



Stainless Steel Guidelines for assembling

Pre-loads and tightening Torques

Friction coefficient	Nom size	Class	Assembly pre-load F in kN								Tightening Torque M in Nm							
			0.1	0.12	0.14	0.16	0.18	0.20	0.30	0.40	0.1	0.12	0.14	0.16	0.18	0.20	0.30	0.40
M4	50	1.38	1.33	1.27	1.22	1.17	1.12	0.90	0.74	0.8	0.9	1.0	1.1	1.2	1.3	1.5	1.6	
	70	2.97	2.85	2.73	2.62	2.50	2.40	1.94	1.60	1.7	2.0	2.2	2.3	2.5	2.6	3.0	3.3	
	80	3.97	3.80	3.64	3.49	3.34	3.20	2.59	2.13	2.3	2.6	2.9	3.1	3.3	3.5	4.1	4.4	
M5	50	2.26	2.18	2.09	2.00	1.92	1.83	1.49	1.22	1.6	1.8	2.0	2.1	2.2	2.4	2.8	3.2	
	70	4.85	4.66	4.47	4.29	4.11	3.93	3.19	2.62	3.4	3.8	4.2	4.6	4.9	5.1	6.1	6.6	
	80	6.47	6.22	5.96	5.72	5.48	5.24	4.25	3.5	4.6	5.1	5.6	6.1	6.5	6.9	8.0	8.8	
M6	50	3.20	3.07	2.94	2.82	2.70	2.59	2.09	1.73	2.8	3.1	3.5	3.7	4.0	4.1	4.8	5.3	
	70	6.85	6.57	6.31	6.05	5.79	5.54	4.49	3.70	5.9	6.7	7.4	7.9	8.4	8.8	10.4	11.3	
	80	9.13	8.77	8.41	8.06	7.72	7.39	5.98	4.93	8.0	9.1	9.9	10.5	11.2	11.8	13.9	15.0	
M8	50	5.86	5.63	5.40	5.18	4.96	4.75	3.85	3.17	6.8	7.6	8.4	9.0	9.6	10.1	11.9	12.9	
	70	12.6	12.1	11.6	11.1	10.6	10.2	8.25	6.80	14.5	16.3	17.8	19.3	20.4	21.5	25.5	27.6	
	80	16.7	16.1	15.4	14.8	14.2	13.6	11.0	9.1	19.3	21.7	23.8	25.7	27.3	28.7	33.9	36.8	
M10	50	9.32	8.96	8.60	8.27	7.91	7.58	6.14	5.05	13.7	15.4	16.7	18.1	19.3	20.3	24.0	26.2	
	70	20.0	19.2	18.4	17.7	16.9	16.2	13.1	10.8	30	33	36	39	41	44	51	56	
	80	26.6	25.6	24.6	23.6	22.6	21.7	17.5	14.4	39.4	44	47.8	51.6	55.3	58	69	75	
M12	50	13.6	13.1	12.6	12.0	11.6	11.1	9.00	7.38	23.3	26.0	28.9	30.8	32.8	34.8	41.0	44.6	
	70	29.1	28.1	26.9	25.8	24.8	23.7	19.2	15.8	50	56	62	66	70	74	88	96	
	80	38.8	37.4	35.9	34.4	33.0	31.6	25.6	21.1	67	74	82	88	94	100	117	128	
M14	50	18.7	17.9	17.3	16.5	15.8	15.2	12.3	10.1	37.1	41.7	45.6	49	52	56	66	71	
	70	40.6	38.5	37.0	35.4	34	32.6	26.4	21.7	79	89	98	105	112	119	141	152	
	80	53.3	51.3	49.3	47.3	45.3	43.3	35.2	29.0	106	119	131	140	150	159	188	204	
M16	50	25.7	24.7	23.8	22.8	21.9	20.9	17.0	14.0	56	63	70	75	71	86	102	110	
	70	55.0	52.9	50.9	48.9	46.8	44.9	36.4	30.0	121	136	150	162	173	183	218	237	
	80	73.3	70.6	67.9	65.2	62.4	59.8	48.6	40.0	161	181	198	217	231	245	291	316	
M18	50	32.2	31.0	29.8	28.5	27.3	26.2	21.2	17.5	81	91	100	108	115	122	144	156	
	70	69.0	66.4	63.8	61.2	58.6	56.2	45.5	37.5	174	196	213	232	246	260	308	334	
	80	92.0	88.5	85.0	81.6	78.1	74.9	60.7	50.1	232	261	282	310	329	346	411	447	
M20	50	41.3	39.8	38.3	36.7	35.2	33.8	27.4	22.6	114	128	142	153	164	173	205	223	
	70	88.6	85.4	82	78.7	75.4	72.4	58.7	48.1	244	274	303	328	351	370	439	479	
	80	118	114	109	105	101	96.5	78.3	64.6	325	366	404	438	467	494	586	639	
M22	50	51.6	49.8	47.9	46.0	44.1	42.3	34.3	28.3	154	174	191	208	222	234	279	303	
	70	61.5	59.3	57.0	54.7	52.5	50.3	40.9	33.7	182	206	227	247	263	279	332	361	
	80	148	142	137	131	126	121	98.2	80.9	437	494	545	593	613	670	797	866	
M24	50	59.6	57.4	55.1	52.9	50.7	48.6	39.4	32.6	197	222	243	264	282	298	354	385	
	70	70.9	68.3	65.6	63.0	60.4	57.9	47.0	38.8	234	264	290	314	336	355	421	458	
	80	170	170	157	151	145	139	113	93.1	561	634	696	754	806	852	1010	1099	
M27	50	75.6	72.9	70.1	67.3	64.5	61.9	50.2	41.5	275	311	344	377	399	421	503	548	
	70	90.0	86.8	83.4	80.1	76.9	73.7	59.8	49.4	328	371	410	444	475	502	599	652	
M30	50	91.9	88.6	85.2	81.7	78.4	75.2	61.0	50.3	374	423	467	506	540	571	680	740	
	70	104	105	101	97.3	93.3	89.5	72.6	59.9	445	503	556	602	643	680	809	881	
M33	50	114	110	106	102	98	94	76	63	506	573	634	688	763	779	929	1013	
M36	50	135	130	125	120	115	110	89	74	651	737	814	882	944	998	1189	1296	
M39	50	162	156	150	144	138	133	108	89	842	955	1057	1147	1228	1300	1553	1694	

These Values apply to austenitic stainless steel hexagon bolts and hexagon nuts.

The torques are theoretically calculated vales depending on the friction coefficient chosen and based on a preload, utilizing 90% of the minimum 0.2% proof stress during assembly.

This table shall only be used as a guide. No liability can result from its use.