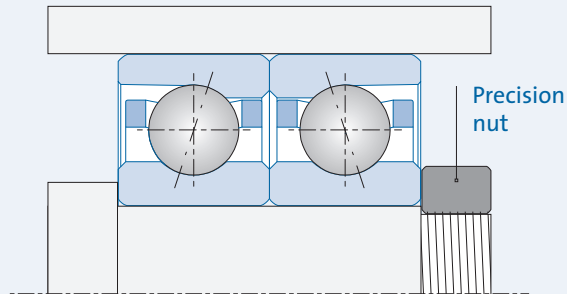


Tightening torque for precision nuts



The use of «precision nuts» for clamping bearings (sets) promotes optimal utilization of the performance capacity inherent to GMN high precision ball bearings.

Guidelines:

Careful installation with precision nuts prevents contact corrosion caused by micro movements.

- Grind the plane sides of the nut at a right angle to the nut's thread and the shaft to prevent bearing tilt or bending of the shaft (max. 2 μm wobble tolerance)
- Lock the precision nut on the shaft (against loosening)
- Intermediate spacers / sleeves must be made plane parallel (max. 2 μm)

Sufficient axial clamping force fixes the bearing securely into its specified position and ensures necessary bearing preload, precision and rigidity.

Installation:

- Oil the thread lightly
- Tighten precision nut to 2 to 3 times their REFERENCE torque, loosen them again then tighten them down to their REFERENCE torque (compensation for temperature-induced dimension changes of rings and settling)
- The required pressure bonding of multiple bearings (axially) and necessary defeat of bearing friction resistance by the bearing's press fit on the shaft (radially) is assured by the 2 to 3 times initial tightening torque.

Tightening torque for precision nuts

Clamping forces / Tightening torques (guidelines)*

Bore diameter [mm]	Bore code number	Clamping force [kN]				Tightening torque [Nm]				
		Series				Series				
		618..	619..	60..	62..	618..	619..	60..	62..	
5	5	-	0.6	0.7	0.8	-	0.4	0.5	0.6	M 5x0.5
6	6	-	0.8	0.8	1.4	-	0.7	0.7	1.3	M 6x0.5
7	7	-	0.9	1.1	1.6	-	0.8	1.2	1.6	M 7x0.5
8	8	-	0.9	1.3	-	-	1.0	1.5	-	M 8x0.75
9	9	-	1.0	1.4	1.9	-	1.3	1.9	2.6	M 9x0.75
10	00	1.0	1.1	1.6	2.1	1.4	1.6	2.3	3.1	M 10x0.75
12	01	1.1	1.2	1.6	2.3	1.7	2.0	2.7	4.1	M 12x1
15	02	1.3	1.5	2.0	2.4	2.6	3.0	4.2	5.0	M 15x1
17	03	1.4	1.8	2.4	3.0	3.2	3.9	5.5	7.0	M 17x1
20	04	2.2	2.4	3.1	4.2	5.6	6.4	8.3	15	M 20x1
25	05	2.5	3.1	3.8	4.7	8.2	15	15	20	M 25x1.5
30	06	3.0	3.1	4.5	6.0	15	15	20	25	M 30x1.5
35	07	3.1	4.1	5.0	8.0	15	20	25	40	M 35x1.5
40	08	3.4	4.6	6.5	9.0	20	25	35	50	M 40x1.5
45	09	-	5.5	7.5	9.5	-	30	45	60	M 45x1.5
50	10	-	4.7	8.0	10.0	-	30	50	65	M 50x1.5
55	11	-	6.0	10.0	12.0	-	45	75	90	M 55x2
60	12	-	6.0	11.0	16.0	-	45	85	120	M 60x2
65	13	-	6.0	11.0	19.0	-	50	95	160	M 65x2
70	14	-	9.0	13.0	-	-	80	120	-	M 70x2
75	15	-	9.5	13.0	-	-	90	130	-	M 75x2
80	16	-	9.5	16.0	-	-	95	170	-	M 80x2
85	17	-	13.0	17.0	-	-	140	180	-	M 85x2
90	18	-	13.0	19.0	-	-	150	220	-	M 90x2
95	19	-	13.0	20.0	-	-	160	240	-	M 95x2
100	20	-	16.0	20.0	-	-	210	260	-	M 100x2
105	21	-	17.0	22.0	-	-	220	300	-	M 105x2
110	22	-	17.0	26.0	-	-	230	360	-	M 110x2
120	24	-	21.0	27.0	-	-	310	410	-	M 120x2

* Clamping force values and tightening torques are guidelines based on experience and may deviate according to application.