



Plate Exchanger



**LONG TERM SOLUTIONS
FOR BIG BUILDINGS**



ALARKO PLATE EXCHANGERS

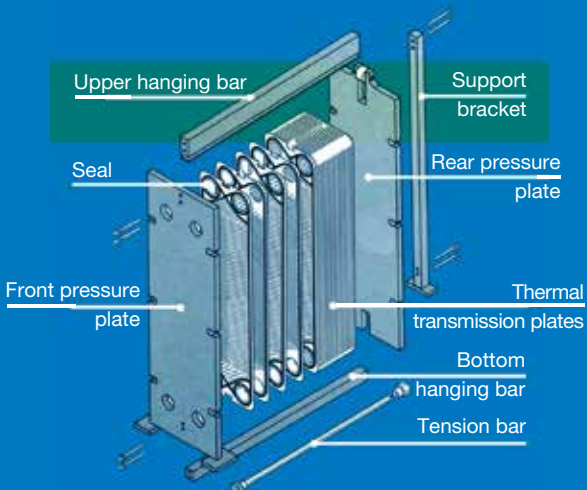
Alarko Plate Exchangers which come to the fore with their designs based on ease of use and safety, and their apparent quality in their structure are very different from their competitors...

While creating a difference with long lifetime, economical and trouble-free operation, low repair and maintenance costs, it brings the customer satisfaction to the highest level!



CORROSION RESISTANT

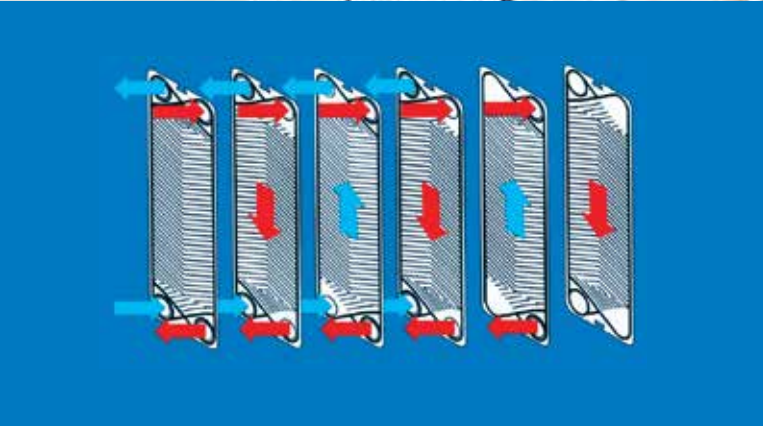
Thanks to the corrosion-resistant stainless steel used in its structure, high turbulent flow and smoothness of its plate surface, getting dirty, calcification, corrosion and erosion are minimized.





DISTINGUISHING OUTSTANDING FEATURES:

- ▶ **It can transfer heat with very high efficiencies.**
- ▶ **It occupies very little space thanks to its compact design.**
- ▶ **It can be cleaned by fully disassembling.**
- ▶ **It is long-lasting and durable.**
- ▶ **It provides low maintenance costs.**
- ▶ **Short response time provided by the low fluid volume enables better control of the systems.**

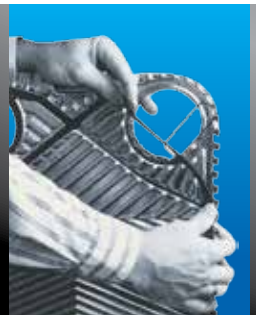


Alrako Plate Exchangers can be easily disassembled when necessary and all the heat transfer surfaces can be accessed. This allows the unit to be cleaned, old or damaged plates and seals to be replaced and plates can be added easily when capacity increase is necessary. Seals are secured by a special locking system without being glued to the plate. Special plate suspension system reduces the risk of even the inexperienced people to make mistakes in the plate arrangement. Thus, it shortens the length of maintenance and seal replacement process, reduces their costs and extends the usage time. Maximum operating pressure is 10 bar and the maximum operating temperature is 100°C.

