

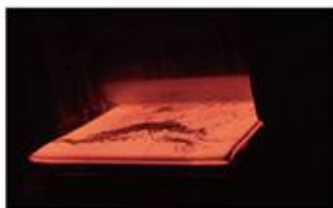


Gallianz

Advanced Materials

致力于成为全球客户首选的金属复合材料供应商

Committed to become the preferred clad steel plate supplier for global customers



Rolling Cladding



Explosive Cladding



Clad Plate

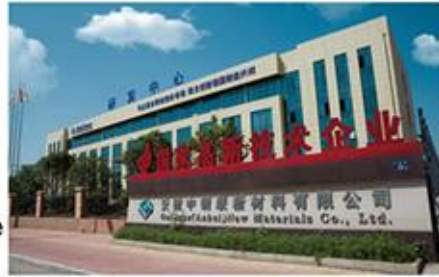
安徽中钢联新材料有限公司
Gallianz (Anhui) New Materials Co., Ltd.

企业简介/Introduction

安徽中钢联新材料有限公司(简称中钢联),是一家专业从事金属复合板研发、制造和销售的高新技术企业,注册资本3600万,生产厂房25000平方米,爆炸复合场地20亩,年生产加工能力30000吨。

Gallianz (Anhui) New Materials Co., Ltd.

(Product Brand: Gallianz) is a high-tech enterprise specializing in R&D, manufacturing and sales of metal clad plates with a registered capital of 36,000,000 yuan, a production plant of 25,000 square meters, an explosive cladding site of 20 mu, and an annual production and processing capacity of 30,000 tons.



长期以来,公司依靠科技创新抢占行业技术制高点,先后研发出三种核心工艺(轧制复合、爆炸复合、爆炸+轧制复合),我们拥有完全自主知识产权的专利技术,成功开发了钛钢复合板、镍基合金复合板(C276)、不锈钢复合板、单(双)面金属复合板、复合钢板型材等系列产品,产品经第三方检测,高于国际标准要求。

For a long time, Gallianz has relied on scientific and technological innovation to seize the commanding ground in the industry technology, and successfully developed three core processes (namely, rolling cladding, explosive cladding, and explosive+rolling cladding). With patented technologies with completely independent intellectual property rights, we have successfully developed series of products such as titanium clad steel plate, nickel-based alloy clad plate(C276), stainless steel clad plate, single/doublesided metal clad plates, and steel clad plate of structural section, etc. all of which, after being tested by a third party, meet the requirements of international standards.

公司产品广泛应用于烟气脱硫脱销、石油管道、化工储罐、化学品船、压力容器、封头、造纸等众多领域。

Gallianz products are widely used in many fields such as Flue Gas Desulfurization and denitrification, petroleum pipelines, chemical storage tanks, chemical tankers, pressure vessels, heads, paper making, etc.

公司致力于成为全球复合钢板的合格供应商。不断满足客户需求,为客户创造更多价值是公司的不懈追求。公司愿与国内外友商互相支持,共谋发展,同创未来。

Gallianz is committed to becoming a global qualified supplier of clad plates, and its unremitting pursuit is to constantly meet customer needs and create more values for customers. Gallianz is willing to support each other, seek common development and create the future together with competitors at home and abroad.

轧制复合板/Roll-bonded clad plates

薄薄的一层昂贵的耐腐蚀合金提供了极好的防腐蚀保护,而较厚但较便宜的高强度碳钢基材确保了足够的结构强度。两种材料之间的冶金结合是在热轧过程中实现的。轧制复合板是炼油厂防腐应用的经济解决方案,石油和天然气生产、化工以及发电厂和烟气脱硫厂。

Though the cladding plate usually is very thin because it is expensive, it provides excellent corrosion protection, while the base plate which is much more thicker ensures adequate structural strength. By the computer-controlled hot-rolling process, the cladding plate and the base plate are bonded together. Such roll-bonded clad plates can not only meet the corrosion-proof requirement but also save cost significantly. Therefore, Gallianz roll-bonded clad plates are the economic solution for corrosion-resistant applications in purification plants.



