

Three Pass Steam Boiler

Packman three pass boilers are fabricated in workshops equipped with the most modern machines. Materials and workmanship are under a permanent quality control to construct the reliable elements and groups. Reliable to make sure that you can rely on your PACKMAN boiler, even after a number of years. And these are the Bellow are the advantages of packman three pass boilers:

The boilers are adjusted to the plant by heating circuit environment and construction conditions.

- Adaptation of the thermal layout to fuel, medium and operation
- Adjusting of the boiler to the plant with regard to heating circuit environmental and constructional conditions
- Dimensioning and material selection are according to thermal stress and charge.
- Type of the design construction is based on the greatest possible elasticity to tolerate thermal stresses.
- Higher heating is possible by cooling the flue gas touched surfaces with water and reducing the radiation heat losses.
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- With recent techniques it is possible to reduce losses and energy consumption, besides the more economical operation is achieved by optimum controllability.



Three-pass Boiler

The three-pass boiler is robust and economical. The furnace is formed by the fire tube. The flue gases are directed through topped smoke tubes where they are cooled down. As it has proved to be especially economical to lead the flue gases through three passes most of the large water space boilers built today belong to this type-hence the name "three-pass boilers". Because of its constructional design the three-pass boiler is especially suitable for the combustion of liquid or gaseous fuels. It can, however, as well be used for solid fuels. Coal or wood performances.

- Fire tube: In the three-pass boiler the fire tube forms the combustion chamber. The chosen diameter makes sure that an unobjectionable flame can develop and a complete burnout is guaranteed. The decision whether plane or spiral fire tubes are to be used depends on the diameter and the working pressure. The arrangement in the inferior part of the water space has an especially favorable effect on the heat exchange and the water circulation, and allows a clear arrangement of the remaining flue gas passes.
- Boiler supports, skids: The boiler body is based on supports. Most of the unit are delivered on skids; by that special foundations for the installation are not required. In this case all accessories which are necessary for operation, such as oil or gas firing equipment, combustion air fan, oil preheater, control panel or switchboard and feeding device, can be mounted on the skid, too.
- Boiler body, insulation: The cylindrical boiler body forms the water and the steam space and contains the heating surfaces. Outside it is provided with a highly effective insulation as well as with a cladding of stainless steel sheets (at both sides). All connection pieces with mountings, fittings, control instruments as well as service platform, flue gas reversing chambers and flue gas duct are mounted at boiler body. Man-and hand-holes allow inspection at the water side and supervision of the heating surfaces.
- Smoke tubes: The second and third boiler pass are formed by thick-walled smoke tubes which are welded into the end plates. The tubes are easily accessible and can be cleaned without problems. The arrangement of the smoke tubes considers the recommendation of ascending flue passes in order to prevent the formation of residual-or lingering gases.
- Rear reversing chamber: PACKMAN three pass boilers with a fire tube have an interior flue gas reversing chamber, situated in the water space. Here the direction of the flue gases, coming out of the fire tube is changed and they are distributed to the smoke tubes of the second pass. The all over cooling of the reversing chamber contributes to an optimum heat utilization. At PACKMAN



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More info about this product.

double outside the boiler body. The exterior reversing chamber is formed of tightly welded tube walls; it is water cooled (Wet Back) and absolutely gas tight. At this type, too, an economical heat utilization has been drawn into consideration. Access openings allow a flue gas side inspection of the interior and exterior reversing chamber.

- Front reversing chamber: Inside of a tightly welded and insulated chamber made of steel sheets the flue gases are led from the second to the third boiler pass. The reversing chamber is equipped with large doors, allowing free access to the smoke tubes and easy maintenance and cleaning. High quality tightening material guarantees that the doors are shut gas tight. Special literature on three-pass boiler with wood or coal firing as well as on special constructions can be sent upon request. In addition our engineers as well as our representatives abroad are always at your disposal for further information and assistance.

