

*"Innovative and Reliable"*



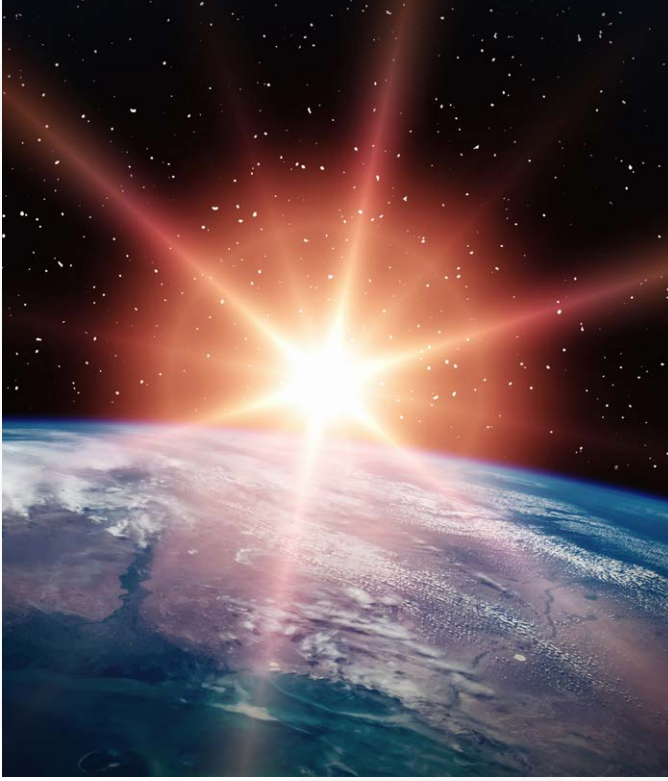
**SILVERSUN**  
*pro*

**SILVERSUN**  
*evo*



## Radiant Tube Heaters

## What Is Radiant Heating?



There are 3 ways of transferring heat; convection, conduction and radiant.

Radiant heat is infrared energy that passes through air (without heating) similar to the rays of the sun, warming the surface of the earth. As the sun shines on the earth, infrared rays that are emitted by sun are absorbed by ground, mountains, roads, objects, and people etc. Then the air is heated by the energy released from these objects.

So called radiant heaters work in the same way as the sun does, heating people, objects, walls, floors and any surfaces via infrared energy wherever (indoor and outdoor) the heaters are installed.



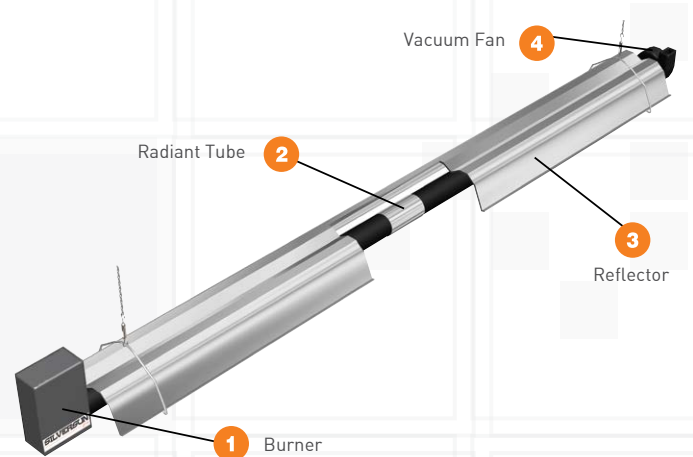
## Types of Radiant Heaters

Radiant heaters are classified in 2 main categories; low intensity and high intensity, based on the temperature of the emitting surface. The heaters having 815°C and less surface temperature are called low intensity, above are called high intensity equipment.

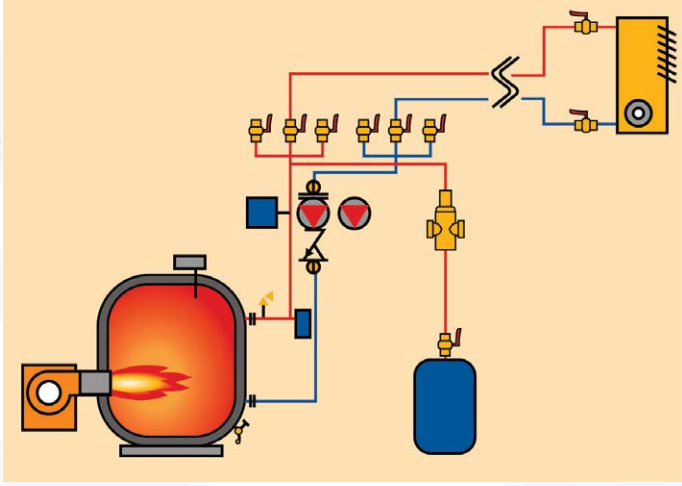
Radiant tube heaters are known as low intensity infrared products.

