Thermodynamic Solar Energy
Energy Saving and Efficiency
PREFACE

THE STATE OF THE ART SOLAR TECHNOLOGY

An Optimised Working System
An Ecological Fluid Refrigerant
The Solar Panel: Unique & Innovative

APPLICATIONS OF THE SOLAR PST SYSTEM

Domestic Hot Water
Large Volume Hot Water
Central Heating
Swimming Pool

TECHNICAL SPECIFICATIONS

Precharged Domestic Systems
Non-Precharged Domestic Systems
Systems from 4 up to 40 panels

INSTALLATION ACCESSORIES

Panels arrangement

GENERAL SALES CONDITIONS

WARRANTY
Solar PST, located in Galicia, northwest Spain, started its growth and development in 2005 in parallel to the renewable energy business.

We are a groundbreaking company in the development and installation Thermodynamic Solar Panels Systems which absorb the environmental heat to heat up water applied to different uses: central heating, swimming pool and hot sanitary water.

Solar energy has been regarded as the major source of energy both in the past and in the present. Above all, it is the energy of the future as it is clean and free and it also avoids dependence on fossil fuels, thus being in the best interests of the planet. From the outset, Solar PST’s entrepreneurial vision has aimed to combine a commitment to the environment with providing consumers with efficient, cost-cutting energy.

Their manager and shareholders have been able to adapt their experience to this business group, in leading sectors such as telecommunications and audiovisual.

Our commitments with the development of cutting edge technologies contributes to the renewable energy with a remarkable added value, maximizing the quality of our services and improving the welfare of our customers and the habitability of our planet.

Our business plan started meeting with success at an international level in 2007, making the European Union our most prosperous market, a success which spread later to other countries such as Chile, Morocco, Argentina and New Zealand.

As of now, we are prepared to compete within an international environment after achieving distribution of our products in over 20 countries through a network of sales representatives and agents. Moreover, we offer our clients the benefit of a unique product, manufactured with cutting edge technology, giving high performance and an elevated added value of respect for the environment based on energy efficiency and sustainability.

All our experience, effort and specialization have lead us to the conviction that achieving a balance in the use of renewable energy will shape the future of our planet. Therefore, Solar PST makes an important contribution, through energy solutions, to a more sustainable and efficient world for everyone.
THE STATE OF THE ART
SOLAR TECHNOLOGY

An optimised working system
An ecological fluid refrigerant
The solar panel: unique & innovative
The Solar PST system guarantees the production of hot sanitary water, central heating and swimming-pools providing the maximum energy efficiency 24 hrs a day, thanks to its revolutionary working principle.

The Thermodynamic Solar Collector technology offers high performance even at night, with rain, or on overcast days, this being an advantage over conventional solar panels whose performance is limited as they rely exclusively on direct solar radiation and a compulsory southward orientation (Northern Hemisphere).

Certified at European level, the Solar PST system complies with the highest norms of efficiency and energy saving of the market.

The working principle is based on the Thermodynamic laws, discovered by the french physicist Carnot in 1824. This principle takes advantage of the physical properties of a refrigerant gas that, when changing its state, it is capable of transmitting the heat absorbed by the collectors down to the cylinder where the water is stored.

The Solar PST systems deliver energy efficiency solutions for RESIDENTIAL, COMMERCIAL and INDUSTRIAL applications in the public and private sectors.

AN OPTIMISED WORKING SYSTEM

- The fluid refrigerant enters the panel at -10°C that changes its state due to the heat previously captured from the ambient temperature which is present in the direct and diffuse solar radiation, external air by natural convection, wind effects and rainwater.
- The hot gas comes out of the panel and goes into the compressor that increases the refrigerant gas temperature up to 120°C. Then the gas yields the heat to the water stored in the cylinder up to 50°C.
- As it cools, the refrigerant condenses into liquid and flows through the expansion valve that measures the amount of the liquid refrigerant that will be sent to the panel. Thus the cycle starts all over again.
• Life span of more than 25 years: the panel is made of anodized aluminium 30 microm, which ensures the following properties:
  - Great toughness at high and low temperatures.
  - High surface hardness.
  - Resistance to abrasion and weakening.
  - High protection against dust and dampness.
  - Corrosion-resistant.

• Last generation solar collector: it is a roll-bond panel with double channel through which the fluid refrigerant circulates, being able of providing high performance at night and in adverse climate conditions.

• User-friendly transport and easy handling systems: small size 2,00 m x 0,80 m.

• Versatility: easy integration on facades, roofs or any other surface. It is not necessary to reinforce structures as it is a lightweight panel, 8 kg.

• Optimized solar catchment area: both sides of the panel, 3,20 sqm.

• No need to be south orientated (Northern Hemisphere). Solar PST recommends to orientate the collector as much as possible to the sun and exposed to the elements, such as wind and rain.

• Regular maintenance is not necessary.
APPLICATIONS
OF THE SOLAR PST SYSTEM

- Domestic Hot Water
- Large Volume Hot Water
- Central heating
- Swimming Pools
DOMESTIC HOT WATER

The Thermodynamic Solar Collectors provide hot sanitary water up to 50°C, day and night, with rain, wind and in absence of sun. At present there is no superior technology on the market than this, which can provide an energy saving of up to 80% all year round.

The Solar PST technology represents the main water heating system either in summer and in winter time with no need of a backup system as long as the external temperature is above 0°C.

Maintenance for the equipment is almost nonexistent providing maximum safety and security.

The domestic systems are comprised of cylinders from 180L up to 500L which are supplied in kits for an easy and safe installation.

Solar PST systems are compatible with any water heating system as the Solar PST cylinders can be supplied with an extra coil upon request.
Domestic hot water

**ENAMEL DOMESTIC RANGE**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>PANELS</th>
<th>VOL. LTS</th>
<th>D mm</th>
<th>H mm</th>
<th>ELECTRIC POWER W</th>
<th>CALORIC POWER GENERATED W</th>
</tr>
</thead>
<tbody>
<tr>
<td>PST 200cv**</td>
<td>1</td>
<td>200</td>
<td>584</td>
<td>1.230</td>
<td>390 - 520</td>
<td>1.690 - 2.510</td>
</tr>
<tr>
<td>PST 250v**</td>
<td>1</td>
<td>250</td>
<td>584</td>
<td>1.500</td>
<td>390 - 520</td>
<td>1.690 - 2.510</td>
</tr>
<tr>
<td>PST 300v</td>
<td>1</td>
<td>300</td>
<td>680</td>
<td>1.600</td>
<td>390 - 520</td>
<td>1.690 - 2.510</td>
</tr>
</tbody>
</table>

(*) Domestic systems can be supplied, upon request, with an extra coil in order to be connected to a conventional heating system.

(**) PST 200cv does not include either reduction pressure valve or security valve.

PST250v and PST300v precharged systems with gaz 134-A.

