Product Catalog

Chromagen™
Solar Water Solutions

Introduction

Chromagen, a pioneer in the production of solar water solutions since 1962, is the market-leader in Israel, which is one of the world leaders per capita. Globally, the company has developed a solid install base, increasing supply and demand annually. Chromagen's systems, which are available in more than 35 countries worldwide bring innovation, quality and cost savings to home owners, institutions and commercial projects. The commitment to deliver top-of-the-line water-heating solar solutions is in conjunction with the belief to promote environmental awareness.

The Advantages of using Chromagen Systems:

- Top-of-the-line manufacturing technology of products guaranteeing product safety, longevity and energy efficiency
- Leading solar water solution company since 1962, has a history of bringing reliable and stable products to customers
- Worldwide network of authorized Chromagen distributors committed to fast, professional service
- Best-of-class products with long-life warranties
- Compliance with all international standards
- Commitment to deliver environmentally friendly products
- Specialized designed solutions for constructors, organizations and industry projects
- Products that are manufactured on-site and quality tested
- Dedicated Chromagen sales and support teams worldwide

Chromagen Assures:

- Best-in-class hot water solutions
- Product innovation
- Energy efficiency
- Customer service
- Environmental health

Table of Contents

1 Solar Systems

1.1 Introduction 8
1.2 Thermosiphon Systems 10
1.3 Forced Circulation Systems 15
1.4 Thermosiphon System Stands 18
1.5 Forced Circulation System Stands 19

2 Flat-Plate Collectors

2.1 Introduction 22
2.2 Collector Specifications 24
2.3 Additional Specifications 26

3 Water Tanks

3.1 Introduction 30
3.2 Tank Specifications 32

4 System Accessories

4.1 Connecting Kits 36
4.2 Solar Stations 38
4.3 Pumps 39
4.4 Thermostatic Controls 39
4.5 Electric Elements 40
4.6 Valves 41
4.7 Anti-Freeze Liquid 42
4.8 Magnesium Anodes 42
4.9 Pipe Fittings 42
4.10 Filters 44
4.11 Expansion Tanks 44

5 Worldwide Solutions

5.1 Private Homes 48
5.2 Apartment Buildings 49
5.3 Hotels 50
5.4 Industrial and Commercial Projects 51
5.5 Pools, Jacuzzis, Spas and Showers 52

6 Miscellaneous

6.1 Container Load Options 56
6.2 Index: Glossary of Terms 57
6.3 Warranty 58

Solar Systems

1.1
Introduction

Chromagen products may be assembled into four different system types:
[1] Thermosiphon, open-loop systems
[2] Thermosiphon, closed-loop systems
[3] Forced circulation, open-loop systems
[4] Forced circulation, closed-loop systems

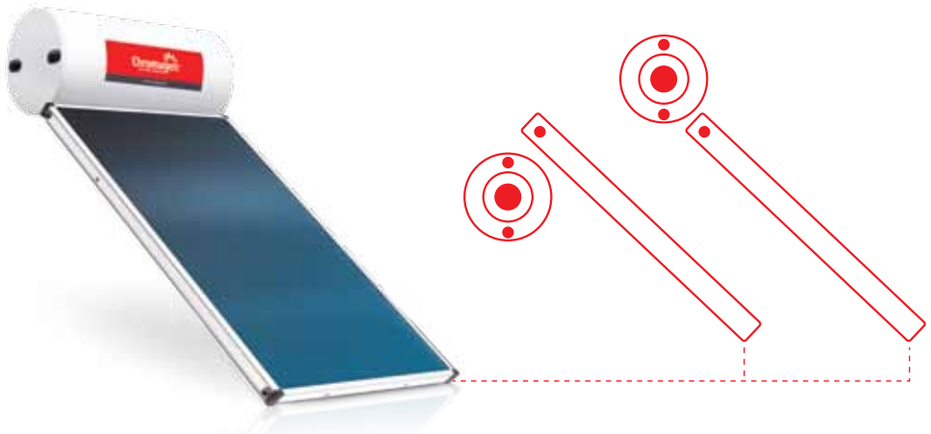
System Types:

- Thermosiphon Systems are recommended when the tank is located on a roof. These systems' operational features are simpler than forced system features, as they do not involve any moving parts or electrical pumps. These systems are not recommended in areas where freezing conditions may occur.
- Forced Circulation Systems are recommended when the water tank can be located anywhere. This is useful when considering the surrounding aesthetics or when the roof cannot support the weight of the full tank. These systems are ideal in areas where freezing occurs.

Recommended Systems:

The following tables indicate recommended system configurations. Other system designs may be available upon special request.

1.2
Thermosiphon System - Open Loop, High/Low Profile



Thermosiphon Systems (TS)

TS rely on natural convection to move hot fluid from the collector to the tank without the use of electric-powered pumps. These systems are easy to maintain, less expensive to install and generally more efficient than Forced Circulation (FC) systems. The below systems include the following prefabricated kit: tank, collector/s and a connecting kit.

Open Loop, High Profile

In high profile installations the storage tank must be placed above the collector.

Open Loop, Low Profile

In low profile installations the bottom of the storage tank must be placed on or above the central point of the collector. The low profile configuration provides a more aesthetic installation.

Pro Thermosiphon System - Open Loop, High / Low Profile						
Users	Pro	Vol.(L)	Tank	Collector	COL. Area* G / A	Connecting Kit
x3-4	120TSOLPRO	120	SH120NM	QR-K	1.65 / 1.52	IKITOL0010
x3-4	120TSOLPTO	120	SH120NM	QR-D	2.02 / 1.85	IKITOL0010
x4-5	150TSOLPRO	150	SH150WM	QR-D	2.02 / 1.85	IKITOL0010
x4-5	150TSOLPTO	150	SH150WM	QR-E	2.34 / 2.15	IKITOL0010
x5-6	200TSOLPRO	200	SH200WM	QR-F	2.77 / 2.56	IKITOL0010
x6+	300TSOLPRO	300	SH300WM	2x QR-D	4.04 / 3.7	IKITOL0020
x6+	300TSOLPTO	300	SH300WM	2x QR-E	4.68 / 4.3	IKITOL0020

Premium Thermosiphon System - Open Loop, High / Low Profile						
Users	Premium	Vol.(L)	Tank	Collector	COL. Area* G / A	Connecting Kit
x3-4	120TSOLPRM	120	SH120NM	PA-K	1.65 / 1.52	IKITOL0010
x3-4	120TSOLPTM	120	SH120NM	PA-D	2.02 / 1.85	IKITOL0010
x4-5	150TSOLPRM	150	SH150WM	PA-D	2.02 / 1.85	IKITOL0010
x4-5	150TSOLPTM	150	SH150WM	PA-E	2.34 / 2.15	IKITOL0010
x5-6	200TSOLPRM	200	SH200WM	PA-F	2.77 / 2.56	IKITOL0010
x6+	300TSOLPRM	300	SH300NM	2x PA-D	4.04 / 3.7	IKITOL0020
x6+	300TSOLPTM	300	SH300NM	2x PA-E	4.68 / 4.3	IKITOL0020

Premium Plus Thermosiphon System - Open Loop, High / Low Profile						
Users	Premium Plus	Vol.(L)	Tank	Collector	COL. Area* G / A	Connecting Kit
x3-4	120TSOLPRM1	120	SH120WM	PA-K1	1.65 / 1.52	IKITOL0010
x3-4	120TSOLPTM1	120	SH120WM	PA-D1	2.02 / 1.85	IKITOL0010
x4-5	150TSOLPRM1	150	SH150WM	PA-D1	2.02 / 1.85	IKITOL0010
x4-5	150TSOLPTM1	150	SH150WM	PA-E1	2.34 / 2.15	IKITOL0010

- Mounting kit information is provided in the stands section

* Collector Area = Gross / Apperture (Net)

Thermosiphon System - Closed Loop, High Profile

Closed-loop systems prevent freezing and scale buildup. The below systems include the following prefabricated kit: tank, collector/s and a connecting kit.

