



BRODER METALS GROUP Alloy 20

A stainless steel niobium / columbium stabilised austenitic alloy, which adds to Broder Metals Group's extensive range of corrosion resistant alloys. We supply to ASTM B473 N08020 A (annealed condition) and all our material is of European origin.

The material has superbly enhanced resistance to hot sulphuric and nitric acids compared to more readily available stainless grades like 316 / 316 L. Alloy 20 can also be used where the possibility of chloride stress corrosion cracking is of concern. However Alloy 20 retains the traditional stainless ability of relatively easy fabrication.

The above properties make Alloy 20 a popular choice for a wide variety of industrial applications, including in equipment used for chemical and food processing, pharmaceuticals, petroleum refining, solvents and explosives manufacture, and in particular in heat exchangers, mixing tanks, metal cleaning, process piping and pickling equipment. The alloy can be used up to an operating temperature of 530 degrees C.

Similar machining speeds and feeds are used as for 316, but Alloy 20 provides superior machined finishes over 316 stainless. The presence of niobium minimises precipitation of carbides in heat affected zones, facilitating welding. Cold working hardens the material.

Our stock range extends from 1/2" (25.4 mm) dia to 5" (127 mm) dia round bar.

Alloy 20 nominal Chemical Composition by Percent:

	Ni	Cr	Mo	Fe	Cu	Cb/Nb + Ta	Mn	Si	P	S	C	-
Min	32.00	19.00	2.00	Bal	3.00	8 x c%	-	-	-	-	-	%
Max	38.00	21.00	3.00		4.00	1.00	2.00	1.00	0.045	0.035	0.07	%

Heat Treatment

Anneal		
Temp (Degree C)	Time	Cooling Method
927—1010	Suitable to ensure all material heated to solution treat temp (nominally 1-2 hours)	Water Quench

Mechanical Information

Tensile Strength min		Yield Strength (0.2% offset) min		Elongation in 2" or 4D	Reduction in Area
Ksi min	MPa min	Ksi min	MPa min	% min	%
80	551	35	241	30	50

Material is tested at room temperature in longitudinal direction. There is no hardness requirement. Other properties:

Density - 8.08 g/ cubic cm

Magnetic permeability – 1.002 (at 200 Ce)

Poissons ratio – 0.31

Alloy 20 can also be known as Carpenter® 20, Incoloy® 20, Nicrofer 3620 Nb, Al 20