

<b>Quality</b>	<b>54SiCr6</b>	<i>Technical card</i> <i>Lucefina Group</i>
According to standards	<b>EN 10089: 2002</b>	
Number	<b>1.7102</b>	

### Chemical composition

C%	Si%	Mn%	P% max	S% max	Cr%	Product deviations are allowed
0,51-0,59 ± 0.03	1,20-1,60 ± 0.05	0,50-0,80 ± 0.04	0,025 + 0.005	0,025 + 0.005	0,50-0,80 ± 0.05	

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

### Temperatur °C

Hot-forming	Normalizing	Quenching on spring	Tempering	Hot moulding of springs	
1150-850	860-890 air	840-880 oil or polymer	380-500 air	930-840	
Soft annealing	Isothermal annealing	Natural state	End quench hardenability	Pre-heating welding	Stress-relieving after welding
670-720 air (HB max 248)	810-830 furnace cooling to 720, pause, then air (HB max 230)	(HB max 310)	8560 water	not allowed	
			<b>Ac1</b> 765	<b>Ac3</b> 860	<b>Ms</b> 280 <b>Mf</b> 60

### 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

size mm	Testing at room temperature (longitudinal)						
	R	Rp 0.2	A%	Z%	KU	HB	HRC
10	N/mm <sup>2</sup> 1450-1750	N/mm <sup>2</sup> min. 1300	min. 6	min. 25	J min. 8	for information 415-480	44.5-50

**Table of tempering** values obtained at room temperature on round of Ø 10 mm after quenching at 850 °C in oil

<b>HB</b>	543	455	409	375	344
<b>HRC</b>	54	48	44	40.5	37
<b>R</b> N/mm <sup>2</sup>	2010	1660	14320	1280	1140
<b>Rp 0.2</b> N/mm <sup>2</sup>	1700	1440	1250	1100	1000
<b>A</b> %	5	6	6.5	6.5	7
<b>Kv</b> J	8	10	12	14	16
Tempering at °C	<b>400</b>	<b>450</b>	<b>500</b>	<b>550</b>	<b>600</b>

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	
<b>min</b>	57	56	55	50	44	40	37	35	32	30	28	26	25	24	24	Type <b>H</b>
<b>max</b>	67	66	66	65	65	64	64	63	59	55	49	44	40	37	35	
<b>min</b>	60	59	59	55	51	48	46	44	41	38	35	32	30	28	28	Type <b>HH</b>
<b>max</b>	67	66	66	65	65	64	64	63	59	55	49	44	40	37	35	

Max thickness and diameter recommended for the spring to obtain, after quenching, internal hardness of <b>52 HRC</b> and 80% martensite	Flats mm	Rounds mm	Max thickness and diameter recommended for the spring to obtain, after quenching, internal hardness of <b>55 HRC</b> and 90% martensite	Flats mm	Rounds mm
	9	13		7	10

Mod. of elasticity +20 °C GPa	Density Kg/dm <sup>3</sup>
<b>E</b> longitudinal 210	<b>G</b> tangential 79
	7.80

EUROPE EN	ITALY UNI	CHINA GB	GERMANY DIN	FRANCE AFNOR	U.K. B.S.	RUSSIA GOST	USA AISI/SAE
54SiCr6	54SiCr6		1.7102	54SiCr6	685 A 57	60S2ChA	9254 ~