## Why my shoes don't fit?

Shoe guide about the jungle of shoe sizes and the endless trouble of not finding the perfect shoe.

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Tables of contents:

1. Introduction
2. Shoe fitting - Why my shoes don't fit? (Part 1)
3. Shoe components - Why my shoes don't fit? (Part 2)
4. Shoe last - Why my shoes don't fit? (Part 3)
5. Shoe Insole - Why my shoes don't fit? (Part 4)
6. Foot problems - Why my shoes don't fit? (Part 5)
7. Shoe sizes - Why my shoes don't fit? (Part 6)
8. Mondopoint - Why my shoes don't fit? (Part 7)
9. Shoe width - Why my shoes don't fit? (Part 8)
10.Foot measurement - Why my shoes don't fit? (Part 9)
11.Shoe Size Conversion - Why my shoes don't fit? (Part10)
12.How to create a draft and measure the important points of your feet?
10. Conversion tables

Feet-Length-Shoe-Sizes
US-Shoe-Size-Width-Length
UK-Shoe-Size-Width
European-Shoe-Size-Width

## 1. Introduction

This book has been written for all of you, who are asking themselves

## "Why my shoes don't fit?"

My name is Andre Gerdes and I'm a professional shoe- and leather technician from Germany, Managing Director of Andre Gerdes Leathers Pvt. Ltd., with more than two decades of experience.


While working with shoes for such a long time, I've realized that there are a lot of confusions when it comes to shoe sizes and fittings.

The Internet and magazines are full with the latest shoe trends and fashions. On the other side, valid information's about shoe fittings are much more difficult to find.

Wrong-fitted shoes can cause serious damages to your feet and I'm not talking here about just wearing high heels, which you might enjoy wearing for few hours at a party or for a concert, I'm talking about none-fitting shoes, which we are wearing on daily use.

We are walking in shoes, which are too small, wide, short or long - you name it. Now why is that? There are two main reasons for it.

First, the shoe industry is not giving us enough product information about the shoes. They are providing us with some information about the material with a sticker inside the shoe, it looks like this one:


The label above means, that the upper material is leather, the lining is leather and the sole is synthetic. These are only very basic information's provided to us.

The industry tells us nothing about the kind of leather been used. Is it a kid-, sheep- or cow-leather, etc.? In my opinion, the only information "its leather or it's synthetic", is not sufficient. I like to know, if I'm buying a pig skin leather shoe or some plastic and it's getting worse, when it comes to shoe sizes.

Do you have any idea what a shoe-size means? Let's say, you think, that you have a shoe-size " 8 ". Now first of all, " 8 " in US is different to " 8 " in the UK. You might be aware of that that coincidence already, but what does a size " 8 " stands for? Does it mean this shoe is 8 inch long or your feet should be 8 inch long to get the perfect fitting for this shoe? Sorry, "none of that" is the correct answer.

Sometimes you'll find information's for the shoe-width on the internet, but most of the times it's not even stamped into the shoe, more often you'll be able to detect the shoe-width on the shoe box. Why are shoe-sizes or shoe-width named after numbers and characters, which are making no sense to the customer?
This little book is trying to bring in some light to the darkness of this numbering jungle.

Another reason is, why so many of us having trouble to find a pair of suitable shoes, because we are having too little knowledge about our own two feet. Do you know how long your feet are? Did you know that almost $70 \%$ of adults are not having identical feet and that your foot measurements are changing while aging? Don't worry, we are not doing an examination for every bone off your foot, but you should discover for yourself a few things about your own foot and we need to clarify some differences with the common shoe sizing systems.

It took me quite some time to write this little book, actually much more, than I have expected. Still, I feel it's far away from being perfect and I had to decide, how much information goes in and what has to be left out. May be in future, I will upgrade the book by adding more stuff into it.

Finally, I like to mention, that this book is not a guide for shoe-making or shoedesigning.

I hope, you'll enjoy the reading and find the answer to the question:
"Why my shoes don't fit?"
Best wishes
Andre Gerdes

## Shoe fitting - Why my shoes don't fit? (Part 1)

"Why my shoes don't fit?" Why is shoe fitting not so easy like to choose a small, medium, large or extra-large shirt?

Many people having trouble with their shoes as shoe technician I'm listening very often these questions. "My size is 8 and the shoe doesn't fit, so I go for $81 / 2$ and it's not really better and if I take than a size 9 my foot slips out of the shoe. Why is it such a problem to find the right shoe ?".

In this series of articles "Why my shoes don't fit?" I will try to explain why you have trouble to find the best footwear and why a proper shoe fitting is important for your health as well. After reading these article series, you should have a better ability to choose your shoes!

Let's get started: Why my shoes don't fit? Almost everybody believes that shoe fitting has to do with the shoe sizes and the shoe length. Well, yes of course it has also to do with shoe sizes, but not only and certainly it has not really much to do with the actual length of the shoe.
"It's not the length?" I haven't said that length is not important, but the length of a shoe is certainly not the only metrics to look at, like you can see in the image below:


Fig. 34 shows the shoe of the unfortunate Duke Montgomery, a victim of the relentless animosity of Richelieu. It is of black leather, with a large red heel, and
entirely covered with ornaments; tradition says it was
gathered on the scaffold. Fig. 35 represents a highly
ornamented lady's shoe of this period. Awhile Fig. 36 is a shoe worn during the Regency. The heel is very high and not unlike a barber's wig-stand; the front, however, is rather graceful in shape.

