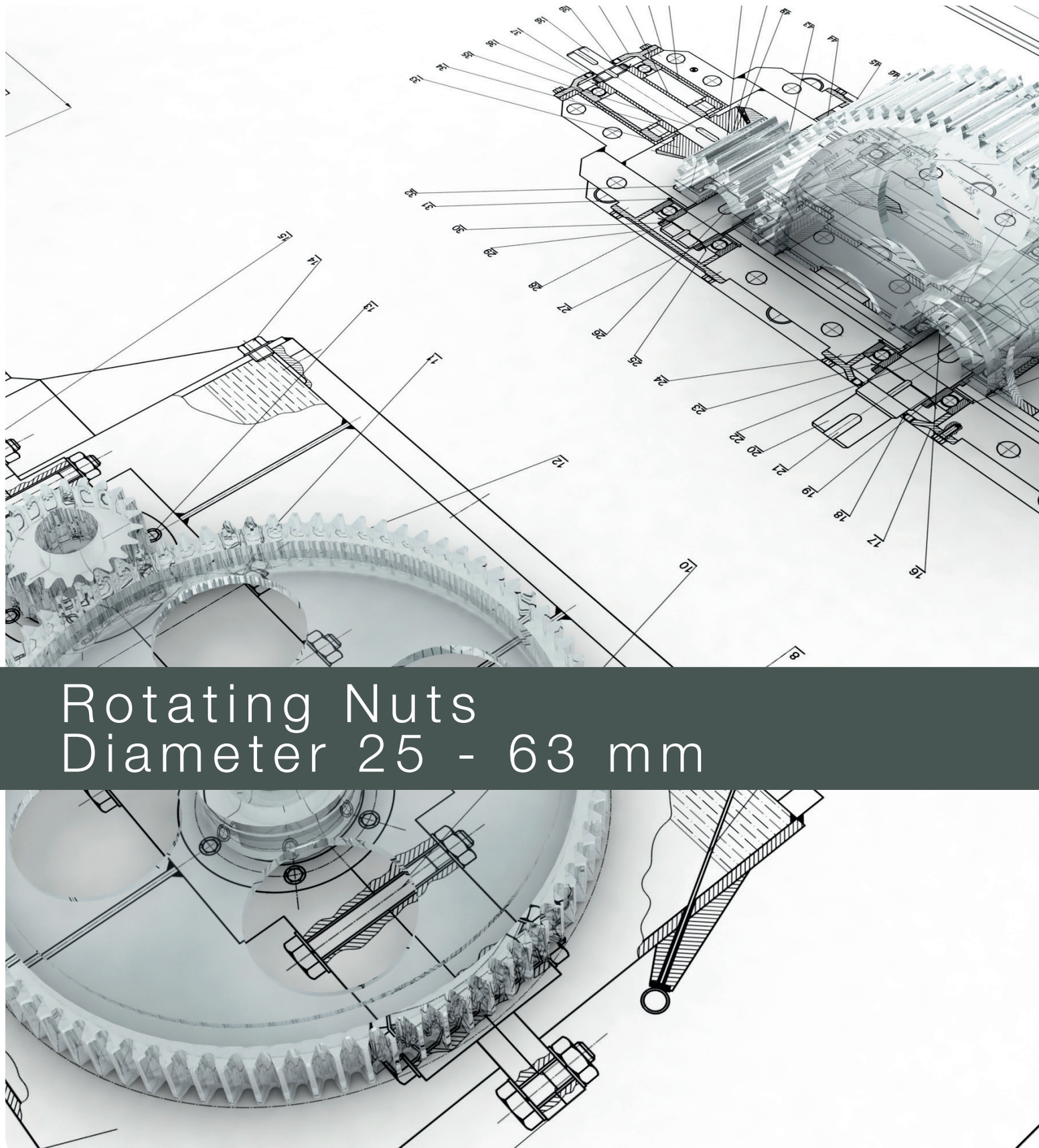


Rotating Nuts
Diameter 25 - 63 mm

ROTATING NUTS

This section describes ball nuts that mate directly with angular ball bearings. The nut body includes a metric thread for a locknut to secure the bearing. The nut flange is ground on both sides and has threaded bolt holes so a pulley can be installed opposite the bearing.
The standard rotating nut has 4-point contact preload. Special executions with 2-point contact, or as ETA+, are also possible. Please inquire.