**DOMESTIC STAINLESS STEEL RANGE**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>PANELS</th>
<th>VOL. LTS</th>
<th>D mm</th>
<th>H mm</th>
<th>ELECTRIC POWER W</th>
<th>CALORIC POWER GENERATED W</th>
</tr>
</thead>
<tbody>
<tr>
<td>PST 180IP</td>
<td>1</td>
<td>180</td>
<td>550</td>
<td>1.170</td>
<td>390 - 520</td>
<td>1.690 - 2.510</td>
</tr>
<tr>
<td>PST 200i*</td>
<td>1</td>
<td>200</td>
<td>550</td>
<td>1.270</td>
<td>390 - 520</td>
<td>1.690 - 2.510</td>
</tr>
<tr>
<td>PST 200iOS*</td>
<td>2</td>
<td>200</td>
<td>550</td>
<td>1.270</td>
<td>595 - 880</td>
<td>2.800 - 3.650</td>
</tr>
<tr>
<td>PST 200iS*</td>
<td>1</td>
<td>280</td>
<td>550</td>
<td>1.630</td>
<td>390 - 520</td>
<td>1.690 - 2.510</td>
</tr>
<tr>
<td>PST 200iS*</td>
<td>1</td>
<td>300</td>
<td>550</td>
<td>1.630</td>
<td>390 - 520</td>
<td>1.690 - 2.510</td>
</tr>
<tr>
<td>PST 280i*</td>
<td>1</td>
<td>300</td>
<td>550</td>
<td>1.630</td>
<td>595 - 880</td>
<td>2.800 - 3.650</td>
</tr>
<tr>
<td>PST 300i*</td>
<td>2</td>
<td>300</td>
<td>550</td>
<td>1.630</td>
<td>595 - 880</td>
<td>2.800 - 3.650</td>
</tr>
<tr>
<td>PST 300iOS*</td>
<td>2</td>
<td>300</td>
<td>550</td>
<td>1.630</td>
<td>595 - 880</td>
<td>2.800 - 3.650</td>
</tr>
<tr>
<td>PST 300iOS*</td>
<td>1</td>
<td>500</td>
<td>720</td>
<td>1.650</td>
<td>595 - 880</td>
<td>2.800 - 3.650</td>
</tr>
<tr>
<td>PST 500iOS*</td>
<td>2</td>
<td>500</td>
<td>720</td>
<td>1.650</td>
<td>595 - 880</td>
<td>2.800 - 3.650</td>
</tr>
</tbody>
</table>

(*) Domestic systems can be supplied, upon request, with an extra coil in order to be connected to a conventional heating system.

PST180IP and PST280i: precharged systems with gaz 134-A.

**FEATURES:**

- Fluid Refrigerant 134A.
- Compressor Danfoss.
- Serpentine Heat Exchanger.
- Electric power consumption: 390 W.
- Antilegionella control device.

**KIT COMPONENTS:**

- Thermodynamic Solar Collector.
- Cylinder.
- Thermodynamic Block (compressor included).
- Immersion Heater Backup.
- Gasket with control panel included.
- Brackets kit made of aluminium.
- Security valve.
- Reduction pressure valve.
- Neoprene joint.
- Stainless steel bolt kit.
LARGE VOLUME HOT SANITARY WATER

The Thermodynamic Solar Collectors Solar PST are capable of heating any hot water volume thanks to the exceptional power and high performance of the system, guaranteeing safety and comfort. The Thermodynamic Solar System for heating large volume of sanitary water has proven to be the most efficient and cost-effective system in public and private entities, hotel resorts, shopping centres, industries, schools...

Large Volume Cylinders:

<table>
<thead>
<tr>
<th>CYLINDER</th>
<th>PANELS</th>
<th>VOLUME (L)</th>
<th>ENAMEL Height mm</th>
<th>ENAMEL Diameter mm</th>
<th>STAINLESS STEEL Height mm</th>
<th>STAINLESS STEEL Diameter mm</th>
<th>ELECTRIC POWER W</th>
<th>CALORIC POWER GENERATED W</th>
</tr>
</thead>
<tbody>
<tr>
<td>PST 800-A</td>
<td>4</td>
<td>800</td>
<td>1.840</td>
<td>950</td>
<td>1.840</td>
<td>950</td>
<td>960 - 1.800</td>
<td>3.600 - 7.290</td>
</tr>
<tr>
<td>PST 1000-A</td>
<td>4 - 6 - 8</td>
<td>1.000</td>
<td>2.250</td>
<td>950</td>
<td>2.250</td>
<td>950</td>
<td>960 - 1.800</td>
<td>3.600 - 7.290</td>
</tr>
<tr>
<td>PST 2000-B</td>
<td>8 - 12 - 16</td>
<td>2.000</td>
<td>2.280</td>
<td>1.360</td>
<td>2.280</td>
<td>1.360</td>
<td>1.440 - 2.625</td>
<td>5.500 - 11.240</td>
</tr>
</tbody>
</table>

Larger Volume Cylinders are available upon request, from 800 lts up to 6.000 lts.

FEATURES:

- Model A anchor flange DN200 (1 heat exchanger).
- Model B with two anchor flanges DN200 (2 heat exchangers).
- Anchor flange of 400 mm.
- Immersion heaters voltage: 230 V or 400 V.
- Cathodic protection.
- Decorative cover.
Large Volume HSW range:

<table>
<thead>
<tr>
<th>MODEL</th>
<th>PANELS</th>
<th>VOLUME LTS</th>
<th>ELECTRIC POWER W</th>
<th>CALORIC POWER GENERATED W</th>
</tr>
</thead>
<tbody>
<tr>
<td>PST 4 ACS</td>
<td>4</td>
<td>800 / 1.000</td>
<td>960 - 1.800</td>
<td>3.600 - 7.290</td>
</tr>
<tr>
<td>PST 8 ACS</td>
<td>8</td>
<td>1.000 / 1.500 / 2.000</td>
<td>1.440 - 2.625</td>
<td>5.500 - 11.240</td>
</tr>
<tr>
<td>PST 12 ACS</td>
<td>12</td>
<td>1.500 / 2.000</td>
<td>2.010 - 3.120</td>
<td>9.215 - 16.580</td>
</tr>
<tr>
<td>PST 16 ACS</td>
<td>16</td>
<td>2.000 / 3.000</td>
<td>3.210 - 5.156</td>
<td>14.190 - 24.200</td>
</tr>
<tr>
<td>PST 24 ACS</td>
<td>24</td>
<td>3.000 / 4.000</td>
<td>4.140 - 6.025</td>
<td>16.495 - 31.430</td>
</tr>
<tr>
<td>PST 32 ACS</td>
<td>32</td>
<td>4.000 / 5.000</td>
<td>5.690 - 8.300</td>
<td>24.090 - 42.600</td>
</tr>
<tr>
<td>PST 40 ACS</td>
<td>40</td>
<td>5.000 / 6.000</td>
<td>7.100 - 10.150</td>
<td>32.540 - 52.970</td>
</tr>
</tbody>
</table>

Fixing brackets and rails can be supplied upon request.

Features:
- Fluid Refrigerant 407C.
- Compressor Copeland.
- Heat Exchanger.
- Electric power consumption 960 W.

Kit elements:
- From 4 up to 40 panels.
- Thermodynamic block.
- Liquid distributor.
- Heat Exchanger.

Security valve and pressure reduction valve are not included.

