

YUS550 Rust-Resistant Martensitic Stainless Steel

Features:

- High Strength (Max. 1800 MPa, Hv600)
- High Corrosion Resistance {similar to 304 type stainless}
- High Cold Workability {equal or better than 304 type stainless}
- Toughness

Applications:

- Self-drilling screws
- Tapping screws
- High-strength nails
- Various kinds of pins
- High-strength chains
- Other applications requiring high hardness and anti-corrosion properties

North America

JICAM North America, Inc.
Rockford, IL 61107
U.S.A.

Tel: 815-397-9432
Fax: 815-394-1592
Email: tkromm@jicam.com

Japan, Europe & Asia

JICAM Pacific Co., Ltd.
Toabo Bldg., 3rd Floor
No.1-4, 3-Chome, Kawara-machi
Chuo-ku, Osaka 541-0048, Japan

Tel: 81-(0)6-6229-9880
Fax: 81-(0)6-6229-9873
Email: terry@jicam.co.jp

Technical Information

Chemistry

(% wt)

	C	Si	Mn	P	S	Ni	Cr	Mo	N
Min.	0.10	-	-	-	-	1.00	12.50	1.80	0.05
Max.	0.20	1.00	1.00	0.040	0.010	2.40	14.00	2.30	0.15

Performance Characteristics

Longitudinal Elastic Modulus (N/mm ²)	Transverse Elastic Modulus (N/mm ²)	Thermal Expansion Coefficient (cm/°C)
2.05 x 10 ⁵	7.94 x 10 ⁴	11.5 x 10 ⁻⁵

Mechanical Properties

Item	Tensile Strength (MPa)	Proof Strength (MPa)	Reduction of Area (%)	Hardness (Hv)
Annealed Wire	620	450	75	190
Self-Drilling & Tapping screw	1,750	1,150	30	550
Bolt	1,000	770	65	350

Rust Resistance

Pitting Potential
{JIS G0577, solution of 3.5% NaCl, Ar deaeration at 30°C

	Pitting Potential (Vc'100/mV vs Ag/AgCl)					
	-100	0	+100	+200	+300	+400
YUS550		Abrading # 500			Passivation	
Type 304		Abrading # 500				
Type 410						

Rust after corrosion tests

	Saltwater Spray Test (5%NaCl, 35°C, 240h)	Sulfurous Acid Gas Corrosion Test (20 cycles as described in DIN 50018-21)
YUS550	No Corrosion	No Corrosion
Type 304	No Corrosion	No Corrosion
Type 410	Red Rust (Partly)	Black Rust (General)

Technical Information

Corrosion Resistance of Screws

Test Screw Material	Corrosion after Spray Test (5%NaCl, 35°C, 240h)	Corrosion after Sulfurous Acid Gas Corrosion Test (20 cycles as described in DIN 50018-21)	Pitting Potential (mV, vs Ag/AgCl)
YUS550	No Corrosion	No Corrosion	250-350
Type 304	No Corrosion	No Corrosion	200-300
Type 304 (Nitrided)	Red Rust (General)	Black Rust (General)	-300
Type 410	Red Rust (Partly)	Black Rust (General)	0-50
Carbon Steel	Red Rust (General)	Black Rust (General)	-300

Drivability of Self-Drilling & Tapping Screws

Screw Material	Steel Sheet Thickness	Tip Hardness (Hv)					
		200		400		600	
YUS550	> 5.5mm *						
Type 410	> 5.5mm						
Carbon Steel	> 5.5mm						
Type 202	1.6mm						
Type 304	< 1.6mm						
Type 304 (Nitrided)	< 5.5mm						

* Capable of driving through 10mm thick steel sheet