

# Product Catalog





## Introduction

# Chromagen Hot Water Solutions

Chromagen is a pioneer in the production of hot water solutions since 1962, with vast experience and a solid presence in over 40 countries around the world, and continuously expanding. Chromagen is positioned within the top 10 largest flat plate collectors manufacturers world-wide.

At Chromagen, we are proud of our high-quality hot water solutions and long-lasting products, using the highest raw material quality, complying with all international standards. Chromagen's projects department provides complete hot water solution that is tailor made applications for residential and commercial projects.

### **Hot water projects and solutions**

Chromagen leads hot water projects world-wide, including multi-story apartment buildings and hundreds of hotels, hospitals, industrial plants, motor camps, sport clubs, spa and more.

Chromagen's engineering department provides complete hot water heating solutions that are individually handled and planned. This department analyzes the project data, drafts preliminary design and ROI calculations, quotations, detailed engineering planning, installation, supervision and after-sale technical support.

### **Quality strategy**

Chromagen meets the highest international standards and superb quality control. Our management scheme complies with ISO 9001 and IQNet standards. Chromagen systems and components conform with the European standards EN12975 for solar collectors & EN 12976 for solar thermal systems, International standards ISO 9806, Israeli standard, SRCC USA, Environmental standard ISO 14001, Health & Safety standard OHSaS 18001, Australian, European standards and more.





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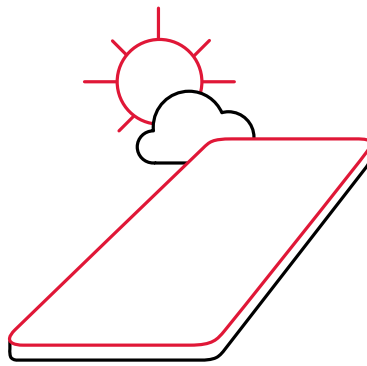
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# 1

## Flat-Plate Collectors



# 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

## Chromagen Collectors Specifications

| Collector Size                  | Y    |     | K    |     | D    |     |
|---------------------------------|------|-----|------|-----|------|-----|
| Risers diameter (mm)            | 8    | 16  | 8    | 16  | 8    | 16  |
| Gross area (m <sup>2</sup> )    | 1.41 |     | 1.65 |     | 2.02 |     |
| Aperture area (m <sup>2</sup> ) | 1.25 |     | 1.52 |     | 1.85 |     |
| Length (cm)                     | 181  |     | 181  |     | 189  |     |
| Width (cm)                      | 78   |     | 91   |     | 107  |     |
| Weight (Kg)                     | 21   | 23  | 26   | 28  | 30   | 33  |
| Fluid capacity (L)              | 0.8  | 2.2 | 1    | 2.7 | 1.2  | 3.2 |
| Thickness (cm)                  | 9    |     |      |     |      |     |

| Collector Size                  | E    |     | F    |     | Z    |     |
|---------------------------------|------|-----|------|-----|------|-----|
| Risers diameter (mm)            | 8    | 16  | 8    | 16  | 8    | 16  |
| Gross area (m <sup>2</sup> )    | 2.34 |     | 2.77 |     | 3.12 |     |
| Aperture area (m <sup>2</sup> ) | 2.15 |     | 2.56 |     | 2.93 |     |
| Length (cm)                     | 218  |     | 218  |     | 246  |     |
| Width (cm)                      | 107  |     | 127  |     | 127  |     |
| Weight (Kg)                     | 34   | 37  | 39   | 43  | 46   | 54  |
| Fluid capacity (L)              | 1.3  | 3.6 | 1.5  | 4.1 | 2.1  | 6.8 |
| Thickness (cm)                  | 9    |     |      |     |      |     |

- Collector's test pressure: 12 bar
- Maximum collector operation pressure: 8 bar

## Pro Collectors

| Absorber coating | Frame type       | Size | Designation | CN           |
|------------------|------------------|------|-------------|--------------|
| Selective paint  | Aluminum         | D    | QA-D        | CDBXCXXQ07TE |
|                  |                  | E    | QA-E        | CEBXCXXQ07TE |
|                  |                  | F    | QA-F        | CFBXCXXQ08TE |
|                  | Galvanized Steel | Y    | QR-Y        | CYRXCXXQ05TE |
|                  |                  | K    | QR-K        | CKRXCXXQ06TE |
|                  |                  | D    | QR-D        | CDRXCXXQ07TE |
|                  |                  | E    | QR-E        | CERXCXXQ07TE |
|                  |                  | F    | QR-F        | CFRXCXXQ08TE |

## Comfort Collectors

| Absorber coating | Frame type       | Size | Designation | CN           |
|------------------|------------------|------|-------------|--------------|
| Sputtering       | Aluminum         | D    | PA-D        | CDBXCXXP07TE |
|                  |                  | E    | PA-E        | CEBXCXXP07TE |
|                  |                  | F    | PA-F        | CFBXCXXP08TE |
|                  | Galvanized Steel | K    | PR-K        | CKRXCXXP06TE |
|                  |                  | D    | PR-D        | CDRXCXXP07TE |
|                  |                  | E    | PR-E        | CERXCXXP07TE |
|                  |                  | F    | PR-F        | CFRXCXXP08TE |
|                  |                  | Z    | PR-Z        | ZFRXCXXP14TE |

