

# Ballscrews

## Ground ballscrews

### 6. Ground ballscrews

#### 6.1 Properties

Of the various production methods used for ballscrews, ground ballscrews offer the greatest accuracy. Ballscrews with a lead accuracy of up to 3,5 µm/300 mm thread length can be produced by grinding after hardening. They are used mainly in machine tools, grinding machines and measuring machines.

Ground ballscrews are always customized, enabling the customer's requirements relating to nut shape, load ratings, preload method, wiper type and end machining to be met. Contact our team for more details.

Below you will find typical standardized nut shapes, nominal diameters and leads. This is just part of our range. We can provide other nut dimensions on request.

#### 6.2 Tolerance classes

Table 6.1 Tolerance classes of ground ballscrews

Path deviation	Tolerance class					
	T0	T1	T2	T3	T4	T5
$e_{2p}$	0,003	0,004	0,006	0,008	0,008	0,008
$e_{300}$	0,0035	0,006	0,008	0,012	0,018	0,023

Unit: mm

Table 6.2 Overview of available ground ballscrews available

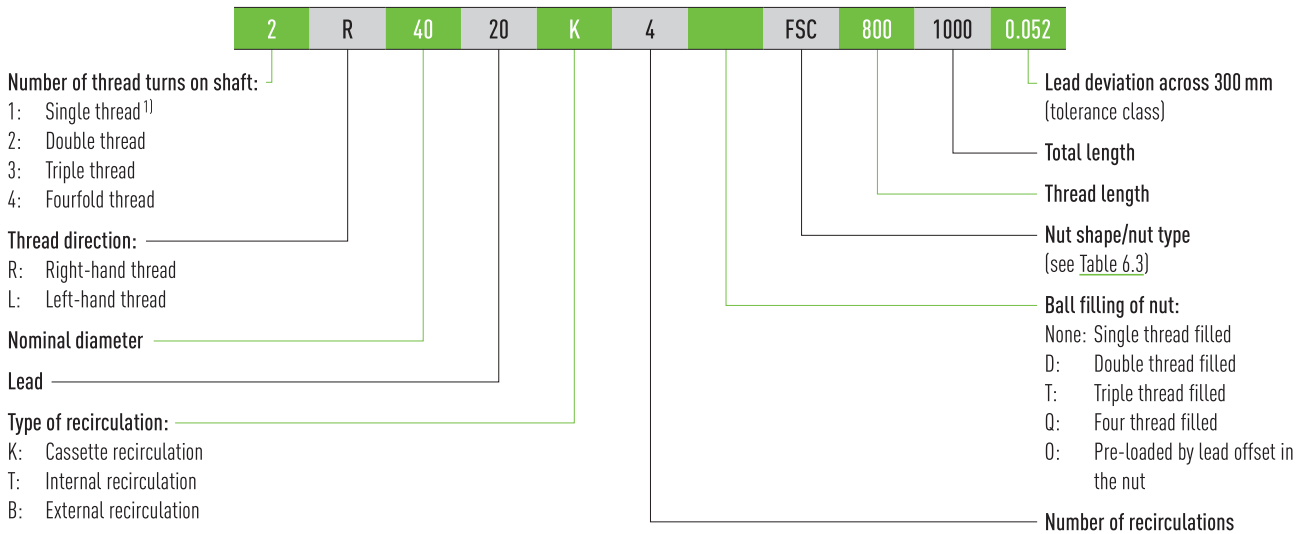
Outer diameter	6	8	10	12	16	20	25	32	40	50	63	80	100
Accuracy	Maximum lengths of ballscrew shafts												
T0	110	170	300	400	600	700	1,000	1,200	1,500	1,800	2,000	2,000	2,000
T1	110	170	400	500	720	950	1,300	1,800	2,300	3,100	4,000	4,000	4,000
T2	140	200	500	630	900	1,300	1,700	2,200	2,900	4,000	5,200	6,300	6,300
T3	170	250	500	630	1,000	1,400	1,800	2,500	3,500	4,500	6,000	10,000	10,000
T4	170	250	500	630	1,000	1,400	1,800	2,500	3,500	4,500	6,000	10,000	10,000
T5	170	250	500	630	1,410	1,700	2,400	3,000	3,800	5,000	6,900	10,000	10,000

Unit: mm

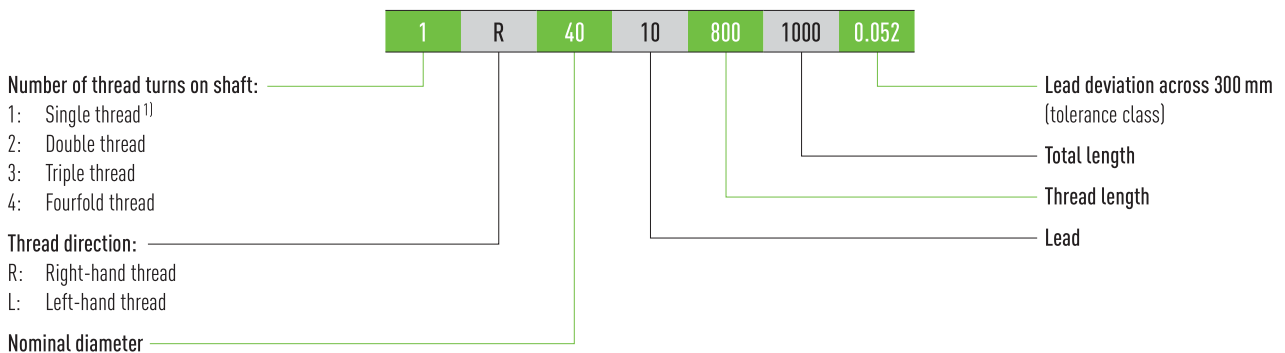
Green fields: Please contact HIWIN

### 6.3 HIWIN order code for ground ballscrews

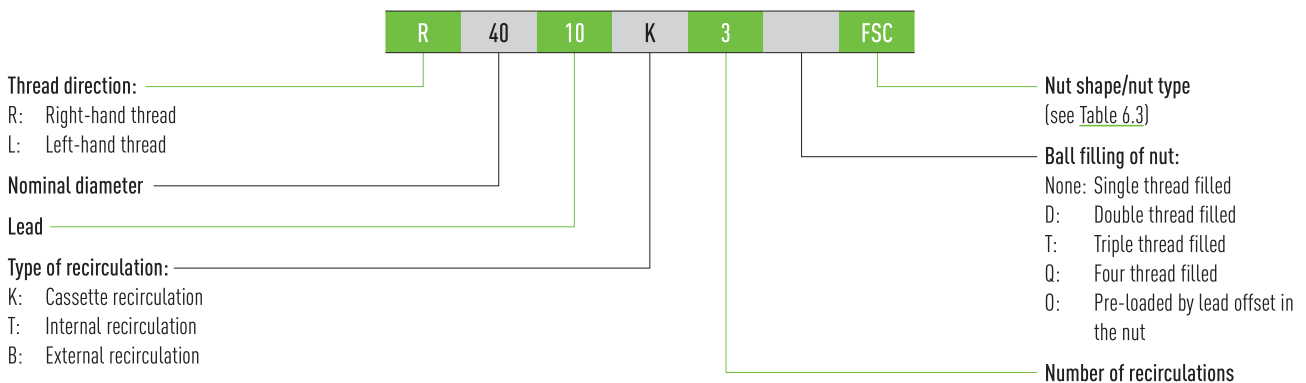
In order to clearly identify the ballscrew, information about the ballscrew shaft and nut is needed.



