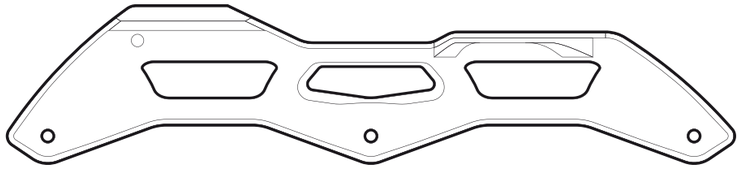
POWERSLIDE
FRAME GUIDE

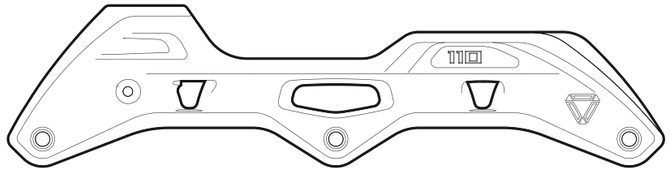
FRAMES GUIDE

Inline Skate

FRAME LENGTH

Frame length is often expressed in either inches or in millimeters. Frame sizes on the market range from 8.1" (205mm) to 13,8" (350mm). SUV off-road skats usually are equipped with even longer frames. When selecting your frames be sure that the length accepts the max wheel size you want to use.





LONGER ..... **SHORTER**

Stable	Agile
Heavier	Lighter
Stronger push	Faster push
Longer stride	Shorter stride

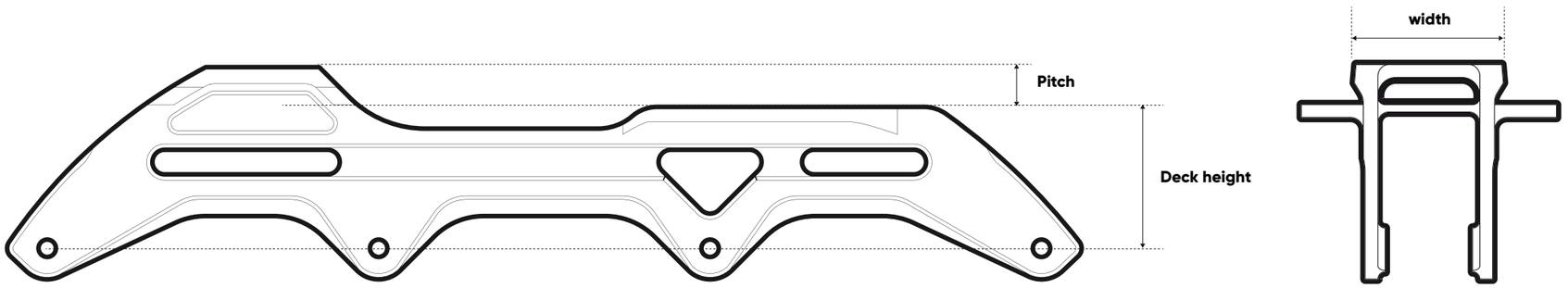
Racing
Marathon
Downhill

Fitness
Urban
Transportation

Slalom
Hockey
Aggressive

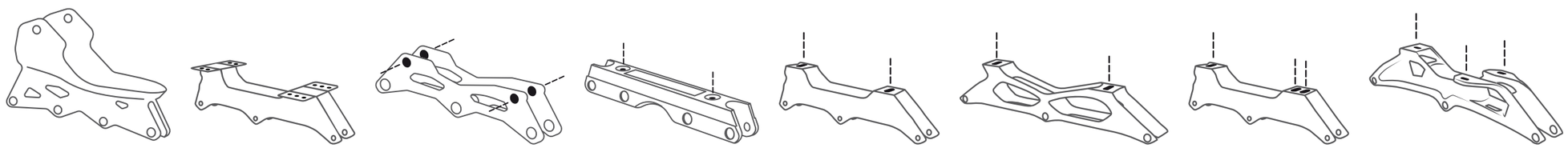
PITCH AND DECK

The ‘pitch’ is the regular height difference between the front and rear deck of the frame. The standard in the skating industry is 11mm.
The ‘deck height’ is the vertical distance between the axle line and the deck. Generally speaking, it’s better to have a low deck height to get more stability.