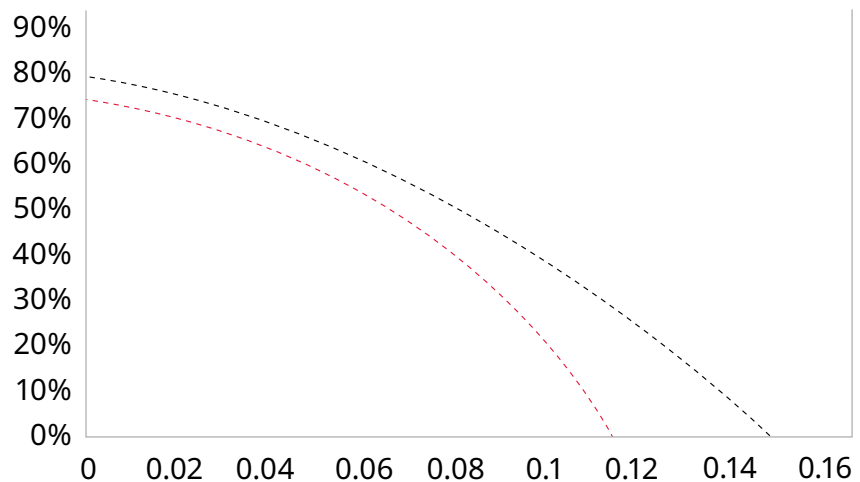
- Due to on-going development, specifications are subject to change without notice
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## Additional Specifications

|                    |                                                                              |
|--------------------|------------------------------------------------------------------------------|
| 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<br>(for highly selective coatings only) |
| Back Plate         | Black polypropylene sheet                                                    |
| Aluminum Foil      | Attached to the polyurethane foam                                            |

- Recommended flow rate: 20-50L/h per m<sup>2</sup>

Collector Efficiency Curve



$$X = (T_m - T_a)/G$$

$T_m$  = Water temp:  $(T_{out} + T_{in})/2$

$T_a$  = Ambient temp

$G$  = Instantaneous solar radiation

---- Sputtering

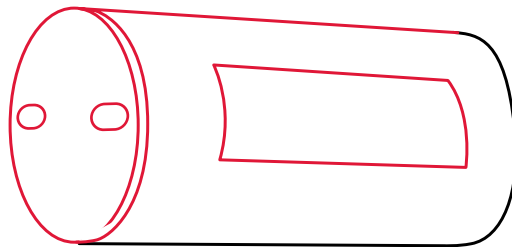
---- Selective paint





# 2

## Tanks



# Tanks

## Introduction



Chromagen produces tanks designed to store hot water for residential and commercial use.

The inner enamel 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.

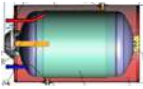
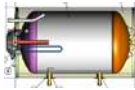
Chromagen's produces horizontal and vertical water tanks with or without heat exchangers, that may be installed in thermosiphon or forced circulation systems. All tanks are available with an electric back up.

### **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

Available in different frame colors

# Tanks Specifications

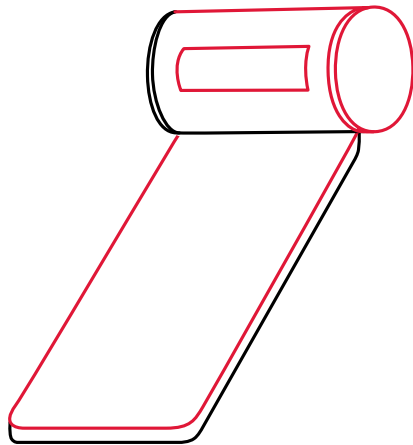
| Type                     | Drawing                                                                             | Capacity (Liters) | Dimensions HxD (mm) | Catalog Number | Weight (KG) | Electric Power (KW) |
|--------------------------|-------------------------------------------------------------------------------------|-------------------|---------------------|----------------|-------------|---------------------|
| Solar Vertical           |    | 80                | 650X560             | SV80WR         | 37          | 2.5/None            |
|                          |                                                                                     | 120               | 860X560             | SV120WR        | 46          |                     |
|                          |                                                                                     | 150               | 1020x560            | SV150WR        | 53          |                     |
|                          |                                                                                     | 200               | 1270x560            | SV200WR        | 65          |                     |
|                          |                                                                                     | 300               | 1442x650            | SV300NR        | 91          | 2.5/None            |
| Solar Horizontal         |    | 120               | 860x560             | SH120WR        | 46          |                     |
|                          |                                                                                     | 120               | 1250x477            | SH120WR        | 50          |                     |
|                          |                                                                                     | 150               | 1020x560            | SH150WR        | 53          |                     |
|                          |                                                                                     | 200               | 1270x560            | SH200WR        | 65          |                     |
|                          |                                                                                     | 300               | 1442x650            | SH300NR        | 91          | 2.5/None            |
| Double Jacket Horizontal |    | 120               | 1250x477            | EH120NM        | 74          | 2/2.5/ None         |
|                          |                                                                                     | 150               | 1020x585            | EH150WM        | 75          |                     |
|                          |                                                                                     | 200               | 1270x585            | EH200WM        | 93          |                     |
|                          |                                                                                     | 300               | 1442x690            | EH300NM        | 133         | 2.5/None            |
| Spiral Vertical          |    | 120               | 860x585             | EV120WS        | 74          |                     |
|                          |                                                                                     | 120               | 1250x477            | EV120NS        | 78          |                     |
|                          |                                                                                     | 150               | 1020x560            | EV150WS        | 75          | 2.5/None            |
|                          |                                                                                     | 150               | 1480X477            | EV150NS        | 73          |                     |
|                          |                                                                                     | 200               | 1280x560            | EV200WS        | 90          |                     |
|                          |                                                                                     | 300               | 1442x650            | EV300NS        | 133         | 2.5/None            |
| Electric                 |  | 30                | 670x360             | EV030NR        | 23          | 2/2.5               |
|                          |                                                                                     | 45                | 850x360             | EV045NR        | 29          |                     |
|                          |                                                                                     | 60                | 740X477             | ED060NR        | 31          |                     |
|                          |                                                                                     | 80                | 930X477             | ED080NR        | 40          |                     |
|                          |                                                                                     | 120               | 860X565             | ED120WR        | 46          |                     |
|                          |                                                                                     | 120               | 1260X477            | ED120NR        | 50          |                     |
|                          |                                                                                     | 150               | 1020X585            | ED150NR        | 65          |                     |
|                          |                                                                                     | 200               | 1280x585            | ED200WR        | 91          |                     |

