Self-locking precision nuts

Description

The self-locking precision nuts are assembly accessories that must be used in cases such as the following:

- When a preloading of the bearings package is required to guarantee the maintenance of the preloading time-value.
- When a high precision bearing assembly is being used, since this requires the use of accessories which will maintain the precision level of the equipment as a whole.
- When the setting of the position of the bearings package must be reliable and long-lasting, even when it is not preloaded (especially if the presence of significant axial efforts is foreseen during the operation of the equipment).

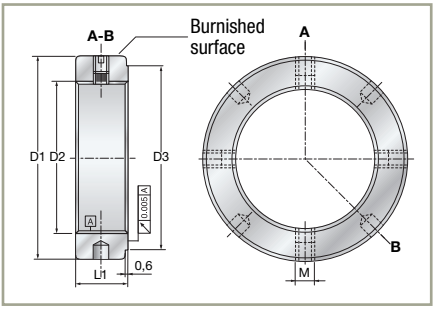
Overall, this type of nuts are used with ball bearings of angular contact (wether high precision or not), with cone bearings or with combined needle bearings.

Due to the high operating precision of these accessories due to an operation carried out on the equipment, at least whenever the nut has to be dismantled.

The self-locking precision nuts assure their position by means of two or four locking elements. These elements are grafts of softer material than steel, that are mechanized during the same operation as that of the interior thread of the nut and are then fitted into the thread of the axle. Nevertheless, this does not modify the perpendicularity of the lateral face of the nut in relation to the axle of the nut. The grafts are fixed to head screws with an inside hexagon, centered on these elements.

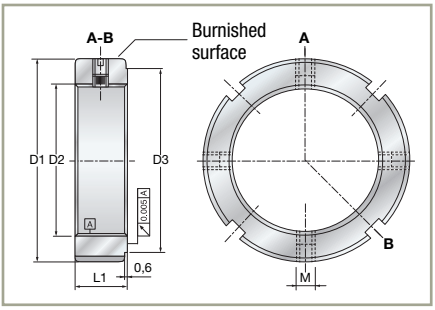
Series

Series with blind holes



Castellated series

The SNR range of precision self-locking nuts offers a complementary series whose difference lies in the tightening system. Tightening/locking is obtained by castellated design, instead of blind holes. The part numbers for these products are shown in the tables below.



Variants

Castellated series	Series with blind holes	Section	Number of inserts	Thread diameter	Material	Strength	Application
B	TB	Narrow	2	20 to 100 mm	High strength burnished steel	1 000 N/mm²	Normal use
BR	TBR		4				Mean loads, maximum flatness requirement
BP	TBP	Wide	2				High loads
BPR	TBPR		4				Very high loads, maximum flatness requirement

Tolerances

The thread and the flat side of the nut which leans against the bearing are machined in the same fixation, which enables it to reach a high perpendicularity precision of: 0,005 millimeter tolerance.

The thread is in accordance with the rules ISO R/724 with a 5H tolerance and in accordance with ISO 965/1.

Design criteria

The unlocking momentum Md, which is shown on the dimension tables for each type and size of nut is the power needed to apply to loosen this self-locking nut when it has been assembled previously by means of a tightening momentum Ma, and fixed via the tightening of the locking elements against the axle with a maximum tightening power of these elements Mbl, as shown in the tables.

The breaking axial load Far, also shown in the dimension tables, is the axial load which if applied to the nut will produce the breakage of the thread when it is assembled on an axle with a nut tolerance of 60. While operating, the maximum axial load which a nut can bear must be 75% of the breaking axial load Far, defined for such a nut.

Installation/assembly criteria

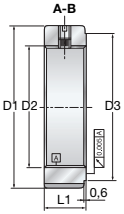
Since we are dealing with a high precision element, the nuts must be unwrapped until they are going to be used in order to avoid possible mechanical damage or dirt in the thread or on the push side.

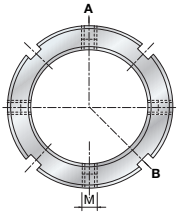
They must lean on the covered side of the polished surface.

Once the thread is tightened with a spenner wrench (DIN 1810A and DIN 1810B), the fixation screws of the locking elements are tightened by use of an Allen wrench (for series containing four grafts, tightening these progressively crosswise).

