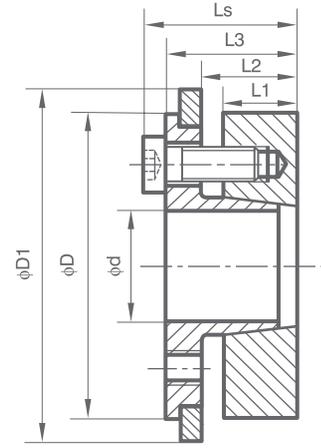
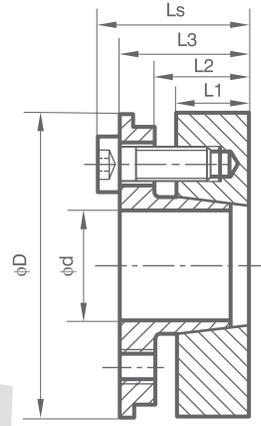


NSPT-LOCKS

Inches

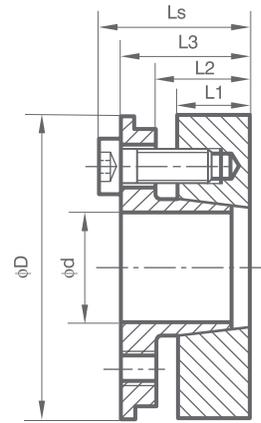
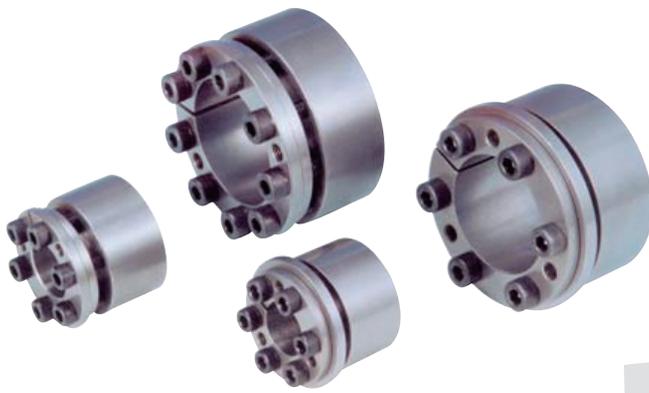


FB NSPT-LOCKS

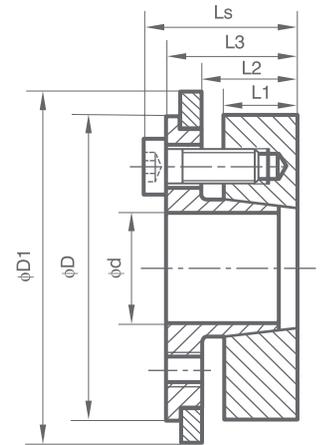
METRIC SIZES INCHES			INCH SERIES INCHES			INCHES				Mt	Axial	pw	pn	LOCKING SCREW	
Size	d	D	Size	d	D	L1	L2	L3	Ls	ft-lb	force lb	psi	psi	No.x type	Ms ft-lb
0x47	0.787	1.850	3/4	0.750	1.850	1.024	1.142	1.654	1.890	400	12150	36250	15225	6xM6	13
2x47	0.866	1.850	7/8	0.875	1.850	1.024	1.142	1.654	1.890	444	12150	33350	15225	6xM6	13
4x50	0.945	1.969				1.024	1.142	1.654	1.890	481	12150	30450	14500	6xM6	13
5x50	0.984	1.969	1	1.000	1.969	1.024	1.142	1.654	1.890	503	12150	29000	14500	6xM6	13
8x55	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
0x55	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
2x60	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
5x60	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
8x65	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
0x65	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
2x75	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
5x75	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
8x80	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
0x80	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
5x85	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
0x90	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
5x95	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
0x110	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
5x115	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
0x120	3.150	4.724	3 1/4	3.250	4.921	1.575	1.772	2.205	2.598	5476	41850	22475	14500	7xM10	61
5x125	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
0x130	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
5x135	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
0x145	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

