

Coefficients of Friction “F”

Material	Static		Sliding	
	Dry	Lubricated	Dry	Lubricated
Aluminum on aluminum	1.35	-	-	-
Canvas belt on rubber lagging	0.30	-	-	-
Canvas belt, stitched, on steel	-	-	0.20	0.10
Canvas belt, woven, on steel	-	-	0.22	0.10
Cast iron on asbestos, fabric brake material	-	-	0.35-0.40	-
Cast iron on brass	-	-	0.30	-
Cast iron on bronze	-	-	0.22	0.07-0.08
Cast iron on cast iron	1.10	-	0.15	0.06-0.10
Cast iron on copper	1.05	-	0.29	-
Cast iron on lead	-	-	0.43	0.13-0.36
Cast iron on leather	.6	-	-	0.07-0.20
Cast iron on oak (parallel)	-	-	0.30-0.50	-
Cast iron on magnesium	-	-	0.25	0.133
Cast iron on steel, mild	-	0.18	0.23	-
Cast iron on tin	-	-	0.32	-
Cast iron on zinc	0.85	-	0.21	-
Earth on earth	0.25-1.0	-	-	-
Glass on glass	0.94	-	0.40	-
Hemp rope on wood	0.50-0.80	-	0.40-0.70	-
Nickel on nickel	1.10	-	0.53	0.12
Oak on leather (parallel)	0.50-0.60	-	0.30-0.50	-
Oak on oak (parallel)	0.62	-	0.48	0.16
Oak on oak (perpendicular)	0.54	-	0.32	0.07
Rubber tire on pavement	0.8-0.9	0.6-0.7*	0.75-0.85	0.5-0.7*
Steel on ice	0.03	-	0.01	-
Steel, hard, on babbitt	0.42-0.70	0.08-0.25	0.33-0.35	0.05-0.16
Steel, hard, on steel, hard	0.78	0.11-0.23	0.42	0.03-0.12
Steel, mild, on aluminum	0.61	-	0.47	-
Steel, mild, on brass	0.51	-	0.44	-
Steel, mild, on bronze	-	-	0.34	0.17
Steel, mild, on copper	0.53	-	0.36	0.18
Steel, mild, on steel, mild	0.74	-	0.57	0.09-0.19
Stone masonry on concrete	0.76	-	-	-
Stone masonry on ground	0.65	-	-	-
Wrought iron in bronze	0.19	0.07-0.08	0.18	...
Wrought iron on wrought iron	-	0.11	0.44	0.08-0.10

* Wet pavement.