

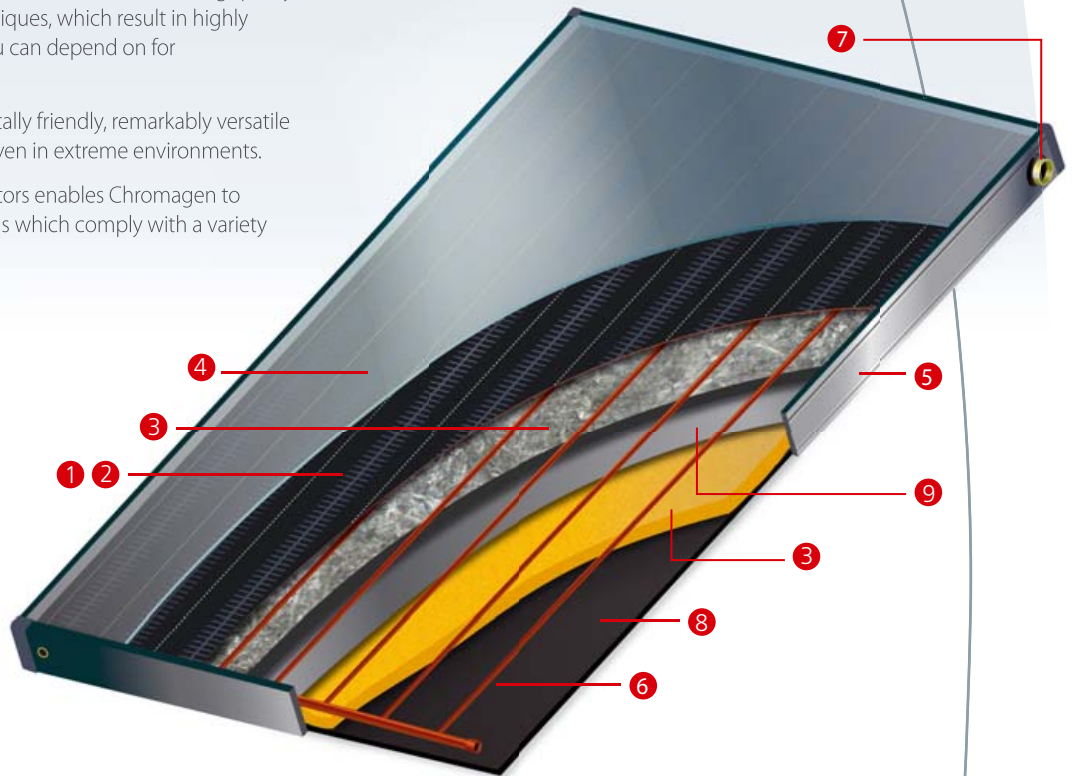
Solar Collectors

Chromagen has fine-tuned the design and manufacture of solar collectors to an art. Collectors are assembled using quality materials and advanced techniques, which result in highly efficient, durable products you can depend on for years to come.

The products are environmentally friendly, remarkably versatile and offer high performance even in extreme environments.

The wide range of solar collectors enables Chromagen to provide cost-effective solutions which comply with a variety of international standards.

1. Absorber Plate
2. Absorber Plate Coating
3. Insulation
4. Solar Glass Glazing
5. Casing
6. Tubing Grid
7. Piping Connection
8. Back Plate
9. Aluminum Foil



Absorber Plate

Consists of copper fins ultrasonically welded to copper risers, to provide excellent heat transfer between the fins and the risers, ensuring high efficiency. Inexpensive yet durable aluminium absorber plate is available.

Absorber Plate Coating

Coated either with a sputtering coating, or with black chrome on nickel, or with highly distinctive black solar paint. All allow excellent energy absorption even in cooler climates.

Insulation

The absorber plate is encased in 25 mm rigid Polyurethane foam, with an option to additional layer of glass wool, retaining the collector's heat.

Solar Glass Glazing

The single-pane 3.2-mm solar glass is patterned to reduce reflection and tempered to maximize strength and durability. The 0.03% low iron oxide content enables a high solar transmittance of 91%.

