SHUTON

HIGH PRECISION BALLSCREWS

SHUTON COMPLEX SHUTON HDL SHUTON i+

This catalogue contains the tables of dimensions, loads and nut rigidities,
according to DIN 69051 and ISO 3408 standards,
of precision ballscrews manufactured by SHUTON.

SHUTON has verified the accuracy of all the data contained in this catalogue. However, it does not accept liability for any possible incorrect or incomplete data.

Due to the constant development of products, SHUTON reserves the right to modify any information or data in this catalogue without notice.

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Versión EN-70

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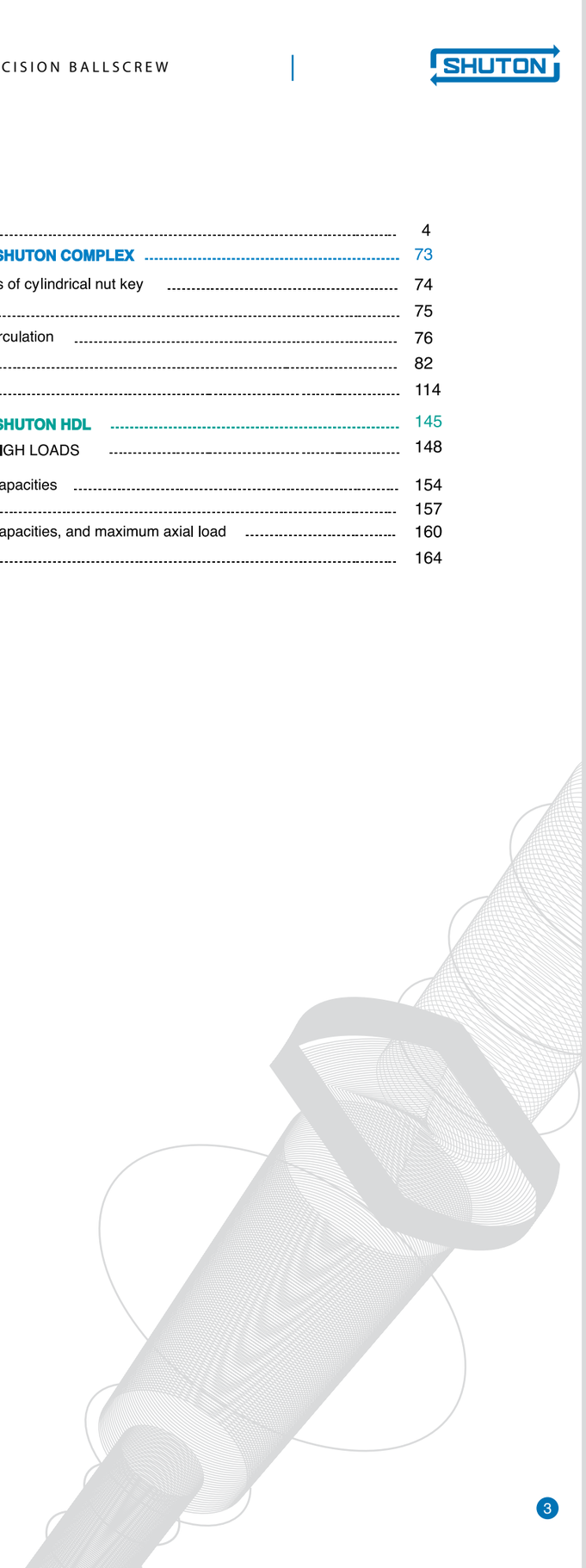
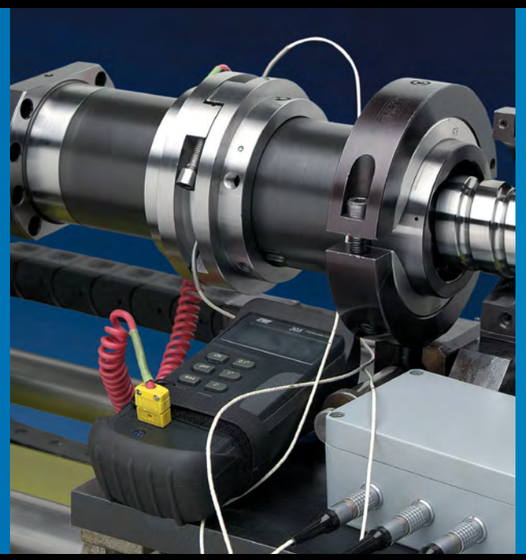


PRECISION BALLSCREWS

> SHUTON provides the most advanced precision ballscrew technology, supported by a team of professionals with excellent engineering and production skills, employing wide ranging technical know-how and a manufacturing process that involves the most technologically advanced processes and machines.

> SHUTON is present at the principal machine tool markets around the world, and is in contact with the manufacturers of the latest machines. This allows us to garner the opinions, suggestions and needs of clients in each market, and develop our products according to the most stringent criteria.



Major SHUTON markets in Europe, Asia and America.

EUROPE:
Spain, Germany, Italy, France, United Kingdom, Austria, Switzerland.

ASIA:
China, Japan, South Korea, India.

AMERICA:
The United States, Brazil, Argentina.

> In our efforts to provide our customers with the best service, the greatest added value, and in order that our ballscrews become key components in the very latest high speed and precision machining advances, we have created a new product range called SHUTON COMPLEX®.

> SHUTON COMPLEX® ballscrews are ballscrews with the highest dynamic rigidity, which are being tested and used by leading European brands in the high-dynamic machine tool sector. With this catalogue we present our customers with all the advantages this new development can provide.

> For extremely demanding cases, an extension of the SHUTON COMPLEX ballscrew range has been developed, which has been denominated SHUTON i+. It offers benefits in load capacity, rigidity, life, maximum force and temperature.

> To give a response to Injection Molding machines, presses and general heavy duty applications, SHUTON has developed SHUTON HDL ballscrews. The SHUTON HDL ballscrew range is the cutting edge technology in High Dynamic & Heavy duty applications, offering top results with reduced noise levels, a high durability and speed. It achieves high dynamic & static load capacities and high rates of maximum forces, with an optimised recirculation system that enables smooth rotation. Its compact nut design simplifies drive system designs and optimises performance.

> Communication and support, engineering and added value, service and development, are the commitments that set us apart, as being here both today and in the future as key collaborators for our customers, always providing the most innovative products, and also useful information, as provided here in this new SHUTON ballscrew catalogue.

SHUTON

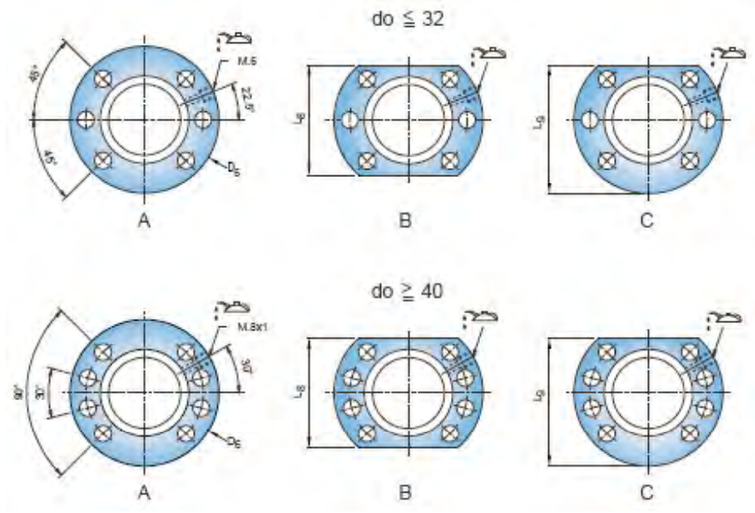
TABLES OF LOADS AND DIMENSIONS

SHUTON COMPLEX®

TYING OF THE NUT TO THE TABLE

In most of the cases, the ballscrews are tied to the table by a lateral flange.

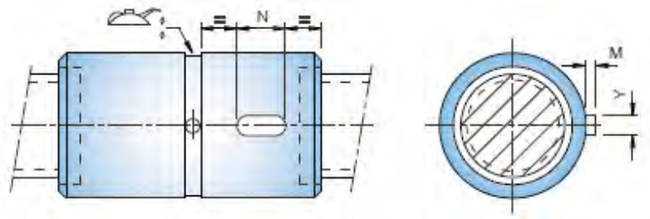
This flange can be according the customer drawing, though is advised to chose one of the three standard designs defined by standards DIN69051 and ISO3408:



When possible is advised to choose the shape A, most of all if it is an assembly of rotary nut, to make the nut be equilibrated.

When is not possible to eliminate all the radial forces in the nut, SHUTON advises to use flanged centre nuts.

Sometimes there is not other possibility than using cylindrical nut and tie to the table with a key.



The standard dimensions of this key are in function of the nominal diameter of the ballscrew and the dynamic load according to the next tables:

d_0	Y (h9)	M
20-25	6	2
32-40	8	3
50-63	10	4
80-100	12	4
120-160	14	6

C_a	N
< 25000	15
< 50000	20
< 100000	30
< 150000	40
< 250000	50
≥ 250000	60

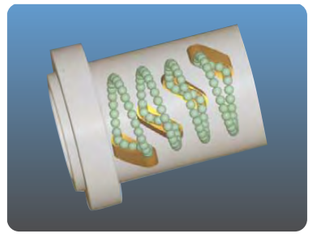
MEANING OF THE REFERENCE NUMBER

TD B □ □ -U 50 - 25 - 8 - 4

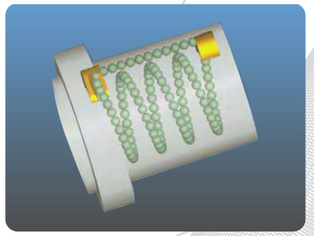
- **4** — Number of circuits with load-supporting balls `i´
- **8** — Abbreviation of the diameter of the balls `Dw´

D_W	3,175	3,969	4,762	6,35	7,938	9,525	12,7	15,875	19,05	25,4
Abbreviation	3	4	5	6	8	9	12	15	19	25

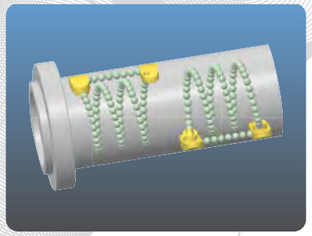
- **25** — Lead of the ballscrew `Ph´
- **50** — Nominal diameter of the ballscrew `do´
- **-U** — Recirculation of the balls:
  - -S: *internal recirculation **
  - -U: *external recirculation, one track ***
  - -B: *external recirculation, several tracks ****
- **□** — Ball material:
  - □: *steel*
  - -CER: *ceramic*
- **□** — Special nut:
  - □: *normal*
  - -HDL: *'HIGH LOAD' special nut for high load*
- **B** — Flanged or cylindrical nut:
  - B: *flanged nut*
  - BC: *nut with centred flange*
  - L: *cylindrical nut*
- **TD** — Type of nut:
  - TC: *compact nut*
  - TD: *double nut*
  - TS: *single nut*



** Internal Recirculation 'S'*



*** External Recirculation 'U'*



**** External Recirculation 'B'*

PRELOADED COMPACT NUT

TCB : Compact Flanged Nut

TCL : Compact Cylindrical Nut

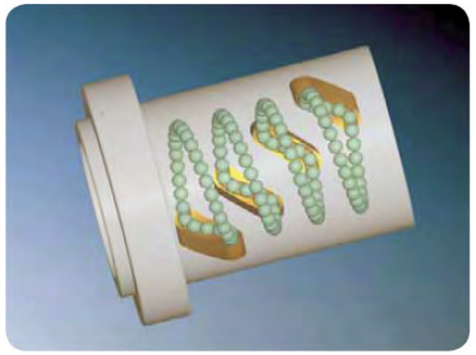
Preloading is achieved by modifying the thread pitch in a single intermediate thread of the nut, using the CNC grinding process. So, the nut of these high-precision ballscrews is made up of a single part.

SHUTON high-precision ballscrews, with preloaded compact nut, have multiple advantages:

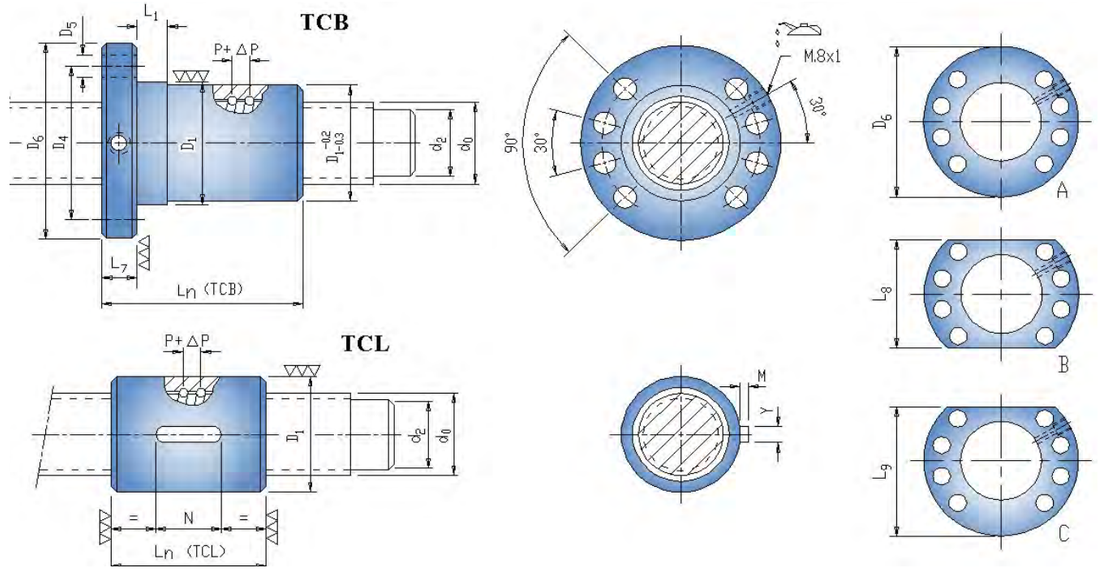
- Better alignment and concentricity of the complete nut with the ballscrew.
- Reduction of the length of the nut, with less mass.
- Elimination of bearing-support parts in the designs of rotary nuts.
- Possibility of special designs with compact nut-bearing bodies.

The compact nut can be assembled with internal recirculation 'S' only. It is the common recirculation for short leads.
Each circuit is independent and has it own deflector in 'S' shape.

SHUTON advises the compact nut for small ballscrews with short and middle lead.



Internal Recirculation 'S'



Nominal diameter & Lead,
with the maximum number of circuits made at SHUTON
of Standard Preloaded Compact Nut

P_h / d_0	5	6	10	12	15	16	20
20	3 + 3						
25	4 + 4						
32	6 + 6		3 + 3				
40	6 + 6	6 + 6	4 + 4	3 + 3		2 + 2	2 + 2
50	6 + 6	6 + 6	6 + 6	4 + 4	3 + 3		
63	6 + 6		6 + 6	5 + 5			
70 no std			6 + 6				
80			6 + 6				
100			6 + 6				

If especial cases out of range are required, consult with SHUTON

>PRELOADED COMPACT NUT

Code TCB TCL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t,pr}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TCx-S 2005-3-2	20	5	3,175	17,8	2	8800	13400	460	430
TCx-S 2005-3-3					3	12000	20400	680	650
TCx-S 2505-3-2	25	5	3,175	22,8	2	10000	17500	570	530
TCx-S 2505-3-3					3	13600	26700	850	790
TCx-S 2505-3-4					4	17300	36200	1150	1070
TCx-S 3205-3-2	32	5	3,175	29,8	2	11300	23400	720	660
TCx-S 3205-3-3					3	15500	35600	1080	990
TCx-S 3205-3-4					4	19700	48200	1450	1330
TCx-S 3205-3-5					5	23900	61100	1840	1690
TCx-S 3205-3-6					6	28100	74300	2240	2070
TCx-S 3210-6-2		10	6,35	27,6	2	26000	39100	640	600
TCx-S 3210-6-3					3	35300	59300	940	880
TCx-S 4005-3-2	40	5	3,175	37,8	2	12600	30000	890	790
TCx-S 4005-3-3					3	17200	45700	1320	1190
TCx-S 4005-3-4					4	21900	61900	1780	1610
TCx-S 4005-3-5					5	26500	78500	2250	2050
TCx-S 4005-3-6					6	31200	95500	2750	2510
TCx-S 4006-4-2		6	3,969	37,2	2	17800	38600	920	830
TCx-S 4006-4-3					3	24200	58800	1370	1240
TCx-S 4006-4-4					4	30800	79500	1840	1680
TCx-S 4006-4-5					5	37400	100700	2330	2130
TCx-S 4006-4-6					6	44000	122400	2840	2610
TCx-S 4010-6-2		10	6,35	35,6	2	30100	52000	810	760
TCx-S 4010-6-3					3	40900	78800	1200	1120
TCx-S 4010-6-4					4	52000	106000	1600	1500
TCx-S 4012-6-2		12			2	30100	51900	810	760
TCx-S 4012-6-3					3	40900	78700	1200	1130
TCx-S 4016-6-2		16			2	28600	48100	710	670
TCx-S 4020-6-2		20			2	29500	50700	740	710

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t, pr : Rigidity of the balls contact zone for an external force 10% of Ca. See page 22. For a different preload force, multiply by $\sqrt[3]{F_{pr} / 0,1\,C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

Length of the nut Ln ±1mm TCB	Length of the nut Ln ±1mm TCL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TCB	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TCB TCL
57	52	**36**	47	**58**	**6,6**	12	**10**	**44**	**51**	TCx-S 2005-3-2
68	62									TCx-S 2005-3-3
57	52									TCx-S 2505-3-2
68	62	**40**	**51**	**62**	**6,6**	12	**10**	**48**	**55**	TCx-S 2505-3-3
79	73									TCx-S 2505-3-4
57	52									TCx-S 3205-3-2
68	62									TCx-S 3205-3-3
79	73					**12**	**10**			TCx-S 3205-3-4
89	83	**50**	**65**	**80**	**9**			**62**	**71**	TCx-S 3205-3-5
100	94									TCx-S 3205-3-6
97	95					14	16			TCx-S 3210-6-2
112	112									TCx-S 3210-6-3
59	52									TCx-S 4005-3-2
70	62									TCx-S 4005-3-3
81	73									TCx-S 4005-3-4
91	83									TCx-S 4005-3-5
103	94					**14**	**10**			TCx-S 4005-3-6
65	59									TCx-S 4006-4-2
80	71									TCx-S 4006-4-3
89	83									TCx-S 4006-4-4
105	96	**63**	**78**	**93**	**9**			**70**	**81,5**	TCx-S 4006-4-5
118	109									TCx-S 4006-4-6
101	96									TCx-S 4010-6-2
123	117						16			TCx-S 4010-6-3
138	138									TCx-S 4010-6-4
114	104					18				TCx-S 4012-6-2
138	129						**20**			TCx-S 4012-6-3
122	109									TCx-S 4016-6-2
135	130									TCx-S 4020-6-2

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

>PRELOADED COMPACT NUT

Code TCB TCL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t,pr}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TCx-S 5005-3-2	50	5	3,175	47,8	2	13900	38400	1080	940
TCx-S 5005-3-3					3	19000	58400	1610	1410
TCx-S 5005-3-4					4	24200	79100	2170	1910
TCx-S 5005-3-5					5	29300	100300	2740	2430
TCx-S 5005-3-6					6	34400	122000	3340	2980
TCx-S 5006-4-2		6	3,969	47,2	2	19800	49600	1130	990
TCx-S 5006-4-3					3	26900	75500	1680	1480
TCx-S 5006-4-4					4	34300	102100	2260	2000
TCx-S 5006-4-5					5	41600	129400	2860	2550
TCx-S 5006-4-6					6	48900	157300	3480	3120
TCx-S 5010-6-2		10	6,35	44,5	2	38900	74100	1340	1240
TCx-S 5010-6-3					3	52600	111100	1940	1800
TCx-S 5010-6-4					4	66400	148200	2540	2360
TCx-S 5010-6-5					5	80000	185200	3130	2910
TCx-S 5010-6-6					6	93400	222200	3720	3470
TCx-S 5012-8-2		12	7,938	44,5	2	46300	83900	1020	930
TCx-S 5012-8-3					3	62900	127000	1500	1380
TCx-S 5012-8-4					4	79900	170700	1990	1840
TCx-S 5015-8-2		15			2	46200	83800	1020	950
TCx-S 5015-8-3					3	62800	126800	1490	1400
TCx-S 6305-3-2	63	5	3,175	60,8	2	15400	49200	1320	1100
TCx-S 6305-3-3					3	21000	74900	1970	1650
TCx-S 6305-3-4					4	26700	101400	2650	2240
TCx-S 6305-3-5					5	32400	128600	3350	2860
TCx-S 6305-3-6					6	38000	156400	4080	3510
TCx-S 6310-6-2		10	6,35	57,5	2	43800	95300	1650	1490
TCx-S 6310-6-3					3	59200	142900	2380	2160
TCx-S 6310-6-4					4	74800	190500	3120	2840
TCx-S 6310-6-5					5	90100	238100	3860	3510
TCx-S 6310-6-6					6	105200	285800	4590	4180
TCx-S 6312-8-2		12	7,938	57,5	2	54300	115000	1330	1200
TCx-S 6312-8-3					3	73700	174000	1960	1770
TCx-S 6312-8-4					4	93500	233900	2600	2360
TCx-S 6312-8-5					5	113300	294700	3260	2970
TCx-S 7010-6-3	70	10	6,35	64,5	3	63300	163900	2670	2370
TCx-S 7010-6-4					4	80000	218600	3500	3110
TCx-S 7010-6-5					5	96400	273200	4330	3840
TCx-S 7010-6-6					6	112500	327900	5140	4570
TCx-S 8010-6-3	80	10	6,35	74,5	3	67800	190400	3030	2610
TCx-S 8010-6-4					4	85600	253800	3960	3420
TCx-S 8010-6-5					5	103200	317300	4890	4230
TCx-S 8010-6-6					6	120400	380700	5820	5040
TCx-S 10010-6-3	100	10	6,35	94,5	3	74400	238100	3620	2960
TCx-S 10010-6-4					4	94000	317400	4740	3890
TCx-S 10010-6-5					5	113300	396800	5860	4810
TCx-S 10010-6-6					6	132200	476200	6970	5730

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t, pr : Rigidity of the balls contact zone for an external force 10% of Ca. See page 22. For a different preload force, multiply by $\sqrt[3]{F_a / 0,1 C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

Length of the nut Ln ±1mm TCB	Length of the nut Ln ±1mm TCL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TCB	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TCB TCL
63	52	**75**	**93**	**110**	**11**	18	**10**	**85**	**97,5**	TCx-S 5005-3-2
75	62									TCx-S 5005-3-3
83	73									TCx-S 5005-3-4
96	83									TCx-S 5005-3-5
107	94									TCx-S 5005-3-6
69	59									TCx-S 5006-4-2
84	71									TCx-S 5006-4-3
94	84									TCx-S 5006-4-4
109	96									TCx-S 5006-4-5
122	109									TCx-S 5006-4-6
101	96						16			TCx-S 5010-6-2
123	117									TCx-S 5010-6-3
138	138									TCx-S 5010-6-4
163	158									TCx-S 5010-6-5
185	180									TCx-S 5010-6-6
116	113						**20**			TCx-S 5012-8-2
146	138									TCx-S 5012-8-3
165	162									TCx-S 5012-8-4
121	115									TCx-S 5015-8-2
159	161									TCx-S 5015-8-3
63	52	**90**	**108**	**125**	**11**	**18**	16	**95**	**110**	TCx-S 6305-3-2
75	63									TCx-S 6305-3-3
83	73									TCx-S 6305-3-4
96	83									TCx-S 6305-3-5
107	94									TCx-S 6305-3-6
105	97					22				TCx-S 6310-6-2
127	117									TCx-S 6310-6-3
142	138									TCx-S 6310-6-4
167	158									TCx-S 6310-6-5
189	180									TCx-S 6310-6-6
120	113									TCx-S 6312-8-2
150	138	**95** (90)	**115** (108)	**135** (125)	**13,5** (11)	22	**25**	**100** (95)	**117,5** (110)	TCx-S 6312-8-3
169	162									TCx-S 6312-8-4
200	187									TCx-S 6312-8-5
129	117									TCx-S 7010-6-3
150	138	105 (95)	123 (113)	140 (130)	11	22	25	110 (100)	125 (115)	TCx-S 7010-6-4
170	158									TCx-S 7010-6-5
192	180									TCx-S 7010-6-6
127	118									TCx-S 8010-6-3
142	138	115 (**105**)	135 (**125**)	155 (**145**)	**13,5**	22	16	120 (**110**)	137,5 (**127,5**)	TCx-S 8010-6-4
167	158									TCx-S 8010-6-5
189	180									TCx-S 8010-6-6
126	118									TCx-S 10010-6-3
142	138	135 (**125**)	155 (**145**)	175 (**165**)	**13,5**	**22**	16	140 (**130**)	157,5 (**147,5**)	TCx-S 10010-6-4
167	158									TCx-S 10010-6-5
189	180									TCx-S 10010-6-6

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

PRELOADED DOUBLE NUT

TDB : Double Flanged

TDBC : Double Flanged Centre

TDL : Double Cylindrical

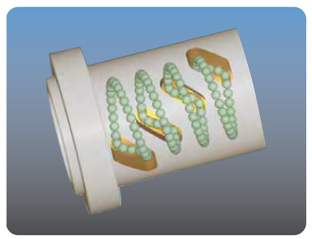
The nut of these high-precision ballscrews is formed by two parts separated by a washer whose thickness determines the preload force.

At SHUTON these two parts are embedded, with a view to eliminating possible radial displacement and improving the alignment and concentricity of both parts.

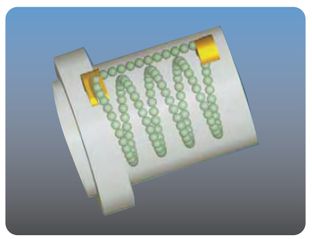
The maintenance is very fast because it is not necessary to disassemble the ballscrew from the machine, it is enough with disassembling the nut and replacing the washer for readjusting the preload.

SHUTON high-precision ballscrews, with external recirculation “U”, have multiple advantages:

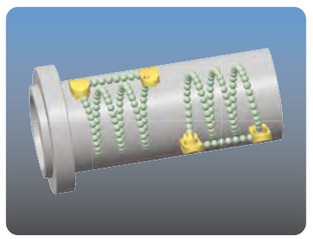
. Increase of dynamic load, the static load and the axial rigidity.
. Shorter nut length.
. Considerable reduction of the generated temperature and noise.
. Smoother movement.



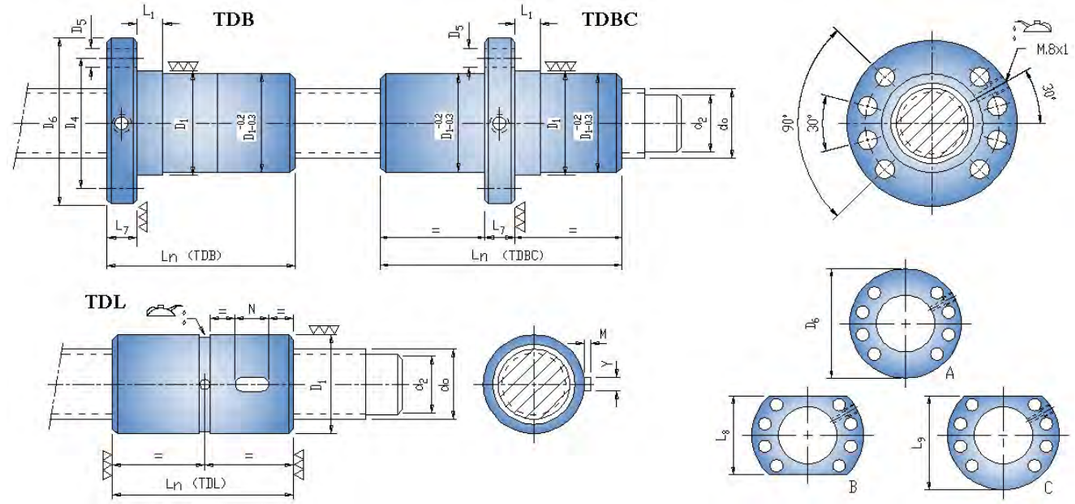
** Internal Recirculation 'S'*



*** External Recirculation 'U'*



**** External Recirculation 'B'*



Nominal diameter & Lead, with the maximum number of circuits made at SHUTON of Standard Preloaded Double Nut

Internal Recirculation 'S' | External Recirculation 'U' | External Recirculation 'B'

P_h / d_0	5	6	10	12	15	16	20	25	30	40	50
20	6 (2)										
25	6 (2)		4 (2)	4 (2)	3 (2)	**3 (2)**	**2 (2)**	**2 (2)**			
32	6 (2)		6 (2)	**6 (2)**	**5 (2)**	**5 (2)**	**4 (2)**	**3 (2)**	**2 (2)**	**2 (2)**	
40	6 (2)	6 (2)	6 (2)	6 (2)	**6 (2)**	**6 (2)**	**5 (2)**	**4 (2)**	**3 (2)**	**2 (2)**	**2 (2)**
50	6 (2)	6 (2)	7 (2)	8 (2)	8 (2)	8 (2)	**7 (2)**	**6 (2)**	**5 (2)**	**4 (2)**	**3 (2)**
63	6 (2)		6 (2)	7 (2)	7 (2)	8 (2)	8 (2)	**8 (2)**	**7 (2)**	**5 (2)**	**4 (2)**
70 no std			6 (2)	6 (2)	6 (2)	6 (2)	6 (2)	6 (2)	**6 (2)**	**5 (2)**	**4 (2)**
80			8 (2)	6 (2)	6 (2)	7 (2)	8 (2)	**8 (2)**	**7 (2)**	**5 (2)**	**4 (2)**
90 no std			6 (2)	5 (2)	5 (2)	6 (2)	6 (2)	6 (2)	6 (2)	**5 (2)**	**4 (2)**
100			8 (2)	5 (2)	6 (2)	6 (2)	8 (2) **12 (2)**	**8 (2)** **10 (2)**	**7 (2)** **8 (2)**	**5 (2)** **6 (2)**	**4 (2)** **5 (2)**
120						**12 (2)**	6 (2) **12 (2)**	**8 (2)** **10 (2)**	**7 (2)** **8 (2)**	**5 (2)** **6 (2)**	**4 (2)** **5 (2)**
140 no std							**12 (2)**	7 (2) **10 (2)**	**7 (2)** **8 (2)**	**5 (2)** **6 (2)**	**4 (2)** **5 (2)**
160 no std							**12 (2)**	**10 (2)**	**8 (2)**	**6 (2)**	**5 (2)**

'i+ technology'

If especial cases out of range are required, consult with SHUTON

>PRELOADED DOUBLE NUT

NO STANDARD CASES

Code TDB TDBC TDL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t,pr}$[N/µm]	Rigidity of nut R_{nu} [N/µm]
TDx-S 2005-3-2	20	5	3,175	17,8	2	8800	13400	460	430
TDx-S 2005-3-3					3	12000	20400	680	650
TDx-S 2005-3-4					4	15300	27600	920	870
TDx-S 2005-3-5					5	18500	35100	1160	1110
TDx-S 2005-3-6					6	21800	42700	1410	1350
TDx-S 2505-3-2	25	5	3,175	22,8	2	10000	17500	570	530
TDx-S 2505-3-3					3	13600	26700	850	790
TDx-S 2505-3-4					4	17300	36200	1150	1070
TDx-S 2505-3-5					5	21000	45900	1450	1360
TDx-S 2505-3-6					6	24700	55900	1770	1660
TDx-S 2510-5-2		10	4,762	21,7	2	16000	23300	470	450
TDx-S 2510-5-3					3	21700	34900	690	650
TDx-S 2510-5-4					4	27400	46500	900	850
TDx-U 2512-5-2		12	4,762	21,7	2	16400	24000	490	470
TDx-U 2512-5-3					3	23300	38900	760	730
TDx-U 2512-5-4					4	29800	53000	1000	970
TDx-U 2515-5-2		15			2	16200	23900	480	470
TDx-U 2515-5-3					3	23100	38700	750	730
TDx-U 2516-5-2		16			2	16200	23800	480	470
TDx-U 2516-5-3 i+					3	23000	38600	740	730
TDx-U 2520-5-2 i+		20			2	16400	24400	480	470
TDx-U 2525-5-2 i+		25			2	16000	24100	470	460
TDx-S 3205-3-2	32	5	3,175	29,8	2	11300	23400	720	660
TDx-S 3205-3-3					3	15500	35600	1080	990
TDx-S 3205-3-4					4	19700	48200	1450	1330
TDx-S 3205-3-5					5	23900	61100	1840	1690
TDx-S 3205-3-6					6	28100	74300	2240	2070
TDx-S 3210-6-2		10	6,35	27,6	2	26000	39100	640	600
TDx-S 3210-6-3					3	35300	59300	940	880
TDx-S 3210-6-4					4	44900	79800	1250	1180
TDx-S 3210-6-5					5	54500	100600	1570	1490
TDx-S 3210-6-6					6	63900	121900	1900	1800
TDx-U 3212-6-2		12	6,35	26,5	2	28800	42400	830	800
TDx-U 3212-6-3					3	41500	70200	1310	1270
TDx-U 3212-6-4					4	53400	96300	1760	1700
TDx-U 3212-6-5					5	65700	124000	2220	2140
TDx-U 3212-6-6 i+					6	77100	150100	2620	2530
TDx-U 3215-6-2		15			2	29400	43900	850	830
TDx-U 3215-6-3					3	41300	69900	1300	1260
TDx-U 3215-6-4					4	53800	97500	1780	1730
TDx-U 3215-6-5 i+					5	65400	123500	2200	2140
TDx-U 3216-6-2		16			2	29300	43800	850	820
TDx-U 3216-6-3					3	41200	69800	1300	1260
TDx-U 3216-6-4					4	53700	97400	1770	1730
TDx-U 3216-6-5 i+					5	65300	123400	2190	2140
TDx-U 3220-6-2		20			2	29100	43500	830	820
TDx-U 3220-6-3 i+					3	40900	69300	1280	1250
TDx-U 3220-6-4 i+					4	53200	96800	1750	1710
TDx-U 3225-6-2 i+		25			2	28700	43100	820	810
TDx-U 3225-6-3 i+					3	41000	70300	1280	1260
TDx-U 3232-6-2 i+		32			2	28800	43900	820	810
TDx-U 3240-6-2 i+		**40**			2	28500	44400	800	790

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t, pr : Rigidity of the balls contact zone for an external force 10% of Ca. See page 22. For a different preload force, multiply by $\sqrt[3]{F_p / 0,1 C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TDB	TDBC	TDL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TDB	L_7 h13 TDBC	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TDB TDBC TDL
71	74	62	**36**	47	**58**	**6,6**	**10**	15	**10**	**44**	**51**	TDx-S 2005-3-2
77	85	73										TDx-S 2005-3-3
88	96	84										TDx-S 2005-3-4
99	107	95										TDx-S 2005-3-5
109	117	105										TDx-S 2005-3-6
71	74	62	**40**	**51**	**62**	**6,6**	**10**	15	**10**	**48**	**55**	TDx-S 2505-3-2
78	86	74										TDx-S 2505-3-3
88	96	84										TDx-S 2505-3-4
99	107	95										TDx-S 2505-3-5
109	117	105										TDx-S 2505-3-6
94	105	92							16			TDx-S 2510-5-2
118	128	115										TDx-S 2510-5-3
141	152	139										TDx-S 2510-5-4
97			50 (45)	65 (58)	80 (71)	9	**10**	15	16	62 (55)	71 (63)	TDx-U 2512-5-2
121												TDx-U 2512-5-3
145												TDx-U 2512-5-4
107												TDx-U 2515-5-2
137												TDx-U 2515-5-3
111												TDx-U 2516-5-2
143												TDx-U 2516-5-3 i+
125												TDx-U 2520-5-2 i+
141												TDx-U 2525-5-2 i+
73	74	67	**50**	**65**	**80**	**9**	**12**	15	**10**	**62**	**71**	TDx-S 3205-3-2
86	86	79										TDx-S 3205-3-3
96	96	90										TDx-S 3205-3-4
107	107	100										TDx-S 3205-3-5
117	117	111										TDx-S 3205-3-6
117	123	115					14	20	16			TDx-S 3210-6-2
137	150	138										TDx-S 3210-6-3
157	172	160										TDx-S 3210-6-4
185	193	181										TDx-S 3210-6-5
205	213	201										TDx-S 3210-6-6
108			56	71	86	9	14	20	20	65	75,5	TDx-U 3212-6-2
132												TDx-U 3212-6-3
156												TDx-U 3212-6-4
177												TDx-U 3212-6-5
204												TDx-U 3212-6-6 i+
115												TDx-U 3215-6-2
145												TDx-U 3215-6-3
175												TDx-U 3215-6-4
215												TDx-U 3215-6-5 i+
117												TDx-U 3216-6-2
149												TDx-U 3216-6-3
181												TDx-U 3216-6-4
213												TDx-U 3216-6-5 i+
131												TDx-U 3220-6-2
171												TDx-U 3220-6-3 i+
211												TDx-U 3220-6-4 i+
155												TDx-U 3225-6-2 i+
205												TDx-U 3225-6-3 i+
177												TDx-U 3232-6-2 i+
205												TDx-U 3240-6-2 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

