and the moment this decreasing pressure is detected by the steam boiler instrumentation, the boiler will start turning on heat (oil/gas-firing or electric heating), and thereby increase the steam pressure again. When set point of steam pressure is achieved, the boiler starts reducing the heat. This up and down regulation will be done automatically by the boiler control, and continuously.

This explain how steam boilers are self-controlled. Fundamentally, they just deliver what is required and maintain the steam pressure no matter how much steam you consume.

The consumer controls the heat from the steam by a so-called steam control valve (see below), and this valve is to be placed at the consumer together with a steam trap or another type of steam reduction (e.g. orifice or valve) on the condensate outlet of the consumer. All this is beyond the steam boiler scope of supply.

You can compare this with an electrical outlet in the wall in your house. Consider voltage to be your steam pressure and current to be your steam flow. You will always have for instance 230V outlet everywhere which is maintained by the supplier of electricity (power plant) – and you use this voltage to get electrical current (similar to steam flow) for your consumer. At the consumer you control the consumption by contact set, potentiometers or equal. The consumer will only absorb the current that is required – the upper limit is the sizes of the fuses.

Steam is likewise always be available at constant pressure and in an extent that automatically follows the consumption – the upper limit is the max. capacity of the steam boiler.

If you wish to control the steam pressure, this is always done externally by using a pressure reduction station and/or steam pressure control valve. It is not possible - and it is not allowed according to European steam boiler regulations and others authorities – that the operator change the steam pressure. Consequently, you can never have a facility on the steam boiler that changes and adjusts the steam pressure. If this needs to be changes, only the boiler manufacturer are allowed to make this and all the necessary changes that is required to be done at the same time, including consideration as for operational parameters, safety devices set-points (pressure and temperatures), safety valve size, steam outlet size, name plate and others. When the manufacturer changes the pressure, it will also be necessary to verify the consequences of the larger velocities and specific volume (smaller pressure), and pressure vessel design (higher pressure). Documentation must be provided (PED, Declaration of Conformity etc).

Steam flow measurement is very rarely (it is also very rare to measuring electrical current in your house). It can be necessary to use for testing design of unit that used steam - or for instance if energy supplier require this for calculation price of energy.

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