The “deck width” is also in important factor with frames. A wide deck will give you better stability, in contrast to a narrow deck which will help you to move faster from edge to edge.

MOUNTING SYSTEM



Unibody | Riveted | Side | UFS | 165 | 195 | 165 & 195 | TRINITY

Unibody
The shell and frame are made out of one single piece. This unique construction drastically minimizes the hardware, thus reducing the weight. Another benefit is the lower ride height to the ground which offers you much better control maximizing the possibilities of larger wheel use with all the benefits of this new, low center of gravity.

Rivet mounting
In Inline hockey, most frames are fixed with multiple rivets to the bottom of the boot. Rivets are also use in budget fitness or urban skates. Mounting the frames with rivets gives the skate a very stable platform but has the disadvantages that the frame can´t be shifted or replaced if needed.

Standard Side mounting
Frames mounted at the side of a skate are a fast and cheap way to produce skates and is mostly used in kids and fitness skates. This method of fixation doesn´t allow you to adjust or customize the frame position under your boots, which is helpful to correct any disbalances or to improve the overall performance of your skates.

UFS mounting
Universal Frame System. This mounting system was developed specifically for aggressive skates in order to simplify and standardize aftermarket frame production. Defined by the distance between the front and rear bolts, this new standard opened up the floodgates for customization and aftermarket product sales as it was now possible to assemble any UFS frames to any sized UFS boots.

MOUNTING SYSTEM

165:
Standard 2-point mounting with 165mm distance
This traditional 165mm 2-point mounting has been one of the dominate mounting standards for inline skates for the past three decades. This same mounting you are familiar with was entirely revolutionized thanks to the Powerslide X-Slot mounting system, which allows you to customize the frame / boot position to your own personal preferences giving you the most optimal skating experience. This mounting system is used nowadays mostly for urban skates or in kids racing.

195:
Standard 2-point mounting with 195mm distance
The 195mm 2-point mounting standard was developed when larger wheels like 100mm and 110mm rose to popularity. After approval in the racing world, this standard was transferred to modern fitness skates as well. Compared to 165mm mounting the longer distance between the two mounting points helps to lower the frames center of gravity, especially those featuring 4x100mm or 4x110mm or a 110mm/100mm HIGH-LOW wheel setups. Creating a better and safer platform to skate on with larger wheels.

165 & 195:
A frame that includes both 165 and 195mm mounting

MOUNTING SYSTEM

TRINITY
The best mounting system available on the market for inline skates.
TRINITY is our patented three-point mounting system, it is the cutting edge of modern Inline skate technology. TRINITY features dual front mounting points to create a deep grooved channel for the wheels allowing them to sit as close to the foot as possible, dramatically lowering the center of gravity. This triangulated mount creates a solid platform and increases energy transfer efficiency. TRINITY works perfectly for 3 wheels setups but also provides outstanding advantages to 4 wheeled skates:

· Better power transfer: Thanks to the power triangle formed by the 3 mounting points.
· Stronger: Because the forces are spread over 3 mounting points.
· More control: Due to the strong 3-point connection of the boot and frame and the wide distance between the two-front mounting points.
· Easier skating: The power triangle also helps with your weight transfer and balance.
· Lower center of gravity: This means more control, stability, and thus safer skating.
· X-Slot mounting to customize the frame position under your boots
· Fatigue control: TRINITY not only boosts your performance but also absorbs more vibration and eases the roll over cracks and rough surfaces making every moment on your wheels as effortless and enjoyable as possible.

