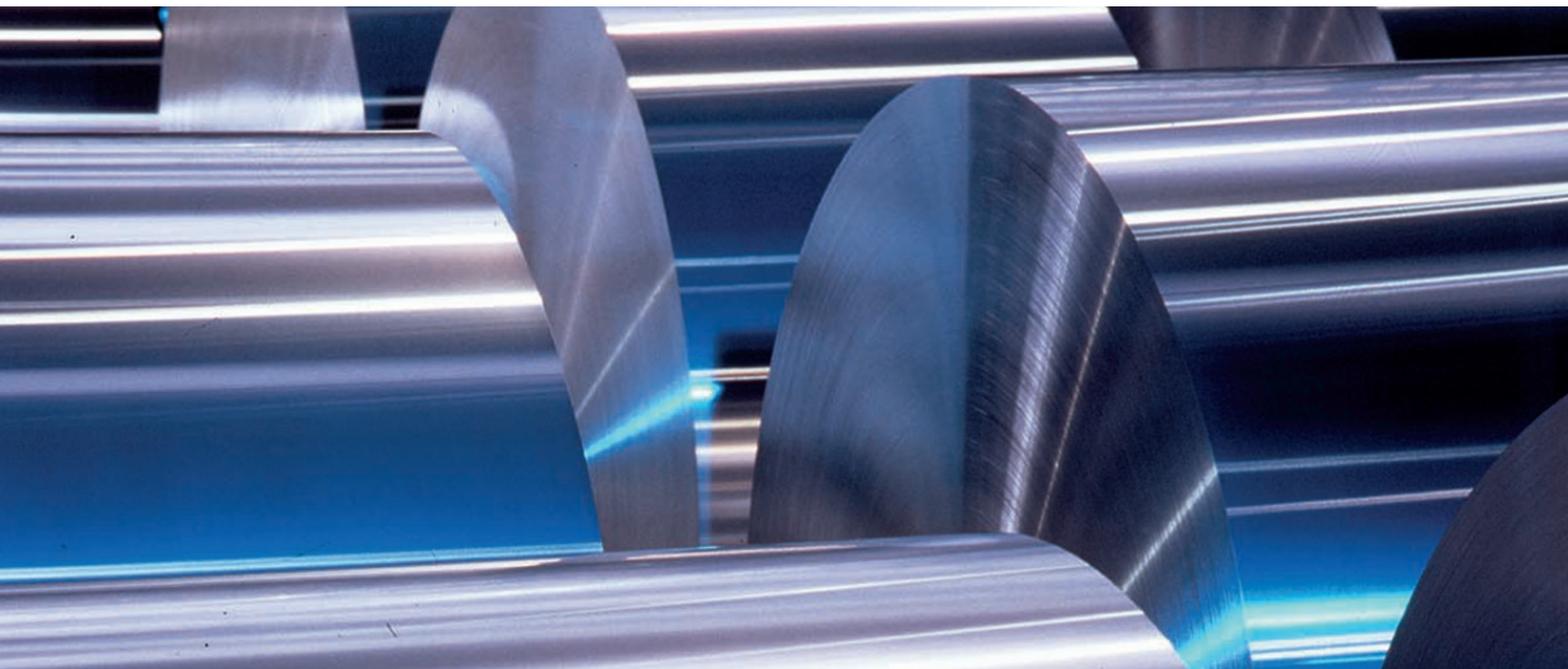


# Customized Solutions for Cosmetics





## Pure aesthetics – Technical perfection with elegance

### **Aluminium haute couture**

Packaging applications, such as lustrous cosmetic containers and metallic bottle caps, are expected to be creative and elegant, enhancing product appeal with a degree of exclusivity. Coils and sheets of high-grade surface qualities and finishing properties are essential for cosmetics packaging to attain the degree of polish and elegance your brand demands.

Constellium' Packaging and Automotive Rolled Products Business Unit in Singen is renowned for combining high-luster finish aluminium coils and sheets with optimal deep-drawing characteristics, developing special alloys as required, with the uniform conversion properties that conform to very specific dimensional tolerances sought after by the cosmetics industry.