Average time to heat sanitary water:

<table>
<thead>
<tr>
<th>MODEL</th>
<th>PST 4</th>
<th>PST 6</th>
<th>PST 8</th>
<th>PST 12</th>
<th>PST 16</th>
<th>PST 24</th>
<th>PST 32</th>
<th>PST 40</th>
</tr>
</thead>
<tbody>
<tr>
<td>PST 1000-A</td>
<td>11 hrs</td>
<td>8 hrs</td>
<td>6 hrs</td>
<td>4 hrs</td>
<td>3 hrs</td>
<td>2 hrs</td>
<td>1.5 hrs</td>
<td>1 hr</td>
</tr>
<tr>
<td>PST 1500-A</td>
<td>11 hrs</td>
<td>9 hrs</td>
<td>7 hrs</td>
<td>5 hrs</td>
<td>4 hrs</td>
<td>3 hrs</td>
<td>2 hrs</td>
<td>1.5 hrs</td>
</tr>
<tr>
<td>PST 2000-B</td>
<td>11 hrs</td>
<td>9 hrs</td>
<td>7 hrs</td>
<td>5 hrs</td>
<td>4 hrs</td>
<td>3 hrs</td>
<td>2 hrs</td>
<td>1.5 hrs</td>
</tr>
<tr>
<td>PST 3000-B</td>
<td>11 hrs</td>
<td>9 hrs</td>
<td>7 hrs</td>
<td>5 hrs</td>
<td>4 hrs</td>
<td>3 hrs</td>
<td>2 hrs</td>
<td>1.5 hrs</td>
</tr>
<tr>
<td>PST 4000-B</td>
<td>10 hrs</td>
<td>7 hrs</td>
<td>5 hrs</td>
<td>4 hrs</td>
<td>3 hrs</td>
<td>2 hrs</td>
<td>1.5 hrs</td>
<td>1 hr</td>
</tr>
</tbody>
</table>
DOMESTIC HOT WATER

Weight: 8 Kg.

Fluid Refrigerant: R134A
Gas return
Cold water
Hot water

(*) Expansion vessel: small tank must be installed in domestic hot water systems to absorb excessive pressure.
LARGE VOLUME HOT WATER

SANITARY HOT WATER

Fluid Refrigerant 407C
Gas return
Gas
Fluid Refrigerant

COLD WATER INLET

SINGLE PHASE
UP TO 12 PANELS

THREE PHASE
FROM 4 UP TO 40 PANELS

Weight: 8 Kg.

SANITARY HOT WATER

Fluid Refrigerant
Gas return
Gas
Fluid Refrigerant

Temperature: 50°C

EXPANSION VESSEL

(*) Expansion vessel: small tank must be installed in domestic hot water systems to absorb excessive pressure.

Gas return
Gas
Fluid Refrigerant

Weight: 8 Kg.

Fluid Refrigerant R134A
Gas return
Cold water
Hot water
LARGE VOLUME HOT WATER WITH BACKUP

- BOILER
- SANITARY HOT WATER
- Fluid Refrigerant 407C
- Gas return
- Gas 407C
- Fluid Refrigerant
- COLD WATER INLET
- SINGLE PHASE
  up to 12 panels
- THREE PHASE
  from 4 up to 40 panels

Thermostat
Exchanger

Fluid Refrigerant 407C
Gas return
Gas 407C
Cold water
Hot water
CENTRAL HEATING

The Thermodynamic Solar Collectors are capable of capturing enough ambient heat to heat a dwelling, providing a comfortable temperature over the coldest winter days.

With a single Thermodynamic Solar System you will both heat your home in winter and your swimming-pool in spring, summer and autumn, optimizing your own resources and those from nature. Thus, your investment can be recouped in a very short period of time.

Solar PST technology offers you the possibility of heating or pre-heating water up to 50ºC in commercial installations which will result in a dramatic reduction in energy consumption, specially in comparison with gasoline.

Our system can easily be adapted to your house with no need for major reforms to your current heating system. Thus, Solar PST system fulfills the main heating system or even as an energy backup of any conventional system during the coldest months where temperatures are below 0ºC.

Low temperature heating radiators, fan-coils and underfloor heating except iron radiators are compatible systems with Solar PST technology.

Central Heating Range:

<table>
<thead>
<tr>
<th>MODEL</th>
<th>PANELS</th>
<th>SURFACE (MAX.)</th>
<th>ELECTRIC POWER W</th>
<th>CALORIC POWER GENERATED W</th>
</tr>
</thead>
<tbody>
<tr>
<td>PST 4C</td>
<td>4</td>
<td>60 m²</td>
<td>960 - 1.800</td>
<td>3.600 - 7.290</td>
</tr>
<tr>
<td>PST 6C</td>
<td>6</td>
<td>80 m²</td>
<td>1.230 - 2.220</td>
<td>4.900 - 9.680</td>
</tr>
<tr>
<td>PST 8C</td>
<td>8</td>
<td>110 m²</td>
<td>1.440 - 2.625</td>
<td>5.500 - 11.240</td>
</tr>
<tr>
<td>PST 12C</td>
<td>12</td>
<td>120 m²</td>
<td>2.010 - 3.120</td>
<td>9.215 - 16.580</td>
</tr>
<tr>
<td>PST 16C</td>
<td>16</td>
<td>190 m²</td>
<td>3.210 - 5.156</td>
<td>14.190 - 24.200</td>
</tr>
<tr>
<td>PST 24C</td>
<td>24</td>
<td>260 m²</td>
<td>4.140 - 6.025</td>
<td>16.495 - 31.430</td>
</tr>
<tr>
<td>PST 32C</td>
<td>32</td>
<td>350 m²</td>
<td>5.690 - 8.300</td>
<td>24.090 - 42.600</td>
</tr>
<tr>
<td>PST 40C</td>
<td>40</td>
<td>420 m²</td>
<td>7.100 - 10.150</td>
<td>32.540 - 52.970</td>
</tr>
</tbody>
</table>

Fixing brackets and rails can be supplied upon request.

FEATURES:

- Fluid Refrigerant 407C.
- Compressor: Copeland Scroll type.
- Plate exchanger.
- Electric power consumption: 960 W.

Kit elements:

- Solar panels from 4 up to 40.
- Thermodynamic block.
- Plate exchanger.
- Liquid distributor.
CENTRAL HEATING

(1) Flow control: stops the machine when there is no water on air into the pipes.
(2) Expansion vessel: small tank must be installed in domestic hot water systems to absorb excessive pressure.
(1) Flow control: stops the machine when there is no water on air into the pipes.
(2) Expansion vessel: small tank must be installed in domestic hot water systems to absorb excessive pressure.
(1) Flow control: stops the machine when there is no water on air into the pipes.

(2) Expansion vessel: small tank must be installed in domestic hot water systems to absorb excessive pressure.
SWIMMING-POOLS HEATING

Solar PST offers you the possibility of heating your swimming-pool water all year round, guaranteeing the minimum energy consumption. No matter the volume to heat, private swimming-pools, sports clubs swimming-pools, schools, camp sites, municipal swimming-pools or even olympic pools, Solar PST, with its latest innovative technology, will allow you to reduce your energy consumption with the most reliable and cost-effective system.

