BOWMAN®

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Swimming Pool Heat Exchangers

BS EN ISO 9001-2000
Reg. No. FM38224

Swimming Pool Heat Exchangers

There are two ranges of Bowman swimming pool heat exchangers, one for use with boilers and the other for use with solar panels. See pages 3-9 for heat exchangers used with boilers and pages 10-14 for heat exchangers used with solar panels. Our heat exchangers can also be used with heat pump installations. (Please contact our Sales Department for more information).

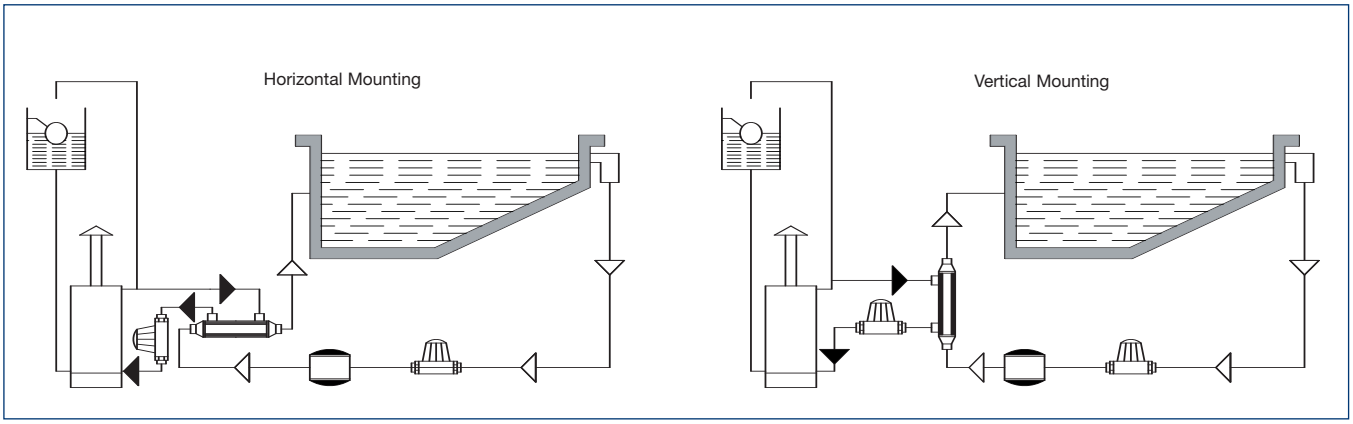
Swimming pool heat exchangers provide a simple method of heating swimming pool water indirectly from a boiler or solar panels.

All Bowman swimming pool heat exchangers are manufactured with corrosion-resistant cupro-nickel tubes and corrosion resistant end covers and are suitable for use with chlorine water, seawater and spa pools.

Units suitable for use with pools with heating up to 145 kW or 500,000 BTU/h are supplied with mounting brackets as standard.

Bowman units are very easy to maintain, as both the end covers and tube stack can be removed for cleaning, this is unique to our design (4111-2 excluded).

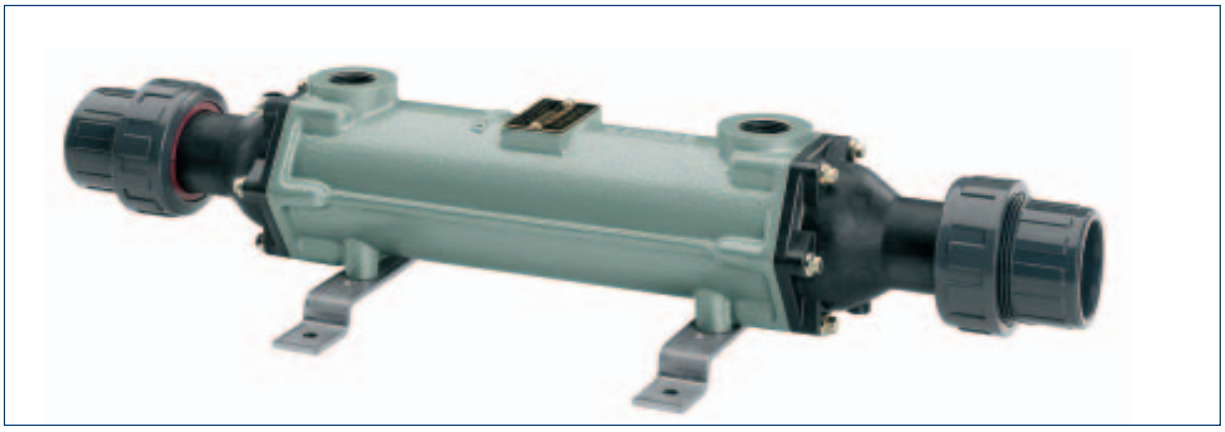
Our swimming pool heat exchangers can also be used to cool swimming pool water in hot climates. Water from a chiller passes over the heat exchanger tubes instead of boiler or solar panel water which is used when heating swimming pools. Please contact us if you require further information about using our heat exchangers for cooling pools.



