

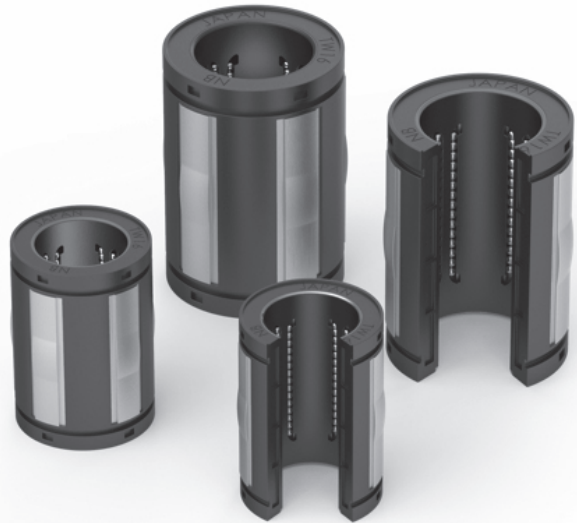
# TOPBALL® Ultimate

## *The Ultra High Performance Addition To Our TOPBALL® Series*

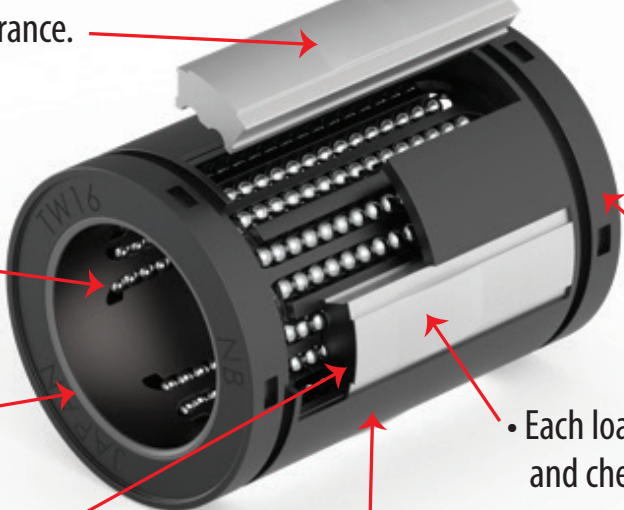
### TOPBALL® Ultimate's Advantages

NB's standard TOPBALL® TW type is the forerunner of the TOPBALL Ultimate and it is available in a wide range of sizes. TOPBALL has 3 times the load capacity and 27 times more travel life than conventional bushings. Because it is self-aligning, it speeds manufacturing and assembly. It is a popular motion control linear bushing in machinery and factory automation, optical and measuring equipment.

The TOPBALL® Ultimate, TW-H type, builds on the achievements of TOPBALL® TW type. TOPBALL® Ultimate is unrivaled in its class with a 4 times higher load rating and 64 times longer travel life compared to standard slide bush types. The TW-H type, comes in three sizes (12,16, 20 and 24) has a new optimized load plate, outer cylinder structure and double the ball circuits of the standard TW type.



## 4 Times The Load – 64 Times The Life

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- Floating load plate adjusts clearance.
  - Greater ball contact in ground circular arch triples load capacity.
  - Floating raceway wiper seal allows unrestricted self-alignment.
  - Load plate ends are thinner making center a fulcrum for self-alignment.
  - Our raceways are ground - not stamped - affording precision tolerances.
  - Light weight components for energy reduction.
  - Each load plate is precision-ground and checked for consistency - unlike competitions' stamped plates.
  - Unibody construction for quieter operation.

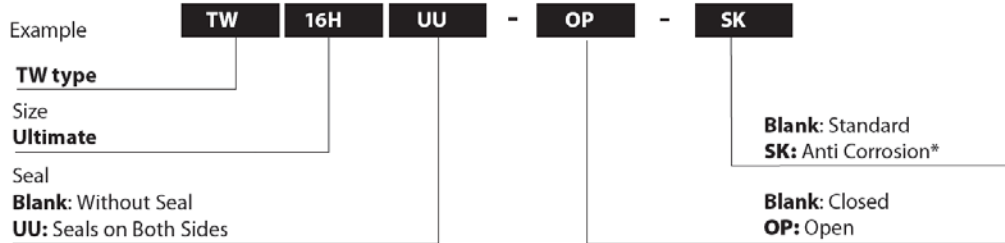
# ...And We Outperform The Competition

The TOPBALL Ultimate is currently available in inch sizes 12, 16, 20 and 24. Below, see how the TOPBALL Ultimate outperforms NB's conventional TOPBALL bearings and other self-aligning bearings in the market.