爆炸复合板/Explosion-bonded clad plates



爆炸复合板是利用炸药的化学能，在炸药爆轰的作用下，推动复板向基层金属高速碰撞，在碰撞点附近形成金属射流，金属射流清理待焊接金属表面的氧化膜，并在高温高压下，使两种或多种金属间形成原子间的冶金结合的金属复合板，即爆炸复合板，它实现了多种金属复合界面结合强度高和厚度范围大。

Explosive cladding is using the chemical energy of the explosives. The energy pushes the cladding material and the base metal colliding at a very high speed under the action of the explosive bombardment. Near the collision point, there is metal jet cleaning the oxide film on metal surface to be weld, which makes two or more layers of metals metallurgically bonded to be a new clad plate called the explosion-bonded clad plate, which realizes high interface binding strength of a variety of metal composition and large thickness range.

爆炸复合板广泛应用于适用于化工设备、容器、管道、热交换器、锅炉、反应器、冷凝器、造船部件的制作等，也比如烟气脱硫FGD领域的Ti-钢复合板，轨道交通直行电机感应板的Al-钢、Cu-钢复合板用于耐硫酸的腐蚀及常压任何温度醋酸的腐蚀。

Explosion-bonded clad plate is widely used in the chemical equipment, container, vessel, petrochemical pipeline, heat exchanger, boiler, reactor, condenser, shipbuilding parts etc. Such as FGD, rail transit straight motor induction, corrosion resistance of sulfuric acid and corrosion of acetic acid at any temperature at normal pressure in the industry field as well.

三大生产工艺优势/Three production processes advantages

※真空扩散+热轧复合可以生产大尺寸的复合板，也可以生产薄复合板。得到的产品尺寸精确，有利于节约贵重金属。工艺的各环节要求严格，操作水平要求较高。

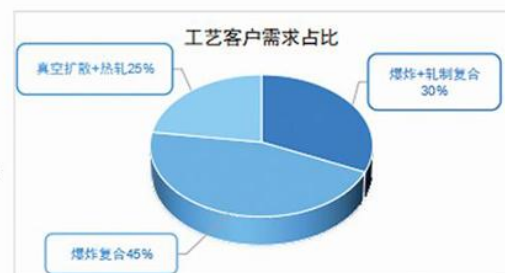
Vacuum diffusion + rolling cladding can produce large size or thin clad plates. It can make accurate plates and be conducive to saving precious metals. Each link of the process has strict requirements, and the operation level is relatively high.

※爆炸复合使复合材料的结合强度高，具有稳定的综合性能，适用于大多可塑性金属或合金，可使材料性能差异极为悬殊的金属组合实现复合，复合板厚度范围大。

Explosive cladding makes the bonding strength of clad materials strong and comprehensive performance stable. It is suitable for most metals or alloys. It can make the metal combination with great differences in material properties to achieve composition, the clad plate thickness range is large.

※爆炸轧制复合保证了两层或三层金属板结合区的焊接质量，可生产大面积无焊缝的各类复合板，生产效率高，成品率也高等。复合板产品尺寸精度高，表面质量好。

Explosive + rolling cladding ensures the welding quality of binding area of two-or-three layers of the metal plate, it can produce a large area of all kinds of clad plates without welds. High production efficiency, High yield. The clad plate is with a high size precision and a fine surface.



优势/Advantage

我们有强大的复合板生产能力

We have amazing clad plates production capacity

中钢联是拥有世界领先技术的复合板生产商。我们的年产能为30,000吨。这减少了我们的交货时间，巩固了我们在市场上的领先地位。根据市场需求，我们能够在合理的时间内提供多达5,000吨的大型单个项目。

Gallianz is the world's leading producer of clad plates. Our production capacity of 30,000 tons per year reduces our delivery time and consolidates our leading position in the market. We are able to supply huge single projects up to 5,000 tons within a reasonable period of time according to market requirements.