Steinmeyer ball nuts are ideal for rotating nut designs because they are inherently mass balanced due to the symmetrical orientation of the ball deflectors. Driven (rotating) nuts and stationary shafts offer a number of advantages over conventional layouts (and some disadvantages):

- Resonance of the shaft is not as critical. Higher speeds may be reached when the shaft is not rotating.
- Pre-tensioning of the shaft is simplified, since the necessary forces do not need to be transmitted through bearings. Heating is reduced significantly.
- Stationary shafts allow easy internal cooling of the screw.
- Axial and torsional stiffness is higher, when axial loads and moments can be transmitted into the surrounding structure at both ends of the shaft rather than just one. Particularly long shafts with high lead/diameter ratio exhibit a clear increase in total rigidity compared to conventional layouts with rotating shafts.
- Lubrication of the nut is complicated since rotating unions are necessary to feed lubricant directly into the nut, and centrifugal forces push all lubricant away from the balls and ball tracks.
- Thrust bearings to be installed on the nut are relatively large in diameter and may restrict speeds.
- Direct drive requires a hollow shaft motor, which may be critical due to heat emission of the motor.

TECHNICAL TIP

Rotating unions, used to feed oil into a rotating nut, can be quite troublesome because their leak rate can (with time) be higher than the actual oil flow. This means the oil can be thrown out of the nut before it reaches the balls, resulting in complete lubrication breakdown.

A simple and effective alternate solution is to drill a hole through the center of the shaft from one end and cross-drill another hole at a position where the nut passes over regularly - for example a tool change position or similar. The lube pump, which needs to be connected to the NC control, will then shoot a small quantity of oil into the nut when it is positioned over this cross hole. With proper lubricant and wiper selection, this technique should be sufficient until the nut returns to this position again.

This feature can even be combined, if necessary, with a coolant channel through the shaft.

NOMINAL DIAMETER 25 - 63 mm ROTATING NUT

Single nut, 4-point contact
Execution grade P0 - P5

■ **Series 1414:**
Flange single nut,
ball oversize preload

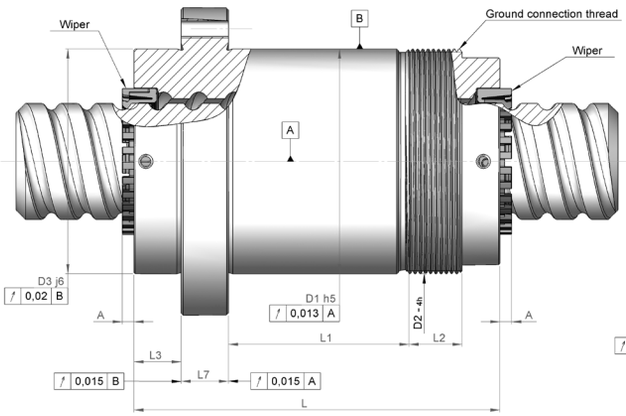
■ **Series 2424:**
End cap nut with flange, dual start,
ball oversize preload

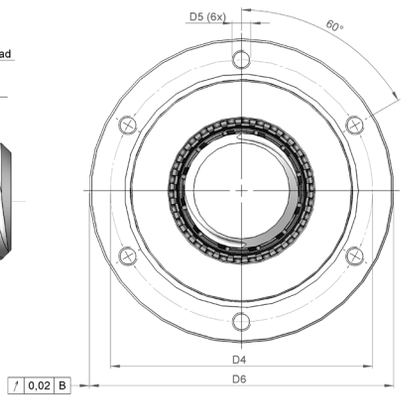
■ **Series 3424:**
UltraSpeed nut with flange, dual start,
ball oversize preload