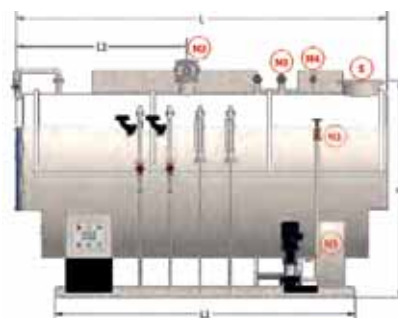
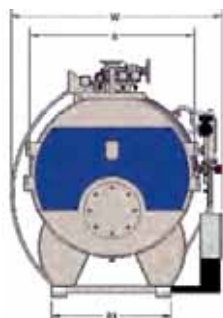
Product Capacity Calculation & Selection:

The Steam boiler selected based on maximum require capacity and type of process

The better way to select the capacity and pressure of the boiler is fthe following steps:

- 1- Calculate the maximum heat load based on your process.
- 2- Adding 20% to maximum load for coefficient of confidence.
- 3- Consider the 85% average efficiency for three pass steam boiler.
- 4- Calculate pressure based on your project and distance between boiler and consumer.
- 5- Determine the number of boiler you have: it is better you choose number of boiler for 100% of full load

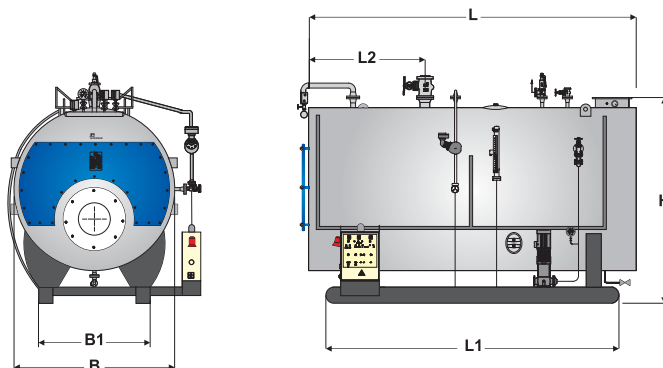
Finally you can select the model from the following table.



CAPACITY (kW)		1000	1250	1500	1750	2000	2500	3000	3500	4000	5000	6000	7000	8000	9000	10000
TECHNICAL DATA																
Heating Surface (Sq. m)	--	37.2	46.2	55.7	63.3	74.3	89.2	111	127	148	185	223	260	297	334	371
Steam Volume (Cu. m)	--	0.65	0.73	1.24	1.4	1.61	1.78	2.35	2.52	2.98	3.53	4.04	4.85	6.03	7.32	8.61
Steam Output (ton/h@100°C)	--	1.56	1.95	2.34	2.73	3.12	3.90	4.68	5.47	6.25	7.81	9.37	10.9	12.5	14.1	15.6
Output (kcal/h) [x1000000]	--	0.86	1.07	1.29	1.50	1.72	2.15	2.58	3.01	3.44	4.30	5.16	6.02	6.88	7.74	8.60
Pressure drop in boiler (mbar)	--	3.92	5.88	4.12	6.05	4.17	6.7	5.13	6.3	5.89	6.5	6.8	7.5	7.8	8.1	8.5
APPROXIMATE FUEL CONSUMPTION AT RATED CAPACITY BASED ON NOMINAL 82% EFFICIENCY																
Firing Rate Gas (m3/h)	--	100	125	150	175	200	250	300	350	400	500	600	700	800	900	1000
Firing Rate fuel oil (lit/h)	--	93.1	116.4	139.7	163.1	186.3	232.8	279.5	326.1	372.6	465.7	558.9	652.1	745.2	838.3	931.5
Firing Rate Heavy fuel oil (lit/h)	A	87.8	109.8	131.7	153.7	175.6	219.6	263.5	307.4	351.3	439.2	527.1	614.9	702.7	790.6	878.4
LENGTHS																
Overall	B	4050	4440	4390	4790	4690	5130	5150	5380	5380	5540	5870	6080	6280	6790	7000
Skid	C	3300	3500	3500	3700	3700	4000	4000	4000	4000	4000	4800	5000	5000	5300	5500
Skid to Rear Door	D	150	375	300	450	330	480	450	570	530	580	420	330	430	390	335
Boiler Front to Steam Outlet	E	1000	1000	1500	1480	1350	1390	1290	1480	1480	1640	1370	2010	2160	2100	2610
WIDTHS																
Overall	F	2020	2020	2320	2320	2600	2600	2810	2810	3100	3250	3500	3700	3900	4000	4500
Boiler O.D.	G	1580	1580	1800	1800	2025	2025	2225	2225	2400	2570	2730	2880	3050	3200	3530
External Skid Width	H	1050	1050	1200	1200	1370	1390	1500	1500	1650	1770	1900	2000	2200	2400	2500
HEIGHTS																
Steam Outlet to Ground	I	2000	2000	2250	2250	2480	2480	2690	2690	2870	3030	3210	3350	3530	3900	3950
I-Beam Size (IPN)	J	160	160	160	160	160 II	160 II	160 II	160 II	160 II	160 II	180 II	180 II	180 II	200	200
Skid Height	K	300	300	310	310	310	310	300	300	330	330	350	310	340	400	400
CONNECTIONS																
Sampling	M	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"	½"
Feed Water Inlet	N	1"	1"	1 ½"	1 ½"	2"	2"	2"	2"	2"	2 ½"	2 ½"	2 ½"	3"	3"	4"
Steam Outlet (@2 bar)	N	6"	6"	6"	6"	8"	8"	8"	8"	10"	10"	12"	12"	12"	14"	14"
Steam Outlet (@10 bar)	N	3"	3"	3"	3"	4"	5"	6"	6"	6"	6"	6"	8"	8"	10"	10"
Steam Outlet (@16 bar)	O	3"	3"	3"	3"	3"	3"	4"	4"	4"	5"	6"	6"	6"	8"	8"
Safety Valve	P	1"	1"	1 ½"	1 ½"	1 ½"	1 ½"	2"	2"	2"	2"	2 ½"	2 ½"	2 ½"	3"	3"
Drain	Q	1 ¼"	1 ½"	1 ½"	1 ½"	1 ½"	1 ½"	1 ½"	2"	2"	2"	2"	2"	2"	2"	2"
Stack I.D.	--	14"	14"	16"	16"	16"	16"	20"	20"	20"	24"	24"	24"	24"	30"	30"
MINIMUM BOILER ROOM CLEARANCES																
Front Clearance	--	3500	3700	3700	4000	4000	4300	4300	4500	4500	4500	4900	5100	5300	5500	5800
Rear Clearance	--	1000	1000	1000	1000	1000	1000	1100	1100	1200	1300	1400	1500	1500	1600	1800
Side Clearance	--	700	700	900	900	1000	1000	1000	1200	1200	1200	1300	1300	1400	1500	1700
Boiler Room Length (Min.)	--	8500	8700	9000	9500	9700	10000	10500	10800	11100	11350	12190	12500	13000	13400	14500
BOILER WEIGHT																
Shipping Weight (@10 bar)	--	4880	5290	6370	6720	8730	9480	10920	11070	13760	15250	18090	21310	23910	28500	33200

