

Engineering Information

Physical Properties of Metals

This table gives the following properties for the metallic element: Melting Point in °C ,specific Gravity g/cm³, Specific Heat (Water-1) , Linear Coefficient of Expansion at 40°C × 10⁴ Per °C

Engineering Information				
SAFE LOADS ON STUDS AND BOLTS				
G. General Engineering				
Dia of safe Load that one stud or bolt stud or will carry (mild steel)				
Bolt Inch:	G	H	Lb	
1/2	250	450		
5/8	500	900		
3/4	900	1790		
7/8	1500	2880		
1	2150	4240		
1 1/8	3000	5740		
1 1/4	4250	7650		
1 3/8	5500	9370		
1 1/2	7000	11600		
Safe Load on Foundations				
Per Sq. Foot :				
Made Ground	1/2 ton			
Soft Clay	1 ton			
Hard Clay or Loam	2 to 4 ton			
Dry Compact Sand	2 to 4 ton			
Dry Coarse Gravel	3 to 7 ton			
Ordinary Rock	3 ton			
Continuation	9 ton			
Hard Rock	1.82 ton			
Loose beds with piling	1.82 ton			
Loose beds with Concrete	2.75 ton			
H. Hydraulic Engineering				
Dia of safe Load that one Stud or bolt Stud or will carry (mild steel)				
Bolt Inch:	G	H	Lb.	
1 3/4	11,000	15,600		
2	16,000	20,800		
2 1/2	26,100	—		
3	38,100	—		
3 1/2	53,000	—		
4	70,100	—		
4 1/2	90,000	—		
5	113,000	—		
5 1/2	138,000	—		
Safe Load on Masonry				
Per Sq. Foot :				
Granite	30 ton			
Limestone	15 ton			
Sandstone	20 ton			
Cement Concrete 5-1	15 ton			
Cement Concrete 10-1	7.5 ton			
Lime Concrete	2 to 4 ton			
Brick in Mortar	3.5 ton			
Brick in Cement	8 to 12 ton			
Rubble	3.5 ton			
50				
Engineering Information				
PHYSICAL PROPERTIES OF METALS				
Element	Melting Point, °C	Specific Gravity	Specific Heat (Water —1)	Linear Coefficient of Expansion at 40°C × 10 ⁴ per °C
Aluminium	658.7	2.56	0.2089	0.2313
Antimony	630.0	6.70	0.0495	0.1152
Bismuth	271	9.76	0.0301	0.1346
Cadmium	320.9	8.7	0.0548	0.3069
Calcium	810	1.82	0.1453	—
Chromium	1553	7.0	0.10394	—
Cobalt	1480	8.74	0.1030	0.1236
Copper	1083	8.65	0.0939	0.1678
Gold	1063	19.3	0.316	0.1443
Iron	1530	7.86	0.1338	0.1182
Lead	327.4	11.4	0.3150	0.2924
Magnesium	651	1.75	0.2456	0.2694
Manganese	1230	8.0	0.1072	0.228
Mercury	-38.9	13.6	0.0334	1.8200
Molybdenum	2500	8.62	0.0659	0.0501
Nickel	1452	8.5	0.1034	0.1279
Palladium	1550	11.4	0.0592	0.1176
Phosphorus	44	1.83	0.189	—
Platinum	1755	22.15	0.0323	0.0899
Potassium	62.3	0.88	0.1876	0.8300
Rhodium	1950	12.1	0.05803	0.0850
Silicon	1420	2.3	0.2140	0.0763
Silver	960.5	10.55	0.0556	0.1921
Sodium	97.5	0.97	0.29305	0.7200
Sulphur	114	2.04	0.1844	—
Tantalum	2900	10.8	0.0301	0.0800
Tellurium	452	6.25	0.0525	0.1680
Tin	231.9	7.3	0.0559	0.2234
Tungsten	2400	18.8	0.0336	0.0444
Vanadium	1720	5.5	0.1153	—
Zinc	419.4	7.0	0.0935	0.2918
Zirconium	1530	6.4	0.0660	—
51				