Decades of experience and close collaboration with luxury cosmetics brands and their suppliers enable us to meet even the most challenging customer requirements. We are able to adapt our products to all forming and deep-drawing processes and ultimately to all shapes, sizes and designs.

### **Surfaces with eye catching effect**

Our plant in Singen can supply the appropriate product according to whatever optical effects you wish to achieve. Our range of products includes a large combination of alloys, tempers and surfaces – from high lustre and matt finishes to three-dimensional rolled structures – and offers a complete range of individual aesthetic possibilities to you.



### **More information available**

For more information concerning general technical product description, please ask for the technical data sheet HW316-010, available in German and English. Specific technical product descriptions (alloys and surfaces), depending on your needs, can also be provided (HW316): **don't hesitate to contact us!**



## Your choice of finishes

### Brilliant ...

Our rolled **Bright-Finish 430** is a decorative rolled surface which is characterized by a brilliant surface appearance with a ground finish visible in the subsurface. This surface aspect is particularly suitable for brightened deep-drawn caps, ferrules, screw ferrules and collars.



### Mat ...

Another well established surface in the market is our **Mat 631**. Together with our **Mat Fine 615**, dedicated to sophisticated application purposes, both these decorative rolled surfaces are manufactured using a ground roll which confers a uniform, mat surface appearance thanks to the diffuse light reflection. These surfaces are appropriate for anodized, deep-drawn parts as well as caps, ferrules and collars.



### Mirror ...

For the highest lustre requirements, our **Mirror-Finish 200** offers optimal reflection properties and this almost independent of the light direction. Due to its very smooth, homogeneous surface and excellent surface cleanliness, the exceptional mirror finish is achieved after brightening and anodizing.

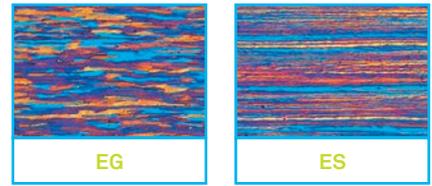


## ... and surface structures.

Depending on your process, your aspect requests and the requirement for deep drawing formability, you can take your choice among Constellium' materials in different qualities. The qualities have been obtained through a variety of thermal and mechanical processes on our finishing lines.

EG, ES and ESI are qualities whose microstructures have different properties in terms of deep drawing, lustre and performing of earings – proportional to the anisotropy. They are suitable for forming and polishing with subsequent anodizing.

EI is suitable for pure anodizing applications with high demands on homogeneity of surface. It is mainly used for mat finishes as well as EIZA.



Microstructures EG (with inter-annealing) vs. ES (without inter-annealing)

	Anodizing Quality				
	bright			mat	
	EG	ESI	ES	EIZA	EI
Deep drawing formability	+++	++	+	++	+
Brightness	+	++	+++	--	-
Earing (% anisotropy)	<3%	<8%	<15%	<5%	w/o spec.

## Our surface quality/finish combinations:

Surface properties can be described through two characteristics:

- roughness, perceived by touching and described as surface texture,
- brightness, captured through our eyes and characterized by the surface light reflection.

The surface number combines both characteristics: the smaller the number (e.g. 200), the finer the roughness and brighter the surface.



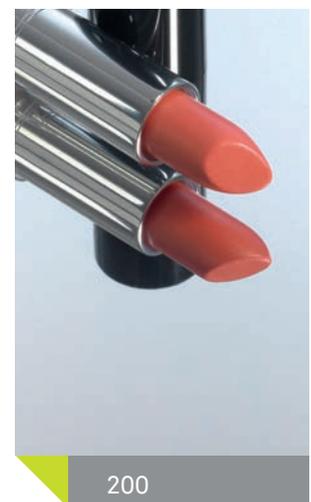
631



615



430



200



### Your tailor made quality surfaces

Should you not find a solution within our extensive portfolio, we are ready to work with you on a tailor made solution. Singen site, through its activity, has acquired over the years an excellent reputation as a flexible and innovative partner.

