



BRAZED PLATE

HEAT EXCHANGERS

Brazed Plate Heat Exchangers



Advantages of Brazed Plate Heat Exchangers

- high heat transfer coefficient
- small unit size with high heat transfer capacity
- high resistance to pressure and temperature fluctuations
- cost efficiency
- stainless steel connections
- easy installation

Brazed plate heat exchangers consist of stainless steel plate packs, which have embossed chevron patterns. The plates are turned 180° to each other, causing the plate ridges to intersect, and creating a lattice of intersecting channels. The fluids can flow in counter-current or co-current way.

The entire construction is sealed together by the means of brazing in a special vacuum furnace.

Special corrugation patterns promotes high turbulence flow.

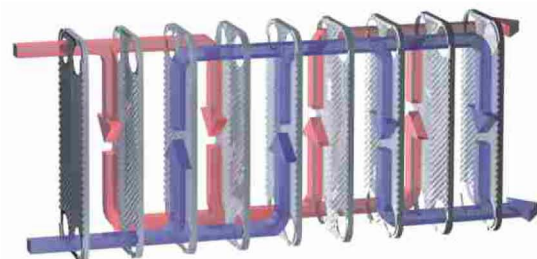
Turbulence dramatically improves heat transfer rates and reduces the amount of deposits inside the unit.



Flow Channel Diagram in Heat Exchanger



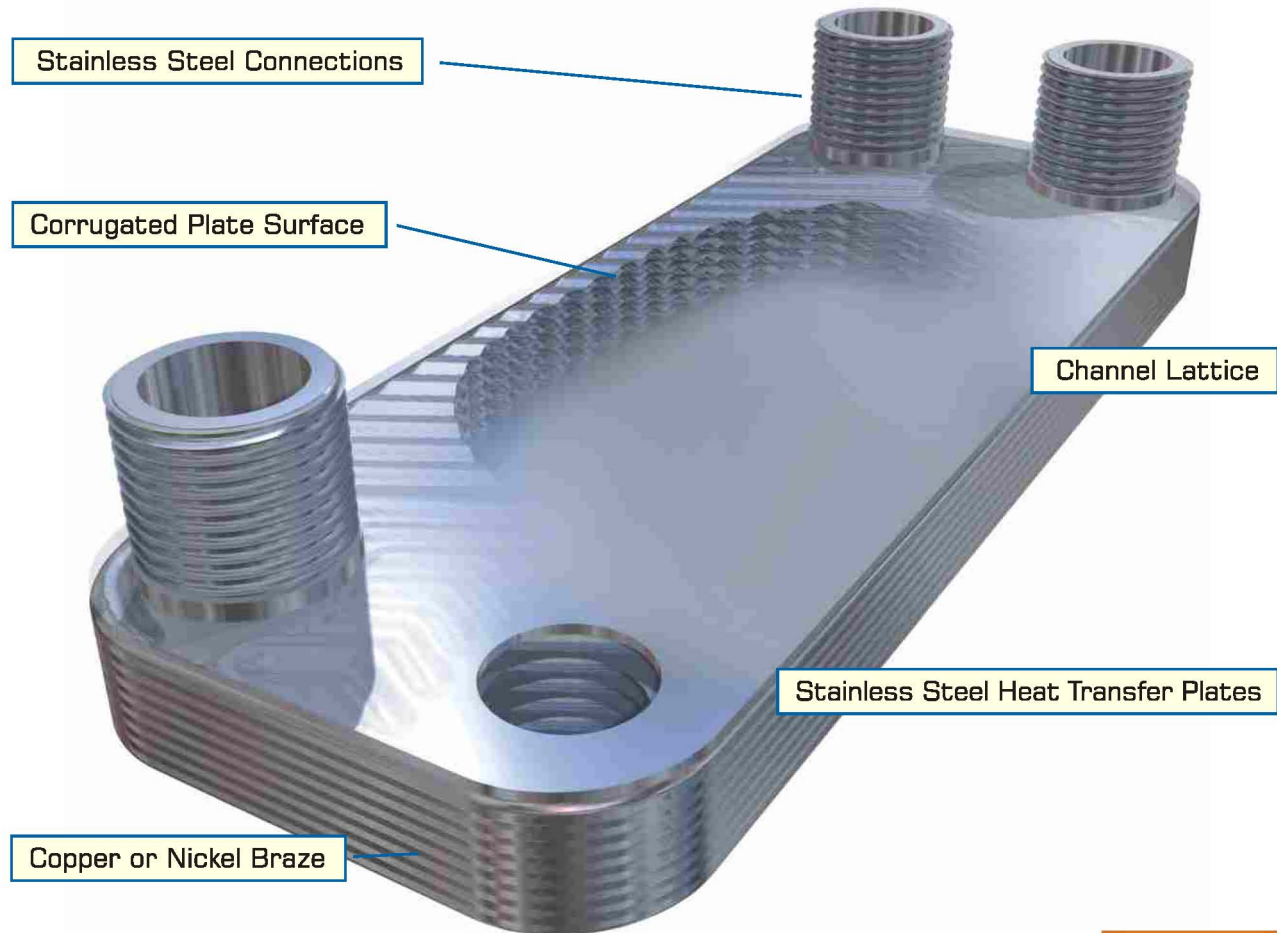
one-pass - channels are parallel.



multi-pass - system of channels is divided into groups which are connected in series.