Casings

A. Aluminium

All anodized aluminium extrusion casings are made of solid construction available in a natural or black, or red color.

B. Galvanized steel casings are available in black, gray or white polyester finishing.

Tubing Grid

5/8" or 8 mm copper risers brazed to 1 1/8" or 7/8" copper manifolds with optimal flow distribution.

Piping Connection

Four 3/4" BSP female brass adaptors, flare for quick fittings or clear cut edge for connector brazing.

Back Plate

The back plate is made of black polypropylene sheet.

Aluminium Foil

The aluminium foil acts as a barrier against out-gassing, integrated to the insulation.



Specifications of CHROMAGEN Collectors

Model	CR-90	CR-100	CR-110	CR-120	CR-130	CR-140
Gross area [m ²]	1.69	2.05	2.37	2.80	2.96	3.71
Net aperture area [m ²]	1.52	1.85	2.15	2.56	2.73	3.44
Length [cm]	182	190	219	219	247	309
Width [cm]	93	108	108	128	120	120
Thickness [cm]	9	9	9	9	9	9
Weight (Empty) [kg]	29	34	38	44	54	67
Fluid capacity [liter]	2.69	3.23	3.56	4.13	5.27	6.29

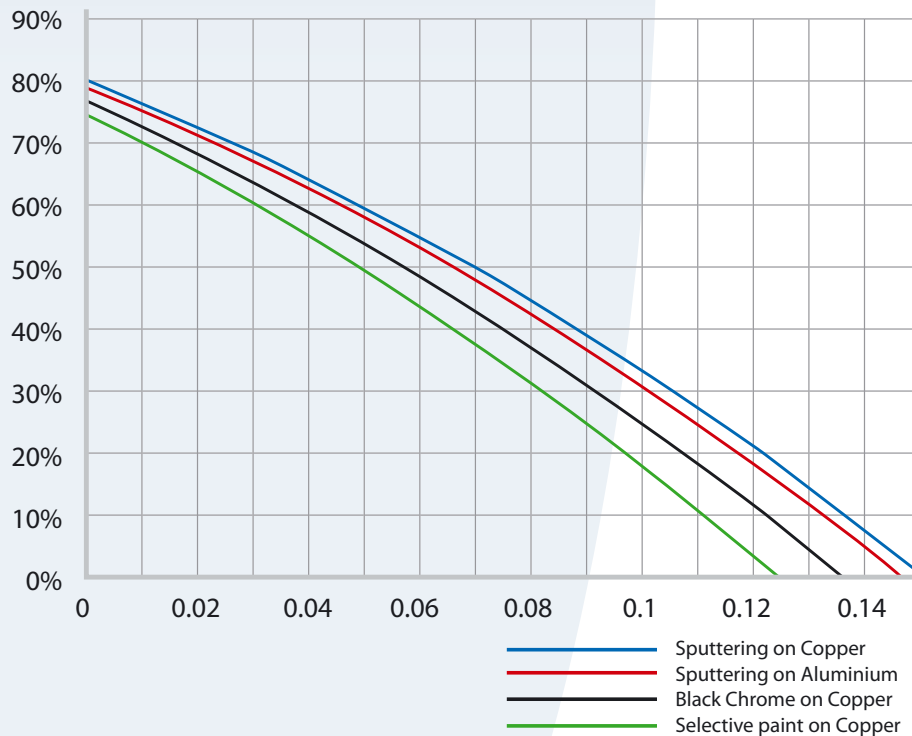
- Collectors test pressure: 12 bar.
- Max. collectors operation pressure: 10 bar.
- Data for aluminium frame and 5/8" risers array.

Coating Specifications

Type	Absorptance α	Emissivity ϵ	Stagnation Temp @1000W/m ² & ambient temp 30°C
Selective Paint	0.9	0.45	160°C
Black Chrome	0.95	0.12	170°C
Sputtering	0.95	0.05	180°C

Due to on-going development, specifications are subject to change without notice.

Collector Efficiency



$$X = (T_m - T_a) / G$$

T_m = Water Temp: $(T_{out} + T_{in}) / 2$
 T_a = Ambient Temp
 G = Instantaneous Solar Radiation (~850 W/m²)