

# CORROSION AND HEAT RESISTING STEELS

BS 3146 PART II, 1975	GRADE	CHEMICAL COMPOSITION, %											MECHANICAL PROPERTIES					COMPARABLE SPECIFICATIONS				CHARACTERISTICS	TYPICAL APPLICATIONS										
		C		Si		Mn		Ni		Cr		Mo		W		Nb		S		P				UTS N/MM <sup>2</sup>	0.2% PS N/MM <sup>2</sup>	E1 %	ANGLE OF BEND <sup>o</sup>	HARDNESS HB	EN	BS 3100	AISI	OTHER	
ANC 1	A	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	A GENERAL ENGINEERING TYPE STAINLESS STEEL, OFFERING A RANGE OF STRENGTHS AND HARDNESSES. MEDIUM CORROSION RESISTANCE.	A. GAS, CHEMICAL AND PETROLEUM INDUSTRIES; HIGH DUCTILITY ENGINEERING FITTINGS, GOLF CLUB HEADS. B. HEAT RESISTANT PARTS NOT SUBJECT TO HIGH STRESSES. C. CUTTING BLADES, PUMP AND STEAM TURBINE PARTS.
	B	-	0.15	0.2	1.2	0.2	1.0	-	1.0	11.5	13.5	-	-	-	-	0.035†	0.035	540	-	340*	15†	120†	152-207	56A	410C21	403	6X12Cr 14						
	C	0.12	0.20	0.2	1.2	0.2	1.0	-	1.0	11.5	13.5	-	-	-	-	0.035†	0.035	620	-	415*	13†	90†	183-229	56B	420C29	420	6X20Cr 14						
		0.20	0.30	0.2	1.2	0.2	1.0	-	1.0	11.5	13.5	-	-	-	-	0.035†	0.035	695	-	435*	11†	(RADIUS OF BEND = 2X TEST PIECE THICKNESS)	201-295	56C		420	6X22Cr 14						
ANC 2		0.12	0.25	0.2	1.0	0.2	1.0	1.5	3.0	15.5	20.0					0.035	0.035	850	1000	630*	8					431	6X22CrNi 17	A HIGH TENSILE STAINLESS STEEL WITH IMPROVED CORROSION RESISTANT PROPERTIES. RESISTANT TO OXIDISING ATMOSPHERES UP TO 760°C.	PUMP AND VALVE PARTS; HIGHLY STRESSED AIRCRAFT AND GENERAL ENGINEERING FITTINGS.				
ANC 3	A	-	0.12	0.2	2.0	0.2	2.0	8.0	12.0	17.0	20.0					0.035†	0.035	460	-	200	20†	120†		58A	304C15	304	6X10CrNi 18.8	A. CORROSION AND ACID RESISTANT STAINLESS STEEL; EXCELLENT STABILITY DOWN TO -225°C. B. WELDABLE VERSION OF THE ABOVE, USABLE UP TO 800°C.	A. CHEMICAL, PHARMACEUTICAL TEXTILE, DAIRY AND OIL INDUSTRIES, E.G. PUMP AND VALVE PARTS. B. EXHAUST SYSTEMS AND MARINE FITTINGS TO A CERTAIN EXTENT. CORROSION/ACID RESISTANT PARTS NOT HEAT-TREATED AFTER WELDING.				
	B	-	0.12	0.2	2.0	0.2	2.0	8.5	12.0	17.0	20.0					0.035†	0.035	460	-	200	20†	120†	(RADIUS OF BEND = 1 1/2 X TEST PIECE THICKNESS)	58F	347C17	347	6X7CrNiNb 18.9						
ANC 4	A	-	0.08	0.2	1.5	0.2	2.0	11.0	14.0	18.0	20.0	3.0	4.0			0.035†	0.035	500	-	210*	12†	120		58J	317C16	317	6X6CrNiMo 18.10	STAINLESS STEELS WITH GOOD CORROSION AND ACID RESISTANCE, WITH MEDIUM TENSILE STRENGTH.	IN THE CHEMICAL AND PROCESSING INDUSTRIES, E.G. VALVES AND PUMPS HANDLING ACIDS AT HIGH TEMPERATURES AND ALSO CHLORIDES AND SALTS. POPULAR FOR MARINE APPLICATIONS.				
	B	-	0.08	0.2	1.5	0.2	2.0	10.0	-	17.0	20.0	2.0	3.0			0.035†	0.035	500	-	210*	12†	120		58H	316C16	316	6X6CrNiMo 18.10						
