

supply

SOLAR PRICELIST

refrigerative



Free Energy
International

November
2010
www.rsl.ca

HELIODYNE HANDLING GUIDELINES



Outbound shipments can range from 1 collector to a full truck (240 - 4' x 6', 120 - 4' x 10'). Typical crating can be seen above, also showing header protection.

Freight Terms:

- RSL reserves the right to choose the freight carrier.
- At this time, our preferred freight carriers are (*this list may change*):
 - Van Kam
 - TST Overland
- A \$150 refundable crating deposit is added to each pallet of collectors for shipping.
- Up to 15 - 4' x 10' collectors and up to 20 - 4' x 6' collectors or 4' x 8' collectors can be shipped per pallet.
- RSL does not ship single 4' x 8' or 4' x 10' collectors.

Our hard cost on the material, header protectors and labor runs about \$150, and we do not look at this as a source of profit.

Our customers that are within 100 km do return pallets, and do receive credit. Customers outside of that distance may return pallets to us for credit pending arrival in good condition. All wooden materials, including header protectors must be returned to be reimbursed for the deposit.

Some customers have used our pallets to deliver collectors to jobsites, eliminating the need to produce their own collector handling solutions.

- Do NOT top-load other pallets on top of the collectors.
- Use fork extenders when lifting pallets from the narrow side.
- When handling collectors, they should NEVER be lifted by the headers. Hold from underneath only.
- Collectors have sharp edges. ALWAYS wear gloves while handling the collectors
- Do NOT lean the collectors on their side, putting weight on the header can damage the internals of the collector.

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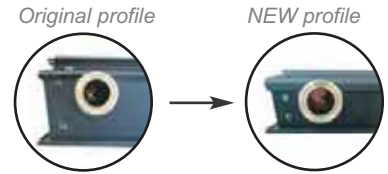
Pricing in this catalogue is subject to change.
Please contact your local RSL branch
to verify pricing.

NEW PRODUCTS

This year Heliodyne has updated some products and introduced some features to existing products. RSL has added products from Sanyo, FlexSure, Bradford White, and Free Energy International.

THE NEW STREAMLINED GOBI COLLECTOR

Applying state-of-the-art insulation material, Heliodyne has slimmed down the GOBI profile, improving its aesthetics and performance. (See page 10, Available Fall 2010)



THE HPAS FOR TANK-INTEGRATED HEAT EXCHANGERS

The Helio-Pass is designed to work with tank-integrated heat exchangers and serves as a closed loop heat-transfer appliance. (See page 16)



THE DELTA-T PRO LITE

The new simplified Pro controller makes performance monitoring on small residential even more affordable. (See page 20. Available Fall 2010)



THE HCOM APPLIANCE FOR POOLS

Designed with special salt/chlorine-resistant stainless steel heat exchangers. (See page 18)



MOBILE MONITORING APPLICATION

Get real-time system data while on the road with our monitoring application for Apple® iProducts.



SANYO PHOTOVOLTAICS

Sanyo has one of the highest efficiencies on the market today at 17%. These products will be complemented with SMA Inverters & Enphase Micro-Inverters.



NEW HELIODYNE WEBSITE FEATURES

2010 brings many new additions to the Heliodyne website, all of which will be useful to our installers for various reasons, such as training, system sizing, and sales. Visit us at www.heliodyne.com, and take advantage of the new tools available to you.

ADVANCED ONLINE TRAINING

In 2009 we launched our online basic installation program, which is now NABCEP-approved, which qualifies for 6 hours of continuing education. After its success, we are proud to now offer our advanced online training program which covers commercial SHW systems, which will become available in May 2010. The program is broken down into several areas such as sales, sizing, design, installation, and maintenance. Online enrollment for basic training is free, whereas the advanced training comes with an enrollment fee.

LIVE CASE STUDIES

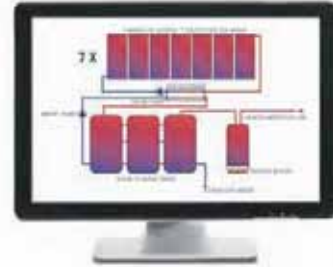
In order to promote and demonstrate SHW performance, several commercial installations will now be available for viewing via our new live case studies page. Using the internet-enabled capabilities of the Delta-T Pro controller, each case study will post real-time energy output so the viewer can see just how effective Heliodyne SHW systems are..

WEB-BASED SOLAR SIMULATION TOOL

For installers who have not yet invested in our solar simulation software, a simplified, basic version can now be used free of charge via the Heliodyne website. though not as extensive as the version available for purchase, this online version will give the installer quick, simple energy output and system size based on data obtained from the job site.

DEALER LOCATOR

Heliodyne promotes its installers to customers through our Dealer Locator. With this search tool, a customer can find all Heliodyne installers within any given radius of their home. Priority and special recognition will now be given to installers who become Helio-Partners. Also provided is an online overview of distributors in North America. More on how to become a Helio-Partner can be found on the next page.



THE HELIO-PARTNER PROGRAM

A Helio-Partner is one who sees the value in differentiated innovative products, proactively promotes SHW, and invests in training of staff. Most importantly, however, a Helio-Partner shares the Heliodyne vision, and is dedicated to promoting and selling our products.

Our vision is:

To make solar thermal the most widely used economical and efficient form of energy for heating water.

The Helio-Partner program has been developed to give trade professional the tools necessary to promote and sell Heliodyne SHW products. Becoming a Helio-Partner is free and easy.

It just takes 3 simple steps:

1

Take the Heliodyne basic solar training & testing



2

Sign a Helio-Partner agreement and receive a voucher to be used against the purchase of your first system

3

Install a Heliodyne Pro solar system



Same-As-Cash Program

Closing the sale is easy with our Same-As-Cash program. This financing program can offer your clients no money down and 0% interest for 12 to 18 months on their SHW system. Plus, qualifying is simple and can be done with a convenient, over-the-phone credit approval process. Call **RSL** and learn how you can apply for the program through **Heliodyne**.

Sales Promotion & Marketing Materials

Raising awareness and creating interest for SHW can be difficult, and for many customers, whether to buy a system is a matter for great consideration. We have therefore developed sales & marketing materials to professionally address all the frequently asked questions that are likely to occur during a SHW sales conversation.

As a Helio-Partner you'll receive exclusive benefits such as:

- FREE welcome kit with certificate
- Priority listing on our Dealer Locator web page
- Cash voucher for SHW system
- Eligible to join the Same-As-Cash program

Helio-Partner Welcome Kit

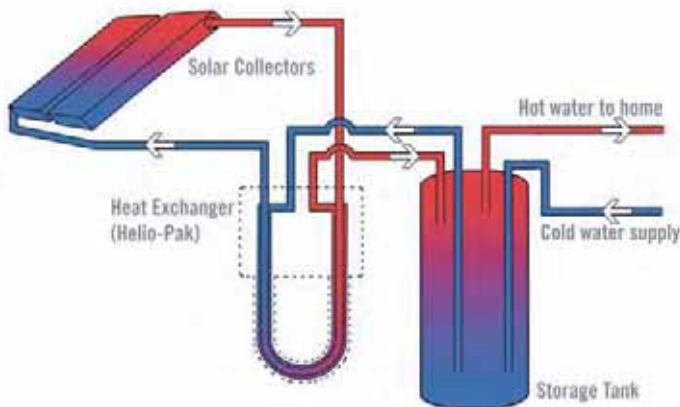
- Complimentary Heliodyne apparel
- Vehicle decals
- Brochures and other marketing materials
- Sales kit binder
- Certificate

SOLAR WATER HEATING: COOL CLIMATE

The Heliodyne Cool Climate Packaged System is designed to operate in all regions, especially where hard water or freezing is an issue. In this closed loop design, a special heat-transfer fluid, instead of water, circulates through the collectors, allowing greater durability and trouble-free operation.

Features

- "Plug & Play" installation
- All components included (less piping & storage tank)
- Can often be mounted to existing hot water tank
- Superior heat-transfer characteristics
- Suitable for all homes and regions
- Fully protected from overheating and freezing



How It Works

When there is sufficient heat to be drawn from the collectors, the controller automatically activates the pumps. Heated solar fluid is then circulated from the collectors through the heat exchanger, where its heat is transferred to water in the storage tank. The solar liquid is then pumped back to the collectors to be reheated. This circulation loop will continue as long as there is heat to be drawn from the collectors. During times when there is little or no sun, a backup heating system will be activated to provide adequate hot water.

EVACUATED TUBE COLLECTORS

When you have an application that requires higher working temperatures, evacuated tube collectors tend to be more efficient. They are better insulated, and so can maintain higher temperatures in very cold or low light conditions. One drawback is that they have a smaller aperture area compared to flat panel collectors, and require more panels (and more gross area) to get the

same energy gains. Refrigerative Supply stocks FES panels, which are 16 tube collectors that use heat pipes to transfer heat from the tubes into the solar fluid.

FES evacuated tube collectors can be used with any Heliodyne heat transfer appliance for a complete packaged system.

EVACUATED TUBE COLLECTORS

| Collector Model | Gross Surface Area | Absorber Surface Area | Dimensions | | Fluid Capacity | LIST |
|-----------------|--------------------|-----------------------|------------|-------|----------------|---------|
| | | | Height | Width | | |
| FESP30 | 30 ft ² | 21 ft ² | 72" | 60" | 0.2 gal. | \$2,200 |

SOLAR WATER HEATING: COOL CLIMATE



- 1 - Helio-Pak Heat-Transfer Appliance with built-in Delta-T or Delta-T Pro Lite controller (HPAK size varies by package size)
- 2 - GOBI "blue sputtered" flat-plate collectors (model size and quantity vary by package)
- 3 - Collector mounting hardware (available in either flush or rack mount configuration: quantity varies by package)
- 4 - Expansion tank (size varies by package)
- 5 - Glycol (amount varies by package)
- 6 - Dyn-O-Seal Disc Unions (2)
- 7 - Air vent kit (includes elbow fitting)
- 8 - DOS combo fitting (includes temperature sensor and sensor well)

Packaged systems estimated to produce an average solar fraction between 40% & 60%, provided the following installation guidelines are followed:

1. Collectors are mounted above an angle of 45 degrees.
2. Collectors are mounted within 15 degrees of due South.
3. The collectors are free of shading from nearby obstacles.

For **MOUNTING HARDWARE** details, please go to page 12
 For **PRO CONTROLLER** details, please go to page 20

Blue sputtered collectors come standard with cool climate systems. See page 10. Sizing may vary due to local climate and solar radiation data.

Need a system for more than 7 people?
 Call your local RSL Branch.

STANDARD PACKAGES

| People | Collector Model | Qty. | Surface Area (ft ²) | Helio-Pak Model | Dyn-O-Seal Kit | Glycol Amount | LIST | Recommended Tank Size |
|--------|-----------------|------|---------------------------------|-----------------|----------------|---------------|----------|-----------------------|
| 1-2 | GOBI 406 001S | 1 | 26.94 | HPAK 016 000 | 1/2" ID | 3 gal. | \$5,984 | 60 gal. |
| 3-4 | GOBI 406 001S | 2 | 53.88 | HPAK 016 000 | 3/4" ID | 3 gal. | \$8,690 | 80 gal. |
| 4-5 | GOBI 406 001S | 3 | 80.82 | HPAK 016 000 | 3/4" ID | 4 gal. | \$11,274 | 120 gal. |
| 5-7 | GOBI 408 001S | 3 | 96.69 | HPAK 016 000 | 3/4" ID | 4 gal. | \$12,230 | 120 gal. x 2 |

HPAK PRO LITE PACKAGES

| People | Collector Model | Qty. | Surface Area (ft ²) | Helio-Pak Model | Dyn-O-Seal Kit | Glycol Amount | LIST | Recommended Tank Size |
|--------|-----------------|------|---------------------------------|-----------------|----------------|---------------|----------|-----------------------|
| 1-2 | GOBI 406 001S | 1 | 26.94 | HPAK 016 002 | 1/2" ID | 3 gal. | \$6,693 | 60 gal. |
| 3-4 | GOBI 406 001S | 2 | 53.88 | HPAK 016 002 | 3/4" ID | 3 gal. | \$9,399 | 80 gal. |
| 4-5 | GOBI 406 001S | 3 | 80.82 | HPAK 016 002 | 3/4" ID | 4 gal. | \$11,633 | 120 gal. |
| 5-7 | GOBI 408 001S | 3 | 96.69 | HPAK 016 002 | 3/4" ID | 4 gal. | \$12,525 | 120 gal. x 2 |

HPAK Includes:

- HPAK
- Properly sized expansion tank (2 gallon or 5 gallon)
- Standard Controller (DLTA 000 000) or Pro Lite Controller (DLTA 000 002)

*Steamlined collector and Pro Lite available Winter 2010.