Steam boiler type

PSBH 1



Boiler type	PSBH1	0.35	0.40	0.45	0.50	0.60	0.70	0.80	1.00	1.15	1.40	1.60	1.80	2.00	2.50
Rated capacity	t/hr	0.37	0.42	0.46	0.53	0.62	0.74	0.83	1.04	1.20	1.46	1.67	1.87	2.08	2.61
Steam output	t/hr	0.35	0.40	0.45	0.50	0.60	0.70	0.80	1.00	1.15	1.40	1.60	1.80	2.00	2.50
Thermal Capacity *)	MW	0.23	0.26	0.29	0.33	0.39	0.46	0.52	0.65	0.75	0.91	1.04	1.17	1.3	1.63
Water cont. up to "NW"- mark	m3	0.85	0.83	0.80	1.07	1.04	1.00	1.60	1.55	1.50	2.27	2.21	2.15	3.20	3.14
Transport weight at 8 bar	t	2.50	2.52	2.55	3.00	3.02	3.05	3.50	3.55	3.60	4.50	4.55	4.60	5.50	5.60
Service weight at 8 bar	t	4.00	4.00	4.00	5.00	5.00	5.00	6.00	6.00	6.00	7.50	7.50	7.50	9.60	9.60
Press. Loss comb. Chamber	mbar	5.0	6.5	7.0	4.5	7.0	9.0	5.0	8.0	9.5	6.5	8.0	9.5	8.0	12.5
Gas contents up to boiler end	m3	0.43	0.43	0.43	0.57	0.57	0.57	0.84	0.84	0.84	1.01	1.01	1.01	1.7	1.7
Boiler dimensions															
Boiler dimensions	Length L	mm	2600	2600	2600	2900	2900	2900	3050	3050	3050	3300	3300	3300	3500
	Width B	mm	1160	1160	1160	1260	1260	1260	1360	1360	1360	1560	1560	1560	1800
	Height H	mm	1750	1750	1750	1800	1800	1800	1940	1940	1940	2140	2140	2140	2210
Ground frame	length L1	mm	2321	2321	2321	2589	2589	2589	2723	2723	2723	2946	2946	2946	3125
	width B1	mm	795	795	795	863	863	863	932	932	932	1068	1068	1068	1233