我们有三种复合板生产工艺

We have three kinds of processes in producing clad plates

我们是一家拥有三种复合板生产工艺（轧制复合、爆炸复合、爆炸+轧制复合）的厂家，满足不同领域客户不同的需求。

Relying on three kinds of processes in producing clad plates (namely rolling cladding, explosive cladding and explosion-rolling cladding), we can easily meet the needs of different customers from different fields.

特种合金复合板交付最多的厂家

The largest manufacturer of special alloy Clad plate

国内首家交付宁波钢铁S31254+Q235B (3+7) 复合板1000吨；

国内首家交付Gr2+Gr70+Gr2 (0.6+5+0.6) 双面复合海军工项目；

国内首家交付轧制复合钛钢复合板累计超过20000吨；

国内首家交付轧制复合哈氏合金C276复合板累计超过2000吨厂家；

国内首家实现厚度×宽度×长度 (3~5×>2000×>6000) 特材板材 (TC4、S31254、C276、825) 厂家

The first manufacturer in China to deliver 1000 tons of clad plates (S31254 + Q235B).

The first manufacturer in China to deliver double-sided clad plates (Gr2 + Gr70 + Gr2 0.6mm+5mm+0.6mm) for a naval engineering project.

The first manufacturer in China to deliver more than 20,000 tons of hot-rolled titanium-steel clad plates.

The first manufacturer in China to deliver more than 2,000 tons of hot-rolled C276 clad plates.

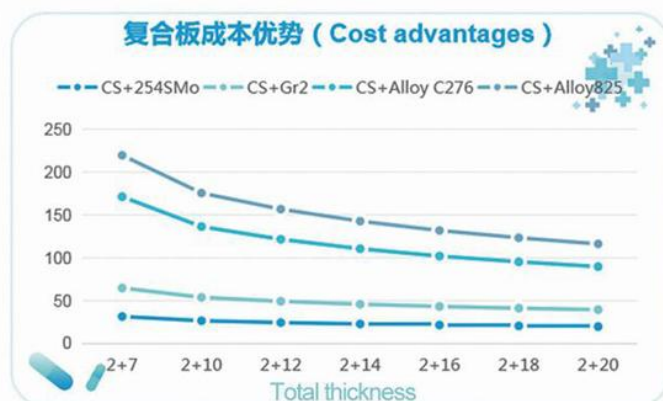
The first manufacturer in China to successfully produce clad plates with special plates (such as TC4, S31254, C276, 825...) of which the thickness is 3~5mm, width more than 2000mm, and length more than 6000mm.

提供经济有效的腐蚀解决方案

We offer a cost-efficient solution to corrosion

与抗腐蚀纯合金 (CRA) 板相比，使用轧制复合板可实现成本优势。不仅可以降低材料成本，而且可以降低填充金属的成本。基板越厚，在保持一致的耐腐蚀性的同时，总成本越低。

Compared with solid corrosion-resistant alloy (CRA) plates, cost advantages can be achieved by using roll-bonded clad plates. Not only material costs, but also the costs of filler metals can be reduced. The thicker the base material, the lower the overall costs while maintaining consistent corrosion resistance



质量/Quality

基板与复板之间的结合强度是很重要的一个指标。精细化的表面处理可以使复合板更加高端及完美。

The high quality of roll-bonded clad plates is based on the mechanical properties of the base material, optimally combined with the corrosion resistance of the cladding material. The bond is inseparable. A perfect surface finish completes this high-end product.

结合强度/Bond quality

高温和高压下会使基板与复板之间形成冶金结合。结合强度远远超过了ASTM要求的140MPa的最小剪切强度。

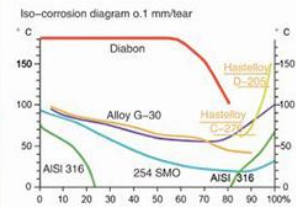
The metallurgical bond between base and cladding materials is achieved under high pressure and high temperature. The bond is inseparable and far exceeds the minimum shear strength of 140 MPa required by ASTM.