## Radiant Tube Heaters

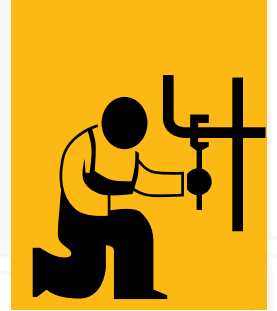
In general, radiant tube heaters are made of 4 main components as seen below (fig.no.1); a burner, radiant tubes, reflectors and a fan (may be placed within the burner in some models). The gas is fired by the burner within the tube with the help of the vacuum generated by the fan that is located at the very end of the heater. Then the tubes are heated by the products of combustion which is being travelled all the way from the burner to the fan where it is exhausted. This results the radiant tubes to be heated up to 450°C emitting radiant energy outwards. The reflectors directs all the rays coming out of the tubes downwards. Infrared rays then travel freely without affected by air streams and are converted into heat as they hit the objects and people. So the people, working in an area where radiant heaters are installed, get similar feeling of gentle and draft free heating as they feel sitting under the moderate sun.



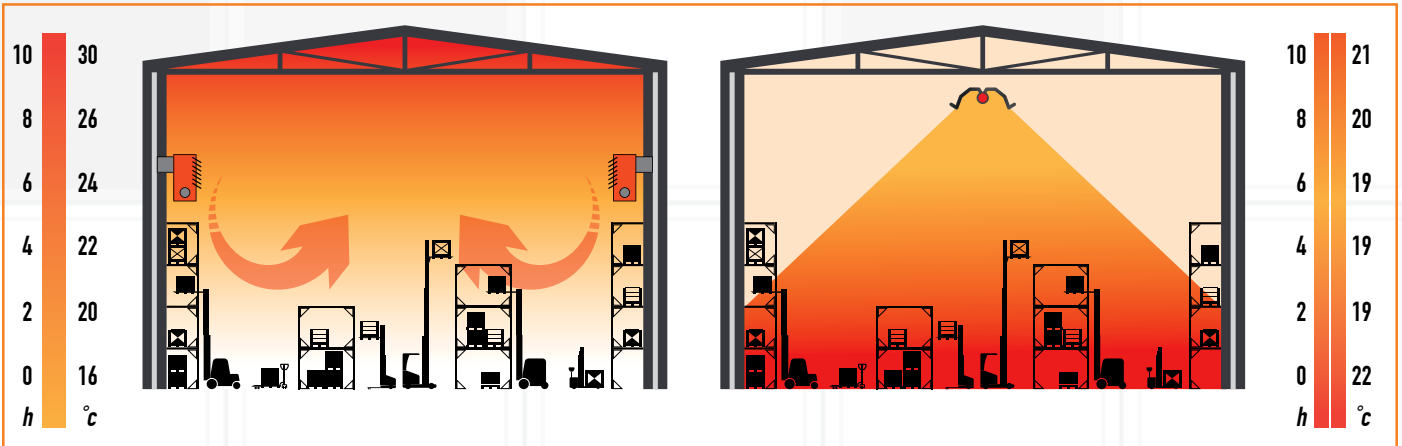
# The Advantages of Radiant Heating Systems



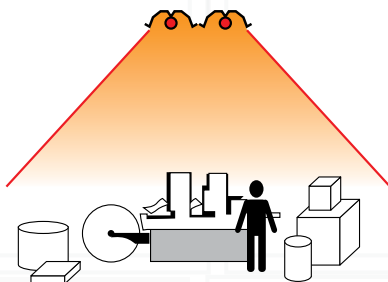
1. Cost effective; 30-50% energy savings, due to the fact that;
  - a. Direct heat; no need to heat the air first to heat the people
  - b. No transfer losses; generate heat where you need to use
  - c. 100% electronically controllable to desired comfort level 7/24, yearlong
  - d. Local, spot and regional heating capability within the same area
  - e. No need for separate person to control the system; easy to operate and maintain
  - f. No need for special room for heaters to be located
  - g. Low maintenance costs



2. Draft free heating; no need for fans to distribute and move heat around the building
3. Dust free heating; no air movements during operation resulting no dust moves around
4. Less air stratification; heat is generated on objects, floors, walls and people directly at lower temperatures
5. Quick heat recovery; very import at large buildings with large doors
6. Modular design and flexibility; can be designed, installed and used as needed
7. Environment friendly clean operation; no harmful emissions produced
8. Long life time; can be used for many years without giving any major problem



In hot air ventilation systems, upper unused part of the heated space is hotter and there's a lot of heat loss from the roof.



## Area of Applications

- Factories
- Aircraft Hangers
- Warehouses
- Exhibition Halls
- Loading Docks
- Sport Arenas
- Tennis Courts
- Car Repair Shops
- Workshops
- Showrooms
- Cafes and Restaurants
- Greenhouses
- Animal Farms
- Patios
- Winter Gardens

## Silversun Radiant Heaters

Silversun® radiant heaters are premium quality unitary radiant heaters, built for reliable, cost effective and long-lasting performance specifically to be utilized in industrial or commercial applications.

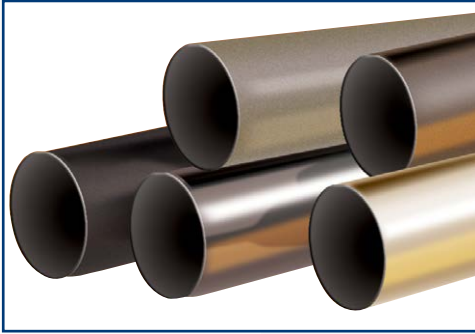
Silversun® radiant heaters are manufactured in 2 models EVO and PRO and can be used as a vacuum (negative air) or forced-air (positive air) system.