**Glycol amount provided based on piping round-tip length of 100 ft. Additional glycol is needed if piping exceeds 100 ft. or pipe diameter is increased.

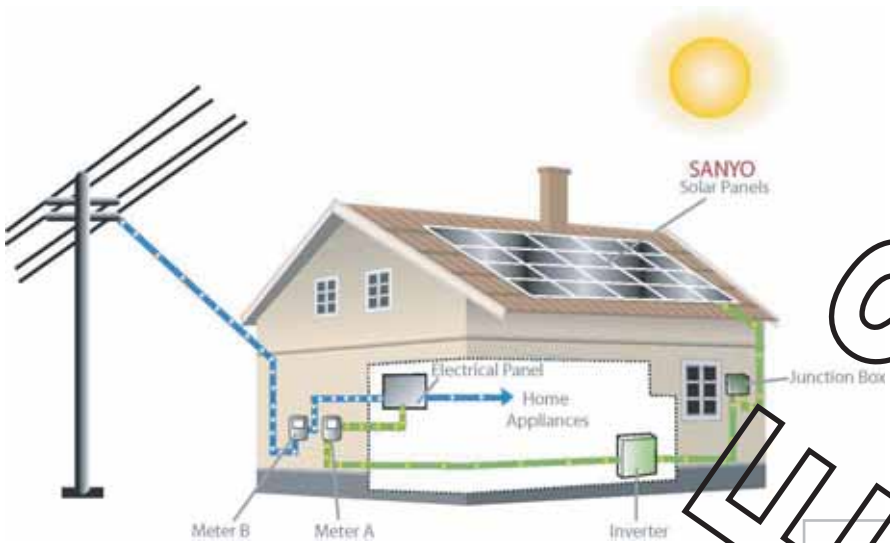
All prices are LIST and are subject to change, please contact your local RSL for a quote.

SANYO - SOLAR PHOTO VOLTAICS

A Typical Solar Power System

When sunlight strikes a solar panel and excites electrons trapped in the silicon solar cell. The electrons travel through wires on the back of the solar panel and into the house, to be used immediately or to be sent to the electric utility.

Residential Solar Power System



SANYO HIT® PV Modules

HIT® Power Series - Standard PV Modules

HIT® Power solar panels are high efficiency SANYO photovoltaic (PV) modules based on proprietary HIT® (Heterojunction with Intrinsic Thin Layer) solar cells[§].

HIT® Double Series - Bifacial PV Modules

HIT® Double solar panels are PV modules based on the same proprietary HIT® solar cells that generate power from both sides resulting in up to 30% higher power generation than standard single-sided panels.

[§] Hybrid solar cells consisting of mono crystalline silicon layer surrounded by ultra thin amorphous silicon layers.

Commercial Application



- Solar Panels** Photovoltaic Modules - Changes sunlight into direct current (DC) electricity
- Support Structure** Attaches the solar panels to roof or building
- Wiring** Provides a path for electricity to flow
- Junction Box** Consolidates various sets of wires from the solar panels into one set
- Inverter** Converts DC to AC electricity used in homes and businesses
- DC/AC Disconnects** Provides disconnection of various components from each other for safety
- Meters (A, B)** Provides data about the energy (kWh) produced, used or sent to the utility

HIT® Power Series - Standard HIT® PV Modules

| Model | Rated Power Output (W) | Module Efficiency (Gross Area) | Dimensions (in.) | Weight (lbs) | LIST |
|-------------|------------------------|--------------------------------|-------------------|--------------|------|
| HIT-N215A01 | 215 | 17.1% | 62.2 x 31.4 x 1.8 | 33.1 | |
| HIT-N220A01 | 220 | 17.4% | | | |

HIT® Double Series - Bifacial HIT® PV Modules

| Model | Rated Power Output (W) | Module Efficiency (Gross Area) | Dimensions (in.) | Weight (lbs) | LIST |
|------------|------------------------|--------------------------------|--------------------|--------------|------|
| HIP-195DA3 | 195 | 16.1% | 53.2 x 35.4 x 2.36 | 50.7 | |
| HIP-200DA3 | 200 | 16.5% | | | |

[†] STC: cell temp. 25°C, AM1.5, 1000W/m² ^{††} Does not include power generated from the backside of the panels.

SANYO - SOLAR PHOTO VOLTAICS

Electrical Specifications

| | |
|---------------------------------|--------------------------------|
| Model | HIT Power 210N or HIP-210NKHA5 |
| Rated Power (Pmax) ¹ | 210 W |
| Maximum Power Voltage (Vpm) | 41.3 V |
| Maximum Power Current (Ipm) | 5.09 A |
| Open Circuit Voltage (Voc) | 50.9 V |
| Short Circuit Current (Isc) | 5.57 A |
| Temperature Coefficient (Pmax) | -0.336%/ °C |
| Temperature Coefficient (Voc) | -0.142 V/ °C |
| Temperature Coefficient (Isc) | 1.95 mA/ °C |
| NOCT | 114.8°F (46°C) |
| CEC PTC Rating | 194.8 W |
| Cell Efficiency | 18.9% |
| Module Efficiency | 16.7% |
| Watts per Ft. ² | 15.48 W |
| Maximum System Voltage | 600 V |
| Series Fuse Rating | 15 A |
| Warranted Tolerance (-/+) | -0% / +10% |

Mechanical Specifications

| | |
|-------------------------------------|---|
| Internal Bypass Diodes | 4 Bypass Diodes |
| Module Area | 13.56 Ft ² (1.26m ²) |
| Weight | 35.3 Lbs. (16kg) |
| Dimensions LxWxH | 62.2x31.4x1.8 in. (1580x798x46 mm) |
| Cable Length +Male/-Female | 40.55/34.6 in. (1030/880 mm) |
| Cable Size / Connector Type | No. 12 AWG / MC4™ Locking Connectors |
| Static Wind / Snow Load | 60PSF (2880Pa) / 39PSF (1867Pa) |
| Pallet Dimensions LxWxH | 63.2x32x72.8 in. (1607x815x1850 mm) |
| Quantity per Pallet / Pallet Weight | 34 pcs./1234.5 Lbs (560 kg) |
| Quantity per 53' Trailer | 952 pcs. |

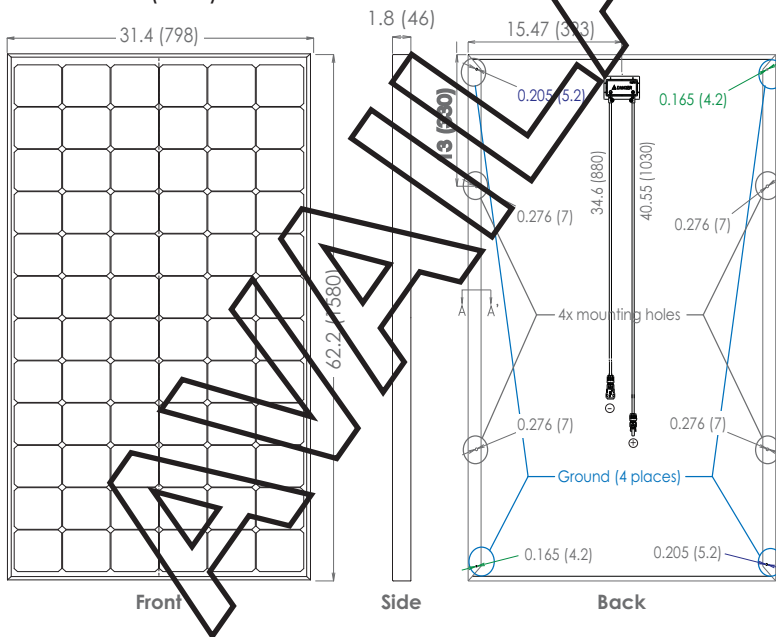
Operating Conditions & Safety Ratings

| | |
|--------------------------------|--|
| Ambient Operating Temperature | -4°F to 115°F (-20°C to 46°C) ² |
| Hail Safety Impact Velocity | 1" hailstone (25mm) at 52 mph (22m/s) |
| Fire Safety Classification | Class C |
| Safety & Rating Certifications | UL 1703, cUL, IEC |
| Limited Warranty | 5 Years Workmanship, 20 Years Power Output |

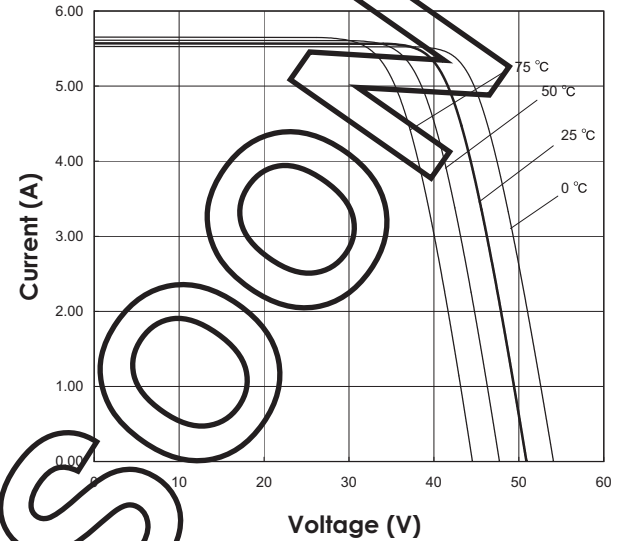
¹STC: Cell temp. 25°C, AM1.5, 1000W/m² ²Monthly average low and high of the installation site.
Note: Specifications and information above may change without notice.

Dimensions

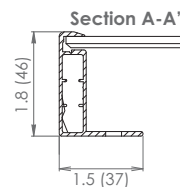
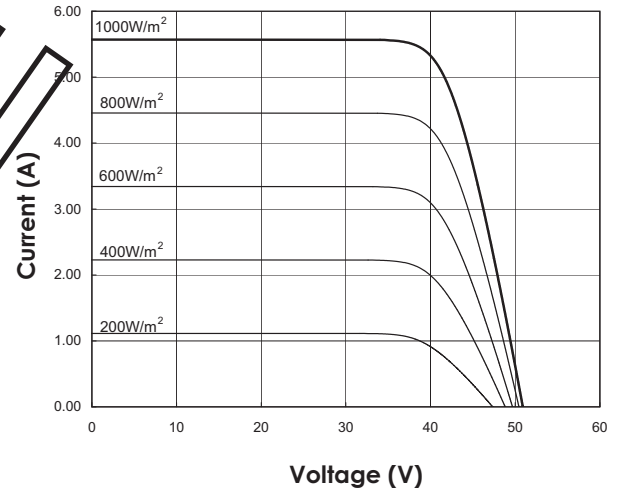
Unit: inches (mm)



Dependence on Temperature



Dependence on Irradiance



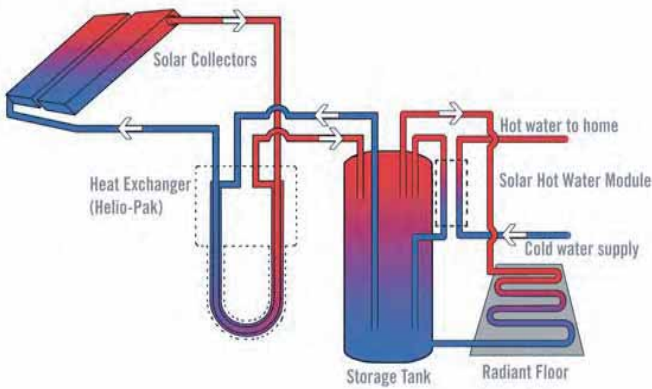
For more information, go to:
ca.sanyo.com/solar
 or
 Call your local RSL Branch

SOLAR WATER HEATING & SPACE HEATING

Domestic solar hot water & space heating combination systems provide the greatest efficiency, maximizing the energy from the sun. With the combined approach, any heat not used for hot water consumption is automatically diverted for space heating.

Features

- "Plug & Play" installation
- All components included (less piping)
- Combined modular design
- Solar hot water module included (see page 17)
- Fully protected from overheating and freezing



Packaged systems estimated to produce an average solar fraction up to 60% for domestic hot water and up to 40% for space heating, provided the following installation guidelines are followed:

1. Collectors are mounted above an angle of 60 degrees.
2. Collectors are mounted within 15 degrees of due South.
3. The collectors are free of shading from nearby obstacles.

Blue sputtered collectors come standard with combination systems.

For a more detailed description of the instant Solar Hot Water Module, see page 17.



How it Works

When there is sufficient heat to be drawn from the collectors, the controller automatically activates the pumps. Heated solar fluid is then circulated from the collectors through the heat exchanger, where its heat is transferred to water in the storage tank. The solar liquid is then pumped back to the collectors to be reheated. This circulation loop will continue as long as there is heat to be drawn from the collectors.