PRECISION BALLSCREW | SHUTON

>PRELOADED DOUBLE NUT

NO STANDARD CASES

Code TDB TDBC TDL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t,pr}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TDx-S 4005-3-2	40	5	3,175	37,8	2	12600	30000	890	790
TDx-S 4005-3-3					3	17200	45700	1320	1190
TDx-S 4005-3-4					4	21900	61900	1780	1610
TDx-S 4005-3-5					5	26500	78500	2250	2050
TDx-S 4005-3-6					6	31200	95500	2750	2510
TDx-S 4006-4-2		6	3,969	37,2	2	17800	38600	920	830
TDx-S 4006-4-3					3	24200	58800	1370	1240
TDx-S 4006-4-4					4	30800	79500	1840	1680
TDx-S 4006-4-5					5	37400	100700	2330	2130
TDx-S 4006-4-6					6	44000	122400	2840	2610
TDx-U 4010-6-3		10	6,35	34,5	3	48000	91400	1630	1540
TDx-U 4010-6-4					4	61600	124700	2190	2070
TDx-U 4010-6-5					5	74900	157900	2700	2550
TDx-U 4010-6-6					6	88400	192800	3230	3060
TDx-U 4012-6-3		12			3	48000	91300	1620	1550
TDx-U 4012-6-4					4	61500	124500	2180	2080
TDx-U 4012-6-5					5	74800	157700	2690	2570
TDx-U 4012-6-6					6	88300	192600	3220	3080
TDx-U 4015-6-3		15			3	47800	91100	1620	1560
TDx-U 4015-6-4					4	61300	124200	2170	2090
TDx-U 4015-6-5					5	75100	159000	2700	2600
TDx-U 4015-6-6 i+					6	88000	192100	3200	3090
TDx-U 4016-6-3		16			3	47700	91000	1610	1560
TDx-U 4016-6-4					4	61200	124100	2160	2090
TDx-U 4016-6-5					5	75000	158800	2700	2600
TDx-U 4016-6-6 i+					6	87900	191900	3200	3090
TDx-U 4020-6-2		20			2	34100	57700	1070	1040
TDx-U 4020-6-3					3	47500	90600	1600	1550
TDx-U 4020-6-4					4	61400	125200	2170	2110
TDx-U 4020-6-5 i+					5	74600	158200	2670	2600
TDx-U 4025-6-2		25			2	33800	57300	1060	1030
TDx-U 4025-6-3					3	47700	91700	1600	1570
TDx-U 4025-6-4 i+					4	60900	124400	2140	2090
TDx-U 4030-6-2		30			2	33500	56800	1040	1020
TDx-U 4030-6-3 i+					3	47200	90900	1580	1550
TDx-U 4040-6-2 i+		40			2	33200	57300	1020	1010
TDx-U 4050-6-2 i+		**50**			2	32800	57500	1000	990
TDx-U 4060-6-2 i+		**60**			2	32200	57400	960	960
TDx-U 4015-8-3		15	7,938	33,3	3	64700	116700	1770	1720
TDx-U 4015-8-4					4	84300	162800	2420	2340
TDx-U 4015-8-5					5	102500	206300	3000	2910
TDx-U 4015-8-6 i+					6	121200	252400	3580	3470
TDx-U 4016-8-3		16			3	64700	116600	1770	1720
TDx-U 4016-8-4					4	84200	162700	2420	2350
TDx-U 4016-8-5					5	102400	206100	2990	2910
TDx-U 4016-8-6 i+					6	121100	252200	3570	3470
TDx-U 4020-8-2		20			2	45800	72900	1140	1120
TDx-U 4020-8-3					3	64300	116100	1750	1710
TDx-U 4020-8-4					4	83800	162000	2400	2340
TDx-U 4020-8-5 i+					5	102700	207900	3000	2930
TDx-U 4025-8-2		25			2	45400	72400	1130	1110
TDx-U 4025-8-3					3	64800	118100	1770	1730
TDx-U 4025-8-4 i+					4	83100	161000	2360	2320
TDx-U 4030-8-2		30			2	44900	71900	1110	1090
TDx-U 4030-8-3 i+					3	64100	117100	1740	1710
TDx-U 4040-8-2 i+		40			2	44900	73100	1100	1090
TDx-U 4050-8-2 i+		**50**			2	44600	74000	1090	1080
TDx-U 4060-8-2 i+		**60**			2	44000	74500	1060	1050

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t, pr : Rigidity of the balls contact zone for an external force 10% of Ca. See page 22. For a different preload force, multiply by $\sqrt[3]{F_{pr}/0,1C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TDB	TDBC	TDL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TDB	TDBC	L_1 + 2mm 0 .	L_8 h13	L_9 h13	Code TDB TDBC TDL
73	74	69	**63**	**78**	**93**	**9**	**14**	15	**10**	**70**	**81,5**	TDx-S 4005-3-2
88	86	80										TDx-S 4005-3-3
99	97	91										TDx-S 4005-3-4
109	107	102										TDx-S 4005-3-5
119	117	112										TDx-S 4005-3-6
82	81	75										TDx-S 4006-4-2
97	95	89										TDx-S 4006-4-3
110	108	102										TDx-S 4006-4-4
122	121	115										TDx-S 4006-4-5
134	133	127										TDx-S 4006-4-6
	127		**63**	**78**	**93**	**9**	**14**	20	16	**70**	**81,5**	TDx-U 4010-6-3
	147											TDx-U 4010-6-4
	167											TDx-U 4010-6-5
	187											TDx-U 4010-6-6
	130								**20**			TDx-U 4012-6-3
	154											TDx-U 4012-6-4
	178											TDx-U 4012-6-5
	202											TDx-U 4012-6-6
	148		65				16					TDx-U 4015-6-3
	178											TDx-U 4015-6-4
	208											TDx-U 4015-6-5
	238											TDx-U 4015-6-6 i+
	163											TDx-U 4016-6-3
	195											TDx-U 4016-6-4
	227											TDx-U 4016-6-5
	259											TDx-U 4016-6-6 i+
	134		D1:**63** Consult with SHUTON				18					TDx-U 4020-6-2
	174											TDx-U 4020-6-3
	214											TDx-U 4020-6-4
	254											TDx-U 4020-6-5 i+
	152											TDx-U 4025-6-2
	202											TDx-U 4025-6-3
	258											TDx-U 4025-6-4 i+
	168											TDx-U 4030-6-2
	228											TDx-U 4030-6-3 i+
	210		**70** (66)	**85** (78)	**100** (93)					**75** (70)	**87,5** (81,5)	TDx-U 4040-6-2 i+
	244											TDx-U 4050-6-2 i+
	280											TDx-U 4060-6-2 i+
	161		**70**	**85**	**100**	**9**	18	20	**25**	**75**	**87,5**	TDx-U 4015-8-3
	191											TDx-U 4015-8-4
	221											TDx-U 4015-8-5
	251											TDx-U 4015-8-6 i+
	160											TDx-U 4016-8-3
	192											TDx-U 4016-8-4
	224											TDx-U 4016-8-5
	256											TDx-U 4016-8-6 i+
	140											TDx-U 4020-8-2
	180											TDx-U 4020-8-3
	220											TDx-U 4020-8-4
	260											TDx-U 4020-8-5 i+
	156											TDx-U 4025-8-2
	206											TDx-U 4025-8-3
	262											TDx-U 4025-8-4 i+
	178											TDx-U 4030-8-2
	238											TDx-U 4030-8-3 i+
	212											TDx-U 4040-8-2 i+
	246											TDx-U 4050-8-2 i+
	280											TDx-U 4060-8-2 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

PRECISION BALLSCREW | SHUTON

>PRELOADED DOUBLE NUT

NO STANDARD CASES

Code TDB TDBC TDL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t,pr}$[N/µm]	Rigidity of nut R_{nu} [N/µm]
TDx-S 5005-3-2					2	13900	38400	1080	940
TDx-S 5005-3-3					3	19000	58400	1610	1410
TDx-S 5005-3-4		5	3,175	47,8	4	24200	79100	2170	1910
TDx-S 5005-3-5					5	29300	100300	2740	2430
TDx-S 5005-3-6					6	34400	122000	3340	2980
TDx-S 5006-4-2					2	19800	49600	1130	990
TDx-S 5006-4-3					3	26900	75500	1680	1480
TDx-S 5006-4-4		6	3,969	47,2	4	34300	102100	2260	2000
TDx-S 5006-4-5					5	41600	129400	2860	2550
TDx-S 5006-4-6					6	48900	157300	3480	3120
TDx-U 5010-6-2					2	38900	74100	1310	1220
TDx-U 5010-6-3					3	54100	116200	2000	1850
TDx-U 5010-6-4		10			4	69900	159900	2660	2470
TDx-U 5010-6-5					5	84800	202000	3290	3050
TDx-U 5010-6-6					6	99400	244100	3900	3620
TDx-U 5010-6-7-Z					7	114200	287900	4510	4190
TDx-U 5012-6-2					2	38900	74000	1310	1230
TDx-U 5012-6-3					3	54100	116100	1990	1870
TDx-U 5012-6-4		12			4	69800	159800	2660	2490
TDx-U 5012-6-5					5	84700	201900	3290	3090
TDx-U 5012-6-6					6	99300	243900	3890	3660
TDx-U 5015-6-2					2	38800	73900	1310	1240
TDx-U 5015-6-3					3	54500	117600	2010	1910
TDx-U 5015-6-4		15			4	69700	159600	2650	2520
TDx-U 5015-6-5					5	84600	201500	3280	3110
TDx-U 5015-6-6					6	99600	245200	3910	3720
TDx-U 5016-6-2	50				2	38800	73900	1310	1250
TDx-U 5016-6-3					3	54400	117500	2010	1910
TDx-U 5016-6-4		16			4	69600	159500	2640	2520
TDx-U 5016-6-5					5	84500	201400	3270	3120
TDx-U 5016-6-6					6	99500	245100	3900	3720
TDx-U 5020-6-2			6,35	44,5	2	38600	73600	1300	1250
TDx-U 5020-6-3					3	54200	117200	2000	1920
TDx-U 5020-6-4		20			4	69400	159000	2630	2530
TDx-U 5020-6-5					5	84600	202500	3280	3150
TDx-U 5020-6-6					6	99100	244400	3880	3730
TDx-U 5025-6-2					2	39000	75000	1320	1280
TDx-U 5025-6-3					3	53900	116700	1980	1920
TDx-U 5025-6-4		25			4	69500	160000	2630	2550
TDx-U 5025-6-5 i+					5	84200	201700	3250	3150
TDx-U 5025-6-6 i+					6	99000	245000	3870	3750
TDx-U 5030-6-2					2	38700	74600	1300	1270
TDx-U 5030-6-3		30			3	54100	117700	1990	1930
TDx-U 5030-6-4 i+					4	69000	159200	2600	2540
TDx-U 5030-6-5 i+					5	84100	202300	3240	3160
TDx-U 5040-6-2 i+					2	38600	75300	1290	1270
TDx-U 5040-6-3 i+		40			3	53700	117800	1960	1920
TDx-U 5040-6-4 i+					4	68800	160400	2580	2530
TDx-U 5050-6-2 i+		50			2	37800	74100	1250	1230
TDx-U 5050-6-3 i+					3	53000	117600	1920	1890
TDx-U 5060-6-2 i+		**60**			2	37400	74200	1220	1210
TDx-U 5080-6-2 i+		**80**			2	36800	75500	1180	1170

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t, pr : Rigidity of the balls contact zone for an external force 10% of Ca. See page 22. For a different preload force, multiply by $\sqrt[3]{F_p / 0,1 C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TDB	TDBC	TDL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TDB	L_7 h13 TDBC	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TDB TDBC TDL
75	75	69										TDx-S 5005-3-2
90	87	80										TDx-S 5005-3-3
101	98	91										TDx-S 5005-3-4
111	108	102										TDx-S 5005-3-5
121	118	112	**75**	**93**	**110**	**11**	**16**	**16**	**10**	**85**	**97,5**	TDx-S 5005-3-6
84	82	76										TDx-S 5006-4-2
99	96	90										TDx-S 5006-4-3
112	109	103										TDx-S 5006-4-4
124	122	115										TDx-S 5006-4-5
136	134	128										TDx-S 5006-4-6
	108											TDx-U 5010-6-2
	128											TDx-U 5010-6-3
	148											TDx-U 5010-6-4
	168								16			TDx-U 5010-6-5
	188											TDx-U 5010-6-6
	208											TDx-U 5010-6-7-Z
	108											TDx-U 5012-6-2
	132											TDx-U 5012-6-3
	156											TDx-U 5012-6-4
	180											TDx-U 5012-6-5
	204						**16**	**20**				TDx-U 5012-6-6
	118											TDx-U 5015-6-2
	148											TDx-U 5015-6-3
	178								**20**			TDx-U 5015-6-4
	208											TDx-U 5015-6-5
	238											TDx-U 5015-6-6
	132											TDx-U 5016-6-2
	164											TDx-U 5016-6-3
	196											TDx-U 5016-6-4
	228											TDx-U 5016-6-5
	260											TDx-U 5016-6-6
	136		**75**	**93**	**110**	**11**				**85**	**97,5**	TDx-U 5020-6-2
	176											TDx-U 5020-6-3
	216											TDx-U 5020-6-4
	256											TDx-U 5020-6-5
	296											TDx-U 5020-6-6
	159											TDx-U 5025-6-2
	209											TDx-U 5025-6-3
	254											TDx-U 5025-6-4
	309											TDx-U 5025-6-5 i+
	359											TDx-U 5025-6-6 i+
	183						18	25	25			TDx-U 5030-6-2
	232											TDx-U 5030-6-3
	303											TDx-U 5030-6-4 i+
	363											TDx-U 5030-6-5 i+
	214											TDx-U 5040-6-2 i+
	294											TDx-U 5040-6-3 i+
	374											TDx-U 5040-6-4 i+
	248											TDx-U 5050-6-2 i+
	348											TDx-U 5050-6-3 i+
	284											TDx-U 5060-6-2 i+
	356											TDx-U 5080-6-2 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

>PRELOADED DOUBLE NUT

NO STANDARD CASES

Code TDB TDBC TDL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t,pr}$[N/µm]	Rigidity of nut R_{nu} [N/µm]
TDx-U 5012-8-2					2	52600	93900	1430	1360
TDx-U 5012-8-3					3	74700	151900	2200	2090
TDx-U 5012-8-4					4	95800	207200	2920	2780
TDx-U 5012-8-5		12			5	117400	265200	3680	3500
TDx-U 5012-8-6					6	137600	320500	4360	4150
TDx-U 5012-8-7					7	158200	378500	5050	4800
TDx-U 5012-8-8					8	177600	433700	5670	5400
TDx-U 5015-8-2					2	52500	93800	1430	1370
TDx-U 5015-8-3					3	74600	151700	2190	2100
TDx-U 5015-8-4					4	95700	206900	2920	2800
TDx-U 5015-8-5		15			5	117100	264800	3670	3520
TDx-U 5015-8-6					6	137300	320000	4350	4180
TDx-U 5015-8-7					7	157900	377900	5040	4840
TDx-U 5015-8-8					8	177200	433100	5650	5430
TDx-U 5016-8-2					2	52500	93700	1430	1380
TDx-U 5016-8-3					3	74500	151600	2190	2110
TDx-U 5016-8-4					4	95600	206800	2910	2800
TDx-U 5016-8-5		16			5	117000	264700	3660	3520
TDx-U 5016-8-6					6	137200	319800	4340	4180
TDx-U 5016-8-7					7	157700	377700	5030	4840
TDx-U 5016-8-8					8	177100	432800	5650	5440
TDx-U 5020-8-2	50		7,938	43,3	2	53300	96200	1460	1410
TDx-U 5020-8-3					3	74300	151200	2180	2110
TDx-U 5020-8-4		20			4	96100	209000	2930	2840
TDx-U 5020-8-5					5	116600	263900	3640	3530
TDx-U 5020-8-6					6	137500	321700	4360	4220
TDx-U 5020-8-7 i+					7	157200	376700	5000	4850
TDx-U 5025-8-2					2	53000	95800	1450	1410
TDx-U 5025-8-3					3	73900	150600	2160	2110
TDx-U 5025-8-4		25			4	95600	208100	2910	2830
TDx-U 5025-8-5 i+					5	116800	265600	3650	3560
TDx-U 5025-8-6 i+					6	136800	320300	4320	4210
TDx-U 5030-8-2					2	52700	95300	1430	1400
TDx-U 5030-8-3		30			3	74200	152500	2170	2130
TDx-U 5030-8-4 i+					4	94900	207000	2870	2820
TDx-U 5030-8-5 i+					5	116000	264200	3610	3530
TDx-U 5040-8-2 i+					2	52800	96800	1430	1410
TDx-U 5040-8-3 i+		40			3	73900	153300	2150	2120
TDx-U 5040-8-4 i+					4	95000	209800	2870	2820
TDx-U 5050-8-2 i+		50			2	51700	95300	1380	1370
TDx-U 5050-8-3 i+					3	73200	153500	2110	2090
TDx-U 5060-8-2 i+		**60**			2	51400	96100	1360	1350
TDx-U 5080-8-2 i+		**80**			2	50200	96900	1300	1290

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t, pr : Rigidity of the balls contact zone for an external force 10% of Ca. See page 22. For a different preload force, multiply by $\sqrt[3]{F_p / 0,1 C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TDB	TDBC	TDL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TDB	L_7 h13 TDBC	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TDB TDBC TDL
116												TDx-U 5012-8-2
140												TDx-U 5012-8-3
164												TDx-U 5012-8-4
188												TDx-U 5012-8-5
212												TDx-U 5012-8-6
236												TDx-U 5012-8-7
260												TDx-U 5012-8-8
134												TDx-U 5015-8-2
164												TDx-U 5015-8-3
194												TDx-U 5015-8-4
224							**16**	20				TDx-U 5015-8-5
254												TDx-U 5015-8-6
284												TDx-U 5015-8-7
314												TDx-U 5015-8-8
130												TDx-U 5016-8-2
162												TDx-U 5016-8-3
194												TDx-U 5016-8-4
226												TDx-U 5016-8-5
258												TDx-U 5016-8-6
290												TDx-U 5016-8-7
322												TDx-U 5016-8-8
144			**82** (80)	**100**	**118**	**11**			**25**	**92**	**105**	TDx-U 5020-8-2
184												TDx-U 5020-8-3
224												TDx-U 5020-8-4
264												TDx-U 5020-8-5
304												TDx-U 5020-8-6
344												TDx-U 5020-8-7 i+
164												TDx-U 5025-8-2
214												TDx-U 5025-8-3
260												TDx-U 5025-8-4
314												TDx-U 5025-8-5 i+
364												TDx-U 5025-8-6 i+
188							18	25				TDx-U 5030-8-2
248												TDx-U 5030-8-3
308												TDx-U 5030-8-4 i+
368												TDx-U 5030-8-5 i+
218												TDx-U 5040-8-2 i+
298												TDx-U 5040-8-3 i+
378												TDx-U 5040-8-4 i+
252												TDx-U 5050-8-2 i+
352												TDx-U 5050-8-3 i+
288												TDx-U 5060-8-2 i+
358												TDx-U 5080-8-2 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

PRECISION BALLSCREW | SHUTON

>PRELOADED DOUBLE NUT

NO STANDARD CASES

Code TDB TDBC TDL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t,pr}$[N/µm]	Rigidity of nut R_{nu} [N/µm]
TDx-S 6305-3-2					2	15400	49200	1320	1100
TDx-S 6305-3-3					3	21000	74900	1970	1650
TDx-S 6305-3-4		5	3,175	60,8	4	26700	101400	2650	2240
TDx-S 6305-3-5					5	32400	128600	3350	2860
TDx-S 6305-3-6					6	38000	156400	4080	3510
TDx-U 6310-6-2					2	44400	97000	1650	1500
TDx-U 6310-6-3					3	61500	151400	2450	2220
TDx-U 6310-6-4		10	6,35	57,5	4	78300	204100	3230	2930
TDx-U 6310-6-5					5	95200	258500	4020	3650
TDx-U 6310-6-6-Z					6	111800	313000	4770	4330
TDx-U 6312-8-2					2	61200	125900	1810	1690
TDx-U 6312-8-3					3	84700	195800	2730	2540
TDx-U 6312-8-4		12			4	109000	268500	3620	3380
TDx-U 6312-8-5					5	132200	338500	4480	4170
TDx-U 6312-8-6					6	155500	411200	5330	4970
TDx-U 6312-8-7-Z					7	178300	483900	6150	5740
TDx-U 6315-8-2					2	61100	125700	1810	1710
TDx-U 6315-8-3					3	84600	195600	2720	2570
TDx-U 6315-8-4		15			4	108900	268300	3620	3420
TDx-U 6315-8-5					5	132700	340900	4500	4250
TDx-U 6315-8-6					6	155300	410800	5320	5030
TDx-U 6315-8-7-Z					7	178100	483400	6140	5810
TDx-U 6316-8-2					2	61100	125700	1810	1710
TDx-U 6316-8-3					3	84500	195500	2720	2580
TDx-U 6316-8-4	63	16			4	108900	268200	3610	3430
TDx-U 6316-8-5					5	132700	340800	4500	4270
TDx-U 6316-8-6					6	155200	410600	5320	5040
TDx-U 6320-8-2					2	61000	125500	1800	1730
TDx-U 6320-8-3					3	84400	195200	2710	2600
TDx-U 6320-8-4		20	7,938	56,3	4	108600	267700	3600	3450
TDx-U 6320-8-5					5	132400	340200	4480	4300
TDx-U 6320-8-6					6	154900	409900	5300	5080
TDx-U 6325-8-2					2	60800	125100	1790	1730
TDx-U 6325-8-3					3	84900	197400	2730	2640
TDx-U 6325-8-4		25			4	108200	267000	3580	3460
TDx-U 6325-8-5					5	131900	339300	4460	4310
TDx-U 6325-8-6					6	155000	411600	5300	5130
TDx-U 6330-8-2					2	60500	124700	1780	1730
TDx-U 6330-8-3					3	84500	196800	2710	2640
TDx-U 6330-8-4		30			4	108500	268900	3590	3490
TDx-U 6330-8-5 i+					5	132000	340900	4460	4340
TDx-U 6330-8-6 i+					6	154400	410200	5270	5120
TDx-U 6340-8-2					2	60700	126500	1780	1750
TDx-U 6340-8-3		40			3	84400	197900	2700	2640
TDx-U 6340-8-4 i+					4	108100	269400	3560	3490
TDx-U 6340-8-5 i+					5	131300	340900	4420	4320
TDx-U 6350-8-2 i+					2	59900	125100	1740	1720
TDx-U 6350-8-3 i+		50			3	83200	195900	2640	2600
TDx-U 6350-8-4 i+					4	107400	269300	3520	3460

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
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***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TDB	TDBC	TDL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TDB	TDBC	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TDB TDBC TDL
77	77	69										TDx-S 6305-3-2
92	89	80										TDx-S 6305-3-3
103	100	91	**90**	**108**	**125**	**11**	**18**	**18**	16	**95**	**110**	TDx-S 6305-3-4
113	110	102										TDx-S 6305-3-5
123	121	112										TDx-S 6305-3-6
	102											TDx-U 6310-6-2
	122											TDx-U 6310-6-3
	142		**90**	**108**	**125**	**11**	**18**	20	16	**95**	**110**	TDx-U 6310-6-4
	162											TDx-U 6310-6-5
	182											TDx-U 6310-6-6-Z
	116											TDx-U 6312-8-2
	140											TDx-U 6312-8-3
	164											TDx-U 6312-8-4
	188											TDx-U 6312-8-5
	212											TDx-U 6312-8-6
	236											TDx-U 6312-8-7-Z
	135											TDx-U 6315-8-2
	165											TDx-U 6315-8-3
	195											TDx-U 6315-8-4
	225											TDx-U 6315-8-5
	255											TDx-U 6315-8-6
	285											TDx-U 6315-8-7-Z
	140											TDx-U 6316-8-2
	172											TDx-U 6316-8-3
	204											TDx-U 6316-8-4
	236											TDx-U 6316-8-5
	268											TDx-U 6316-8-6
164												TDx-U 6320-8-2
204												TDx-U 6320-8-3
244			**95**	**115**	**135**	**13,5**	**20**	25	**25**	**100**	**117,5**	TDx-U 6320-8-4
284												TDx-U 6320-8-5
324												TDx-U 6320-8-6
164												TDx-U 6325-8-2
214												TDx-U 6325-8-3
264												TDx-U 6325-8-4
314												TDx-U 6325-8-5
364												TDx-U 6325-8-6
189												TDx-U 6330-8-2
249												TDx-U 6330-8-3
309												TDx-U 6330-8-4
369												TDx-U 6330-8-5 i+
429												TDx-U 6330-8-6 i+
216												TDx-U 6340-8-2
296												TDx-U 6340-8-3
376												TDx-U 6340-8-4 i+
456												TDx-U 6340-8-5 i+
256												TDx-U 6350-8-2 i+
356												TDx-U 6350-8-3 i+
456												TDx-U 6350-8-4 i+

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PRECISION BALLSCREW | SHUTON

>PRELOADED DOUBLE NUT

NO STANDARD CASES

Code TDB TDBC TDL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t,pr}$[N/µm]	Rigidity of nut R_{nu} [N/µm]
TDx-U 6316-9-2	63	16	9,525	55,2	2	77400	149400	1840	1760
TDx-U 6316-9-3					3	107700	234100	2740	2620
TDx-U 6316-9-4					4	139100	322900	3690	3520
TDx-U 6316-9-5					5	168800	407700	4580	4370
TDx-U 6316-9-6					6	198900	496500	5440	5200
TDx-U 6316-9-7					7	227400	581300	6260	5980
TDx-U 6316-9-8					8	256300	670100	7080	6760
TDx-U 6320-9-2		20			2	77200	149100	1830	1770
TDx-U 6320-9-3					3	107400	233700	2730	2630
TDx-U 6320-9-4					4	138800	322400	3670	3540
TDx-U 6320-9-5					5	168400	407000	4560	4400
TDx-U 6320-9-6					6	198500	495700	5420	5230
TDx-U 6320-9-7					7	226900	580300	6240	6010
TDx-U 6320-9-8					8	255800	668900	7050	6800
TDx-U 6325-9-2		25			2	77000	148700	1820	1770
TDx-U 6325-9-3					3	107000	233100	2720	2640
TDx-U 6325-9-4					4	138400	321500	3650	3550
TDx-U 6325-9-5					5	169000	409900	4580	4440
TDx-U 6325-9-6					6	197800	494300	5390	5240
TDx-U 6325-9-7 i+					7	227100	582800	6240	6060
TDx-U 6325-9-8 i+					8	254900	667200	7020	6810
TDx-U 6330-9-2		30			2	76700	148200	1810	1770
TDx-U 6330-9-3					3	107800	236400	2740	2680
TDx-U 6330-9-4					4	137800	320500	3630	3540
TDx-U 6330-9-5 i+					5	168300	408600	4550	4440
TDx-U 6330-9-6 i+					6	198100	496800	5400	5270
TDx-U 6330-9-7 i+					7	226200	580900	6200	6050
TDx-U 6340-9-2		40			2	75800	147000	1780	1750
TDx-U 6340-9-3					3	106700	234400	2700	2650
TDx-U 6340-9-4 i+					4	137500	321900	3610	3540
TDx-U 6340-9-5 i+					5	167600	409300	4520	4430
TDx-U 6350-9-2 i+		50			2	76200	149500	1790	1760
TDx-U 6350-9-3 i+					3	106500	236000	2680	2640
TDx-U 6350-9-4 i+					4	136700	322500	3570	3520

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t, pr : Rigidity of the balls contact zone for an external force 10% of Ca. See page 22. For a different preload force, multiply by $\sqrt[3]{F_{pr}/0,1C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TDB	TDBC	TDL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TDB	TDBC	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TDB TDBC TDL
146												TDx-U 6316-9-2
178												TDx-U 6316-9-3
210												TDx-U 6316-9-4
242												TDx-U 6316-9-5
274												TDx-U 6316-9-6
306												TDx-U 6316-9-7
338												TDx-U 6316-9-8
169												TDx-U 6320-9-2
209												TDx-U 6320-9-3
249												TDx-U 6320-9-4
289												TDx-U 6320-9-5
329												TDx-U 6320-9-6
356												TDx-U 6320-9-7
396												TDx-U 6320-9-8
172												TDx-U 6325-9-2
222												TDx-U 6325-9-3
272			**105** (100)	**125** (120)	**145** (140)	**13,5**	**20**	25	**25**	**110** (105)	**127,5** (122,5)	TDx-U 6325-9-4
322												TDx-U 6325-9-5
372												TDx-U 6325-9-6
422												TDx-U 6325-9-7 i+
472												TDx-U 6325-9-8 i+
196												TDx-U 6330-9-2
256												TDx-U 6330-9-3
316												TDx-U 6330-9-4
376												TDx-U 6330-9-5 i+
436												TDx-U 6330-9-6 i+
496												TDx-U 6330-9-7 i+
222												TDx-U 6340-9-2
302												TDx-U 6340-9-3
382												TDx-U 6340-9-4 i+
462												TDx-U 6340-9-5 i+
256												TDx-U 6350-9-2 i+
356												TDx-U 6350-9-3 i+
456												TDx-U 6350-9-4 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

PRECISION BALLSCREW | SHUTON

>PRELOADED DOUBLE NUT

NO STANDARD CASES

Code TDB TDBC TDL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t,pr}$[N/µm]	Rigidity of nut R_{nu} [N/µm]
TDx-S 7010-6-3	70	10	6,35	64,5	3	63300	163900	2670	2370
TDx-S 7010-6-4					4	80000	218600	3500	3110
TDx-S 7010-6-5					5	96400	273200	4330	3840
TDx-S 7010-6-6					6	112500	327900	5140	4570
TDx-U 7012-8-3		12	7,938	63,3	3	90100	222000	3010	2780
TDx-U 7012-8-4					4	115000	300700	3960	3670
TDx-U 7012-8-5					5	139500	379400	4910	4550
TDx-U 7012-8-6					6	164100	460900	5860	5430
TDx-U 7015-8-3		15			3	90000	221800	3000	2820
TDx-U 7015-8-4					4	114900	300500	3960	3720
TDx-U 7015-8-5					5	139300	379100	4900	4610
TDx-U 7015-8-6					6	163900	460500	5850	5500
TDx-U 7016-9-3		16	9,525	62,2	3	114300	263900	3040	2870
TDx-U 7016-9-4					4	147000	361400	4060	3840
TDx-U 7016-9-5					5	179100	458800	5040	4760
TDx-U 7016-9-6					6	209400	552200	5940	5620
TDx-U 7020-9-2		20			2	81400	166200	2010	1920
TDx-U 7020-9-3					3	114100	263500	3030	2900
TDx-U 7020-9-4					4	146800	360900	4050	3870
TDx-U 7020-9-5					5	178800	458200	5020	4800
TDx-U 7020-9-6					6	210000	555500	5960	5700
TDx-U 7025-9-2		25			2	81200	165900	2000	1930
TDx-U 7025-9-3					3	113800	263000	3020	2910
TDx-U 7025-9-4					4	146400	360100	4030	3890
TDx-U 7025-9-5					5	178200	457200	5000	4820
TDx-U 7025-9-6					6	209400	554300	5930	5730
TDx-U 7030-9-2		30			2	80900	165400	1990	1930
TDx-U 7030-9-3					3	113400	262300	3000	2910
TDx-U 7030-9-4					4	145900	359100	4010	3890
TDx-U 7030-9-5					5	177600	456000	4970	4830
TDx-U 7030-9-6 i+					6	208700	552800	5900	5730
TDx-U 7040-9-2		40			2	81500	168300	2010	1960
TDx-U 7040-9-3					3	113600	264500	3000	2930
TDx-U 7040-9-4 i+					4	145700	360700	3990	3900
TDx-U 7040-9-5 i+					5	177100	456900	4940	4840
TDx-U 7050-9-2		50			2	80600	166900	1970	1940
TDx-U 7050-9-3 i+					3	112300	262300	2950	2900
TDx-U 7050-9-4 i+					4	145100	361700	3960	3890
TDx-U 7020-12-2		20	12,7	61	2	117600	219600	2070	1990
TDx-U 7020-12-3					3	168100	358700	3240	3110
TDx-U 7020-12-4					4	216000	490500	4300	4130
TDx-U 7020-12-5					5	262900	622200	5350	5140
TDx-U 7020-12-6					6	310800	761300	6410	6150
TDx-U 7025-12-2		25			2	117300	219200	2060	1990
TDx-U 7025-12-3					3	167700	358000	3230	3120
TDx-U 7025-12-4					4	215400	489500	4280	4140
TDx-U 7025-12-5					5	264300	628300	5390	5210
TDx-U 7025-12-6					6	310000	759800	6380	6170
TDx-U 7030-12-2		30			2	116900	218600	2050	1990
TDx-U 7030-12-3					3	167100	357100	3210	3120
TDx-U 7030-12-4					4	214700	488200	4260	4140
TDx-U 7030-12-5					5	263400	626700	5360	5210
TDx-U 7030-12-6 i+					6	309000	757900	6350	6180
TDx-U 7040-12-2		40			2	118500	224500	2080	2040
TDx-U 7040-12-3					3	165700	354800	3170	3110
TDx-U 7040-12-4 i+					4	215100	492400	4270	4180
TDx-U 7040-12-5 i+					5	261300	622700	5290	5180
TDx-U 7050-12-2		50			2	117300	222700	2050	2020
TDx-U 7050-12-3 i+					3	166200	359200	3180	3120
TDx-U 7050-12-4 i+					4	212900	488500	4190	4130

