## Paris Point $\Leftrightarrow$ Barleycorn Sizing System

 Designing Shoe Last Sizes in $1 / 2,2 / 3$ \& $3 / 4$ IT (Paris Point) Increments Italian/European to US \& UKIT || EU Ft.in usW usM UK
$34 \quad 8 \frac{1}{2} \quad 4 \frac{1}{2} \quad 3 \quad 2 \quad \longleftarrow \quad$ UK \& US to Italian/European

| $34 \frac{1}{2}$ | 85 | 478 | 33 | 238 |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 35 | $8 \frac{3}{4}$ | $5 \frac{1}{4}$ | $3 \frac{3}{4}$ | $2 \frac{3}{4}$ |  |
| $35 \frac{1}{2}$ | 87 | $5 \frac{5}{8}$ | $4 \frac{1}{8}$ | $3 \frac{1}{8}$ | $\rightarrow$ |
| 36 | 9 | 6 | 41 $\frac{1}{2}$ | $3 \frac{1}{2}$ | $2 \frac{1}{2}$ |
| $36 \frac{1}{2}$ | $9 \frac{1}{8}$ | $6 \frac{3}{8}$ | 47 | 37 | 3 |
| 37 | $9 \frac{1}{4}$ | $6 \frac{3}{4}$ | $5 \frac{1}{4}$ | $4 \frac{1}{4}$ | $3 \frac{1}{2}$ |
| $37 \frac{1}{2}$ | $9 \frac{3}{8}$ | $7 \frac{1}{8}$ | $5 \frac{5}{8}$ | $4 \frac{5}{8}$ | 4 |
| 38 | $9 \frac{1}{2}$ | 712 | 6 |  | $4 \frac{1}{2}$ |
| 381 $\frac{1}{2}$ | 95 | 77 | 63 ${ }^{3}$ | 53 | - 5 |
| 39 | $9 \frac{3}{4}$ | $8 \frac{1}{4}$ | $6 \frac{3}{4}$ | $5 \frac{3}{4}$ | $5 \frac{1}{2}$ |
| $39 \frac{1}{2}$ | $9 \frac{7}{8}$ | 85 | $7 \frac{1}{8}$ | $6 \frac{1}{8}$ | 6 |
| 40 | 10 | 9 | 71 ${ }^{2}$ | $6 \frac{1}{2}$ | $\rightarrow 6 \frac{1}{2}$ |
| $40 \frac{1}{2}$ | 101 $\frac{1}{8}$ | 938 | 77 | 67 | 7 |
| 41 | 101 ${ }^{4}$ | 93 | $8 \frac{1}{4}$ | $7 \frac{1}{4}$ | $7 \frac{1}{2}$ |
| 411 $\frac{1}{2}$ | 103 | 101 $\frac{1}{8}$ | 85 | 75 | $\rightarrow 8$ |
| 42 | 1012 | 1012 | 9 | 8 | 8 |
| $42 \frac{1}{2}$ | 105 | 1078 | 93 | $8 \frac{3}{8}$ | 9 |
| 43 | $10 \frac{3}{4}$ |  | $9 \frac{3}{4}$ | $8 \frac{3}{4}$ | $9 \frac{1}{2}$ |
| $43 \frac{1}{2}$ | 107 | 115 | 101 ${ }^{\frac{1}{8}}$ | $9 \frac{1}{8}$ | 10 |
| 44 | 11 | 12 | 1012 | $9 \frac{1}{2}$ | 101 $\frac{1}{2}$ |
| $44 \frac{1}{2}$ | 111 $\frac{1}{8}$ | 1238 | 1078 | 97 | $\rightarrow 11$ |
| 45 | 111 $\frac{1}{4}$ | 123 ${ }^{\frac{3}{4}}$ | 111 $\frac{1}{4}$ | $10 \frac{1}{4}$ |  |
| 451 ${ }^{1}$ | $11 \frac{3}{8}$ | 131 $\frac{1}{8}$ | 115 | $10 \frac{5}{8}$ |  |
| 46 | 112 | 1312 | 12 | 11 |  |

