

# <sup>1</sup> Archetype Sliding System

Fleetwood maintains the reputation as the **'best operating sliding doors in the USA'** by perfecting the two main components, rollers and track:

## History

In May 2003, Fleetwood introduced the market's first 3" diameter tandem sliding door roller, called the "Mammoth" later simply the **A3**. Within a few years the hardware industry copied the essential design and offered it to other manufacturers under names such as Mega, Monster & Elite. However, none of these products rival Fleetwood for many reasons, chief of which is the precision bearing. Only Fleetwood rollers come with authentic, certified Swiss designed and manufactured precision bearings. In the years following 2003, Fleetwood created the **A2** and **A4** rollers with the same Swiss engineering.

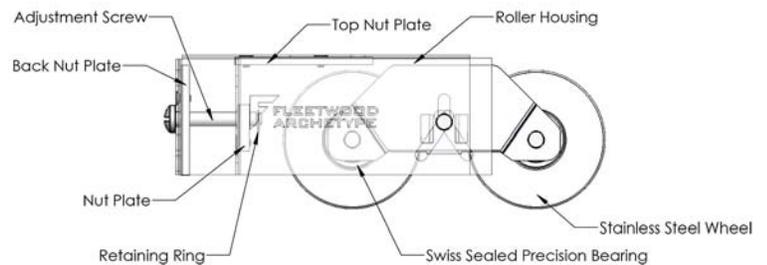
## Component ONE - Rollers

**A4 Rollers: (Standard on Series 4070-T)**

**A3 Rollers: (Standard on Series 3070, 3070-T, 3070-HI, 3050)**

**A2 Rollers: (Standard on Series 3000, 3000-T, 1070, 1050)**

Each roller wheel contains certified *Swiss* precision bearings, resulting from a joint effort between Fleetwood and our partner engineers in Switzerland. The roller bearings were specifically designed to meet our requirements and are NOT available elsewhere on the 'market', which is primarily being fed via Asian imports.



1. The material hardness of the Swiss made inner and outer bearing races, combined with the individual selection of each inner and outer race for exact bearing sizes, ensures the correct operating clearances within the bearing. This prevents deformations and indentations in the rotating portion of the bearing, e.g. clicking. When the bearing races and bearings are softer, not produced to exacting standard or not selected for an individual fit for each wheel assembly, they can dimple, which will increase operating force and create noise (clicking) during operation.
  - a. Fleetwood's Swiss manufacturer uses European bearing grade 440C stainless steel for the best balance of strength and corrosion protection. General Industry uses 300 stainless, which has good corrosion resistant properties BUT is softer and therefore offers poor rolling characteristics and severely reduces long-term performance.
  - b. Fleetwood bearing hardness = HRC 58-60 compared to industry standards = HRC 40 or less. Bearing hardness below 52 HRC will deform and the bearing raceways wear rapidly, with the resultant debris of metallic particles acting as a "grinding paste" inside the bearing, leading to costly early failure in the application.
  - c. Cutlery uses #440C because its properties hold a sharp edge whereas #300 cutlery requires regular sharpening. This same principal plays out in wheel and track systems.
2. The stainless alloy used on cheaper rollers is usually Series 300 because of its lower carbon content and subsequent better corrosion resistance. However, this alloy is considerably softer and therefore subject to imminent deformation and wear over time, even under the lightest loads. Fleetwood <sup>2</sup>only uses Series 400 stainless because of its strength, durability and to enable our Swiss manufacturers to be able to accurately grind and super-finish the critical bearing dimensions.
3. Both wheels within the tandem assembly are shipped from our Swiss manufacturing partner. The stainless steel wheel is precision machined using dedicated Fleetwood tooling and quality European steel. The inner bearing is of precision quality and accurately ground to allow the bearing to fit snugly inside the wheel, therefore providing an excellent frictionless smooth wheel movement.
4. The manufacturing methods used are precision turning, heat treatment, grinding and super-finishing of the Fleetwood tailored wheel. Each wheel is assembled by hand and 100% statistically process controlled (SPC)

<sup>1</sup> Fleetwood's Series 1000 comes standard with hardware industry roller bearings proclaimed as "precision". However, Fleetwood recognizes the benefits of authentic, certified Swiss bearings and therefore characterizes these as "sealed" bearings...e.g. Rolex versus Timex. The Series 1000 is the only product Fleetwood offers with "sealed bearings".

and visually inspected. Proprietary tolerances are extremely tight and achievable by only the finest worldwide bearing manufacturers.

5. The typical slop tolerances of 'market' rollers and assemblies are often at least 3x those used by Fleetwood. The bearing-to-wheel fit requires exact precision in order to achieve Fleetwood's specification.
6. The internal design of the bearing (raceway and bearing diameters) as used in the bearing for the Fleetwood wheel, has been optimized to provide maximum load carrying capability, lowest friction and longest durability.
7. Each bearing contains a special low friction contact seal, which enables the bearing to be protected from external contaminations (water and dirt), and therefore protects and enhances the internal lifetime lubricant. This low friction contact seal prevents any grease leakage ensuring maximum product lifetime.
8. Fleetwood's **Archetype** rollers are guaranteed for life and require NO maintenance.

## **Technical Information**

### Rolling Performance:

The operating force required to move an approximately 300 pound panel, is between 1.0 and 3.0 pounds. It requires 2-3 pounds to get the panel moving and 1-2 pounds to keep it moving.

Material: All Stainless Steel Construction

Load Rating: Each panel can efficiently handle 1800 pounds.

### Roller Life:

Estimate bearing life, based on a 600-pound panel is 7,000,000 revolutions. An 8' x 10' door travels approximately 4' to open and 4' to close or 12 roller revolutions. Based on the estimated bearing life, the precision rollers in a door that is opened and closed an average of 10 times a day would last for a 160 years.

## **Juxtaposing A4, A3 & A2 Rollers**

The real workhorse in each roller is the precision bearing, which is identical. There is no doubt an improved performance by going from the A2 to the A3 and the A3 to the A4, **but** this is only possible because of the authentic Swiss bearing technology. In other words, a shell game is played by the hardware industry when a 3" roller is introduced in an attempt to draw a fair comparison with the A3. The fact is that the A2 will outperform EVERY OTHER 3" roller on the market and the A4 even more so. Shrewd buyers simply need to review the technical specifications of the Archetype rollers with that of the "we got one too" manufactures.

## **Component TWO - Track**

**Series 4070-T, 3070, 3070-T, 3070-HI, 3050:**

**Series 3000, 3300-T, 1070, 1050, 1000:**

Fleetwood designed a tracking system that allows for a perfect convex/concave marriage of wheel and track. The insert is .030 thick and is constructed of Series 302 stainless steel. Though over 50 years old, the design essence of this insert is in every Fleetwood sliding door. Unless they copied this design, most manufacturers cover their extruded track with a metal cap.

In the early decades (60's-80's) Fleetwood offered two entry-level sliding doors (Series' 800 & 900), both of which had extruded aluminum tracks. This was responsible design because plastic wheels worked well in lighter weight panels. In the 1980's, when insulated glass was more prominent, heavier panels required metal wheels. A consequence was the degradation of the aluminum tracks. A short-term answer was to cap the aluminum. Fleetwood used this method for a decade but this stopgap design had at least two negative results:

1. The convexity is broader which adds subtle surface tension.
2. The cap will eventually loosen.

Fleetwood therefore redesigned its entire line of products around the original stainless steel track insert. Plastic wheels work for interior sliding products such as closet doors, but metal, and preferably stainless steel, is the only responsible roller and track material.