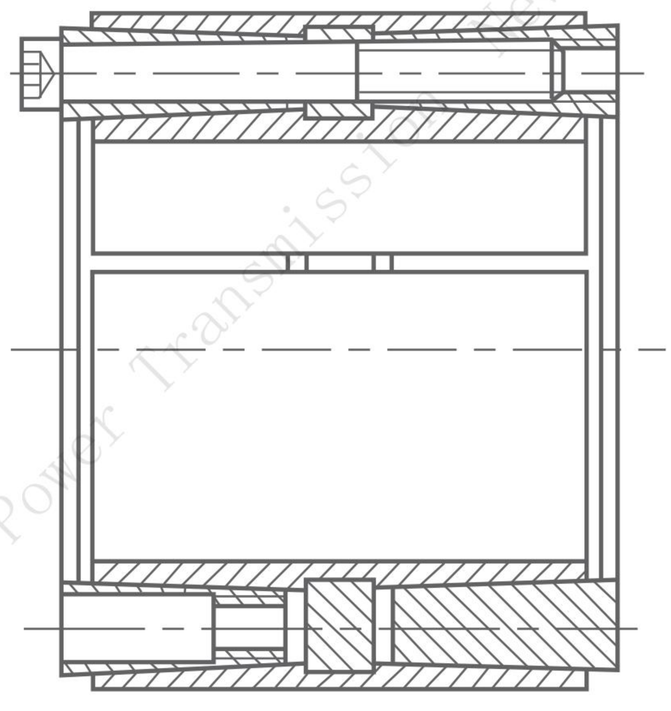
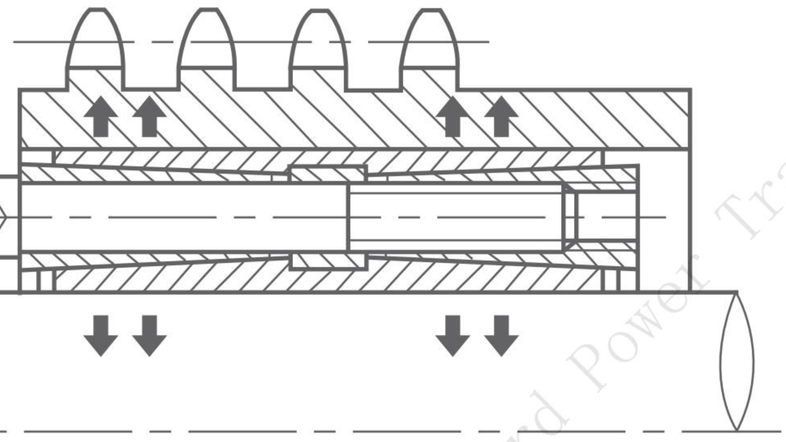
New Standard Power Transmission