RESISTANT LEAK PROOF SEALS

Seals' leak-proof resistance and the strength against the impacts are quite high compared to flat seals which are considered as competitors.

★★★★★



Deep pressed seal ducts ensure better support of the seal and the upper conical seal structure allows the compression force to reach the highest value on the seal axis.

Table 1: Radiator Heating, Circuit Breaker (Primary 60-40°C, Secondary 30-50°C)

Type	Capacity (Kw)	Primary Circuit Pressure Loss (mSS)	Secondary Circuit Pressure Loss (mSS)	Total water volume in the primary and secondary circuits (liter)	Connection diameter	Height (mm)	Width (mm)	Depth (mm)	Weight without water (kg)
APE 3-4-12	20	0.7	0.9	2	DN32	758	180	112	36
APE 3-4-14	30	1	1.3	3	DN32	758	180	112	37
APE 3-4-16	40	1.3	1.6	3	DN32	758	180	112	38
APE 3-4-18	50	1.5	1.8	4	DN32	758	180	112	39
APE 3-4-20	60	1.8	2.1	4	DN32	758	180	112	40
APE 3-4-22	70	1.9	2.2	5	DN32	758	180	212	42
APE 3-4-24	80	2.1	2.4	5	DN32	758	180	212	43
APE 3-4-25	90	2.5	2.9	5	DN32	758	180	212	43
APE 3-4-26	100	2.7	3	5	DN32	758	180	212	44
APE 3-4-30	125	3.1	3.4	6	DN32	758	180	212	45
APE 3-4-34	150	3.4	3.8	7	DN32	758	180	212	47
APE 3-4-40	175	3.5	3.7	8	DN32	758	180	212	50
APE 3-4-44	200	3.8	4	9	DN32	758	180	262	52
APE 5-3-25	225	4.2	4.2	8	DN50	896	283	437	134
APE 5-3-27	250	4.5	4.4	9	DN50	896	283	437	136
APE 5-3-29	275	4.7	4.6	10	DN50	896	283	437	137
APE 5-3-31	300	4.8	4.7	10	DN50	896	283	437	138
APE 5-3-36	350	4.7	4.7	12	DN50	896	283	437	142
APE 5-3-40	400	5	4.9	13	DN50	896	283	537	146
APE 5-3-45	450	4.8	4.8	15	DN50	896	283	537	150
APE 6-1-31	500	5	5	18	DN65	946	395	438	205
APE 6-1-34	550	5	4.9	20	DN65	946	395	438	208
APE 6-1-37	600	4.9	4.8	22	DN65	946	395	438	211
APE 6-1-40	650	4.9	4.9	23	DN65	946	395	438	214
APE 6-1-43	700	4.9	4.9	25	DN65	946	395	438	216
APE 6-1-46	750	4.9	4.9	27	DN65	946	395	438	219
APE 6-1-49	800	4.9	4.9	29	DN65	946	395	438	222
APE 6-1-52	850	4.9	4.9	31	DN65	946	395	438	225
APE 6-1-55	900	4.9	4.9	32	DN65	946	395	438	227
APE 6-1-58	950	5	4.9	34	DN65	946	395	438	230
APE 6-1-61	1000	5	5	36	DN65	946	395	538	234

Table 2: Radiator Heating Circuit Breaker (Primary 80-60°C, Secondary 50-70°C)

