

## ■ FZ 鋼球襯套系列 Steel-Ball Retainer Bush Series

### 產品簡述 Introduction

FZH(銅基); FZL(鋁基); FZP(樹脂基)鋼球保持圈, 分別以銅合金、硬鋁合金、POM樹脂為基體, 并在其外圓表面上, 加工出排列有序、大小適當, 形狀特殊的孔穴, 在其孔穴中鑲入滾動軸承鋼球。孔口採用最新的溝槽圓周鎖球工藝, 有效地解決了傳統點式鎖球和壓痕鎖球不能完全防止鋼球脫落的難題。孔底加工出 90° 止口使鋼球在孔內自由轉動而不脫落。由於鋼球的直徑大於保持圈的壁厚, 所以在使用時鋼球高出保持圈內、外圓表面, 直接與相配的孔與軸接觸, 使基體(保持圈)浮於中間, 并且相配的孔與軸半徑之差小於鋼球直徑, 即鋼球與之配合為過盈配合, 配合精度高, 軸與孔相對運動靈活, 是保持圈的新一代產品。

FZH, FZL and FZP ball retainer use bronze, aluminum, POM colophony as its base. They are machined some regular holes and embedded the steel-ball into the new work-craft will prevent the ball getting out of as old. As the ball diameter is larger than the retainer's thickness, so it will face to face directly with guide bush, this will bring high precision match. Now the ball retainer series items are designed to rotate on the post, as well as maintain its vertical motion. We believe this will give you the benefit of increasing accuracy.

### 優點與用途 Advantages and Applications

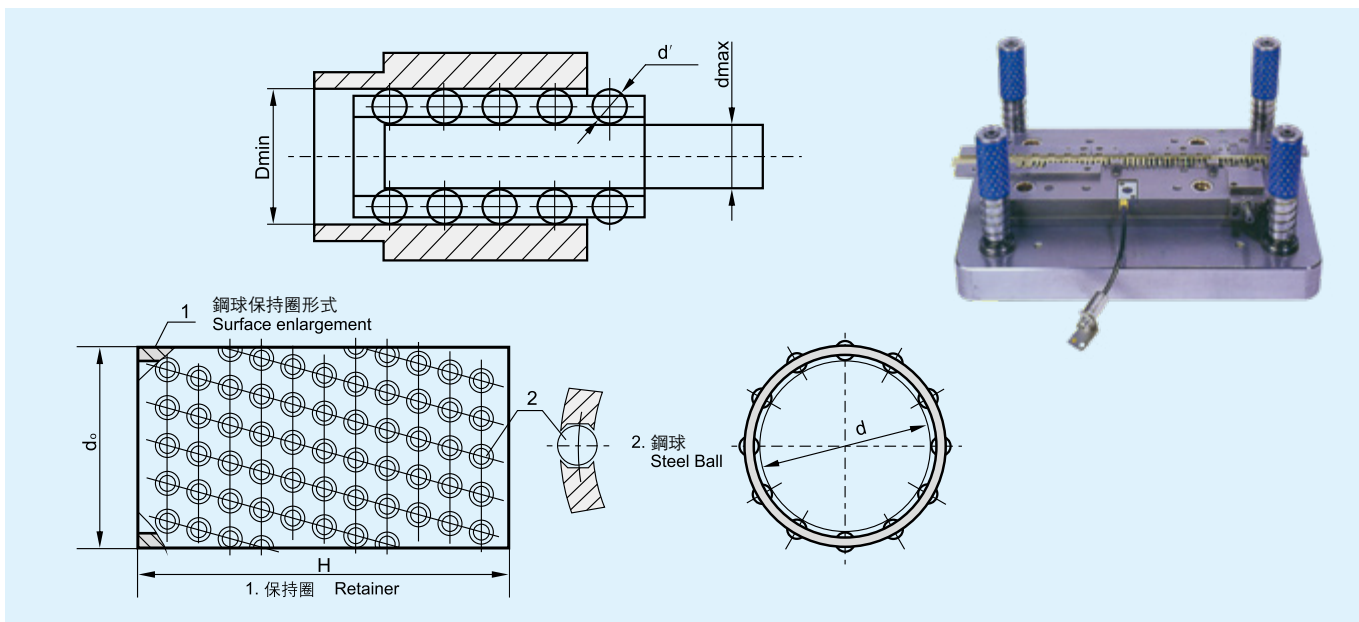
傳統的具有相對運動的孔與軸是有一定間隙的, 且孔與軸之間的運動磨擦係數較大, 使用鋼球保持圈後, 使軸與孔不直接接觸, 而是中間通過有微量過盈的鋼球, 因而運動精度高, 滾動摩擦代替了滑動摩擦, 滾動靈活, 摩擦係數小, 使用壽命長, 在既有轉動、又有移動的場合, 用無油或加油的軸套與軸相配, 雖然能滿足, 但運動精度較低, 用滾動軸承, 祇能滿足軸相對轉動的場合, 而鋼球保持圈, 則上述二個條件均滿足, 目前已廣泛應用於冷衝模滾動模架、高精度機床、機床附件以及要求高精度軸向或軸徑向同時運動場合。

As the traditional work-craft has some grudge between bush with posts, and the coefficient of friction is larger. Now we have changed the work-ways to steel-ball directly face to face guide bush, so the precision is improved. It composes of both active roll and lower friction coefficient, now they have been widely used in punching machine, die machine, high precision machine which need rotation and vertical motion.

