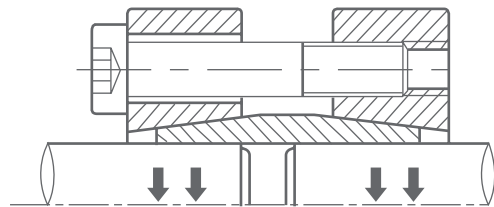
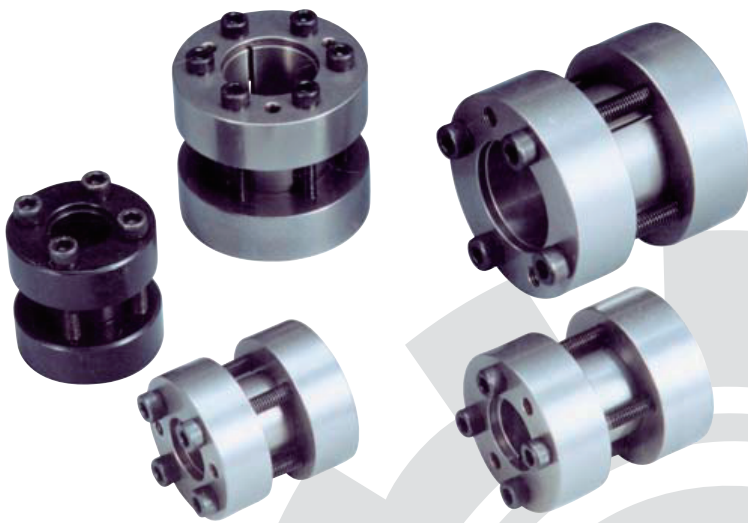


NSPT-LOCKS



Suitable of Shaft Diameters

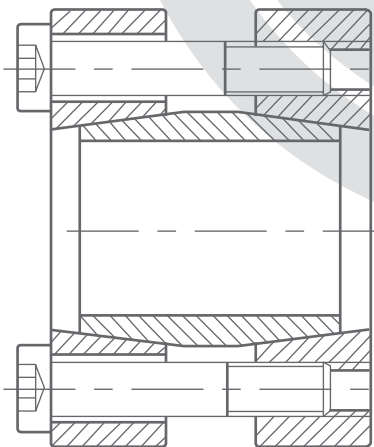
Metric: $\phi 15 \sim \phi 110$ (mm)

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 larger 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

NSPT LOCK SK

Out Diameter D in mm

Bore Diameter d in mm

NSPT-LOCKS Code

Conversion: 1 inch = 25.40mm

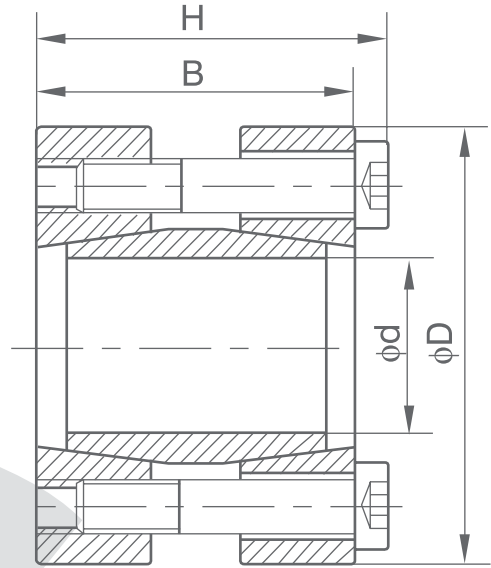
SK NSPT-LOCKS

Conversion

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

1 Psi = 0.0007 kgf/mm² = 0.0069 Mpa

NSPT-LOCKS



SK NSPT-LOCKS

Inches

METRIC SIZE		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	148 163	5400 5400	4xM6	13
18X50	0.709	1.969	1.969	2.205					
19X50	0.748	1.969	1.969	2.205	+0/-0.001	170 178	5400 5400	4XM6	
20X50	0.787	1.969	1.969	2.205					
22X55	0.866	2.165	2.362	2.598	+0/-0.0013	192 215 333 377 407	5400 5400 8100 8100 8100	4XM6 4XM6 6XM6 6XM6 6XM6	13 13 13 13 13
24X55	0.945	2.165	2.362	2.598					
25X55	0.984	2.165	2.362	2.598					
28X60	1.102	2.362	2.362	2.598					
30X60	1.181	2.362	2.362	2.598					
32X75	1.260	2.953	2.362	2.677					
35X75	1.378	2.953	2.953	3.268					
38X75	1.496	2.953	2.953	3.268					
40X75	1.575	2.953	2.953	3.268					
42X90	1.654	3.543	2.953	3.268	+0/-0.0016	1036 1125 1199 1251	15075 15075 15075 15075	6XM8	30
45X90	1.772	3.543	3.346	3.661					
48X90	1.890	3.543	3.346	3.661					
50X90	1.969	3.543	3.346	3.661					
55X105	2.165	4.134	3.346	3.661	+0/-0.0018	1828 2005 2168	20250 20250 20250	8XM8	30
60X105	2.362	4.134	3.346	3.661					
65X105	2.559	4.134	3.346	3.661					
70X125	2.756	4.921	3.937	4.331	+0/-0.0018	2790 2982 3182	24075 24075 24075	6XM10	61
75X125	2.953	4.921	3.937	4.331					
80X125	3.150	4.921	3.937	4.331					