Pro Thermosiphon System - Closed Loop, High Profile						
Users	Pro	Vol.(L)	Tank	Collector	COL. Area* G / A	Connecting Kit
x2-3	100TSPRO	100	EH100NM	QR-Y	1.41 / 1.25	IKITCL0330
x2-3	100TSPTO	100	EH100NM	QR-K	1.65 / 1.52	IKITCL0330
x3-4	120TSPRO	120	EH120WM	QR-K	1.65 / 1.52	IKITCL0330
x3-4	120TSPTO	120	EH120WM	QR-D	2.02 / 1.85	IKITCL0330
x4-5	150TSPRO	150	EH150WM	QR-D	2.02 / 1.85	IKITCL0330
x4-5	150TSPTO	150	EH150WM	QR-E	2.34 / 2.15	IKITCL0330
x5-6	200TSPRO	200	EH200WM	QR-F	2.77 / 2.56	IKITCL0330
x6+	300TSPRO	300	EH300NM	2x QR-D	4.04 / 3.7	IKITCL0360
x6+	300TSPTO	300	EH300NM	2x QR-E	4.68 / 4.3	IKITCL0360

Premium Thermosiphon System - Closed Loop, High Profile						
Users	Premium	Vol.(L)	Tank	Collector	COL. Area* G / A	Connecting Kit
x2-3	100TSPTM	100	EH100NM	PA-K	1.65 / 1.52	IKITCL0330
x3-4	120TSPRM	120	EH120NM	PA-K	1.65 / 1.52	IKITCL0330
x3-4	120TSPTM	120	EH120WM	PA-D	2.02 / 1.85	IKITCL0330
x4-5	150TSPRM	150	EH150WM	PA-D	2.02 / 1.85	IKITCL0330
x4-5	150TSPTM	150	EH150WM	PA-E	2.34 / 2.15	IKITCL0330
x5-6	200TSPRM	200	EH200WM	PA-F	2.77 / 2.56	IKITCL0330
x6+	300TSPRM	300	EH300NM	2x PA-D	4.04 / 3.7	IKITCL0360
x6+	300TSPTM	300	EH300NM	2x PA-E	4.68 / 4.3	IKITCL0360

Premium Plus Thermosiphon System - Closed Loop, High Profile						
Users	Premium Plus	Vol.(L)	Tank	Collector	COL. Area* G / A	Connecting Kit
x3-4	120TSPRM1	120	EH120NM	PA-K1	1.65 / 1.52	IKITCL0330
x3-4	120TSPTM1	120	EH120NM	PA-D1	2.02 / 1.85	IKITCL0330
x4-5	150TSPRM1	150	EH150WM	PA-D1	2.02 / 1.85	IKITCL0330
x4-5	150TSPTM1	150	EH150WM	PA-E1	2.34 / 2.15	IKITCL0330
x5-6	200TSPRM1	200	EH200WM	PA-F1	2.77 / 2.56	IKITCL0330
x6+	300TSPRM1	300	EH300NM	2x PA-D1	4.04 / 3.7	IKITCL0360
x6+	300TSPTM1	300	EH300NM	2x PA-E1	4.68 / 4.3	IKITCL0360

- Mounting kit information is provided in the stands section
- Expansion tank is not required in high profile installation

* Collector Area = Gross / Apperture (Net)

Thermosiphon System - Closed Loop, Low Profile

The below systems include the following prefabricated kit: tank, collector/s and a connecting kit and an expansion tank.

Pro Thermosiphon System - Closed Loop, Low Profile							
Users	Pro	Vol.(L)	Tank	Collector	COL. Area* G / A	Connecting Kit	Exp Tank
x2-3	100TSPRO	100	EH100NM	QR-Y	1.41 / 1.25	IKITCL0200	5 L
x2-3	100TSPTO	100	EH100NM	QR-K	1.65 / 1.52	IKITCL0200	5 L
x3-4	120TSPRO	120	EH120NM	QR-K	1.65 / 1.52	IKITCL0200	5 L
x3-4	120TSPTO	120	EH120NM	QR-D	2.02 / 1.85	IKITCL0200	5 L
x4-5	150TSPRO	150	EH150WM	QR-D	2.02 / 1.85	IKITCL0200	5 L
x4-5	150TSPTO	150	EH150WM	QR-E	2.34 / 2.15	IKITCL0200	5 L
x5-6	200TSPRO	200	EH200WM	QR-F	2.77 / 2.56	IKITCL0200	5 L
x6+	300TSPRO	300	EH300NM	2x QR-D	4.04 / 3.7	IKITCL0190	8 L
x6+	300TSPTO	300	EH300NM	2x QR-E	4. 68 / 4.3	IKITCL0190	8 L

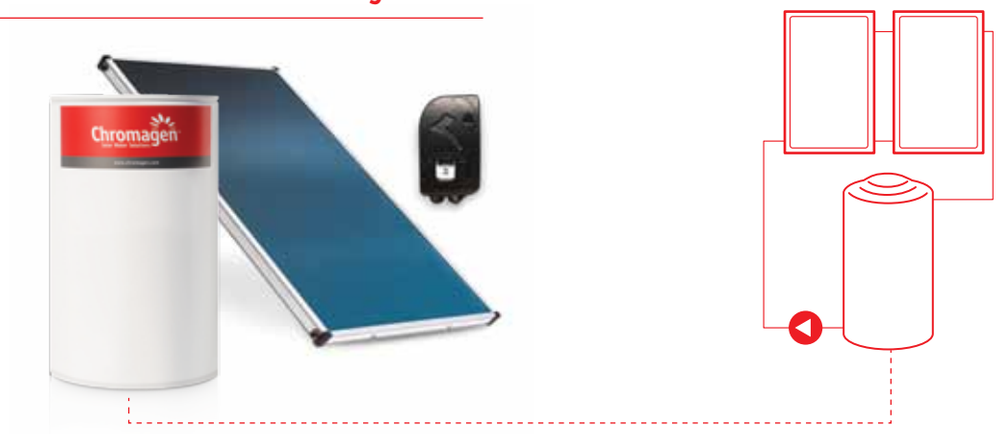
Premium Thermosiphon System - Closed Loop, Low Profile							
Users	Premium	Vol.(L)	Tank	Collector	COL. Area* G / A	Connecting Kit	Exp Tank
x2-3	100TSPTM	100	EH100NM	PA-K	1.65 / 1.52	IKITCL0200	5 L
x3-4	120TSPRM	120	EH120NM	PA-K	1.65 / 1.52	IKITCL0200	5 L
x3-4	120TSPTM	120	EH120NM	PA-D	2.02 / 1.85	IKITCL0200	5 L
x4-5	150TSPRM	150	EH150WM	PA-D	2.02 / 1.85	IKITCL0200	5 L
x4-5	150TSPTM	150	EH150WM	PA-E	2.34 / 2.15	IKITCL0200	5 L
x5-6	200TSPRM	200	EH200WM	PA-F	2.77 / 2.56	IKITCL0200	5 L
x6+	300TSPRM	300	EH300NM	2x PA-D	4.04 / 3.7	IKITCL0190	8 L
x6+	300TSPTM	300	EH300NM	2x PA-E	4.68 / 4.3	IKITCL0190	8 L

Premium Plus Thermosiphon System - Closed Loop, Low Profile							
Users	Premium Plus	Vol.(L)	Tank	Collector	COL. Area* G / A	Connecting Kit	Exp Tank
x3-4	120TSPRM1	120	EH120WM	PA-K1	1.65 / 1.52	IKITCL0200	5 L
x3-4	120TSPTM1	120	EH120WM	PA-D1	2.02 / 1.85	IKITCL0200	5 L
x4-5	150TSPRM1	150	EH150WM	PA-D1	2.02 / 1.85	IKITCL0200	5 L
x4-5	150TSPTM1	150	EH150WM	PA-E1	2.34 / 2.15	IKITCL0200	5 L
x5-6	200TSPRM1	200	EH200WM	PA-F1	2.77 / 2.56	IKITCL0200	5 L
x6+	300TSPRM1	300	EH300NM	2x PA-D1	4.04 / 3.7	IKITCL0190	8 L
x6+	300TSPTM1	300	EH300NM	2x PA-E1	4.68 / 4.3	IKITCL0190	8 L

- Mounting kit information is provided in the stands section

* Collector Area = Gross / Apperture (Net)

1.3
Forced Circulation Systems



Forced Circulation Systems (FC)

FC uses electrical pumps, valves, and controllers to circulate water or other heat-transfer fluids through the collectors. FC enables high flexibility in the positioning of the systems' components: storage tanks do not need to be installed above or close to the collectors. The below systems include the following prefabricated kit: tank, collector/s and a connecting kit plus an expansion tank.