Last.cm = IT || EU $\div 1 \frac{1}{2}$
Last.in = Last.cm $\div 2.54$
Foot.cm = Last.cm x 0.9525 [I.P. Factor]
Foot.in = Foot.cm $\div 2.54$
$\frac{1}{2}$ Size $=\frac{1}{8}$ " Foot Increment
Paris Point
MondoPoint $=10 \times$ Foot.cm
5\% Toe Room
[1雰 Barleycorn Sizes ( $\frac{1}{2}^{\prime \prime}$ ) @ 6 $\left.6 \frac{1}{2} / 7 \frac{1}{2} / 9 / 40\right]$
Last length is measured from the toe tip at $\geq \frac{1}{4}$ of maximum metatarsal width to center rear of heel cup.

Shoe Size Chart Tables \& Rulers
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Men's Manufacturing Labeling (Typical Range)
Paris Point
IT US UK
38 / 6 / 5 $38 \frac{1}{2} / 6 \frac{3}{8} / 5 \frac{3}{8}$ 39 / 63 $/ 4 \frac{3}{4}$ $39 \frac{1}{2} / 7 \frac{1}{8} / 6 \frac{1}{8}$ 40 / 71 $\frac{1}{2} / 6 \frac{1}{2}$ $40 \frac{1}{2} / 7 \frac{7}{8} / 6 \frac{7}{8}$ 41 / $8 \frac{1}{4} / 7 \frac{1}{4}$ $41 \frac{1}{2} / 8 \frac{5}{8} / 7 \frac{5}{8}$ 42 / 9 / 8 $42 \frac{1}{2} / 9 \frac{3}{8} / 8 \frac{3}{8}$ 43 / $9 \frac{3}{4} / 8 \frac{3}{4}$ $43 \frac{1}{2} / 10 \frac{1}{8} / 9 \frac{1}{8}$ $44 / 10 \frac{1}{2} / 9 \frac{1}{2}$ $44 \frac{1}{2} / 10 \frac{7}{8} / 9 \frac{7}{8}$ $45 / 11 \frac{1}{4} / 10 \frac{1}{4}$ $45 \frac{1}{2} / 11 \frac{5}{8} / 10 \frac{5}{8}$ 46 /12 /11
$46 \frac{1}{2} / 12 \frac{3}{8} / 11 \frac{3}{8}$ $47 / 12 \frac{3}{4} / 11 \frac{3}{4}$ $47 \frac{1}{2} / 13 \frac{1}{8} / 12 \frac{1}{8}$ $48 / 13 \frac{1}{2} / 12 \frac{1}{2}$

Women's Manufacturing Labeling (Typical Range)
Paris Point
IT US UK
34 / 4 $\frac{1}{2} / 2$ $34 \frac{1}{2} / 4 \frac{7}{8} / 2 \frac{3}{8}$ 35 / $5 \frac{1}{4} / 2 \frac{3}{4}$ $35 \frac{1}{2} / 5 \frac{5}{8} / 3 \frac{1}{8}$ $36 / 6 / 3 \frac{1}{2}$ $36 \frac{1}{2} / 6 \frac{3}{8} / 3 \frac{7}{8}$ 37 / 63/4 $/ 4 \frac{1}{4}$ $37 \frac{1}{2} / 7 \frac{1}{8} / 4 \frac{5}{8}$ 38 / 7 $7 \frac{1}{2} / 5$ $38 \frac{1}{2} / 7 \frac{7}{8} / 5 \frac{3}{8}$ 39 / 81 $/ 5 \frac{3}{4}$ $39 \frac{1}{2} / 8 \frac{5}{8} / 6 \frac{1}{8}$ 40 / 9 /6 $\frac{1}{2}$ 401 $\frac{1}{2} / 9 \frac{3}{8} / 6 \frac{7}{8}$ 41 / $9 \frac{3}{4} / 7 \frac{1}{4}$ $41 \frac{1}{2} / 10 \frac{1}{8} / 7 \frac{5}{8}$ $42 / 10 \frac{1}{2} / 8$ $42 \frac{1}{2} / 10 \frac{7}{8} / 8 \frac{3}{8}$ $43 / 11 \frac{1}{4} / 8 \frac{3}{4}$ $43 \frac{1}{2} / 11 \frac{5}{8} / 9 \frac{1}{8}$ $44 / 12 / 9 \frac{1}{2}$


