REFRION

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let the sun cool you down

Solar
Condensers & Dry Coolers

SOLAR DRY AIR COOLERS

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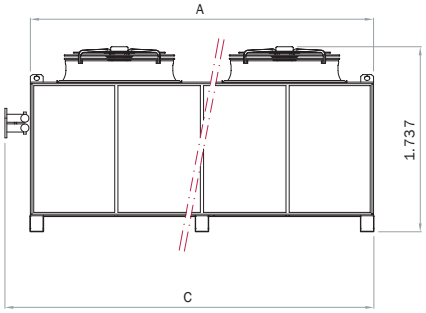
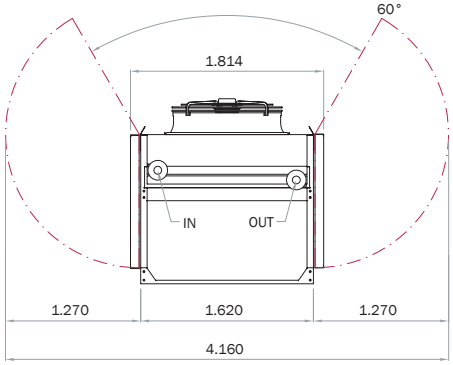
	Type	PEVEC	1210.3 - 100%	1210.4 - 100%	1310.3 - 100%	1310.4 - 100%	1410.3 - 100%	1410.4 - 100%	1510.3 - 100%	1510.4 - 100%	1610.3 - 100%	1610.4 - 100%
100%	Capacity	kW	142	163	210	242	284	327	359	412	433	497
	Air Flow	m³/h	50200	47800	75300	71700	100400	95600	125500	119500	150600	143400
	Motor power consumption	kW	2,4	2,46	3,6	3,69	4,8	4,92	6	6,15	7,2	7,38
		A	4,02	4,1	6,03	6,15	8,04	8,2	10,05	10,25	12,06	12,3
	Energetic efficiency class	-	C	C	C	C	C	C	C	C	C	C
	Warranted minimum Pmax	kWp	1,04	1,04	1,56	1,56	2,08	2,08	2,6	2,6	3,12	3,12
	Sound pressure level	db(A)	53	53	54	54	54	54	56	56	56	56
	Type	**PEVEC**	1210.3 - 90%	1210.4 - 90%	1310.3 - 90%	1310.4 - 90%	1410.3 - 90%	1410.4 - 90%	1510.3 - 90%	1510.4 - 90%	1610.3 - 90%	1610.4 - 90%
90%	Capacity	kW	134	153	199	227	269	307	339	387	410	466
	Air Flow	m³/h	45500	43300	68300	65000	91100	86700	113900	108400	136600	130100
	Motor power consumption	kW	1,86	1,9	2,79	2,85	3,72	3,8	4,65	4,75	5,58	5,7
		A	3,22	3,3	4,83	4,95	6,44	6,6	8,05	8,25	9,66	9,9
	Energetic efficiency class	-	B	B	B	B	B	B	B	B	B	B
	Warranted minimum Pmax	kWp	1,04	1,04	1,56	1,56	2,08	2,08	2,6	2,6	3,12	3,12
	Sound pressure level	db(A)	51	51	52	52	53	53	54	54	54	54
	Type	**PEVEC**	1210.3 - 80%	1210.4 - 80%	1310.3 - 80%	1310.4 - 80%	1410.3 - 80%	1410.4 - 80%	1510.3 - 80%	1510.4 - 80%	1610.3 - 80%	1610.4 - 80%
80%	Capacity	kW	125	141	185	208	250	282	315	355	380	428
	Air Flow	m³/h	40100	38200	60200	57300	80300	76400	100400	95600	120400	114700
	Motor power consumption	kW	1,3	1,36	1,95	2,04	2,6	2,72	3,25	3,4	3,9	4,08
		A	2,4	2,48	3,6	3,72	4,8	4,96	6	6,2	7,2	7,44
	Energetic efficiency class	-	B	B	B	B	B	B	B	B	B	B
	Warranted minimum Pmax	kWp	1,04	1,04	1,56	1,56	2,08	2,08	2,6	2,6	3,12	3,12
	Sound pressure level	db(A)	48	48	50	50	50	50	51	51	52	52
	Type	**PEVEC**	1210.3 - 70%	1210.4 - 70%	1310.3 - 70%	1310.4 - 70%	1410.3 - 70%	1410.4 - 70%	1510.3 - 70%	1510.4 - 70%	1610.3 - 70%	1610.4 - 70%
70%	Capacity	kW	116	129	171	191	232	258	292	326	352	393
	Air Flow	m³/h	35500	33800	53200	50700	71000	67600	88800	84500	106500	101400
	Motor power consumption	kW	0,94	0,98	1,41	1,47	1,88	1,96	2,35	2,45	2,82	2,94
		A	1,78	1,84	2,67	2,76	3,56	3,68	4,45	4,6	5,34	5,52
	Energetic efficiency class	-	A	A	A	A	A	A	A	A	A	A
	Warranted minimum Pmax	kWp	1,04	1,04	1,56	1,56	2,08	2,08	2,6	2,6	3,12	3,12
