

Quality	37Cr4	Quenching and Tempering Steel	<i>Technical card Lucefin Group rev. 2018</i>
According to standard	ISO 683-2: 2018		
Number	1.7034		

Chemical composition

C%	Si% a)	Mn%	P% max	S% max	Cr%	Cu% max	Product deviations are allowed
0,34-0,41 ± 0.03	0,10-0,40 ± 0.03	0,60-0,90 ± 0.04	0,025 + 0.005	0,035 ± 0.005	0,90-1,20 ± 0.05	0,40 + 0.05	

For 37CrS4 n° 1.7038 S% 0.020-0.040 product deviations ± 0.005

a) Steels may be supplied with a lower silicon content. In this case, alternative means of deoxidation shall be used

Temperature °C

Hot-forming	Normalizing +N	Quenching +Q	Tempering +T	Stress-relieving +SR	Soft annealing +A	Isothermal annealing +I	End quench hardenable tes	Pre-heating welding	Stress-relieving after welding		
1100-850	860 air	825-865 oil, polymer water	540-680 air	50 under the temperature of tempering	680-720 air (HB max 235)	-	845 water	300 Ac1 740	Ac3 765	550 furnace cooling Ms 340	Mf 130

Mechanical properties

37Cr4 1.7034 – 37CrS4 1.7038 Hot-rolled mechanical properties in **quenched and tempered** condition ISO 683-2: 2018

size d / t		Testing at room temperature (longitudinal)					
from	to	R N/mm ²	Rp 0.2 N/mm ² min.	A% min.	Z% min.	Kv₂ J min.	HBW <i>for information</i>
16/8	16/8	950-1150	750	11	35	-	286-348
16/8	40/20	850-1000	630	13	40	35	253-298
40/20	100/60	750-900	510	14	40	35	225-271

d = diameter t = thickness

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

HB	-	-	-	-	301	290	271	247	
HRC	-	-	-	-	32	31	28	24	
R	N/mm ²	-	-	-	1000	960	900	820	
Rp 0.2	N/mm ²	-	-	-	750	700	640	600	
A	%	-	-	-	13	16	18	20	
Z	%	-	-	-	55	58	60	64	
Tempering at °C		300	350	400	450	500	550	600	650

37Cr4 1.7034 - 37CrS4 1.7038 EN 10277: 2018**Lucefin Group**

Hot-rolled, annealed and Cold-drawn +A+C						Hot-rolled, annealed and Peeled +A+SH			
size mm		Testing at room temperature (longitudinal)				Testing at room temperature (longitudinal)			
from	to	R	Rp 0.2	A%	HBW	R	Rp 0.2	A%	HBW
		N/mm ²	N/mm ² min	min	max	N/mm ²	N/mm ² min	min	max
5 ^{b)}	10	-	-	-	-	-	-	-	-
10	16	-	-	-	-	-	-	-	-
16	40	-	-	-	-	-	-	-	235
40	63	-	-	-	-	-	-	-	235
63	100	-	-	-	-	-	-	-	235

^{b)} per spessori inferiori a 5 mm le caratteristiche meccaniche possono essere concordate in fase di ordine

Hot-rolled, quenched and tempered and Cold-drawn +QT+C						Hot-rolled, quenched and tempered, Peeled +QT+SH			
size mm		Testing at room temperature (longitudinal)				Testing at room temperature (longitudinal) ^{a)}			
from	to	R	Rp 0.2	A%	Kv₂ +20°C	R	Rp 0.2	A%	Kv₂ +20°C
		N/mm ²	N/mm ² min	min	J min	N/mm ²	N/mm ² min	max	J min
5 ^{b)}	10	-	-	-	-	-	-	-	-
10	16	-	-	-	-	-	-	-	-
16	40	-	-	-	-	850-1000	630	13	35
40	63	-	-	-	-	750-900	510	14	35
63	100	-	-	-	-	750-900	510	14	35

^{b)} for thickness < 5 mm, mechanical properties should be agreed before order placement

^{a)} values valid also for +C+QT

37Cr4 1.7034 Forged quenched and tempered UNI EN 10250-3: 2001

size d / t		Testing at room temperature						
mm		R	Rp 0.2	A%	A%	Kv	Kv	HB
oltre	fino a	N/mm ² min	N/mm ² min	min (L)	min (T)	J min (L)	J min (T)	min
	100/70	750	510	14	14	35	35	225

L = longitudinal T = tangential Q = radial d = diameter t = thickness

ISO 683: 2018 Valori di temprabilità Jominy test HRC grandezza grano 5 minimo

distance in mm from quenched end	1.5	3	5	7	9	11	13	15	20	25	30	35	40	45	50	
min	51	50	48	44	39	36	33	31	26	24	22	20	-	-	-	H
max	59	59	58	57	55	52	50	48	42	39	37	36	35	34	33	
min	54	53	51	48	44	41	39	37	31	29	27	25	24	23	22	HH
max	59	59	58	57	55	52	50	48	42	39	37	36	35	34	33	
min	51	50	48	44	39	36	33	31	26	24	22	20	-	-	-	HL
max	56	56	55	53	50	47	44	42	37	34	32	31	30	29	28	

EUROPE	ITALY	SPAIN	GERMANY	FRANCE	UK	SWEDEN	USA
EN	UNI	UNE	DIN	AFNOR	B.S.	SS	AISI/SAE
37Cr4	37Cr4	38Cr4	37Cr4	37C4	530A36	2245	Gr. 5135