UK US IT
$2 \frac{1}{2} / 5 / 34 \frac{2}{3}$

$3 / 5 \frac{1}{2} / 35 \frac{1}{3}$
$3 \frac{1}{2} / 6 / 36$
$4 / 6 \frac{1}{2} / 36 \frac{2}{3}$
$4 \frac{1}{2} / 7 / 37 \frac{1}{3}$


5 / 7 $\frac{1}{2} / 38$
$5 \frac{1}{2} / 8 / 38 \frac{2}{3}$
$6 / 8 \frac{1}{2} / 39 \frac{1}{3}$
$6 \frac{1}{2} / 9 / 40$
7 / 91 $/ 40 \frac{2}{3}$
$7 \frac{1}{2} / 10 / 41 \frac{1}{3}$


Attribution: Associate each size label (BY) on shoes with $\mathbf{J S G}^{\text {M }}$ next to it.

Ex: $6 \frac{1}{2} / 7 \frac{1}{2} / 9 / 40$
JSG ${ }^{\text {TM }}$
Unisex Manufacturing Labeling Paris Point (Typical Range)

EU UK


## Labeling License

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BY: Size Conversion by JSG ${ }^{\text {M }}$

ND = When labeling preserve these numerical relationships between sizing systems. Last design fit must correspond to specified Foot length for each size, labeled width and typical girth.

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## Summary

The design of the Last length is specified using the metric system for the Barleycorn, Paris Point and CentiMeter systems. Essentially the Barleycorn $1 / 2$ size increment is converted to the $2 / 3$ size Paris Point increment for Last measurement but uses $1 / 2$ Barleycorn increment for Foot length. Perfect alignment occurs at the $61 / 2 / 7 \frac{1}{2} / 9 / 40$ size, the center overlap between the average Mens and Womens sizes. However this causes some minor divergence from the traditional Barleycorn system. At IT\|EU sizes 36 \& 44 Barleycorn sizing divergence is $<\frac{1}{6}$ $\sim 0.05^{\prime \prime}(1.2 \overline{6} \mathrm{~mm})$, at $34 \& 46$ it is $<1 / 4 \sim 0.075^{\prime \prime}(1.8 \overline{9} \mathrm{~mm})$, and at $32 \& 48$ it is $<1 / 3$ $\sim 0.1^{\prime \prime}(2.5 \overline{3} \mathrm{~mm})$. This divergence is much less than the widely varying conversion tables used today and close enough to the original Barleycorn sizing that it should be unnoticeable within the average size ranges. At the extreme ends of the divergence for the larger sizes extra room is available and usually added anyway and for the smaller sizes extra toe room could be added through toe box design or Barleycorn sizing in this area could just change to the diverged size. Using 5\% (1/0.9525) Toe Room the English system is used to increment the recommended Foot length. For the $1 / 2$ size increment in the Paris Point system the Foot length increment for $5 \%$ Toe Room is $1 / 8^{\prime \prime}$ and this also increments the Barleycorn size by $3 / 8$. For the $1 / 2$ size increment in the Barleycorn system the Foot length increment for 5\% Toe Room is $\frac{1}{6 \prime \prime}$ and this also increments the Paris Point size by $2 / 3$. So for manufacture to the standard Paris Point $1 / 2$ size ( $3 / 8$ Barleycorn) the Last will increment by $1 / 3 \mathrm{~cm}\left(\sim 0.131^{\prime \prime}\right)$ and for the Barleycorn $1 / 2$ size ( $2 / 3$ Paris Point) the Last will increment by $\sim 0.175^{\prime \prime}\left(4 / 9 c m,[2 / 3]^{2}\right)$. To easily find your IT\|EU size measure your Foot in inches and multiply by 4 . Round up to the next available size if slightly over.

