Long Products Stainless Steel NAS 494	
ASTM Designation	EN Designation
302HQ / 304Cu	1.4567
S30430	

DESCRIPTION

This grade is widely used, where high ductility is required for severe cold heading, necessary for making screws and bolts of various kinds. This grade is similar to 304L but with additional copper, to make it ductile for cold heading applications. This grade has good corrosion/oxidation resistance and weldability.

CHEMICAL COMPOSITION

C	Si	Mn	P	S	Cr	Ni	Cu
≤ 0.03	≤ 1.00	≤ 2.00	≤ 0.045	≤ 0.030	17.00-19.00	8.00 - 10.00	3.00-4.00

NOMINAL MECHANICAL PROPERTIES IN ANNELED CONDITION

UTS	75 ksi min [517 MPa]
0.2% YS	30 ksi min [206 MPa]
% Elongation	60
% Reduction of Area	70
Hardness	200 Brinell max

ANNEALING

Parts can be annealed at 1900°F – 2050°F held for minimum 60 minutes per inch of thickness and water quenched. Though this is a low carbon grade and does not normally sensitize, prolonged exposure between 800°F – 1500°F must be avoided to prevent embrittlement and loss of corrosion properties.
This grade does not harden with heat treatment.

MACHINABILITY

Like most other austenitic steels, these grades machine with rough and stringy chips. Therefore chip curlers can be beneficial.

WELDING

The applications where this grade is generally used, normally does not require welding. However, if welding is required, resistance welding is recommended. Conventional methods may also be employed using filler metal, suitable for the application. Contact welding electrode supplier for details.

CORROSION RESISTANCE

This grade has good corrosion resistance in a wide variety of corrosive media, such as food stuff, sterilizing solutions, most organic chemicals and dyes, most petroleum products, steam and combustion gases. It resists nitric acid well, sulfuric acid moderately and halogen acids and halogen compounds poorly. For maximum corrosion resistance, material should be used in annealed condition and parts should be passivated.

COLD WORKABILITY

This grade can be readily cold worked. Severe drawing/forming may require intermediate annealing.

HOT WORKABILITY

The application where this grade is used normally does not require hot working. However, if necessary, this grade can readily be hot worked at 2100°F - 2300°F and can be finished as low as 1500°F. Severe reductions below 1700°F should be avoided. Parts should be water quenched after hot working for good corrosion resistance. For maximum corrosion resistance, parts should be annealed and water quenched.