Pro Forced Circulation Systems								
Users	Pro	Vol.(L)	Tank	Spiral	COL.	COL. Area* G / A	Connecting Kit (inc. solar station)	Exp Tank
x3-4	120FCPRO	120	EV120WS	1	QR-K	1.65 / 1.52	IKITCL0168	5 L
x3-4	120FCPTO	120	EV120WS	1	QR-D	2.02 / 1.85	IKITCL0168	5 L
x4-5	150FCPRO	150	EV150WS	1	QR-D	2.02 / 1.85	IKITCL0168	5 L
x4-5	150FCPTO	150	EV150WS	1	QR-E	2.34 / 2.15	IKITCL0168	5 L
x5-6	200FCPRO	200	EV200WS	1	QR-F	2.77 / 2.56	IKITCL0168	5 L
x6+	300FCPRO	300	EV300NS	1	2x QR-D	4.04 / 3.7	IKITCL0168	8 L
x6+	300FCPTO	300	EV300NS	1	2x QR-E	4.68 / 4.3	IKITCL0168	8 L
x6+	302FCPRO	300	EV300SS	2	2x QR-D	4.04 / 3.7	IKITCL0168	8 L
x6+	302FCPTO	300	EV300SS	2	2x QR-E	4.68 / 4.3	IKITCL0168	8 L

Premium Forced Circulation Systems								
Users	Premium	Vol.(L)	Tank	Spiral	COL.	COL. Area* G / A	Connecting Kit (inc. solar station)	Exp Tank
x3+	120FCPRM	120	EV120WS	1	PA-K	1.65 / 1.52	IKITCL0168	5 L
x3+	120FCPTM	120	EV120WS	1	PA-D	2.02 / 1.85	IKITCL0168	5 L
x4-5	150FCPRM	150	EV150WS	1	PA-D	2.02/ 1.85	IKITCL0168	5 L
x4-5	150FCPTM	150	EV150WS	1	PA-E	2.34 / 2.15	IKITCL0168	5 L
x5-6	200FCPRM	200	EV200WS	1	PA-F	2.77 / 2.56	IKITCL0168	5 L
x6+	300FCPRM	300	EV300NS	1	2x PA-D	4.04 / 3.7	IKITCL0168	8 L
x6+	300FCPTM	300	EV300NS	1	2x PA-E	4.68 / 4.3	IKITCL0168	8 L
x6+	302FCPRM	300	EV300SS	2	2x PA-D	4.04 / 3.7	IKITCL0168	8 L
x6+	302FCPTM	300	EV300SS	2	2x PA-E	4.68 / 4.3	IKITCL0168	8 L

Premium Plus Forced Circulation Systems								
Users	Premium Plus	Vol.(L)	Tank	Spiral	COL.	COL. Area* G / A	Connecting Kit (inc. solar station)	Exp Tank
x3-4	120FCPRM1	120	EV120WS	1	PA-K1	1.65 / 1.52	IKITCL0168	5 L
x3-4	120FCPTM1	120	EV120WS	1	PA-D1	2.02 / 1.85	IKITCL0168	5 L
x4-5	150FCPRM1	150	EV150WS	1	PA-D1	2.02 / 1.85	IKITCL0168	5 L
x4-5	150FCPTM1	150	EV150WS	1	PA-E1	2.34 / 2.15	IKITCL0168	5 L
x5-6	200FCPRM1	200	EV200WS	1	PA-F1	2.77 / 2.56	IKITCL0168	5 L
x6+	300FCPRM1	300	EV300NS	1	2x PA-D1	4.04 / 3.7	IKITCL0168	8 L
x6+	300FCPTM1	300	EV300NS	1	2x PA-E1	4.68 / 4.3	IKITCL0168	8 L
x6+	302FCPRM1	300	EV300SS	2	2xPA1-D1	4.04 / 3.7	IKITCL0168	8 L
x6+	302FCPTM1	300	EV300SS	2	2xPA-E1	4.68 / 4.3	IKITCL0168	8 L

- Mounting kit information is provided in the stands section

* Collector Area = Gross / Apperture (Net)

Integrated Forced Circulation Systems

The integrated forced circulation system is designed especially to be delivered with an integrated solar station that saves valuable installation time. The tank includes a solar station - one or two lines, an electrical heating element and an expansion vessel. The below systems include the following prefabricated kit: tank, collector/s and a connecting kit and an expansion tank.

Pro Integrated Forced Circulation Systems								
Users	Integrated Pro	Vol.(L)	Tank	Spiral	COL.	COL. Area* G / A	Connecting Kit	Exp Tank
x5-6	200FCIPO	200	EV20SNS	1	QR-F	2.77 / 2.65	IKITCL0179	5 L
x6+	300FCIPO	300	EV30SNS	1	2 x QR-D	4.04 / 3.7	IKITCL0179	8 L
x6+	300FCITO	300	EV30SNS	1	2 x QR-E	4.68 / 4.3	IKITCL0179	8 L
x6+	302FCIPO	300	EV30SSS	2	2 x QR-D	4.04 / 3.7	IKITCL0179	8 L
x6+	302FCITO	300	EV300SS	2	2 x QR-E	4.68 / 4.3	IKITCL0179	8 L

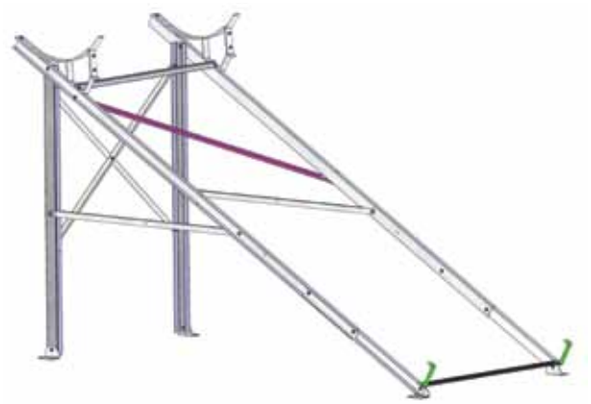
Premium Integrated Forced Circulation Systems								
Users	Integrated Premium	Vol.(L)	Tank	Spiral	COL.	COL. Area* G / A	Connecting Kit	Exp Tank
x5-6	200FCIPM	200	EV20SNS	1	PA-F	2.77 / 2.65	IKITCL0179	5 L
x6+	300FCIPM	300	EV30SNS	1	2 x PA-D	4.04 / 3.7	IKITCL0179	8 L
x6+	300FCITM	300	EV30SNS	1	2 x PA-E	4.68 / 4.3	IKITCL0179	8 L
x6+	302FCIPM	300	EV30SSS	2	2 x PA-D	4.04 / 3.7	IKITCL0179	8 L
x6+	302FCITM	300	EV300SS	2	2 x PA-E	4.68 / 4.3	IKITCL0179	8 L