Swimming Pool Heat Exchangers for use with boilers

We have a large range of heat exchangers for use from small spas up to Olympic sized pools. See page 4 for the performance table of these heat exchangers.

The 3705-3, 3706-2, 3707-2, 5113-3 and 5114-2 units are supplied with mounting brackets.



Thermostat pocket end covers

These heat exchangers can be supplied with a thermostat pocket in the inlet end cover (suitable for use with a 7 mm probe). This removes the need for the thermostat to be fitted into the pipework. The part number change from the standard heat exchanger to the thermostat pocket units is 3705-3 to 4495-3, 3706-2 to 4496-2 and 3707-2 to 4497-2, (5113 and 5114 series heat exchangers incorporate an integral thermostat pocket).

(Heat exchangers are not supplied with thermostat sensors). See pages 5-8 for technical drawings and page 9 for details of spare parts.

Thermostat pocket end covers

These heat exchangers can be supplied with a thermostat pocket in the inlet end cover (suitable for use with a 7 mm probe). This removes the need for the thermostat to be fitted into the pipework. The part number change from the standard heat exchanger to the thermostat pocket units is 3705-3 to 4495-3, 3706-2 to 4496-2 and 3707-2 to 4497-2, (5113 and 5114 series heat exchangers incorporate an integral thermostat pocket).

Swimming Pool Heat Exchangers for use with boilers

The table below enables the selection of the appropriate heat exchanger and shows the output that can be achieved from our units with different pool and boiler flow rates and different sizes of pools. The performance capabilities of the heat exchanger are based on an 8 hour cycle of the swimming pool water through the heat exchanger, a pool water temperature of 30°C and a boiler water inlet temperature of 82°C.

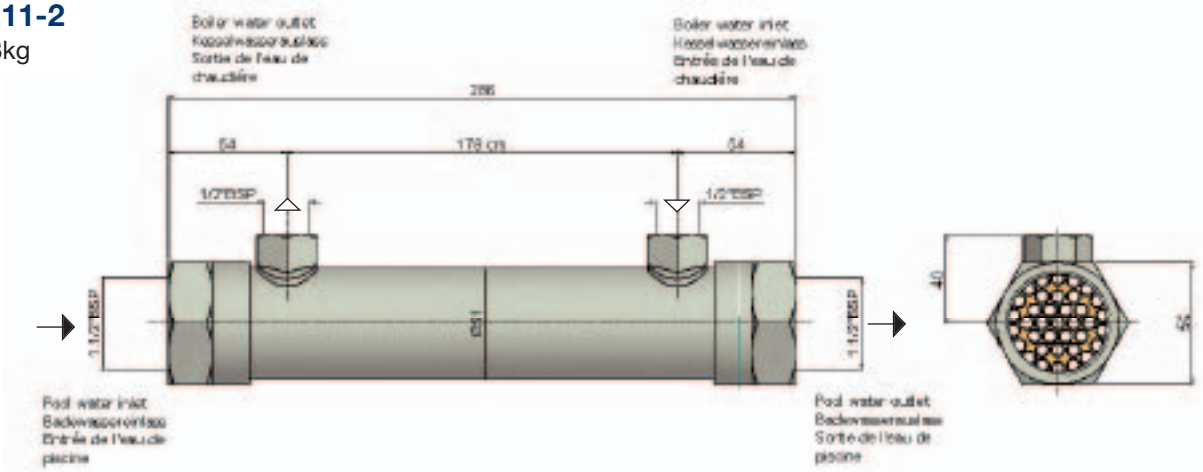
Type	Pool capacity		Boiler water flow		and Head loss		Pool water flow		and Head loss		Heat transfer		
	m^3	gal	m^3/h	gal/h	kPa	lb/in²	m^3/h	gal/h	kPa	b/in²	kcal/h	kW	BTU/h
4111-2	15	3 000	0.42	92	5	0.75	1.72	380	1	0.14	7 750	9	30 000
4111-2	25	5 000	0.72	158	14	2.00	2.90	632	2	0.29	13 000	15	50 000
3705-3/4495-3*/5113-3*	25	5 000	0.72	156	1	0.15	2.90	625	1	0.15	13 000	15	50 000
3705-3/4495-3*/5113-3*	45	10 000	1.44	312	3	0.45	5.64	1 250	2	0.30	25 000	30	100 000
3705-3/4495-3*/5113-3*	70	15 000	2.16	468	7	1.04	8.52	1 875	5	0.75	38 000	45	150 000
3705-3/4495-3*/5113-3*	90	20 000	2.88	625	13	1.95	11.40	2 500	8	1.12	50 800	60	200 000
3706-2/4496-2*/5114-2*	115	25 000	3.60	782	2	0.30	14.16	3 125	5	0.75	62 800	75	250 000
3706-2/4496-2*/5114-2*	135	30 000	4.20	938	3	0.45	17.00	3 750	7	1.04	75 700	90	300 000
3707-2/4497-2*	180	40 000	5.70	1 250	2	0.30	22.80	5 000	7	1.04	100 700	117	400 000
3707-2/4497-2*	230	50 000	7.20	1 562	4	0.60	28.44	6 250	11	1.65	125 600	145	500 000
3708-2	320	70 000	9.90	2 188	4	0.60	39.60	8 750	8	1.12	176 400	205	700 000
3709-3	410	90 000	12.60	2 812	5	0.75	51.00	11 250	7	1.04	226 300	263	900 000
3709-3	500	110 000	15.60	3 438	7	1.04	62.40	13 750	10	1.50	279 600	325	1 100 000
3711-3	680	150 000	21.60	4 688	4	0.60	85.20	18 750	9	1.35	376 800	440	1 500 000
3711-3	910	200 000	28.50	6 250	7	1.04	114.00	25 000	15	2.25	503 300	585	2 000 000
3710-3	1 140	250 000	35.40	7 812	4	0.60	142.20	31 250	10	1.50	628 000	730	2 500 000