US Brannock Scale: For a $10^{\prime \prime}$ Foot on the Womens scale the measured size is spot on at usW 9 in this system but for the Mens it recommends $8,1 / 2$ size larger instead of usM $71 / 2$. This a result of the 1 size offset difference instead of $11 / 2$ of the $21 \& 22$ offsets used in the Barleycorn equation resulting in the W \& M recommended sizes for a given foot length. The Womens scale uses $11 / 2$ sizes ( $1 / 2^{\prime \prime}, 5 \%$ ) for Toe Room and the Mens scale uses 2 sizes $\left(2 / 3^{\prime \prime}, 6^{2} / 3 \%\right)$. The Mens measurement adds $1 / 2$ size for increased Toe Room for the larger average sizes over the Womens sizes so for $5 \%$ Toe Room subtract $1 / 2$ size to align it with this system. Ace Marks uses US Brannock scaling so add $1 ⁄ 2$ size to this system for proper sizing.

## Adaptation to $1 ⁄ 2$ CM MondoPoint

Most athletic shoes (Sneakers/Trainers) today are manufactured to the $1 / 2 \mathrm{~cm}\left(0.19685^{\prime \prime}\right)$ CentiMeter scale. This $1 / 2 \mathrm{~cm}$ Last increment will increment the Paris Point system by $3 / 4$ size. Using the same 5\% rule the increment for the recommended Foot length will be $3 / 16^{\prime \prime}$ and the Barleycorn system size increment will be $9 / 16$. To easily find your CentiMeter size measure your Foot in inches and multiply by $2 \boxed{2}$. Round up to the next available size if slightly over.

Conclusion: For all 3 systems manufacturing will be aligned to the Paris Point system. For the Paris Point, Barleycorn, and $1 / 2 \mathrm{~cm}$ CentiMeter scales these will correspond to $1 / 2,2 / 3$, and $3 / 4$ Paris Point size increments respectively. The merging of the Barleycorn and Paris Point systems is realized by using the Toe Room percentage as a function of the difference between the Barleycorn Foot (English) and Paris Point Last (Metric) measurements.
$5 \%$ (The $1 / 0.9525$ I.P. Factor) allows the mathematical alignment of the two systems into equally spaced fractional steps for accurate labeling purposes of both. 5\% Toe Room is a good average that most people should find comfortable. Add $1 / 2$ size if more room is desired.

## ½CM Last Increment

MondoPoint


Whole CentiMeter sizes are aligned with standard whole and half IT||EU sizes. MondoPoint $=$ Foot.mm (5\% Toe Room)

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BY: Size Conversion by JSG ${ }^{\text {M }}$
The 4 " $\times 1$ " Avery Labels on the next three pages are Licensed under Creative Commons
(CC BY-ND 4.0) and may be used if Shoes run True to Size in both Length \& Width. Individual Labels as single images for each size are available here.

| $\begin{aligned} & \text { Foot } \\ & 8^{2 / 31 "} \end{aligned}$ | U.K. | U.S. ${ }_{\text {MP }}$ |  | E.U. Last |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | $2^{1 / 2}$ | 3112 | 5 | 342/3 | 231/9 |
| Length | $6{ }_{\infty}^{4}$ | M | W | IT | C |
| 5\% | Size Conversion by JSG ${ }^{\text {m }}$ |  |  | Barleycorn |  |
| Foot | U.K. |  | 224 $M P$ | E.U. | Las |
| 85/6" | 3 | 4 | 51/2 | 351/3 | 235\% |
| Length | 65 | M | W | IT | cm |
| 5\% | Size Conversion by JSG ${ }^{\text {m }}$ |  |  | Barleycorn |  |
| Foot | U.K |  | 228 MP | E.U. | Las |
| 9" | 31122 | 41/2 | 6 | 36 | 24 |
| Length | $6{ }_{6}^{6}$ | M | W | IT | cm |
| 5\% | Size Conversion by JSG ${ }^{\text {m }}$ |  |  | Barleycorn |  |



| Foot | U.K. |  |  | E.U. | Last |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $10^{2} / 3^{\prime \prime}$ | 81/2 | 91/2 | 11 | 422/3 | 284/9 |
| Length | 80 | M | W | IT | cm |


| Foot | U.K. |  | MP | E.U. | st |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 105/6" | 9 | 10 | 111/2 | 431/3 | 28\% ${ }^{\text {\% }}$ |
| Length | $8{ }^{1}$ | M | W | IT | cm |