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

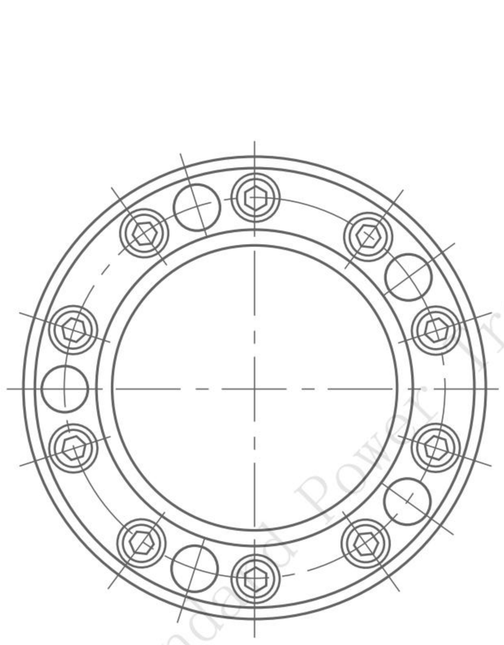
Conversion

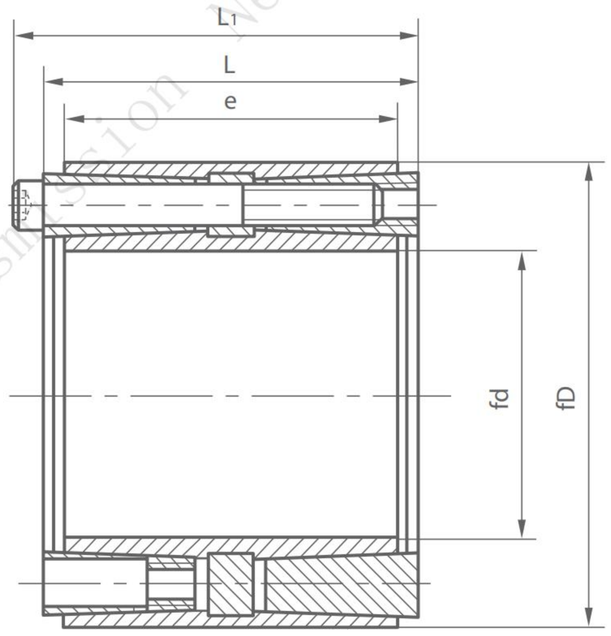
1 ft-lbs.= 0.1382 kgf-m = 1.3550 N.m

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

NSPT-LOCKS

Inches







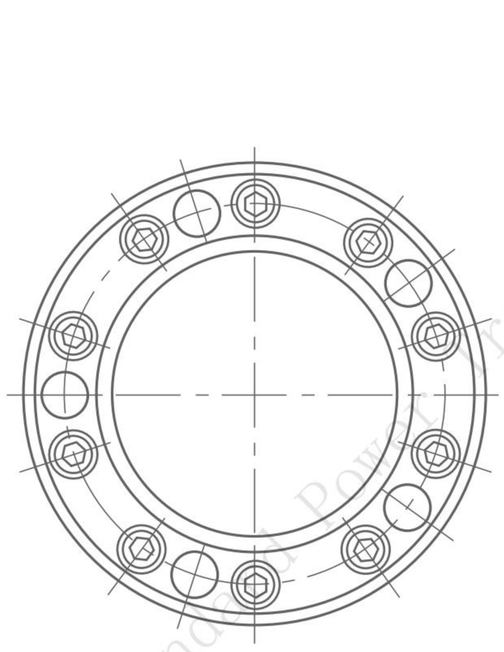
D NSPT-LOCKS

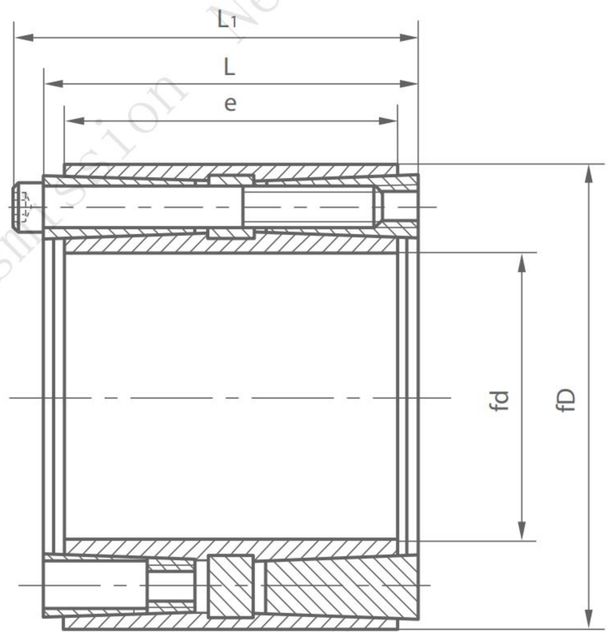
NSPT Catalog	INCH SERIES INCHES			INCHES			Mt ft-lb	Axial force lb	pw psi	pn psi	LOCKING SCREW	
	Size	d	D	l	L	L1					No.x type	Ms ft-lb
NL1.00D	1	1.000	2.165	1.535	1.772	2.008	826	20239	34965	16147	8xM6	13
NL1.316D	1 3/16	1.188	2.165	1.535	1.772	2.008	981	20239	29444	16147	8xM6	13
NL1.14D	1 1/4	1.250	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 ft-lb	Axial force lb	pw psi	pn psi	LOCKING SCREW	
Size	d	D	e	L	L1					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