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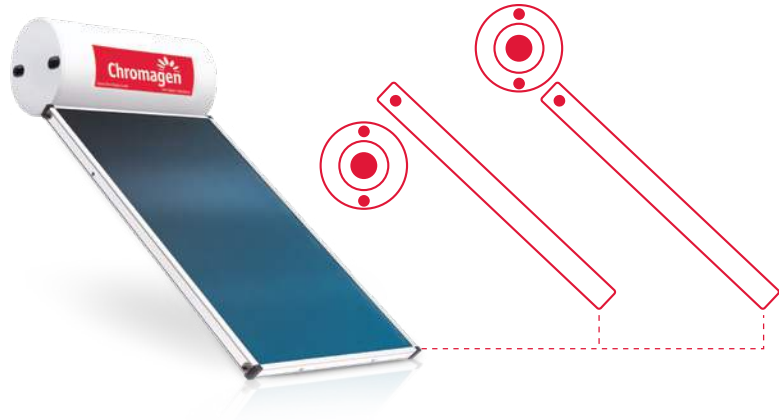


# 3

## Thermosiphon Systems



## Thermosiphon Systems - 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 upper third part of the collector. The low profile configuration provides a more aesthetic installation.

## Pro Thermosiphon System - Open Loop, High/ Low Profile

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

\* Collector Area = Gross / Aperture (Net)

## Comfort Thermosiphon System - Open Loop, High/ Low Profile

| Users | Vol.(L) | Tank    | Collector | Collector Area<br>(G / A) | Connecting Kit |
|-------|---------|---------|-----------|---------------------------|----------------|
| x3-4  | 120     | SH120NM | PA-K      | 1.65/ 1.52                | IKITOL0010     |
| x3-4  | 120     | SH120NM | PA-D      | 2.02/ 1.85                | IKITOL0010     |
| x4-5  | 150     | SH150WM | PA-D      | 2.02/ 1.85                | IKITOL0010     |
| x4-5  | 150     | SH150WM | PA-E      | 2.34/ 2.15                | IKITOL0010     |
| x5-6  | 200     | SH200WM | PA-F      | 2.77/ 2.56                | IKITOL0010     |
| x6+   | 300     | SH300NM | 2x PA-D   | 4.04 / 3.7                | IKITOL0020     |
| x6+   | 300     | SH300NM | 2x PA-E   | 4.68 / 4.3                | IKITOL0020     |

## Thermosiphon Systems - Closed Loop, High Profile

### 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.

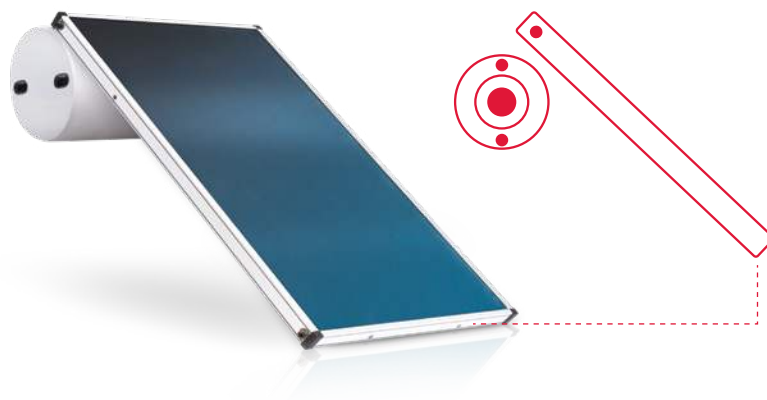
### Pro Thermosiphon System - Closed Loop, High Profile

| Users | Vol.(L) | Tank    | Collector | Collector Area<br>(G / A) | Connecting Kit |
|-------|---------|---------|-----------|---------------------------|----------------|
| x3-4  | 120     | EH120WM | QR-K      | 1.65 / 1.52               | IKITCL0370     |
| x3-4  | 120     | EH120WM | QR-D      | 2.02 / 1.85               | IKITCL0370     |
| x4-5  | 150     | EH150WM | QR-D      | 2.02 / 1.85               | IKITCL0370     |
| x4-5  | 150     | EH150WM | QR-E      | 2.34 / 2.15               | IKITCL0370     |
| x5-6  | 200     | EH200WM | QR-F      | 2.77 / 2.56               | IKITCL0370     |
| x6+   | 300     | EH300NM | 2x QR-D   | 4.04 / 3.7                | IKITCL0380     |
| x6+   | 300     | EH300NM | 2x QR-E   | 4.68 / 4.3                | IKITCL0380     |

## Comfort Thermosiphon System - Closed Loop, High Profile

| Users | Vol.(L) | Tank    | Collector | Collector Area<br>(G / A) | Connecting Kit |
|-------|---------|---------|-----------|---------------------------|----------------|
| x3-4  | 120     | EH120NM | PA-K      | 1.65 / 1.52               | IKITCL0370     |
| x3-4  | 120     | EH120WM | PA-D      | 2.02 / 1.85               | IKITCL0370     |
| x4-5  | 150     | EH150WM | PA-D      | 2.02 / 1.85               | IKITCL0370     |
| x4-5  | 150     | EH150WM | PA-E      | 2.34 / 2.15               | IKITCL0370     |
| x5-6  | 200     | EH200WM | PA-F      | 2.77 / 2.56               | IKITCL0370     |
| x6+   | 300     | EH300NM | 2x PA-D   | 4.04 / 3.7                | IKITCL0380     |
| x6+   | 300     | EH300NM | 2x PA-E   | 4.68 / 4.3                | IKITCL0380     |

