

# SS 430F, Type 430F, WNR 1.4104, UNS S43020, AISI 430F, Grade 430F, AFNOR Z 10 CF 17

## Introduction :

430F stainless steel is similar to 430 stainless steel with increased sulfur to dramatically improve machinability. Grade 430F is a free machining version of 430. With moderate strength and corrosion resistance SS 430F is ferritic stainless steel, non-heat treatable 17% chromium stainless. It does not form as easily as Stainless Steel 430 due to the sulfur but still has moderate ductility. Due to the addition of sulfur it can be excellent chip breaker. With good feeds and speeds machining of grade 430F stainless steel can be done. By initially bringing the material to 816°C (1500°F) and then slowly to 1066 to 1149°C (1950 to 2100°F) it can be hot worked. Stainless steel 430F can withstand only moderate cold forming. It can be annealed at temperature ranging from 677 to 760°C (1250 to 1400°F) and then air cooled. It can resist only moderate cold forming. Hardening of 430F stainless steel is unresponsive to heat treatment. Grade 430F stainless steel is not usually recommended for welding because the high sulfur content may cause hot cracking. The use of filler metal is recommended, if the material must be welded, for the minimum heat input. And to restore ductility in the weld metal Post-weld annealing is recommended and the heat-affected zones.

## Chemical Composition

	SS 430F	TYPE 430F	WNR 1.4104	UNS S43020	AISI 430F	GRADE 430F	AFNOR Z 10 CF 17
Carbon	0.12 max	0.12 max	0.12 max	0.12 max	0.12 max	0.12 max	0.12 max
Manganese	1.25 max	1.25 max	1.25 max	1.25 max	1.25 max	1.25 max	1.25 max
Phosphorus	0.06 max	0.06 max	0.06 max	0.06 max	0.06 max	0.06 max	0.06 max
Sulfur	0.15 min	0.15 min	0.15 min	0.15 min	0.15 min	0.15 min	0.15 min
Silicon	1.00 max	1.00 max	1.00 max	1.00 max	1.00 max	1.00 max	1.00 max
Chromium	16.0-18.0	16.0-18.0	16.0-18.0	16.0-18.0	16.0-18.0	16.0-18.0	16.0-18.0
Molybdenum	0.60 max	0.60 max	0.60 max	0.60 max	0.60 max	0.60 max	0.60 max
Iron	Bal	Bal	Bal	Bal	Bal	Bal	Bal

## Mechanical Properties

	SS 430F	TYPE 430F	WNR 1.4104	UNS S43020	AISI 430F	GRADE 430F	AFNOR Z 10 CF 17
Tensile Strength(Mpa)min	552	552	552	552	552	552	552
Yield Strength 0.2% Proof (Mpa)	379	379	379	379	379	379	379
Elongation (% in 50mm)min	25	25	25	25	25	25	25
Reduction in Area, %	-	-	-	-	-	-	-
Hardness, Brinell(HB)	262	262	262	262	262	262	262

## Standard Available in forms :

ASTM A182/ ASME SA182 Stainless Steel Pipe Fittings  
 ASTM A213 / ASME SA213 Seamless Stainless Steel Pipes  
 ASTM A240/ ASME SA240 Stainless Steels Sheets / Plates  
 ASTM A249/ ASME SA249 Stainless Steel Welded Tubes  
 ASTM A269/ ASME SA269 Stainless Steel Tubes  
 ASTM A270/ ASME SA270 Stainless Steel Sanitary Tubes  
 ASTM A312/ ASME SA312 Stainless Steel Pipes  
 ASTM A403/ ASME SA403 Stainless Steel Pipe Fittings  
 ASTM A554/ ASME SA554 Stainless Steel Welded Tubes  
 ASTM A731/ ASME SA731 Stainless Steel Pipes  
 ASTM A789/ ASME SA789 Stainless Steel Tubes  
 ASTM A790/ ASME SA790 Stainless Steel Pipes  
 ASTM A791/ ASME SA791 Stainless Steel Tubes

## Products Available in forms :

- SS 430F, Type 430F, WNR 1.4104, UNS S43020, AISI 430F Plates
- SS 430F, Type 430F, WNR 1.4104, UNS S43020, AISI 430F Pipes
- SS 430F, Type 430F, WNR 1.4104, UNS S43020, AISI 430F Round Bar
- SS 430F, Type 430F, WNR 1.4104, UNS S43020, AISI 430F Tube
- SS 430F, Type 430F, WNR 1.4104, UNS S43020, AISI 430F Flanges
- SS 430F, Type 430F, WNR 1.4104, UNS S43020, AISI 430F Wire
- SS 430F, Type 430F, WNR 1.4104, UNS S43020, AISI 430F Fittings

## Fabrication and Heat Treatment

### Machinability

- Machining of grade 430F stainless steel can be done with good feeds and speeds.

### Welding

- Grade 430F stainless steel cannot be welded due to its high sulfur content. If necessary, welding can be performed using low heat settings and AWS E/ER430 filler metal.

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## Hot Working

- Grade 430F stainless steel can be hot worked by initially bringing the material to 816°C (1500°F) and then slowly to 1066 to 1149°C (1950 to 2100°F).

## Cold Working

- Grade 430F stainless steel can withstand only moderate cold forming.

## Annealing

- Grade 430F stainless steel can be annealed at temperature ranging from 677 to 760°C (1250 to 1400°F) and then air cooled.

## Hardening

- Grade 430F stainless steel is unresponsive to heat treatment.

## Applications

The following are the major applications of grade 430F stainless steel.

- Fasteners
- Gears
- Shafts
- Pinions



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