

Rollers are a very important component when it comes to sliding door operation. This guide will break down what to look for when choosing the best roller for your application.



Think back to the last sliding patio or screen door you operated. Was it difficult to open or did it glide effortlessly? A door with a smooth glide can be perceived as a high-end product even if it's your base model. And what is behind that smooth operation? Rollers!

ELEMENTS OF A ROLLER

HOUSING

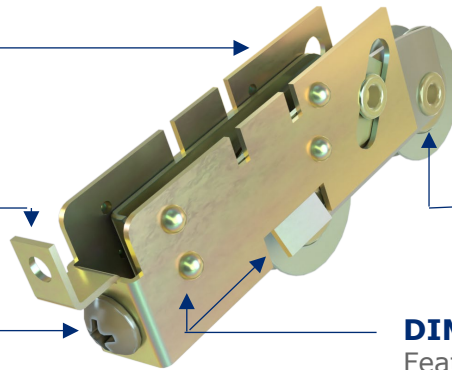
The base of the roller, comes in many designs and materials to fit any application.

TABS

Typically used for mounting a roller.

ADJUSTMENT MECHANISM

Adjusts wheels up and down. Rollers contain either a side or end (shown) adjustment point.



WHEELS

Quantity varies from 1 to 4 and size is best determined by the door panel weight.

BEARINGS

Are contained inside the wheel to provide the ability to roll under load.

DIMPLES OR FLANGES

Features in the housing that may be used for additional support in the application.

WHEELS

Rollers are available in single wheel, tandem (2 wheel), or quad (4 wheel) configurations with the number of wheels often chosen for panel weight and profile size.

- Single wheel and quad rollers are only available in end adjust styles so they can be good choices for thin wall (vinyl, aluminum, steel, fiberglass, etc.) applications.
- Large tandem and quad rollers carry and distribute weight well and therefore are a good choice for large and heavy doors.

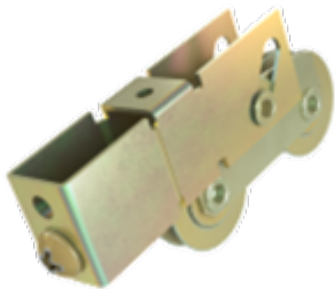
HOUSING

The primary function of the housing is to hold the roller in place inside the door panel.

- Housings come in a variety of styles which may include specialty mounting tabs, multiple hole placements, dimples, or flanges to accommodate different profiles
- They are primarily made of stainless or steel but may also be made from a composite material.
- Most rollers are installed using screws through the housing or mounting tabs
- Housings may also feature dimples or flanges to aid in proper placement or support.

ADJUSTMENT MECHANISM

There are two main styles of roller adjustment; END and SIDE.



END ADJUST ROLLERS

Commonly used in thin wall profiles like those made from vinyl, aluminum, steel, or fiberglass

Typically mounted in both lower corners of the door panel where a hole is provided to access the adjustment screw at the ends of the panel. There are also models that can be mounted away from the corners using mounting tabs if preferred for stability.

Rollers are adjusted by inserting a hand screwdriver in the screw and turning either clockwise or counter-clockwise to raise or lower the wheels

SIDE ADJUST ROLLERS

Commonly used in wood doors but can also be used in thin wall applications

Mounted away from the corners of the panel and are secured with mounting tabs on each end of the housing. A spacer is often used at the top of the roller to ensure a proper fit in the roller cavity allowing for even distribution of the panel weight to be applied to the carriage rather than the mounting tabs.

The door profile includes access holes (hidden by hole plugs) to the roller adjustment points in the face of the panel. AmesburyTruth offers 3 adjustment mechanism options - direct drive cam, gear driven cam, and wedge - described below.

