

TORQUE GUIDELINES OF TWIN-LOCK WASHERS

Twin-Lock 垫圈标准系列参考扭矩

STANDARD SERIES DELTA PROTEKT® KL100+VH301GZ

垫圈尺寸 dxD [mm]	螺栓尺寸		螺栓 8.8 ^a 涂油		螺栓 8.8 ^a 干燥		螺栓 10.9 ^b 涂油		螺栓 10.9 ^b 干燥		螺栓 12.9 ^c 涂油		螺栓 12.9 ^c 干燥	
			扭力 Torque [Nm]	承重 Load ^d [kN]	Torque [Nm]	Load ^d [kN]	Torque [Nm]	Load ^d [kN]	Torque [Nm]	Load ^d [kN]	Torque [Nm]	Load ^d [kN]	Torque [Nm]	Load ^d [kN]
3,4x7,0	M 3	#5	1.7	2.4	1.9	2.4	2.5	3.4	2.6	3.4	3	4.1	3	4.1
4.4x7.6	M 4	#8	4.1	4.2	4.5	4.2	5.0	5.9	5.2	5.9	5.8	7.1	6.1	7.1
5.4x9.0	M 5	#10	8.5	6.8	8.5	6.8	8.9	9.6	9.5	9.6	10.2	11.5	10.8	11.5
6.5x10.8	M 6		12.2	9.7	12.5	9.7	17.2	13.6	19	13.6	18	16.3	19.5	16.3
8.7x13.5	M 8	5/16"	30	18	31	18	36	25	38	25	45	30	48	30
10.7x16.6	M 10		62	28	65	28	77	39	82	39	86	47	88	47
13.0x19.5	M 12		100	40	103	40	120	57	125	57	133	68	139	68
15.2x23.0	M 14	9/16"	146	55	150	55	198	78	210	78	217	94	221	94
17.0x25.4	M 16	5/8"	260	75	267	75	322	106	330	106	339	127	347	127
19.5x29.0	M 18		310	92	336	92	430	130	438	130	445	156	452	156
21.4x30.7	M 20		486	118	499	118	540	165	552	165	593	198	604	198
23.4x34.5	M 22	7/8"	583	146	592	146	691	205	701	205	817	246	839	246
25.3x39.0	M 24		760	169	778	169	950	238	964	238	1070	286	1125	286
28.4x42.0	M 27		1050	221	1070	221	1440	310	1475	310	1605	372	1680	372
31.4x47.0	M 30	1 1/8"	1470	269	1510	269	1935	378	1980	378	2140	454	2180	454

Remarks 备注:

Test conditions according to ISO 16047, bearing surface hardness 200-250 Hv, roughness R_a 0.6 uncoated and degreased.
测试条件依照 ISO16047, 表面硬度 200-250HV, 粗糙度 R_a 0.6 未镀层和去油。

- ^a Screw class 8.8 DIN 931 / DIN 933 uncoated + Nut DIN 934 uncoated, coarse pitch thread
- ^b Screw class 10.9 DIN 931 / DIN 933 uncoated + Nut DIN 934 uncoated, coarse pitch thread
8.8 和 10.9 螺钉依照 DIN 933, 未镀层, 粗螺距。
- ^c Screw class 12.9 DIN 912 uncoated + Nut DIN 934 uncoated, coarse pitch thread
12.9 螺钉依照 DIN 912 未镀层 + 螺母依据 DIN 934, 未镀层, 粗螺距。
- ^d 75% of nominal yield point (stress at 0.2% non-proportional elongation $R_{p0.2}$) according to ISO 898-1.
根据 ISO 898-1 标准, 75% 的正常屈服点。(应力 0.2% 的非比例延伸 $R_{p0.2}$)



TORQUE GUIDELINES OF TWIN-LOCK WASHERS STANDARD SERIES IN STAINLESS STEEL

Twin-Lock 垫圈不锈钢标准系列参考扭矩

垫圈尺寸 dxD [mm]	螺栓尺寸		AISI 316L			
			Bolt A4-70 ^a Lubricated ^d		Bolt A4-80 ^b Lubricated ^d	
			扭力 Torque [Nm]	承重 Load ^c [kN]	扭力 Torque [Nm]	承重 Load ^c [kN]
3.4x7.0	M 3	#5	0.8	1,5	1.2	2
4.4x7.6	M 4	#8	2.0	2,6	2.5	3,4
5.4x9.0	M 5	#10	3.7	4,1	5	5,5
6.5x10.8	M 6		6.5	5,9	7.5	7,8
8.7x13.5	M 8	5/16"	17	11	20	14
10.7x16.6	M 10		32	17	40	23
13.0x19.5	M 12		48	25	65	33
15.2x23.0	M 14	9/16"	92	34	120	45
17.0x25.4	M 16	5/8"	130	46	190	61
19.5x29.0	M 18		179	56	248	75
21.4x30.7	M 20		260	72	340	95
23.4x34.5	M 22	7/8"	355	89	475	118
25.3x39.0	M 24		465	103	610	137
28.4x42.0	M 27		665	134	890	179
31.4x47.0	M 30	1 1/8"	900	164	1150	219

Remarks 备注:

Test conditions according to ISO 16047, bearing surface hardness 200-250 Hv, roughness R_a 0.6 uncoated and degreased. 测试条件依照 ISO 16047, 表面硬度200-250HV, 粗糙度 R_a 0.6 未镀层和去油。

- ^a Screw class A4-70 DIN 931 / DIN 933 + Nut DIN 934 coarse pitch thread
- ^b Screw class A4-80 DIN 931 / DIN 933 + Nut DIN 934 coarse pitch thread
A4-70 和 A4-80 螺钉依照 A4-70 DIN 931 / DIN 933, 螺母依照 DIN 934, 粗螺距。
- ^c 65% of nominal yield point (stress at 0.2% non-proportional elongation $R_{p0.2}$) according to ISO 898-1
根据 ISO 898-1 标准, 65% 的正常屈服点 (应力 0.2% 的非比例延伸 $R_{p0.2}$)
- ^d Lubricated with molybdenum disulfide paste. 涂二硫化钼润滑剂