## Features

### Two Stage Burners

Silversun® radiant heater has a two stage radiant burner which is designed by Cukurova ISI to meet the needs of the market with the experience of +30 years in radiant heating systems featuring;

- State-of-the-art technology in design and manufacturing,
- Highest quality components gas valve and ignition modules,
- Fully sealed and insulated burner box to avoid any dust and moisture,
- Manufactured in 2 different structures to be used as vacuum and forced-air,
- Operates in two different kW values depending on the heating level desired,
- +93% combustion efficiency.



### Radiant Tubes

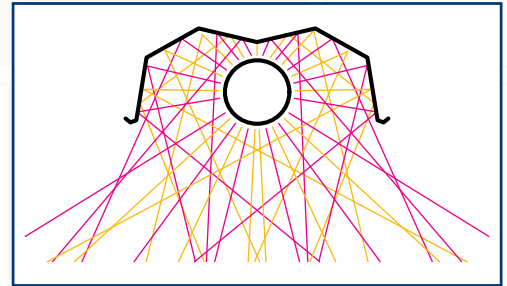
Titanium alloy heat treated aluminized steel tubes are used to enhance the infra-red emissivity of the radiant surface and to get longer life time against corrosion. Optionally enameled or black painted tubes may be provided.



### Reflectors

Silversun® radiant heaters come with highly polished aluminum reflectors having special design to reflect almost all of the radiant energy emitted by the tubes in the best possible way towards the objects and people to be heated.

With the caps that are located at both ends of reflectors, it is aimed to keep the radiant tubes as warm as possible to avoid any heat losses for better performance of the heater.



### Fans - Blowers

Aerodynamically efficient, hi-temperature resistant fans are used in Silversun® PRO model radiant heaters to maintain required vacuum level even at any severe working conditions without losing the pressure. Having specially designed steel blades within the fan enables the heater provides homogenous heat distribution for longer periods.

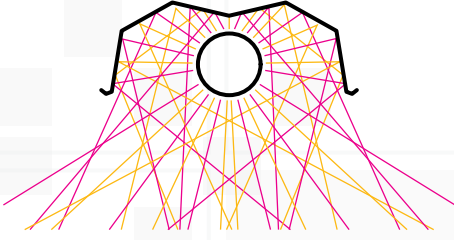
The burner of Silversun® EVO radiant heater has a built-in combustion blower generating forced-air (positive air) to create the combustion. The blowers used are also specifically designed to run in harsh environment and to able to exhaust the products of combustion to longer distances.

Aluminum cast fans are available to be used in multiple burner Silversun® radiant heating systems for larger heating capacities.



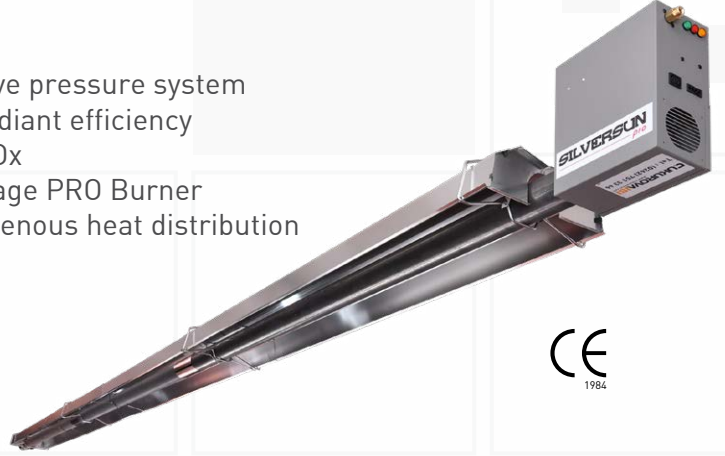
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*pro*