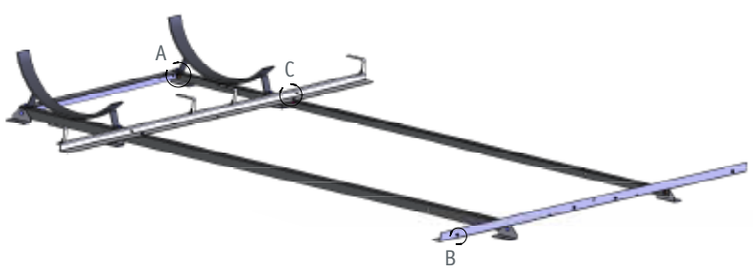
Premium Plus Integrated Forced Circulation Systems								
Users	Integrated Premium Plus	Vol.(L)	Tank	Spiral	COL.	COL. Area* G / A	Connecting Kit	Exp Tank
x5-6	200FCIPM1	200	EV20SNS	1	PA-F1	2.77 / 2.65	IKITCL0179	5 L
x6+	300FCIPM1	300	EV30SNS	1	2 x PA1-D	4.04 / 3.7	IKITCL0179	8 L
x6+	300FCITM1	300	EV30SNS	1	2 x PA1-E	4.68 / 4.3	IKITCL0179	8 L
x6+	302FCIPM1	300	EV30SSS	2	2 x PA1-D	4.04 / 3.7	IKITCL0179	8 L
x6+	302FCITM1	300	EV300SS	2	2 x PA1-E	4.68 / 4.3	IKITCL0179	8 L

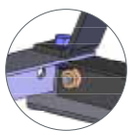
* Collector Area = Gross / Apperture (Net)

1.4
Thermosiphon System Stands

Collectors Angle	System		Stand CN
	Tank Volume	Collector	
30° / *0°	150L (Diameter 585)	D	MAXFH1D30
	150L (Diameter 585)	E	MAXFH1F30
	200L (Diameter 585)	F	MAXFH1F30
	300L (Diameter 690)	2X D	MAXFRDD31
35° / 0°	300L (Diameter 690)	2X E	MAXFH2E35
	100L (Diameter 477)	Y / K	MAXFH1Y35
45° / 0°	120L (Diameter 477)	K	MAXFH1K45
	150L (Diameter 585)	D	MAXFH1D45
	150L (Diameter 585)	E	MAXFH1F45
	200L (Diameter 585)	F	MAXFH1F45
	300L (Diameter 560)	2X D	MAXFH2D45
	300L (Diameter 690)	2X D	MAXFH2D46



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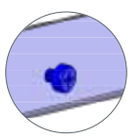
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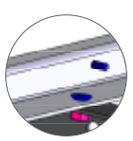
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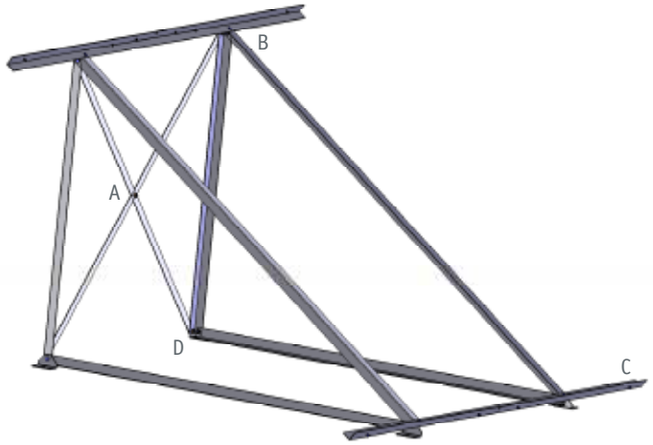
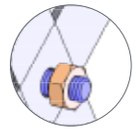
- 0° - Inclined roof at the roof's slope

1.5
Forced Circulation System Stands

Collector	Roof Type	Collectors Angle	Stand CN
D/ E / F	Inclined roof	Roof tight	MAXFHDF00
E / F	Flat roof	30°	MAXFHEF30
E / F	Flat roof	45°	MAXFHEF45
2xE / 2xD	Inclined roof	Roof tight	MAXFH0030
2xE	Flat roof	35°	MAXFH0035

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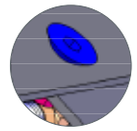
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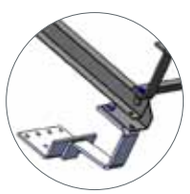
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Flat-Plate Collectors

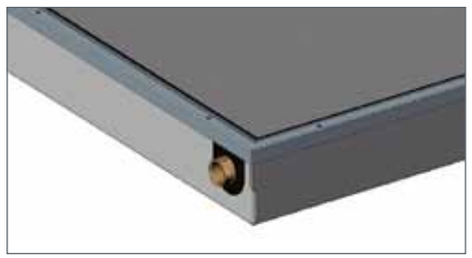
2.1
Introduction

Chromagen manufactures Flat-Plate Solar Collectors using state-of-the-art technology.

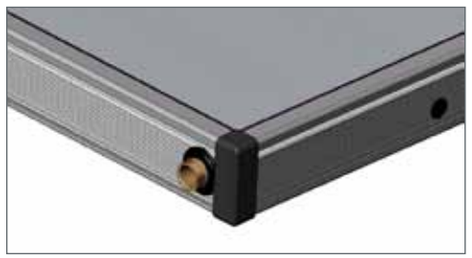
- Full plate aluminum absorbers with an ultra selective sputtering or selective paint coating
- Anodized aluminum or galvanized steel casing
- Copper tubes, which are standard in all Chromagen collectors

Advantages:

- Highest quality design
- Excellent heat transfer through the laser welded technology
- Tempered glass
- Advanced sputtering / selective-paint coating technology
- Long collector life span
- Wide variety of international certifications
- Installation on all types of roofs
- Clean energy generated, for free, from the sun



Painted galvanized steel casing



Anodized aluminum casing

Galvanized steel casing color

Black (RAL9005)

Grey (RAL9006)
(RAL7042)

Aluminum casing color

Black

Natural Aluminum

2.2
Collector Specifications

Pro Collectors				
Absorber coating	**Frame type**	**Size***	**Designation**	**CN**
Selective paint	Aluminum	K (CR90)	QA-K	CKBXCXXQ06TE
		D (CR100)	QA-D	CDBXCXXQ07TE
		E (CR110)	QA-E	CEBXCXXQ07TE
		F (CR120)	QA-F	CFBXCXXQ08TE
		W (CR130)	QA-W	CWBXCXXQ10TE
		U (CR140)	QA-U	CUBXCXXQ10TE
	Galvanized Steel	Y(CR70)	QR-Y	CYRXCXXQ05TE
		K (CR90)	QR-K	CKRXCXXQ06TE
		D (CR100)	QR-D	CDRXCXXQ07TE
		E (CR110)	QR-E	CERXCXXQ07TE
		F (CR120)	QR-F	CFRXCXXQ08TE

Premium Collectors				
Absorber coating	**Frame type**	**Size***	**Designation**	**CN**
Sputtering	Aluminum	K (CR90)	PA-K	CKBXCXXP06TE
		D (CR100)	PA-D	CDBXCXXP07TE
		E (CR110)	PA-E	CEBXCXXP07TE
		F (CR120)	PA-F	CFBXCXXP08TE
		W (CR130)	PA-W	CWBXCXXP10TE
	Galvanized Steel	K (CR90)	PR-K	CKRXCXXP06TE
		D (CR100)	PR-D	CDRXCXXP07TE
		E (CR110)	PR-E	CERXCXXP07TE
		F (CR120)	PR-F	CFRXCXXP08TE

Premium Plus Collectors				
Absorber coating	**Frame type**	**Size***	**Designation**	**CN**
Sputtering	Aluminum	K (CR90)	PA-K1	CKBXCXXP08TE
		D (CR100)	PA-D1	CDBXCXXP10TE
		E (CR110)	PA-E1	CEBXCXXP10TE
		F (CR120)	PA-F1	CFBXCXXP12TE
	Galvanized Steel	K (CR90)	PR-K1	CKRXCXXP08TE
		D (CR100)	PR-D1	CDRXCXXP10TE
		E (CR110)	PR-E1	CERXCXXP10TE
		F (CR120)	PR-F1	CFRXCXXP12TE