Swimming-pool range:

<table>
<thead>
<tr>
<th>MODEL</th>
<th>PANELS</th>
<th>TITANIUM EXCHANGER</th>
<th>OUTDOOR (Max.)</th>
<th>INDOOR (Max.)</th>
<th>ELECTRIC POWER W</th>
<th>CALORIC POWER GENERATED W</th>
</tr>
</thead>
<tbody>
<tr>
<td>PST 4P</td>
<td>4</td>
<td>1 x 100-40</td>
<td>25 m³</td>
<td>30 m³</td>
<td>960 - 1.800</td>
<td>3.600 - 7.290</td>
</tr>
<tr>
<td>PST 6P</td>
<td>6</td>
<td>2 x 100-40</td>
<td>30 m³</td>
<td>50 m³</td>
<td>1.230 - 2.220</td>
<td>4.900 - 9.680</td>
</tr>
<tr>
<td>PST 8P</td>
<td>8</td>
<td>2 x 100-40</td>
<td>40 m³</td>
<td>65 m³</td>
<td>1.440 - 2.625</td>
<td>5.500 - 11.240</td>
</tr>
<tr>
<td>PST 12P</td>
<td>12</td>
<td>2 x 100-70</td>
<td>60 m³</td>
<td>100 m³</td>
<td>2.010 - 3.120</td>
<td>9.215 - 16.580</td>
</tr>
<tr>
<td>PST 16P</td>
<td>16</td>
<td>2 x 100-70</td>
<td>80 m³</td>
<td>130 m³</td>
<td>3.210 - 5.156</td>
<td>14.190 - 24.200</td>
</tr>
<tr>
<td>PST 24P</td>
<td>24</td>
<td>2 x 100-104</td>
<td>100 m³</td>
<td>160 m³</td>
<td>4.140 - 6.025</td>
<td>16.495 - 31.430</td>
</tr>
<tr>
<td>PST 32P</td>
<td>32</td>
<td>2 x 100-104</td>
<td>140 m³</td>
<td>220 m³</td>
<td>5.690 - 8.300</td>
<td>24.090 - 42.600</td>
</tr>
<tr>
<td>PST 40P</td>
<td>40</td>
<td>2 x 100-104</td>
<td>180 m³</td>
<td>300 m³</td>
<td>7.100 - 10.150</td>
<td>32.540 - 52.970</td>
</tr>
</tbody>
</table>
FEATURES:

- Fluid refrigerant 407C.
- Compressor Copeland Scroll type.
- Titanium exchanger.
- Electric power consumption: 960 W.

Kit elements:

- Solar panels from 4 up to 40.
- Thermodynamic block.
- Titanium exchanger.
- Liquid distributor.

Fixing brackets and rails can be supplied upon request.

Notes of interest:

- Indoors swimming-pools must be assessed individually.
- The indoor swimming-pools must have an ambient temperature of +2°C more than the swimming-pool water.
- Either a dehumidifier and an air-conditioning system are recommended for the installation.
- A thermal cover is recommended to avoid heat dissipation.
- The minimum external temperature must be of 18°C so that the maximum efficiency is guaranteed.
CENTRAL HEATING + DOMESTIC WATER + SWIMMING POOL

- UNDERFLOOR HEATING
- FANCOILS
- LOW TEMPERATURE RADIATORS

- AMBIENT THERMOSTAT

- POOL THERMOSTAT

- TITANIUM EXCHANGERS
- FILTER
- PRE-FILTER

- THREE-WAY VALVE

- THREE-WAY VALVE

- EXPANSION VESSEL (2)

- SANITARY HOT WATER
- TANK WITH DOUBLE CHAMBER
- THERMOSTAT H.S.W.

- FLUID REFRIGERANT 407C

- GAS RETURN

- COLD WATER INLET

- FLOW CONTROL VALVE (1)

- SINGLE PHASE
  - UP TO 12 PANELS

- THREE PHASE
  - FROM 4 UP TO 40 PANELS

(1) Flow control: stops the machine when there is no water on air into the pipes.
(2) Expansion vessel: small tank must be installed in domestic hot water systems to absorb excessive pressure.
SWIMMING POOL HEATING WITH ELECTROVALVES

(1) Flow control: stops the machine when there is no water on air into the pipes.
(2) Expansion vessel: small tank must be installed in domestic hot water systems to absorb excessive pressure.
TECHNICAL SPECIFICATIONS

Precharged domestic systems
Non-Precharged domestic systems
Systems from 4 up to 40 panels
# DOMESTIC SYSTEMS

## PRECHARGED

<table>
<thead>
<tr>
<th>System</th>
<th>250v / 300v</th>
<th>180iP / 280i</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermal Power</td>
<td>1.690 - 2.510</td>
<td></td>
<td>W</td>
</tr>
<tr>
<td>Electrical Power</td>
<td>390 - 520</td>
<td></td>
<td>W</td>
</tr>
<tr>
<td>Backup immersion heater</td>
<td>1.200</td>
<td></td>
<td>W</td>
</tr>
<tr>
<td><strong>Compressor</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Airtight Alternating Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noise Level</td>
<td>39</td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td><strong>Thermodynamic Solar Panel</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td>Anodized aluminium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>2.000 x 800 x 20</td>
<td></td>
<td>mm</td>
</tr>
<tr>
<td>Max. Working Pressure</td>
<td>12 / 1.20</td>
<td>bar / MPa</td>
<td></td>
</tr>
<tr>
<td>Test pressure</td>
<td>15 / 1.50</td>
<td>bar / MPa</td>
<td></td>
</tr>
<tr>
<td>Max. Temp.</td>
<td>120</td>
<td>ºC</td>
<td></td>
</tr>
<tr>
<td>Min. Temp.</td>
<td>-5</td>
<td>ºC</td>
<td></td>
</tr>
<tr>
<td>Min. Exposure Temp.</td>
<td>-40</td>
<td>ºC</td>
<td></td>
</tr>
<tr>
<td><strong>Water Storage Heater</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td>Enamelled Stainless Steel (304L)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insulation</td>
<td>Polyurethane</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. Working Pressure</td>
<td>6 / 0.6</td>
<td>bar / MPa</td>
<td></td>
</tr>
<tr>
<td>Test Pressure</td>
<td>10 / 1.0</td>
<td>bar / MPa</td>
<td></td>
</tr>
<tr>
<td>Max. Temp.</td>
<td>90</td>
<td>ºC</td>
<td></td>
</tr>
<tr>
<td>Electrolyte Protection</td>
<td>Magnesium Anode</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Refrigerant fluid</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>R134 A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantity</td>
<td>550</td>
<td>gr</td>
<td></td>
</tr>
<tr>
<td><strong>Pipe Connections</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Dehydrated Copper Pipes and Joints</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid Line</td>
<td>1/4”</td>
<td>inches</td>
<td></td>
</tr>
<tr>
<td>Suction Line</td>
<td>3/8”</td>
<td>inches</td>
<td></td>
</tr>
<tr>
<td>Max. distance from collector to thermodynamic block</td>
<td>10</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td><strong>Automatic Digital Display</strong></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage</td>
<td>230V, 50Hz</td>
<td>V/Hz</td>
<td></td>
</tr>
<tr>
<td>Compressor Fuse</td>
<td>6,3 T</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>General Fuse</td>
<td>6,3 F</td>
<td>A</td>
<td></td>
</tr>
</tbody>
</table>
## NON-PRECHARGED