UNIBODY
STANDARD SIDE MOUNTING
UFS
165 mounting
195 mounting
TRINITY

WHEEL SETUPS

4 WHEELS

PROS:
4 wheel setups usually use smaller wheels.
Lower and closer to the ground for more stability.
The 2 wheels in the center make the skates less agile and more stable.
The lower center of gravity releases stress from the ankles.

CONS:
Slower.
Less agile.
Very sensitive to bad floors and bumps.
Easier to touch with the boot on slides and close turns.

3 WHEELS

PROS:
3 wheel skates come with bigger wheels.
Bigger wheels offer a better roll on any surface.
The central wheel makes the skates more agile.
Less wheels means less weight.
Bigger wheels offer more push and grip.
Higher top speeds.
As you are higher you can lean more on slides and turns.

Cons:
Higher and more unstable.
Wheels are more expensive.
More pressure on the ankles.

In the last 3 decades frame designs and standards have changed a lot, going from 5 wheels set ups to 4 wheels set ups and now 3 wheels as a new standard. Having less wheels on a skate reduces the frames length but with this we can compensate with an increase of the sizes of the wheel's diameter. This creates a frame that is very fast with its 110mm wheels, yet still very agile with its short length. Currently 3X110mm is the bestse-lling setup now across most inline skate segments. However 4 wheels are still very widely used and some frame companies still even offer 5 wheel options in segments like downhill.

FRAME SETTINGS

WHEEL ALIGNMENTS

Flat
Usually all 3 or 4 wheels of an inline skate are in contact with the ground. This wheel set-up is called FLAT setup. A flat setup offers the most contact with the surface for a smooth and fast ride. It also helps to keep your balance – especially for beginners.

Rocker
In certain skate disciplines athletes require a so called ROCKER frame setup. This means that not all 3, 4 or even 5 wheels have contact with the ground. A rockered wheel set-up increases the agility of a skate, but has disadvantages such as reducing your balance or skating in fast straight lines.

HIGH-LOW
This setup combines combines different diameters of wheels in the same frame but distributed in a way that all wheels touch the ground when skating. Smaller wheels accelerate a little easier while larger wheels provide a higher top speed.

Anti-rocker
Used just in aggressive skating, this set up has smaller middle wheels to create extra space around the ‘h-block’ to reduce wheel bite on grinds. It can also be used to create space for a grind block.

Freestyle
Also used just in aggressive skating. This style of frame uses just two wheels, with the entire space between the wheels as one large grinding area, or ‘h-block’.

MANUFACTURING PROCESS

Extrusion & CNC machining
Premium frames are made by extrusion and CNC machining. Extrusion is a process used to create objects of a fixed profile. The aluminum alloy is pushed through a die of the desired profile resulting in a profiled aluminum block which is then CNC machined into its final shape. The two main advantages of this process, over other manufacturing processes, are firstly its ability to create very complex profiles and secondly to work materials that are brittle because the material only encounters compressive and shear stresses. It also forms parts with an excellent surface finish.

Single Voided and Double Voided
Another notable difference in frames is their construction. Frames with a bridge between the wheels are called “double voided” frames. The bridges give additional support for the frame against torsion, etc. and these bridges also make the frame stiffer which helps transfer more power into speed than regular frames. Frames without these bridges are called single voided frames. But there are also frame designs like the TRIPLE X frame (X Bridge) or the ICON frame (CNC machined out of a single large block) that can be even stiffer although they are not built with a double voided construction.

Triple Voided
Triple Voided extruded frames are engineered to be as stiff as possible to provide excellent strength and responsiveness. Designed with a focus on intense urban skating, Triple Void frames include a bridge in the center of the frame and on the bottom edge between the wheels to augment strength and stability. Triple void extruded technology gives you high-performance urban frames that can take a beating.

X-Box
Extruded frames with X-Box extrusion provide the best strength to weight-ratio possible. Engineered with “X” technology in all 3 dimensions, X-box construction ensures a light, strong, precise frame. X-Box extrusion is a race-proven technology, used in POWERSLIDE’s famous Triple X frames that have brought countless racers to the top of the podium, including World, European, and national championships.

