



THREE PASS BOILER

HIGH PRESSURE STEAM
GENERATORS IN SINGLE AND
DOUBLE FLAME TUBE DESIGN

About GETABEC

GETABEC is one of the famous and leading Boiler and Pressure Vessel manufacturers in Asia, founded in 1983.



GETABEC can manufacture Steam Boiler, Hot Water Boiler, Waste Heat Boiler, Thermal Oil Heater and Pressure Vessel comply with ASME, EN, PED (CE Mark), DIN, BS, etc. Our work-shops have been qualified and received international ISO 9001:2015 certificates, Certificates Registration No. 04100630469 by TUV NORD and S, U, R, PP as authorized manufacturer of ASME code for Boiler and Pressure Vessel. GETABEC also manufactures Boiler under license of SCHNEIDER-KESSEL Berlin for Fire-Tube Boiler, Eckrohrkessel (ERK) Berlin for Water Tube and Waste Heat Boiler.

GETABEC is a long-time cooperated partner of SAACKE Burner, Bremen for Sales and service in Thailand. GETABEC has marketed their Burners and service world-wide and well accepted by many famous international companies.



“To be a global leader in Industrial Steam Boiler and energy solution provider”

CERTIFICATES



GETABECKESSEL

GETABECKESSEL and GETABEC furnace tube boilers that we produce are high efficient steam boilers for every application, in various designs with energy saving system and fully automatic operation without need to constant supervise. These boilers are three pass, wet-back design principle. The water content can be quickly transformed into steam. Our boilers always have sufficient steam reserve, even during sudden peak demand period. Using gas, oil or dual fuel burner, the flame intensity is matched virtually instantly to the steam consumption, taking into account the fuel characteristic. Another positive factor is that a large furnace tube effectively reduces the NOx emission.

GETABECKESSEL can cope easily with peak and low demand periods for steam. Output per boiler up to 35 ton/hr. Operating pressure up to 24 bars.

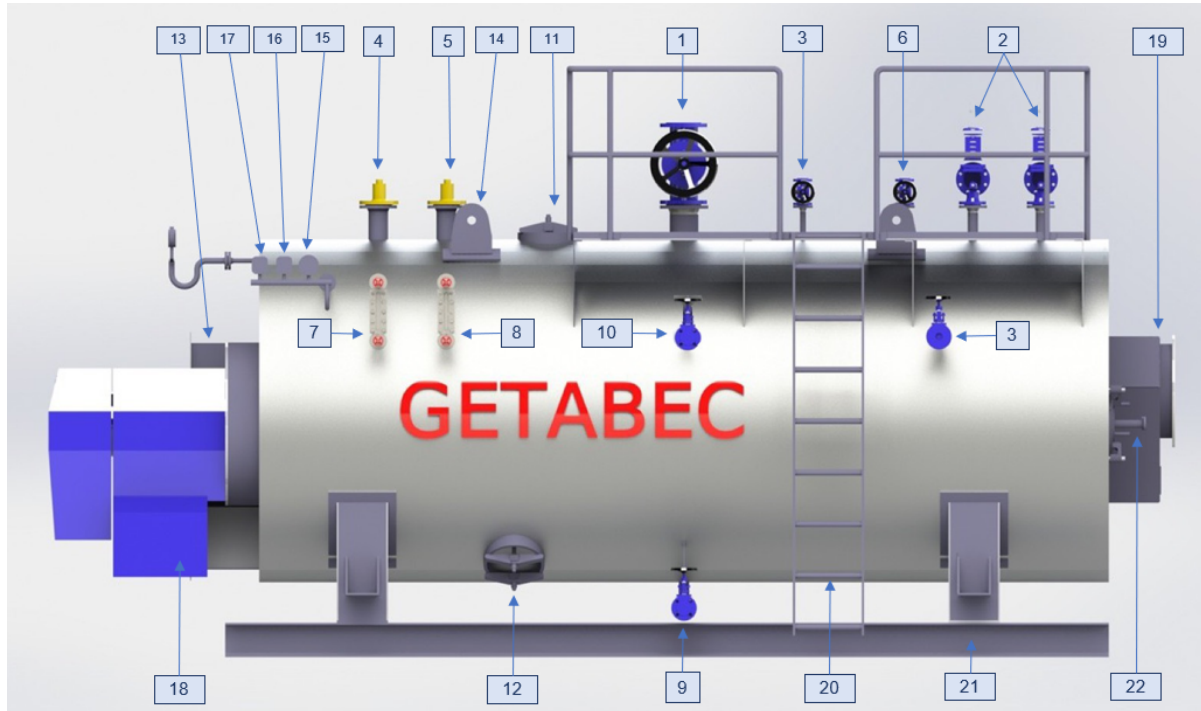
GETABECKESSEL can produce saturated steam and superheated steam as required by local heat, district heat and process heat, from the individual boiler to large boiler plant, including feed water treatment system, feed water storage and deaerator, with heat recovery assembly, with noise suppression, with special components. Upon request, we can also show you operation reference installations.