Collector Size	**Y**		**K**		**D**		**E**		**F**		**W**		**U**		**Z**	
Risers Diameter [mm]	8	16	8	16	8	16	8	16	8	16	8	16	8	16	8	16
Gross Area [m²]	1.41		1.65		2.02		2.34		2.77		2.96		3.71		3.12	
Aperture Area [m²]	1.25		1.52		1.85		2.15		2.56		2.73		3.44		2.93	
Length [cm]	181		181		189		218		218		247		309		246	
Width [cm]	78		91		107		107		127		120		120		127	
Weight [KG]	21	23	26	28	30	33	34	37	39	43	44	49	53	59	46	54
Fluid Capacity [L]	0.8	2.2	1	2.7	1.2	3.2	1.3	3.6	1.5	4.1	1.7	5.3	1.9	6.3	2.1	6.8
Thickness [cm]	9															

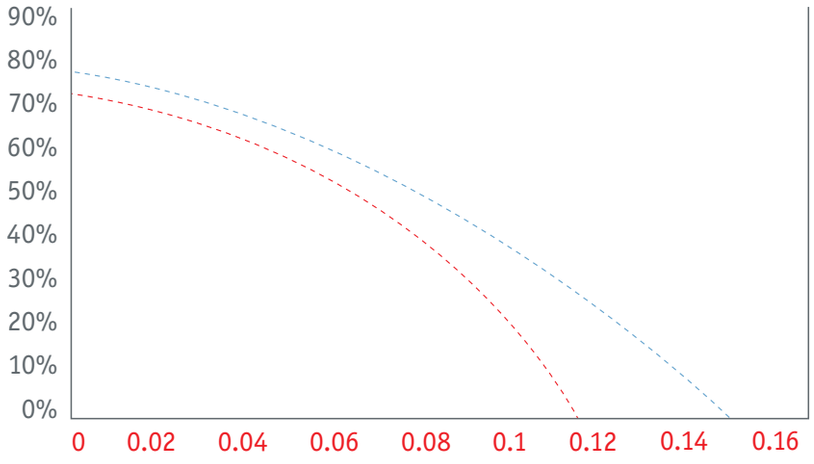
- Test pressure: 12 bar
- Maximum operation pressure: 8 bar
- Size name in brackets is the previous reference number

2.3
Additional Specifications

Coating Absorption	Sputtering 95%; Selective Paint 90%
Coating Emission	Sputtering 5%; Selective Paint 45%
Glazing	Tempered glass 3.2 mm
Light Transmission	91%
Piping Connections	Four BSP female brass connection /clear cut edge
Thermal Insulation	23 mm polyurethane foam + glass wool (for highly selective coatings only)
Back Plate	Black polypropylene sheet
Aluminum Foil	Attached to the polyurethane foam

- Due to on-going development, specifications are subject to change without notice
- The above represents the average dimensions and weights of produced products
- Recommended flow rate: 20-50 L/h per m^2

Collector Efficiency Curve



X = (Tm-Ta)/G
Tm= Water temp:(Tout+ Tin)/2
Ta = Ambient temp
G = Instantaneous solar radiation

---- Sputtering
---- Selective paint

Solar Water Tanks

3.1
Introduction

uces tanks designed to store hot water for residential and commercial use. el coating is applied by vacuum technology and produced with superior-quality enamel that fully coats the entire inner surface. The injected polyurethane foam insulates the tank from the ambient air.

Chromagen's produces horizontal and vertical water tanks with or without heat exchangers that may be installed in thermosiphon or forced circulation systems. All tanks are available with an electric back up.

Advantages:

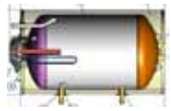
- Highest quality design
- Large variety of products for different requirements
- Highest quality glass-enamel coating
- Sacrificial anode for anti-corrosion protection
- Optimal insulation and heat retention
- Extreme product durability
- Long tank life span
- Wide variety of international certifications

External Casing Color

White (RAL9003) | Cream (RAL9001) | Black (RAL9005) | Grey (RAL9006) (RAL7042) | Aluminum (Stucco G)

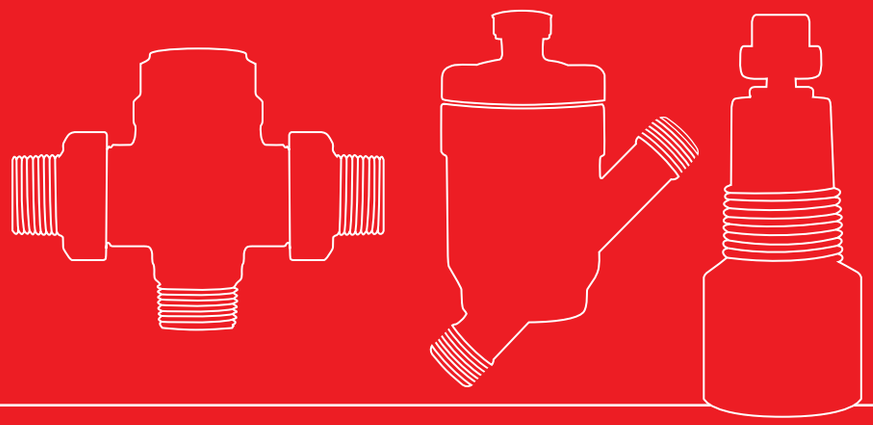
- Chromagen may produce tanks in additional colors with a minimum order quantity of 2 full 40 ft containers.

3.2
Tank Specifications

Type	Drawing	Capacity (Liters)	Dimensions (HxD) (mm)	Catalogue Number	Weight (KG)	Electric Power (KW)
Solar Vertical		120	850X560	SV120WR	46	2.5/ None
		150	1010x560	SV150WR	53	
		150	1480X477	EV150WR	73	
		200	1270x560	SV200WR	65	
		300	1420x650	SV300NR	91	2.5/ 3 /3.6 / None
Solar Horizontal		120	860x560	SH120WR	46	1.8/2/2.5/ None
		120	1250x477	SH120WR	50	
		150	1020x560	SH150WR	53	
		200	1270x560	SH200WR	65	
		300	1430x650	SH300NR	91	2.5/ 3 /3.6 / None
Double Jacket Horizontal		100	1075x477	EH104NM	71	1.8/2/2.5/ None
		120	1245x477	EH120NM	74	
		150	1010x585	EH150WM	75	
		200	1270x585	EH200WM	93	
		300	1420x690	EH300NM	133	2.5/ 3 /3.6 / None
Spiral Vertical		120	860x585	EV120WS	74	2.5/ None
		120	1250x477	EV120NS	78	
		150	1020x585	EV150WS	75	
		150	1480X477	EV150NS	88	
		200	1280x585	EV200WS	90	
		300	1420x650	EV300NS	133	2.5/ 3 /3.6 / None
Double Spiral Vertical		200	1280x585	EV200SS	108	2.5 / None
		300	1430x650	EV300SS	145	2.5/ 3 /3.6 / None

Type	Drawing	Capacity (Liters)	Dimensions (HxD) (mm)	Catalogue number	Weight (KG)	Electric power (KW)
Spiral with Solar Station Vertical		200	1280 x585x835	EV20SNS	92	2.5/ 3 /3.6 / None
		300	1430 x650x900	EV30SNS	135	2.5/ 3 /3.6 / None
Double Spiral with Solar Station Vertical		300	1430 x650x900	EV30SSS	147	2.5/ 3 /3.6 / None
Electric		30	670x360	EV030NR	23	1.8/2/2.5
		45	885x360	EV045NR	29	
		60	740X477	ED060NR	31	
		80	905X477	ED080NR	40	
		120	850X585	ED120WR	46	
		120	1245X477	ED120NR	50	
		150	1010X585	ED150NR	65	
		200	1270x585	ED200WR	91	
		300	1420x650	EV300NR	100	

- Due to on-going development, specifications are subject to change without notice.
- The above represents the average dimensions and weights of produced products

