NSPT-LOCKS

High Quality Superior Products



- Designed according to international standards.
- High quality steel with special treatment.
- Huge stock for all series of standard products for immediate delivery.

New Standard Power Transmission

NSPT-LOCKS

Catalog

General Introduction

P534	B	NSPT-LOCKS
P540	E	NSPT-LOCKS
P549	D	NSPT-LOCKS
P556	F(A.B)	NSPT-LOCKS
P567	SD	NSPT-LOCKS
P571	SK	NSPT-LOCKS
P575	HL	NSPT-LOCKS
P578	HLL	NSPT-LOCKS
P582	T	NSPT-LOCKS
P587	ML/ML-B	NSPT-LOCKS



















ANSI

NSPT-LOCKS

NSPT-LOCKS is an advanced fundamental mechanical part widely used in the international market nowadays. It can be used for mechanical joints under various working loads. Pressures and frictional forces through tightened high-tension bolts provide the secure connections between shafts and hubs. It is one kind of connecting devices that requires no keys.

Connection with NSPT-LOCKS is a new method of high technical joint that has been widely used in many transmission mechanisms. It has many important and unique advantages and characteristics in comparison to the traditional mechanical joints.

1. Using NSPT-LOCKS can help to reduce the manufacturing precision requirements of joint components. Over-consideration of the interference and clearance of this type of locks will not make any difference in use. In fact, it is a good way to reduce the production and operation costs by reducing the precision within a reasonable range.

2. NSPT-LOCKS is designed for easy installation, which requires no additional heating and/or pressure equipment. The components can be firmly installed by twisting the tightening bolts according to the procedures and relevant torques. On the other hand, the disassembling is as simple as loosening the tightened screws from the taper holes.

3. NSPT-LOCKS can keep the level of precision without any clearance or keyway connections. It is used for effectively transmitting the forces under heavy load with a stable and long-lasting lifetime. This advantage makes NSPT-LOCKS become one of the best choices for high precious transmission mechanisms.

4. When NSPT-LOCKS are installed in axial direction, the location, dimension and other phase position angle can be adjusted freely without additional axial fixing device.

Selection Guide of NSPT-LOCKS

NSPT, Inc. is capable of producting nine series of NSPT-LOCKS identified as type B, E, D, F (A, B), SD, HL, SK, T, and ML. Each series has its own unique features and operation requirements. It is very important to select the right type of NSPT-LOCKS that is best suitable for the desired performance. The detailed selection principles will involve the following essential factors:

1. **The Desired Shaft Diameter** — Determine the shaft diameter on which the NSPT-LOCKS are going to be installed. Different series of products are designed for different shaft diameters.

2. **The Transmitting Torque** — NSPT-LOCKS should be selected according to the maximum transmitting torque of the mechanical structure. The differences between NSPT-LOCKS are great in terms of transmitting torques.

3. **The Axial Load of Shaft** — Besides of the transmitting torques, the axial load has to be taken into consideration when choosing the NSPT-LOCKS.

4. **The Safety Load** — When choosing the matching shafts and hubs, the maximum axial safety load must be larger than transmitting torque and axial load in order to ensure that the minimum cross section of the shaft and/or assigned torque.

5. **The Hub** — Strong pressure will be applied onto the hub when NSPT-LOCKS is installed. Selecting the right material is very important for the pressure resistance for this type of joint. The outside diameter of the hub should be designed based on different series of NSPT-LOCKS to ensure that the minimum axial cross section can bear the required load.

6. **The Designation Assurance Coefficient** — The rated transmitting torque and axial load for NSPT LOCKS are based on the maximum values transmitted by the locks. The assurance coefficient has not been taken consideration. The starting load must be included according to conditions and surroundings and then select the coefficient.

7. **Environment Surrounded** — When using NSPT-LOCKS, the surroundings have to be considered such as the environmental temperature, humidity, corrosiveness, etc. Those conditions will affect the selection of NSPT-LOCKS.

NSPT-LOCKS

Type B NSPT-LOCKS

- Suitable shaft diameter: inch 3/4"-133/8"
- Rated transmitting torque: 177-165200 ft-lbs
- B NSPT-LOCKS are standard universal locks. They can be easily self installed and can be used for over-sized shafts with diameters over 40".
- The material can be carbon steel or stainless steel.





Type E NSPT-LOCKS

- Suitable shaft diameter: inch 3/8"-7"
- Rated transmitting torque: 5.2-13496 ft-lbs
- The construction of type E NSPT LOCKS is the most compact NSPT-Locks with low production cost. When using type E NSPT-LOCKS, there is no need to use balancing transmitting parts. However, they must be compressed for a tight joint through type F or type H tightening flange.

Type D NSPT-LOCKS

- Suitable shaft diameter: inch 1 3/4"-133/8"
- Rated transmitting torque: 2589-375388 ft-lbs
- D NSPT-LOCKS is the heavier version of type B NSPT-LOCKS. The transmitting power is two or three times more than type B locks. They can be easily self-installed.





Type F NSPT-LOCKS

- Suitable shaft diameter: inch 9/16"-153/4"
- Rated transmitting torque: 2286-261813 ft-lbs
- Type F NSPT-LOCKS are a simpler type than type B NSPT-LOCKS. They are divided into two types: type FA and type FB. There are a few differences between these two types due to different working situations. Type F NSPT-LOCKS can be self-installed.

NSPT-LOCKS

Type SD NSPT-LOCKS

- Suitable shaft diameter: metric f24-f300 (mm) inch 15/16"-11 13/16"
- Rated transmitting torque: 0.205-290 KN.M 151-213875 ft-lb
- SD NSPT-LOCKS belong to the series of the outwardly installed locks. They can be used for shafts with large diameters to transmit great torque and are especially suitable for cannon.





Type HL/HLL NSPT-LOCKS

- Suitable shaft diameter: metric f14-f70 (mm) inch 5/8"-2 3/4"
- Rated transmitting torque: 0.038-1.24 KN.M 28-914.5 ft-lb
- HL NSPT-LOCKS are suitable for shafts with small diameters and can be installed with only one nut. It can be self-installed fast and conveniently.

Type SK NSPT-LOCKS

- Suitable shaft diameter: metric f15-f110 (mm) inch 5/8"-4 1/3"
- Rated transmitting torque: 0.126-7.20KN.M 93-5310 ft-lb
- SK NSPT-LOCKS are the heavier version of SD type. They are suitable for joint shafts and can transmit bigger torque. They can replace couplings in some cases.



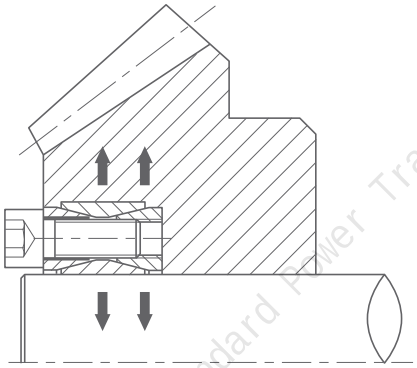


Type T NSPT-LOCKS

- Suitable shaft diameter: metric f6-f130 (mm) inch 1/4"-5 1/8"
- Rated transmitting torque: 0.012-25KN.M 9-18500ft-lb
- T NSPT-LOCKS are suitable for shafts with small diameters and can be sealed for dust and/or water resisting purposes. They have simple structures and can be self-installed.

NSPT-LOCKS





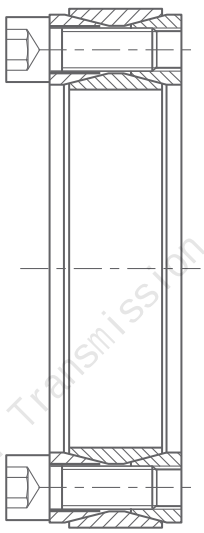
Suitable for Shaft:

Metric: f19～f340 (mm)

Inch:3/4"-133/8"

B NSPT-LOCKS is a commonly used standard type locks. If this type lock is used, the machining precision of the joint components can be reduced since over-consideration of the interference and precision will make no difference in use. The reasonable reduction of the precision will further reduce the machining time and costs.

By using B NSPT-LOCKS, self-installation can be easily performed. The strength of the connection is dependent on the frictional forces between the lock, the hub and the shaft. It is one type of non-clearance joint that requires no keys. This will save even more time and costs since no key machining, pressing installation, or heat installation are required. Its great stability can greatly increase the working efficiency and the expected lifetime of mechanisms.



Expression for Type B NSPT-LOCKS

NL 60 X 90 B

- B — NSPT LOCK Type B
- 90 — Bore Diameter D
- 60 — Shaft Diameter d
- NL — NSPT-LOCKS Code

B NSPT-LOCKS

Conversion: 1 inch= 25.40mm

Conversion

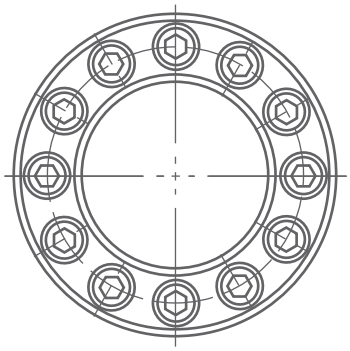
1 ft-lbs. = 0.1382 kgf.m = 1.3550 N.m

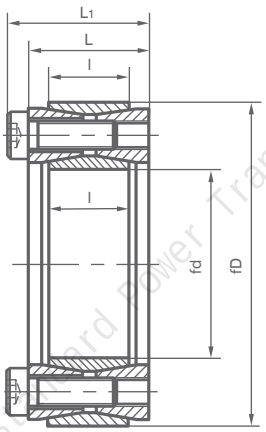
1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa

NSPT-LOCKS

Inches







B NSPT-LOCKS

Conversion:1 inch = 25.40mm

NSPT Catalog	INCH SERIES			INCHES			Mt ft-lb	Axial force lb	pw psi	pn psi	LOCKING SCREW	
	Size	d	D	l	L	L1					No.x Type	Ms ft-lb
NL0.34B	3/4	0.750	1.850	0.669	0.787	1.083	202	6525	32010	13520	8xM6	11
NL0.78B				0.669	0.787	1.083	267	7200	29880	14230	8xM6	11
NL1.00B	1	1.000	1969	0.669	0.787	1.083	289	7200	28450	14230	8xM6	11
NL1.18B	1 1/8	1.125	2.165	0.669	0.787	1.083	361	8100	28450	14230	10xM6	11
NL1.316B	1 3/16	1.188	2.159	0.669	0.787	1.083	383	8100	26320	14230	10xM6	11
NL1.14B	1 1/4	1.250	2.362	0.669	0.787	1.083	492	9450	29170	15650	12xM6	11
NL1.38B	1 3/8	1.375	2.365	0.669	0.787	1.083	542	9675	27030	15650	12xM6	11
NL1.716B	1 7/16	1.4375	2.559	0.669	0.787	1.083	672	11025	28450	16360	14xM6	11
NL1.12B	1/2	1.500	2.559	0.669	0.787	1.083	709	11025	27030	16360	14xM6	11
NL1.58B	1 5/8	1.625	2.953	0.787	0.945	1.319	1143	16875	33430	18500	12xM8	27
NL1.1116B	1 11/16	1.688	2.953	0.787	0.945	1.319	1166	16875	32720	18500	12xM8	27
NL1.34B	1 3/4	1.750	2.953	0.787	0.945	1.319	1230	17100	31300	18500	12xM8	27
NL1.78B	1 7/8	1.875	3.150	0.787	0.945	1.319	1295	16650	29880	17070	12xM8	27
NL1.1516B	1 15/16	1.9375	3.150	0.787	0.945	1.319	1353	16875	28450	17070	12xM8	27
NL2.00B	2	2.000	3.346	0.787	0.945	1.319	1597	16875	32300	19210	14xM8	27
NL2.18B	2 1/8	2.125	3.346	0.787	0.945	1.319	1729	19800	29880	19210	14xM8	27
NL2.316B	2 3/16	2.188	3.543	0.787	0.945	1.319	1748	19800	29170	17790	14xM8	27
NL2.14B	2 1/4	2.250	3.543	0.787	0.945	1.319	1798	19800	28450	17790	14xM8	27
NL2.38B	2 3/8	2.375	3.531	0.787	0.945	1.319	1888	19800	27030	17790	14xM8	27
NL2.716B	2 7/16	2.4375	3.740	0.787	0.945	1.319	2212	19800	29800	19210	16xM8	27
NL2.12B	2 1/2	2.500	3.740	0.787	0.945	1.319	2269	19800	29170	19210	16xM8	27
NL2.916B	2 9/16	2.562	3.737	0.787	0.945	1.319	2322	22050	28450	19210	16xM8	27
NL2.58B	2 5/8	2.625	4.331	0.945	1.102	1.555	3169	22050	31300	18500	14xM10	51
NL2.1116B	2 11/16	2.6875	4.331	0.945	1.102	1.555	3241	22050	30590	18500	14xM10	51
NL2.34B	2 3/4	2.750	4.337	0.945	1.102	1.555	3328	29700	29880	18500	14xM10	51
NL2.78B	2 7/8	2.875	4.528	0.945	1.102	1.555	3451	29700	28450	17790	14xM10	51
NL2.1516B	2 15/16	2.9375	4.528	0.945	1.102	1.555	3545	29475	27740	17790	14xM10	51
NL3.00B	3	3.000	4.724	0.945	1.102	1.555	3581	29475	27030	17070	14xM10	51
NL3.18B	3 /8	3.125	4.724	0.945	1.102	1.555	3762	29475	25610	17070	14xM10	51
NL3.14B	3 1/4	3.250	4.921	0.945	1.102	1.555	4421	29475	29170	18500	16xM10	51
NL3.38B	3 3/8	3.375	4.921	0.945	1.102	1.555	4558	33300	27740	18500	16xM10	51
NL3.716B	3 7/16	3.4375	5.118	0.945	1.102	1.555	4630	33300	26320	17790	16xM10	51
NL3.12B	3 1/2	3.500	5.118	0.945	1.102	1.555	4775	33075	25610	17790	16xM10	51
NL3.34B	3 3/4	3.750	5.305	0.945	1.102	1.555	5716	37575	27740	19210	18xM10	51
NL3.1516B	3 15/16	3.9375	5.709	1.024	1.299	1.850	7054	43875	27740	19210	14xM12	92
NL4.00B	4	4.000	5.843	1.024	1.299	1.850	7112	43875	27740	18500	14xM12	92
NL4.716B	4 7/16	4.4375	6.496	1.024	1.299	1.850	9044	43650	28450	19210	16xM12	92
NL4.12B	4 1/2	4.500	6.496	1.024	1.299	1.850	9623	49725	26320	19210	16xM12	92
NL4.1516B	4 15/16	4.9375	7.087	1.339	1.436	2.047	12445	49725	24900	16360	20xM12	92
NL5.00B	5	5.000	7.087	1.339	1.436	2.047	12916	62100	23480	16360	20xM12	92

NSPT-LOCKS

Inches

Conversion

1 ft-lbs. = 0.1382 kgf.m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm² = 0.0069 Mpa

B NSPT-LOCKS

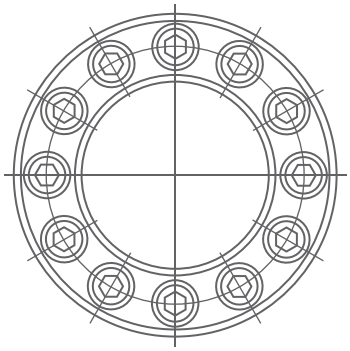
Conversion: 1 inch= 25.40mm

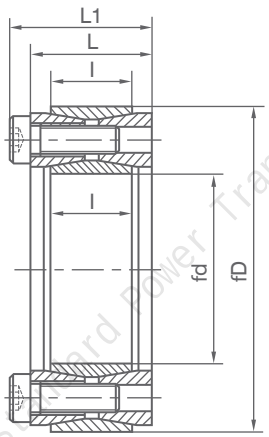
METRIC INCHES			INCH SERIES			INCHES			Mt ft-lb	Axial force lb	pw psi	pn psi	LOCKING SCREW	
Size	d	D	Size	d	D	l	L	L1					No.x type	Ms ft-lb
20x47	0.787	1.850	3/4	0.750	1.850	0.669	0.787	1.024	202	6525	32010	13520	8xM6	11
22x47	0.866	1.850				0.669	0.787	1.024	224	6525	29880	13520	8xM6	11
24x50	0.945	1.969				0.669	0.787	1.024	267	7200	29880	14230	9xM6	11
25x50	0.984	1.969	1	1.000	1.969	0.669	0.787	1.024	289	7200	28450	14230	9xM6	11
28x55	1.102	2.165	11/8	1.125	2.165	0.669	0.787	1.024	361	8100	28450	14230	10xM6	11
30x55	1.181	2.165	1 3/16	1.188	2.159	0.669	0.787	1.024	383	8100	26320	14230	10xM6	11
32x60	1.260	2.362	1 1/4	1.250	2.362	0.669	0.787	1.024	492	9450	29170	15650	12xM6	11
35x60	1.378	2.362	1 3/8	1.375	2.365	0.669	0.787	1.024	542	9675	27030	15650	12xM6	11
38x65	1.496	2.559	1 7/16	1.4375	2.559	0.669	0.787	1.024	672	11025	28450	16360	14xM6	11
40x65	1.575	2.559	1 1/2	1.500	2.559	0.669	0.787	1.024	709	11025	27030	16360	14xM6	11
42x75	1.654	2.953	1 5/8	1.625	2.953	0.787	0.945	1.26	1143	16875	33430	18500	12xM8	27
			1 11/16	1.688	2.953	0.787	0.945	1.26	1166	16875	32720	18500	12xM8	27
45x75	1.772	2.953	1 3/4	1.750	2.953	0.787	0.945	1.26	1230	17100	31300	18500	12xM8	27
48x80	1.890	3.150	1 7/8	1.875	3.150	0.787	0.945	1.26	1295	16650	29880	17070	12xM8	27
50x80	1.969	3.150	1 15/16	1.9375	3.150	0.787	0.945	1.26	1353	16875	28450	17070	12xM8	27
			2	2.000	3.346	0.787	0.945	1.26	1597	16875	32300	19210	14xM8	27
55x85	2.165	3.346	2 1/8	2.125	3.346	0.787	0.945	1.26	1729	19800	29880	19210	14xM8	27
			2 3/16	2.188	3.543	0.787	0.945	1.26	1748	19800	29170	17790	14xM8	27
			2 1/4	2.250	3.543	0.787	0.945	1.26	1798	19800	28450	17790	14xM8	27
60x90	2.362	3.543	2 3/8	2.375	3.531	0.787	0.945	1.26	1888	19800	27030	17790	14xM8	27
			2 7/16	2.4375	3.740	0.787	0.945	1.26	2212	19800	29800	19210	16xM8	27
			2 1/2	2.500	3.740	0.787	0.945	1.26	2269	19800	29170	19210	16xM8	27
65x95	2.559	3.740	2 9/16	2.562	3.737	0.787	0.945	1.26	2322	22050	28450	19210	16xM8	27
			2 5/8	2.625	4.331	0.945	1.102	1.496	3169	22050	31300	18500	14xM10	51
			2 11/16	2.6875	4.331	0.945	1.102	1.496	3241	22050	30590	18500	14xM10	51
70x110	2.756	4.331	2 3/4	2.750	4.337	0.945	1.102	1.496	3328	29700	29880	18500	14xM10	51
			2 7/8	2.875	4.528	0.945	1.102	1.496	3451	29700	28450	17790	14xM10	51
75x115	2.953	4.528	2 15/16	2.9375	4.528	0.945	1.102	1.496	3545	29475	27740	17790	14xM10	51
			3	3.000	4.724	0.945	1.102	1.496	3581	29475	27030	17070	14xM10	51
80x120	3.150	4.724	3 1/8	3.125	4.724	0.945	1.102	1.496	3762	29475	25610	17070	14xM10	51
			3 1/4	3.250	4.921	0.945	1.102	1.496	4421	29475	29170	18500	16xM10	51
85x125	3.346	4.921	3 3/8	3.375	4.921	0.945	1.102	1.496	4558	33300	27740	18500	16xM10	51
			3 7/16	3.4375	5.118	0.945	1.102	1.496	4630	33300	26320	17790	16xM10	51
90x130	3.543	5.118	3 1/2	3.500	5.118	0.945	1.102	1.496	4775	33075	25610	17790	16xM10	51
95x135	3.740	5.315	3 3/4	3.750	5.305	0.945	1.102	1.496	5716	37575	27740	19210	18xM10	51
100x145	3.937	5.709	3 15/16	3.9375	5.709	1.024	1.299	1.772	7054	43875	27740	19210	14xM12	92
			4	4.000	5.843	1.024	1.299	1.772	7112	43875	27740	18500	14xM12	92
110x155	4.331	6.102				1.024	1.299	1.772	7706	43650	25610	17790	14xM12	92
			4 7/16	4.4375	6.496	1.024	1.299	1.772	9044	43650	28450	19210	16xM12	92
120x165	4.724	6.496	4 1/2	4.500	6.496	1.024	1.299	1.772	9623	49725	26320	19210	16xM12	92
			4 15/16	4.9375	7.087	1.339	1.436	1.969	12445	49725	24900	16360	20xM12	92
130x180	5.118	7.087	5	5.000	7.087	1.339	1.436	1.969	12916	62100	23480	16360	20xM12	92
			5 7/16	5.4375	7.480	1.339	1.436	1.969	15123	62100	24190	17790	22xM12	92
140x190	5.512	7.480	5 1/2	5.500	7.492	1.339	1.436	1.969	15340	67950	23480	17790	22xM12	92
150x200	5.906	7.874				1.339	1.436	1.969	17727	74025	24190	17790	24xM12	92
160x210	6.299	8.268	6	6.000	8.268	1.339	1.436	1.969	20549	79875	24190	18500	26xM12	92
			6 7/16	6.4375	8.858	1.496	1.732	2.283	23371	79875	24900	17070	22xM14	142
170x225	6.693	8.858	6 1/2	6.500	8.858	1.496	1.732	2.283	24312	89100	23480	17070	22xM14	142
			6 15/16	6.9375	9.252	1.496	1.732	2.283	27351	89100	24900	18500	24xM14	142
180x235	7.087	9.252	7	7.000	9.252	1.496	1.732	2.283	28002	96975	24190	18500	24xM14	142
190x250	7.480	9.843	7 1/2	7.500	9.823	1.811	2.047	2.598	32344	112950	22050	17070	28xM14	142
200x260	7.874	10.236	7 7/8	7.875	10.236	1.811	2.047	2.598	38712	121050	22050	17070	30xM14	142

NSPT-LOCKS

Metric







B NSPT-LOCKS ®

Conversion:1 inch = 25.40mm

Table:1

Catalog	Fundamental Dimensions			Internal Hexagon Headed Bolt		Rated Load		Pf	MA	G
dxD	l	L	L1	SIZES	QTY	Ft KN	Mt KN.M	Mpa	N.M	kg
CL19x47B	17	20	26	M6x18	8	26	0.27	210	14	0.2
CL20x47B	17	20	26	M6x18	8	27	0.27	210	14	0.24
CL22x47B	17	20	26	M6x18	8	27	0.30	195	14	0.23
CL25x50B	17	20	26	M6x18	9	30	0.38	190	14	0.25
CL28x55B	17	20	26	M6x18	10	33	0.47	185	14	0.30
CL30x55B	17	20	26	M6x18	10	33	0.50	175	14	0.29
CL35x60B	17	20	26	M6x18	12	40	0.70	180	14	0.32
CL38x63B	17	20	26	M6x18	14	46	0.88	185	14	0.33
CL40x65B	17	20	26	M6x18	14	46	0.92	180	14	0.34
CL42x75B	20	24	32	M8x22	12	65	1.36	200	35	0.48
CL45x75B	20	24	32	M8x22	12	72	1.62	210	35	0.57
CL50x80B	20	24	32	M8x22	12	71	1.77	190	35	0.60
CL55x85B	20	24	32	M8x22	14	83	2.27	200	35	0.63
CL60x90B	20	24	32	M8x22	14	83	2.47	180	35	0.69
CL65x95B	20	24	32	M8x22	16	93	3.04	190	35	0.73
CL70x110B	24	28	38	M10x25	14	132	4.60	210	70	1.26
CL75x115B	24	28	38	M10x25	14	131	4.90	195	70	1.33
CL80x120B	24	28	38	M10x25	14	131	5.20	180	70	1.40
CL85x125B	24	28	38	M10x25	16	148	6.30	195	70	1.49
CL90x130B	24	28	38	M10x25	16	147	6.30	180	70	1.53
CL95x135B	24	28	38	M10x25	18	167	7.90	195	70	1.62
CL100x145B	29	33	45	M12x30	14	192	9.60	195	125	2.01
CL105x150B	29	33	45	M12x30	14	190	9.98	185	125	2.10
CL110x155B	29	33	45	M12x30	14	191	10.50	180	125	2.15
CL120x165B	29	33	45	M12x30	16	218	13.10	185	125	2.35
CL125x170B	29	33	45	M12x30	18	220	13.78	180	125	2.95
CL130x180B	34	38	50	M12x35	20	272	17.60	165	125	3.51
CL140x190B	34	38	50	M12x35	22	298	20.90	165	125	3.85
CL150x200B	34	38	50	M12x35	24	324	24.20	170	125	4.07
CL160x210B	34	38	50	M12x35	26	350	28.0	170	125	4.30
CL170x225B	38	44	58	M14x40	22	386	32.90	160	190	5.78
CL180x235B	38	44	58	M14x40	24	420	37.80	165	190	6.05
CL190x250B	46	52	66	M14x45	28	490	46.50	150	190	8.25
CL200x260B	46	52	66	M14x45	30	525	52.50	150	190	8.65
CL210x275B	50	56	72	M16x50	24	599	62.89	151	295	10.10

The products in table are in stock items for immediate delivery.

NSPT-LOCKS

Conversion

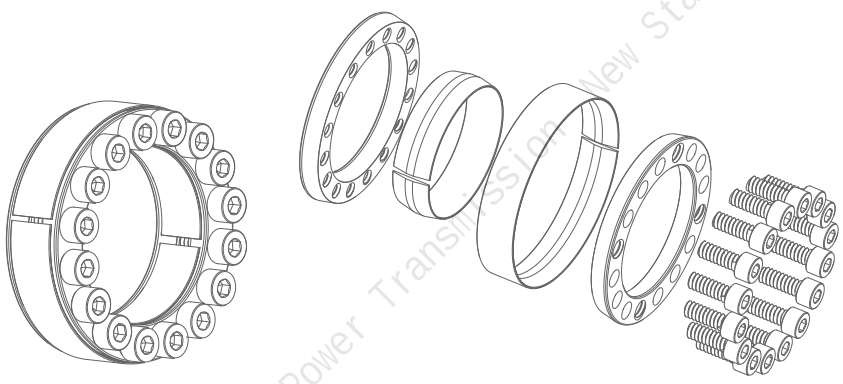
1 ft-lbs. = 0.1382 kgf.m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa

B NSPT-LOCKS

Table:2

Catalog dxD	Fundamental Dimensions			Internal Hexagon Headed Bolt		Rated Load		Pf Mpa	MA N.M	G kg
	e	L	L1	SIZES	QTY	Ft KN	Mt KN.M			
CL220x285B	50	56	72	M16x50	26	620	68.0	150	295	11.22
CL240x305B	50	56	72	M16x50	30	715	85.5	160	295	12.2
CL250x315B	50	56	72	M16x50	32	768	96.0	162	295	12.7
CL260x325B	50	56	72	M16x50	34	800	104.0	165	295	13.2
CL280x355B	60	66	84	M18x60	32	915	128.0	145	405	19.2
CL300x375B	60	66	84	M18x60	36	1020	153.0	150	405	20.5
CL320x405B	72	78	98	M20x70	36	1310	210.0	150	580	29.6
CL340x425B	72	78	98	M20x70	36	1310	224.0	145	580	31.3
CL360x455B	84	90	112	M22x80	36	1630	294.0	145	780	42.2
CL380x475B	84	90	112	M22x80	36	1620	308.0	135	780	44.0
CL400x495B	84	90	112	M22x80	36	1610	322.0	130	780	46.0
CL420x515B	84	90	112	M22x80	40	1780	374.0	135	780	50.0
CL450x555B	96	102	126	M24x90	40	2050	461.3	124	1000	65.0
CL480x585B	96	102	126	M24x90	42	2160	518.4	124	1000	71.0
CL500x605B	96	102	126	M24x90	44	2240	560.0	123	1000	72.4
CL530x640B	96	102	126	M24x90	45	2330	617	121	1000	83.6
CL560x670B	96	102	126	M24x90	48	2440	680	120	1000	85.0
CL600x710B	96	102	126	M24x90	50	2580	775	118	1000	91.0
CL630x740B	96	102	126	M24x90	52	2680	844	117	1000	94.0
CL670x780B	96	102	126	M24x90	56	2820	944	116	1000	101.0
CL710x820B	96	102	126	M24x90	60	2970	1054	115	1000	106.4
CL750x860B	96	102	126	M24x90	62	3130	1173	115	1000	112.0
CL800x910B	96	102	126	M24x90	66	3260	1300	112	1000	118.0
CL850x960B	96	102	126	M24x90	70	3500	1487	113	1000	125.0
CL900x1010B	96	102	126	M24x90	75	3680	1650	112	1000	132.0
CL950x1060B	96	102	126	M24x90	80	3870	1838	112	1000	139.0
CL1000x1110B	96	102	126	M24x90	82	4000	2000	110	1000	146.0

The items in table 2 will be produced made-to-order.