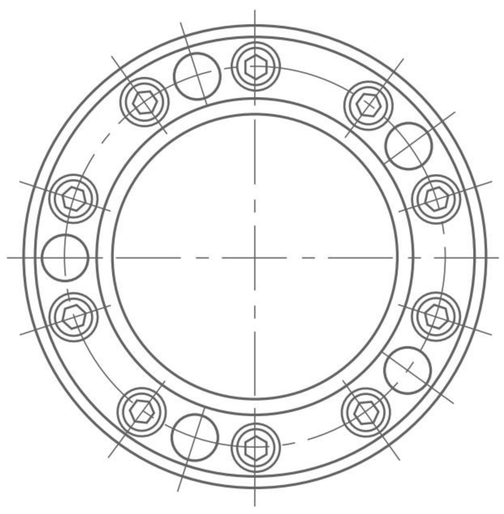
Metric

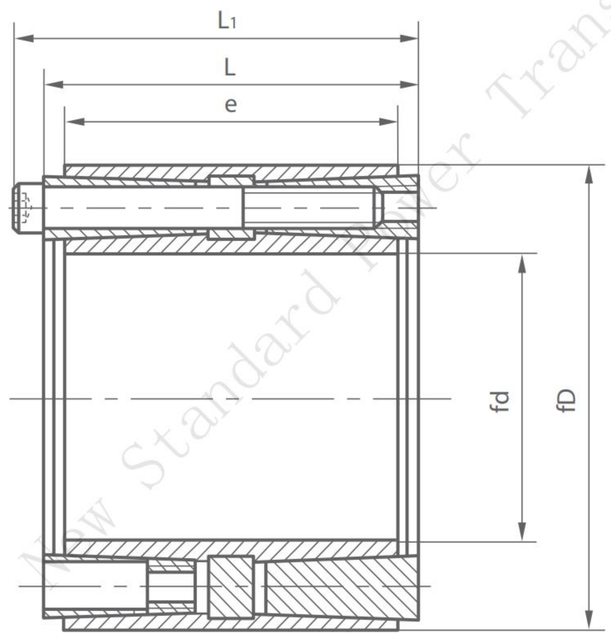
Conversion

1 ft-Ibs.= 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

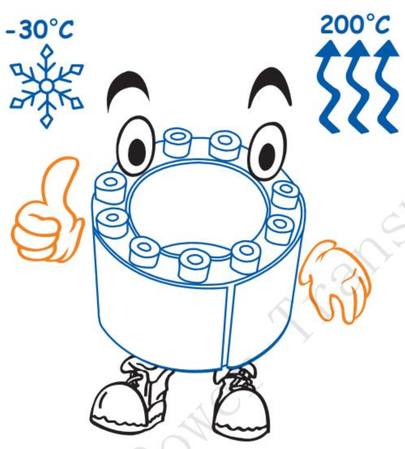
1 Psi = 0.0007 kgf/mm^2 = 0.0069 Mpa

D NSPT-LOCKS

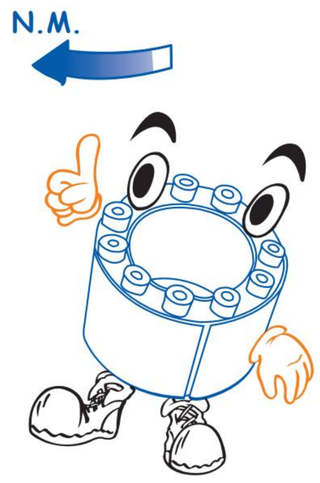
Catalog dxD	Fundamental Dimensions e	L	L1	Internal Hexagon Headed Bolt SIZES	QTY	Rated Load Ft KN	Mt KN.M	Pf Mpa	MA N.M	G kg
CL360x455D	190	202	224	M22x150	22	3589	646	169	930	96.5
CL380x475D	190	202	224	M22x150	26	3821	726	170	930	101
CL400x495D	190	202	224	M22x150	26	3960	792	168	930	106
CL420x575D	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.

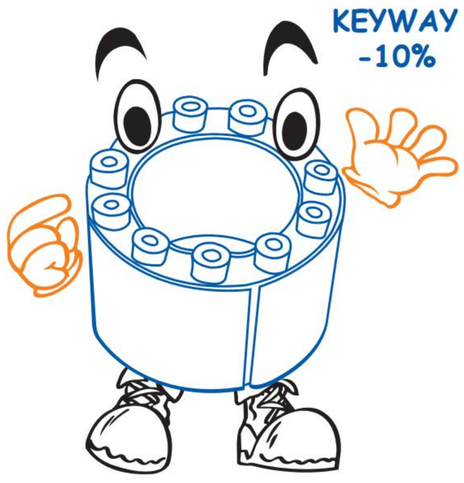


3.NSPT-LOCKS can be used and disassembled repeatly. But after each repeated installation and disassembling, the shape of NSPT-LOCKS will change slightly. Torque will be reduced slightly as well.