Conn. piece distances

Steam take- off L2 mm 1230 1230 1230 1280 1280 1280 1420 1420 1420 1580 1580 1580 1700 1700

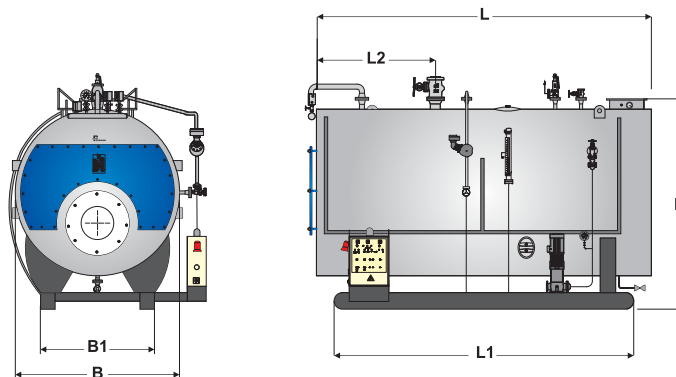
Nominal widths and pressures

Steam take- off															
at design pressure 1 bar	PN 16	DN	100	100	100	125	125	125	150	150	150	200	200	200	250
8 bar	PN 16	DN	40	40	40	50	50	50	65	65	65	80	80	80	100
10 bar	PN 16	DN	40	40	40	50	50	50	65	65	65	80	80	80	100
13 bar	PN 40	DN	32	32	32	40	40	40	50	50	50	65	65	65	80
20 bar	PN 40	DN	32	32	32	40	40	40	50	50	50	65	65	65	80
Safety valve make lesser															
at design pressure 1 bar	PN 16	DN	32	32	40	40	40	40	50	50	65	80	80	80	100
8 bar	PN 16	DN	25	25	25	25	25	25	25	25	25	32	32	32	40
10 bar	PN 16	DN	25	25	25	25	25	25	25	25	25	25	25	32	32
13 bar	PN 25	DN	25	25	25	25	25	25	25	25	25	25	25	25	32
20 bar	PN 25	DN	25	25	25	25	25	25	25	25	25	25	25	25	25
Feeding	PN**)	DN	25	25	25	25	25	25	25	25	25	25	25	32	32
Drainage	PN 40	DN	25	25	25	25	25	25	25	25	25	25	25	25	25

*) layout at 10 bar and a feed water temperature of 103°C **) up to 10 bar PN 16, exceeding 10 bar PN 40
1 MW = 1000 KW = 860,000 Kcal/hr ; 1 Kcal/hr = 3.93 BTU/hr ; 1 bar = 14.504 psi
1 atm = 1.013 bar ; 1 kg/cm² = 14.223 lb/sq in(psi); 1 BHP = 33,480 BTU/hr = 9.803 KW
All Specifications are subject to change without notice.

Steam boiler type

PSBH 2



Boiler type				PSBH2	0.55	0.70	0.90	1.15	1.40	1.80
Rated capacity				t/hr	0.58	0.74	0.94	1.20	1.46	1.87
Steam output				t/hr	0.55	0.70	0.90	1.15	1.40	1.80
Thermal capacity *)				MW	0.36	0.46	0.59	0.75	0.91	1.17
Water content up to NW - mark				m³	0.596	0.726	0.821	1.00	1.183	1.66
Appartaining design pressure				bar	16.5	13.5	12.0	10.0	8.0	6.0
Transport weight at 8 bar				t	3.2	3.5	3.8	4.0	4.6	5.0
Service weight at 8 bar				t	4.5	5.0	5.4	5.8	6.6	7.5
Press. Loss comb. Chamber				mbar	10.0	10.5	9.5	11.5	10.5	11.5
Gas content up to boiler end				m³	0.47	0.65	0.79	0.98	1.14	1.71
Boiler dimensions	length	L	mm	2970	3070	3120	3170	3370	3670	
	width	B	mm	1010	1060	1160	1260	1360	1460	
	height	H	mm	1620	1670	1810	1910	2010	2110	
Ground frame	length	L1	mm	2652	2741	2785	2830	3009	3277	
	width	B1	mm	692	720	795	863	932	1000	
Conn. piece distances										
steam take - off			L2	mm	1060	1140	1225	1170	1290	1515
Nominal widths and pressures										
Steam take - off										
at design pressure	6 bar	PN 16	DN	50	50	65	65	80	100	
	8 bar	PN 16	DN	50	50	65	65	80		
	10 bar	PN 16	DN	50	50	65	65			
	12 bar	PN 40	DN	40	40	50				
	13.5 bar	PN 40	DN	40	40					
	16 bar	PN 40	DN	40						
Safety valve make lesser at design pressure										
	6 bar	PN 16	DN	25	25	25	32	32	40	
	8 bar	PN 16	DN	25	25	25	25	32		
	10 bar	PN 16	DN	25	25	25	25			
	12 bar	PN 25	DN	25	25	25				
	13.5 bar	PN 25	DN	25	25					
	16 bar	PN 25	DN	25						
Feeding			PN**)	DN	25	25	32	32	32	32
Drainage			PN 40	DN	25	25	25	25	25	25