Type	Capacity (Kw)	Primary Circuit Pressure Loss (mSS)	Secondary Circuit Pressure Loss (mSS)	Total water volume in the primary and secondary circuits (liter)	Connection diameter	Height (mm)	Width (mm)	Depth (mm)	Weight without water (kg)
APE 2-4-18	20	0.2	0.2	3	DN32	483	180	112	24
APE 2-4-24	30	0.2	0.2	4	DN32	483	180	212	27
APE 2-4-30	40	0.3	0.2	5	DN32	483	180	212	28
APE 3-4-18	50	1.9	1.5	4	DN32	758	180	112	39
APE 3-4-20	60	2.1	1.8	4	DN32	758	180	112	40
APE 3-4-22	70	2.3	1.9	5	DN32	758	180	212	42
APE 3-4-24	80	2.4	2.1	5	DN32	758	180	212	43
APE 3-4-24	90	2.9	2.6	5	DN32	758	180	212	43
APE 3-4-26	100	3.1	2.7	5	DN32	758	180	212	44
APE 3-4-30	125	3.5	3.1	6	DN32	758	180	212	45
APE 3-4-36	150	3.5	3.2	8	DN32	758	180	212	48
APE 3-4-40	175	3.8	3.5	8	DN32	758	180	212	50
APE 5-3-22	200	3.9	3.8	7	DN50	896	283	437	132
APE 5-3-24	225	4.1	4.1	8	DN50	896	283	437	134
APE 5-3-26	250	4.3	4.3	9	DN50	896	283	437	135
APE 5-3-28	275	4.5	4.5	9	DN50	896	283	437	136
APE 5-3-30	300	4.6	4.6	10	DN50	896	283	437	138
APE 5-3-35	350	4.6	4.5	12	DN50	896	283	437	141
APE 5-3-39	400	4.7	4.7	13	DN50	896	283	437	144
APE 5-3-43	450	4.9	4.8	15	DN50	896	283	537	148
APE 5-3-47	500	5.1	5	16	DN50	896	283	537	151
APE 5-3-52	550	5	5	18	DN50	896	283	537	154
APE 5-3-57	600	5	5	19	DN50	896	283	537	158
APE 6-1-37	650	4.8	4.8	22	DN65	946	395	438	211
APE 6-1-39	700	5	5	23	DN65	946	395	438	213
APE 6-1-42	750	5	4.9	25	DN65	946	395	438	215
APE 6-1-45	800	4.9	4.8	26	DN65	946	395	438	218
APE 6-1-47	850	5.1	5	28	DN65	946	395	438	220
APE 6-1-50	900	5	4.9	29	DN65	946	395	438	223
APE 6-1-53	950	4.9	4.9	31	DN65	946	395	438	225
APE 6-1-55	1000	5.1	5.1	32	DN65	946	395	438	227

Table 3: Domestic Hot Water (Primary 80-60°C, Secondary 10-60°C)

Type	Capacity (Kw)	Primary Circuit Pressure Loss (mSS)	Secondary Circuit Pressure Loss (mSS)	Total water volume in the primary and secondary circuits (liter)	Connection diameter	Height (mm)	Width (mm)	Depth (mm)	Weight without water (kg)
APE 1-4-14	20	0.2	0.07	1	DN25	272	165	112	13
APE 2-4-10	30	1	0.3	2	DN32	483	180	112	22
APE 2-4-10	40	1.5	0.5	2	DN32	483	180	112	22
APE 2-4-12	50	1.7	0.5	2	DN32	483	180	112	23
APE 2-4-12	60	2.2	0.6	2	DN32	483	180	112	23
APE 2-4-14	70	2.2	0.6	2	DN32	483	180	112	23
APE 2-4-16	80	2.3	0.6	3	DN32	483	180	112	24
APE 2-4-16	90	2.7	0.7	3	DN32	483	180	112	24
APE 2-4-18	100	2.7	0.7	3	DN32	483	180	112	24
APE 2-4-20	125	3.3	0.8	3	DN32	483	180	112	25
APE 2-4-24	150	3.4	0.8	4	DN32	483	180	212	27
APE 2-4-26	175	3.9	0.9	4	DN32	483	180	212	27
APE 2-4-30	200	3.9	0.9	5	DN32	483	180	212	28
APE 2-4-34	225	4	0.9	6	DN32	483	180	212	30
APE 2-4-38	250	4.1	0.9	6	DN32	483	180	212	31
APE 2-4-42	275	4.2	0.9	7	DN32	483	180	212	32
APE 4-4-25	300	4.5	0.6	5	DN50	596	283	437	90
APE 4-4-29	350	4.5	0.6	6	DN50	596	283	437	92
APE 5-4-19	400	4.9	0.9	6	DN50	896	283	437	130
APE 5-4-21	450	4.8	0.9	7	DN50	896	283	437	132
APE 5-4-23	500	4.9	0.9	8	DN50	896	283	437	133
APE 5-4-25	550	5	0.9	8	DN50	896	283	437	134
APE 5-4-27	600	4.9	0.9	9	DN50	896	283	437	136
APE 5-4-29	650	5	0.9	10	DN50	896	283	437	137
APE 5-4-31	700	5	0.9	10	DN50	896	283	437	138
APE 5-4-33	750	5	0.9	11	DN50	896	283	437	140
APE 5-4-35	800	5	0.9	12	DN50	896	283	437	141
APE 5-4-37	850	5	0.9	12	DN50	896	283	437	142
APE 5-4-39	900	5	0.9	13	DN50	896	283	437	144
APE 5-4-41	950	5	0.9	14	DN50	896	283	537	147
APE 5-4-43	1000	5.2	0.9	15	DN50	896	283	537	148