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t, pr : Rigidity of the balls contact zone for an external force 10% of Ca. See page 22. For a different preload force, multiply by $\sqrt[3]{F_{pr}/0,1C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TDB	TDBC	TDL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TDB	TDBC	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TDB TDBC TDL
148	151	140	105 (95)	123 (113)	140 (130)	11	18	20	25	110 (100)	125 (115)	TDx-S 7010-6-3
170	173	162										TDx-S 7010-6-4
191	194	183										TDx-S 7010-6-5
211	214	203										TDx-S 7010-6-6
	153		105	125	145	13,5	20	25	25	110	127,5	TDx-U 7012-8-3
	177											TDx-U 7012-8-4
	201											TDx-U 7012-8-5
	225											TDx-U 7012-8-6
	165											TDx-U 7015-8-3
	195											TDx-U 7015-8-4
	225											TDx-U 7015-8-5
	255											TDx-U 7015-8-6
	179		110	130	150	13,5	25	30	25	115	132,5	TDx-U 7016-9-3
	211											TDx-U 7016-9-4
	243											TDx-U 7016-9-5
	275											TDx-U 7016-9-6
	158											TDx-U 7020-9-2
	198											TDx-U 7020-9-3
	238											TDx-U 7020-9-4
	278											TDx-U 7020-9-5
	318											TDx-U 7020-9-6
	174											TDx-U 7025-9-2
	224											TDx-U 7025-9-3
	274											TDx-U 7025-9-4
	324											TDx-U 7025-9-5
	374											TDx-U 7025-9-6
196												TDx-U 7030-9-2
256												TDx-U 7030-9-3
316												TDx-U 7030-9-4
376												TDx-U 7030-9-5
436												TDx-U 7030-9-6 i+
224												TDx-U 7040-9-2
304												TDx-U 7040-9-3
384												TDx-U 7040-9-4 i+
464												TDx-U 7040-9-5 i+
258												TDx-U 7050-9-2
358												TDx-U 7050-9-3 i+
458												TDx-U 7050-9-4 i+
179			120	140	160	13,5	25	30	25	125	142,5	TDx-U 7020-12-2
219												TDx-U 7020-12-3
259												TDx-U 7020-12-4
299												TDx-U 7020-12-5
339												TDx-U 7020-12-6
207												TDx-U 7025-12-2
257												TDx-U 7025-12-3
307												TDx-U 7025-12-4
357												TDx-U 7025-12-5
407												TDx-U 7025-12-6
206												TDx-U 7030-12-2
266												TDx-U 7030-12-3
326												TDx-U 7030-12-4
386												TDx-U 7030-12-5
446												TDx-U 7030-12-6 i+
252												TDx-U 7040-12-2
332												TDx-U 7040-12-3
412												TDx-U 7040-12-4 i+
492												TDx-U 7040-12-5 i+
270												TDx-U 7050-12-2
370												TDx-U 7050-12-3 i+
470												TDx-U 7050-12-4 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

>PRELOADED DOUBLE NUT

NO STANDARD CASES

Code TDB TDBC TDL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t,pr}$[N/µm]	Rigidity of nut R_{nu} [N/µm]
TDx-S 8010-6-3	80	10	6,35	74,5	3	67800	190400	3030	2610
TDx-S 8010-6-4					4	85600	253800	3960	3420
TDx-S 8010-6-5					5	103200	317300	4890	4230
TDx-S 8010-6-6					6	120400	380700	5820	5040
TDx-S 8010-6-7					7	137300	444200	6730	5840
TDx-S 8010-6-8					8	153900	507600	7650	6640
TDx-U 8012-8-3		12	7,938	73,3	3	95700	254200	3340	3090
TDx-U 8012-8-4					4	122900	347500	4450	4120
TDx-U 8012-8-5					5	148900	437900	5500	5090
TDx-U 8012-8-6-Z					6	174400	528300	6510	6030
TDx-U 8015-8-3		15			3	95600	254100	3340	3140
TDx-U 8015-8-4					4	122800	347300	4450	4180
TDx-U 8015-8-5					5	148800	437600	5490	5160
TDx-U 8015-8-6-Z					6	174300	527900	6500	6110
TDx-U 8016-8-3		16			3	95600	254000	3340	3150
TDx-U 8016-8-4					4	122800	347200	4450	4190
TDx-U 8016-8-5					5	148800	437500	5490	5180
TDx-U 8016-9-5			9,525	72,2	5	191200	527200	5610	5270
TDx-U 8016-9-6					6	224200	637500	6660	6270
TDx-U 8016-9-7-Z					7	256600	747800	7670	7220
TDx-U 8020-9-3		20			3	122700	306200	3410	3240
TDx-U 8020-9-4					4	157200	416400	4540	4320
TDx-U 8020-9-5					5	190900	526600	5600	5320
TDx-U 8020-9-6					6	223900	636800	6640	6330
TDx-U 8020-9-7-Z					7	256300	747000	7660	7290
TDx-U 8025-9-3		25			3	122500	305600	3400	3260
TDx-U 8025-9-4					4	156800	415700	4520	4340
TDx-U 8025-9-5					5	190500	525700	5580	5360
TDx-U 8025-9-6					6	224400	639800	6660	6400
TDx-U 8025-9-7-Z					7	256600	749900	7670	7380
TDx-U 8030-9-3		30			3	122200	305000	3380	3270
TDx-U 8030-9-4					4	156400	414800	4500	4350
TDx-U 8030-9-5					5	191000	528700	5590	5410
TDx-U 8030-9-6					6	223800	638500	6630	6420
TDx-U 8030-9-7 i+					7	255900	748300	7640	7390
TDx-U 8040-9-2		40			2	87400	194200	2230	2180
TDx-U 8040-9-3					3	122400	307500	3390	3300
TDx-U 8040-9-4					4	156400	416700	4500	4380
TDx-U 8040-9-5 i+					5	189700	526000	5530	5400
TDx-U 8050-9-2		50			2	87900	197000	2250	2200
TDx-U 8050-9-3					3	121400	305500	3340	3280
TDx-U 8050-9-4 i+					4	156000	418000	4470	4380
TDx-U 8020-12-3		20	12,7	71	3	180700	413300	3610	3450
TDx-U 8020-12-4					4	233100	568400	4840	4620
TDx-U 8020-12-5					5	284300	723400	6060	5780
TDx-U 8020-12-6					6	334400	878400	7220	6890
TDx-U 8020-12-7					7	381600	1026000	8270	7900
TDx-U 8020-12-8					8	429700	1181000	9330	8920
TDx-U 8025-12-3		25			3	180300	412700	3600	3470
TDx-U 8025-12-4					4	232600	567400	4820	4640
TDx-U 8025-12-5					5	283700	722200	6040	5810
TDx-U 8025-12-6					6	333700	877000	7190	6930
TDx-U 8025-12-7					7	382600	1031700	8300	8000
TDx-U 8025-12-8 i+					8	430600	1186500	9360	9020
TDx-U 8030-12-3		30			3	179900	411900	3590	3470
TDx-U 8030-12-4					4	232000	566300	4800	4650
TDx-U 8030-12-5					5	283000	720800	6010	5820
TDx-U 8030-12-6					6	332800	875200	7160	6940
TDx-U 8030-12-7 i+					7	381600	1029700	8270	8010
TDx-U 8040-12-2		40			2	129200	263500	2400	2340
TDx-U 8040-12-3					3	180800	417200	3610	3520
TDx-U 8040-12-4					4	232500	570900	4810	4700
TDx-U 8040-12-5 i+					5	283100	724600	6010	5870
TDx-U 8050-12-2		50			2	128100	261800	2370	2320
TDx-U 8050-12-3					3	179400	414600	3560	3490
TDx-U 8050-12-4 i+					4	230600	567300	4750	4660

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**Rb/t, pr : Rigidity of the balls contact zone for an external force 10% of Ca. See page 22. For a different preload force, multiply by $\sqrt[3]{F_p / 0,1\,C_{oa}}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TDB	TDBC	TDL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TDB	L_7 h13 TDBC	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TDB TDBC TDL
145	156	140	115 (105)	135 (125)	155 (145)	13,5	20	25	16	120 (110)	137,5 (127,5)	TDx-S 8010-6-3
165	178	162										TDx-S 8010-6-4
193	199	183										TDx-S 8010-6-5
214	220	204										TDx-S 8010-6-6
234	240	224										TDx-S 8010-6-7
254	260	244										TDx-S 8010-6-8
154			125 (115)	145 (135)	165 (155)	13,5	25	25	25	130 (120)	147,5 (137,5)	TDx-U 8012-8-3
178												TDx-U 8012-8-4
202												TDx-U 8012-8-5
226												TDx-U 8012-8-6-Z
165												TDx-U 8015-8-3
195												TDx-U 8015-8-4
225												TDx-U 8015-8-5
255												TDx-U 8015-8-6-Z
173												TDx-U 8016-8-3
205												TDx-U 8016-8-4
237												TDx-U 8016-8-5
243			125 (120)	145 (140)	165 (160)	13,5	25	30	25	130 (125)	147,5 (142,5)	TDx-U 8016-9-5
275												TDx-U 8016-9-6
307												TDx-U 8016-9-7-Z
198												TDx-U 8020-9-3
238												TDx-U 8020-9-4
278												TDx-U 8020-9-5
318												TDx-U 8020-9-6
358												TDx-U 8020-9-7-Z
226												TDx-U 8025-9-3
276												TDx-U 8025-9-4
326												TDx-U 8025-9-5
376												TDx-U 8025-9-6
426												TDx-U 8025-9-7-Z
258												TDx-U 8030-9-3
318												TDx-U 8030-9-4
378												TDx-U 8030-9-5
434												TDx-U 8030-9-6
498												TDx-U 8030-9-7 i+
228												TDx-U 8040-9-2
308												TDx-U 8040-9-3
388												TDx-U 8040-9-4
468												TDx-U 8040-9-5 i+
262												TDx-U 8050-9-2
362												TDx-U 8050-9-3
462												TDx-U 8050-9-4 i+
220			135 (130)	155 (150)	175 (170)	13,5	25	30	25	140 (135)	157,5 (152,5)	TDx-U 8020-12-3
260												TDx-U 8020-12-4
300												TDx-U 8020-12-5
340												TDx-U 8020-12-6
380												TDx-U 8020-12-7
420												TDx-U 8020-12-8
258												TDx-U 8025-12-3
308												TDx-U 8025-12-4
358												TDx-U 8025-12-5
408												TDx-U 8025-12-6
440												TDx-U 8025-12-7
490												TDx-U 8025-12-8 i+
268												TDx-U 8030-12-3
328												TDx-U 8030-12-4
388												TDx-U 8030-12-5
448												TDx-U 8030-12-6
508												TDx-U 8030-12-7 i+
254												TDx-U 8040-12-2
334												TDx-U 8040-12-3
402												TDx-U 8040-12-4
494												TDx-U 8040-12-5 i+
274												TDx-U 8050-12-2
374												TDx-U 8050-12-3
474												TDx-U 8050-12-4 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

PRECISION BALLSCREW | SHUTON

>PRELOADED DOUBLE NUT

NO STANDARD CASES

Code TDB TDBC TDL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t,pr}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TDx-S 9010-6-2	90	10	6,35	84,5	2	53200	144500	2320	1860
TDx-S 9010-6-3					3	71800	216800	3360	2710
TDx-S 9010-6-4					4	90700	289100	4410	3560
TDx-S 9010-6-5					5	109300	361300	5440	4410
TDx-S 9010-6-6					6	127600	433600	6470	5250
TDx-U 9012-8-2		12	7,938	83,3	2	73600	187200	2500	2240
TDx-U 9012-8-3					3	101400	289300	3730	3340
TDx-U 9012-8-4					4	129400	391400	4900	4390
TDx-U 9012-8-5-Z					5	157500	496300	6090	5470
TDx-U 9015-8-2		15			2	73600	187100	2500	2290
TDx-U 9015-8-3					3	101400	289200	3720	3410
TDx-U 9015-8-4					4	130000	394000	4930	4510
TDx-U 9015-8-5-Z					5	157400	496100	6090	5580
TDx-U 9016-9-3		16	9,525	82,2	3	130700	349100	3820	3520
TDx-U 9016-9-4					4	166700	472300	5020	4640
TDx-U 9016-9-5					5	202100	595500	6190	5720
TDx-U 9016-9-6-Z					6	237600	722800	7360	6810
TDx-U 9020-9-3		20			3	130500	348800	3810	3570
TDx-U 9020-9-4					4	166500	471900	5010	4700
TDx-U 9020-9-5					5	202800	599100	6220	5840
TDx-U 9020-9-6-Z					6	237400	722200	7350	6900
TDx-U 9025-9-3		25			3	130300	348300	3800	3600
TDx-U 9025-9-4					4	166200	471300	5000	4750
TDx-U 9025-9-5					5	202400	598300	6200	5890
TDx-U 9025-9-6-Z					6	236900	721200	7330	6970
TDx-U 9030-9-3		30			3	130000	347800	3780	3620
TDx-U 9030-9-4					4	166800	474600	5020	4810
TDx-U 9030-9-5					5	202000	597300	6180	5920
TDx-U 9030-9-6-Z					6	237300	724100	7340	7040
TDx-U 9040-9-2		40			2	93900	224100	2530	2450
TDx-U 9040-9-3					3	129300	346300	3750	3630
TDx-U 9040-9-4					4	165900	472600	4980	4820
TDx-U 9040-9-5 i+					5	201800	598900	6170	5970
TDx-U 9050-9-2		50			2	93200	222900	2500	2440
TDx-U 9050-9-3					3	129400	348600	3750	3650
TDx-U 9050-9-4 i+					4	165800	474200	4970	4840
TDx-U 9020-12-3		20	12,7	81	3	192000	468000	4010	3780
TDx-U 9020-12-4					4	248400	646300	5400	5090
TDx-U 9020-12-5					5	301700	817100	6680	6300
TDx-U 9020-12-6					6	353800	988000	7900	7450
TDx-U 9025-12-3		25			3	193700	474800	4060	3870
TDx-U 9025-12-4					4	248000	645400	5390	5140
TDx-U 9025-12-5					5	301200	816100	6660	6350
TDx-U 9025-12-6					6	355000	994100	7930	7570
TDx-U 9030-12-3		30			3	193300	474100	4050	3890
TDx-U 9030-12-4					4	247500	644400	5370	5160
TDx-U 9030-12-5					5	300600	814800	6640	6380
TDx-U 9030-12-6					6	354200	992600	7910	7610
TDx-U 9040-12-2		40			2	136400	295100	2640	2560
TDx-U 9040-12-3					3	192300	472200	4020	3900
TDx-U 9040-12-4					4	246200	641900	5330	5170
TDx-U 9040-12-5 i+					5	300800	818900	6640	6440
TDx-U 9050-12-2		50			2	137800	301000	2670	2610
TDx-U 9050-12-3					3	191100	469800	3970	3880
TDx-U 9050-12-4 i+					4	246500	646000	5330	5200

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t, pr : Rigidity of the balls contact zone for an external force 10% of Ca. See page 22. For a different preload force, multiply by $\sqrt[3]{F_p / 0,1\,C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TDB	TDBC	TDL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TDB	L_7 h13 TDBC	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TDB TDBC TDL
129	133	117	125 (115)	145 (135)	165 (155)	13,5	22	25	16	130 (120)	147,5 (137,5)	TDx-S 9010-6-2
152	156	140										TDx-S 9010-6-3
174	178	162										TDx-S 9010-6-4
195	199	183										TDx-S 9010-6-5
216	220	204										TDx-S 9010-6-6
	128		125	145	165	13,5	25	25	25	130	147,5	TDx-U 9012-8-2
	152											TDx-U 9012-8-3
	176											TDx-U 9012-8-4
	200											TDx-U 9012-8-5-Z
	134											TDx-U 9015-8-2
	164											TDx-U 9015-8-3
	194											TDx-U 9015-8-4
	224											TDx-U 9015-8-5-Z
	178		130	150	170	13,5	25	30	25	135	152,5	TDx-U 9016-9-3
	210											TDx-U 9016-9-4
	242											TDx-U 9016-9-5
	274											TDx-U 9016-9-6-Z
	200											TDx-U 9020-9-3
	240											TDx-U 9020-9-4
	280											TDx-U 9020-9-5
	320											TDx-U 9020-9-6-Z
	228											TDx-U 9025-9-3
	278											TDx-U 9025-9-4
	328											TDx-U 9025-9-5
	378											TDx-U 9025-9-6-Z
	254											TDx-U 9030-9-3
	314											TDx-U 9030-9-4
	374											TDx-U 9030-9-5
	434											TDx-U 9030-9-6-Z
	230											TDx-U 9040-9-2
	310											TDx-U 9040-9-3
	390											TDx-U 9040-9-4
	470											TDx-U 9040-9-5 i+
	266											TDx-U 9050-9-2
	366											TDx-U 9050-9-3
	466											TDx-U 9050-9-4 i+
	221		140	166	192	17,5	30	30	25	145	168,5	TDx-U 9020-12-3
	261											TDx-U 9020-12-4
	301											TDx-U 9020-12-5
	341											TDx-U 9020-12-6
	242											TDx-U 9025-12-3
	292											TDx-U 9025-12-4
	342											TDx-U 9025-12-5
	392											TDx-U 9025-12-6
	270											TDx-U 9030-12-3
	330											TDx-U 9030-12-4
	390											TDx-U 9030-12-5
	450											TDx-U 9030-12-6
	255											TDx-U 9040-12-2
	335											TDx-U 9040-12-3
	415											TDx-U 9040-12-4
	495											TDx-U 9040-12-5 i+
	278											TDx-U 9050-12-2
	378											TDx-U 9050-12-3
	478											TDx-U 9050-12-4 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

>PRELOADED DOUBLE NUT

NO STANDARD CASES

Code TDB TDBC TDL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t,pr}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TDx-S 10010-6-3					3	74400	238100	3620	2960
TDx-S 10010-6-4					4	94000	317400	4740	3890
TDx-S 10010-6-5		10	6,35	94,5	5	113300	396800	5860	4810
TDx-S 10010-6-6					6	132200	476200	6970	5730
TDx-S 10010-6-7					7	150700	555500	8060	6640
TDx-S 10010-6-8					8	169000	634900	9160	7550
TDx-U 10012-8-2					2	77600	210500	2760	2500
TDx-U 10012-8-3		12			3	106700	324400	4080	3690
TDx-U 10012-8-4					4	136000	438200	5360	4860
TDx-U 10012-8-5-Z			7,938	93,3	5	165300	554800	6650	6030
TDx-U 10015-8-2					2	77600	210500	2760	2550
TDx-U 10015-8-3		15			3	106600	324200	4070	3760
TDx-U 10015-8-4					4	135900	438000	5360	4950
TDx-U 10015-9-4					4	175300	527800	5490	5050
TDx-U 10015-9-5					5	213000	668000	6800	6260
TDx-U 10015-9-6-Z					6	249900	808200	8080	7440
TDx-U 10016-9-3					3	137700	391700	4170	3850
TDx-U 10016-9-4		16			4	175200	527700	5480	5070
TDx-U 10016-9-5					5	213000	667900	6800	6290
TDx-U 10016-9-6-Z					6	249900	808100	8080	7480
TDx-U 10020-9-3					3	137600	391400	4160	3910
TDx-U 10020-9-4		20			4	175100	527400	5480	5140
TDx-U 10020-9-5					5	212800	667500	6790	6380
TDx-U 10020-9-6-Z					6	249600	807500	8060	7580
TDx-U 10025-9-3					3	137400	391000	4160	3950
TDx-U 10025-9-4		25	9,525	92,2	4	174800	526800	5460	5190
TDx-U 10025-9-5					5	212500	666700	6770	6440
TDx-U 10025-9-6-Z					6	249300	806700	8040	7650
TDx-U 10030-9-3					3	137200	390500	4140	3970
TDx-U 10030-9-4		30			4	175400	530200	5490	5260
TDx-U 10030-9-5					5	212100	665800	6760	6480
TDx-U 10030-9-6-Z					6	248800	805600	8020	7700
TDx-U 10040-9-2					2	98600	249900	2770	2690
TDx-U 10040-9-3	100	40			3	136600	389200	4110	3980
TDx-U 10040-9-4					4	174700	528400	5450	5280
TDx-U 10040-9-5 i+					5	212000	667700	6750	6540
TDx-U 10050-9-2					2	99100	252900	2790	2720
TDx-U 10050-9-3		50			3	136700	391600	4120	4010
TDx-U 10050-9-4 i+					4	174600	530200	5440	5300
TDx-U 10020-12-3					3	204300	530100	4460	4170
TDx-U 10020-12-4					4	262400	724200	5910	5520
TDx-U 10020-12-5					5	317500	910800	7280	6810
TDx-U 10020-12-6					6	373200	1104900	8660	8100
TDx-U 10020-12-7-Z		20			7	427700	1299000	9990	9350
TDx-U 10020-12-8-Z					8	481200	1493100	11260	10550
TDx-B 10020-12-9 i+					9	513200	1590200	12620	11880
TDx-B 10020-12-10 i+					10	562200	1769400	13900	13090
TDx-B 10020-12-12 i+					12	667500	2172500	16770	15790
TDx-U 10025-12-3					3	204000	529500	4450	4210
TDx-U 10025-12-4					4	262000	723400	5890	5580
TDx-U 10025-12-5					5	318800	917300	7320	6930
TDx-U 10025-12-6		25			6	372700	1103800	8640	8190
TDx-U 10025-12-7-Z					7	427100	1297700	9970	9450
TDx-U 10025-12-8 i+			12,7	91	8	480600	1491600	11240	10660
TDx-B 10025-12-9 i+					9	512500	1588500	12590	11990
TDx-B 10025-12-10 i+					10	566200	1789900	14030	13370
TDx-U 10030-12-3					3	203700	528800	4440	4240
TDx-U 10030-12-4					4	261600	722500	5880	5610
TDx-U 10030-12-5		30			5	318300	916200	7300	6980
TDx-U 10030-12-6					6	373700	1109800	8670	8290
TDx-U 10030-12-7 i+					7	426400	1296000	9940	9510
TDx-U 10040-12-2					2	145200	334100	2890	2790
TDx-U 10040-12-3		40			3	202800	527100	4410	4260
TDx-U 10040-12-4					4	260500	720200	5840	5640
TDx-U 10040-12-5 i+					5	316900	913200	7250	7010
TDx-U 10050-12-2					2	146600	340100	2930	2850
TDx-U 10050-12-3		50			3	203600	532300	4430	4310
TDx-U 10050-12-4 i+					4	260800	724600	5840	5680

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t, pr : Rigidity of the balls contact zone for an external force 10% of Ca. See page 22. For a different preload force, multiply by $\sqrt[3]{F_p/0,1C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TDB	TDBC	TDL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TDB	L_7 h13 TDBC	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TDB TDBC TDL
147	156	140										TDx-S 10010-6-3
167	178	162										TDx-S 10010-6-4
195	199	183	135	155	175	**13,5**	**22**	25	16	140	157,5	TDx-S 10010-6-5
216	220	204	(**125**)	(**145**)	(**165**)					(**130**)	(**147,5**)	TDx-S 10010-6-6
236	240	224										TDx-S 10010-6-7
257	261	245										TDx-S 10010-6-8
	130											TDx-U 10012-8-2
	154											TDx-U 10012-8-3
	178											TDx-U 10012-8-4
	202		**150** (135)	**176** (155)	**202** (175)	**17,5** (13,5)	**30**	**30**	**25**	**155** (140)	**178,5** (157,5)	TDx-U 10012-8-5-Z
	136											TDx-U 10015-8-2
	166											TDx-U 10015-8-3
	196											TDx-U 10015-8-4
	202											TDx-U 10015-9-4
	232											TDx-U 10015-9-5
	262											TDx-U 10015-9-6-Z
	178											TDx-U 10016-9-3
	210											TDx-U 10016-9-4
	242											TDx-U 10016-9-5
	274											TDx-U 10016-9-6-Z
	200											TDx-U 10020-9-3
	240											TDx-U 10020-9-4
	280											TDx-U 10020-9-5
	320											TDx-U 10020-9-6-Z
	228											TDx-U 10025-9-3
	278		**150** (140)	**176** (166)	**202** (192)	**17,5**	**30**	**30**	**25**	**155** (145)	**178,5** (168,5)	TDx-U 10025-9-4
	328											TDx-U 10025-9-5
	378											TDx-U 10025-9-6-Z
	256											TDx-U 10030-9-3
	316											TDx-U 10030-9-4
	376											TDx-U 10030-9-5
	436											TDx-U 10030-9-6-Z
	247											TDx-U 10040-9-2
	327											TDx-U 10040-9-3
	407											TDx-U 10040-9-4
	487											TDx-U 10040-9-5 i+
	268											TDx-U 10050-9-2
	368											TDx-U 10050-9-3
	468											TDx-U 10050-9-4 i+
	221											TDx-U 10020-12-3
	261											TDx-U 10020-12-4
	301		**150**	**176**	**202**					**155**	**178,5**	TDx-U 10020-12-5
	341											TDx-U 10020-12-6
	381											TDx-U 10020-12-7-Z
	421											TDx-U 10020-12-8-Z
	472		155	181	207					160	183,5	TDx-B 10020-12-9 i+
	512		(**150**)	(**176**)	(**202**)					(**155**)	(**178,5**)	TDx-B 10020-12-10 i+
	592											TDx-B 10020-12-12 i+
	244											TDx-U 10025-12-3
	294											TDx-U 10025-12-4
	344		**150**	**176**	**202**					**155**	**178,5**	TDx-U 10025-12-5
	394											TDx-U 10025-12-6
	444											TDx-U 10025-12-7-Z
	494					**17,5**	**30**	**30**	**25**			TDx-U 10025-12-8 i+
	575		155	181	207					160	183,5	TDx-B 10025-12-9 i+
	625		(**150**)	(**176**)	(**202**)					(**155**)	(**178,5**)	TDx-B 10025-12-10 i+
	272											TDx-U 10030-12-3
	332											TDx-U 10030-12-4
	392											TDx-U 10030-12-5
	452											TDx-U 10030-12-6
	512											TDx-U 10030-12-7 i+
	256		**150**	**176**	**202**					**155**	**178,5**	TDx-U 10040-12-2
	336											TDx-U 10040-12-3
	416											TDx-U 10040-12-4
	496											TDx-U 10040-12-5 i+
	280											TDx-U 10050-12-2
	380											TDx-U 10050-12-3
	480											TDx-U 10050-12-4 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

PRECISION BALLSCREW | SHUTON

>PRELOADED DOUBLE NUT

NO STANDARD CASES

Code TDB TDBC TDL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t,pr}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TDx-B 10020-15-3					3	279300	668700	4190	3940
TDx-B 10020-15-4					4	358200	911800	5570	5240
TDx-B 10020-15-5					5	438600	1167100	7010	6590
TDx-B 10020-15-6					6	496300	1337300	8060	7600
TDx-B 10020-15-7		20			7	570800	1580500	9520	8970
TDx-B 10020-15-8					8	643900	1823600	10750	10140
TDx-B 10020-15-9 i+					9	721300	2091100	12220	11520
TDx-B 10020-15-10 i+					10	791900	2334300	13550	12770
TDx-B 10020-15-12 i+					12	911500	2735500	15820	14940
TDx-U 10025-15-3					3	278900	668000	4180	3970
TDx-U 10025-15-4					4	357700	910900	5560	5280
TDx-U 10025-15-5					5	438000	1165900	6990	6640
TDx-U 10025-15-6		25			6	513500	1408800	8300	7880
TDx-U 10025-15-7					7	590300	1663800	9610	9130
TDx-U 10025-15-8 i+			15,875	87	8	662900	1906700	10790	10260
TDx-B 10025-15-9 i+					9	720300	2088900	12200	11630
TDx-B 10025-15-10 i+					10	790800	2331800	13520	12890
TDx-U 10030-15-3					3	278400	667100	4170	3990
TDx-U 10030-15-4					4	360300	921800	5610	5370
TDx-U 10030-15-5		30			5	437300	1164400	6980	6680
TDx-U 10030-15-6					6	515600	1419100	8340	7990
TDx-U 10030-15-7 i+					7	589300	1661700	9580	9180
TDx-U 10040-15-2					2	199000	423100	2770	2690
TDx-U 10040-15-3		40			3	277200	664900	4140	4010
TDx-U 10040-15-4					4	358800	918800	5580	5400
TDx-U 10040-15-5 i+	100				5	435400	1160600	6930	6710
TDx-U 10050-15-2					2	198000	421400	2750	2680
TDx-U 10050-15-3		50			3	279100	674200	4180	4070
TDx-U 10050-15-4 i+					4	356800	914900	5530	5380
TDx-B 10025-19-3					3	345400	773800	4300	4110
TDx-B 10025-19-4					4	446100	1066200	5740	5480
TDx-B 10025-19-5					5	544600	1358500	7160	6850
TDx-B 10025-19-6		25			6	640900	1650800	8580	8200
TDx-B 10025-19-7					7	704400	1822800	9580	9180
TDx-B 10025-19-8 i+					8	801900	2132300	11070	10600
TDx-B 10025-19-9 i+					9	897600	2441900	12550	12010
TDx-B 10025-19-10 i+					10	983300	2717000	13840	13260
TDx-B 10030-19-3					3	344900	772800	4280	4130
TDx-B 10030-19-4					4	445400	1064800	5720	5510
TDx-B 10030-19-5		30	19,05	84,1	5	543700	1356800	7140	6880
TDx-B 10030-19-6					6	639800	1648700	8560	8240
TDx-B 10030-19-8 i+					8	800600	2129600	11040	10650
TDx-B 10040-19-2					2	242900	479300	2750	2680
TDx-B 10040-19-3					3	343400	770300	4260	4140
TDx-B 10040-19-4		40			4	443500	1061300	5680	5520
TDx-B 10040-19-5 i+					5	546000	1369400	7180	6980
TDx-B 10040-19-6 i+					6	610300	1540600	8180	7970
TDx-B 10050-19-2					2	241600	477300	2730	2670
TDx-B 10050-19-3		50			3	341500	767100	4220	4130
TDx-B 10050-19-4 i+					4	445800	1073900	5720	5590
TDx-B 10050-19-5 i+					5	515500	1261500	6800	6660

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t, pr : Rigidity of the balls contact zone for an external force 10% of Ca. See page 22. For a different preload force, multiply by $\sqrt[3]{F_{pr}/0,1\,C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TDB	TDBC	TDL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TDB	L_7 h13 TDBC	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TDB TDBC TDL
203												TDx-B 10020-15-3
243												TDx-B 10020-15-4
283												TDx-B 10020-15-5
343												TDx-B 10020-15-6
383			165 (160)	191 (186)	217 (212)					170 (165)	193,5 (188,5)	TDx-B 10020-15-7
423												TDx-B 10020-15-8
463												TDx-B 10020-15-9 i+
503												TDx-B 10020-15-10 i+
603												TDx-B 10020-15-12 i+
254												TDx-U 10025-15-3
304												TDx-U 10025-15-4
354			**160**	**186**	**212**					**165**	**188,5**	TDx-U 10025-15-5
404												TDx-U 10025-15-6
454												TDx-U 10025-15-7
504						**17,5**	**30**	**30**	**40**			TDx-U 10025-15-8 i+
561			165 (160)	191 (186)	217 (212)					170 (165)	193,5 (188,5)	TDx-B 10025-15-9 i+
611												TDx-B 10025-15-10 i+
306												TDx-U 10030-15-3
366												TDx-U 10030-15-4
426												TDx-U 10030-15-5
462												TDx-U 10030-15-6
546												TDx-U 10030-15-7 i+
264			**160**	**186**	**212**					**165**	**188,5**	TDx-U 10040-15-2
344												TDx-U 10040-15-3
424												TDx-U 10040-15-4
504												TDx-U 10040-15-5 i+
294												TDx-U 10050-15-2
394												TDx-U 10050-15-3
494												TDx-U 10050-15-4 i+
248												TDx-B 10025-19-3
298												TDx-B 10025-19-4
348												TDx-B 10025-19-5
398												TDx-B 10025-19-6
473												TDx-B 10025-19-7
523												TDx-B 10025-19-8 i+
573												TDx-B 10025-19-9 i+
623												TDx-B 10025-19-10 i+
280												TDx-B 10030-19-3
340												TDx-B 10030-19-4
400			175 (170)	201 (196)	227 (222)	**17,5**	**30**	**30**	**40**	180 (175)	203,5 (198,5)	TDx-B 10030-19-5
460												TDx-B 10030-19-6
610												TDx-B 10030-19-8 i+
265												TDx-B 10040-19-2
345												TDx-B 10040-19-3
425												TDx-B 10040-19-4
505												TDx-B 10040-19-5 i+
625												TDx-B 10040-19-6 i+
310												TDx-B 10050-19-2
410												TDx-B 10050-19-3
510												TDx-B 10050-19-4 i+
660												TDx-B 10050-19-5 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

>PRELOADED DOUBLE NUT

NO STANDARD CASES

Code TDB TDBC TDL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t,pr}$[N/µm]	Rigidity of nut R_{nu} [N/µm]
TDx-B 12016-12-3					3	224300	647200	5230	4730
TDx-B 12016-12-4					4	275700	827800	6620	6010
TDx-B 12016-12-5					5	336300	1053500	8300	7530
TDx-B 12016-12-6					6	398700	1294400	10070	9120
TDx-B 12016-12-7		16			7	446000	1467400	11330	10300
TDx-B 12016-12-8					8	503100	1693200	12930	11760
TDx-B 12016-12-9					9	563600	1941500	14800	13440
TDx-B 12016-12-10					10	607200	2107100	16040	14590
TDx-B 12016-12-12 i+					12	721300	2588700	19470	17700
TDx-U 12020-12-3					3	224200	646900	5230	4780
TDx-U 12020-12-4					4	285500	872500	6870	6290
TDx-U 12020-12-5					5	347300	1105700	8510	7800
TDx-U 12020-12-6-Z					6	407700	1338900	10090	9260
TDx-B 12020-12-7		20			7	445700	1466700	11320	10480
TDx-B 12020-12-8					8	502800	1692400	12920	11960
TDx-B 12020-12-9 i+					9	563200	1940600	14790	13680
TDx-B 12020-12-10 i+					10	606900	2106100	16020	14850
TDx-B 12020-12-12 i+					12	720900	2587500	19450	18010
TDx-U 12025-12-3	120		12,7	111	3	224000	646400	5220	4860
TDx-U 12025-12-4					4	285200	871900	6860	6390
TDx-U 12025-12-5					5	346900	1104900	8490	7920
TDx-U 12025-12-6-Z		25			6	407300	1337900	10080	9400
TDx-B 12025-12-7 i+					7	445300	1465700	11300	10630
TDx-B 12025-12-8 i+					8	502300	1691100	12900	12130
TDx-B 12025-12-9 i+					9	562700	1939200	14770	13870
TDx-B 12025-12-10 i+					10	606300	2104500	16000	15050
TDx-U 12030-12-3					3	223700	645800	5210	4910
TDx-U 12030-12-4		30			4	286500	878600	6900	6500
TDx-U 12030-12-5					5	346500	1103900	8480	7990
TDx-U 12030-12-6-Z					6	406800	1336700	10060	9490
TDx-U 12040-12-2					2	160700	412100	3460	3310
TDx-U 12040-12-3		40			3	223100	644300	5190	4960
TDx-U 12040-12-4					4	285700	876600	6870	6560
TDx-U 12040-12-5 i+					5	347100	1108900	8490	8120
TDx-U 12050-12-2					2	160100	410900	3440	3320
TDx-U 12050-12-3		50			3	222200	642500	5150	4970
TDx-U 12050-12-4 i+					4	284600	874000	6820	6580

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t, pr : Rigidity of the balls contact zone for an external force 10% of Ca. See page 22. For a different preload force, multiply by $\sqrt[3]{F_p/0,1C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TDB	TDBC	TDL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TDB	TDBC	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TDB TDBC TDL
291												TDx-B 12016-12-3
351												TDx-B 12016-12-4
254												TDx-B 12016-12-5
286												TDx-B 12016-12-6
334			175 (170)	201 (196)	227 (222)					180 (175)	203,5 (198,5)	TDx-B 12016-12-7
366												TDx-B 12016-12-8
398												TDx-B 12016-12-9
446												TDx-B 12016-12-10
510												TDx-B 12016-12-12 i+
222												TDx-U 12020-12-3
262			**170**	**196**	**222**					**175**	**198,5**	TDx-U 12020-12-4
302												TDx-U 12020-12-5
342												TDx-U 12020-12-6-Z
392												TDx-B 12020-12-7
432			175 (170)	201 (196)	227 (222)					180 (175)	203,5 (198,5)	TDx-B 12020-12-8
472												TDx-B 12020-12-9 i+
532												TDx-B 12020-12-10 i+
612												TDx-B 12020-12-12 i+
246						**17,5**	**30**	**30**	**25**			TDx-U 12025-12-3
296			**170**	**196**	**222**					**175**	**198,5**	TDx-U 12025-12-4
346												TDx-U 12025-12-5
396												TDx-U 12025-12-6-Z
475												TDx-B 12025-12-7 i+
525			175 (170)	201 (196)	227 (222)					180 (175)	203,5 (198,5)	TDx-B 12025-12-8 i+
575												TDx-B 12025-12-9 i+
650												TDx-B 12025-12-10 i+
274												TDx-U 12030-12-3
334												TDx-U 12030-12-4
394												TDx-U 12030-12-5
454												TDx-U 12030-12-6-Z
258												TDx-U 12040-12-2
338			**170**	**196**	**222**					**175**	**198,5**	TDx-U 12040-12-3
418												TDx-U 12040-12-4
498												TDx-U 12040-12-5 i+
284												TDx-U 12050-12-2
384												TDx-U 12050-12-3
484												TDx-U 12050-12-4 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

