

Quality		SAE 1018				<i>Technical card</i>	
According to standards		ASTM A 576-90b: 2000 Hot rolled				<i>Lucefin Group</i>	
		ASTM A 311/A 311M: 2004 Cold drawn					
Chemical composition							
C%	Si%	Mn%		P%	S%	Product deviations are allowed	
				max	max		
0,15-0,20	a)	0,60-0,90		0,040	0,050		
± 0.02		± 0.03		+ 0.008	+ 0.008		
NOTE: if fine grain min. 5 is specified in the order, Al content should be of not less than 0.020%							
In case of a 0.15 to 0.35% lead addition, the steel is identified as 10L18							
a) the following values are usually specified at the time of order placement: 0.10 max, 0.10-0.20, 0.15-0.35 , 0.20-0.40, 0.30-0.60							
Temperature °C							
Hot-forming		Soft annealing +A		Normalizing		Quenching	
1180-900		650-700		920		880-900 oil polymer	
		furnace cooling		air		or water	
						Pre-heating welding	
						not required	
						PWHT	
						slow cooling	
Mechanical properties ASTM A311/A 311M: 2004 Cold-drawn stress-relieved (> 288 °C) cl. A							
size		Testing at room temperature (longitudinal)					
mm		R	Rp 0.2	A	C reduct.	HB	
from	to	N/mm ² min	N/mm ² min	% min	% min	min	
	20	485	415	18	40	147	
20	30	450	380	16	40	135	
30	50	415	345	15	35	123	
50	75	380	310	15	35	110	
Cold-drawn mechanical properties; Lucefin experience							
flats		Testing at room temperature (longitudinal)					
mm		R	Rp 0.2	A	C reduct.	HB	M. elasticity
		N/mm ²	N/mm ²	%	%		N/mm ²
76 x 32		581	556	13,4	60,7	176	253600
76 x 32		553	438	17,6	60,8	162	251800
76 x 32		530	384	27,2	59,0	159	186000
Hot-rolled mechanical properties							
size		Testing at room temperature (longitudinal)				Heat treatment	
mm		R	Rp 0.2	A	C reduct.	HB	Carburizing at 925 °C, cooling at 250 °C, heating at 780 °C, pause, then quenching in water and final tempering at 180 °C
		N/mm ²	N/mm ²	%	%		
22		634	386	27	48	≥ 197	
						≤ 229	+U untreated
						≤ 180	+A annealed
≤ 30		400	220	25		≥ 116	+N normalized (J1397)
Condition		Cyclic yield strength, σ_y' N/mm ²			Cyclic strength exponent, n'		Cyclic strength coefficient, K' N/mm ²
Hot-rolled		236			0,27		1259
Quenched and tempered		190			0,24		862
Condition		Fatigue strength coefficient, σ_f' N/mm ²			Fatigue strength exponent, b		Fatigue ductility coefficient, g _f '
Hot-rolled		782			- 0,11		0,19
Quenched and tempered		423			- 0,07		- 0,09
USA AISI/SAE	ITALY UNI	CHINA GB	GERMANY DIN	FRANCE AFNOR	U.K. B.S.	RUSSIA GOST	EUROPE EN
SAE 1018	C18		1.0405		080A17		P265NL