	Sound pressure level	db(A)	45	45	47	47	47	47	48	48	49	49
	Type	**PEVEC**	1210.3 - 60%	1210.4 - 60%	1310.3 - 60%	1310.4 - 60%	1410.3 - 60%	1410.4 - 60%	1510.3 - 60%	1510.4 - 60%	1610.3 - 60%	1610.4 - 60%
60%	Capacity	kW	104	115	154	170	208	229	263	289	317	348
	Air Flow	m³/h	30100	28600	45100	43000	60200	57300	75300	71700	90300	86000
	Motor power consumption	kW	0,58	0,62	0,87	0,93	1,16	1,24	1,45	1,55	1,74	1,86
		A	1,18	1,22	1,77	1,83	2,36	2,44	2,95	3,05	3,54	3,66
	Energetic efficiency class	-	A	A	A	A	A	A	A	A	A	A
	Warranted minimum Pmax	kWp	1,04	1,04	1,56	1,56	2,08	2,08	2,6	2,6	3,12	3,12
	Sound pressure level	db(A)	42	42	43	43	44	44	45	45	46	46
	Type	**PEVEC**	1210.3 - 50%	1210.4 - 50%	1310.3 - 50%	1310.4 - 50%	1410.3 - 50%	1410.4 - 50%	1510.3 - 50%	1510.4 - 50%	1610.3 - 50%	1610.4 - 50%
50%	Capacity	kW	93	102	138	153	186	202	235	254	283	306
	Air Flow	m³/h	25400	24200	38200	36400	50900	48500	63700	60600	76400	72800
	Motor power consumption	kW	0,36	0,38	0,54	0,57	0,72	0,76	0,9	0,95	1,08	1,14
		A	0,76	0,78	1,14	1,17	1,52	1,56	1,9	1,95	2,28	2,34
	Energetic efficiency class	-	A	A	A	A	A	A	A	A	A	A
	Warranted minimum Pmax	kWp	1,04	1,04	1,56	1,56	2,08	2,08	2,6	2,6	3,12	3,12
	Sound pressure level	db(A)	38	38	40	40	40	40	41	41	42	42
	Type	**PEVEC**	1210.3 - 40%	1210.4 - 40%	1310.3 - 40%	1310.4 - 40%	1410.3 - 40%	1410.4 - 40%	1510.3 - 40%	1510.4 - 40%	1610.3 - 40%	1610.4 - 40%
40%	Capacity	kW	80	84	119	126	157	167	198	210	239	253
	Air Flow	m³/h	20000	19100	30100	28600	40100	38200	50200	47800	60200	57300
	Motor power consumption	kW	0,18	0,2	0,27	0,3	0,36	0,4	0,45	0,5	0,54	0,6
		A	0,4	0,42	0,6	0,63	0,8	0,84	1	1,05	1,2	1,26
	Energetic efficiency class	-	A	A	A	A	A	A	A	A	A	A
	Warranted minimum Pmax	kWp	1,04	1,04	1,56	1,56	2,08	2,08	2,6	2,6	3,12	3,12
	Sound pressure level	db(A)	33	33	34	34	35	35	36	36	36	36
	Type	**PEVEC**	1210.3 - 30%	1210.4 - 30%	1310.3 - 30%	1310.4 - 30%	1410.3 - 30%	1410.4 - 30%	1510.3 - 30%	1510.4 - 30%	1610.3 - 30%	1610.4 - 30%
30%	Capacity	kW	65	68	98	101	129	136	162	168	196	202
	Air Flow	m³/h	15400	14700	23100	22000	30800	29400	38600	36700	46300	44100
	Motor power consumption	kW	0,1	0,1	0,15	0,15	0,2	0,2	0,25	0,25	0,3	0,3
		A	0,2	0,2	0,3	0,3	0,4	0,4	0,5	0,5	0,6	0,6
	Energetic efficiency class	-	A	A	A	A	A	A	A	A	A	A
	Warranted minimum Pmax	kWp	1,04	1,04	1,56	1,56	2,08	2,08	2,6	2,6	3,12	3,12
	Sound pressure level	db(A)	27	27	29	29	29	29	30	30	30	30
	A	mm	3230	3230	4780	4780	6330	6330	7880	7880	9430	9430
	C	mm	3530	3530	5080	5080	6630	6630	8180	8180	9730	9730
	Weight	Kg	525	558	756	798	981	1036	1170	1249	1404	1498