Let's try have a look at "shoe fitting" from am an different angle. How would you describe to an alien "what is a shoe?" Most of us would start like ... a shoe is something which has to protect your feet...A good start, but then your shoes might look like these:


Style No: AG 1188
Industry safety boot with a steel-toe-cap and steel mid-plate. We have developed this boot a few years back and sold it also quite well, but I don't think, that we are looking here for them!

So, if it's not about protection alone and it's not about shoe length, then what are we missing?

If we like to understand and solve our footwear problems, we need to look at another three important points:

1. What really is a shoe (and what not!)
2. How shoes are actually developed
3. What type of foot do you have?

In the next posts, you will find some valid information's and introductions. This article series is for everyone, easy to understand and will hopefully give you a good feeling for quality and fashionable shoes, as well it will help you to understand your own feet better.

Please continue reading - we'll have a look at the important shoe components. Get yourself a copy of the free e-book and shoe size guide "Why my shoes don't fit?" with feet measurement instructions.

Andre Gerdes (...the shoe man...)

## Shoe components - Why my shoes don't fit? (Part 2)

Shoe components are divided in two main categories of the shoe. The upper- and the bottoming parts.

In the first part of "Why my shoes don't fit", we've discussed, that if we want to understand our footwear problems we require some better ideas of what is a shoe and how it is related to our foot. Before we start our foot observations, we'll have a look on the important parts of a shoe - the shoe components.


Of course, you'll make a good impression in a shoe store, if you talk about "I don't like the decoration stitching in the quarter", instead of "...the stitching on the side" or "the vamp seems to be rather short looking" instead "the front of the shoe looks..." sometimes the sales guys are not having a simple job to do.

Now, let's continue with the question, what is a shoe? Easy, we simply google for "Shoe", and get some explanations for us:

- shoe is for protection
- shoe is for comfort of the foot
- shoes are fashion
- shoes functionality due climate
- shoes having high or flat heels (this is one of my favorites!)

That's my be all really interesting for our alien, but certainly it makes not much sense to us, because the only answer for what a shoe is and not what it does or looks like is:

## A shoe is a construction where the upper-part is lasted (pulled) over a shoe last and finally a sole is attached/stitched to it.

Was not that complicated, isn't it.? Okay, we have not spoken about a shoe last yet, but no problem, this is how a shoe last looks like.


Now we know how a shoe last looks like. Why the shoe last has such an important role for shoe making we will leave it for the next part of our shoe guide series. Please leave a comment or ask for anything you like to know about footwear. If you like to read the complete series of "Why my shoes don't fit?" you can also download the free shoe guide with feet measurement instructions. We continue in the next article about the shoe last.
Andre Gerdes (the shoe problem solver)

## Shoe last - Why my shoes don't fit? (Part 3)

The shoe last is the most required and important tool for shoe-making. In the previous article of this series, we have discussed the shoe components, now .


It seems, that there is lot of importance for a shoe last in shoe making, so let's try it again and Google for "shoe last" and let's see what comes up this time:

- A shoe last is of approximate shape of a human foot
- $\quad$ Shoe lasts typically comes in pairs (that's my favorite pick here!)
- shoe last been made from wood, aluminum or plastics

Not bad, at least better than the shoe-explanation, except: "shoe lasts typically comes in pairs" - well explained, we need a right and a left one! Okay, let's come over this, but what is here of more importance to us is this:
"...a form in the approximate shape of a human foot..."
Now if we look at our picture above, can you see the approximate shape of a human foot? With lots of fantasy may be, anyhow the description "approximate" is quite stretchable like $10 \%, 40 \%$ or $80 \%$ looks like a human foot - sounds a bit strange to me.

I prefer this definition for shoe last:
A shoe last is an item, which gives a shoe its shape, form and represents certain
measurements and dimensions of a human foot.
This means, if certain measurement points from the last, which have been used on your shoe, don't represent the same measurements like from your foot, your shoe won't fit.

Now, if this sounds a bit strange to you, maybe you just have in mind that so far nobody from your favorite brand hasn't spoken to you about your feet keep on reading, we come to this later. The fact is, if the measurement points are not representing your foot, the shoe can't fit.


Shoe last with measurement points
Three points on top of the last have to represent the measurement from your feet. these three points are called: 1.) Instep 2.) Waist 3.) Joint and here they are on your foot: Foot with measurement points
$\mathbf{J}=\mathbf{J o i n t}$ Measurement, $\mathrm{I}=$ Waist Measurement and $\mathrm{H}=\mathbf{I n s t e p}$ Measurement (you can call it also short Heel).
A = Ankle- and C = Calf Measurements, which are important for boots only and we are leaving it beside for now.

## These three points, Instep, Waist and Joint have to be identical on your foot and the shoe last.

Now there is something more to come and that is the bottom of the last in the next article the insole, which represents the surface of your foot on your shoe. Some more to come, but don't worry, you don't need to study this stuff, just keep on reading.