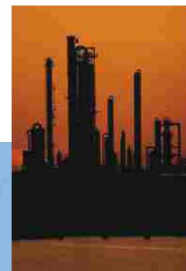
By changing number of plates, geometry of plates, pattern of plate corrugation and channel diagrams we can custom design heat exchangers for individual needs of the customers.

Small but Powerful



Applications:

- Central Heating
- Hydronic Heating
- Solar and Geothermic Heating
- Industrial Process Heat Recovery
- Condensers and Evaporators in Refrigeration Systems
- Oil Coolers
- Close Approach Fluid-To-Fluid Heat Transfer



ZB BRAZED HEAT EXCHANGERS FOR GENERAL APPLICATIONS

Due to their peculiar manufacturing of our ZB series brazed heat exchangers can be used for many different applications as for example:

- heating SYSTEMS WITH LOW TEMPERATURE
- de-coupling in thermal systems of FIRE-PLACE
- SOLAR SYSTEM
- heating systems do SWIMMING POOLS

Our technical office is always at your disposal for any questions you may have on how choose the model that best suits yours needs.

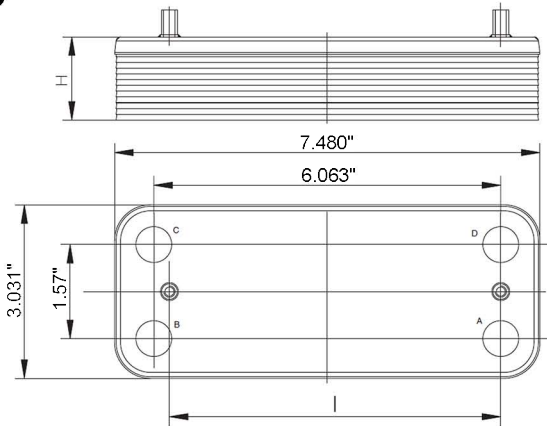


	ZB 200	ZB 207	ZB 315	ZB 500	ZB 600	ZB 700
Dimensions	7.667" X 3.464"	8.149" X 3.031"	20.708" X 4.724"	20.866" X 10.433"	30.787" X 13.779"	30.787" X 13.779"
SOCKETS DISTANCE	0.144	0.161	0.0274	0.282	20.708	4.724
NUMBER OF PLATE	10-30	10-40	10-40	10-80	30-100	40-200
STD. CONNECTIONS	1/2" INOX + 1/2" INOX	1/2" INOX + 3/4" INOX	3/4" INOX + 3/4" INOX	1 1/4"	2"	2 1/2"



ZB BRAZED HEAT EXCHANGERS FOR WALL MOUNTED ROILES

ZB 190

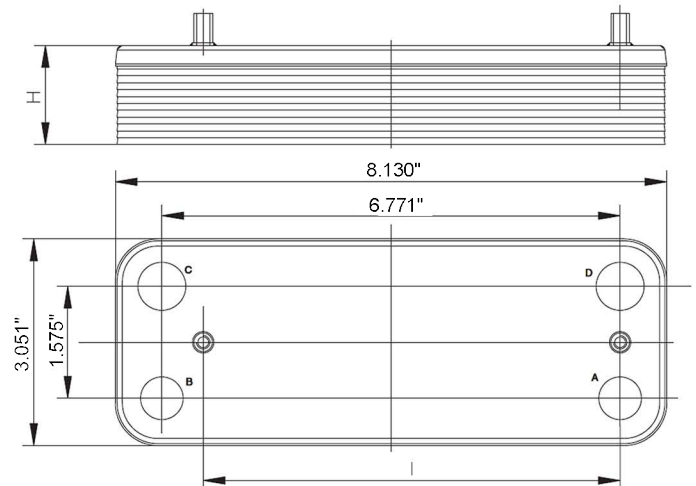


TECHNICAL FEATURES

H	$(0.315+n)'' \times 0.098''$	WORKING PRESSURE	145.038 PSI	NUMBER OF PLATE	8-40
HOLES DIAMETER	0.630''	TESTING PRESSURE	188.549 PSI	PLATES MATERIAL	S.S. 316L
I	*	SANITARU WATER CIRCUIT	A-C	BRAZING MATERIAL	COPPER
WEIGHTH	$0.280 \text{ lb} + (N \times 0.121) \text{ lb}$	SECONDARY CIRCUIT	B-D	SOCKETS	From 1/2'' to 3/4''