## Thermosiphon Systems - Closed Loop, Low Profile



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

### Pro Thermosiphon System - Closed Loop, Low Profile

| Users | Vol. (L) | Tank    | Collector | Collector Area (G/A) | Connecting Kit | Exp. Tank |
|-------|----------|---------|-----------|----------------------|----------------|-----------|
| x3-4  | 120      | EH120NM | QR-K      | 1.65 / 1.52          | IKITCL0200     | 5 L       |
| x3-4  | 120      | EH120NM | QR-D      | 2.02 / 1.85          | IKITCL0200     | 5 L       |
| x4-5  | 150      | EH150WM | QR-D      | 2.02 / 1.85          | IKITCL0200     | 5 L       |
| x4-5  | 150      | EH150WM | QR-E      | 2.34 / 2.15          | IKITCL0200     | 5 L       |
| x5-6  | 200      | EH200WM | QR-F      | 2.77 / 2.56          | IKITCL0200     | 5 L       |
| x6+   | 300      | EH300NM | 2x QR-D   | 4.04 / 3.7           | IKITCL0190     | 8 L       |
| x6+   | 300      | EH300NM | 2x QR-E   | 4.68 / 4.3           | IKITCL0190     | 8 L       |

### Comfort Thermosiphon System - Closed Loop, Low Profile

| Users | Vol. (L) | Tank    | Collector | Collector Area (G/A) | Connecting Kit | Exp. Tank |
|-------|----------|---------|-----------|----------------------|----------------|-----------|
| x3-4  | 120      | EH120NM | PA-K      | 1.65 / 1.52          | IKITCL0200     | 5 L       |
| x3-4  | 120      | EH120NM | PA-D      | 2.02 / 1.85          | IKITCL0200     | 5 L       |
| x4-5  | 150      | EH150WM | PA-D      | 2.02 / 1.85          | IKITCL0200     | 5 L       |
| x4-5  | 150      | EH150WM | PA-E      | 2.34 / 2.15          | IKITCL0200     | 5 L       |
| x5-6  | 200      | EH200WM | PA-F      | 2.77 / 2.56          | IKITCL0200     | 5 L       |
| x6+   | 300      | EH300NM | 2x PA-D   | 4.04 / 3.7           | IKITCL0190     | 8 L       |
| x6+   | 300      | EH300NM | 2x PA-E   | 4.68 / 4.3           | IKITCL0190     | 8 L       |

\* Collector Area = Gross / Aperture (Net)

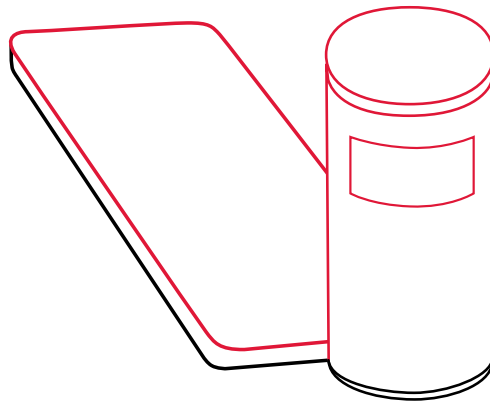
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# 4

## Forced Circulation Systems



## 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, a connecting kit and an expansion tank.

### Pro Forced Circulation Systems

| Users | Vol. (L) | Tank    | Spiral | Collector | Collector Area* (G/A) | Connecting Kit (inc. pump) | Exp. Tank |
|-------|----------|---------|--------|-----------|-----------------------|----------------------------|-----------|
| x3-4  | 120      | EV120WS | 1      | QR-K      | 1.65 / 1.52           | IKITCL0181                 | 5 L       |
| x3-4  | 120      | EV120WS | 1      | QR-D      | 2.02 / 1.85           | IKITCL0181                 | 5 L       |
| x4-5  | 150      | EV150WS | 1      | QR-D      | 2.02 / 1.85           | IKITCL0181                 | 5 L       |
| x4-5  | 150      | EV150WS | 1      | QR-E      | 2.34 / 2.15           | IKITCL0181                 | 5 L       |
| x5-6  | 200      | EV200WS | 1      | QR-F      | 2.77 / 2.56           | IKITCL0181                 | 5 L       |
| x6+   | 300      | EV300NS | 1      | 2x QR-D   | 4.04 / 3.7            | IKITCL0180                 | 8 L       |
| x6+   | 300      | EV300NS | 1      | 2x QR-E   | 4.68 / 4.3            | IKITCL0180                 | 8 L       |

\* Collector Area = Gross / Aperture (Net)

## Comfort Forced Circulation Systems

| Users | Vol.<br>(L) | Tank    | Spiral | Collector | Collector<br>Area* (G/A) | Connecting Kit<br>(inc. pump) | Exp.<br>Tank |
|-------|-------------|---------|--------|-----------|--------------------------|-------------------------------|--------------|
| x3+   | 120         | EV120WS | 1      | PA-K      | 1.65 / 1.52              | IKITCL0181                    | 5 L          |
| x3+   | 120         | EV120WS | 1      | PA-D      | 2.02 / 1.85              | IKITCL0181                    | 5 L          |
| x4-5  | 150         | EV150WS | 1      | PA-D      | 2.02 / 1.85              | IKITCL0181                    | 5 L          |
| x4-5  | 150         | EV150WS | 1      | PA-E      | 2.34 / 2.15              | IKITCL0181                    | 5 L          |
| x5-6  | 200         | EV200WS | 1      | PA-F      | 2.77 / 2.56              | IKITCL0181                    | 5 L          |
| x6+   | 300         | EV300NS | 1      | 2xPA-D    | 4.04 / 3.7               | IKITCL0180                    | 8 L          |
| x6+   | 300         | EV300NS | 1      | 2xPA-E    | 4.68 / 4.3               | IKITCL0180                    | 8 L          |

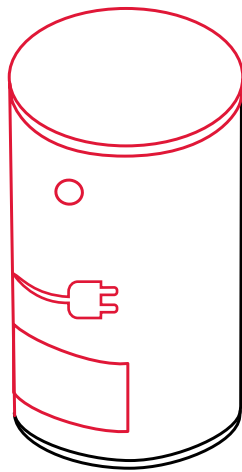
\* Collector Area = Gross / Aperture (Net)

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



# 5

## Electric Tanks



## Electric Tanks Introduction



Chromagen manufactures electric tanks designed to store hot water for residential use. The inner enamel coating is applied by vacuum technology and produced with superior quality. The polyurethane tanks insulations assure minimal heat losses.