Key Elements for Designing and Calculation of B NSPT-LOCKS

1. Determine max torque and max axial load

$$Mmax = \frac{30000\ H}{p.n} \cdot K(N\ m)$$

$$Fmax = F \cdot K$$

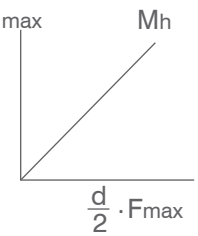
H--Transmission power KW
n--Rotational speed r/min
F--nominal axial force N
K--coefficient needed

Used coefficient sheet for K

No shock load, transmitting with little inertia	1.5–2.5
Slight shock load,transmitting with middle inertia	2.0–4.0
Big shock load, transmitting with heavy inertia	3.0–5.0

2. Calculate synthetic load and transmitted torque

$$Mh = \sqrt{M^2max + (\frac{d}{2} xFmax)^2}$$



Mmax--Required transmitted torque Nm
Fmax--Required transmitted axial force N
Mh--synthetic transmitted torque Nm
d--Transmission shaft diameter mm
Mt--NSPT LOCK rated transmitted torque Nm

Mt ⩾ Mh can be used
Mt<Mh need bigger type of NSPT lock or to be install by two NSPT locks or more together

3. Calculation for the hub diameter

$$Da \geqslant D\sqrt{\frac{\sigma b + Ka \cdot Ph}{\sigma b - Ka \cdot Ph}}$$

Da--outside diameter of hub mm
D--inside diameter of hub mm
Ph--suface pressures on hub Mpa
σb--tensile strength of material
Ka--It should be 0.6 for single NSPT lock, it will be 0.8 when two NSPT locks or more are installed together

4. Calculation for the inside diameter of cannon

$$dB \leqslant d\sqrt{\frac{\sigma b - 2xPs.K3}{\sigma b}}$$

dB--inside diameter of cannon mm
d--outside diameter of cannon mm
6b--tensile strength of shaft material Mpa
Ps--pressure on the surface of shaft Mpa
K3--coefficient=0.6

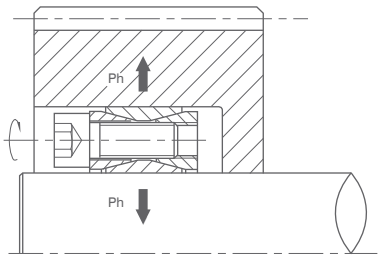
5. Settlement for the surface roughness and dimension tolerance

Fittng Section	Ra(um) Surface Roughness	Dimension Precision
Shaft Diameter d	1.6	h8–H9
Bore Diameter D	1.6	H8–H9

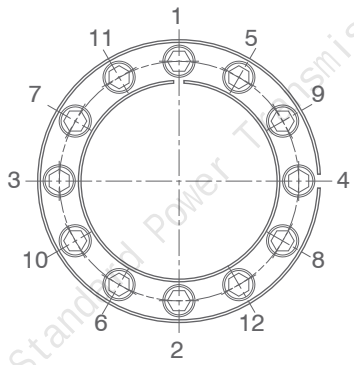
6. Installation for NSPT-LOCKS

Clean the NSPT-LOCKS and install it into corresponding position of hub and shaft (Ref Drawing A). Tighten the bolts according to the order in Drawing B. The bolts should be tightened 3 to 4 times up to specified rated torque. After correct installation, NSPT-LOCKS should be inspected radially and axially for runouts as per Ⓐ⩽ 0.05mm, Ⓑ⩽ 0.002Rmm in C.

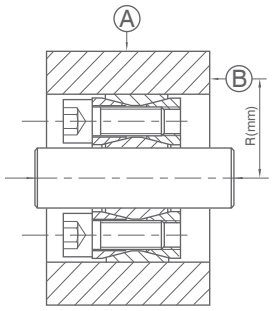
A



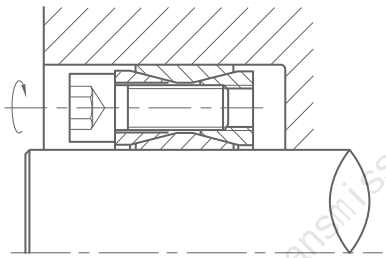
B



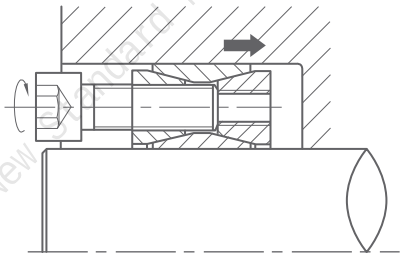
C



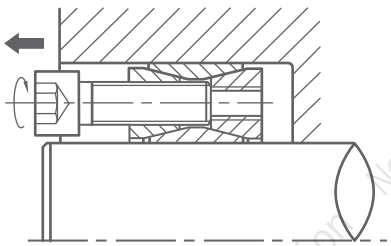
7 Disassembling NSPT-LOCKS



Loosen and remove all tightening bolts.



Put unloading bolts into the corresponding tap holes. Turning the bolts in clockwise direction and loosen the inner taper rings.



Pull out the bolts and then, loosen and remove outer taper rings

Conversion:1 inch = 25.40mm

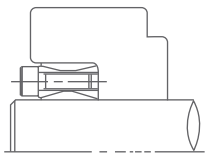
Conversion

1 ft-lbs. = 0.1382 kgf·m = 1.3550 N.m

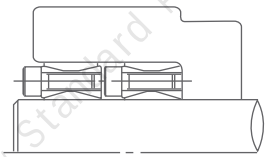
1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa

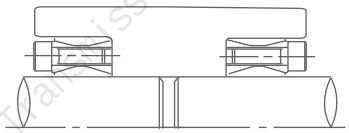
To disassemble, loosen and remove all tightening bolts. Place the unloading bolts in corresponding unloading tap holes (ie, tap holes with bolts zinc plated) and tighten them in turn. Taper rings on both sides of the NSPT lock can then be gradually separated. NSPT lock can then be disassembled.

Conventional installation for general power transmission.



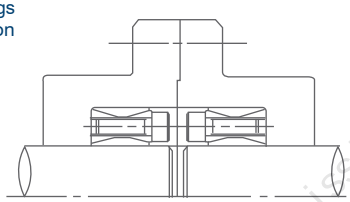
Used in pairs for the usage of greater power transmission

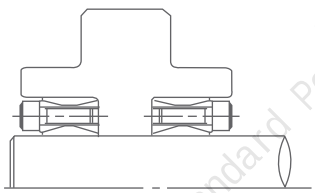




Mounted with shaft sleeves to connect transmission between two shafts. They can replace couplings in some cases.

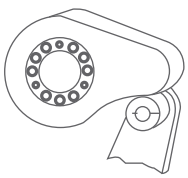
Mounted with couplings to connect transmission between two shafts



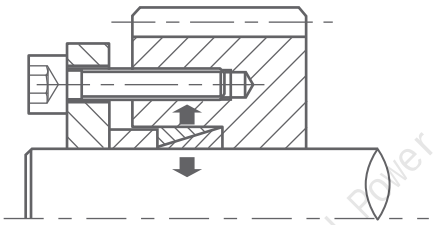


Installed on both sides for the usage of greater power transmission

When installed with cams, the position and angle of the cams can be adjusted accordingly



NSPT-LOCKS



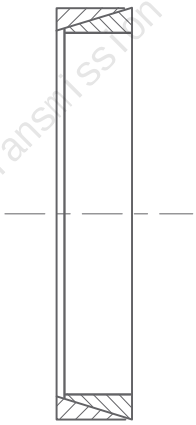


Suitable for Shaft
Metric: f10～f180 (mm)
Inch:3/8"～7"

E NSPT-LOCKS include two inner and outer taper rings. The structure is simple and compact. It dose not need a large installation space, circular without split and is well balance dynamically.

E NSPT-LOCKS transfer high surface pressures onto the shaft by the pressing flange. E NSPT-LOCKS transfers high surface pressures onto the shaft by the pressing flange. The connection is formed by tightly compressing the shaft and the taper hole. It is well applicable to the light load and small space installation.

Type F and type H pressing flange may also be chosen according to the different shaft diameters and structures.



Expression of NSPT-LOCK Type E

NL 36 X 42 E

- E — NSPT Lock E Type
- 42 — Out Diameter
- 36 — Bore Diameter
- NL — NSPT-LOCKS Code

E NSPT-LOCKS

Conversion:1 inch = 25.40mm

Conversion

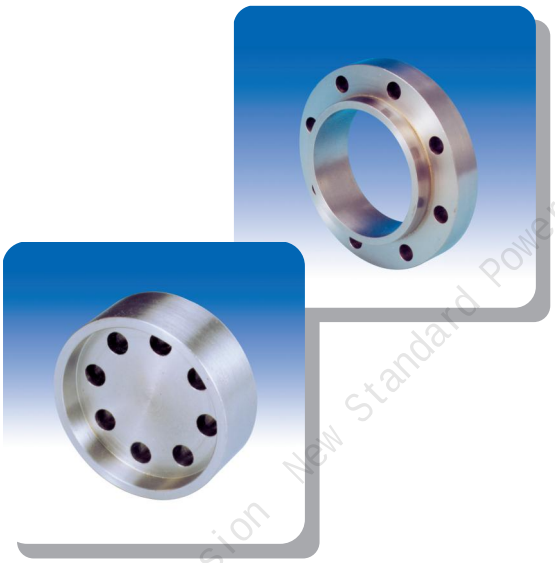
1 ft-lbs.= 0.1382 kgf-m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa

NSPT-LOCKS E Inches

dxD	SIZE inches		Pre-load force Pt lb	Total force Pa lb	INCHES		Mt ft-lb	Axial force lb	pw psi	pn psi	Spacer Diameter	
	d	D			L	L1					inside dl inch	outside dl inch
6x9	0.236	0.354	0	855			1.48	189	16675	10875	0.240	0.350
7x10	0.276	0.394	0	878	0.177	0.146	2.22	194	15225	10150	0.280	0.390
8x11	0.315	0.433	0	1193			3.7	263	17400	13050	0.319	0.429
9x12	0.354	0.472	1721	3510			6	396	20300	15225	0.358	0.469
10x13	0.394	0.512	1575	3510	0.177	0.146	7.4	430	19575	15225	0.398	0.508
12x15	0.472	0.591	1575	3510			8	430	16675	13050	0.476	0.587
13x16	0.512	0.630	1463	3510	0.177	0.146	10	455	15950	13050	0.516	0.626
14x18	0.551	0.709	2475	5715	0.248	0.209	16	716	16675	13050	0.555	0.705
15x19	0.591	0.748	2430	5715			18	729	15950	12325	0.594	0.744
16x20	0.630	0.787	2250	5715			20	770	15225	12325	0.634	0.783
17x21	0.669	0.827	2160	5715	0.248	0.209	22	790	15225	12325	0.673	0.823
18x22	0.709	0.866	2059	5715			24	812	14500	11600	0.713	0.862
19x24	0.748	0.945	2813	8100			36	1175	20300	15950	0.756	0.937
20x25	0.787	0.984	2700	8100	0.248	0.209	39	1199	19575	15225	0.795	0.976
22x26	0.866	1.024	2025	8100			49	1350	19575	16675	0.874	1.016
24x28	0.945	1.102	1890	8100			54	1379	18850	15950	0.953	1.094
25x30	0.984	1.181	2250	8100	0.248	0.209	53	1298	16675	13775	0.992	1.173
28x32	1.102	1.260	1688	8100			65	1424	16675	14500	1.110	1.252
30x35	1.181	1.378	1935	8100	0.248	0.209	67	1368	14500	12325	1.189	1.358
32x36	1.260	1.417	1778	10125	0.248	0.209	97	1854	18850	16675	1.268	1.409
35x40	1.378	1.575	2250	12150	0.276	0.236	127	2198	18125	15950	1.386	1.567
36x42	1.417	1.654	2633	12150	0.276	0.236	125	2113	16675	14500	1.425	1.646
38x44	1.496	1.732	2475	12150	0.276	0.236	134	2149	15950	13775	1.504	1.724
40x45	1.575	1.772	3128	14850	0.315	0.260	171	2603	16675	15225	1.583	1.764
42x48	1.654	1.890	3499	14850	0.315	0.260	174	2524	15950	13775	1.661	1.882
45x52	1.772	2.047	6368	22275	0.394	0.339	261	3535	15225	13775	1.780	2.039
48x55	1.890	2.165	5558	29700	0.394	0.339	423	5364	22475	19575	1.898	2.157
50x57	1.969	2.244	5310	29700	0.394	0.339	445	5418	21750	18850	1.976	2.236
55x62	2.165	2.441	4883	29700	0.394	0.339	496	5479	20300	18125	2.173	2.433
56x64	2.205	2.520	6638	35370	0.472	0.409	585	6345	18850	16675	2.213	2.512
60x68	2.362	2.677	6188	35370			636	6435	18125	15950	2.370	2.669
63x71	2.480	2.795	5963	35370	0.472	0.409	673	6480	17400	15225	2.488	2.787
65x73	2.559	2.874	5738	35370			703	6570	16675	14500	2.567	2.866
70x79	2.756	3.110	6975	47160			1021	8865	18125	15950	2.768	3.098
71x80	2.795	3.150	6975	47160	0.551	0.480	1036	8865	17400	15950	2.807	3.138
75x84	2.953	3.307	7808	47160			1073	8685	16675	14500	2.965	3.295
80x91	3.150	3.583	10800	65250			1628	12375	18125	15225	3.161	3.571
85x96	3.346	3.800	10238	68625	0.669	0.591	1776	12690	17400	15225	3.358	3.768
90x101	3.543	3.976	9810	72000			2020	13612	17400	15225	3.555	3.965
95x106	3.740	4.173	9293	74250	0.669	0.591	2257	14445	17400	15950	3.752	4.161
100x114	3.937	4.488	13725	100125	0.827	0.736	3108	18900	17400	15225	3.949	4.476
110x124	4.331	4.882	14850	109125	0.827	0.736	3811	21060	17400	15225	4.343	4.870
120x134	4.724	5.276	13568	114750	0.827	0.736	4477	22680	17400	15225	4.732	5.264
130x148	5.118	5.827	21668	172125	1.102	0.996	7104	33210	17400	15225	5.134	5.811
140x158	5.512	6.220	20025	180113	1.102	0.996	8140	35662	17400	15225	5.528	6.205
150x168	5.906	6.614	19125	193500	1.102	0.996	9546	38700	17400	15225	5.921	6.598
160x178	6.299	7.008	17685	202500	1.102	0.996	10804	41063	17400	15950	6.315	6.992
170x191	6.693	7.520	26415	261000	1.299	1.181	14430	51525	14790	15225	6.713	7.500
180x201	7.087	7.913	25043	270000	1.299	1.181	15762	53100	17400	15225	7.106	7.894
190x211	7.480	8.307	23625	283500	1.299	1.181	17908	57375	17400	15950	7.500	8.287
200x224	7.874	8.819	30195	348750	1.496	1.370	22940	69750	17400	15225	7.898	8.795
210x234	8.268	9.213	28620	362250	1.496	1.370	25900	74925	17400	15950	8.291	9.189
220x244	8.661	9.606	27473	380250	1.496	1.370	28120	77625	17400	15950	8.685	9.583
230x257	9.055	10.118	37013	450000	1.693	1.555	34780	91800	17400	15225	9.079	10.094
240x267	9.449	10.512	35415	506250	1.693	1.555	37740	95625	17400	15950	9.472	10.488
250x280	9.843	11.024	42750	463500	1.890	1.732	38480	93375	14500	12905	9.874	10.992
260x290	10.236	11.417	40950	479700	1.890	1.732	41810	97875	14500	12905	10.268	11.386
270x300	10.630	11.811	39825	496575	1.890	1.732	45140	101250	14500	12905	10.661	11.780
280x313	11.024	12.323	46350	570600	2.087	1.929	53650	117000	14500	12905	11.055	12.291
290x323	11.417	12.717	49950	592200	2.087	1.929	57350	120375	14500	12905	11.449	12.685
300x333	11.811	13.110	48150	608400	2.087	1.929	61420	124875	14500	12905	11.842	13.079
320x360	12.598	14.173	65700	785700	2.559	2.323	84360	159750	14500	12905	12.638	14.134
340x380	13.386	14.961	61200	826200	2.559	2.323	95090	169875	14500	12905	13.425	14.921
360x400	14.173	15.748	58050	868050			106560	180000	14500	13050	14.213	15.709
380x420	14.961	16.535	60525	915525	2.559	2.323	118770	190125	14500	13050	15.000	16.496
400x440	15.748	17.323	57600	957600			131720	200250	14500	13050	15.787	17.283

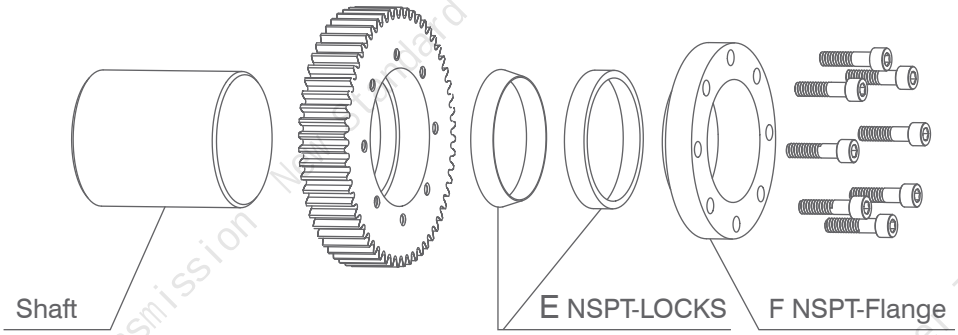
NSPT-LOCKS E Inches



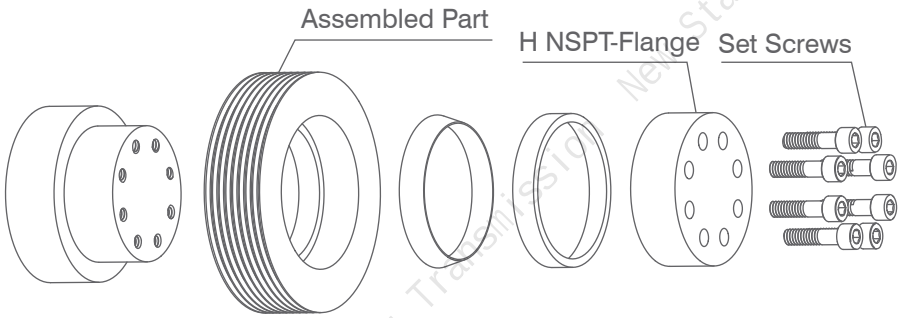


E NSPT-LOCKS Assembling Diagram:

Using "F" bolt on hubs to assemble E NSPT-LOCKS



Using "H" bolt on hubs to assemble E NSPT-LOCKS



NSPT-LOCKS

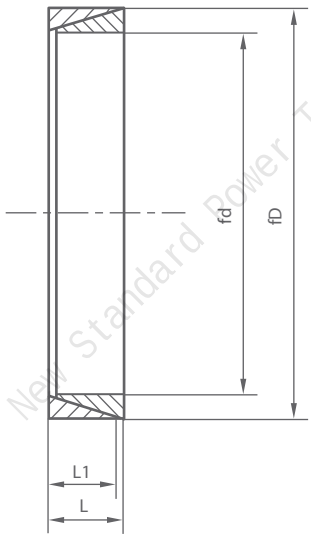
Metric

E NSPT-LOCKS

Catalog dxD	fundamental dimensions L	L1	RATED LOAD Pf=100N/mm² Ft (KN)	Mt (KN.M)	G kg
CL10x13E	4.5	3.7	1.4	0.007	0.002
CL12x15E	4.5	3.7	1.67	0.01	0.002
CL13x16E	4.5	3.7	1.81	0.012	0.002
CL14x18E	6.3	5.3	2.8	0.02	0.005
CL15x19E	6.3	5.3	3.0	0.023	0.005
CL16x20E	6.3	5.3	3.2	0.026	0.006
CL17x21E	6.3	5.3	3.4	0.029	0.006
CL18x22E	6.3	5.3	3.6	0.033	0.008
CL19x24E	6.3	5.3	3.8	0.036	0.008
CL20x25E	6.3	5.3	4.0	0.04	0.01
CL22x26E	6.3	5.3	4.5	0.05	0.01
CL24x28E	6.3	5.3	4.8	0.058	0.01
CL25x30E	6.3	5.3	5.0	0.06	0.01
CL28x32E	6.3	5.3	5.6	0.078	0.01
CL30x35E	6.3	5.3	6.0	0.09	0.01
CL32x36E	6.3	5.3	6.4	0.102	0.015
CL35x40E	7.0	6.0	7.9	0.139	0.02
CL36x42E	7.0	6.0	8.1	0.147	0.02
CL38x44E	7.0	6.0	8.6	0.163	0.02
CL40x45E	8.0	6.6	9.9	0.20	0.025
CL42x48E	8.0	6.6	10.5	0.22	0.04
CL45x52E	10.0	8.6	14.6	0.33	0.043
CL48x55E	10.0	8.6	15.6	0.38	0.045
CL50x57E	10.0	8.6	16.2	0.40	0.05
CL55x62E	10.0	8.6	17.8	0.49	0.06
CL56x64E	12.0	10.4	22.0	0.62	0.074
CL60x68E	12.0	10.4	23.5	0.70	0.074
CL63x71E	12.0	10.4	25.5	0.83	0.08
CL65x73E	12.0	10.4	25.6	0.93	0.08
CL70x79E	14.0	12.2	32.0	1.12	0.11
CL71x80E	14.0	12.2	32.7	1.16	0.12
CL75x84E	14.0	12.2	34.4	1.29	0.12
CL80x91E	17.0	15.0	45.0	1.81	0.19
CL85x96E	17.0	15.0	48.0	2.04	0.20
CL90x101E	17.0	15.0	51.0	2.29	0.22
CL95x106E	17.0	15.0	54.0	2.55	0.23
CL100x114E	21.0	18.7	70.0	3.50	0.38
CL105x119E	21.0	18.7	73.2	3.82	0.40
CL110x124E	21.0	18.7	77.0	4.25	0.41
CL120x134E	21.0	18.7	84.0	5.05	0.45
CL125x139E	21.0	18.7	92.0	5.75	0.62
CL130x148E	28.0	25.3	124.0	8.05	0.85
CL140x158E	28.0	25.3	134.0	9.35	0.91
CL150x168E	28.0	25.3	143.0	10.70	0.97
CL160x178E	28.0	25.3	152.5	12.20	1.02
CL170x191E	33.0	30.0	192.0	16.30	1.50
CL180x201E	33.0	30.0	204.0	18.30	1.58



Conversion:1 inch = 25.40mm



Conversion

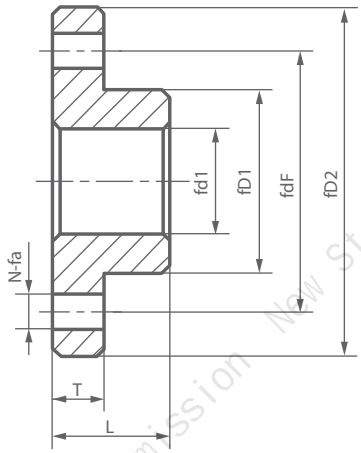
1 ft-lbs.= 0.1382 kgf-m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm² = 0.0069 Mpa

NSPT-LOCKS

Metric



Conversion:1 inch = 25.40mm



F Tightening Flange Type F

Catalog dxD	Fundamental Dimensions d1	D1	dF	D2	T	L	a	G (kg)
F10x13	10.2	12.8	28	36	8	13	4.4	0.06
F12x15	12.2	14.8	28	36	8	13	4.4	0.06
F13x16	13.2	15.8	28	36	8	13	4.4	0.06
F14x18	14.2	17.8	35	45	10	18	5.5	0.12
F15x19	15.2	18.8	35	45	10	18	5.5	0.12
F16x20	16.2	19.8	35	45	10	18	5.5	0.12
F17x21	17.2	20.8	35	45	10	18	5.5	0.12
F18x22	18.2	21.8	35	45	10	18	5.5	0.12
F19x24	19.2	23.8	40	50	10	18	5.5	0.14
F20x25	20.2	24.8	40	50	10	18	5.5	0.14
F22x26	22.2	25.8	40	50	10	18	5.5	0.14
F24x28	24.2	27.8	45	55	10	18	5.5	0.16
F25x30	25.2	29.8	45	55	10	18	5.5	0.16
F28x32	28.2	31.8	45	55	10	18	5.5	0.17
F30x35	30.2	34.8	50	60	10	18	5.5	0.18
F32x36	32.2	35.8	50	60	10	18	5.5	0.19
F35x40	35.2	39.8	58	68	10	18	5.5	0.23
F36x42	36.2	41.8	58	68	10	18	5.5	0.23
F38x44	38.2	43.8	58	68	10	18	5.5	0.27
F40x45	40.2	44.8	62	74	12	22	6.6	0.31
F42x48	42.2	47.8	62	74	12	22	6.6	0.35
F45x52	45.2	51.8	70	82	12	22	6.6	0.36
F48x55	48.2	54.8	70	82	12	22	6.6	0.37
F50x57	50.2	56.8	70	82	12	22	6.6	0.38
F55x62	55.2	61.8	78	90	12	22	6.6	0.42
F56x64	56.2	63.8	86	102	16	26	8.8	0.73
F60x68	60.2	67.8	86	102	16	26	8.8	0.77
F63x71	63.2	70.8	92	108	16	26	8.8	0.82
F65x73	65.2	72.8	92	108	16	26	8.8	0.85
F70x79	70.3	78.7	98	114	16	28	8.8	0.89
F71x80	71.3	79.7	98	114	16	28	8.8	0.90
F75x84	75.3	83.7	104	120	16	28	8.8	0.96
F80x91	80.3	90.7	110	130	20	32	11	1.42
F85x96	85.3	95.7	116	136	20	32	11	1.53
F90x101	90.3	100.7	120	140	20	32	11	1.56
F95x106	95.3	105.7	126	146	20	32	11	1.67
F100x114	100.3	113.7	134	154	20	32	11	1.90
F105x119	105.3	118.7	141	165	24	40	13	2.05
F110x124	110.3	123.7	146	170	24	40	13	2.15
F120x134	120.4	133.6	156	180	24	40	13	2.5
F125x139	125.4	138.6	175	203	28	46	15.2	2.68
F130x148	130.4	147.6	186	214	28	46	15.2	2.8
F140x158	140.4	157.6	196	224	28	46	15.2	3.15
F150x168	150.4	167.6	206	234	28	46	15.2	3.5
F160x178	160.4	177.6	216	244	28	46	15.2	3.95
F170x191	170.4	190.6	232	264	30	50	17.2	4.5
F180x201	180.4	200.6	242	274	30	50	17.2	5.1

Expression of Tightening Flange Type F

F 36 X 42

- Outsids Dia. in mm
- Bore Dia. in mm
- Tightening Flange Type F

NSPT-LOCKS

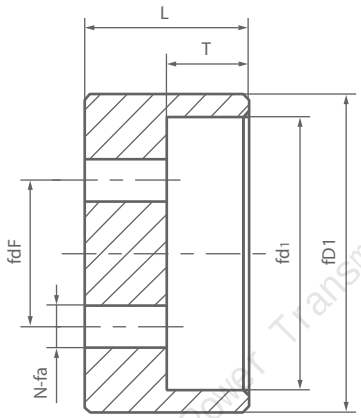
Metric

Conversion:1 inch = 25.40mm

H Tightening Flange Type H

Catalog dxD	Fundamental Dimensions d1	D1	dF	T	L	a	G (kg)
H10x13	10.2	12.8		4	9	8.8	0.04
H12x15	12.2	14.8		4	9	8.8	0.04
H13x16	13.2	15.8		4	9	8.8	0.04
H14x18	14.2	17.8		5	13	11	0.07
H15x19	15.2	18.8		5	13	11	0.07
H16x20	16.2	19.8		5	13	11	0.07
H17x21	17.2	20.8		5	13	11	0.07
H18x22	18.2	21.8		5	13	11	0.07
H19x24	19.2	23.8		7	15	13	0.09
H20x25	20.2	24.8		7	15	13	0.09
H22x26	22.2	25.8		7	15	13	0.10
H24x28	24.2	27.8	11	10	18	5.5	0.10
H25x30	25.2	29.8	12	10	18	5.5	0.11
H28x32	28.2	31.8	14	12	20	6.6	0.12
H30x35	30.2	34.8	16	12	20	6.6	0.12
H32x36	32.2	35.8	16	12	20	6.6	0.15
H35x40	35.2	39.8	19	12	20	6.6	0.16
H36x42	36.2	41.8	20	12	20	6.6	0.18
H38x44	38.2	43.8	22	12	20	6.6	0.20
H40x45	40.2	44.8	24	12	22	6.6	0.23
H42x48	42.2	47.8	26	12	22	6.6	0.23
H45x52	45.2	51.8	29	12	22	6.6	0.25
H48x55	48.2	54.8	32	12	22	6.6	0.25
H50x57	50.2	56.8	34	12	22	6.6	0.27
H55x62	55.2	61.8	36	12	22	6.6	0.50
H56x64	56.2	63.8	38	16	26	8.8	0.51
H60x68	60.2	67.8	42	16	26	8.8	0.53
H63x71	63.2	70.8	45	16	26	8.8	0.55
H65x73	65.2	72.8	47	16	26	8.8	0.58
H70x79	70.3	78.7	50	20	32	11	0.59
H71x80	71.3	79.7	51	20	32	11	0.63
H75x84	75.3	83.7	55	20	32	11	0.68
H80x91	80.3	90.7	60	20	32	11	0.92
H85x96	85.3	95.7	65	20	32	11	1.0
H90x101	90.3	100.7	70	20	32	11	1.02
H95x106	95.3	105.7	75	20	32	11	1.09
H100x114	100.3	113.7	80	20	32	11	1.24
H105x119	105.3	118.7	85	24	40	13	1.38
H110x124	110.3	123.7	88	24	40	13	1.46
H120x134	120.4	133.6	98	24	40	13	1.63
H125x139	125.4	138.6	104	28	46	15.4	1.75
H130x148	130.4	147.6	108	28	46	15.4	1.82
H140x158	140.4	157.6	118	28	46	15.4	2.05
H150x168	150.4	167.6	128	28	46	15.4	2.28
H160x178	160.4	177.6	138	28	46	15.4	2.59
H170x191	170.4	190.6	148	30	50	17.2	3.10
H180x201	180.4	200.6	158	30	50	17.2	3.45





