

“Innovative and Reliable”



SILVER SUN
pro

SILVER SUN
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.



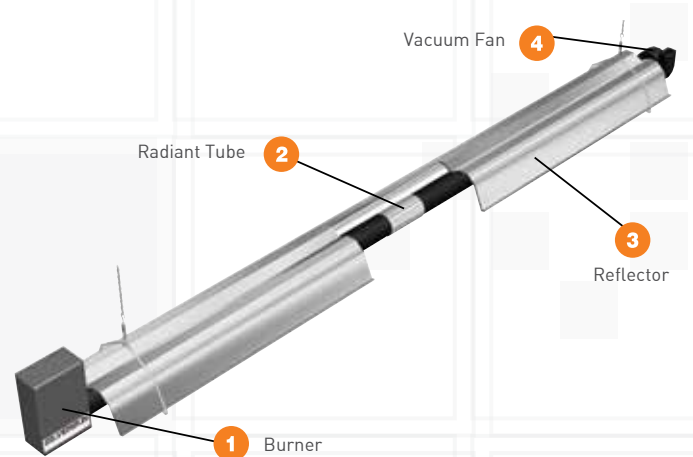
Types of Radiant Heaters

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.

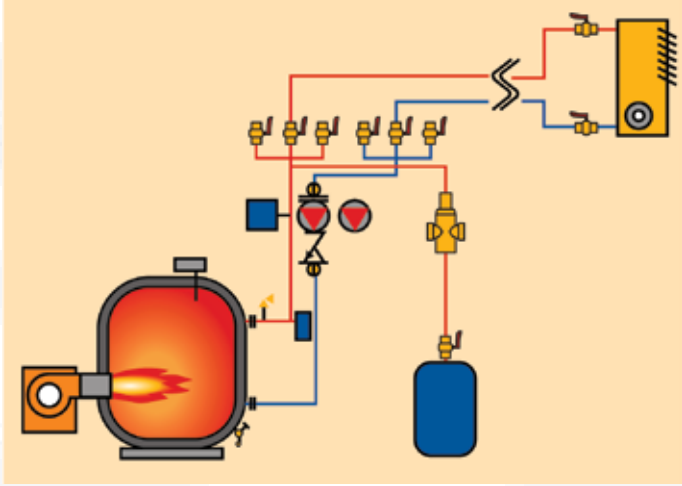
Radiant tube heaters are known as low intensity infrared products.

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.

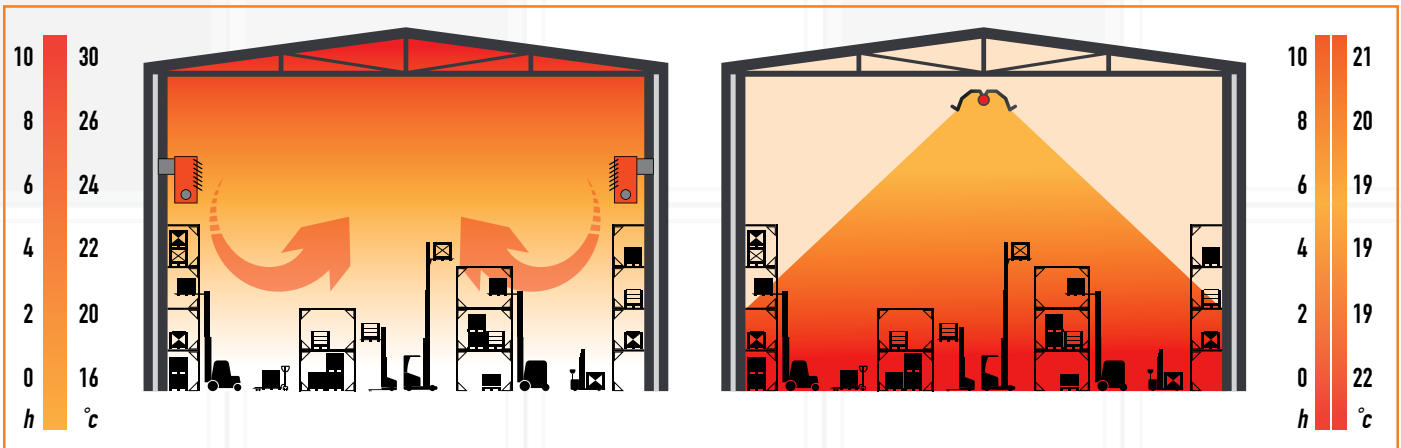
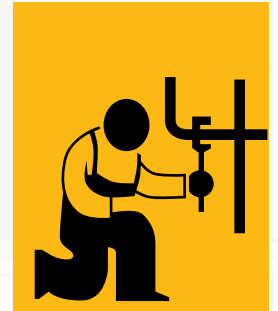