Chromagen's produces residential vertical water tanks with or without heat exchangers. All tanks are available with an electric back up.

- Water storage tank made of cold rolled steel. The thermal tank is shaped in special patterns by robot welding process, thus achieving:
  - A) Perfect enamel application
  - B) Avoid the deformation of the internal tank as well as the enamel erosion in case of high pressure.
- Anti-corrosion internal layer of enamel powder baked at 860°C, according to DIN 4753 standard, for protection against electrolysis. The enameling is done in our high-tech industrial facilities. The water tanks are checked individually upon exit from the enameling unit, assuring the top quality of the enamel.
- Hot water outlet (consumption): stainless steel ½" BSP male threaded pipe end with plastic adapter.
- Cold water inlet (supply): special shaped ½" BSP male threaded divider, for even water stratum.
- 10 bar non-return valve for safe and controlled hydraulic pressure relief.

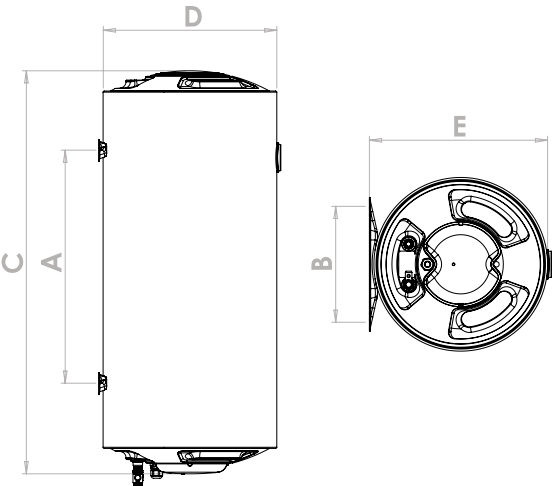
- Steel pressed neck for the heating element without welding, with internal incision for easy and quick heating element installation. No need for special tools (locknuts). Extraction and re-installation of the heating element in less than one minute.
- Full bodied gasket for sealing the heating element from the thermal tank, thus protecting the heating element flange from electrolysis and corrosion.
- Heating element rated according to the country of destination local regulations. It can be pulled away from the flange.
- Heat exchanger with 3/4" BSP male threaded pipe ends, made of steel pipe. Large exchange surface for use of the heating produced by central heating systems during the winter (optional).
- Cathode protection by magnesium anode 22x300 mm < 60 lt and 22x500 mm > 80 lt for effective internal protection against corrosion and mineral deposits caused by electrolytic reactions.
- Internal adjustable thermostat with bipolar protection and auxiliary fuse.
- Protective cover for the electrical section designed for easy access. It locks with just one screw. Ventilation holes specially designed for safe water vapor aspiration.
- Sealed entry of the heating element connection cable, with a rubber collar on the cable.
- Operation indication light.
- Thermal insulation: ecological high-density (40Kg/m<sup>3</sup>) expanded polyurethane ensures minimum heat loss, maintaining the hot water temperature.
- Insulation thermal conductivity:  $\lambda=0.023$  W/m K (DIN 56612, measured at 10°C) (DIN EN ISO 845, DIN 53 421, ISO 4590, DIN ISO 2796).
- External housing with electrostatically robotized painted steel for protection against corrosion.
- Side plastic caps
- Thermometer
- Mounting: vertical, horizontal or floor.
- Packed in carton boxes for safe and easy storage - transportation.
- CE Marking: compliance with European health, safety & environmental protection legislation
- Energy Labeled (ERP): D C

# Electric Tanks Specifications

| Electric Water Heaters | Real Capacity | Weight | Electroboiler With Heat Exchanger | Heat Exchanger Surface | Heat Exchanger Power (80°C) |
|------------------------|---------------|--------|-----------------------------------|------------------------|-----------------------------|
| 8 L                    | 6.9 L         | 6 Kg   | -                                 | -                      | -                           |
| 20 L                   | 17.6 L        | 11 Kg  | -                                 | -                      | -                           |
| 40 L                   | 36.4 L        | 15 Kg  | -                                 | -                      | -                           |
| 50 L                   | 45.6 L        | 18 Kg  | -                                 | -                      | -                           |
| 60 L                   | 55.6 L        | 19 Kg  | 60 L                              | 0.25m2                 | 9.3 Kw                      |
| 80 L                   | 74.4 L        | 20 Kg  | 80 L                              | 0.25m2                 | 9.3 Kw                      |
| 100 L                  | 90.9 L        | 25 Kg  | 100 L                             | 0.25m2                 | 9.3 Kw                      |
| 120 L                  | 107.9 L       | 30 Kg  | 120 L                             | 0.25m2                 | 9.3 Kw                      |
| 150 L                  | 149.2 L       | 49 Kg  | 150 L                             | 0.50m <sup>2</sup>     | 14.8 Kw                     |
| 200 L                  | 190.1 L       | 50 Kg  | 200 L                             | 0.50m <sup>2</sup>     | 14.8 Kw                     |

| Electric Water Heaters | Continuous Flow Rate (ΔT 35-80°C) | Heating Time (ΔT 45-80°C) | A   | B  | C   | D  | E  |
|------------------------|-----------------------------------|---------------------------|-----|----|-----|----|----|
| 8 L                    | -                                 | -                         | 23  | 19 | 43  | 23 | 24 |
| 20 L                   | -                                 | -                         | 25  | 26 | 51  | 32 | 33 |
| 40 L                   | -                                 | -                         | 18  | 26 | 56  | 43 | 44 |
| 50 L                   | -                                 | -                         | 18  | 26 | 61  | 43 | 44 |
| 60 L                   | 228 L/hr                          | 11 min                    | 27  | 26 | 69  | 43 | 44 |
| 80 L                   | 228 L/hr                          | 17 min                    | 43  | 26 | 84  | 43 | 44 |
| 100 L                  | 228 L/hr                          | 28 min                    | 58  | 26 | 99  | 43 | 44 |
| 120 L                  | 228 L/hr                          | 36 min                    | 73  | 26 | 119 | 43 | 44 |
| 150 L                  | 363 L/hr                          | 38 min                    | 105 | 26 | 145 | 43 | 44 |
| 200 L                  | 363 L/hr                          | 45 min                    | 76  | 26 | 133 | 52 | 54 |