ROLLER ADJUSTMENT TYPES - SIDE ADJUST ROLLERS:

Direct Drive Cam	Cam with a graduated diameter that interacts with a dimple at the bottom of the roller assembly to move the wheels up/down.
Gear Driven Cam	Functions like the Direct Drive Cam except that a gear mechanism inside the cam provides a mechanical advantage to ease wheel adjustment
Wedge Adjustment	Features a wedge that moves up or down a ramp inside the roller assembly to fine-tune wheel position by turning the adjustment screw

WHEELS

You have chosen the best housing arrangement to fit securely in your profile, but the door still does not roll smoothly without the right wheels. Wheels play a critical role in how your patio door operates. Wheel choice is very dependent on the panel weight, size, and planned environment. Ultimately, the key element to wheel function is how it's designed – the material, wheel diameter, groove size, and bearing type.

1. MATERIAL OPTIONS

MATERIAL	ADVANTAGES	DISADVANTAGES
Steel	Carries higher weights over composite wheels because the material allows for heat treatments called 'case hardening' which keeps the surface from wearing	Can wear away an aluminum track if sill cap is not used. Can rust in coastal regions
Stainless	Carries higher weights over composite wheels as it is an inherently tough material and becomes 'work hardened' through processes like machining Better corrosion resistance than steel	Can wear away an aluminum track if sill cap is not used. Can't be case hardened
Composite*	Quiet operation Won't wear aluminum track	Cannot carry as much weight as a metal wheel

* Composite wheels are commonly made from nylon or acetal molded over or inserted with a metal bearing. The addition of glass fill or machining from hard bar stock can improve weight carrying capabilities.

2. WHEEL SIZE

Wheels are available in many sizes (most commonly used are 1.25" and 1.50" in diameter) and should be chosen based on door profile and frame arrangement to provide the best fit and adjustment.

- Screen door wheels – typically range from .75" – 1.25" in diameter
- Sliding patio door wheels – typically range from 1" – 3" in diameter. Larger sizes are used for large or heavy doors with tall profiles

3. GROOVE SIZE

The fit of the wheel groove to the track diameter can affect the performance of the wheel. Grooves that are too narrow will drag on the sides of the track and create extra friction and wear in the application. Wheel grooves that are too large can wander on the track and create inconsistent wear. Most wheel grooves are designed to fit a .25 diameter track.

WHEELS cont'd

4. BEARING TYPE

The final element in the design of a wheel is the bearing - the small balls inside the wheels that help them roll. There are two choices of bearings in the sliding patio door market – conventional bearings and precision bearings. AmesburyTruth's conventional bearings are specifically engineered to provide superior life and weight carrying capability. Our precision bearings provide these properties while also reducing rolling force.

4a. CONVENTIONAL BALL BEARINGS

Conventional ball bearings can be broken into two groups - the common variety used by other hardware companies and a special variety developed by AmesburyTruth.

COMMON VARIETY BALL BEARINGS	AMESBURYTRUTH ENGINEERED BEARINGS
<p>Common variety bearings wheels are manufactured by one company and likely shipped to a hardware company for assembly into rollers.</p> <p>To ship a wheel assembly, a center/stud that has not been hardened must be used to act like a rivet holding the assembly together.</p> <p>This soft center component compromises the wheel performance resulting in lower weight capacity, rough operation, and higher operating force over time.</p>	<p>AmesburyTruth’s engineered bearing wheels are unique in that they are manufactured specifically for sliding patio doors in our own facility.</p> <p>This allows the use of 2 hardened center washers providing a 100% case hardened bearing.</p> <p>These bearings are not sealed but instead retain grease using a labyrinth inside the bearing that makes it difficult for the grease to escape.</p> <p>The result is better weight carrying capacity, lower operating force, and smoother operation over time than common variety ball bearings.</p>

WHEELS cont'd

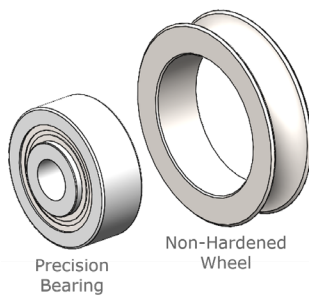
4b. PRECISION BEARINGS

Precision bearings are machined with extremely tight tolerances and contain a ball cage that forces the balls in the bearing to work in unison. They are rated using the ABEC scale and ratings are based on how tightly their tolerances are controlled. Precision bearings that do not meet ABEC standards are called "unground" bearings.