The solar heated water in the storage tank is available for distribution directly to the house heating system. When there is a draw on domestic hot water, the solar hot water module will heat fresh cold water by transferring the heat from the solar storage tank to the fresh cold water. During times when there is little or no sun, a backup heating system will be activated to provide adequate hot water for space heating and domestic use.

TRY COMBINING SOLAR HOT WATER WITH OUR MULTI-AQUA HEAT PUMP PRODUCTS OR QUIETSIDE HIGH EFFICIENCY BOILERS TO MAKE A COMPLETELY GREEN HEATING PACKAGE.

SOLAR WATER HEATING & SPACE HEATING



- 1 - Helio-Pak Heat-Transfer Appliance with built-in Delta-T Pro controller (HPAK size varies by package size)
- 2 - Helio-Tank with pre-installed ports for interconnecting multiple tanks (quantity varies by package)
- 3 - GOBI "blue sputtered" flat-plate collectors (model size and quantity vary by package)
- 4 - Collector mounting hardware (available in either flush- or rack-mount configuration: quantity varies by package)
- 5 - Expansion tank (tank size varies by package)
- 6 - Glycol (amount varies by package)
- 7 - Solar Hot Water Module with plate heat exchanger
- 8 - Dyn-O-Seal™ Disc Unions (2)
- 9 - Air vent kit (includes elbow fitting)
- 10- DOS combo fitting (includes temperature sensor and sensor well)

For **MOUNTING HARDWARE** details, please go to page 12

For **PRO CONTROLLER** details, please go to page 20

PRO HEATING PACKAGES

| People (Area) | Collector Model | Qty. | Solar Hot Water Module | Helio-Pak Model | Storage Tank(s) Included | Dyn-O-Seal Kit | Glycol Amount | LIST |
|--------------------------------|-----------------|------|------------------------|-----------------|--------------------------|----------------|---------------|----------|
| 1-2 (1000 ft ²) | GOBI 410 001S | 2 | SHWM 005 000 | HPAK 024 001 | HSTG 119 000 | 3/4" ID | 3 gal. | \$19,617 |
| 2-3 (1500 ft ²) | GOBI 410 001S | 4 | SHWM 005 000 | HPAK 024 001 | HSTG 119 000 x 2 | 1" ID | 5 gal. | \$31,033 |
| 3-4 (2000 ft ²) | GOBI 410 001S | 6 | SHWM 009 000 | HPAK 048 001 | HSTG 119 000 x 3 | 1" ID | 8 gal. | \$44,052 |
| 4-5 (2500 ft ²) | GOBI 410 001S | 8 | SHWM 009 000 | HPAK 048 001 | HSTG 119 000 x 4 | 1" ID | 9 gal. | \$55,366 |

HPAK Includes:

- HPak
- properly sized expansion tank (2 gallon or 5 gallon)
- Pro Controller (DLTA 000 001)

*Steamlined collector available fall 2010.

**Glycol amount provided based on piping round-tip length of 100 ft. Additional glycol is needed if piping exceeds 100 ft. or pipe diameter is increased.

All prices are LIST and are subject to change, please contact your local RSL for a quote.

HELIODYNE COLLECTORS

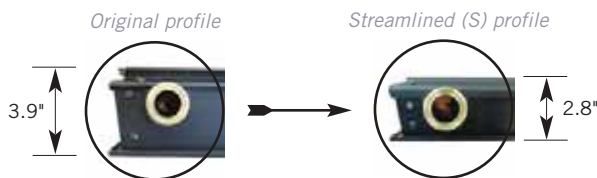
The GOBI line of solar flat-plate collectors is one of the industry's highest rated. Over 30 years of design and engineering refinement have gone into making each GOBI collector a world-class performer for heat output, efficiency and durability. Available in three sizes and two surface types (blue sputtered and black paint), there is a GOBI collector for every type of solar heating application.

Features

- Unique weather-tight glazing seal
- Easy-mount Dyn-O-Seal™ (DOS) connector system
- Superior absorber efficiency (U.S. Patent 6,300,591)
- Strong and reliable mounting system
- Weather-tight casing
- Optimal heat absorption with minimal emission
- Suitable for all types of installations and regions

NEW STREAMLINED GOBI PROFILE

By optimizing space and adding new state-of-the-art insulation material, Heliodyne has managed to streamline the GOBI and reduce the profile by 1" while maintaining its stellar performance.



ABSORBER SURFACES

Blue sputtered coating (Variant 001)

- Optimal heat absorption with minimal emission
- Suitable for all types of installations and regions
- Recommended for cool climates

| Collector Model | Gross Surface Area | Absorber Surface Area | Dimensions | | Fluid Capacity | LIST |
|-----------------|-----------------------|-----------------------|------------|-------|----------------|---------|
| | | | Height | Width | | |
| GOBI 406 001 | 26.94 ft ² | 24.91 ft ² | 81.5" | 47.5" | 1 gal. | \$2,120 |
| GOBI 406 001S | 26.94 ft ² | 24.91 ft ² | 81.5" | 47.5" | 1 gal. | \$2,018 |
| GOBI 408 001 | 32.33 ft ² | 29.94 ft ² | 97.5" | 47.5" | 1.14 gal. | \$2,511 |
| GOBI 408 001S | 32.33 ft ² | 29.94 ft ² | 97.5" | 47.5" | 1.14 gal. | \$2,336 |
| GOBI 410 001 | 40.15 ft ² | 37.48 ft ² | 121.5" | 47.5" | 1.34 gal. | \$2,886 |
| GOBI 410 001S | 40.15 ft ² | 37.48 ft ² | 121.5" | 47.5" | 1.34 gal. | \$2,676 |

*Streamlined collector available fall 2010.

All prices are LIST and are subject to change, please contact your local RSL for a quote.

The original profile collector will be phased-out with the introduction of the streamlined profile collector, available Fall 2010

CORRUGATED STAINLESS STEEL LINE SETS

Refrigerative Supply carries two brands of Solar Flex Tube, Heliodyne & Flex Sure. Corrugated Stainless Steel Tubing (CSST) eliminates the need for soldering in piping runs. Heliodyne's system can be connected to the panels solder free, where as the Flex Sure system requires a solder connection.

Technical Specifications

- Pipe: Corrugated stainless steel hose (steel grade 1.4404 / AISI 316L)
- Insulation: SOLAR EPDM elastomeric foam, CFC-free and PVC-free with black external co-extrusion foil, resistant against UV, ozone and atmospheric conditions
- Maximum fluid temperature: 350°F
- Maximum working pressure: 150 psi



Solar Flextube (roll)

HFLX 075 000

Pre-insulated steel flextubing comes in standard 75 ft. coiled roll and is equivalent to 3/4" pipe.



Solar Flextube DOS Threaded Union

ZZZZ 004 000

Non-solder threaded union used to interconnect GOBI header and solar flextube.



Solar Flextube Compression Union

ZZZZ 005 000

Two non-solder unions used to interconnect solar flextube and HFLO or HPAK heat-transfer appliance.



Solar Flextube Extension Union

ZZZZ 006 000

Extension coupling used to splice two lengths of solar flextube.

SINGLE LINE SETS

| Part Number | Insulation Thickness | Inside Diameter | Length (ft.) | LIST | Required Fittings (for GOBIs) | LIST | Required Fittings (for HPAKs) | LIST |
|--------------|----------------------|-----------------|--------------|-------------|-------------------------------|----------|-------------------------------|----------|
| HFLX 075 000 | 5/8" | 3/4" | 75 | \$ 1,220.00 | ZZZZ 004 000 | \$ 63.90 | ZZZZ 005 000 | \$ 63.90 |

DOUBLE LINE SETS w. sensor wire

| Part Number | Insulation Thickness | Inside Diameter | Length (ft.) | LIST | Required Fittings (for GOBIs) | LIST | Required Fittings (for HPAKs) | LIST |
|------------------|----------------------|-----------------|--------------|-------------|-------------------------------|----------|-------------------------------|----------|
| DPST-IB1-DN20-50 | 5/8" | 3/4" | 50 | \$ 1,857.31 | FLX-UB-DN20-3/4 | \$ 54.20 | FLX-UB-DN20-3/4 | \$ 54.20 |
| DPST-IB1-DN20-75 | 5/8" | 3/4" | 75 | \$ 2,785.96 | FLX-UB-DN20-3/4 | \$ 54.20 | FLX-UB-DN20-3/4 | \$ 54.20 |
| DPST-IB1-DN25-50 | 5/8" | 1" | 50 | \$ 2,152.39 | FLX-UB-DN25-1 | \$ 62.11 | FLX-UB-DN25-3/4 | \$ 59.09 |
| DPST-IB1-DN25-75 | 5/8" | 1" | 75 | \$ 3,228.58 | FLX-UB-DN25-1 | \$ 62.11 | FLX-UB-DN25-3/4 | \$ 59.09 |
| DPST-IB2-DN20-50 | 1" | 3/4" | 50 | \$ 2,135.85 | FLX-UB-DN20-3/4 | \$ 54.20 | FLX-UB-DN20-3/4 | \$ 54.20 |
| DPST-IB2-DN20-75 | 1" | 3/4" | 75 | \$ 3,203.78 | FLX-UB-DN20-3/4 | \$ 54.20 | FLX-UB-DN20-3/4 | \$ 54.20 |
| DPST-IB2-DN25-50 | 1" | 1" | 50 | \$ 2,475.38 | FLX-UB-DN25-1 | \$ 62.11 | FLX-UB-DN25-3/4 | \$ 59.09 |
| DPST-IB2-DN25-75 | 1" | 1" | 75 | \$ 3,713.06 | FLX-UB-DN25-1 | \$ 62.11 | FLX-UB-DN25-3/4 | \$ 59.09 |

FLEX SURE MOUNTING BRACKETS

| Part Number | Description | LIST |
|--------------|--|----------|
| ACC-BS1-DN20 | Dual Brackets - Hinged w ith Center Post | \$ 18.00 |
| ACC-BS3-DN20 | Dual Brackets - Flush Mounting | \$ 9.00 |



ACC-BS1-DN20

Fits 3/4" (DN20) with 5/8" insulation



ACC-BS3-DN20

Fits 3/4" (DN20) with 5/8" insulation



FlexSure Male Stub Fitting

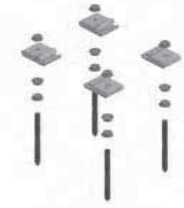
FLX-UB-DN20-3/4 & FLX-UB-DN25-1/2
Male - Female fitting used to connect flextube to panels / HPAK.



FlexSure Dual Solar Tubing

DPST-IB_-DN_-_-
Insulated Supply & Return piping with 18/2 sensor wire.

HELIODYNE MOUNTING HARDWARE



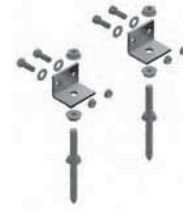
FLSH 001 000



RAIL 002 000B



FLSH 000 001



FLSH 000 000



FLSH 000 002

SINGLE COLLECTOR KITS

| Part Number | Description | | LIST |
|--------------|--------------------------------|---------------|-----------|
| FLSH 001 000 | Single Collector Flush Mount | | \$ 159.30 |
| RACK 000 005 | Single Collector Side Rack Kit | 47" rear legs | \$ 456.66 |
| RACK 000 006 | Single Collector Side Rack Kit | 30" rear legs | \$ 456.66 |
| RACK 000 007 | Side Rack Rear Flange Foot Kit | | \$ 121.07 |

COLLECTOR RAIL KITS

| Part Number | Description | | LIST |
|---------------|-------------------------------|---------------------|-----------|
| RAIL 001 000B | Rail Kit for 1 Collector | comes with end caps | \$ 237.89 |
| RAIL 002 000B | Rail Kit for 2 Collectors | comes with end caps | \$ 433.30 |
| RAIL 000 001 | Rail Splice Kit to join rails | | \$ 89.21 |



RACK 000 005

FLUSH MOUNT COLLECTOR KITS

| Part Number | Description | | LIST |
|--------------|----------------------------|-------------------------------|-----------|
| FLSH 000 000 | Flush Mount Hangerbolt Kit | <i>*not stocked in Canada</i> | \$ 84.96 |
| FLSH 000 001 | Flush Mount Flangefoot Kit | | \$ 138.06 |
| FLSH 000 002 | Tile-Mount Kit | for Terracotta tile roofs | \$ 191.16 |



RACK 000 001B

RACK MOUNT COLLECTOR KITS

| Part Number | Description | | LIST |
|---------------|-----------------------------------|--------------------------|-----------|
| RACK 000 001B | Rack Mount Standard Kit | 47" front / 4" rear legs | \$ 223.02 |
| RACK 000 002B | Rack Mount Extended Front Leg Kit | 47" front / 8" rear legs | \$ 225.14 |
| RACK 000 003B | Rack Mount Extended Rear Leg Kit | 67" front / 4" rear legs | \$ 350.46 |

FLUSH MOUNT BILL OF MATERIALS

| Part Number | COLLECTORS IN ARRAY | | | | | | | |
|------------------|---------------------|---|---|---|---|---|---|--|
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| RAIL 001 000B | 0 | 1 | 0 | 1 | 0 | 1 | 0 | |
| RAIL 002 000B | 1 | 1 | 2 | 2 | 3 | 3 | 4 | |
| RAIL 000 001 | 0 | 1 | 1 | 2 | 2 | 3 | 3 | |
| FLSH 000 001* | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| or FLSH 000 002* | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |

RACK MOUNT BILL OF MATERIALS

| Part Number | COLLECTORS IN ARRAY | | | | | | | |
|-------------------|---------------------|---|---|---|---|---|---|--|
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| RAIL 001 000B | 0 | 1 | 0 | 1 | 0 | 1 | 0 | |
| RAIL 002 000B | 1 | 1 | 2 | 2 | 3 | 3 | 4 | |
| RAIL 000 001 | 0 | 1 | 1 | 2 | 2 | 3 | 3 | |
| RACK 000 001B* | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| or RACK 000 002B* | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| or RACK 000 003B* | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |

To ensure a structurally compliant installation, first determine the collector loading at the installation site using the Heliodyne Code Compliance Manual. Once the loading has been calculated, verify Heliodyne stock hardware meets or exceeds the strength required from the Heliodyne Hardware Certifications. Both the Heliodyne Code Compliance Manual and the Heliodyne Hardware Certifications can be found at www.heliodyne.com/certifications. Heliodyne does not take responsibility for installations where the site loading conditions exceed the published limits of our hardware.