Andre Gerdes (the shoe lover)

## Shoe Insole - Why my shoes don't fit? (Part 4)

## The shoe insole is located at the bottom of the shoe last and has to present certain measurement points from the plantar surface of the foot.

In our previous post "Why my shoes don't fit? (Shoe last) we have learned that the shoe last has to represent three certain measurement points - joint, waist and instep from your foot, only than a shoe can comfortably fit.

These three points are representing parts of the volume from your foot, but the shoe insole is presenting the width of your feet. We need to have a look to the bottom profile of the shoe last as well.


The blue line is our shoe insole and the vertical purple lines are representing the different bottom points of the last. Before I'll explain, let's spice this a little bit up, have a look at the next picture below, we are adding our foot profile here as well.


For our right foot we have taken the outer line(in green) and the foot surface (dotted line) and I have inserted another line in red, the joint-line.

Remember, in the first part of the series (shoe fitting), I have told you, that the actual length of the shoe is not really important for the fitting and here you can see why it is like this.

On every shoe last some extra allowance is been added on the toe. How much, that depends on the style of the shoe, in this case, it's almost 25 mm or one inch. The minimum allowance for a shoe should be at least 10 mm . Now, if this shoe would have only a toe allowance of 10 mm , the toe shape of the insole would certainly look different, but the shoe fitting would not change at all. But, if your foot is too long or too short then all the important lines of the insole profile would be in the wrong positions and will not match with your foot - the shoe can't fit under any circumstances.

Let's have a look at the inside and outside joints of the foot.( For clarification, these are the big bones on our foot, just behind the toes. In this picture the outside joint is
not so prominent, don't mind it. ) The outside line of the foot is of no concern to us here, but it's the inside line, the profile of the feet (the dotted line), which matters here most.

As you can see, the insole (blue line) is touching the joints exactly, inside and outside, demonstrated by the new line I have added, the joint-line. Now this is very important for our shoe fitting.

The joint-line must connect the inside and outside joints of our foot.
If the joint-line would be too big and the joints would be outside of the insole, it would press our foot into the shoe. On the other hand, would the joint-line be too small and wouldn't touch the insole, the foot would slip forwards and the toes would bend forward for grip, which courses discomfort to the feet.
Finally, let's go back to the toes of our foot. The mid- toe- line of the shoe last is very crucial for a comfortable fit. The big toe needs always to inside off the insole without having contact with the insole, because while walking, we are pressing our body weight to the front part of our foot and the big toe will bend to the outside by an average of 3-4 mm - with high heels even more. If there is no space in the shoe for the big toe to bend, it would press on the inside part of the shoe and this would put up lots of stress for the foot.

In our picture above, I'm not too happy with the insole shape, it should leave some more extra room for the big toe.

Waist and instep are important measurements too, but we are leaving them here out of the discussion for a moment. Only so much, they need to fit your shoe as well, if you feel any pressure or the shoe is loose at these points, please don't go for it - it's not meant to be yours!

Andre Gerdes ( the shoe technician )

## Foot problems - Why my shoes don't fit? (Part 5)

## Shoe fitting is also about protection from foot problems.

Fashion is cool and for many people a very important part of their lives, but wrongly fitted shoes are a serious long term danger.

In the previous articles "Why my shoes don't fit? (Shoe Insole)", we have concluded, that for a perfect shoe fitting, the shoe last has to correspond to certain points with our foot skeleton.

> Your shoes are fitting, if the length plus the width of the joints (which are the widest part of your foot) and the girth of the shoe last are identical to your foot skeleton.

I like to mention here, that other measurement points on your foot, like the instep, waist or short-heel, are also very important, but we have no way to detect them on finished shoes, that's why we're leaving them here at this point.

We have discussed about shoes and shoe lasts, now it's time to have a closer look at our foot.

Let's put some important facts together:

1. Everybody walks an average of about 70 million steps in his life
2. The foot has the most complex bone structure in our body.
3. The feet skeleton is arranged by 26 bones alone
4. With about $70 \%$ adults, the left and right foot skeleton are showing major differences
5. With approximately $30 \%$ of all adults, the second toe is longer than the big toe 6 . And the most growing business of the shoe industry is the orthopedic sector You can find thousands of shoe care tips on the Internet, but almost nobody cares about shoe fitting and the consequences could be disastrous foot problems. Just have a look at some pictures


The skeleton on top shows a normal shaped foot. Below you see the position for a week-flattened foot.

One main reason for such foot problems are too short and narrow shoes. In this dramatic case, a surgery would be unavoidable.

In the next picture you can see a footprint of a flat- and a normal foot:


Another common foot problem is the "Morton-Toe". A weakening transverse arch could displace the joints:


This could have happened, because of excessive wearing of high heels, I mean daily walking (not sitting) on high heels for more than 2-3 hours.

Because all weight is been put on the front of the foot, the muscular structure on the longitudinal arch is getting weaker and the inside joint is getting misplaced.
Also too narrow and short footwear could cause this kind of foot problems.
Attention Ladies! Here you see a x-ray from a foot in a sexy-high heel.


I think this speaks for itself.
For a good shoe fitting, it's absolutely essential, that everybody starts to observe their feet. What is the actual length of my foot? Are they having the same width? What type of foot do I have? I will explain later more about some simple methods how to measure and observe our foot.