The Advantages of Radiant Heating Systems

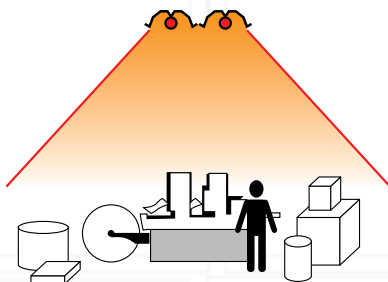


1. Cost effective; 30-50% energy savings, due to the fact that;
 - a. Direct heat; no need to heat the air first to heat the people
 - b. No transfer loses; generate heat where you need to use
 - c. 100% electronically controllable to desired comfort level 7/24, yearlong
 - d. Local, spot and regional 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 Isı 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.



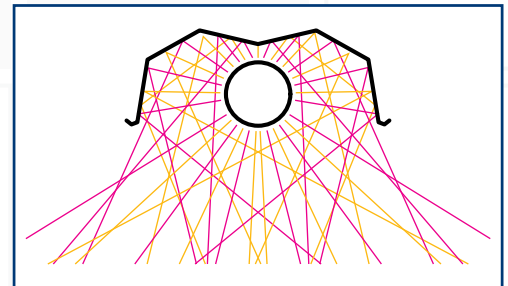
Radiant Tubes

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

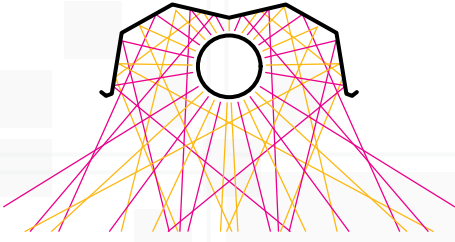
Aerodynamically efficient, hi-temperature resistant fans are used in Silversun® PRO model radiant heaters to maintain required vacuum level even at any severe working conditions without losing the pressure. Having specially designed steel blades within the fan enables the heater provides homogenous heat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

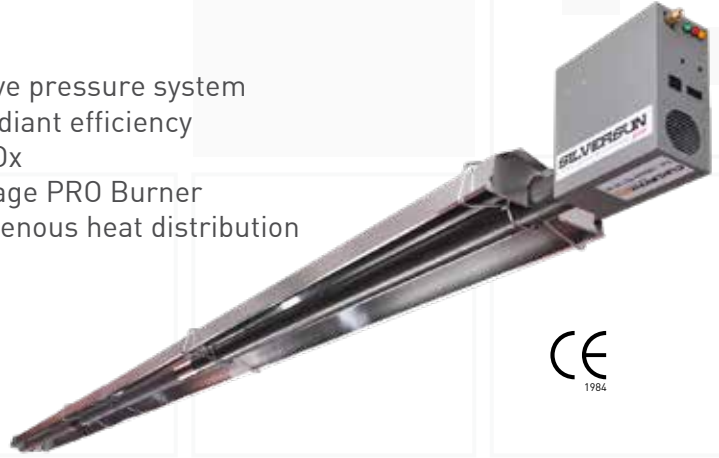
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Silversun® Pro Straight Type



