



The Frame

Materials

The material of the frames is the first difference among the various models. Most of the frames are made of aluminium which can be found in many different varieties. Another, even more lightweight alternative are frames made of magnesium or carbonfiber. Frames made of composite materials failed in speedskating because a lot of energy was absorbed by the frame which results in slow speeds during skating.

Aluminium

Aluminium alloys are alloys in which aluminium (Al) is the predominant metal. The typical alloying elements are copper, magnesium, manganese, silicon and zinc.

The 7005 aluminium we use Core and powerslide racing frame contains more zinc and has a higher tensile strength than 6000 series aluminium; important for the strength and rigidity of the frames. The frame is also T6 heat treated.

The 6061 aircraft aluminium we use for frame contains more magnesium and silizium which gives the material more elasticity which is easy to work with. It has less tensile strength than 7000 series aluminium; important for the strength and rigidity of the frames. The frame is also T6 heat treated.

Magnesium

Frames made of magnesium are getting popular again. Powerslide offers various magnesium frames – and especially frames for kids and junior skater. They often have less muscular power and each gram of weight saving helps them to skate with better technique and to improve their overall performance. They don't get tired as fast and have more fun skating.

Besides steel and aluminium magnesium is the most common used metal. Magesium in pure form can be compared with aluminium. It is lightweight byet strong and is used for example in the automotive industry as well as for commercial vehicles. Magnesium is 20% more lighter than aluminium at same strengt. We use AZ61 magnesium for our speedframes.

Carbon

Since about 2004 carbon frames have been offered first tme in speedskating. Korean brands have been the first who came to market. It has become silent after the first hype over the years and it seems that carbon frames are getting more popular again.

Carbon is a high tech material which is used a lot in speedskating, but also especially in the bike industry. We will see what the future will bring for carbon frames.

Important Terms

Single Voided and Double Voided

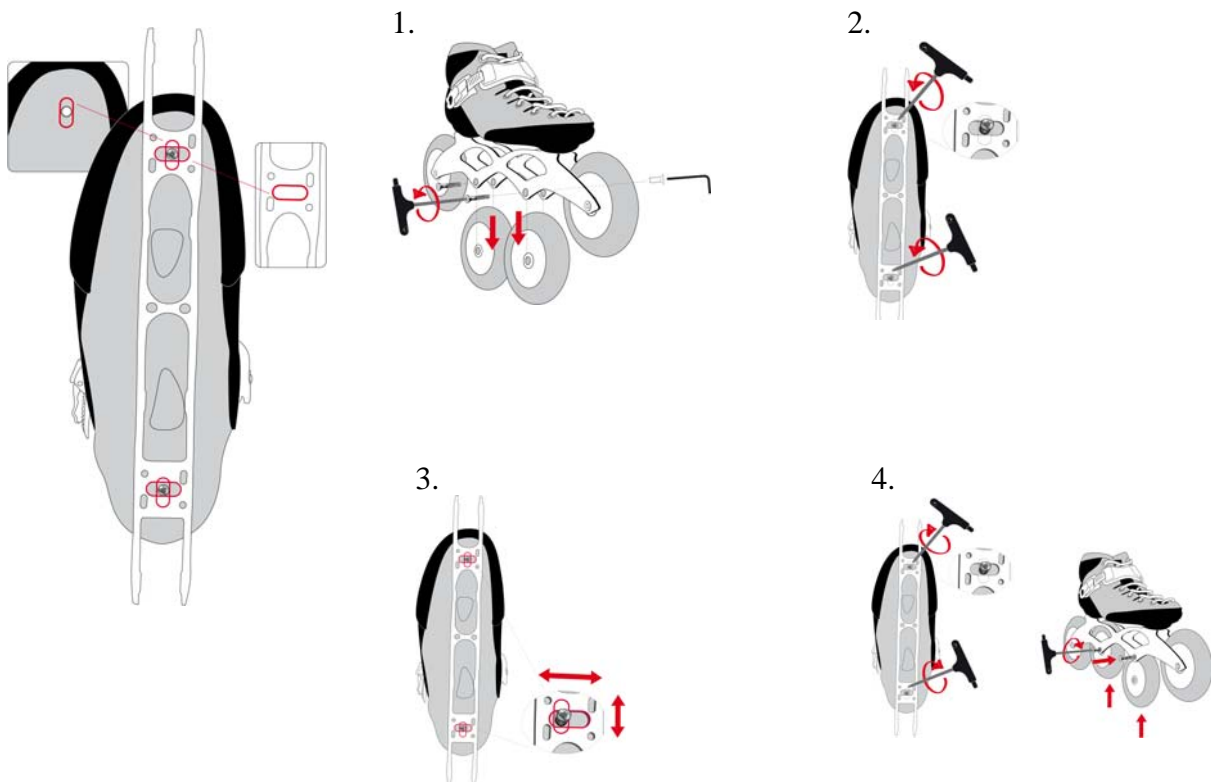
Another difference is the construction of the frames. Frames with a bridge between the wheel are called “double voided” frames. The bridges give additional support for the frame against torsion, etc. The frame is stiffer and transfers more power into speed than regular frames. Frames without these bridges are called single voided frames. But there are also frame designs like the TRIPLE X frame or the ICON frame from Core Racing that are also very stiff although they do not build like a double voided construction.

