

## Metal cladding steel plate grade 316L+SA516Gr70N

Widely used in the petroleum, petrochemical, water conservancy, electric power, food, brewing, shipbuilding, marine engineering, rail transportation and other fields.

### Characteristics:

- High interface bonding strength
- Anti-corrosion property: Incorporated the properties of ferrite, austenitic, duplex stainless steel, such as anti-intercrystalline corrosion, anti-stress corrosion, anti-pitting corrosion, etc.

### Conventional Products

Variety		Grade	Main use
Cladding	Stainless steel	304	Suitable for the manufacturing of industrial equipments, vessels, piping, heat exchanger, etc. as in fields of chemical, fertilizer, petroleum, atomic energy, etc.
		340N	
		304L	
		321	
		316L	
		317L	
		310S	Suitable for the equipments manufacturing in the fields of boiler, metal Magnesium, etc.
		410S	Mainly used for the part and the equipment as anti-steam, (NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> mother liquid, hot corrosive S-contained oil, such as coke tower.
		405	
		444	Suitable for manufacturing of heat-resisting equipment.
		3Re60	Good property to resist chloride stress, good abrasive resistant property in the manufacturing of reactor, heat exchanger, condenser as well as shipbuilding parts in the industries of hydro, petroleum and so on.
		UNS S31803/ 2205	
		904L	Used for anti-H <sub>2</sub> SO <sub>4</sub> corrosion, and anti-acetic acid corrosion.
	Non-ferrous metal Al Cu Ti Ni		Used for Ti-steel cladding plate in fume De-S FGD domain, DC motor induction plates as Al-steel, Cu-steel cladding plate in track transportation.
Bottom Plate	S235J2, S355J2, P265GH, P355GH, P355NH, SA516Gr70N, SA387Gr11CL2, A283C, 16MnR, Q245R, Q345R and so on.		

### Mechanical Properties

Mechanical properties of interface , take (3+8) mm 304+S235JR cladding plate as an example:

	Rp0.2 MPa	Rm MPa	A %	Akv J	T MPa	Intercrystalline corrosion	Bending d=3a, 180 degree	
ASTM	Min 235	Min 300	Min 26	Min 27	Min 210	Accepted	Internal bending	External bending
Testing	300	485	40	66	350/360	Accepted	Perfect	Perfect

### Main properties of stainless steel clad plate:

Grade	Thicknes s mm	Rp0.2 MPa	Rm MPa	A %	Akv J	T MPa	Clad Intercrystalline corrosion	Bending d=3a, 180 degree
2205+ S355J0	4+20	355	525	27	80	350/360	OK	Perfect
304+S 235JR	3+8	300	485	40	66	345/425	OK	Perfect
321+I 5CrMo R	3+12	410	530	30	136	395/405	OK	Perfect
316L+ A516G r70	3+20	345	510	29	85	380/400	OK	Perfect
405+A 283C	3+16	265	435	30	62	320/355	OK	Perfect

### Welding methods:

- To guarantee the welding quality of cladding, smaller diameter welding rod should be applied by multi-layer of welding seam, while the seam height should be kept minimum.
- Welding on cladding, the flux and other surface attachment must be removed, the interlayer temperature shall be controlled under 60 Celsius degree.
- More notice shall be taken on welding start and stop. The end of welding should fill up the welding pit, multi-layer welding seams should be staggered.
- While welding the first layer on bottom plate, special attention should be taken to avoid low alloy metal settled on cladding. 1.5-2.5mm of transition layer melting metal must be paved along the plate, while surpassing the interface by 0.5-1.5mm between stainless steel and carbon steel.
- The first welding seam of transition layer should adipt smaller parameters, anti-polarity, straight and multi-welding seams to reduce the dilution to cladding.



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## Welding Material Choices

Grade	Thickness mm	Welding material choices		
		Cladding	Transition layer	Bottom plate
304+S235JR	2+8	A132	A302	E4315
316L+A516Gr70	3+10	A022	A042	E5015
405+A283C	3+24	A132	A302	E5515
2205+S355J0	3+16	E2209	A042	E5015

## Service Promise

- To provide consumers with the personalized designs on composition, propertiesproperty, packing, coil weight and quality certificate.
- Technical support to customers in material selection fabrication.
- Accurate and prompt delivery
- Response to customer' s claim within 24 hours.

## Contact Us

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