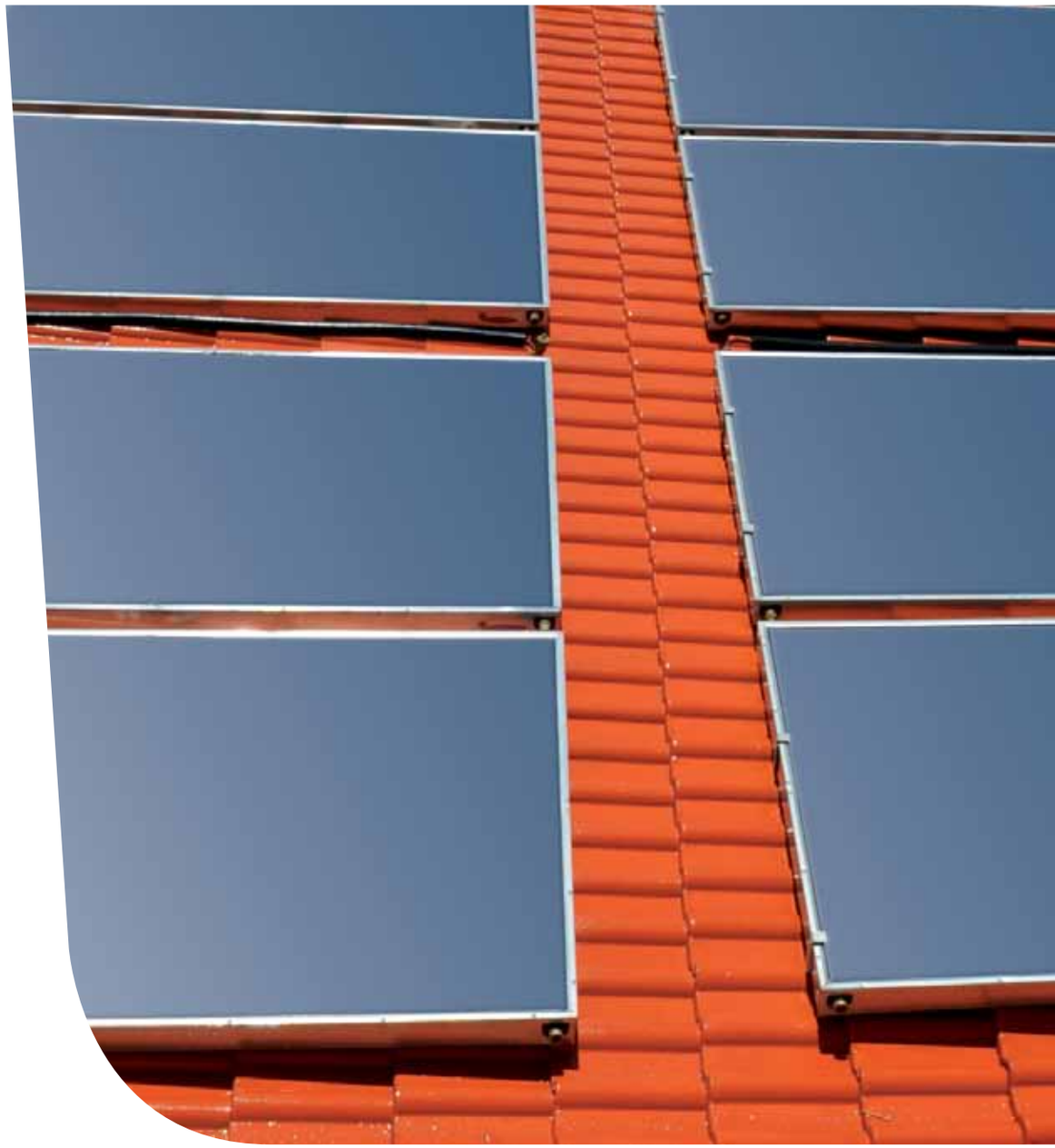


System Accessories

4.1
Connecting Kits

The systems are installed with the connecting kit elements and piping. The connecting kit is matched to the system chosen by the customer. A forced circulation system full connecting kit includes plumbing parts, pump, control, and valves.

IKITOL0010	Connecting Kit for open-loop thermosiphon system 1 collector + copper pipe
IKITOL0020	Connecting Kit for open-loop thermosiphon system 2 collectors + copper pipe
IKITCL0330	Connecting Kit for closed-loop thermosiphon system 1 collector
IKITCL0360	Connecting Kit for closed-loop thermosiphon system 2 collectors
IKITCL0200	Connecting Kit for closed-loop thermosiphon low profile system 1 collector
IKITCL0190	Connecting Kit for closed-loop thermosiphon low profile system 2
IKITCL0168	Connecting Kit for closed-loop forced system 1 or 2 collectors + solar station (one line)
IKITCL0179	Connecting Kit for integrated closed-loop forced circulation system 1 or 2 collectors



4.2
Solar Stations

A solar station is used to operate a forced circulation solar system. All the accessories are already mounted for easy and quick installation: pump, controller and valves.

Major Components:

- Controller
- Solar thermal pump
- Pointer thermometers for feed flow and return flow
- Return flow line with ball valve and adjustable non-return valve
- Flowmeter with scale
- Security bracket with security valve and manometer
- KFE-cock for filling and flushing the system
- Wall mounting with screws and dowels
- Heat insulation

ISOLAR0010	Solar Station - two lines
ISOLAR0015	Solar Station - one line

4.3
Pumps

Pumps are used for different types of installations. Chromagen carries a different variety of pumps which are tested and approved for the use with solar thermal systems.

IPMPGRN021	GRUNDFOS UPS 25-20
IPMPGRN031	GRUNDFOS UPSO 25-65
IPMPGRN041	GRUNDFOS UPS 32-80
IPMPSA3281	SALMSON 32-80SXM

4.4
Thermostatic Controls

Different controllers are used for different types of installations, depending on the complexity of the system. Chromagen supplies solar systems, which includes thermostatic control. Chromagen tests and approves each thermostatic control unit.

ITMDIF0300	Solar controller RESOL DELTASOL BS
ITMDIF0030	Solar controller ETS DT83P3

4.5
Electric Elements

Chromagen tanks are supplied with an electric back-up. An electric element inside the water tank is activated via thermostatic control. An external heating device such as gas water heater or electric flow heater can be connected in series to the solar tank.

PGUCBLF070	Electric heating element, 2500 W, 850 mm
PGUCBLF080	Electric heating element, 2500 W, 940 mm
PGUCBLM010	Electric heating element, 1500 W, bent
PGUCBLM030	Electric heating element, 2500 W, bent
PGUCZY010	Electric heating element, 2300 W, screw on, 1"
PGUCZY040	Electric heating element, 2500 W-800 mm-C/L-F.C vertical
PGUCZY041	Electric heating element, 2000 W, 1" thread, screw on, 800 mm
PGUCZY045	Electric heating element, 2500 W, 1" thread, screw on, 800 mm
PGUCZY050	Electric heating element, 3000 W, 1" thread, screw on
PFB125S25	Flange inc. anode 250 mm, elec. element , 2500 W - 120/150 L
PFB125S31	Flange inc. anode 315, 2.5 KW
PFS123L35	Flange inc. anode 350 mm, screw on heating element 2300 W, 1"
PFS925L31	Flange inc. anode 315 mm, up. screw on Heat. element 2500 W, 1"
PTRM035030	Thermostat, 35 cm, 20A + grounding
PTRM036030	Thermostat, 36 cm., yellow, 95^
PTRM036050	Thermostat 36 cm., 105^
PTRM045010	Thermostat, 45 cm., yellow
PTRM045020	Thermostat, 45 cm., yellow