#### Order code for ballscrew shaft without the nut



#### Order code for ballscrew nut without the shaft



<sup>1)</sup> Standard; can be omitted with single-thread shafts

# Ballscrews

## Ground ballscrews

Table 6.3 Overview of nut shapes

Nut designation	Description
FSC	Flange single nut with cassette recirculation
FDC	Flange double nut with cassette recirculation
FSI	Flange single nut with internal single recirculation
FDI	Flange double nut with internal single recirculation
RSI	Cylindrical single nut with internal single recirculation
RDI	Cylindrical double nut with internal single recirculation

### 6.4 Nuts for ground ballscrews

#### 6.4.1 DIN single nut FSC (DIN 69051 Part 5) with total recirculation

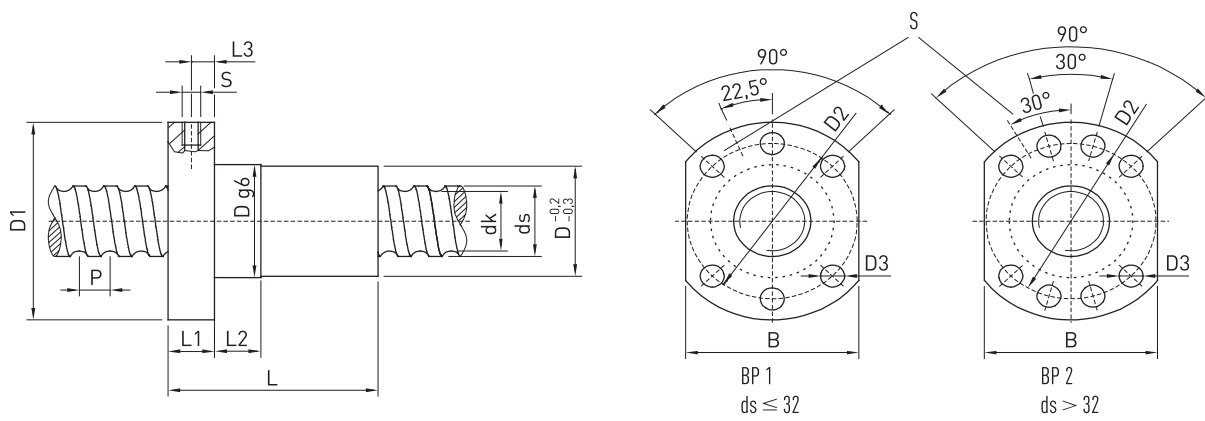


Table 6.4 Nut dimensions

Type	ds	P	Ball diameter	D min.	D1	D2	D3	Hole pattern BP	L	L1	L2	L3	Lubrication hole S	B	dk	Rigidity [N/μm]	Dynamic load rating C <sub>dyn</sub> [N]	Static load rating C <sub>0</sub> [N]
R14-10K3-FSC	14	10	3.175	28	48	38	5.5	1	46	10	10	5	M5	40	10.72	240	9,200	17,900
R15-10K3-FSC	15	10	3.175	34 <sup>1)</sup>	57	45	5.5	1	44	10	10	5	M5	43	12.32	250	9,600	19,300
R15-20K2-FSC	15	20	3.175	34 <sup>1)</sup>	57	45	5.5	1	50	10	10	5	M5	43	12.32	150	6,300	12,560
R16-16K2-FSC	16	16	3.175	34 <sup>1)</sup>	57	45	5.5	1	47	10	10	5	M5	43	13.12	170	6,800	13,850
R20-05K4-FSC	20	5	3.175	36	58	47	6.6	1	40	10	10	5	M6	44	17.32	420	14,900	36,400
R20-10K3-FSC	20	10	3.175	36	58	47	6.6	1	47	10	10	5	M6	44	17.32	320	11,300	26,600
R20-20K2-FSC	20	20	3.175	36	58	47	6.6	1	57	10	10	5	M6	44	17.32	210	7,600	17,300
R25-05K4-FSC	25	5	3.175	40	62	51	6.6	1	43	10	10	5	M6	48	22.32	490	16,500	46,120
R25-10K3-FSC	25	10	3.175	40	62	51	6.6	1	50	10	10	5	M6	48	22.32	380	12,600	33,700
R25-10K4-FSC	25	10	3.969	45 <sup>1)</sup>	65	54	6.6	1	60	10	10	5	M6	51	21.74	560	22,100	56,600
R25-20K3-FSC	25	20	3.175	40	62	51	6.6	1	80	10	10	5	M6	48	22.32	390	12,600	34,360
R25-25K2-FSC	25	25	3.175	40	62	51	6.6	1	69	10	10	5	M6	48	22.32	250	8,400	21,700
R25-20K3-FSC	25	20	3.969	45 <sup>1)</sup>	65	54	6.6	1	80	10	10	5	M6	51	21.74	430	17,100	42,900
R32-05K4-FSC	32	5	3.175	48	70	59	6.6	1	38	12	10	6	M6	54	29.32	570	18,400	59,600
R32-10K5-FSC	32	10	3.969	50	80	65	9.0	1	73	12	10	6	M6	62	28.74	850	30,800	94,500
R32-10K5-FSC	32	10	4.763	56 <sup>1)</sup>	86	71	9.0	1	79	14	10	7	M6	65	28.13	860	38,500	108,900
R32-10K5-FSC	32	10	6.350	62 <sup>1)</sup>	92	77	9.0	1	77	14	10	7	M6	74	26.91	900	56,400	144,800
R32-20K3-FSC	32	20	3.969	50	80	65	9.0	1	87	12	20	6	M6	62	28.74	520	19,000	54,300
R32-20K4-FSC	32	20	4.763	54 <sup>1)</sup>	86	71	9.0	1	106	14	20	7	M6	65	28.13	720	31,900	89,140
R32-20K4-FSC	32	20	6.350	62 <sup>1)</sup>	92	77	9.0	1	107	14	20	7	M6	74	26.91	700	42,400	108,540

All dimensions stated without a unit are in mm

<sup>1)</sup> Non-standard series of DIN 69051 Part 5 for high leads or of nut diameters deviating from the DIN standard