>PRELOADED DOUBLE NUT

NO STANDARD CASES

Code TDB TDBC TDL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t,pr}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TDx-B 12020-15-3					3	309400	822300	5000	4620
TDx-B 12020-15-4					4	395800	1116900	6570	6080
TDx-B 12020-15-5					5	466500	1350100	8010	7420
TDx-B 12020-15-6					6	549900	1644700	9610	8910
TDx-B 12020-15-7		20			7	631400	1939200	11200	10380
TDx-B 12020-15-8					8	711500	2233800	12690	11760
TDx-B 12020-15-9 i+					9	777300	2467000	14130	13120
TDx-B 12020-15-10 i+					10	855000	2761600	15650	14530
TDx-B 12020-15-12 i+					12	1007100	3350700	18660	17330
TDx-U 12025-15-3					3	309100	821700	4990	4660
TDx-U 12025-15-4					4	395400	1116100	6560	6140
TDx-U 12025-15-5					5	482900	1422700	8190	7660
TDx-U 12025-15-6		25			6	565600	1717000	9740	9120
TDx-U 12025-15-7					7	649300	2023600	11240	10530
TDx-U 12025-15-8 i+			15,875	107	8	728900	2318000	12620	11840
TDx-B 12025-15-9 i+					9	776500	2465200	14110	13290
TDx-B 12025-15-10 i+					10	854100	2759500	15630	14720
TDx-U 12030-15-3					3	308700	821000	4980	4710
TDx-U 12030-15-4					4	395000	1115100	6550	6190
TDx-U 12030-15-5		30			5	482300	1421400	8180	7730
TDx-U 12030-15-6					6	564900	1715500	9720	9200
TDx-U 12030-15-7 i+					7	648600	2021800	11220	10630
TDx-U 12040-15-2					2	222200	525700	3340	3200
TDx-U 12040-15-3		40			3	307800	819100	4960	4750
TDx-U 12040-15-4					4	396700	1124700	6590	6310
TDx-U 12040-15-5 i+	120				5	480800	1418100	8140	7800
TDx-U 12050-15-2					2	221400	524100	3320	3210
TDx-U 12050-15-3		50			3	306600	816700	4930	4760
TDx-U 12050-15-4 i+					4	395100	1121400	6540	6330
TDx-B 12025-19-3					3	386300	957000	5080	4800
TDx-B 12025-19-4					4	495400	1305000	6820	6440
TDx-B 12025-19-5					5	606600	1670400	8500	8020
TDx-B 12025-19-6		25			6	686400	1914000	9770	9250
TDx-B 12025-19-7					7	789500	2262000	11540	10910
TDx-B 12025-19-8 i+					8	890500	2610100	13170	12450
TDx-B 12025-19-9 i+					9	989800	2958100	14660	13870
TDx-B 12025-19-10 i+					10	1095200	3340900	16430	15540
TDx-B 12030-19-3					3	385800	956100	5070	4840
TDx-B 12030-19-4					4	494800	1303800	6810	6490
TDx-B 12030-19-5		30	19,05	104,1	5	605900	1668900	8480	8090
TDx-B 12030-19-6 i+					6	685600	1912300	9760	9320
TDx-B 12030-19-8 i+					8	889500	2607700	13140	12540
TDx-B 12040-19-2					2	270900	589700	3290	3180
TDx-B 12040-19-3					3	384600	953900	5050	4870
TDx-B 12040-19-4		40			4	493400	1300800	6780	6530
TDx-B 12040-19-5 i+					5	604100	1665100	8440	8140
TDx-B 12040-19-6 i+					6	683600	1907900	9710	9380
TDx-B 12050-19-2					2	275100	605300	3360	3270
TDx-B 12050-19-3		50			3	383200	951100	5020	4880
TDx-B 12050-19-4 i+					4	495800	1314300	6820	6620
TDx-B 12050-19-5 i+					5	576500	1556400	8020	7800

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t, pr : Rigidity of the balls contact zone for an external force 10% of Ca. See page 22. For a different preload force, multiply by $\sqrt[3]{F_{pr}/0,1C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TDB	TDBC	TDL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TDB	L_7 h13 TDBC	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TDB TDBC TDL
203												TDx-B 12020-15-3
243												TDx-B 12020-15-4
303												TDx-B 12020-15-5
343												TDx-B 12020-15-6
383			185	211	237					190	213,5	TDx-B 12020-15-7
423												TDx-B 12020-15-8
483												TDx-B 12020-15-9 i+
523												TDx-B 12020-15-10 i+
603												TDx-B 12020-15-12 i+
256												TDx-U 12025-15-3
306												TDx-U 12025-15-4
356			180	206	232					185	208,5	TDx-U 12025-15-5
406												TDx-U 12025-15-6
456												TDx-U 12025-15-7
506						**17,5**	**30**	**30**	40			TDx-U 12025-15-8 i+
586			185	211	237					190	213,5	TDx-B 12025-15-9 i+
636												TDx-B 12025-15-10 i+
307												TDx-U 12030-15-3
367												TDx-U 12030-15-4
427												TDx-U 12030-15-5
464												TDx-U 12030-15-6
547												TDx-U 12030-15-7 i+
260			180	206	232					185	208,5	TDx-U 12040-15-2
340												TDx-U 12040-15-3
420												TDx-U 12040-15-4
500												TDx-U 12040-15-5 i+
296												TDx-U 12050-15-2
396												TDx-U 12050-15-3
513												TDx-U 12050-15-4 i+
248												TDx-B 12025-19-3
298												TDx-B 12025-19-4
348												TDx-B 12025-19-5
423												TDx-B 12025-19-6
473												TDx-B 12025-19-7
523												TDx-B 12025-19-8 i+
573												TDx-B 12025-19-9 i+
623												TDx-B 12025-19-10 i+
280												TDx-B 12030-19-3
340												TDx-B 12030-19-4
400			195	221	247	**17,5**	**40**	**40**	40	200	223,5	TDx-B 12030-19-5
490			(190)	(216)	(242)					(195)	(218,5)	TDx-B 12030-19-6 i+
610												TDx-B 12030-19-8 i+
265												TDx-B 12040-19-2
345												TDx-B 12040-19-3
425												TDx-B 12040-19-4
505												TDx-B 12040-19-5 i+
625												TDx-B 12040-19-6 i+
310												TDx-B 12050-19-2
410												TDx-B 12050-19-3
510												TDx-B 12050-19-4 i+
660												TDx-B 12050-19-5 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions.
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PRECISION BALLSCREW | SHUTON

>PRELOADED DOUBLE NUT

NO STANDARD CASES

Code TDB TDBC TDL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t,pr}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TDx-B 14020-15-3	140	20	15,875	127	3	335500	976100	5720	5210
TDx-B 14020-15-4					4	409500	1235600	7170	6570
TDx-B 14020-15-5					5	501500	1581600	9030	8270
TDx-B 14020-15-6					6	596300	1952300	11000	10060
TDx-B 14020-15-7					7	669200	2224100	12580	11530
TDx-B 14020-15-8					8	753200	2557700	14290	13100
TDx-B 14020-15-9 i+					9	842900	2928400	16170	14820
TDx-B 14020-15-10 i+					10	905300	3163100	17450	16020
TDx-B 14020-15-12 i+					12	1078800	3904500	21270	19510
TDx-U 14025-15-3		25			3	335300	975600	5710	5250
TDx-U 14025-15-4					4	428100	1321400	7520	6930
TDx-U 14025-15-5					5	519200	1667100	9320	8590
TDx-U 14025-15-6					6	610800	2025300	11120	10250
TDx-U 14025-15-7-Z					7	698100	2371000	12750	11760
TDx-B 14025-15-8 i+					8	752700	2556300	14270	13300
TDx-B 14025-15-9 i+					9	842300	2926800	16150	15050
TDx-B 14025-15-10 i+					10	904700	3161400	17430	16270
TDx-U 14030-15-3		30			3	335000	974900	5700	5320
TDx-U 14030-15-4					4	427700	1320500	7510	7010
TDx-U 14030-15-5					5	521300	1678400	9380	8750
TDx-U 14030-15-6					6	610300	2023900	11110	10370
TDx-U 14030-15-7 i+					7	697500	2369400	12730	11900
TDx-B 14030-15-8 i+					8	752000	2554600	14250	13440
TDx-U 14040-15-2		40			2	239100	616000	3760	3560
TDx-U 14040-15-3					3	334200	973300	5680	5390
TDx-U 14040-15-4					4	426800	1318200	7490	7100
TDx-U 14040-15-5 i+					5	520100	1675500	9340	8870
TDx-U 14050-15-2		50			2	241600	626900	3810	3650
TDx-U 14050-15-3					3	333300	971100	5660	5420
TDx-U 14050-15-4 i+					4	428200	1327600	7520	7210
TDx-B 14025-19-3		25	19,05	124,1	3	421500	1140400	5900	5510
TDx-B 14025-19-4					4	538000	1543900	7800	7290
TDx-B 14025-19-5					5	632700	1859700	9400	8800
TDx-B 14025-19-6					6	749100	2280800	11350	10620
TDx-B 14025-19-7					7	855400	2666800	13120	12290
TDx-B 14025-19-8 i+					8	967100	3087900	15050	14090
TDx-B 14025-19-9 i+					9	1058900	3421200	16690	15640
TDx-B 14025-19-10 i+					10	1167200	3842300	18530	17370
TDx-B 14030-19-3		30			3	421100	1139600	5890	5570
TDx-B 14030-19-4					4	537600	1542900	7790	7360
TDx-B 14030-19-5					5	632100	1858500	9380	8880
TDx-B 14030-19-6 i+					6	748400	2279300	11330	10720
TDx-B 14030-19-8 i+					8	966300	3085800	15030	14230
TDx-B 14040-19-2		40			2	299900	717600	3890	3730
TDx-B 14040-19-3					3	420200	1137700	5870	5620
TDx-B 14040-19-4					4	540400	1557800	7840	7510
TDx-B 14040-19-5 i+					5	630700	1855300	9350	8970
TDx-B 14040-19-6 i+					6	746700	2275400	11290	10830
TDx-B 14050-19-2		50			2	299000	716100	3880	3750
TDx-B 14050-19-3					3	419000	1135200	5850	5650
TDx-B 14050-19-4 i+					4	538900	1554400	7810	7540
TDx-B 14050-19-5 i+					5	628900	1851300	9310	9000

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t, pr : Rigidity of the balls contact zone for an external preload force, multiply by $\sqrt[3]{F_{pr}/0,1C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TDB	TDBC	TDL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TDB	TDBC	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TDB TDBC TDL
203			210 (205)	236 (231)	262 (257)	17,5	30	30	40	215 (210)	238,5 (233,5)	TDx-B 14020-15-3
263												TDx-B 14020-15-4
303												TDx-B 14020-15-5
343												TDx-B 14020-15-6
403												TDx-B 14020-15-7
443												TDx-B 14020-15-8
483												TDx-B 14020-15-9 i+
543												TDx-B 14020-15-10 i+
623												TDx-B 14020-15-12 i+
258			200	226	252					205	228,5	TDx-U 14025-15-3
308												TDx-U 14025-15-4
358												TDx-U 14025-15-5
408												TDx-U 14025-15-6
458												TDx-U 14025-15-7-Z
536			210 (205)	236 (231)	262 (257)					215 (210)	238,5 (233,5)	TDx-B 14025-15-8 i+
586												TDx-B 14025-15-9 i+
661												TDx-B 14025-15-10 i+
308			200	226	252					205	228,5	TDx-U 14030-15-3
368												TDx-U 14030-15-4
428												TDx-U 14030-15-5
466												TDx-U 14030-15-6
548												TDx-U 14030-15-7 i+
628			210 (205)	236 (231)	262 (257)					215 (210)	238,5 (233,5)	TDx-B 14030-15-8 i+
262			200	226	252					205	228,5	TDx-U 14040-15-2
342												TDx-U 14040-15-3
422												TDx-U 14040-15-4
502												TDx-U 14040-15-5 i+
298												TDx-U 14050-15-2
398												TDx-U 14050-15-3
514												TDx-U 14050-15-4 i+
248			220 (210)	246 (236)	272 (262)	17,5	40	40	40	225 (215)	248,5 (238,5)	TDx-B 14025-19-3
298												TDx-B 14025-19-4
373												TDx-B 14025-19-5
423												TDx-B 14025-19-6
473												TDx-B 14025-19-7
523												TDx-B 14025-19-8 i+
598												TDx-B 14025-19-9 i+
648												TDx-B 14025-19-10 i+
280												TDx-B 14030-19-3
340												TDx-B 14030-19-4
430												TDx-B 14030-19-5
490												TDx-B 14030-19-6 i+
610												TDx-B 14030-19-8 i+
265												TDx-B 14040-19-2
345												TDx-B 14040-19-3
425												TDx-B 14040-19-4
545												TDx-B 14040-19-5 i+
625												TDx-B 14040-19-6 i+
310												TDx-B 14050-19-2
410												TDx-B 14050-19-3
510												TDx-B 14050-19-4 i+
660												TDx-B 14050-19-5 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

>PRELOADED DOUBLE NUT

NO STANDARD CASES

Code TDB TDBC TDL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t,pr}$[N/µm]	Rigidity of nut R_{nu} [N/µm]
TDx-B 16020-15-3	160	20	15,875	147	3	358700	1130000	6420	5770
TDx-B 16020-15-4					4	439900	1440400	8160	7370
TDx-B 16020-15-5					5	537400	1837800	10240	9250
TDx-B 16020-15-6					6	637500	2260000	12340	11140
TDx-B 16020-15-7					7	714700	2570400	14040	12710
TDx-B 16020-15-8					8	808700	2980200	16100	14570
TDx-B 16020-15-9 i+					9	901100	3390000	18140	16420
TDx-B 16020-15-10 i+					10	970300	3675600	19790	17940
TDx-B 16020-15-12 i+					12	1153300	4520000	23860	21620
TDx-B 16025-19-3	160	25	19,05	144,1	3	448600	1306300	6550	6060
TDx-B 16025-19-4					4	575800	1782900	8740	8090
TDx-B 16025-19-5					5	678300	2153600	10500	9740
TDx-B 16025-19-6					6	797300	2612500	12590	11680
TDx-B 16025-19-7					7	920800	3106800	14820	13740
TDx-B 16025-19-8 i+					8	1034900	3565800	16870	15650
TDx-B 16025-19-9 i+					9	1127000	3918800	18510	17200
TDx-B 16025-19-10 i+					10	1241300	4395400	20740	19260
TDx-B 16030-19-3		30			3	452300	1323200	6620	6200
TDx-B 16030-19-4					4	579200	1799600	8810	8250
TDx-B 16030-19-5					5	677800	2152500	10490	9850
TDx-B 16030-19-6 i+					6	803900	2646500	12730	11950
TDx-B 16030-19-8 i+					8	1041100	3599200	17010	15960
TDx-B 16040-19-2		40			2	325400	845800	4410	4190
TDx-B 16040-19-3					3	451600	1321500	6600	6280
TDx-B 16040-19-4					4	578200	1797200	8790	8360
TDx-B 16040-19-5 i+					5	676700	2149600	10460	9980
TDx-B 16040-19-6 i+					6	802500	2643000	12700	12100
TDx-B 16050-19-2		50			2	324700	844300	4390	4220
TDx-B 16050-19-3					3	450600	1319300	6580	6320
TDx-B 16050-19-4 i+					4	576900	1794200	8760	8420
TDx-B 16050-19-5 i+					5	675200	2146000	10420	10030

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t, pr : Rigidity of the balls contact zone for an external force 10% of Ca. See page 22. For a different preload force, multiply by $\sqrt[3]{F_{pr}/0,1\,C_{oa}}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TDB	TDBC	TDL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TDB	L_7 h13 TDBC	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TDB TDBC TDL
203			230	256	282	17,5	40	40	40	235	258,5	TDx-B 16020-15-3
263												TDx-B 16020-15-4
303												TDx-B 16020-15-5
343												TDx-B 16020-15-6
403												TDx-B 16020-15-7
443												TDx-B 16020-15-8
483												TDx-B 16020-15-9 i+
543												TDx-B 16020-15-10 i+
623												TDx-B 16020-15-12 i+
248			240 (235)	266 (261)	292 (287)	17,5	40	40	40	245 (240)	268,5 (263,5)	TDx-B 16025-19-3
298												TDx-B 16025-19-4
373												TDx-B 16025-19-5
423												TDx-B 16025-19-6
473												TDx-B 16025-19-7
523												TDx-B 16025-19-8 i+
598												TDx-B 16025-19-9 i+
648												TDx-B 16025-19-10 i+
280												TDx-B 16030-19-3
340												TDx-B 16030-19-4
430												TDx-B 16030-19-5
490												TDx-B 16030-19-6 i+
610												TDx-B 16030-19-8 i+
265												TDx-B 16040-19-2
345												TDx-B 16040-19-3
425												TDx-B 16040-19-4
545												TDx-B 16040-19-5 i+
625												TDx-B 16040-19-6 i+
310												TDx-B 16050-19-2
410												TDx-B 16050-19-3
510												TDx-B 16050-19-4 i+
660												TDx-B 16050-19-5 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

SINGLE NUT

TSB : Flanged Single Nut

TSL : Single Cylindrical Nut

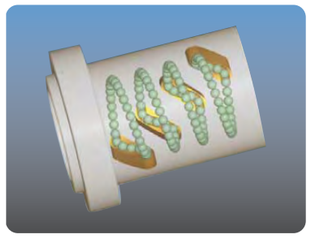
The backlash is eliminated using balls with a slightly bigger diameter, so as the contact between the balls with the nut and the shaft is produced in four points.

The obtained preload is quite smaller than the one achieved with compact or double nut. Is possible to eliminate the backlash with not need of adding a second part with circuits.
As a result, the nut length is smaller.

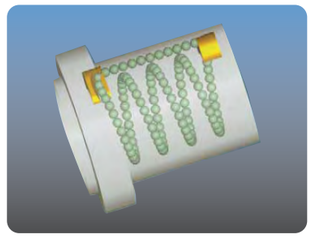
On the contrary, the rigidity of the single nut is variable, depends on the external load, in contrast with the constant rigidity of the compact and double nuts.

Also, with the contact in four points it is impossible to avoid the sliding with the thread of the nut and of the shaft in two of these points.
As a result, the wear and temperature increases.

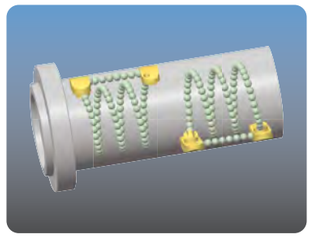
By these reasons, SHUTON only advises the use of single nut in vertical or inclined ballscrew where it is not possible the use of counterbalance.
The gravitational force transforms the contact in two points, so that the sliding disappears and the wear and temperature are normal.



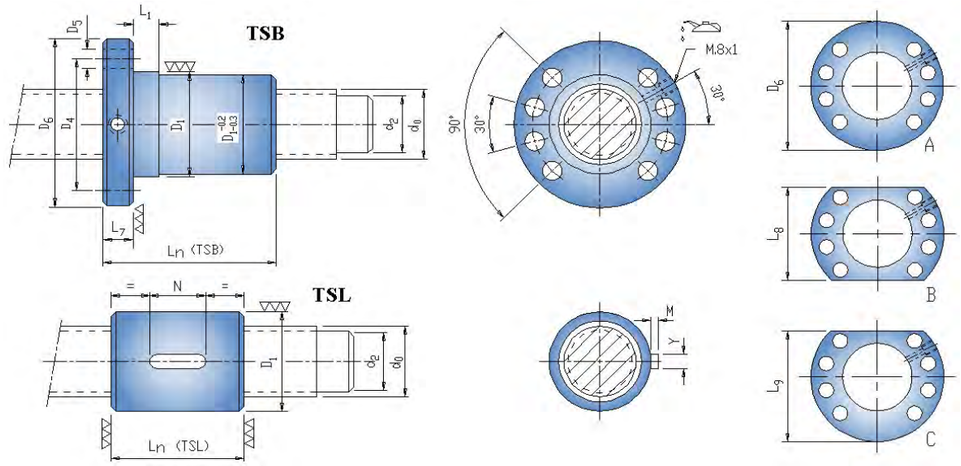
* *Internal Recirculation 'S'*



** *External Recirculation 'U'*



*** *External Recirculation 'B'*



Nominal diameter & Lead, with the maximum number of circuits made at SHUTON of Standard Single Nut

Internal Recirculation 'S' | External Recirculation 'U' | External Recirculation 'B'

d_0 \ P_h	5	6	10	12	15	16	20	25	30	40	50
20	6										
25	6		4	4	3	**3**	**2**	**2**			
32	6		6	**6**	**5**	**5**	**4**	**3**	**2**	**2**	
40	6	6	6	6	**6**	5 **6**	4 **5**	**4**	**3**	**2**	**2**
50	6	6	8	8	7	7	5	**6**	**5**	**4**	**3**
63	6		8	8	8	8 8	7 8	**8**	**7**	**5**	**4**
70 no std			6	6		6 6	6 6	6	**6**	**5**	**4**
80			8	8		8	7 8	**8**	**7**	**5**	**4**
90 no std			6	6		6	6 6	6	6	**5**	**4**
100			8	8		8	7 6 **12**	**8** **10**	**7** **8**	**5** **6**	**4** **5**
120							7 8 **12**	**8** **10**	**7** **8**	**5** **6**	**4** **5**
140 no std							**12**	7 **10**	**7** **8**	**5** **6**	**4** **5**
160 no std							**12**	**10**	**8**	**6**	**5**

'i+ technology' If especial cases out of range are required, consult with SHUTON

>SINGLE NUT

NO STANDARD CASES

Code TSB TSL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TSx-S 2005-3-2	20	5	3,175	17,8	2	8200	11900	250	230
TSx-S 2005-3-3					3	11000	17900	360	330
TSx-S 2005-3-4					4	13900	23900	470	430
TSx-S 2005-3-5					5	16800	29900	580	540
TSx-S 2005-3-6					6	19600	35800	690	640
TSx-S 2505-3-2	25	5	3,175	22,8	2	9300	15700	310	270
TSx-S 2505-3-3					3	12600	23500	450	400
TSx-S 2505-3-4					4	15900	31300	590	520
TSx-S 2505-3-5					5	19200	39200	730	650
TSx-S 2505-3-6					6	22400	47000	870	770
TSx-S 2510-5-2		10	4,762	21,7	2	16000	23300	320	290
TSx-S 2510-5-3					3	21700	34900	460	430
TSx-S 2510-5-4					4	27400	46500	600	560
TSx-U 2512-5-2		12			2	16400	24000	330	310
TSx-U 2512-5-3					3	23300	38900	510	480
TSx-U 2512-5-4					4	29800	53000	670	640
TSx-U 2515-5-2		15			2	16200	23900	320	310
TSx-U 2515-5-3					3	23100	38700	500	480
TSx-U 2516-5-2		16			2	16200	23800	320	310
TSx-U 2516-5-3 i+					3	23000	38600	500	480
TSx-U 2520-5-2 i+		20			2	16400	24400	320	310
TSx-U 2525-5-2 i+		25			2	16000	24100	310	310
TSx-S 3205-3-2	32	5	3,175	29,8	2	10600	20900	400	340
TSx-S 3205-3-3					3	14300	31300	570	490
TSx-S 3205-3-4					4	18100	41800	750	650
TSx-S 3205-3-5					5	21800	52200	930	800
TSx-S 3205-3-6					6	25500	62700	1100	950
TSx-S 3210-6-2		10	6,35	27,6	2	24700	36300	370	340
TSx-S 3210-6-3					3	33300	54500	540	490
TSx-S 3210-6-4					4	42100	72700	710	650
TSx-S 3210-6-5					5	50800	90800	870	800
TSx-S 3210-6-6					6	59300	109000	1040	950
TSx-U 3212-6-2		12	6,35	26,5	2	26700	40200	430	410
TSx-U 3212-6-3					3	38500	66400	680	640
TSx-U 3212-6-4					4	49600	91100	920	860
TSx-U 3212-6-5					5	61000	117400	1150	1090
TSx-U 3212-6-6 i+					6	71600	142100	1360	1280
TSx-U 3215-6-2		15			2	27300	41600	440	420
TSx-U 3215-6-3					3	38300	66200	680	640
TSx-U 3215-6-4					4	49900	92300	920	880
TSx-U 3215-6-5 i+					5	60700	117000	1140	1090
TSx-U 3216-6-2		16			2	27200	41500	440	420
TSx-U 3216-6-3					3	38300	66100	670	640
TSx-U 3216-6-4					4	49900	92200	920	880
TSx-U 3216-6-5 i+					5	60600	116800	1140	1090
TSx-U 3220-6-2		20			2	27000	41200	430	420
TSx-U 3220-6-3 i+					3	38000	65700	660	640
TSx-U 3220-6-4 i+					4	49400	91600	910	880
TSx-U 3225-6-2 i+		25			2	26700	40800	420	410
TSx-U 3225-6-3 i+					3	38000	66500	660	650
TSx-U 3232-6-2 i+		32			2	26700	41600	420	420
TSx-U 3240-6-2 i+		**40**			2	26500	42100	420	410

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t : Rigidity of the balls contact zone for an external force 20% of Ca. See page 22. For different forces, multiply by $\sqrt[3]{F/0,2\ C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TSB	Length of the nut Ln ±1mm TSL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TSB	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TSB TSL
40	36	**36**	47	**58**	**6,6**	**10**	**10**	**44**	**51**	TSx-S 2005-3-2
45	41									TSx-S 2005-3-3
51	47									TSx-S 2005-3-4
56	52									TSx-S 2005-3-5
61	57									TSx-S 2005-3-6
40	36	**40**	**51**	**62**	**6,6**	**10**	**10**	**48**	**55**	TSx-S 2505-3-2
46	42									TSx-S 2505-3-3
51	47									TSx-S 2505-3-4
56	52									TSx-S 2505-3-5
61	57									TSx-S 2505-3-6
55	53						16			TSx-S 2510-5-2
67	64									TSx-S 2510-5-3
79	76									TSx-S 2510-5-4
53		50 (45)	65 (58)	80 (71)	9	**10**	16	62 (55)	71 (63)	TSx-U 2512-5-2
65										TSx-U 2512-5-3
77										TSx-U 2512-5-4
58										TSx-U 2515-5-2
73										TSx-U 2515-5-3
60										TSx-U 2516-5-2
76										TSx-U 2516-5-3 i+
67										TSx-U 2520-5-2 i+
75										TSx-U 2525-5-2 i+
42	36	**50**	**65**	**80**	**9**	**12**	**10**	**62**	**71**	TSx-S 3205-3-2
48	42									TSx-S 3205-3-3
53	47									TSx-S 3205-3-4
58	52									TSx-S 3205-3-5
63	57									TSx-S 3205-3-6
66	64					14	16			TSx-S 3210-6-2
79	75									TSx-S 3210-6-3
90	86									TSx-S 3210-6-4
101	97									TSx-S 3210-6-5
111	107									TSx-S 3210-6-6
58		56	71	86	9	14	20	65	75,5	TSx-U 3212-6-2
70										TSx-U 3212-6-3
82										TSx-U 3212-6-4
94										TSx-U 3212-6-5
106										TSx-U 3212-6-6 i+
63										TSx-U 3215-6-2
78										TSx-U 3215-6-3
93										TSx-U 3215-6-4
108										TSx-U 3215-6-5 i+
64										TSx-U 3216-6-2
80										TSx-U 3216-6-3
96										TSx-U 3216-6-4
112										TSx-U 3216-6-5 i+
71										TSx-U 3220-6-2
91										TSx-U 3220-6-3 i+
111										TSx-U 3220-6-4 i+
83										TSx-U 3225-6-2 i+
108										TSx-U 3225-6-3 i+
94										TSx-U 3232-6-2 i+
108										TSx-U 3240-6-2 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions. In brackets ( ) second options.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

>SINGLE NUT

NO STANDARD CASES

Code TSB TSL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TSx-S 4005-3-2					2	11800	26900	480	400
TSx-S 4005-3-3					3	16000	40300	700	590
TSx-S 4005-3-4		5	3,175	37,8	4	20200	53700	920	780
TSx-S 4005-3-5					5	24300	67200	1140	960
TSx-S 4005-3-6					6	28400	80600	1350	1140
TSx-S 4006-4-2					2	16700	34800	510	430
TSx-S 4006-4-3					3	22600	52200	740	630
TSx-S 4006-4-4		6	3,969	37,2	4	28600	69600	970	830
TSx-S 4006-4-5					5	34400	87000	1200	1030
TSx-S 4006-4-6					6	40200	104400	1420	1220
TSx-S 4010-6-2					2	28700	48300	480	430
TSx-S 4010-6-3					3	38800	72500	690	620
TSx-S 4010-6-4		10			4	49000	96700	900	820
TSx-S 4010-6-5					5	59100	120800	1120	1010
TSx-S 4010-6-6					6	68900	145000	1330	1200
TSx-S 4012-6-2					2	28700	48300	480	430
TSx-S 4012-6-3					3	38700	72400	690	630
TSx-S 4012-6-4		12			4	48900	96500	900	830
TSx-S 4012-6-5			6,35	35,6	5	59000	120700	1110	1020
TSx-S 4012-6-6					6	68800	144800	1320	1220
TSx-S 4016-6-2					2	28600	48100	470	440
TSx-S 4016-6-3		16			3	38600	72200	680	640
TSx-S 4016-6-4					4	48700	96200	900	840
TSx-S 4016-6-5					5	58700	120300	1110	1040
TSx-S 4020-6-2					2	29500	50700	490	470
TSx-S 4020-6-3		20			3	39900	76100	720	680
TSx-S 4020-6-4					4	50400	101500	940	890
TSx-U 4025-6-2	40				2	31100	54300	550	530
TSx-U 4025-6-3		25			3	43900	86800	830	800
TSx-U 4025-6-4 i+					4	56100	117900	1110	1070
TSx-U 4030-6-2					2	30800	53900	540	520
TSx-U 4030-6-3 i+		30	6,35	34,5	3	43400	86200	820	790
TSx-U 4040-6-2 i+		40			2	30600	54300	530	520
TSx-U 4050-6-2 i+		**50**			2	30200	54500	520	510
TSx-U 4060-6-2 i+		**60**			2	29600	54400	500	490
TSx-U 4015-8-3					3	60800	112200	940	900
TSx-U 4015-8-4		15			4	79100	156600	1290	1220
TSx-U 4015-8-5					5	96200	198400	1600	1520
TSx-U 4015-8-6 i+					6	113700	242700	1910	1810
TSx-U 4016-8-3					3	60700	112100	940	900
TSx-U 4016-8-4		16			4	79000	156500	1290	1220
TSx-U 4016-8-5					5	96100	198200	1600	1520
TSx-U 4016-8-6 i+					6	113600	242500	1910	1810
TSx-U 4020-8-2					2	42900	70100	610	590
TSx-U 4020-8-3		20			3	60400	111700	930	900
TSx-U 4020-8-4			7,938	33,3	4	78600	155800	1280	1230
TSx-U 4020-8-5 i+					5	96400	200000	1600	1540
TSx-U 4025-8-2					2	42600	69700	600	580
TSx-U 4025-8-3		25			3	60800	113500	940	910
TSx-U 4025-8-4 i+					4	78000	154800	1260	1220
TSx-U 4030-8-2					2	42200	69100	590	580
TSx-U 4030-8-3 i+		30			3	60200	112700	930	900
TSx-U 4040-8-2 i+		40			2	42100	70300	590	580
TSx-U 4050-8-2 i+		**50**			2	41800	71100	580	570
TSx-U 4060-8-2 i+		**60**			2	41300	71600	560	560

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t : Rigidity of the balls contact zone for an external force 20% of Ca. See page 22. For different forces, multiply by $\sqrt[3]{F/0,2\ C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TSB	Length of the nut Ln ±1mm TSL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TSB	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TSB TSL
44	36									TSx-S 4005-3-2
50	42									TSx-S 4005-3-3
55	47									TSx-S 4005-3-4
60	52									TSx-S 4005-3-5
65	57						**10**			TSx-S 4005-3-6
47	39									TSx-S 4006-4-2
54	46									TSx-S 4006-4-3
61	53									TSx-S 4006-4-4
67	59									TSx-S 4006-4-5
73	65					**14**				TSx-S 4006-4-6
68	64									TSx-S 4010-6-2
79	75									TSx-S 4010-6-3
90	86						16			TSx-S 4010-6-4
101	97	**63**	**78**	**93**	**9**			**70**	**81,5**	TSx-S 4010-6-5
111	107									TSx-S 4010-6-6
69	65									TSx-S 4012-6-2
83	79									TSx-S 4012-6-3
96	92									TSx-S 4012-6-4
109	105									TSx-S 4012-6-5
121	117						**20**			TSx-S 4012-6-6
81	75									TSx-S 4016-6-2
100	94					16				TSx-S 4016-6-3
117	111									TSx-S 4016-6-4
134	128									TSx-S 4016-6-5
89	81									TSx-S 4020-6-2
112	104					18				TSx-S 4020-6-3
136	128									TSx-S 4020-6-4
81										TSx-U 4025-6-2
106		65								TSx-U 4025-6-3
131		D1:**63** Consult with SHUTON	**78**	**93**				**70**	**81,5**	TSx-U 4025-6-4 i+
89										TSx-U 4030-6-2
119					**9**	18	**20**			TSx-U 4030-6-3 i+
110										TSx-U 4040-6-2 i+
127		**70** (66)	**85** (**78**)	**100** (**93**)				**75** (**70**)	**87,5** (**81,5**)	TSx-U 4050-6-2 i+
144										TSx-U 4060-6-2 i+
84										TSx-U 4015-8-3
99										TSx-U 4015-8-4
114										TSx-U 4015-8-5
129										TSx-U 4015-8-6 i+
87										TSx-U 4016-8-3
103										TSx-U 4016-8-4
119										TSx-U 4016-8-5
135										TSx-U 4016-8-6 i+
77										TSx-U 4020-8-2
97										TSx-U 4020-8-3
117		**70**	**85**	**100**	**9**	18	**25**	**75**	**87,5**	TSx-U 4020-8-4
137										TSx-U 4020-8-5 i+
85										TSx-U 4025-8-2
110										TSx-U 4025-8-3
135										TSx-U 4025-8-4 i+
96										TSx-U 4030-8-2
126										TSx-U 4030-8-3 i+
113										TSx-U 4040-8-2 i+
130										TSx-U 4050-8-2 i+
146										TSx-U 4060-8-2 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions. In brackets ( ) second options.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