PV INVERTERS & ACCESSORIES



Enphase Micro-Inverters

The Enphase Microinverter is a compact unit that attaches directly to solar power modules, converting DC to AC power at the source, and sending valuable performance information about each module to the Enphase Envoy (EMU) communications gateway.

Envoy Communications Gateway

The Enphase Envoy (EMU) is a communications gateway that collects performance information of each solar module in a user's system and transmits this data to the Enlighten™ website, where users can view and manage the performance of their solar power system.

SMA-America Sunny Boy Inverters

Maximal energy yields for a continuously expanding solar market: the Sunny Boys are impressive due to their excellent efficiency. Additionally, they offer the highest degree of flexibility in plant design due to their graduated performance classes. The automatic grid voltage detection* allows easy and safe installation. Furthermore, the galvanic isolation provides flexible connection possibilities. This way, the Sunny Boy inverters can be used with crystalline cells, as well as with thin-film modules. The Sunny Boys also come with an integrated DC switch-disconnect.

ENPHASE MICRO-INVERTERS

| Model | Max Output Power (AC) | Max Input Voltage DC | Output Voltage | Max Units in String | CEC Weighted Efficiency | LIST |
|----------------------|-----------------------|----------------------|----------------|---------------------|-------------------------|------|
| M210-84-208-S12 | 210 W | 62 V | 208 VAC | 18 | 95.5% | |
| M210-84-240-S12 | 210 W | 62 V | 240 VAC | 13 | 95.5% | |
| M190-72-208-S12/3-NA | 190 W | 56 V | 208 VAC | 21 | 95.0% | |
| M190-72-240-S12/3-NA | 190 W | 56 V | 240 VAC | 15 | 95.0% | |

SMA AMERICA INVERTERS

| Model | Max Output Power (AC) | Max Input Voltage DC | Output Voltage | Max Input Power DC | CEC Weighted Efficiency | LIST |
|---------|-----------------------|----------------------|----------------|--------------------|-------------------------|------|
| 5000-US | 5000 W | 600 V | 208 - 277 VAC | 6250 W | 95.5% | |
| 6000-US | 6000 W | 600 V | 208 - 277 VAC | 7500 W | 95.5% | |
| 7000-US | 7000 W | 600 V | 208 - 277 VAC | 8750 W | 96.0% | |
| 8000-US | 8000 W | 600 V | 240 - 277 VAC | 10,000 W | 96.0% | |

HFLO - OPEN LOOP PUMPING STATION

A simplified design for open loop active systems, created with easy installation in mind. The Helio-Flo (HFLO) comes assembled with pump, standard or advanced controller, two sensors and two temperature gauges.

Factory-tested to 300 psi



(Top-connect model shown)

Features

- Efficient direct water circulation
- “Plug & Play” installation
- Sleek modern design
- Pro controller option
- Compact assembly

The HFLO comes assembled with:

- Delta-T, Delta-T Pro or Delta-T Pro Lite* controller with collector/tank sensors (2)
- 2 combo valves
- Pump
- Easy tank/wall mounting bracket included

Versions

110 AC (Standard, Pro, and Pro Lite)

- Top-connect Std (HFLO 016 000), Pro (HFLO 016 001) or Pro Lite (HFLO 016 002)
- Bottom-connect Std (HFLO 016 010), Pro (HFLO 016 011) or Pro Lite (HFLO 016 012)

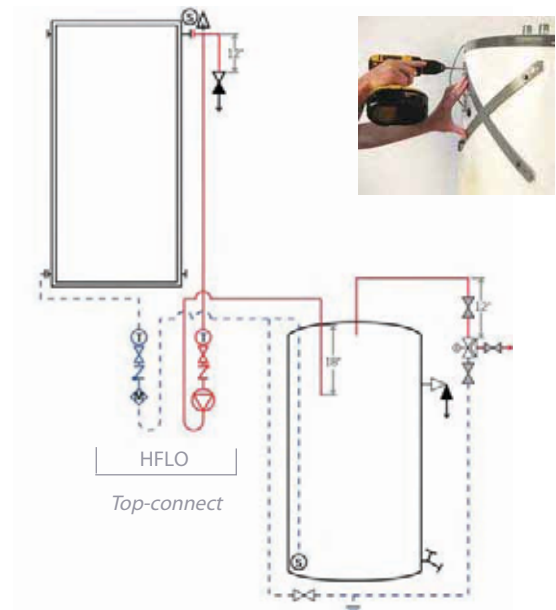
DC (Standard only)

- Top-connect (HFLO 016 100)

240 AC (Standard and Pro Lite)

- Bottom-connect Std (HFLO 016 210)

Commercial bottom-connect Pro (HFLO 048 011)



INCLUDES A TANK/WALL MOUNTING BRACKET



Off-grid HFLO includes:**

- DC Controller
- DC Pump
- 20W PV Panel

HFLO MODEL SPECIFICATIONS

| HFLO Model | Collector Area Capacity | Model | Top / Bottom Connect | Power Input | Tank Connections | Collector Connections | LIST |
|--------------|-------------------------|----------|----------------------|----------------|------------------|--------------------------|---------|
| HFLO 016 000 | 96 ft ² | Std | Top | 115 VAC, 60 Hz | 3/4" MPT | 3/4" Compression Fitting | \$1,392 |
| HFLO 016 001 | 96 ft ² | Pro | Top | 115 VAC, 60 Hz | 3/4" MPT | 3/4" Compression Fitting | \$2,390 |
| HFLO 016 002 | 96 ft ² | Pro-Lite | Top | 115 VAC, 60 Hz | 3/4" MPT | 3/4" Compression Fitting | \$2,031 |
| HFLO 016 010 | 96 ft ² | Std | Bottom | 115 VAC, 60 Hz | 3/4" MPT | 3/4" Compression Fitting | \$1,477 |
| HFLO 016 011 | 96 ft ² | Pro | Bottom | 115 VAC, 60 Hz | 3/4" MPT | 3/4" Compression Fitting | \$2,528 |
| HFLO 016 012 | 96 ft ² | Pro-Lite | Bottom | 115 VAC, 60 Hz | 3/4" MPT | 3/4" Compression Fitting | \$2,116 |
| HFLO 048 011 | 320 ft ² | Pro | Bottom | 115 VAC, 60 Hz | 3/4" MPT | 3/4" Compression Fitting | \$2,528 |
| HFLO 016 100 | 96 ft ² | Std | Top | 12 VDC | 3/4" MPT | 3/4" Compression Fitting | \$2,900 |
| HFLO 016 210 | 96 ft ² | Std | Bottom | 240 VAC, 60 Hz | 3/4" MPT | 3/4" Compression Fitting | \$1,647 |

HPAK - CLOSED LOOP PUMPING STATION

The Helio-Pak (HPAK) is an all-in-one heat-transfer appliance specifically designed to simplify SHW systems and provide maximum heat transfer. The HPAK comes factory assembled with a standard (Delta-T) or Pro controller (Delta-T Pro or Delta-T Pro Lite*), and is wired with all the necessary components, making installation trouble-free. Because the HPAK utilizes an external heat exchanger, it can often be adapted to work with a pre existing hot water tank, thereby reducing costs.

Features

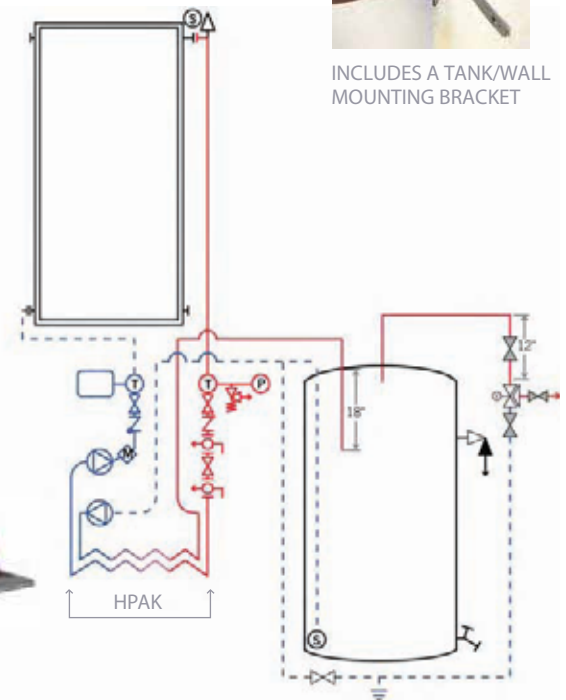
- Augmented heat exchanger surface promotes maximum heat generation
- Superior heat transfer via unique counterflow design
- Easy tank/wall mounting bracket included
- “Plug & Play” installation
- Viewable heat-exchanger leak detection
- Several sizes available for differing loads

The HPAK comes assembled with:

- Double-wall external heat exchanger with leak detection
- Delta-T, Delta-T Pro or Delta-T Pro Lite* controller with collector/tank sensors (2)
- Pressure relief valve
- Expansion tank (not assembled to HPAK)
- Pressure gauge
- 2 combo valves, each with:
 - 1 check valve
 - 1 ball valve
 - 1 thermometer
- 2 pumps



INCLUDES A TANK/WALL MOUNTING BRACKET



HPAK MODEL SPECIFICATIONS

| HPAK Model | Collector Area Capacity | Model | Heat Transfer Rate (BTU / hr) | Power Input | Tank Connections | Collector Connections | LIST |
|--------------|-------------------------|----------|-------------------------------|-----------------|------------------|--------------------------|---------|
| HPAK 016 000 | 96 ft ² | Std | 16,000 | 115 VAC, 60 Hz. | 3/4" MPT | 3/4" Compression Fitting | \$3,199 |
| HPAK 016 001 | 96 ft ² | Pro | 16,000 | 115 VAC, 60 Hz. | 3/4" MPT | 3/4" Compression Fitting | \$4,268 |
| HPAK 016 002 | 96 ft ² | Pro-Lite | 16,000 | 115 VAC, 60 Hz. | 3/4" MPT | 3/4" Compression Fitting | \$3,908 |
| HPAK 024 000 | 160 ft ² | Std | 24,000 | 115 VAC, 60 Hz. | 3/4" MPT | 3/4" Compression Fitting | \$3,768 |
| HPAK 024 001 | 160 ft ² | Pro | 24,000 | 115 VAC, 60 Hz. | 3/4" MPT | 3/4" Compression Fitting | \$4,756 |
| HPAK 032 000 | 200 ft ² | Std | 32,000 | 115 VAC, 60 Hz. | 3/4" MPT | 3/4" Compression Fitting | \$4,127 |
| HPAK 032 001 | 200 ft ² | Pro | 32,000 | 115 VAC, 60 Hz. | 3/4" MPT | 3/4" Compression Fitting | \$5,158 |
| HPAK 048 000 | 320 ft ² | Std | 48,000 | 115 VAC, 60 Hz. | 3/4" MPT | 3/4" Compression Fitting | \$5,055 |
| HPAK 048 001 | 320 ft ² | Pro | 48,000 | 115 VAC, 60 Hz. | 3/4" MPT | 3/4" Compression Fitting | \$5,935 |

HELIO-PASS - CLOSED LOOP PUMPING STATION

The Helio-Pass (HPAS) is designed similarly to the HFLO. Slight modifications exist however, allowing the HPAS to work with coil-in-tank heat exchangers. The HPAS serves as a closed loop heat-transfer appliance, circulating solar fluid from the collectors through a tank-integrated coil heat exchanger located in the solar storage tank.