SNR features a wide range of wrenches especially designed for your requirements.

Self-locking precision nuts *(continued)*



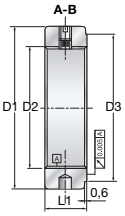


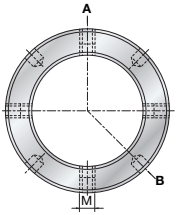
■ Castellated, narrow series

D2		L1	D1	D3	M	Mbl	Far	Ma	Md	
Thread	Reference	mm	mm	mm	mm	N.m	kN	N.m	N.m	kg
M8x0.75	B 8/0.75	8	16	11	M4	1	27	4	26	0.01
M12x1	B 12/1	8	22	18	M4	1	47	8	31	0.015
M15x1	B 15/1	8	25	21	M4	1	65	10	32	0.02
M17x1	B 17/1	10	28	24	M5	3	100	15	32	0.03
M20x1	B 20/1	10	32	28	M5	5	140	18	39	0.04
M20x1.5	B 20/1.5	10	32	28	M5	5	126	18	39	0.04
M 25x1.5	B 25	12	38	33	M5	5	198	25	56	0.06
M 30x1.5	B 30	12	45	40	M5	5	240	32	63	0.08
M 35x1.5	B 35	12	52	47	M5	5	263	40	72	0.11
M 40x1.5	B 40	14	58	52	M6	10	290	55	97	0.15
M 45x1.5	B 45	14	65	59	M6	10	322	65	115	0.18
M 50x1.5	B 50	14	70	64	M6	10	351	85	132	0.20
M 55x2	B 55	16	75	68	M8	18	378	95	148	0.25
M 60x2	B 60	16	80	73	M8	18	405	100	186	0.27
M 65x2	B 65	16	85	78	M8	18	431	120	196	0.28
M 70x2	B 70	18	92	85	M8	18	468	130	228	0.38
M 75x2	B 75	18	98	90	M8	18	497	150	255	0.42
M 80x2	B 80	18	105	95	M8	18	527	160	291	0.49
M 85x2	B 85	18	110	100	M8	18	558	190	315	0.52
M 90x2	B 90	20	120	110	M8	18	603	200	369	0.75
M 95x2	B 95	20	125	115	M8	18	637	220	391	0.78
M 100x2	B 100	20	130	120	M8	18	688	250	432	0.82
M 25x1.5	BR 25	12	38	33	M5	4	198	25	85	0.06
M 30x1.5	BR 30	12	45	40	M5	4	240	32	96	0.08
M 35x1.5	BR 35	12	52	47	M5	4	263	40	107	0.11
M 40x1.5	BR 40	14	58	52	M6	8	290	55	127	0.15
M 45x1.5	BR 45	14	65	59	M6	8	322	65	149	0.18
M 50x1.5	BR 50	14	70	64	M6	8	351	85	180	0.20
M 55x2	BR 55	16	75	68	M8	14	378	95	206	0.25
M 60x2	BR 60	16	80	73	M8	14	405	100	255	0.27
M 65x2	BR 65	16	85	78	M8	14	431	120	277	0.28
M 70x2	BR 70	18	92	85	M8	14	468	130	304	0.38
M 75x2	BR 75	18	98	90	M8	14	497	150	357	0.42
M 80x2	BR 80	18	105	95	M8	14	527	160	396	0.49
M 85x2	BR 85	18	110	100	M8	14	558	190	444	0.52
M 90x2	BR 90	20	120	110	M8	14	603	200	501	0.75
M 95x2	BR 95	20	125	115	M8	14	637	220	550	0.78
M 100x2	BR 100	20	130	120	M8	14	688	250	603	0.82

Far: Ultimate axial load / **Ma**: Tightening torque / **Md**: Brake-away torque corresponding to indicated Ma
Mbl: Max. tightening torque recommended for attachment bolts / **D1**: Outer diameter / **D3**: Bearing face diameter / **L1**: Width