* based on customer's request

ZB 207



TECHNICAL FEATURES

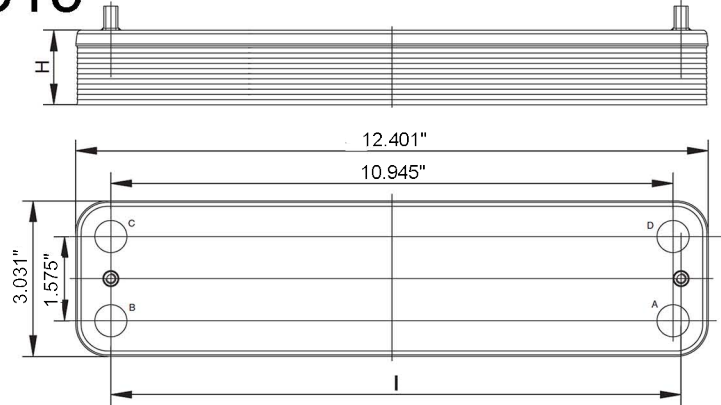
H	$(0.102+n)'' \times 0.276''$	WORKING PRESSURE	145.038 PSI	NUMBER OF PLATE	8-40
HOLES DIAMETER	0.630'' (A-B) 0.709'' (C-D)	TESTING PRESSURE	188.549 PSI	PLATES MATERIAL	S.S. 316L
I	*	SANITARU WATER CIRCUIT	A-B	BRAZING MATERIAL	COPPER
WEIGHTH	$0.304 \text{ lb} + (N \times 0.137) \text{ lb}$	SECONDARY CIRCUIT	C-D	SOCKETS	From 1/2'' to 3/4''

* based on customer's request



ZB BRAZED HEAT EXCHANGERS FOR WALL MOUNTED BOILERS

ZB 315

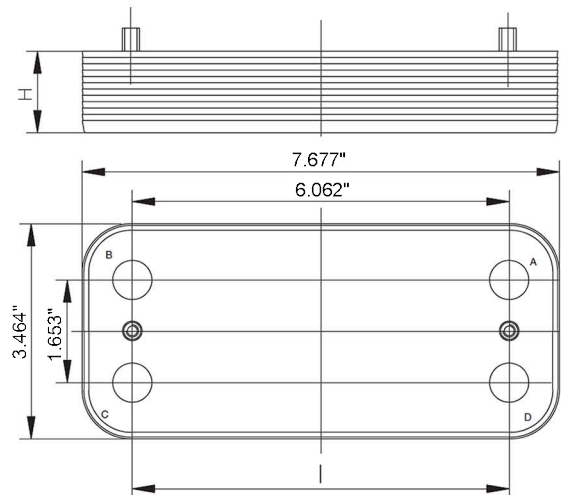


TECHNICAL FEATURES

H	$(0.315+n)'' \times 0.098''$	WORKING PRESSURE	145.038 PSI	NUMBER OF PLATE	8-40
HOLES DIAMETER	0.63"	TESTING PRESSURE	188.5494 PSI	PLATES MATERIAL	S.S. 316L
I	*	SANITARU WATER CIRCUIT	A-B	BRAZING MATERIAL	COPPER
WEIGHTH	$0.456 \text{ lb} + (N \times 0.207) \text{ lb}$	SECONDARY CIRCUIT	C-D	SOCKETS	From 1/2" to 3/4"