	C	-	0.12	0.2	1.5	0.2	2.0	10.0	-	17.0	20.0	2.0	3.0			0.035†	0.035	500	-	210*	12†	120	(RADIUS OF BEND = 2 X TEST PIECE THICKNESS)	58H	318C17	318	6X7CrNiMoNb 18.10						
ANC 5	A	-	0.5	0.2	3.0	0.2	2.0	17.0	22.0	22.0	27.0														310C45	310	NiCr 25.20	HEAT RESISTANT ALLOYS WITH RESISTANCE TO CYCLIC HEATING AND A USEFUL CREEP STRENGTH UP TO 650°C AND GOOD RESISTANCE TO SCALING.	FURNACE PARTS, SALT AND LEAD BATHS.				
	B	-	0.5	0.2	3.0	0.2	2.0	36.0	46.0	15.0	25.0													331C60	330	6X40NiCrSi 36.16							
	C	-	0.75	0.2	3.0	0.2	2.0	55.0	65.0	10.0	20.0													334C11		NiCr 60.15							
ANC 6	A	0.15	0.3	0.75	2.0	0.2	1.0	10.0	15.0	20.0	25.0					0.035	0.035	460	-		17					309	6X35CrNiSi 25.12	HEAT RESISTANT ALLOYS WITH GOOD STRENGTH UP TO 900°C AND USEFUL CREEP STRENGTH TO 650°C.	HEAT TREATMENT PARTS AND SUPERHEATERS, WELDING FIXTURES, HIGH TEMPERATURE CASTINGS, NOZZLE GUIDE VANES FOR GAS TURBINES.				
	B	0.15	0.3	0.75	2.0	0.2	1.0	10.0	15.0	20.0	25.0					0.035	0.035	460	-		17												
	C	0.05	0.15	0.75	2.0	0.2	1.0	10.0	18.0	20.0	25.0					0.035	0.035	460	-		17												
BS HC104		-	0.08	-	2.0	-	2.0	8.5	12.5	17.0	21.0					0.040	0.040	460	-	200	20	120	(RADIUS OF BEND = 1 1/2 X TEST PIECE THICKNESS)	58F	347C17	347	6X7CrNiNb 18.9	A WELDABLE, CORROSION AND ACID RESISTANT STAINLESS STEEL, EXCELLENT STABILITY DOWN TO -225°C USABLE UP TO 800°C.	CORROSION/ACID RESISTANT PARTS NOT HEAT-TREATED AFTER WELDING, ALSO FOR PARTS USED IN THE CARBIDE PRECIPITATION RANGE (500-800°C).				
BS HC105		-	0.08	-	1.5	-	2.0	10.0	12.5	17.0	20.0	2.0	3.0			0.040	0.040	500		210	20	120	(RADIUS OF BEND = 2 X TEST PIECE THICKNESS)	58H	318C17	318	6X7CrNiMoNb 18.10	A WELDABLE, STAINLESS STEEL; WITH GOOD CORROSION AND ACID RESISTANCE, WITH MEDIUM TENSILE STRENGTH.	APPLICATIONS ARE SIMILAR TO THOSE OF HC104. HAS IMPROVED RESISTANCE TO HOT ACIDS AND CHLORIDES.				
BS HC106 (17-4PH)		-	0.08	-	1.0	-	1.0	3.0	5.0	15.0	17.5					0.04	0.04	1250	1500	1030	8	RED IN AREA 20 MIN	375 MIN				ANC22 AMS 5395 AMS 5342 AMS 5343 AMS 5344	HIGH TENSILE PRECIPITATION HARDENING STEELS USUALLY SUPPLIED IN THE SOLUTION TREATED CONDITION. CORROSION AND OXIDATION RESISTANT TO 800°C.	HIGH STRENGTH. AEROSPACE APPLICATIONS.				
BS HC101 (15-5PH)		-	0.07	-	0.8	0.2	-1.0	4.0	-6.0	12.5	15.5					0.020	0.020	950	1200	800	12	RED IN AREA 30 MIN	I20D(FT LBS) 15 MIN				HC 102						

† WHERE A FREE MACHINING GRADE IS SPECIFIED THE SULPHUR CONTENT MAY BE AS HIGH AS 0.3% AND/OR OTHER SUITABLE ELEMENTS MAY BE PRESENT, PROPERTIES MARKED THUS ARE NOT APPLICABLE. †† C IS THE CARBON CONTENT. \* WHERE INDICATED THUS, 0.2% PROOF STRESS VALUES FOR INFORMATION ONLY.