Table 6.4 Nut dimensions

Type	ds	P	Ball diameter	D min.	D1	D2	D3	Hole pattern BP	L	L1	L2	L3	Lubri- cation hole S	B	dk	Rigidity [N/μm]	Dynamic load rating C <sub>dyn</sub> [N]	Static load rating C <sub>0</sub> [N]
R32-32K2-FSC	32	32	3.969	50	80	65	9.0	1	87	12	20	6	M6	62	28.74	340	12,800	35,300
R32-40K2-FSC	32	40	3.969	50	80	65	9.0	1	94	12	20	6	M6	62	28.74	320	12,400	34,400
R38-10K4-FSC	38	10	6.350	63	93	78	9.0	2	70	14	20	7	M8 × 1	70	32.91	810	50,500	137,900
R38-20K4-FSC	38	20	6.350	63	93	78	9.0	2	108	14	25	7	M8 × 1	70	32.91	830	49,900	136,600
R38-25K4-FSC	38	25	6.350	63	93	78	9.0	2	127	14	25	7	M8 × 1	70	32.91	830	49,400	135,600
R38-40K2-FSC	38	40	6.350	63	93	78	9.0	2	103	14	25	7	M8 × 1	70	32.91	400	25,900	65,600
R40-05K5-FSC	40	5	3.175	63	93	78	9.0	2	45	14	20	7	M8 × 1	70	37.32	850	24,700	94,900
R40-10K5-FSC	40	10	6.350	70 <sup>1)</sup>	100	85	9.0	2	83	14	20	7	M8 × 1	75	34.91	1,060	63,400	184,000
R40-20K4-FSC	40	20	6.350	70 <sup>1)</sup>	100	85	9.0	2	110	14	20	7	M8 × 1	75	34.91	870	51,300	144,400
R40-40K2-FSC	40	40	6.350	70 <sup>1)</sup>	100	85	9.0	2	101	14	25	7	M8 × 1	75	34.91	420	26,600	69,400
R50-05K5-FSC	50	5	3.175	70	100	85	11.0	2	45	16	20	8	M8 × 1	75	47.32	950	27,000	119,400
R50-10K5-FSC	50	10	6.350	82 <sup>1)</sup>	118	100	11.0	2	80	16	25	8	M8 × 1	92	44.91	1,250	70,500	233,000
R50-20K4-FSC	50	20	6.350	82 <sup>1)</sup>	118	100	11.0	2	106	16	25	8	M8 × 1	92	44.91	1,040	57,200	183,400
R50-20K4-FSC	50	20	9.525	86 <sup>1)</sup>	121	103	11.0	2	120	16	25	8	M8 × 1	95	42.47	1,130	98,700	274,200
R50-40K3-FSC	50	40	6.350	82 <sup>1)</sup>	118	100	11.0	2	145	16	25	8	M8 × 1	92	44.91	790	43,900	137,500
R63-10K5-FSC	63	10	6.350	95	135	115	13.5	2	84	20	25	10	M8 × 1	100	57.91	1,440	77,200	291,900
R63-20K5-FSC	63	20	6.350	95	135	115	13.5	2	132	20	25	10	M8 × 1	100	57.91	1,570	78,500	300,200
R63-20K5-FSC	63	20	9.525	107	147	127	13.5	2	140	20	25	10	M8 × 1	112	55.47	1,680	134,300	435,300
R63-40K2-FSC	63	40	6.350	95	135	115	13.5	2	110	20	25	10	M8 × 1	100	57.91	620	33,100	111,000
R80-10K5-FSC	80	10	6.350	110 <sup>1)</sup>	150	130	13.5	2	80	25	25	12.5	M8 × 1	115	74.91	1,660	86,200	379,800
R80-20K4-FSC	80	20	9.525	120 <sup>1)</sup>	165	145	13.5	2	122	25	25	12.5	M8 × 1	130	72.47	1,600	124,000	449,100

All dimensions stated without a unit are in mm

<sup>1)</sup> Non-standard series of DIN 69051 Part 5 for high leads or of nut diameters deviating from the DIN standard

- The rigidity values stated are determined by calculation without preload for loading of 30 % of the dynamic load rating
- Deviating nut dimensions on request
- Other diameters and leads on request
- Left-handed nuts on request

Order example:

R	40	40	K2	FSC	1200	1295	0.012
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# Ballscrews