Expression of Tightening Flange Type H

H 36 X 42

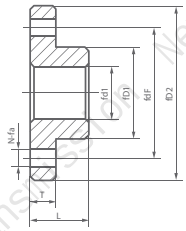
- Out Dia. in mm
- Bore Dia. in mm
- Tightening Flange Type H

NSPT-LOCKS

Conversion

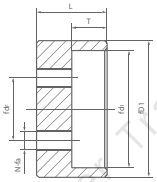
1 ft-lbs.= 0.1382 kgf-m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa





Catalog dxD	Internal Hexagon Headed Bolt				
	dF	SIZES	N	Ms (kgf.m)	E (kgf)
F10x13 F12x15 F13x16	28	M4x18	3	0.39	1680
F14x18 F15x19 F16x20 F17x21 F18x22	35	M5x20		0.77	2700
F19x24 F20x25 F22x26	40	M5x20	4	0.77	3600
F24x28 F25x30 F28x32	45				
F30x35 F32x36	50	M5x20	5	0.77	4500
F35x40 F36x42 F38x44	58	M5x20	6	0.77	5400
F40x45 F42x48	62	M6x25		1.3	7620
F45x52 F48x55 F50x57	70	M6x25	8	1.3	10160
F55x62	78	M6x25	10	1.3	12700
F56x64 F60x68	86	M8x35	8	3.2	18400
F63x71 F65x73	92 98				
F70x79 F71x80 F75x84	98 104	M8x35	10	3.2	23000
F80x91 F85x96	110 116	M10x40	8	6.3	29600
F90x101 F95x106	120 126	M10x40	9	6.3	33300
F100x114	134	M10x40	10	6.3	37000
F105x119 F110x124 F120x134	141 146 156	M12x50		12	75600
F125x139 F130x148 F140x158 F150x168 F160x178	175 186 196 206 216	M14x60		19	90700
F170x191 F180x201	232 242	M16x70		30	118800



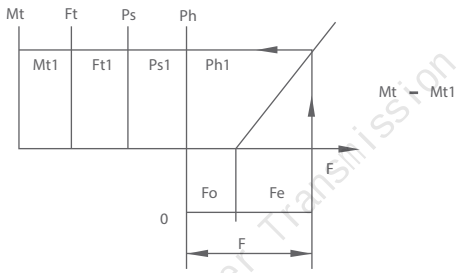


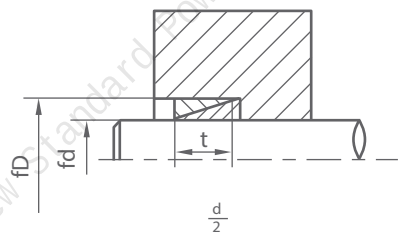
Catalog dxD	Internal Hexagon Headed Bolt				
	dF	SIZES	N	Ms (kgf.m)	E (kgf)
H10x13 H12x15 H13x16		M8x30	1	3.2	2300
H14x18 H15x19 H16x20 H17x21 H18x22		M10x35		6.3	3700
H19x24 H20x25 H22x26		M12x40		12	7560
H24x28	11	M5x20	3	0.77	2700
H25x30	12				
H28x32	14	M6x25		1.3	3810
H30x35 H32x36	16				
H35x40	19	M6x25	4	.3	5080
H36x42	20				
H38x44	22				
H40x45	24	M6x25	6	1.3	7620
H42x48	26				
H45x52	29	M6x25	8	1.3	10160
H48x55	32				
H50x57	34				
H55x62	36				
H56x64	38	M8x35	6	3.2	13800
H60x68	42				
H63x71	45	M8x35	8	3.2	18400
H65x73	47				
H70x79	50	M10x40	8	6.3	22200
H71x80	51				
H75x84	55				
H80x91	60	M10x40	10	6.3	29600
H85x96	65				
H90x101	70	M10x40	10	6.3	29600
H95x106	75				
H100x114	80	M10x40	12	6.3	44400
H105x119	85	M12x50	10	12	75600
H110x124	88				
H120x134	98				
H125x139	104	M14x60		19	90700
H130x148	108				
H140x158	118				
H150x168	128				
H160x178	138				
H170x191	148	M16x70		30	118800
H180x201	158				

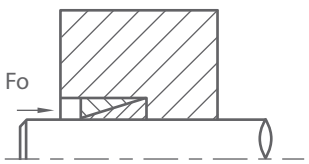
Key Elements for Designing and Calculation of E NSPT-LOCKS

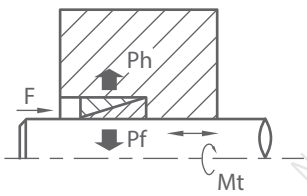
1. The charcteristic parameters of NSPT locks E type

A. the relationship between transmitting torque, axial load and surface pressure.



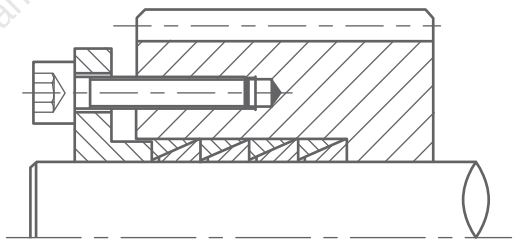




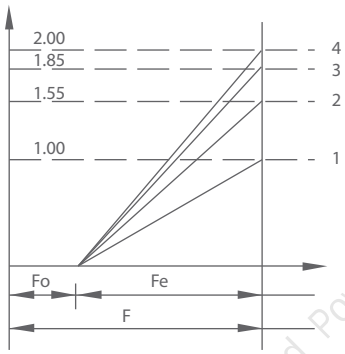


Mt--transmitting power N.m=N.u.--
Ft--rated axial force N=N.U=2Mt--
Ps.Ph--Pressure on hub Mpa
Fo--initial pressure
Fe--effective pressure
F--the whole pressure

B. Operational diagram when using grouped of E NSPT locks



conceptual diagram for how to use grouped of E NSPT Locks.



proportion diagram of transmission power when grouped of E NSPT-LOCKS are used

2. Determine the surface roughness and dimension tolerance

Inner Diameter d	Tolerance of Shaft Diameter	Tolerance of Bore Diameter	Surface Roughness
10-38	h6	H7	1.6 ▽
40-150	h8	H8	1.6 ▽

3. Determine max torque needed and max axial load

$$M\,max = \frac{30000H}{p.n} \cdot K (N\,m)$$

$$F\,max = Ft \cdot K$$

H--Transmission power KW
n--Rotational speed r/min
F--nominal axial force N
K--coefficient needed

Used coefficient sheet for K

No shock load, transmitting with little inertia	1.5 – 2.5
Slight shock load,transmitting with middle inertia	2.0 – 4.0
Big shock load, transmitting with heavy inertia	3.0 – 5.0

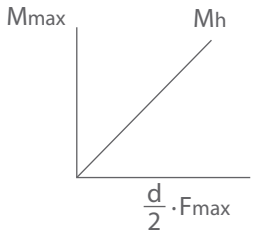
4. Calculate synthetic load and transmitted torque

$$Mh = \sqrt{M^2 max + (\frac{d}{2} \times Fmax)^2}$$

Conversion:1 inch = 25.40mm

Conversion

1 ft-lbs.= 0.1382 kgf·m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa



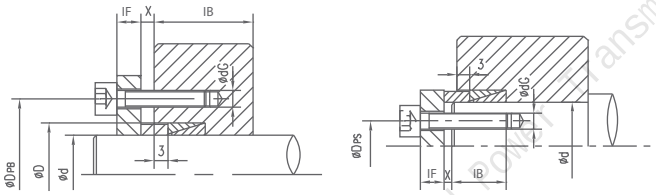
Mmax--Required transmitted torque Nm
Fmax--Required transmitted axial force N
Mh--synthetic transmitted torque Nm
d--Transmission shaft diameter mm
Mt--NSPT LOCK rated transmitted torque Nm

Mt ⩾Mh can be used
Mt<Mh need bigger type of NSPT lock or to be installed by two NSPT locks or more together

Conversion:1 inch = 25.40mm

5. Determination for the dimensions of pressing flange

IF ⩾2xdG
IB ⩾1.5xdG



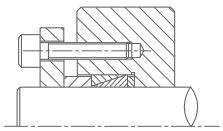
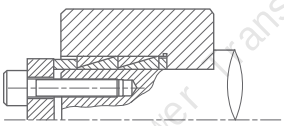
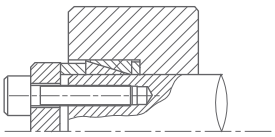
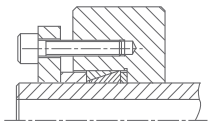
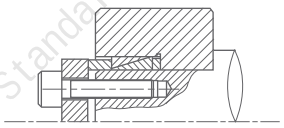
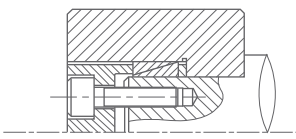
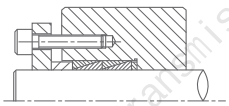
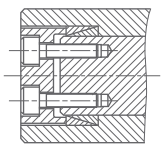
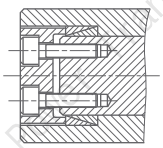
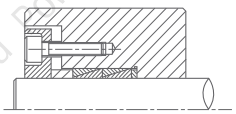
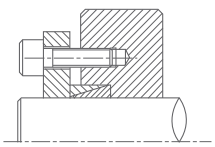
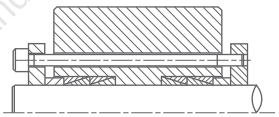
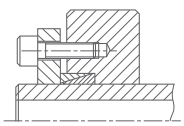
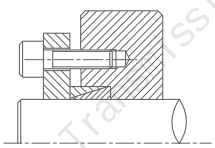
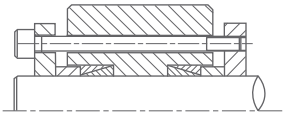
Shaft diameter d=f10-f30(mm)
Shaft diameter d=f32-f150(mm)

dpB=D+8+dG
dpS=d+8-dG
dpB=D+10+dG
dps=d-10-dG

Conversion

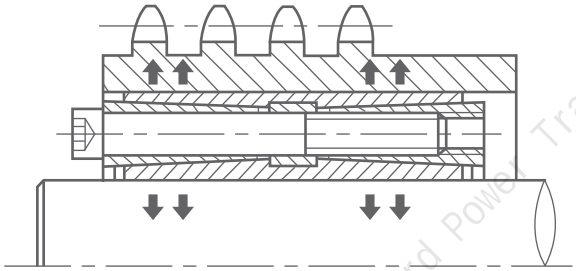
1 ft-lbs.= 0.1382 kgf·m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa

Conventional Installation of E NSPT-LOCKS

 1	 10	 11
 2	 9	 12
 3	 8	 13
 4	 7	 14
 5	 6	 15

NSPT-LOCKS





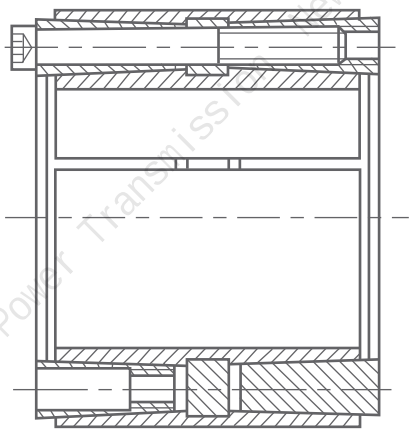
Suitable for Shaft Diameter
Metric: f45～f340 (mm)
Inch:1 3/4"～13 3/8"



D NSPT-LOCKS is a heavier type than type B with a connecting capacity of 2 to 3 times over type B. It has the same dimensions as type B NSPT-LOCKS but is more economical than type B since it has more capacity.

The characteristics of D NSPT-LOCKS are the ease of self-installation and good concentricity. The guiding taper surface does not require special machining, and the central bore of the hub is in a straight line with the surface of the shaft. It reduces the production time and costs.

D NSPT-LOCKS have high installation precision and connecting capacity. The connecting function is provided by the friction and pressures between the lock, shaft and hub. There is no need for machining keys since it connects without slot ot key. This type of NSPT-LOCKS is commonly used in transmission with heavy duty connections and/or large torques.



Expression of NSPT-LOCKS Type D

NL 200 X 260 D

- NSPT Lock Type D
- Outside Diameter D
- Shaft Diameter d
- NSPT-LOCKS Code

D NSPT-LOCKS

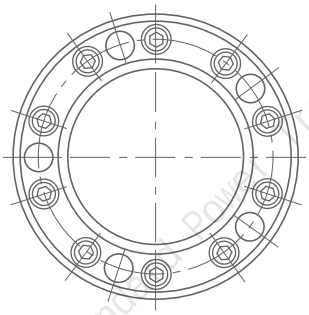
Conversion:1 inch = 25.40mm

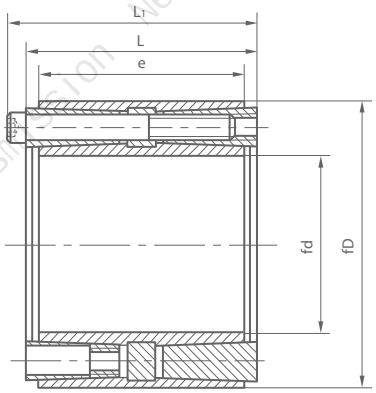
Conversion

1 ft-lbs.= 0.1382 kgf-m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa

NSPT-LOCKS

Inches







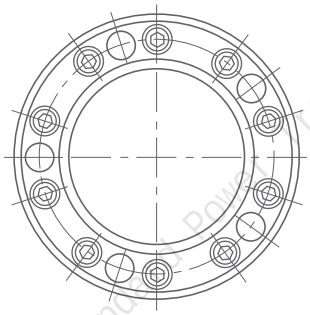
D NSPT-LOCKS

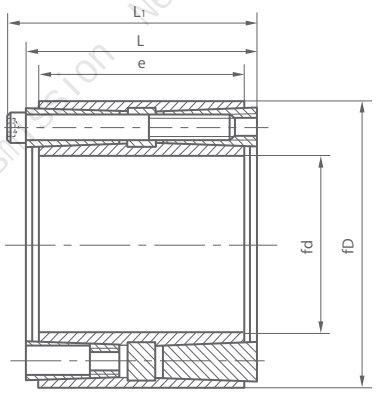
NSPT Catalog	INCH SERIES INCHES			INCHES			Mt ft-lb	Axial force lb	pw psi	pn psi	LOCKING SCREW	
	Size	d	D	l	L	L1					No.x type	Ms ft-lb
NL1.00D	1	1.000	2.165	1.535	1.772	2.008	826	20239	34965	16147	8xM6	13
NL1.316D	1 3/16	1.188	2.165	1.535	1.772	2.008	981	20239	29444	16147	8xM6	13
NL1.14D	1 1/4	1.250	2.362	1.535	1.772	2.008	1033	20239	27972	14802	8xM6	13
NL1.38D	1 3/8	1.375	2.362	1.535	1.772	2.008	1137	20239	25429	14802	8xM6	13
NL1.716D	1 7/16	1.438	2.559	1.535	1.772	2.008	1188	20239	24323	14802	8xM6	13
NL1.12D	1 1/2	1.500	2.559	2.205	2.520	2.835	2290	37394	29994	15237	8xM8	30
NL1.58D	1 5/8	1.625	2.953	2.205	2.520	2.835	2481	37394	27687	15237	8xM8	30
NL1.34D	1 3/4	1.750	2.953	2.205	2.520	2.835	2672	37394	25709	15237	8xM8	30
NL1.78D	1 7/8	1.875	3.150	2.205	2.520	2.835	2863	37394	23996	14285	8xM8	30
NL1.516D	1 15/16	1.938	3.150	2.205	2.520	2.835	2959	37394	23221	14285	8xM8	30
NL2.00D	2	2.000	3.150	2.205	2.520	2.835	3054	37394	22496	14285	8xM8	30
NL2.18D	2 1/8	2.125	3.346	2.205	2.520	2.835	3245	37394	21173	13445	8xM8	30
NL2.316D	2 3/16	2.188	3.346	2.205	2.520	2.835	3340	37394	20568	13445	8xM8	30
NL2.14D	2 1/4	2.250	3.543	2.205	2.520	2.835	4294	46743	24995	15872	10xM8	30
NL2.38D	2 3/8	2.375	3.543	2.205	2.520	2.835	4533	46743	23680	15872	10xM8	30
NL2.716	2 7/16	2.438	3.740	2.205	2.520	2.835	4652	46743	23073	15037	10xM8	30
NL2.12D	2 1/2	2.500	3.740	2.205	2.520	2.835	4772	46743	22496	15037	10xM8	30
NL2.916D	2 9/16	2.563	3.740	2.205	2.520	2.835	4891	46743	21947	15037	10xM8	30
NL2.58D	2 5/8	2.652	4.331	2.756	3.071	3.465	7956	74219	27215	16496	10xM10	61
NL2.1116D	2 11/16	2.688	4.331	2.756	3.071	3.465	8145	74219	26582	16496	10xM10	61
NL2.34D	2 3/4	2.750	4.331	2.756	3.071	3.465	8334	74219	25978	16496	10xM10	61
NL2.78D	2 7/8	2.875	4.331	2.756	3.071	3.465	8713	74219	24848	16496	10xM10	61
NL2.1516D	2 15/16	2.938	4.224	2.756	3.071	3.465	10683	89063	29183	18145	12xM10	61
NL3.00D	3	3.000	4.724	2.756	3.071	3.465	10910	89063	28575	18145	12xM10	61
NL3.18D	3 1/8	3.125	4.724	2.756	3.071	3.465	11365	89063	27432	18145	12xM10	61
NL3.14D	3 1/4	3.250	4.724	2.756	3.071	3.465	11820	89063	26377	18145	12xM10	61
NL3.38D	3 3/8	3.375	5.118	2.756	3.071	3.465	12274	89063	25400	16750	12xM10	61
NL3.716D	3 7/16	3.438	5.118	2.756	3.071	3.465	12501	89063	24938	16750	12xM10	61
NL3.12D	3 1/2	3.500	5.118	2.756	3.071	3.465	12728	89063	24493	16750	12xM10	61
NL3.58D	3 5/8	3.625	5.118	2.756	3.071	3.465	13183	89063	23649	16750	12xM10	61
NL3.34D	3 3/4	3.750	5.709	3.543	3.937	4.409	19857	129674	25888	17006	12xM12	107
NL3.78D	3 7/8	3.875	5.709	3.543	3.937	4.409	20518	129674	25053	17006	12xM12	107
NL3.1516D	3 15/16	3.938	5.709	3.543	3.937	4.409	20850	129674	24655	17006	12xM12	107
NL4.00D	4	4.000	5.709	3.543	3.937	4.409	21180	129674	24270	17003	12xM12	107

* For unlisted diameters please contact us

NSPT-LOCKS

Inches







D NSPT-LOCKS

METRIC SIZES INCHES			INCHES			Mt	Axial	pw	pn	LOCKING SCREW	
Size	d	D	e	L	L1	ft-lb	force lb	psi	psi	No.x type	Ms ft-lb
45x75	1.772	2.953	2.205	2.520	2.835	2560	34875	23925	14500	8xM8	30
48x80	1.890	3.150	2.205	2.520	2.835	2723	34875	21750	13775	8xM8	30
50x80	1.969	3.150	2.205	2.520	2.835	2827	34875	21315	13775	8xM8	30
55x80	2.165	3.346	2.205	2.520	2.835	3152	34875	19575	12325	8xM8	30
60x90	2.362	3.543	2.205	2.520	2.835	4307	42750	22475	14500	10xM8	30
65x95	2.559	3.740	2.205	2.520	2.835	4640	42750	20300	13775	10xM8	30
70x110	2.756	4.331	2.756	3.071	3.465	7940	68625	24650	15225	10xM10	61
75x115	2.953	4.528	2.756	3.071	3.465	8540	68625	22475	14500	10xM10	61
80x120	3.150	4.724	2.756	3.071	3.465	10878	83025	25375	16675	12xM10	61
85x125	3.346	4.921	2.756	3.071	3.465	11618	83025	23925	15950	12xM10	61
90x130	3.543	5.118	2.756	3.071	3.465	12291	83250	22765	15370	12xM10	61
95x135	3.740	5.315	2.756	3.071	3.465	12972	83250	21750	14790	12xM10	61
100x145	3.937	5.709	3.543	3.937	4.409	19906	121050	23200	15950	12xM12	107
110x155	4.331	6.102	3.543	3.937	4.409	21852	121050	20735	14790	12xM12	107
120x165	4.724	6.496	3.543	3.937	4.409	27831	141300	22330	16240	14xM12	107
130x180	5.118	7.087	4.094	4.567	5.118	35520	166050	20735	15370	12xM14	170
140x190	5.512	7.480	4.094	4.567	5.118	44615	193725	23200	16965	14xM14	170
150x200	5.906	7.874	4.094	4.567	5.118	54612	221625	23925	18125	16xM14	170
160x210	6.299	8.268	4.094	4.567	5.118	58290	221175	22475	17110	16xM14	170
170x225	6.693	8.858	5.276	5.748	6.378	75280	269325	20300	15660	14xM16	263
180x235	7.087	9.252	5.276	5.748	6.378	91168	308025	21750	16675	16xM16	263
190x250	7.480	9.843	5.276	5.748	6.378	96111	307800	20445	15950	16xM16	263
200x260	7.874	10.236	5.276	5.748	6.378	101261	307800	19865	15080	16xM16	263
220x285	8.661	11.220	5.276	5.748	6.378	139120	385750	22475	17400	20xM16	263
240x305	9.449	12.008	5.276	5.748	6.378	166500	423000	22475	17400	20xM16	263
260x325	10.236	12.798	5.276	5.748	6.378	180560	423000	22475	16675	22xM16	263
280x355	11.024	13.976	6.496	6.968	7.756	276020	600750	21025	17400	20xM20	511
300x375	11.811	14.764	6.496	6.968	7.756	325600	659250	22475	18125	22xM20	511
320x405	12.598	15.945	6.496	6.968	7.756	347800	659250	21025	16675	22xM20	511
340x425	13.386	16.732	6.496	6.968	7.756	402560	720000	21750	17400	24xM20	511
360x455	14.173	17.913	6.496	6.968	7.756	486920	821250	20300	15950	22xM22	688
380x475	14.961	18.701	7.480	7.953	8.819	607540	972000	23200	18850	26xM22	688
400x495	15.748	19.488	7.480	7.953	8.819	639360	972000	21750	17400	26xM22	688

* For unlisted diameters please contact us

NSPT-LOCKS

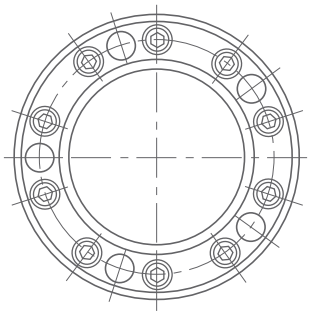
Metric

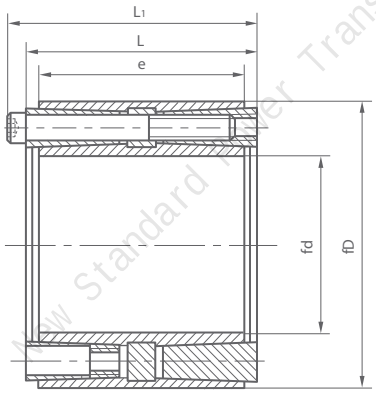
Conversion

1 ft-lbs.= 0.1382 kgf-m = 1.3550 N.m

1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa







D NSPT-LOCKS

Catalog	Fundamental Dimensions			Internal Hexagon Headed Bolt		Rated Load		Pf	MA	G
dxD	e	L	L1	SIZES	QTY	Ft KN	Mt KN.M	Mpa	N.M	kg
CL45x75D	56	64	72	M8x50	9	170	3.90	179	40.2	1.25
CL48x80D	56	64	72	M8x50	9	170	4.15	168	40.2	1.41
CL50x80D	56	64	72	M8x50	9	170	4.30	162	40.2	1.35
CL55x85D	56	64	72	M8x50	9	170	4.70	147	40.2	1.45
CL60x90D	56	64	72	M8x50	11	208	6.30	165	40.2	1.55
CL65x95D	56	64	72	M8x50	11	208	6.90	130	40.2	1.92
CL70x110D	70	78	88	M10x70	11	330	11.80	179	81.3	3.11
CL75x115D	70	78	88	M10x70	11	330	12.60	167	81.3	3.28
CL80x120D	70	78	88	M10x70	12	360	14.70	171	81.3	3.45
CL85x125D	70	78	88	M10x70	12	360	15.60	161	81.3	3.63
CL90x130D	70	78	88	M10x70	13	390	17.90	165	81.3	3.80
CL95x135D	70	78	88	M10x70	13	390	18.90	156	81.3	3.97
CL100x145D	90	100	112	M12x90	12	467	23.30	181	145	6.8
CL110x155D	90	100	112	M12x90	13	553	30.40	190	145	7.5
CL120x165D	90	100	112	M12x90	15	617	37.0	195	145	8.6
CL130x180D	104	116	130	M14x90	13	759	49.0	180	230	11.1
CL140x190D	104	116	130	M14x90	15	843	59.0	186	230	11.8
CL150x200D	104	116	130	M14x90	16	897	67.0	185	230	12.6
CL160x210D	104	116	130	M14x90	17	950	76.0	183	230	13.4
CL170x225D	134	146	162	M16x120	15	1223	104.0	172	355	19.6
CL180x235D	134	146	162	M16x120	16	1289	116.0	172	355	20.6
CL190x250D	134	146	162	M16x120	17	1363	130.0	172	355	23.8
CL200x260D	134	146	162	M16x120	17	1438	143.7	172	355	24.9
CL220x285D	134	146	162	M16x120	20	1582	174	172	355	29.6
CL240x305D	134	146	162	M16x120	22	1725	207	172	355	31.9
CL260x325D	134	146	162	M16x120	22	1846	240	170	355	34.3
CL280x355D	165	177	197	M20x150	20	2429	340	168	690	52.0
CL300x375D	165	177	197	M20x150	22	2540	381	161	690	55.3
CL320x405D	165	177	197	M20x150	22	2881	461	175	690	67.3
CL340x425D	165	177	197	M20x150	24	2994	509	171	690	71.0

NSPT-LOCKS

Metric

Conversion:1 inch = 25.40mm

Conversion

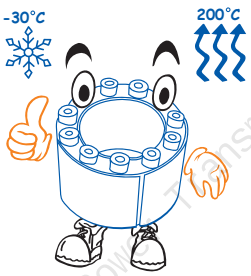
1 ft-lbs.= 0.1382 kgf-m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa

D NSPT-LOCKS

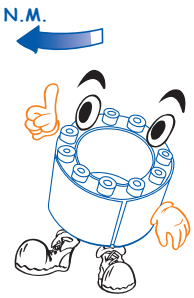
Catalog	Fundamental Dimensions			Internal Hexagon Headed Bolt		Rated Load		Pf	MA	G
dxD	e	L	L1	SIZES	QTY	Ft KN	Mt KN.M	Mpa	N.M	kg
CL360x455D	190	202	224	M22x150	22	3589	646	169	930	96.5
CL380x475D	190	202	224	M22x150	26	3821	726	170	930	101
CL400x495D	190	202	224	M22x150	26	3960	792	168	930	106
CL420x575D	190	202	224	M22x150	26	4100	861	165	930	107
CL440x535D	190	202	224	M22x150	26	4260	930	165	937	109
CL460x555D	190	202	224	M22x150	26	4260	930	158	980	113
CL480x575D	190	202	224	M22x150	30	5000	930	176	1200	118
CL500x595D	190	202	224	M22x150	30	5000	930	169	1240	122
CL520x615D	190	202	224	M22x150	32	5330	930	174	1390	126
CL540x635D	190	202	224	M22x150	32	5330	930	168	1440	131
CL560x655D	190	202	224	M22x150	34	5680	930	172	1590	135
CL580x675D	190	202	224	M22x150	34	5860	930	172	1705	140
CL600x695D	190	202	224	M22x150	34	5860	930	166	1760	144

The items<CL200X260D are standard in stock products, the items >CL200X265D will be produced against orders

Attention When Using NSPT-LOCKS



1.Temperature for the working surroundings of NSPT-LOCKS is from -30°C to +200°C. Otherwise, the NSPT Locks can not work well.

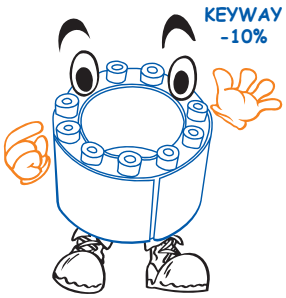


3.NSPT-LOCKS can be used and disassembled repeatly. But after each repeated installation and disassembling, the shape of NSPT-LOCKS will change slightly. Torque will be reduced slightly as well.

2.When the NSPT-LOCKS are used in an open area or in a place containing moisture, it should be protected from rust.



4.If the NSPT-LOCKS is installed onto the shaft with keyway, the rated torque will be reduced by about 10%.