>SINGLE NUT

NO STANDARD CASES

Code TSB TSL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TSx-S 5005-3-2					2	13100	34300	590	470
TSx-S 5005-3-3					3	17700	51500	860	690
TSx-S 5005-3-4		5	3,175	47,8	4	22300	68700	1120	900
TSx-S 5005-3-5					5	26900	85800	1380	1120
TSx-S 5005-3-6					6	31400	103000	1650	1330
TSx-S 5006-4-2					2	18600	44800	630	510
TSx-S 5006-4-3					3	25200	67100	910	740
TSx-S 5006-4-4		6	3,969	47,2	4	31800	89500	1190	970
TSx-S 5006-4-5					5	38300	111900	1470	1200
TSx-S 5006-4-6					6	44700	134300	1750	1430
TSx-S 5010-6-2					2	35500	70200	690	610
TSx-S 5010-6-3					3	47900	105400	1000	880
TSx-S 5010-6-4					4	60500	140500	1310	1160
TSx-S 5010-6-5		10	6,35	44,5	5	73000	175600	1620	1440
TSx-S 5010-6-6					6	85200	210700	1920	1710
TSx-S 5010-6-7					7	97100	245800	2220	1980
TSx-S 5010-6-8					8	108800	281000	2530	2250
TSx-S 5012-8-2					2	44400	78700	610	530
TSx-S 5012-8-3					3	60000	118000	880	770
TSx-S 5012-8-4					4	75800	157300	1150	1010
TSx-S 5012-8-5		12			5	91300	196700	1420	1250
TSx-S 5012-8-6					6	106600	236000	1690	1490
TSx-S 5012-8-7					7	121500	275300	1950	1730
TSx-S 5012-8-8					8	136200	314700	2220	1970
TSx-S 5015-8-2					2	44300	78600	600	540
TSx-S 5015-8-3					3	59800	117800	870	790
TSx-S 5015-8-4		15			4	75600	157100	1150	1040
TSx-S 5015-8-5					5	91100	196400	1410	1280
TSx-S 5015-8-6			7,938	44,5	6	106400	235700	1680	1520
TSx-S 5015-8-7					7	121300	274900	1950	1770
TSx-S 5016-8-2					2	44300	78500	600	550
TSx-S 5016-8-3					3	59800	117800	870	790
TSx-S 5016-8-4		16			4	75600	157000	1140	1040
TSx-S 5016-8-5					5	91100	196300	1410	1290
TSx-S 5016-8-6					6	106300	235500	1680	1530
TSx-S 5016-8-7	50				7	121200	274800	1950	1770
TSx-S 5020-8-2					2	44100	78300	600	550
TSx-S 5020-8-3					3	59600	117500	870	800
TSx-S 5020-8-4		20			4	75300	156600	1140	1060
TSx-S 5020-8-5					5	90800	195800	1410	1300
TSx-U 5025-6-2					2	35600	71100	680	650
TSx-U 5025-6-3					3	49200	110600	1020	970
TSx-U 5025-6-4		25			4	63300	151700	1360	1290
TSx-U 5025-6-5 i+					5	76800	191200	1680	1590
TSx-U 5025-6-6 i+					6	90300	232300	2000	1900
TSx-U 5030-6-2					2	35300	70700	670	640
TSx-U 5030-6-3		30			3	49300	111600	1020	980
TSx-U 5030-6-4 i+			6,35	44,5	4	62900	150900	1340	1290
TSx-U 5030-6-5 i+					5	76700	191800	1670	1600
TSx-U 5040-6-2 i+					2	35200	71400	670	650
TSx-U 5040-6-3 i+		40			3	48900	111700	1010	980
TSx-U 5040-6-4 i+					4	62700	152100	1330	1290
TSx-U 5050-6-2 i+		50			2	34500	70200	640	630
TSx-U 5050-6-3 i+					3	48400	111500	990	960
TSx-U 5060-6-2 i+		**60**			2	34100	70400	630	620
TSx-U 5080-6-2 i+		**80**			2	33500	71600	610	600
TSx-U 5025-8-2					2	49300	92200	770	740
TSx-U 5025-8-3					3	68700	144900	1150	1100
TSx-U 5025-8-4		25			4	88900	200300	1540	1480
TSx-U 5025-8-5 i+					5	108600	255600	1940	1860
TSx-U 5025-8-6 i+					6	127200	308300	2290	2200
TSx-U 5030-8-2					2	49000	91800	760	730
TSx-U 5030-8-3		30			3	69100	146800	1150	1120
TSx-U 5030-8-4 i+			7,938	43,3	4	88300	199200	1530	1480
TSx-U 5030-8-5 i+					5	107900	254300	1920	1850
TSx-U 5040-8-2 i+					2	49100	93200	760	740
TSx-U 5040-8-3 i+		40			3	68700	147500	1140	1110
TSx-U 5040-8-4 i+					4	88400	201900	1520	1490
TSx-U 5050-8-2 i+		50			2	48100	91700	730	720
TSx-U 5050-8-3 i+					3	68100	147700	1120	1100
TSx-U 5060-8-2 i+		**60**			2	47800	92500	720	710
TSx-U 5080-8-2 i+		**80**			2	46700	93200	690	680

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t : Rigidity of the balls contact zone for an external force 20% of Ca. See page 22. For different forces, multiply by $\sqrt[3]{F/0,2\ C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TSB	Length of the nut Ln ±1mm TSL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TSB	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TSB TSL
46	36									TSx-S 5005-3-2
52	42									TSx-S 5005-3-3
57	47									TSx-S 5005-3-4
62	52									TSx-S 5005-3-5
67	57						**10**			TSx-S 5005-3-6
49	39									TSx-S 5006-4-2
56	46									TSx-S 5006-4-3
63	53									TSx-S 5006-4-4
69	59									TSx-S 5006-4-5
75	65									TSx-S 5006-4-6
70	64									TSx-S 5010-6-2
82	76									TSx-S 5010-6-3
92	86									TSx-S 5010-6-4
103	97						16			TSx-S 5010-6-5
113	107									TSx-S 5010-6-6
123	117									TSx-S 5010-6-7
134	128									TSx-S 5010-6-8
78	74									TSx-S 5012-8-2
92	88									TSx-S 5012-8-3
105	101					**16**				TSx-S 5012-8-4
117	113	**75**	**93**	**110**	**11**			**85**	**97,5**	TSx-S 5012-8-5
130	126									TSx-S 5012-8-6
142	138									TSx-S 5012-8-7
154	150									TSx-S 5012-8-8
87	83									TSx-S 5015-8-2
104	100									TSx-S 5015-8-3
120	116									TSx-S 5015-8-4
136	132									TSx-S 5015-8-5
152	148						**20**			TSx-S 5015-8-6
167	163									TSx-S 5015-8-7
86	82									TSx-S 5016-8-2
104	100									TSx-S 5016-8-3
122	118									TSx-S 5016-8-4
138	134									TSx-S 5016-8-5
155	151									TSx-S 5016-8-6
171	167									TSx-S 5016-8-7
98	92									TSx-S 5020-8-2
122	116					18				TSx-S 5020-8-3
143	137									TSx-S 5020-8-4
164	158									TSx-S 5020-8-5
82										TSx-U 5025-6-2
107										TSx-U 5025-6-3
132										TSx-U 5025-6-4
157										TSx-U 5025-6-5 i+
182										TSx-U 5025-6-6 i+
91										TSx-U 5030-6-2
121										TSx-U 5030-6-3
151		**75**	**93**	**110**	**11**	18	25	**85**	**97,5**	TSx-U 5030-6-4 i+
181										TSx-U 5030-6-5 i+
112										TSx-U 5040-6-2 i+
152										TSx-U 5040-6-3 i+
192										TSx-U 5040-6-4 i+
129										TSx-U 5050-6-2 i+
179										TSx-U 5050-6-3 i+
147										TSx-U 5060-6-2 i+
183										TSx-U 5080-6-2 i+
87										TSx-U 5025-8-2
112										TSx-U 5025-8-3
137										TSx-U 5025-8-4
162										TSx-U 5025-8-5 i+
187										TSx-U 5025-8-6 i+
96										TSx-U 5030-8-2
126										TSx-U 5030-8-3
156		**82** (80)	**100**	**118**	**11**	18	**25**	**92**	**105**	TSx-U 5030-8-4 i+
186										TSx-U 5030-8-5 i+
116										TSx-U 5040-8-2 i+
156										TSx-U 5040-8-3 i+
195										TSx-U 5040-8-4 i+
133										TSx-U 5050-8-2 i+
183										TSx-U 5050-8-3 i+
151										TSx-U 5060-8-2 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions. In brackets ( ) second options.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
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>SINGLE NUT

NO STANDARD CASES

Code TSB TSL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TSx-S 6305-3-2					2	14500	44100	720	540
TSx-S 6305-3-3					3	19500	66100	1040	790
TSx-S 6305-3-4		5	3,175	60,8	4	24700	88100	1370	1040
TSx-S 6305-3-5					5	29700	110200	1690	1280
TSx-S 6305-3-6					6	34700	132200	2010	1530
TSx-S 6310-6-2					2	39600	90400	850	720
TSx-S 6310-6-3					3	53500	135600	1230	1050
TSx-S 6310-6-4					4	67500	180700	1610	1370
TSx-S 6310-6-5		10	6,35	57,5	5	81400	225900	1980	1700
TSx-S 6310-6-6					6	95000	271100	2360	2030
TSx-S 6310-6-7					7	108300	316300	2730	2350
TSx-S 6310-6-8					8	121400	361500	3100	2670
TSx-S 6312-8-2					2	52100	107900	790	680
TSx-S 6312-8-3					3	70400	161900	1150	990
TSx-S 6312-8-4					4	89000	215800	1500	1300
TSx-S 6312-8-5		12			5	107200	269800	1850	1610
TSx-S 6312-8-6					6	125100	323700	2210	1910
TSx-S 6312-8-7					7	142700	377700	2550	2220
TSx-S 6312-8-8					8	159900	431600	2900	2520
TSx-S 6315-8-2					2	52100	107800	790	700
TSx-S 6315-8-3					3	70300	161700	1140	1020
TSx-S 6315-8-4					4	88800	215600	1500	1330
TSx-S 6315-8-5		15			5	107100	269500	1850	1650
TSx-S 6315-8-6					6	125000	323400	2200	1960
TSx-S 6315-8-7					7	142500	377300	2550	2270
TSx-S 6315-8-8			7,938	57,5	8	159700	431200	2890	2580
TSx-S 6316-8-2					2	52000	107800	790	700
TSx-S 6316-8-3					3	70300	161600	1140	1020
TSx-S 6316-8-4					4	88800	215500	1500	1340
TSx-S 6316-8-5		16			5	107000	269400	1850	1660
TSx-S 6316-8-6	63				6	124900	323300	2200	1970
TSx-S 6316-8-7					7	142400	377200	2550	2290
TSx-S 6316-8-8					8	159600	431100	2890	2600
TSx-S 6320-8-2					2	51900	107600	790	720
TSx-S 6320-8-3					3	70100	161400	1140	1040
TSx-S 6320-8-4		20			4	88600	215200	1490	1370
TSx-S 6320-8-5					5	106800	269000	1840	1690
TSx-S 6320-8-6					6	124600	322700	2190	2010
TSx-S 6320-8-7					7	142100	376500	2540	2330
TSx-U 6320-8-2					2	56200	120800	950	890
TSx-U 6320-8-3					3	77700	188000	1440	1340
TSx-U 6320-8-4		20			4	100100	257800	1910	1780
TSx-U 6320-8-5					5	121900	327600	2370	2210
TSx-U 6320-8-6					6	142700	394700	2810	2620
TSx-U 6325-8-2					2	56000	120500	950	900
TSx-U 6325-8-3					3	78200	190100	1450	1370
TSx-U 6325-8-4		25			4	99700	257100	1900	1790
TSx-U 6325-8-5					5	121500	326700	2360	2230
TSx-U 6325-8-6					6	142800	396300	2810	2650
TSx-U 6330-8-2					2	55700	120100	940	900
TSx-U 6330-8-3			7,938	56,3	3	77800	189500	1440	1370
TSx-U 6330-8-4		30			4	100000	258900	1900	1810
TSx-U 6330-8-5 i+					5	121700	328300	2360	2250
TSx-U 6330-8-6 i+					6	142200	395000	2790	2660
TSx-U 6340-8-2					2	56000	121800	950	910
TSx-U 6340-8-3		40			3	77700	190600	1430	1380
TSx-U 6340-8-4 i+					4	99600	259400	1890	1820
TSx-U 6340-8-5 i+					5	121000	328200	2340	2260
TSx-U 6350-8-2 i+					2	55200	120500	920	900
TSx-U 6350-8-3 i+		50			3	76700	188600	1400	1360
TSx-U 6350-8-4 i+					4	98900	259300	1860	1810

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t : Rigidity of the balls contact zone for an external force 20% of Ca. See page 22. For different forces, multiply by $\sqrt[3]{F/0,2\ C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TSB	Length of the nut Ln ±1mm TSL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TSB	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TSB TSL
48	36									TSx-S 6305-3-2
54	42									TSx-S 6305-3-3
59	47									TSx-S 6305-3-4
64	52									TSx-S 6305-3-5
70	58									TSx-S 6305-3-6
72	64									TSx-S 6310-6-2
84	76									TSx-S 6310-6-3
95	87									TSx-S 6310-6-4
105	97	**90**	**108**	**125**	**11**	**18**	16	**95**	**110**	TSx-S 6310-6-5
115	107									TSx-S 6310-6-6
125	117									TSx-S 6310-6-7
136	128									TSx-S 6310-6-8
82	74									TSx-S 6312-8-2
96	88									TSx-S 6312-8-3
109	101									TSx-S 6312-8-4
121	113									TSx-S 6312-8-5
134	126									TSx-S 6312-8-6
146	138									TSx-S 6312-8-7
158	150									TSx-S 6312-8-8
91	83									TSx-S 6315-8-2
108	100									TSx-S 6315-8-3
124	116									TSx-S 6315-8-4
140	132									TSx-S 6315-8-5
156	148									TSx-S 6315-8-6
171	163									TSx-S 6315-8-7
186	178	**95** (90)	**115** (108)	**135** (125)	**13,5** (11)	**20**	**25**	**100** (95)	**117,5** (110)	TSx-S 6315-8-8
90	82									TSx-S 6316-8-2
109	101									TSx-S 6316-8-3
126	118									TSx-S 6316-8-4
143	135									TSx-S 6316-8-5
159	151									TSx-S 6316-8-6
175	167									TSx-S 6316-8-7
192	184									TSx-S 6316-8-8
101	93									TSx-S 6320-8-2
124	116									TSx-S 6320-8-3
146	138									TSx-S 6320-8-4
167	159									TSx-S 6320-8-5
187	179									TSx-S 6320-8-6
207	199									TSx-S 6320-8-7
82										TSx-U 6320-8-2
102										TSx-U 6320-8-3
122										TSx-U 6320-8-4
142										TSx-U 6320-8-5
162										TSx-U 6320-8-6
89										TSx-U 6325-8-2
114										TSx-U 6325-8-3
139										TSx-U 6325-8-4
164										TSx-U 6325-8-5
189										TSx-U 6325-8-6
97										TSx-U 6330-8-2
127		**95**	**115**	**135**	**13,5**	**20**	**25**	**100**	**117,5**	TSx-U 6330-8-3
157										TSx-U 6330-8-4
187										TSx-U 6330-8-5 i+
217										TSx-U 6330-8-6 i+
115										TSx-U 6340-8-2
155										TSx-U 6340-8-3
195										TSx-U 6340-8-4 i+
235										TSx-U 6340-8-5 i+
135										TSx-U 6350-8-2 i+
185										TSx-U 6350-8-3 i+
235										TSx-U 6350-8-4 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions. In brackets ( ) second options.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

PRECISION BALLSCREW | SHUTON

>SINGLE NUT

NO STANDARD CASES

Code TSB TSL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TSx-U 6316-9-2	63	16	9,525	55,2	2	72200	144600	990	910
TSx-U 6316-9-3					3	100400	226600	1470	1360
TSx-U 6316-9-4					4	129800	312600	1980	1830
TSx-U 6316-9-5					5	157400	394700	2460	2270
TSx-U 6316-9-6					6	185500	480600	2920	2710
TSx-U 6316-9-7					7	212100	562700	3360	3110
TSx-U 6316-9-8					8	239000	648600	3800	3520
TSx-U 6320-9-2		20			2	72000	144300	980	920
TSx-U 6320-9-3					3	100200	226200	1470	1380
TSx-U 6320-9-4					4	129500	312100	1970	1850
TSx-U 6320-9-5					5	157100	394000	2450	2300
TSx-U 6320-9-6					6	185100	479800	2910	2740
TSx-U 6320-9-7					7	211600	561700	3350	3150
TSx-U 6320-9-8					8	238500	647500	3790	3560
TSx-U 6325-9-2		25			2	71800	143900	980	930
TSx-U 6325-9-3					3	99800	225600	1460	1390
TSx-U 6325-9-4					4	129000	311200	1960	1870
TSx-U 6325-9-5					5	157600	396800	2460	2340
TSx-U 6325-9-6					6	184500	478500	2900	2760
TSx-U 6325-9-7 i+					7	211800	564100	3350	3190
TSx-U 6325-9-8 i+					8	237700	645800	3760	3590
TSx-U 6330-9-2		30			2	71500	143500	970	930
TSx-U 6330-9-3					3	100600	228800	1470	1410
TSx-U 6330-9-4					4	128500	310200	1950	1870
TSx-U 6330-9-5 i+					5	156900	395500	2440	2340
TSx-U 6330-9-6 i+					6	184700	480800	2900	2780
TSx-U 6330-9-7 i+					7	210900	562300	3330	3200
TSx-U 6340-9-2		40			2	70700	142300	960	930
TSx-U 6340-9-3					3	99500	226900	1450	1400
TSx-U 6340-9-4 i+					4	128200	311600	1940	1880
TSx-U 6340-9-5 i+					5	156300	396200	2420	2350
TSx-U 6350-9-2 i+		50			2	71000	144700	960	940
TSx-U 6350-9-3 i+					3	99300	228400	1440	1400
TSx-U 6350-9-4 i+					4	127500	312200	1920	1870

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t : Rigidity of the balls contact zone for an external force 20% of Ca. See page 22. For different forces, multiply by $\sqrt[3]{F/0,2\ C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TSB | TSL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TSB	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TSB TSL
80	**105** (100)	**125** (120)	**145** (140)	**13,5**	**20**	**25**	**110** (105)	**127,5** (122,5)	TSx-U 6316-9-2
96									TSx-U 6316-9-3
112									TSx-U 6316-9-4
128									TSx-U 6316-9-5
144									TSx-U 6316-9-6
160									TSx-U 6316-9-7
176									TSx-U 6316-9-8
87									TSx-U 6320-9-2
107									TSx-U 6320-9-3
127									TSx-U 6320-9-4
147									TSx-U 6320-9-5
167									TSx-U 6320-9-6
187									TSx-U 6320-9-7
207									TSx-U 6320-9-8
95									TSx-U 6325-9-2
120									TSx-U 6325-9-3
145									TSx-U 6325-9-4
170									TSx-U 6325-9-5
195									TSx-U 6325-9-6
220									TSx-U 6325-9-7 i+
245									TSx-U 6325-9-8 i+
104									TSx-U 6330-9-2
134									TSx-U 6330-9-3
164									TSx-U 6330-9-4
194									TSx-U 6330-9-5 i+
224									TSx-U 6330-9-6 i+
254									TSx-U 6330-9-7 i+
120									TSx-U 6340-9-2
160									TSx-U 6340-9-3
200									TSx-U 6340-9-4 i+
240									TSx-U 6340-9-5 i+
137									TSx-U 6350-9-2 i+
187									TSx-U 6350-9-3 i+
237									TSx-U 6350-9-4 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions. In brackets ( ) second options.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

>SINGLE NUT

NO STANDARD CASES

Code TSB TSL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TSx-S 7010-6-3					3	57000	155600	1380	1130
TSx-S 7010-6-4		10	6,35	64,5	4	72000	207400	1800	1480
TSx-S 7010-6-5					5	86700	259300	2220	1830
TSx-S 7010-6-6					6	101200	311100	2640	2180
TSx-S 7012-8-2					2	53900	117900	850	680
TSx-S 7012-8-3					3	72800	176900	1230	1000
TSx-S 7012-8-4		12			4	92000	235800	1610	1310
TSx-S 7012-8-5					5	110900	294800	1990	1620
TSx-S 7012-8-6					6	129400	353700	2360	1930
TSx-S 7016-8-2					2	53800	117800	850	720
TSx-S 7016-8-3					3	72700	176700	1230	1040
TSx-S 7016-8-4		16	7,938	64,5	4	91900	235500	1610	1370
TSx-S 7016-8-5					5	110700	294400	1980	1700
TSx-S 7016-8-6					6	129200	353300	2360	2020
TSx-S 7020-8-2					2	53700	117600	840	740
TSx-S 7020-8-3					3	72600	176400	1220	1070
TSx-S 7020-8-4		20			4	91700	235200	1600	1410
TSx-S 7020-8-5					5	110500	294000	1980	1740
TSx-S 7020-8-6					6	129000	352800	2350	2070
TSx-U 7016-9-3					3	106200	255500	1630	1480
TSx-U 7016-9-4		16			4	136500	349900	2180	1980
TSx-U 7016-9-5					5	166300	444200	2700	2460
TSx-U 7016-9-6					6	194400	534600	3180	2900
TSx-U 7020-9-2					2	75600	160900	1080	1000
TSx-U 7020-9-3					3	106000	255200	1620	1510
TSx-U 7020-9-4		20			4	136300	349400	2170	2010
TSx-U 7020-9-5					5	166000	443600	2690	2500
TSx-U 7020-9-6					6	195000	537800	3190	2970
TSx-U 7025-9-2					2	75400	160600	1070	1010
TSx-U 7025-9-3					3	105700	254600	1620	1520
TSx-U 7025-9-4		25			4	135900	348600	2160	2030
TSx-U 7025-9-5			9,525	62,2	5	165500	442600	2680	2520
TSx-U 7025-9-6					6	194500	536600	3180	3000
TSx-U 7030-9-2	70				2	75200	160200	1070	1010
TSx-U 7030-9-3					3	105300	253900	1610	1530
TSx-U 7030-9-4		30			4	135400	347700	2150	2040
TSx-U 7030-9-5					5	164900	441500	2660	2540
TSx-U 7030-9-6 i+					6	193800	535200	3160	3010
TSx-U 7040-9-2					2	75700	163000	1080	1040
TSx-U 7040-9-3		40			3	105500	256100	1610	1550
TSx-U 7040-9-4 i+					4	135300	349300	2140	2060
TSx-U 7040-9-5 i+					5	164500	442400	2650	2550
TSx-U 7050-9-2					2	74900	161600	1060	1030
TSx-U 7050-9-3 i+		50			3	104300	254000	1580	1530
TSx-U 7050-9-4 i+					4	134800	350200	2120	2060
TSx-U 7020-12-2					2	111100	214700	1140	1070
TSx-U 7020-12-3					3	158800	350700	1790	1670
TSx-U 7020-12-4		20			4	204100	479500	2370	2220
TSx-U 7020-12-5					5	248400	608300	2950	2760
TSx-U 7020-12-6					6	293700	744200	3540	3310
TSx-U 7025-12-2					2	110800	214200	1140	1080
TSx-U 7025-12-3					3	158400	349900	1780	1690
TSx-U 7025-12-4		25			4	203500	478500	2360	2240
TSx-U 7025-12-5					5	249700	614200	2970	2820
TSx-U 7025-12-6					6	292900	742700	3520	3340
TSx-U 7030-12-2					2	110500	213700	1130	1080
TSx-U 7030-12-3			12,7	61	3	157900	349100	1770	1700
TSx-U 7030-12-4		30			4	202900	477300	2350	2250
TSx-U 7030-12-5					5	248900	612600	2960	2830
TSx-U 7030-12-6 i+					6	291900	740800	3500	3350
TSx-U 7040-12-2					2	112000	219400	1150	1110
TSx-U 7040-12-3		40			3	156600	346800	1750	1690
TSx-U 7040-12-4 i+					4	203200	481300	2350	2280
TSx-U 7040-12-5 i+					5	246800	608800	2920	2820
TSx-U 7050-12-2					2	110800	217700	1130	1100
TSx-U 7050-12-3 i+		50			3	157100	351100	1750	1710
TSx-U 7050-12-4 i+					4	201100	477500	2310	2250

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t : Rigidity of the balls contact zone for an external force 20% of Ca. See page 22. For different forces, multiply by $\sqrt[3]{F/0,2\ C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TSB	Length of the nut Ln ±1mm TSL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TSB	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TSB TSL
84	76									TSx-S 7010-6-3
95	87		123 (113)	140 (130)	11	18			125 (115)	TSx-S 7010-6-4
105	97									TSx-S 7010-6-5
115	107									TSx-S 7010-6-6
82	74									TSx-S 7012-8-2
96	88									TSx-S 7012-8-3
109	101									TSx-S 7012-8-4
121	113									TSx-S 7012-8-5
134	126									TSx-S 7012-8-6
90	82	105 (95)					25	110 (100)		TSx-S 7016-8-2
109	101									TSx-S 7016-8-3
126	118		125 (115)	145 (135)	13,5	20			127,5 (117,5)	TSx-S 7016-8-4
143	135									TSx-S 7016-8-5
159	151									TSx-S 7016-8-6
101	93									TSx-S 7020-8-2
124	116									TSx-S 7020-8-3
146	138									TSx-S 7020-8-4
167	159									TSx-S 7020-8-5
188	180									TSx-S 7020-8-6
97										TSx-U 7016-9-3
113										TSx-U 7016-9-4
129										TSx-U 7016-9-5
145										TSx-U 7016-9-6
88										TSx-U 7020-9-2
108										TSx-U 7020-9-3
128										TSx-U 7020-9-4
148										TSx-U 7020-9-5
168										TSx-U 7020-9-6
96										TSx-U 7025-9-2
121										TSx-U 7025-9-3
146										TSx-U 7025-9-4
171		110	130	150	13,5	25	25	115	132,5	TSx-U 7025-9-5
196										TSx-U 7025-9-6
104										TSx-U 7030-9-2
134										TSx-U 7030-9-3
164										TSx-U 7030-9-4
194										TSx-U 7030-9-5
224										TSx-U 7030-9-6 i+
121										TSx-U 7040-9-2
161										TSx-U 7040-9-3
201										TSx-U 7040-9-4 i+
241										TSx-U 7040-9-5 i+
138										TSx-U 7050-9-2
188										TSx-U 7050-9-3 i+
238										TSx-U 7050-9-4 i+
97										TSx-U 7020-12-2
117										TSx-U 7020-12-3
137										TSx-U 7020-12-4
157										TSx-U 7020-12-5
177										TSx-U 7020-12-6
105										TSx-U 7025-12-2
130										TSx-U 7025-12-3
155										TSx-U 7025-12-4
180										TSx-U 7025-12-5
205										TSx-U 7025-12-6
114										TSx-U 7030-12-2
144		120	140	160	13,5	25	25	125	142,5	TSx-U 7030-12-3
174										TSx-U 7030-12-4
204										TSx-U 7030-12-5
234										TSx-U 7030-12-6 i+
130										TSx-U 7040-12-2
170										TSx-U 7040-12-3
210										TSx-U 7040-12-4 i+
250										TSx-U 7040-12-5 i+
146										TSx-U 7050-12-2
196										TSx-U 7050-12-3 i+
246										TSx-U 7050-12-4 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions. In brackets ( ) second options.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

PRECISION BALLSCREW | SHUTON

>SINGLE NUT

NO STANDARD CASES

Code TSB TSL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TSx-S 8010-6-3	80	10	6,35	74,5	3	60600	180700	1550	1220
TSx-S 8010-6-4					4	76600	240900	2030	1600
TSx-S 8010-6-5					5	92400	301100	2510	1990
TSx-S 8010-6-6					6	107800	361400	2980	2370
TSx-S 8010-6-7					7	122900	421600	3450	2740
TSx-S 8010-6-8					8	137700	481800	3920	3120
TSx-S 8012-8-2		12	7,938	74,5	2	57800	137600	960	820
TSx-S 8012-8-3					3	78000	206300	1400	1200
TSx-S 8012-8-4					4	98600	275100	1830	1570
TSx-S 8012-8-5					5	118800	343900	2260	1940
TSx-S 8012-8-6					6	138600	412700	2680	2310
TSx-S 8012-8-7					7	158100	481500	3110	2680
TSx-S 8012-8-8					8	177200	550300	3530	3040
TSx-S 8016-8-2		16			2	57700	137400	960	850
TSx-S 8016-8-3					3	77900	206200	1390	1240
TSx-S 8016-8-4					4	98500	274900	1820	1620
TSx-S 8016-8-5					5	118700	343600	2250	2010
TSx-S 8016-8-6					6	138500	412300	2680	2390
TSx-S 8016-8-7					7	157900	481100	3100	2770
TSx-S 8016-8-8					8	177000	549800	3520	3150
TSx-S 8020-12-2		20	12,7	71,2	2	103900	202400	940	840
TSx-S 8020-12-3					3	140300	303600	1370	1230
TSx-S 8020-12-4					4	177300	404900	1790	1610
TSx-S 8020-12-5					5	213700	506100	2210	1990
TSx-S 8020-12-6					6	249300	607300	2630	2370
TSx-S 8020-12-7					7	284300	708500	3040	2750
TSx-U 8020-9-3		20	9,525	72,2	3	113400	296500	1820	1680
TSx-U 8020-9-4					4	145100	403200	2430	2240
TSx-U 8020-9-5					5	176300	510000	2990	2760
TSx-U 8020-9-6					6	206800	616700	3550	3280
TSx-U 8020-9-7-Z					7	236700	723400	4100	3780
TSx-U 8025-9-3		25			3	113100	296000	1820	1700
TSx-U 8025-9-4					4	144800	402500	2420	2260
TSx-U 8025-9-5					5	175900	509100	2980	2790
TSx-U 8025-9-6					6	207200	619600	3560	3340
TSx-U 8025-9-7-Z					7	237000	726200	4100	3850
TSx-U 8030-9-3		30			3	112800	295400	1810	1710
TSx-U 8030-9-4					4	144400	401700	2410	2280
TSx-U 8030-9-5					5	176400	512000	2990	2830
TSx-U 8030-9-6					6	206700	618300	3550	3360
TSx-U 8030-9-7 i+					7	236400	724700	4080	3870
TSx-U 8040-9-2		40			2	80800	188100	1200	1150
TSx-U 8040-9-3					3	113000	297800	1810	1740
TSx-U 8040-9-4					4	144400	403600	2400	2310
TSx-U 8040-9-5 i+					5	175200	509400	2960	2840
TSx-U 8050-9-2		50			2	81200	190700	1200	1160
TSx-U 8050-9-3					3	112100	295800	1790	1730
TSx-U 8050-9-4 i+					4	144100	404800	2390	2310
TSx-U 8020-12-3		20	12,7	71	3	169800	404200	1990	1850
TSx-U 8020-12-4					4	219000	555700	2670	2470
TSx-U 8020-12-5					5	267200	707300	3340	3100
TSx-U 8020-12-6					6	314200	858800	3980	3690
TSx-U 8020-12-7					7	358600	1003200	4560	4240
TSx-U 8020-12-8					8	403800	1154700	5140	4780
TSx-U 8025-12-3		25			3	169400	403500	1980	1870
TSx-U 8025-12-4					4	218600	554800	2660	2500
TSx-U 8025-12-5					5	266600	706100	3320	3130
TSx-U 8025-12-6					6	313600	857500	3960	3730
TSx-U 8025-12-7					7	359500	1008800	4570	4310
TSx-U 8025-12-8 i+					8	404700	1160100	5150	4860
TSx-U 8030-12-3		30			3	169000	402700	1970	1880
TSx-U 8030-12-4					4	218000	553700	2650	2520
TSx-U 8030-12-5					5	265900	704800	3310	3150
TSx-U 8030-12-6					6	312800	855800	3950	3760
TSx-U 8030-12-7 i+					7	358600	1006800	4550	4340
TSx-U 8040-12-2		40			2	121400	257600	1320	1270
TSx-U 8040-12-3					3	169900	407900	1990	1910
TSx-U 8040-12-4					4	218500	558200	2650	2550
TSx-U 8040-12-5 i+					5	266000	708500	3310	3190
TSx-U 8050-12-2		50			2	120400	256000	1300	1270
TSx-U 8050-12-3					3	168600	405300	1960	1900
TSx-U 8050-12-4 i+					4	216700	554700	2620	2540

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t : Rigidity of the balls contact zone for an external force 20% of Ca. See page 22. For different forces, multiply by $\sqrt[3]{F/0,2\ C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TSB	Length of the nut Ln ±1mm TSL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TSB	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TSB TSL
86	76	115 (105)	135 (125)	155 (145)	13,5	20	16	120 (110)	137,5 (127,5)	TSx-S 8010-6-3
97	87									TSx-S 8010-6-4
107	97									TSx-S 8010-6-5
118	108									TSx-S 8010-6-6
128	118									TSx-S 8010-6-7
138	128									TSx-S 8010-6-8
87	74	125 (105)	145 (125)	165 (145)	13,5	25	25	130 (110)	147,5 (127,5)	TSx-S 8012-8-2
101	88									TSx-S 8012-8-3
114	101									TSx-S 8012-8-4
127	114									TSx-S 8012-8-5
139	126									TSx-S 8012-8-6
151	138									TSx-S 8012-8-7
163	150									TSx-S 8012-8-8
95	82									TSx-S 8016-8-2
114	101									TSx-S 8016-8-3
131	118									TSx-S 8016-8-4
148	135									TSx-S 8016-8-5
164	151									TSx-S 8016-8-6
180	167									TSx-S 8016-8-7
197	184									TSx-S 8016-8-8
120	111	125	145	165	13,5	25	25	130	147,5	TSx-S 8020-12-2
143	134									TSx-S 8020-12-3
165	156									TSx-S 8020-12-4
186	177									TSx-S 8020-12-5
207	198									TSx-S 8020-12-6
227	218									TSx-S 8020-12-7
108		125 (120)	145 (140)	165 (160)	13,5	25	25	130 (125)	147,5 (142,5)	TSx-U 8020-9-3
128										TSx-U 8020-9-4
148										TSx-U 8020-9-5
168										TSx-U 8020-9-6
188										TSx-U 8020-9-7-Z
122										TSx-U 8025-9-3
147										TSx-U 8025-9-4
172										TSx-U 8025-9-5
197										TSx-U 8025-9-6
222										TSx-U 8025-9-7-Z
136										TSx-U 8030-9-3
166										TSx-U 8030-9-4
196										TSx-U 8030-9-5
226										TSx-U 8030-9-6
256										TSx-U 8030-9-7 i+
123										TSx-U 8040-9-2
163										TSx-U 8040-9-3
203										TSx-U 8040-9-4
243										TSx-U 8040-9-5 i+
140										TSx-U 8050-9-2
190										TSx-U 8050-9-3
240										TSx-U 8050-9-4 i+
118		135 (130)	155 (150)	175 (170)	13,5	25	25	140 (135)	157,5 (152,5)	TSx-U 8020-12-3
138										TSx-U 8020-12-4
158										TSx-U 8020-12-5
178										TSx-U 8020-12-6
198										TSx-U 8020-12-7
218										TSx-U 8020-12-8
131										TSx-U 8025-12-3
156										TSx-U 8025-12-4
181										TSx-U 8025-12-5
206										TSx-U 8025-12-6
231										TSx-U 8025-12-7
256										TSx-U 8025-12-8 i+
145										TSx-U 8030-12-3
175										TSx-U 8030-12-4
205										TSx-U 8030-12-5
235										TSx-U 8030-12-6
265										TSx-U 8030-12-7 i+
132										TSx-U 8040-12-2
172										TSx-U 8040-12-3
212										TSx-U 8040-12-4
252										TSx-U 8040-12-5 i+
148										TSx-U 8050-12-2
198										TSx-U 8050-12-3
248										TSx-U 8050-12-4 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions. In brackets ( ) second options.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