SOLAR AIR COOLED CONDENSERS

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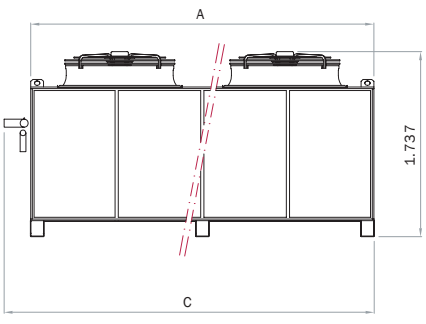
	Type	PKVEC	1210.3 - 100%	1210.4 - 100%	1310.3 - 100%	1310.4 - 100%	1410.3 - 100%	1410.4 - 100%	1510.3 - 100%	1510.4 - 100%	1610.3 - 100%	1610.4 - 100%
100%	Capacity	kW	154,7	170,4	238,9	262,3	309,5	340,7	393,6	432,6	478	524,5
	Air Flow	m³/h	47800	44800	71700	67200	95600	89600	119500	112000	143400	134400
	Motor power consumption	kW	2,46	2,5	3,69	3,75	4,92	5	6,15	6,25	7,38	7,5
		A	4,1	4,16	6,15	6,24	8,2	8,32	10,25	10,4	12,3	12,48
	Energetic efficiency class	-	C	C	C	C	C	C	C	C	C	C
	Warranted minimum Pmax	kWp	1,04	1,04	1,56	1,56	2,08	2,08	2,6	2,6	3,12	3,12
	Sound pressure level	db(A)	53	53	54	54	54	54	56	56	56	56
	Type	**PKVEC**	1210.3 - 90%	1210.4 - 90%	1310.3 - 90%	1310.4 - 90%	1410.3 - 90%	1410.4 - 90%	1510.3 - 90%	1510.4 - 90%	1610.3 - 90%	1610.4 - 90%
90%	Capacity	kW	144,6	162,2	223,2	243,3	289,3	316,3	367,8	401,4	446,5	486,5
	Air Flow	m³/h	43300	40600	65000	60900	86700	81300	108400	101600	130100	121900
	Motor power consumption	kW	1,92	1,96	2,88	2,94	3,84	3,92	4,8	4,9	5,76	5,88
		A	3,3	3,36	4,95	5,04	6,6	6,72	8,25	8,4	9,9	10,08
	Energetic efficiency class	-	B	B	B	B	B	B	B	B	B	B
	Warranted minimum Pmax	kWp	1,04	1,04	1,56	1,56	2,08	2,08	2,6	2,6	3,12	3,12
	Sound pressure level	db(A)	51	51	52	52	53	53	54	54	54	54
	Type	**PKVEC**	1210.3 - 80%	1210.4 - 80%	1310.3 - 80%	1310.4 - 80%	1410.3 - 80%	1410.4 - 80%	1510.3 - 80%	1510.4 - 80%	1610.3 - 80%	1610.4 - 80%
80%	Capacity	kW	135,9	146,7	203,8	220,1	264,4	286,5	336,1	363,3	407,8	440,2
	Air Flow	m³/h	38200	35800	57300	53700	76400	71600	95600	89600	114700	107500
	Motor power consumption	kW	1,36	1,4	2,04	2,1	2,72	2,8	3,4	3,5	4,08	4,2
		A	2,48	2,54	3,72	3,81	4,96	5,08	6,2	6,35	7,44	7,62
	Energetic efficiency class	-	B	B	B	B	B	B	B	B	B	B
	Warranted minimum Pmax	kWp	1,04	1,04	1,56	1,56	2,08	2,08	2,6	2,6	3,12	3,12
	Sound pressure level	db(A)	48	48	50	50	50	50	51	51	52	52
	Type	**PKVEC**	1210.3 - 70%	1210.4 - 70%	1310.3 - 70%	1310.4 - 70%	1410.3 - 70%	1410.4 - 70%	1510.3 - 70%	1510.4 - 70%	1610.3 - 70%	1610.4 - 70%
70%	Capacity	kW	124,2	132,8	186,3	199,3	241,8	259,7	307,2	329,1	372,6	398,6
	Air Flow	m³/h	33800	31700	50700	47500	67600	63400	84500	79200	101400	95100
	Motor power consumption	kW	0,98	1	1,47	1,5	1,96	2	2,45	2,5	2,94	3
		A	1,84	1,9	2,76	2,85	3,68	3,8	4,6	4,75	5,52	5,7
	Energetic efficiency class	-	A	A	A	A	A	A	A	A	A	A
	Warranted minimum Pmax	kWp	1,04	1,04	1,56	1,56	2,08	2,08	2,6	2,6	3,12	3,12
	Sound pressure level	db(A)	45	45	47	47	48	48	48	48	49	49