* These part numbers include a thermostat pocket end cover.

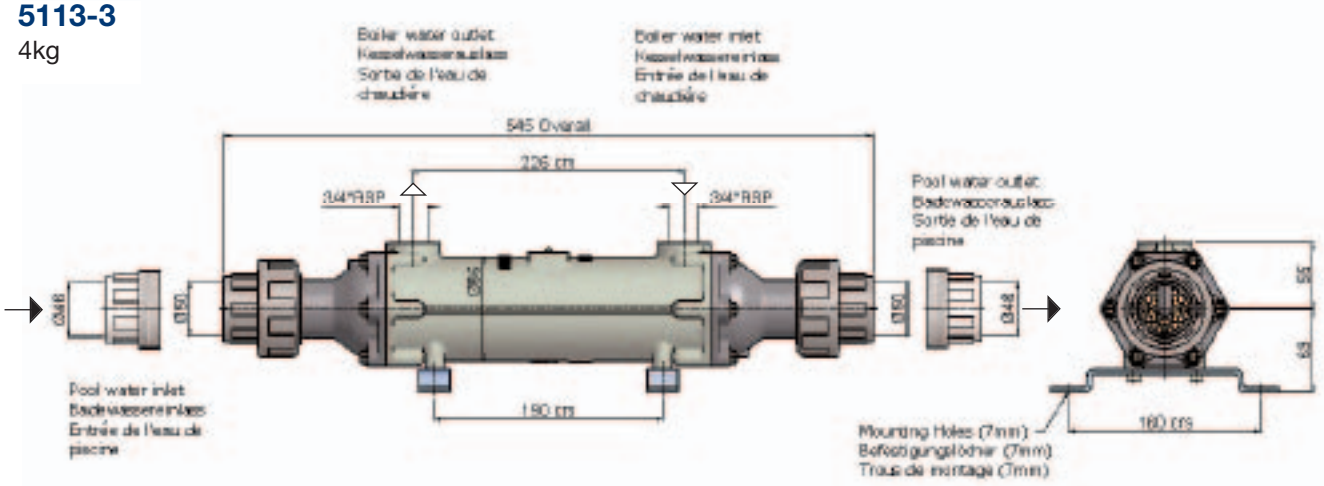
Maximum working pressure 6 bar.

Maximum working temperature 100°C.

