3 *TSK* Ball Slide Units

TSK Ball Slide Unit is the limited-stroke and reciprocating bearing unit, and their base and table that made of alminum are guided by rolling of high precision stainless steel balls.
As the tracks for balls are constructed by stainless-steel linear shafts machined precisely, the extremely light, smooth and precise motion of the table is achieved.

■**Features of Ball Slide Unit**

1. As high precision balls run between the track set on the fixed part and that on the moving part, with each track consisting of paralleled, two linear shafts, the friction is very low, and the movement is truly light and smooth.

2. As the base and the table are made of light aluminum, the parts can move quickly for the speedy operation.

3. As balls are held in plastic retainers, and contacting area between balls and tracks is very small with no slip caused, the unit can operate lightly without any lubrication.

4. As balls and shafts are made of stainless steel, and anodic oxidation coatings are formed on the surfaces of aluminum of the base and table, anti-corrosion is effectively potent.

5. As setscrews for adjusting clearance are set in the side of the table, proper preload can be applied to the movement of the table.

6. As the unit can operate without any lubrication, and also it has effective anti-corrosion, the maintenance is not troublesome and the operation is free from causing pollution.
   The damage originated by overrunning of the table beyond the tracks is not expected, for the overrunning is prevented by the stopping mechanism set inside the device.

7. As tapped holes for setting screws are located on the table and base, it is easy to set them on other machines from upward without dismantling the unit.

■**Specification Number of Ball Slide Unit（example）**

TBS   20   50

Type

Height of Unit（20mm）

Length of Unit（50mm）

■Load Rating & Running Life

The running life of TSK ball slide unit can be calculated by using the following formula:

$$L=\left(\frac{C\cdot f_t}{f_s\cdot f_p\cdot P}\right)^3\times 50km$$

L=Rated Running Life（km）
C=Basic Dynamic Load Rating（N）
P=Working Load（N）
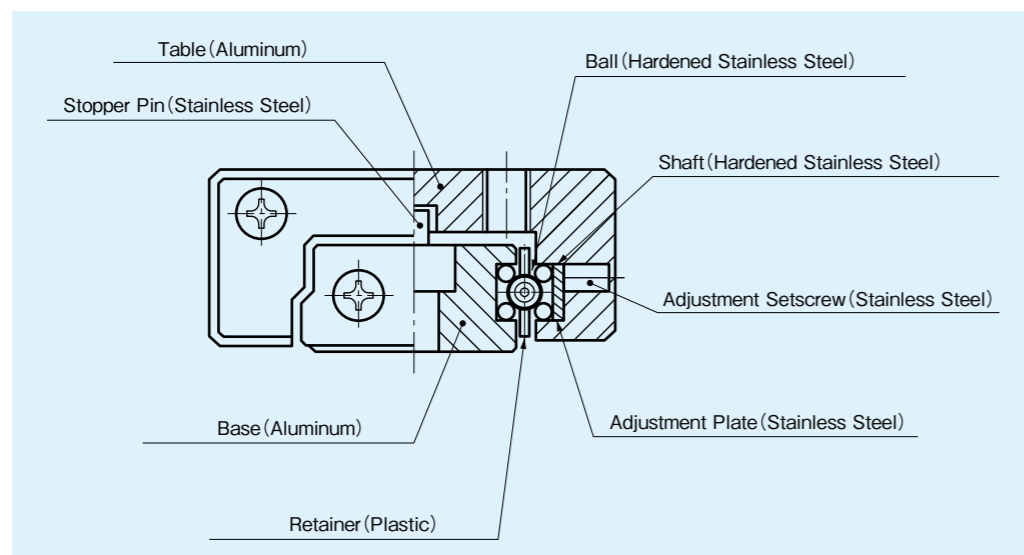f_t=Working Temperature Factor
f_s=Shock & Vibration Factor
f_p=Load Factor

When the stroke length and the frequency are constant, the life span is obtained according to the following equation:

$$L_h=\left(\frac{L\cdot 10^6}{2\cdot \ell_s\cdot n\cdot 60}\right)$$

L_h=Running Life Hours（hr）
L=Rated Running Life（km）
ℓ_s=Stroke Length（mm）
n=Reciprocal Numbers per Minute

The basic load rating from upside, downside and side surface are same, however the basic load rating from an oblique 45°angle direction is forced to reduce slightly because the load is supported by only a pair of shafts.

■Structure

Table（Aluminum）
Stopper Pin（Stainless Steel）
Ball（Hardened Stainless Steel）
Shaft（Hardened Stainless Steel）
Adjustment Setscrew（Stainless Steel）
Base（Aluminum）
Adjustment Plate（Stainless Steel）
Retainer（Plastic）

■TSK Ball Slide Unit TBS Series
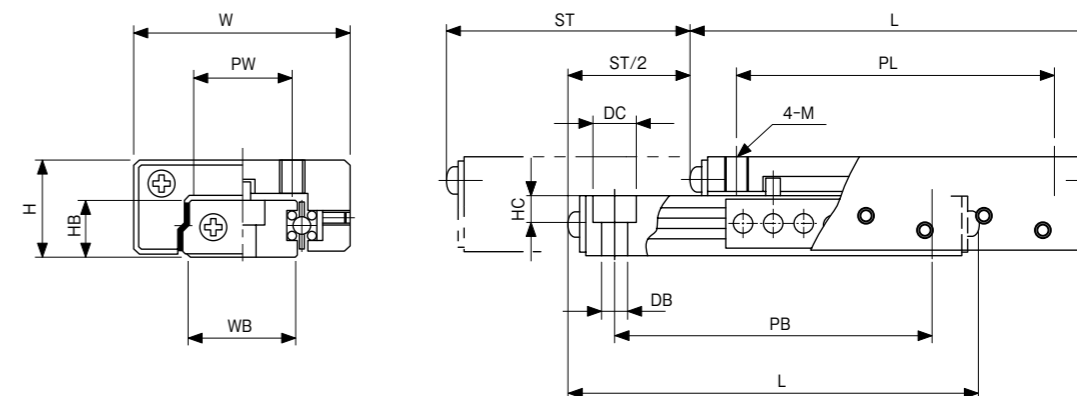
Type	Code #	ST	H	W	L	PW	PL	M×Depth	WB	HB	DB×DC×HC	PB	Basic Load Rating C (N)	Basic Load Rating Co (N)
TBS	827	13	8	14.2	28.6	5.5	16	M2×2.8	6.2	4.8	2.2×4×1.6	19	29	58
	852	25			53.6		41					35	49	117
	877	50			78.6		66					60	58	166
	1027	13	10	19	28.6	8.5	16	M3×3.5	9.6	6	3.3×6×3	19	49	88
	1052	25			53.6		41					35	68	166
	1077	50			78.6		66					60	88	254
	1340	15	13	25	42.4	11	30	M3×4.5	12.2	8	3.3×6×3.3	30	117	246
	1365	25			67.4		55					55	166	441
	1390	50			92.4		80					80	196	568
	2050	25	20	44	54.2	20	35	M5×7	22.3	12	5.3×9×5.3	35	205	421
	2080	50			84.2		65					65	254	598
	20100	75			104.2		85					85	303	764
	25100	50	25	66	105.6	35	75	M5×7.8	38	16	5.3×9×5.3	75	460	1127
	25125	75			130.6		100					100	499	1274
	25150	100			156.5		125					125	578	1558

As Basic Dynamic Load Rating is the basis for calculating the running life time, using the unit wiht the load under the half of basic load rating value above is recommended in case much higher sliding performance is needed.
Basic Static Load Rating is the value in the case of load put on the middle when the center of the table comes above that of base.