5\% Size Conversion by JSG ${ }^{\mathrm{mm}}$ Barleycorn

| Foot | U.K. | U.S. | ${ }^{279}$ | E.U. | Last |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $11 "$ | $\mathbf{9}^{1 / 2}$ | $\mathbf{1 0} 1 / 2$ | $\mathbf{1 2}$ | $\mathbf{4 4}$ | $291 / 3$ |
| Length | $8^{2}$ | M | W | IT | cm |
| $5 \%$ | Size Conversion by JSG ${ }^{\mathrm{mm}}$ | Barleycorn |  |  |  |


| F | U.K. |  | U.S. ${ }_{\text {N }}$ |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 111/6" | 10 | 11 | 121/2 | 442/3 | 297 |
| Length | $8{ }^{3}$ | M | W | IT |  |
| 5\% | Size |  | y |  |  |




| Foot | U.K. |  |  | E.U. | Last |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 112/3" | 111/2 | 121/2 | 14 | 462/3 | $311 / 9$ |
| Length | $8{ }^{6}$ | M | W | IT | cm |

5\% Size Conversion by JSG ${ }^{\mathrm{mm}}$ Barleycorn

| Foot | U.K. |  | U.S. ${ }_{\text {MP }}^{\text {M }}$ | E.U. |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 115/6" | 12 | 13 | 141/2 | 471/3 |  |
| ength | $8{ }_{\infty}^{7}$ | M | W | IT |  |