X-Slot Mounting System™ ← SLXOT →

The combination of the „along” mounting block of some of our racing shoes and the “across” mounting slot on some of our racing frames is forming a “X”. We call this kind of construction the X-Slot Mounting System™.

The advantage of the system: The Athlete has endless possibilities to adjust his boot-frame set up to his own individual preferences. No more dead spot like on common systems.

The pictures below demonstrate the options you have with the X-slot mounting and the steps it takes to customize your frame:





My Boot and Frame have an across slot – what to do?

Even in this case you don't have problems. You are just limited to adjust your frame position. Most skater position their frame centered anyway and do not shift it forward or backward. You still have the option to shift your frame sideways which is most common and most important.

The option to shift the frame forward and backward is just an additional feature that Core and Powerslide frames offer.

How to position my frame

The position of the frame depends on the individual technique and each skaters personal preference.

Center: In most cases skaters choose to mount the frame centered under the boot. Entry level speed skaters should place the frame in this position or slightly inwards. Center of foot is the middle of your heel and between your first and second toe. Only looking at the bottom of the boot can be deceiving and every brand is a bit different, but your toes are always the same.

centered to inside: This position helps to set the skate towards the outside edge of the wheels. The stroke will be longer and can assist in getting outside edges (helps to skate the double push technique).

Positioning of frame forward or backward

It's the same procedure. The position of the frame depends on the individual skills and personal preferences.

The experience shows that most skater do not change the position of their frame once they set it up following their special preferences. The reason is quite simple. Track and road races for example are often held during the same weekend. The skater has not enough time to change the sset up and to adapt to it and therefor prefers to make a compromise and uses one set up for all kind of races.

Assembling of boots:

You need the following items:

Two screws including washer

- Make sure the screws are tightened firmly to make sure you will not loose them during skating.
- Rattling noises will be a sign for screws that start to get loose.
- You can use a snap ring, which you will find in every do-it-yourself store, if your frame gets loose although you've tightened the screws firmly.
- You can also use „Loktide“ or „Nylok“ on the screws to prevent them from getting loose.

What kind of axles fit to my frame?

Powerslide uses M7 axles on all frames. All axles feature a T25 torx head.

Powerslide also changed all mounting screws for their speedskates and frames from regular hex system to the “star” or torx system. The hex system is quite weak and easy to get stripped.

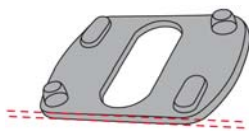
Pitch- und Stride Control™



The concept is based on the experience and idea of world class skater Kalon Dobbin (NZN). There are many different competitions in modern speedskating ranging from 200m sprint to a marathon. Some skaters specialized for sprint, some for long distance and some skaters are allround skaters performing at highest level in both. At pro level every detail counts to win or loose. Sprintskater for example need more forward flex means more pitch (height difference between front and rear of the boot) whereas long distance skater prefer a smaller pitch. You can also increase the time of contact of your wheels especially in the corners of track races by changing the angle of the shoe to the frame.