MANUFACTURING PROCESS

3D stamped
This is a high-quality manufacturing process to develop stiff, yet lightweight frames. Most stamped frames on the market are made of two pieces, meaning two side walls individually stamped and later joining together by the mounting blocks. Higher quality and more advanced frames are made of a single piece. In the first step a sheet of high-quality aluminum gets stamped, then following this, two bending and stamping processes give the frame it´s final look. The 3D shape of this one-piece frame provides the stiffness and rigidity that is required of a modern inline skate frame. 3D stamped frames are mainly used for kids' skates and fitness skates where having a lower price is very important. It is also used in some budget urban skates. The 3D stamped sing

3D casted
This is a high quality manufacturing process to create very stiff and stable, yet lightweight frames. POWERSLIDE's 3D casted frames are perfectly shaped around the wheels to enclose them and optimize the space. Performance wise they can easily compete with any other frame on the market. The 3D construction enhances the stiffness and power transfer and offers similar performance characteristics to those found in CNC made frames. Thanks to its lower center of gravity and sturdy construction, TRINITY 3D casted frames score very high in terms of acceleration, control, and top speed. These facts have been race proven by many skaters and the most outstanding achievement would be when Katherina Rumpus, one of the strongest and revered Marathon skaters ever, won the Berlin Marathon in 2018 and also took second place in 2019. 3D casted frames are also very strong and durable and so able to withstand jumps, slides and stair rides etc. making them a popular choice for urban skating.

CNC machined · SINGLE VOIDED · DOUBLE VOIDED · TRIPLE VOIDED · XBox · 3D STAMPED · 3D casted

MATERIALS

The material of a frame is one of the key differences amongst the various models. Most of the frames are made of aluminum which can be found in many different varieties. Another even more lightweight alternative are frames made of magnesium or carbon fiber.

Aluminum
Aluminum alloys are alloys in which aluminum (Al) is the predominant metal. The typical alloying elements are copper, magnesium, manganese, silicon and zinc. The 7003 aluminum we use for urban and racing frames contains more zinc and has a higher tensile strength than 6000 series aluminum. It's important for the strength and rigidity of the frames that it undergoes T6 heat treatment. The 6061 aircraft aluminum we use for frames contains more magnesium and silicon which gives the material more elasticity which is easy to work with. It has less tensile strength than 7000 series aluminum. It's also very important for the strength and rigidity of the frames that it undergoes T6 heat treatment.

Magnesium
Powerslide offers various magnesium frame options. These lightweight yet strong frames are becoming increasingly popular once more as each gram of weight saved helps you to skate with better technique and improves your overall performance. Besides steel and aluminum, magnesium is the most commonly used metal. Magnesium in pure form is quite similar to aluminum, but Magnesium is 20% lighter than aluminum at the same strength. Both are also commonly used across a variety of other industries, for example in the automotive industry as well as for commercial vehicles. We use casted MG frames 60B.

AL MG

MATERIALS

Carbon
Since around 2004 carbon frames have been available on the speed skate market, with Korean brands being the first to introduce them. Carbon is a high-tech material which is used a lot in speedskating, but also espe

Plastic
Plastic frames are very popular on both entry level kids skates or fitness skates but is most commonly used for aggressive skating frames. Injection molding is a manufacturing process in which a liquid plastic compound is injected into a mold to shape it into the final product. Injection molding offers the complete creative freedom to make truly unique frame designs. There are many different composites on the market, basic frames for kids skates or fitness skates are made of polypropylene (PP) while high end frames like the ones used in aggressive skating are made of high end nylon like PA 66 with added glass-fiber or even carbon fibers for reinforcement.

CARBON FIBER

PL

AXLE SYSTEMS

There are two standards of axles for inline skates – 8mm and 6,3mm. At Powerslide we mostly use 8mm axles on almost all our frames.
You can find axles featuring either a 4mm hex or T25 Torx (star) head. A Torx axel has the advantage of not stripping out so easily.

