

Quality	56Si7	<i>Technical card</i> Lucefin Group
According to standards	EN 10089: 2002	
Number	1.5026	

Chemical composition

C%	Si%	Mn%	P% max	S% max	Product deviations are allowed
0,52-0,60	1,60-2,00	0,60-0,90	0,025	0,025	
± 0.03	± 0.05	± 0.04	+ 0.005	+ 0.005	

Other elements not mentioned above should not be added to the steel, except for those necessary for casting. Cu + 10Sn ≤ 0,60

Temperature °C

Hot-forming	Normalizing	Quenching on spring	Tempering	Hot moulding of springs			
1050-850	870 air	840-870 oil or polymer	400-480 air	900-820			
Soft annealing	Isothermal annealing	Natural state	End quench hardenability test	Pre-heating welding	Stress-relieving after welding		
680 air (HB max 248)	820 furnace cooling to 720, then air (HB max 240)	(HB max 293)	850 water	not allowed			
				Ac1	Ac3	Ms	Mf
				770	810	290	70

Mechanical and physical properties

Hot-rolled mechanical properties obtained on test blanks after quenching at 860 °C in oil and tempering at 450 °C in air EN 10089: 2002

Values for **springs** according to Stahlschlüssel 2007 standard

size mm	Testing at room temperature (longitudinal)									
	R	Rp 0.2	A%	C%	KU	HRC	R	Rp 0.2	A%	DVM
	N/mm ²	N/mm ² min.	min.	min	J min		N/mm ²	N/mm ² min	min	J min
10	1450-1750	1300	6	25	13	44-50	1300-1500	1100	6	14

Table of tempering values obtained at room temperature on round of Ø 10 mm after quenching at 860 °C in oil

HB	722	706	688	634		615	525	448	404	362	327	290	264	
HRC	64	63	62	59		58	53	47.5	43.5	39	35	30.5	27	
R N/mm ²				2400	2460	2450	2310	1950	1600	1400	1210	1080	960	880
Rp 0.2 N/mm ²	1580	1670	1860	2000	2100	2140	2090	1700	1460	1250	1070	930	800	690
A %				2.0	3.8	4.2	5.0	8.0	10.5	12.2	13.4	15.8	19.2	22.0
Kv J			8	8	9	10	12	16	26	26	28	32	40	42
Tempering at °C	50	100	150	200	250	300	350	400	450	500	550	600	650	700

EN 10089: 2002 **Jominy test HRC** grain size 5 min.

mm distance from quenched extremity																
	1.5	3	5	7	9	11	13	15	20	25	30	35	40	45	50	H
min	57	55	49	43	37	34	32	31	28	27	26	26	25	25	24	normal
max	65	62	60	57	54	50	46	42	39	37	36	35	34	34	33	

Max thickness and diameter recommended for the spring to obtain, after quenching, internal hardness of 52 HRC	Flat products thickness mm	Round products Ø mm	Mod. of elasticity +20 °C GPa	
	8	12	E long.	G tang.
			206	79

EUROPE EN	ITALY UNI	CHINA GB	GERMANY DIN	FRANCE AFNOR	U.K. B.S.	RUSSIA GOST	USA AISI/SAE
56Si7	55Si7	55Si2Mn	55Si7	55S7	251°58	55S2	9555