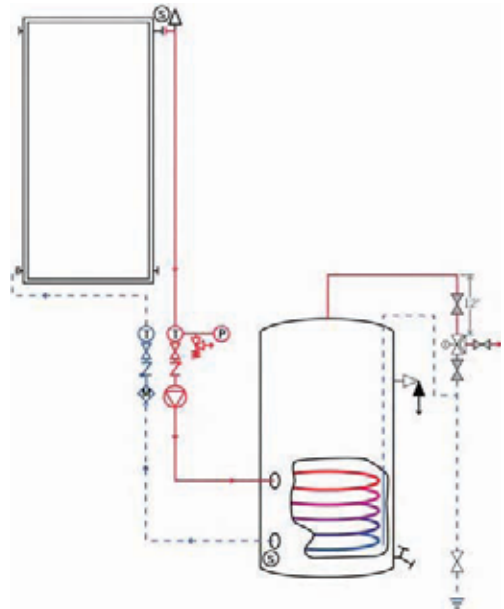


Features

- Sleek modern design
- Comes standard with Pro controller
- “Plug & Play” installation
- Compact assembly
- Works with all major coil-in-tank heat exchanger brands

The Helio-Pass comes with:

- Delta-T Pro Lite* controller with collector/tank sensors (2)
- Pressure relief valve
- Pressure gauge
- 2 combo valves
- Pump
- Expansion tank fitting
- Filling valves



INCLUDES
A TANK/WALL
MOUNTING
BRACKET



The HPAS comes standard with the Pro Lite* controller for performance monitoring

HELIO-PAS MODEL SPECIFICATIONS

| HPAS Model | Collector Area Capacity | Model | Power Input | Tank Connections | Collector Connections | LIST |
|--------------|-------------------------|----------|----------------|------------------|--------------------------|---------|
| HPAS 016 012 | 96 ft ² | Pro-Lite | 115 VAC, 60 Hz | 3/4" MPT | 3/4" Compression Fitting | \$2,696 |

SOLAR HOT WATER MODULE

To be used in conjunction with the Heliodyne 119-gallon tank (HSTG 119 000) with side connections for radiant heat or forced-air space heating systems.

This instant Solar Hot Water Module (SHWM) follows the on-demand heating principle, guaranteeing fresh hot water combined with very low standby loss. The pump circulates the solar heated storage water through the two-pass heat exchanger, indirectly heating the domestic water. To reach the set hot water temperature, the patented temperature control unit adjusts the temperature of the solar heated storage water at the inlet of the heat exchanger. This eliminates the need for an additional tempering valve.



Features

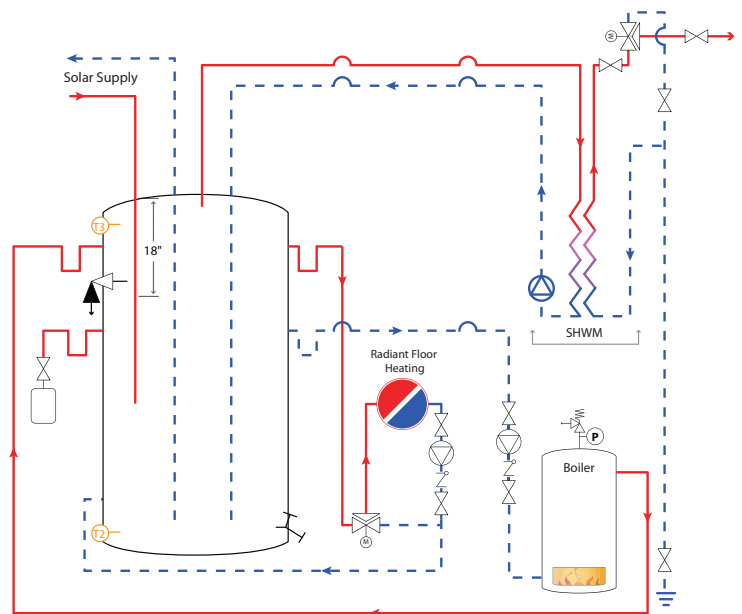
- Easy installation on HSTG 119 000 tank
- Maintenance-free
- Constant hot water temperature
- High output due to the use of large heat exchangers
- Fast reaction time without over- or under-shooting
- Hot water temperature pre-adjustment and fixation in the simplest possible way
- Comes pre assembled

The SHWM comes assembled with:

- Plate heat exchanger
- Patented thermostat for domestic hot water temperature adjustment
- Circulation pump



SHWM mounts easily to tank or nearby wall



SHWM SPECIFICATIONS

| SHWM MODEL | Old Model # | Max Flow (GPM) | Temp Range (°F) | Power Input | Hydraulic Connections | LIST |
|--------------|--------------|----------------|-----------------|-----------------|-----------------------|---------|
| SHWM 020 000 | SHWM 005 000 | 5 | 35 to 203 | 120 VAC, 60 Hz. | 1" compression ftg | \$4,142 |
| SHWM 035 000 | SHWM 009 000 | 9 | 35 to 203 | 120 VAC, 60 Hz. | 1" compression ftg | \$4,462 |

COMMERCIAL SOLAR STATION

How It Works

The Heliodyne Commercial Stations (HCOM) are packaged closed loop heat-transfer appliances that accommodate large projects of up to 96 GOBI 410 collectors with a single module, while still larger projects can be accommodated when combining modules in parallel. The HCOM operates on the same principles as our HPAK residential heat-transfer appliances, with a few additional features for optimizing installation and performance, and lowering system maintenance.

Features

- “Plug & Play” installation
- Touch-screen interface for configuration and at-a-glance monitoring
- Pro controller with temperature, flow, pressure and performance monitoring
- Integrated variable-speed pumps for system energy optimization
- Circuit filter, flow gate, charging valves and component isolation valves pre installed
- Novel integrated pressure-relief, reclaim and refill system
- Cooling system for integrated electronics
- Air separator



HCOMs come standard with Pro controllers allowing remote system monitoring via Wi-Fi internet access.



Tank Guidelines for using HCOM

The HCOM works with atmospheric tanks, provided that installation allows for a minimum 5-ft. height difference between pump inlet and tank top-water level. HCOMs with single-wall heat exchangers are used, and plumbed directly into the top and bottom of the tank. The water is heated through a coil-in-tank heat exchanger.

Pressurized tanks do not have any tank restrictions, and choosing the HCOM with a double-wall heat exchanger makes it possible to heat the water directly in the tank for increased system performance.

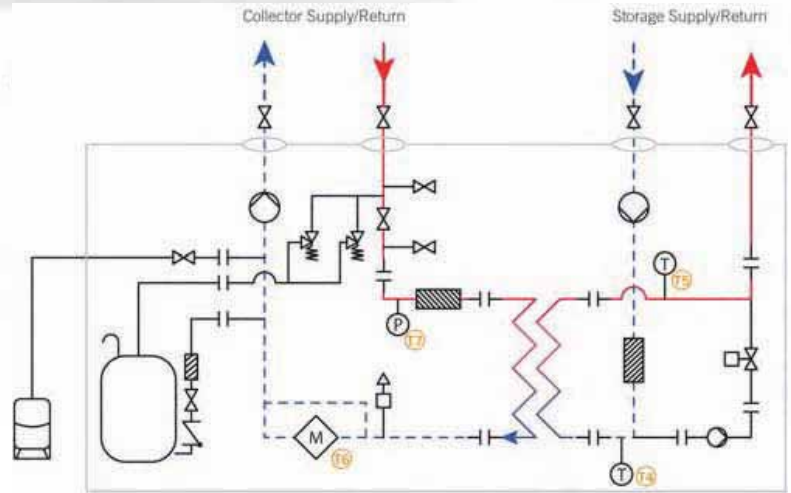
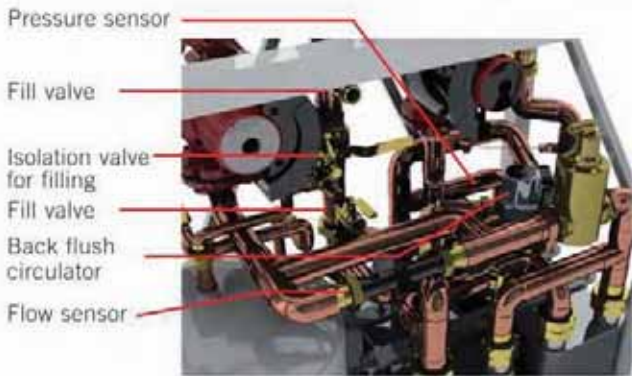
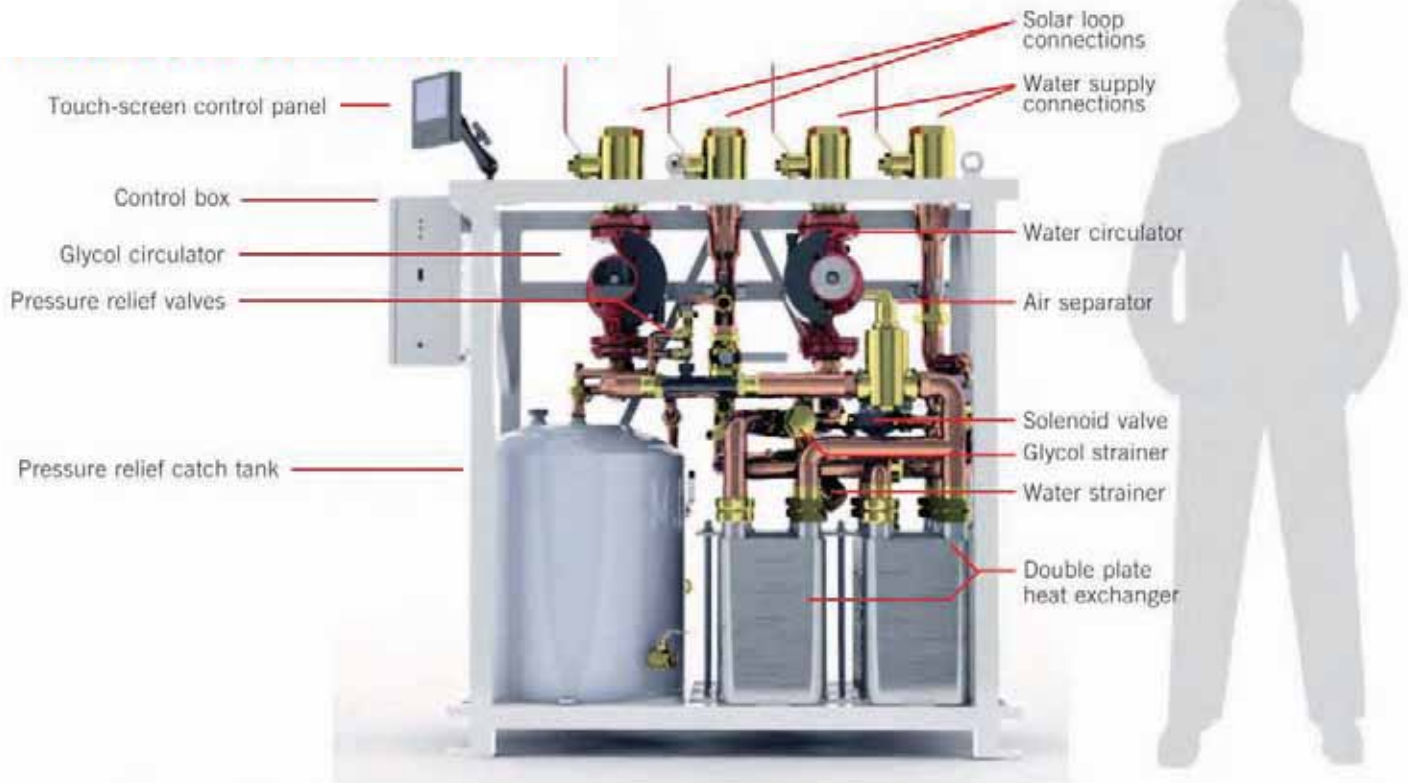
NEW HCOM POOL

HCOM --- --2

The all-new HCOM pool heat-transfer appliance is nearly identical to other HCOM models, except it uses special salt/chlorine-resistant stainless steel heat exchangers. Pipe bypass is required around the HCOM to avoid exposing it to excessive chemical concentration when applying chemicals to the pool.

INTERESTED IN LEARNING MORE?
Get in touch with Alex Gibbs @ alexg@rsl.ca
to schedule a training session or
engineering Lunch & Learn.