# Silversun® Pro Straight Type



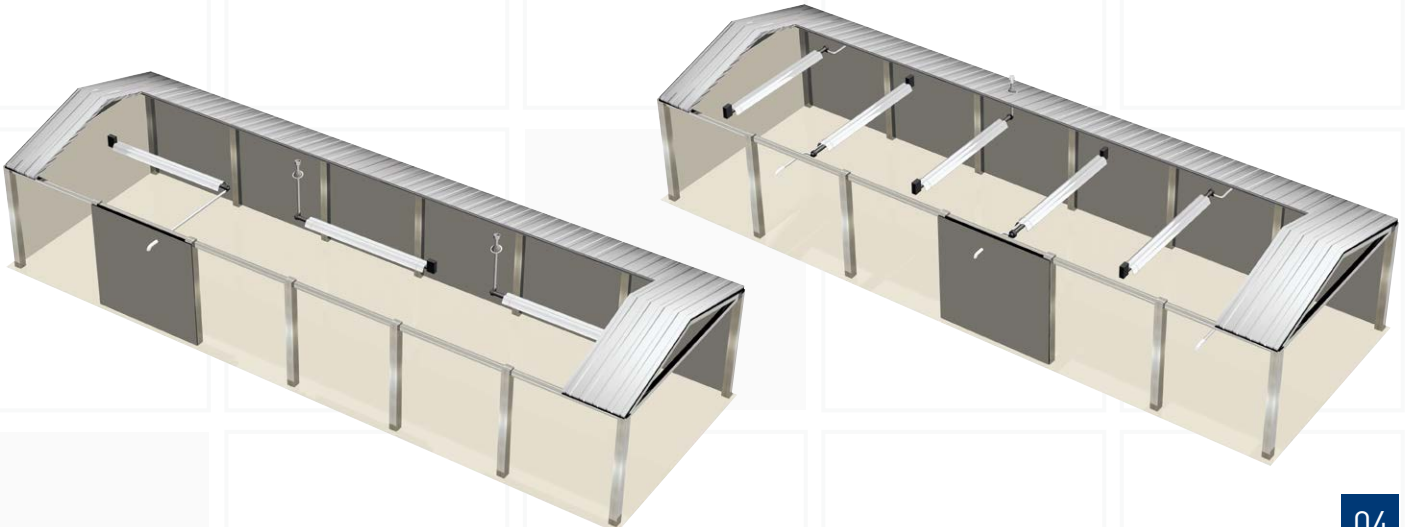
- Wider radiant umbrella
- 6 different capacities
- Individually exhausted from wall or roof

- Negative pressure system
- 93% radiant efficiency
- Low NOx
- Two stage PRO Burner
- Homogenous heat distribution

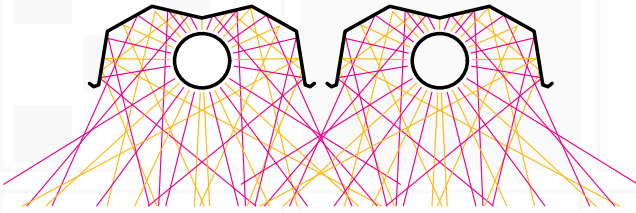


## SILVERSON PRO STRAIGHT TYPE – TECHNICAL SPECIFICATIONS

| Model   |        | SSP 13/20 DT                                     | SSP 20/30 DT | SSP 27/40 DT | SSP 33/50 DT | SSP 40/60 DT | SSP 47/70 DT |
|---|--------|--|--------------|--------------|--------------|--------------|--------------|
| Power (kW)                                    | Min.   | 13   | 20           | 27           | 33           | 40           | 47           |
|   | Max.   | 20   | 30           | 40           | 50           | 60           | 70           |
| Weight (kg)                                   |        | 60   | 75           | 75           | 90           | 105          | 120          |
| Total Length (cm)                             |        | 955  | 1260         | 1260         | 1565         | 1870         | 2175         |
| Min. Rec. Mounting Height (m)                 |        | 2,25   | 2,75         | 3,0          | 3,50         | 4,0          | 4,5          |
| Gas Fuel Type                                 |        | Natural Gas G20                                  |              |              |              |              |              |
| Natural Gas Consumption (Nm <sup>3</sup> /h)  | Min.   | 1,36   | 2,10         | 2,84         | 3,47         | 4,20         | 4,94         |
|   | Max.   | 2,10   | 3,15         | 4,20         | 5,25         | 6,30         | 7,35         |
| Inlet Pressure - Natural Gas                  |        | Minimum 15 (mbar) - Maximum 55 (mbar)            |              |              |              |              |              |
| Gas Connection                                |        | 1/2"   |              |              |              |              |              |
| Electrical Connection                         |        | 230 V, Monophase, 1 amper                        |              |              |              |              |              |
| Fan Power (w)                                 |        | 55   | 95           | 165          | 215          | 380          | 380          |
| Ignition                                      |        | Full Automatic, with Flame Sensor                |              |              |              |              |              |
| Ignition and Radiant Tubes                    |        | 101,6 mm diameter, Heat Treated Aluminized Steel |              |              |              |              |              |
| Reflector                                     |        | NS3H14 Aluminium                                 |              |              |              |              |              |
| Exhaust Outlet Diameter (mm)                  |        | 101,6 mm   |              |              |              |              |              |
| Min. Clearances from Flammable Materials (cm) | Top    | 15   | 15           | 15           | 20           | 20           | 20           |
|   | Side   | 80   | 85           | 100          | 120          | 150          | 150          |
|   | Bottom | 160  | 170          | 170          | 200          | 250          | 300          |