*) layout at 10 bar and a feed water temperature of 103°C

**) up to 10 bar PN 16, exceeding 10 bar PN 40

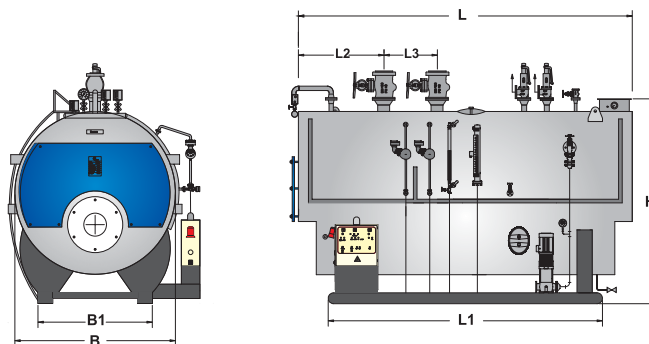
1 MW = 1000 KW = 860,000 Kcal/hr ; 1 Kcal/hr = 3.93 BTU/hr ; 1 bar = 14.504 psi

1 atm = 1.013 bar ; 1 kg/cm² = 14.223 lb/sq in(psi); 1 BHP = 33,480 BTU/hr = 9.803 KW

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Steam boiler type

PSBH 3



Boiler type			PSBH3	2.5	3.0	4.0	5.0	6.0	7.0	8.0	10.0	12.0	14.0
Rated capacity			t/hr	2.61	3.12	4.16	5.20	6.25	7.30	8.33	10.41	12.50	14.61
Steam output			T/hr	2.5	3.0	4.0	5.0	6.0	7.0	8.0	10.0	12.0	14.0
Thermal Capacity *)			MW	1.63	1.95	2.60	3.25	3.90	4.56	5.20	6.50	7.80	9.12
Water cont. up to "NW"- mark			m³	4.95	6.09	7.82	9.62	10.94	11.19	13.28	15.45	17.80	22.18
Transport weight			t	5.3	6.2	7.5	8.9	10.2	11.4	13.2	15.2	17.8	21.2
Service weight			t	11.8	14.1	17.6	21.0	24.0	26.0	30.5	35.5	41.0	50.0
Press. Loss comb. Chamber			mbar	10.5	10.5	10.5	10.5	10.5	11.0	12.0	13.0	12.5	12.0
Gas contents up to boiler end			m³	3.00	3.80	4.80	6.25	7.40	8.80	10.00	11.20	14.60	19.20
Boiler dimensions													
	Length	L	mm	4050	4650	5050	5450	5700	5900	6150	6500	6800	7300
	Width	B	mm	2100	2150	2300	2450	2550	2600	2750	2900	3050	3300
	Height	H	mm	2350	2400	2550	2700	2800	2850	3000	3150	3300	3550
Ground frame	length	L1	mm	3200	3800	4200	4600	4800	5000	5200	5500	5800	6300
	width	B1	mm	1400	1450	1550	1650	1750	1800	1900	2000	2100	2300
Conn. piece distances													
steam take- off .1		L2	mm	1800	2050	2250	2450	2500	2600	2150	2300	2350	2550
steam take- off .2		L3	mm	-	-	-	-	-	-	650	700	750	800

Nominal widths and pressures

Steam take- off

at design pressure	1bar	PN6	DN	250	300	300	350	350	400	2x300	2x350	2x400	2x400
Safety valve make lesser		PN16	DN	80	100	100	125	150	150	1x150	1x150	1x150	2x150
at design pressure	1bar									1x50	1x80	1x125	
Feeding		PN6	DN	32	32	40	40	50	50	50	65	65	65
Drainage		PN6	DN	25	32	32	32	40	40	40	50	50	50
Venting		PN 6	DN	20	20	20	20	20	20	20	20	20	20