Our qualified Service Engineers and Technicians can offer complete After Sales Services and spare parts.



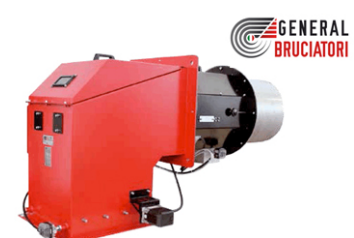
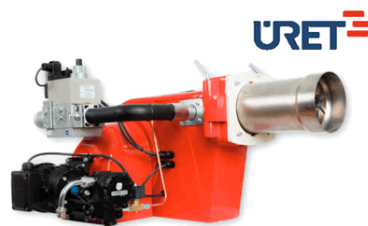
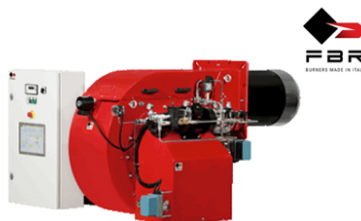
“GETABEC is power, power is steam”

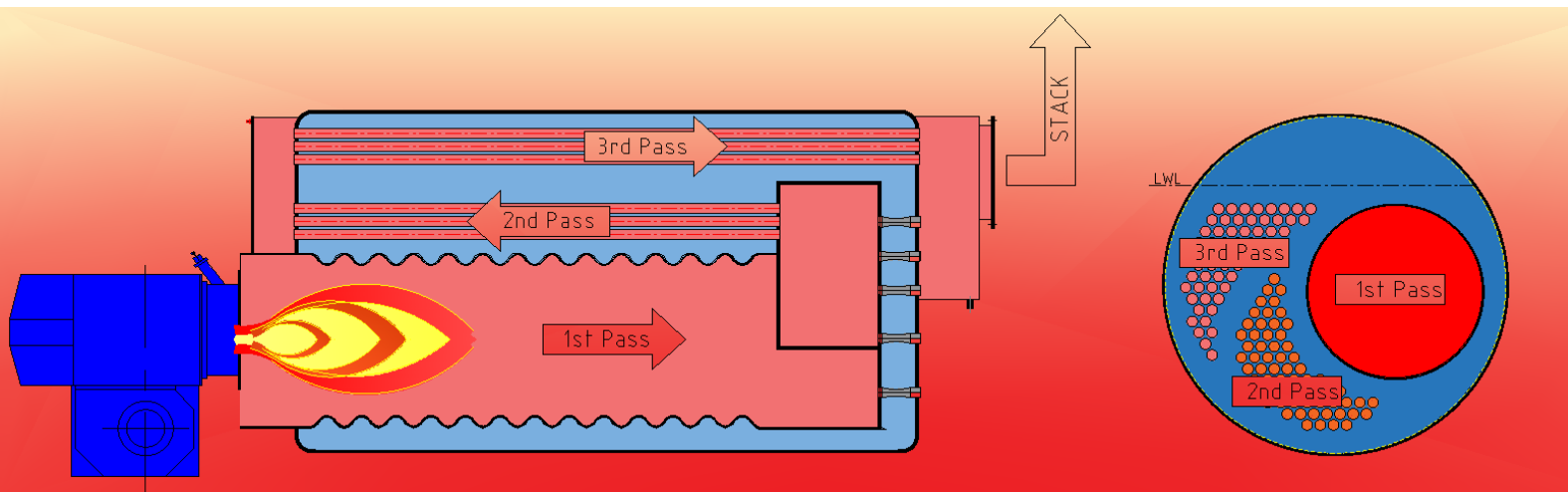
INSTRUMENT & EQUIPMENT



- | | |
|-----------------------------------|----------------------------|
| 1. Main steam valve | 12. Head Hole |
| 2. Safety valve | 13. Front reversal chamber |
| 3. Feed water valve | 14. Lifting Lug |
| 4. Water level control | 15. Pressure Gauge |
| 5. Water level alarm | 16. Pressure switch |
| 6. Vent valve | 17. Pressure Transmitter |
| 7. Water level Indicator | 18. Burner |
| 8. Water level Indicator (Option) | 19. Flue gas outlet |
| 9. Bottom blowdown valve | 20. Platform & Ladder |
| 10. Surface blowdown valve | 21. Base frame |
| 11. Man Hole | 22. Flame inspection hole |

Burner





Three Pass Boiler Wet-Back Design Principle.

FEATURES	Model HDO											
	1000/10	1600/10	2000/10	2500/10	3200/10	4000/10	5000/10	6000/10	8000/10	10000/10	12000/10	15000/10
Thermal capacity (kW)	652	1043	1304	1630	2090	2608	3260	3910	5216	6520	7820	9780
Steam Capacity (kg/hr)	1000	1600	2000	2500	3200	4000	5000	6000	8000	10000	12000	15000
Heat Input (kW)	730	1165	1457	1820	2335	2914	3640	4369	5828	7285	8737	10927
Design Pressure	10 barG											
Operating Pressure	8 barG											
Draught loss (mbar)	5.9	8.5	11	11	10	11.2	13.2	12	14.1	14.1	14.5	15.7
Flue gas flow rate (m³/hr)	766.5	1223.3	1530	1911.1	2452	3060	3822	4588	6120	7650	9175	11475
Length of flame tube w/o revers chamber (mm)	2008	2610	2484	2664	3062	3510	4510	4468	4874	4814	5162	5414
Inner flame tube diameter (mm)	650	750	750	750	810	900	900	950	1100	1180	1360	1500
Heating Surface (m²)	22.8	40	45	55	65	90	103	117	179	220	246	261
Transport weight (kg)	2850	4400	5850	5280	6840	9750	10200	13400	16000	19300	19900	24300
Water Content up to LWL (m³)	1.13	2.5	2.37	2.5	3.4	4.83	4.53	6.94	10.88	12.02	15.4	18.21
Total Water Content (m³)	1.9	3.215	3.26	3.51	4.6	6.154	7.56	9.99	14.72	15.62	19.9	24.3

TECHNICAL DATA (HDO-Model)