4111-2
1.3kg



5113-3
4kg

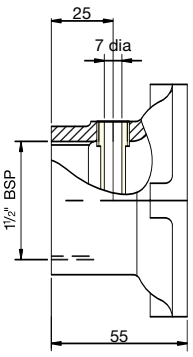


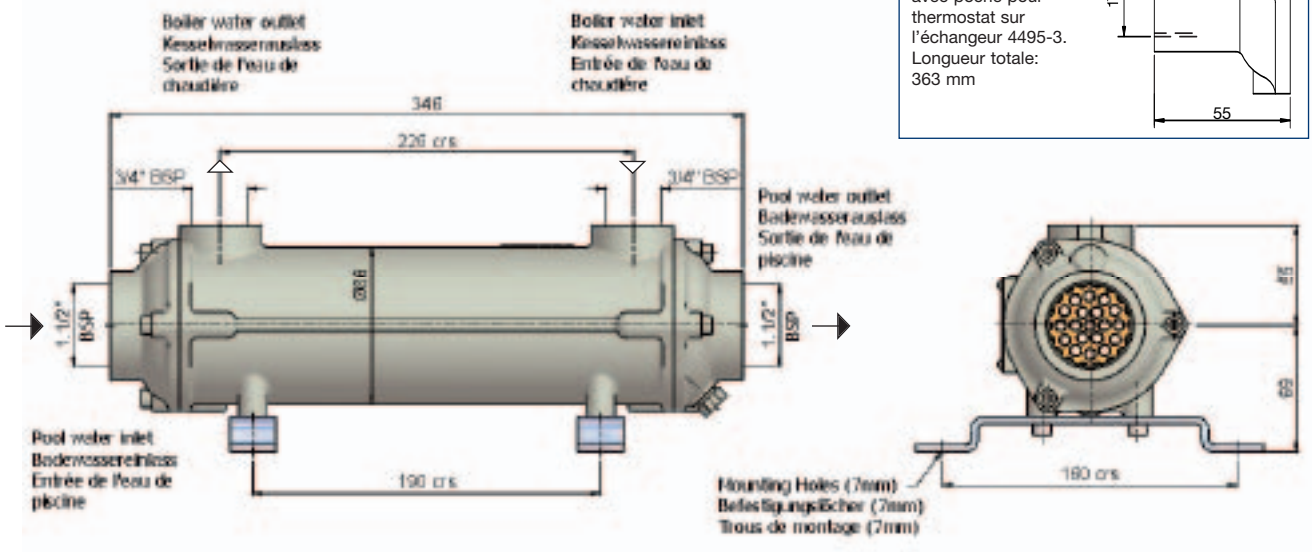
3705-3/4495-3
5kg

Thermostat pocket end cover on 4495-3. Overall length of 4495-3 is 363mm.

Enddeckel mit Tauchhülse am Wärmetauscher 4495-3. Gesamtlänge: 363 mm.

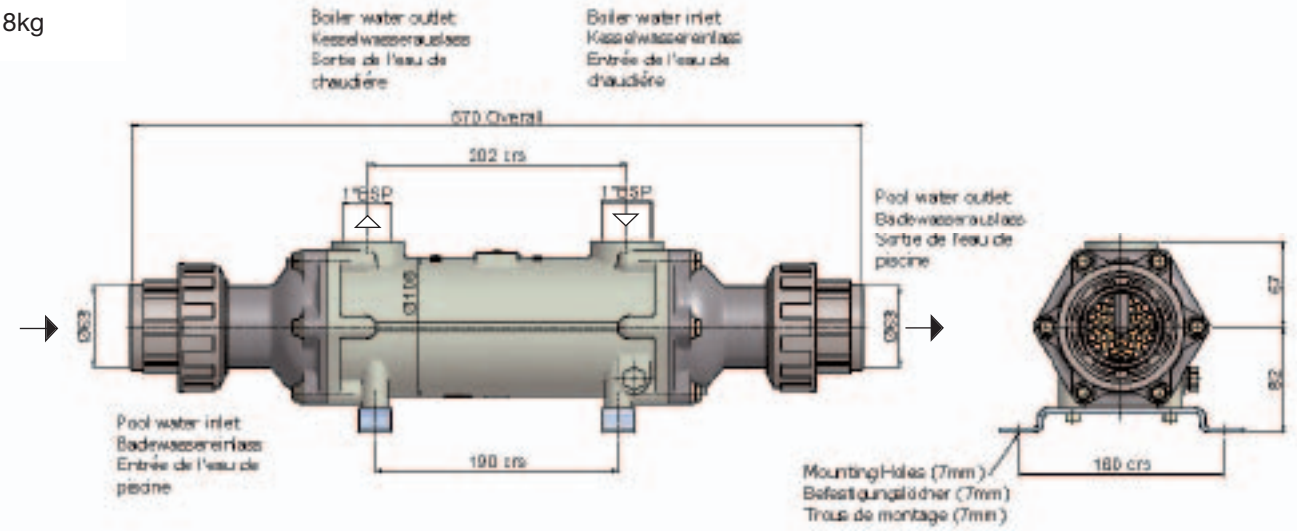
Couvercle d'extrémite avec poche pour thermostat sur l'échangeur 4495-3. Longueur totale: 363 mm