Table 4: Pool Heating (Primary 80-60°C, Secondary 10-30°C)

Type	Capacity (Kw)	Primary Circuit Pressure Loss (mSS)	Secondary Circuit Pressure Loss (mSS)	Total water volume in the primary and secondary circuits (liter)	Connection diameter	Height (mm)	Width (mm)	Depth (mm)	Weight without water (kg)
APE 1-4-8	20	0.6	0.9	1	DN25	272	165	112	12
APE 1-4-10	30	0.8	1.1	1	DN25	272	165	112	12
APE 1-4-10	40	1.3	1.8	1	DN25	272	165	112	12
APE 1-4-12	50	1.4	1.8	1	DN25	272	165	112	13
APE 1-4-14	60	1.5	1.9	1	DN25	272	165	112	13
APE 1-4-16	70	1.6	1.9	1	DN25	272	165	112	13
APE 1-4-16	80	2	2.4	1	DN25	272	165	112	13
APE 1-4-18	90	2.1	2.4	2	DN25	272	165	112	14
APE 1-4-18	100	2.2	3.2	2	DN25	272	165	112	14
APE 2-4-20	125	3.3	3.8	3	DN32	483	180	112	25
APE 2-4-24	150	3.4	3.8	4	DN32	483	180	212	27
APE 2-4-28	175	3.5	3.8	5	DN32	483	180	212	28
APE 2-4-30	200	3.9	4.2	5	DN32	483	180	212	28
APE 4-4-11	225	4.3	4.1	2	DN50	596	283	437	84
APE 4-4-12	250	4.3	4.2	2	DN50	596	283	437	85
APE 4-4-13	275	4.2	4.1	2	DN50	596	283	437	85
APE 4-4-14	300	4.5	4.4	3	DN50	596	283	437	85
APE 4-4-16	350	4.4	4.3	3	DN50	596	283	437	86
APE 4-4-17	400	4.9	4.8	3	DN50	596	283	437	87
APE 4-4-19	450	4.8	4.6	4	DN50	596	283	437	88
APE 4-4-21	500	4.9	4.8	4	DN50	596	283	437	88
APE 4-4-24	550	3.9	4.4	5	DN50	596	283	437	90
APE 4-4-26	600	4	4.5	5	DN50	596	283	437	91
APE 4-4-28	650	4.1	4.5	5	DN50	596	283	437	91
APE 4-4-30	700	4.2	4.6	6	DN50	596	283	437	92
APE 4-4-32	750	4.3	4.6	6	DN50	596	283	437	93
APE 4-4-34	800	4.4	4.7	7	DN50	596	283	437	94
APE 4-4-36	850	4.5	4.8	7	DN50	596	283	437	95
APE 4-4-38	900	4.6	4.9	7	DN50	596	283	437	96
APE 4-4-40	950	4.7	4.9	8	DN50	596	283	537	98
APE 4-4-42	1000	4.8	5	8	DN50	596	283	537	99