- 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

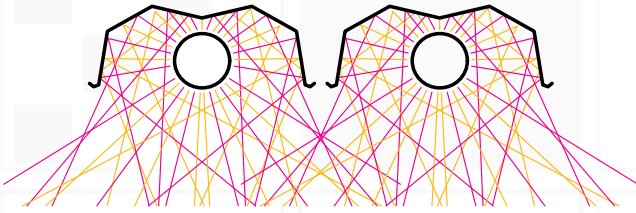


SILVER SUN PRO STRAIGHT TYPE – TECHNICAL SPECIFICATIONS

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 ³ /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 Reflector		101,6 mm diameter, Heat Treated Aluminized Steel					
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

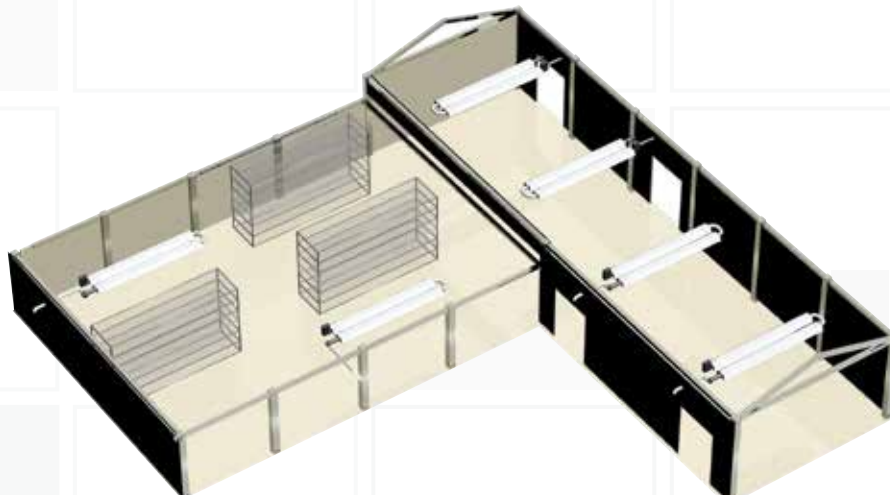


- Negative pressure system
- 93% radiant efficiency
- Low NOx
- Two stage PRO Burner
- Homogenous heat distribution
- Local, spot or zone heating
- Wider radiant umbrella
- 6 different capacities
- Individually exhausted from



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 ³ /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



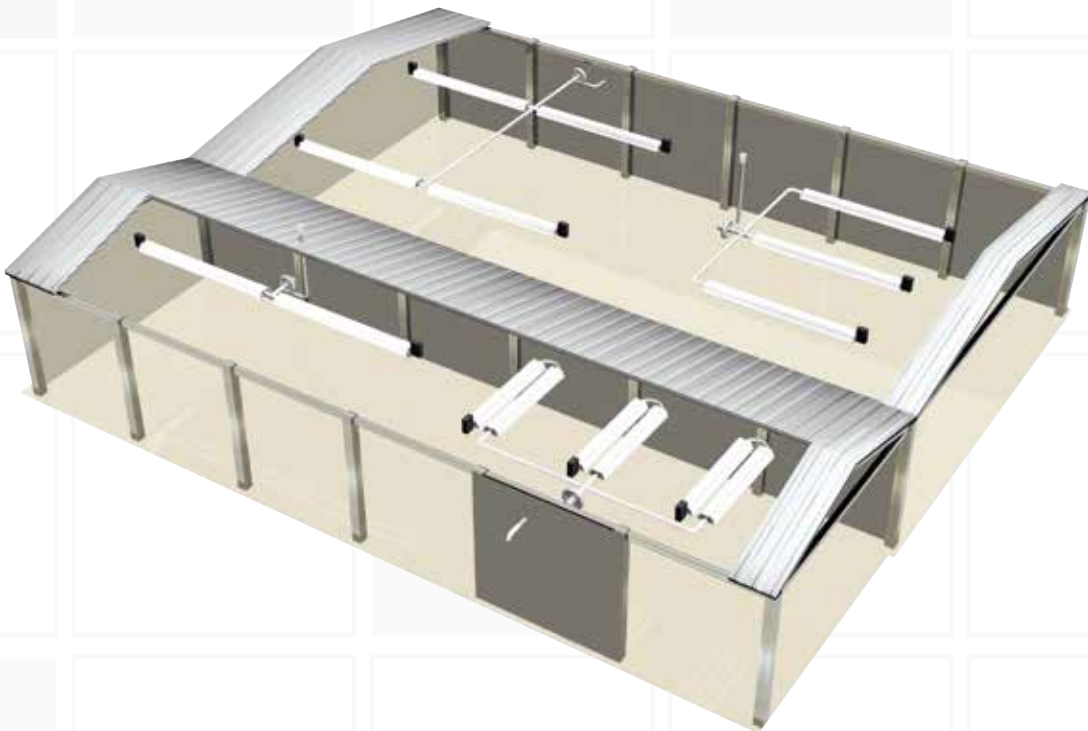
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Silversun® Multiple Burner Type