There is some bad news for you, even if you're aware of all critical aspects of your foot - you know now your length, the width etc., still there is no way that you can find
out, if these measurements are corresponding with your shoe. On a finished shoe you can't check these measurements - no way! Now the good news is, that the shoe industry is of course aware of this problem and they are giving us some information's about the shoe. How we can use these information's, I will explain to you in the next article about shoe sizes.

Andre Gerdes ( the healthy foot lover )

## Shoe sizes - Why my shoes don't fit? (Part 6)

## Shoe sizes are supposed to help us to find our perfect shoe fitting, but unfortunately the major sizing systems from Europe, UK \& US are creating lots of confusion.

In the previous post "Why my shoes don't fit? (Foot Problems)", we have discussed, what could happen to our feet and health, if we continuously wearing wrong-fitting footwear.

Now obviously, shoes are marked by shoe sizes. What is not so obviously, what all these different shoe sizing systems actual mean or stand for? If you're looking into your sports shoes for example, you will see, that shoe sizes are classified in different, regional shoe sizing systems. The most important ones are the US, UK and Europe systems.

These systems are creating more confusion to us than giving valuable information! They are having their roots back into the first century of the Roman times! No joke!

Somehow around the 12th Century the barleycorn shoe sizing system was invented and the UK and the US are using the barleycorn measurement unit for their shoe sizes up today! One barley(corn) unit is $1 / 3$ inch long. (It seems, that genetically modified food processing was already at those times from importance!)

The British shoe sizing system starts with 0 and is 4 inch long. For every size up $1 / 3$ of an inch or one barleycorn size is been added up to size 13 , then it starts again from 1 , where the gap from one size to the next remains with $1 / 3$ inch.

The legend says, that the Americans seemed not to be happy with this shoe sizing system and decided that nothing can start from zero, like the British shoe sizes. It has to start from 1, with the result: the US size is one size up to the British. A size "9" in the UK is a size " 9.5 " in the US. Unfortunately, this "simple" system differ in gender for American women shoes, here the difference is 2 sizes up to the British system. For example, a size 10 in America would be a size 8 in Britain. Most likely this is not at all helpful for the customer, but that's how it is.

Europe, of course without the British again, is following the measurement system of Paris Point. Never heard of it? Well, we've got already the impression from UK and US, that shoe sizing systems are not meant to be customer friendly - no surprise here as well.

Anyhow, one Paris Point is equal to $2 / 3$ of a centimeter or 6.6 mm long. To find out the last length for each size with Paris Point you start with the largest size for gents, which is size 50 and 335 mm long and start counting backward for each size 6.6 mm .

For ladies, I suggest starting with a small size, like 32 which is 215 mm long and start counting forward. If you have a calculator it might be easier to simply multiply the shoe size with 6.6 mm .

But what is really too bad about all these different systems, is that they are all about the shoe-last length and not about our foot-length, apart from that the fact, that really nobody understands what is their intrinsic meaning.

The shoe varies by its length - according to the design. It's wrong to assume if a shoe last is of "length $x$ " and then the shoe size should be "size $y$ ". It's so obvious, look at this:


Left you see a toe-pointed shoe; it has a long toe allowance of approximate 25 mm or even more, the moccasin has a rounded toe with an allowance of approximate 10 mm or even less and the sandal has short toe allowance of approximate 5 mm only. Nowhere you can find the information how long the shoe last is, which is been used for these three shoes.

Now the industry has tried to help out this fix, they came up with the conversion tables. The whole Internet is full of them. We've been asked us to measure our foot, use a conversion table and see what shoe size we have. Now let's have a look, here are two different conversion tables for shoe sizes:


Let's assume our feet is 27.3 cm long, we can see, that there are differences in the two tables for the UK size system as well for the European size system, even though they are not big. The fact remains, that there is nothing like the one and only standard. It gets even worse: many manufacturers over the time build up their own shoe sizing system with the intention that their footwear would fit with their customers better. Well thought, but standards are working not like that!

The industry is building shoe-lasts with a standard last-length-system, but there are no standards for foot-length vs last-length, this depends entirely on the shoe design. Of course the industry is aware of this problem and came out with their final shoe sizes system: Mondopoint.

Andre Gerdes ( the shoe-size confused )

## Mondopoint - Why my shoes don't fit? (Part 7)

## The Mondopoint is the only shoe sizing system which combines the footlength plus the foot width.

To determine your Mondopoint shoe size, you'll need to

- measure your foot length for example 280 mm
- measure your foot width for example 100 mm .
- your appropriate Mondopoint size: 280/100


Length of the foot: Horaonta distance beween the perpendioulars in contact with the and of the most prominent toe and the rost prominent part of the heel, measured $w$ th the sucject swonding with the weizht of the bads equally distrizuted on buth feet.


The meaning of the Mondopoint is the metrics measurements of the foot-length plus the foot-width.

In the previous post of the series "Why my shoes don't fit (Shoe Sizes)", we have talked about the different shoe sizing systems and what are they standing for or better, what not for?

## Mondopoint is not about the shoe last length - it's about your foot length

All these different and regional shoe sizing systems are most confusing because they are assuming that shoe sizes are related to shoe lasts and not to the human foot. Mondopoint should all change this. Unfortunately many shoe retailers are already canceling the width tag of the Mondopoint in their product descriptions and are only focusing on the foot length, like Mondopoint 280 instead 280/100.