	Type	**PKVEC**	1210.3 - 60%	1210.4 - 60%	1310.3 - 60%	1310.4 - 60%	1410.3 - 60%	1410.4 - 60%	1510.3 - 60%	1510.4 - 60%	1610.3 - 60%	1610.4 - 60%
60%	Capacity	kW	109,6	115,8	164,4	173,8	213,7	226,9	271,3	287,2	328,9	347,6
	Air Flow	m³/h	28600	26800	43000	40300	57300	53700	71700	67200	86000	80600
	Motor power consumption	kW	0,62	0,64	0,93	0,96	1,24	1,28	1,55	1,6	1,86	1,92
		A	1,22	1,26	1,83	1,89	2,44	2,52	3,05	3,15	3,66	3,78
	Energetic efficiency class	-	A	A	A	A	A	A	A	A	A	A
	Warranted minimum Pmax	kWp	1,04	1,04	1,56	1,56	2,08	2,08	2,6	2,6	3,12	3,12
	Sound pressure level	db(A)	42	42	44	44	44	44	45	45	46	46
	Type	**PKVEC**	1210.3 - 50%	1210.4 - 50%	1310.3 - 50%	1310.4 - 50%	1410.3 - 50%	1410.4 - 50%	1510.3 - 50%	1510.4 - 50%	1610.3 - 50%	1610.4 - 50%
50%	Capacity	kW	96,3	100,5	144,4	150,8	187,9	203	238,3	249,3	288,8	301,6
	Air Flow	m³/h	24200	22700	36400	34100	48500	45400	60600	56800	72800	68200
	Motor power consumption	kW	0,38	0,4	0,57	0,6	0,76	0,8	0,95	1	1,14	1,2
		A	0,8	0,82	1,2	1,23	1,6	1,64	2	2,05	2,4	2,46
	Energetic efficiency class	-	A	A	A	A	A	A	A	A	A	A
	Warranted minimum Pmax	kWp	1,04	1,04	1,56	1,56	2,08	2,08	2,6	2,6	3,12	3,12
	Sound pressure level	db(A)	38	38	40	40	40	40	41	41	42	42
	Type	**PKVEC**	1210.3 - 40%	1210.4 - 40%	1310.3 - 40%	1310.4 - 40%	1410.3 - 40%	1410.4 - 40%	1510.3 - 40%	1510.4 - 40%	1610.3 - 40%	1610.4 - 40%
40%	Capacity	kW	79,4	81,6	119,1	122,4	160,6	164,6	196,8	202,6	238,3	244,8
	Air Flow	m³/h	19100	17900	28600	26800	38200	35800	47800	44800	57300	53700
	Motor power consumption	kW	0,2	0,2	0,3	0,3	0,4	0,4	0,5	0,5	0,6	0,6
		A	0,42	0,42	0,63	0,63	0,84	0,84	1,05	1,05	1,26	1,26
	Energetic efficiency class	-	A	A	A	A	A	A	A	A	A	A
	Warranted minimum Pmax	kWp	1,04	1,04	1,56	1,56	2,08	2,08	2,6	2,6	3,12	3,12
	Sound pressure level	db(A)	33	33	35	35	35	35	36	36	37	37
	Type	**PKVEC**	1210.3 - 30%	1210.4 - 30%	1310.3 - 30%	1310.4 - 30%	1410.3 - 30%	1410.4 - 30%	1510.3 - 30%	1510.4 - 30%	1610.3 - 30%	1610.4 - 30%
30%	Capacity	kW	63,8	64,9	95,6	96,6	128,8	129,8	158,2	160,1	191,3	193,3
	Air Flow	m³/h	14700	13700	22000	20600	29400	27400	36700	34400	44100	41300
	Motor power consumption	kW	0,1	0,1	0,15	0,15	0,2	0,2	0,25	0,25	0,3	0,3
		A	0,2	0,2	0,3	0,3	0,4	0,4	0,5	0,5	0,6	0,6
	Energetic efficiency class	-	A	A	A	A	A	A	A	A	A	A
	Warranted minimum Pmax	kWp	1,04	1,04	1,56	1,56	2,08	2,08	2,6	2,6	3,12	3,12
	Sound pressure level	db(A)	27	27	29	29	29	29	30	30	31	31
	A	**mm**	3230	3230	4780	4780	6330	6330	7880	7880	9430	9430
	C	**mm**	3480	3480	5030	5030	6580	6580	8130	8130	9680	9680
	Weight	**Kg**	515	548	730	785	955	1019	1170	1249	1404	1498