	Technical data							
	Nut type	Lead P [mm]	Nominal diameter d_N [mm]	No. of circuits i	Ball diameter d_W [mm]	dyn. load rating C_a [kN]	stat. load rating C_{0a} [kN]	Stiffness $R_{nu, ar}$ [N/µm]
1414	5.25.3.5.5	5	25	1 x 5	3.5	21.2	35.9	430
	10.25.3.5.3	15	25	1 x 3	3.5	13.6	21.4	220
	20.25.3.5.4	20	25	1 x 4	3.5	17.1	29.5	230
2424	20.25.3.5.4	20	25	2 + 2	3.5	17.1	29.5	230
1414	5.32.3.5.6	5	32	1 x 6	3.5	29.0	59.0	680
	10.32.6.5	10	32	1 x 5	6	47.8	76.0	490
	15.32.6.3	15	32	1 x 3	6	30.5	45.3	250
3424	20.32.6.6	20	32	3 + 3	6	57.9	100.0	530
1414	10.40.7.5.6	10	40	1 x 6	7.5	83.7	142.7	770
	15.40.7.5.4	15	40	1 x 4	7.5	58.7	94.8	460
	20.40.7.5.3	20	40	1 x 3	7.5	45.5	70.7	300
3424	20.40.6.8	20	40	4 + 4	6	84.7	172.2	960
	25.40.6.6	25	40	3 + 3	6	64.3	125.4	630
1414	10.50.7.5.6	10	50	1 x 6	7.5	95.6	186.5	990
	15.50.9.4	15	50	1 x 4	9	98.8	173.9	690
	20.50.9.3	20	50	1 x 3	9	76.8	130.0	470
3424	25.50.7.5.8	25	50	4 + 4	7.5	126.6	269.1	1180
	30.50.7.5.6	30	50	3 + 3	7.5	96.3	196.3	800
	40.50.7.5.6	40	50	3 + 3	7.5	94.6	193.6	640
3424	25.60.9.8	25	60	4 + 4	9	214.5	492.9	1790
	30.60.9.8	30	60	4 + 4	9	213.5	491.0	1650
	40.60.9.6	40	60	3 + 3	9	161.5	356.7	1040
1414	10.63.7.5.6	10	63	1 x 6	7.5	107.4	241.3	1230
	15.63.9.4	15	63	1 x 4	9	116.7	239.9	940
	20.63.11.3	20	63	1 x 3	11	115.3	209.4	660

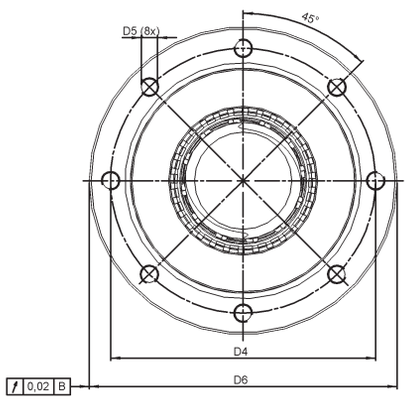
LA *: Additional nut length at each end when using combination wipers
Actual stiffness at preload equal to 0.08 x C_a

Rotating Nut





Nominal diameter
25 - 32mm



Nominal diameter
40 - 63mm

Dimensions

Flanged nut with wipers both ends

	D1 [mm]	L1 [mm]	D2 [mm]	L2 [mm]	D3 [mm]	L3 [mm]	D6 [mm]	L7 [mm]	L [mm]	D4 [mm]	D5 [mm]	LA * [mm]	A [mm]
1414	40	34	M40x1.5	20	40	7	62	10	72	51	M6	9	0
	40	34	M40x1.5	20	40	7	62	10	82	51	M6	12	0
	40	34	M40x1.5	20	40	7	62	10	82	51	M6	-	0
2424	40	34	M40x1.5	20	40	7	62	10	82	51	M6	-	0
1414	50	34	M50x1.5	20	50	7	80	12	74	65	M6	9	0
	50	34	M50x1.5	20	50	7	80	12	104	65	M6	12	0
	50	34	M50x1.5	20	50	7	80	12	99	65	M6	12	0
3424	60	45	M60x2	20	60	7	86	14	88	71	M6	12	0
1414	70	45	M70x2	23	65	7	93	14	119	78	M6	12	0
	70	45	M70x2	23	65	7	93	14	117	78	M6	12	0
	70	45	M70x2	23	65	7	93	14	117	78	M6	12	0
3424	70	45	M70x2	23	65	7	93	14	109	78	M6	12	0
	70	45	M70x2	23	65	7	93	14	107	78	M6	22	10
1414	80	45	M80x2	23	75	7	110	16	120	93	M8	12	0
	80	45	M80x2	23	75	7	110	16	125	93	M8	12	0
	80	45	M80x2	23	75	7	110	16	128	93	M8	12	0
3424	90	55	M90x2	25	85	7	125	18	130	108	M10	22	10
	90	55	M90x2	25	85	7	125	18	120	108	M10	22	10
	90	55	M90x2	25	85	7	125	18	149	108	M10	22	10
3424	100	55	M100x2	25	95	7	135	20	131	115	M10	22	10
	100	55	M100x2	25	95	7	135	20	151	115	M10	22	10
	100	55	M100x2	25	95	7	135	20	150	115	M10	22	10
1414	90	55	M90x2	25	85	7	125	18	120	115	M10	12	0
	100	55	M100x2	25	95	7	135	20	131	115	M10	12	0
	100	55	M100x2	25	95	7	135	20	132	115	M10	12	0