Table 5: Floor Heating (Primary 60-40°C, Secondary 35-45°C)

Type	Capacity (Kw)	Primary Circuit Pressure Loss (mSS)	Secondary Circuit Pressure Loss (mSS)	Total water volume in the primary and secondary circuits (liter)	Connection diameter	Height (mm)	Width (mm)	Depth (mm)	Weight without water (kg)
APE 2-4-16	20	0.3	0.7	3	DN32	483	180	112	24
APE 2-4-26	30	0.2	0.6	4	DN32	483	180	212	27
APE 2-4-32	40	0.2	0.8	5	DN32	483	180	212	29
APE 2-4-38	50	0.3	0.9	6	DN32	483	180	212	31
APE 2-4-44	60	0.3	1	7	DN32	483	180	262	33
APE 5-3-17	70	0.6	2.2	6	DN50	896	283	437	129
APE 5-3-18	80	0.7	2.5	6	DN50	896	283	437	130
APE 5-3-19	90	0.8	3	6	DN50	896	283	437	130
APE 5-3-20	100	1	3.3	7	DN50	896	283	437	131
APE 5-3-24	125	1	3.5	8	DN50	896	283	437	134
APE 5-3-28	150	1.1	3.7	9	DN50	896	283	437	136
APE 5-3-32	175	1.1	3.8	11	DN50	896	283	437	139
APE 5-3-36	200	1.1	3.9	12	DN50	896	283	437	142
APE 5-3-40	225	1.1	4	13	DN50	896	283	537	146
APE 5-3-43	250	1.2	4.3	15	DN50	896	283	537	148
APE 5-3-47	275	1.2	4.3	16	DN50	896	283	537	151
APE 6-1-27	300	1.2	4.3	16	DN65	946	395	438	202
APE 6-1-31	350	1.2	4.5	18	DN65	946	395	438	205
APE 6-1-35	400	1.3	4.6	20	DN65	946	395	438	209
APE 6-1-39	450	1.3	4.8	23	DN65	946	395	438	213
APE 6-1-43	500	1.3	4.9	25	DN65	946	395	438	216
APE 6-1-47	550	1.4	5.1	28	DN65	946	395	438	220
APE 6-1-52	600	1.4	5	31	DN65	946	395	438	225
APE 6-1-57	650	1.4	5.1	34	DN65	946	395	438	229
APE 6-1-62	700	1.4	5.1	37	DN65	946	395	538	235
APE 6-1-68	750	1.4	5.1	40	DN65	946	395	538	241
APE 6-1-74	800	1.4	5.1	44	DN65	946	395	538	246
APE 6-1-82	850	1.3	5	49	DN65	946	395	638	255
APE 6-1-89	900	1.3	5	53	DN65	946	395	638	262
APE 6-1-97	950	1.3	5	58	DN65	946	395	638	269
APE 7-1-69	1000	1.2	5	51	DN100	1070	480	1034	347

Table 6: Heat Pump, (Primary 50-45°C, Secondary 35-45°C)