$5 \%$ Size Conversion by JSG ${ }^{\text {m }} \quad$ Barleycorn

| ast | E.U. | . U.K. |  | 219 |  |  |  |  |  | . 251 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 23 3 | 341/2 | 23/8 | $3 / 8$ | 47/8 | /' | 261/3 | 391/2 | 61/8 | 1/8 | 85/8 | " |
| cm | IT | $6 \cdot 9$ | M | W | Length | cm | IT | $7 \cdot 9$ | M | W | Length |
| ParisPoint |  | Size Conversion by JSG ${ }^{\text {mm }}$ |  |  | 5\% | ParisPoint |  | Size Conversion by JSG ${ }^{\text {m }}$ |  |  | 5\% |
| St | E.U. | . U.K. |  | 222MP | Foot | Last |  |  |  | $254 N$ | Foot |
| 231/3 | 35 | 23/4 | $3 / 4$ | 51/4 | 83/4" | 262 | 40 | 61 | 71122 | 9 | 10 |
| cm | IT | 7-0 | M | W | Lengt | cm | IT | $8 \cdot 0$ | M | W | ength |
| ParisPoint |  | Size Conversion by JSG ${ }^{\text {m }}$ |  |  | 5\% | ParisPoint |  | Size Conversion by JSG ${ }^{\text {m }}$ |  |  | 5\% |
| Last | E.U. | . U.K. |  | 225MP | oot | Last | E.U. |  |  | 257 | Fo |
| 232/3 | 351/2 | 31/8 | 1/8 | 55/8 | 87/8" | 27 | 401/2 | 67/8 | 7/8 | 93 | 101/8" |
| cm | IT | 7•1 | M | W | Lengt | cm | IT | $8 \cdot 1$ | M | W | ng |
| ParisPoin |  | Size Conversion by JSG ${ }^{\text {m }}$ |  |  | 5\% | ParisPoint |  | Size Conversion by JSG ${ }^{\text {m }}$ |  |  | 5\% |
| Last | E.U. | . U.K |  | 228MP | oot | La | E.U. | U.K. |  | . 260MP | Fo |
| 2 | 36 | 1/2 | 1/2 | 6 | 9 | 271 | 41 | 71⁄4 | 81/4 | 93 | 11/4" |
| cm | IT | $7 \cdot 2$ | M | W | ngt | cm | IT | $8 \cdot 2$ | M | W | 寺 |
| ParisPoint |  | Size Conversion by JSG ${ }^{\text {m }}$ |  |  | 5\% | ParisPoint |  | Size Conversion by JSG ${ }^{\text {mm }}$ |  |  | $5 \%$ |
| st | E.U | . U.K. |  | P |  |  |  |  |  | 2631 | Foo |
| 241/3 | 361/2 | 3 7 \% | 47/8 | 3/8 | 91/8" | 2 | 411⁄2 | 75/8 | 85/8 | 101/8 | 103/8" |
| cm | IT | $7 \cdot 3$ | M | W | Lengt | cm | IT |  | M | W | ength |
| ParisPoint |  | Size Conversion by JSG ${ }^{\text {m }}$ |  |  | 5\% | ParisPoint |  | Size Conversion by JSG ${ }^{\text {m }}$ |  |  | 5\% |
| Last | E.U. | . U.K. |  | 235MP |  |  |  |  |  | S. 266MP |  |
| 242/3 | 37 | 41/4 | 51/4 | 63/4 | 91/4" | 28 | 42 | 8 | 9 | $10^{1}$ | 101/2" |
| m | IT | $7 \cdot 4$ | M | W | Length | cm | IT | 8-4 | M | W | 寺 |
| ParisPoint |  | Size Conversion by JSG ${ }^{\text {m }}$ |  |  | 5\% | ParisPoint |  | Size Conversion by JSG ${ }^{\text {m }}$ |  |  | 5\% |
| Last | E | K |  | 238MP | Foot | L | E.U. |  |  | . 270 MP | Fo |
| 25 | 371/2 | 45/8 | 55/8 | 1/8 | 93/8 | 281/3 | $2^{1}$ | 3/ | 3/8 | 0 | 105 |
| n | IT | $7 \cdot 5$ | M | W | Lengt | cm | IT | $8 \cdot 5$ | M | W | Leng |
| ParisPoint |  | Size Conversion by JSG ${ }^{\text {m }}$ |  |  | 5\% | ParisPoint |  | Size Conversion by JSG ${ }^{\text {m }}$ |  |  | 5\% |
|  | E. | U.K |  | 241MP |  |  |  |  |  | . 273 mP |  |
| 251/3 | 38 | 5 | 6 | 1/2 | 91/2" | 282 | 43 | 83/4 | 93/4 | 1 | 103/4" |
| m | IT | $7 \cdot 6$ | M | W | Length | cm | IT | $8 \cdot 6$ | M | , | eng |
| ParisPoint |  | Size Conversion by JSG ${ }^{\text {m }}$ |  |  | 5\% | ParisPoint |  | Size Conversion by JSG ${ }^{\text {m }}$ |  |  | 5\% |
|  | E. | . U.K. |  | P |  | La | E.U. |  |  | 276MP | Foot |
| 252/3 | 381/2 | 53/8 | 63/8 | 71/8 | 95/8" | 29 | 431/2 | 9118 | 101/8 | 115 | 107\% ${ }^{\prime \prime}$ |
| m | IT | 7-7 | M | W | Length | cm | IT | $8 \cdot 7$ | M | W | Length |
| ParisPoint |  | Size Conversion by JSG ${ }^{\text {m }}$ |  |  | 5\% | ParisPoint |  | Size Conversion by JSG ${ }^{\text {m }}$ |  |  | 5\% |
| Last | E.U. | K. |  | P | t | La | E.U. | K. |  | 279MP | Foot |
| 26 | 39 | 53/4 | 63/4 | 81/4 | 93/4" | 291/3 | 44 | 9½ | 101/2 | 12 | 11 |
| cm | IT | $7 \cdot 8$ | M | W | Length | cm | IT | 8-8 | M | W | Length |
| ParisPoint |  | Size Con | sion | $\mathbf{S G}^{\text {m }}$ | 5\% | ParisP | int | Size Con | rsion | JSG ${ }^{\text {m }}$ | 5\% |