### System Specifications

<table>
<thead>
<tr>
<th></th>
<th>200cv</th>
<th>200i / 300i</th>
<th>200IS / 300IS / 500IS</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermal Power</td>
<td>1.690 - 2.510</td>
<td>2.800 - 3.650</td>
<td></td>
<td>W</td>
</tr>
<tr>
<td>Electrical Power</td>
<td>390 - 520</td>
<td>595 - 880</td>
<td></td>
<td>W</td>
</tr>
<tr>
<td>Backup immersion heater</td>
<td>1.200</td>
<td>2.500</td>
<td></td>
<td>W</td>
</tr>
<tr>
<td><strong>Compressor</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Airtight</td>
<td>Alternating Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noise Level</td>
<td>39</td>
<td>43</td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td><strong>Thermodynamic Solar Panel</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td>Anodized</td>
<td>aluminium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>01</td>
<td>02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>2.000 x 800 x 20</td>
<td></td>
<td>mm</td>
<td></td>
</tr>
<tr>
<td>Max. Working Pressure</td>
<td>12 / 1.20</td>
<td></td>
<td>bar / MPa</td>
<td></td>
</tr>
<tr>
<td>Test Pressure</td>
<td>15 / 1.50</td>
<td></td>
<td>bar / MPa</td>
<td></td>
</tr>
<tr>
<td>Max. Temp.</td>
<td>120</td>
<td></td>
<td>ºC</td>
<td></td>
</tr>
<tr>
<td>Min. Temp.</td>
<td>-5</td>
<td></td>
<td>ºC</td>
<td></td>
</tr>
<tr>
<td>Min. Exposure Temp.</td>
<td>-40</td>
<td></td>
<td>ºC</td>
<td></td>
</tr>
<tr>
<td><strong>Water Storage Heater</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td>Enamelled</td>
<td>Stainless Steel (304L)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insulation</td>
<td>Polyurethane</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. Working Pressure</td>
<td>6 / 0.6</td>
<td></td>
<td>bar / MPa</td>
<td></td>
</tr>
<tr>
<td>Test Pressure</td>
<td>10 / 1.0</td>
<td></td>
<td>bar / MPa</td>
<td></td>
</tr>
<tr>
<td>Max. Temp.</td>
<td>90</td>
<td></td>
<td>ºC</td>
<td></td>
</tr>
<tr>
<td>Electrolyte Protection</td>
<td>Magnesium Anode</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Refrigerant Fluid</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>R134 A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantity</td>
<td>550</td>
<td>800</td>
<td>1.000</td>
<td>gr</td>
</tr>
<tr>
<td><strong>Pipe Connections</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Dehydrated Copper racores</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid Line</td>
<td>3/8”</td>
<td>3/8”</td>
<td>inches</td>
<td></td>
</tr>
<tr>
<td>Suction Line</td>
<td>3/8”</td>
<td>½”</td>
<td>inches</td>
<td></td>
</tr>
<tr>
<td>Max. distance from collector to thermodynamic block</td>
<td>10</td>
<td>12</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td><strong>Automatic Digital Display</strong></td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>Voltage</td>
<td>230V, 50Hz</td>
<td></td>
<td></td>
<td>V/Hz</td>
</tr>
<tr>
<td>Compressor</td>
<td>6,3 T</td>
<td>15 F</td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>General Fuse</td>
<td>6,3 F</td>
<td>6,3 F</td>
<td></td>
<td>A</td>
</tr>
</tbody>
</table>
SYSTEMS FROM 4 UP TO 40 PANELS

Models: PST 4 ACS (HSW), PST 4 C (Central heating) and PST 4 P (Swimming pool)

TECHNICAL FEATURES

THERMODYNAMIC SOLAR COLLECTOR

Features
H = 800 mm, A = 2000 mm, P = 20 mm, weight 8 kg approx.
30 micron anodized aluminium, molded-in roll-bond refrigeration circuit

Nbr. of collectors
04, total weight = 32 kg

Exposed collecting surface
6.4 m²

THERMODYNAMIC BLOCK

Stainless Steel case with sound insulation
H = 940 mm, A = 555 mm, P = 550 mm, weight 99 kg

Imput power
Triphasic model 400 V or monophasic model 230 V, 50 Hz

Hermetic compressor COPELAND, Scroll* type
Electric power 0,9 - 1,8 kW - Caloric power 3,6 - 7,3 kW

Noise emission 1 m. from the thermodynamical block
50-65 dBA

Refrigerant gas type
407 C, system load = 1,5 kg (Approximately**)

Liquid Line
Dehydrated copper, Ø 1/2"

Suction Line
Dehydrated copper, Ø 5/8"

Expansion valve
Danfoss

Pressure controllers, HP and LP
Yes, HP = 2,5 MPa max., LP = 0,2 MPa min.

Display digital SY250
Version 6.0

Stainless Steel welded plate heat exchanger
Model PST 4 C, volume min. 0,5 m³/h., p.c. m.c.a. = 2,5 m

Titanium heat exchanger
Model PST 4 P, an exchanger model 100-40

Heat exchangers
Models PST 4 ACS, an exchanger model WRK 18

Water pump
No

OTHER FEATURES: Dehydrating filter, oil separator, fluid container, liquid viewer, motor protector switch, phase detector (only for three-phase installations), general circuit breaker, electrical connections.

EFFICIENCY CURVES

<table>
<thead>
<tr>
<th>Ambient temperature (°C)</th>
<th>Caloric power (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>20</td>
<td>5</td>
</tr>
</tbody>
</table>

* The electric power corresponds to the electric consumption depending on the water temperature, from 30 to 50°C, and the caloric power generated corresponds to the solar radiation quantity on the panel.

** The gas charges must be suitable for each installation.
Models: PST 6 ACS (HSW), PST 6 C (Central heating) and PST 6 P (Swimming pool)

**TECHNICAL FEATURES**

<table>
<thead>
<tr>
<th>THERMODYNAMIC SOLAR COLLECTOR</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Features</strong></td>
<td></td>
</tr>
<tr>
<td>Nbr. of collectors</td>
<td></td>
</tr>
<tr>
<td>Exposed collecting surface</td>
<td></td>
</tr>
</tbody>
</table>

**THERMODYNAMIC BLOCK**

| Stainless Steel case with sound insulation | H = 940 mm, A = 555 mm, P = 550 mm, weight 103 kg |
| Imput power                               | Triphasic model 400 V or monophasic model 230 V, 50 Hz |
| Hermetic compressor COPELAND, Scroll* type | Electric power 1,2 - 2,2 kW - Caloric power 4,9 - 9,7 kW |
| Noise emission 1 m. from the thermodynamical block | 50-65 dBA |
| Refrigerant gas type                     | 407 C, system load = 1,6 kg (Approximately**) |
| Liquid Line                               | Dehydrated copper, Ø 1/2” |
| Suction Line                              | Dehydrated copper, Ø 5/8” |
| Expansion valve                           | Danfoss |
| Pressure controllers, HP and LP           | Yes, HP = 2,5 MPa max., LP = 0,2 MPa min. |
| Display digital SY250                     | Version 6.0 |
| Stainless Steel welded plate heat exchanger | Model PST 6 C, volume min. 0,7 m³/h., p.c. m.c.a. = 2,5 m |
| Titanium heat exchanger                   | Model PST 6 P, two exchangers model 100-40 |
| Heat exchangers                           | Models PST 6 ACS, an exchanger model WRK 18 |
| Water pump                                | No |

**OTHER FEATURES:** Dehydrating filter, oil separator, fluid container, liquid viewer, motor protector switch, phase detector (only for three-phase installations), general circuit breaker, electrical connections.