*) layout at 0.8 bar and a feed water temperature of 80°C

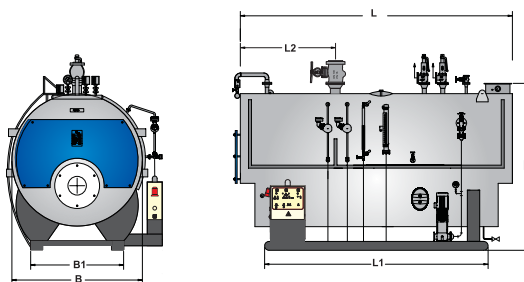
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1 atm = 1.013 bar ; 1 kg/cm² = 14.223 lb/sq in(psi); 1 BHP = 33,480 BTU/hr = 9.803 KW

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Steam boiler type

PSBH 4



Boiler type			PSBH4	2.5	3.0	4.0	5.0	6.0	7.0	8.0	10.0	12.0	14.0	
Rated capacity			t/hr	2.61	3.12	4.16	5.20	6.25	7.30	8.33	10.41	12.50	14.61	
Steam output			t/hr	2.5	3.0	4.0	5.0	6.0	7.0	8.0	10.0	12.0	14.0	
Thermal Capacity *)			MW	1.63	1.95	2.60	3.25	3.90	4.56	5.20	6.50	7.80	9.12	
Water cont. up to "NW"- mark			m³	4.95	6.09	7.82	9.62	10.94	11.19	13.28	15.45	17.80	22.18	
Transport weight at 8 bar			t	6.0	7.1	8.4	10.3	12.0	13.2	15.4	17.4	20.6	25.8	
Service weight at 8 bar			t	12.5	15.0	18.5	22.5	26.0	28.0	33.0	38.0	44.0	55.0	
Press. Loss comb. Chamber			mbar	10.5	10.5	10.5	10.5	10.5	11.0	12.0	13.0	12.5	12.0	
Gas contents up to boiler end			m3	3.00	3.80	4.80	6.25	7.40	8.80	10.00	11.20	14.60	19.20	
Boiler dimensions	Length	L	mm	4050	4650	5050	5450	5700	5900	6150	6500	6800	7300	
	Width	B	mm	2100	2150	2300	2450	2550	2600	2750	2900	3050	3300	
	Height	H	mm	2350	2400	2550	2700	2800	2850	3000	3150	3300	3550	
Ground frame	length	L1	mm	3200	3800	4200	4600	4800	5000	5200	5500	5800	6300	
	width	B1	mm	1400	1450	1550	1650	1750	1800	1900	2000	2100	2300	
Conn. piece distances														
steam take- off			L2	mm	1800	2050	2250	2450	2500	2600	1650	1850	1850	2000
Nominal widths and pressures														
Steam take- off at design pressure	6 bar	PN**)	DN	150	150	200	200	250	250	250	300	300	350	
	8 bar	PN**)	DN	125	125	150	200	200	200	200	250	250	300	
	10 bar	PN**)	DN	100	125	125	150	150	200	200	200	250	250	
	13 bar	PN**)	DN	100	100	125	125	150	150	150	200	200	200	
	16 bar	PN**)	DN	80	100	100	125	125	150	150	150	200	200	
	20 bar	PN 40	DN	80	80	100	100	125	125	150	150	150	200	
	25 bar	PN 40	DN	65	80	80	100	100	125	125	125	150	150	
Safety valve make lesser at design pressure	6 bar	PN 16	DN	50	50	65	65	65	80	80	100	100	100	
	8 bar	PN 16	DN	40	40	50	65	65	65	65	80	80	100	
	10 bar	PN 16	DN	40	40	50	50	65	65	65	65	80	80	
	13 bar	PN 25	DN	32	40	40	50	50	50	65	65	65	80	
	16 bar	PN 25	DN	32	32	40	40	50	50	50	65	65	65	
	20 bar	PN 40	DN	25	32	32	40	40	40	50	50	65	65	
	25 bar	PN 40	DN	25	25	32	32	40	40	40	50	50	50	
Feeding		PN***)	DN	32	32	40	40	50	50	50	65	65	80	
Drainage		PN 40	DN	25	32	32	32	40	40	40	50	50	50	
Venting		PN 40	DN	20	20	20	20	20	20	20	20	20	20	

*) layout at 10 bar and a feed water temperature of 102°C

**) up to 10 bar and up to DN 200 PN 16, exceeding 10 bar and up to DN 150 PN 40.

All further steam take-off conn. pieces PN 25.