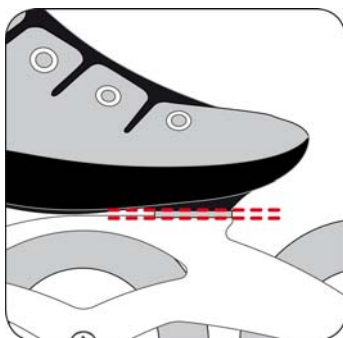
The Powerslide Pitch and Stride Control™ enables the skater to customize his set up with the target to optimize his performance. The new Powerslide and Core Racing frames support the new system. Thus you will be able to put a flat or angled piece of composite material between your shoes and frames.

Pitch Control

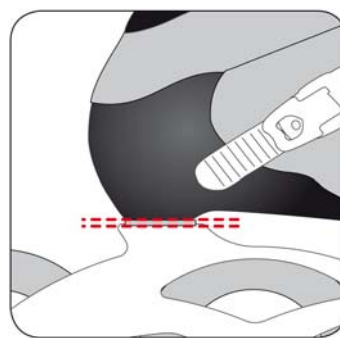


Place the plate under the heel and lean more forward for fast action or place it in the front under the bale to lean more backward for long distance.

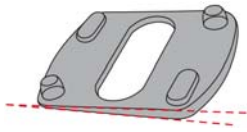
Long distance skater will use the Pitch Control under the front mounting block
In order to relief the tibial muscle



Sprinter will use the Pitch Control under the heel in order to get more forward lean

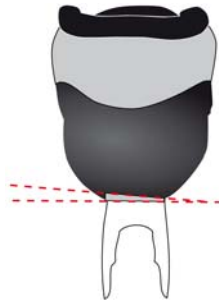
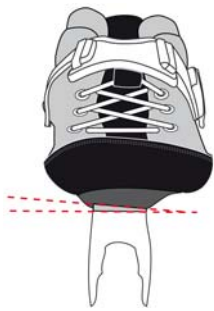


Stride Control



The placement of the angled plate can result in a longer push especially on track and can also help to offset leg imbalance (pronation).

The use of the wedge on the outside is likely to be found rather rarely, but there might be some cases. An O-leg position could be compensated. Otherwise, the wedge has no external benefits in terms of performance. The use of the wedges on the inside avoids an inward buckling of the skates.





Do you have a frame chart showing the most important datas of your frame collection?

All current offered speed frames from Core Racing and Powerslide are listed in the frame chart below. We collected the following information for you

- Setup of frame – which size and number of wheels can be used on the frame
- Weight of frame
- Hight of frame front and rear
- Purpose of frame (standard recommendations – purpose might vary for some skaters!)



What kind of boot-frame set ups do you offer?

The chart below is listing the different boot and frame combinations that we offer currently in our speed collection.

Frame	Boot
13,2" 4x110mm 195mm	R2, R4 Double X, Vision, C8, PH9 Vi-Rs, Vi-SL Vi-Pro Carbon, Icon, Triple X ² Custom Boots
13,2" 4x110mm 195mm	R2, R4 Double X, Vision, C8, PH9 Vi-Rs, Vi-SL Vi-Pro Carbon, Icon, Triple X ² Custom Boots
11,6" 4x90mm 165mm	R2, R4 in Gr 37/38, R2 Kids Vision Junior Vi-RS Junior
10,25" 4x84mm 150mm + 165mm (2 in 1)	R2, R4 in Gr 37/38, R2 Kids Vision Junior Vi-RS Junior
13,2" 4x110mm 195mm	R2, R4 Double X, Vision, C8, PH9 Vi-Rs, Vi-SL Vi-Pro Carbon, Icon, Triple X ² Custom Boots
13,2" 4x110mm across 195mm	R2, R4 Double X, Vision, C8, PH9 Vi-Rs, Vi-SL Vi-Pro Carbon, Icon, Triple X ² Custom Boots
12,8" 3x110mm/1x100mm across 195mm	R2, R4 Double X, Vision, C8, PH9 Vi-Rs, Vi-SL Vi Pro Carbon, Icon, Triple X ² Custom Boots
13,2" / 4x110mm across 195mm	R2, R4 Double X, Vision, C8, PH9 Vi-Rs, Vi-SL Vi Pro Carbon, Icon, Triple X ² Custom Boots
12,8" / 3x110mm/1x100mm across 195mm	R2, R4 Double X, Vision, C8, PH9 Vi-Rs, Vi-SL Vi Pro Carbon, Icon, Triple X ² Custom Boots
12,8" / 4x105mm across 195mm	R2, R4 Double X, Vision, Infinity, C8, PH9 Vi-Rs, Vi-SL Vi-Pro Carbon, Icon, Triple X ²