Type	Capacity (Kw)	Primary Circuit Pressure Loss (mSS)	Secondary Circuit Pressure Loss (mSS)	Total water volume in the primary and secondary circuits (liter)	Connection diameter	Height (mm)	Width (mm)	Depth (mm)	Weight without water (kg)
APE 2-4-28	20	0.9	0.3	5	DN32	483	180	212	28
APE 2-4-38	30	1.2	0.4	6	DN32	483	180	212	31
APE 4-3-21	40	1.5	0.3	4	DN50	596	283	437	88
APE 4-3-23	50	2	0.4	4	DN50	596	283	437	89
APE 4-3-27	60	2.1	0.5	5	DN50	596	283	437	91
APE 5-3-18	70	1.8	0.6	6	DN50	896	283	437	130
APE 5-3-19	80	2.6	0.7	6	DN50	896	283	437	130
APE 5-3-20	90	3.1	0.9	7	DN50	896	283	437	131
APE 5-3-22	100	3	0.8	7	DN50	896	283	437	132
APE 5-3-26	125	3.5	1	9	DN50	896	283	437	135
APE 5-3-31	150	3.5	1	10	DN50	896	283	437	138
APE 5-3-35	175	3.8	1.1	12	DN50	896	283	437	141
APE 5-3-40	200	4	1.1	13	DN50	896	283	537	146
APE 5-3-44	225	4.1	1.1	15	DN50	896	283	537	149
APE 5-3-49	250	4.1	1.1	17	DN50	896	283	537	152
APE 5-3-53	275	4.4	1.2	18	DN50	896	283	537	155
APE 5-3-58	300	4.5	1.2	20	DN50	896	283	537	158
APE 5-3-70	350	4.5	1.2	24	DN50	896	283	637	168
APE 6-1-66	400	4.6	1.3	39	DN65	946	395	538	239
APE 7-1-38	450	5	1.3	28	DN100	1070	480	534	295
APE 7-1-42	500	5	1.3	31	DN100	1070	480	634	302
APE 7-1-47	550	4.9	1.3	35	DN100	1070	480	634	309
APE 7-1-52	600	4.9	1.3	38	DN100	1070	480	634	315
APE 7-1-57	650	4.9	1.3	42	DN100	1070	480	1034	332
APE 7-1-61	700	5	1.3	45	DN100	1070	480	1034	337
APE 7-1-66	750	5.1	1.3	49	DN100	1070	480	1034	343
APE 7-1-72	800	5	1.3	53	DN100	1070	480	1034	350
APE 7-1-78	850	5	1.3	58	DN100	1070	480	1034	358
APE 7-1-84	900	5	1.3	62	DN100	1070	480	1034	365
APE 7-1-91	950	5	1.3	68	DN100	1070	480	1034	373
APE 7-1-98	1000	5	1.3	73	DN100	1070	480	1034	382

Table 7: Solar Panel, (Primary 70-50°C, Secondary 10-50°C)

Type	Capacity (Kw)	Primary Circuit Pressure Loss (mSS)	Secondary Circuit Pressure Loss (mSS)	Total water volume in the primary and secondary circuits (liter)	Connection diameter	Height (mm)	Width (mm)	Depth (mm)	Weight without water (kg)
APE 2-4-8	20	0.7	0.3	1	DN32	483	180	112	21
APE 2-4-10	30	1	0.4	2	DN32	483	180	112	22
APE 2-4-10	40	1.5	0.7	2	DN32	483	180	112	22
APE 2-4-12	50	1.6	0.7	2	DN32	483	180	112	23
APE 2-4-12	60	2.2	0.9	2	DN32	483	180	112	23
APE 2-4-14	70	2.2	0.9	2	DN32	483	180	112	23
APE 2-4-16	80	2.2	0.9	3	DN32	483	180	112	24
APE 2-4-16	90	2.7	1.1	3	DN32	483	180	112	24
APE 2-4-18	100	2.7	1	3	DN32	483	180	112	24
APE 2-4-20	125	3.3	1.2	3	DN32	483	180	112	25
APE 2-4-24	150	3.4	1.2	4	DN32	483	180	212	27
APE 2-4-28	175	3.5	1.2	5	DN32	483	180	212	28
APE 2-4-30	200	3.9	1.4	5	DN32	483	180	212	28
APE 2-4-34	225	4	1.3	6	DN32	483	180	212	30
APE 2-4-38	250	4.1	1.4	6	DN32	483	180	212	31
APE 2-4-42	275	4.2	1.4	7	DN32	483	180	212	32
APE 2-4-46	300	4.4	1.4	8	DN50	483	180	262	33
APE 4-4-30	350	4.5	1	6	DN50	593	283	437	92
APE 5-4-21	400	4.5	1.3	7	DN50	896	283	437	132
APE 5-4-23	450	4.8	1.4	8	DN50	896	283	437	133
APE 5-4-25	500	5	1.4	8	DN50	896	283	437	134
APE 5-4-28	550	4.5	1.3	9	DN50	896	283	437	136
APE 5-4-30	600	4.9	1.4	10	DN50	896	283	437	138
APE 5-4-32	650	4.9	1.4	11	DN50	896	283	437	139
APE 5-4-34	700	5.1	1.4	11	DN50	896	283	437	140
APE 5-4-37	750	4.9	1.4	12	DN50	896	283	437	142
APE 5-4-39	800	5	1.4	13	DN50	896	283	437	144
APE 5-4-41	850	5	1.4	14	DN50	896	283	537	147
APE 5-4-44	900	4.9	1.4	15	DN50	896	283	537	149
APE 5-4-46	950	4.9	1.4	16	DN50	896	283	537	150
APE 5-4-48	1000	5.1	1.4	16	DN50	896	283	537	152