***) up to 10 bar PN 16, exceeding 10 bar PN 40.

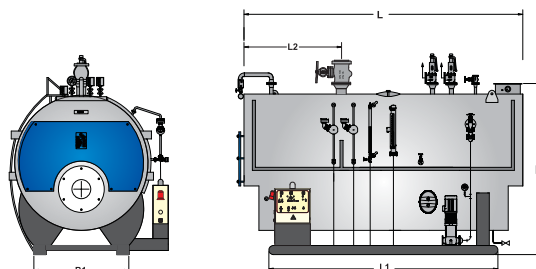
1 MW = 1000 KW = 860,000 Kcal/hr ; 1 Kcal/hr = 3.93 BTU/hr ; 1 bar = 14.504 psi

1 atm = 1.013 bar ; 1 kg/cm² = 14.223 lb/sq in(psi); 1 BHP = 33,480 BTU/hr = 9.803 KW

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Steam boiler type

PSBH 5



Boiler type		PSBH5	2.0	2.5	3.0	4.0	5.0	6.0	7.0	8.0	10.0	12.0	14.0
Rated capacity		t/hr	2.08	2.61	3.12	4.16	5.20	6.25	7.30	8.33	10.41	12.50	14.61
Steam output		t/hr	2.0	2.5	3.0	4.0	5.0	6.0	7.0	8.0	10.0	12.0	14.0
Thermal Capacity *)		MW	1.30	1.63	1.95	2.60	3.25	3.90	4.56	5.20	6.50	7.80	9.12
Water cont. up to "NW"- mark		m³	4.95	6.09	7.82	9.62	10.94	11.19	13.28	15.45	17.80	21.10	23.25
Transport weight at 8 bar		t	6.0	7.1	8.4	10.3	12.0	13.2	15.4	17.4	20.6	24.3	27.2
Service weight at 8 bar		t	12.5	15.0	18.5	22.5	26.0	28.0	33.0	38.0	44.0	53.0	58.0
Press. Loss comb. Chamber		mbar	7.5	7.5	7.5	7.5	7.5	8.0	8.5	9.0	8.0	8.0	8.0
Gas contents up to boiler end		m³	3.00	3.80	4.80	6.25	7.40	8.80	10.00	11.20	14.60	17.60	20.40
Boiler dimensions	Length L	mm	4050	4650	5050	5450	5700	5900	6150	6500	6800	7300	7300
	Width B	mm	2100	2150	2300	2450	2550	2600	2750	2900	3050	3200	3400
	Height H	mm	2350	2400	2550	2700	2800	2850	3000	3150	3300	3450	3650
Ground frame	length L1	mm	3200	3800	4200	4600	4800	5000	5200	5500	5800	6300	6300
	width B1	mm	1400	1450	1550	1650	1750	1800	1900	2000	2100	2200	2400
Conn. piece distances													
steam take-off L2		mm	2150	2200	2300	2450	2600	2700	2850	3050	3150	3400	3400
Nominal widths and pressures													
Steam take-off													
at design pressure 6 bar PN**)		DN	125	150	150	200	200	250	250	250	300	300	350
8 bar PN**)		DN	100	125	125	150	200	200	200	200	250	250	300
10 bar PN**)		DN	100	100	125	125	150	150	200	200	200	250	250
13 bar PN**)		DN	80	100	100	125	125	150	150	150	200	200	200
16 bar PN**)		DN	80	80	100	100	125	125	150	150	150	200	200
20 bar PN 40		DN	65	80	80	100	100	125	125	150	150	150	200
25 bar PN 40		DN	65	65	80	80	100	100	125	125	125	150	150
Safety valve make lesser													
at design pressure 6 bar PN 16		DN	40	50	50	65	65	65	80	80	100	100	100
8 bar PN 16		DN	40	40	40	50	65	65	65	65	80	80	100
10 bar PN 16		DN	32	40	40	50	50	65	65	65	65	80	80
13 bar PN 25		DN	32	32	40	40	50	50	50	65	65	65	80
16 bar PN 25		DN	25	32	32	40	40	50	50	50	65	65	65
20 bar PN 40		DN	25	25	32	32	40	40	40	50	50	65	65
25 bar PN 40		DN	20	25	25	32	32	40	40	40	50	50	50
Feeding PN***)		DN	32	32	32	40	40	50	50	50	65	65	80
Drainage PN 40		DN	25	25	32	32	32	40	40	40	50	50	50
Venting PN 40		DN	20	20	20	20	20	20	20	20	20	20	20

*

) layout at 10 bar and a feed water temperature of 102 C

**) up to 10 bar and up to DN 200 PN 16, exceeding 10 bar and up to DN 150 PN 40.

All further steam take-off conn. pieces PN 25.