Blind holes, narrow serie





D2		L1	D1	D3	M	Mbl	Far	Ma	Md	
Thread	Reference	mm	mm	mm	mm	N.m	kN	N.m	N.m	kg
M20x1	TB 20/1	10	32	28	M5	5	140	18	39	0.04
M20x1.5	TB 20/1.5	10	32	28	M5	5	126	18	39	0.04
M 25x1.5	TB 25	12	38	33	M5	5	198	25	56	0.06
M 30x1.5	TB 30	12	45	40	M5	5	240	32	63	0.08
M 35x1.5	TB 35	12	52	47	M5	5	263	40	72	0.11
M 40x1.5	TB 40	14	58	52	M6	10	290	55	97	0.15
M 45x1.5	TB 45	14	65	59	M6	10	322	65	115	0.18
M 50x1.5	TB 50	14	70	64	M6	10	351	85	132	0.20
M 55x2	TB 55	16	75	68	M8	18	378	95	148	0.25
M 60x2	TB 60	16	80	73	M8	18	405	100	186	0.27
M 65x2	TB 65	16	85	78	M8	18	431	120	196	0.28
M 70x2	TB 70	18	92	85	M8	18	468	130	228	0.38
M 75x2	TB 75	18	98	90	M8	18	497	150	255	0.42
M 80x2	TB 80	18	105	95	M8	18	527	160	291	0.49
M 85x2	TB 85	18	110	100	M8	18	558	190	315	0.52
M 90x2	TB 90	20	120	110	M8	18	603	200	369	0.75
M 95x2	TB 95	20	125	115	M8	18	637	220	391	0.78
M 100x2	TB 100	20	130	120	M8	18	688	250	432	0.82
M 25x1.5	TBR 25	12	38	33	M5	4	198	25	85	0.06
M 30x1.5	TBR 30	12	45	40	M5	4	240	32	96	0.08
M 35x1.5	TBR 35	12	52	47	M5	4	263	40	107	0.11
M 40x1.5	TBR 40	14	58	52	M6	8	290	55	127	0.15
M 45x1.5	TBR 45	14	65	59	M6	8	322	65	149	0.18
M 50x1.5	TBR 50	14	70	64	M6	8	351	85	180	0.20
M 55x2	TBR 55	16	75	68	M8	14	378	95	206	0.25
M 60x2	TBR 60	16	80	73	M8	14	405	100	255	0.27
M 65x2	TBR 65	16	85	78	M8	14	431	120	277	0.28
M 70x2	TBR 70	18	92	85	M8	14	468	130	304	0.38
M 75x2	TBR 75	18	98	90	M8	14	497	150	357	0.42
M 80x2	TBR 80	18	105	95	M8	14	527	160	396	0.49
M 85x2	TBR 85	18	110	100	M8	14	558	190	444	0.52
M 90x2	TBR 90	20	120	110	M8	14	603	200	501	0.75
M 95x2	TBR 95	20	125	115	M8	14	637	220	550	0.78
M 100x2	TBR 100	20	130	120	M8	14	688	250	603	0.82

Far: Ultimate axial load / **Ma**: Tightening torque / **Md**: Brake-away torque corresponding to indicated Ma
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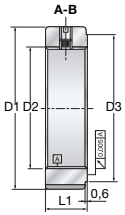
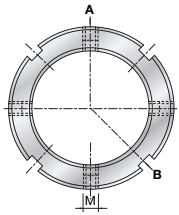
Self-locking precision nuts *(continued)*