# Silversun® Pro U-Type

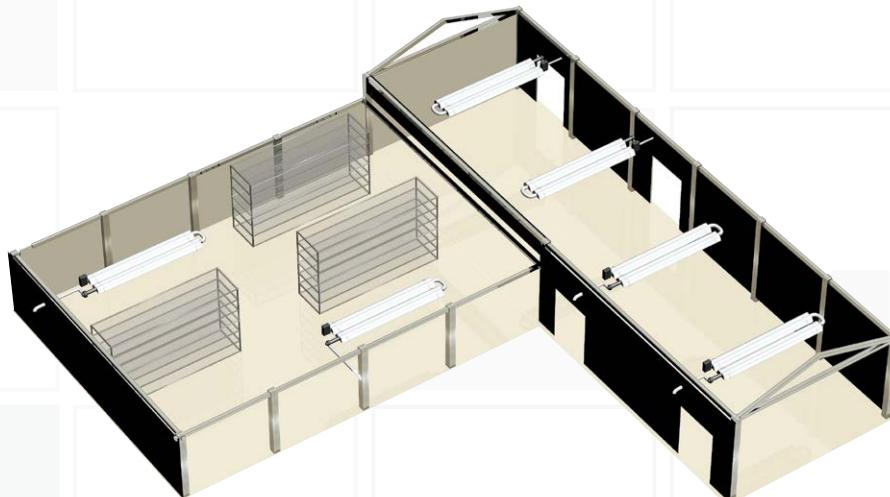


- Negative pressure system
- 93% radiant efficiency
- Low NOx
- Two stage PRO Burner
- Homogenous heat distribution
- Local, spot or zone heating
- Wider radiant umbrella
- 6 different capacities
- Individually exhausted from



## SILVER SUN PRO U-TYPE – TECHNICAL SPECIFICATIONS

| Model   |        | SSP 13/20 UT                                     | SSP 20/30 UT | SSP 27/40 UT | SSP 33/50 UT | SSP 40/60 UT | SSP 47/70 UT |
|---|--------|--|--------------|--------------|--------------|--------------|--------------|
| Power (kW)                                    | Min.   | 13   | 20           | 27           | 33           | 40           | 47           |
|   | Max.   | 20   | 30           | 40           | 50           | 60           | 70           |
| Weight (kg)                                   |        | 65   | 85           | 85           | 105          | 110          | 130          |
| Total Length (cm)                             |        | 546  | 699          | 699          | 851          | 1004         | 1156         |
| Min. Rec. Mounting Height (m)                 |        | 2,25   | 2,75         | 3,0          | 3,50         | 4,0          | 4,5          |
| Gas Fuel Type                                 |        | Natural Gas G20                                  |              |              |              |              |              |
| Natural Gas Consumption (Nm <sup>3</sup> /h)  | Min.   | 1,36   | 2,10         | 2,84         | 3,47         | 4,20         | 4,94         |
|   | Max.   | 2,10   | 3,15         | 4,20         | 5,25         | 6,30         | 7,35         |
| Inlet Pressure - Natural Gas                  |        | Minimum 15 (mbar) - Maximum 55 (mbar)            |              |              |              |              |              |
| Gas Connection                                |        | 1/2"   |              |              |              |              |              |
| Electrical Connection                         |        | 230 V, Monophase, 1 amper                        |              |              |              |              |              |
| Fan Power (w)                                 |        | 55   | 95           | 165          | 215          | 380          | 380          |
| Ignition                                      |        | Full Automatic, with Flame Sensor                |              |              |              |              |              |
| Ignition and Radiant Tubes                    |        | 101,6 mm diameter, Heat Treated Aluminized Steel |              |              |              |              |              |
| Reflector                                     |        | NS3H14 Aluminium                                 |              |              |              |              |              |
| Exhaust Outlet Diameter (mm)                  |        | 101,6 mm   |              |              |              |              |              |
| Min. Clearances from Flammable Materials (cm) | Top    | 15   | 15           | 15           | 20           | 20           | 20           |
|   | Side   | 80   | 85           | 100          | 120          | 150          | 150          |
|   | Bottom | 160  | 170          | 170          | 200          | 250          | 300          |



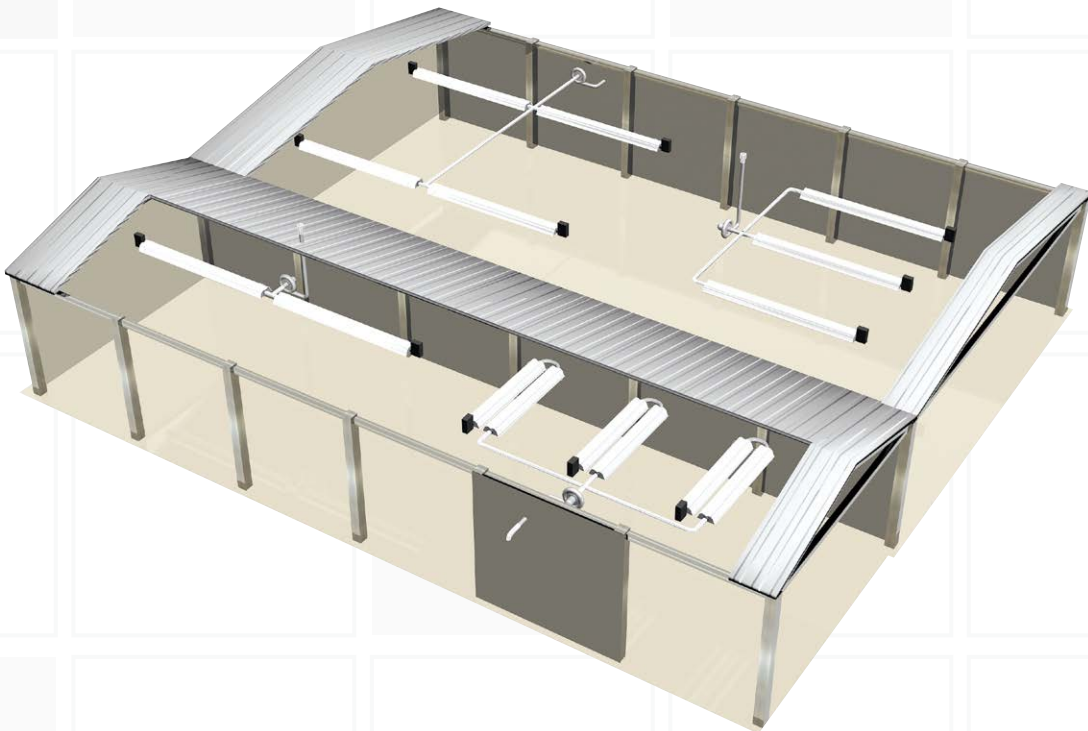
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*pro*