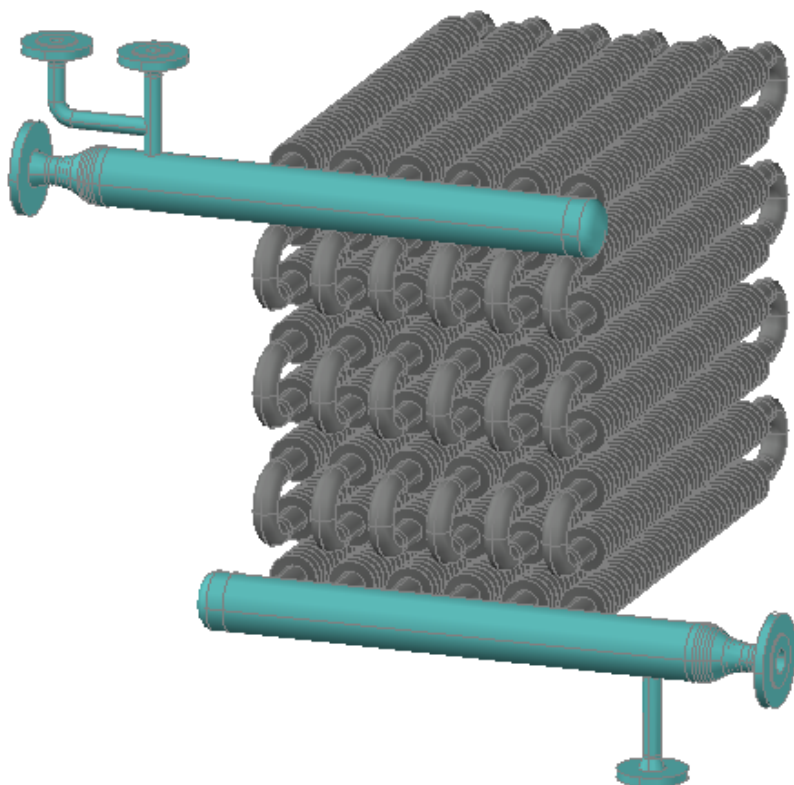
PRESSURE 10 BAR



FEATURES	Model HDO											
	1000/10	1600/10	2000/10	2500/10	3200/10	4000/10	5000/10	6000/10	8000/10	10000/10	12000/10	15000/10
Lower Heating Value :												
-Heavy Fuel Oil	40700 kJ/kg											
-Light Oil	42700 kJ/kg											
-Natural Gas	36000 kJ/Nm ³											
Excess Air												
-Heavy Fuel Oil	1.2											
-Light Oil	1.1											
-Natural Gas	1.05											
Efficiency w/o Economizer :												
-Heavy fuel oil (%)	89.23	89.58	88.21	89.11	88.56	90.55	90.31	89.61	90.28	90.33	90.99	90.64
-Light oil (%)	90.33	90.64	89.19	90.04	89.70	90.72	91.36	90.7	91.29	91.34	91.95	91.63
-Natural gas (%)	90.17	90.38	88.92	89.78	89.49	90.46	91.15	90.06	91.08	91.14	91.74	91.42
Consumption :												
-Heavy fuel oil (kg/hr)	65	103	129	161	206.5	258	322	386.5	515.5	645	773	966.5
-Light oil (kg/hr)	61.5	98	123	153.5	197	246	307	368.5	491.5	614	736.5	921.5
-Natural gas (Nm ³ /hr)	73	116.5	145.7	182	233.5	291.4	364	436.9	582.8	728.5	873.7	1092.7

