Table 12: Chemical Composition (% by weight) of Disc Spring Materials

Abbreviated Name	Material Number	DIN	C	Si	Mn	P ≤	S ≤	Co	Cr	Mo	Ni	V	W	Nb	Ti	Other	International Standards*) France AFNOR	Britain B.S.	USA AISI	USA SAE	USA ASTM
Ck 67	1.1231	17 222	0.65–0.72	0.15–0.35	0.60–0.90	0.035	0.035	–	–	–	–	–	–	–	–	–	XC 68	060 A 67	1070	–	–
Ck 75	1.1248	17 222	0.70–0.80	0.15–0.35	0.60–0.80	0.035	0.035	–	–	–	–	–	–	–	–	–	XC 75	060 A 78	1080	1078	–
50 CrV 4	1.8159	17 222	0.47–0.55	0.15–0.40	0.70–1.10	0.035	0.035	–	0.90–1.20	–	–	0.10–0.20	–	–	–	–	50 CV 4	735 A 50	6150	–	–
51 CrMoV 4	1.7701	17 221	0.48–0.56	0.15–0.40	0.70–1.10	0.035	0.035	–	0.90–1.20	0.15–0.25	–	0.07–0.12	–	–	–	–	51 CDV 4	–	–	–	–
48 CrMoV 6 7	1.2323	17 350	0.40–0.50	0.15–0.35	0.60–0.90	0.030	0.030	–	1.30–1.60	0.65–0.85	–	0.25–0.35	–	–	–	–	–	–	–	–	–
X 30 WCrV 5 3	1.2567	–	0.25–0.35	0.15–0.30	0.20–0.40	0.035	0.035	–	2.20–2.50	–	–	0.50–0.70	4.00–5.00	–	–	–	Z 32 WCV 5	–	–	–	–
X 35 CrMo 17	1.4122	–	0.33–0.43	≤ 1.00	≤ 1.00	0.045	0.030	–	15.5–17.5	0.90–1.30	≤ 1.00	–	–	–	–	–	–	–	–	–	–
X 22 CrMoV 12 1	1.4923	17 240	0.18–0.24	0.10–0.50	0.30–0.80	0.035	0.035	–	11.0–12.5	0.80–1.20	0.30–0.80	0.25–0.35	–	–	–	–	–	–	–	–	–
X 7 CrNiAl 17 7	1.4568	17 224	≤ 0.09	≤ 1.00	≤ 1.00	0.045	0.030	–	16.0–18.0	–	6.50–7.75	–	–	–	–	Al 0.75–1.50	Z 8 CNA 17.07	–	631	–	–
																			AMS 5528, 5529, 5673		
X 12 CrNi 17 7	1.4310	17 224	≤ 0,12	≤ 1.50	≤ 2.00	0.045	0.030	–	16.0–18.0	≤ 0.8	6.00–9.00	–	–	–	–	–	Z 12 CN 17.07	301 S 21	301	–	–
X 5 CrNiMo 17 12 2	1.4401	17 224	≤ 0.09	≤ 1.00	≤ 2.00	0.045	0.030	–	16.5–18.5	2.00–2.50	10.5–13.5	–	–	–	–	–	Z 6 CND 17.11	316 S 16, 316 S 31	316	30316	A 182
NiCr 19 NbMo (Inconel 718)	2.4668	65 021	0.03–0.08	≤ 0.35	≤ 0.35	0.015	0.015	≤ 1.00	17.0–21.0	2.80–3.30	50.0–55.0	–	Cu ≤ 0.10	4.75–5.50	0.65–1.15	Al 0.40–0.80 Fe Rest	NC 19 FeNb	HR 8	AMS 5596 D		
NiCr 15 Fe 7 TiAl (Inconel X 750)	2.4669	–	≤ 0.80	≤ 0.50	≤ 1.00	–	0.010	–	14.0–17.0	–	> 70 (+Co)	–	Cu ≤ 0.50	0.70–1.00	2.25–2.75	Al 0.40–1.00 Fe 5.00–9.00	NC 15 TNbA	HR 505	AMS 5598 A		
NiCr 20 Co 18 Ti (Nimonic 90)	2.4969	17 754 59 745	≤ 0.10	≤ 1.00	≤ 1.00	0.030	0.015	15.0–21.0	18.0–21.0	–	Rest	–	Cu ≤ 0.20	–	2.00–3.00	Al 1.00–2.00 Fe ≤ 2.00	NC 20 KTA	2 HR 2 2 HR 202	AMS 5829		
Duratherm 600	–	–	–	–	–	–	–	40	12	–	26	–	–	–	–	Mo, W, Ti, Al Fe Rest	–	–	–	–	–
CuBe 1.7	2.1245	17 666	Be 1.60–1.80	(Ni + Co) 0.20–0.60				Cu Rest									CuBe 1.7	–	–	J 461	B 194
CuBe 2	2.1247	17 666	Be 1.80–2.10	(Ni + Co) 0.20–0.60				Cu Rest									CuBe 1.9	2870	–	J 463	
TiAl 6 V 4	3.7165	17 851	Al 5.50–6.75	V 3.50–4.50				Fe ≤ 0.30	Ti Rest								T-A 6 V	2 TA 10, 2 TA 11	–	–	B 265-79 B 381-83

*) Semi-finished products (coils, sheet and forgings) may be listed under multiple designations.