Why should plate exchangers be used in the condensing boiler?

1. Water volume of the condensing boilers is 20-30 times smaller than the old-technology hot water boilers.
2. If the condensing boilers are operated as cascade, this volume decreases in proportion to the cascade number under the conditions where a single boiler is operated.
3. The lime which forms a thin film layer on the large heat transfer surface of the classic hot-water boilers leads to blockages in the narrow water passage ducts of the condensing boilers.
4. Additionally, as the usage of plastic pipes in indoor installations increase, the oxygen corrosion phenomenon increases.

Measures that can be used so that the quality of water does not affect the condensing boiler and the comparisons

	Plate Exchanger	Chemical Additives and Balance Container	Softening Equipment and Balance Container
Does it prevent the calcification in boilers?	Yes	Yes	Yes
Does it prevent sediment and sludge in boilers?	Yes	No	No
Does it prevent oxygen corrosion caused by plastic pipes?	Yes	Yes	No
Selection and pricing in the proposal stage	Easy	Easy	Hard
Negative impact to the pumps and seals	N/A	Unknown	N/A
State of being affected from the boiler water discharges	Not affected	Chemicals should be replaced after each discharge.	Not affected
Ease of operation, maintenance	Easy	Easy	Hard
Does the boiler vendor undertake the responsibility of the water quality in the installation?	Does not undertake	Undertakes	Undertakes
Thermal loss (if insulation jacket is not wrapped)	Available	Available	Available
Installation space need	100 units	100 units	300 units
Price with the pumps	100 units	40-60 units	80-120 units
Total system price including the boilers	100 units	70-100 units	80-120 units

Selection Example:

Find the type of the plate exchanger required for a building where 3 cascade condensing boilers of which heating capacity is 130 Kw/ piece under 50-30°C conditions and the flow/pressure values that are required in the pumps.

(Assume that piping pressure losses are 0,5 mSS in the primary circuit, 2 mSS in the secondary circuit and the pressure loss caused by the radiators is 1 mSS. Boiler pressure loss graph is below. 100 mbar = 1 mSS.)

Selection of Exchanger: Total capacity is 3 x 130 = 390 Kw. Exchanger type is found as APE 5-3-40 from Table 1.

Calculating the flow and pressure values of the boiler pump (primary circuit):

$$Q = m \times c \times \Delta t \quad 111,800 \text{ kcal/hour (130 kW)} = m \times 1 \times 20^\circ\text{C} \Rightarrow m \text{ (flow)} = 5.59 \text{ m}^3/\text{hour}$$

$$\text{Pressure losses} = 5 \text{ mSS exchanger} + 1 \text{ mSS boiler} + 0.5 \text{ mSS piping} = 6.5 \text{ mSS}$$