## Ground ballscrews

### 6.4.2 DIN double nut FDC (DIN 69051 Part 5) with total recirculation

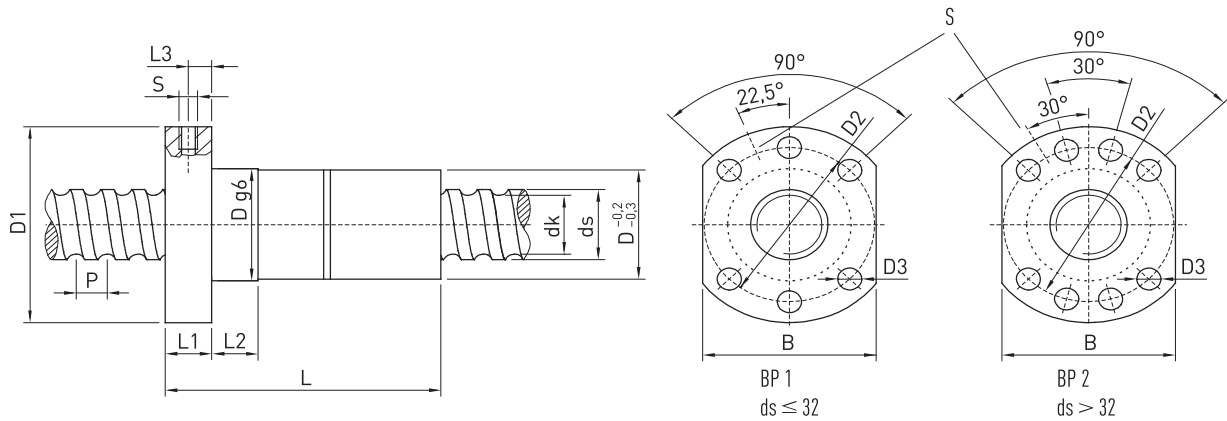


Table 6.5 Nut dimensions

Type	ds	P	Ball diameter	D min.	D1	D2	D3	Hole pattern BP	L	L1	L2	L3	Lubrication hole S	B	dk	Rigidity [N/μm]	Dynamic load rating $C_{dyn}$ [N]	Static load rating $C_0$ [N]
R14-10K3-FDC	14	10	3.175	28	48	38	5.5	1	96	10	10	5	M5	40	10.724	310	9,200	17,900
R15-10K3-FDC	15	10	3.175	34 <sup>1)</sup>	57	45	5.5	1	92	10	10	5	M5	43	12.324	330	9,600	19,300
R15-20K2-FDC	15	20	3.175	34 <sup>1)</sup>	57	45	5.5	1	104	10	10	5	M5	43	12.324	200	6,300	12,560
R16-16K2-FDC	16	16	3.175	34 <sup>1)</sup>	57	45	5.5	1	98	10	10	5	M5	43	13.124	230	6,800	13,850
R20-05K4-FDC	20	5	3.175	36	58	47	6.6	1	84	10	10	5	M6	44	17.324	550	14,900	16,420
R20-10K3-FDC	20	10	3.175	36	58	47	6.6	1	98	10	10	5	M6	44	17.324	420	11,300	26,600
R20-20K2-FDC	20	20	3.175	36	58	47	6.6	1	116	10	10	5	M6	44	17.324	270	7,600	17,300
R25-05K4-FDC	20	5	3.175	40	62	51	6.6	1	90	10	10	5	M6	48	22.324	650	16,500	46,120
R25-10K3-FDC	25	10	3.175	40	62	51	6.6	1	104	10	10	5	M6	48	22.324	500	12,600	33,700
R25-10K4-FDC	25	10	3.969	45 <sup>1)</sup>	65	54	6.6	1	124	10	10	5	M6	51	21.744	740	22,100	56,600
R25-20K3-FDC	25	20	3.175	40	62	51	6.6	1	164	10	10	5	M6	48	22.324	510	12,600	34,360
R25-20K3-FDC	25	20	3.969	45 <sup>1)</sup>	65	54	6.6	1	164	10	10	5	M6	51	21.744	550	17,100	42,900
R25-25K2-FDC	25	25	3.175	40	62	51	6.6	1	142	10	10	5	M6	48	22.324	320	8,400	21,700
R32-05K4-FDC	32	5	3.175	48	70	59	6.6	1	80	12	10	6	M6	54	29.324	770	18,400	59,600
R32-10K5-FDC	32	10	3.969	50	80	65	9.0	1	150	12	10	6	M6	62	28.744	1,130	30,800	94,500
R32-10K5-FDC	32	10	4.763	56 <sup>1)</sup>	86	71	9.0	1	162	14	10	7	M6	65	28.132	1,130	38,500	108,900
R32-10K5-FDC	32	10	6.350	62 <sup>1)</sup>	92	77	9.0	1	158	14	10	7	M6	74	26.910	1,190	56,400	144,800
R32-20K3-FDC	32	20	3.969	50	80	65	9.0	1	178	12	20	6	M6	62	28.744	680	19,000	54,300
R32-20K4-FDC	32	20	4.763	54 <sup>1)</sup>	86	71	9.0	1	216	14	20	7	M6	65	28.132	940	31,900	89,140
R32-20K4-FDC	32	20	6.350	62 <sup>1)</sup>	92	77	9.0	1	218	14	20	7	M6	74	26.910	710	42,400	108,540
R32-32K2-FDC	32	32	3.969	50	80	65	9.0	1	178	12	20	6	M6	62	28.744	440	12,800	35,300
R32-40K2-FDC	32	40	3.969	50	80	65	9.0	1	192	12	20	6	M6	62	28.744	420	12,400	34,400
R38-10K4-FDC	38	10	6.350	63	93	78	9.0	2	144	14	20	7	M8 × 1	70	32.910	1,070	50,500	137,900
R38-20K4-FDC	38	20	6.350	63	93	78	9.0	2	220	14	25	7	M8 × 1	70	32.910	1,100	49,900	136,600
R38-25K4-FDC	38	25	6.350	63	93	78	9.0	2	258	14	25	7	M8 × 1	70	32.910	1,090	49,400	135,600
R38-40K2-FDC	38	40	6.350	63	93	78	9.0	2	210	14	25	7	M8 × 1	70	32.910	530	25,900	65,600
R40-05K5-FDC	40	5	3.175	63	93	78	9.0	2	95	14	20	7	M8 × 1	70	37.324	1,140	24,700	94,900
R40-10K5-FDC	40	10	6.350	70 <sup>1)</sup>	100	85	9.0	2	171	14	20	7	M8 × 1	75	34.910	1,410	63,400	184,000
R40-20K4-FDC	40	20	6.350	70 <sup>1)</sup>	100	85	9.0	2	225	14	20	7	M8 × 1	75	34.910	1,150	51,300	144,400
R40-40K2-FDC	40	40	6.350	70 <sup>1)</sup>	100	85	9.0	2	207	14	25	7	M8 × 1	75	34.910	560	26,600	69,400
R50-05K5-FDC	50	5	3.175	70	100	85	11.0	2	95	16	20	8	M8 × 1	75	47.324	1,290	27,000	119,400
R50-10K5-FDC	50	10	6.350	82 <sup>1)</sup>	118	100	11.0	2	166	16	25	8	M8 × 1	92	44.910	1,660	70,500	233,000

All dimensions stated without a unit are in mm

<sup>1)</sup> Non-standard series of DIN 69051 Part 5 for high leads or of nut diameters deviating from the DIN standard

Table 6.5 Nut dimensions

Type	ds	P	Ball diameter	D min.	D1	D2	D3	Hole pattern BP	L	L1	L2	L3	Lubri-cation hole S	B	dk	Rigidity [N/μm]	Dynamic load rating C <sub>dyn</sub> [N]	Static load rating C <sub>0</sub> [N]
R50-20K4-FDC	50	20	6.350	82 <sup>1)</sup>	118	100	11.0	2	218	16	25	8.0	M8 × 1	92	44.910	1,380	57,200	183,400
R50-20K4-FDC	50	20	9.525	86 <sup>1)</sup>	121	103	11.0	2	245	16	25	8.0	M8 × 1	95	42.466	1,490	98,700	274,200
R50-40K3-FDC	50	40	6.350	82 <sup>1)</sup>	118	100	11.0	2	295	16	25	8.0	M8 × 1	92	44.910	1,040	43,900	137,500
R63-10K5-FDC	63	10	6.350	95	135	115	13.5	2	174	20	25	10.0	M8 × 1	100	57.910	1,920	77,200	291,900
R63-20K5-FDC	63	20	6.350	95	135	115	13.5	2	270	20	25	10.0	M8 × 1	100	57.910	2,080	78,500	300,200
R63-20K5-FDC	63	20	9.525	107	147	127	13.5	2	286	20	25	10.0	M8 × 1	112	55.466	2,220	134,300	435,300
R63-40K2-FDC	63	40	6.350	95	135	115	13.5	2	226	20	25	10.0	M8 × 1	100	57.910	820	33,100	111,000
R80-10K5-FDC	80	10	6.350	110 <sup>1)</sup>	150	130	13.5	2	170	25	25	12.5	M8 × 1	115	74.910	2,230	86,200	379,800
R80-20K4-FDC	80	20	9.525	120 <sup>1)</sup>	165	145	13.5	2	250	25	25	12.5	M8 × 1	130	72.466	2,120	124,000	449,100

All dimensions stated without a unit are in mm

<sup>1)</sup> Non-standard series of DIN 69051 Part 5 for high leads or of nut diameters deviating from the DIN standard