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

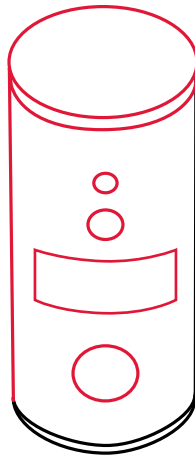






# 6

## Commercial Tanks



## Commercial Tanks Introduction



Chromagen produces commercial tanks designed to store hot water for commercial use. The inner enamel coating is applied by vacuum technology and produced with superior quality. The tanks insulations assure minimal heat losses from the ambient air.

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

## Commercial Tanks Specifications

### Forced Circulation Tanks – No Heat Exchanger

| Tank Size   | 1,000       | 1,500       | 2,000       |
|-------------|-------------|-------------|-------------|
| Weight (Kg) | 302         | 350         | 480         |
| D&H         | 2,062x1,010 | 2,250x1,120 | 2,500x1,260 |

### Forced Circulation Tanks - Single Heat Exchanger

| Tank Size   | 1,000       | 1,500       | 2,000       |
|-------------|-------------|-------------|-------------|
| Weight (Kg) | 340         | 460         | 550         |
| D&H         | 2,062x1,006 | 2,250x1,116 | 2,500x1,272 |

### Forced Circulation Tanks - Double Heat Exchanger

| Tank Size   | 1,000       | 1,500       | 2,000       |
|-------------|-------------|-------------|-------------|
| Weight (Kg) | 360         | 450         | 570         |
| D&H         | 2,065x1,010 | 2,247x1,116 | 2,500x1,272 |

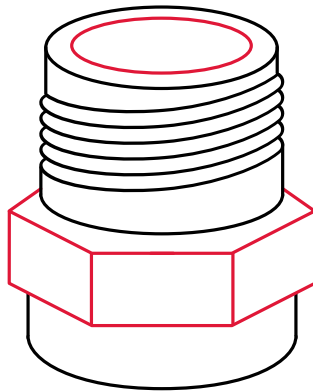
- Due to on-going development, specifications are subject to change without notice.
- The above represents the average dimensions and weights of produced products.
- 3000 L, 4000 L and 5000 L tanks are available.





7

## Accessories



## 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.

| Catalog no. | Description                                                |
|-------------|------------------------------------------------------------|
| IKITOL0010  | Connecting kit for O/L system - 1 collector + copper pipe  |
| IKITOL0020  | Connecting kit for O/L system - 2 collectors + copper pipe |
| IKITOL0014  | Connecting Kit for O/L system 1 collector, no piping       |
| IKITOL0024  | Connecting Kit for O/L system 2 collectors, no piping      |
| IKITCL0370  | Connecting Kit for C/L 150/200 L TS system                 |
| IKITCL0380  | Connecting Kit for C/L 300 L TS system                     |
| IKITCL0181  | Connecting Kit for C/L 150/200L FC system for 1 collector  |
| IKITCL0180  | Connecting Kit for C/L 300L FC system for 2 collectors     |

## 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.

| Catalog no. | Description                |
|-------------|----------------------------|
| IPMPGRN021  | Circulating pump UPS 25-20 |
| IPMPGRN030  | Circulating pump UPS 25-65 |
| IPMPGRN031  | Circulating pump UPS 25-6  |
| IPMPGRN041  | Circulating pump UPS 32-80 |
| IPMPWI3010  | Circulating pump 30/10     |



## 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.

| Catalog no. | Description                                               |
|-------------|-----------------------------------------------------------|
| ITMDIF0120  | Differential Thermostat                                   |
| ITMDIF0152  | Differential Thermostat for individual Forced Circulation |

## Electric Elements

Chromagen tanks are supplied with an electric back up. An electric element inside the water tank is activated via thermostatic control.

| Catalog no. | Description                                     |
|-------------|-------------------------------------------------|
| PGUCBLM021  | Electric heating element 2300 W, 850 mm         |
| PGUCBLM030  | Electric heating element, 2500 W, bent          |
| PGUCBLM031  | Electric heating element , 2500 W ,bent, 357 mm |
| PGUCBLY030  | Electric heating element, 1500 W, straight      |
| PGUCBLY040  | Electric heating element, 2000 W, straight      |
| PTRM036031  | Thermostat 150 L – 200 L – 300 L                |
| PTRM036050  | Thermostat 36 cm 105^                           |
| PTRM036052  | Thermostat 36 cm                                |
| PTRM045010  | Thermostat, 45 cm yellow                        |
| PTRM045011  | Thermostat 45 cm                                |