## Silversun® Multiple Burner Type

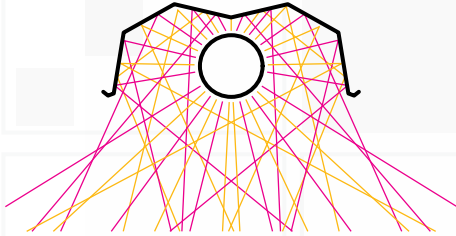
- Negative pressure system
- 93% radiant efficiency
- Low NOx
- Two stage PRO Burner
- Homogenous heat distribution
- Excellent design flexibility
- Local, spot or zone heating
- Wider radiant umbrella
- Collective exhaust systems minimizing outlets



Multiple System  
Vacuum Fan



## Silversun® Evo Straight Type



- Positive air (forced-air) system
- 93% radiant efficiency
- Low NOx
- Two stage EVO Burner
- Homogenous heat distribution
- Wider radiant umbrella
- 7 different capacities
- Individually exhausted from wall or roof



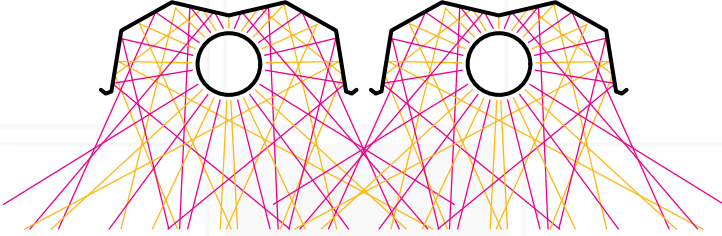
### SILVERSUN EVO STRAIGHT TYPE – TECHNICAL SPECIFICATIONS

| Model   |        | SSE 10/15 DT                                     | SSE 13/20 DT | SSE 17/25 DT | SSE 20/30 DT | SSE 27/40 DT | SSE 33/50 DT | SSE 40/60 DT |
|---|--------|--|--------------|--------------|--------------|--------------|--------------|--------------|
| Power (kW)                                    | Min.   | 10   | 13           | 17           | 20           | 27           | 33           | 40           |
|   | Max.   | 15   | 20           | 25           | 30           | 40           | 50           | 60           |
| Weight (kg)                                   |        | 45   | 60           | 60           | 75           | 75           | 92           | 100          |
| Total Length (cm)                             |        | 650  | 955          | 955          | 1260         | 1260         | 1565         | 1870         |
| Min. Rec. Mounting Height (m)                 |        | 2,0  | 2,25         | 2,50         | 2,75         | 3,0          | 3,50         | 4,0          |
| Gas Fuel Type                                 |        | Natural Gas G20                                  |              |              |              |              |              |              |
| Natural Gas Consumption (Nm <sup>3</sup> /h)  | Min.   | 0,84   | 1,26         | 1,66         | 2,10         | 2,84         | 3,47         | 4,20         |
|   | Max.   | 1,26   | 1,89         | 2,52         | 3,15         | 4,20         | 5,25         | 6,30         |
| Inlet Pressure - Natural Gas                  |        | Minimum 15 (mbar) - Maximum 55 (mbar)            |              |              |              |              |              |              |
| Gas Connection                                |        | 1/2"   |              |              |              |              |              |              |
| Electrical Connection                         |        | 230 V, Monophase, 1 amper                        |              |              |              |              |              |              |
| Fan Power (w)                                 |        | 60   | 60           | 60           | 60           | 80           | 80           | 80           |
| Ignition                                      |        | Full Automatic, with Flame Sensor                |              |              |              |              |              |              |
| Ignition and Radiant Tubes                    |        | 101,6 mm diameter, Heat Treated Aluminized Steel |              |              |              |              |              |              |
| Reflector                                     |        | NS3H14 Aluminium                                 |              |              |              |              |              |              |
| Exhaust Outlet Diameter (mm)                  |        | 101,6 mm   |              |              |              |              |              |              |
| Min. Clearances from Flammable Materials (cm) | Top    | 15   | 15           | 15           | 15           | 15           | 20           | 20           |
|   | Side   | 75   | 80           | 85           | 85           | 100          | 120          | 150          |
|   | Bottom | 150  | 160          | 170          | 170          | 170          | 200          | 250          |