- The rigidity values stated are determined by calculation for a preload of 10 % of the dynamic load rating
- Deviating nut dimensions on request
- Other diameters and leads on request
- Left-handed nuts on request

Order example:

R	40	40	K2	FDC	1200	1295	0.012
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# Ballscrews

## Ground ballscrews

### 6.4.3 Flange single nut FSI with single recirculation

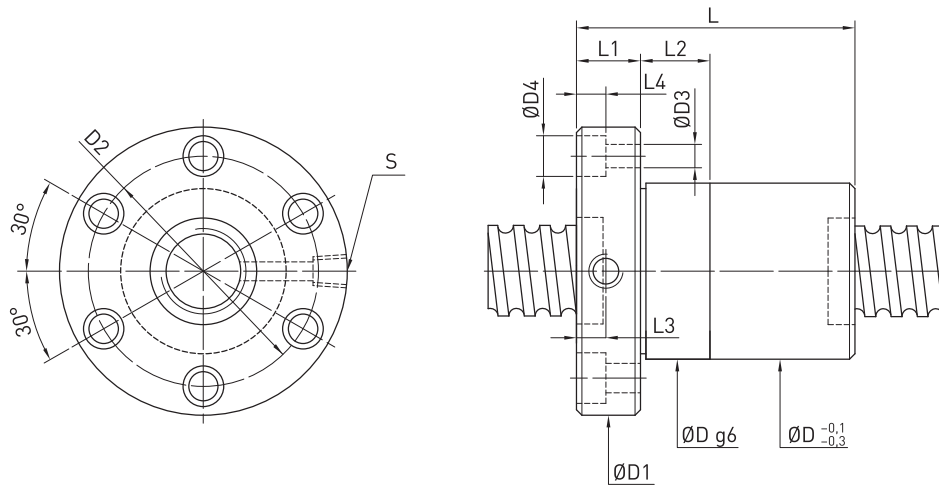


Table 6.6 Nut dimensions

Type	ds	P	Ball diameter	D min.	D1	D2	D3	D4	L	L1	L2	L3	L4	Lubrication hole S	dk	Rigidity [N/µm]	Dynamic load rating C <sub>dyn</sub> [N]	Static load rating C <sub>0</sub> [N]	Mass [kg]
R8-2.5T3-FSI	8	2.5	1.500	18	35	27	4.5	—	28	5	—	—	—	—	6.65	80	1,700	2,670	0.04
R16-2T3-FSI	16	2.0	1.500	27	44	34	4.5	8.0	36	10	—	5.0	4.5	M6	14.65	140	2,520	5,930	0.17
R16-5T3-FSI	16	5.0	3.175	30	54	41	5.5	9.5	46	12	12	6.0	5.5	M6	13.32	110	7,310	13,310	0.32
R16-5T4-FSI	16	5.0	3.175	30	54	41	5.5	9.5	52	12	12	6.0	5.5	M6	13.32	120	9,360	17,750	0.34
R20-2T4-FSI	20	2.0	1.500	32	52	40	5.5	9.5	40	10	12	5.0	5.5	M6	18.65	360	3,990	11,120	0.25
R20-2T6-FSI	20	2.0	1.500	32	52	40	5.5	9.5	52	10	12	5.0	5.5	M6	18.65	320	5,180	15,510	0.29
R20-5T3-FSI	20	5.0	3.175	34	57	45	5.5	9.5	46	12	12	6.0	5.5	M6	17.32	200	8,520	17,670	0.35
R20-5T4-FSI	20	5.0	3.175	34	57	45	5.5	9.5	53	12	12	6.0	5.5	M6	17.32	270	10,910	23,560	0.38
R25-2T3-FSI	25	2.0	1.500	36	58	46	5.5	9.5	35	10	12	5.0	5.5	M6	23.65	200	3,090	9,800	0.24
R25-2T4-FSI	25	2.0	1.500	36	58	46	5.5	9.5	40	10	12	5.0	5.5	M6	23.65	270	3,950	13,070	0.26
R25-2T6-FSI	25	2.0	1.500	36	58	46	5.5	9.5	50	10	12	5.0	5.5	M6	23.65	390	5,600	19,600	0.30
R25-5T3-FSI	25	5.0	3.175	40	64	51	5.5	9.5	46	11	10	5.5	5.5	M6	22.32	280	9,770	23,140	0.42
R25-5T4-FSI	25	5.0	3.175	40	64	51	5.5	9.5	51	11	10	5.5	5.5	M6	22.32	370	12,520	30,850	0.44
R25-5T5-FSI	25	5.0	3.175	40	63	51	5.5	9.5	56	11	10	5.5	5.5	M6	22.32	400	15,160	38,560	0.47
R25-5T6-FSI	25	5.0	3.175	40	63	51	5.5	9.5	65	11	10	5.5	5.5	M6	22.32	480	17,730	46,270	0.52
R25-10T3-FSI	25	10.0	4.763	45	69	55	6.6	11.0	65	15	12	7.5	6.5	M6	21.13	250	15,910	32,360	0.80
R25-10T4-FSI	25	10.0	4.763	45	69	55	6.6	11.0	80	15	12	7.5	6.5	M6	21.13	330	20,380	43,150	0.90
R32-5T3-FSI	32	5.0	3.175	44	74	60	6.6	11.0	46	12	12	6.0	6.5	M6	29.32	330	11,170	30,810	0.49
R32-5T4-FSI	32	5.0	3.175	44	74	60	6.6	11.0	53	12	12	6.0	6.5	M6	29.32	420	14,310	41,080	0.53
R32-5T6-FSI	32	5.0	3.175	44	74	60	6.6	11.0	66	12	12	6.0	6.5	M6	29.32	630	20,270	61,620	0.59
R32-10T3-FSI	32	10.0	6.350	51	82	68	6.6	11.0	72	16	12	8.0	6.5	M6	26.91	350	25,390	53,270	1.02
R32-10T4-FSI	32	10.0	6.350	51	82	68	6.6	11.0	83	16	12	8.0	6.5	M6	26.91	480	32,520	71,020	1.11
R40-5T4-FSI	40	5.0	3.175	51	80	66	6.6	11.0	53	16	12	8.0	6.5	M8 × 1	37.32	500	15,990	52,800	0.66
R40-5T6-FSI	40	5.0	3.175	51	80	66	6.6	11.0	66	16	12	8.0	6.5	M8 × 1	37.32	740	22,650	79,190	0.73
R40-10T3-FSI	40	10.0	6.350	60	96	80	9.0	14.0	76	16	15	8.0	8.5	M8 × 1	34.91	400	29,590	70,690	1.37
R40-10T4-FSI	40	10.0	6.350	60	96	80	9.0	14.0	87	16	15	8.0	8.5	M8 × 1	34.91	510	37,890	94,260	1.49
R50-5T4-FSI	50	5.0	3.175	62	96	80	9.0	14.0	57	16	15	8.0	8.5	M8 × 1	47.32	620	17,570	67,450	0.95
R50-5T6-FSI	50	5.0	3.175	62	96	80	9.0	14.0	70	16	15	8.0	8.5	M8 × 1	47.32	910	24,900	101,170	1.04
R50-10T3-FSI	50	10.0	6.350	69	114	92	11.0	17.5	78	18	20	9.0	11.0	M8 × 1	44.91	500	33,970	92,560	1.85
R50-10T4-FSI	50	10.0	6.350	69	114	92	11.0	17.5	89	18	20	9.0	11.0	M8 × 1	44.91	630	43,500	123,410	1.98
R50-10T6-FSI	50	10.0	6.350	69	114	92	11.0	17.5	112	18	20	9.0	11.0	M8 × 1	44.91	940	61,650	185,110	2.26