COMMERCIAL SOLAR STATION



The HCOM hydraulic diagram

HCOM SPECIFICATIONS

| HCOM Model | Collector Area Capacity | Max Collectors | Heat Exchanger | Heat Transfer Rate (BTU / hr) | Power Input | Supply & Return | Pumps | LIST |
|--------------|-------------------------|----------------|----------------|-------------------------------|------------------|-----------------|-----------------|-----------|
| HCOM 275 000 | 1280 ft ² | 32 | Single-Wall | 275,000 | 230 VAC, 1 phase | 2" NPT | Magna 40-120 FN | \$52,500 |
| HCOM 275 001 | 1280 ft ² | 32 | Double-Wall | 275,000 | 230 VAC, 1 phase | 2" NPT | Magna 40-120 FN | \$56,600 |
| HCOM 275 002 | 1280 ft ² | 32 | SS Single-Wall | 275,000 | 230 VAC, 1 phase | 2" NPT | Magna 40-120 FN | \$71,500 |
| HCOM 550 000 | 2560 ft ² | 64 | Single-Wall | 550,000 | 230 VAC, 1 phase | 2.5" NPT | Magna 65-120 FN | \$70,000 |
| HCOM 550 001 | 2560 ft ² | 64 | Double-Wall | 550,000 | 230 VAC, 1 phase | 2.5" NPT | Magna 65-120 FN | \$85,000 |
| HCOM 550 002 | 2560 ft ² | 64 | SS Single-Wall | 550,000 | 230 VAC, 1 phase | 2.5" NPT | Magna 65-120 FN | \$95,500 |
| HCOM 825 000 | 3840 ft ² | 96 | Single-Wall | 825,000 | 230 VAC, 1 phase | 3" NPT | Magna 65-120 FN | \$81,000 |
| HCOM 825 001 | 3840 ft ² | 96 | Double-Wall | 825,000 | 230 VAC, 1 phase | 3" NPT | Magna 65-120 FN | \$105,000 |
| HCOM 825 002 | 3840 ft ² | 96 | SS Single-Wall | 825,000 | 230 VAC, 1 phase | 3" NPT | Magna 65-120 FN | \$115,000 |

Dimensions: (h)50" x (w)50" x (d)22"

Temp Range: 40°F to 205°F

Pressure Rating: 150 psig

Warranty: 5-year w Heliodyne collectors (1-year w other brand collectors)

SOLAR HOT WATER CONTROLS

DELTA-T

- DLTA 000 000 120 VAC with plug
- DLTA 001 000 120 VAC w/o plug for hardwiring
- DLTA 002 000 240 VAC w/o plug

Specifically designed to regulate the operation of a solar heating system, the Delta-T monitors collector and storage temperatures, and automatically turns pumps on or off when the right temperature is reached. The controller can also provide additional functions, such as system freeze-protection, by recirculation and storage tank high-limit shut-off.



Sensors not included.



Sensors not included.



DELTA-T PRO CONTROLLERS

- DLTA 000 001 Pro Wi-Fi
- DLTA 000 002 Pro w/ Ethernet
- DLTA 000 003 Pro Lite*

Pro controllers carry all the basic functions of the Delta-T, but include additional features such as more sensor inputs, relays, and most importantly, energy metering and performance monitoring. All versions of the Pro controller come pre-installed with software allowing the controller to record and monitor energy data for the life of the system. This data can be uploaded to our website, where a user can monitor and make system setting adjustments miles away from the actual installation.

NEW! Delta-T Pro Lite*

- Programmable for open loop or closed loop DHW
- 2 thermistor sensors
- 2 relays

Delta-T Pro

- 5 program configurations available (OL DHW, CL DHW, Pool, Space, Commercial)
- 5 thermistor sensors
- 3 relays
- Waterproof Delta-T Pro option for pool configurations
DLTA 000 004

Monitoring System Requirements

- DSL, cable or other broadband internet connection
- Open, WPA or QPA2 network authentication/ encryption Wi-Fi router
- Rich Internet browser (e.g., Internet Explorer, Firefox, Safari)
- T1 and T2 temperature sensors and flow sensor installed

MONITORING ON THE GO!*

A new Heliodyne application for Apple iProducts. Call your local RSL for details.



CONTROLLER SPECIFICATIONS

| Controller Part # | Model | Sensor Inputs | Relays | Power Input | LIST |
|-------------------|----------|---------------|--------|-------------|---------|
| DLTA 000 000 | Std | 2 | 1 | 120 VAC | \$298 |
| DLTA 001 000 | Std | 2 | 1 | 120 VAC | \$298 |
| DLTA 002 000 | Std | 2 | 1 | 240 VAC | \$317 |
| DLTA 000 001 | Pro | 5 | 3 | 120 VAC | \$1,355 |
| DLTA 000 002 | Pro | 5 | 3 | 120 VAC | \$1,148 |
| DLTA 000 003 | Pro-Lite | 2 | 2 | 120 VAC | \$1,026 |
| DLTA 000 004 | Pro Pool | 5 | 3 | 120 VAC | \$1,815 |

SOLAR HOT WATER CONTROLS

DELTA-T PRO CONTROLLER: DLTA 000 001

Digital flow sensor port detects the rate of flow as well as the temperature of the solar fluid exiting the heat exchanger

3 inputs for 24 VAC thermostat zone detection (e.g., space-heating thermostat)

5 sensor inputs are available for precise temperature readings

Digital pressure sensor port detects the rate of pressure as well as the temperature of the solar fluid entering the heat exchanger

2x 4-20 mA output controlled current for optional pump-speed control

Input for optional pulse flow meter (check compatibility with Heliodyne)

T1 Collector Out
T2 Storage Low
T3 Storage High
T4 Energy Out
T5 Outdoor (Ambient)



Relay 1 operates the solar loop pumps

Relay 2 is used as a temperature operated relay (e.g., for use with combination systems, etc.)

Relay 3 is generally used for either extraneous use in a combination system, or to operate the electrical ignition in a gas water heater. The relay is combined with a timer to prioritize solar water heating over auxiliary heating

NOTE: If non-Heliodyne sensors are used, check with Heliodyne for controller compatibility

T-SPLIT BOX

TBOX 000 000

The T-Split Box takes the input from any two temperature sensors and shares it with up to four individual controllers. Using the T-Split Box with parallel mounted systems will eliminate the need to run multiple collector storage sensors and cables.



UL LISTED

FIELD SERVER INTERFACE UNIT

FSVR 000 000

The Field Server is a Building Automation System (BAS) language translator, ensuring communication between the Delta-T Pro controller and a building's existing BAS. Utilizing the Field Server, the BAS can read data directly from the Delta-T Pro, rather than through the web interface.



UL LISTED

1 relay included.

CONTROL ACCESSORY SPECS

| Controller Part # | Power Input | Operating Temperature | Operating Humidity | LIST |
|-------------------|-------------|-----------------------|--------------------|----------|
| TBOX 000 000 | - | 32 - 149 F | 10 - 90% RH | \$672 |
| FSVR 000 000 | 24 VAC | 32 - 149 F | 10 - 90% RH | \$10,285 |

SOLAR HEAT EXCHANGERS

Tube-in-shell heat exchangers are suitable for small- to medium-sized pool and commercial systems, and are suitable for high temperature use.

TUBE-IN-SHELL SINGLE WALL



| Part Number | Collector Capacity (ft ²) | Type | Material | Max. Heat Transfer (btu/hr)* | Temp Range (°F) | LIST |
|--------------|---------------------------------------|-------------|----------|------------------------------|-----------------|---------|
| SHEX 032 000 | 160 | Single Wall | Copper | 24,000 | 35 to 203 | \$3,356 |
| SHEX 052 000 | 400 | Single Wall | Copper | 60,000 | 35 to 203 | \$5,277 |
| SHEX 053 000 | 560 | Single Wall | Copper | 84,000 | 35 to 203 | \$5,999 |
| SHEX 054 000 | 800 | Single Wall | Copper | 120,000 | 35 to 203 | \$6,916 |

TUBE-IN-SHELL - POOL



| Part Number | Collector Capacity (ft ²) | Type | Material | Max. Heat Transfer (btu/hr)* | Temp Range (°F) | LIST |
|--------------|---------------------------------------|-------------|-------------|------------------------------|-----------------|---------|
| PHEX 032 000 | 160 | Single Wall | CuproNickel | 24,000 | 35 to 203 | \$4,198 |
| PHEX 052 000 | 400 | Single Wall | CuproNickel | 60,000 | 35 to 203 | \$7,048 |
| PHEX 053 000 | 560 | Single Wall | CuproNickel | 84,000 | 35 to 203 | \$7,662 |
| PHEX 054 000 | 800 | Single Wall | CuproNickel | 120,000 | 35 to 203 | \$9,079 |

Plate heat exchangers are suitable for larger pool and commercial systems, and are available in single-wall or double-wall configurations. Note: Solar systems using plate heat exchangers should not be designed with a solar fraction higher than 40%.

FLAT PLATE SINGLE WALL



| Part Number | Collector Capacity (ft ²) | Type | Material | Max. Heat Transfer (btu/hr)* | Temp Range (°F) | LIST |
|--------------|---------------------------------------|-------------|-----------------|------------------------------|-----------------|----------|
| SHEX 050 001 | 1280 | Single Wall | Stainless Steel | 192,000 | 35 to 203 | \$9,882 |
| SHEX 100 001 | 2560 | Single Wall | Stainless Steel | 384,000 | 35 to 203 | \$16,093 |
| SHEX 140 001 | 3840 | Single Wall | Stainless Steel | 576,000 | 35 to 203 | \$21,368 |
| SHEX 200 001 | 5760 | Single Wall | Stainless Steel | 864,000 | 35 to 203 | \$29,070 |

FLAT PLATE DOUBLE WALL



| Part Number | Collector Capacity (ft ²) | Type | Material | Max. Heat Transfer (btu/hr)* | Temp Range (°F) | LIST |
|--------------|---------------------------------------|-------------|-----------------|------------------------------|-----------------|----------|
| DHEX 110 001 | 1280 | Double Wall | Stainless Steel | 192,000 | 35 to 203 | \$18,370 |
| DHEX 198 001 | 2560 | Double Wall | Stainless Steel | 384,000 | 35 to 203 | \$32,631 |

FLAT PLATE POOL



| Part Number | Collector Capacity (ft ²) | Type | Material | Max. Heat Transfer (btu/hr)* | Temp Range (°F) | LIST |
|--------------|---------------------------------------|-------------|-----------------|------------------------------|-----------------|----------|
| PHEX 020 001 | 1280 | Single Wall | Stainless Steel | 192,000 | 35 to 203 | \$13,396 |
| PHEX 036 001 | 2560 | Single Wall | Stainless Steel | 384,000 | 35 to 203 | \$21,306 |
| PHEX 060 001 | 3840 | Single Wall | Stainless Steel | 576,000 | 35 to 203 | \$30,888 |

*Calculated with max collector capacity, at 1000 W/m² solar intensity, 10°F TD, & ideal flow.

These items are not stocked. There is up to a 14 week Lead time for Tube-In-Shell Heat Exchangers & a 5-week Lead time for flat plate heat exchangers.

Please contact your local RSL to inquire about excess inventory.