* based on customer's request

ZB 195 CROSS FLOW



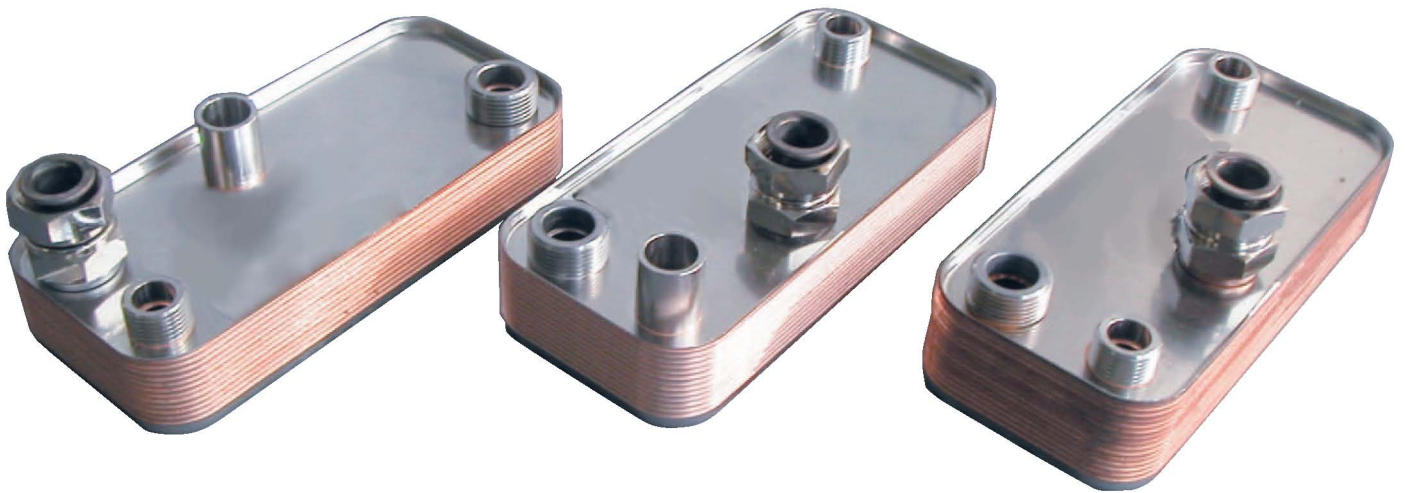
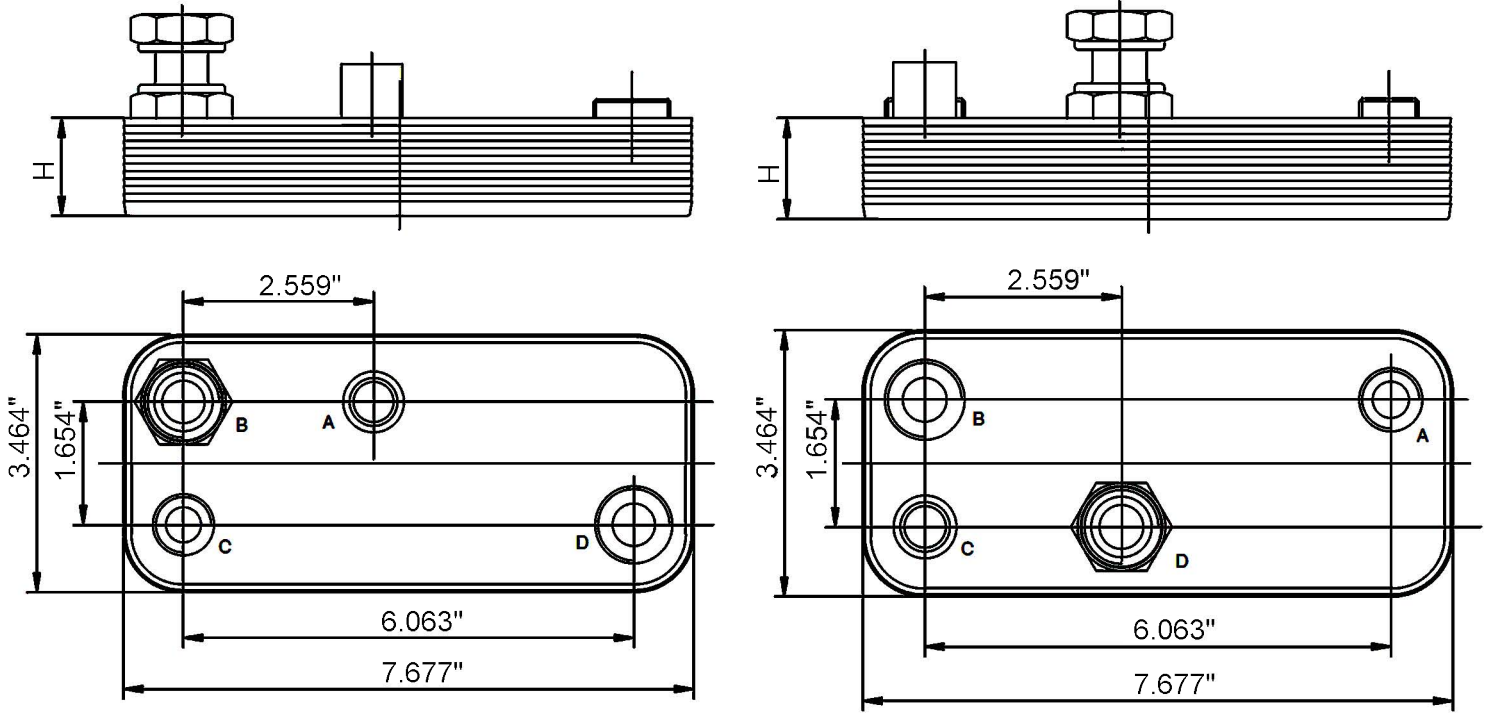
TECHNICAL FEATURES

H	$(0.315+n)'' \times 0.102''$	WORKING PRESSURE	145.038 PSI	NUMBER OF PLATE	10-40
HOLES DIAMETER	0.034"	TESTING PRESSURE	188.549 PSI	PLATES MATERIAL	S.S. 316L
I	*	SANITARU WATER CIRCUIT	A-C	BRAZING MATERIAL	COPPER
WEIGHTH	$0.328 \text{ lb} + (N \times 0.139) \text{ lb}$	SECONDARY CIRCUIT	B-D	SOCKETS	From 1/2" to 3/4"

* based on customer's request

ZB BRAZED HEAT EXCHANGERS FOR WALL MOUNTED BOILERS

ZB 195 PATENT PENDING



TECHNICAL FEATURES

H	$(0.276+n) \times 0.102$ "	WORKING PRESSURE	145.038 PSI	SECONDARY CIRCUIT	B-D
PLATES MATERIAL	S.S. 316L	TESTING PRESSURE	188.5494 PSI	WEIGHT	0.328 lb + (n X 0.139)lb
BRAZING MATERIAL	COPPER	SANITARY WATER CIRCUIT	A-C	SOCKETS	from 1/2" to 3/4"

