420 is a hardenable, martensitic stainless steel similar in chemical composition to that of 410, differing primarily in carbon content. 420 stainless steel is leaner in carbon than that of 410 allowing for it to be capable of achieving a higher strength and hardness at the result of lower ductility. 420 offers comparable corrosion resistance to that of 410 and is commonly utilized for applications requiring high strength, high wear resistance, or good edge retention.

Chemistry

	C	Mn	P	S	Si	Cr	Fe
Min	0.15	-	-	-	-	12.00	-
Max	-	1.00	0.040	0.030	1.00	14.00	bal

Per ASTM A276

Specifications

UNS: S42000

W. Nr./EN: 1.4021

AMS: 5621, QQ-S763

ASTM: A276, A484

Physical Properties

Density	0.278 lb/in^3
Melting Range	2650 - 2750°F
Poisson Ratio	0.28
Electrical Resistivity	25.6 $\mu\Omega$ • in
Coefficient of Thermal Expansion (68°F - 212°F)	5.833 μin/in •°F
Thermal Conductivity (212°F)	14.4 BTU/(hr•ft•°F)
Modulus of Elasticity (68°F)	31.2 •10^6 psi

Mechanical Properties

Specification: A276

Hardness MAX, Brinell	241

**Condition A*

Tempered Condition Properties

Tempering Temperature, °F	Ultimate Tensile Strength, ksi	0.2% Yield Strength, ksi	Rockwell Hardness, HRC
Annealed	85.8	51.5	163 HBW
440	255.2	190.1	48
550	229.6	176.0	44
600	232.9	179.0	45
800	236.0	185.6	46
900	233.0	179.3	46
1000	158.5	137.9	36
1200	121.6	94.6	23

Features

- High carbon variant of 410
- Higher achievable strength and hardness compared to 410
- High wear resistance and edge retention properties

Applications

- Industrial Chains
- Bearings
- Firearms
- Surgical Instruments
- Pumps & Valves
- Plastic Injection Molds & Dies
- Cutlery