

Super-ferritic stainless steel Grade SUS436L 439M

Technical advantages:

GSL is well experienced at researching, developing and producing super ferritic stainless steel, and form the key process technology on super ferritic stainless steel which own the intellectual property.

Advantages on equipment: After continuously revamping and upgrade, GSL is well equipped with specialized and the most advanced production line of super ferritic stainless steel in the world.

Producing advantage: Equipped with large-scale, advanced and high efficient equipments, we can produce a series of super ferritic stainless steel product is in different grades and specifications, and meet the requirements of market.

Quality of products: The process which use hot metal as main part of materials to produce super ferritic stainless steel can reduce the unnecessary elements to lowest level. Using VOD decarburization and denitrifying process can get the lower content of carbon and nitrogen.

Application of Super Ferritic Stainless Steel Industry

The industry of automobile exhausting system: We have established long term cooperation with end users and service centers which work at automobile exhausting tubes and pressed parts.

Conventional Products

Steel grade	Grade	Specifications Thickness	Width mm	Weight MT	Standard	Application
400 series	SUS436L TTS441 TTS429 439M	2B/2D Surface: 0.3-3.0mm BA surface: 0.2-1.5mm	2B/2D Surface: 1000-1280 1000-2000 BA surface: 1000-1500	6-15MT	Q/T 128-2011 ASTM/ASME JISG4305 EN10088 BSEN10028-7	Apply to exhaust pipe
	SUS444 TTS445J1 TTS445J2				JISG4305 GB/T 3280 Q/T 067-2012	Apply to make water tank, solar water heater
	439 TTS439				ASTM/ASME Q/T 012-2011	Apply to elevator, kitchen appliance
	TTS443 TTS443M YH21CT				Q/T 055-2008 Q/T 012-2009	Elevator decoration



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Chemical Composition

Grade	Mass Percentage (%) MAX								
	C	Si	Mn	P	S	Cr	N	Mo	Others
436	0.025	1.00	1.00	0.040	0.030	16.0-19.0	0.025	0.75-1.50	Nb+Ti:8(C+N)-0.80
441	0.025	1.00	1.00	0.040	0.015	17.5-18.5	0.030	-	Nb:3C+0.3-1.00 Ti:0.10-0.60
429	0.020	1.00	1.00	0.040	0.030	14.0-16.0	0.020	-	Nb:3C+0.3-1.00
444	0.025	1.00	1.00	0.040	0.030	17.0-20.0	0.035	1.75-2.50	Nb+Ti:0.2+4(C+N)-0.80
443	0.025	1.00	1.00	0.035	0.015	19.5-22.0	0.025	-	Nb+Ti:0.2+4(C+N)-0.75
439	0.030	1.00	1.00	0.040	0.015	17.5-18.5	0.030	-	Nb+Ti:4C-0.75
TTS445J1	0.025	1.00	1.00	0.040	0.030	21.0-24.0	0.020	0.60-1.50	Nb+Ti:10(C+N)-0.75
TTS445J2	0.025	1.00	1.00	0.040	0.030	21.0-24.0	0.025	1.50-2.50	Nb+Ti:0.2+4(C+N)-0.75

Physical properties

Grade	Density (g/cm ³)	Elastic modulus GPa	Linear expansion coefficient 10-6/K20-100C	Thermal conductivity W/m K 100C	J/Kg k Specific heat 20C	Resistance rate (UM cm)	Magnetism
436	7.73	200	10.4	23.6	433	48	Qualified
441	7.75	210	10.4	24.7	460	60	Qualified
429	7.70	225	10.9	26.8	460	67	Qualified
444	7.75	206	10.1	21.1	460	62	Qualified
439	7.70	200	10.4	23.1	460	60	Qualified
443	7.73	204	10.5	22.5	444	62	Qualified
TTS445J1	7.75	200	10	22.5	460	62	Qualified
TTS445J2	7.72	200	10.1	22.5	460	62	Qualified

Mechanical Properties

Mechanical properties at ambient temperature

Grade	Yield strength RP0.2(MPa)	Tensile strength Rm(MPa)	Elongation A(%)	Hardness HRS	Hardness HV	Bending test
436	≥250	≥430	≥18	≤96	≤230	Qualified
441	≥245	≥410	≥20	≤96	≤230	Qualified
429	≥205	≥450	≥22	≤88	≤200	Qualified
444	≥245	≥450	≥20	≤96	≤230	Qualified



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439	≥ 205	≥ 415	≥ 22	≤ 88	≤ 183	Qualified
443	≥ 250	≥ 450	≥ 25	≤ 96	≤ 230	Qualified
TTS445J1	≥ 245	≥ 410	≥ 28	≤ 96	≤ 230	Qualified
TTS445J2	≥ 245	≥ 410	≥ 20	≤ 96	≤ 230	Qualified

Welding Properties and Notice:

- Low carbon and Nitrogen, Titanium and Niobium added, high corrosion-resisted performance on welding parts.
- Difficult for Fusion welding and better for filler wire welding.
- Low thermal expansion coefficient-high heat conduction and small deformation after welding comparing with 304.
- Try to avoid heat inputting, otherwise result in bigger crystalline grain and influence the toughness of the plate.
- Gas protection: Argon protection is needed to avoid surface oxidation and nitriding.
- To Avoid the contamination of grease, otherwise carburization will occur.
- Better to use 309L or higher grade welding rod.

Research and Development Target

400 series will be our research and developing target in future. Super ferritic stainless steel will be highlight, and as the substitute of 304 for our aim on the direction of economic research and developing. Realize 439 and 443 product seriation, enlarge the application of decoration industry such as the decoration of outside roof and curtain wall. Develop the high-chromium ferritic stainless steel such as 445, 446M and so on to improve the application of 400 series.

Service Promise

- To provide consumers with the personalized designs on composition, properties, 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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