In our previous posts we've discussed about three different shoe types and that it is not correct to assume, if a shoe last has a length off "x" than the shoe size has to be "y", because each shoe is been designed to its own specifications.

You can't compare a ski boot with a sandal and say: it's all about the same length. That's what the industry is forced to do because there is no other system in place. A conversion table, which includes the length of out foot, is the only help we have, but a
shoe size chart (conversion table) can be used only as a kind of indication, it can give us only an idea about our shoe size. We see later why that is.

The shoe industry realized that it can't go on with this confusion of different conversion tables or regional differences. Shoe sizes have to be related to the footlength not the shoe last (well thought!) and they came up with a metric system: the Mondopoint.

In 2004 the Swedish Handicap Institute came out with a report, recommending that all suppliers of orthopedic shoes should follow the Mondopoint system, which is been used by the Swedish army and the NATO as well. The Swedish Institute demands too, that more consumer information's has to be declared by the manufacturers; like shoelast length, how they've been measured etc., to minimize errors and misunderstandings about the shoe fitting. The reason for the shift to Mondopoint was when they came up with a project, where they have tested 5 different shoes from 3 different suppliers and they got the (shocking) result, that all the shoes had a different length! For shoe size 43 they got the following shoe lengths (in mm): 275, 281, 282, 288 and 291.

Of course, this was unacceptable to the Institute: 16 mm tolerances between the smallest and the longest shoe. The conclusion (you guess it right): it has to be Mondopoint.

Well, the good thing about Mondopoint is that, for the first time, the length of the foot and not of a shoe last is been taking in consideration. But not so good is what the Swedish Institute has concluded:
"If a person's length of the foot is 280 mm and the width of the foot is 110 mm , then the shoe size most appropriate in Mondopoint is 280/110. All shoes marked with 280/110 should fit this person's foot, without having to try them on!"

My conclusion is that you'll better try them on, because the Mondopoint system looks to me, that somebody, in some administrative office, has started the work and in the middle of the job he either gave up or got retired and just before that, he submitted his project.

Where is the volume of the foot been taking in consideration in this system? A foot can be slim, strong or even normal formed and they all can have the same measurements in the length and the width isn't it? That's simple as that. A foot is threedimensional and not two. Mondopoint is now the ISO Standard and been used by the NATO and its allies - poor soldiers.

Anyhow, in comparison to the other major shoe sizing systems, the Mondopoint is certainly more user-friendly and has certainly its cons:

- No more conversion tables are required to determine the appropriate shoe size
- Shoes using Mondopoint system are often been offered in different variations
- Customers are getting a better understanding about their feet, as a foot measurement is unavoidable

In my opinion we require a new metric system, which would make more sense to the customers.

For example, if my foot is 28 cm long, my shoe size should be " 28 ". The shoe width like " 25 " for 25 cm girth volume all around the joints and finally a shoe could be marked like: "28/25". Simple and plain, but this may not sound so sophisticated like "Mondopoint".

At the moment, we could mark and name shoe sizes also after colors, like "my shoesize is blue or pink" - it would equally make no sense to any consumer. For everything, we need a conversion table. It's simply not customer friendly.

If we buy a T-Shirt, we are getting at least a fair idea about its sizing. "Medium" or "Large" or "L"and "XL". As long I can press my tummy in an "M" size and feel, that it looks fine (which is certainly doubtful) it's certainly not a problem at all, provided I'm somehow able to breathe.

With a wrong shoe size, that's certainly not such a small issue, like you've seen the $\underline{x}-$ ray pictures in the previous article and considering, that almost $50 \%$ of all foot problems are the result of wrong fitted footwear and shoe sizes.

In the next post we will discuss about the shoe width. The width of a shoe is absolute essential for a good shoe fit.

Please feel free to comment, ask or leave a reply or you can download the free shoe guide with measurement instructions

Andre Gerdes (the new shoe-size inventor)

## Shoe width - Why my shoes don't fit? (Part 8)

## The shoe width is one of the most crucial measurement points for shoe fitting.

In the part "Why my shoes don't fit? (Part 7)" we have talked about the MondopointSystem and that it's the only system, which is taken the foot length and not the shoelast length in consideration. In my opinion, even a simpler metric system would be helpful. At the moment we still need conversion tables to detect our shoe size and shoe width.

Very important of course is the shoe width for a good shoe fitting. The shoe width in the UK is been measured around the joints and marked in characters like "C","D"or"E" where always the smallest character stands for the slim width, like "F" before " G " fitting. In the US today, many vendors are measuring only the width of the feet, similar to Mondopoint. More precise is certainly to measure all around the joints. These are all information the shoe industry is providing to us about their products. Not too much isn't it? A sizing system which needs a conversation table and the shoe width or volume of the shoe, which is in $99 \%$ of all cases not marked on/in the shoe. Mostly we can find it somewhere printed on the shoe box.

Many Online-shops have started now to mention the shoe width in the product descriptions. Still often enough you can read with them " ...shoe fitting is tight, please order one size up". I will certainly not order such a shoe at all, but what else choice do they have?

They are facing the same problems like us. There are no absolute standards; conversions from Barley-system to Paris Point are complicated and last lengths are also not an infinite indication.