4.6
Valves

IBRZFF0015	Ball valve, 1/2", F-F
IBRZFF0016	Ball valve, 3/4", F-F
IBRZFF0018	Ball valve, 1 1/4", F-F
IBRZMF0070	Ball valve, 1/2", F-F
IBRZMF0130	Ball valve, 1/2", M-F
IBRZMF0140	Ball valve, 3/4", M-F
IBRZMF0150	Ball valve, 1", M-F
IBRZMF0160	Ball valve, 11/4", M-F
IBRZMF0200	Ball valve, 1/2",M-F
IMSHAV0010	Air relief valve, 1/2"
IMSHAV0030	Air relief valve, 3/8"
IPRESS0010	Pressure reducer, 1/2"
IPRESS0020	Pressure gauge, 2 1/2"
ISHSAL0010	Check valve, 1/2" x 3/4", M-F
ISHSAL0020	Check valve, linear, 1/2"
ISHSAL0050	Check valve, linear, 11/4"
ISHSAL0081	Thermosiphon valve 3/4 plug white - low profile
ISHSAL0100	Thermosiphon valve,1/2" plug - low profile
ISHSAL0120	Thermosiphon valve, 3/4" no plug - low profile
ISHSAL0121	Low profile valve, white ball - high temp
ISHSBI0010	Pressure relief valve, 3 ATM 1/2"
ISHSBI0050	Pressure relief valve, 8 ATM 1/2"

4.7
Anti-Freeze Liquid

OCHEM00120	Propylene Glycol

4.8
Magnesium Anodes

IKITAN0250	Anode 250/33 mm + accessories
IKITAN0315	Anode 315/33 mm + accessories
IKITAN0350	Anode 350/33 mm + accessories
PANODA0250	Magnesium anode - 250/33 mm
PANODA0315	Magnesium anode - 315/33 mm
PANODA0350	Magnesium anode - 350/33 mm
PANODA0800	Magnesium anode - 800/26 mm
PANODA1000	Magnesium anode - 1050/26 mm
PANODA1200	Magnesium anode - 1220/26 mm

4.9
Pipe Fittings

IADPT0020	Adaptor 3/4 x 7/8 ”
IADPT0040	Adaptor 1 1/4 x 1 3/8 ”
IBSHBR0010	Brass bushing 3/4” x 1/2”
IBSHBR0040	Brass bushing 1/2” x 1/4”, brass
IBSHBR0060	Brass bushing 1/2” x 3/8”, brass
IBSHGV0140	Galvanized bushing. 11/4*2
IMAAST0080	Bushing 3/4 30 mm, M-F
IMAAST0095	Connector 3/4”, 32 mm
IMAHB00025	Connector, 1/2” x 16 mm
IMAHB00027	Connector, 3/4” x 16 mm

IMAHBP0010	Connector, brass, 3/4”x16 mm, M
IMUFBN0041	Brass coupling 3/4”, F-F
IMUFBN0200	Copper coupling 7/8 * 1.1/8 ”
IMUFBN0210	Copper coupling 7/8 * 1.3/8 ”
IMUFBN0215	Copper coupling 1.1/8 * 1.3/8 ”
IMUFGN0070	Galvanized coupling, 3/4”
INIPBR0010	Brass nipple 3/4”, 3 cm
INIPBR0011	Brass nipple 3/4”, 4 cm
INIPBR0016	Brass nipple 11/4 ”
INIPBR0020	Brass nipple short, 1/2”
INIPBR0030	Brass nipple 3/4” x 1/2”, short
INIPGV0140	Galvanized nipple, 1” galvanized
IOTHER0150	Screw 3” 3/8 ”
IPKKBR0010	Brass plug 1/2”, low profile
IPKKGV0030	Galvanized plug, 1/2 ”
IPKKGV0040	Galvanized plug 1”
IPKKGV0045	Galvanized plug 2”
IRECBR0010	Brass union 3/4” for two collectors
IRECBR0020	Brass union 3/4”
IRECBR0025	Dielectric brass union 1.1/4 ”
IRECBR0040	Brass union 1.1/4 ”
IRECBR0050	Brass union 2”
ITZLBR0010	Brass cross 1/2”
ITZLBR0020	Brass cross 3/4”
IZAVBR0020	Brass elbow, 3/4”, M-M
IZAVBR0030	Brass elbow, 3/4”, M-F
IZAVBR0040	Brass elbow, 3/4”, F-F
IZAVBR0110	Copper elbow for brazing 7/8 ”
IZAVBR0122	Copper elbow for brazing 1.3/8 ”

4.10
Filters

IMASNE0010	Anti-scaling protection filter
IMASNE0020	Water softener refill
IMASNE0030	Filter 1/2″
IMASNE0050	Brass filter 11/4″

4.11
Expansion Tanks

IXPTNK0005	Expansion tank 5 L
IXPTNK0008	Expansion tank 8 L
IXPTNK0012	Expansion tank 12 L
IXPTNK0018	Expansion tank 18 L

Worldwide Solutions

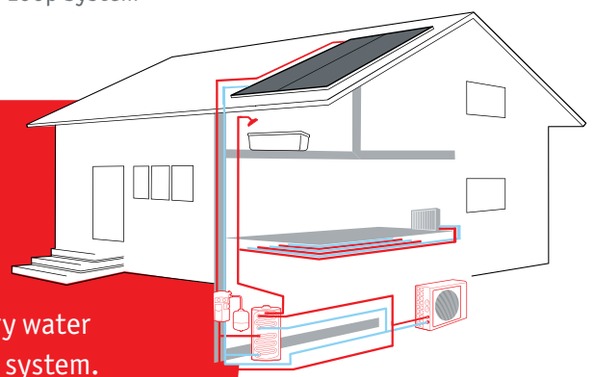

[1]


[2]


[3]


[4]

[1] **Chromagen Australia** | Forced Circulation Open-Loop System
[2] **Solnik Canada** | Forced Circulation Closed-Loop System
[3] **Clean Energy Solutions USA** | Forced Circulation Closed-Loop System
[4] **Germany** | Forced Circulation Closed-Loop System



Private Homes

Combination of solar sanitary water heating and radiant heating system.

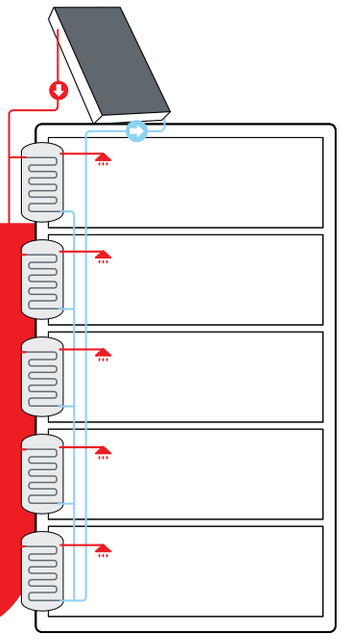

[1]


[2]


[3]


[4]

[1] **Balton Uganda** | Apartment Complex
[2] **Isratec Guatemala** | Apartment Complex
[3] **Chromagen Spain** | Apartment Complex
[4] **Isener Chile** | Apartment Complex

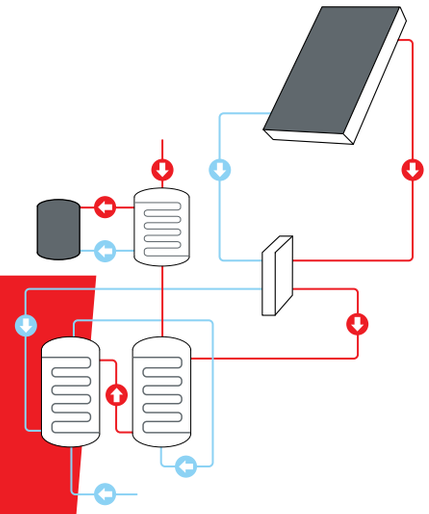


Apartment Buildings

Solar Solutions, individual water heating units for use in apartments, and Central Heating Solutions for water heating of entire buildings through collector fields.