耐腐蚀性能/Corrosion resistance

复合板与单一耐腐蚀合金耐腐蚀能力相同。

The corrosion resistance of clad material is equivalent to that of solid material.



热处理/Heat treatment

根据化学成分，通过选择合适的工艺和热处理参数来调整基板和复板的机械和耐腐蚀性能。

Based on the chemical composition, the mechanical-technological properties of the base material as well as the corrosion properties of the clad material are adjusted by choosing the appropriate production route and heat treatment.



■通过模拟实验轧制 IAs rolled with simulated testing

■正火(炉)INormalized (furnace)

■正火轧制 INormalizing rolled

■控制轧制和冷却技术(TMCP)Theromechanically rolled and accelerated cooled(TMCP)

■正火和回火 Normalized and tempered

■淬火和回火 Quenched and tempered

表面处理/Surface finish

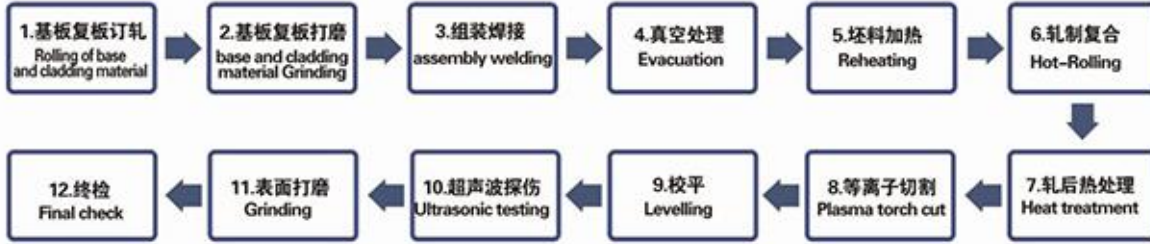
基层材料的表面通常以轧制面或者喷丸处理。覆层材料的表面通常被磨成80目的粗糙度。其他粒度可根据要求提供。订购时，必须注明客户将来对复合表面进行的任何额外表面处理(如精磨)。

The surface of the base material is usually rolled or shot blasted, and the surface of the cladding material is usually ground with a grain size of 80. Also other grain sizes are available on request. Any special requirements on surface treatment (e.g. fine grinding) for the cladding materials shall be indicated when placing order.

