

Quality		SAE 1045					
According to standards		ASTM A 576-17 Hot-rolled					
		ASTM A311/A 311M: 2004 Cold-drawn					
Chemical composition							
C%		Si%	Mn%	P%	S%		
				max	max		
0,43-0,50		a)	0,60-0,90	0,040	0,050	Product deviations are allowed	
± 0.03			± 0.03	+ 0.008	+ 0.008		
NOTE: : if fine grain min. 5 is specified in the order, total aluminium content should be of not less than 0.020%							
In case of a 0.15-0.35% lead addition, the steel is identified as 10L45							
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 +N	Quenching +Q	Tempering +T	Stress-relieving +SR	
1100-800	680-710 furnace cooling (HB max 190)		850-870 air	820-840 oil polymer or water	600-650 air	50° under the temperature of tempering	
					Pre-heating welding	PWHT	
					250	550 furnace cooling	
Mechanical properties							
Hot-rolled. Use only as reference							
size mm		Testing at room temperature (longitudinal)					
		R	Rp 0.2	A%	Z%	Kv	HB
from	to	N/mm ² min	N/mm ² min	min	min	J min	min
all dims.		565	310	16	40	-	- +U untreated
all dims.		760	550	12	25	-	- +QT quenched and tempered ASTM A 183-14
25	40	650-800	430	16	40	25	190-240 +QT quenched and tempered
40	100	630-780	370	17	45	25	185-235 +QT quenched and tempered
Normal draft cold-drawn and stress-relieved ASTM A311/A 311M: 2004 cl. A							
size mm		Testing at room temperature (longitudinal)					
		R	Rp 0.2	A%	Z%	HB for information	
from	to	N/mm ² min	N/mm ² min	min	min	min	
	20	655	585	12	35	205	
20	30	620	550	11	30	195	
30	50	585	520	10	30	176	
50	75	550	485	10	30	162	
Heavy draft cold-drawn and stress-relieved ASTM A311/A 311M: 2004 cl. B							
size mm		Testing at room temperature (longitudinal)					
		R	Rp 0.2	A%	Z%	HB for information	
from	to	N/mm ² min	N/mm ² min	min	min	min	
	20	795	690	10	25	239	
20	30	795	690	10	25	239	
30	50	795	690	10	25	239	
50	75	795	690	9	25	239	
75	102	725	620	7	20	224	
Normal draft cold-drawn and annealed. Use only as reference							
size mm		Testing at room temperature (longitudinal)					
		R	Rp 0.2	A%	Z%	HB	
from	to	N/mm ² min	N/mm ² min	min	min	min	
19	32	585	505	12	45	170	
USA	ITALY	CHINA	GERMANY	FRANCE	UK	RUSSIA	EUROPE
SAE	UNI	GB	DIN	AFNOR	B.S.	GOST	EN
1045	C45	45	Ck45	XC48H1	080M46	45	C45E