All dimensions stated without a unit are in mm

Table 6.6 Nut dimensions

Type	ds	P	Ball diameter	D min.	D1	D2	D3	D4	L	L1	L2	L3	L4	Lubri-cation hole S	dk	Rigidity [N/μm]	Dynamic load rating C <sub>dyn</sub> [N]	Static load rating C <sub>0</sub> [N]	Mass [kg]
<b>R50-20T4-FSI</b>	50	20	9.525	75	129	105	14.0	20.0	186	28	30	14.0	13.0	M8 × 1	42.47	800	93,270	239,550	5.30
<b>R63-10T4-FSI</b>	63	10	6.350	82	134	110	14.0	20.0	91	20	20	10.0	13.0	M8 × 1	57.91	790	48,600	158,580	2.54
<b>R63-10T6-FSI</b>	63	10	6.350	82	134	110	14.0	20.0	114	20	20	10.0	13.0	M8 × 1	57.91	1,150	68,870	237,860	2.88
<b>R80-10T4-FSI</b>	80	10	6.350	99	152	127	14.0	20.0	91	20	20	10.0	13.0	M8 × 1	74.91	960	55,590	211,180	3.00
<b>R80-10T6-FSI</b>	80	10	6.350	99	152	127	14.0	20.0	114	20	20	10.0	13.0	M8 × 1	74.91	1,400	78,790	316,770	3.42
<b>R80-20T3-FSI</b>	80	20	9.525	108	174	143	18.0	26.0	138	24	25	12.0	17.5	M8 × 1	72.47	950	96,630	316,220	6.30
<b>R80-20T4-FSI</b>	80	20	9.525	108	174	143	18.0	26.0	161	24	25	12.0	17.5	M8 × 1	72.47	1,250	123,750	421,620	6.96
<b>R100-20T4-FSI</b>	100	20	9.525	135	194	163	18.0	26.0	161	24	30	12.0	17.5	M8 × 1	92.47	1,550	135,690	531,610	8.60

All dimensions stated without a unit are in mm

- The rigidity values stated are determined by calculation without preload for loading of 30 % of the dynamic load rating
- Deviating nut dimensions on request
- Other diameters and leads on request

Order example:

<b>R</b>	<b>50</b>	<b>10</b>	<b>T4</b>	<b>FSI</b>	<b>2250</b>	<b>2325</b>	<b>0.023</b>
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# Ballscrews