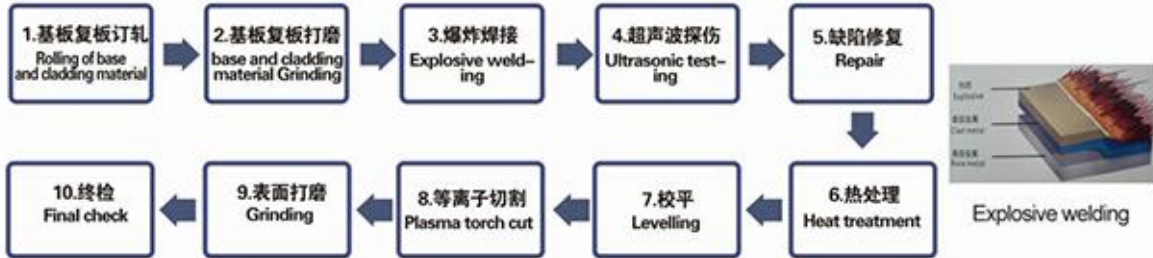


生产工艺流程/Technological process

轧制复合板工艺流程图/roll-bonded Process



爆炸复合板工艺流程图/Explosive welding Process



Hot-Rolling



Plasma torch cut



Testing

典型产品/Core product

NO.	产品名称 Product name	依据的标准 Standards	采用的生产法 Methods of production	用途 Uses	可生产的规格 Size range(mm)
1	镍基合金复合板 Nickel & Nickel alloy Clad Plate	ASTM SA265 ASTM B898	<input type="checkbox"/> 热轧 Rolling cladding <input type="checkbox"/> 爆炸 Explosive cladding	化工设备、烟气脱硫 板式热交换器等 Chemical equipment, FGD、Plate heat exchanger, etc.	复层金属(Cladding material) 0.5 ≤ δ ≤ 12 基层金属(Base Metal): δ ≥ 5 宽2度 × 长度 (Width × Length) : W ≤ 4200 × L ≤ 12000
	钛钢复合板 Titanium Clad Plate	ASTM B898	<input type="checkbox"/> 热轧 Rolling cladding <input type="checkbox"/> 爆炸+热轧 Explosive+rolling cladding		
3	不锈钢复合板 Stainless Steel Clad Plate	ASTM SA264 SA263	<input type="checkbox"/> 热轧 Rolling cladding		

NOTES:
1. Base Metal: Cladding material > 3:1
2. Total thickness means overall thickness (base metal + cladding material)
3. Plate size is further limited depending on thickness of cladding material



C276+A36 Clad Steel Plate



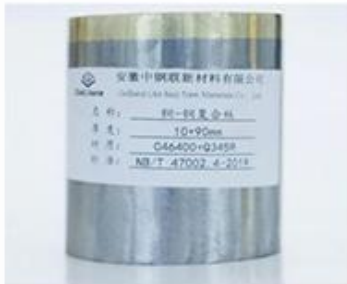
Double-Titanium Clad Steel Plate U-bar
Gr2+Gr70+Gr2(0.6+5+0.6)



254SMo+A36 Clad Steel Plate

典型产品/Core product

No.	产品名称 Product name	依据的标准 Standards	采用的生产法 Methods of production	用途 Uses
4	铜钢复合板 Copper Clad Plate	ASME B432 NB/T47002.4-2019	爆炸 Explosive cladding	Auto industry, Metallurgy, Chemical industry, Electricity, Cooker, New energy, etc.
5	铝钢复合板 Aluminium Clad Plate	Negotiation	爆炸 Explosive cladding	Electrolytic aluminium, chemical fertilizer Ship, Aerospace, cage engineering nstrument panel, Electricity, Vacuum purification of salt, etc.
6	铝铜复合板 Aluminium Copper Clad Plate	Negotiation	爆炸 Explosive cladding	Electricity, Electron. Auto industry, Purification of salt Paper-making Light industry, Ship, etc.
7	钛镍复合板 Titanium Nickel Clad Plate	Negotiation	爆炸 Explosive cladding	Metallurgy, Chemical industry, etc.
8	钛铝复合板 Titanium Aluminium Clad Plate	Negotiation	爆炸 Explosive cladding	Aerospace, Cooker Chemical industry, Ship, Special materials, etc.
9	钛铜复合板 Titanium Copper Clad Plate	Negotiation	爆炸 Explosive cladding	Hydrometallurgy Electricity, Cooker Electrolysis, Cryogenic engineering, Chlor-Alkali industry, etc..



(10+90) C46400+Q345R
Copper Clad Steel Plate



TA2+316L (8+35) Titanium Clad
Stainless Steel Plate



(3+4+3) TA2+Q235B+TA2
Double-Titanium Clad Steel Plate



Clad Dish End/Elliptical Head



Clad Tube Sheet



Clad Flange



GaLLianz

Advanced Materials

安徽中钢联新材料有限公司

客户/Customer

 中国石化 SINOPEC	 SINOCEM	 清新环境 SPC
 中国华能 CHINA HUANENG	 中国能建 CEEC	 中国电建 POWERCHINA
 UNIVERSAL FORCES	 LARSEN & TOUBRO It's all about Imagineering	 बीएच ईएल BHEL
 中国华电 CHD	 1882 徐矿集团 XUZHOU COAL MINING GROUP	 華潤電力 CR POWER

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