

Nord-Lock® Securing washer/Wedge Lock Nut

The Nord-Lock principle

The Nord-Lock washer has radial teeth on one side, and tilted cams on the other side, whose incline rising gradient is greater than the thread's pitch. The washers are assembled in pairs with the cams toward each other and create the unique Nord-Lock locking device.



Cu/C paste = Copper/graphite paste (Molykote® 1000)

GF = ratio of yield point

μ_{th} = thread friction

μ_b = washer friction

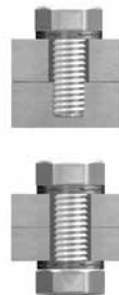
1 N = 0,225 lb

1 Nm = 0,738 ft-lb

The washers are in standard performance delivered in pairs glued, zinc-flake. The surface hardness is approximately 46,1 HRC.

Other alternatives that are available for delivery is stainless steel A4.

When the screw is tightened, the teeth are worked into the material and screw head respectively and a connection takes place. When the screw tends to come off it pulls the connected washer, which is forced onto the cams of the opposite washer. The pre-stress increases instead of decreases by the wedge effect that arises.



Recommended torque value (Nm)

Table 218 Nord-Lock® Securing washer zinc-flake with zincplated screw 8.8

Dim.	Thread	Pitch (mm)	Oil on surface, GF = 75% $\mu_{th} = 0,10, \mu_b = 0,16$		Cu/C paste, GF = 75% $\mu_{th} = 0,11, \mu_b = 0,16$		Dry surface, GF = 62% $\mu_{th} = 0,15, \mu_b = 0,18$	
			Torque (Nm)	Clamping force (kN)	Torque (Nm)	Clamping force (kN)	Torque (Nm)	Clamping force (kN)
NL3	M3	0,5	1,3	2,4	2,1	2,4	1,3	2
NL4	M4	0,7	3,1	4,2	4,4	4,2	3,1	3,5
NL5	M5	0,8	6	6,8	8	6,8	6	5,6
NL6	M6	1	10,5	9,7	13,2	9,7	10,5	8
NL8	M8	1,25	25	18	30	18	25	15
NL10	M10	1,5	49	28	49	28	50	23
NL12	M12	1,75	85	40	83	40	85	33
NL14	M14	2	135	55	131	55	136	46
NL16	M16	2	205	75	197	75	208	62
NL18	M18	2,5	288	92	275	92	291	76
NL20	M20	2,5	402	118	382	118	408	97
NL22	M22	2,5	548	146	517	146	557	120
NL24	M24	3	693	169	652	169	703	140
NL27	M27	3	1010	221	945	221	1028	182
NL30	M30	3,5	1379	269	1286	269	1401	222
NL33	M33	3,5	1855	333	1722	333	1889	275
NL36	M36	4	2394	392	2219	392	2436	324
NL39	M39	4	3087	468	2852	468	3145	387
NL42	M42	4,5	3820	538	3525	538	3890	445

Table 219 Nord-Lock® Securing washer zinc-flake with untreated screw 10.9

Dim.	Thread	Pitch (mm)	Oil on surface, GF = 71% $\mu_{th} = 0,13, \mu_b = 0,14$		Cu/C paste, GF = 75% $\mu_{th} = 0,11, \mu_b = 0,15$	
			Torque (Nm)	Clamping force (kN)	Torque (Nm)	Clamping force (kN)
NL3	M3	0,5	1,8	3,2	3,5	3,4
NL4	M4	0,7	4,1	5,6	7	5,9
NL5	M5	0,8	8,1	9,1	12,5	9,6
NL6	M6	1	14,1	12,9	20,1	13,6
NL8	M8	1,25	34	23	44	25
NL10	M10	1,5	67	37	73	39
NL12	M12	1,75	115	54	121	57
NL14	M14	2	183	74	188	78
NL16	M16	2	279	100	281	106
NL18	M18	2,5	391	123	388	130
NL20	M20	2,5	547	156	534	165
NL22	M22	2,5	745	194	719	205
NL24	M24	3	942	225	902	238
NL27	M27	3	1375	294	1297	310
NL30	M30	3,5	1875	358	1755	378
NL33	M33	3,5	2526	443	2340	468
NL36	M36	4	3259	522	3003	551
NL39	M39	4	4203	624	3845	659
NL42	M42	4,5	5202	716	4740	757

Cu/C paste = Copper/graphite paste (Molykote® 1000)

