

STREBEL High Performance vacuum Tube Collectors



Saving money in times when energy-prices are increasing

Sunshine is free, it supplies free solar energy even in our geographical latitudes. STREBEL supplies a highly efficient system of solar collectors covering about 70 % of energy-demand used for water-heating. In summertime the energy output of the system is enough to totally cover water-heating demand. The rest of the year solar-energy may preheat the water in your domestic water or heating system very efficiently. This lowers your demand of oil or gas and makes your piggy bank happy.

Economical solar technology for hot water and heating production

There is no better insulation against loss of heat than in a vacuum therefore the heat losses from the STREBEL solar collector will be minimal. This kind of insulation does not degrade with time, it is environmental friendly and is energy saving and furthermore the solar absorber has a special coating to protect it against corrosion.

For the exacting demands of modern architects

Because of the very attractive design of STREBEL solar collectors and the very flexible mounting options it is possible to integrate solar collector modules in a very harmonious way into period and modern buildings maintaining architectural appearance and functionality. STREBEL high performance vacuum tube collectors are very flexible, they can be mounted diagonally or horizontally without effect on output and therefore make optimum use of the sun.

Because of the high efficiency and high-performance of STREBEL vacuum tube collectors the area required for mounting is minimal.

Because of our commitment to the environment

When using STREBEL high performance vacuum tube collectors in a single family house a saving to the environment of ¼ tonnes of carbon-dioxide (CO₂) can be gained. Longevity and high working reliability of the solar collector system is guaranteed through exclusive use of corrosion resistant materials.

STREBEL high performance vacuum tubes conserve raw material resources through product longevity.

Sample Applications

STREBEL high performance vacuum tube collectors are compatible with all STREBEL boilers (condensing, oil, gas and wood) in combination with a buffer calorifier.

The Fundamental Benefits

Installation Options

STREBEL high performance vacuum tube collectors are suitable for all types of installations. It does not matter what type of roof you wish to install on, practically every variant is achievable, an inclination pitch of 0 to 90° is possible.

Simple Assembly

There are modules of 6 to 16 vacuum-tubes completely preassembled at the factory. With a patented plug system it is possible to connect several modules side by side easily and quickly. It is also possible to expand the collector area later as desired.

Output

The high output to minimal coverage area combined with the insulating vacuum guarantees optimum efficiency. STREBEL high performance vacuum tube collectors therefore still give the maximum output on cold cloudy days and at times of low sun radiation.

Quality

The 2.5 mm diameter highly transparent borosilicate glass tubes are shatterproof against hail and they also ensure a continuous light transparency. Through the vacuum process the tubes are bottled and closed with a stainless steel crown through a thermo compressing procedure, the design and the extra ordinary smooth surface make the tubes self-cleaning. The special reflector is produced with a chemical vacuum pump and ensures the vacuum isolation at about 10⁻⁸ bar during the total life-span. All internal components are protected against corrosion and influence of the weather within the vacuum of the collector tube.



STREBEL high performance vacuum tube collectors are available in two options, Heat Pipe (HP) and Direct Flow (DF).

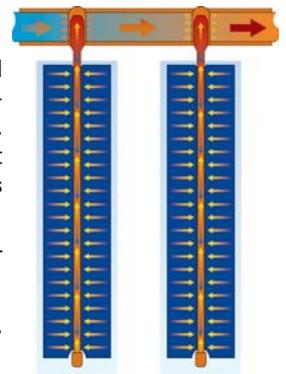
These two types differ from each other in the way heat is transferred to the heat exchanger giving several mounting options.

System Heat Pipe (HP)

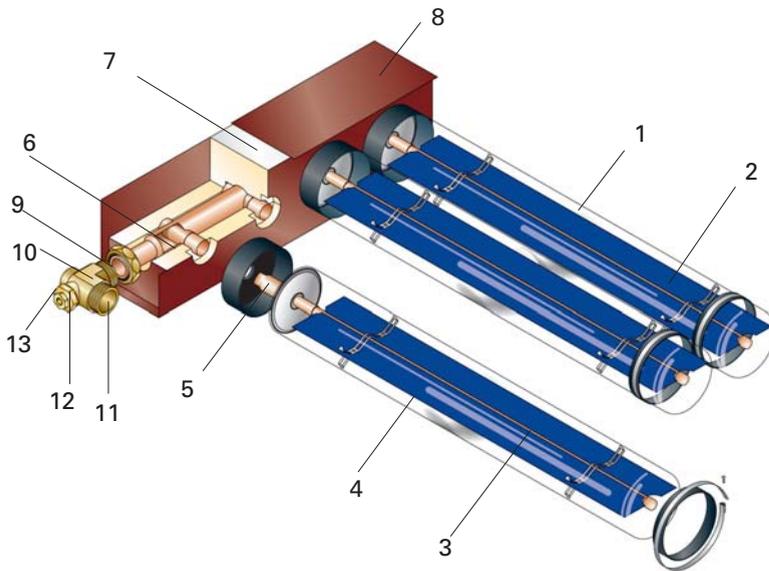
The radiation of the sun will be transferred into heat through the "sunselect" coated absorber and transferred into the solar primary circulation system (SPCS). The heat in the STREBEL high performance vacuum tube collector rises from the absorber up to the primary heat transfer head. Therefore, the HP Solar collectors have to be mounted at an angle of at least 25°. The primary heat transfer heads are functionally heat exchangers and the SPCS medium flows around these heads in the collector pipe, transferring heat.