ZB PLATE -DISMANTLE HEAT EXCHANGERS

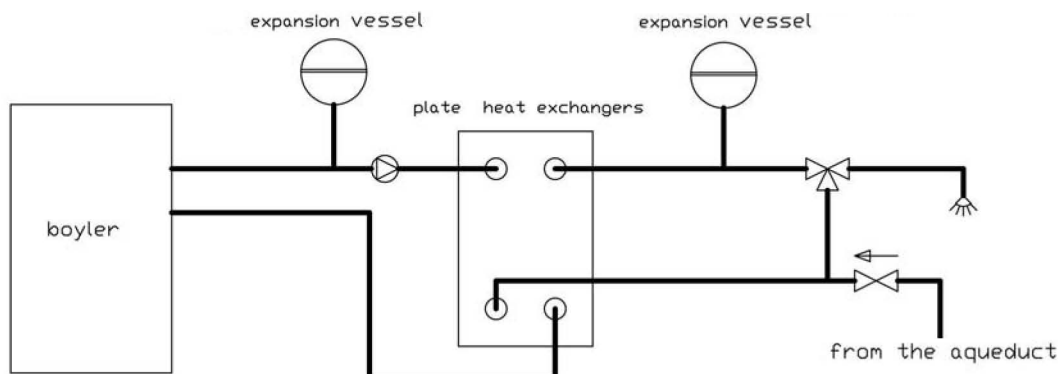
INSTALLATION EXAMPLES AND SELECTION TABLE

HOT WATER IMMEDIATE PRODUCTION

PRIMARY 80°C-60°C / SECONDARY 12°C-50°C

BTU/H	MODEL		FLOW GPM		PRESSURE DROP in H ₂ O 4°C	
	number of plates		primary	secondary	primary	secondary
79366.40	ZB 207	10	4.359	2.290	0.315	0.118
	Z2	7			0.355	0.118
119049.60	ZB 207	14	6.737	3.478	0.355	0.118
	Z2	7			0.827	0.276
158732.81	ZB 207	16	8.806	4.403	0.473	0.158
	Z2	9			0.827	0.276
198416.01	ZB 207	20	11.228	5.812	0.473	0.158
	Z2	9			1.221	0.433
238099.21	ZB 207	24	13.209	6.957	0.473	0.158
	Z2	11			1.143	0.394
317465.61	ZB 315	24	17.612	9.290	1.340	0.433
	Z2	13			1.379	0.473
396832.02	ZB 500	20	22.455	11.624	1.143	0.394
	Z2	17			1.221	0.433
496040.02	ZB 500	30	28.091	14.530	0.788	0.276
	Z2	21			1.221	0.433
595248.02	ZB 500	30	33.727	17.480	1.103	0.386
	Z2	25			1.253	0.433
694456.03	ZB 500	30	39.363	20.386	1.458	0.512
	Z2	27			1.418	0.473
793664.03	ZB 500	40	44.911	23.292	1.095	0.382
	Z2	33			1.221	0.433
992080.04	ZB 600	30	55.918	29.148	0.658	0.225
	Z3	23			1.182	0.394
1190496.05	ZB 600	30	67.366	34.960	0.906	0.315
	Z3	27			1.182	0.394
1388912.06	ZB 600	30	78.373	40.816	1.182	0.394
	Z3	31			1.221	0.429
1587328.07	ZB 600	30	89.821	46.232	1.497	0.512
	Z3	33			1.379	0.473
1785744.07	ZB 600	40	98.363	51.955	1.024	0.355
	Z3	35			1.458	0.512
1984160.08	ZB 600	40	112.277	58.120	1.340	0.433
	Z3	37			1.694	0.591
2380992.10	ZB 600	50	134.732	69.567	1.221	0.433
	Z3	45			1.615	0.552
2777824.12	ZB 700	50	157.187	81.676	1.379	0.473
	Z3	51			1.694	0.591
3174656.13	ZB 700	50	179.995	93.344	1.734	0.591
	Z3	59			1.655	0.552

EXAMPLE OF CALCULATION - for particular application, please contact our technical office