	Custom Boots
13,2" / 4x110mm across 195mm	R2, R4 Double X, Vision, Infinity, C8, PH9 Vi-Rs, Vi-SL Vi-Pro Carbon, Icon, Triple X ² Custom Boots
12,8" / 4x105mm across 195mm	R2, R4 Double X, Vision, Infinity, C8, PH9 Vi-Rs, Vi-SL Vi Pro Carbon, Icon, Triple X ² Custom Boots
13,2" / 4x110mm across 195mm	R2, R4 Double X, Vision, Infinity, C8, PH9 Vi-Rs, Vi-SL Vi Pro Carbon, Icon, Triple X ² Custom Boots
12,8" / 4x105mm across 195mm	R2, R4 Double X, Vision, Infinity, C8, PH9 Vi-Rs, Vi-SL Vi Pro Carbon, Icon, Triple X ² Custom Boots
10,8" / 4x90mm, across 165mm + 195mm (2 in 1)	R2, R4, R2 Kids Double X, Vision, Infinity, C8, PH9, Vision Junior Vi-Rs, Vi-SL, Vi-RS Junior Icon, Triple X ² Custom Boots, alle Powerslide / Core Racing Schuhe in Gr. 36 (EU) oder kleiner
12,0" / 4x100mm 195mm	R2, R4 Venom, Double X, Vision, Infinity, C8, PH9 Icon, Triple X ² Custom Boots
13,2" 4x100mm across 165mm	R2, R4 in Gr 37/38, R2 Kids Vision Junior Vi-RS Junior

Frames featuring the new X-Slot System can be combined with regular shoe mounting systems and vice versa a frame with regular mounting system can be mixed up with shoes featuring side slots. The individual adjustment of the shoe – frame set up is limited in both cases

Frames with 195mm X-Slot Mounting System are not compatible with 165mm mounting standard!



Which frame fits to my speed skate?

There is no simple answer to this question. First of all we should define the different target groups.

Kids (Speed)

For children who start with speed skating it is recommended to take a 4-wheel frame. It's the best choice to learn the coordination as well as the correct skating techniques. Later the kids should choose frames and wheel sizes according to their age and shoe size. The coaches in the clubs usually are experienced and will give advice to parents and kids which frame and wheel set up to use. The frame and wheel size also depends on the rulebook of the national federations and might vary from country to country. In principle, the following general advice can be given: the younger the child, the shorter the frame, and the smaller the wheels. Coaches often use even smaller wheels than possible in the training. They lower the center of gravity by doing this and help the kids to learn the skating techniques easier. They use wheels of 76mm diameter in a 4x84mm frame for example. The shortest by Powerslide offered frame has a length of 10.25" or 260mm

The trend for bigger wheels also reached the kids. Especially in the U.S. and other countries you see kids skating on 3x100mm setups. The rulebook of the German federation prohibits the use of 3 wheel skates in competitions. Please check with your coaches which frame and wheel sizes your kids are allowed to use in competitions..

Junior (speed)

Junior skater usually switch to 100mm wheel setups or even bigger to 110mm wheels. The length of frame offered by the various brands can vary from 12,0" for 4x100mm wheel setups up to 13,2" for 4x110mm wheel setups. Shorter athletes with smaller feet usually choose shorter frames with a length of 12,0" or 12,4". Medium to large sized skater prefer 12,8" or even longer frames. The athlete should take the advice of his coaches who usually knows which frame works best for his athletes.

Male (Speed)

For male speed skaters, the 4x110mm frame setup has clearly prevailed. There are only few exceptions of athletes in the top level, who use a different setup in the competitions. Larger and heavier skaters and very powerful skate usually prefer a very very stiff frame. Lightweight skaters and very technical skater prefer frames that have a little flex in the front or rear fork, such as the Icon frame from Core Racing for example.

Female (Speed)

Female skaters often prefer a slightly shorter frame, like 12,8 and the 3x110mm / 1x100mm wheel setup. Powerful female skater also use 4x110mm setups.