STORAGE TANKS

HELIODYNE STORAGE TANKS

| Model Number | Volume (US Gal.) | Electric Backup (kW) | Insulation thickness | Power Input | Hydraulic Connections | LIST |
|--------------|------------------|----------------------|----------------------|--------------|-----------------------|---------|
| HSTG 060 001 | 60 | 4.5 | 2" | 240 VAC, 20A | 3/4" MPT | \$2,775 |
| HSTG 080 001 | 80 | 4.5 | 2" | 240 VAC, 20A | 3/4" MPT | \$2,999 |
| HSTG 119 001 | 119 | 4.5 | 2" | 240 VAC, 20A | 3/4" MPT | \$3,715 |
| HSTG 119 000 | 119 | - | 2" | | 3/4" MPT / 2" FPT | \$3,913 |

Features

- 4.5 kW top electric element for auxiliary heating (001 models only)
- Cobalt-enriched lining for long life
- Twin 3/4" magnesium anode rods
- Factory-installed brass drain valve
- 2" non-CFC foam insulation (R-16)
- Steel external jacket
- Built-in sensor ports for top & bottom temp. sensors
- 2 separate connections for solar heating
- Four 2" ports for interconnecting multiple tanks (000 model only)
- Glass-lined tank

Built-in top electric element for auxiliary heating



HSTG 080 001



HSTG 119 000

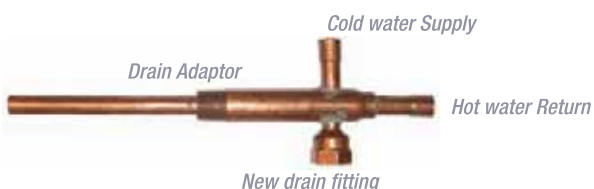
BRADFORD WHITE STORAGE TANKS

| Model Number | Volume (US Gal.) | Electric Backup (kW) | Insulation thickness | Power Input | Hydraulic Connections | LIST |
|--------------|------------------|----------------------|----------------------|--------------|-----------------------|---------|
| MS65R6SS | 60 | 4.5 | 2" | 240 VAC, 20A | 3/4" MPT | \$1,808 |
| MS80R6SS | 80 | 4.5 | 2" | 240 VAC, 20A | 3/4" MPT | \$2,120 |
| MS120R6SS | 119 | 4.5 | 2" | 240 VAC, 20A | 3/4" MPT | \$4,083 |

ACCESSORIES

| Model Number | Manufacturer | Description | LIST |
|--------------|--------------|---|---------|
| 520 105 | FHP | Concentric Fitting - drain adaptor: attaches to drain and gives supply, return, & new drain fitting | \$135 |
| CTOR 000 000 | Heliodyne | Tank Connector Kit - provides optimal stratification between tanks in parallel | \$1,148 |
| RFLX015 000 | Heliodyne | 15" (or 24") corrugated stainless steel flex tubes 3/4" NPT Female fittings | \$22 |
| AM101-US-1 | Honeywell | Honeywell Thermostatic Mixing Valve (70 to 145 F) 3/4" Sweat Union | \$220 |

520 105



CTOR 000 000



AM101-US-1



PARTS & ACCESSORIES

SENSORS & METERS



| Model Number | Description | Range | LIST |
|--------------|--------------------------------------|------------|---------|
| SENS 000 001 | Tank Temperature Sensor | 10 kΩ | \$30 |
| 18/2-PC-75M | Sensor Wire - 18 gauge, 2 wire, 75 m | | \$101 |
| FLOS 010 000 | Flow Sensor | ≤ 10.5 GPM | \$385 |
| FLOS 026 000 | Flow Sensor | ≤ 26 GPM | \$430 |
| FLOS 053 000 | Flow Sensor | ≤ 53 GPM | \$604 |
| FLOS 106 000 | Flow Sensor | ≤ 106 GPM | \$776 |
| PRSS 150 000 | Pressure Sensor | ≤ 150 psi | \$147 |
| FLOM005 000 | Flow Meter (Polysufone) | ≤ 5 GPM | \$413 |
| FLOM020 000 | Flow Meter (Polysufone) | ≤ 20 GPM | \$1,275 |

VALVES & FITTINGS



| Model Number | Description | Details | LIST |
|--------------|--|--------------------|-------|
| ZZZZ 000 000 | DOS Disc Union - 1" | up to 8 collectors | \$53 |
| ZZZZ 001 000 | DOS Disc Union - 3/4" | up to 4 collectors | \$53 |
| ZZZZ 002 000 | DOS Disc Union - 1/2" | 1 collector | \$53 |
| ZZZZ 003 000 | Heliodyne Flextube DOS flanged union w/disc | to collector | \$64 |
| ZZZZ 004 000 | Heliodyne Flextube DOS threaded union w/disc | to collector | \$64 |
| ZZZZ 005 000 | Heliodyne Flextube DOS compression union | to HPAK | \$64 |
| ZZZZ 006 000 | Heliodyne Flextube DOS extension coupling | coupling | \$64 |
| ZZZZ 007 000 | DOS Combo Fitting - w. sensor well & sensor | to collector | \$130 |
| ZZZZ 000 002 | Solar Check Valve - 3/4" Sweat | - | \$128 |
| ZZZZ 000 003 | Heliodyne Thermostatic Mixing Valve - 3/4" Sweat | 100 F ≤ 180 F | \$423 |
| AM101-US-1 | Honeywell Thermostatic Mixing Valve - 3/4" Sweat | 70 F ≤ 145 F | \$213 |
| ZZZZ 000 004 | Heliodyne Threaded Brass Di-electric Union | 1"C x 3/4" S | \$54 |
| ZZZZ 000 005 | DivertaFlo - 4 port bypass valve | 3/4" Sweat | \$260 |
| ZZZZ 000 007 | Dole Dribble Valve - anti-freeze protection for open loop sys. | | \$309 |
| ZZZZ 000 008 | Air Vent Kit - Air Vent + 1/2" elbow fitting | | \$60 |
| ZZZZ 000 009 | Air Vent - releases air trapped in system | | \$39 |

PROPYLENE GLYCOL



| Model Number | Description | Volume (US Gal.) | Supplied Concentration | Temperature Range [50%] | Burst Protection | LIST |
|--------------|-----------------------------|------------------|------------------------|-------------------------|------------------|-------|
| DFLO 001 000 | DYN-O-FLO High Temp. | 1 | 100% | - 30 F to 350 F | - 60 F | \$105 |
| HD8005 | Hood Chemical Solar Mate | 5 | 50% | - 31 F to 375 F | - 50 F | \$175 |
| Dowfrost HD | Dow Chemicals - DowFrost HD | 5 | 100% | - 30 F to 350 F | - 60 F | \$380 |

PARTS & ACCESSORIES

OTHER ACCESSORIES



| Model Number | Description | Details | LIST |
|---------------------|--|------------------|--------|
| RFLX 015 000 | Rhino Flex Tube | 15" x 3/4" FPT | \$22 |
| RFLX 024 000 | Rhino Flex Tube | 24" x 3/4" FPT | \$28 |
| EXPT 002 000 | 2 gallon Expansion tank | 3/4" MPT | \$192 |
| EXPT 005 000 | 5 gallon Expansion tank | 3/4" MPT | \$262 |
| EXPT 006 000 | Expansion Tank Wall Mount Bracket | | \$54 |
| ZZZZ 000 001 | Heliodyne Risse Sleeve - snap on Aluminum Jacket | over Gobi unions | \$17 |
| POOL 000 000 | Heliodyne Pool Pump Group | | \$885 |
| ZZZZ 000 010 | End Caps for Heliodyne Collector Rails | set of 4 | \$22 |
| 11830 | Oatey Roof Flashing 1/2" to 1" | galvanized | \$14 |
| 11840 | Oatey Roof Flashing 1" to 1 1/2" | galvanized | \$14 |
| INSTANT-PATCH-300ML | Tremco Roof Repair | | \$8 |
| 56440E | Zinc Lag Bolt 3/8" x 3" | (each) | \$0.60 |
| 38637 | Loctite 262 Threadlocker 6 mL. | | \$13 |
| PINK-TEFLON-TAPE | High Density Pipe Tape | | \$3 |

INSTALLER TOOLS

| INSTALLER TOOLS | | | INSTALLER NET |
|-----------------|------------------------------------|---|---------------|
| Model | Description | | |
| ITLS 000 001 | Glycol Test Kit | Test Kit for closed loop system maintenance. Includes: pH buffer solution pH meter cleaning solution, pH meter and refractometer. | \$515 |
| ITLS 000 002 | Fill Pump Kit | Fill pump with tank, hose, and pressure pump connection on the side | \$1,125 |
| ITLS 000 003 | Solar Simulation Software | Heliodyne, in partnership with Vela Solaris AG, now offers high-end, simple-to-use, solar performance planning software to aid in system design. <i>See more info below</i> | \$85 |
| ITLS 000 004 | Basic Solar Hot Water Training DVD | A comprehensive video training tool for all trade professionals. The nearly three-hour-long DVD has easy-to-navigate chapters that cover SHW topics such as Sales & Pre-Installation, SHW Theory, System Installation, and Service & Maintenance. | \$10 |
| ITLS 000 005 | Collector Carrying Straps | Heavy-duty adjustable straps to aid in collector handling. Accommodates all sizes. | \$105 |

SOLAR SIMULATION SOFTWARE

ITLS 000 001



ITLS 000 002



ITLS 000 003



ITLS 000 005

ITLS 000 004



With this tool, you can enter a customer's exact needs as well as specific parameters, such as roof pitch, shading, location of the house, etc. Then, using F-charts and numeric algorithms, the software can accurately calculate a variety of performance data such as daily system output, annual CO₂ emissions, and fuel savings. With this information, you and your client can see what the proposed solar system can do before it's even installed.

Features

- Simple to use (for up to 8 GOBI 410-sized systems)
- Directly compare various system configurations
- Various input parameters, e.g., home location/orientation, customer's SHW needs, vacation patterns, etc.
- Illustrations of all Heliodyne components and systems
- Daily/monthly/yearly SHW production estimation
- Daily/monthly/yearly energy and CO₂ savings

PROMOTIONAL TOOLS

| PROMOTIONAL TOOLS | | | INSTALLER NET |
|-------------------|-------------------------|---|---------------|
| Model | Description | Detail | |
| PTLS 100 003 | Consumer Brochures | Informational tool that provides your potential customers with many good reasons to buy a Heliodyne SHW system for their home | \$10 per 25 |
| PTLS 100 008 | Commercial Brochures | Informational tool that gives business owners the necessary information to pursue investing in a SHW system for their business | \$20 per 25 |
| PTLS 000 003 | Retractable Banner | A valuable tool for your showroom or tradeshow. Measures approx. 36" x 80" and comes with a carrying bag for easy transportation. | \$250 |
| PTLS 000 005 | Sales Kit | Includes: Sales Flip Chart, Questionnaire Pad, & assorted sample print materials | \$45 |
| PTLS 050 006 | Installer Questionnaire | 50 sheet replacement pad | \$10 |
| PTLS 000 004 | Wall Banner | Our 7' x 2' heavy gauge vinyl banner is an economical choice for promoting solar hot water. | \$110 |
| PTLS 102 001 | Mini Gobi | A miniature version (18" x 32") of our GOBI collector. <i>(Fold up stand not included)</i> | \$220 |
| PTLS 000 010 | Product Sample Kit | Includes: mounting hardware components, DOS combo fitting, GOBI component samples, & HPAK heat exchanger cutaway sample. | \$210 |
| PTLS 000 007 | HPAK Demonstration Unit | Full-size HPAK with all components included. Special cutaway heat exchanger shows the tube-in-tube design <i>(stand not included)</i> . | \$1,000 |
| PTLS 000 009 | HPAK Stand | Ideal for tradeshow or showrooms, the stand holds an HPAK securely in place. | \$150 |



PTLS 000 003

PTLS 000 007



PTLS 000 009



PTLS 102 001

PTLS 000 004



PTLS 000 010



PRESSURE STAGNATION PROTECTION METHOD

Background

When the storage tank has been fully charged, the controller will prevent the pump from circulating the fluids in the solar loop—this is called stagnation. As the sun might continue to heat the collectors, the temperature in the solar loop will increase (see Figure 1). At some point in temperature, the system will exchange energy to the ambient surroundings from the collector, pipes and balance of system at the same rate as the solar thermal radiation is adding it. This is known as the steady state stagnation temperature.

As the stagnation temperature rises, the fluid volume will expand, and because it's a closed loop so will the system pressure. As most hydraulic components are certified to cope with a certain max pressure, all hydraulic closed loops are fitted with a pressure relief valve that will prevent the system pressure from rising beyond the certified pressure level of components. However, to prevent undesired pressure reliefs that will require a service call, closed loop systems are typically fitted with an expansion tank to absorb minor fluid expansions from normal swings in system temperature.

In areas of potential freezing, the heat-transfer fluid used in solar loops is typically propylene glycol, which will wear down over time. Consequently the glycol will have to be replaced on a regular basis or it will lose its freeze-protection properties and be unable to protect the collectors from freeze damages. The longevity of glycol comes from keeping it below its max temperature rating and in a liquid phase at all times. Allowing glycol to boil (and turn to vapor) will rapidly degrade it and necessitate replacement at shorter intervals. The challenge in solar system design is thus balancing the temperature, pressure, and size of the expansion tank to avoid undesired pressure reliefs, so as to keep the glycol in a liquid state at all times, consequently prolonging the service life.

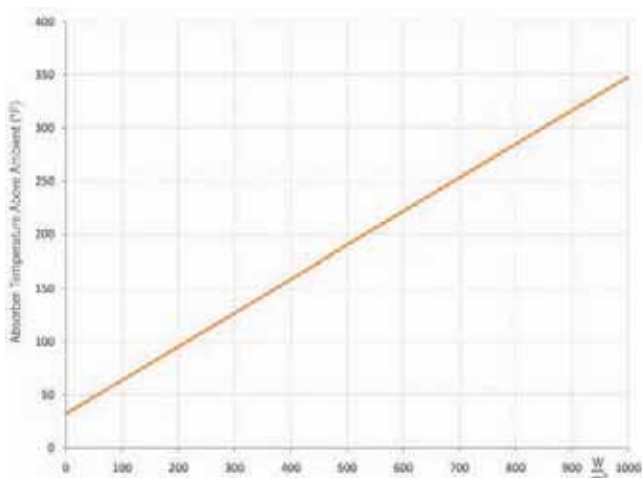


Figure 1: Temperature rise during stagnation

Pressure Stagnation Protection (PSP) Method

The boiling temperature of liquids varies with pressure. For example, a pot of water boils at a lower temperature on the top of a mountain than at sea level, because the atmospheric pressure is lower. This basic law of physics is used in the PSP method. In other words, the system pressure in a PSP system is allowed to increase with the stagnation temperature, which increases the boiling point, and keeps the glycol in a liquid state at all times.