ZB PLATE-DISMANTLE HEAT EXCHANGERS

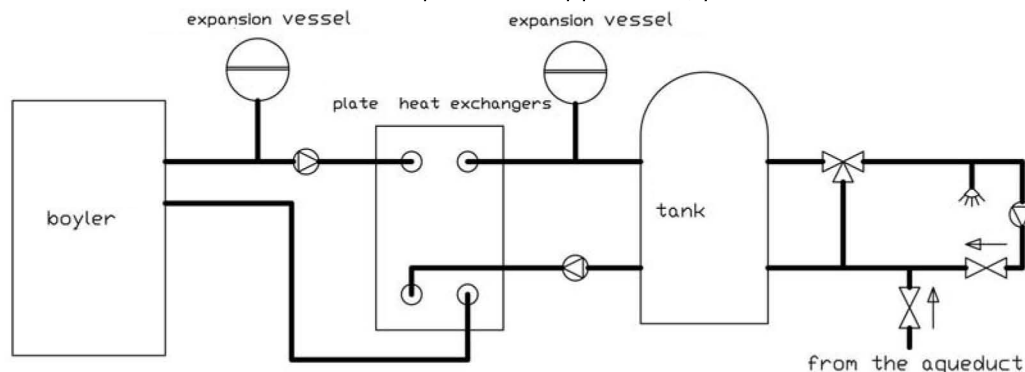
INSTALLATION EXAMPLES AND SELECTION TABLE

HOT WATER PRODUCTION WITH TANK

PRIMARY 80°C-70°C / SECONDARY 59°C-69°C

BTU/H	MODEL		FLOW GPM		PRESSURE DROP in H ₂ O 4°C	
	number of plates		primary	secondary	primary	secondary
79366.40	ZB 207	30	8.718	8.806	0.118	0.118
	Z2	13			0.355	0.394
119049.60	ZB 207	40	13.209	13.209	0.158	0.158
	Z2	19			0.394	0.394
158732.81	ZB 315	24	17.612	17.612	1.300	1.340
	Z2	23			0.433	0.433
198416.01	ZB 500	20	22.543	22.411	1.103	1.143
	Z2	29			0.433	0.433
238099.21	ZB 500	24	27.034	26.955	1.103	1.143
	Z2	33			0.473	0.473
317465.61	ZB 500	30	36.061	35.884	1.221	1.261
	Z2	43			0.473	0.512
396832.02	ZB 600	30	44.118	44.867	0.394	0.394
	Z3	19			1.103	1.143
496040.02	ZB 600	30	56.358	56.094	0.630	0.630
	Z3	23			1.143	1.143
595248.02	ZB 600	30	67.674	67.322	0.898	0.898
	Z3	27			1.182	1.182
694456.03	ZB 600	30	78.946	78.946	1.182	1.182
	Z3	31			1.221	1.221
793664.03	ZB 600	30	90.217	90.217	1.497	1.537
	Z3	33			1.379	1.379
992080.04	ZB 600	40	112.761	112.232	1.300	1.340
	Z3	41			1.379	1.379
1190496.05	ZB 700	40	135.348	134.688	1.537	1.576
	Z3	49			1.379	1.418
1388912.06	ZB 700	50	153.004	155.030	1.261	1.340
	Z3	55			1.458	1.497
1587328.07	ZB 700	50	180.083	180.083	1.734	1.773
	Z3	63			1.458	1.497
1785744.07	ZB 700	60	202.978	202.098	1.497	1.497
	Z3	71			1.458	1.458
1984160.08	ZB 700	60	225.434	224.113	1.852	1.891
	Z4	71			1.497	1.537
2380992.10	ZB 700	80	270.696	269.023	1.497	1.537
	Z4	85			1.497	1.537
2777824.12	ZB 700	80	315.695	313.934	2.009	2.049
	Z4	87			1.931	1.970
3174656.13	ZB 700	100	360.606	359.241	1.694	1.734
	Z4	93			2.167	2.206

EXAMPLE OF CALCULATION - for particular application, please contact our technical office