■ Castellated, wide series

D2		L1	D1	D3	M	Mbl	Far	Ma	Md	
Thread	Reference	mm	mm	mm	mm	N.m	kN	N.m	N.m	kg
M20x1	BP20/1	20	38	28	M5	5	255	18	39	0.12
M20x1.5	BP 20/1.5	20	38	28	M5	5	225	18	39	0.12
M25x1.5	BP 25	20	45	33	M6	10	405	25	56	0.17
M 30x1.5	BP 30	22	52	40	M6	10	491	32	63	0.24
M 35x1.5	BP 35	22	58	47	M6	10	560	40	72	0.28
M 40x1.5	BP 40	22	62	52	M8	18	585	55	97	0.29
M 45x1.5	BP 45	24	68	59	M8	18	641	65	115	0.37
M 50x1.5	BP 50	25	75	64	M8	18	706	85	132	0.46
M 55x2	BP 55	32	88	68	M8	18	940	95	148	0.92
M 60x2	BP 60	32	98	73	M8	18	1 070	100	186	1.14
M 65x2	BP 65	32	105	78	M8	18	1 155	120	196	1.29
M 70x2	BP 70	35	110	85	M8	18	1 230	130	228	1.49
M 75x2	BP 75	38	125	90	M10	32	1 300	150	255	2.25
M 80x2	BP 80	38	140	95	M10	32	1 420	160	291	2.97
M 85x2	BP 85	38	150	100	M10	32	1 510	190	315	3.44
M 90x2	BP 90	38	155	110	M10	32	1 596	200	369	3.59
M 95x2	BP 95	38	160	115	M10	32	1 656	220	391	3.73
M 100x2	BP 100	40	160	120	M10	32	1 780	250	432	3.70
M20x1	BPR 20/1	20	38	28	M5	4	255	18	56	0.12
M20x1.5	BPR 20/1.5	20	38	28	M5	4	225	18	56	0.12
M 25x1.5	BPR 25	20	45	33	M6	8	405	25	85	0.17
M 30x1.5	BPR 30	22	52	40	M6	8	491	32	96	0.24
M 35x1.5	BPR 35	22	58	47	M6	8	560	40	107	0.28
M 40x1.5	BPR 40	22	62	52	M8	14	585	55	127	0.29
M 45x1.5	BPR 45	24	68	59	M8	14	641	65	149	0.37
M 50x1.5	BPR 50	25	75	64	M8	14	706	85	180	0.46
M 55x2	BPR 55	32	88	68	M8	14	940	95	206	0.92
M 60x2	BPR 60	32	98	73	M8	14	1 070	100	255	1.14
M 65x2	BPR 65	32	105	78	M8	14	1 155	120	277	1.29
M 70x2	BPR 70	35	110	85	M8	14	1 230	130	304	1.49
M 75x2	BPR 75	38	125	90	M10	26	1 300	150	357	2.25
M 80x2	BPR 80	38	140	95	M10	26	1 420	160	396	2.97
M 85x2	BPR 85	38	150	100	M10	26	1 510	190	444	3.44
M 90x2	BPR 90	38	155	110	M10	26	1 596	200	501	3.59
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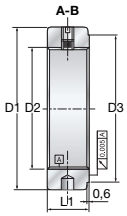
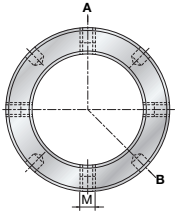
Far: Ultimate axial load / **Ma**: Tightening torque / **Md**: Brake-away torque corresponding to indicated Ma
Mbl: Max. tightening torque recommended for attachment bolts / **D1**: Outer diameter / **D3**: Bearing face diameter / **L1**: Width

Blind holes, wide series





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M20x1.5	TBP 20/1.5	20	38	28	M5	5	225	18	39	0.12
M 25x1.5	TBP 25	20	45	33	M6	10	405	25	56	0.17
M 30x1.5	TBP 30	22	52	40	M6	10	491	32	63	0.24
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M 70x2	TBP 70	35	110	85	M8	18	1 230	130	228	1.49
M 75x2	TBP 75	38	125	90	M10	32	1 300	150	255	2.25
M 80x2	TBP 80	38	140	95	M10	32	1 420	160	291	2.97
M 85x2	TBP 85	38	150	100	M10	32	1 510	190	315	3.44
M 90x2	TBP 90	38	155	110	M10	32	1 596	200	369	3.59
M 95x2	TBP 95	38	160	115	M10	32	1 656	220	391	3.73
M 100x2	TBP 100	40	160	120	M10	32	1 780	250	432	3.70
M20x1	TBPR 20/1	20	38	28	M5	4	255	18	56	0.12
M20x1.5	TBPR 20/1.5	20	38	28	M5	4	225	18	56	0.12
M 25x1.5	TBPR 25	20	45	33	M6	8	405	25	85	0.17
M 30x1.5	TBPR 30	22	52	40	M6	8	491	32	96	0.24
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M 75x2	TBPR 75	38	125	90	M10	26	1 300	150	357	2.25
M 80x2	TBPR 80	38	140	95	M10	26	1 420	160	396	2.97
M 85x2	TBPR 85	38	150	100	M10	26	1 510	190	444	3.44
M 90x2	TBPR 90	38	155	110	M10	26	1 596	200	501	3.59
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