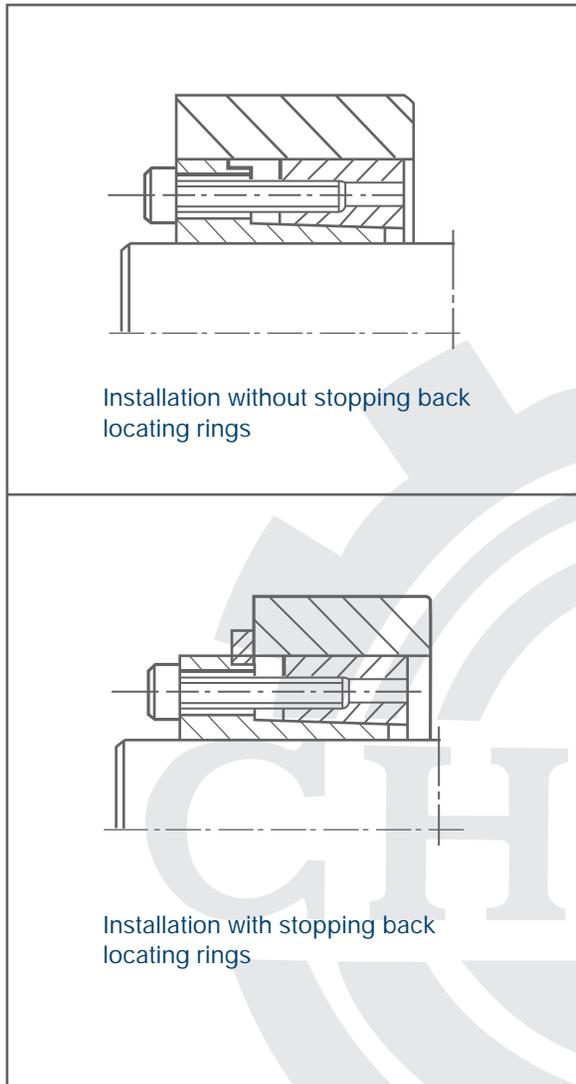


FB2

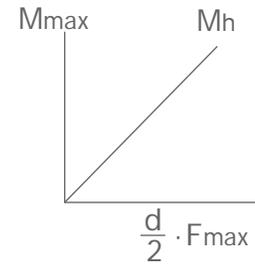
FB NSPT-LOCKS

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



2. Calculate synthetic load and transmitted torque

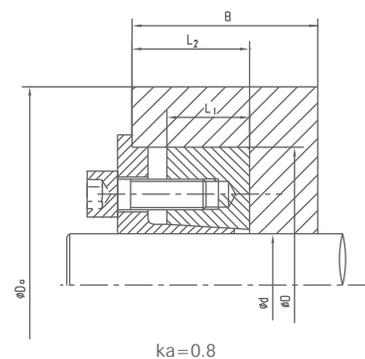
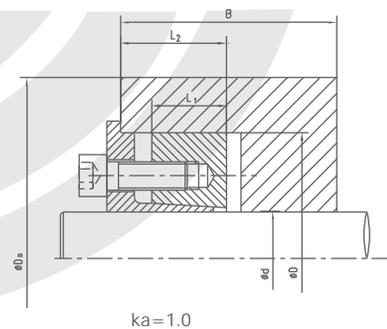


M_{max} --Required transmitted torque Nm
 F_{max} --Required transmitted axial force N
 M_h --synthetic transmitted torque Nm
 d --Transmission shaft diameter mm
 M_t --NSPT LOCK rated transmitted torque Nm
 $M_t \geq M_h$ can be used
 $M_t < M_h$ need bigger type of NSPT lock or to be install by two 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



Key Elements for Designing and Calculation of F 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

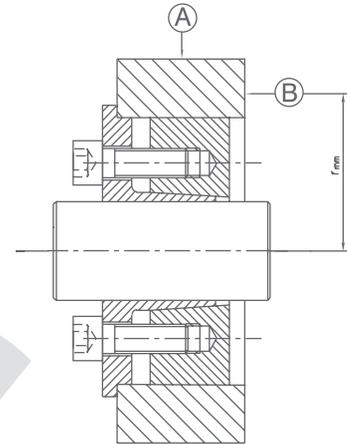
Used coefficient sheet for K

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

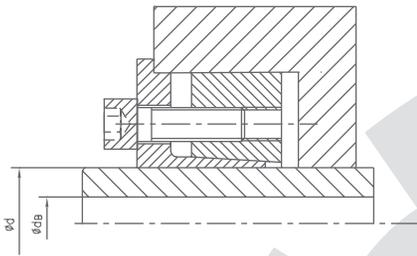
4. Settlement for the surface roughness and dimension tolerance

Fitting Section	Ra(um) Surface Roughness	Dimension Precision
Shaft Diameter d	1.6/ ▽	h8-H9
Bore Diameter D	1.6/ ▽	H8-H9

After installing the NSPT locks correctly. The radial and axial run should be inspected according to $\textcircled{A} \leq 0.05\text{mm}$ and $\textcircled{B} \leq 0.002$.



5. Calculation for the inside diameter of cannon

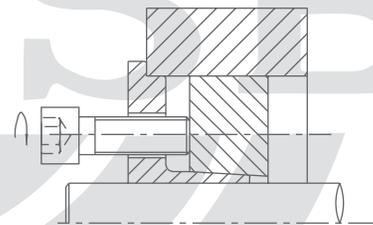


$$dB \leq d \sqrt{\frac{\sigma_b - 2xPs \cdot K3}{\sigma_b}}$$

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

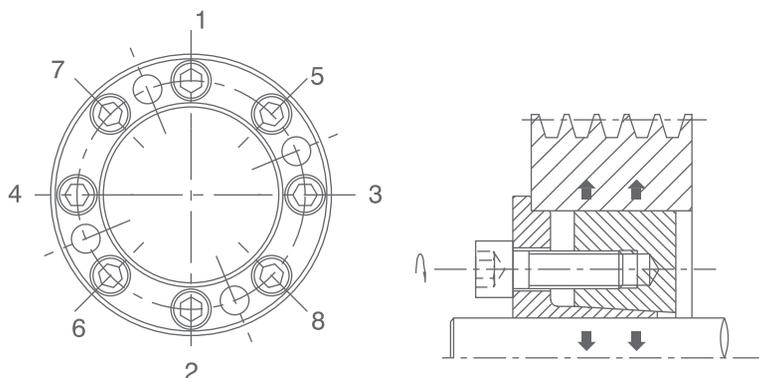
7. Disassembling of NSPT-LOCKS

conceptual diagram for disassembling



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



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