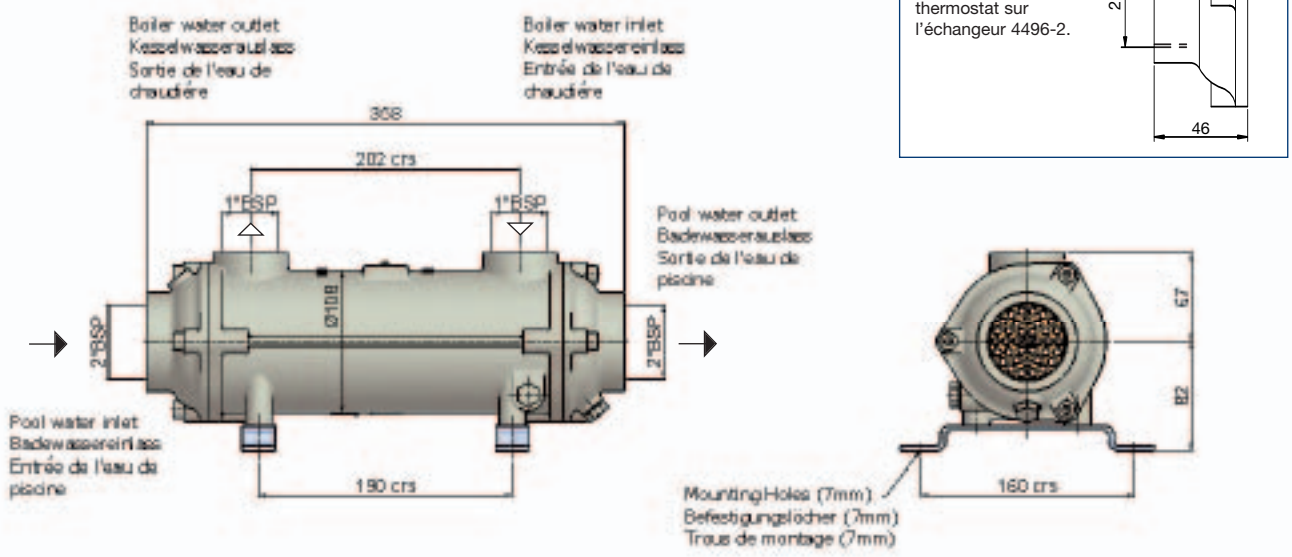


All dimensions in mm.

5114-2
8kg



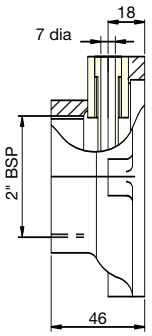
3706-2/4496-2
9kg



Thermostat pocket end cover on 4496-2.

Enddeckel mit Tauchhülse am Wärmetauscher 4496-2.

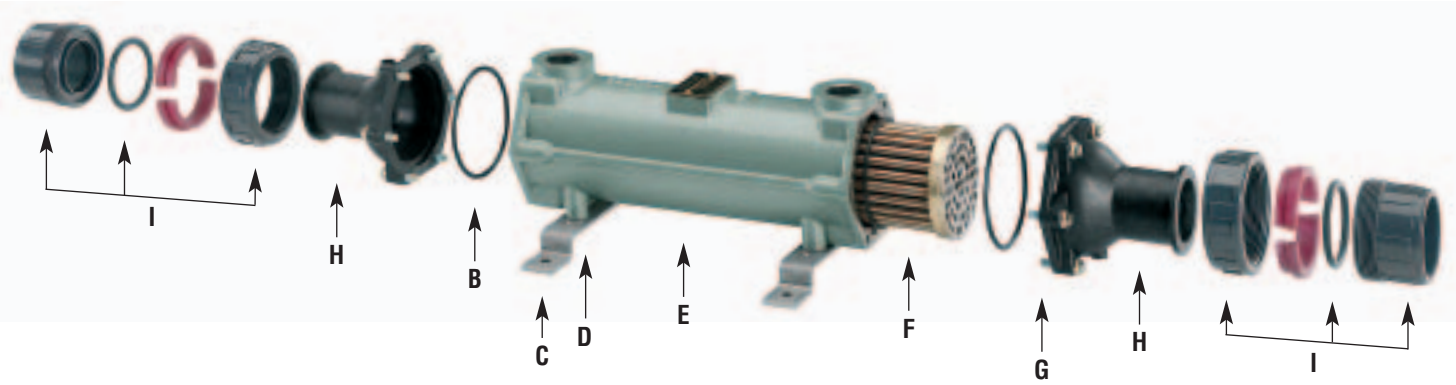
Couvercle d'extrémite avec poche pour thermostat sur l'échangeur 4496-2.

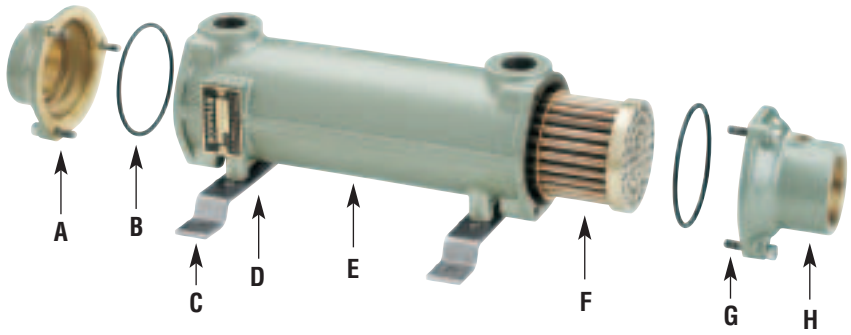


All dimensions in mm.