[1] **Chromagen Israel** | Hotel
[2] **Chromagen Locking Center Tanzania** | Hotel
[3] **Chromagen Italy** | Hotel
[4] **Georgia** | Hotel

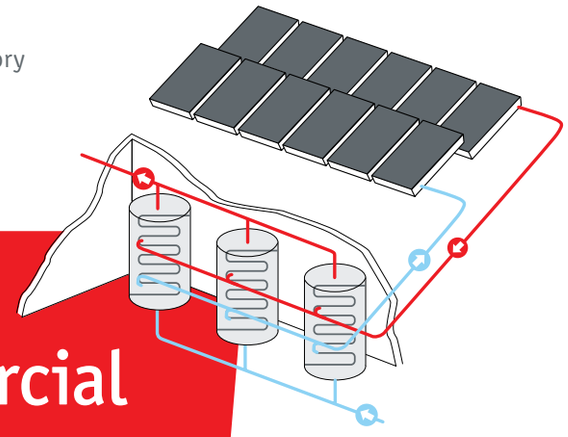


Hotels

Integrating solar water heating solutions with existing diesel heating systems for entire hotel usage.




[1] **Vispack Thailand** | Chocolate Factory
[2] **Portugal** | University Student Dormitory
[3] **Isener Chile** | Hospital
[4] **Chromagen Spain** | Car Wash



Industrial and Commercial

Solar water heating solutions for industrial buildings and commercial projects to provide continuous hot water and pre-heating water for industrial processes.

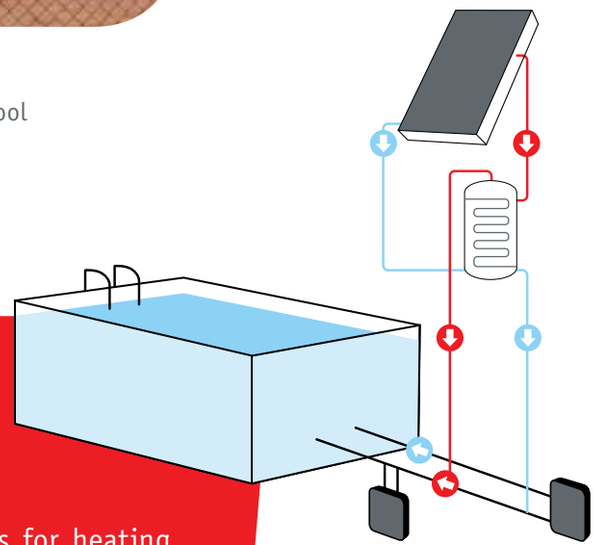

[1]


[2]


[3]

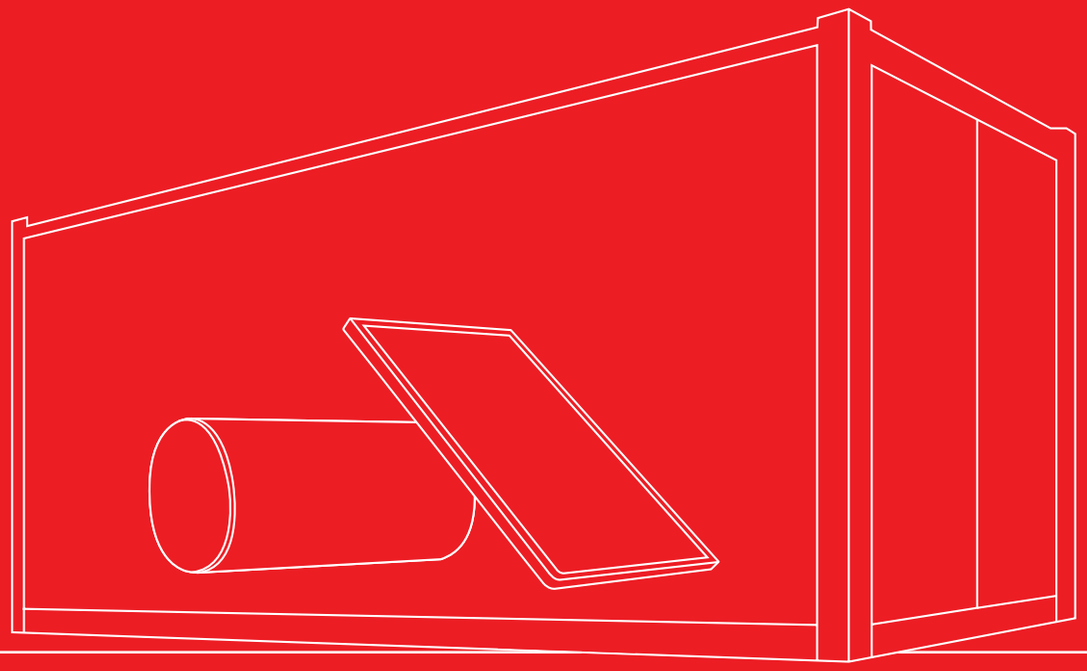

[4]

[1] **Chromagen Spain** | Private Home Pool
[2] **Chromagen Spain** | Spa
[3] **Isener Chile** | Sports Club
[4] **Cuex Cuba** | Hotel Pool



Pools and Spas

Solar hot water solutions for heating swimming pools, Jacuzzis, spas and showers in sports centers, country clubs, hotels, private homes and more.



Miscellaneous

6.1
Container Load Options

Closed-Loop Systems – 20 ft. container

COL./ Tank	None	Y	K	D	E	F	2 x D	2 x E	2 x F
None		196	146	127	112	92			
100	88	64							
120	60		44	40	40				
150	60			40	40	36			
200	39			33	33	33	26		
300	35						22	22	20

Closed-Loop Systems – 40 ft. container

COL./ Tank	None	Y	K	D	E	F	2 x D	2 x E	2 x F
None		414	336	282	257	222			
100	192	144							
120	132		108	100	100				
150	120			96	96	88			
200	84			84	70	60	56		
300	75						50	50	48

Open-Loop Systems – 20 ft. container

COL./ Tank	None	Y	K	D	E	F	2 x D	2 x E	2 x F
None		196	146	127	112	92			
120	80	56	56	48	48				
150	80			48	48	40			
200	56			40	40	36	28		
300	35						22	22	21

Open-Loop Systems – 40 ft. container

COL./ Tank	None	Y	K	D	E	F	2 x D	2 x E	2 x F
None		414	336	282	257	222			
120	200	132	120	110	110				
150	160			108	105	96			
200	116			82	80	76	58		
300	78						52	52	46

- Quantities shown in the tables refer only to the calculation of tanks and collectors

6.2
Index: Glossary of Terms

Abbreviation	Corrective Action
A	Apperture (Net)
ALUM	Aluminum
ATM	Atmosphere
COL.	Collector
cm	Centimeter
CN	Catalog Number
D.J.	Double-Jacket
DIAG	Diagonal
DIAM.	Diameter
Exp	Expansion
F	Female
FC	Forced Circulation Systems
G	Gross
GL	Gallon
hr	Hour
KG	Kilograms
L	Liter
M	Male
mm	Millimeter
N	Narrow
P	Page
PRESS	Pressure
QTY.	Quantity
TEMP	Temperature
TLSCPc	Telescopic
TS	Thermosiphone Systems
Vol.	Volume
W	Wide

6.3
Warranty

[a] During the Warranty Period, Chromagen shall, at Chromagen's option, repair, replace or give credit for any component that is returned to an authorized service center and that is found by Chromagen to contain defects in material or workmanship and returned by distributor to Chromagen; and the extent of Chromagen liability shall not exceed the cost of repairing or replacing the defective item during the warranty period.

[b] This Warranty does not cover defects or damages resulting from accident, inappropriate physical or operational environment, failure of electrical power, freezing, corrosion, scaling due to hard water, improper installation, maintenance, service, repair, transportation, storage, modification, operation, use, negligence or fault by any party other than Chromagen.

[c] This Warranty shall run solely to and in favor of the distributor; and the distributor shall be responsible to its customers for all warranties that it makes.

[d] This Warranty is the sole warranty given by Chromagen in respect of the products.

[e] In no event shall Chromagen be liable for special, incidental, or consequential damages, or for damages arising out of the inability to utilize products for any purpose whatsoever.

[f] For warranty period information, please contact Chromagens's distributor in your area.