ECONOMIZER

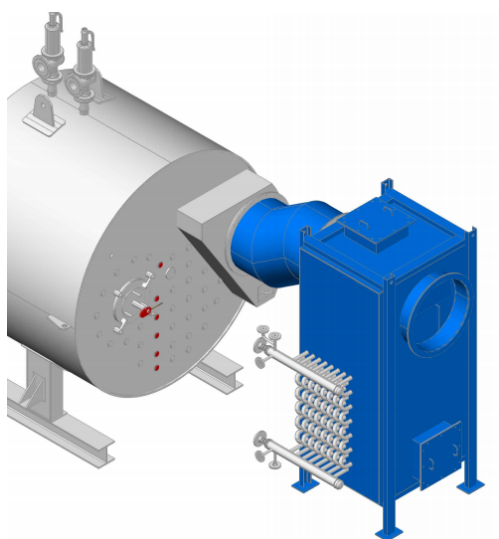
EFFICIENCY UP TO 92-95%



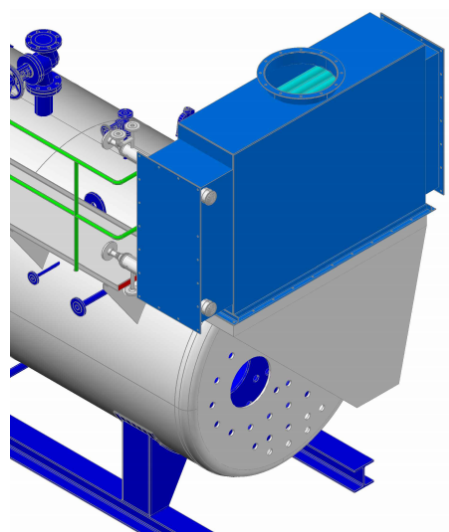
Economizer that we produce can increase efficiency of steam boilers or to reduce energy consumption. GETABEC's economizer installed on fire tube or water tube boiler firing natural gas and / or all grades of fuel. Also, the boiler must be equipped with modulating combustion control.

Normally, GETABEC's Three Pass Boiler Wet-Back will provide approximately 89% efficiency. But if customers want to increase efficiency or reduce energy consumption, Economizer is the best option.

Our economizer fabrication from carbon steels and adding the heating surface area using Fin by welding with the High Frequency Resistance Welding process (HFRW).



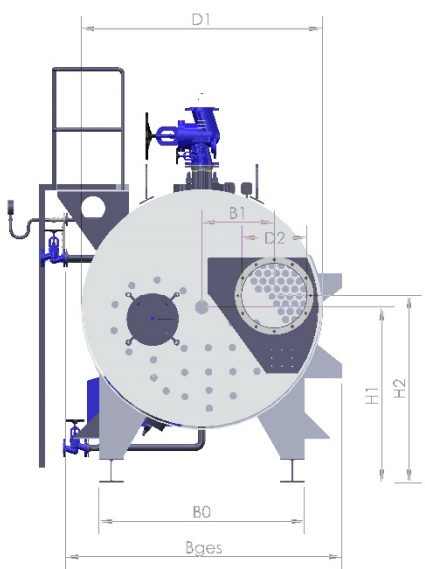
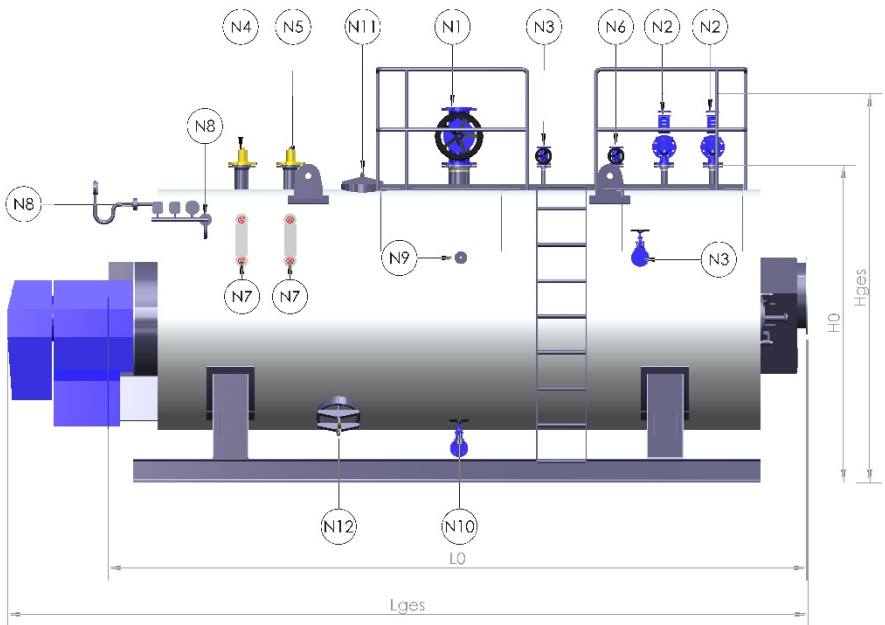
**Economizer Installation
Stand Alone with Boiler**