**EFFICIENCY CURVES**

<table>
<thead>
<tr>
<th>Ambient temperature (°C)</th>
<th>0</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caloric power (kW)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The electric power corresponds to the electric consumption depending on the water temperature, from 30 to 50°C, and the caloric power generated corresponds to the solar radiation quantity on the panel.
** The gas charges must be suitable for each installation.
Models: PST 8 ACS (HSW), PST 8 C (Central heating) and PST 8 P (Swimming pool)

TECHNICAL FEATURES

THERMODYNAMIC SOLAR COLLECTOR

Features

Nbr. of collectors
Exposed collecting surface

THERMODYNAMIC BLOCK

Stainless Steel case with sound insulation
Imput power
Hermetic compressor COPELAND, Scroll* type
Noise emission 1 m. from the thermodynamical block
Refrigerant gas type
Liquid Line
Suction Line
Expansion valve
Pressure controllers, HP and LP
Display digital SY250
Stainless Steel welded plate heat exchanger
Titanium heat exchanger
Heat exchangers
Water pump

H = 800 mm, A = 2000 mm, P = 20 mm, weight 8 kg approx.
30 micron anodized aluminium, molded-in roll-bond refrigeration circuit
08, total weight = 64 kg
12,8 m²

H = 940 mm, A = 555 mm, P = 550 mm, weight 104 kg
Triphasic model 400 V or monophasic model 230 V, 50 Hz
Electric power 1,4 - 2,6 kW - Caloric power 5,5 - 11,3 kW
50-65 dBA
407 C, system load = 1,8 kg (Approximately**)
Dehydrated copper, Ø 1/2”
Dehydrated copper, Ø 3/4”
Danfoss
Yes, HP = 2,5 MPa max., LP = 0,2 MPa min.
Version 6.0
Model PST 8 C, volume min. 0,8 m³/h., p.c. m.c.a. = 2,7 m
Model PST 8 P, two exchangers model 100-40
Models PST 8 ACS, an exchanger model WRK 18
No

OTHER FEATURES: Dehydrating filter, oil separator, fluid container, liquid viewer, motor protector switch, phase detector (only for three-phase installations), general circuit breaker, electrical connections.

EFFICIENCY CURVES

<table>
<thead>
<tr>
<th>Ambient temperature (°C)</th>
<th>0</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caloric power (kW)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>day</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>night</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>10</td>
</tr>
</tbody>
</table>

* The electric power corresponds to the electric consumption depending on the water temperature, from 30 to 50°C, and the caloric power generated corresponds to the solar radiation quantity on the panel.

** The gas charges must be suitable for each installation.
Models: PST 12 ACS (HSW), PST 12 C (Central heating) and PST 12 P (Swimming pool)

**TECHNICAL FEATURES**

**THERMODYNAMIC SOLAR COLLECTOR**

- **Features**
  - H = 800 mm, A = 2000 mm, P = 20 mm, weight 8 kg approx.
  - 30 micron anodized aluminium, molded-in roll-bond refrigeration circuit

- **Nbr. of collectors**
  - 12, total weight = 96 kg

- **Exposed collecting surface**
  - 19.2 m²

**THERMODYNAMIC BLOCK**

- **Stainless Steel case with sound insulation**
  - H = 940 mm, A = 555 mm, P = 550 mm, weight 115 kg

- **Input power**
  - Triphasic model 400 V or monophasic model 230 V, 50 Hz

- **Hermetic compressor COPELAND, Scroll**
  - Electric power 1.9 - 3.1 kW - Caloric power 9.2 - 16.7 kW

- **Noise emission 1 m. from the thermodynamical block**
  - 50-65 dBA

- **Refrigerant gas type**
  - 407 C, system load = 2.0 kg (Approximately**)

- **Liquid Line**
  - Dehydrated copper, Ø 1/2”

- **Suction Line**
  - Dehydrated copper, Ø 7/8”

- **Expansion valve**
  - Danfoss

- **Pressure controllers, HP and LP**
  - Yes, HP = 2.5 MPa max., LP = 0.2 MPa min.

- **Display digital SY250**
  - Version 6.0

- **Stainless Steel welded plate heat exchanger**
  - Model PST 12 C, volume min. 1.0 m³/h., p.c. m.c.a. = 3.0 m

- **Titanium heat exchanger**
  - Model PST 12 P, two exchangers model 100-70

- **Heat exchangers**
  - Models PST 12 ACS, an exchanger model WRK 23

- **Water pump**
  - No

**OTHER FEATURES**: Dehydrating filter, oil separator, fluid container, liquid viewer, motor protector switch, phase detector (only for three-phase installations), general circuit breaker, electrical connections.

---

**EFFICIENCY CURVES**

<table>
<thead>
<tr>
<th>Ambient temperature (°C)</th>
<th>Caloric power (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>20</td>
<td>18</td>
</tr>
</tbody>
</table>

*The electric power corresponds to the electric consumption depending on the water temperature, from 30 to 50°C, and the caloric power generated corresponds to the solar radiation quantity on the panel.

**The gas charges must be suitable for each installation.
Models: PST 16 ACS (HSW), PST 16 C (Central heating) and PST 16 P (Swimming pool)

TECHNICAL FEATURES

THERMODYNAMIC SOLAR COLLECTOR

Features

- H = 800 mm, A = 2000 mm, P = 20 mm, weight 8 kg approx.
- 30 micron anodized aluminium, molded-in roll-bond refrigeration circuit

Nbr. of collectors

- 16, total weight = 128 kg

Exposed collecting surface

- 26.6 m²

THERMODYNAMIC BLOCK

Stainless Steel case with sound insulation

- H = 940 mm, A = 555 mm, P = 550 mm, weight 120 kg

Impot power

- Triphasic model 400 V, 50 Hz

Hermetic compressor COPELAND, Scroll* type

- Electric power 3.2 - 5.2 kW - Caloric power 14.2 - 24.2 kW

Noise emission 1 m. from the thermodynamical block

- 50-65 dBA

Refrigerant gas type

- 407 C, system load = 2.8 kg (Approximately**) Dehydrated copper, Ø 3/4"

Liquid Line

- Dehydrated copper, Ø 7/8"

Suction Line

- Danfoss

Expansion valve

- Yes, HP = 2.5 MPa max., LP = 0.2 MPa min.