Key Elements for Design and Calculation of D/DS NSPT-LOCKS

1.Determine max torque and max axial load

$$M_{max} = \frac{30000\ H}{p.n} K(N\ m)$$

$$F_{max} = F \cdot K$$

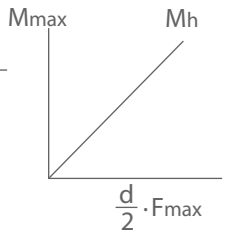
H--Transmission power KW
n--Rotational speed r/min
F--nominal axial force N
K--coefficient needed

Used coefficient sheet for K

No shock load, transmitting with little inertia	1.5 – 2.5
Slight shock load,transmitting with middle inertia	2.0 – 4.0
Big shock load, transmitting with heavy inertia	3.0 – 5.0

2.Calculate synthetic load and transmitted torque

$$M_h = \sqrt{M_{max}^2 + (\frac{d}{2} \times F_{max})^2}$$



M_{max}--Required transmitted torque Nm
F_{max}--Required transmitted axial force N
M_h--synthetic transmitted torque Nm
d--Transmission shaft diameter mm
M_t--NSPT LOCK rated transmitted torque Nm

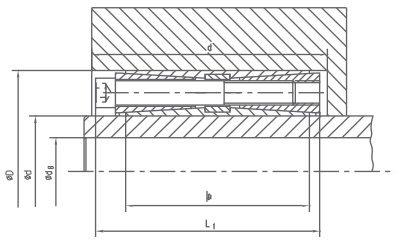
$M_t \geqslant M_h$ can be used
$M_t < M_h$ need bigger type of NSPT lock or to be install by two NSPT locks or more together

3.Calculation for the hub diameter

$$Da \geqslant D \sqrt{\frac{\sigma b + Ka \cdot Ph}{\sigma b - Ka \cdot Ph}}$$

Da--outside diameter of hub mm
D--inside diameter of hub mm
Ph--suface pressures on hub Mpa
σb--tensile strength of material
Ka--It should be 0.6 for single NSPT lock, it will be 0.8 when two NSPT locks or more are installed together

4.Calculation for the inside diameter of cannon



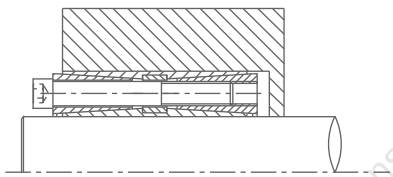
$$dB \leqslant d \sqrt{\frac{\sigma b - 2xPs.K3}{\sigma b}}$$

dB--inside diameter of cannon mm
d--outside diameter of cannon mm
6b--tensile strength of shaft material Mpa
Ps--pressure on the surface of shaft Mpa
K3--coefficient=0.6

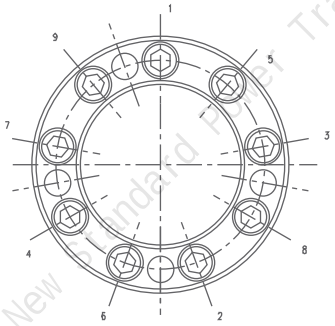
5.Settlement for the surface roughness and dimension tolerance

Clean the NSPT-LOCKS and install it into corresponding position of hub and shaft (Ref Drawing A). Tighten the bolts according to the order in Drawing B bolts. The bolts should be tightened 3 to 4 times up to specified rated torque. After correct installation, NSPT-LOCKS should be inspected radially and axially for runouts as per A 0.05mm, B 0.002Rmm in C.

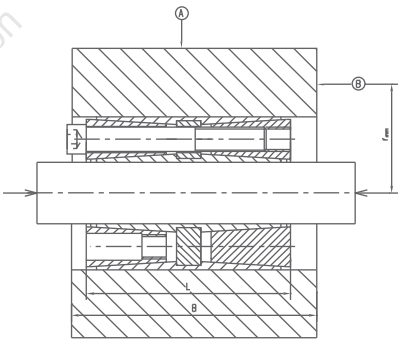
A



B



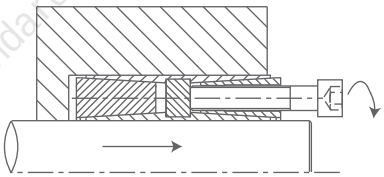
C



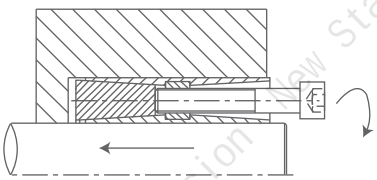
6.Determine the surface roughness and dimension tolerance

Fitting section	surface roughness	Dimension precision
shaft diameter d	1.6	h8
bore diameter D	1.6	H8

7.Disassembling for NSPT locks



1.Loosen and remove all the tightening bolts. Then place the unloading bolts in the corresponding unloading tap hole of the tighening taper ring in one side, tighten and press in proper order. Separate the tightening taper ring from the inside and outside taper bushes.



2.After removing the tightened taper ring, place the unloading bolts in the corresponding unloading tap hole in the middle ring, tighten and press in proper order. Separate the tightening taper ring with the inside and outside taper bushes from the other side.

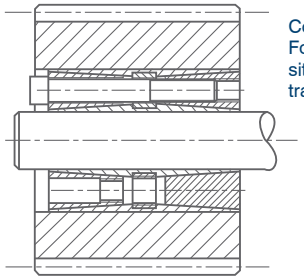
D type NSPT LOCK can be easily disassembled after the above two steps.

Conversion:1 inch = 25.40mm

Conversion

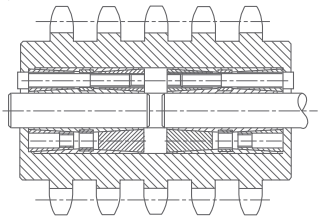
1 ft-lbs. = 0.1382 kgf.m = 1.3550 N.m

1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa

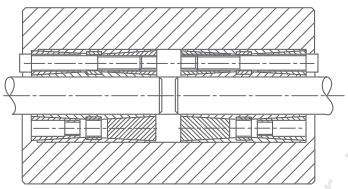


Conventional installation. For the usage of ordinary situation and general power transmission

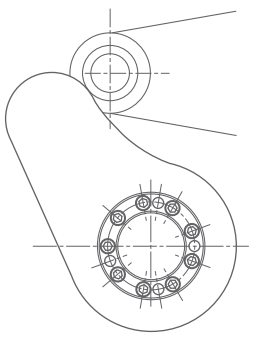
Used in pairs, Suitable for the usage of greater power transmission



Mounted with shaft sleeves to connect transmission between two shafts. They have the same function as couplings

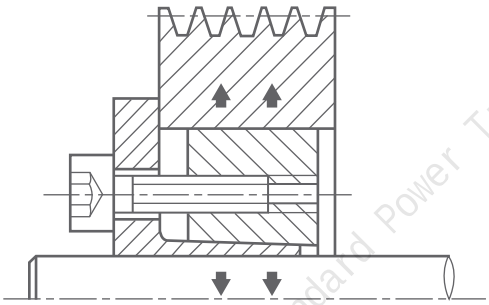


While installed with cams, the position and angle of the cams can be adjusted accordingly



NSPT-LOCKS





Suitable for Shaft Diameter

Metric:f18～f400(mm)

Inch:3/4"-153/4"

FA NSPT-LOCKS is an extension series of type D locks. The bore diameters can be from 18mm to 400mm with the largest possible outside diameter of 495mm. This type of components has high installation suitability and is widely used general mechanical joints nowadays.

By simply tightening the bolts, the inner and outer rings will move along the taper surface oppositely causing radial pressure and fractional force, which makes the hubs and the shaft join together.

There are two types of FA NSPT-LOCKS: FA1 and FA2. The only difference between the two is the flange diameter of the inner ring. For FA1 type, the flange diameter of inner ring is 6mm larger than the outer ring. For FA2 type, the flange diameters of both rings are same.

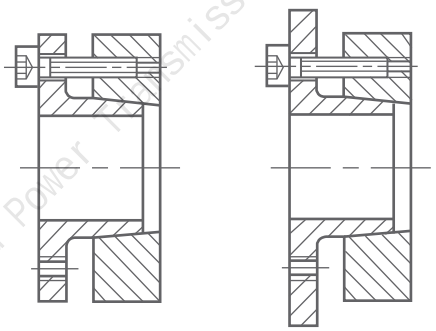
A fascinating point of FA NSPT-LOCKS is the simplicity. It is designed to suit for self-installation; and its requirements to the hub bore and shaft diameters are not very strict. This saves the time and the cost of machining process.

Conversion:1 inch = 25.40mm

Conversion

1 ft-lbs.= 0.1382 kgf.m = 1.3550 N.m

1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa



FA1 FA2

Expression of NSPT-LOCKS Type FA

NL 50 X 80 FA

- NSPT-LOCKS FA
- Outside Diameter D
- Shaft Diameter D
- NSPT-LOCKS Code

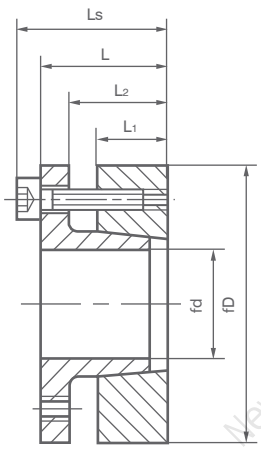
FA NSPT-LOCKS

NSPT-LOCKS

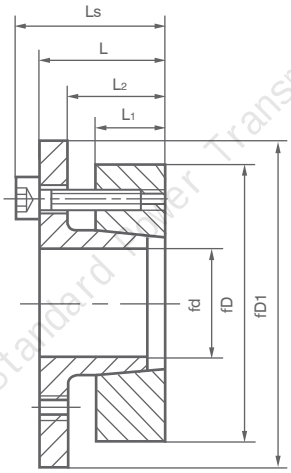
Conversion
1 ft-lbs.= 0.1382 kgf-m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm² = 0.0069 Mpa

Inches





FA1



FA2

FA NSPT-LOCKS

NSPT Catalog	INCH SERIES INCHES				INCHES				Mt ft-lb	Axial force lb	pw psi	pn psi	LOCKING SCREW	
	Size	d	D	D1	L1	L2	L	Ls					No.x type	Ms ft-lb
NL0.34FA	3/4	0.750	1.850	2.205	0.669	0.866	1.102	1.339	274	8550	41970	17790	5xM6	11
NL0.78FA	7/8	0.875	1.850	2.205	0.669	0.866	1.102	1.339	296	8550	38410	17790	5xM6	11
NL0.1516FA	15/16	0.938	1.969	2.323	0.669	0.866	1.102	1.339	325	8550	34860	17070	5xM6	11
NL1.00FA	1	1.000	1.969	2.323	0.669	0.866	1.102	1.339	412	10350	40550	19920	6xM6	11
NL1.18FA	1 1/8	1.125	2.165	2.520	0.669	0.866	1.102	1.339	455	10350	36280	18500	6xM6	11
NL1.316FA	1 3/16	1.1875	2.165	2.520	0.669	0.866	1.102	1.339	477	10350	33430	18500	6xM6	11
NL1.14FA	1 1/4	1.250	2.362	2.717	0.669	0.866	1.102	1.339	694	13500	46950	22050	8xM6	11
NL1.38FA	1 3/8	1.375	2.362	2.717	0.669	0.866	1.102	1.339	767	13500	41970	22050	8xM6	11
NL1.716FA	1 7/16	1.4375	2.559	2.913	0.669	0.866	1.102	1.339	795	13500	42680	20630	8xM6	11
NL1.12FA	1 1/2	1.500	2.559	2.913	0.669	0.866	1.102	1.339	875	13500	38410	20630	8xM6	11
NL1.58FA	1 5/8	1.625	2.953	3.307	0.787	0.984	1.299	1.614	1461	22050	44960	24190	7xM8	26
NL1.1116FA	1 11/16	1.688	2.953	3.307	0.787	0.984	1.299	1.614	1512	22050	43390	24190	7xM8	26
NL1.34FA	1 3/4	1.750	2.953	3.307	0.787	0.984	1.299	1.614	1591	22050	41260	24190	7xM8	26
NL1.78FA	1 7/8	1.875	3.150	3.504	0.787	0.984	1.299	1.614	1685	22050	39120	22760	7xM8	26
NL1.1516FA	1 15/16	1.9375	3.150	3.504	0.787	0.984	1.299	1.614	1772	22050	36990	22760	7xM8	26
NL2.00FA	2	2.000	3.150	3.504	0.787	0.984	1.299	1.614	1801	22050	36420	22760	7xM8	26
NL2.18FA	2 1/8	2.125	3.346	3.700	0.787	0.984	1.299	1.614	2228	25200	38410	24900	8xM8	26
NL2.316FA	2 3/16	2.188	3.346	3.700	0.787	0.984	1.299	1.614	2250	25200	37990	24900	8xM8	26
NL2.14FA	2 1/4	2.250	3.543	3.898	0.787	0.984	1.299	1.614	2315	25200	36990	23480	8xM8	26
NL2.38FA	2 3/8	2.375	3.543	3.898	0.787	0.984	1.299	1.614	2431	25200	34860	23480	8xM8	26
NL2.716FA	2 7/16	2.4375	3.740	4.094	0.787	0.984	1.299	1.614	2818	28350	38130	24900	9xM8	26
NL2.12FA	2 1/2	2.500	3.740	4.094	0.787	0.984	1.299	1.614	2887	28350	37700	24900	9xM8	26
NL2.916FA	2 9/16	2.562	3.740	4.094	0.787	0.984	1.299	1.614	2959	28350	36280	24900	9xM8	26
NL2.1116FA	2 11/16	2.6875	4.331	4.685	0.945	1.181	1.575	1.969	4442	40275	41260	24560	8xM10	51
NL2.34FA	2 3/4	2.750	4.331	4.685	0.945	1.181	1.575	1.969	4558	40275	39830	25610	8xM10	51

Note: All the items listed in the above are for the standard parts in stock.

Conversion:1 inch = 25.40mm

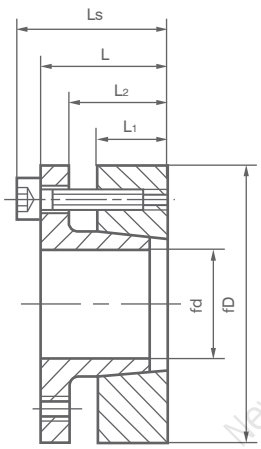
NSPT-LOCKS

Conversion

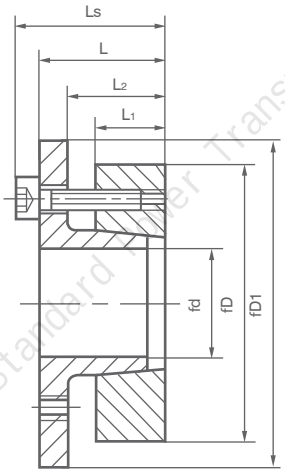
1 ft-lbs.= 0.1382 kgf-m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa

Inches





FA1



FA2

FA NSPT-LOCKS

NSPT Catalog	INCH SERIES				INCHES				Mt ft-lb	Axial force lb	pw psi	pn psi	LOCKING SCREW	
	Size	d	D	D1	L1	L2	L	Ls					No.x type	Ms ft-lb
NL2.78FA	2 7/8	2.875	4.528	4.882	0.945	1.181	1.575	1.969	4717	40275	38410	24190	8xM10	51
NL2.1516FA	2 15/16	2.9375	4.528	4.882	0.945	1.181	1.575	1.969	4848	40275	36990	24190	8xM10	51
NL3.00FA	3	3.000	4.724	5.079	0.945	1.181	1.575	2.598	4920	40275	37700	25180	8xM10	51
NL3.14FA	3 1/4	3.2500	4.921	5.276	0.945	1.181	1.575	1.969	5173	40275	35570	24190	8xM10	51
NL3.38FA	3 3/8	3.375	4.921	5.276	0.945	1.181	1.575	1.969	6150	45000	36990	25610	9xM10	51
NL3.716FA	3 7/16	3.4375	5.118	5.472	0.945	1.181	1.575	1.969	6389	45000	36990	24190	9xM10	51
NL3.12FA	3 1/2	3.500	5.118	5.472	0.945	1.181	1.575	1.969	6584	45000	35570	24190	9xM10	51
NL3.34FA	3 3/4	3.750	5.315	5.669	0.945	1.181	1.575	1.969	7670	50400	36690	18500	10xM10	51
NL3.1516FA	3 15/16	3.9375	5.709	6.063	1.024	1.260	1.732	2.205	9696	60300	38410	27030	8xM12	91
NL4.00FA	4	4.000	5.709	6.063	1.024	1.260	1.732	2.205	9848	60300	37840	27030	8xM12	91
NL4.716FA	4 7/16	4.4375	6.102	6.457	1.024	1.260	1.732	2.205	10564	60300	34140	25610	8xM1	91
NL4.34FA	4 3/4	4.750	6.496	6.850	1.024	1.260	1.732	2.205	12952	67050	35570	25610	9xM12	91
NL4.1516FA	4 15/16	4.9375	7.087	7.441	1.339	1.575	2.126	2.598	18813	90000	34140	24190	12xM12	91
NL5.716FA	5 7/16	5.4375	7.480	7.844	1.339	1.575	2.126	2.677	19536	86400	29880	21340	9xM14	138
NL5.1516FA	5 15/16	5.9375	7.874	8.228	1.339	1.575	2.126	2.677	23878	99000	32720	24190	10xM14	138
NL6.14FA	6 1/4	6.520	7.874	8.622	1.339	1.575	2.126	2.677	27496	107775	32720	24190	11xM14	138
NL6.716FA	6 7/16	6.4375	8.858	9.213	1.732	1.969	2.520	3.071	32561	119250	25610	18500	12xM14	138
NL6.1516FA	6 15/16	6.9375	9.252	9.606	1.732	1.969	2.520	3.071	34008	119250	24190	18500	12xM14	138
NL7.716FA	7 7/16	7.4375	9.843	10.196	1.732	1.969	2.520	3.071	45513	148500	29880	21340	15xM14	138
NL7.1516FA	7 15/16	7.9375	10.236	10.591	1.732	1.969	2.520	3.071	47756	148500	27030	21340	15xM14	138

Expression of NSPT-LOCKS Type FA

NL 2.1516 FA (1,2)

- NSPT-LOCKS FA(1,2)
- Shaft Diameter d 2 15/16"
- NSPT-LOCKS Code

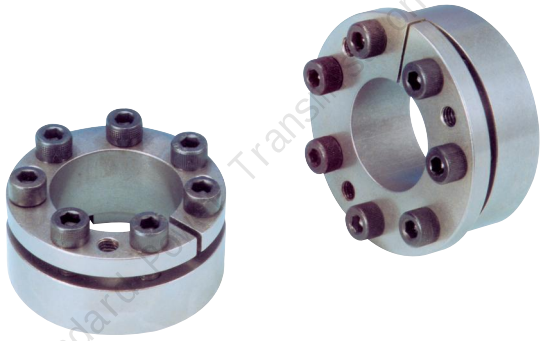
NSPT-LOCKS FA Inches

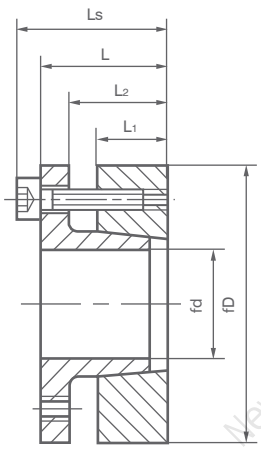
METRIC SIZES INCHES			INCH SERIES INCHES			INCHES				Mt ft-lb	Axial force lb	pw psi	pn psi	LOCKING SCREW	
Size	d	D	Size	d	D	L1	L2	L	Ls					No.x type	Ms ft-lb
20x47	0.787	1.850	3/4	0.750	1.850	0.669	0.866	1.102	1.339	274	8550	41970	17790	5xM6	11
22x47	0.866	1.850	7/8	0.875	1.850	0.669	0.866	1.102	1.339	296	8550	38410	17790	5xM6	11
24x50	0.945	1.969				0.669	0.866	1.102	1.339	325	8550	34860	17070	5xM6	11
25x50	0.984	1.969	1	1.000	1.969	0.669	0.866	1.102	1.339	412	10350	40550	19920	6xM6	11
28x55	1.102	2.165	1 1/8	1.125	2.165	0.669	0.866	1.102	1.339	455	10350	36280	18500	6xM6	11
30x55	1.181	2.165	1 3/16	1.1875	2.165	0.669	0.866	1.102	1.339	477	10350	33430	18500	6xM6	11
32x60	1.259	2.362	1 1/4	1.250	2.362	0.669	0.866	1.102	1.339	694	13500	46950	22050	8xM6	11
35x60	1.378	2.362	1 3/8	1.375	2.362	0.669	0.866	1.102	1.339	767	13500	41970	22050	8xM6	11
38x65	1.496	2.559	1 7/16	1.4375	2.559	0.669	0.866	1.102	1.339	795	13500	42680	20630	8xM6	11
40x65	1.575	2.559	1 1/2	1.500	2.559	0.669	0.866	1.102	1.339	875	13500	38410	20630	8xM6	11
			1 5/8	1.625	2.953	0.787	0.984	1.299	1.614	1461	22050	44960	24190	7xM8	26
42x75	1.653	2.953	1 11/16	1.688	2.953	0.787	0.984	1.299	1.614	1512	22050	43390	24190	7xM8	26
45x75	1.772	2.953	1 3/4	1.750	2.953	0.787	0.984	1.299	1.614	1591	22050	41260	24190	7xM8	26
48x80	1.890	3.150	1 7/8	1.875	3.150	0.787	0.984	1.299	1.614	1685	22050	39120	22760	7xM8	26
50x80	1.969	3.150	1 15/16	1.9375	3.150	0.787	0.984	1.299	1.614	1772	22050	36990	22760	7xM8	26
			2	2.000	3.150	0.787	0.984	1.299	1.614	1801	22050	36420	22760	7xM8	26
55x85	2.165	3.346	2 1/8	2.125	3.346	0.787	0.984	1.299	1.614	2228	25200	38410	24900	8xM8	26
			2 3/16	2.188	3.346	0.787	0.984	1.299	1.614	2250	25200	37990	24900	8xM8	26
			2 1/4	2.250	3.543	0.787	0.984	1.299	1.614	2315	25200	36990	23480	8xM8	26
60x90	2.362	3.543	2 3/8	2.375	3.543	0.787	0.984	1.299	1.614	2431	25200	34860	23480	8xM8	26
			2 7/16	2.4375	3.740	0.787	0.984	1.299	1.614	2818	28350	38130	24900	9xM8	26
			2 1/2	2.500	3.740	0.787	0.984	1.299	1.614	2887	28350	37700	24900	9xM8	26
65x95	2.559	3.740	2 9/16	2.562	3.740	0.787	0.984	1.299	1.614	2959	28350	36280	24900	9xM8	26
			2 11/16	2.6875	4.331	0.945	1.181	1.575	1.969	4442	40275	41260	25610	8xM10	51
70x110	2.756	4.331	2 3/4	2.750	4.331	0.945	1.181	1.575	1.969	4558	40275	39830	25610	8xM10	51
			2 7/8	2.875	4.528	0.945	1.181	1.575	1.969	4717	40275	38410	24190	8xM10	51
75x115	2.953	4.528	2 15/16	2.9375	4.528	0.945	1.181	1.575	1.969	4848	40275	36990	24190	8xM10	51
			3	3.000	4.724	0.945	1.181	1.575	1.969	4920	40275	37700	25180	8xM10	51
80x120	3.150	4.724	3 1/4	32500	4.921	0.945	1.181	1.575	1.969	5173	40275	35570	24190	8xM10	51
85x125	3.346	4.921	3 3/8	3.375	4.921	0.945	1.181	1.575	1.969	6150	45000	36990	25610	9xM10	51
			3 7/16	3.4375	5.118	0.945	1.181	1.575	1.969	6389	45000	36990	24190	9xM10	51
90x130	3.543	5.118	3 1/2	3.500	5.118	0.945	1.181	1.575	1.969	6584	45000	35570	24190	9xM10	51
95x135	3.740	5.315	3 3/4	3.750	5.315	0.945	1.181	1.575	1.969	7670	50400	36690	18500	10xM10	51
100x145	3.937	5.709	3 15/16	3.9375	5.709	1.024	1.260	1.732	2.205	9696	60300	38410	27030	8xM12	91
			4	4.000	5.709	1.024	1.260	1.732	2.205	9848	60300	37840	27030	8xM12	91
110X155	4.331	6.102	4 7/16	4.4375	6.102	1.024	1.260	1.732	2.205	10564	60300	34140	25610	8xM12	91
120x165	4.724	6.496	4 3/4	4.750	6.496	1.024	1.260	1.732	2.205	12952	67050	35570	25610	9xM12	91
130x180	5.118	7.087	4 15/16	4.9375	7.087	1.339	1.575	2.126	2.598	18813	90000	34140	24190	12xM12	91
140x190	5.512	7.480	5 7/16	5.4375	7.480	1.339	1.575	2.126	2.677	19536	86400	29880	21340	9xM14	138
150x200	5.906	7.874	5 15/16	5.9375	7.874	1.339	1.575	2.126	2.677	23878	99000	32720	24190	10xM14	138
160x210	6.299	8.268				1.339	1.575	2.126	2.677	27496	107775	32720	24190	11xM14	138
170x225	6.693	8.858	6 7/16	6.4375	8.858	1.732	1.969	2.520	3.071	32561	119250	25610	18500	12xM14	138
180x235	7.087	9.252	6 15/16	6.9375	9.252	1.732	1.969	2.520	3.071	34008	119250	24190	18500	12xM14	138
190x250	7.480	9.843	7 7/16	7.4375	9.843	1.732	1.969	2.520	3.071	45513	148500	29880	21340	15xM14	138
200x260	7.874	10.236	7 15/16	7.9375	10.236	1.732	1.969	2.520	3.071	47756	148500	27030	21340	15xM14	138

NSPT-LOCKS

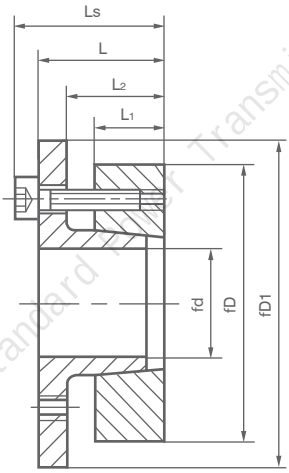
Conversion
1 ft-lbs.= 0.1382 kgf-m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa

Metric





FA1



FA2

FA NSPT-LOCKS

Catalog	Fundamental Dimensions					Internal Hexagon Headed Bolt		Rated Load		Pf	MA	G
dxD	L1	L	L2	Ls	D1	SIZES	QTY	Ft KN	Mt KN.M	Mpa	N.M	kg
CL18X47FA	17	28	22	34	56	M6x20	5	38.0	0.35	270	14	0.26
CL19X47FA	17	28	22	34	56	M6x20	5	38.0	0.37	280	14	0.27
CL20X47FA	17	28	22	34	56	M6x20	5	38.0	0.38	295	14	0.27
CL22X47FA	17	28	22	34	56	M6x20	5	38.0	0.41	245	14	0.28
CL24X50FA	17	28	22	34	59	M6x20	5	38.0	0.45	285	14	0.29
CL25X50FA	17	28	22	34	59	M6x20	6	45.6	0.57	255	14	0.29
CL28X55FA	17	28	22	34	64	M6x20	6	45.6	0.63	235	14	0.35
CL30X55FA	17	28	22	34	64	M6x20	6	45.6	0.66	295	14	0.36
CL32X60FA	17	28	22	34	69	M6x20	8	60.6	0.97	270	14	0.44
CL35X60FA	17	28	22	34	69	M6x20	8	60.6	1.06	250	14	0.47
CL38X65FA	17	28	22	34	74	M6x20	8	60.6	1.15	235	14	0.48
CL40X65FA	17	28	22	34	74	M6x20	8	60.6	1.21	300	14	0.55
CL42X75FA	20	33	25	41	84	M8x25	7	98.0	2.05	295	35	0.76
CL45X75FA	20	33	25	41	84	M8x25	7	98.0	2.20	270	35	0.78
CL48X80FA	20	33	25	41	89	M8x25	7	98.0	2.35	260	35	0.81
CL50X80FA	20	33	25	41	89	M8x25	7	98.0	2.45	270	35	0.87
CL55X85FA	20	33	25	41	94	M8x25	8	112.0	3.08	245	35	0.94
CL60X90FA	20	33	25	41	99	M8x25	8	112.0	3.36	255	35	1.0
CL63X95FA	20	33	25	41	104	M8x25	9	126.0	3.87	280	35	1.06
CL65X95FA	20	33	25	41	104	M8x25	9	126.0	4.09	250	35	1.70
CL70X110FA	24	40	30	50	119	M10x30	8	179.0	6.30	250	70	1.79
CL75X115FA	24	40	30	50	124	M10x30	8	179.0	6.70	260	70	1.89
CL80X120FA	24	40	30	50	129	M10x30	8	179.0	7.15	250	70	1.98
CL85X125FA	24	40	30	50	134	M10x30	9	200	8.50	260	70	2.15
CL90X130FA	24	40	30	50	139	M10x30	9	200	9.10	260	70	2.24
CL95X135FA	24	40	30	50	144	M10x30	10	224	10.6	260	70	3.07
CL100X145FA	26	44	32	56	154	M12x30	8	268	13.4	270	125	3.35
CL110X155FA	26	44	32	56	164	M12x30	8	268	14.6	240	125	3.59
CL120X165FA	26	44	32	56	174	M12x30	9	298	17.9	250	125	5.04
CL130X180FA	34	54	40	68	189	M12x30	12	400	26.0	240	125	5.33

Note: All the items listed in the above are for the standard parts in stock.

