Grade Specification and its Application

S.No.	Grade	Steel Type	Chemical properties and mechanical properties of raw material														Mechanical Properties Finish product in wire		B/Bar	Applications
			%C	%Mn	%Si	%P	%S	%Cr	%V	%Ni	%Mo	%Ti	%B	%AI	%Pb	UTS(N/mm2	UTS(N/mm2	Hardness		
1	SUP7	Spring steel	0.56-0.64	0.70-1.00	1.80-2.20	0.035 Max	0.035 Max	-	-	-	-	-	-	-	-	1000-1300	-	-	30 Rc Max	All spring automoubail applications
2	SUP9		0.52-0.60	0.65-0.95	0.15-0.35	0.035 Max	0.035 Max	0.65-0.95	-	-	-	-	-	-	-	1000-1300	-	-	30 Rc Max	
3	SUP9A		0.56-0.64	0.70-0.90	0.15-0.35	0.035 Max	0.035 Max	0.70-1.00	-	-	-	-	-	-	-	1000-1300	-	-	30 Rc Max	
4	SUP11A		0.56-0.64	0.70-1.00	0.15-0.35	0.035 Max	0.035 Max	0.70-1.00	-	-	-	-	0.0005 Min	-	-	1000-1300	-	-	30 Rc Max	
5	SUP12		0.51-0.59	0.60-0.90	1.20-1.60	0.035 Max	0.035 Max	0.60-0.90	-	-	-	-	-	-	-	1000-1300	-	-	30 Rc Max	
6	HC 36/40	High Carbon Steel	0.36-0.40	0.60-0.90	0.05-0.35	0.06max	0.06max		-	-	-	-	-	0.020-0.040	-	600-700	27-33 HRC		-	Automobiles wiper etc.
7	HC 41/45		0.41-0.45	0.70-0.90	0.05-0.35	0.06max	0.06max		-	-	-	-	-	0.020-0.040	-	650-750	As per customer requirements		-	Umbrella Ribs, Cycle spokes
8	HC 46/50		0.46-0.49	0.70-0.90	0.05-0.35	0.06max	0.06max		-	-	-	-	-	0.020-0.040	-	700-800			-	Wire for rope & other non critical miscellaneous wire application
9	HC 51/55		0.51-0.55	0.70-0.90	0.05-0.35	0.06max	0.06max		-	-	-	-	-	0.020-0.040	-	750-850			-	Grade II Spring used in Machines tools, Forming Machines,Hydraulic
10	HC56/60		0.57-0.60	0.70-0.90	0.05-0.35	0.06max	0.06max		-	-	-	-	-	0.020-0.040	-	750-850			-	Wires for rope & other non critical miscellaneous wire application
11	HC 61/65		0.61-0.65	0.70-0.90	0.05-0.35	0.06max	0.06max		-	-	-	-	-	0.020-0.040	-	950-1000			-	Grade II Spring used in Machines tools, Forming Machines,Hydraulic Machines etc.
12	HC 66/70		0.67-0.70	0.70-0.90	0.05-0.35	0.06max	0.06max		-	-	-	-	-	0.020-0.040	-	950-1000			-	Wires for type bead & spring application
13	HC 71/75		0.71-0.75	0.70-0.90	0.05-0.35	0.06max	0.06max	0.10 max	-	-	-	-	-	0.020 Max	-	1000-1300			-	Riope,binding & holding wires, tire cord to rainforced automobile tire conveyor belt, Pressure Hoses, Chisel etc.
14	HC 76/80		0.77-0.80	0.70-0.90	0.05-0.35	0.06max	0.06max		-	-	-	-	-	0.020 Max	-	1000-1300			-	Rainforcement for railway sleepers, bridges
15	HC 81/85		0.81-0.85	0.70-0.90	0.05-0.35	0.06max	0.06max	0.15-0.20	-	-	-	-	-	0.020 Max	-	1000-1300			-	Rainforcement for railway sleepers, bridges,needle wire, etc
16	HC-77/80		0.77-0.80	0.70-0.90	0.05-0.35	0.06max	0.06max	0.15-0.20	-	-	-	-	-	0.020 Max	-	1000-1300			-	Rope,binding & holding wires, tire cord to rainforced automobile tire, conveyor belt,Pressure Hoses, chisel etc.
17	HC-66/70		0.66-0.70	0.70-0.90	0.05-0.35	0.06max	0.06max		-	-	-	-	-	0.020 Max	-	965-1000			-	Wires for tyre bead & spring application
18	HC-51/55		0.51.055	0.70-0.90	0.05-0.35	0.06max	0.06max		-	-	-	-	-	0.020 Max	-	700-800			-	Wires for spring application
19	HC-60/65		0.60-0.65	0.70-0.90	0.05-0.35	0.06max	0.06max		-	-	-	-	-	0.020 Max	-	900-1200			-	Grade II spring used in Machines tools, Forming Machines, Hydraulic Machines, etc
20	HC-70/75		0.71-0.75	0.70-0.90	0.05-0.35	0.06max	0.06max		-	-	-	-	-	0.020 Max	-	1000-1300			-	Wires for spring application
21	HC-81/85		0.82-0.86	0.60-0.90	0.05-0.35	0.06max	0.06max		-	-	-	-	-	0.020 Max	-	1000-1300			-	Wires for spring application
22	HC-82/86		0.82-0.86	0.60-0.90	0.05-0.35	0.06max	0.06max	0.15-0.20	0.05-0.07	-	-	-	-	0.020 Max	-	1000-1300			-	Wires for spring application
23	HC81/85(P)		0.81-0.84	0.60-0.90	0.05-0.35	0.06max	0.06max		-	-	-	-	-	0.020 Max	-	1069-1207			-	Wires for spring application