Pressure controllers, HP and LP

- Version 6.0

Display digital SY250

- Model PST 16 C, volume min. 1.5 m³/h., p.c. m.c.a. = 3.5 m

Stainless Steel welded plate heat exchanger

- Model PST 16 P, two exchangers model 100-70

Titanium heat exchanger

- Models PST 16 ACS, two exchangers model WRK 23

Heat exchangers

- No

Water pump

OTHER FEATURES: Dehydrating filter, oil separator, fluid container, liquid viewer, motor protector switch, phase detector (only for three-phase installations), general circuit breaker, electrical connections.

EFFICIENCY CURVES

<table>
<thead>
<tr>
<th>Ambient temperature (°C)</th>
<th>Caloric power (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

* The electric power corresponds to the electric consumption depending on the water temperature, from 30 to 50°C, and the caloric power generated corresponds to the solar radiation quantity on the panel.

** The gas charges must be suitable for each installation.
Models: PST 24 ACS (HSW), PST 24 C (Central heating) and PST 24 P (Swimming pool)

TECHNICAL FEATURES

THERMODYNAMIC SOLAR COLLECTOR

Features
H = 800 mm, A = 2000 mm, P = 20 mm, weight 8 kg approx.
30 micron anodized aluminium, molded-in roll-bond refrigeration circuit

Nbr. of collectors
24, total weight = 192 kg

Exposed collecting surface
38.4 m²

THERMODYNAMIC BLOCK

Stainless Steel case with sound insulation
H = 940 mm, A = 655 mm, P = 640 mm, weight 190 kg

Imput power
Triphasic model 400 V, 50 Hz

Hermetic compressor COPELAND, Scroll* type
Electric power 4.2 - 6.0 kW - Caloric power 16.5 - 31.5 kW

Noise emission 1 m. from the thermodynamical block
50-65 dBA

Refrigerant gas type
407 C, system load = 3.0 kg (Approximately**)

Liquid Line
Dehydrated copper, Ø 3/4"

Suction Line
Dehydrated copper, Ø 1 1/8"

Expansion valve
Danfoss

Pressure controllers, HP and LP
Yes, HP = 2.5 MPa max., LP = 0.2 MPa min.

Display digital SY250
Version 6.0

Stainless Steel welded plate heat exchanger
Model PST 24 C, volume min. 2.8 m³/h., p.c. m.c.a. = 5 m

Titanium heat exchanger
Model PST 24 P, two exchangers model 100-104

Heat exchangers
Models PST 24 ACS, two exchangers model WRK 23

No

OTHER FEATURES: Dehydrating filter, oil separator, fluid container, liquid viewer, motor protector switch, phase detector (only for three-phase installations), general circuit breaker, electrical connections.

EFFICIENCY CURVES

* The electric power corresponds to the electric consumption depending on the water temperature, from 30 to 50°C, and the caloric power generated corresponds to the solar radiation quantity on the panel.

** The gas charges must be suitable for each installation.
Models: PST 32 ACS (HSW), PST 32 C (Central heating) and PST 32 P (Swimming pool)

TECHNICAL FEATURES

THERMODYNAMIC SOLAR COLLECTOR

Features

Nbr. of collectors
Exposed collecting surface

THERMODYNAMIC BLOCK

Stainless Steel case with sound insulation
Imput power
Hermetic compressor COPELAND, Scroll* type
Noise emission 1 m. from the thermodynamical block
Refrigerant gas type
Liquid Line
Suction Line
Expansion valve
Pressure controllers, HP and LP
Display digital SY250
Stainless Steel welded plate heat exchanger
Titanium heat exchanger
Heat exchangers
Water pump

OTHER FEATURES: Dehydrating filter, oil separator, fluid container, liquid viewer, motor protector switch, phase detector (only for three-phase installations), general circuit breaker, electrical connections.

EFFICIENCY CURVES

<table>
<thead>
<tr>
<th>Ambient temperature (°C)</th>
<th>0</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caloric power (kW)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The electric power corresponds to the electric consumption depending on the water temperature, from 30 to 50°C, and the caloric power generated corresponds to the solar radiation quantity on the panel.

** The gas charges must be suitable for each installation.
Models: PST 40 ACS (HSW), PST 40 C (Central heating) and PST 40 P (Swimming pool)

### TECHNICAL FEATURES

#### THERMODYNAMIC SOLAR COLLECTOR

**Features**
- Nbr. of collectors
- Exposed collecting surface

**Description**
- H = 800 mm, A = 2000 mm, P = 20 mm, weight 8 kg approx.
- 30 micron anodized aluminium, molded-in roll-bond refrigeration circuit
- 40, total weight = 320 kg
- 64.0 m²

#### THERMODYNAMIC BLOCK

**Stainless Steel case with sound insulation**
- H = 940 mm, A = 655 mm, P = 640 mm, weight 192 kg
- Triphasic model 400 V, 50 Hz
- Electric power 7.1 - 10.1 kW - Caloric power 32.5 - 53.1 kW
- 50-65 dBA
- 407 C, system load = 5.5 kg (Approximately)**
- Dehydrated copper, Ø 7/8”
- Dehydrated copper, Ø 1 3/8”
- Danfoss
- Yes, HP = 2.5 MPa max., LP = 0.2 MPa min.
- Version 6.0
- Model PST 40 C, volume min. 5.0 m³/h., p.c. m.c.a. = 6 m
- Model PST 40 P, two exchangers model 100-104
- Models PST 40 ACS, two exchangers model WRK 23

**Liquid Line**

**Suction Line**

**Expansion valve**

**Pressure controllers, HP and LP**

**Display digital SY250**

**Stainless Steel welded plate heat exchanger**

**Titanium heat exchanger**

**Heat exchangers**

**Water pump**

**Other features:** Dehydrating filter, oil separator, fluid container, liquid viewer, motor protector switch, phase detector (only for three-phase installations), general circuit breaker, electrical connections.

### EFFICIENCY CURVES

<table>
<thead>
<tr>
<th>Ambient temperature (°C)</th>
<th>Caloric power (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>15</td>
<td>28</td>
</tr>
<tr>
<td>20</td>
<td>35</td>
</tr>
</tbody>
</table>

* The **electric power** corresponds to the electric consumption depending on the water temperature, from 30 to 50°C, and the **caloric power** generated corresponds to the solar radiation quantity on the panel.

** The gas charges must be suitable for each installation.
Fixing brackets, rails and other accessories for HSW large volumes, central heating and swimming-pools can be supplied only upon request.

It is necessary to know previously the location and orientation for the solar collectors, as there are specific fixing accessories depending on their tilt (0°, 30°, 45° or 60°).

**Vertical Wall Brackets (0°)**

**Roof Brackets (30°)**
Roof Brackets (45°)

Roof Brackets (60°)
Internal reinforcements for collectors

![Diagram of internal reinforcements for collectors]

- Dimensions: 2000 x 2850 mm
- Reinforcement: #6.5mm at various points
- Scale: 300/1mm
According to the tilt and the system to install, the solar panels will be arranged as shown in the table below.
Inclinación panel
0º 30º 45º 60º

Inclinación panel
0º 30º 45º 60º
GENERAL SALES CONDITIONS

GENERAL:
1.1 Sales and supplies of components purchased from Pan-les Solares Termodinámicos S.L., hereinafter, Solar PST, the Seller, shall be governed by the present General Sales Conditions, except in all those matters that are expressly agreed otherwise in the respective order or in the acceptance of the order and which may constitute the special conditions thereof.
1.2 The present General Conditions shall be considered to have been communicated and accepted by the Buyer for all purposes upon placing the order.