>SINGLE NUT

NO STANDARD CASES

Code TSB TSL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TSx-S 9010-6-2	90	10	6,35	84,5	2	47400	137200	1190	830
TSx-S 9010-6-3					3	64000	205800	1720	1220
TSx-S 9010-6-4					4	80800	274400	2260	1600
TSx-S 9010-6-5					5	97400	343000	2790	1990
TSx-S 9010-6-6					6	113700	411600	3310	2370
TSx-S 9012-8-2		12	7,938	84,5	2	61200	157200	1070	790
TSx-S 9012-8-3					3	82700	235900	1560	1150
TSx-S 9012-8-4					4	104400	314500	2040	1510
TSx-S 9012-8-5					5	125900	393100	2520	1880
TSx-S 9012-8-6					6	146900	471700	2990	2230
TSx-S 9016-8-2		16			2	61200	157100	1070	840
TSx-S 9016-8-3					3	82600	235700	1550	1230
TSx-S 9016-8-4					4	104400	314300	2040	1620
TSx-S 9016-8-5					5	125800	392800	2510	2000
TSx-S 9016-8-6					6	146800	471400	2990	2380
TSx-S 9020-12-2		20	12,7	81,2	2	113500	239900	1090	940
TSx-S 9020-12-3					3	153300	359900	1580	1360
TSx-S 9020-12-4					4	193700	479900	2070	1790
TSx-S 9020-12-5					5	233500	599800	2550	2220
TSx-S 9020-12-6					6	272500	719800	3040	2640
TSx-U 9020-9-3		20	9,525	82,2	3	120000	337800	2030	1830
TSx-U 9020-9-4					4	153100	457100	2680	2410
TSx-U 9020-9-5					5	186400	580300	3320	2990
TSx-U 9020-9-6-Z					6	218200	699500	3920	3540
TSx-U 9025-9-3		25			3	119800	337400	2030	1860
TSx-U 9025-9-4					4	152800	456400	2670	2450
TSx-U 9025-9-5					5	186100	579500	3310	3050
TSx-U 9025-9-6-Z					6	217800	698600	3910	3600
TSx-U 9030-9-3		30			3	119500	336800	2020	1880
TSx-U 9030-9-4					4	153400	459700	2680	2500
TSx-U 9030-9-5					5	185700	578500	3300	3080
TSx-U 9030-9-6-Z					6	218200	701400	3920	3660
TSx-U 9040-9-2		40			2	86300	217000	1350	1280
TSx-U 9040-9-3					3	118900	335400	2000	1900
TSx-U 9040-9-4					4	152600	457800	2660	2520
TSx-U 9040-9-5 i+					5	185600	580100	3300	3120
TSx-U 9050-9-2		50			2	85700	215900	1340	1280
TSx-U 9050-9-3					3	119000	337600	2000	1920
TSx-U 9050-9-4 i+					4	152400	459300	2650	2540
TSx-U 9020-12-3		20	12,7	81	3	179600	457700	2210	2010
TSx-U 9020-12-4					4	232300	632000	2970	2700
TSx-U 9020-12-5					5	282100	799100	3670	3350
TSx-U 9020-12-6					6	330900	966200	4340	3960
TSx-U 9025-12-3		25			3	181200	464300	2230	2070
TSx-U 9025-12-4					4	231900	631200	2960	2750
TSx-U 9025-12-5					5	281700	798100	3660	3400
TSx-U 9025-12-6					6	332000	972200	4360	4050
TSx-U 9030-12-3		30			3	180800	463600	2230	2090
TSx-U 9030-12-4					4	231400	630200	2950	2770
TSx-U 9030-12-5					5	281100	796800	3650	3430
TSx-U 9030-12-6					6	331300	970700	4350	4090
TSx-U 9040-12-2		40			2	127600	288600	1450	1390
TSx-U 9040-12-3					3	179900	461800	2210	2110
TSx-U 9040-12-4					4	230300	627700	2930	2790
TSx-U 9040-12-5 i+					5	281300	800900	3650	3480
TSx-U 9050-12-2		50			2	128900	294300	1470	1420
TSx-U 9050-12-3					3	178700	459500	2180	2100
TSx-U 9050-12-4 i+					4	230500	631700	2930	2820

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t : Rigidity of the balls contact zone for an external force 20% of Ca. See page 22. For different forces, multiply by $\sqrt[3]{Fr/0,2\ C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TSB	Length of the nut Ln ±1mm TSL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TSB	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TSB TSL
76	64	125 (115)	145 (135)	165 (155)	13,5	22	16	130 (120)	147,5 (137,5)	TSx-S 9010-6-2
88	76									TSx-S 9010-6-3
99	87									TSx-S 9010-6-4
109	97									TSx-S 9010-6-5
120	108									TSx-S 9010-6-6
87	74					25	25			TSx-S 9012-8-2
101	88									TSx-S 9012-8-3
114	101									TSx-S 9012-8-4
127	114									TSx-S 9012-8-5
139	126									TSx-S 9012-8-6
95	82									TSx-S 9016-8-2
114	101									TSx-S 9016-8-3
131	118									TSx-S 9016-8-4
148	135									TSx-S 9016-8-5
164	151									TSx-S 9016-8-6
120	111	130	150	170	13,5	25	25	135	152,5	TSx-S 9020-12-2
143	134									TSx-S 9020-12-3
165	156									TSx-S 9020-12-4
186	177									TSx-S 9020-12-5
207	198									TSx-S 9020-12-6
109		130	150	170	13,5	25	25	135	152,5	TSx-U 9020-9-3
129										TSx-U 9020-9-4
149										TSx-U 9020-9-5
169										TSx-U 9020-9-6-Z
123										TSx-U 9025-9-3
148										TSx-U 9025-9-4
173										TSx-U 9025-9-5
198										TSx-U 9025-9-6-Z
136										TSx-U 9030-9-3
166										TSx-U 9030-9-4
196										TSx-U 9030-9-5
226										TSx-U 9030-9-6-Z
124										TSx-U 9040-9-2
164										TSx-U 9040-9-3
204										TSx-U 9040-9-4
244										TSx-U 9040-9-5 i+
142										TSx-U 9050-9-2
192										TSx-U 9050-9-3
242										TSx-U 9050-9-4 i+
119		140	166	192	17,5	30	25	145	168,5	TSx-U 9020-12-3
139										TSx-U 9020-12-4
159										TSx-U 9020-12-5
179										TSx-U 9020-12-6
132										TSx-U 9025-12-3
157										TSx-U 9025-12-4
182										TSx-U 9025-12-5
207										TSx-U 9025-12-6
146										TSx-U 9030-12-3
176										TSx-U 9030-12-4
206										TSx-U 9030-12-5
236										TSx-U 9030-12-6
134										TSx-U 9040-12-2
174										TSx-U 9040-12-3
214										TSx-U 9040-12-4
253										TSx-U 9040-12-5 i+
151										TSx-U 9050-12-2
201										TSx-U 9050-12-3
250										TSx-U 9050-12-4 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions. In brackets ( ) second options.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

>SINGLE NUT

NO STANDARD CASES

Code TSB TSL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TSx-S 10010-6-3	100	10	6,35	94,5	3	66100	226000	1850	1340
TSx-S 10010-6-4					4	83500	301400	2430	1770
TSx-S 10010-6-5					5	100600	376700	3000	2190
TSx-S 10010-6-6					6	117400	452100	3560	2610
TSx-S 10010-6-7					7	133900	527400	4130	3030
TSx-S 10010-6-8					8	150100	602800	4690	3450
TSx-S 10012-8-3		12	7,938	94,5	3	86900	265400	1710	1410
TSx-S 10012-8-4					4	109800	353900	2240	1850
TSx-S 10012-8-5					5	132300	442300	2770	2290
TSx-S 10012-8-6					6	154400	530800	3290	2730
TSx-S 10012-8-7					7	176100	619300	3810	3160
TSx-S 10012-8-8					8	197400	707700	4330	3590
TSx-S 10016-8-3		16			3	86800	265300	1710	1470
TSx-S 10016-8-4					4	109700	353700	2240	1930
TSx-S 10016-8-5					5	132200	442100	2760	2390
TSx-S 10016-8-6					6	154300	530500	3290	2850
TSx-S 10016-8-7					7	176000	618900	3810	3300
TSx-S 10016-8-8					8	197200	707300	4320	3750
TSx-S 10020-12-3		20	12,7	91,2	3	160200	398200	1710	1500
TSx-S 10020-12-4					4	202400	531000	2240	1960
TSx-S 10020-12-5					5	243900	663700	2770	2430
TSx-S 10020-12-6					6	284600	796500	3300	2890
TSx-S 10020-12-7					7	324600	929200	3820	3350
TSx-U 10015-9-4		15	9,525	92,2	4	160500	511300	2930	2560
TSx-U 10015-9-5					5	195000	647100	3630	3170
TSx-U 10015-9-6-Z					6	228800	782900	4310	3770
TSx-U 10016-9-3		16			3	126100	379400	2220	1960
TSx-U 10016-9-4					4	160400	511200	2930	2580
TSx-U 10016-9-5					5	195000	647000	3630	3200
TSx-U 10016-9-6-Z					6	228800	782800	4310	3800
TSx-U 10020-9-3		20			3	126000	379200	2220	2000
TSx-U 10020-9-4					4	160300	510900	2920	2640
TSx-U 10020-9-5					5	194800	646600	3620	3270
TSx-U 10020-9-6-Z					6	228600	782300	4300	3890
TSx-U 10025-9-3		25			3	125800	378800	2220	2040
TSx-U 10025-9-4					4	160100	510300	2910	2680
TSx-U 10025-9-5					5	194500	645900	3610	3330
TSx-U 10025-9-6-Z					6	228200	781400	4290	3960
TSx-U 10030-9-3		30			3	125600	378300	2210	2060
TSx-U 10030-9-4					4	160600	513600	2930	2730
TSx-U 10030-9-5					5	194200	645000	3600	3360
TSx-U 10030-9-6-Z					6	227900	780400	4280	4000
TSx-U 10040-9-2		40			2	90300	242100	1480	1400
TSx-U 10040-9-3					3	125000	377000	2190	2080
TSx-U 10040-9-4					4	159900	511900	2910	2760
TSx-U 10040-9-5 i+					5	194100	646800	3600	3420
TSx-U 10050-9-2		50			2	90800	245000	1490	1430
TSx-U 10050-9-3					3	125200	379300	2200	2110
TSx-U 10050-9-4 i+					4	159900	513700	2900	2780
TSx-U 10020-12-3		20	12,7	91	3	190200	518500	2450	2200
TSx-U 10020-12-4					4	244300	708300	3240	2910
TSx-U 10020-12-5					5	295700	890900	4000	3590
TSx-U 10020-12-6					6	347500	1080700	4760	4280
TSx-U 10020-12-7-Z					7	398300	1270600	5480	4940
TSx-U 10020-12-8-Z					8	448200	1460400	6190	5580
TSx-B 10020-12-9 i+					9	477900	1555400	6930	6300
TSx-B 10020-12-10 i+					10	523600	1730600	7630	6940
TSx-B 10020-12-12 i+					12	621700	2124900	9210	8370
TSx-U 10025-12-3		25			3	190000	517900	2450	2240
TSx-U 10025-12-4					4	244000	707600	3240	2970
TSx-U 10025-12-5					5	296900	897200	4020	3690
TSx-U 10025-12-6					6	347100	1079600	4750	4360
TSx-U 10025-12-7-Z					7	397800	1269200	5470	5030
TSx-U 10025-12-8 i+					8	447600	1458900	6170	5680
TSx-B 10025-12-9 i+					9	477300	1553700	6920	6400
TSx-B 10025-12-10 i+					10	527300	1750700	7710	7140
TSx-U 10030-12-3		30			3	189700	517200	2440	2270
TSx-U 10030-12-4					4	243600	706700	3230	3000
TSx-U 10030-12-5					5	296400	896100	4010	3730
TSx-U 10030-12-6					6	348100	1085500	4760	4430
TSx-U 10030-12-7 i+					7	397100	1267600	5460	5090
TSx-U 10040-12-2		40			2	135200	326800	1590	1500
TSx-U 10040-12-3					3	188900	515600	2420	2290
TSx-U 10040-12-4					4	242600	704400	3210	3030
TSx-U 10040-12-5 i+					5	295200	893200	3980	3770
TSx-U 10050-12-2		50			2	136500	332700	1610	1540
TSx-U 10050-12-3					3	189600	520700	2430	2330
TSx-U 10050-12-4 i+					4	242900	708700	3210	3070

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t : Rigidity of the balls contact zone for an external force 20% of Ca. See page 22. For different forces, multiply by $\sqrt[3]{F/0,2\ C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TSB	Length of the nut Ln ±1mm TSL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TSB	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TSB TSL
88	76	135 (125)	155 (145)	175 (165)	**13,5**	**22**	16	140 (130)	157,5 (147,5)	TSx-S 10010-6-3
99	87									TSx-S 10010-6-4
109	97									TSx-S 10010-6-5
120	108									TSx-S 10010-6-6
130	118									TSx-S 10010-6-7
140	128									TSx-S 10010-6-8
106	88	**150** (125)	**176** (145)	**202** (165)	**17,5** (13,5)	**30**	**25**	**155** (130)	**178,5** (147,5)	TSx-S 10012-8-3
119	101									TSx-S 10012-8-4
132	114									TSx-S 10012-8-5
144	126									TSx-S 10012-8-6
156	138									TSx-S 10012-8-7
169	151									TSx-S 10012-8-8
119	101									TSx-S 10016-8-3
136	118									TSx-S 10016-8-4
153	135									TSx-S 10016-8-5
169	151									TSx-S 10016-8-6
185	167									TSx-S 10016-8-7
202	184									TSx-S 10016-8-8
148	134	**150**	**176**	**202**	**17,5**	**30**	**25**	**155**	**178,5**	TSx-S 10020-12-3
170	156									TSx-S 10020-12-4
191	177									TSx-S 10020-12-5
212	198									TSx-S 10020-12-6
232	218									TSx-S 10020-12-7
110		**150**	**176**	**202**	**17,5**	**30**	**25**	**155**	**178,5**	TSx-U 10015-9-4
125										TSx-U 10015-9-5
140										TSx-U 10015-9-6-Z
98										TSx-U 10016-9-3
114										TSx-U 10016-9-4
130										TSx-U 10016-9-5
146										TSx-U 10016-9-6-Z
109										TSx-U 10020-9-3
129										TSx-U 10020-9-4
149										TSx-U 10020-9-5
169										TSx-U 10020-9-6-Z
123										TSx-U 10025-9-3
148		**150** (140)	**176** (166)	**202** (192)	**17,5**	**30**	**25**	**155** (145)	**178,5** (168,5)	TSx-U 10025-9-4
173										TSx-U 10025-9-5
198										TSx-U 10025-9-6-Z
137										TSx-U 10030-9-3
167										TSx-U 10030-9-4
197										TSx-U 10030-9-5
227										TSx-U 10030-9-6-Z
125										TSx-U 10040-9-2
165										TSx-U 10040-9-3
205										TSx-U 10040-9-4
245										TSx-U 10040-9-5 i+
143										TSx-U 10050-9-2
193										TSx-U 10050-9-3
243										TSx-U 10050-9-4 i+
119		**150**	**176**	**202**	**17,5**	**30**	**25**	**155**	**178,5**	TSx-U 10020-12-3
139										TSx-U 10020-12-4
159										TSx-U 10020-12-5
179										TSx-U 10020-12-6
199										TSx-U 10020-12-7-Z
219										TSx-U 10020-12-8-Z
241		155 (150)	181 (176)	207 (202)				160 (155)	183,5 (178,5)	TSx-B 10020-12-9 i+
261										TSx-B 10020-12-10 i+
301										TSx-B 10020-12-12 i+
133		**150**	**176**	**202**	**17,5**	**30**	**25**	**155**	**178,5**	TSx-U 10025-12-3
158										TSx-U 10025-12-4
183										TSx-U 10025-12-5
208										TSx-U 10025-12-6
233										TSx-U 10025-12-7-Z
258										TSx-U 10025-12-8 i+
291		155 (150)	181 (176)	207 (202)				160 (155)	183,5 (178,5)	TSx-B 10025-12-9 i+
316										TSx-B 10025-12-10 i+
147		**150**	**176**	**202**				**155**	**178,5**	TSx-U 10030-12-3
177										TSx-U 10030-12-4
207										TSx-U 10030-12-5
237										TSx-U 10030-12-6
267										TSx-U 10030-12-7 i+
134										TSx-U 10040-12-2
174										TSx-U 10040-12-3
214										TSx-U 10040-12-4
254										TSx-U 10040-12-5 i+
151										TSx-U 10050-12-2
201										TSx-U 10050-12-3
251										TSx-U 10050-12-4 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions. In brackets ( ) second options.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

>SINGLE NUT

NO STANDARD CASES

Code TSB TSL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TSx-B 10020-15-3					3	260800	644500	2450	2230
TSx-B 10020-15-4					4	334500	878900	3260	2960
TSx-B 10020-15-5					5	409500	1125000	4100	3720
TSx-B 10020-15-6					6	463400	1289000	4720	4300
TSx-B 10020-15-7		20			7	533000	1523400	5570	5070
TSx-B 10020-15-8					8	601200	1757800	6290	5730
TSx-B 10020-15-9 i+					9	673500	2015600	7150	6510
TSx-B 10020-15-10 i+					10	739400	2249900	7930	7220
TSx-B 10020-15-12 i+					12	851000	2636600	9260	8450
TSx-U 10025-15-3					3	260400	643800	2450	2250
TSx-U 10025-15-4					4	334000	877900	3250	3000
TSx-U 10025-15-5					5	409000	1123800	4090	3770
TSx-U 10025-15-6		25			6	479400	1357900	4860	4470
TSx-U 10025-15-7					7	551200	1603700	5620	5180
TSx-U 10025-15-8 i+			15,875	87	8	618900	1837800	6310	5830
TSx-B 10025-15-9 i+					9	672500	2013400	7140	6620
TSx-B 10025-15-10 i+					10	738400	2247500	7910	7340
TSx-U 10030-15-3					3	260000	643000	2440	2280
TSx-U 10030-15-4					4	336400	888500	3290	3060
TSx-U 10030-15-5		30			5	408300	1122300	4080	3810
TSx-U 10030-15-6					6	481400	1367800	4880	4560
TSx-U 10030-15-7 i+					7	550200	1601600	5610	5240
TSx-U 10040-15-2					2	185800	407800	1620	1540
TSx-U 10040-15-3		40			3	258800	640900	2420	2300
TSx-U 10040-15-4					4	335000	885600	3260	3100
TSx-U 10040-15-5 i+	100				5	406500	1118600	4050	3850
TSx-U 10050-15-2					2	184800	406100	1610	1540
TSx-U 10050-15-3		50			3	260500	649800	2440	2340
TSx-U 10050-15-4 i+					4	333100	881900	3230	3100
TSx-B 10025-19-3					3	325900	750200	2480	2300
TSx-B 10025-19-4					4	421000	1033600	3300	3070
TSx-B 10025-19-5					5	513900	1317000	4130	3840
TSx-B 10025-19-6		25			6	604700	1600400	4940	4600
TSx-B 10025-19-7					7	664700	1767100	5520	5150
TSx-B 10025-19-8 i+					8	756700	2067100	6380	5940
TSx-B 10025-19-9 i+					9	846900	2367200	7230	6730
TSx-B 10025-19-10 i+					10	927800	2633900	7980	7430
TSx-B 10030-19-3					3	325400	749200	2470	2320
TSx-B 10030-19-4					4	420200	1032200	3300	3100
TSx-B 10030-19-5		30	19,05	84,1	5	513000	1315300	4120	3870
TSx-B 10030-19-6					6	603700	1598300	4930	4640
TSx-B 10030-19-8 i+					8	755400	2064500	6360	6000
TSx-B 10040-19-2					2	229200	464600	1590	1520
TSx-B 10040-19-3					3	324000	746800	2450	2340
TSx-B 10040-19-4		40			4	418500	1028900	3270	3130
TSx-B 10040-19-5 i+					5	515100	1327600	4140	3950
TSx-B 10040-19-6 i+					6	575800	1493500	4710	4510
TSx-B 10050-19-2					2	227900	462700	1570	1520
TSx-B 10050-19-3		50			3	322300	743600	2430	2340
TSx-B 10050-19-4 i+					4	420700	1041100	3290	3170
TSx-B 10050-19-5 i+					5	486400	1222900	3920	3780

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t : Rigidity of the balls contact zone for an external force 20% of Ca. See page 22. For different forces, multiply by $\sqrt[3]{F/0,2\ C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TSB	Length of the nut Ln ±1mm TSL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TSB	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TSB TSL
107										TSx-B 10020-15-3
127										TSx-B 10020-15-4
147										TSx-B 10020-15-5
177										TSx-B 10020-15-6
197		165 (160)	191 (186)	217 (212)				170 (165)	193,5 (188,5)	TSx-B 10020-15-7
217										TSx-B 10020-15-8
237										TSx-B 10020-15-9 i+
257										TSx-B 10020-15-10 i+
307										TSx-B 10020-15-12 i+
140										TSx-U 10025-15-3
165										TSx-U 10025-15-4
190		**160**	**186**	**212**				**165**	**188,5**	TSx-U 10025-15-5
215										TSx-U 10025-15-6
240										TSx-U 10025-15-7
265					**17,5**	**30**	**40**			TSx-U 10025-15-8 i+
285		165 (160)	191 (186)	217 (212)				170 (165)	193,5 (188,5)	TSx-B 10025-15-9 i+
310										TSx-B 10025-15-10 i+
154										TSx-U 10030-15-3
184										TSx-U 10030-15-4
214										TSx-U 10030-15-5
244										TSx-U 10030-15-6
274										TSx-U 10030-15-7 i+
142		**160**	**186**	**212**				**165**	**188,5**	TSx-U 10040-15-2
182										TSx-U 10040-15-3
222										TSx-U 10040-15-4
262										TSx-U 10040-15-5 i+
160										TSx-U 10050-15-2
210										TSx-U 10050-15-3
260										TSx-U 10050-15-4 i+
128										TSx-B 10025-19-3
153										TSx-B 10025-19-4
178										TSx-B 10025-19-5
203										TSx-B 10025-19-6
241										TSx-B 10025-19-7
266										TSx-B 10025-19-8 i+
291										TSx-B 10025-19-9 i+
316										TSx-B 10025-19-10 i+
143										TSx-B 10030-19-3
173										TSx-B 10030-19-4
203		175	201	227				180	203,5	TSx-B 10030-19-5
233		(170)	(196)	(222)	**17,5**	**30**	**40**	(175)	(198,5)	TSx-B 10030-19-6
308										TSx-B 10030-19-8 i+
133										TSx-B 10040-19-2
173										TSx-B 10040-19-3
213										TSx-B 10040-19-4
253										TSx-B 10040-19-5 i+
313										TSx-B 10040-19-6 i+
153										TSx-B 10050-19-2
203										TSx-B 10050-19-3
253										TSx-B 10050-19-4 i+
328										TSx-B 10050-19-5 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions. In brackets ( ) second options.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

PRECISION BALLSCREW | SHUTON

>SINGLE NUT

NO STANDARD CASES

Code TSB TSL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TSx-S 12020-12-3	120	20	12,7	111,2	3	176600	493100	2040	1710
TSx-S 12020-12-4					4	223200	657400	2680	2250
TSx-S 12020-12-5					5	269000	821800	3310	2780
TSx-S 12020-12-6					6	313900	986100	3930	3310
TSx-S 12020-12-7					7	357900	1150500	4550	3840
TSx-B 12016-12-3		16			3	207500	633100	2870	2450
TSx-B 12016-12-4					4	255000	809800	3630	3120
TSx-B 12016-12-5					5	311100	1030700	4550	3910
TSx-B 12016-12-6					6	368700	1266300	5520	4730
TSx-B 12016-12-7					7	412500	1435600	6210	5350
TSx-B 12016-12-8					8	465300	1656400	7090	6110
TSx-B 12016-12-9					9	521200	1899400	8110	6980
TSx-B 12016-12-10					10	561600	2061300	8790	7590
TSx-B 12016-12-12 i+					12	667100	2532500	10670	9190
TSx-U 12020-12-3		20			3	207300	632800	2870	2490
TSx-U 12020-12-4					4	264000	853600	3760	3280
TSx-U 12020-12-5					5	321100	1081700	4660	4070
TSx-U 12020-12-6-Z					6	377000	1309800	5530	4830
TSx-B 12020-12-7					7	412200	1434900	6200	5500
TSx-B 12020-12-8					8	465000	1655700	7080	6280
TSx-B 12020-12-9 i+					9	520900	1898500	8100	7170
TSx-B 12020-12-10 i+					10	561200	2060400	8780	7790
TSx-B 12020-12-12 i+					12	666700	2531300	10660	9450
TSx-U 12025-12-3		25	12,7	111	3	207100	632400	2860	2560
TSx-U 12025-12-4					4	263800	853000	3760	3360
TSx-U 12025-12-5					5	320800	1080900	4650	4170
TSx-U 12025-12-6-Z					6	376600	1308800	5520	4950
TSx-B 12025-12-7 i+					7	411800	1433800	6190	5620
TSx-B 12025-12-8 i+					8	464500	1654400	7070	6410
TSx-B 12025-12-9 i+					9	520400	1897100	8090	7330
TSx-B 12025-12-10 i+					10	560700	2058800	8760	7960
TSx-U 12030-12-3		30			3	206900	631800	2860	2600
TSx-U 12030-12-4					4	265000	859500	3780	3440
TSx-U 12030-12-5					5	320500	1079900	4640	4230
TSx-U 12030-12-6-Z					6	376200	1307700	5510	5030
TSx-U 12040-12-2		40			2	148600	403100	1900	1760
TSx-U 12040-12-3					3	206300	630300	2840	2650
TSx-U 12040-12-4					4	264200	857600	3760	3500
TSx-U 12040-12-5 i+					5	321000	1084800	4650	4340
TSx-U 12050-12-2		50			2	148000	402000	1880	1780
TSx-U 12050-12-3					3	205500	628500	2820	2670
TSx-U 12050-12-4 i+					4	263200	855100	3740	3530

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t : Rigidity of the balls contact zone for an external force 20% of Ca. See page 22. For different forces, multiply by $\sqrt[3]{F/0,2\ C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TSB	Length of the nut Ln ±1mm TSL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TSB	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TSB TSL
149	135	**170**	**196**	**222**	**17,5**	**30**	**25**	**175**	**198,5**	TSx-S 12020-12-3
171	157									TSx-S 12020-12-4
192	178									TSx-S 12020-12-5
213	199									TSx-S 12020-12-6
233	219									TSx-S 12020-12-7
149		175 (**170**)	201 (**196**)	227 (**222**)				180 (**175**)	203,5 (**198,5**)	TSx-B 12016-12-3
179										TSx-B 12016-12-4
129										TSx-B 12016-12-5
145										TSx-B 12016-12-6
169										TSx-B 12016-12-7
185										TSx-B 12016-12-8
201										TSx-B 12016-12-9
225										TSx-B 12016-12-10
257										TSx-B 12016-12-12 i+
120		**170**	**196**	**222**				**175**	**198,5**	TSx-U 12020-12-3
140										TSx-U 12020-12-4
160										TSx-U 12020-12-5
180										TSx-U 12020-12-6-Z
201		175 (**170**)	201 (**196**)	227 (**222**)				180 (**175**)	203,5 (**198,5**)	TSx-B 12020-12-7
221										TSx-B 12020-12-8
241										TSx-B 12020-12-9 i+
271										TSx-B 12020-12-10 i+
311										TSx-B 12020-12-12 i+
134		**170**	**196**	**222**	**17,5**	**30**	**25**	**175**	**198,5**	TSx-U 12025-12-3
159										TSx-U 12025-12-4
184										TSx-U 12025-12-5
209										TSx-U 12025-12-6-Z
241		175 (**170**)	201 (**196**)	227 (**222**)				180 (**175**)	203,5 (**198,5**)	TSx-B 12025-12-7 i+
266										TSx-B 12025-12-8 i+
291										TSx-B 12025-12-9 i+
329										TSx-B 12025-12-10 i+
148		**170**	**196**	**222**				**175**	**198,5**	TSx-U 12030-12-3
178										TSx-U 12030-12-4
208										TSx-U 12030-12-5
238										TSx-U 12030-12-6-Z
136										TSx-U 12040-12-2
176										TSx-U 12040-12-3
216										TSx-U 12040-12-4
256										TSx-U 12040-12-5 i+
153										TSx-U 12050-12-2
203										TSx-U 12050-12-3
253										TSx-U 12050-12-4 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions. In brackets ( ) second options.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

PRECISION BALLSCREW | SHUTON

>SINGLE NUT

NO STANDARD CASES

Code TSB TSL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TSx-B 12020-15-3					3	287000	793000	2920	2580
TSx-B 12020-15-4					4	367100	1077000	3840	3390
TSx-B 12020-15-5					5	432700	1301900	4680	4150
TSx-B 12020-15-6					6	510000	1585900	5610	4980
TSx-B 12020-15-7		20			7	585600	1870000	6540	5800
TSx-B 12020-15-8					8	659800	2154000	7410	6580
TSx-B 12020-15-9 i+					9	720900	2378900	8260	7340
TSx-B 12020-15-10 i+					10	792900	2663000	9140	8130
TSx-B 12020-15-12 i+					12	934000	3231100	10900	9700
TSx-U 12025-15-3					3	286700	792400	2920	2620
TSx-U 12025-15-4					4	366700	1076200	3830	3450
TSx-U 12025-15-5					5	447800	1371900	4780	4300
TSx-U 12025-15-6		25			6	524600	1655700	5690	5120
TSx-U 12025-15-7					7	602200	1951400	6570	5920
TSx-U 12025-15-8 i+			15,875	107	8	676000	2235200	7370	6660
TSx-B 12025-15-9 i+					9	720200	2377100	8240	7490
TSx-B 12025-15-10 i+					10	792100	2661000	9130	8300
TSx-U 12030-15-3					3	286300	791700	2910	2660
TSx-U 12030-15-4					4	366300	1075200	3830	3500
TSx-U 12030-15-5		30			5	447300	1370600	4780	4370
TSx-U 12030-15-6					6	523900	1654200	5680	5200
TSx-U 12030-15-7 i+					7	601500	1949600	6560	6010
TSx-U 12040-15-2					2	206100	506900	1950	1820
TSx-U 12040-15-3		40			3	285500	789800	2900	2710
TSx-U 12040-15-4					4	367900	1084500	3850	3590
TSx-U 12040-15-5 i+	120				5	445900	1367500	4750	4440
TSx-U 12050-15-2					2	205300	505400	1940	1830
TSx-U 12050-15-3		50			3	284400	787500	2880	2720
TSx-U 12050-15-4 i+					4	366500	1081300	3820	3620
TSx-B 12025-19-3					3	361900	928200	2920	2660
TSx-B 12025-19-4					4	464200	1265700	3920	3570
TSx-B 12025-19-5					5	568400	1620100	4890	4450
TSx-B 12025-19-6		25			6	643200	1856400	5620	5140
TSx-B 12025-19-7					7	739700	2193900	6630	6060
TSx-B 12025-19-8 i+					8	834400	2531400	7570	6920
TSx-B 12025-19-9 i+					9	927500	2868900	8430	7710
TSx-B 12025-19-10 i+					10	1026200	3240200	9450	8630
TSx-B 12030-19-3					3	361500	927300	2920	2700
TSx-B 12030-19-4					4	463700	1264500	3910	3620
TSx-B 12030-19-5		30			5	567800	1618600	4880	4510
TSx-B 12030-19-6 i+			19,05	104,1	6	642400	1854700	5610	5200
TSx-B 12030-19-8 i+					8	833400	2529100	7550	7000
TSx-B 12040-19-2					2	253800	571900	1890	1790
TSx-B 12040-19-3					3	360400	925200	2900	2740
TSx-B 12040-19-4		40			4	462300	1261600	3900	3670
TSx-B 12040-19-5 i+					5	566100	1614900	4850	4580
TSx-B 12040-19-6 i+					6	640500	1850400	5580	5270
TSx-B 12050-19-2					2	257800	587000	1930	1840
TSx-B 12050-19-3		50			3	359000	922500	2880	2750
TSx-B 12050-19-4 i+					4	464600	1274700	3920	3740
TSx-B 12050-19-5 i+					5	540100	1509500	4610	4410

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t : Rigidity of the balls contact zone for an external force 20% of Ca. See page 22. For different forces, multiply by $\sqrt[3]{F/0{,}2\ C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TSB | TSL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TSB	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TSB TSL
107									TSx-B 12020-15-3
127									TSx-B 12020-15-4
157									TSx-B 12020-15-5
177									TSx-B 12020-15-6
197	185	211	237				190	213,5	TSx-B 12020-15-7
217									TSx-B 12020-15-8
247									TSx-B 12020-15-9 i+
267									TSx-B 12020-15-10 i+
307									TSx-B 12020-15-12 i+
141									TSx-U 12025-15-3
166									TSx-U 12025-15-4
191	180	206	232				185	208,5	TSx-U 12025-15-5
216									TSx-U 12025-15-6
241									TSx-U 12025-15-7
266				**17,5**	**30**	40			TSx-U 12025-15-8 i+
297	185	211	237				190	213,5	TSx-B 12025-15-9 i+
322									TSx-B 12025-15-10 i+
155									TSx-U 12030-15-3
185									TSx-U 12030-15-4
215									TSx-U 12030-15-5
245									TSx-U 12030-15-6
275									TSx-U 12030-15-7 i+
143	180	206	232				185	208,5	TSx-U 12040-15-2
183									TSx-U 12040-15-3
223									TSx-U 12040-15-4
263									TSx-U 12040-15-5 i+
161									TSx-U 12050-15-2
211									TSx-U 12050-15-3
261									TSx-U 12050-15-4 i+
128									TSx-B 12025-19-3
153									TSx-B 12025-19-4
178									TSx-B 12025-19-5
216									TSx-B 12025-19-6
241									TSx-B 12025-19-7
266									TSx-B 12025-19-8 i+
291									TSx-B 12025-19-9 i+
316									TSx-B 12025-19-10 i+
143									TSx-B 12030-19-3
173									TSx-B 12030-19-4
203	195	221	247	**17,5**	**40**	40	200	223,5	TSx-B 12030-19-5
248	(190)	(216)	(242)				(195)	(218,5)	TSx-B 12030-19-6 i+
308									TSx-B 12030-19-8 i+
133									TSx-B 12040-19-2
173									TSx-B 12040-19-3
213									TSx-B 12040-19-4
253									TSx-B 12040-19-5 i+
313									TSx-B 12040-19-6 i+
153									TSx-B 12050-19-2
203									TSx-B 12050-19-3
253									TSx-B 12050-19-4 i+
328									TSx-B 12050-19-5 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions. In brackets ( ) second options.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

PRECISION BALLSCREW | SHUTON

>SINGLE NUT

NO STANDARD CASES

Code TSB TSL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TSx-B 14020-15-3	140	20	15,875	127	3	309500	941600	3340	2880
TSx-B 14020-15-4					4	377700	1191900	4180	3640
TSx-B 14020-15-5					5	462500	1525600	5260	4580
TSx-B 14020-15-6					6	549900	1883100	6410	5570
TSx-B 14020-15-7					7	617200	2145300	7340	6400
TSx-B 14020-15-8					8	694700	2467100	8330	7270
TSx-B 14020-15-9 i+					9	777400	2824700	9430	8220
TSx-B 14020-15-10 i+					10	835000	3051100	10170	8900
TSx-B 14020-15-12 i+					12	994900	3766300	12400	10830
TSx-U 14025-15-3		25			3	309200	941000	3330	2920
TSx-U 14025-15-4					4	394900	1274600	4390	3850
TSx-U 14025-15-5					5	478900	1608100	5440	4770
TSx-U 14025-15-6					6	563400	1953600	6490	5700
TSx-U 14025-15-7-Z					7	643900	2287100	7440	6550
TSx-B 14025-15-8 i+					8	694200	2465800	8320	7450
TSx-B 14025-15-9 i+					9	776800	2823100	9420	8430
TSx-B 14025-15-10 i+					10	834400	3049500	10160	9120
TSx-U 14030-15-3		30			3	309000	940400	3330	2980
TSx-U 14030-15-4					4	394500	1273700	4380	3920
TSx-U 14030-15-5					5	480800	1618900	5470	4900
TSx-U 14030-15-6					6	562900	1952200	6480	5810
TSx-U 14030-15-7 i+					7	643300	2285500	7420	6670
TSx-B 14030-15-8 i+					8	693600	2464100	8310	7570
TSx-U 14040-15-2		40			2	220500	594200	2190	2010
TSx-U 14040-15-3					3	308300	938800	3310	3050
TSx-U 14040-15-4					4	393600	1271500	4370	4020
TSx-U 14040-15-5 i+					5	479700	1616100	5450	5010
TSx-U 14050-15-2		50			2	222800	604700	2220	2070
TSx-U 14050-15-3					3	307400	936700	3300	3080
TSx-U 14050-15-4 i+					4	394900	1280600	4380	4100
TSx-B 14025-19-3		25	19,05	124,1	3	392600	1106400	3390	3030
TSx-B 14025-19-4					4	501200	1497900	4480	4010
TSx-B 14025-19-5					5	589300	1804300	5390	4850
TSx-B 14025-19-6					6	697700	2212800	6510	5860
TSx-B 14025-19-7					7	796700	2587300	7530	6780
TSx-B 14025-19-8 i+					8	900800	2995800	8640	7770
TSx-B 14025-19-9 i+					9	986300	3319200	9580	8630
TSx-B 14025-19-10 i+					10	1087200	3727700	10640	9580
TSx-B 14030-19-3		30			3	392300	1105700	3380	3080
TSx-B 14030-19-4					4	500700	1496900	4470	4080
TSx-B 14030-19-5					5	588800	1803100	5380	4930
TSx-B 14030-19-6 i+					6	697100	2211300	6500	5950
TSx-B 14030-19-8 i+					8	900000	2993800	8630	7890
TSx-B 14040-19-2		40			2	279300	696200	2240	2080
TSx-B 14040-19-3					3	391400	1103800	3370	3140
TSx-B 14040-19-4					4	503400	1511300	4500	4200
TSx-B 14040-19-5 i+					5	587500	1800000	5360	5020
TSx-B 14040-19-6 i+					6	695500	2207500	6480	6060
TSx-B 14050-19-2		50			2	278500	694700	2220	2100
TSx-B 14050-19-3					3	390300	1101300	3350	3170
TSx-B 14050-19-4 i+					4	502000	1508000	4480	4240
TSx-B 14050-19-5 i+					5	585800	1796000	5340	5060