The experience also shows that female skater also like to have some flex in their frames. They are more lightweight than the male skater and benefit from the "snap" which gives some energy back to the skater after flexing. The Icon frame and the new Triple X² Pure frame which has been designed especially for female skater are two great examples of frames that are perfectly addressed for female skater.



Kids (Fitness)

The skate manufacturers only offer complete skate packages with 4 wheel frame set ups. Entry level skates often feature frames that are rivited to the shell which can not be replaced. High end skates for kids already offer frames that could be replaced by other frame setups if needed. The wheel size is also set by the manufacturers. The skates are equipped with age appropriate frames and wheels, so you can't make any big mistakes.

Male/Female (Fitness)

Skate manufacturers also offer complete skate packages with fix sets of frames ans wheels. The frames of entry level skates are also mainly rivited to the shoes and can't be exchanged. You only can exchange wheels and bearings when worn off.

Skates in the medium to high price level feature frames that are assembeled by screws (from bottom side) which gives the skater the option to finetune his setup later on if required. There are various kind of options for frames and wheels in the market to choose.

What's it all about the Energy Vibration Management (EVM) of Vi Pro Carbon Frames?

There are 9 main factors that have influence on the performance of skates and the frame specifically. Each of the factors is important for itself and in combination. The new Vi pro carbon frames wants to optimize these factors and the relation to each other in order to develop the best possible boot-frame-wheel set up. The Vi Pro Carbon frame sets a new standard.

Instructions for the Vi Pro Carbon Schiene

The Vi Pro Carbon frames allows you to alter flex and stiffness of your frame according to your personal preferences. You can customize the set up for yourself and the circumstances of the next race. The idea is based on the Formula 1 motorsport where the chassis of the race cars get finetuned in the training for each race track.

The Vi Pro Carbon frame is a very special frame. WE want to give you a guideline for the use of the EMV-carbon bars:

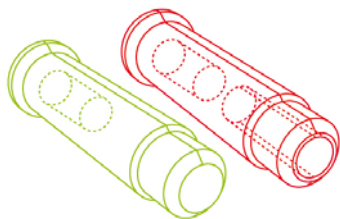
Hardware

The following hardware is included to the Vi Pro Carbon frame packaging:

- a. 8 short EVM Carbon elements
- b. 4 long EVM Carbon elements
- c. 8 axles with M4 thread inside the head of the axle – these axles are shown in green color in your frame manual on page 2
- d. 8 axles with M4 thread inside the head and inside the end of the axle – these axles are shown in red color in your frame manual on page 2
- e. 8 short M4 screws
- f. 8 long M4 screws
- g. 8 spacer for the wheels
- h. 4 M7 monting screws + washer for frame assembly
- i. 1 Torx T25 wrench

Please use the correct Axle!

The following information is very important. Please follow the instructions!



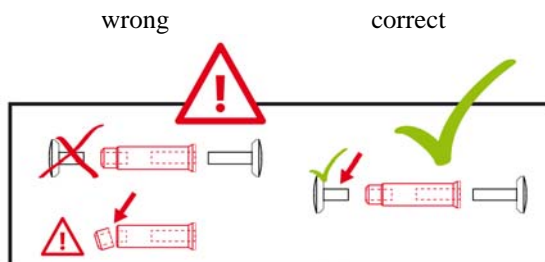
There are two different axles included to the packaging as mentioned above – for good reasons = Semi hollow axle

1. green axle = M4 thread inside the head of the axle
2. red axle = M4 thread inside the head and inside the end of the axle = hollow axle

We use axles with M4 thread inside the axle in order to be able to assemble the EMV carbon bars to the frame.

Attention!

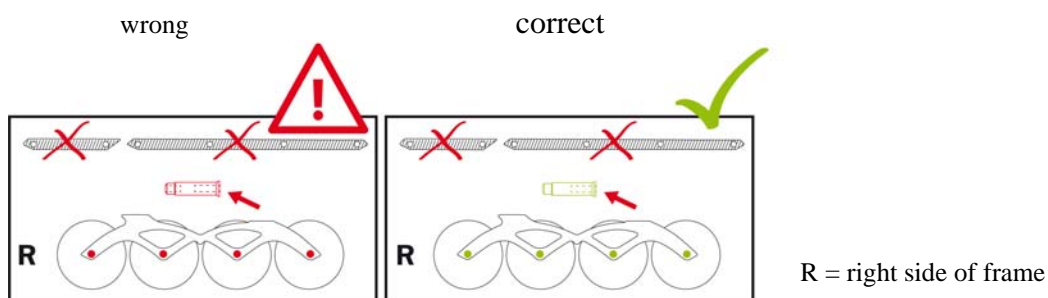
Don't use the hollow axle if you do not use the EMV bars on your frames. Please always use the semi hollow axles in this case!.