Take note, a tight tolerance on a precision bearing does not necessarily translate to a high-quality bearing. Sub-standard materials machined to a tight tolerance will not provide better performance.

Like the conventional bearings above, precision bearings can also be broken into two groups, pressed-in and integrated. Both types will include rubber or metal seals to retain the bearing grease. The majority of bearings offered from AmesburyTruth are integrated precision bearings.

PRESSED-IN PRECISION BEARINGS

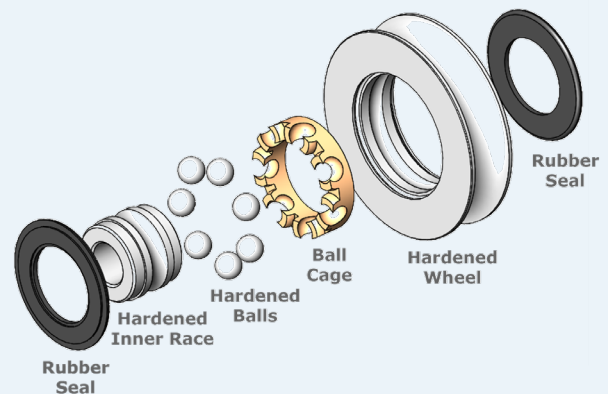


Made by purchasing a self-contained precision bearing off-the-shelf and pressing it into a soft (not case-hardened) sliding patio door roller wheel. The wheels will not be case hardened so that the bearing can be inserted and staked in place.

These wheels can only carry lower weight panels because of the soft outer wheels.

Wheel sizes of 1.5" in diameter and smaller do not have the material mass to retain the bearing over time and may exhibit poor cycle life as the bearing can come loose and cause a complete failure of the roller.

INTEGRATED PRECISION BEARINGS



The precision bearing cage and balls are assembled with the wheel using hardened inner and outer races/wheels with rubber seals.

These bearings will provide good cycle life and good weight capacity with an easy, smooth glide.

WHEELS cont'd

BEARING FAILURE

Bearings will fail when they are not well matched with the application. Increased operating force is usually the first sign of failure followed by dirt or debris from the wheels around the track, worn track, worn wheels, and worn-out bearings. Common causes of failure include:

- A panel weight that is too heavy for the bearing size
- Improperly hardened or "soft" materials
- Improper installation or panel/track mis-alignment
- Dirt or debris in the door sill
- Corrosion due to environment

AAMA CERTIFICATION

Rollers can be certified and placed on the AAMA Verified Components List (VCL) after testing at a registered test facility. A new list is published every month and is available for viewing on the AAMA website at [FGIA - Verified Components List \(VCL\) | AAMA Certification Program | VCL \(fgiaonline.org\)](https://fgiaonline.org). Periodic re-testing is required to keep a roller on the list.

Basic test elements:

- Drop test
- 10,000 cycle test (equal to opening and closing the door 2 times a day for over 13 years)
- Corrosion test

To pass, rollers must operate below a maximum rolling force of 5 to 13 lbs. depending on the overall panel weight. Also, adjustment height cannot change by more than .031 inches. Change in adjustment over .031 inches or operation force above the maximum value at any point in the test is considered a failure.