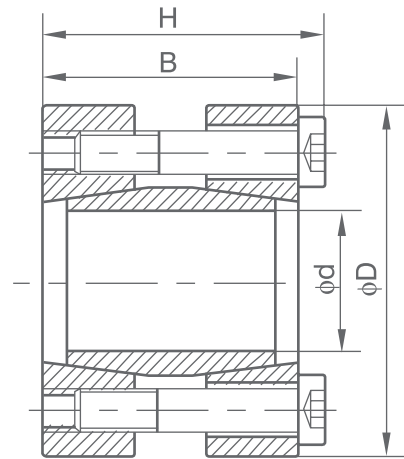
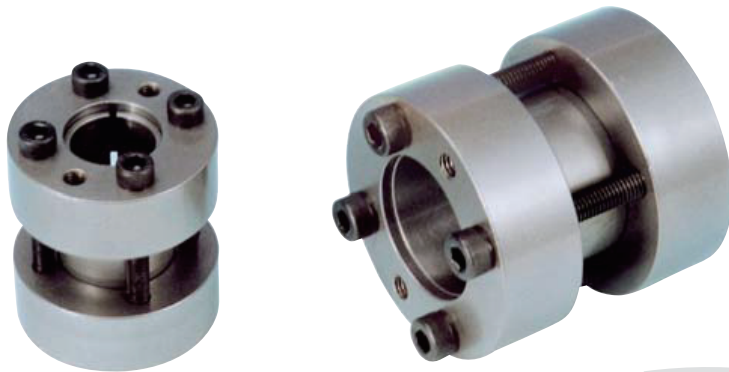
Conversion: 1 inch = 25.40mm

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

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

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

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

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

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

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 ≥ 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

$$D_a \geq D \sqrt{\frac{O_b + K_a \cdot P_h}{O_b - K_a \cdot P_h}}$$

D_a--outside diameter of hub mm

D--inside diameter of hub mm

P_h--surface pressures on hub Mpa

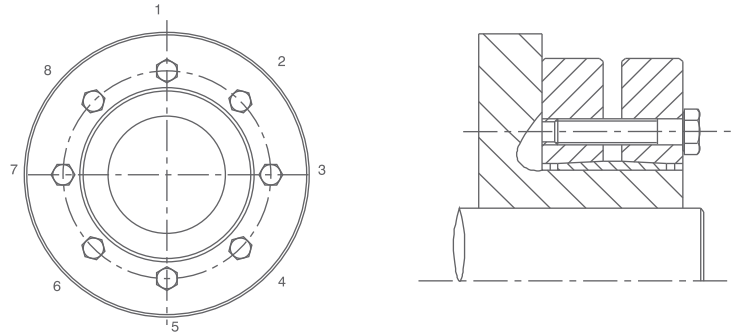
O_b--tensile strength of material

K_a--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.

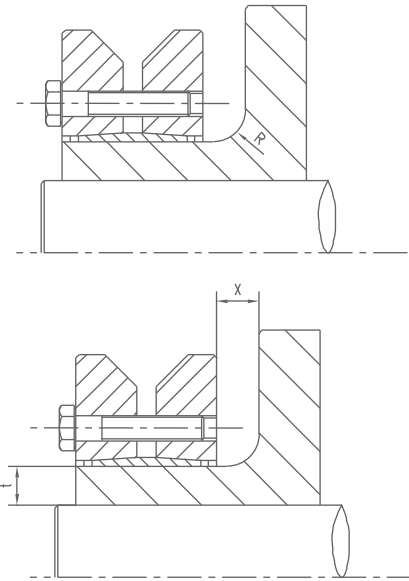


1. Clean the NSPT locks, hubs and shafts before installation. Install the NSPT LOCKS into corresponding suitable position for installation.

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 tightening 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.