## Valves

| Catalog no. | Description                                     |
|-------------|-------------------------------------------------|
| IBRZFF0010  | Ball valve 1/2", female/female                  |
| IBRZMF0070  | Ball valve 1/2", male/female                    |
| IBRZMF0100  | Ball valve 1 1/4", male/female                  |
| IBRZMF0110  | Ball valve 1 1/2", male/female                  |
| IBRZMF0200  | Ball valve 1/2", male/female                    |
| IBRZOT2542  | Mixing valve 3/4"                               |
| ISHSAL0010  | Check valve 1/2" x 3/4", male/female            |
| ISHSAL0020  | Check valve linear, 1/2"                        |
| ISHSAL0030  | Check valve linear, 3/4"                        |
| ISHSAL0040  | Check valve linear, 1"                          |
| ISHSAL0050  | Check valve linear, 1 1/4"                      |
| ISHSAL0070  | Check valve 2"                                  |
| ISHSAL0080  | Thermosiphon valve 3/4" plug - low profile      |
| ISHSAL0081  | Thermosiphon valve 3/4 plug white - low profile |
| ISHSAL0100  | Thermosiphon valve 1/2" plug - low profile      |
| ISHSBI0010  | Pressure relief valve 3 Atm., 1/2"              |
| ISHSBI0015  | Pressure relief valve 3 Atm. to 160 deg         |
| ISHSBI0021  | Safety Relief valve 8 bar 312480                |
| ISHSBI0050  | Pressure relief valve 8 Atm., 1/2"              |
| ISHSBI0051  | Pressure valve 3 Atm.                           |
| ISHSBI0101  | Temperature 90°C 10 bar relief valve 3/4"x22 mm |
| ISHSBI0110  | Pressure Relief Valve 1"                        |



## Antifreeze Liquid

| Catalog no. | Description      |
|-------------|------------------|
| OCHEM00120  | Propylene Glicol |

## Magnesium Anodes

| Catalog no. | Description                   |
|-------------|-------------------------------|
| IKITAN0315  | Anode 315/33 mm + accessories |
| PANODA0250  | Anode 250/33 mm               |
| PANODA0315  | Anode 315/33 mm               |
| PANODA0350  | Anode 350/33 mm               |
| PANODA1000  | Anode 1050/26 mm              |
| PANODA1200  | Anode 1220/26 mm              |



## Pipe Fittings

| Catalog no. | Description                      |
|-------------|----------------------------------|
| IBSHBR0010  | Bushing 1/2" x 3/4", brass       |
| IBSHBR0060  | Bushing 1/2" x 3/8", brass       |
| IBSHBR0070  | Bushing 3/4" x 1", brass         |
| IBSHGV0010  | Bushing 3/4" x 1/2", galvanized  |
| IBSHGV0020  | Bushing 1 x 1/2", galvanized     |
| IBSHGV0030  | Bushing 1 1/4 x 1/2", galvanized |
| IBSHGV0050  | Bushing 2 x 1/2", galvanized     |
| IBSHGV0060  | Bushing 1 x 3/4", galvanized     |
| IBSHGV0070  | Bushing 1 1/4 x 3/4", galvanized |
| IBSHGV0080  | Bushing 3/4 x 1 1/2", galvanized |
| IBSHGV0100  | Bushing 1 x 1 1/4", galvanized   |
| IMAAST0080  | Bushing 3/4 male/female, 30 mm   |
| IMAAST0095  | Connector 3/4", 32 mm, hexagonal |
| IMAAST0120  | Adaptor 1/2 x 3/4 32 mm, round   |
| IMAHBO0025  | Connector 1/2" x 16 mm           |
| IMUFGB0080  | Coupling 2 x 1 1/2" galvanized   |
| IMUFGN0010  | Coupling, galvanized 1/2"        |
| IMUFGN0040  | Coupling, galvanized 1 1/4"      |
| IMUFGN0070  | Coupling, galvanized 3/4"        |
| IMUFGN0080  | Steel coupling 3/4               |



|            |                                            |
|------------|--------------------------------------------|
| IMUFGN0100 | Coupling 2" galvanized                     |
| INIPBR0010 | Nipple, brass 3/4", 3 cm                   |
| INIPBR0011 | Nipple, brass 3/4", 4 cm                   |
| INIPBR0015 | Double brass nipple "1                     |
| INIPBR0016 | Double brass nipple "1 1/4                 |
| INIPBR0020 | Nipple, brass, short 1/2"                  |
| INIPBR0030 | Nipple, brass 1/2" to 3/4", short          |
| INIPGV0020 | Nipple 1/2" x 100 mm galvanized            |
| INIPGV0041 | Nipple 3/4" male/male, galvanized          |
| INIPGV0051 | Nipple 1" male/male, galvanized            |
| INIPGV0060 | Nipple, galvanized 1 1/4"                  |
| INIPGV0061 | Nipple 1 1/4 x 8 cm                        |
| INIPGV0071 | Double nipple 1 1/2 "                      |
| INIPGV0090 | Nipple 3/4" x 300 mm Steel                 |
| INIPGV0133 | Nipple, brass 3/4", double, painted, black |
| INIPGV0160 | Nipple 1/2", galvanized, short             |
| IRECBR0010 | Brass union 3/4", for two collectors       |
| IRECGV0010 | Cone record 1"                             |
| IRECGV0020 | Cone record 3/4"                           |
| IRECGV0040 | Cone record 1 1/4" galvanized              |
| IRECGV0060 | Cone Record 2" galvanized                  |
| ITZLBR0020 | Cross 3/4", brass                          |
| IZAVBR0020 | Elbow 3/4", brass, male/male               |
| IZAVBR0030 | Elbow 3/4", brass, male/female             |
| IZAVGN0020 | Elbow 3/4", 90°, galvanized, male/male     |
| IZAVGN0030 | Elbow 1", galvanized                       |
| IZAVGN0040 | Elbow 1 1/4" galvanized                    |
| IZAVGN0050 | Elbow 1 1/2", galvanized                   |
| IZAVGS0030 | Street elbow 1", male/female               |