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t : Rigidity of the balls contact zone for an external force 20% of Ca. See page 22. For different forces, multiply by $\sqrt[3]{F/0{,}2\ C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TSB / TSL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TSB	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TSB TSL
107	210 (205)	236 (231)	262 (257)	17,5	30	40	215 (210)	238,5 (233,5)	TSx-B 14020-15-3
137									TSx-B 14020-15-4
157									TSx-B 14020-15-5
177									TSx-B 14020-15-6
207									TSx-B 14020-15-7
227									TSx-B 14020-15-8
247									TSx-B 14020-15-9 i+
277									TSx-B 14020-15-10 i+
317									TSx-B 14020-15-12 i+
142	200	226	252				205	228,5	TSx-U 14025-15-3
167									TSx-U 14025-15-4
192									TSx-U 14025-15-5
217									TSx-U 14025-15-6
242									TSx-U 14025-15-7-Z
272	210 (205)	236 (231)	262 (257)				215 (210)	238,5 (233,5)	TSx-B 14025-15-8 i+
297									TSx-B 14025-15-9 i+
335									TSx-B 14025-15-10 i+
156	200	226	252				205	228,5	TSx-U 14030-15-3
186									TSx-U 14030-15-4
216									TSx-U 14030-15-5
246									TSx-U 14030-15-6
276									TSx-U 14030-15-7 i+
317	210 (205)	236 (231)	262 (257)				215 (210)	238,5 (233,5)	TSx-B 14030-15-8 i+
144	200	226	252				205	228,5	TSx-U 14040-15-2
184									TSx-U 14040-15-3
224									TSx-U 14040-15-4
264									TSx-U 14040-15-5 i+
162									TSx-U 14050-15-2
212									TSx-U 14050-15-3
262									TSx-U 14050-15-4 i+
128	220 (210)	246 (236)	272 (262)	17,5	40	40	225 (215)	248,5 (238,5)	TSx-B 14025-19-3
153									TSx-B 14025-19-4
191									TSx-B 14025-19-5
216									TSx-B 14025-19-6
241									TSx-B 14025-19-7
266									TSx-B 14025-19-8 i+
303									TSx-B 14025-19-9 i+
328									TSx-B 14025-19-10 i+
143									TSx-B 14030-19-3
173									TSx-B 14030-19-4
218									TSx-B 14030-19-5
248									TSx-B 14030-19-6 i+
308									TSx-B 14030-19-8 i+
133									TSx-B 14040-19-2
173									TSx-B 14040-19-3
213									TSx-B 14040-19-4
273									TSx-B 14040-19-5 i+
313									TSx-B 14040-19-6 i+
153									TSx-B 14050-19-2
203									TSx-B 14050-19-3
253									TSx-B 14050-19-4 i+
328									TSx-B 14050-19-5 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions. In brackets ( ) second options.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
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>SINGLE NUT

NO STANDARD CASES

Code TSB TSL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a [N]	Static load C_{oa} [N]	Rigidity of ball contact zone $R_{b/t}$ [N/µm]	Rigidity of nut R_{nu} [N/µm]
TSx-B 16020-15-3	160	20	15,875	147	3	329300	1090200	3740	3170
TSx-B 16020-15-4					4	403800	1389700	4750	4060
TSx-B 16020-15-5					5	493400	1773100	5960	5090
TSx-B 16020-15-6					6	585200	2180500	7180	6130
TSx-B 16020-15-7					7	656100	2480000	8180	7000
TSx-B 16020-15-8					8	742500	2875300	9380	8020
TSx-B 16020-15-9 i+					9	827300	3270700	10570	9040
TSx-B 16020-15-10 i+					10	890800	3546200	11530	9890
TSx-B 16020-15-12 i+					12	1058800	4360900	13900	11910
TSx-B 16025-19-3	160	25	19,05	144,1	3	415800	1267600	3750	3310
TSx-B 16025-19-4					4	533600	1730100	5010	4420
TSx-B 16025-19-5					5	628600	2089800	6020	5340
TSx-B 16025-19-6					6	738900	2535200	7210	6400
TSx-B 16025-19-7					7	853300	3014900	8490	7520
TSx-B 16025-19-8 i+					8	959100	3460200	9670	8570
TSx-B 16025-19-9 i+					9	1044500	3802800	10610	9430
TSx-B 16025-19-10 i+					10	1150400	4265300	11880	10560
TSx-B 16030-19-3		30			3	419200	1284100	3790	3410
TSx-B 16030-19-4					4	536800	1746300	5050	4540
TSx-B 16030-19-5					5	628200	2088800	6010	5430
TSx-B 16030-19-6 i+					6	745000	2568100	7290	6590
TSx-B 16030-19-8 i+					8	964800	3492700	9750	8800
TSx-B 16040-19-2		40			2	301600	820700	2530	2330
TSx-B 16040-19-3					3	418500	1282400	3780	3490
TSx-B 16040-19-4					4	535800	1744000	5040	4650
TSx-B 16040-19-5 i+					5	627100	2086000	5990	5550
TSx-B 16040-19-6 i+					6	743700	2564800	7270	6730
TSx-B 16050-19-2		50			2	300900	819300	2520	2360
TSx-B 16050-19-3					3	417600	1280200	3770	3530
TSx-B 16050-19-4 i+					4	534700	1741100	5020	4710
TSx-B 16050-19-5 i+					5	625700	2082500	5970	5620

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t : Rigidity of the balls contact zone for an external force 20% of Ca. See page 22. For different forces, multiply by $\sqrt[3]{F/0,2\ C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.

BOLD: DIN 69051/5 dimensions

NO STANDARD CASES

Length of the nut Ln ±1mm TSB	Length of the nut Ln ±1mm TSL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TSB	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TSB TSL
107		230	256	282	17,5	40	40	235	258,5	TSx-B 16020-15-3
137										TSx-B 16020-15-4
157										TSx-B 16020-15-5
177										TSx-B 16020-15-6
207										TSx-B 16020-15-7
227										TSx-B 16020-15-8
247										TSx-B 16020-15-9 i+
277										TSx-B 16020-15-10 i+
317										TSx-B 16020-15-12 i+
128		240 (235)	266 (261)	292 (287)	17,5	40	40	245 (240)	268,5 (263,5)	TSx-B 16025-19-3
153										TSx-B 16025-19-4
191										TSx-B 16025-19-5
216										TSx-B 16025-19-6
241										TSx-B 16025-19-7
266										TSx-B 16025-19-8 i+
303										TSx-B 16025-19-9 i+
328										TSx-B 16025-19-10 i+
143										TSx-B 16030-19-3
173										TSx-B 16030-19-4
218										TSx-B 16030-19-5
248										TSx-B 16030-19-6 i+
308										TSx-B 16030-19-8 i+
133										TSx-B 16040-19-2
173										TSx-B 16040-19-3
213										TSx-B 16040-19-4
273										TSx-B 16040-19-5 i+
313										TSx-B 16040-19-6 i+
153										TSx-B 16050-19-2
203										TSx-B 16050-19-3
253										TSx-B 16050-19-4 i+
328										TSx-B 16050-19-5 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions. In brackets ( ) second options.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

TABLES OF LOADS AND DIMENSIONS

SHUTON HDL

SHUTON HDL
HIGH DYNAMIC & HEAVY LOAD BALLSCREWS

> INJECTION MOLDING AND PRESS APPLICATIONS

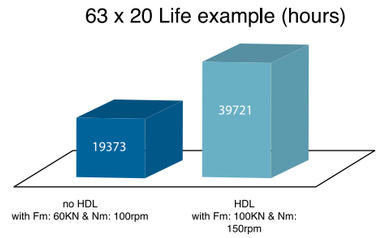
> REDUCED NOISE LEVEL

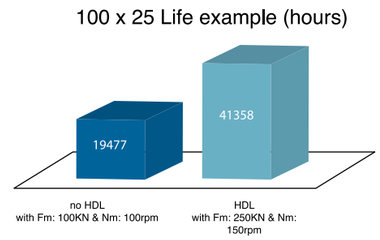
> HIGHER DURABILITY

> HIGH SPEED

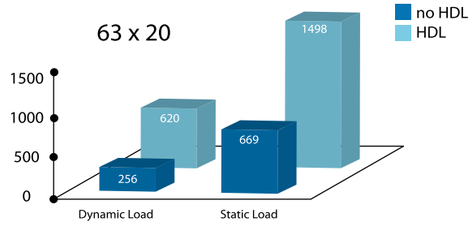
SHUTON HDL new ballscrew range is the cutting edge technology in High Dynamic & Heavy load ballscrew designs. For applications of Injection molding machines, presses and general Heavy duty applications, SHUTON HDL ballscrews offer top results with reduced noise level, high durability and speed. It achieves high dynamic & static load capacities and high rates of maximum forces, with an optimised recirculation system that enables smooth rotation. Its compact nut design simplifies drive system designs and optimises performance.

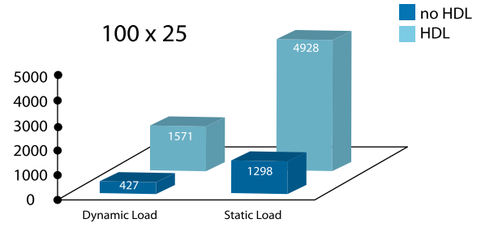
> MEAN FORCE-LIFE COMPARATIVE GRAPHIC





> LOAD CAPACITY COMPARATIVE GRAPHIC





> SPEED COMPARATIVE GRAPHIC

HDL — DNmax: 120000

HDL → Max speed [m/min]

Ph / do	16	20	25	30	40
63	30	38	48	57	76
80	24	30	38	45	60
100	19	24	30	36	48
120	16	20	25	30	40
160	--	--	19	23	30
200	--	--	--	18	24

HDL → Max speed [mm/s]

Ph / do	16	20	25	30	40
63	508	635	794	952	1270
80	400	500	625	750	1000
100	320	400	500	600	800
120	267	333	417	500	667
160	--	--	313	375	500
200	--	--	--	300	400

> Lead accuracy as per ISO standard. Axial clearance 0,02mm or less and 0,05 or less.

> SHUTON Engineering Service, personalized studies for the selection of most appropriate ballscrew for each specific application.

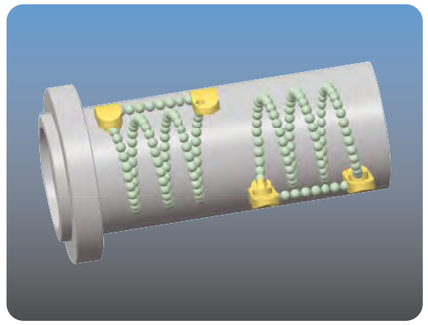
> PRODUCT RANGE

do	Ph	i	Ca [kN]	Coa [kN]	Ln	D1,min
63	16	10(2)	461	1189	209	115
63	16	12(2)	547	1458	241	115
63	20	8	529	1257	207	120
63	20	10(2)	620	1498	257	120
80	16	15(3)	742	2319	297	130
80	16	18(4)	865	2770	353	130
80	20	12(2)	851	2411	297	140
80	20	15(3)	1017	2955	367	140
80	25	10(2)	919	2390	316	150
80	25	12(2)	1088	2921	366	150
100	16	12(3)	680	2347	249	150
100	16	16(4)	870	3129	321	150
100	20	16(4)	1194	3947	397	165
100	20	20(4)	1470	5052	477	165
100	25	12(2)	1231	3710	366	170
100	25	16(3)	1571	4928	478	170
120	20	12(3)	1023	3627	307	185
120	20	16(4)	1310	4836	397	185
120	25	12(3)	1328	4400	378	190
120	25	16(4)	1700	5867	491	190
120	30	10(2)	1731	5126	379	210
120	30	13(2)	2194	6787	469	210
160	25	12(3)	1525	6013	378	235
160	25	16(4)	1952	8018	491	235
160	30	10(2)	2010	6996	379	250
160	30	13(3)	2511	9057	484	250
200	30	9(3)	1992	7710	364	295
200	30	12(3)	2605	10615	454	295

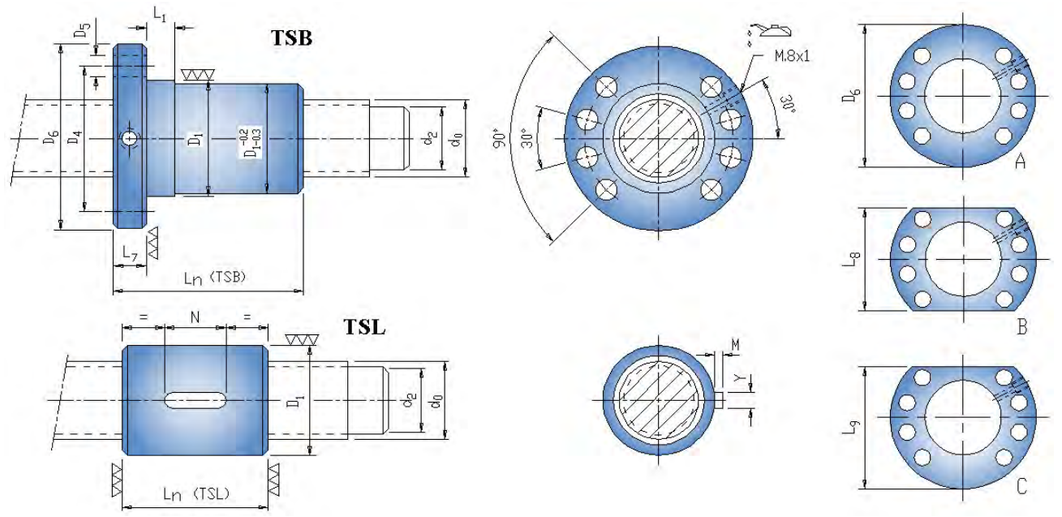
SINGLE NUT with HDL TECHNOLGY for HIGH LOADS:
Injection molding machines, presses, big actuators

TSB-HDL : Flanged Single Nut, profile HDL

TSL-HDL : Single Cylindrical Nut, profile HDL



*** *External Recirculation 'B'*



Nominal diameter & Lead, with the maximum number of circuits made at SHUTON of Standard Single Nut

External Recirculation 'B'

'i+ technology'

P_h / d_0	16	20	25	*32 no std*
63	**12**	**10**		
70 no std	**12**	**10**		
80	**18**	**15**	**12**	
100	**16**	**20**	**16**	
120	**12**	**16**	**16**	**12**
140 no std		**12**	**16**	**12**
160 no std			**16**	**12**

If especial cases out of range are required, consult with SHUTON

PRECISION BALLSCREW | SHUTON

>SINGLE NUT with HDL TECHNOLOGY

Code TSB-B-HDL TSL-B-HDL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a	Static load C_{oa} [kN]	Rigidity of ball contact zone $R_{b/t}$ [kN]	Rigidity of nut R_{nu} [N/µm]	Maximum axial load F_{max}[N/µm]
TSx-B-HDL 6316-12-6	63	16	12,7	53	6	302	729	3420	3160	155
TSx-B-HDL 6316-12-7					7	333	808	3840	3550	175
TSx-B-HDL 6316-12-8					8	376	935	4450	4110	205
TSx-B-HDL 6316-12-9 i+					9	419	1062	4990	4610	230
TSx-B-HDL 6316-12-10 i+					10	461	1189	5530	5110	260
TSx-B-HDL 6316-12-11 i+					11	506	1331	6090	5620	285
TSx-B-HDL 6316-12-12 i+					12	547	1458	6620	6120	310
TSx-B-HDL 6320-15-6		20	15,875	50,1	6	409	927	3610	3390	210
TSx-B-HDL 6320-15-7					7	470	1092	4150	3910	240
TSx-B-HDL 6320-15-8 i+					8	529	1257	4690	4420	275
TSx-B-HDL 6320-15-9 i+					9	566	1345	5230	4930	315
TSx-B-HDL 6320-15-10 i+					10	620	1498	5760	5430	345
TSx-B-HDL 8016-12-6	80	16	12,7	70	6	328	886	4050	3650	195
TSx-B-HDL 8016-12-7					7	378	1047	4780	4310	230
TSx-B-HDL 8016-12-8					8	430	1224	5470	4930	265
TSx-B-HDL 8016-12-9					9	477	1385	6140	5530	300
TSx-B-HDL 8016-12-10 i+					10	524	1546	6800	6140	330
TSx-B-HDL 8016-12-11 i+					11	561	1667	7380	6660	365
TSx-B-HDL 8016-12-12 i+					12	608	1836	8040	7270	395
TSx-B-HDL 8016-12-13 i+					13	655	2005	8790	7930	435
TSx-B-HDL 8016-12-14 i+					14	696	2150	9350	8450	465
TSx-B-HDL 8016-12-15 i+					15	742	2319	10010	9050	500
TSx-B-HDL 8016-12-16 i+					16	779	2448	10580	9570	530
TSx-B-HDL 8016-12-17 i+					17	822	2609	11280	10200	565
TSx-B-HDL 8016-12-18 i+					18	865	2770	11880	10750	595
TSx-B-HDL 8020-15-6		20	15,875	67,1	6	470	1205	4450	4110	270
TSx-B-HDL 8020-15-7					7	515	1322	4950	4580	305
TSx-B-HDL 8020-15-8					8	588	1555	5810	5370	360
TSx-B-HDL 8020-15-9 i+					9	654	1763	6510	6020	410
TSx-B-HDL 8020-15-10 i+					10	718	1970	7210	6670	450
TSx-B-HDL 8020-15-11 i+					11	782	2177	7830	7250	495
TSx-B-HDL 8020-15-12 i+					12	851	2411	8610	7970	545
TSx-B-HDL 8020-15-13 i+					13	892	2527	9160	8490	585
TSx-B-HDL 8020-15-14 i+					14	959	2760	9900	9170	630
TSx-B-HDL 8020-15-15 i+					15	1017	2955	10610	9830	685
TSx-B-HDL 8025-19-6		25	19,05	64,1	6	602	1461	4600	4330	340
TSx-B-HDL 8025-19-7					7	687	1707	5310	5000	395
TSx-B-HDL 8025-19-8 i+					8	776	1973	5980	5640	440
TSx-B-HDL 8025-19-9 i+					9	833	2125	6650	6280	505
TSx-B-HDL 8025-19-10 i+					10	919	2390	7490	7060	575
TSx-B-HDL 8025-19-11 i+					11	1005	2656	8240	7770	635
TSx-B-HDL 8025-19-12 i+					12	1088	2921	8900	8390	680
TSx-B-HDL 10016-12-6	100	16	12,7	90	6	369	1141	5000	4390	250
TSx-B-HDL 10016-12-7					7	425	1353	5810	5100	295
TSx-B-HDL 10016-12-8					8	480	1565	6670	5850	335
TSx-B-HDL 10016-12-9					9	521	1711	7360	6470	380
TSx-B-HDL 10016-12-10					10	576	1931	8210	7220	420
TSx-B-HDL 10016-12-11					11	626	2127	8960	7890	465
TSx-B-HDL 10016-12-12 i+					12	680	2347	9810	8630	510
TSx-B-HDL 10016-12-13 i+					13	715	2477	10400	9170	540
TSx-B-HDL 10016-12-14 i+					14	770	2705	11250	9920	590
TSx-B-HDL 10016-12-15 i+					15	817	2901	12060	10630	630
TSx-B-HDL 10016-12-16 i+					16	870	3129	12900	11370	680
TSx-B-HDL 10020-15-6		20	15,875	87,1	6	508	1447	5210	4730	335
TSx-B-HDL 10020-15-7					7	584	1710	6150	5570	400
TSx-B-HDL 10020-15-8					8	659	1973	6950	6310	450
TSx-B-HDL 10020-15-9 i+					9	738	2263	7900	7160	520
TSx-B-HDL 10020-15-10 i+					10	810	2526	8760	7940	575
TSx-B-HDL 10020-15-11 i+					11	868	2723	9500	8620	625
TSx-B-HDL 10020-15-12 i+					12	933	2960	10230	9290	675
TSx-B-HDL 10020-15-13 i+					13	1005	3236	11180	10150	745
TSx-B-HDL 10020-15-14 i+					14	1077	3513	12040	10930	805
TSx-B-HDL 10020-15-15 i+					15	1148	3789	12890	11700	865
TSx-B-HDL 10020-15-16 i+					16	1194	3947	13450	12240	905
TSx-B-HDL 10020-15-17 i+					17	1272	4262	14520	13200	980
TSx-B-HDL 10020-15-18 i+					18	1338	4526	15290	13900	1035
TSx-B-HDL 10020-15-19 i+					19	1404	4789	16190	14710	1095
TSx-B-HDL 10020-15-20 i+					20	1470	5052	16960	15420	1150
TSx-B-HDL 10025-19-6		25	19,05	84,1	6	680	1855	5610	5200	430
TSx-B-HDL 10025-19-7					7	748	2048	6270	5820	490
TSx-B-HDL 10025-19-8 i+					8	851	2396	7240	6720	565
TSx-B-HDL 10025-19-9 i+					9	953	2744	8200	7610	645
TSx-B-HDL 10025-19-10 i+					10	1044	3053	9050	8400	720
TSx-B-HDL 10025-19-11 i+					11	1142	3401	10010	9290	795
TSx-B-HDL 10025-19-12 i+					12	1231	3710	10850	10070	860
TSx-B-HDL 10025-19-13 i+					13	1301	3942	11680	10850	940
TSx-B-HDL 10025-19-14 i+					14	1384	4232	12420	11550	1000
TSx-B-HDL 10025-19-15 i+					15	1478	4580	13320	12380	1075
TSx-B-HDL 10025-19-16 i+					16	1571	4928	14220	13220	1150

Length of the nut Ln ±1mm TSB | TSL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TSB	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TSB-B-HDL TSL-B-HDL
137	110	130	150	13,5	30	25	115	132,5	TSx-B-HDL 6316-12-6
161									TSx-B-HDL 6316-12-7
177									TSx-B-HDL 6316-12-8
193									TSx-B-HDL 6316-12-9 i+
209									TSx-B-HDL 6316-12-10 i+
225									TSx-B-HDL 6316-12-11 i+
241									TSx-B-HDL 6316-12-12 i+
167	120	140	160	13,5	30	25	125	142,5	TSx-B-HDL 6320-15-6
187									TSx-B-HDL 6320-15-7
207									TSx-B-HDL 6320-15-8 i+
237									TSx-B-HDL 6320-15-9 i+
257									TSx-B-HDL 6320-15-10 i+
145	130	150	170	13,5	30	25	135	152,5	TSx-B-HDL 8016-12-6
161									TSx-B-HDL 8016-12-7
177									TSx-B-HDL 8016-12-8
193									TSx-B-HDL 8016-12-9
209									TSx-B-HDL 8016-12-10 i+
233									TSx-B-HDL 8016-12-11 i+
249									TSx-B-HDL 8016-12-12 i+
265									TSx-B-HDL 8016-12-13 i+
281									TSx-B-HDL 8016-12-14 i+
297									TSx-B-HDL 8016-12-15 i+
321									TSx-B-HDL 8016-12-16 i+
337									TSx-B-HDL 8016-12-17 i+
353									TSx-B-HDL 8016-12-18 i+
167	140	166	192	17,5	30	25	145	168,5	TSx-B-HDL 8020-15-6
197									TSx-B-HDL 8020-15-7
217									TSx-B-HDL 8020-15-8
237									TSx-B-HDL 8020-15-9 i+
257									TSx-B-HDL 8020-15-10 i+
277									TSx-B-HDL 8020-15-11 i+
297									TSx-B-HDL 8020-15-12 i+
327									TSx-B-HDL 8020-15-13 i+
347									TSx-B-HDL 8020-15-14 i+
367									TSx-B-HDL 8020-15-15 i+
203	150	176	202	17,5	30	40	155	178,5	TSx-B-HDL 8025-19-6
228									TSx-B-HDL 8025-19-7
253									TSx-B-HDL 8025-19-8 i+
291									TSx-B-HDL 8025-19-9 i+
316									TSx-B-HDL 8025-19-10 i+
341									TSx-B-HDL 8025-19-11 i+
366									TSx-B-HDL 8025-19-12 i+
145	155 (150)	181 (176)	207 (202)	17,5	30	25	160 (155)	183,5 (178,5)	TSx-B-HDL 10016-12-6
161									TSx-B-HDL 10016-12-7
177									TSx-B-HDL 10016-12-8
201									TSx-B-HDL 10016-12-9
217									TSx-B-HDL 10016-12-10
233									TSx-B-HDL 10016-12-11
249									TSx-B-HDL 10016-12-12 i+
273									TSx-B-HDL 10016-12-13 i+
289									TSx-B-HDL 10016-12-14 i+
305									TSx-B-HDL 10016-12-15 i+
321									TSx-B-HDL 10016-12-16 i+
177	165 (160)	191 (186)	217 (212)	17,5	30	40	170 (165)	193,5 (188,5)	TSx-B-HDL 10020-15-6
197									TSx-B-HDL 10020-15-7
217									TSx-B-HDL 10020-15-8
237									TSx-B-HDL 10020-15-9 i+
257									TSx-B-HDL 10020-15-10 i+
287									TSx-B-HDL 10020-15-11 i+
307									TSx-B-HDL 10020-15-12 i+
327									TSx-B-HDL 10020-15-13 i+
347									TSx-B-HDL 10020-15-14 i+
367									TSx-B-HDL 10020-15-15 i+
397									TSx-B-HDL 10020-15-16 i+
417									TSx-B-HDL 10020-15-17 i+
437									TSx-B-HDL 10020-15-18 i+
457									TSx-B-HDL 10020-15-19 i+
477									TSx-B-HDL 10020-15-20 i+
203	175 (170)	201 (196)	227 (222)	17,5	30	40	180 (175)	203,5 (198,5)	TSx-B-HDL 10025-19-6
241									TSx-B-HDL 10025-19-7
266									TSx-B-HDL 10025-19-8 i+
291									TSx-B-HDL 10025-19-9 i+
316									TSx-B-HDL 10025-19-10 i+
341									TSx-B-HDL 10025-19-11 i+
366									TSx-B-HDL 10025-19-12 i+
403									TSx-B-HDL 10025-19-13 i+
428									TSx-B-HDL 10025-19-14 i+
453									TSx-B-HDL 10025-19-15 i+
478									TSx-B-HDL 10025-19-16 i+

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t : Rigidity of the balls contact zone for an external force 20% of Ca. See page 22. For different forces, multiply by $\sqrt[3]{F/0,2\ C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.
****Check with SHUTON in case higher loads or more adjusted nut dimensions are required.
*****Check external maximum axial force in the two senses.

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions. In brackets ( ) second options.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

>SINGLE NUT with HDL TECHNOLOGY

Code TSB-B-HDL TSL-B-HDL	Nominal diameter d_0	Lead P_h	Ball diameter D_w	Root diameter d_2	Circuits i	Dynamic load C_a	Static load C_{oa} [kN]	Rigidity of ball contact zone $R_{b/t}$ [kN]	Rigidity of nut R_{nu} [N/µm]	Maximum axial load F_{max} [N/µm]
TSx-B-HDL 12016-12-6					6	402	1396	5860	4960	305
TSx-B-HDL 12016-12-7					7	454	1601	6670	5670	350
TSx-B-HDL 12016-12-8					8	512	1848	7680	6520	410
TSx-B-HDL 12016-12-9		16	12,7	110	9	569	2094	8620	7320	460
TSx-B-HDL 12016-12-10					10	618	2299	9440	8030	505
TSx-B-HDL 12016-12-11					11	670	2529	10280	8760	550
TSx-B-HDL 12016-12-12 i+					12	728	2792	11330	9650	615
TSx-B-HDL 12020-15-6					6	559	1780	6200	5470	415
TSx-B-HDL 12020-15-7					7	642	2099	7190	6350	485
TSx-B-HDL 12020-15-8					8	723	2418	8180	7230	550
TSx-B-HDL 12020-15-9 i+					9	790	2670	9120	8060	620
TSx-B-HDL 12020-15-10 i+					10	869	2989	10090	8930	690
TSx-B-HDL 12020-15-11 i+		20	15,875	107,1	11	947	3308	11070	9790	760
TSx-B-HDL 12020-15-12 i+					12	1023	3627	12040	10650	825
TSx-B-HDL 12020-15-13 i+					13	1087	3879	12930	11450	895
TSx-B-HDL 12020-15-14 i+					14	1162	4198	13980	12380	970
TSx-B-HDL 12020-15-15 i+	120				15	1236	4517	14910	13210	1035
TSx-B-HDL 12020-15-16 i+					16	1310	4836	15840	14040	1100
TSx-B-HDL 12025-19-6					6	723	2151	6380	5800	510
TSx-B-HDL 12025-19-7					7	831	2543	7530	6840	610
TSx-B-HDL 12025-19-8 i+					8	938	2934	8590	7810	700
TSx-B-HDL 12025-19-9 i+					9	1043	3325	9560	8700	780
TSx-B-HDL 12025-19-10 i+					10	1154	3755	10720	9750	880
TSx-B-HDL 12025-19-11 i+		25	19,05	104,1	11	1223	3990	11460	10450	945
TSx-B-HDL 12025-19-12 i+					12	1328	4400	12640	11510	1050
TSx-B-HDL 12025-19-13 i+					13	1431	4811	13690	12460	1140
TSx-B-HDL 12025-19-14 i+					14	1533	5222	14730	13420	1230
TSx-B-HDL 12025-19-15 i+					15	1634	5633	15770	14370	1320
TSx-B-HDL 12025-19-16 i+					16	1700	5867	16620	15160	1400
TSx-B-HDL 12032-25-6 i+					6	1125	3104	7050	6550	640
TSx-B-HDL 12032-25-8 i+					8	1399	3970	9070	8440	835
TSx-B-HDL 12032-25-10 i+		32	25,4	98,7	10	1730	5124	11440	10650	1065
TSx-B-HDL 12032-25-12 i+					12	2035	6207	13640	12700	1280
TSx-B-HDL 14020-15-6					6	602	2114	7080	6120	490
TSx-B-HDL 14020-15-7					7	676	2408	8100	7020	565
TSx-B-HDL 14020-15-8					8	761	2769	9200	7980	650
TSx-B-HDL 14020-15-9 i+		20	15,875	127,1	9	852	3170	10410	9020	740
TSx-B-HDL 14020-15-10 i+					10	915	3425	11230	9770	795
TSx-B-HDL 14020-15-11 i+					11	1007	3853	12610	10940	905
TSx-B-HDL 14020-15-12 i+					12	1090	4227	13700	11890	985
TSx-B-HDL 14025-19-6					6	784	2564	7390	6610	615
TSx-B-HDL 14025-19-7					7	895	2998	8550	7650	715
TSx-B-HDL 14025-19-8 i+					8	1012	3471	9800	8770	825
TSx-B-HDL 14025-19-9 i+					9	1108	3846	10870	9740	920
TSx-B-HDL 14025-19-10 i+	140				10	1221	4319	12070	10810	1025
TSx-B-HDL 14025-19-11 i+		25	19,05	124,1	11	1322	4734	13110	11760	1115
TSx-B-HDL 14025-19-12 i+					12	1433	5207	14420	12920	1240
TSx-B-HDL 14025-19-13 i+					13	1527	5601	15440	13860	1325
TSx-B-HDL 14025-19-14 i+					14	1621	5996	16540	14850	1430
TSx-B-HDL 14025-19-15 i+					15	1728	6469	17680	15880	1525
TSx-B-HDL 14025-19-16 i+					16	1834	6943	18970	17020	1650
TSx-B-HDL 14032-25-6 i+					6	1226	3687	8050	7390	745
TSx-B-HDL 14032-25-8 i+					8	1531	4745	10430	9590	990
TSx-B-HDL 14032-25-10 i+		32	25,4	118,7	10	1879	6059	13070	12020	1250
TSx-B-HDL 14032-25-12 i+					12	2218	7373	15580	14330	1500
TSx-B-HDL 16025-19-6					6	830	2937	8180	7210	695
TSx-B-HDL 16025-19-7					7	958	3493	9630	8480	825
TSx-B-HDL 16025-19-8 i+					8	1077	4009	10970	9660	945
TSx-B-HDL 16025-19-9 i+					9	1173	4406	12030	10630	1040
TSx-B-HDL 16025-19-10 i+					10	1292	4942	13480	11900	1180
TSx-B-HDL 16025-19-11 i+		25	19,05	144,1	11	1409	5478	14810	13070	1295
TSx-B-HDL 16025-19-12 i+					12	1525	6013	16140	14240	1420
TSx-B-HDL 16025-19-13 i+	160				13	1619	6430	17310	15290	1530
TSx-B-HDL 16025-19-14 i+					14	1736	6986	18630	16470	1650
TSx-B-HDL 16025-19-15 i+					15	1851	7542	19950	17640	1775
TSx-B-HDL 16025-19-16 i+					16	1952	8018	21230	18760	1895
TSx-B-HDL 16032-25-6 i+					6	1268	4049	8800	7990	845
TSx-B-HDL 16032-25-8 i+					8	1646	5522	11850	10750	1155
TSx-B-HDL 16032-25-10 i+		32	25,4	138,7	10	2010	6994	14650	13290	1430
TSx-B-HDL 16032-25-12 i+					12	2329	8282	17440	15840	1735

*Ca and Coa : Modified static and dynamic load capabilities, calculated according to DIN 69051/4 standard and iso3408/5. See pages 13 and 18.
**Rb/t : Rigidity of the balls contact zone for an external force 20% of Ca. See page 22. For different forces, multiply by $\sqrt[3]{Fl0,2\ C_a}$
***Rnu : Total rigidity of the complete nut. It must be multiplied by the factor "far" which depends on the manufacturing tolerance. See page 23.
****Check with SHUTON in case higher loads or more adjusted nut dimensions are required.
*****Check external maximum axial force in the two senses.

