



## Solar reflective surfaces

The highly reflecting vega energy specular surfaces are a key component of concentrating solar systems. They concentrate the solar radiation precisely to achieve extreme energy densities. By using vega energy mirrors with their outstanding reflecting properties the performance can be increased significantly in concentrating parabolic systems (CSP) for the generation of solar thermal electricity, or process heat for industrial applications, air conditioning or sea water desalination. Performance improvements can also be reached by using vega energy mirrors in combinations with flat plate or vacuum tube solar thermal collectors and in combination with PV arrays. Almeco offers a range of reflector materials suitable for all applications in the solar energy field.

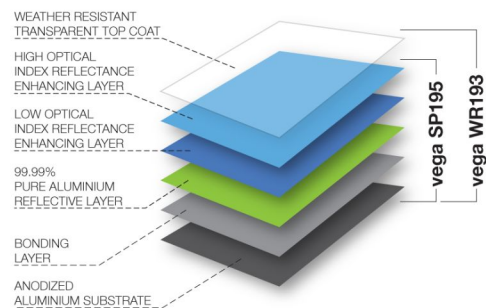
**Product vega SP** products are based on pre-anodized aluminium strip, PVD coated with a multi-layer reflection stack.

**vega WR** products are additionally coated with a highly transparent and protective UV and weather resistant top coat.

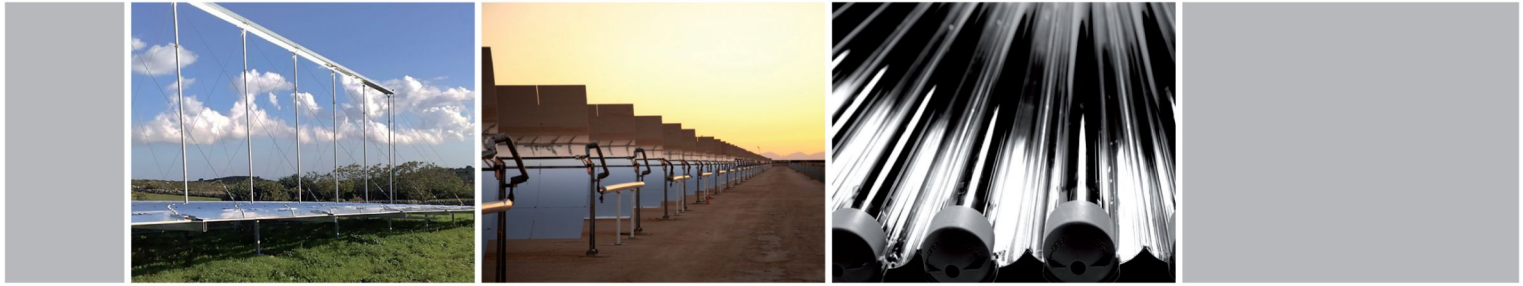
**Specular SWR** products are made using pre-anodized aluminium coated with a special weather resistant top coat.

**Why vega energy?** For glazed solar collectors where standard anodized aluminium does not provide enough reflectance, the vacuum coated products vega SP195 and vega SP198 provide very high levels of total and specular reflectance with excellent coating integrity, durability and U.V. resistance. Optimum reflectance of the solar spectral range is obtained by applying carefully controlled reflection enhancing layers, using continuous PVD (Physical Vapour Deposition) vacuum coating technology.

These materials give reflection values of over 95% and 98% respectively on the vacuum coated strip. vega SP295 and vega SP298 are the top mirror finish versions of this range, with higher concentrating and reflecting characteristics and lower light diffusion.



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**Product features  
and reflectivity values**

Product	Application type	Total solar reflectance [%]	Total reflectance "visible range" [%]	Diffuse reflectance [%]	Specular reflectance [%]
<b>STANDARD</b>		ASTM 891-87 **	ASTM E 1651 DIN 5036-3	DIN 5036-3 1° APERTURE	ISO 7668 60°
<b>vega SP195</b>	Indoor or enclosed reflectors	≥ 92	≥ 95	< 11	≥ 89
<b>vega SP295</b>	Indoor or enclosed reflectors	≥ 92	≥ 95	< 6	≥ 91
<b>vega SP198</b>	Indoor reflectors only	≥ 95	≥ 98	< 11	≥ 93
<b>vega SP298</b>	Indoor reflectors only	≥ 95	≥ 98	< 7	≥ 94
<b>STANDARD</b>		Rnh ASTM G173	ASTM E 1651 DIN 5036-3	Rnd ASTM G173	Rnh-Rnd ASTM G173
<b>vega WR193*</b>	Outdoor reflectors	89.9***	≥ 93	1.6%***	88.3***
<b>vega WR293*</b>	Outdoor reflectors	≥ 89	≥ 93	< 2.5%	≥ 88
<b>Specular SWR686</b>	Outdoor reflectors	≥ 84	≥ 87	< 3%	≥ 80

\* Also available reverse side lacquered

\*\* Solar reflectance values are calculated with reference to solar spectral data air mass 1.5

\*\*\* Values independently measured by  Fraunhofer ISE

For more than fifty years the Almeco Group has devoted itself to making aluminium products with **The Company** reflective and decorative surface finishes. This specialization has led to the Group becoming one of the world's largest producers of components for the lighting and solar energy industries.

All vega energy products are manufactured in Germany at Almeco GmbH, which incorporates the Solar Business Division of Almeco Group. With modern, high technology vacuum coating and manufacturing lines, Almeco GmbH specializes in high-tech reflector and absorber coatings that convert sunlight into heat energy in an efficient, reliable and environmentally friendly manner.



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