**Economizer Installation
above Boiler**

Main dimensions

PRESSURE 10 BAR



DIMENSION OF THREE PASS BOILER

MODEL (kg/hr)	1000	1600	2000	2500	3200	4000	5000	6000	8000	10000	12000	15000
D ₁ (mm.)	1500	1700	1750	1750	1850	2000	2000	2200	2500	2600	2900	3000
D ₂ (mm.)	267	350	350	350	412	460	510	550	600	700	712	750
Lges (mm.)	3928	4547	4376	4654	5304	5705	6780	7004	7794	7683	8142	8262
Lo (mm.)	2951	3651	3411	3661	4163	4714	5714	5789	6435	6335	6717	6881
Hges (mm.)	2264	2443	2545	2680	2785	3050	3040	3244	3670	3782	4044	4309
Ho (mm.)	1890	2060	2100	2100	2250	2455	2455	2650	2950	3062	3325	3500
H ₁ (mm.)	1040	1110	1128	1128	1125	1355	1345	1450	1600	1660	1775	1900
H ₂ (mm.)	1125	1195	1215	1215	1360	1525	1475	1550	1815	1910	2145	2240
Bges (mm.)	1695	1880	1905	1905	1950	2109	2082	2282	2610	2605	2905	2964
Bo (mm.)	1000	1200	1100	1100	1200	1450	1450	1700	1700	1800	2050	2050
B ₁ (mm.)	400	420	500	505	510	520	520	600	1100	1160	850	800

Note: - Dimension D₁ is a diameter of boiler include the insulation 100 mm.

- Dimension L₁ is depended on a type and brand of burner.