Conversion:1 inch = 25.40mm

NSPT-LOCKS

Metric

Conversion:1 inch = 25.40mm

Conversion

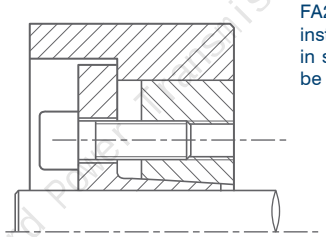
1 ft-lbs.= 0.1382 kgf-m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa

FA NSPT-LOCKS

Catalog	Fundamental Dimensions					Internal Hexagon Headed Bolt		Rated Load		Pf	MA	G
dxD	L_1	L	L_2	Ls	D_1	SIZES	QTY	Ft KN	Mt KN.M	Mpa	N.M	kg
CL140x190FA	34	54	40	68	199	M14x40	9	384	27.0	210	190	5.81
CL150x200FA	34	54	40	68	209	M14x40	10	440	33.0	230	190	6.67
CL160x210FA	34	54	40	68	219	M14x40	11	470	38.0	230	190	7.61
CL170x225FA	44	64	50	78	234	M14x40	12	530	45.0	180	190	8.05
CL180x235FA	44	64	50	78	244	M14x40	12	530	47.0	180	190	8.90
CL190x250FA	44	64	50	78	259	M14x40	15	590	49.0	170	190	9.58
CL200x260FA	44	64	50	78	269	M14x40	15	590	52.0	175	190	10.68
CL220x285FA	50	75	56	91	295	M16x40	12	548	60.2	141	355	14.4
CL240x305FA	50	75	56	91	315	M16x40	15	685	82.2	161	355	15.5
CL260x325FA	50	75	56	91	335	M16x40	18	731	95.0	159	355	16.7
CL280x355FA	60	87	66	105	365	M18x50	16	879	123.5	139	485	24.0
CL300x375FA	60	87	66	105	385	M18x50	18	989	148.3	146	485	25.5
CL320x405FA	74	104	81	124	415	M20x50	18	1141	182.5	128	690	38.0
CL340x425FA	74	104	81	124	435	M20x50	21	1282	218.0	136	690	40.0
CL360x455FA	86	120	94	142	465	M22x60	18	1611	290.0	138	930	48.0
CL380x475FA	86	120	94	142	485	M22x60	21	1605	305.0	131	930	57.0
CL400x495FA	86	120	94	142	505	M22x60	21	1775	355.0	137	930	63.0

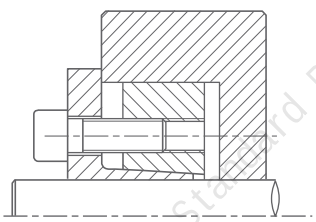
Note: All items listed in the above table will be produced made-to-order.

Conventional Installation of FA NSPT-LOCKS



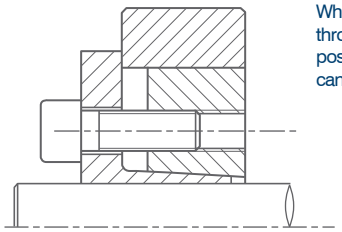
FA2 NSPT-LOCKS can be installed through bored hubs in step-bored format. It should be positioned in axial direction.

1



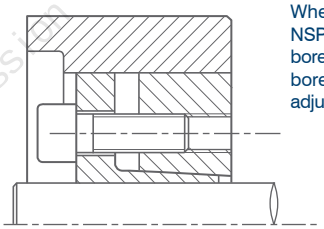
FA2 NSPT-LOCKS can be installed through non-through bored hub and positioned with the hub end. It should be positioned in axial direction.

3



When installing FA2 NSPT-LOCKS through step-bored format, the position of hub bore and the rings can be adjusted in axial direction.

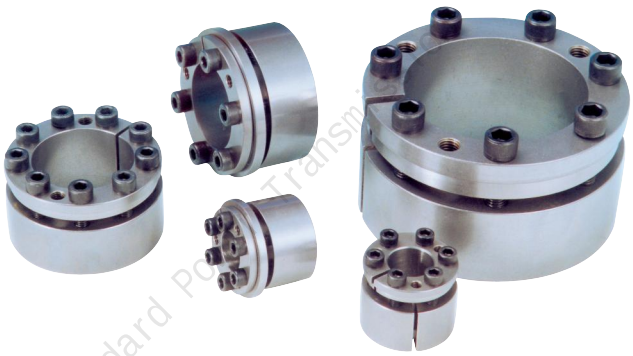
2

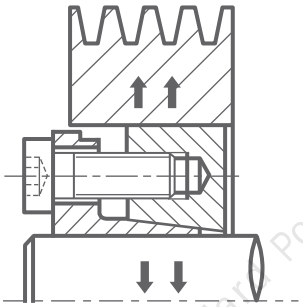


When installing FA1 NSPT-LOCKS with through bored hub, the position of hub bore and the rings can be adjusted freely.

4

NSPT-LOCKS





Suitable of Shaft Diameters
Metric:f19～f220(mm)
Inch:3/4"-85/8"

FB NSPT-LOCKS are formed by two inner and outer rings with taper surface and the matching tightening bolts. They have the characteristics of structure simplicity, easy installation and low costs.

By simply tightening the bolts, the inner and outer rings will move along the taper surface oppositely causing radial pressure and fractional force, which makes the hubs and the shaft joint together.

There are two types of FB NSPT-LOCKS: FB1 and FB2. The only difference between those two is the flange diameter of the inner ring. For FB1 type, the flange diameter of inner ring is 6mm larger than the outer ring. For FB2 type, the flange diameters of both rings are the same.

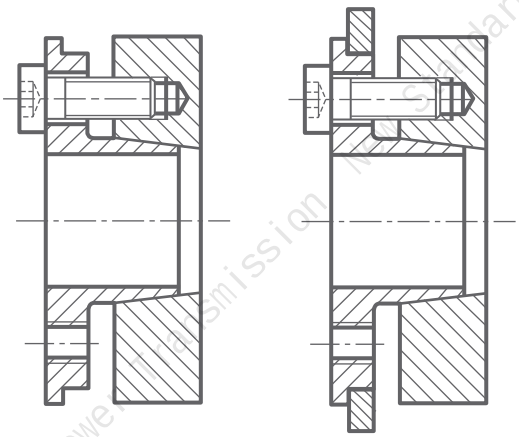
A fascinating point of FB NSPT-LOCKS is the simplicity and high concentricity. It is designed to suit for self-installstion; and its requirements to the hub bore and shaft diameters are not very strict. The machining process is simple and can save more time and costs.

FB NSPT-LOCKS are the heavier version than FA type. The diameter range is from 19mm to 220mm with a largest possible outside diameter D of 285mm. With high installation suitability, they are widely used in general machanical joints for large torque transmission.

Conversion:1 inch = 25.40mm

Conversion

1 ft-lbs. = 0.1382 kgf.m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa



FB1 FB2

Expression of NSPT-LOCKS FB

NL 50 X 80 FB1

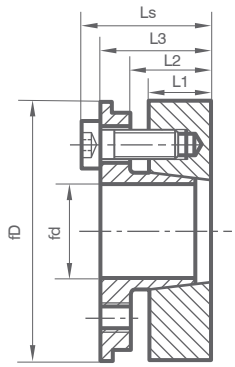
- NSPT-LOCKS FB1
- Outside Diameter D
- Shaft Diameter d
- NSPT-LOCKS Code

FB NSPT-LOCKS

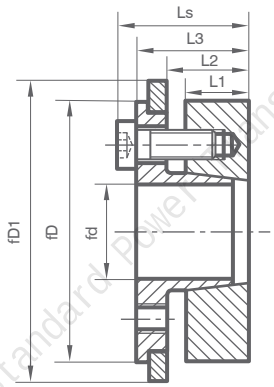
NSPT-LOCKS

Inches





FB1



FB2

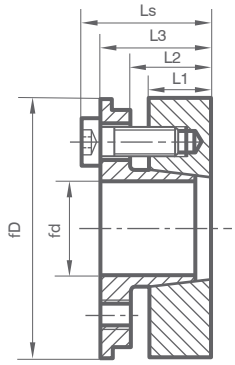
FB NSPT-LOCKS

METRIC SIZES INCHES			INCH SERIES INCHES			INCHES				Mt ft-lb	Axial force lb	pw psi	pn psi	LOCKING SCREW	
Size	d	D	Size	d	D	L1	L2	L3	Ls					No.x type	Ms ft-lb
20x47	0.787	1.850	3/4	0.750	1.850	1.024	1.142	1.654	1.890	400	12150	36250	15225	6xM6	13
22x47	0.866	1.850	7/8	0.875	1.850	1.024	1.142	1.654	1.890	444	12150	33350	15225	6xM6	13
24x50	0.945	1.969				1.024	1.142	1.654	1.890	481	12150	30450	14500	6xM6	13
25x50	0.984	1.969	1	1.000	1.969	1.024	1.142	1.654	1.890	503	12150	29000	14500	6xM6	13
28x55	1.102	2.165	1 1/8	1.125	2.165	1.024	1.142	1.654	1.890	562	12150	26100	13775	6xM6	13
30x55	1.181	2.165	1 3/16	1.1875	2.165	1.024	1.142	1.654	1.890	607	12150	24650	13775	6xM6	13
32x60	1.259	2.362	1 1/4	1.250	2.362	1.024	1.142	1.654	1.890	969	18450	34075	18125	9xM6	13
35x60	1.378	2.362	1 3/8	1.375	2.362	1.024	1.142	1.654	1.890	1066	18450	31175	18125	9xM6	13
38x65	1.496	2.559	1 7/16	1.4375	2.559	1.024	1.142	1.654	1.890	1154	18450	29000	16675	9xM6	13
40x65	1.575	2.559	1 1/2	1.500	2.559	1.024	1.142	1.654	1.890	1213	18450	27550	16675	9xM6	13
			1 5/8	1.625	2.953	1.181	1.354	2.008	2.323	1550	22725	31712	17400	6xM8	30
42x75	1.653	2.953	1 11/16	1.688	2.953	1.181	1.354	2.008	2.323	1576	22725	31175	17400	6xM8	30
45x75	1.772	2.953	1 3/4	1.750	2.953	1.181	1.354	2.008	2.323	1687	22725	29000	17400	6xM8	30
48x80	1.890	3.150	1 7/8	1.875	3.150	1.181	1.354	2.008	2.323	1798	22725	27550	16675	6xM8	30
50x80	1.969	3.150	1 15/16	1.9375	3.150	1.181	1.354	2.008	2.323	1872	22725	26100	16675	6xM8	30
			2	2.000	3.150	1.181	1.354	2.008	2.323	1900	22725	25284	16675	6xM8	30
55x85	2.165	3.346	2 1/8	2.125	3.346	1.181	1.354	2.008	2.323	3093	34200	35525	23200	9xM8	30
			2 3/16	2.188	3.346	1.181	1.354	2.008	2.323	3125	34200	34500	23200	9xM8	30
			2 1/4	2.250	3.543	1.181	1.354	2.008	2.323	3214	34200	34438	21750	9xM8	30
60x90	2.362	3.543	2 3/8	2.375	3.543	1.81	1.354	2.008	2.323	3374	34200	32625	21750	9xM8	30
			2 7/16	2.4375	3.740	1.181	1.354	2.008	2.323	3480	34200	32005	21025	9xM8	30
			2 1/2	2.500	3.740	1.181	1.354	2.008	2.323	3570	34200	31205	21025	9xM8	30
65x95	2.559	3.740	2 9/16	2.562	3.740	1.181	1.354	2.008	2.323	3655	34200	30450	21025	9xM8	30
			2 11/16	2.6875	4.331	1.575	1.772	2.205	2.598	4690	41850	25375	15950	7xM10	61
70x110	2.756	4.331	2 3/4	2.750	4.331	1.575	1.772	2.205	2.598	4810	41850	25375	15950	7xM10	61
			2 7/8	2.875	4.528	1.575	1.772	2.205	2.598	5043	41850	25375	15950	7xM10	61
75x115	2.953	4.528	2 15/16	2.9375	4.528	1.575	1.772	2.205	2.598	5180	41850	23925	15950	7xM10	61
			3	3.000	4.724	1.575	1.772	2.205	2.598	5215	41850	23925	15950	7xM10	61
80x120	3.150	4.724	3 1/4	3250	4.921	1.575	1.772	2.205	2.598	5476	41850	22475	14500	7xM10	61
85x125	3.346	4.921	3 3/8	3.375	4.921	1.575	1.772	2.205	2.598	6660	47925	24650	16675	8xM10	61
			3 7/16	3.4375	5.118	1.575	1.772	2.205	2.598	6892	47925	23620	15225	8xM10	61
90x130	3.543	5.118	3 1/2	3.500	5.118	1.575	1.772	2.205	2.598	7104	47925	23200	15225	8xM10	61
95x135	3.740	5.315	3 3/4	3.750	5.315	1.575	1.772	2.205	2.598	9324	60075	26825	18850	10xM10	61
100x145	3.937	5.709	3 15/16	3.9375	5.709	1.811	2.047	2.559	3.031	9842	60750	23200	15225	7xM12	107
			4	4.000	5.709	1.811	2.047	2.559	3.031	10000	60750	23200	15225	7xM12	107

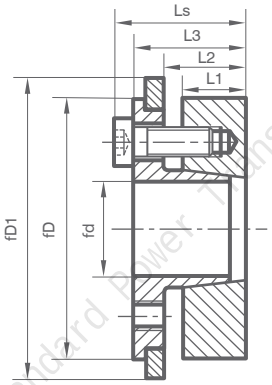
NSPT-LOCKS

Metric





FB1

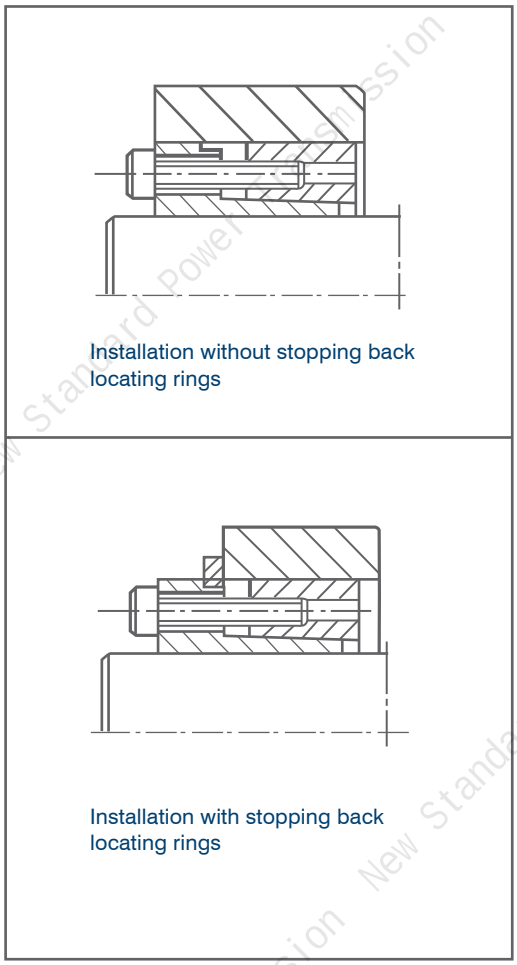


FB2

FB NSPT-LOCKS

Catalog dxD	Fundamental Dimension					Internal Hexagon Headed Bolt		Rated Loads		Pf Mpa	MA N.M	G kg
	L1	L3	L2	Ls	D1	SIZES	QTY	Ft KN	Mt KN.M			
CL19x47FB	26	39	30	45	53	M6x25	6	54	0.54	260	17	0.35
CL20x47FB	26	39	30	45	53	M6x25	6	54	0.6	250	17	0.36
CL22x47FB	26	39	30	45	53	M6x25	6	54	0.6	230	17	0.44
CL24x50FB	26	39	30	45	56	M6x25	6	54	0.65	210	17	0.47
CL25x50FB	26	39	30	45	56	M6x25	6	54	0.68	200	17	0.48
CL28x55FB	26	39	30	45	61	M6x25	6	54	0.78	180	17	0.55
CL30x55FB	26	39	30	45	61	M6x25	6	54	0.82	170	17	0.76
CL32x60FB	26	39	30	45	66	M6x25	9	82	1.31	235	17	0.79
CL35x60FB	26	39	30	45	66	M6x25	9	82	1.44	215	17	0.81
CL38x65FB	26	39	30	45	71	M6x25	9	82	1.56	200	17	0.87
CL40x65FB	26	39	30	45	71	M6x25	9	82	1.64	190	17	0.94
CL42x75FB	30	47	35	55	81	M8x30	6	101	2.13	215	41	1.02
CL45x75FB	30	47	35	55	81	M8x30	6	101	2.28	200	41	1.06
CL48x80FB	30	47	35	55	86	M8x30	6	101	2.43	190	41	1.70
CL50x80FB	30	47	35	55	86	M8x30	6	101	2.53	180	41	1.79
CL55x85FB	30	47	35	55	91	M8x30	9	152	4.18	245	41	1.89
CL60x90FB	30	47	35	55	96	M8x30	9	152	4.56	225	41	1.98
CL65x95FB	30	47	35	55	101	M8x30	9	152	4.94	210	41	2.15
CL70x110FB	40	67	46	77	116	M10x40	7	186	6.50	175	83	2.24
CL75x115FB	40	67	46	77	121	M10x40	7	186	7.0	165	83	3.07
CL80x120FB	40	67	46	77	126	M10x40	7	186	7.4	155	83	3.35
CL85x125FB	40	67	46	77	131	M10x40	8	213	9.0	170	83	3.59
CL90x130FB	40	67	46	77	136	M10x40	8	213	9.6	160	83	5.04
CL95x135FB	40	67	46	77	141	M10x40	10	267	12.6	185	83	5.38
CL100x145FB	46	77	52	89	151	M12x50	7	270	13.3	160	145	5.81
CL110x155FB	46	77	52	89	161	M12x50	7	270	14.7	140	145	6.67
CL120x165FB	46	77	52	89	171	M12x50	8	309	18.4	150	145	7.61
CL130x180FB	46	77	52	89	186	M12x50	10	388	25.1	175	145	8.05
CL140x190FB	51	88	59	102	196	M14x60	11	586	40.2	220	230	8.9
CL150x200FB	51	88	59	102	206	M14x60	12	639	47.0	225	230	9.58
CL160x210FB	51	88	59	102	216	M14x60	13	692	54.3	225	230	10.7
CL170x225FB	51	88	59	102	231	M14x60	14	746	63.0	230	230	11.75
CL180x235FB	51	88	59	102	241	M14x60	14	746	66.0	215	230	13.5
CL190x250FB	51	88	59	102	256	M14x60	15	815	71.0	208	230	15.4
CL200x260FB	51	88	59	102	266	M14x60	15	880	78.5	210	230	17.9
CL220x285FB	64	106	72	122	291	M16x60	12	948	88.1	201	355	20.35

NSPT-LOCKS



Installation without stopping back locating rings

Installation with stopping back locating rings

Key Elements for Designing and Calculation of F NSPT-LOCKS

1. Determine max torque and max axial load

$$Mmax = \frac{30000\ H}{p.n} \cdot K(N\ m)$$

$$Fmax = F \cdot K$$

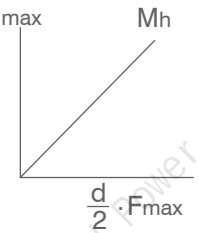
H--Transmission power KW
n--Rotational speed r/min
F--nominal axial force N
K--coefficient needed

Used coefficient sheet for K

No shock load, transmitting with little inertia	1.5 – 2.5
Slight shock load,transmitting with middle inertia	2.0 – 4.0
Big shock load, transmitting with heavy inertia	3.0 – 5.0

2. Calculate synthetic load and transmitted torque

$$Mh = \sqrt{M^2max + (\frac{d}{2}\ xFmax)^2}$$



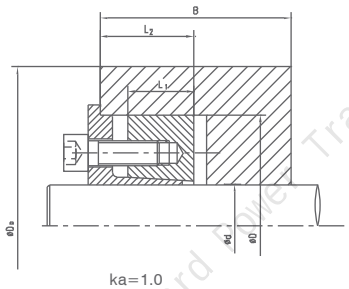
Mmax--Required transmitted torque Nm
Fmax--Required transmitted axial force N
Mh--synthetic transmitted torque Nm
d--Transmission shaft diameter mm
Mt--NSPT LOCK rated transmitted torque Nm

Mt ⩾ Mh can be used
Mt<Mh need bigger type of NSPT lock or to be install by two NSPT locks or more together

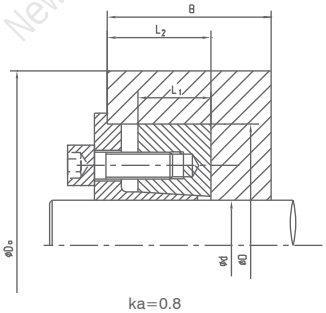
3. Calculation for the hub diameter

$$Da \geqslant D\sqrt{\frac{\sigma b + Ka \cdot Ph}{\sigma b - Ka \cdot Ph}}$$

Da--outside diameter of hub mm
D--inside diameter of hub mm
Ph--suface pressures on hub Mpa
σb--tensile strength of material
Ka--It should be 0.6 for single NSPT lock, it will be 0.8 when two NSPT locks or more are installed together



ka=1.0

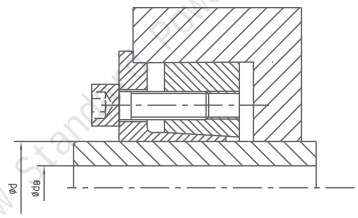


ka=0.8

4. Settlement for the surface roughness and dimension tolerance

Fittng Section	Ra(um) Surface Roughness	Dimension Precision
Shaft Diameter d	1.6	h8 – H9
Bore Diameter D	1.6	H8 – H9

5. Calculation for the inside diameter of cannon

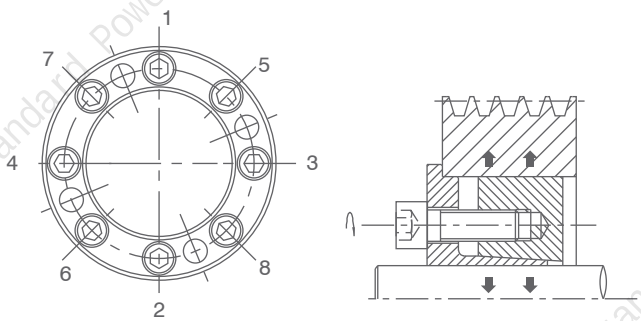


$$dB \leqslant d\sqrt{\frac{\sigma b - 2xPs.K3}{\sigma b}}$$

dB--inside diameter of cannon mm
d--outside diameter of cannon mm
6b--tensile strength of shaft material Mpa
Ps--pressure on the surface of shaft Mpa
K3--coefficient=0.6

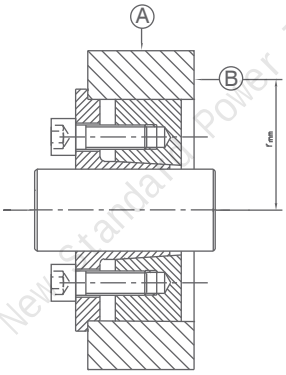
6. Installation for NSPT-LOCKS

1.Clean the NSPT locks, hubs and shafts before installation. Install the NSPT LOCKS into corresponding suitable position for installation.
2.Install the tightening bolts into the corresponding tap bores and twist them according to the drawing in proper order. The bolts should be tightened by giving more and more force step by step in several times until up to the rated torque. Torque spanner have to be used to twist tightening bolts in order to ensure the rated torque.



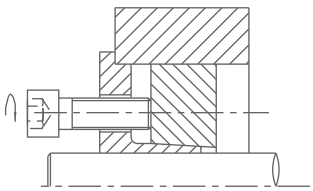
conceptual diagram
for installation

After installing the NSPT locks correctly. The radial and axial run should be inspected according to Ⓐ⩽ 0.05mm and Ⓑ ⩽ 0.002.



7. Disassembling of NSPT-LOCKS

conceptual diagram
for disassembling





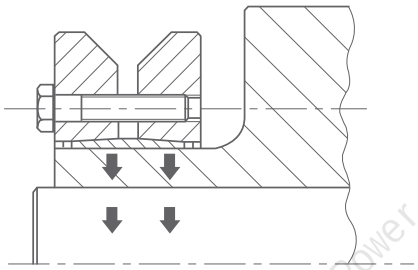
Conversion:1 inch = 25.40mm

Conversion

1 ft-lbs. = 0.1382 kgf·m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm² = 0.0069 Mpa

NSPT-LOCKS



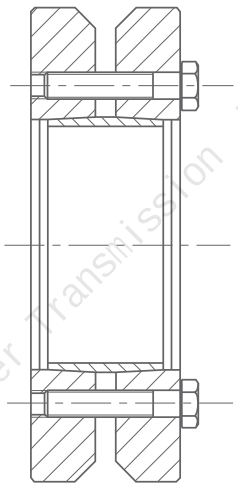


Suitable for Shaft Diameters
Metric:f24～f300(mm)
Inch:15/16"-1113/16"

SD NSPT-LOCKS is best suitable for the joint connected by hubs and shafts with thin walls. They can fit with large shaft diameters and can transmit large torques.

SD NSPT-LOCKS is formed by one inner circle, two taper tightening rings and matching tightening bolts. They have the characteristics of structure simplicity, easy installation and good durability.

The installation of SD NSPT-LOCKS is as followed:
By tightening the bolts, two tightening rings will press the inner circle with outer taper surface, making it create the radial pressures and frictional forces to connect the hub and the shaft.



Expression of NSPT-LOCKS SD

NL 50 X 90 SD

- NSPT LOCK SD
- Out Diameter D
- Bore Diameter d
- NSPT-LOCKS Code

SD NSPT-LOCKS

Conversion:1 inch = 25.40mm

Conversion

1 ft-lbs. = 0.1382 kgf.m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa

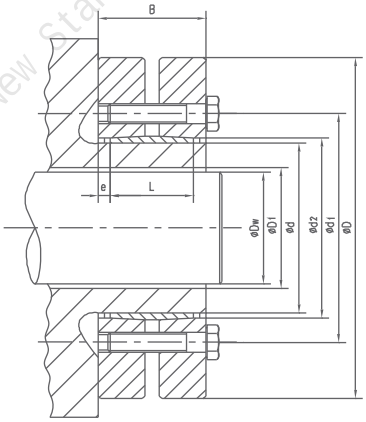
NSPT-LOCKS

Inches

SIZE d inches	SHAFT dw inches	INCHES D	L	B	d1	e	Mt ft-lb	Axial force lb	pw psi	LOCKING SCREW No.x type	Ms ft-lb
0.551	0.433 0.472	1.496	0.276	0.433	0.906	0.079	22.2 37	1350 2025	26970	4xM5	3
0.630	0.512 0.551	1.496	0.276	0.433	0.906	0.079	52 67	2250 2925	18850	5xM5	3
0.945	0.748 0.787 0.827	1.969	0.551	0.768	1.417	0.108	126 155 185	5625 6075 6525	41470	6xM5	3
1.181	0.945 0.984 1.024	2.362	0.630	0.846	1.732	0.108	222 252 281	6525 6975 7425	33785	7xM5	3
1.417	1.102 1.181 1.220	2.835	0.709	0.925	2.047	0.108	326 422 466	11250 13050 13050	44515	5xM6	9
1.732	1.260 1.378 1.417	3.150	0.787	1.004	2.402	0.108	459 577 636	14400 16650 17325	45965	7xM6	9
1.969	1.496 1.575 1.654	3.543	0.866	1.083	2.756	0.108	696 858 1021	17775 19350 20700	41905	8xM6	9
2.165	1.654 1.772 1.890	3.937	0.906	1.201	2.953	0.148	858 1125 1391	17775 19800 21825	36540	8xM6	9
2.441	1.890 1.969 2.047	4.331	0.906	1.201	3.386	0.148	1369 1628 1776	22500 24975 26325	40455	10xM6	9
2.667	2.047 2.165 2.362	4.528	0.906	1.201	3.386	0.148	1480 1850 2331	21825 23850 2700	36975	10xM6	9
2.953	2.165 2.362 2.559	5.433	0.984	1.280	3.937	0.148	1850 2368 2923	26775 30825 34875	39585	7xM8	22
3.150	2.362 2.559 2.756	6.102	1.181	1.535	4.488	0.177	2368 2886 3404	27900 31500 35550	37120	7xM8	22
3.346	2.559 2.756 2.953	6.102	1.181	1.535	4.488	0.177	3552 4514 5476	39375 43875 48600	41325	10xM8	22
3.543	2.559 2.756 2.953	6.102	1.181	1.535	4.488	0.177	3515 4440 5365	38250 42750 43875	39295	10xM8	22
3.937	2.756 2.953 3.150	6.693	1.339	1.732	4.882	0.177	5106 5550 6660	43875 49500 54000	37410	12xM8	22
4.331	2.953 3.150 3.346	7.283	1.535	1.969	5.354	0.217	5328 6660 7992	51525 56700 58950	35380	9xM10	44
4.528	3.150 3.346 3.543	7.402	1.535	1.969	5.551	0.217	5476 6808 8214	52875 58275 60525	33930	9xM10	44
4.724	3.150 3.346 3.543	8.465	1.654	2.126	6.299	0.236	7844 9842 10730	64125 70650 76500	40165	12xM10	44
4.921	3.346 3.543 3.740	8.465	1.654	2.126	6.299	0.236	8140 9620 11100	66600 72900 79200	38570	12xM10	44
5.118	3.543 3.740 3.937	8.465	1.654	2.126	6.299	0.236	8362 9842 11396	68400 74925 81450	36975	12xM10	44
5.512	3.740 3.937 4.134	9.055	1.811	2.382	6.890	0.285	11174 13024 14874	82575 89100 95625	38280	10xM12	74
6.102	4.134 4.331 4.528	10.433	1.969	2.539	7.559	0.285	16280 18500 20720	100575 107550 114525	38135	12xM12	74
6.299	4.331 4.528 4.724	10.433	1.969	2.539	7.559	0.285	16724 19018 21312	103500 110250 117000	36830	12xM12	74
6.496	4.528 4.724 4.921	11.417	2.205	2.795	8.268	0.295	22940 25900 28860	133875 141750 147375	40165	8xM16	185