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

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

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

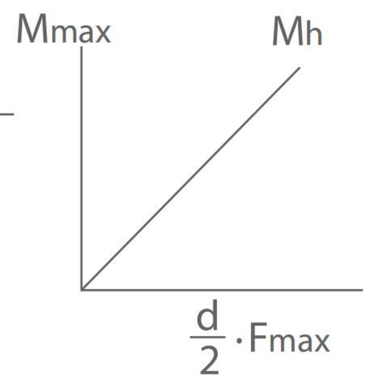
H--Transmission power KW
n--Rotational speed r/min
F--nominal axial force N
K--coefficient needed

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

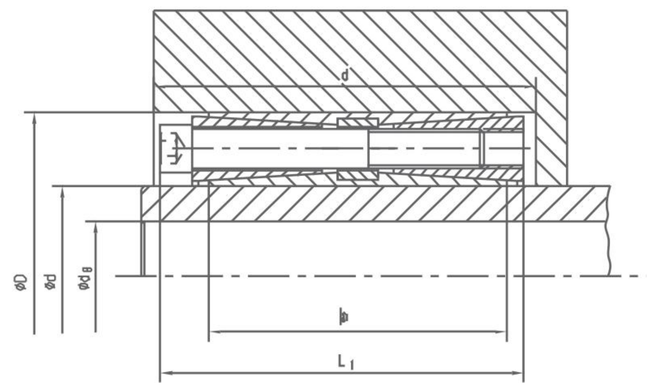
$M_t \geqslant M_h$ can be used
$M_t < M_h$ need bigger type of NSPT lock or to be install by two NSPT locks or more together

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.Calculation for the inside diameter of cannon



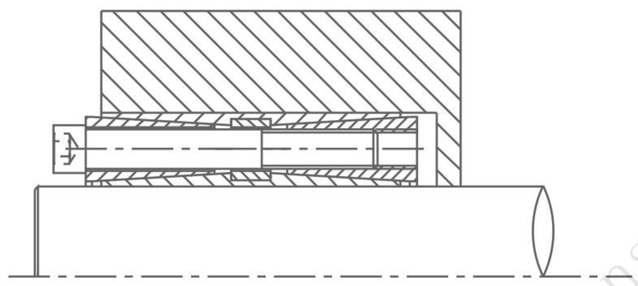
$$dB \leqslant d \sqrt{\frac{\sigma b - 2xPs.K3}{\sigma b}}$$

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

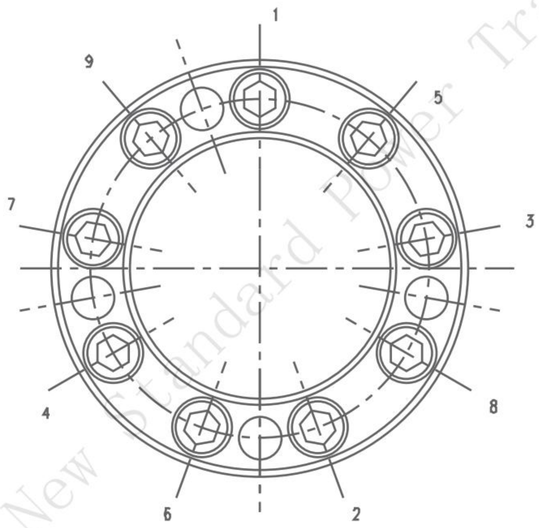
5.Settlement for the surface roughness and dimension tolerance

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.