Now what to do? This is all not sounding too promising, but by determining your feet length and width you have gathered very important information and I will show you how to make the most of it.

We have discussed, that shoe sizes and shoe width are related to the shoe lasts and now in the end of this series, I will explain to you, how you can relate your feet measurements to shoe lasts.

My advice, for a better understanding, let's stop talking about the shoe size we have, instead, we should talk about the shoe size we use .

Andre Gerdes ( shoe size user )

## Foot measurement - Why my shoes don't fit? (Part 9)

## Without doing do a proper foot measurement it's not possible to detect an appropriate shoe size.

Foot length and -width needs to be measured at least two, better three times on different times of the day. This is helping you to observe your feet closer and will gives you more accurate information about your foot length and width, because the metrics for the foot can change up to one shoe size up form morning to evening.

In the previous post "Why my shoes don't fit? (Shoe width)", we have discussed shoe sizes, - width and that we require conversion tables to detect our shoe size and -width. Shoe size conversion tables are all about standard last length, the foot length is only secondary. We need to do our foot measurement and follow the conversion tables. This is not really precise enough for me, I would even say: it's wrong!

I have already explained, that different types and styles of footwear require different last length - a sandal has a different last length compare to a pointed-toe court shoe. On the other hand, it wouldn't be practical for the shoe industry to create for every shoe type a conversion table - there would be too many. As long there is no other and more customer friendly metric system in place, like some kind of system which I have suggested in the previous articles, we are left with no other choice than to continue and using standard-last-length conversion tables. But I like to show you now a different method of foot measurement, instead of the traditional method of measuring your foot length from heel to toe.

It's not difficult at all, we only need to understand, that shoe lasts are designed in a particular system and last length of the shoe last is only one part of it. There are other measurements as well, which are parametric calculated and this leads us to other measurement points of the shoe last, which has to present your feet. We have discussed this in the third part of "Why my shoes don't fit? Part 3)" and now we are making use of it. We begin with our foot measurement:


Here you see again a right foot, which you have seen already in the previous posts. The length of the foot is 271 mm long.

We always do the foot measurement from the center of the heel, through the second toe up to the parallel line of the highest point of the foot.

In this case, it's the length of the big toe, which presents the highest point of the foot, but in many cases, it's the second toe which is the longest part of the foot.

Every foot is like a fingerprint and almost never both the feet are identical and feet are changing with the age - also because of wrong fitted footwear!


Foot Length Heel to Joint
What is very important, is the length from the heel center to the inside joint. Here it shows a length of 197 mm .

Now, why is suddenly our foot length important? Because the joint positions from the shoe last and the joints from the foot must to have the same positions. The width of the joint line depends on width fitting of the last and we have discussed this in the previous post, but the positions of the joints on the shoe last are fixed for each shoe size following the standard last length of the conversion tables.

The formula for the joint length of a shoe last, from heel to the inside joint, is $2 / 3$ of the length for a standard last.

In our first picture above, we remember that our foot length was 271 mm and if we look into our conversion table, we would assume that our shoe size should be a UK 9 $1 / 2$ or US 10 size.

| US Sizes | Euro Sizes | UK Sizes | Inches | Foot Length |
| :--- | :--- | :--- | :--- | :--- |
| Sizes | Sizes | Sizes |  | in cm |
| 9.5 | $42-43$ | 9 | $10.4375^{\prime \prime}$ | 26.7 |
| 10 | 43 | 9.5 | $10.5625^{\prime \prime}$ | 27 |
| 10.5 | $43-44$ | 10 | $10.75^{\prime \prime}$ | 27.3 |
| 11 | 44 | 10.5 | $10.9375^{\prime \prime}$ | 27.9 |

But now let's come back to the $2 / 3$ length of our shoe last and compare this with our foot length of 197 mm . We need to remember that the shoe last and the foot length are not identical and that's why need two different systems to locate the joint position. To make it easy we have prepared a new conversion table for the heel to joint length.