## Ground ballscrews

### 6.4.4 Flange double nut FDI with single recirculation

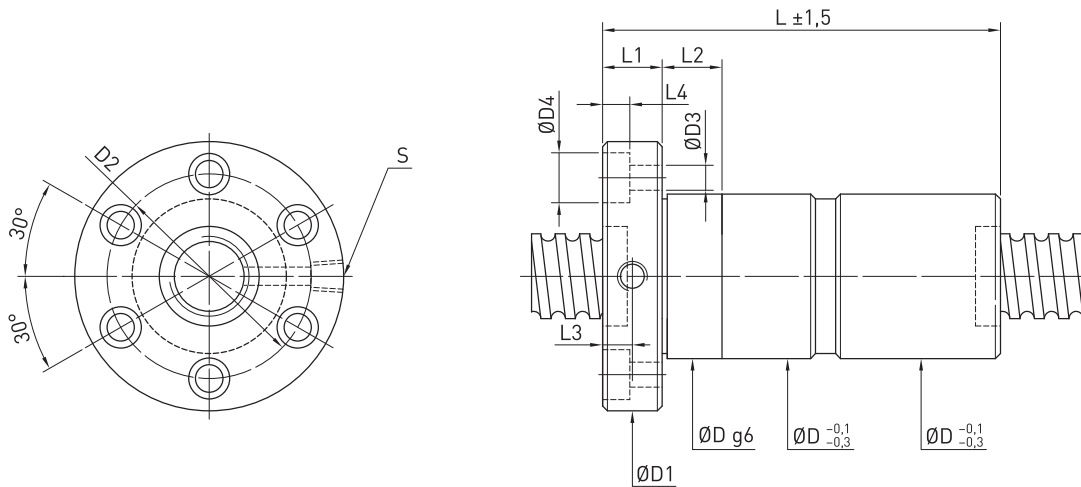


Table 6.7 Nut dimensions

Type	ds	P	Ball diameter	D min.	D1	D2	D3	D4	L	L1	L2	L3	L4	Lubrication hole S	dk	Rigidity [N/µm]	Dynamic load rating $C_{dyn}$ [N]	Static load rating $C_0$ [N]	Mass [kg]
R16-5T3-FDI	16	5	3.175	30	54	41	5.5	9.5	78	12	24	6.0	5.5	M6	13.32	200	7,310	13,310	0.43
R16-5T4-FDI	16	5	3.175	30	54	41	5.5	9.5	90	12	24	6.0	5.5	M6	13.32	230	9,360	17,750	0.48
R20-5T3-FDI	20	5	3.175	34	57	45	5.5	9.5	78	12	24	6.0	5.5	M6	17.32	390	8,520	17,670	0.49
R20-5T4-FDI	20	5	3.175	34	57	45	5.5	9.5	92	12	24	6.0	5.5	M6	17.32	540	10,910	23,560	0.55
R25-5T3-FDI	25	5	3.175	40	64	52	5.5	9.5	78	12	24	5.5	5.5	M6	22.32	550	9,770	23,140	0.59
R25-5T4-FDI	25	5	3.175	40	64	52	5.5	9.5	96	12	24	5.5	5.5	M6	22.32	730	12,520	30,850	0.69
R25-10T3-FDI	25	10	4.763	51	74	60	6.6	11.0	140	15	24	7.5	6.5	M6	21.13	490	16,430	32,650	1.38
R32-5T3-FDI	32	5	3.175	44	74	60	6.6	11.0	78	12	24	6.0	6.5	M6	29.32	640	11,170	30,810	0.65
R32-5T4-FDI	32	5	3.175	44	74	60	6.6	11.0	96	12	24	6.0	6.5	M6	29.32	820	14,310	41,080	0.74
R32-5T6-FDI	32	5	3.175	44	74	60	6.6	11.0	118	12	24	6.0	6.5	M6	29.32	1,210	20,270	61,620	0.85
R32-10T3-FDI	32	10	6.350	51	82	68	6.6	11.0	129	16	24	8.0	6.5	M6	26.91	680	25,390	53,270	1.50
R32-10T4-FDI	32	10	6.350	51	82	68	6.6	11.0	155	16	24	8.0	6.5	M6	26.91	820	32,520	71,020	1.72
R40-5T4-FDI	40	5	3.175	51	80	66	6.6	11.0	96	16	24	8.0	6.5	M8 × 1	37.32	990	15,990	52,800	0.89
R40-5T6-FDI	40	5	3.175	51	80	66	6.6	11.0	122	16	24	8.0	6.5	M8 × 1	37.32	1,460	22,650	79,190	1.03
R40-10T3-FDI	40	10	6.350	60	96	80	9.0	14.0	133	16	30	8.0	8.5	M8 × 1	34.91	760	29,590	70,690	1.99
R40-10T4-FDI	40	10	6.350	60	96	80	9.0	14.0	155	16	30	8.0	8.5	M8 × 1	34.91	1,010	37,890	94,260	2.22
R50-5T4-FDI	50	5	3.175	62	96	80	9.0	14.0	96	16	30	8.0	8.5	M8 × 1	47.32	1,210	17,570	67,450	1.23
R50-5T6-FDI	50	5	3.175	62	96	80	9.0	14.0	122	16	30	8.0	8.5	M8 × 1	47.32	1,770	24,900	101,170	1.42
R50-10T3-FDI	50	10	6.350	69	114	92	11.0	17.5	135	18	40	9.0	11.0	M8 × 1	44.91	950	33,970	92,560	2.53
R50-10T4-FDI	50	10	6.350	69	114	92	11.0	17.5	157	18	40	9.0	11.0	M8 × 1	44.91	1,240	43,500	123,410	2.80
R50-10T6-FDI	50	10	6.350	69	114	92	11.0	17.5	203	18	40	9.0	11.0	M8 × 1	44.91	1,840	61,650	185,110	3.35
R63-10T4-FDI	63	10	6.350	82	134	110	14.0	20.0	159	20	40	10.0	13.0	M8 × 1	57.91	1,580	48,600	158,580	3.53
R63-10T6-FDI	63	10	6.350	82	134	110	14.0	20.0	205	20	40	10.0	13.0	M8 × 1	57.91	2,280	68,870	237,860	4.20
R80-10T4-FDI	80	10	6.350	99	152	127	14.0	20.0	172	20	40	10.0	13.0	M8 × 1	74.91	1,900	55,590	211,180	4.45
R80-10T6-FDI	80	10	6.350	99	152	127	14.0	20.0	214	20	40	10.0	13.0	M8 × 1	74.91	2,770	78,790	316,770	5.20
R80-20T3-FDI	80	20	9.525	108	174	143	18.0	26.0	250	24	50	12.0	17.5	M8 × 1	72.47	1,890	96,630	316,220	9.54
R80-20T4-FDI	80	20	9.525	108	174	143	18.0	26.0	296	24	50	12.0	17.5	M8 × 1	72.47	2,480	123,750	421,620	10.87
R100-20T4-FDI	100	20	9.525	135	194	163	18.0	26.0	296	24	60	12.0	17.5	M8 × 1	92.47	3,000	135,690	531,610	12.69

All dimensions stated without a unit are in mm

- The rigidity values stated are determined by calculation for a preload of 10 % of the dynamic load rating
- Deviating nut dimensions on request
- Other diameters and leads on request

Order example:

R	50	10	T4	FDI	2250	2325	0.023
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# Ballscrews

## Ground ballscrews

### 6.4.5 Cylindrical single nut RSI with single recirculation

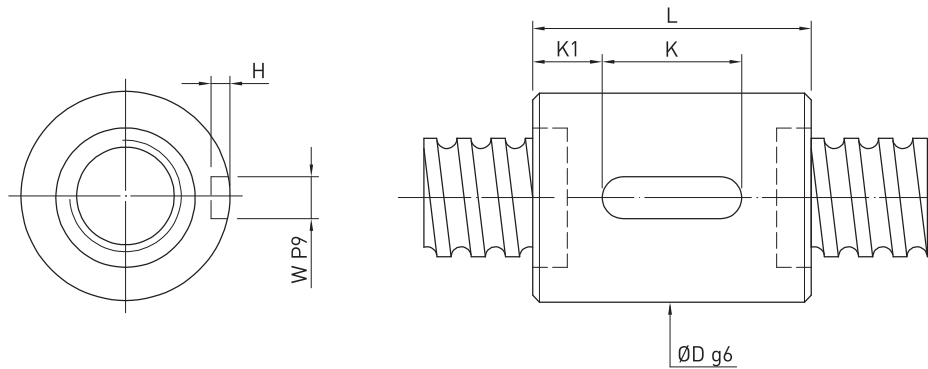


Table 6.8 Nut dimensions

Type	Size		Ball diameter	Circuits	Rigidity K [N/μm]	Dynamic load rating $C_{dyn}$ [N]	Static load rating $C_0$ [N]	Nut		Feather key groove			
	Nominal Ø	Lead						D	L	K	W	H	K1
R16-2T4-RSI	16	2	1.500	4	150	1,780	3,950	25	25	20	3	1.8	2.5
R16-5T3-RSI	16	5	3.175	3	110	7,310	13,310	28	40	20	3	1.8	10.0
R16-5T4-RSI	16	5	3.175	4	120	9,360	17,750	28	46	20	3	1.8	13.0
R20-5T3-RSI	20	5	3.175	3	200	8,520	17,670	32	41	20	3	1.8	10.5
R20-5T4-RSI	20	5	3.175	4	270	10,910	23,560	32	48	20	3	1.8	14.0
R25-5T3-RSI	25	5	3.175	3	280	9,770	23,140	37	41	20	4	2.5	10.5
R25-5T4-RSI	25	5	3.175	4	370	12,520	30,850	37	48	20	4	2.5	14.0
R32-5T3-RSI	32	5	3.175	3	330	11,170	30,810	44	41	20	4	2.5	10.5
R32-5T4-RSI	32	5	3.175	4	420	14,310	41,080	44	48	20	4	2.5	14.0
R32-5T6-RSI	32	5	3.175	6	630	20,270	61,620	44	61	25	4	2.5	18.0
R32-10T3-RSI	32	10	6.350	3	350	25,390	53,270	51	68	25	6	3.5	21.5
R32-10T4-RSI	32	10	6.350	4	480	32,520	71,020	51	79	32	6	3.5	23.5
R40-5T4-RSI	40	5	3.175	4	500	15,990	52,800	51	48	20	4	2.5	14.0
R40-5T6-RSI	40	5	3.175	6	740	22,650	79,190	51	61	25	4	2.5	18.0
R40-10T3-RSI	40	10	6.350	3	400	29,590	70,690	60	68	25	6	3.5	21.5
R40-10T4-RSI	40	10	6.350	4	510	37,890	94,260	60	79	32	6	3.5	23.5
R50-5T4-RSI	50	5	3.175	4	620	17,570	67,450	62	48	20	4	2.5	14.0
R50-5T6-RSI	50	5	3.175	6	910	24,900	101,170	62	61	25	4	2.5	18.0
R50-10T3-RSI	50	10	6.350	3	500	33,970	92,560	69	68	32	6	3.5	18.0
R50-10T4-RSI	50	10	6.350	4	630	43,500	123,410	69	79	32	6	3.5	23.5
R50-10T6-RSI	50	10	6.350	6	940	61,650	185,110	69	102	40	6	3.5	31.0
R63-6T4-RSI	63	6	3.969	4	750	26,740	105,420	78	56	25	6	3.5	15.5
R63-6T6-RSI	63	6	3.969	6	1,130	37,040	158,130	78	70	32	6	3.5	19.0
R80-10T4-RSI	80	10	6.350	4	960	55,590	211,180	99	79	32	8	4.0	23.5
R80-10T6-RSI	80	10	6.350	6	1,400	78,790	316,770	99	102	40	8	4.0	31.0
R80-20T3-RSI	80	20	9.525	3	950	96,630	316,220	108	126	50	10	5.0	38.0
R80-20T4-RSI	80	20	9.525	4	1,250	123,750	421,620	108	149	63	10	5.0	43.0
R100-20T4-RSI	100	20	9.525	4	1,550	135,690	531,610	125	149	63	10	5.0	43.0