A properly designed system using the PSP method operates at the “System Pressure” curve (see Figure 2) maximizing system temperature, while staying above the fluid vapor pressure. It keeps the temperature of the system fluid balanced with the internal pressure of the system via a properly sized expansion tank and initial pressurization. The key elements to a successful PSP system are:

1. Components to withstand 150 psig maximum operational pressure
2. Expansion tank size based on the collector system fluid volume, and height difference between the expansion tank and highest point
3. Heat-transfer fluid that can withstand the high temperatures expected during peak stagnation
4. Equipment that can withstand the high temperatures expected during peak stagnation

All Heliodyne equipment is pressure-tested to 300 psig and can withstand the excessive pressure and stagnation temperatures occurring in a PSP system. Consequently, all Heliodyne heat-transfer appliances are fitted with 150 psig pressure-relief valves. And using the Heliodyne Dyn-O-Flo antifreeze liquid will ensure a long service life, and minimal maintenance costs.

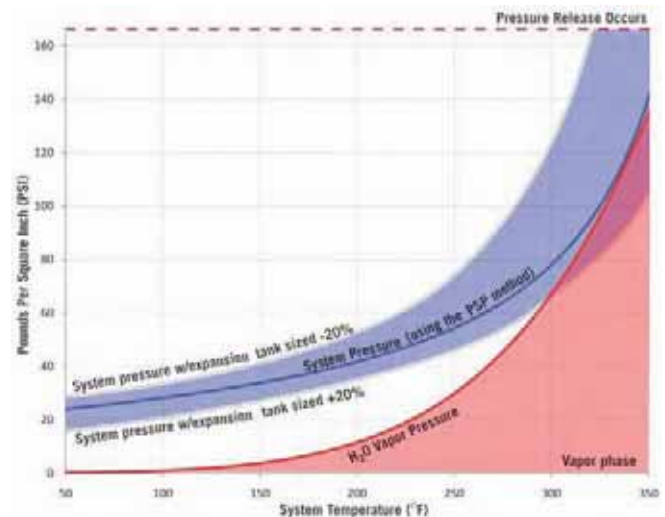


Figure 2: Collector system pressure behavior

TERMS, CONDITIONS, & WARRANTY

HELIODYNE TERMS & CONDITIONS

1 . General Information

These terms and conditions of business are an integrated part of every product and service offered by HELIODYNE and every purchasing agreement signed with it. They apply starting 3/1/2008. General terms and conditions of business, regardless of the type, that conflict with these terms and conditions of business shall be considered invalid and of no legal force.

2 . Products and Services

Our range, descriptions, and specifications of products are not binding. We reserve the right to make technical changes to products due to technical developments. All technical documents remain the intellectual property of the contractor.

3 . Prices

Unless otherwise agreed in writing, prices are net prices ex works, not including packaging and not including discounts. Prices are merely suggested prices, approximated at the time of signing the agreement. If material costs increase between the time the agreement is signed and performed regardless of reason of the parity commission, prices in consideration shall be increased accordingly, unless fewer than 3 months have elapsed between the signing of the agreement and performance.

4 . Time for Performance and Deadlines

Delivery dates are never binding unless a fixed date is expressly agreed. If a change to an agreement is agreed, HELIODYNE is entitled to set a new delivery date. HELIODYNE is not liable for delivery delays that are not due to our fault or negligence. In this case, the contractor waives the right to terminate the agreement and to assert claims to damages. In the case of delay in performance of service caused by the contractor or suspension, the contractor must cover all additional costs caused by the delay or suspension, and HELIODYNE can cause our services and costs to become due using partial invoices.

5 . Payment

Unless otherwise agreed, goods shall be delivered only cash on delivery or on prepayment net without discount. Checks and bills of exchange will only be accepted if agreed separately and only on account of payment, not instead of performance. Recovery and discount charges shall be borne by the contractor. HELIODYNE can decline payments offered in the form of checks or bills of exchange without providing a reason. Set-off or withholding payment for any reason whatsoever by the client is prohibited unless expressly agreed. Payments must be made in full to one of our accounts or to a person with the authority to collect. If the credit period is exceeded, if payment is received late or if deadlines are not met, HELIODYNE is entitled to assess late charges in the amount of 5% above the rate set by the Bank of America as its prime rate of interest. In the case of default, the contractor must pay collection fees, intervention costs and attorney fees in addition to late fees. Warranty claims asserted by the client do not entitle the client to withhold agreed payments.

6 . Failure to Meet Due Dates

If the client defaults on a payment that is part of an agreement or a part of a payment for over 2 weeks, HELIODYNE is entitled to call due the entire remaining purchase price (remaining invoice amount) immediately. Further, the entire remaining balance becomes due if execution of the property fails, forced sale of properties or sequestration is authorized, or if the credit rating or credit worthiness declines in any other form. Failure to meet due dates shall entitle HELIODYNE to terminate the agreement.

7 . Shipping and Transfer, Exchange, Reversed Transaction

The client must inspect and accept goods immediately after receiving goods at the agreed transfer site or have goods inspected and accepted by persons authorized to do so, in such manner. If the contractor does not inspect the goods, the object of purchase shall be deemed duly delivered and accepted. Shipping always takes place, even in the case of freight-paid shipping, at the contractor's cost and risk. HELIODYNE's contractual obligations are fulfilled upon transfer of the goods ordered by the client to the carrier, and risk of loss is transferred to the client. The agreement can only be terminated or modified despite proper performance by HELIODYNE with the consent of HELIODYNE. In all cases, the client must pay the full purchase price including costs (delivery, etc.) or —at the discretion of HELIODYNE— a lump sum that covers the generally expected costs, but not less than 15% of the purchase price. Goods must be returned to HELIODYNE in undamaged condition including the original packaging. HELIODYNE shall not agree to replace goods later than three months after the date they were delivered. Special goods (not stock goods) shall not be replaced.

8 . Retention of Title

8.1. HELIODYNE retains the title to goods it supplies until outstanding debts resulting from the business relationship are paid in full. These goods may only be sold in a normal business transaction as long as the client is not in default of payment with HELIODYNE.

8.2. In the case of resale, the following provisions apply:

– In signing the agreement, the contractor already cedes to HELIODYNE outstanding debts resulting from the sale.

– On request, the client must inform HELIODYNE of transfer to a third-party purchaser and give HELIODYNE all documents and information required for asserting ceded debts.

– If reserved goods or outstanding debts ceded to HELIODYNE are pledged, HELIODYNE must be notified of all circumstances that are required for asserting its claims.

8.3. The power of the client to sell reserved goods in a proper business transaction ends at the latest with the client's cessation of payment or if insolvency proceedings regarding the client or the client's property are filed. In this case, the client must deliver the reserved goods to HELIODYNE at HELIODYNE's first request. Demanding return of reserved goods does not equal termination of the purchase agreement.

8.4. Pledging or assigning reserved goods by way of security or transferring assigned debts is not permitted.

8.5. HELIODYNE shall release securities pledged to HELIODYNE according to the above provisions at its discretion if the value of the securities exceeds the debt to be secured by 10%, taking into account value added by the customer.

8.6. HELIODYNE must be informed of levies of attachment immediately by the execution creditor.

8.7. The client is required to send HELIODYNE a statement on goods that are still under retention of title and a statement of debts to third-party debtors in addition to credit notes as soon as the client has stopped payment, meaning immediately after giving notice that the client is stopping payments.

9 . Warranty

9.1. HELIODYNE shall provide a one-year warranty for defects in compliance with the purchased goods delivered on 3/1/2008 as follows: Objects are warranted at HELIODYNE's discretion by repair of the object of purchase or replacement of defective parts, exchange or reduction of price. The right of the contractor to convert objects is ceded by common consent. Replaced parts become the property of HELIODYNE. Wages and costs spent on installation and disassembly must be covered by the client. This provision similarly applies to all warranty agreements. It is at HELIODYNE's discretion to replace defective goods with similar, faultless goods. In this case, any rights to cancel the agreement cease. The client expressly waives the right for it and its legal successors to assert claims for damages or loss of profit (including without limitation special, indirect, loss of use, contingent, or consequential damages) due to defects or nonconformity in the purchased good. The warranty set forth above constitutes the sole and exclusive remedy against HELIODYNE for the furnishing of any nonconforming or defective goods. THE ABOVE WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. Damage resulting from improper or negligent treatment is excluded from the warranty. Claims on warranty will only be admitted and considered if they are announced in writing immediately after the defect was first noticed. Oral communication or communication by telephone are not sufficient.

9.2. For collectors (except broken glass and collector accessories, e.g., sheet metal edgings), storage tanks (except attached components), and heating appliances, HELIODYNE replaces materials that demonstrably fail to meet one of the requirements of the ASHRAE standard 93-77 at no charge: ten years for collectors, five years for heating appliances (three years for electronics) and five years for storage tanks, from the date of the invoice issued by the company HELIODYNE. HELIODYNE is not liable, however, for damage caused by mechanical stress and/or changes caused by weather-related influences. Minor variations in color and/or damage to the surface that have no effect on the function of the collector are also not covered in the warranty. The warranty excludes damage caused by force majeure and malfunction that are due to improper assembly, and/or product installation. HELIODYNE is not liable for possible costs resulting from defects. In order for HELIODYNE to accept liability:

– Installation must have been carried out by a licensed specialized company (heating contractor or plumber) following the version of installation instructions in force;

– HELIODYNE or its representative was given the opportunity to check complaints on site immediately after any defect occurred;

– Confirmation exists that the system was commissioned properly and that the system was checked and maintenance was performed annually by a specialized company licensed for this purpose. The warranty agreed by HELIODYNE is only valid for their clients.

10 . Place of Performance and Jurisdiction

The place of performance for delivery and payment is Richmond, California. The contract shall be in all respects constructed and governed by the laws of the State of California. Any dispute arising hereunder shall be settled in accordance with California law, and the client consents to jurisdiction in the State of California.

Your Authorized Heliodyne Distributor:

refrigerative supply

VANCOUVER

(604) 872-7521

132 WEST 2ND AVENUE
VANCOUVER, BC V5Y 1C2

Fax: (604) 872-7460
Toll Free: 1-800-661-2577
After Hours Emergency:
(604) 872-7521

COQUITLAM

(604) 944-0441

2394 CANOE AVENUE
COQUITLAM, BC V3K 6C2

Fax: (604) 944-0450
Toll Free: 1-800-661-2285
After Hours Emergency:
(604) 944-0441

VICTORIA

(250) 475-6055

524E CULDUTHEL ROAD
VICTORIA, BC V8Z 1G1

Fax: (250) 475-1985
Toll Free: 1-800-663-1034
After Hours Emergency:
(250) 812-4700

CALGARY

(403) 243-8191

4616 MANHATTAN ROAD SE
CALGARY, AB T2G 4B4

Fax: (403) 243-8670
Toll Free: 1-800-661-4061
After Hours Emergency:
(403) 243-8191

SASKATOON

(306) 665-2206

2250 NORTHRIDGE DRIVE
SASKATOON, SK S7L 1B9

Fax: (306) 665-2210
Toll Free: 1-800-589-9769
After Hours Emergency:
(306) 665-2206

BURNABY (S)

(604) 454-5075

8028 NORTH FRASER WAY
BURNABY, BC V5J 0E1

Fax: (604) 454-5073
Toll Free: 1-877-754-5075
After Hours Emergency:
(604) 454-5075



EDMONTON (S)

(780) 485-2121

8548 ROPER ROAD
EDMONTON, AB T6E 6V4

Fax: (780) 485-2188
Toll Free: 1-866-732-7551
After Hours Emergency:
(780) 485-2121

REGINA

(306) 359-9797

1160 SCARTH STREET
REGINA, SK S4R 2E2

Fax: (306) 359-9766
Toll Free: 1-800-291-6340
After Hours Emergency:
(306) 359-9797

BURNABY

(604) 435-1313

3958 MYRTLE STREET
BURNABY, BC V5C 4G2

Fax: (604) 435-7677
Toll Free: 1-800-663-9635
After Hours Emergency:
(604) 435-1313

LANGLEY

(604) 539-2290

20392 – 65TH AVENUE
LANGLEY, BC V2Y 3G9

Fax: (604) 539-2295
Toll Free: 1-800-784-4640
After Hours Emergency:
(604) 539-2290

KELOWNA

(250) 763-3114

1885 BARON ROAD
KELOWNA, BC V1X 6W2

Fax: (250) 861-1546
Toll Free: 1-800-667-1887
After Hours Emergency:
(250) 763-3114

EDMONTON (N)

(780) 455-7755

11089 – 120TH STREET
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