### A wide range of products for the most demanding processes

As a supplier of aluminium coils and sheets for cosmetic applications, we make sure that our products can be optimally converted into the ultimate packaging. Not only do we offer surfaces with various optical effects and with different qualities, but we also provide a wide range of alloys that are suited for metal transformation steps: deep drawing, chemical/electrolytic brightening or etching, anodizing and where applicable, colouring.

Deep drawing, in particular, requires high demands on the metal during this process which represents a tremendous challenge when processing aluminium into high-grade cosmetics receptacles and metallic bottle tops for perfume.

The chart below gives an overview of the main materials and properties reflecting the know-how of Constellium Singen site in the field of cosmetics applications over the last decades.

### Our extensive portfolio

Alloy*				Surface finish			
				200	430	615	631
AA-N°	Chemical symbol	Constellium N°	Temper	mirror-finish	bright-finish	mat, fine	mat
1085	Al99,85	185	H19	ES			
1080	Al99,8	111	H19		ES/ESI		
1070	Al99,7	121	H19			ES	
1050	Al99,5	134	H19/H24		EI/EIZA		EI/EIZA
5505	Al99,9Mg1	286	H22/H24		ES		
5657	Al99,85Mg0,8Cu	277	H22/H24/H26		EG/ESI/ES		
-	Al99,7Mg0,5Cu	292	H22/H24		ES		
5205	Al99,7Mg0,8Cu	294	H22/H24		ES		
5005	AlMg1	214	H18/H19/H24				EI

Product dimensions: thickness 0,3 to 2 mm / coil width 20 to 1250 mm\*; H22, H24 and H26 max. width 1010 mm

\* This sheet shows our main product portfolio. Other materials and conditions on request.

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Constellium has successfully developed a wide portfolio of aesthetical and functional surfaces for the cosmetics industry, and is today the market leader in terms of quality of surface combined with high formability characteristics. Discover our bright finish best seller ref. 277!

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The surface quality is regularly checked.

## Working Partnerships

Our approach is to bring together our aluminium expertise and our proximity to our customers in a R&D partnership which generates value creation opportunities. Through this unique approach, our Packaging and Automotive Rolled Products Business Unit is constantly bringing innovative solutions, in alloys or designs, not only to bring new products to the market but also to help customers improve their process reliability and efficiency.

## Constellium' Packaging and Automotive Rolled Products Business Unit

Constellium' Packaging and Automotive Rolled Products Business Unit is a key player in the European rolling industry. We enjoy leading market positions for packaging (beverage and food cans, beverage closures) automotive and customized industrial sheet solutions including high quality functional surface products for the cosmetics, lighting, solar, architecture and decorative applications.

### We have world-class rolling and recycling operations:

- in Neuf-Brisach, France (packaging, automotive, building, industry markets)
- and Singen, Germany (packaging, functional surfaces, building and industry markets)

## Dedicated R&D

Constellium' Packaging and Automotive Rolled Products Business Unit has dedicated R&D capabilities in Voreppe (France) and Neuhausen (Switzerland) providing unique research and development capabilities and technical support to customize cutting edge solutions for highly demanding industrial applications.

### Our capabilities include:

- Metallurgy expertise
- Surface treatment (e.g. etching, anodizing...)
- Process simulation (small rolling mill equipment)
- CAD and CAE development software for design and simulation
- Various test equipment and dedicated experts

## Sustainability driven

Sustainability is an integral part of our strategy considered as a moral obligation which inspires us to work diligently with customers and suppliers to practice life cycle product stewardship. This holistic view of products allows us to assess resource consumption and environmental impacts throughout a product's entire life cycle, from fabrication, finishing and end use, to recycling and waste treatment. All our facilities are ISO 14000 and OHSAS 18001 certified. In addition to that the Singen facility is ISO 50001 certified.

## Contact

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