



Aluminum Clad Stainless

Get the Best of Both Worlds

Engineered Materials Solutions has been producing precision rolled Clad Metals for over 100 years. With Clad, design engineers are able to match any need of a specific product design. But, what is Clad?

Cladding is a process in which a minimum of two different types of metal are joined to form an inseparable “laminated” material. These Clad Materials are produced through our Cold Rolled Bonding process, which we developed more than 50 years ago.

First, the metals are cleaned by abrasion or chemical cleaning. The cleaned metals are then rolled under extremely high pressure. This pressure causes the metals to join on an atomic level. Once they are bonded, the materials are wound into coils and prepared for shipping.

Our Aluminum clad Stainless Steel combines the best of both metals so you are able to get to the market with design advantages and a better product.



Advantages

- › **Lightweight**
- › **Scratch Resistant**
- › **Thermal Conductivity**
- › **Ductility**
- › **Corrosion resistance**
- › **Electrical Conductivity**
- › **Strong**

Applications

Truck bumpers

The corrosion resistance, scratch and dent resistance of bumpers made from our clad metal far out-perform chrome plated alternatives.



Cookware

For discerning cooks who value the superior thermal conductivity of stainless steel cookware. Cookware made from EMS clad metals offer better heat distribution, which means consistent cooking performance.



Iron soleplates

We supply highly polished stainless steel, protected by peel-off plastic film. The scratch resistance of stainless and the even heat distribution of aluminium make an unbeatable combination.



Automotive

For transition material between steel and aluminium structural elements. Permits MIG, TIG and resistance welding of both materials to the same structural elements. It can also be used for electrical ground connectors.



Rail Transport

Our stainless / aluminium transition strip allows for weight saving aluminium to be used on steel bodies, while the stainless / aluminium optimises the heat diffusion of HVAC grills and ductwork.

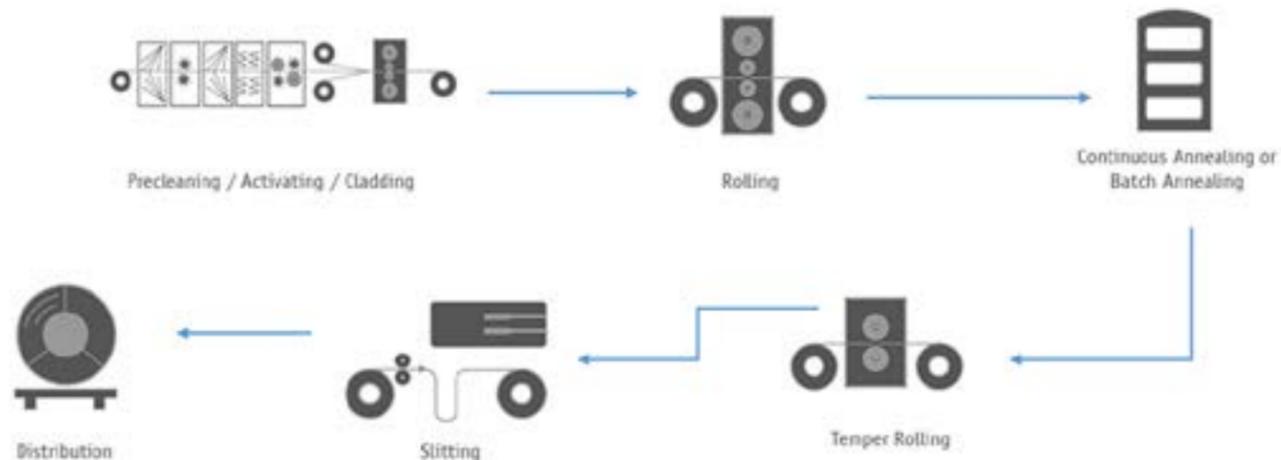


Aerospace

Aluminum corrodes heavily when in direct contact with the new generation of composite airframe assemblies: the solution? Stainless clad to aluminium gives a permanent maintenance-free barrier between the aluminium and the composite materials.



Applications include deck plates, transition materials, galley work surfaces and other high wear, cosmetic or food surface areas.



Aluminum Clad Stainless Specifications

EMS can clad virtually any combination of stainless steel and aluminum. If standard material systems can be specified, lead times are shorter and costs are lower.

Standard System guidelines include:

2 Layer System						
Stainless		Aluminum		Ratio	Total Gauge	
AISI	DIN	AA	DIN	%	Inch	mm
301	1.4310	3003	AIMn	25/75	0.157	4.0
301	1.4310	3003	AIMn	32/68	0.126	3.2
301	1.4310	3003	AIMn	13/87	0.059	1.5
304	1.4301	3003	AIMn	32/68	0.024	0.6

Below 0.8mm, as total gauge reduces, the proportion of Stainless must increase.

Example:

304	1.4301	3003	AIMn	50/50	0.016	0.4
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Gauge range:

EMS can produce foils down to standard gauge range from to

Width:

standard: maximum: upon request: maximum:

Inch	mm
0.008	0.2
0.012	0.3
0.157	4.0
21.3	550
24.5	620

3 Layer System

Product Description			
EMS Material Designation	SS/AL/SS		
Composition	Stainless / Aluminum / Stainless		
Ratios	15/65/20	20/60/20	others upon request
Gauges	0.110" (2.8mm)	0.090" (2.3mm)	others upon request

Chemical Composition

UNS	Grade Eur	Chemistry (%)
S4XX	1.4512, 1.4016, 1.4510	10-18% Cr, Bal Fe
A9XXX	Al99.5, Al99.0, Al Mn	Aluminum
S3XX	1.4310, 1.4301, 1.4401	18% Cr, 6-10%Ni





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