The major benefit of the "dry" connecting of each HP vacuum tube collector to the SPCS collector pipe, is that each single solar tube can be carried onto the roof and be simply connected.

Through easily adjustable pivoted solar tubes optimum utilisation of the sun's radiation is achieved.



flow chart HP

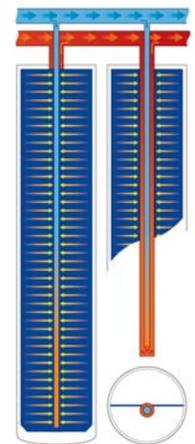


1. High Vacuum Tube (borosilicate glass)
2. Absorber ("sunselect"-coated)
3. Heat Collector
4. Reflector
5. Primary Heat Transfer Head
6. Solar Primary Circulation System (SPCS)
7. Insulation
8. Cover
9. Screw connection
10. Connection
11. Collector Connection 1 inch
12. Sensor pocket
13. Outlet valve

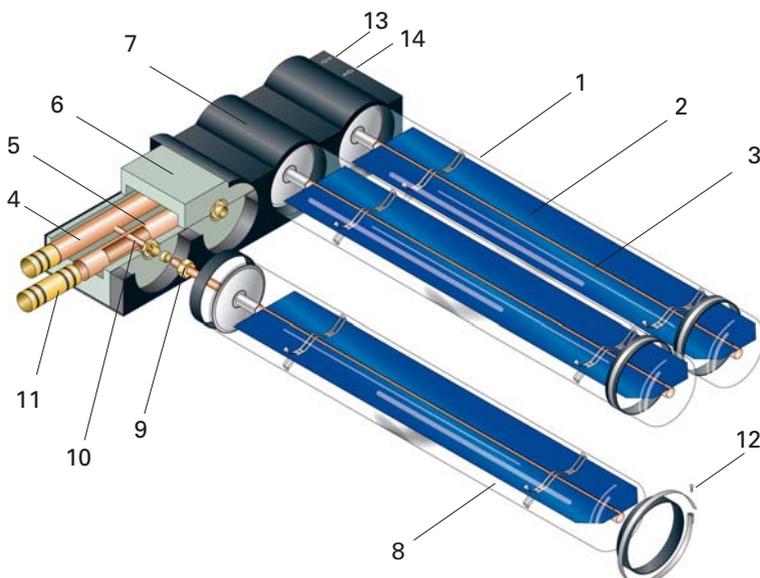
System Direct Flow (DF):

In the direct flow vacuum tubes the process medium is taking away the sun's heat, which is delivered from the absorber area.

Direct flow vacuum tubes differ from heat pipe vacuum tubes because they are delivered fully connected with the collector SPCS. It is possible to order each DF collector system with angles relative to site requirements, prefabricated at the works. In this way the solar absorber positioning will be optimised relative to the sun, independent of the building requirements i.e. horizontal to vertical.



flow chart DF



1. High Vacuum Tube (borosilicate glass)
2. Absorber ("sunselect"-coated)
3. Heat Collector - Double Pipe (Ø 12 mm/~ 1/2 inch)
4. Collector Tube (Input)
5. Collector Tube (Output)
6. Insulation
7. Cover
8. Reflector
9. Screw Connection
10. Inner Pipe (Ø 6 mm/~ 1/4 inch)
11. Quick Connector
12. Fixing
13. Collector Input (Cold Return from System)
14. Collector Output (Hot Flow to System)

STREBEL High Performance vacuum Tube Collectors

-  maximum energy production through high vacuum technology
-  individual adjustable absorber area
-  low installation area
-  rapid installation through modular system
-  shatterproof 2.5 mm diameter safety glass
-  tube diameter of 100 mm



Typ AS100		AS100 HP-16	AS100 HP-12	AS100 HP-8	AS100 DF 6
Number of tubes		16	12	8	6
Collector Gross Area	mm ²	42,000	31,000	21,000	16,000
Absorber Area	mm ²	30,000	22,500	15,000	11,000
Dimensions (Height/Width/Depth) Mm		2,160/1,920/140	2,160/1,440/140	2,160/960/140	2,160/720/120
Diameter of Tube	Mm	100	100	100	100
Thickness of Glass	Mm	2.5	2.5	2.5	2.5
Material of Tubes		High Quality Borosilicate Glass			
Weight	Kg	90	67	45	35
Mounting angle		25°-70°	25°-70°	25°-70°	0°-90°
Flow rate	l/m ² ,h	60-80	60-80	60-80	60-80
Pressure Loss	Mbar	<30	<30	<30	<30
Liquid Contents	Lt	2.30	1.80	1.15	0.98
Material of Absorber		Sunselect Coated Copper			
Absorption Coefficient	%	95	95	95	95
Maximum No-Load Operation Temperature	C	220°	220°	220°	250°
Maximum Operation Pressure	Bar	10	10	10	10

The company reserves the right to change the specification and dimensions without prior notice

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