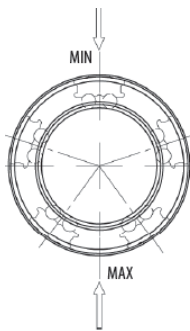
			Size 12				Size 16				Size 20				Size 24			
			TW12H		Competitor		TW16H		Competitor		TW20H		Competitor		TW24H		Competitor	
			(N)	(lbf)	(N)	(lbf)	(N)	(lbf)	(N)	(lbf)	(N)	(lbf)	(N)	(lbf)	(N)	(lbf)	(N)	(lbf)
Number of Ball Circuits			10		10		10		10		10		10		10		10	
MAX Basic Load Rating	Dynamic	C <sub>100</sub>	1850	416	1810	407	3670	825	3370	757	5140	1155	5110	1148	7570	1701	7040	1582
		C <sub>50</sub>	2340	526	2280	512	4630	1041	4250	955	6480	1456	6440	1447	9540	2144	8870	1993
	Static	C <sub>0</sub>	2060	463	2020	454	4060	912	3620	814	5190	1166	5190	1166	7430	1670	6750	1517
MIN Basic Load Rating	Dynamic	C <sub>100</sub>	1650	371	1610	362	3250	730	2990	672	4560	1025	4490	1009	6740	1515	6160	1384
		C <sub>50</sub>	2080	467	2030	456	4100	921	3770	847	5740	1290	5660	1272	8490	1908	7770	1746
	Static	C <sub>0</sub>	1710	384	1670	375	3340	751	2980	670	4270	960	4210	946	6170	1387	5430	1220

\* Rated load values above are based on ISO calculation method.  
(Rated load for other manufacturers are calculated based on actual measurements.)

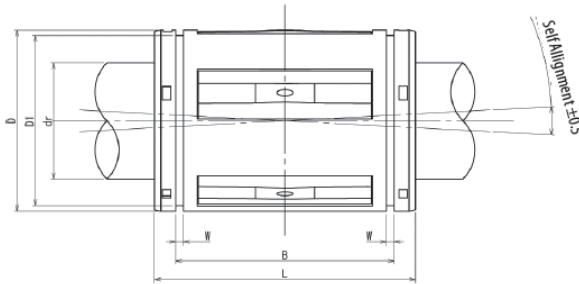
## Part Number Structure



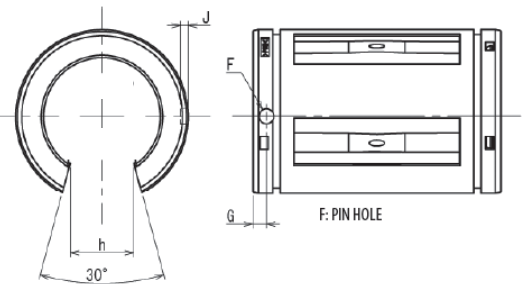
\*For anti-corrosion the load plates are electroless nickel plated with stainless steel balls.



TW12H thru TW24H



TW12H-OP thru TW24H-OP



Part Number						Major Dimensions													Basic Load Ratings		
Closed Type Number of Ball Circuits	Mass lbs	Open Type Number of Ball Circuits	Mass lbs	dr*	D	L		B		W	D <sub>1</sub>	Open Type				Dynamic C <sub>100</sub> MAX (C <sub>100</sub> min)	Static C <sub>0</sub> MAX (C <sub>0</sub> min)	Shaft Diameter			
						Inch	Tolerance Inch	Inch	Tolerance Inch			Inch	Tolerance Inch	Inch	Inch				Inch	Inch	Inch
TW12H	10	0.130	TW12H-OP	8	0.106	0.7500	0	1.2500	1.625	0	1.27	0	0.056	1.1760	0.44	0.14	0.1250	0.059	418 (372)	464 (386)	3/4
TW16H	10	0.280	TW16H-OP	8	0.227	1.0000	-0.0005	1.5625	2.250	-0.020	1.89	-0.020	0.068	1.469	0.56	0.14	0.1250	0.047	827 (733)	913 (752)	1
TW20H	10	0.529	TW20H-OP	8	0.432	1.2500	0	2.0000	2.625	0	2.01	0	0.068	1.886	0.63	0.2	0.188	0.090	1155 (1025)	1166 (960)	1 1/4
TW24H	10	0.838	TW24H-OP	8	0.683	1.5000	0	2.3750	3.000	0	2.42	0	0.086	2.239	0.75	0.2	0.188	0.090	1701 (1515)	1670 (1387)	1 1/2

1 Inch=25.4mm  
1 lbs≈0.454kg  
1lbf≈4.448N



NIPPON BEARING

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