SD

NSPT-LOCKS ®





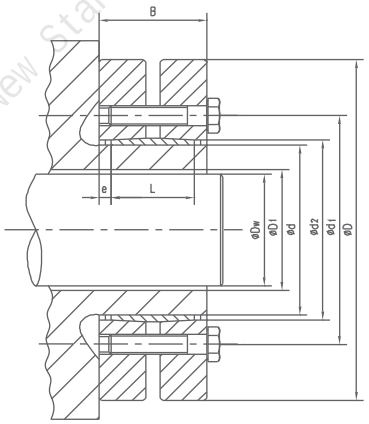
NSPT-LOCKS

Inches

SIZE d inches	SHAFT dw inches	INCHES D	L	B	d1	e	Mt ft-lb	Axial force lb	pw psi	LOCKING SCREW No.x type	Ms ft-lb
6.693	4.724 4.921 5.118	11.417	2.205	2.795	8.268	0.295	23606 26640 29674	137250 144000 150750	38860	8xM16	185
6.890	4.921 5.118 5.315	11.811	2.205	2.795	8.661	0.295	26640 30340 33300	136125 143775 151875	37845	8xM16	185
7.087	5.118 5.315 5.512	11.811	2.205	2.795	8.661	0.295	27380 31228 34262	180000 189000 199125	36685	8xM16	185
7.283	5.315 5.512 5.709	12.992	2.795	3.386	9.291	0.295	38480 42180 45880	175050 184275 193725	35380	10xM16	185
7.480	5.512 5.709 5.906	12.992	2.795	3.386	9.921	0.295	39590 43438 47212	180000 189000 199125	34365	10xM16	185
7.677	5.512 5.906 6.102	13.780	2.795	3.386	9.685	0.295	48100 56240 60310	209925 230625 240975	40165	12xM16	185
7.874	5.906 6.102 6.299	13.780	2.795	3.386	9.685	0.295	54760 59200 63640	222750 232875 243000	39150	12xM16	185
8.661	6.299 6.496 6.693	14.567	3.465	4.094	10.630	0.315	70300 75480 81400	267750 278775 290250	35960	15xM16	185
9.449	6.693 7.087 7.480	15.945	3.622	4.291	11.614	0.315	88800 102120 115440	329400 354600 376875	39440	12xM20	363
10.236	7.480 7.874 8.268	16.929	4.055	4.724	12.638	0.335	121360 136160 151700	396000 423000 452250	37991	14xM20	363
11.024	8.268 8.661 9.055	18.110	4.488	5.276	13.622	0.394	160580 180560 199800	470250 499500 528750	36395	16xM20	363
11.811	9.055 9.449 9.646	19.094	4.803	5.591	14.331	0.394	203500 218300 233100	546975 577575 593100	35670	18xM20	363
12.598	9.449 9.843 10.236	20.472	4.803	5.591	15.197	0.394	230880 251600 276760	595575 626850 652500	37265	20xM20	363
13.386	9.843 10.236 10.630	22.441	5.276	6.142	16.063	0.433	288600 312650 340400	701775 731025 765000	38280	24xM20	363
13.780	10.630 11.024 11.220	22.835	5.512	6.378	17.008	0.433	327080 355200 370000	737100 771750 787500	35525	24xM20	363
14.173	11.024 11.417 11.614	23.228	5.512	6.378	17.008	0.433	342260 371480 386280	744750 778725 795600	34510	24xM20	363
14.961	11.417 11.811 12.205	25.394	5.669	6.614	18.031	0.472	419580 451400 486920	879750 918000 955800	38135	20xM24	622
15.354	11.811 12.205 12.598	25.984	5.669	6.614	18.425	0.472	461760 496540 531320	936000 974250 1008900	39150	21xM24	622
15.748	12.402 12.598 12.992	26.772	5.669	6.614	18.898	0.472	495800 514300 550560	958500 977625 1012500	38135	21xM24	622
16.535	12.992 13.386 13.780	27.165	6.457	7.402	19.842	0.472	577200 621600 666000	1091250 1134000 1174500	36395	24xM24	622
17.323	13.386 13.780 14.173	29.528	6.968	7.953	20.748	0.492	596440 636400 678580	1066500 1104750 1145250	32335	24xM24	622
18.110	14.173 14.567 14.961	30.315	6.968	7.953	21.535	0.492	740000 791800 843600	1275750 1318500 1361250	35960	28xM24	622
18.898	14.961 15.354 15.748	31.496	7.402	8.386	22.41	0.492	865800 917760 969400	1383750 1428750 1473750	34800	30xM24	622

SD

NSPT-LOCKS ®

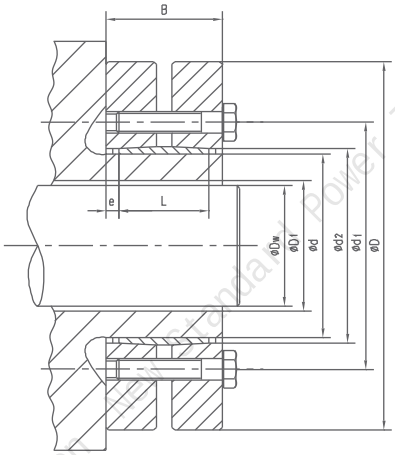




NSPT-LOCKS

Metric





SD NSPT-LOCKS®

Conversion:1 inch = 25.40mm

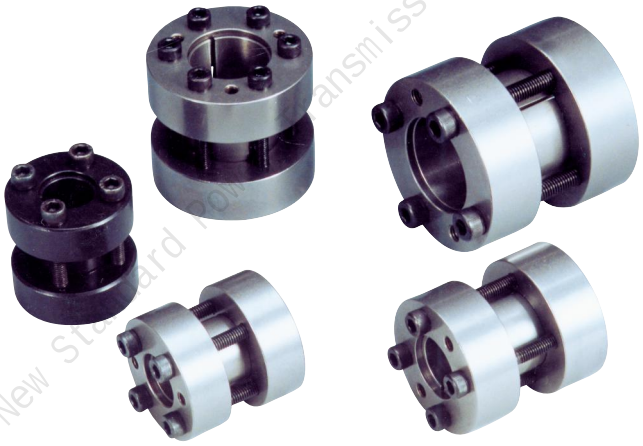
Catalog dxD	Fundamental Dimension						Internal Hexagon Headed Bolt		Rated Loads		Pf Mpa	MA N.M	G kg
	DW	L	B	d1	d2	e	SIZES	QTY	Ft KN	Mt KN.M			
CL24x50SD	19-21	14	19.5	36	26	2.75	M5x18	6	20.6	0.205	314	4.9	0.2
CL30x60SD	24-26	16	21.5	44	32	2.75	M5x18	7	23.7	0.297	254	4.9	0.3
CL36x72SD	28-31	18	23.5	52	38	2.75	M6x20	5	38.0	0.57	271	11.8	0.4
CL44x80SD	34-36	20	25.5	61	47	2.75	M6x20	7	49.0	0.857	278	11.8	0.6
CL50x90SD	38-42	22	27.5	70	53	2.75	M6x25	8	58.8	1.18	258	11.8	0.8
CL55x100SD	42-48	23	30.5	75	58	3.75	M6x25	8	61.7	1.39	226	11.8	1.1
CL62x110SD	48-52	23	30.5	86	66	3.75	M6x25	10	83.1	2.08	249	11.8	1.3
CL68x115SD	50-60	23	30.5	86	72	3.75	M6x25	10	80.9	2.23	229	11.8	1.4
CL75x138SD	55-65	25	32.5	100	79	3.75	M8x30	7	111	3.31	253	29.4	1.7
CL80x145SD	60-70	25	32.5	100	84	3.75	M8x30	7	115	3.72	239	29.4	1.9
CL90x155SD	65-75	30	39	114	94	4.5	M8x35	10	160	5.60	255	29.4	3.3
CL100x170SD	70-80	34	44	124	104	5.0	M8x35	12	182	6.84	242	29.4	4.7
CL110x185SD	75-85	39	50	136	114	5.5	M10x40	9	207	8.25	226	57.8	5.9
CL125x215SD	85-95	42	54	160	137	6.0	M10x40	12	262	11.8	240	57.8	8.3
CL140x230SD	95-105	46	60.5	175	146	7.3	M12x45	10	331	16.6	242	98.0	10
CL155x265SD	105-115	50	64.5	192	165	7.3	M12x50	12	392	21.6	237	98.0	15
CL165x290SD	115-125	56	71	210	175	7.5	M16x55	8	544	32.6	259	245	22
CL175x300SD	125-135	56	71	220	185	7.5	M16x55	8	552	35.9	246	245	22
CL185x330SD	135-145	71	86	236	195	7.5	M16x65	10	702	49.1	228	245	37
CL195x350SD	140-155	71	86	246	210	7.5	M16x65	12	861	64.6	254	245	41
CL200x350SD	150-160	71	86	246	210	7.5	M16x65	12	901	69.8	254	245	41
CL220x370SD	160-170	88	104	270	230	8	M16x80	15	1080	89.2	234	245	54
CL240x405SD	170-190	92	109	295	248	8.5	M20x80	12	1400	126.0	260	480	67
CL260x430SD	190-210	103	120	321	268	8.5	M20x80	14	1690	169.0	251	480	82
CL280x460SD	210-230	114	134	346	288	10	M20x100	16	1990	219.0	241	480	102
CL300x485SD	230-245	122	142	364	308	10	M20x100	18	2310	277.0	237	480	118

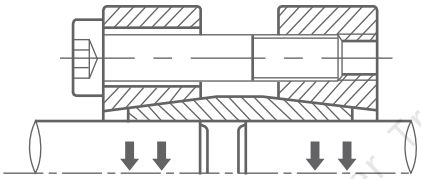
Conversion

1 ft-lbs. = 0.1382 kgf.M = 1.3550 N.m

1 Psi = 0.0007 kgf/mm² = 0.0069 Mpa

NSPT-LOCKS



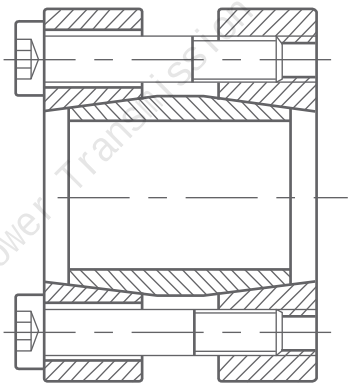


Suitable of Shaft Diameters
Metric:f15～f110(mm)
Inch:5/8"-45/16"

SK NSPT-LOCKS is the developed type of SD NSPT-LOCKS. They are best suitable for joints between long shafts and hubs to transmitting lager torques. With no special requirement on shaft diameters and precision, this type of locks can be used to replace couplings in some mechanical transmissions.

SK NSPT-LOCKS is formed by one inner circle, two taper tightening rings with taper surface and matching tightening bolts. They have the characteristics of structure simplicity, easy installation, good durability and low production and maintenance costs.

The installation of SK NSPT-LOCKS is as followed:
By tightening the bolts, two tightening rings will press the inner circle with outer taper surface, making it create the radial pressures and frictional forces to connect the hub and the shaft. It is the same operating method as SD NSPT-LOCKS.



Expression of NSPT-LOCK SK

NL 50 X 60 SK

- SK — NSPT LOCK SK
- 60 — Out Diameter D in mm
- 50 — Bore Diameter d in mm
- NL — NSPT-LOCKS Code

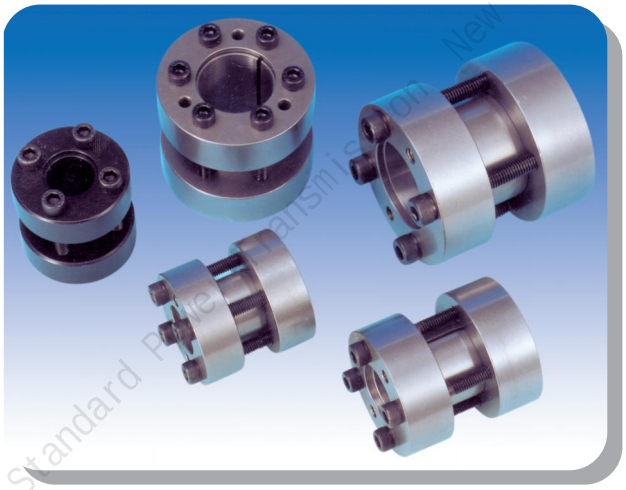
SK NSPT-LOCKS

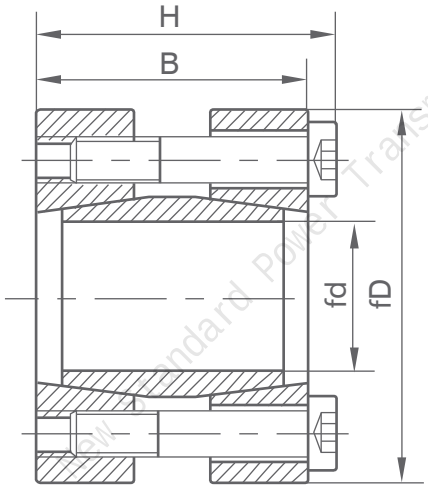
Conversion:1 inch = 25.40mm

Conversion

1 ft-lbs. = 0.1382 kgf.m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa

NSPT-LOCKS





SK NSPT-LOCKS

Inches

METRIC SIZE INCHES			INCHES		TOLERANCE Shaft inches	Mt ft-lb	Axial force lb	LOCKING SCREW	
Size	d	D	B	H				No.x type	Ms ft-lb
17x50	0.669	1.969	1.969	2.205	+0/-0.001	148	5400	4xM6	13
18X50	0.709	1.969	1.969	2.205		163	5400		
19X50	0.748	1.969	1.969	2.205	+0/-0.001	170	5400	4XM6	
20X50	0.787	1.969	1.969	2.205		178	5400		
22X55	0.866	2.165	2.362	2.598	+0/-0.0013	192	5400	4XM6	13
24X55	0.945	2.165	2.362	2.598		215	5400	4XM6	13
25X55	0.984	2.165	2.362	2.598		333	8100	6XM6	13
28X60	1.102	2.362	2.362	2.598		377	8100	6XM6	13
30X60	1.181	2.362	2.362	2.598		407	8100	6XM6	13
32X75	1.260	2.953	2.362	2.677	+0/-0.0016	533	10125	4XM8	30
35X75	1.378	2.953	2.953	3.268		585	10125		
38X75	1.496	2.953	2.953	3.268		629-	10125		
40X75	1.575	2.953	2.953	3.268		666	10125		
42X90	1.654	3.543	2.953	3.268	+0/-0.0016	1036	15075	6XM8	30
45X90	1.772	3.543	3.346	3.661		1125	15075		
48X90	1.890	3.543	3.346	3.661		1199	15075		
50X90	1.969	3.543	3.346	3.661		1251	15075		
55X105	2.165	4.134	3.346	3.661	+0/-0.0018	1828	20250	8XM8	30
60X105	2.362	4.134	3.346	3.661		2005	20250		
65X105	2.559	4.134	3.346	3.661		2168	20250		
70X125	2.756	4.921	3.937	4.331	+0/-0.0018	2790	24075	6XM10	61
75X125	2.953	4.921	3.937	4.331		2982	24075		
80X125	3.150	4.921	3.937	4.331		3182	24075		

Conversion:1 inch=25.40mm

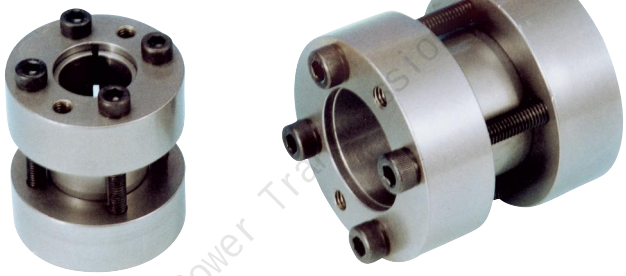
Conversion

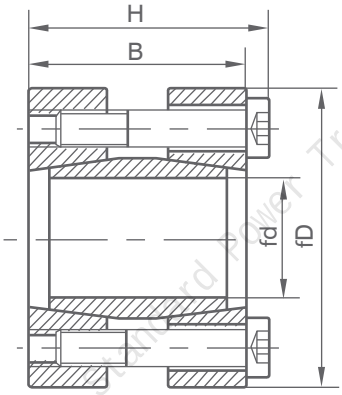
1 ft-lbs. = 0.1382 kgf·m = 1.3550 N.m

1 Psi = 0.0007 kgf/mm² = 0.0069 Mpa

NSPT-LOCKS

Metric





Conversion

1 ft-lbs. = 0.1382 kgf·m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa

SK NSPT-LOCKS

Catalog dxD	Fundamental Dimension		Internal Hexagon Headed Bolt		Rated Loads		Pf Mpa	MA N.M	G kg
	B	H	SIZES	QTY	Ft KN	Mt KN.M			
CL15x45SK	50	56	M6x40	4	16.8	0.126	127	17	0.4
CL16x45SK	50	56	M6x40	4	16.8	0.134	119	17	0.4
CL17x45SK	50	56	M6x40	4	16.8	0.142	112	17	0.4
CL18x50SK	50	56	M6x40	4	16.8	0.151	105	17	0.5
CL19x50SK	50	56	M6x40	4	16.8	0.159	100	17	0.5
CL20x50SK	50	56	M6x40	4	16.8	0.168	95	17	0.5
CL22x55SK	60	66	M6x50	4	25.2	0.277	103	17	0.7
CL24x55SK	60	66	M6x50	4	25.2	0.302	95	17	0.73
CL25x55SK	60	66	M6x50	6	25.2	0.315	91	17	0.77
CL28x60SK	60	66	M6x50	6	25.2	0.327	87	17	0.91
CL30x60SK	60	66	M6x50	6	25.2	0.352	81	17	0.81
CL32x65SK	60	66	M6x50	6	31.2	0.378	76	17	0.8
CL35x75SK	75	83	M8x65	4	31.2	0.499	80	42	1.3
CL38x75SK	75	83	M8x65	4	31.2	0.546	73	42	1.2
CL40x75SK	75	83	M8x65	4	31.2	0.592	67	42	1.4
CL42x78SK	75	83	M8x65	4	31.2	0.624	64	42	1.33
CL45x85SK	85	93	M8x70	6	46.8	0.982	74	42	2.3
CL48x90SK	85	93	M8x70	6	46.8	1.053	69	42	2.3
CL50x90SK	85	93	M8x70	6	46.8	1.123	65	42	2.5
CL55x95SK	85	93	M8x70	8	62.4	1.17	62	42	2.4
CL60x100SK	85	93	M8x70	8	62.4	1.71	58	42	3.0
CL65x105SK	85	93	M8x70	8	62.4	1.87	53	42	3.3
CL70x115SK	100	110	M10x80	6	62.4	2.02	49	84	4.1
CL75x120SK	100	110	M10x80	6	91.0	2.12	47	84	3.8
CL80x125SK	100	110	M10x80	8	98.4	3.44	66	84	5.2
CL85x130SK	100	110	M10x80	8	123.0	3.69	62	84	5.5
CL90x135SK	100	110	M10x80	8	123.0	4.92	73	84	7.0
CL95x140SK	120	132	M10x100	8	123.0	5.22	68	84	7.5
CL100x150SK	120	132	M12x100	8	144.0	5.53	65	145	7.8
CL105x155SK	120	132	M12x100	8	144.0	5.84	57	145	7.9
CL110x160SK	120	132	M12x100	8	180.0	7.20	65	145	10.4

Conversion:1 inch = 25.40mm

Key Elements for Designing and Calculation of SD & SK NSPT-LOCKS

1.Determine max torque and max axial load

$$M_{max} = \frac{30000\ H}{p.n} \cdot K(N\ m)$$

$$F_{max} = F \cdot K$$

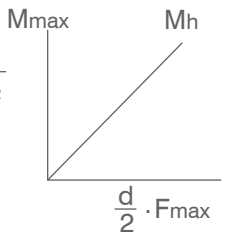
H--Transmission power KW
n--Rotational speed r/min
F--nominal axial force N
K--coefficient needed

Used coefficient sheet for K

No shock load, transmitting with little inertia	1.5–2.5
Slight shock load,transmitting with middle inertia	2.0–4.0
Big shock load, transmitting with heavy inertia	3.0–5.0

2.Calculate synthetic load and transmitted torque

$$M_h = \sqrt{M_{max}^2 + (\frac{d}{2} \times F_{max})^2}$$



M_{max}--Required transmitted torque Nm
F_{max}--Required transmitted axial force N
M_h--synthetic transmitted torque Nm
d--Transmission shaft diameter mm
M_t--NSPT LOCK rated transmitted torque Nm

$M_t \geqslant M_h$ can be used
$M_t < M_h$ need bigger type of NSPT lock or to be install by two NSPT locks or more together

3.Calculation for the hub diameter

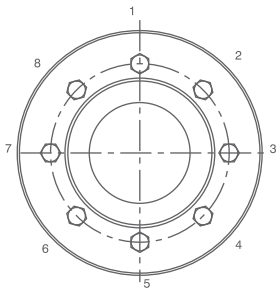
$$Da \geqslant D\sqrt{\frac{\sigma b + Ka \cdot Ph}{\sigma b - Ka \cdot Ph}}$$

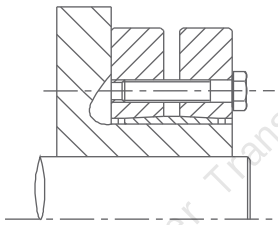
Da--outside diameter of hub mm
D--inside diameter of hub mm
Ph--suface pressures on hub Mpa
σb--tensile strength of material
Ka--It should be 0.6 for single NSPT lock, it will be 0.8 when two NSPT locks or more are installed together

4.Determine the surface roughness and dimension tolerance

Fitting section	Ra(um) Surface roughness	Dimension precision
Shaft diameter d	1.6	h8–H9
Bore diameter D	1.6	H8–H9
outer diameter of hub D'	1.6	H7

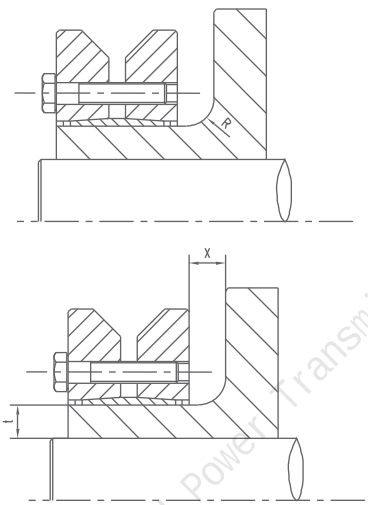
5.Installation and disassembling for SD & SK type NSPT lock.





1.Clean the NSPT locks, hubs and shafts before installation. Install the NSPT LOCKS into corresponding suitable position for installation.
2.Install the tightening bolts into the corresponding tap bores and twist them according to the drawing in proper order. The bolts should be tightened by giving more and more force step by step in several times until up to the rated torque. Torque spanner have to be used to twist tightening bolts in order to ensure the rated torque.
3. Loosen and remove all the tigtening bolts in order to ensure the NSPT LOCKS disassemble properly.

6.Attention to the designing for hub structure.



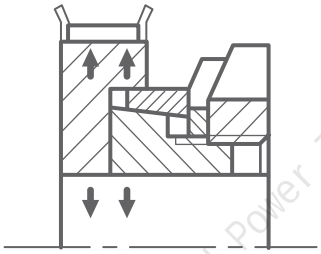
In order to ensure the hubs have enough strength, the interim radius must be bigger than the outer at least 6mm. The distance X between the face of NSPT lock and the face of hubs must be larger than R.

7.Operation attention

1. The actual torque will be reduced by 10% due to the jointed shafts with the keyway.
2. SD and SK type NSPT Locks should work under temperature from -30˚C to +200˚C.
3.When NSPT-LOCKS are used in open areas, they should be protected from rust.
4. Please do not exchange tightening bolts. Please contact NSPT for replacement.

NSPT-LOCKS

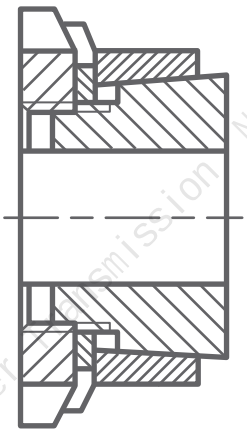




Suitable of Shaft Diameters
Metric:f14～f70(mm)
Inch:5/8"-2 3/4"

HL NSPT-LOCKS is designed for connections between small or medium diameter shafts and hubs. It has high concentricity, low production and operating costs and is easy for self-installation. The straight-line-design for the shafts and hub bores makes the machining process much less complicated.

The installation of HL NSPT-LOCKS is as followed:
Twist the round nut on the inner hub with outer taper surface. Make the nut move axially to press the outer ring with taper bore. The pressures and the frictional forces can then be created. The shaft and the hub can then be connected without keys or clearance.



HL type NSPT-LOCKS can be installed with only one round nut. Simply twist the nut to tighten the shaft and the hub, lock the round nut by relevant washier in order to prevent the lock from moving axially and to ensure the torque transmitting efficiency and effectiveness.

Please notice that HL NSPT-LOCKS can only be installed and used when the dimension B is larger than the axial length of the inner bore of the hub.

Expression of NSPT-LOCKS HL

NL 5 X 16 HL

- HL — NSPT-LOCKS HL
- 16 — Outside Diameter D
- 5 — Shaft Diameter d
- NL — NSPT-LOCKS Code

Conversion:1 inch=25.40mm

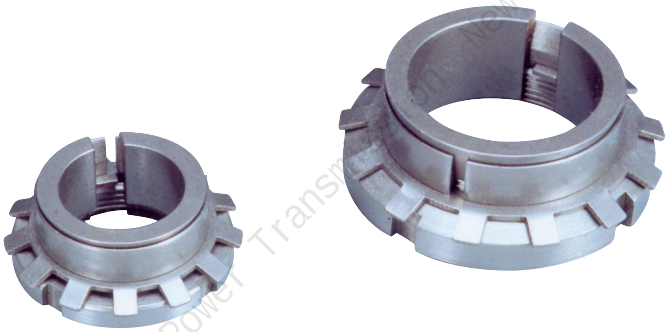
HL NSPT-LOCKS

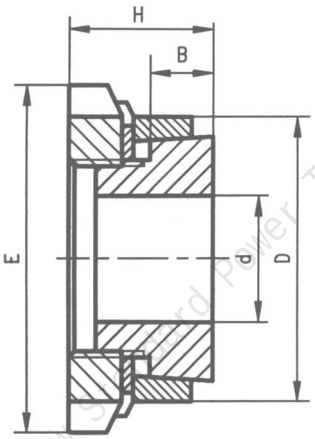
Conversion

1 ft-lbs. = 0.1382 kgf.m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa

NSPT-LOCKS

Inches





HL NSPT-LOCKS

METRIC SIZES INCHES			TOLERANCE INCHES		INCHES			Mt ft-lb	Axial force lb	pw psi	pn psi	LOCKING SCREW	
Size	d	D	Shaft	Hub	H	B	E					Type	Ms ft-lb
14x25	0.551	0.984			0.650	0.256	1.260	28	1125	29000	15950	KM4	70
15X25	0.591	0.984			0.650	0.256	1.260	30	1125	26825	15950	KM4	70
16x25	0.630	0.984	+0/-.001	-0/+.0013	0.650	0.256	1.260	32	1125	25230	15950	KM4	70
17x30	0.669	1.181			0.709	0.256	1.496	41	1350	28565	16240	KM5	118
18x30	0.709	1.181			0.709	0.256	1.496	43	1350	26970	16240	KM5	118
19x30	0.748	1.181	+0/-.0013	-0/+.0013	0.709	0.256	1.496	46	1575	25520	16240	KM5	118
20x30	0.787	1.181			0.709	0.256	1.496	49	1575	24215	16095	KM5	118
22x35	0.866	1.378			0.709	0.256	1.772	71	1800	29290	18415	KM6	163
24x35	0.945	1.378			0.709	0.256	1.772	78	2025	26825	18415	KM6	163
25x35	0.984	1.378	+0/-.0013	-0/+.0016	0.709	0.256	1.772	81	2025	25810	18415	KM6	163
28x40	1.102	1.575			0.768	0.276	2.047	111	2250	25520	17835	KM7	252
30x40	1.181	1.575			0.768	0.276	2.048	118	2475	23780	17835	KM7	252
32x45	1.260	1.772			0.846	0.315	2.283	155	2700	24215	17400	KM8	355
35x45	1.378	1.772	+0/-.0016	-0/+.0016	0.846	0.315	2.283	170	2925	22185	17400	KM8	355
36x45	1.417	1.772			0.846	0.315	2.283	178	2925	21605	17400	KM8	355
38x52	1.496	2.047			0.965	0.394	2.559	215	3150	18270	13485	KM9	503
40x52	1.575	2.047			0.965	0.394	2.559	229	3375	17400	13485	KM9	503
42x57	1.654	2.244	+0/-.0016	-0/+.0018	1.004	0.394	2.756	274	3825	18995	13920	KM10	644
45x57	1.772	2.244			1.004	0.394	2.756	296	4050	17690	13920	KM10	644
48x62	1.890	2.441			1.004	0.394	2.953	370	4725	19575	15225	KM11	718
50x62	1.969	2.441			1.004	0.394	2.953	385	4725	18850	15225	KM11	718
55x68	2.165	2.677			1.083	0.472	3.150	451	4950	14935	12180	KM12	814
56x68	2.205	2.677			1.083	0.472	3.150	459	4950	14645	11890	KM12	814
60x73	2.362	2.874	+0/-.0018	-0/-.0018	1.122	0.472	3.346	592	6075	16385	13485	KM13	962
63x79	2.480	3.110			1.201	0.551	3.622	725	6975	15515	12470	KM14	1184
65x79	2.559	3.110			1.201	0.551	3.622	747	6975	15280	12470	KM14	1184
70x84	2.756	3.307	+0/-.0018	-0/+.0022	1.240	0.551	3.858	918	7875	15950	13340	KM15	1480