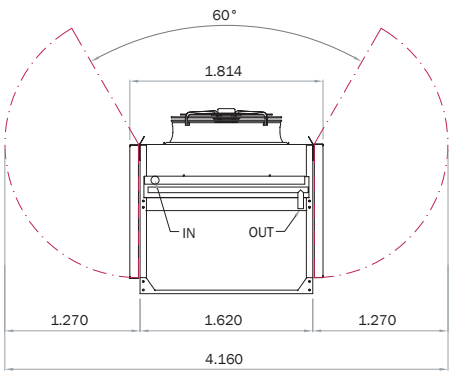
Photovoltaic Panels

Technical data for 1 m²

Cell Type –>> Polycrystalline Silicon

Open circ. Voltage	24 (Voc)
Warranted min. Pmax	130 (W)
Maximum power current	6,79 (A)
Module Efficiency	13,0 (%)
N° of cells in serie	40



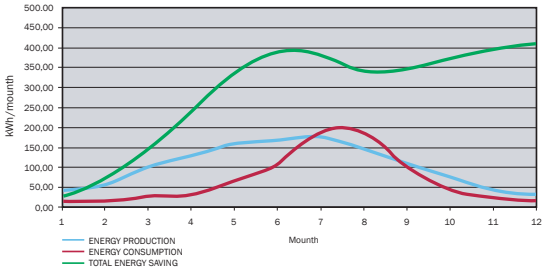


Location Data

City	Udine
Latitude	46
Longitude	13°14'
Altitude	53
Degree-days	2323

Climatic Data				TOTAL SOLAR RADIATION ON 60° TILTED PANEL		
Mounth	T air max (°C)	T air min (°C)	T air med. (°C)	Day Rad. MJ/m² day	Day/Mounth	Mounth Rad. MJ/m²
1	7,0	-1,0	3,0	12,08	31	374,38
2	9,0	1,0	5,0	14,76	28	413,38
3	13,0	3,0	8,0	16,16	31	501,08
4	17,0	7,0	12,0	15,75	30	472,57
5	22,0	11,0	16,5	15,94	31	494,09
6	26,0	15,0	20,0	15,93	30	477,78
7	35,0	17,0	22,5	16,53	31	512,34
8	35,0	17,0	22,5	16,15	31	500,65
9	27,0	13,0	18,5	15,23	30	456,91
10	19,0	9,0	14,0	14,00	31	434,02
11	13,0	4,0	8,5	11,06	30	331,79
12	8,0	0,0	4,0	9,03	31	279,84

ENERGY EVALUATION



APPLICATION EXAMPLE

Unit Model:	**PEVEC 1210.4/4 - 70%**
Tair Design	35 °C
DT	15 °C
Fluid	Et. Glicol 30%
Capacity (70% Fans speed)	126 kW
Tech Data:	
Air Flow	33800 m3/h
Motor power consumption	0,98 kW
Motor power consumption	1,84 A
Energetic efficiency class	A -
Warranted minimum Pmax	1,04 kWp
Sound pressure level (10 m)	45 db(A)

The SOLAR range of air cooled condensers has been designed to minimise environmental impact by exploiting modern technology to the full. The PKVEC series of condensers and the PEVEC series of dry coolers incorporate auto-regulating brushless EC fans for low energy consumption, and coils with oval-shaped pipes that reduce airside pressure drops by about 40%. The reduced energy consumption of such components makes it possible to fit photovoltaic panels having a cell surface approximately 20% smaller than that required for conventional fans and coils. The low cost of solar energy is an important ecological feature of this product range. Units are available with 2 to 6 EC fans of 1000 mm diameter and coils of various capacities. All models employ photovoltaic panels containing polycrystalline silicon cells capable of generating an energy surplus over the solar year.
With the SOLAR range of dry coolers and air cooled condensers it's truly possible to say:
Let the sun cool you down!

REFRION
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Flumignano di Talmassons
33030 - UDINE
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France

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