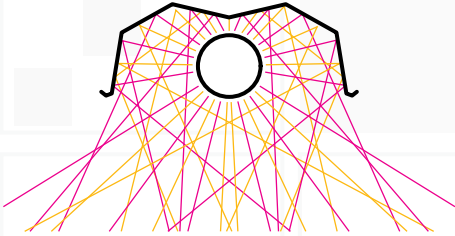
- Negative pressure system
- 93% radiant efficiency
- Low NOx
- Two stage PRO Burner
- Homogenous heat distribution
- Excellent design flexibility
- Local, spot or zone heating
- Wider radiant umbrella
- Collective exhaust systems minimizing outlets



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

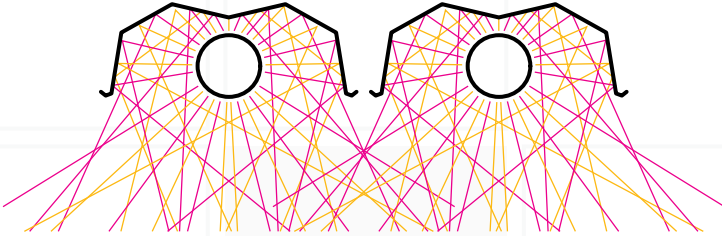


SILVERSUN EVO STRAIGHT TYPE – TECHNICAL SPECIFICATIONS

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 ³ /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

SILVERSON[®] evo

Silversun[®] Evo U-Type



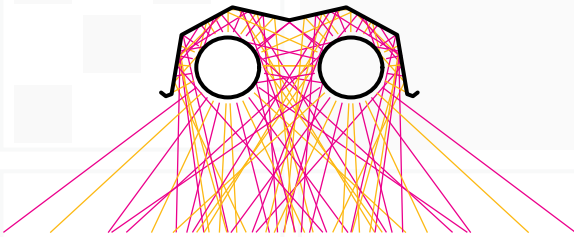
- Positive air (forced-air) system
- 93% radiant efficiency
- Low NOx
- Two stage EVO Burner
- Homogenous heat distribution
- Local, spot or zone heating
- Wider radiant umbrella
- 7 different capacities
- Individually exhausted from wall or roof



SILVERSON 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 ³ /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



- 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 ³ /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



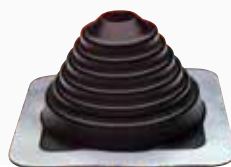
Coupling



Flexible Hose with Conical Fitting



Roof Exhaust Terminal (Outlet)



Roof Sealing Element



Side (Wall) Exhaust Terminal (Outlet)



Mirror

Applications



Applications



Applications



Applications



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Kalite Sistemi Denetim
Sertifikası



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