Conversion: 1 inch= 25.40mm

Conversion

1 ft-lbs. = 0.1382 kgf·m = 1.3550 N.m

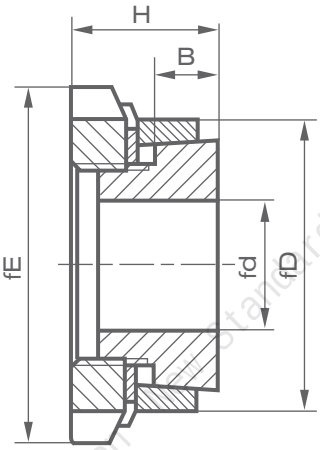
1 Psi = 0.0007 kgf/mm² = 0.0069 Mpa

NSPT-LOCKS

Conversion
1 ft-lbs. = 0.1382 kgf·m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa

Metric





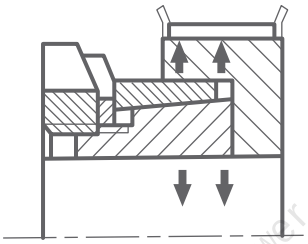
HL NSPT-LOCKS

Catalog	Fundamental dimensions			Locking nut		Rated load		Ps	Ph	G
dxD	H	B	E	Sizes	Ma(N.m)	Ft(Kn)	Mt(Kn.m)	Mpa	Mpa	Kg
CL14x25HL	16.5	6.5	32	M20x1.0	95	5.1	0.038	200	110	0.06
CL15x25HL	16.5	6.5	32	M20x1.0	95	5.5	0.041	185	110	0.06
CL16x25HL	16.5	6.5	32	M20x1.0	95	5.45	0.043	174	110	0.06
CL17x26HL	16.5	6.5	32	M20x1.0	95	5.5	0.047	164	107	0.07
CL18x26HL	16.5	6.5	32	M22x1.0	95	5.4	0.049	155	107	0.07
CL18x30HL	18	6.5	38	M25x1.5	160	6.6	0.058	185	112	0.07
CL19x30HL	18	6.5	38	M25x1.5	160	6.6	0.062	176	112	0.08
CL20x30HL	18	6.5	38	M25x1.5	160	6.6	0.066	167	111	0.08
CL22x32HL	18	6.5	38	M25x1.5	160	6.6	0.073	152	105	0.09
CL24x35HL	18	6.5	45	M30x1.5	220	8.75	0.105	185	127	0.09
CL25x35HL	18	6.5	45	M30x1.5	220	8.8	0.11	178	127	0.09
CL28x36HL	18	6.5	48	M32x1.5	220	8.55	0.12	159	124	0.14
CL28x40HL	19.5	7	52	M35x1.5	340	10.6	0.149	188	141	0.15
CL30x40HL	19.5	7	52	M35x1.5	340	10.6	0.16	164	123	0.14
CL32x42HL	21.5	8	55	M36x1.5	340	10.6	0.17	154	117	0.16
CL35x45HL	21.5	8	58	M40x1.5	480	13.1	0.23	153	120	0.17
CL36x45HL	21.5	8	58	M40x1.5	480	13.3	0.24	149	120	0.16
CL38x48HL	21.5	8	62	M42x1.5	480	13.1	0.25	141	112	0.27
CL38x50HL	21.5	8	62	M42x1.5	480	13.1	0.25	141	112	0.28
CL40x50HL	24.5	10	65	M45x1.5	680	15.5	0.31	124	93	0.24
CL40x52HL	24.5	10	65	M45x1.5	680	15.5	0.31	120	93	0.26
CL42x55HL	24.5	10	68	M48x1.5	680	15.2	0.32	114	87	0.28
CL45x55HL	25.5	10	70	M50x1.5	870	17.7	0.4	122	96	0.30
CL45x57HL	25.5	10	70	M50x1.5	870	17.7	0.4	122	96	0.30
CL48x60HL	25.5	10	75	M55x2.0	970	20.8	0.5	135	105	0.36
CL50x60HL	25.5	10	75	M55x2.0	970	20.8	0.52	130	105	0.32
CL50x62HL	25.5	10	75	M55x2.0	970	20.8	0.52	130	105	0.32
CL55x65HL	27.5	12	80	M60x2.0	1100	22	0.61	103	84	0.38
CL55x68HL	27.5	12	80	M60x2.0	1100	22	0.61	103	84	0.38
CL56x68HL	27.5	12	80	M60x2.0	1100	22	0.62	101	82	0.39
CL60x70HL	28.5	12	85	M65x2.0	1300	26.6	0.8	113	93	0.43
CL60x73HL	28.5	12	85	M65x2.0	1300	26.6	0.8	113	93	0.43
CL63x79HL	30.5	14	92	M70x2.0	1600	31.1	0.98	107	86	0.47
CL65x79HL	30.5	14	92	M70x2.0	1600	31.1	1.01	104	86	0.50
CL70x84HL	31.5	14	98	M75x2.0	2000	35.4	1.24	110	92	0.65

Conversion:1 inch=25.40mm

NSPT-LOCKS





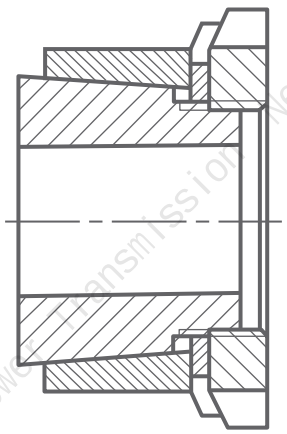
Suitable of Shaft Diameters
Metric:f14～f60(mm)
Inch:5/8"-2 3/8"

HLL NSPT-LOCKS is the extended version of HL type with anti-shock feature. It can transfer larger torques due to its longer length. This type of lock is also designed for connections between small or medium diameter shafts and hubs with high concentricity, low production and operating costs and easy self-installation. The shaft and the inner bore hub are both plain, which makes the machining process easy and economical.

The installation of HLL NSPT-LOCKS is as followed:
Twist the round nut on the inner hub with outer taper surface. Make the nut move axially to press the outer ring with taper bore. The pressures and the frictional forces can then be formed, and the shaft and the hub can be connected without keys or clearance.

HLL type NSPT-LOCKS can be installed with only one round nut. Simply twist the nut to tighten the shaft and the hub, lock the round nut by relevant washer in order to prevent the lock from moving axially and to ensure the torque transmitting efficiency and effectiveness.

Please notice that HLL NSPT-LOCKS can only be installed and used when the dimension B is larger than the axial length of the inner bore of the hub.



Expression of NSPT-LOCK HLL

NL 50 X 60 HLL

- NSPT LOCK HLL
- Out Diameter D
- Bore Diameter d
- NSPT-LOCKS code

HLL NSPT-LOCKS

Conversion:1 inch=25.40mm

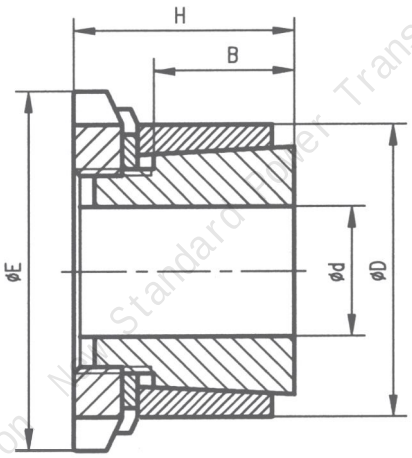
Conversion

1 ft-lbs. = 0.1382 kgf.m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm² = 0.0069 Mpa

NSPT-LOCKS

Inches





HLL NSPT-LOCKS

METRIC SIZES INCHES			TOLERANCE INCHES		INCHES			Mt	Axial	pw	pn	LOCKING SCREW	
Size	d		Shaft	Hub	B1	B	E	ft-lb	force lb	psi	psi	Type	Ms ft-lb
14x25	0.551	0.984			1.181	0.787	1.260	47	2025	12325	6525	KM4	70
15x25	0.591	0.984			1.181	0.787	1.260	52	2025	11600	6525	KM4	70
16x25	0.630	0.984	+0/-.001	-0/+.0013	1.181	0.787	1.260	54	2025	10875	6525	KM4	70
17x25	0.669	0.984			1.260	0.787	1.260	59	2025	10150	6525	KM4	70
18x30	0.709	1.181			1.260	0.787	1.496	74	2250	11600	6525	KM5	118
19x30	0.748	1.181	+0/-.0013	-0/+.0013	1.260	0.787	1.496	78	2475	10875	6525	KM5	118
20x30	0.787	1.181			1.260	0.787	1.496	83	2475	10150	6525	KM5	118
22x35	0.866	1.378			1.417	0.984	1.772	121	3150	10150	6525	KM6	163
24x35	0.945	1.378			1.417	0.984	1.772	132	3150	9425	6525	KM6	163
25x35	0.984	1.378	+0/-0013	-0/+.0016	1.417	0.984	1.772	137	3150	8700	6525	KM6	163
28x40	1.102	1.575			1.654	1.181	2.047	185	3825	7975	5800	KM7	252
30x40	1.181	1.575			1.654	1.181	2.047	200	3825	7250	5800	KM7	252
32x45	1.260	1.772			1.732	1.181	2.283	259	4725	8700	6525	KM8	355
35x45	1.378	1.772	+0/-.0016	-0/+.0016	1.732	1.181	2.283	289	4725	7975	6525	KM8	355
38x50	1.496	1.969			1.772	1.181	2.559	370	5850	8700	6525	KM9	503
40x50	1.575	1.969			1.772	1.181	2.559	385	5850	7975	6525	KM9	503
42x55	1.654	2.165			1.811	1.181	2.756	466	6750	9425	7250	KM10	644
45x55	1.772	2.165	+0/-.0016	-0/+.0018	1.811	1.181	2.756	503	6750	8700	7250	KM10	644
48x60	1.890	2.362			1.811	1.181	2.953	622	7875	8700	7250	KM11	718
50x60	1.969	2.362			1.811	1.181	2.953	651	7875	8700	7250	KM11	718
55x65	2.165	2.559	+0/-.0018	-0/+.0018	1.811	1.181	3.150	762	8325	8700	7250	KM12	814
60x70	2.362	2.756			2.047	1.181	3.346	1006	10125	9425	7975	KM13	962

*** For unlisted diameters please contact us**

Conversion: 1 inch= 25.40mm

Conversion

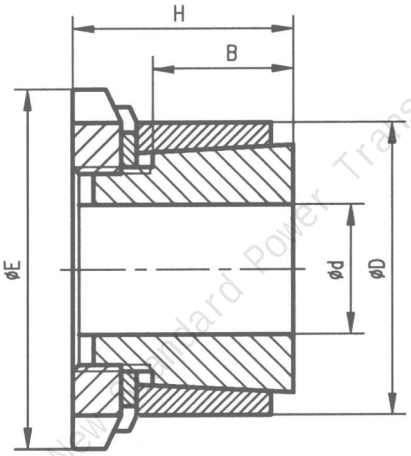
1 ft-lbs. = 0.1382 kgf·m = 1.3550 N.m

1 Psi = 0.0007 kgf/mm² = 0.0069 Mpa

NSPT-LOCKS

Metric





Conversion

1 ft-lbs. = 0.1382 kgf·m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm² = 0.0069 Mpa

HLL NSPT-LOCKS

Catalog	Fundamental dimensions			Locking nut		Rated load		Ps	Ph	G
dxD	H	E	B	Sizes	Ma(N.m)	Ft(Kn)	Mt(Kn.m)	Mpa	Mpa	Kg
CL14x25HLL	30	32	20	M20x1.0	95	9	0.064	85	45	0.11
CL15x25HLL	30	32	20	M20x1.0	95	9	0.07	80	45	0.11
CL16x25HLL	30	32	20	M20x1.0	95	9	0.073	75	45	0.11
CL17x25HLL	32	32	20	M20x1.0	95	9	0.08	70	45	0.13
CL18x30HLL	32	38	20	M25x1.5	160	9	0.091	65	45	0.13
CL19x30HLL	32	38	20	M25x1.5	160	11	0.105	75	45	0.13
CL20x30HLL	32	38	20	M25x1.5	160	11	0.112	70	45	0.15
CL22x35HLL	36	45	25	M30x1.5	220	14	0.163	70	45	0.15
CL24x35HLL	36	45	25	M30x1.5	220	14	0.178	65	45	0.17
CL25x35HLL	36	45	25	M30x1.5	220	14	0.185	60	45	0.17
CL28x40HLL	42	52	30	M35x1.5	340	17	0.25	55	45	0.17
CL30x40HLL	42	52	30	M35x1.5	340	17	0.27	50	45	0.26
CL32x45HLL	44	58	30	M40x1.5	480	21	0.35	60	45	0.26
CL35x45HLL	44	58	30	M40x1.5	480	21	0.39	55	45	0.26
CL38x50HLL	45	65	30	M45x1.5	680	26	0.51	60	45	0.30
CL40x50HLL	45	65	30	M45x1.5	680	26	0.52	55	50	0.33
CL42x55HLL	46	70	30	M50x1.5	870	30	0.63	65	50	0.38
CL45x55HLL	46	70	30	M50x1.5	870	30	0.68	60	50	0.45
CL48x60HLL	46	75	30	M55x2.0	970	35	0.84	60	50	0.51
CL50x60HLL	46	75	30	M55x2.0	970	35	0.88	60	50	0.66
CL55x65HLL	46	80	30	M60x2.0	1100	37	1.03	60	50	0.72
CL60x70HLL	52	85	30	M65x2.0	1300	45	1.36	65	55	0.80

Conversion:1 inch=25.40mm

Key Elements for Designing and Calculation of HL-HLL NSPT-LOCKS

1. Determine max torque and max axial load

$$Mmax = \frac{30000\ H}{p.n} \cdot K(N\ m)$$

$$Fmax = F \cdot K$$

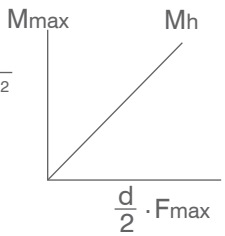
H--Transmission power KW
n--Rotational speed r/min
F--nominal axial force N
K--coefficient needed

Used coefficient sheet for K

No shock load, transmitting with little inertia	1.5–2.5
Slight shock load,transmitting with middle inertia	2.0–4.0
Big shock load, transmitting with heavy inertia	3.0–5.0

2. Calculate synthetic load and transmitted torque

$$Mh = \sqrt{M^2max + (\frac{d}{2} xFmax)^2}$$



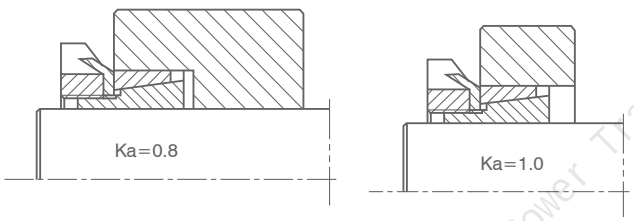
Mmax--Required transmitted torque Nm
Fmax--Required transmitted axial force N
Mh--synthetic transmitted torque Nm
d--Transmission shaft diameter mm
Mt--NSPT LOCK rated transmitted torque Nm

Mt ⩾ Mh can be used
Mt<Mh need bigger type of NSPT lock or to be install by two NSPT locks or more together

3. Calculation for the hub diameter

$$Da \geqslant D\sqrt{\frac{\sigma b + Ka \cdot Ph}{\sigma b - Ka \cdot Ph}}$$

Da--outside diameter of hub mm
D--inside diameter of hub mm
Ph--suface pressures on hub Mpa
σb--tensile strength of material
Ka--It should be 0.6 for single NSPT lock, it will be 0.8 when two NSPT locks or more are installed together



4. Calculation for the inside diameter of cannon

$$dB \leqslant d\sqrt{\frac{\sigma b - 2xPs.K3}{\sigma b}}$$

dB--inside diameter of cannon mm
d--outside diameter of cannon mm
6b--tensile strength of shaft material Mpa
Ps--pressure on the surface of shaft Mpa
K3--coefficient=0.6

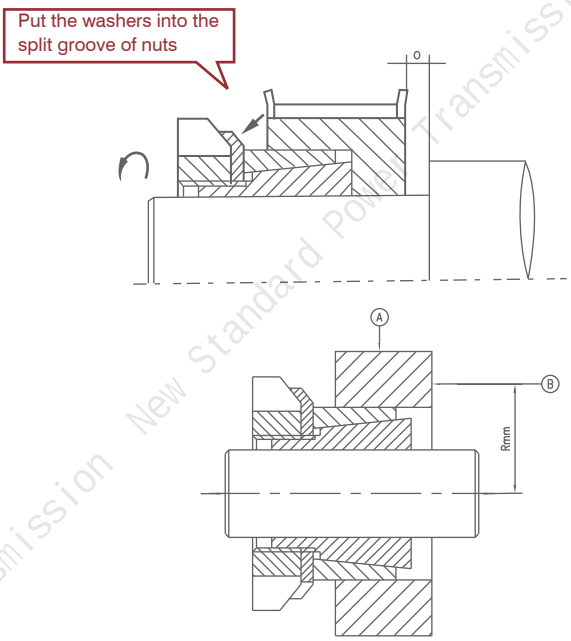
5. Settlement for the surface roughness and dimension tolerance

Fittng Section	Ra(um) Surface Roughness	Dimension Precision
Shaft Diameter d	1.6	h8–H9
Bore Diameter D	1.6	H8–H9

6. Installation and disassembling for NSPT lock type HL,HLL

Installation:

Before installation, clean up oil or dust so that torque transmission won't be affected. Loosen the round nut and keep it relaxed. Meanwhile, install hub and shaft and NSPT lock in the right positions. For step shaft, the short distance "o" should be deep and data for "o" should have data larger than the distance in axial while the NSPT lock is tightened. Tighten the round nut in clockwise direction to reach the specified torque. The round nut should be eventually locked with the washer.



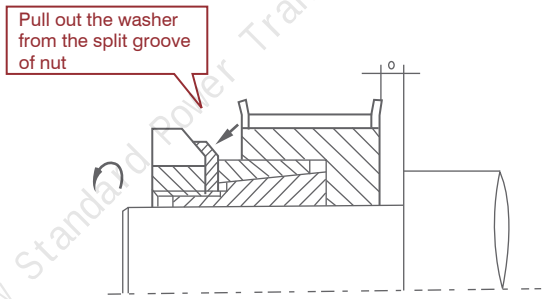
After the correct installation mentioned above inspect the runout for Ⓐ and Ⓑ. The run out for Ⓐ should not excess 0.05mm and 0.02mm for Ⓑ.

Conversion:1 inch=25.40mm

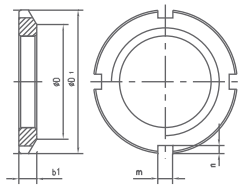
Conversion

1 ft-lbs. = 0.1382 kgf·m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm² = 0.0069 Mpa

Disassembling :
To disassemble, open and loosen the locked washer the roundnut. The NSPT lock will be separated from the shaft and hub, and then return to its original shape.

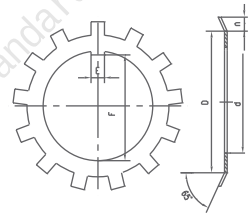


Dimension table of split round nuts



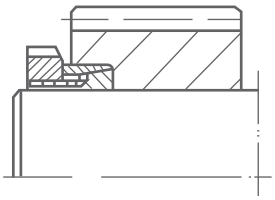
Catalog	Fundamental Dimensions				
	D_1	b_1	D	m	n
M20x1	32	6	26	4	2
M22x1	35	7	29	5	2
M25x1.5	38	7	32	5	2
M30x1.5	45	7	38	5	2
M32x1.5	48	7	41	5	2
M35x1.5	52	8	44	5	2
M36x1.5	55	9	47	6	2.5
M40x1.5	58	9	50	6	2.5
M42x1.5	62	10	52	6	2.5
M45x1.5	65	10	56	6	2.5
M48x1.5	68	11	58	6	2.5
M50x1.5	70	11	61	6	2.5
M55x2	75	11	67	7	3
M60x2	80	11	73	7	3
M65x2	85	12	79	7	3
M70x2	92	12	85	8	3.5
M75x2	98	13	90	8	3.5

Dimension table of stop backing washers

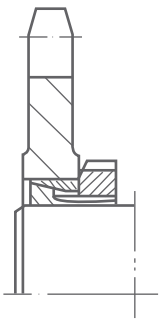


Catalog	Fundamental Dimensions					
	d	D	S	n	F	E
20	20.5	26	1	4	19	4
25	25.5	32	1.25	5	24	5
30	30.5	38	1.25	5	28	5
35	35.5	44	1.25	6	33	5
40	40.5	50	1.25	6	38.5	6
45	45.5	56	1.25	6	43	6
50	50.5	61	1.25	6	48	6
55	55.5	67	1.25	8	53	7
60	60.5	73	1.5	8	58.5	7
65	65.5	79	1.5	8	63	7
70	70.5	85	1.5	8	68	8
75	75.5	90	1.5	8	73	8

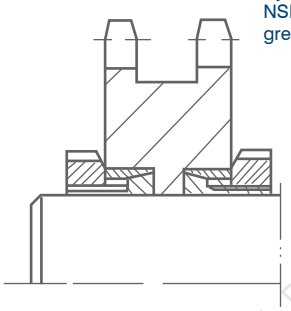
Conventional installation with non-through bored hubs



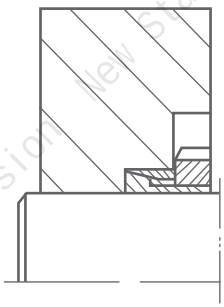
Conventional installation with through bored hubs



Symmetrical installation of paired NSPT-LOCKS on both sides for greater power transmission

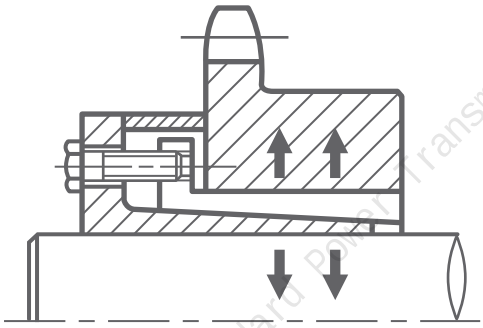


Installed with counter bored hubs. The NSPT-LOCKS can be completely installed into the hub to save space.



NSPT-LOCKS



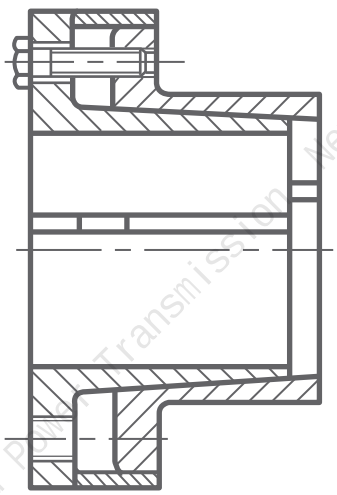


Suitable of Shaft Diameters
Metric:f6～f130(mm)
Inch:1/4"-51/8"

T NSPT-LOCKS has very small difference between the outside diameter and the inner bore diameter. It is designed for connecting shafts with small or medium diameters especially when small space is left between the inner hub bore and the shaft.

T NSPT-LOCKS is formed by one inner ring, one outer rings, a locating ring and relevant tightening bolts. They have the characteristics of structure simplicity, easy installation, good durability, low production and maintenance costs, and dust/water resistance.

The installation of T NSPT-LOCKS is as followed:
When the inner ring with flange and taper surface is fixed to the outer ring taper surface, tightening the relevant bolts to move the inner ring axially. The pressures and frictional forces are then created between the connected shaft and hub. Use a locating ring between the inner and the out rings to seal the connection.



Expression of NSPT-LOCK T

NL 50 X 60 T

- NSPT LOCK T
- Out Diameter D
- Bore Diameter d
- NSPT-LOCKS Code

T NSPT-LOCKS

Conversion:1 inch=25.40mm

Conversion

1 ft-lbs. = 0.1382 kgf.m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm² = 0.0069 Mpa

NSPT-LOCKS

Inches

T NSPT-LOCKS

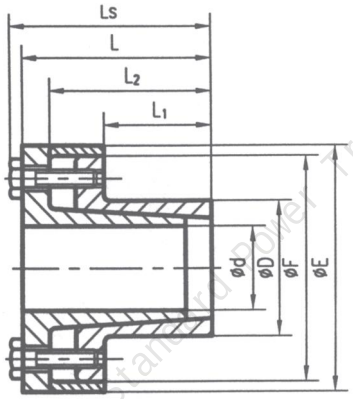
METRIC SIZES INCHES			INCHES					Mt	Axial	PW	PN	LOCKING SCREW	
Size	d	D	L_1	L_2	L	L_S	E	ft-lb	force lb	psi	psi	No.x Type	Ms ft-lb
6X14	0.236	0.551	0.394	0.728	0.827	0.945	0.984	9	900	26825	11600	3 X M3	1.5
7X15	0.276	0.591	0.472	0.866	0.984	1.142	1.063	19	1575	34075	15950	3 X M4	4
8X15	0.315	0.591	0.472	0.866	0.984	1.142	1.063	21	1575	29725	15950	3 X M4	4
9X16	0.354	0.630	0.551	0.906	1.024	1.181	1.102	33	2250	29725	16675	4 X M4	4
10X16	0.394	0.630	0.551	0.906	1.024	1.181	1.102	36	2250	26825	16675	4 X M4	4
11X18	0.433	0.709	0.551	0.906	1.024	1.181	1.260	39	2250	24650	15225	4 X M4	4
12X18	0.472	0.709	0.551	0.906	1.024	1.181	1.260	43	2250	23200	15225	4 X M4	4
13X23	0.512	0.906	0.551	0.906	1.024	1.181	1.496	47	2250	20300	11600	4 X M4	4
14X23	0.551	0.906	0.551	0.906	1.024	1.181	1.496	50	2250	18850	11600	4 X M4	4
15X23	0.591	0.906	0.551	0.945	1.181	1.378	1.535	88	3600	29725	19575	4 X M5	7
15X24	0.591	0.945	0.630	1.142	1.417	1.654	1.772	94	3825	26825	16675	3 X M6	13
16X24	0.630	0.945	0.630	1.142	1.417	1.654	1.772	101	3825	25375	16675	3 X M6	13
17X26	0.669	1.024	0.709	1.220	1.496	1.732	1.850	133	4950	27550	18125	4 X M6	13
18X26	0.709	1.024	0.709	1.220	1.496	1.732	1.850	148	4950	26100	18125	4 X M6	13
19X27	0.748	1.063	0.709	1.220	1.496	1.732	1.929	155	4950	24650	17400	4 X M6	13
19X28	0.748	1.102	0.709	1.220	1.496	1.693	1.929	111	3600	18125	12325	4 X M5	7
20X28	0.787	1.102	0.709	1.220	1.496	1.732	1.969	163	4950	23200	16675	4 X M6	13
22X32	0.866	1.260	0.984	1.496	1.772	2.008	2.126	185	4950	16675	11600	4 X M6	13
24X34	0.945	1.334	0.984	1.496	1.772	2.008	2.205	200	4950	15225	10875	4 X M6	13
25X34	0.984	1.334	0.984	1.496	1.772	2.008	2.205	207	4950	14500	10875	4 X M6	13
28X39	1.102	1.535	0.984	1.496	1.772	2.008	2.402	344	7425	19575	14065	6 X M6	13
30X41	1.181	1.614	0.984	1.496	1.772	2.008	2.441	377	7425	18415	13050	6 X M6	13
32X43	1.260	1.693	0.984	1.496	1.772	2.008	2.559	400	7425	18400	13050	6 X M6	13
35X47	1.378	1.850	1.260	1.772	2.047	2.283	2.717	585	10125	15225	11600	8 X M6	13
38X50	1.496	1.969	1.260	1.772	2.047	2.283	2.835	636	10125	14500	10875	8 X M6	13
40X53	1.575	2.087	1.260	1.772	2.047	2.283	2.953	666	10125	13775	10150	8 X M6	13
42X55	1.654	2.165	1.260	1.772	2.047	2.283	3.071	703	10125	13050	10150	8 X M6	13
45X59	1.772	2.323	1.772	2.441	2.756	3.071	3.386	1399	18900	15950	12325	8 X M8	30
48X62	1.890	2.441	1.772	2.441	2.756	3.071	3.425	1487	18900	15225	11600	8 X M8	30
50X65	1.969	2.559	1.772	2.441	2.756	3.071	3.622	1554	18900	14500	10875	8 X M8	30
55X71	2.165	2.795	2.165	2.838	3.150	3.465	3.858	1924	21150	12325	9425	9 X M8	30
60X77	2.362	3.031	2.165	2.835	3.150	3.465	4.094	2102	21150	10875	8700	9 X M8	30
65X84	2.559	3.307	2.165	2.835	3.150	3.465	4.370	2272	21150	10150	7975	9 X M8	30
70X90	2.756	3.543	2.559	3.386	3.780	4.173	4.685	3885	33750	13050	10150	9 X M10	61
75X95	2.953	3.740	2.559	3.386	3.780	4.173	4.961	4114	33750	11600	9425	9 X M10	61
80X100	3.150	3.937	2.559	3.386	3.780	4.173	5.157	5935	45000	14500	11600	12 X M10	61
85X106	3.346	4.173	2.559	3.386	3.780	4.173	5.394	6290	45000	13775	10875	12 X M10	60
90X112	3.543	4.409	2.559	3.386	3.780	4.173	5.669	6660	45000	13050	10875	12 X M10	61
95x120	3.740	4.724	2.559	3.386	3.780	4.173	5.886	8140	51750	14500	11600	14 X M10	61
100x125	3.937	4.921	2.559	3.386	3.780	4.173	6.063	11100	67500	17400	13775	18 X M10	61
110x140	4.331	5.512	3.543	4.488	5.039	5.512	7.087	11840	65250	11600	9425	12 X M12	107
120x155	4.724	6.102	3.543	4.488	5.039	5.512	7.795	12950	65250	10150	7975	12 X M12	107
130x165	5.118	6.496	3.543	4.488	5.039	5.512	8.189	18500	86400	13050	10150	16 X M12	107