There are plenty of options to assemble the EMV carbon bars to your frame. We will show you some options and will explain to you which axles you should use in each case.

Frame without any EMV Carbon Elements

You must use the semi-hollow axles if you do not skate the frame „naked“, means without any kind of EMV carbon elements. The end of the axle must be solid.

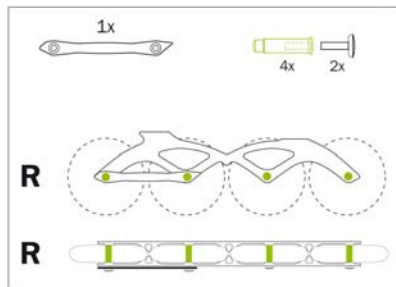


Frame with EVM Carbon Elements assembled on the right Sidewall of each Frame

This means the EMV carbon elements are mounted on the outside of your right frame and the inside of your left frame.

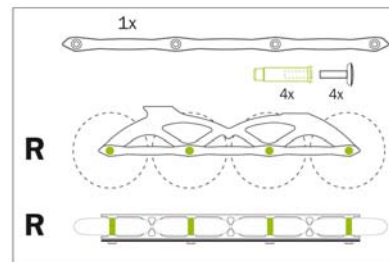
Again you must use the semi-hollow axles. The end of the axle must be solid.

Picture shows short carbon element on rear outside wall of frame



R= right side frame

Picture shows long carbon element on the outside wall of frame



Please use the semi hollow axles colored in green color in your manual if you want to assemble short EMV carbon bars on the right sidewall of each frame. These axles are solid at the end.

You need the same axles for the assembly of the two front wheels that do not use any carbon elements as shown in the example.

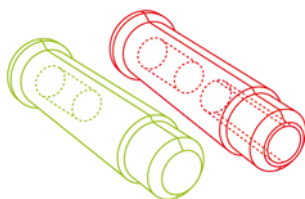
Please use the semi hollow axles colored in green color in your manual if you want to assemble long EMV carbon bars on the right sidewall of each frame. These axles are solid at the end.

Frame with EVM Carbon Elements assembled on the left Sidewall of each Frame

This means the EMV carbon elements are mounted on the inside of your right frame and the outside of your left frame.

You must use the hollow axles in this case which are marked in red color in your manual. This hollow axle has M4 threads on both ends of the axle. You can not assemble the carbon bars on the left sidewall of your frame if you use axles with a solid end.

Please use the red colored axles. In this case

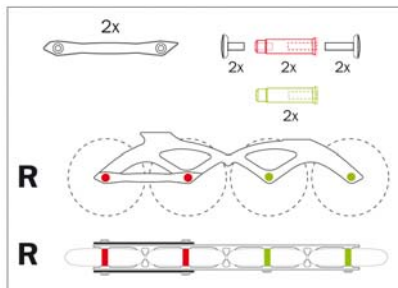


Frame with EVM Carbon Elements assembled on the both Sidewall of each Frame

This means the EMV carbon elements are mounted on the inside and outside of your right and left frame.

You must use the hollow axles in this case which are marked in red color in your manual. This hollow axle has M4 threads on both ends of the axle. You can not assemble the carbon bars on the left sidewall of your frame if you use axles with a solid end.

Picture shows short carbon elements on both sides of the frame

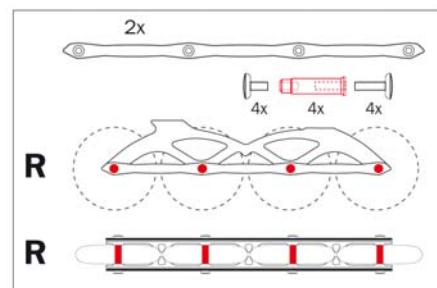


R = right frame

Please use the hollow axles colored in red color in your manual if you want to assemble short EMV carbon bars on the right sidewall of each frame. These axles are hollow at each end.