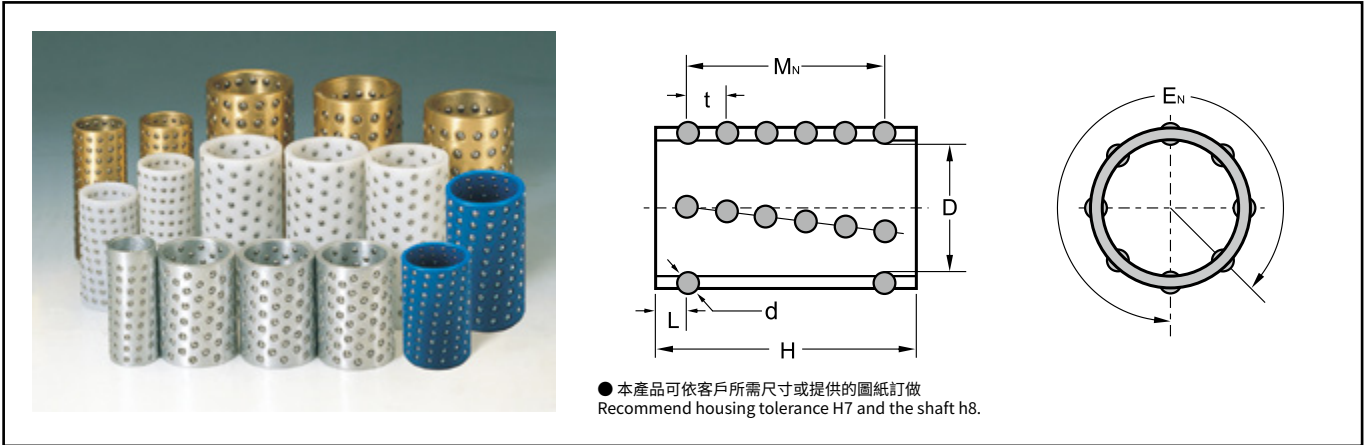
### 相配零件的要求 Installed Spares Requested

1. 導套: 材料 SUJ2, YB9, 熱處理, 硬度 HRC62~66, 技術條件按 GB/T12446 與軸配合應具有 0.01 ~ 0.02 徑向過盈量, 表面粗糙度為  $\nabla^{0.05}$
  2. 軸: 材料 SUJ2, YB9, 熱處理, 硬度 HRC62~66, 技術條件按 GB/T12446, 與軸公差採用 h5, 表面粗糙度為  $\nabla^{0.05}$
- 測量: 用通用的測量手段(氣動量儀, 外徑千分尺, 內徑千分表等)測量軸、導套和鋼球的尺寸偏差值, 即可求出配合後的過盈量, 即  $Y_{max}=d_{max}+2d-D_{max}$ , 要求過盈量為 0.01~0.02mm

- 1.GUIDE BUSH: material SUJ2,YB9, heat treatment HRC62~66, technique condition according to GB/T12446. the surface roughness is  $\nabla^{0.05}$
  - 2.SHAFT: material SUJ2, YB9, heat treatment HRC62~66, the tolerance of shaft is h5, the surface roughness is  $\nabla^{0.05}$
- SIZE TEST: it is tested by outside micrometer&dial gauge as usual. The  $Y_{max}(Y_{max}=d_{max}+2d-D_{min})$  request 0.01~0.02mm



## ■ FZ 鋼球襯套 Steel Ball Cage Retainer



Unit(單位): mm

Part No.	D	H	d	E	M	球 /Balls	t	L
FZ(x)-1950	19	50	3	12	8	96	5.5	5.75
FZ(x)-1960	19	60	3	12	10	120	5.5	5.25
FZ(x)-2050	20	50	3	12	8	96	5.5	5.75
FZ(x)-2060	20	60	3	12	10	120	5.5	5.25
FZ(x)-2250	22	50	3	14	8	112	5.5	5.75
FZ(x)-2260	22	60	3	14	10	140	5.5	5.25
FZ(x)-2360	23	60	3	14	10	140	5.5	5.25
FZ(x)-2475	24	75	3	16	13	208	5.45	4.8
FZ(x)-2550	25	50	3	16	8	128	5.5	5.75
FZ(x)-2560	25	60	3	16	10	160	5.5	5.25
FZ(x)-2575	25	75	3	16	13	208	5.45	4.8
FZ(x)-2775	27	75	3	16	13	208	5.45	4.8
FZ(x)-2860	28	60	4	14	8	112	6.5	7.25
FZ(x)-2875	28	75	4	14	11	154	6.5	5.0
FZ(x)-3060	30	60	4	14	8	112	6.5	7.25
FZ(x)-3075	30	75	4	14	11	154	6.5	5.0
FZ(x)-3260	32	60	4	16	8	128	6.5	7.25
FZ(x)-3275	32	75	4	16	11	176	6.5	5.0
FZ(x)-3290	32	90	4	16	13	208	6.5	6.0
FZ(x)-3685	36	85	4	16	12	192	6.5	6.75
FZ(x)-3690	36	90	4	16	13	208	6.5	6.0
FZ(x)-3870	38	70	5	16	8	128	8.0	7.0
FZ(x)-3890	38	90	5	16	11	176	7.9	5.5
FZ(x)-4090	40	90	5	16	11	176	7.9	5.5
FZ(x)-4590	45	90	5	18	11	198	7.9	5.5
FZ(x)-45110	45	110	5	18	13	234	8.0	7.0
FZ(x)-5090	50	90	5	20	11	220	7.9	5.5
FZ(x)-50110	50	110	5	20	13	260	8.0	7.0
FZ(x)-6090	60	90	5	22	11	242	7.9	5.5
FZ(x)-60110	60	110	5	22	13	286	8.0	7.0
FZ(x)-80130	80	130	5	28	15	420	8.0	9.0

注: FZ(X) 為: FZH(銅基)、FZL(鋁基)、FZP(樹脂基)

Notes: FZ(X): FZH (Bronze based) FZL (Aluminum based) FZP (Resin based)