ZB PLATE-DISMANTLE HEAT EXCHANGERS

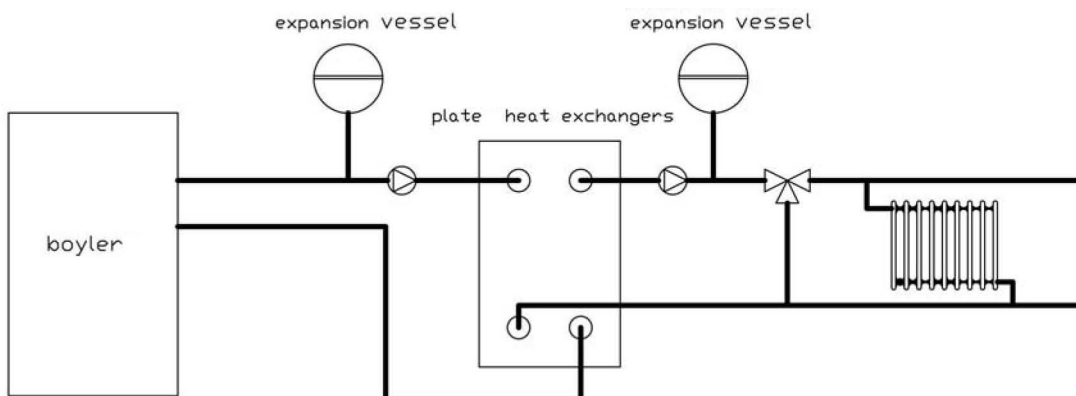
INSTALLATION EXAMPLES AND SELECTION TABLE

TRADITIONAL BOILER HEATING

PRIMARY 80°C-65°C / SECONDARY 55°C-70°C

BTU/H	MODEL		FLOW GPM		PRESSURE DROP in H ₂ O 4°C	
	number of plates		primary	secondary	primary	secondary
79366.40	ZB 207	40	5.988	5.988	0.039	0.039
	Z2	15			0.142	0.142
119049.60	ZB 315	22	8.982	8.982	0.433	0.433
	Z2	23			0.130	0.130
158732.81	ZB315	30	12.020	12.020	0.394	0.394
	Z2	29			0.142	0.142
198416.01	ZB 315	34	14.970	14.970	0.473	0.473
	Z2	35			0.150	0.150
238099.21	ZB 315	40	17.612	17.612	0.473	0.473
	Z2	41			0.158	0.158
317465.61	ZB 500	30	24.040	24.040	0.591	0.591
	Z2	53			0.162	0.162
396832.02	ZB 500	40	30.117	30.117	0.512	0.512
	Z3	17			0.670	0.670
496040.02	ZB 500	50	37.558	37.558	0.512	0.512
	Z3	19			0.788	0.788
595248.02	ZB 600	30	45.087	45.087	0.433	0.433
	Z3	23			0.788	0.788
694456.03	ZB 600	30	52.616	52.616	0.552	0.552
	Z3	27			0.749	0.749
793664.03	ZB 600	40	59.881	59.881	0.394	0.394
	Z3	29			0.867	0.867
992080.04	ZB 600	50	74.851	74.851	0.394	0.394
	Z3	37			0.788	0.788
1190496.05	ZB 600	50	90.262	90.262	0.591	0.591
	Z3	43			0.827	0.827
1388912.06	ZB 600	60	105.232	105.232	0.591	0.591
	Z3	51			0.788	0.788
1587328.07	ZB 600	80	120.202	120.202	0.394	0.394
	Z3	57			0.827	0.827
1785744.07	ZB 700	40	135.172	135.172	1.537	1.537
	Z3	63			0.867	0.867
1984160.08	ZB 700	50	150.142	150.142	1.221	1.221
	Z3	69			0.867	0.867
2380992.10	ZB 700	50	180.083	180.083	1.734	1.734
	Z3	83			0.906	0.906
2777824.12	ZB 700	60	210.023	210.023	1.655	1.655
	Z4	65			1.576	1.576
3174656.13	ZB 700	60	239.523	239.523	2.049	2.049
	Z4	71			1.773	1.773

EXAMPLE OF CALCULATION - for particular application, please contact our technical office



ZB PLATE -DISMANTLE HEAT EXCHANGERS

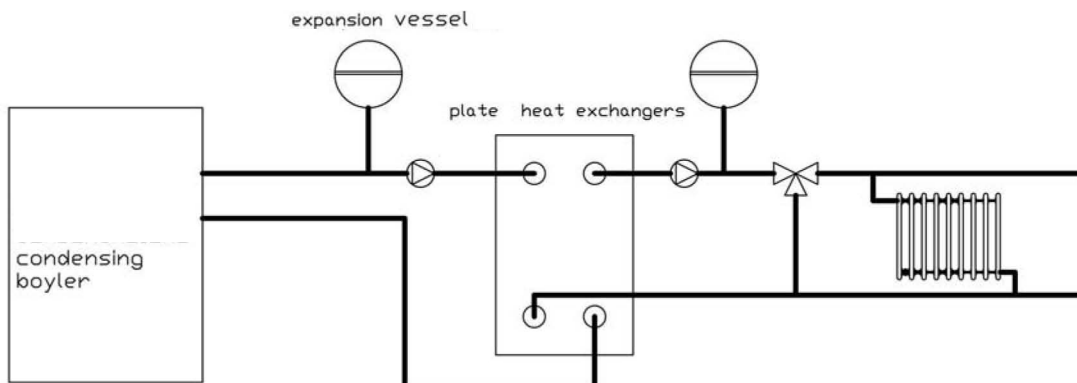
INSTALLATION EXAMPLES AND SELECTION TABLE

CONDENSING BOILER HEATING

PRIMARY 50°C-40°C / SECONDARY 30°C-40°C

BTU/H	MODEL		FLOW GPM		PRESSURE DROP inH ₂ O 4°C	
	number of plates		primary	secondary	primary	secondary
79366.40	ZB 207	34	8.806	8.806	0.118	0.118
	Z2	15			0.327	0.327
119049.60	ZB 315	20	13.209	13.209	1.182	1.182
	Z2	21			0.355	0.355
158732.81	ZB 315	30	17.612	17.612	0.906	0.906
	Z2	27			0.355	0.355
198416.01	ZB 500	20	22.015	22.015	1.221	1.221
	Z2	33			0.355	0.355
238099.21	ZB 500	30	26.858	26.858	0.788	0.788
	Z2	37			0.433	0.433
317465.61	ZB 500	30	35.928	35.928	1.379	1.379
	Z2	49			0.433	0.433
396832.02	ZB 600	30	44.470	44.470	0.433	0.433
	Z3	19			1.182	1.182
496040.02	ZB 600	30	55.654	55.654	0.670	0.670
	Z3	23			1.261	1.261
595248.02	ZB 600	30	66.794	66.794	0.985	0.985
	Z3	25			1.497	1.497
694456.03	ZB 600	30	77.933	77.933	1.261	1.261
	Z3	37			1.379	1.379
793664.03	ZB 600	40	88.941	88.941	0.946	0.985
	Z3	33			1.497	1.537
992080.04	ZB 600	40	111.352	111.352	1.418	1.458
	Z3	41			1.497	1.537
1190496.05	ZB 600	50	133.587	133.587	1.300	1.340
	Z3	49			1.497	1.537
1388912.06	ZB 700	50	155.866	155.866	1.458	1.497
	Z3	55			1.576	1.655
1587328.07	ZB 700	50	177.881	177.881	1.852	1.931
	Z3	63			1.576	1.615
1785744.07	ZB 700	60	196.726	198.271	1.615	1.655
	Z3	69			1.576	1.694
1984160.08	ZB 700	60	222.352	222.352	1.970	1.970
	Z4	71			1.615	1.694
2380992.10	ZB 700	80	267.262	267.262	1.615	1.694
	Z4	85			1.615	1.694
2777824.12	ZB 700	80	311.732	311.732	2.167	2.206
	Z4	87			2.049	2.128
3174656.13	ZB 700	100	356.291	356.291	1.812	1.891
	Z4	93			1.931	2.403