***) up to 10 bar PN 16, exceeding 10 bar PN 40.

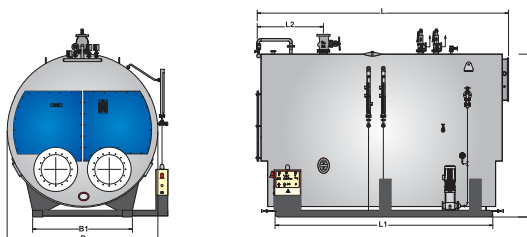
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1 atm = 1.013 bar ; 1 kg/cm² = 14.223 lb/sq in(psi); 1 BHP = 33,480 BTU/hr = 9.803 KW

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Steam boiler type

PSBH 6



Boiler type			PSBH6	16.0	18.0	20.0	22.0	25.0	28.0	32		
Rated Capacity			t/hr	16.72	18.80	20.82	22.98	26.10	29.26	33.60		
Steam output			t/hr	16.0	18.0	20.0	22.0	25.0	28.0	32.0		
Thermal Capacity *)			MW	10.44	11.74	13.00	14.35	16.30	18.27	20.88		
Water cont. up to "NW"- mark			m³	23.20	26.09	27.05	30.43	33.47	36.89	40.42		
Transport weight at 8 bar			t	29.0	32.0	35.0	40.0	43.0	50.0	84.0		
Service weight at 8 bar			t	57.0	63.0	68.0	77.0	84.0	95.0	130.0		
Press. Loss comb. Chamber			mbar	12.0	11.5	12.0	13.0	10.0	10.0	11.0		
Gas contents up to boiler end			m³	22.5	24.5	27.5	29.5	36.0	39.0	42.0		
Boiler dimensions			Length	L	mm	7400	7400	7400	7700	8200	8200	8400
					mm	3500	3700	3800	3950	4050	4250	4500
					mm	3950	4150	4250	4400	4500	4700	4800
Ground frame	length	L1	mm	5750	5750	5750	6050	6550	6550	6680		
	width	B1	mm	1700	1800	1800	1900	1900	2000	2200		
Conn. piece distances steam take- off			L2	mm	2800	2800	2800	2900	2900	3000	3100	
Nominal widths and pressures												
Steam take- off at design pressure			6 bar	PN 25	DN	300	300	350	350	350	2x250	2x250
			8 bar	PN 25	DN	250	300	300	300	300	350	350
			10 bar	PN 25	DN	250	250	250	300	300	300	300
			13 bar	PN 25	DN	200	200	250	250	250	300	300
			16 bar	PN 25	DN	200	200	200	200	250	250	250
			20 bar	PN 25	DN	200	200	200	200	200	250	250
Safety valve make lesser at design pressure			6 bar	PN 16	DN	100	125	150	150	150	200	200
			8 bar	PN 16	DN	100	100	100	125	150	150	150
			10 bar	PN 16	DN	80	100	100	100	100	125	125
			13 bar	PN 25	DN	80	80	80	100	100	100	100
			16 bar	PN 25	DN	65	80	80	80	80	100	100
			20 bar	PN 25	DN	65	65	65	80	80	80	80
Feeding			PN**)	DN	65	65	65	65	80	80	80	80
Drainage			PN 40	DN	50	50	50	65	65	65	65	65
Venting			PN 40	DN	20	20	20	20	20	20	20	20

*) layout at 10 bar and a feed water temperature of 103°C

**) up to 10 bar PN 16, exceeding 10 bar PN 40

1 MW = 1000 KW = 860,000 Kcal/hr ; 1 Kcal/hr = 3.93 BTU/hr ; 1 bar = 14.504 psi

1 atm = 1.013 bar ; 1 kg/cm² = 14.223 lb/sq in(psi); 1 BHP = 33,480 BTU/hr = 9.803 KW

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