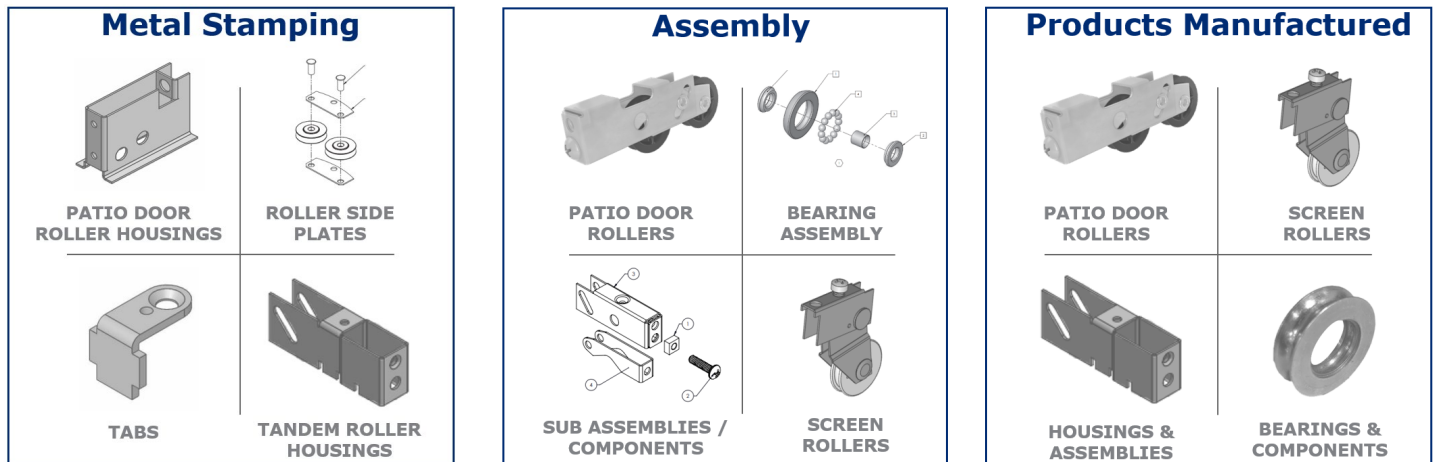
Rollers can be listed as a series for rollers that have common characteristics. The VCL identifies the roller series, material, and certification weight by roller. Panel weight will usually be double the certified roller weight.

Many AmesburyTruth rollers are AAMA certified through one of two internal certified labs. Contact your AmesburyTruth sales representative if the roller you are interested in does not appear on the current list.

OUR BRAMPTON FACILITY

Brampton is recognized as a best-in-class operation in the industry. Originally focused on producing precision machined ball bearings, the facility has successfully applied that expertise to develop and manufacture complete patio and screen door roller assemblies and with capabilities of:

- High volume multi-spindle machining centers / CNC turning/milling
- Secondary operation CNC
- In-house tool design and build
- Distribution warehouse capabilities
- Progressive stamping up to 110 tons
- Automated assembly department
- Full quality control department



HOW TO SELECT AN AMESBURYTRUTH ROLLER

When you begin your roller selection journey, be prepared to answer the following questions to select the best roller to match your application:

- 1. Are you interested in an end adjust or a side adjust roller?**
 - Wood profiles require side adjust rollers that mount away from the corner of the panel
 - Thin wall profiles, like vinyl, aluminum, fiberglass, or steel can effectively use either end or side adjust rollers.
- 2. What is the weight of the panel?**
 - AmesburyTruth single wheel end adjust : Up to 200 lbs.
 - Tandem rollers (side and end adjust): Up to 600 lbs.
 - Quad end adjust: Up to 1,500 lbs.
- 3. Do you sell into coastal areas?**
 - Choose stainless steel for corrosion resistance.
- 4. Is your track material aluminum or will you be using a stainless steel track cap?**
 - Steel or stainless wheels will wear away at an aluminum track. Plan to use composite wheels when a stainless steel track cap will not be used.
- 5. What is the available cavity size in your profile?**
 - Don't forget to consider any reinforcement that will be used.

Request a profile specific application – AmesburyTruth's application team is available to review your application and suggest rollers based on your requirements.

Selecting the right roller will make the difference in how the door is perceived.

AMESBURYTRUTH KEYSTONE END ADJUST ROLLERS

The Keystone Series is the foundational product design optimized to meet the performance and affordability for entry level applications.



1936 Single Wheel



1951 Single Wheel



1976 Single Wheel

Single Wheel Keystone	Market	# of Wheels	Wheel Diameter	Wheel Material	Housing Material	Bearing Type	Panel Weight Capacity
2114779 1936S-6000-2	Entry Level	1	1.50 in.	Steel	Steel	Conventional	200 lbs.
2114884 1951S-6000-2T	Entry Level	1	1.50 in.	Steel	Steel	Conventional	200 lbs.
2115194 1976S-4000-3NS	Entry Level	1	1.25 in.	Steel	Steel	Conventional	200 lbs.