All dimensions stated without a unit are in mm

- The rigidity values stated are determined by calculation without preload for loading of 30 % of the dynamic load rating
- Deviating nut dimensions on request
- Other diameters and leads on request

Order example:

R	32	10	T4	RSI	1500	1615	0.012
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6.4.6 Cylindrical double nut RDI with single recirculation

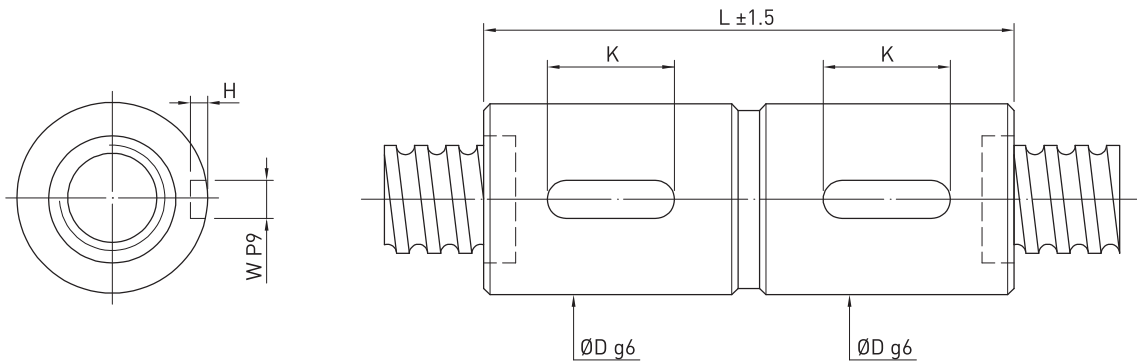


Table 6.9 Nut dimensions

Type	Size		Ball diameter	Circuits	Rigidity K [N/µm]	Dynamic load rating C <sub>dyn</sub> [N]	Static load rating C <sub>0</sub> [N]	Nut		Feather key groove		
	Nominal Ø	Lead						D	L	K	W	H
R16-5T3-RDI	16	5	3.175	3	200	7,310	13,310	28	72	20	3	1.8
R16-5T4-RDI	16	5	3.175	4	230	9,360	17,750	28	85	20	3	1.8
R20-5T3-RDI	20	5	3.175	3	390	8,520	17,670	32	75	20	3	1.8
R20-5T4-RDI	20	5	3.175	4	540	10,910	23,560	32	85	20	3	1.8
R25-5T3-RDI	25	5	3.175	3	550	9,770	23,140	37	75	20	4	2.5
R25-5T4-RDI	25	5	3.175	4	730	12,520	30,850	37	85	20	4	2.5
R32-5T3-RDI	32	5	3.175	3	640	11,170	30,810	44	75	20	4	2.5
R32-5T4-RDI	32	5	3.175	4	820	14,310	41,080	44	85	20	4	2.5
R32-5T6-RDI	32	5	3.175	6	1,210	20,270	61,620	44	105	25	4	2.5
R32-10T3-RDI	32	10	6.350	3	680	25,390	53,270	51	135	25	6	3.5
R32-10T4-RDI	32	10	6.350	4	820	32,520	71,020	51	155	32	6	3.5
R40-5T4-RDI	40	5	3.175	4	990	15,990	52,800	51	85	20	4	2.5
R40-5T6-RDI	40	5	3.175	6	1,460	22,650	79,190	51	105	25	4	2.5
R40-10T3-RDI	40	10	6.350	3	760	29,590	70,690	60	135	25	6	3.5
R40-10T4-RDI	40	10	6.350	4	1,010	37,890	94,260	60	155	32	6	3.5
R50-5T4-RDI	50	5	3.175	4	1,210	17,570	67,450	62	85	20	4	2.5
R50-5T6-RDI	50	5	3.175	6	1,770	24,900	101,170	62	105	25	4	2.5
R50-10T3-RDI	50	10	6.350	3	950	33,970	92,560	69	135	32	6	3.5
R50-10T4-RDI	50	10	6.350	4	1,240	43,500	123,410	69	155	32	6	3.5
R50-10T6-RDI	50	10	6.350	6	1,840	61,650	185,110	69	197	40	6	3.5
R63-10T4-RDI	63	10	6.350	4	1,580	48,600	158,580	82	160	32	8	4.0
R63-10T6-RDI	63	10	6.350	6	2,280	68,870	237,860	82	202	40	8	4.0
R63-20T4-RDI	63	20	9.525	4	1,890	106,570	312,510	90	260	50	8	4.0
R80-10T4-RDI	80	10	6.350	4	1,900	55,590	211,180	99	160	32	8	4.0
R80-10T6-RDI	80	10	6.350	6	2,770	78,790	316,770	99	202	40	8	4.0
R80-20T3-RDI	80	20	9.525	3	1,890	96,630	316,220	108	245	50	10	5.0
R80-20T4-RDI	80	20	9.525	4	2,480	123,750	421,620	108	289	63	10	5.0
R100-20T4-RDI	100	20	9.525	4	3,000	135,690	531,610	125	289	63	10	5.0

All dimensions stated without a unit are in mm

- The rigidity values stated are determined by calculation for a preload of 10 % of the dynamic load rating
- Deviating nut dimensions on request
- Other diameters and leads on request

Order example:

R	32	10	T4	RDI	1500	1615	0.012
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