Spare Parts

A typical unit showing component parts and the method of assembly.



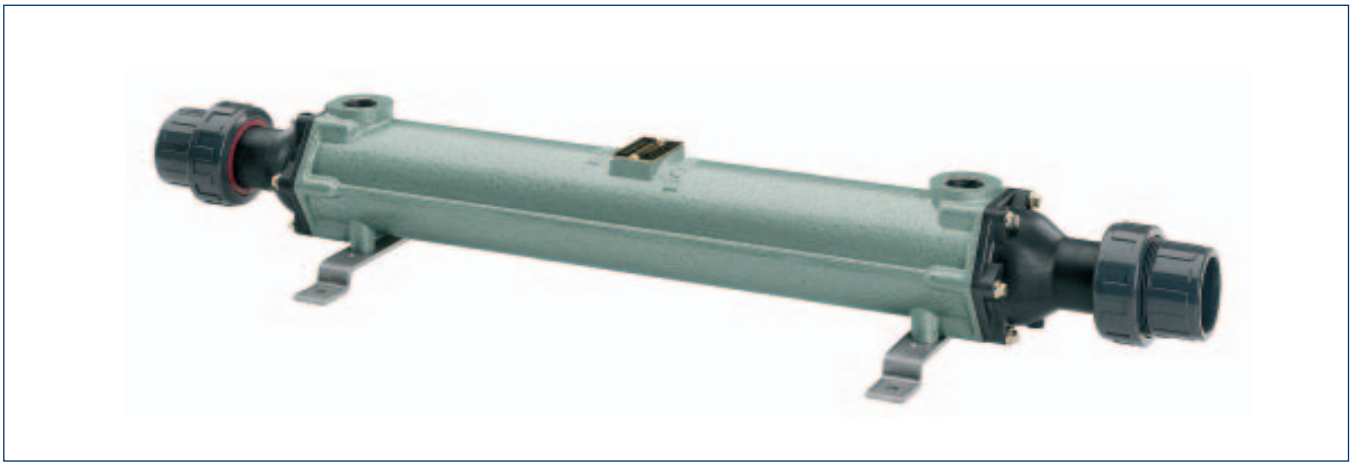


	A	B	C	D	E	F	G	H†	I
Type	Plain End Cover	"O" Seals	Mounting Brackets	Mounting Bracket Screws	Body	Tubestack	End Cover Screws	Thermostat Pocket End Cover	Union Assembly
3705-3/4495-3*/5113-3*	EC033-784GM	AN12NT	4154	HS06X12	EC012-783-3CI	5088-3TN2P	HS06X30	EC060-3920NB/4567	5134
3706-2/4496-2*/5114-2*	FC033-1176GM	OS46NT	4154	HS06X12	FC010-1200-2CI	5089-2TN2P	HS08X35	FC033-4760GM/4575	5138
3707-2/4497-2*	FG007-2802GM	OS52NT	4154	HS06X12	FG010-1650-2CI	3446-2TN2B	HS08X35	FG007-4761GM	–
3708-2	GL037-3140GM	OS63NT	–	–	GL015-3136-2CI	3447-2TN2B	HS10X40	–	–
3709-3	GK063-3255GM	OS69NT	–	–	GK019-2865-3CI	3448-3TN2B	HS12X50	–	–
3711-3	JK004-3331GM	OS74NT	–	–	JK019-3332-3CI	3450-3TN2B	HS16X70	–	–
3710-3	PK004-2926GM	OS81NT	–	–	PK019-2919-3CI	3449-3TN2B	HS16X70	–	–

* These part numbers include a thermostat pocket end cover. When replacing the tubestack, always fit new seals - 2 off per unit.
†Thermostat pocket end covers with heat exchanger part numbers: 4495-3, 4496-2, 4497-2, 5113-3 and 5114-2.

Swimming Pool Heat Exchangers for use with solar panels

The design of these units allows for the lower water temperature from solar heating compared with the hotter temperatures from traditional boilers. These heat exchangers are all supplied with mounting brackets as standard.



Thermostat pocket end covers

These heat exchangers can be supplied with a thermostat pocket in the inlet end cover (suitable for use with a 7 mm probe). This removes the need for the thermostat to be fitted into the pipework. The part number change from the standard solar heat exchanger to the thermostat pocket units is 4805-5 to 4825-5, 4806-5 to 4826-5, 4807-5 to 4827-5, (5113 and 5114 series heat exchangers incorporate an integral thermostat pocket).

(Heat exchangers are not supplied with thermostat sensors).

See pages 12-13 for technical drawings and see page 14 for details about spare parts.