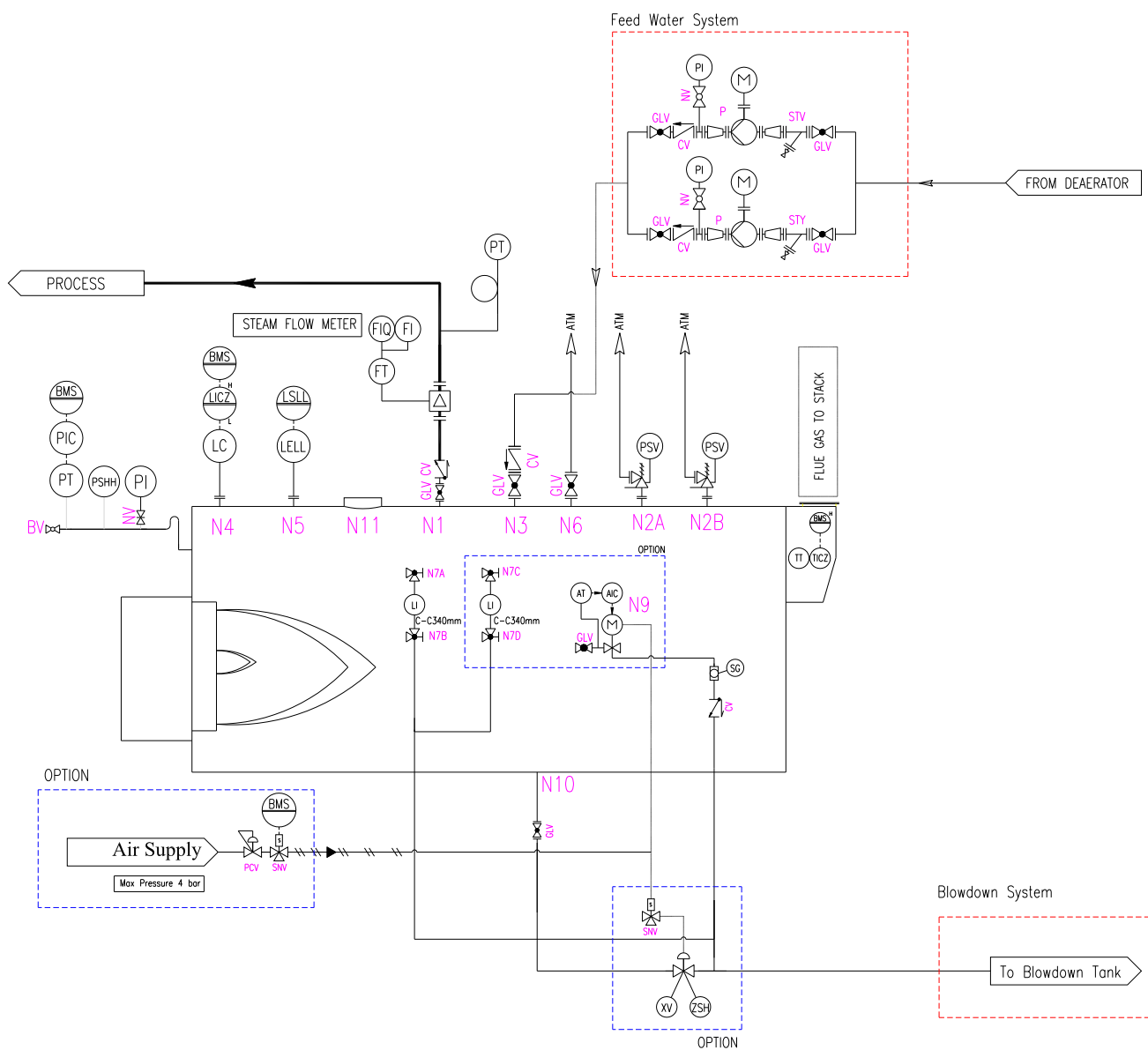
SIZING OF NOZZLE

MODEL (kg/hr)			1000	1600	2000	2500	3200	4000	5000	6000	8000	10000	12000	15000
N1	Steam Outlet	DN	65	80	80	100	100	125	125	150	150	200	200	250
N2	Safety Valve	DN	20	25	32	32	40	40	50	50	65	65	80	80
N3	Feed Water Inlet	DN	25	25	32	32	32	40	40	40	50	50	50	65
N4	Water Level Control	DN	100	100	100	100	100	100	100	100	100	100	100	100
N5	Water Level Alarm	DN	100	100	100	100	100	100	100	100	100	100	100	100
N6	Vent Valve	DN	25	25	25	25	25	25	25	25	25	25	25	25
N7	Water Level Indicator	DN	20	20	20	20	20	20	20	20	20	20	20	20
N8	Pressure Gauge	DN	20	20	20	20	20	20	20	20	20	20	20	20
N9	Continuous Surface Blow Down	DN	20	20	20	20	20	20	20	20	20	20	20	20
N10	Drain	DN	25	25	25	25	25	25	25	40	40	40	40	40
N11	Man Hole	mm.	320 x 420	320 x 420	320 x 420	320 x 420	320 x 420	320 x 420	320 x 420	320 x 420	320 x 420	320 x 420	320 x 420	320 x 420
N12	Head Hole	mm.	220 x 320	220 x 320	220 x 320	220 x 320	220 x 320	220 x 320	220 x 320	220 x 320	220 x 320	220 x 320	220 x 320	220 x 320

General Note

- Equipment and complete dimensions in accordance with project-related, technical data sheet.
- Dimensions with tolerance according to Getabec standard
- The dimensions are designed for standard insulation: 100 mm.
- Quantity of Water level indicator depending on the requirement of customers.
- Service Platform and Ladder are included in boiler model 5,000 kg/h up or depending on the requirement of customers.
- The model HDO-8000/10 is available in both Plain tube and Corrugate type.
- Up to the model HDO-12000/10, nozzle N3 will be at the top of shell.
- The position of flue gas outlet can be changed according to customer's requirement.
- Surface blowdown are with or without, depending on the requirement of customers.
- Up to the model HDO-10000/10, nozzle N8 will be at the side of shell near nozzle N7.

PROCESS FLOW DIAGRAM



DELIVERY WORLDWIDE



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