EXAMPLE OF CALCULATION - for particular application, please contact our technical office



ZB PLATE -DISMANTLE HEAT EXCHANGERS

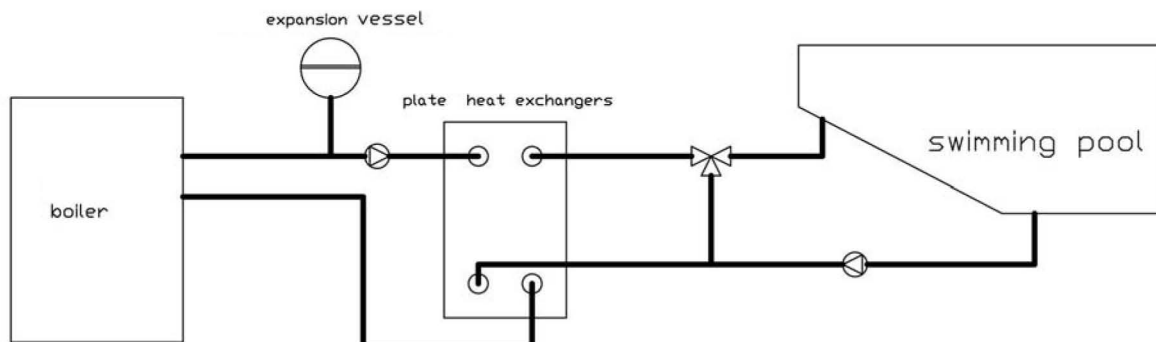
INSTALLATION EXAMPLES AND SELECTION TABLE

SWIMMINGPOOL HEATING

PRIMARY 80°C-65°C / SECONDARY 55°C-70°C

BTU/H	MODEL		FLOW GPM		PRESSURE DROP in H ₂ O 4°C	
	number of plates		primary	secondary	primary	secondary
79366.40	ZB 207	12	4.359	5.856	0.248	0.433
	Z2	7			0.390	0.709
119049.60	ZB 207	16	6.693	8.850	0.307	0.563
	Z2	9			0.473	0.906
158732.81	ZB 207	20	8.938	11.800	0.339	0.623
	Z2	11			0.552	1.024
198416.01	ZB 207	24	11.184	14.750	0.359	0.658
	Z2	13			0.591	1.103
238099.21	ZB 500	20	13.429	17.700	0.433	0.670
	Z2	15			0.630	1.182
317465.61	ZB 500	20	17.876	23.644	0.780	1.418
	Z2	19			0.686	1.261
396832.02	ZB 500	24	22.367	29.544	0.827	1.497
	Z2	25			0.611	1.103
496040.02	ZB 500	30	27.959	36.941	0.788	1.497
	Z2	29			0.670	1.261
595248.02	ZB 600	30	33.463	44.030	0.260	0.473
	Z3	19			0.670	1.261
694456.03	ZB 600	30	39.187	51.515	0.347	0.630
	Z3	23			0.630	1.143
793664.03	ZB 600	30	44.779	59.088	0.441	0.827
	Z3	25			0.686	1.261
992080.04	ZB 600	30	55.962	73.882	0.630	1.221
	Z3	29			0.749	1.418
1190496.05	ZB 600	30	67.190	88.676	0.906	1.694
	Z3	33			0.851	1.537
1388912.06	ZB 600	40	78.373	103.426	0.713	1.316
	Z3	39			0.788	1.497
1587328.07	ZB 600	40	88.412	118.265	0.867	1.655
	Z3	45			0.749	1.458
1785744.07	ZB 600	50	98.363	132.002	0.709	1.340
	Z3	51			0.749	1.418
1984160.08	ZB 700	50	111.968	147.809	0.749	1.379
	Z3	55			0.827	1.497
2380992.10	ZB 700	60	134.292	177.353	0.749	1.379
	Z3	67			0.788	1.182
2777824.12	ZB 700	60	156.747	206.897	0.985	1.812
	Z3	77			0.788	1.497
3174656.13	ZB 700	80	179.158	236.485	0.749	1.379
	Z4	81			0.788	1.497

EXAMPLE OF CALCULATION - for particular application, please contact our technical office



For Future Use

For Future Use

For Future Use

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FLO FAB



**Manufacturer of Pumps, Tanks, Heat Exchangers & Accessories
for HVAC Market After-Sales Parts and Services**

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SEPTEMBER 2009