Swimming Pool Heat Exchangers for use with solar panels

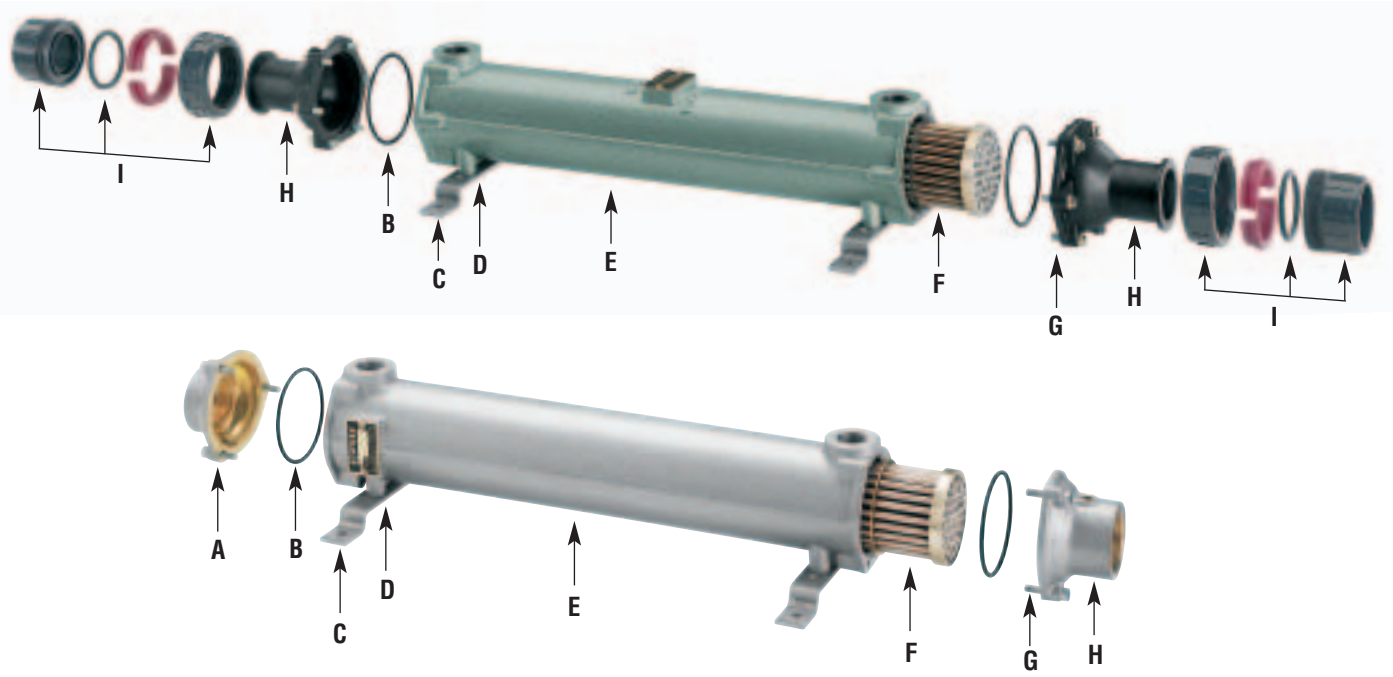
The table below enables the selection of the appropriate heat exchanger. The table shows the output that can be achieved from our units with the water temperature from the solar panels being 70°C (158°F), 60°C (140°F) or 50°C (122°F) for various pool capacities and the swimming pool water at 30°C (86°F). The performance capabilities of the heat exchangers are based on an 8 hour cycle of the swimming pool water through the heat exchanger.