*** For unlisted diameters please contact NSPT**

NSPT-LOCKS

Metric





T NSPT-LOCKS

Catalog	Fundamental Dimensions						Internal Hexagon Headed Bolt		Rated Load		Pf	Ma	G
dxD	E	F	L1	L2	L	Ls	SizesxN	QTY	Ft KN	Mt KN.M	Mpa	N.m	Kg
CL6x14T	25	23	10	18.5	21	24	M3x10	3	4.2	0.012	185	2.2	0.15
CL7x15T	27	24	12	22	25	29	M4x10	3	7.4	0.025	235	4.9	0.15
CL8x15T	27	24	12	22	25	29	M4x10	3	7.4	0.029	205	4.9	0.16
CL9X16T	28	25	14	23	26	30	M4x10	4	9.4	0.044	205	4.9	0.16
CL10x16T	28	25	14	23	26	30	M4x10	4	9.8	0.049	185	4.9	0.17
CL11x18T	32	28	14	23	26	30	M4x10	4	9.8	0.053	170	4.9	0.17
CL12x18T	32	28	14	23	26	30	M4x10	4	9.8	0.058	160	4.9	0.18
CL13x23T	38	33	14	23	26	30	M4x10	4	9.8	0.063	140	4.9	0.19
CL14x23T	38	33	14	23	26	30	M4x10	4	9.8	0.068	130	4.9	0.2
CL15x24T	45	40	16	29	36	42	M6x18	3	17	0.127	185	17	0.21
CL16x24T	45	40	16	29	36	42	m6x18	3	17	0.136	175	17	0.23
CL17x26T	47	42	18	31	38	44	M6x18	4	22	0.18	190	17	0.25
CL18x26T	47	42	18	31	38	44	M6x18	4	22	0.20	180	17	0.27
CL19x27T	49	43	18	31	38	44	M6x18	4	22	0.21	170	17	0.29
CL20x28T	50	44	18	31	38	44	M6x18	4	22	0.22	160	17	0.30
CL22x32T	54	48	25	38	45	51	M6x18	4	22	0.25	115	17	0.38
CL24x34T	56	50	25	38	45	51	M6x18	4	22	0.27	105	17	0.41
CL25x34T	56	50	25	38	45	51	M6x18	4	22	0.25	100	17	0.45
CL28x39T	61	55	25	38	45	51	M6x18	6	33	0.465	135	17	0.47
CL30x41T	62	57	25	38	45	51	M6x18	6	33	0.51	127	17	0.48
CL32x43T	65	59	25	38	45	51	M6x18	6	33	0.54	120	17	0.52
CL35x47T	69	62	32	45	52	58	M6x18	8	45	0.79	105	17	0.63
CL38x50T	72	66	32	45	52	58	M6x18	8	45	0.86	100	17	0.67
CL40x53T	75	69	32	45	52	58	M6x18	8	45	0.90	95	17	0.73
CL42x55T	78	71	32	45	52	58	M6x18	8	45	0.95	90	17	0.78
CL45x59T	86	80	45	62	70	78	M8x22	8	84	1.89	110	41	1.23
CL48x62T	87	81	45	62	70	78	M8x22	8	84	2.01	105	41	1.24
CL50x65T	92	84	45	62	70	78	M8x22	8	84	2.10	100	41	1.40
CL55x71T	98	92	55	72	80	88	M8x22	9	94	2.60	85	41	1.70
CL60x77T	104	98	55	72	80	88	M8x22	9	94	2.84	75	41	1.90
CL65x84T	111	105	55	72	80	88	M8x22	9	94	3.07	70	41	2.21
CL70x90T	119	113	65	86	96	106	M10x25	9	150	5.25	90	83	3.05
CL75x95T	126	119	65	86	96	106	M10x25	9	150	5.60	80	83	3.32
CL80x100T	131	125	65	86	96	106	M10x25	12	200	8.02	100	83	3.50
CL85x106T	137	131	65	86	96	106	M10x25	12	200	8.50	95	83	3.81
CL90x112T	144	137	65	86	96	106	M10x25	12	200	9.00	90	83	4.20
CL95x120T	149	142	65	86	96	106	M10x25	14	230	11.0	100	83	4.75
CL100x125T	154	147	65	86	96	106	M10x25	18	300	15.0	120	83	5.46
CL110x140T	180	172	90	114	128	140	M12x35	12	290	16.0	80	145	6.05
CL120x155T	198	187	90	114	128	140	M12x35	12	290	17.5	70	145	7.18
CL130x165T	208	197	90	144	128	140	M12x35	16	384	25.0	90	145	8.03

Key Elements for Designing and Calculation of T NSPT-LOCKS

1. Determine max torque needed and max axial load

$$Mmax = \frac{30000H}{p.n} \cdot K(N\,m)$$

$$Fmax = F \cdot K$$

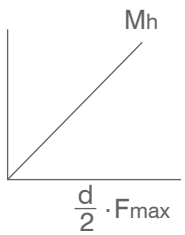
H--Transmission power KW
n--Rotational speed r/min
F--nominal axial force N
K--coefficient needed

Used coefficient sheet for K

No shock load, transmitting with little inertia	1.5 – 2.5
Slight shock load,transmitting with middle inertia	2.0 – 4.0
Big shock load, transmitting with heavy inertia	3.0 – 5.0

2. Calculate synthetic load and transmitted torque

$$Mh = \sqrt{M^2max + (\frac{d}{2} xFmax)^2}$$

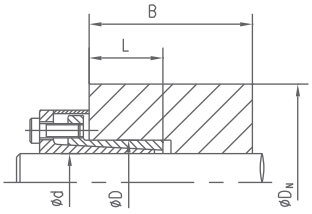


Mmax--Required transmitted torque Nm
Fmax--Required transmitted axial force N
Mh--synthetic transmitted torque Nm
d--Transmission shaft diameter mm
Mt--NSPT LOCK rated transmitted torque Nm

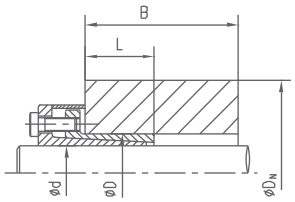
Mt ⩾ Mh can be used
Mt<Mh need bigger type of NSPT lock or to be installed by two NSPT locks or more together

3. Calculation for the hub diameter

$$Da \geqslant D\sqrt{\frac{\sigma b + Ka \cdot Ph}{\sigma b - Ka \cdot Ph}}$$



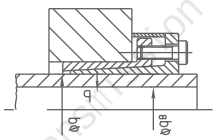
Ka=0.8
B<2L



Ka=0.8
B⩾2L

Da--outside diameter of hub mm
D--inside diameter of hub mm
Ph--surface pressures on hub Mpa
σb--tensile strength of material
Ka--It should be 0.6 for single CAPT lock, it will be 0.8 when two NSPT locks or more are installed together

4. Calculation for the inside diameter of hollow shaft



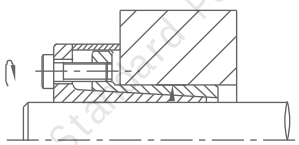
$$dB \leqslant d\sqrt{\frac{\sigma b - 2xPs.K3}{\sigma b}}$$

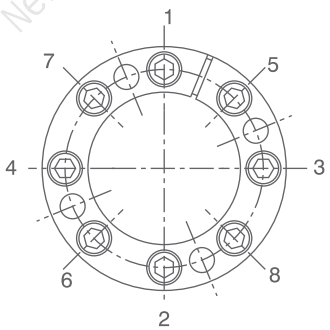
dB--inside diameter of hollow shaft mm
d--outside diameter of hollow shaft mm
6b--tensile strength of shaft material Mpa
Ps--pressure on the surface of shaft Mpa

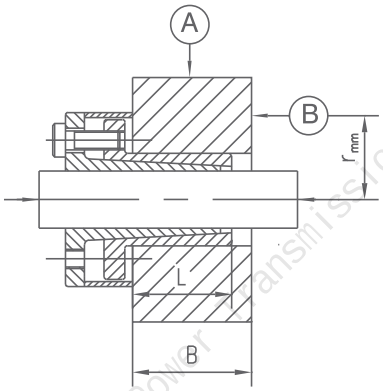
5. Settlement for the surface roughness and dimension tolerance

Fitting Section	Ra(um) Surface Roughness	Dimension Precision
Shaft Diameter d	1.6	h8
Bore Diameter D	1.6	H8

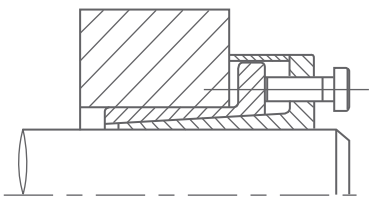
6. Installation and disassembling for NSPT-LOCKS Type T.







Tighten the bolts one by one until all of them reach the specified torques. After the installation, inspect the runouts as shown above. The run out Ⓐ Should be less than 0.05mm and Ⓑ should be less than 0.002Rmm.



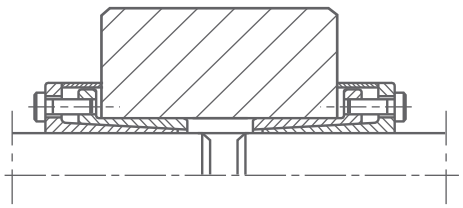
To disassemble, take off all tightening bolts. Insert the unloading bolts into the unloading tap holes and tighten them. NSPT lock can then be loosened and separated from the hub and shaft.

Conversion:1 inch=25.40mm

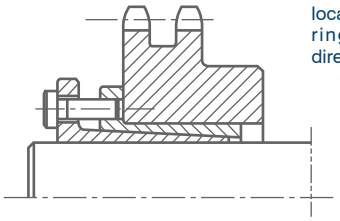
Conversion

1 ft-lbs. = 0.1382 kgf·m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm² = 0.0069 Mpa

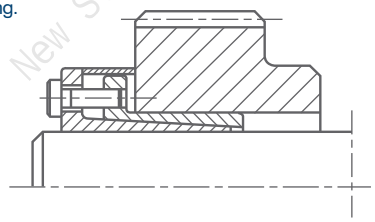
When using in pairs and mounted with hubs, it can replace couplings in some cases.



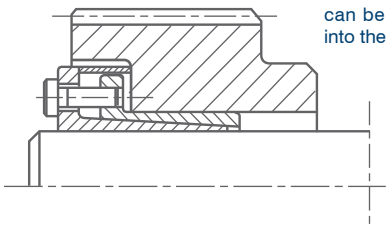
When installing without locating rings, the inner ring moves in axial direction while tightening.

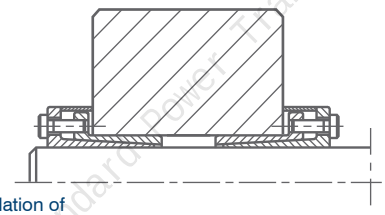


When installing with locating rings, the outer ring moves in axial direction while tightening.



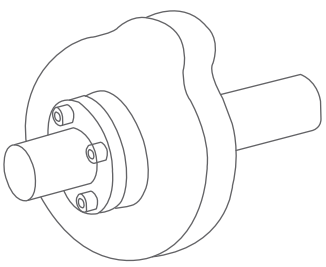
Installed with counter bored hubs. The NSPT-LOCKS can be completely installed into the hub.





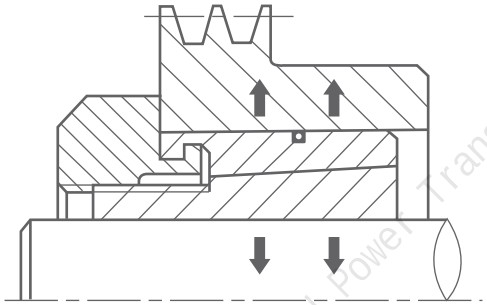
Symmetrical installation of paired NSPT-LOCKS on both sides for greater power

While installed with cams, the position and angle of the cams can be adjusted at will.



NSPT-LOCKS





Suitable of Shaft Diameters

Metric:f5～f75(mm)

Inch:3/16"-3"

ML/ML-B NSPT-LOCKS has the characteristics of structure simplicity, easy self-installation, high concentricity, and good durability. It can be quickly assembled without any additional equipment and has wide range of selection for various sizes. The smallest width can be only 10mm.

The installation of ML/ML-B NSPT-LOCKS is as followed: Tighten the screw nuts to move the outer taper ring axially. External force will be formed on the connecting surface between the shaft and the hub due to the frictional force on the taper surfaces between both inner and outer rings. The connection is strong and safe in shaking situation as well because of the self-locking feature and the strong frictional force between the parts.

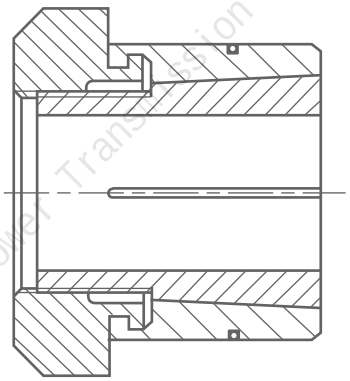
Simply reverse the installation procedures for disassembling the ML/ML-B NSPT-LOCKS.

Conversion:1 inch=25.40mm

Conversion

1 ft-lbs. = 0.1382 kgf.m = 1.3550 N.m

1 Psi = 0.0007 kgf/mm² = 0.0069 Mpa



ML NSPT-LOCKS

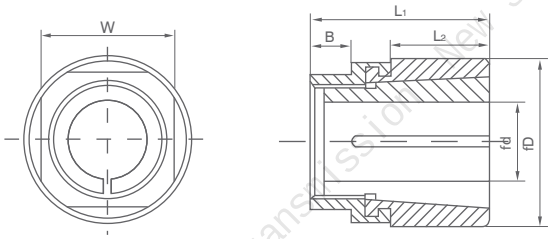
Expression of NSPT-LOCKS ML

NL 17 X 36 ML

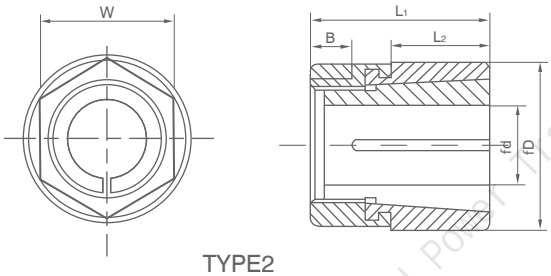
- NSPT LOCK ML
- Out Diameter D
- Bore Diameter d
- NSPT-LOCKS Code

NSPT-LOCKS

Inches



TYPE1



TYPE2

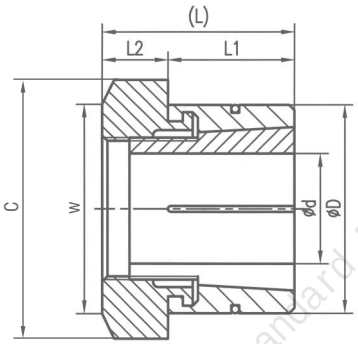
ML-B NSPT-LOCKS

NSPT Catalog	d	D	Type	Dimension(inches)				Performance Max Transmissable		Lnstallatlon Torque on nut In-Lbs	wt oz.
				L1	L2	W	B	Torque In-Lbs	Thrust Lbs		
ML-B 3/16	3/16	5/8	1	3/4	3/8	1/2	1/8	100	700	125	1/2
ML-B 1/4	1/4							150	788		
ML-B 5/16	5/16	3/4	1	7/8	7/16	5/8	1/8	200	892	150	1
ML-B 3/8	3/8							250	925		
ML-B 7/16	7/16	7/8	1	1	1/2	3/4	3/16	300	954	175	1 1/2
ML-B 1/2	1/2							350	980		
ML-B 9/16	9/16	1	1	1 1/8	5/8	7/8	3/16	400	990	200	2
ML-B 5/8	5/8							450	995		
ML-B 5/8	5/8	1 1/2	2	1 1/2	3/4	1 1/4	5/16	1500	3000	1200	8
ML-B 11/16	11/16							1800	3500		
ML-B 3/4	3/4							2000	4000		
ML-B 13/16	13/16							2200	4500		
ML-B 7/8	7/8	1 3/4	2	1 7/8	7/8	1 1/2	7/16	2400	5000	1500	11
ML-B 15/16	15/16							2600	5500		
ML-B 1	1							3000	6000		
ML-B 1 1/16	1 1/16							3500	6750		
ML-B 1 1/8	1 1/8	2	2	2 1/4	1	1 3/4	1/2	3750	7250	1800	16
ML-B 1 3/16	1 3/16							4250	7750		
ML-B 1 1/4	1 1/4							4750	8300		
ML-B 1 5/16	1 5/16							5250	9000		
ML-B 1 3/8	1 3/8	2 3/8	2	2 3/4	1 1/2	2	9/16	5750	9500	2100	27
ML-B 1 7/16	1 7/16							6500	10000		
ML-B 1 1/2	1 1/2							7000	10500		
ML-B 1 9/16	1 9/16							7750	11000		
ML-B 1 5/8	1 5/8	2 5/8	2	3 1/8	1 11/16	2 1/4	9/16	8500	11750	2500	37
ML-B 1 11/16	1 11/16							9250	12250		
ML-B 1 3/4	1 3/4							10000	12750		
ML-B 1 13/16	1 13/16							10750	13250		
ML-B 1 7/8	1 7/8	2 7/8	2	3 9/16	2	2 1/2	5/8	11750	14000	3500	48
ML-B 1 15/16	1 15/16							12750	14500		
ML-B 2	2							14000	15000		
ML-B 2 1/16	2 1/16	3 1/8	2	3 3/4	2 1/8	2 3/4	5/8	14250	15100	4800	60
ML-B 2 1/8	2 1/8							14500	15200		
ML-B 2 3/16	2 3/16							14750	15250		
ML-B 2 1/4	2 1/4							15000	15275		
ML-B 2 5/16	2 5/16	3 3/8	2	3 7/8	2 1/4	3	11/16	15250	15330	5100	68
ML-B 2 3/8	2 3/8							15500	15400		
ML-B 2 7/16	2 7/16							15750	15480		
ML-B 2 1/2	2 1/2							16000	15550		
ML-B 2 9/16	2 9/16	3 5/8	2	4 1/16	2 3/8	3 1/4	11/16	16250	15620	5400	78
ML-B 2 5/8	2 5/8							16500	15680		
ML-B 2 11/16	2 11/16							16750	15750		
ML-B 2 3/4	2 3/4							17000	15800		
ML-B 2 13/16	2 13/16	3 7/8	2	4 1/4	2 1/2	3 1/2	3/4	17250	15900	6000	90
ML-B 2 7/8	2 7/8							17500	15950		
ML-B 2 15/16	2 15/16							17750	16025		
ML-B 3	3							18000	16150		

NSPT-LOCKS

Metric





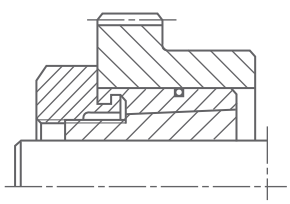
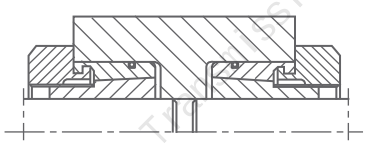
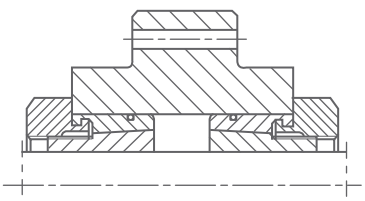
Conversion

1 ft-lbs. = 0.1382 kgf·m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm² = 0.0069 Mpa

ML NSPT-LOCKS ®

Catalog dxD	Funmdamental Dimensions					Rated Load		Pf	MA	G
	L	L_1	L_2	W	C	Mt N.M	Ft KN	N/mm^2	N.M	kg
CL5x16ML	15	10	5	17	19.6	7	2.65	181	9.1	0.02
CL6x16ML						8		161		0.02
CL7x21ML	21	14	7	22	25.4	15	6.57	179	19.9	0.049
CL8x21ML						18		163		0.047
CL9x21ML						20		150		0.045
CL10x24ML	22	14	8	24	27.7	26	8.43	180	25.5	0.061
CL11x24ML						28		172		0.058
CL12x24ML						31		164		0.055
CL14x31ML	27	17	10	32	37	83	16.1	186	80.0	0.13
CL15x31ML						90		179		0.13
CL16x31ML						96		173		0.12
CL17x36ML	33	21	12	36	41.6	145	22.8	181	136	0.2
CL18x36ML						155		175		0.19
CL19x36ML						163		171		0.19
CL20x41ML	35	23	12	41	47.3	245	24.9	156	230	0.27
CL22x41ML						274		149		0.27
CL24x41ML						294		144		0.24
CL25x46ML	37	25	12	46	53.1	365	30.1	138	300	0.33
CL28x46ML						408		131		0.30
CL30X50ML	41	28	13	50	57.7	446	30.1	111	330	0.41
CL32x50ML						475		104		0.37

Conventional installation of ML NSPT-LOCKS

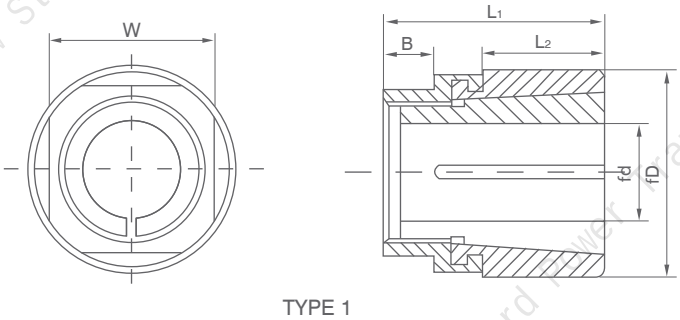
Conventional installation	Used in pairs and mounted with hubs. They can be used instead of couplings	Used in pairs, thus greater power can be transmitted, for the usage of heavy loud transmission
		

Conversion: 1 inch= 25.40mm

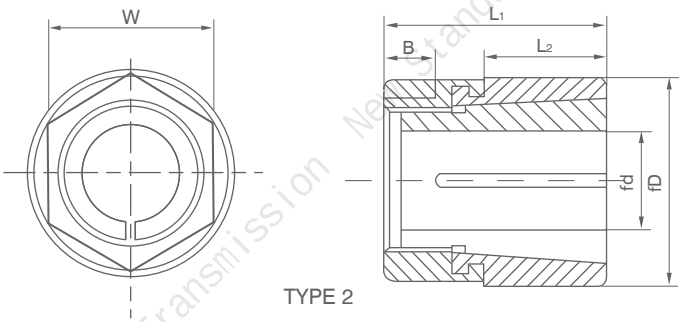
NSPT-LOCKS

Metric





TYPE 1



TYPE 2

Conversion

1 ft-lbs. = 0.1382 kgf·m = 1.3550 N.m

1 Psi = 0.0007 kgf/mm² = 0.0069 Mpa

ML-B NSPT-LOCKS

Catalog	d	D	TYPE	Fundamental Dimensions				Rated Load		Pf N/mm²	MA N.M	kg
				L_1	L_2	W	B	Mt KN.M	Ft KN			
CL5x16ML-B	5	16	1	19	9.5	13	3	0.01	3.18	36	14.1	0.014
CL6x16ML-B	6							0.013	3.58			
CL8x19ML-B	8	19	1	22	11	16	3	0.015	4.05	26	17.0	0.028
CL9x19ML-B	9							0.018	4.18			
CL10X22.5ML-B	10	22.5	1	25.5	12.5	19	5	0.023	4.25	19	23.1	0.042
CL11x22.5ML-8	11							0.025	4.33			
CL12x22.5ML-B	12							0.028	4.39			
CL14x25.5ML-B	14	25.5	1	28.5	16	22	5	0.046	4.49	13	38.0	0.056
CL15x25.5ML-B	15							0.049	4.51			
CL16x25.5ML-B	16							0.053	4.53			
CL15x38ML-B	15	38	2	38	19	32	8	0.12	12.70	76	136	0.23
CL18x38ML-B	18							0.15	14.60			
CL20x38ML-B	20							0.23	19.8			
CL22x45ML-B	22	45	2	47.5	21.5	38	11	0.26	22.5	65	230	0.31
CL24x25ML-B	24							0.29	25.30			
CL25x45ML-B	25							0.30	27.25			
CL28x51ML-B	28	51	2	57	25.5	46	13	0.41	32.25	54	330	0.45
CL30x51ML-B	30							0.44	35.0			
CL32x51ML-B	32							0.47	37.7			
CL34x60.5ML-B	34	60.5	2	70	38	50	14	0.49	43.0	45	390	0.77
CL35x60.5ML-B	35							0.51	44.0			
CL36x60.5ML-B	36							0.52	44.8			
CL38x60.5ML-B	38							0.55	47.7			
CL40x67ML-B	40	67	2	79.5	43	60	14.5	0.63	51.7	38	460	1.05
CL42x67ML-B	42							0.65	54.5			
CL45x73ML-B	45	73	2	90.5	51	65	16	0.71	58.6	29	540	1.36
CL48x73ML-B	48							0.75	64.4			
CL50x73ML-B	50							0.82	67.0			
CL55x80ML-B	55	80	2	95	54	70	16	1.24	67.5	24	810	2.13
CL60x86ML-B	60	86	2	98.5	57	75	17.5	1.41	69.4	20	910	2.27
CL65x92ML-B	65	92	2	103	60.5	80	17.5	1.51	70.9	17	980	2.68
CL70x92ML-B	70							1.62	71.9			
CL75x100ML-B	75	100	2	108	63.5	90	19	1.63	73.3	16	990	2.72

Conversion :1 inch = 25.40mm

Key Elements for Designing and Calculation of ML NSPT-LOCKS

1. Determine max torque and max axial load

$$Mmax = \frac{30000\ H}{p.n} \cdot K(N\ m)$$

$$Fmax = F \cdot K$$

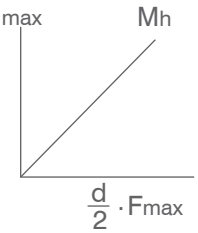
H--Transmission power KW
n--Rotational speed r/min
F--nominal axial force N
K--coefficient needed

Used coefficient sheet for K

No shock load, transmitting with little inertia	1.5 – 2.5
Slight shock load,transmitting with middle inertia	2.0 – 4.0
Big shock load, transmitting with heavy inertia	3.0 – 5.0

2. Calculate synthetic load and transmitted torque

$$Mh = \sqrt{M^2max + (\frac{d}{2} xFmax)^2}$$

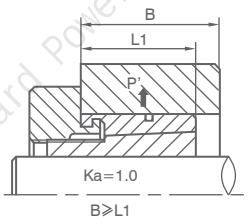


Mmax--Required transmitted torque Nm
Fmax--Required transmitted axial force N
Mh--synthetic transmitted torque Nm
d--Transmission shaft diameter mm
Mt--NSPT LOCK rated transmitted torque Nm

Mt ⩾ Mh can be used
Mt<Mh need bigger type of NSPT lock or to be install by two NSPT locks or more together

3. Calculation for the hub diameter

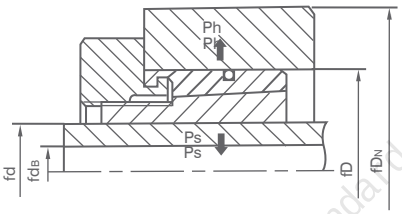
$$Da \geqslant D\sqrt{\frac{\sigma b + Ka \cdot Ph}{\sigma b - Ka \cdot Ph}}$$



Da--outside diameter of hub mm
D--inside diameter of hub mm
Ph--suface pressures on hub Mpa
σb--tensile strength of material
Ka--It should be 0.6 for single NSPT lock, it will be 0.8 when two NSPT locks or more are installed together

4. Calculation for the inside diameter of cannon

$$dB \leqslant d\sqrt{\frac{\sigma b - 2xPs.K3}{\sigma b}}$$

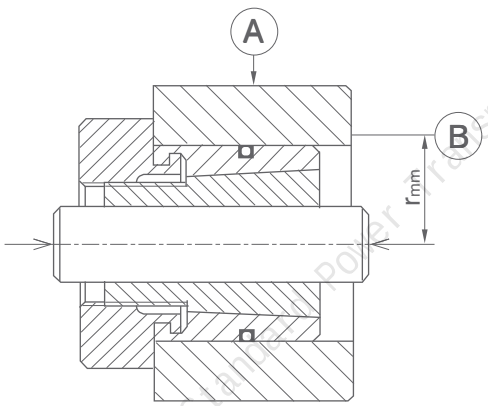


dB--inside diameter of cannon mm
d--outside diameter of cannon mm
6b--tensile strength of shaft material Mpa
Ps--pressure on the surface of shaft Mpa
K3--coefficient=0.6

5. Settlement for the surface roughness and dimension tolerance

Fittng Section	Ra(um) Surface Roughness	Dimension Precision
Shaft Diameter d	1.6	h8 – H9
Bore Diameter D	1.6	H8 – H9

6. Installation and disassembling for NSPT lock type ML.



After installing the NSPT locks correctly, the radial and axial run out should be inspected according to Ⓐ ⩽ 0.05mm and Ⓑ ⩽ 0.002R.

Conversion:1 inch=25.40mm

Conversion

1 ft-lbs. = 0.1382 kgf·m = 1.3550 N.m
1 Psi = 0.0007 kgf/mm² = 0.0069 Mpa