| UK <br> Last <br> Size |  | Heel to Joint in mm | US <br> Last <br> Size <br> Men | Last <br> Length in mm | Heel to Joint in mm | US Last <br> Size <br> Women |  | Heel to Joint in mm |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 3 | 237.1 | 158.0 |  |  |  | 3 | 220.2 | 146.8 |
| $31 / 2$ | 241.3 | 160.9 |  |  |  | $31 / 2$ | 224.43 | 149.6 |
| 4 | 245.5 | 163.7 |  |  |  | 4 | 228.66 | 152.4 |
| $41 / 2$ | 249.8 | 166.5 |  |  |  | $41 / 2$ | 232.89 | 155.3 |
| 5 | 254.0 | 169.3 |  |  |  | 5 | 237.12 | 158.1 |
| $51 / 2$ | 258.2 | 172.2 |  |  |  | 5 1/2 | 241.35 | 160.9 |
| 6 | 262.5 | 175.0 | 6 | 260.4 | 173.6 | 6 | 245.58 | 163.7 |
| 6 1/2 | 266.7 | 177.8 | $61 / 2$ | 264.6 | 176.4 | 6 1/2 | 249.81 | 166.5 |
| 7 | 270.9 | 180.6 | 7 | 268.9 | 179.2 | 7 | 254.04 | 169.4 |
| $71 / 2$ | 275.2 | 183.4 | $71 / 2$ | 273.1 | 182.1 | $71 / 2$ | 258.27 | 172.2 |
| 8 | 279.4 | 186.3 | 8 | 277.3 | 184.9 | 8 | 262.5 | 175.0 |
| $81 / 2$ | 283.6 | 189.1 | $81 / 2$ | 281.6 | 187.7 | $81 / 2$ | 266.73 | 177.8 |
| 9 | 287.9 | 191.9 | 9 | 285.8 | 190.5 | 9 | 270.96 | 180.6 |
| $91 / 2$ | 292.1 | 194.7 | $91 / 2$ | 290.0 | 193.3 | $91 / 2$ | 275.19 | 183.5 |
| 10 | 296.3 | 197.6 | 10 | 294.2 | 196.2 | 10 | 279.42 | 186.3 |
| 10 1/2 | 300.6 | 200.4 | 10 1/2 | 298.5 | 199.0 | 10 1/2 | 283.65 | 189.1 |
| 11 | 304.8 | 203.2 | 11 | 302.7 | 201.8 |  |  |  |
| 11 1/2 | 309.0 | 206.0 | 11 1/2 | 306.9 | 204.6 |  |  |  |
| 12 | 313.3 | 208.8 | 12 | 311.2 | 207.4 |  |  |  |
| $121 / 2$ | 314.3 | 209.5 | 12 1/2 | 315.4 | 210.3 |  |  |  |
| 13 | 315.3 | 210.2 | 13 | 319.6 | 213.1 |  |  |  |

If we look in our conversation table above, we are getting a new result:

$$
\begin{gathered}
\text { UK size "10" } \\
\text { or US size " } 10 \text { 1/2" }
\end{gathered}
$$

This is what I call a "calculated shoe-size". It's important to understand, that the full shoe length is not really important for us. If your shoe is a little bit longer, in this example 4.23 mm for $1 / 2$ size up, it doesn't matter at all. Look at the above image again. What are 4 mm extra, if you have 12,16 or 20 mm space in the toe part of your shoe? Now you might have 20 mm and that's still not a problem at all, but the most important points of the foot, the joints are in a perfect position and at the joints a few millimeters up and down are making a very big difference for your shoe fitting.

You might have doubts because simply choosing a bigger shoe size can't really solving your problem? It's not like that, if we do our foot measurement and calculate our appropriate shoe size, the result could be as well, that our shoe size is may be one size smaller or it stays unchanged. The main reason for the variations is, that the toes could
be shorter or longer than the average norm and in our case the toes are shorter (see image below).


Still there is more to come in the final part-shoe-size-conversion of the series.
Andre Gerdes ( the foot-measurement follower )

## Shoe Size Conversion - Why my shoes don't fit? (Part10)

## The shoe size conversion, from the foot to shoe size, requires the foot length as well the foot width.

In the previous post "Why my shoes don't fit? (Foot Measurement)", I've shown you a different way of calculating the length of your feet. We are measuring the distance from heel to the inside joint, calculating than our foot length-length and compare this with the length of the shoe last, again the length from heel to joint.

As I have mentioned it before, we should start thinking of using or wearing a shoe size, instead of having a shoe size.

Shoe manufacturers are providing us also with the information of the shoe width. It's most of the times not stamped in the shoe itself, but usually, we can find this information on the shoe box itself or in the online description. Qualified stuff in the stores should have this information as well for you.

The shoe width has to be measured around the joints. With the measurements of the shoe width and length of our feet, we can complete the shoe size conversion. Measure your feet width with a measurement tape or if you don't have one, simply cut a 10 mm stripe from a normal printing paper. Cut horizontal along at the edge of the paper, which gives you a stripe of approximate 300 mm length.



Put your tape under your foot, so that it's along with your joint-line. (See picture above). Remember, the joint-line is from the inside of the big bone to the prominent bone on the outside of your foot, which is actually the widest part of your foot. Now you just wrap the tape over the joints and where the two ends of your tape are overlapping, mark it with a pencil. Don't pull the paper tape too strong, put it firmly, you should feel the tape around your foot - too loose is not correct either. Think how you would like to fit your shoe around the joints - neither loose or tight.

Important: If you're doing the foot measurement yourself, you need either to stand in a relaxed position or sit on a chair and keep the body weight at the heel. Otherwise, you would put too much pressure on the toes and your joints would expand too much, which would not give us the appropriate measurement.

You can try it out for yourself and see the difference: pressure on/pressure off the foot. Sometimes the difference is more than 10 mm with weight on the foot. Note down the measurement and start with the other foot. Now compare these two measurements. Usually, there will be some small difference of 2-3 mm. If your differences are too big, like more than 5 mm , check your measurements one more time. Anyhow, I would suggest doing the measurement twice.

Like the old carpenters always said: "Measure twice, cut once".

In case you still find a big difference between both feet, then you have the same problem like me: we are having two different width fittings and this is certainly the course why your shoes don't fit. In this case, you have no other choice; always fit your shoes for the wider foot and adjust the slimmer foot in the shoe with thicker or two pairs of socks. You could also ask your next door cobbler to add some extra layer of foam to the shoe. The best choice, of course, would be to get your shoes made to order, but still, you can't get all your shoes done like that, you need to find solutions to adjust this issue.