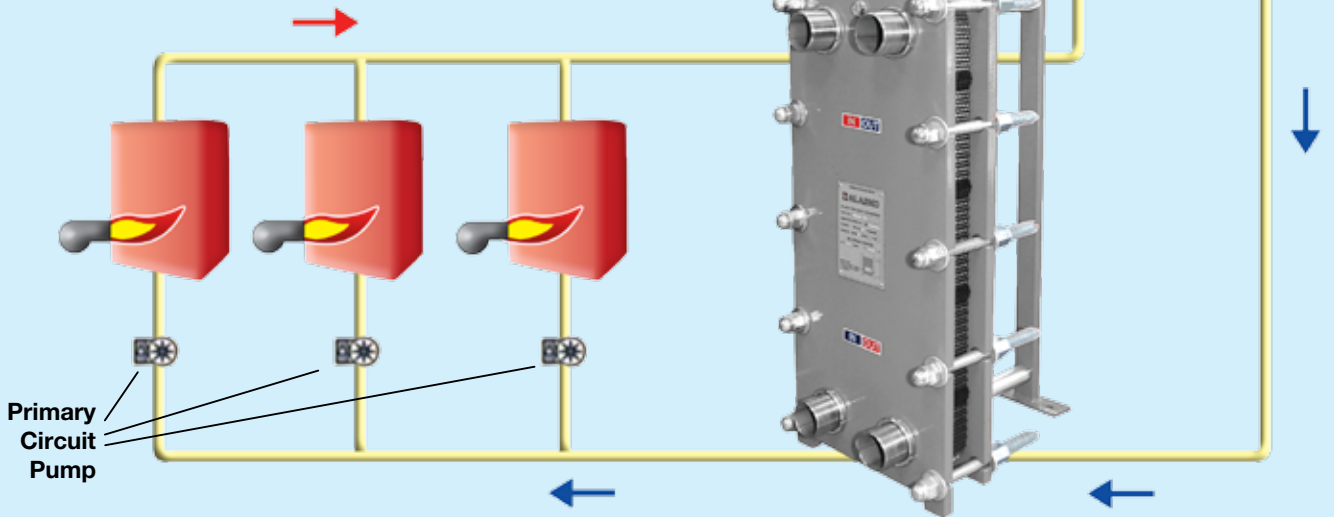
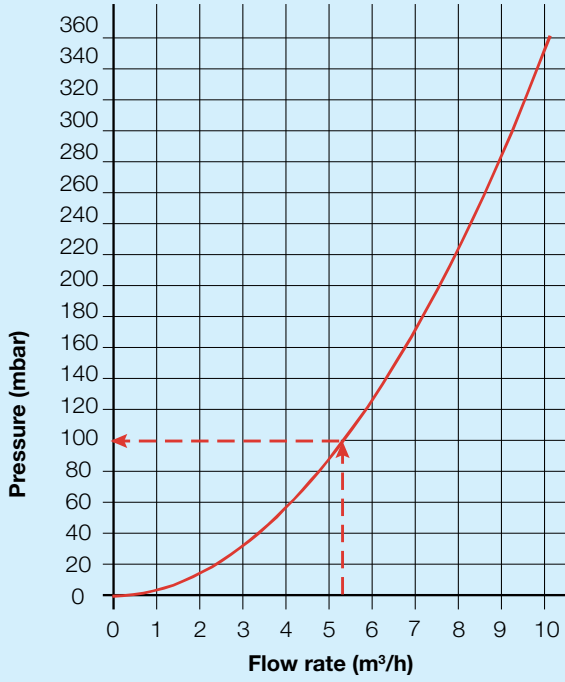
For each boiler, a total of 3 pipes having the values above should be used.

Calculating the flow and pressure values of the installation pumps (secondary circuit):

$$Q = m \times c \times \Delta t \quad 335,400 \text{ kcal/hour (111,800 x 3 pieces)} = m \times 1 \times 20^\circ\text{C} \Rightarrow m \text{ (flow)} = 16.77 \text{ m}^3/\text{hour}$$

$$\text{Pressure losses} = 4.9 \text{ mSS exchanger} + 1 \text{ mSS radiator} + 2 \text{ mSS piping} = 7.9 \text{ mSS}$$

Boiler Pressure Loss Chart



Note: The right to make changes due to technological advancements is reserved.

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