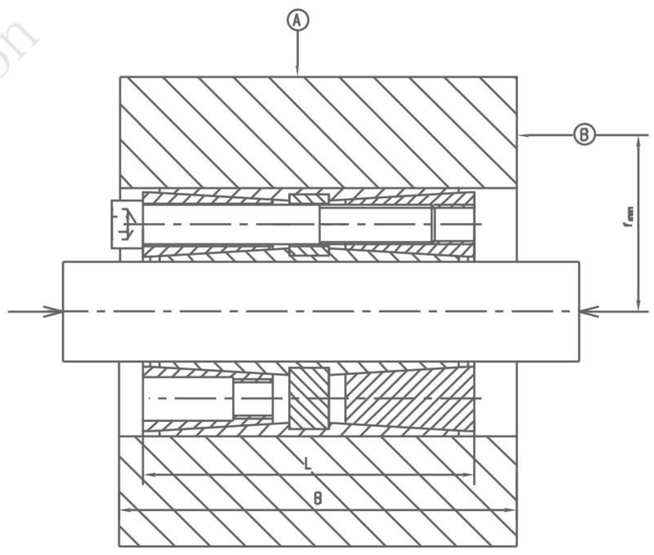
A



B



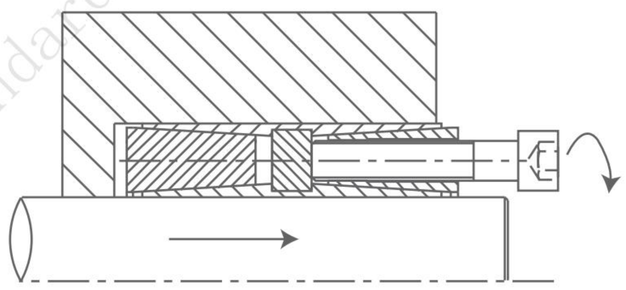
C



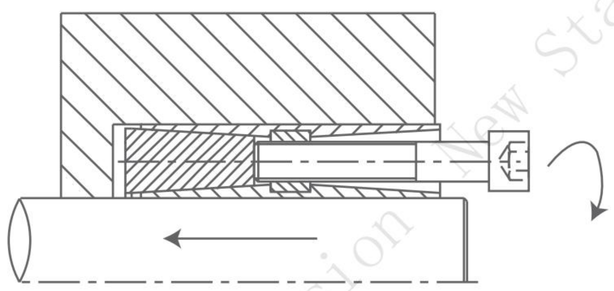
6.Determine the surface roughness and dimension tolerance

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.

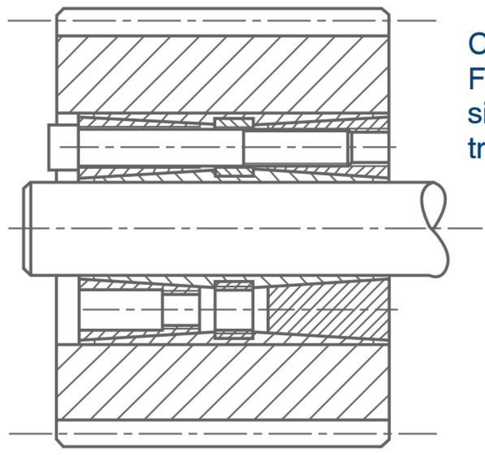
Conversion:1 inch = 25.40mm

Conversion

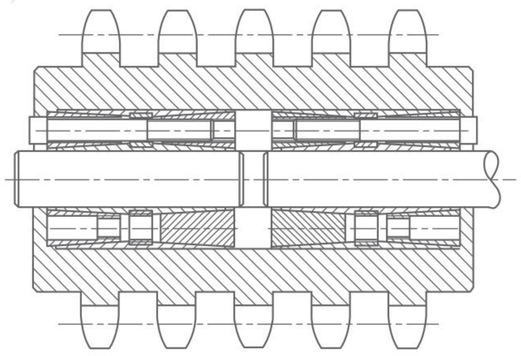
1 ft-lbs. = 0.1382 kgf.m = 1.3550 N.m

1 Psi = 0.0007 kgf/mm² = 0.0069 Mpa

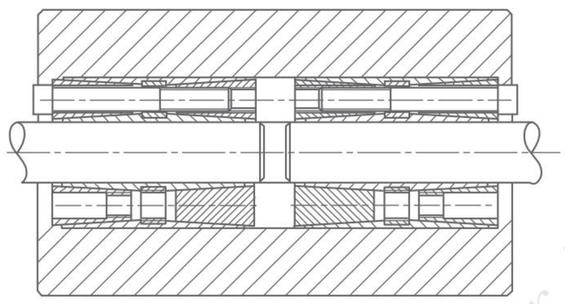
Conventional installation. For the usage of ordinary situation and general power transmission



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

