

Thread: Tolerances

Table 4: Limit deviations $A_s - A_v$ (min. - max.) for external and internal threads (bolts/nuts) with coarse and fine pitch thread (RG/FG)
 (Extracts from ISO 965-2 /DIN 13 - 20, 21, 22, 27)

Thread Nom. Ø d/D	Pitch P		Pitch Ø Zero-line h/H	External thread (Bolts/Screws)						Internal thread (Nuts)							
	RG	FG		Toler- ance	Major Ø d		Pitch Ø d ₂		Minor Ø d ₃		Toler- ance	Major Ø D		Pitch Ø D ₂		Minor Ø D ₃	
					max.	min.	max.	min.	max.	min.		min.	max.	min.	max.	min.	
M 3	0.5		2.675	6g	2.980	2.874	2.655	2.580	2.367	2.273	6H	3.000	2.675	2.775	2.459	2.599	
				6e	2.950	2.844	2.625	2.550	2.337	2.243	6G	3.020	2.695	2.795	2.479	2.619	
M 4	0.7		3.545	6g	3.978	3.838	3.523	3.433	3.119	3.002	6H	4.000	3.545	3.663	3.242	3.422	
				6e	3.944	3.804	3.489	3.399	3.085	2.968	6G	4.022	3.567	3.685	3.264	3.444	
M 5	0.8		4.480	6g	4.976	4.826	4.456	4.361	3.995	3.869	6H	5.000	4.480	4.605	4.134	4.334	
				6e	4.940	4.790	4.420	4.325	3.959	3.833	6G	5.024	4.504	4.629	4.158	4.358	
M 6	1		5.350	6g	5.974	5.794	5.324	5.212	4.747	4.596	6H	6.000	5.350	5.500	4.917	5.153	
				6e	5.940	5.760	5.290	5.178	4.713	4.562	6G	6.026	5.376	5.526	4.943	5.179	
M 8	1.25		7.188	6g	7.972	7.760	7.160	7.042	6.438	6.272	6H	8.000	7.188	7.348	6.647	6.912	
				8e	7.937	7.602	7.125	6.935	6.403	6.165	6G	8.028	7.216	7.376	6.675	6.940	
				6g	7.974	7.794	7.324	7.212	6.747	6.596	6H	8.000	7.350	7.500	6.917	7.153	
M 10	1.5		9.026	6g	9.968	9.732	8.994	8.862	8.128	7.938	6H	10.000	9.026	9.206	8.376	8.676	
				8e	9.933	9.558	8.959	8.747	8.093	7.823	6G	10.032	9.058	9.238	8.408	8.708	
				6g	9.972	9.760	9.160	9.042	8.438	8.272	6H	10.000	9.188	9.348	8.647	8.912	
M 12	1.75		10.863	6g	11.966	11.701	10.829	10.679	9.819	9.602	6H	12.000	10.863	11.063	10.106	10.441	
				8e	11.929	11.504	10.792	10.556	9.782	9.479	6G	12.034	10.897	11.097	10.140	10.475	
				6g	11.968	11.732	10.994	10.854	10.128	9.930	6H	12.000	11.026	11.216	10.376	10.676	
M 14	2		12.701	6g	13.962	13.682	12.663	12.503	11.508	11.271	6H	14.000	12.701	12.913	11.835	12.210	
				8e	13.929	13.479	12.630	12.380	11.475	11.148	6G	14.038	12.739	12.951	11.873	12.248	
				6g	13.968	13.732	12.994	12.854	12.128	11.930	6H	14.000	13.026	13.216	12.376	12.676	
M 16	2		14.701	6g	15.962	15.682	14.663	14.503	13.508	13.271	6H	16.000	14.701	14.913	13.835	14.210	
				8e	15.929	15.479	14.430	14.380	13.475	13.148	6G	16.038	14.739	14.951	13.873	14.248	
				6g	15.968	15.732	14.994	14.854	14.128	13.930	6H	16.000	15.026	15.216	14.376	14.676	
M 18	2.5		16.376	6g	17.958	17.623	16.334	16.164	14.891	14.625	6H	18.000	16.376	16.600	15.294	15.744	
				8e	17.920	17.390	16.296	16.031	14.853	14.492	6G	18.042	16.418	16.642	15.336	15.786	
				6g	17.962	17.682	16.663	16.503	15.508	15.271	6H	18.000	16.701	16.913	15.835	16.210	