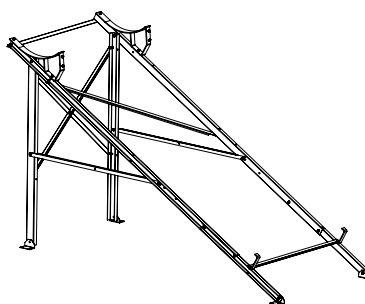
## Expansion Tanks

| Catalog no. | Description            |
|-------------|------------------------|
| IXPTNK0008  | Expansion tank 8 L     |
| IXPTNK0012  | Expansion tank 12 L    |
| IXPTNK0018  | Expansion tank 18 L    |
| IXPTNK0024  | Expansion tank 24/25 L |
| IXPTNK0050  | Expansion tank 50 L    |
| IXPTNK0105  | Expansion tank 105 L   |



## Stands

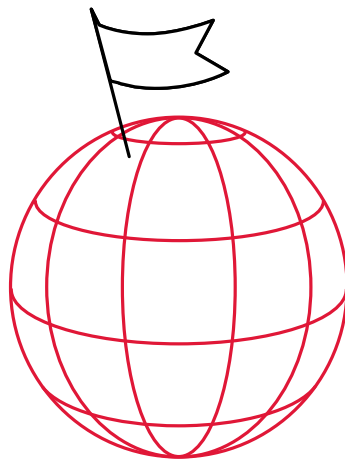
| System Tank Volume  | Collector | Stand CN   |
|---------------------|-----------|------------|
| 120L (Diameter 585) | K         | MAXFH1F20P |
| 150L (Diameter 585) | D/E       | MAXFH1F30P |
| 200L (Diameter 585) | F         | MAXFH1F45P |
| 300L (Diameter 690) | 2 X D/E   | MAXFH2E35P |





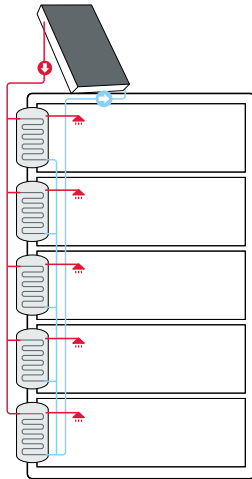
# 8

## Project Solutions



# Apartment Building Hot water Solutions

Combination of collector fields with individual water heating units for use in apartments, or a central heating system for water heating of an entire building.



**Jamaica** | Apartment Complex



**Nicaragua** | Complex



**Panama** | Apartment Complex

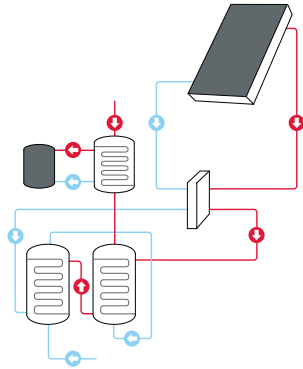


**Costa Rica** | Apartment Complex

# Hotels

## Hot water Solutions

Integrating solar water heating solutions with existing heating systems for usage in hotels.



**Rwanda** | Hotel



**Tanzania** | Hotel



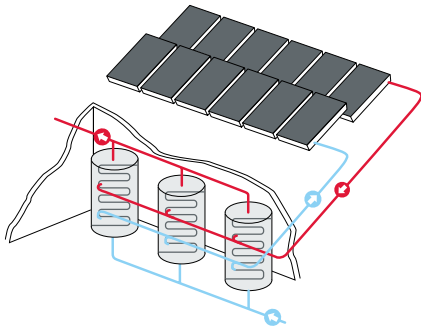
**Uganda** | Hotel



**Seychelles** | Hotel

## Industrial & Commercial Hot water Solutions

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



**Trinidad** | Dormitories



**Ecuador** | Oil Factory

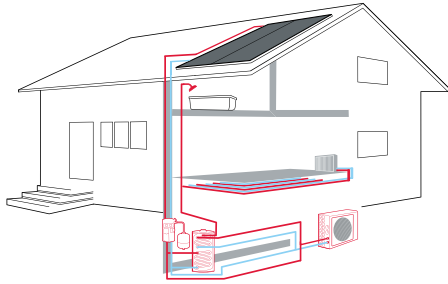


**Spain** | Food Factory



**Costa Rica** | Hotel

## Private Homes Hot water Solutions



Combination of solar sanitary water heating and radiant heating systems for all hot water needs in private homes.



**Belize** | Private Home



**Tanzania** | Private Home



**Australia** | Private Home



**Guyana** | Apartments



# 9

## Miscellaneous



## Container Load Options

### Closed-Loop Systems – 20' 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  | 27 | 26    |       |       |
| 300         | 35   |     |     |     |     |    | 22    | 22    | 20    |

### Closed-Loop Systems – 40' 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  | 62  | 56    |       |       |
| 300         | 72   |     |     |     |     |     | 46    | 50    | 48    |

### Open-Loop Systems – 20' 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  | 42  | 48  | 48  |    |       |       |       |
| 150         | 80   |     |     | 48  | 36  | 40 |       |       |       |
| 200         | 56   |     |     | 40  | 40  | 26 | 28    |       |       |
| 300         | 35   |     |     |     |     |    | 20    | 22    | 21    |

\*Collectors without carton

### Open-Loop Systems – 40' Container

| COL. / Tank | None | Y   | K   | D   | E   | F   | 2 x D | 2 x E | 2 x F |
|-------------|------|-----|-----|-----|-----|-----|-------|-------|-------|
| None        |      | 414 | 335 | 268 | 220 | 216 |       |       |       |
| 120         | 200  | 132 | 104 | 110 | 110 |     |       |       |       |
| 150         | 160  |     |     | 96  | 105 | 96  |       |       |       |
| 200         | 116  |     |     | 82  | 80  | 76  | 58    |       |       |
| 300         | 78   |     |     |     |     |     | 42    | 52    | 46    |

Quantities shown in the tables refer only to the calculation of tanks & collectors and are for indication only

## Warranty

- [a] During the Warranty Period, Chromagen shall, at Chromagen's policy, 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 Chromagen's distributor in your area, according to Chromagen International warranty.



 **ARISTON** | **Chromagen**  | **ATMOR** 

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