You need the semi hollow axles, which are marked in green color in your manual for the assembly of the two front wheels that do not use any carbon elements as shown in the example.

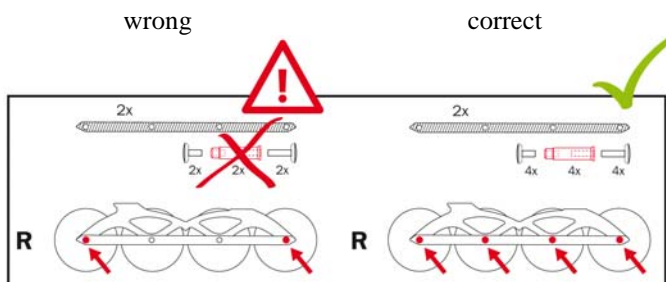
Picture shows long carbon elements on both sides of the frame



Please use the hollow axles colored in red color in your manual if you want to assemble short EMV carbon bars on the right sidewall of each frame. These axles are hollow at each end.

NOTES concerning the long EVM Carbon Elements

Please always use all four screws for the assembly of the long EVM carbon elements. Don't just assemble the elements on front and rear and don't leave the middle holes out



R = right frame

EVM-Matrix

Powerslide's EVM (Energy Vibration Management) System helps the skater to customize the performance of his frame. There are many different factors to consider like your preferred distance in racing, the surface of the tracks or streets of your daily training, your body weightm your skating technique etc..

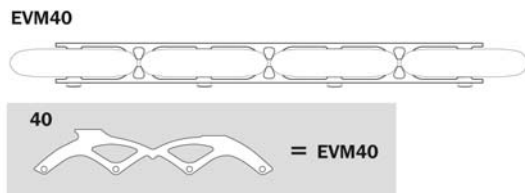
Usually the hardness of a skate wheel is given in durometer A if its not a Matter wheel. The skater chose his wheels based on this information for the training or the competition. The higher the number in durometer A the harder the wheel. Harder wheels are less comfortable. We all know this.

You can transfer this concept to the stiffness ratio of the Vi Pro Carbon frame

Introduction of the EVM Matrix

The Vi Pro carbon frame without any carbon elements has a stiffness ratio of 40 on the skale
 Each short carbon element has a stiffness ratio of 5 on the skale
 Each long carbon element has a stiffness ratio of 30 on the skale

The following examples explain the matrix to you::

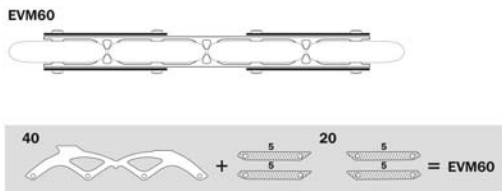


Vi Pro basic frame= EVM40

- very comfortable
- mistake forgiving
- flexible
- low stiffness ratio

Vi Pro basic frame EVM40 should be used for:

- light weight skater
- longer distances
- rather rough surfaces (road)

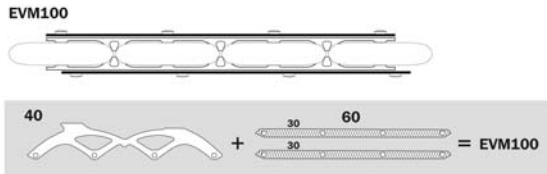


Vi Pro frame feat. 4 short Carbon Elements on all 4 corners= EVM60

- high stifness on front and rear for max. power transfer
- medium stiffness ratio
- medium comfort

Vi Pro frame EVM60 should be used for:

- Ideal for streets or tracks with tittle



Vi Pro frame feat. 2 long Carbon Elements on both sides = EVM100

- high stiffness ratio
- Race frame without compromises

Vi Pro frame EVM100 should be used for:

- taller and heavier skater
- shorter distances
- Indoor
- smooth surfaces

EVM MATRIX

INDOOR EVM 80 - 100	ROAD (smooth) EVM 60 - 80
TRACK rough EVM 40 - 60 smooth EVM 80 - 100	ROAD (rough) EVM 40 - 60

extra stiff ↑ EVM 100
 ↓ EVM 40
 soft/ flex

no compromise ↑ EVM 100
 ↓ EVM 40
 comfortable

heavy skater ↑ EVM 100
 ↓ EVM 40
 light weight skater