GF = ratio of yield point

μ_{th} = thread friction

μ_b = washer friction

1 N = 0,225 lb

1 Nm = 0,738 ft-lb

Table 220 Nord-Lock® Securing washer zinc-flake with untreated screw 12.9

Dim.	Thread	Pitch (mm)	Oil on surface, GF = 71% $\mu_{th} = 0,13, \mu_b = 0,12$		Cu/C paste, GF = 75% $\mu_{th} = 0,11, \mu_b = 0,15$	
			Torque (Nm)	Clamping force (kN)	Torque (Nm)	Clamping force (kN)
NL3	M3	0,5	2	3,9	3,8	4,1
NL4	M4	0,7	4,6	6,7	7,6	7,1
NL5	M5	0,8	9,1	10,9	13,6	11,5
NL6	M6	1	15,8	15,4	21,8	16,3
NL8	M8	1,25	38	28	47	30
NL10	M10	1,5	75	44	93	47
NL12	M12	1,75	128	65	151	68
NL14	M14	2	204	89	232	94
NL16	M16	2	311	120	342	127
NL18	M18	2,5	437	148	467	156
NL20	M20	2,5	610	188	638	198
NL22	M22	2,5	831	233	852	246
NL24	M24	3	1052	270	1064	286
NL27	M27	3	1533	352	1519	372
NL30	M30	3,5	2091	430	2042	454
NL33	M33	3,5	2815	532	2710	562
NL36	M36	4	3633	626	3463	662
NL39	M39	4	4683	748	4415	790
NL42	M42	4,5	5799	860	5429	908

Table 221 Nord-Lock® Securing washer stainless steel with screw stainless steel A2/A4

Dim.	Thread	Pitch (mm)	A2-70, A4-70 Cu/C paste, GF = 65% $\mu_{th} = 0,12, \mu_b = 0,14$		A2-80, A4-80 Cu/C paste, GF = 65% $\mu_{th} = 0,12, \mu_b = 0,14$	
			Torque (Nm)	Clamping force (kN)	Torque (Nm)	Clamping force (kN)
NL3ss	M3	0,5	1,5	1,5	1,7	2
NL4ss	M4	0,7	3	2,6	3,6	3,4
NL5ss	M5	0,8	5,5	4,1	6,7	5,5
NL6ss	M6	1	8,1	5,9	11,2	7,8
NL8ss	M8	1,25	18	11	21	14
NL10ss	M10	1,5	26	17	34	23
NL12ss	M12	1,75	41	25	62	33
NL14ss	M14	2	68	34	101	45
NL16ss	M16	2	108	46	157	61
NL18ss	M18	2,5	157	56	224	75
NL20ss	M20	2,5	223	72	318	95
NL22ss	M22	2,5	310	89	438	118
NL24ss	M24	3	397	103	558	137
NL27ss	M27	3	589	134	823	179
NL30ss	M30	3,5	815	164	1132	219
NL36ss	M36	4	1445	239	1993	319

Table 222 Nord-Lock® Securing washer 254 SMO® with screw 254 SMO®

Dim.	Thread	Pitch (mm)	A2-70, A4-70 Cu/C paste, GF = 65% $\mu_{th} = 0,12, \mu_b = 0,14$		A2-80, A4-80 Cu/C paste, GF = 65% $\mu_{th} = 0,12, \mu_b = 0,14$	
			Torque (Nm)	Clamping force (kN)	Torque (Nm)	Clamping force (kN)
NL3ss-254	M3	0,5	1,5	1,5	1,7	2
NL4ss-254	M4	0,7	3	2,6	3,6	3,4
NL5ss-254	M5	0,8	5,5	4,1	6,7	5,5
NL6ss-254	M6	1	8,1	5,9	11,2	7,8
NL8ss-254	M8	1,25	18	11	21	14
NL10ss-254	M10	1,5	26	17	34	23
NL12ss-254	M12	1,75	41	25	62	33
NL14ss-254	M14	2	68	34	101	45
NL16ss-254	M16	2	108	46	157	61
NL18ss-254	M18	2,5	157	56	224	75
NL20ss-254	M20	2,5	223	72	318	95
NL22ss-254	M22	2,5	310	89	438	118
NL24ss-254	M24	3	397	103	558	137
NL27ss-254	M27	3	589	134	823	179
NL30ss-254	M30	3,5	815	164	1132	219
NL36ss-254	M36	4	1445	239	1993	319