PRICE:
1.1 The sales price of the products are set out in the Solar PST official tariff, communicated to the Buyer or previously agreed on under specific conditions between the Seller and the Buyer.
1.2 The prices of the Seller are net, exclusive of VAT or any other tax, which shall be charged subsequently in the invoice at the respective rates. The prices, likewise, do not include either insurance or transport costs, unless a clause is included that states the contrary in the general conditions.

PAYMENT CONDITIONS:
1.1 The Buyer’s order previously accepted by Solar PST, will include the payment terms for the products, which will always be of prepayment.
1.2 Payment shall be made in the agreed terms to the Seller’s bank account or by means of any other agreed procedure. Any form of payment will be set out in the proforma.
1.3 The weights, dimensions and technical specifications referring to the Seller’s products including catalogues, brochures, and technical literature are of an informative, non-binding nature.

DELIVERY DATES AND CONDITIONS:
1.1 All delivery dates are estimated and goods shall be deliv- ered in accordance with the INCOTERM stated in the proforma and previously agreed on with the customer.
1.2 The delivery dates shall be modified when:
- The Buyer does not supply the necessary documentation for the shipment.
- The Buyer requests modifications to the order and these are accepted by Solar PST in whose opinion justifies an extension of the delivery time.
- The Buyer has not fulfilled any of the contractual obligations of the order, especially those referring to payment.
- Delays, not attributable to Solar PST, occur in the production or provision of all or some of the product’s components.

RETURN AND CLAIMS POLICY:
1.1 Under no circumstances will Solar PST accept the return of items and/or systems without previous agreement by Solar PST. All claims must be stated in written and forwarded to Solar PST.
1.2 Returns or shipments of material to Solar PST’s facilities, whether for their payment, replacement or repair, must be delivered under prepaid shipment.
1.3 The Buyer must inspect the goods purchased upon delivery and check whether the correct goods have been deliv- ered as stated in the order. If not, the Buyer must inform Solar PST accordingly in writing within 24 hours after delivery.
1.4 If goods are found to be damaged, the Buyer must report such incidences on the Transport Carrier’s Delivery note and notify Solar PST in writing within 24 hours after delivery. If the Buyer does not file a complaint within the aforesaid period, providing a detailed description and photos of the damage, the complaint will not be dealt with.

GUARANTEE:
1.1 The Solar PST system is subject to the following guarantee:
- 5 year warranty for the solar panel
- 2 year warranty for the thermodynamic block
1.2 The Thermodynamic Solar Collectors Solar PST and/or its damaged or defective parts under guarantee, must be re- turned in their original or similar packaging and keeping the components in the same position. If not, the guarantee will not be applicable.
1.3 Under no circumstances will Solar PST accept liability for repairs carried out by unauthorized technicians (will Solar PST accept).
1.4 The guarantee does not cover damages or defects origi- nated from inappropriate conservation or maintenance, inade- quate gas/liquid use or charge, electric power fluctuations or from installations carried out without following The Solar PST Technical Guide.

OWNERSHIP OF GOODS:
Ownership of goods delivered by Solar PST will remain vested in Solar PST until the Buyer has paid the full purchase price. This is applicable to any form of payment.

NULLITY:
The nullity of any of the clauses of the present conditions by an amendment of the law or legislation, or by a judicial act, under no circumstances affects the legality of the rest of the General Sales Conditions stated in this agreement. Both parties accept to negotiate in good faith, the clauses which would substitute, if necessary, those which are inapplicable or have been nullified.

APPLICABLE LAW AND LEGAL COMPETENCE:
The present conditions will be subject to and interpreted in accordance with Spanish Law, including the price offer, sa- les agreement and all the operations involved in the sales agreement.
Any disputes will be settled by the civil court that is competent in first instance in the place where Solar PST has its registered office.
By this warranty, Paneles Solares Termodinámicos S.L., hereafter Solar PST, with registered office at the Polígono Industrial de Bergondo, C/ Parroquia de Rois parcela F1, Edificio Solar PST, 15165 La Coruña, Spain and CIF B-15982879, guarantees that the product specifically mentioned later is free from defects in materials and workmanship from the date of its purchase by the buyer from the retailer, or at most upon its delivery, regardless of its final date of installation and/or start-up, and for the period below mentioned per item.

This warranty is valid against any manufacturing defects. It excludes any payment of damages to persons, or for direct and indirect damages to elements and/or materials. This warranty is valid only accompanied by the original purchase receipt given to the buyer, and filled in due form, including date of purchase with the following items:

a) Full name of the Buyer
b) Name, Signature and Seal of the Retailer
c) Product Model and Serial No.
d) Date of Purchase

Solar PST reserves the right to deny warranty coverage if this information has been cancelled or modified after the original purchase date of the product.

If, however, during the warranty period the product should manifest any defects in material and/or workmanship, the buyer must inform Solar PST within one month following the noticing of the defect, to claim the repair or replacement of the corresponding part or element. Solar PST official technicians shall assess the damage and repair the product according to the technical coverage available at that moment, in the area where the product is installed or at the facilities indicated by Solar PST. In the event that after repeated attempts it is impossible to restore the element into working order, Solar PST shall replace it for an equivalent one.

This warranty covers the replacement of the elements damaged during the coverage period. The replacement of any element during the framework of warranty does not extend its duration, and the replaced elements shall become the property of Solar PST.

Regarding the Warranty parts return, these must be returned in the same conditions as they were shipped, original or similar packaging. The compressors’ valves must have their original copper caps on.

The periods stated below shall begin on the date of purchase, or at most upon the delivery of the goods, regardless of the date of installation or start-up.

a) Solar Collectors: 5-year warranty
b) Tanks: 2-year warranty
c) Thermodynamic Blocks: 2-year warranty

This warranty specifically excludes:

- Periodic inspections, maintenance and repair or replacement of parts damaged as a result of normal wear and tear.
- Consumable items, or subject to wear and tear, (switches, resistances, thermostats, timers, etcetera).
- Travel charges, labor costs and carriage costs for parts.
- Thermoaccumulators which work with water containing active chlorine, + - 0’2 p.p.m., and Ph + - 6, (Sorensen scale at 25º).
- Installing and/or configuring the product according to requirements different from the ones specific of the product, (or the ones established by Solar PST official service), or not compliant with the current technical or security standards.
- Manipulation or repair attempts by non-authorized technical service providers.
- Failures or damage caused to the product due to: Electric discharges, Flooding, Hail, Dampness, Impacts, Misuse of the Equipment, Galvanic Coupling, Corrosion due to Fixing with Iron Screws or Non-Stainless Steel Holders, Badly Fixed Collectors, Fracture of the Collectors Capillary Tube due to Vibrations, Acts of God such as Accidents, Natural Disasters, Unpredictable Weather Phenomena or Any Other Cause Beyond Solar PST Control.

The manipulation or repair attempts by technical service providers not authorized by Solar PST may extinguish the rights granted by this Warranty.