

# ASTM A 519

## Seamless Carbon and Alloy Steel Mechanical Tubing

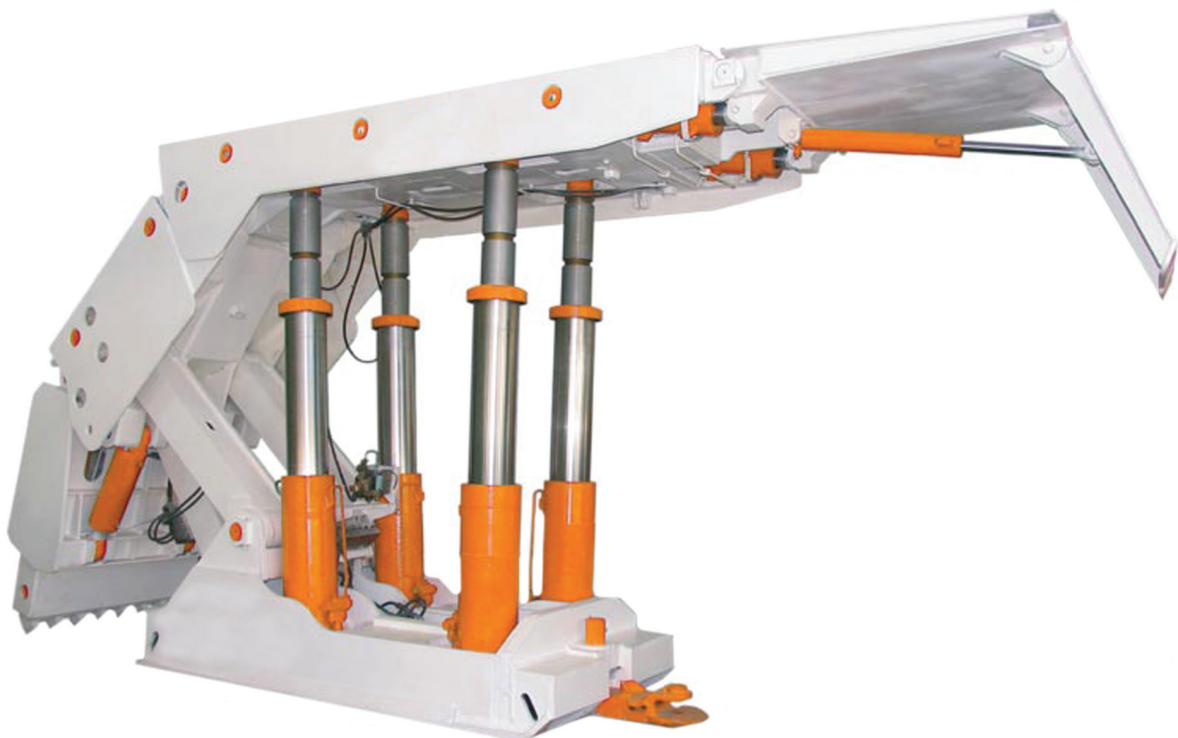
### Chemical composition

Steel grade	Elements content, %							
	C	Mn	P	S	Si	Ni	Cr	Mo
1026	0.22-0.28	0.60-0.90	≤0.025%	≤0.025%				
4130	0.28-0.33	0.40-0.60	≤0.025%	≤0.025%	0.15-0.35	-	0.80-1.10	0.15-0.25
4140	0,38-0,43	0,75-1,0	≤0.025%	≤0.025%	0.15-0.35	-	0,80-1,10	0,15-0,25

### Typical Tensile Properties and Hardness

Grade Designation	Delivery condition	Tensile strength		Yield strength		Elongation A, %	Hardness, HRB
		ksi	MPa	ksi	MPa		
		Not less					
1026	HR	55	379	35	241	25	60
	CW	75	517	65	448	5	80
	SR	70	483	55	379	8	75
	A	53	365	30	207	25	57
	N	55	379	36	248	22	60
4130	HR	90	621	70	483	20	89
	SR	105	724	85	586	10	95
	A	75	517	55	379	30	81
	N	90	621	60	414	20	89
4140	HR	120	855	90	621	15	100
	SR	120	855	100	689	10	100
	A	80	552	60	414	25	85
	N	120	855	90	621	20	100

HR- hot-rolled, CW- cold-worked, SR- stress relieved, A - annealed, N- normalized



Wall thickness		0,280	0,310	0,350	0,390	0,430	0,470	0,555	0,620	0,688	0,780	0,870	0,980	1,102	1,181	1,250	1,410	1,570	1,771	1,968	
inch	OD (mm)	7	8	9	10	11	12	14,2	16	17,5	20	22,2	25	28	30	32	36	40	45	50	
3,250	82,5																				
3,300	83,9																				
4,000	101,6																				
4,250	108																				
4,500	114,3																				
5,000	127																				
5,250	133																				
5,500	139,7																				
5,980	152,4																				
6,250	159																				
6,610	168,3																				
7,000	177,8																				
7,630	193,7																				
8,000	203,0																				

## Dimensional tolerances

Outside diameter, inch (mm)	Outside diameter permissible deviation, inch (mm)	
	more	less
Up to 2.999 (76.17)	0.020 (0.51)	0.020 (0.51)
3.000-4.499 (76.20-114.27)	0.025 (0.64)	0.025 (0.64)
4.500-5.999 (114.30-152.37)	0.031 (0.79)	0.031 (0.79)
6.000-7.499 (152.40-190.47)	0.037 (0.94)	0.037 (0.94)
7.500-8.999 (190.50-228.57)	0.045 (1.14)	0.045 (1.14)
9.000-10.750 (228.60-273.05)	0.050 (1.27)	0.050 (1.27)

Wall thickness as a percentage outside diameter	Wall thickness permissible deviation		
	OD up to 2.999 (76.19)	OD = 3.000 (76.20) - 5.999 (152.37)	OD = 6.00 (152.40) - 10.750 (273.05)
Less than 15	+/- 12.5 %	+/- 10.0 %	+/- 10.0 %
15 and more	+/- 10.0 %	+/- 7.5 %	+/- 10.0 %

## Lengths

Pipes are supplied with lengths according to standard requirements.  
Any lengths different from the standard ones are subject to additional negotiations.

## Protection

Pipes are supplied:

- black and bare
- external varnished with black or clear lacquer
- oiled

Upon request pipes ends are protected with plastic caps.

## Marking

Pipes are supplied with marking according to standards and customer requests.  
Marking is painted and/or hard stenciled on pipe ends. The same data, as well as additional information according to customer's request, are indicated on the bundle tags.

## Certification

Pipes are supplied with 3.1. inspection certificate, in conformity with EN 10204.