M 20	2.5		18.376	6g	19.958	19.623	18.334	18.164	16.891	16.625	6H	20.000	18.376	18.600	17.294	17.744	
				8e	19.920	19.390	18.296	18.031	16.853	16.492	6G	20.042	18.418	18.642	17.336	17.786	
				6g	19.962	19.682	18.663	18.503	17.508	17.271	6H	20.000	18.701	18.913	17.835	18.210	
M 22	2.		20.376	6g	21.958	21.623	20.334	20.164	18.891	18.625	6H	22.000	20.376	20.600	19.294	19.744	
				8e	21.920	21.390	20.296	20.031	18.853	18.492	6G	22.042	20.418	20.642	19.336	19.786	
				6g	21.962	21.682	20.663	20.503	19.508	19.271	6H	22.000	20.701	20.913	19.835	20.210	
M 24	3		22.051	6g	23.952	23.577	22.003	21.803	20.271	19.955	6H	24.000	22.051	22.316	20.752	21.252	
				8e	23.915	23.315	21.966	21.651	20.234	19.803	6G	24.048	22.099	22.364	20.800	21.300	
				6g	23.962	23.682	22.663	22.493	21.508	21.261	6H	24.000	22.701	22.925	21.835	22.210	
M 27	3		25.051	6g	26.952	26.577	25.003	24.803	23.271	22.955	6H	27.000	25.051	25.316	23.752	24.252	
				8e	26.915	26.315	24.966	24.651	23.234	22.803	6G	27.048	25.099	25.364	23.800	24.300	
				6g	26.962	26.682	25.663	25.493	24.508	24.261	6H	27.000	25.701	25.925	24.835	25.210	
M 30	3.5		27.727	6g	29.947	29.522	27.674	27.462	25.653	25.306	6H	30.000	27.727	28.007	26.211	26.771	
				8e	29.910	29.240	27.637	27.302	25.616	25.146	6G	30.053	27.780	28.060	26.264	26.824	
				6g	29.952	29.577	28.003	27.803	26.271	25.955	6H	30.000	28.051	28.316	26.752	27.252	
M 33	3.5		30.727	6g	32.947	32.522	30.674	30.462	28.653	28.306	6H	33.000	30.727	31.007	29.211	29.771	
				8e	32.910	32.240	30.637	30.302	28.616	28.146	6G	33.053	30.780	31.060	29.264	29.824	
				6g	32.962	32.682	31.663	31.493	30.508	30.261	6H	33.000	31.701	31.925	30.835	31.210	
M 36	4		33.402	6g	35.940	35.465	33.342	33.118	31.033	30.655	6H	36.000	33.402	33.702	31.670	32.270	
				8e	35.905	35.155	33.307	32.952	30.998	30.489	6G	36.060	33.462	33.762	31.730	32.330	
				6g	35.952	35.577	34.003	33.803	32.271	31.955	6H	36.000	34.051	34.316	32.752	33.252	

Table 5: Dimensions in millimeters for
 - UNC/UNF/BSW/BSF threads
 - Ww pipe threads

UNC UNF BSW BSF	Thread	No.	0	1	2	3	4	5	6	8	10	12	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8	1			
	Nom. Ø	Inch	d/D	1.524	1.854	2.184	2.515	2.845	3.175	3.505	4.166	4.826	5.486	6.35	7.94	9.53	11.1	12.70	14.29	15.88	19.05	22.23	25.40		
Ww- Pipe Thread G/R/R _p	Thread	Inch	1/16	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	G = cylindrical external/internal thread R = taper external thread R _p = cylindrical internal thread a = distance of the reference level/measuring level from the start of thread in mm										
	Major Ø	d/D	7.72	9.73	13.16	16.66	20.96	26.44	33.25	41.91	47.80	59.61	75.18	87.88											
	Distance measuring level a		4.0	4.0	6.0	6.4	8.2	9.5	10.4	12.7	12.7	15.9	17.5	20.6											