Length of the nut Ln ±1mm TSB	TSL	D_1 g6	D_4 ± 0,2mm	D_6 h13	D_5 H13	L_7 h13 TSB	L_1 + 2mm 0	L_8 h13	L_9 h13	Code TSB-B-HDL TSL-B-HDL
145										TSx-B-HDL 12016-12-6
169										TSx-B-HDL 12016-12-7
185										TSx-B-HDL 12016-12-8
201		175 (170)	201 (196)	227 (222)	17,5	30	25	180 (175)	203,5 (198,5)	TSx-B-HDL 12016-12-9
225										TSx-B-HDL 12016-12-10
241										TSx-B-HDL 12016-12-11
257										TSx-B-HDL 12016-12-12 i+
177										TSx-B-HDL 12020-15-6
197										TSx-B-HDL 12020-15-7
217										TSx-B-HDL 12020-15-8
247										TSx-B-HDL 12020-15-9 i+
267										TSx-B-HDL 12020-15-10 i+
287		185	211	237	17,5	30	40	190	213,5	TSx-B-HDL 12020-15-11 i+
307										TSx-B-HDL 12020-15-12 i+
337										TSx-B-HDL 12020-15-13 i+
357										TSx-B-HDL 12020-15-14 i+
377										TSx-B-HDL 12020-15-15 i+
397										TSx-B-HDL 12020-15-16 i+
216										TSx-B-HDL 12025-19-6
241										TSx-B-HDL 12025-19-7
266										TSx-B-HDL 12025-19-8 i+
291										TSx-B-HDL 12025-19-9 i+
316										TSx-B-HDL 12025-19-10 i+
353		195 (190)	221 (216)	247 (242)	17,5	40	40	200 (195)	223,5 (218,5)	TSx-B-HDL 12025-19-11 i+
378										TSx-B-HDL 12025-19-12 i+
403										TSx-B-HDL 12025-19-13 i+
428										TSx-B-HDL 12025-19-14 i+
453										TSx-B-HDL 12025-19-15 i+
491										TSx-B-HDL 12025-19-16 i+
256										TSx-B-HDL 12032-25-6 i+
336		210	243	275	22	40	40	215	245	TSx-B-HDL 12032-25-8 i+
400										TSx-B-HDL 12032-25-10 i+
464										**TSx-B-HDL 12032-25-12 i+**
177										TSx-B-HDL 14020-15-6
207										TSx-B-HDL 14020-15-7
227										TSx-B-HDL 14020-15-8
247		210 (205)	236 (231)	262 (257)	17,5	30	40	215 (210)	238,5 (233,5)	TSx-B-HDL 14020-15-9 i+
277										TSx-B-HDL 14020-15-10 i+
297										TSx-B-HDL 14020-15-11 i+
317										TSx-B-HDL 14020-15-12 i+
216										TSx-B-HDL 14025-19-6
241										TSx-B-HDL 14025-19-7
266										TSx-B-HDL 14025-19-8 i+
303										TSx-B-HDL 14025-19-9 i+
328										TSx-B-HDL 14025-19-10 i+
353		220 (215)	246 (241)	272 (267)	17,5	40	40	225 (220)	248,5 (243,5)	TSx-B-HDL 14025-19-11 i+
378										TSx-B-HDL 14025-19-12 i+
416										TSx-B-HDL 14025-19-13 i+
441										TSx-B-HDL 14025-19-14 i+
466										TSx-B-HDL 14025-19-15 i+
491										TSx-B-HDL 14025-19-16 i+
256										TSx-B-HDL 14032-25-6 i+
336		235 (230)	268 (263)	300 (295)	22	50	40	240 (235)	270 (265)	TSx-B-HDL 14032-25-8 i+
400										TSx-B-HDL 14032-25-10 i+
464										TSx-B-HDL 14032-25-12 i+
216										TSx-B-HDL 16025-19-6
241										TSx-B-HDL 16025-19-7
266										TSx-B-HDL 16025-19-8 i+
303										TSx-B-HDL 16025-19-9 i+
328										TSx-B-HDL 16025-19-10 i+
353		240 (235)	271 (266)	297 (292)	17,5	40	40	250 (245)	273,5 (268,5)	TSx-B-HDL 16025-19-11 i+
378										TSx-B-HDL 16025-19-12 i+
416										TSx-B-HDL 16025-19-13 i+
441										TSx-B-HDL 16025-19-14 i+
466										TSx-B-HDL 16025-19-15 i+
491										TSx-B-HDL 16025-19-16 i+
272										TSx-B-HDL 16032-25-6 i+
336		260 (250)	293 (283)	325 (315)	22	50	40	265 (255)	295 (285)	TSx-B-HDL 16032-25-8 i+
400										TSx-B-HDL 16032-25-10 i+
480										TSx-B-HDL 16032-25-12 i+

Key dimensions of the cylindrical nut: N, M, Y are obtained in the tables of page 74 of the catalogue.
SHUTON advises to use the dimensions of the tables, although it is possible to manufacture ballscrews with other dimensions. In brackets ( ) second options.
Smaller nut diameters than the first opton of the table can reduce the rigidity of the assembly between 5 and 10%.
Please consult SHUTON.

>SUMMARY TABLE OF STATIC AND DYNAMIC LOAD CAPACITIES

Nominal diameter & Recirc.	Lead	Ball diameter	Dynamic load according to circuits quantity i C_a [kN]							Static load according to circuits quantity i C_{oa} [kN]						
d_0	P_h	D_w	2	3	4	5	6	7	8	2	3	4	5	6	7	8
20 - S	5	3,175	9	12	15	19	22			13	20	28	35	43		
25 - S	5	3,175	10	14	17	21	25			18	27	36	46	56		
	10	4,762	16	22	27					23	35	47				
25 - U	12	4,762	16	23	30					24	39	53				
	15		16	23						24	39					
	16		16	23						24	39					
	20		16							24						
	25		16							24						
32 - S	5	3,175	11	16	20	24	28			23	36	48	61	74		
	10	6,35	26	35	45	55	64			39	59	80	101	122		
32 - U	12	4,762	29	42	53	66	77			42	70	96	124	150		
	15		29	41	54	65				44	70	98	124			
	16		29	41	54	65				44	70	97	123			
	20		29	41	53					44	69	97				
	25		29	41						43	70					
	32		29							44						
	40		29							44						
40 - S	5	3,175	13	17	22	27	31			30	46	62	79	96		
	6	3,969	18	24	31	37	44			39	59	80	101	122		
40 - U	10	6,35	34	48	62	75	88			56	91	125	158	193		
	12		34	48	62	75	88			56	91	125	158	193		
	15		34	48	61	75	88			56	91	124	159	192		
	16		34	48	61	75	88			56	91	124	159	192		
	20		34	48	61	75				58	91	125	158			
	25		34	48	61					57	92	124				
	30		35	47						57	91					
	40		33							57						
	50		33							58						
	60		32							57						
	15	7,938	46	65	84	103	121			73	117	163	206	252		
	16		46	65	84	102	121			73	117	163	206	252		
	20		46	64	84	103				73	116	162	208			
	25		45	65	83					72	118	161				
	30		45	64						72	117					
	40		45							73						
	50		45							74						
	60		44							75						
50 - S	5	3,175	14	19	24	29	34			38	58	79	100	122		
	6	3,969	20	27	34	42	49			50	76	102	129	157		
50 - U	10	6,35	39	54	70	85	99	114		74	116	160	202	244	288	
	12		39	54	70	85	99			74	116	160	202	244		
	15		39	55	70	85	100			74	118	160	202	245		
	16		39	54	70	85	100			74	118	160	201	245		
	20		39	54	69	85	99			74	117	159	203	244		
	25		39	54	70	84	99			75	117	160	202	245		
	30		39	54	69	84				75	118	159	202			
	40		39	54	69					75	118	160				
	50		38	53						74	118					
	60		37							74						
	80		37							76						
	12	7,938	53	75	96	117	138	158	178	94	152	207	265	321	379	434
	15		53	75	96	117	137	158	177	94	152	207	265	320	378	433
	16		53	75	96	117	137	158	177	94	152	207	265	320	378	433
	20		53	74	96	117	138	157		96	151	209	264	322	377	
	25		53	74	96	117	137			96	151	208	266	320		
	30		53	74	95	116				95	153	207	264			
	40		53	74	95					97	153	210				
	50		52	73						95	154					
	60		51							96						
	80		50							97						

Nominal diameter & Recirc.	Lead	Ball diameter	Dynamic load according to circuits quantity i C_a [kN]							Static load according to circuits quantity i C_{oa} [kN]						
d_0	P_h	D_w	2	3	4	5	6	7	8	2	3	4	5	6	7	8
63 - S	5	3,175	15	21	27	32	38			49	75	101	129	156		
	10	6,35	44	62	78	95	112			97	151	204	259	313		
63 - U	12	7,938	61	85	109	132	156	178		126	196	269	339	411	484	
	15		61	85	109	133	155	178		126	196	268	341	411	483	
	16		61	85	109	133	155			126	196	268	341	411		
	20		61	84	109	132	155			126	195	268	340	410		
	25		61	85	108	132	155			125	197	267	339	412		
	30		61	85	109	132	154			125	197	269	341	410		
	40		61	84	108	131				127	198	269	341			
	50		60	83	107					125	196	269				
	16	9,525	77	108	139	169	199	227	256	149	234	323	408	497	581	670
	20		77	107	139	168	199	227	256	149	234	322	407	496	580	669
	25		77	107	138	169	198	227	255	149	233	322	410	494	583	667
	30		77	108	138	168	198	226		148	236	321	409	497	581	
	40		76	107	138	168				147	234	322	409			
	50		76	107	137					150	236	323				
70 - S	10	6,35	47	63	80	96	113			109	164	219	273	328		
70 - U	12	7,938	64	90	115	140	164			141	222	301	379	461		
	15		64	90	115	139	164			140	222	301	379	461		
	16	9,525	82	114	147	179	209			167	264	361	459	552		
	20		81	114	147	179	210			166	264	361	458	556		
	25		81	114	146	178	209			166	263	360	457	554		
	30		81	113	146	178	209			165	262	359	456	553		
	40		82	114	146	177				168	265	361	457			
	50		81	112	145					167	262	362				
	20	12,7	118	168	216	263	311			220	359	491	622	761		
	25		117	168	215	264	310			219	358	490	628	760		
	30		117	167	215	263	309			219	357	488	627	758		
	40		119	166	215	261				225	355	492	623			
	50		117	166	213					223	359	489				
80 - S	10	6,35	50	68	86	103	120	137	154	127	190	254	317	381	444	508
80 - U	12	7,938	69	96	123	149	174			164	254	348	438	528		
	15		69	96	123	149	174			164	254	347	438	528		
	16		69	96	123	149	174			164	254	347	438	528		
	16	9,525	89	123	157	191	224	257		196	307	417	527	638	748	
	20		89	123	157	191	224	256		196	306	416	527	637	747	
	25		88	123	157	191	224	257		196	306	416	526	640	750	
	30		88	122	156	191	224	256		195	305	415	529	639	748	
	40		87	122	156	190				194	308	417	526			
	50		88	121	156					197	306	418				
	20	12,7	128	181	233	284	334	382	430	258	413	568	723	878	1026	1181
	25		128	180	233	284	334	383	431	258	413	567	722	877	1032	1187
	30		128	180	232	283	333	382		257	412	566	721	875	1030	
	40		129	181	233	283				264	417	571	725			
	50		128	179	231					262	415	567				

Nominal diameter & Recirc.	Lead	Ball diameter	Dynamic load according to circuits quantity i C_a [kN]							Static load according to circuits quantity i C_{oa} [kN]						
d_0	P_h	D_w	4	5	6	7	8	**9**	**10**	4	5	6	7	8	**9**	**10**
100 - S	10	6,35	94	113	132	151	169			317	397	476	556	635		
100 U/B	12	7,938	136	165						438	555					
	15		136	165						438	555					
	15	9,525	175	213	250					528	668	808				
	16		175	213	250					528	668	808				
	20		175	213	250					527	668	808				
	25		175	213	249					527	667	807				
	30		175	212	249					530	666	806				
	40		175	212						528	668					
	50		175							530						
	20	12,7	262	318	373	428	481	513	562	724	911	1105	1299	1493	1590	1769
	25		262	319	373	427	481	513	566	723	917	1104	1298	1492	1589	1790
	30		262	318	374	426				723	916	1110	1296			
	40		261	317						720	913					
	50		261							725						
	20	15,875	358	439	496	571	644	721	792	912	1167	1337	1581	1824	2091	2334
	25		358	438	514	590	663	720	791	911	1166	1409	1664	1907	2089	2332
	30		360	437	516	589				922	1164	1419	1662			
	40		359	435						919	1161					
	50		357							915						
	25	19,05	446	545	641	704	802	898	983	1066	1359	1651	1823	2132	2442	2717
	30		445	544	640	801				1065	1357	1649	2130			
	40		444	546	610					1061	1369	1541				
	50		446	516						1074	1262					
120 U/B	16	12,7	276	336	399	446	503	564	607	828	1054	1294	1467	1693	1942	2107
	20		286	347	408	446	503	563	607	873	1106	1339	1467	1692	1941	2106
	25		285	347	407	445	502	563	606	872	1105	1338	1466	1691	1939	2105
	30		287	347	407					879	1104	1337				
	40		286	347						877	1109					
	50		285							874						
	20	15,875	396	467	550	631	712	777	855	1117	1350	1645	1939	2234	2467	2762
	25		395	483	566	649	729	777	854	1116	1423	1717	2024	2318	2465	2760
	30		395	482	565	649				1115	1421	1716	2022			
	40		397	481						1125	1418					
	50		395							1121						
	25	19,05	495	607	686	790	891	990	1095	1305	1670	1914	2262	2610	2958	3341
	30		495	606	686		890			1304	1669	1912		2608		
	40		493	604	684					1301	1665	1908				
	50		496	577						1314	1556					
140 U/B	20	15,875	410	502	596	669	753	843	905	1236	1582	1952	2224	2558	2928	3163
	25		428	519	611	698	753	842	905	1321	1667	2025	2371	2556	2927	3161
	30		428	521	610	698	752			1321	1678	2024	2369	2555		
	40		427	520						1318	1676					
	50		428							1328						
	25	19,05	538	633	749	855	967	1059	1167	1544	1860	2281	2667	3088	3421	3842
	30		538	632	748		966			1543	1859	2279		3086		
	40		540	631	747					1558	1855	2275				
	50		539	629						1554	1851					
160 U/B	20	15,875	440	537	638	715	809	901	970	1440	1838	2260	2570	2980	3390	3676
	25	19,05	576	678	797	921	1035	1127	1241	1783	2154	2613	3107	3566	3919	4395
	30		579	678	804		1041			1800	2153	2647		3599		
	40		578	677	803					1797	2150	2643				
	50		577	675						1794	2146					

>SUMMARY TABLE OF NUT RIGIDITIES

Nominal diameter & Recirc.	Lead	Ball diameter	Rigidity ball contact zone according circuits quantity i $R_{b/t,pr}$ [N/µm]							REAL rigidity of nut according to circuits quantity i, with ISO5 $R_{nu,pr,ar,ISO5}$ [N/µm]						
d_0	P_h	D_w	2	3	4	5	6	7	8	2	3	4	5	6	7	8
20 - S	5	3,175	460	680	920	1160	1410			215	325	435	555	675		
25 - S	5	3,175	570	850	1150	1450	1770			265	395	535	680	830		
	10	4,762	470	690	900					225	325	425				
25 - U	12	4,762	490	760	1000					235	365	485				
	15		480	750						235	365					
	16		480	740						235	365					
	20		480							235						
	25		470							230						
32 - S	5	3,175	720	1080	1450	1840	2240			330	495	665	845	1035		
	10	6,35	640	940	1250	1570	1900			300	440	590	745	900		
32 - U	12	6,35	830	1310	1760	2220	2620			400	635	850	1070	1265		
	15		850	1300	1780	2200				415	630	865	1070			
	16		850	1300	1770	2190				410	630	865	1070			
	20		830	1280	1750					410	625	855				
	25		820	1280						405	630					
	32		820							405						
	40		800							395						
40 - S	5	3,175	890	1320	1780	2250	2750			395	595	805	1025	1255		
	6	3,969	920	1370	1840	2330	2840			415	620	840	1065	1305		
40 - U	10	6,35	1060	1630	2190	2700	3230			505	770	1035	1275	1530		
	12		1060	1620	2180	2690	3220			505	775	1040	1285	1540		
	15		1050	1620	2170	2700	3200			510	780	1045	1300	1545		
	16		1050	1610	2160	2700	3200			510	780	1045	1300	1545		
	20		1070	1600	2170	2670				520	775	1055	1300			
	25		1060	1600	2140					515	785	1045				
	30		1040	1580						510	775					
	40		1020							505						
	50		1000							495						
	60		960							480						
	15	7,938	1160	1770	2420	3000	3580			560	860	1170	1455	1735		
	16		1150	1770	2420	2990	3570			560	860	1175	1455	1735		
	20		1140	1750	2400	3000				560	855	1170	1465			
	25		1130	1770	2360					555	865	1160				
	30		1110	1740						545	855					
	40		1100							545						
	50		1090							540						
	60		1060							525						
50 - S	5	3,175	1080	1610	2170	2740	3340			470	705	955	1215	1490		
	6	3,969	1130	1680	2260	2860	3480			495	740	1000	1275	1560		
50 - U	10	6,35	1310	2000	2660	3290	3900	4510		610	925	1235	1525	1810	2095	
	12		1310	1990	2660	3290	3890			615	935	1245	1545	1830		
	15		1310	2010	2650	3280	3910			620	955	1260	1555	1860		
	16		1310	2010	2640	3270	3900			625	955	1260	1560	1860		
	20		1300	2000	2630	3280	3880			625	960	1265	1575	1865		
	25		1320	1980	2630	3250	3870			640	960	1275	1575	1875		
	30		1300	1990	2600	3240				635	965	1270	1580			
	40		1290	1960	2580					635	960	1265				
	50		1250	1920						615	945					
	60		1220							605						
	80		1180							585						
	12	7,938	1430	2200	2920	3680	4360	5050	5670	680	1045	1390	1750	2075	2400	2700
	15		1430	2190	2920	3670	4350	5040	5650	685	1050	1400	1760	2090	2420	2715
	16		1430	2190	2910	3660	4340	5030	5650	690	1055	1400	1760	2090	2420	2720
	20		1460	2180	2930	3640	4360	5000		705	1055	1420	1765	2110	2425	
	25		1450	2160	2910	3650	4320			705	1055	1415	1780	2105		
	30		1430	2170	2870	3610				700	1065	1410	1765			
	40		1430	2150	2870					705	1060	1410				
	50		1380	2110						685	1045					
	60		1360							675						
	80		1300							645						

Nominal diameter & Recirc.	Lead	Ball diameter	Rigidity ball contact zone according circuits quantity i $R_{b/t,pr}$ [N/µm]							REAL rigidity of nut according to circuits quantity i, with ISO5 $R_{nu,pr,ar,ISO5}$ [N/µm]						
d_0	P_h	D_w	2	3	4	5	6	7	8	2	3	4	5	6	7	8
63 - S	5	3,175	1320	1970	2650	3350	4080			550	825	1120	1430	1755		
	10	6,35	1650	2450	3230	4020	4770			750	1110	1465	1825	2165		
	12		1810	2730	3620	4480	5330	6150		845	1270	1690	2085	2485	2870	
	15		1810	2720	3620	4500	5320	6140		855	1285	1710	2125	2515	2905	
	16		1810	2720	3610	4500	5320			855	1290	1715	2135	2520		
	20	7,938	1800	2710	3600	4480	5300			865	1300	1725	2150	2540		
	25		1790	2730	3580	4460	5300			865	1320	1730	2155	2565		
	30		1780	2710	3590	4460	5270			865	1320	1745	2170	2560		
63 - U	40		1780	2700	3560	4420				875	1320	1745	2160			
	50		1740	2640	3520					860	1300	1730				
	16		1840	2740	3690	4580	5440	6260	7080	880	1310	1760	2185	2600	2990	3380
	20		1830	2730	3670	4560	5420	6240	7050	885	1315	1770	2200	2615	3005	3400
	25	9,525	1820	2720	3650	4580	5390	6240	7020	885	1320	1775	2220	2620	3030	3405
	30		1810	2740	3630	4550	5400	6200		885	1340	1770	2220	2635	3025	
	40		1780	2700	3610	4520				875	1325	1770	2215			
	50		1790	2680	3570					880	1320	1760				
70 - S	10	6,35	1810	2670	3500	4330	5140			800	1185	1555	1920	2285		
	12	7,938	1990	3010	3960	4910	5860			920	1390	1835	2275	2715		
	15		1980	3000	3960	4900	5850			935	1410	1860	2305	2750		
	16		2020	3040	4060	5040	5940			955	1435	1920	2380	2810		
	20		2010	3030	4050	5020	5960			960	1450	1935	2400	2850		
	25	9,525	2000	3020	4030	5000	5930			965	1455	1945	2410	2865		
	30		1990	3000	4010	4970	5900			965	1455	1945	2415	2865		
70 - U	40		2010	3000	3990	4940				980	1465	1950	2420			
	50		1970	2950	3960					970	1450	1945				
	20		2070	3240	4300	5350	6410			995	1555	2065	2570	3075		
	25		2060	3230	4280	5390	6380			995	1560	2070	2605	3085		
	30	12,7	2050	3210	4260	5360	6350			995	1560	2070	2605	3090		
	40		2080	3170	4270	5290				1020	1555	2090	2590			
	50		2050	3180	4190					1010	1560	2065				
80 - S	10	6,35	2090	3030	3960	4890	5820	6730	7650	895	1305	1710	2115	2520	2920	3320
	12	7,938	2260	3340	4450	5500	6510			1130	1545	2060	2545	3015		
	15		2260	3340	4450	5490	6500			1130	1570	2090	2580	3055		
	16		2260	3340	4450	5490	6490			1130	1575	2095	2590	3065		
	16		2280	3420	4550	5610	6660	7670		1070	1605	2135	2635	3135	3610	
	20		2280	3410	4540	5600	6640	7660		1085	1620	2160	2660	3165	3645	
	25	9,525	2270	3400	4520	5580	6660	7670		1090	1630	2170	2680	3200	3690	
	30		2260	3380	4500	5590	6630	7640		1090	1635	2175	2705	3210	3695	
80 - U	40		2230	3390	4500	5530				1090	1650	2190	2700			
	50		2250	3340	4470					1100	1640	2190				
	20		2380	3610	4840	6060	7220	8270	9330	1135	1725	2310	2890	3445	3950	4460
	25		2370	3600	4820	6040	7190	8300	9360	1140	1735	2320	2905	3465	4000	4510
	30	12,7	2360	3590	4800	6010	7160	8270		1145	1735	2325	2910	3470	4005	
	40		2400	3610	4810	6010				1170	1760	2350	2935			
	50		2370	3560	4750					1160	1745	2330				

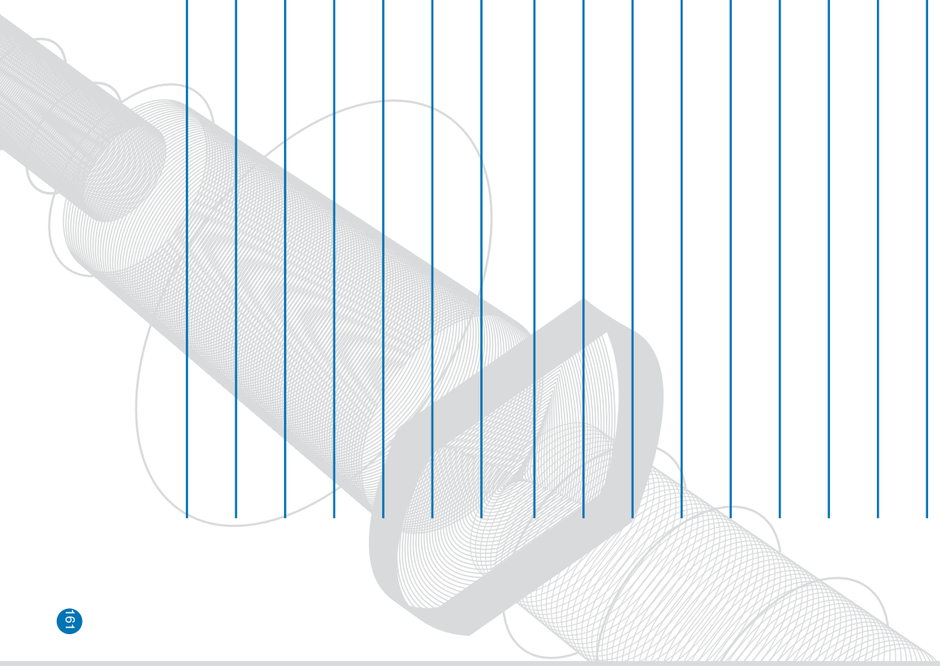
Nominal diameter & Recirc.	Lead	Ball diameter	Rigidity ball contact zone according circuits quantity i $R_{b/t,pr}$ [N/µm]							REAL rigidity of nut according to circuits quantity i, with ISO5 $R_{nu,pr,ar,ISO5}$ [N/µm]						
d_0	P_h	D_w	4	5	6	7	8	**9**	**10**	4	5	6	7	8	**9**	**10**
100 - S	10	6,35	4740	5860	6970	8060	9160			1945	2405	2865	3320	3775		
	12	7,938	5360	6650						2430	3015					
	15		5360	6640						2475	3070					
	15		5490	6800	8080					2525	3130	3720				
	16		5480	6800	8080					2535	3145	3740				
	20		5480	6790	8060					2570	3190	3790				
	25	9,525	5460	6770	8040					2595	3220	3825				
	30		5490	6760	8020					2630	3240	3850				
	40		5450	6750						2640	3270					
	50		5440							2650						
	20		5910	7280	8660	9990	11260	12620	13900	2760	3405	4050	4675	5275	5940	6545
	25		5890	7320	8640	9970	11240	12590	14030	2790	3465	4095	4725	5330	5995	6685
100 U/B	30	12,7	5880	7300	8670	9940				2805	3490	4145	4755			
	40		5840	7250						2820	3505					
	50		5840							2840						
	20		5570	7010	8060	9520	10750	12220	13550	2620	3295	3800	4485	5070	5760	6385
	25		5560	6990	8300	9610	10790	12200	13520	2640	3320	3940	4565	5130	5815	6445
	30	15,875	5610	6980	8340	9580				2685	3340	3995	4590			
	40		5580	6930						2700	3355					
	50		5530							2690						
	25		5740	7160	8580	9580	11070	12550	13840	2740	3425	4100	4590	5300	6005	6630
	30	19,05	5720	7140	8560	11040				2755	3440	4120	5325			
	40		5680	7180	8180					2760	3490	3985				
	50		5720	6800						2795	3330					
	16		6620	8300	10070	11330	12930	14800	16040	3005	3765	4560	5150	5880	6720	7295
	20		6870	8510	10090	11320	12920	14790	16020	3145	3900	4630	5240	5980	6840	7425
	25	12,7	6860	8490	10080	11300	12900	14770	16000	3195	3960	4700	5315	6065	6935	7525
	30		6900	8480	10060					3250	3995	4745				
	40		6870	8490						3280	4060					
	50		6820							3290						
	20		6570	8010	9610	11200	12690	14130	15650	3040	3710	4455	5190	5880	6560	7265
120 U/B	25		6560	8190	9740	11240	12620	14110	15630	3070	3830	4560	5265	5920	6645	7360
	30	15,875	6550	8180	9720	11220				3095	3865	4600	5315			
	40		6590	8140						3155	3900					
	50		6540							3165						
	25		6820	8500	9770	11540	13170	14660	16430	3220	4010	4625	5455	6225	6935	7770
	30	19,05	6810	8480	9760		13140			3245	4045	4660		6270		
	40		6780	8440	9710					3265	4070	4690				
	50		6820	8020						3310	3900					
	20		7170	9030	11000	12580	14290	16170	17450	3285	4135	5030	5765	6550	7410	8010
	25		7520	9320	11120	12750	14270	16150	17430	3465	4295	5125	5880	6650	7525	8135
140 U/B	30	15,875	7510	9380	11110	12730	14250			3505	4375	5185	5950	6720		
	40		7490	9340						3550	4435					
	50		7520							3605						
	25		7800	9400	11350	13120	15050	16690	18530	3645	4400	5310	6145	7045	7820	8685
	30	19,05	7790	9380	11330		15030			3680	4440	5360		7115		
	40		7840	9350	11290					3755	4485	5415				
	50		7810	9310						3770	4500					
	20	15,875	8160	10240	12340	14040	16100	18140	19790	3685	4625	5570	6355	7285	8210	8970
	25		8740	10500	12590	14820	16870	18510	20740	4045	4870	5840	6870	7825	8600	9630
160 U/B	30	19,05	8810	10490	12730		17010			4125	4925	5975		7980		
	40		8790	10460	12700					4180	4990	6050				
	50		8760	10420						4210	5015					

SUMMARY TABLE OF STATIC AND DYNAMIC LOAD CAPACITIES, AND MAXIMUM AXIAL LOAD

SINGLE NUT with HDL TECHNOLGY for HIGH LOADS: Injection moulding machines, presses, big actuators

Nominal diameter & Recirc.	TDB : Double Flanged	Ball diameter	Dynamic load according to circuits quantity i C_a [kN]									Static load according to circuits quantity i C_{oa} [kN]									Maximum axial load according to circuits quantity i F_{max} [kN]								
d_0	P_h	D_w	8	9	10	11	12	13	14	15	16	8	9	10	11	12	13	14	15	16	8	9	10	11	12	13	14	15	16
63	16	12,7	376	419	461	506	547					935	1062	1189	1331	1458					205	230	260	285	310				
	20	15,875	529	566	620							1257	1345	1498							275	315	345						
80	16	12,7	430	477	524	561	608	655	696	742	779	1224	1385	1546	1667	1836	2005	2150	2319	2448	265	300	330	365	395	435	465	500	530
	20	15,875	588	654	718	782	851	892	959	1017		1555	1763	1970	2177	2411	2527	2760	2955		360	410	450	495	545	585	630	685	
	25	19,05	776	833	919	1005	1088					1973	2125	2390	2656	2921					440	505	575	635	680				
100	16	12,7	480	521	576	626	680	715	770	817	870	1565	1711	1931	2127	2347	2477	2705	2901	3129	335	380	420	465	510	540	590	630	680
	20	15,875	659	738	810	868	933	1005	1077	1148	1194	1973	2263	2526	2723	2960	3236	3513	3789	3947	450	520	575	625	675	745	805	865	905
	25	19,05	851	953	1044	1142	1231	1301	1384	1478	1571	2396	2744	3053	3401	3710	3942	4232	4580	4928	565	645	720	795	860	940	1000	1075	1150
120	16	12,7	512	569	618	670	728					1848	2094	2299	2529	2792					410	460	505	550	615				
	20	15,875	723	790	869	947	1023	1087	1162	1236	1310	2418	2670	2989	3308	3627	3879	4198	4517	4836	550	620	690	760	825	895	970	1035	1100
	25	19,05	938	1043	1154	1223	1328	1431	1533	1634	1700	2934	3325	3755	3990	4400	4811	5222	5633	5867	700	780	880	945	1050	1140	1230	1320	1400
	32	25,4	1399		1730		2035					3970		5124		6207					835		1065		1280				
140	20	15,875	761	852	915	1007	1090					2769	3170	3425	3853	4227					650	740	795	905	985				
	25	19,05	1012	1108	1221	1322	1433	1527	1621	1728	1834	3471	3846	4319	4734	5207	5601	5996	6469	6943	825	920	1025	1115	1240	1325	1430	1525	1650
	32	25,4	1531		1879		2218					4745		6059		7373					990		1250		1500				
160	25	19,05	1077	1173	1292	1409	1525	1619	1736	1851	1952	4009	4406	4942	5478	6013	6430	6986	7542	8018	945	1040	1180	1295	1420	1530	1650	1775	1895
	32	25,4	1646		2010		2329					5522		6994		8282					1155		1430		1735				

NOTES



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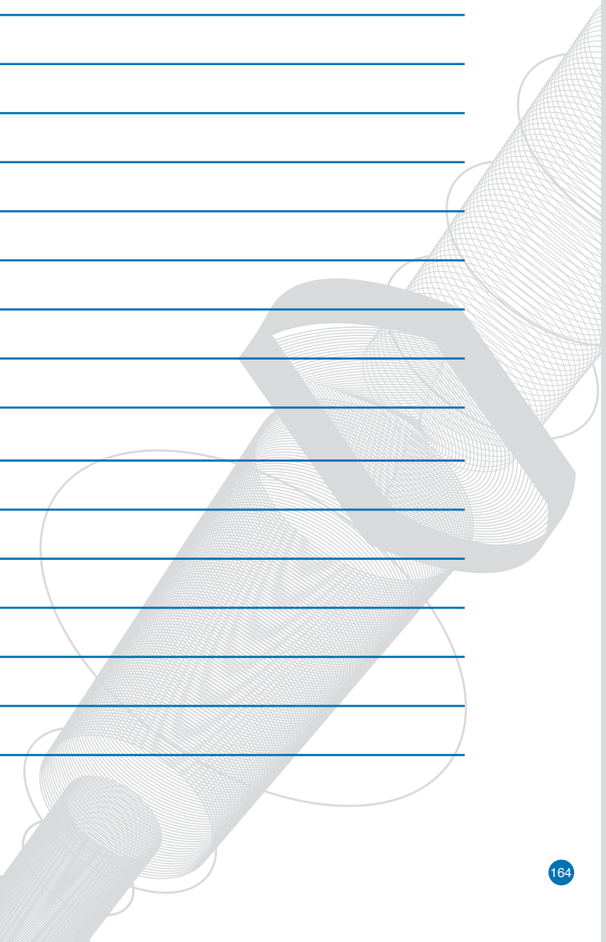
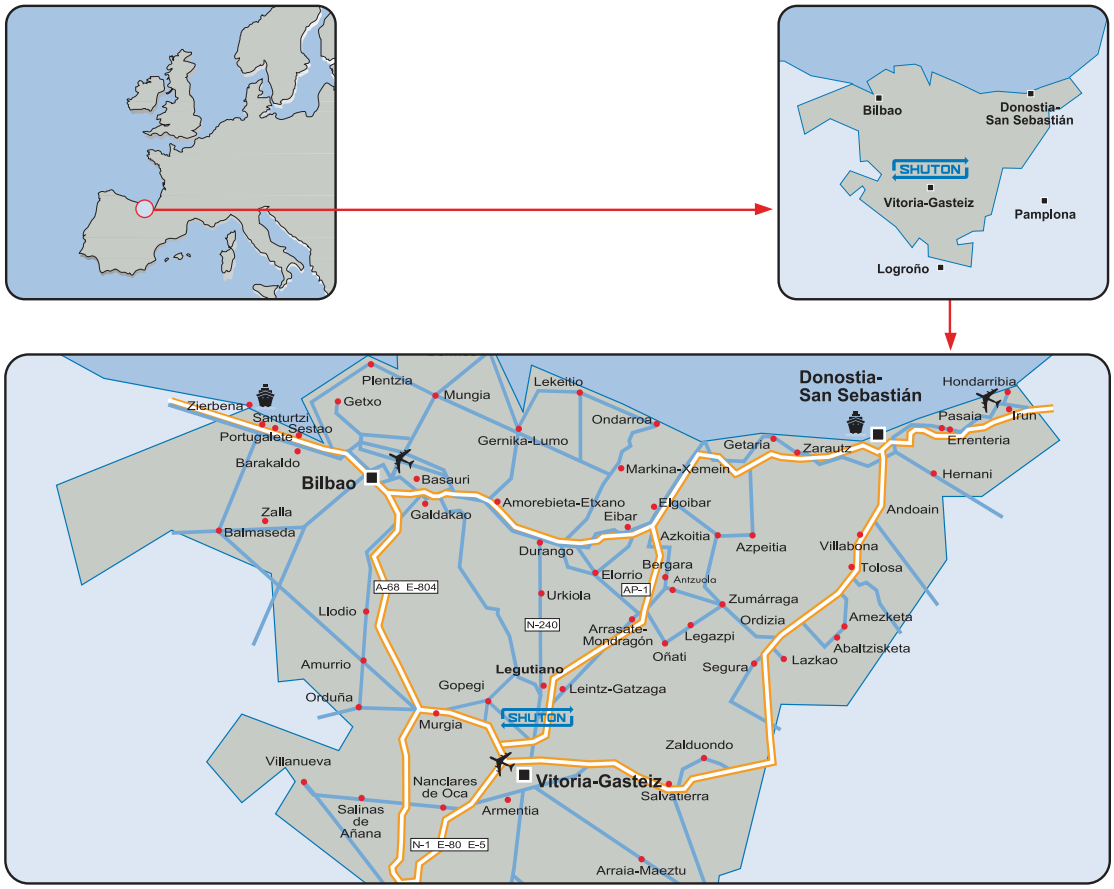


>SHUTON LOCATION



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