**SILVERSUN**  
*evo*

# Silversun® Evo U-Type



- Positive air (forced-air) system
- 93% radiant efficiency
- Low NOx
- Two stage EVO Burner
- Homogenous heat distribution
- Local, spot or zone heating
- Wider radiant umbrella
- 7 different capacities
- Individually exhausted from wall or roof

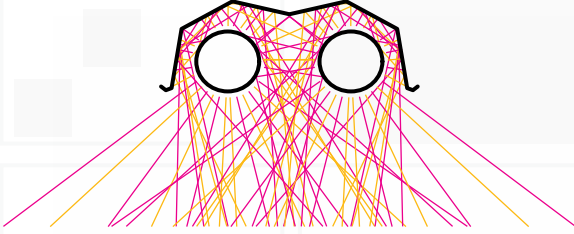


## SILVERSUN EVO DOUBLE REFLECTOR U-TYPE – TECHNICAL SPECIFICATIONS

| Model   |        | SSE 10/15 CRU                                    | SSE 13/20 CRU | SSE 17/25 CRU | SSE 20/30 CRU | SSE 27/40 CRU | SSE 33/50 CRU | SSE 40/60 CRU |
|---|--------|--|---------------|---------------|---------------|---------------|---------------|---------------|
| Power (kW)                                    | Min.   | 10   | 13            | 17            | 20            | 27            | 33            | 40            |
|   | Max.   | 15   | 20            | 25            | 30            | 40            | 50            | 60            |
| Weight (kg)                                   |        | 45   | 60            | 60            | 75            | 75            | 92            | 100           |
| Total Length (cm)                             |        | 378  | 530           | 530           | 683           | 683           | 835           | 988           |
| Min. Rec. Mounting Height (m)                 |        | 2,0  | 2,25          | 2,50          | 2,75          | 3,0           | 3,50          | 4,0           |
| Gas Fuel Type                                 |        | Natural Gas G20                                  |               |               |               |               |               |               |
| Natural Gas Consumption (Nm <sup>3</sup> /h)  | Min.   | 0,84   | 1,26          | 1,66          | 2,10          | 2,84          | 3,47          | 4,20          |
|   | Max.   | 1,26   | 1,89          | 2,52          | 3,15          | 4,20          | 5,25          | 6,30          |
| Inlet Pressure - Natural Gas                  |        | Minimum 15 (mbar) - Maximum 55 (mbar)            |               |               |               |               |               |               |
| Gas Connection                                |        | 1/2"   |               |               |               |               |               |               |
| Electrical Connection                         |        | 230 V, Monophase, 1 amper                        |               |               |               |               |               |               |
| Fan Power (w)                                 |        | 60   | 60            | 60            | 60            | 80            | 80            | 80            |
| Ignition                                      |        | Full Automatic, with Flame Sensor                |               |               |               |               |               |               |
| Ignition and Radiant Tubes                    |        | 101,6 mm diameter, Heat Treated Aluminized Steel |               |               |               |               |               |               |
| Reflector                                     |        | NS3H14 Aluminium                                 |               |               |               |               |               |               |
| Exhaust Outlet Diameter (mm)                  |        | 101,6 mm   |               |               |               |               |               |               |
| Min. Clearances from Flammable Materials (cm) | Top    | 15   | 15            | 15            | 15            | 15            | 20            | 20            |
|   | Side   | 75   | 80            | 85            | 85            | 100           | 120           | 150           |
|   | Bottom | 150  | 160           | 170           | 170           | 170           | 200           | 250           |

# Silversun® Evo Single Reflector U-Type

**SILVERSUN**  
evo



- Positive air (forced-air) system
- 93% radiant efficiency
- Low NOx
- Two stage EVO Burner
- Compact design
- Double tubes in single reflector
- Ease of installation and wiring
- Homogenous heat distribution
- Local, spot or zone heating
- Wider radiant umbrella
- 7 different capacities
- Individually exhausted from wall or roof