Type	Pool capacity		Solar panel water temperature		Solar water flow		and Head loss		Pool water flow		and Head loss		Heat transfer		
	m^3	gal	°C	°F	m^3/h	gal/h	kPa	lb/in^2	m^3/h	gal/h	kPa	lb/in^2	kcal/h	kW	BTU/h
4805-5/4825-5* /5113-5*	23	5 000	70	158	0.72	156	1	0.15	2.90	625	1	0.15	18 900	22	75 000
4805-5/4825-5* /5113-5*	23	5 000	60	140	0.72	156	1	0.15	2.90	625	1	0.15	14 600	17	58 000
4805-5/4825-5* /5113-5*	23	5 000	50	122	0.72	156	1	0.15	2.90	625	1	0.15	9 500	11	38 000
4805-5/4825-5* /5113-5*	46	10 000	70	158	1.44	312	4	0.45	5.64	1250	3	0.30	33 500	39	133 000
4805-5/4825-5* /5113-5*	46	10 000	60	140	1.44	312	4	0.45	5.64	1250	3	0.30	25 000	29	90 000
4805-5/4825-5* /5113-5*	46	10 000	50	122	1.44	312	4	0.45	5.64	1250	3	0.30	16 300	19	65 000
4805-5/4825-5* /5113-5*	68	15 000	70	158	2.16	468	9	1.04	8.52	1875	6	0.75	46 500	54	185 000
4805-5/4825-5* /5113-5*	68	15 000	60	140	2.16	468	9	1.04	8.52	1875	6	0.75	34 400	40	137 000
4805-5/4825-5* /5113-5*	68	15 000	50	122	2.16	468	9	1.04	8.52	1875	6	0.75	23 200	27	92 000
4805-5/4825-5* /5113-5*	91	20 000	70	158	2.88	625	13	1.95	11.40	2500	11	1.65	58 400	68	233 000
4805-5/4825-5* /5113-5*	91	20 000	60	140	2.88	625	13	1.95	11.40	2500	11	1.65	43 800	51	174 000
4805-5/4825-5* /5113-5*	91	20 000	50	122	2.88	625	13	1.95	11.40	2500	11	1.65	28 400	33	113 000
4806-5/4826-5* /5114-5*	114	25 000	70	158	3.60	782	7	0.30	14.16	3125	9	1.35	86 900	101	345 000
4806-5/4826-5* /5114-5*	114	25 000	60	140	3.60	782	7	0.30	14.16	3125	9	1.35	64 500	75	257 000
4806-5/4826-5* /5114-5*	114	25 000	50	122	3.60	782	7	0.30	14.16	3125	9	1.35	43 000	50	171 000
4806-5/4826-5* /5114-5*	137	30 000	70	158	4.20	938	9	0.45	17.00	3750	9	1.04	98 900	115	393 000
4806-5/4826-5* /5114-5*	137	30 000	60	140	4.20	938	9	0.45	17.00	3750	9	1.04	70 500	82	280 000
4806-5/4826-5* /5114-5*	137	30 000	50	122	4.20	938	9	0.45	17.00	3750	9	1.04	46 400	54	185 000

***** These part numbers include a thermostat pocket end cover.

Solar Spare Parts Table

A typical unit showing component parts and the method of assembly.



	A	B	C	D	E	F	G	H†	I
Type	Plain End Cover	"O" Seals	Mounting Brackets	Mounting Bracket Screws	Body	Tubestack	End Cover Screws	Thermostat Pocket End Cover	Union Assembly
4805-5/ 4825-5* 5113-5*	EC033-784GM	AN12NT	4154	HS06X12	EC016-783-5AL	5088-5TN2P	HS06X30	EC060-3920NB /4567	5134
4806-5/ 4826-5* 5114-5*	FC033-1176GM	OS46NT	4154	HS06X12	FC016-1200-5AL	5089-5TN2P	HS08X35	FC033-4760GM /4575	5138
4807-5/ 4827-5*	FG007-2802GM	OS52NT	4154	HS06X12	FG010-1650-5AL	3446-5TN2B	HS08X35	FG007-4761GM	–

***** These part numbers include a thermostat pocket end cover.
Thermostat pocket end covers with heat exchanger part numbers: 4825-5, 4826-5, 4827-5, 5113-5 and 5114-5.
Maximum working pressure 6 bar. Maximum working temperature 100°C.

Installation and Operating Instructions

Installation Instructions

Heat exchangers should be installed downstream of the pumping and filtration equipment. The boiler/solar water must be pump assisted and the usual precautions taken to prevent air locks. The pool water pump should be controlled by a thermostat in the pool water pipework before the heat exchanger and set at the required pool temperature.

Operating Instructions

It is essential that the following instructions are followed to prevent corrosion/erosion of the heat exchanger:

a) Always keep pH to within correct levels. The ideal pool pH should be kept to within 7.4 to 7.6. On no account should it fall below 7.2 or above 7.8. Check on a day-to-day basis. Alter pool condition as necessary.

b) Ensure that the chlorine levels are within the range recommended by the chemical manufacturer and are in accordance with the type of pool, for example, private, hotel, school or municipal.

c) If a by-pass is fitted to the heat exchanger circuit, it is essential that any valves are correctly positioned to allow the recommended pool water flow to pass through the heat exchanger.

d) The filter unit should be checked regularly, especially sand filters. This type, if working incorrectly, can allow sand to pass around the pool circuit causing erosion of the pipework, heat exchanger and pump unit.

e) Keep pool free from debris such as leaves, grass cuttings etc. This foreign matter can decay and increase pH.

f) It is essential that the correct amount of chlorine dosage is added to the pool. To allow proper dispersion of the dose in the pool water, distribute the chemicals to various areas of the pool. Do not dose in one area only, as this will create high acidic areas which can cause corrosion/erosion of the pool equipment.

g) Care should be taken to prevent frost damage from a winter shutdown in premises exposed to frost. We recommend fully draining down the heat exchanger or removing the heat exchanger completely from the installation throughout the duration of the shutdown period.

UK POOL STORE

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