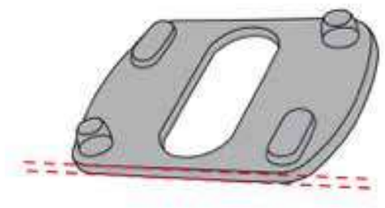
Single axles
Single axles are very common in high-end skates, such as the ones used in race or slalom. One-piece axles allow for a fast wheel exchange, so athletes can maintain and exchange wheels effortlessly with just one tool in a very short time. This is particularly useful in races or at competitions.

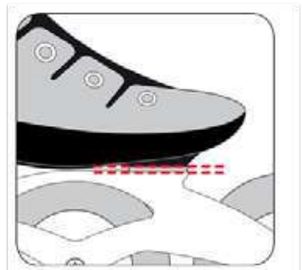
Double axles
Double piece axles are strong and durable against impact resistance. Which is very useful in some segments, especially in disciplines where skaters perform lots of jumps.

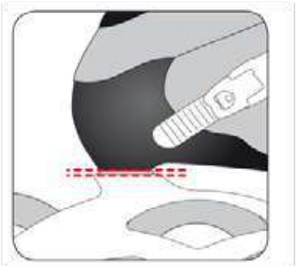
Please make sure you always use POWERSLIDE axles on POWERSLIDE frames. Using a different axle than the one specified for a frame could result in a wheel coming loose and even falling out! It could also result in an axle getting stuck in your frame.

PITCH- AND STRIDE CONTROL

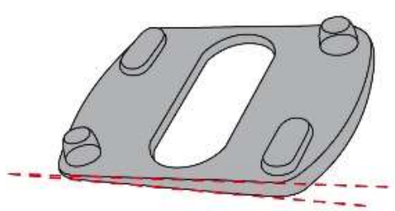
Pitch Control
This helpful little tool can easily increase your setups performance and is predominantly used by speedskaters. You can lean more forwards for sprint races or more backward for long-distance skating by placing these small plastic blocks between the boot and frame. The blocks can also be used if your individual skate setup doesn´t match and you are facing a wheel touching problem. The blocks add more space for the wheels and so give them sufficient room to spin. The Pitch Control is available for regular 2-point mounting standard as well as for the TRINITY 3-point mounting standard.

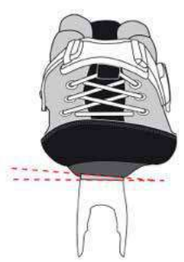






Stride Control
Small plastic wedges placed between the boot and frame can help to improve a skaters performance. The Stride Control can provide a longer stride (push), especially in corners and also can correct the offsets from mal foot positions like “O-legs” or “X-legs”. The Stride Control is available for regular 2-point mounting standards as well as for the TRINITY 3-point mounting standard.
The placement of the angled plate can help to offset leg imbalance (pronation or supination).





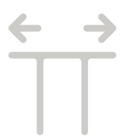
FRAME SETTINGS

Front to back
The front to back setting option can be used on either the boots/shoes or on the frame depending on the mounting system you use. In general, 165 and 195 frames don't have the option of front to back but the shoes should offer it. For TRINITY frames, the front to back adjustment is on the frame as the side to side is on the shoes. The front to back on a TRINITY frame has an 8mm range.
Side to side
The side to side range on a 165 or 195 is about a 12mm range, whereas the TRINITY offers a 4mm range and the TRINITY X an 7mm range.

ADJUSTABLE

X slot
Frame adjustment functions both side to side and front to back
The combination of the 'along' mounting block in Powerslide boots and the 'across' mounting slot on Powerslide frames forms an "X". The X-Slot Mounting System allows skaters to shift the frames under their boots in all directions to find the best 'Individual Frame Alignment' for them. The X-Slot technology can be found in Powerslide skates featuring both a regular 2-point mounting system and our TRINITY/TRINITY X 3-point mounting standard.

X SLOT



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