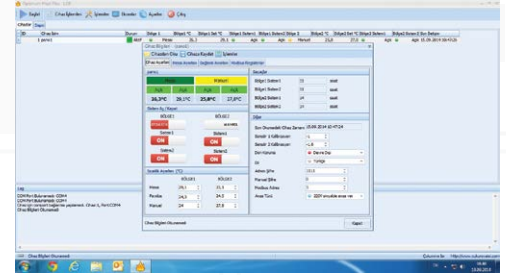


## SILVERSUN EVO SINGLE REFLECTOR U-TYPE – TECHNICAL SPECIFICATIONS

| Model   |        | SSE 10/15 TRU                                    | SSE 13/20 TRU | SSE 17/25 TRU | SSE 20/30 TRU | SSE 27/40 TRU | SSE 33/50 TRU | SSE 40/60 TRU |
|---|--------|--|---------------|---------------|---------------|---------------|---------------|---------------|
| Power (kW)                                    | Min.   | 10   | 13            | 17            | 20            | 27            | 33            | 40            |
|   | Max.   | 15   | 20            | 25            | 30            | 40            | 50            | 60            |
| Weight (kg)                                   |        | 45   | 60            | 60            | 75            | 75            | 92            | 100           |
| Total Length (cm)                             |        | 378  | 530           | 530           | 683           | 683           | 835           | 988           |
| Min. Rec. Mounting Height (m)                 |        | 2,0  | 2,25          | 2,50          | 2,75          | 3,0           | 3,50          | 4,0           |
| Gas Fuel Type                                 |        | Natural Gas G20                                  |               |               |               |               |               |               |
| Natural Gas Consumption (Nm <sup>3</sup> /h)  | Min.   | 0,84   | 1,26          | 1,66          | 2,10          | 2,84          | 3,47          | 4,20          |
|   | Max.   | 1,26   | 1,89          | 2,52          | 3,15          | 4,20          | 5,25          | 6,30          |
| Inlet Pressure - Natural Gas                  |        | Minimum 15 (mbar) - Maximum 55 (mbar)            |               |               |               |               |               |               |
| Gas Connection                                |        | 1/2"   |               |               |               |               |               |               |
| Electrical Connection                         |        | 230 V, Monophase, 1 amper                        |               |               |               |               |               |               |
| Fan Power (w)                                 |        | 60   | 60            | 60            | 60            | 80            | 80            | 80            |
| Ignition                                      |        | Full Automatic, with Flame Sensor                |               |               |               |               |               |               |
| Ignition and Radiant Tubes                    |        | 101,6 mm diameter, Heat Treated Aluminized Steel |               |               |               |               |               |               |
| Reflector                                     |        | NS3H14 Aluminium                                 |               |               |               |               |               |               |
| Exhaust Outlet Diameter (mm)                  |        | 101,6 mm   |               |               |               |               |               |               |
| Min. Clearances from Flammable Materials (cm) | Top    | 15   | 15            | 15            | 15            | 15            | 20            | 20            |
|   | Side   | 75   | 80            | 85            | 85            | 100           | 120           | 150           |
|   | Bottom | 150  | 160           | 170           | 170           | 170           | 200           | 250           |

## Controls

Silversun® Radiant heaters are compatible with all types of automatic and electronic controls. Thus the heaters can be controlled by using the simplest thermostat as well as by the most advanced programming unit. Local, spot or regional temperature controls of the systems is also available. Centralized/distributed control units can be designed according to the nature and number of devices and heating zones in the space, and also can be integrated to a SCADA system over Modbus. Ambient temperatures can be set and monitored, operating intervals of the system can be scheduled weekly from these control units. By utilizing commercial off-the-shelf electronic control units, these settings can be programmed in high detail, eliminating the need for operators.



Optimum Heat Control Unit



Remote Control Capability



Room Thermostat

## Additional Parts and Accessories



Aluminium Exhaust Pipe



Elbow



T-connection



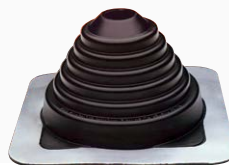
Coupling



Flexible Hose with  
Conical Fitting



Roof Exhaust  
Terminal (Outlet)



Roof Sealing Element



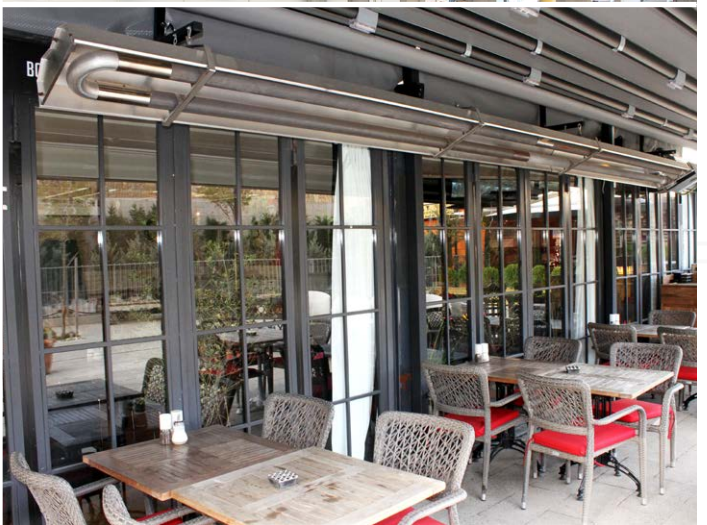
Side (Wall)  
Exhaust Terminal (Outlet)



Mirror



## Applications





## Applications





## Applications





## Applications



## Gebze Plastikçiler Organize Sanayi Bölgesi

Atatürk Bulvarı No:28 41400 Gebze / Kocaeli

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Kalite Sistemi Denetim  
Sertifikası



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Her hakkı mahfuzdur. Cukurova İsi A.Ş.'nin yazılı  
mushadesi alınmaksızın bu çalışmanın bir kısmı  
veya tamamı grafik, elektronik veya mekanik olarak  
hiçbir şekilde kopya edilemez, fotokopisi alınamaz.  
Bu broşürdeki bilgiler basım tarihinden itibaren  
geçerlidir, fakat herhangi bir şekilde değiştirilebilir.  
Güncel bilgiler için Cukurova İsi A.Ş.'ye başvurunuz.