1936 Composite



1951 Composite



1976 Composite

Composite Keystone	Market	# of Wheels	Wheel Diameter	Wheel Material	Housing Material	Bearing Type	Panel Weight Capacity
2114769 1936-C6000-2	Entry Level	2	1.50 in.	Composite	Steel	Bushing	150 lbs.
2114856 1951-C6000-2T	Entry Level	2	1.50 in.	Composite	Steel	Bushing	150 lbs.
2115172 1976-C4000-3NS	Entry Level	2	1.25 in.	Composite	Steel	Bushing	150 lbs.

AMESBURYTRUTH END ADJUST ROLLERS



1951



1976



1935



1978



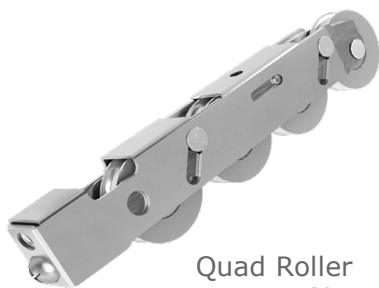
1990



1939

End Adjust Tandem	Market	# of Wheels	Wheel Diameter	Wheel Material	Housing Material	Bearing Type	Panel Weight Capacity
2114877 1951-6000-2T	Mid Market	2	1.50 in.	Steel	Steel	Conventional	400 lbs.
2115185 1976-4000-3NS	Mid Market	2	1.25 in.	Steel	Steel	Conventional	400 lbs.
214746 1935-4678-2	Mid Market	2	1.25 in.	Steel	Steel	Conventional	400 ls.
2115209 1978-4001-2	Mid Market	2	1.25 in.	Steel	Steel	Conventional	400 lbs.
2115274 1990-4000-2	Mid Market	2	1.25 in	Steel	Steel	Conventional	400 lbs.
2114828 1939-P795-SS	Premium	2	1.81 in.	Stainless	Stainless	Precision	600 lbs.

AMESBURYTRUTH END ADJUST ROLLERS



Quad Roller
Low Profile



Quad Roller

End Adjust Quad	Market	# of Wheels	Wheel Diameter	Wheel Material	Housing Material	Bearing Type	Panel Weight Capacity
2115191 1976Q-PS6000-2	Premium	4	1.50 in.	Steel	Steel	Precision	1,200 lbs.
2115192 1976Q-6000-2SS	Premium	4	1.50 in.	Stainless	Stainless	Precision	1,200 lbs.
2121687 38.28.00.051	Premium	4	1.81 in.	Stainless	Stainless	Precision	1,500 lbs.

AMESBURYTRUTH SIDE ADJUST ROLLERS



1973



39 Series



1984



1988



38.09



1981



1983

Side Adjust Tandem	Market	Wheel Diameter	Wheel Material	Housing Material	Adjust Type	Bearing Type	Panel Weight Capacity
215165 1973-4000-25	Entry Level	1.25 in.	Steel	Steel	Direct Drive Cam	Conventional	400 lbs.
2121688 39.10.00.203	Mid Market	1.25 in.	Steel	Steel	Gear Driven Cam	Conventional	400 lbs.
2115244 1984-9043-ST	Mid Market	1.43 in.	Steel	Steel	Wedge	Conventional	400 lbs.
2115255 1988-P8000-SS	Premium	1.66 in.	Stainless	Stainless	Wedge	Precision	600 lbs.
2121620 38.09.00.151	Premium	1.88 in.	Stainless	Stainless	Wedge	Precision	400 lbs.
2115210 1981-PRS-212WSS	Premium	2.12 in.	Stainless	Stainless	Wedge	Precision	600 lbs.
2115224 1983-PRS-212WSS	Premium	2.12 in.	Stainless	Stainless	Wedge	Precision	600 lbs.