After having determined our foot width, we can look into the shoe-size-width tables. You can click on the links to check your shoe width, for European-Sizes, UK-Sizes or US-Sizes.

Now let's assume for example, that the width of our foot would be 255 mm . We are looking in the conversion tables and getting following results.

UK-Width: "G" and US-Width: "D"
With the help of our calculated shoe-size, we have completed now the shoe size conversion. In this example we have detected following shoe sizes and shoe widths:

## For the UK: Size 10/G and the US: 10.5/D

Try this system for your shoe size conversion. See how it works out for you - as you know by now, there is nothing fixed - everything is possible as long the shoe fits. For moccasins and slippers, I like to reduce the shoe width for myself by one size down and try to get a shoe size up.

Sometimes you will figure out, that the calculated shoe size conversion works well only for certain shoe brands. However, certainly some trial and error e is required, but once you'll get the idea, this way is certainly the best shoe size conversion for your feet.

## But most important: You have gained new ideas about your feet!

I like to mention here, that for open types of footwear, like sandals or peep toes, I would not use the calculated shoe size conversion, instead I would first try with my actual foot length, because sandal lasts are different build than shoe lasts, but again, nothing is fixed, you'll need to try it out for yourself.

Finally, some remarks about shoe size conversion and foot measurements. For a complete foot measurement, there are more important measurement points required than just the foot length and the width of the joints. Unfortunately, the shoe industry is not disclosing these measurements and that's why we don't mention them it in this
article series - there are of no use for industrial shoes.
This is the end of the article series "Why my shoes don't fit?" and we hope, that you have gained some valid information and enjoyed the reading.
Best wishes,
Andre Gerdes ( the shoe size conversion-cobbler)

## How to create a draft and measure the important points of your feet?

First we will start to make a draft from your feet. It's not difficult at all and you need only a plain paper and a sharp pencil. I suggest, you to take a print out the following pages as you might like to have them next to you, while you're doing the draft.

Before we start, let me explain some basic facts about your foot and you might like to take of your socks already, so you can do the first observations on your foot straight away.

Don't be surprised, if you will find out, that your feet are not identical, even I would say, that's how it is!

When you are doing a draft of your foot we want to find out three measurements. $1^{\text {st }}$ we want to know the length of your foot, $2^{\text {nd }}$ we like to calculate our foot-length according to the shoe sizing system and $3^{\text {rd }}$ we determine the width of your foot.

Actually there is not much skill required to make a draft, but we need to understand what happens to your foot, once you put weight on them or take weight off. Lift your foot up and look at the toes and joints. Now slowly release them to the floor. As soon you touch the floor, you see that the joints are bending - the foot width increases and when you now stand up (do it), you can see that your foot is further increasing. Now repeat, lift your foot, but this time you look at your big toe. Put the foot on the floor and you'll see that the big toe turns to the outside. Now lift your heel, like wearing a high heel shoe and you'll see that the toe bends even more to the outside. When we are doing a draft, we want your foot to be in a relaxed position, not too much weight on. In case you do the drafting on your own, be careful, once you bend your body in front of your foot, that you not put too much weight on the forepart; try to put more weight on the heel part of your foot, so we get a well tracing done. You can also doing it, while sitting on a chair, which is easier in my opinium. In case you have a partner, let him do the tracing for you, it's easier, just stand straight and relaxed.

Let's start and print out the page with the "turned around T", this is your marking-pattern. (Scroll a few pages down)

TIP: In case the " t " marking is too short for you, you can simple make one on your own. Just draw a vertical line and draw the horizontal line in 90 'angle. You may like to use a bigger paper like the "legal" format.

Place your foot on the paper (with the "turned around T")

1. Your heel is along the back line (see pic. below)
2. The vertical line needs to pass your second toe (see pic. below)
3. Now mark the longest part of your toe -usually it's the big toe, but sometimes it's the second toe as well
4. Take a ruler and measure the length from the back line to the marking of the front. Now you have the length of your feet. (Not the calculated!) Note it down.
5. Place your foot again on the paper, matching the heel-toe line.
6. Now take a pencil and draw around your foot, holding the pencil vertical at 90 ' ankle like in the next picture.
7. Mark the widest, prominent part of your joints. Now you have completed the foot outline.
8. Hold the pencil now in 45' ankle and draw from the toe down to the heel area. No need to go through the heel, just up to the bone is enough. This is the inside line of your foot, where the plantar surface comes in contact with the sole. Don't worry too much about the ankle of the pencil; you should only come in contact with the surface of your foot. About the arch, don't bother at all, in case you don't come into full contact with your feet. At this point it's really not important. As you can see in the draft below - no arch would look like this.
9. You have marked the widest points of your foot on the outside line, now take your ruler and connect the joints. This will give the important joint-line.
10. Your draft should look now like something below draft, which is actually my foot. As you can see, I have also not done a perfect job and it's not necessary also. Most important are these points.

- get your length correct
- mark the widest parts of your joints
- get the inside line at your joints well
- don't bother about the arch



While placing your foot on the "T" like in the first picture, you must ensure that back of your heel is along with the "T" like in this picture above.