Last E．U．U．K．U．S．${ }_{\mathrm{MP}}^{219}$ Foot Last E．U．U．K．U．S．${ }_{\mathrm{MP}}^{266}$ Foot

23 |  | 34 | $1 / 2$ | $23 / 8$ | 33 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

CM IT 4 澡6 M W Length CM IT $\quad$ 5淥 $6 \quad M \quad M \quad W$ Length MondoPoint Size Conversion by JSG ${ }^{\text {m }} \quad 5 \%$
Last E．U．U．K．U．S．${ }_{\text {MP }}^{224}$ Foot
$\begin{array}{llllll}\mathbf{2 3} 1 / 2 & 351 / 4 & \mathbf{2}^{15} / 16 & 3^{15} / 16 & 57 / 16 & 8^{13 / 16 "}\end{array}$
CM IT 4 㴍 $7 \quad \mathrm{M}$ W Length MondoPoint Size Conversion by JSG ${ }^{\text {m }} \quad 5 \%$ Last E．U．U．K．U．S．${ }_{\mathrm{MP}}^{228}$ Foot
$2436 \quad 361 / 2 \quad 41 / 2 \quad 6 \quad 9 "$
CM IT 4澡8 M W Length MondoPoint Size Conversion by JSG ${ }^{\text {m }} \quad 5 \%$
Last
E．U．U．K．
U．S．${ }_{\text {MP }}^{233}$ Foot
$\begin{array}{llllll}241 / 2 & 363 / 4 & 4^{1} / 16 & 51 / 16 & 69 / 16 & 93 / 16 "\end{array}$
CM IT 4㴍 $9 \quad \mathrm{M} \quad \mathrm{W}$ Length MondoPoint Size Conversion by JSG ${ }^{\text {™ }} \quad 5 \%$
Last E．U．U．K．U．S．${ }_{M P}^{238}$ Foot
$25 \quad 371 / 2 \quad 45 \quad 55 / 8 \quad 71 / 8 \quad 93 / 8 "$
CM IT 5㴍0 M W Length Mondopoint Size Conversion by JSG ${ }^{\text {m }}$ 5\％
Last
E．U．U．K．
U．S．${ }_{M P}^{243}$ Foot
$251 / 2 \quad 381 / 4 \quad 5^{3 / 16} \quad 6^{3 / 16} \quad 7^{11 / 16} \quad 9{ }^{9} / 16^{\prime \prime}$ CM IT 5㴍1 M W Length MondoPoint Size Conversion by JSG ${ }^{\text {™ }} \quad 5 \%$ Last E．U．U．K．U．S．${ }_{M P}^{247}$ Foot $26 \quad 39 \quad 53 / 4 \quad 63 / 4 \quad 81 / 4 \quad 93 / 4{ }^{14}$
CM IT 5㴍2 M W Length MondoPoint Size Conversion by JSG ${ }^{\text {m }} \quad 5 \%$
Last
E．U．U．K．
U．S．${ }_{\text {MP }}^{252}$
Foot
$\begin{array}{llllll}261 / 2 & 393 / 4 & 6^{5} / 16 & 75 / 16 & 8^{13} / 16 & 9^{15} / 16^{\prime \prime}\end{array}$ CM IT 5㴍3 M W Length MondoPoint Size Conversion by JSG ${ }^{\text {mm }} \quad 5 \%$ Last E．U．U．K．U．S．${ }_{M P}^{257}$ Foot
 CM IT 5㴍4 M W Length MondoPoint Size Conversion by JSG ${ }^{\text {TM }} \quad 5 \%$ Last E．U．U．K．U．S．${ }_{M P}^{262}$ Foot $\begin{array}{llllll}\mathbf{2 7} 1 / 2 & 411 / 4 & 7^{7} / 16 & 8^{7 / 16} & 9^{15} / 16 & 10^{5} / 16^{\prime \prime}\end{array}$ CM IT 5澡5 M W Length MondoPoint Size Conversion by JSG ${ }^{\text {Tm }} \quad 5 \%$
$\mathbf{2 8 1 / 2} \quad 42^{3 / 4} \quad 89 / 16 \quad 99 / 16 \quad 11^{1 / 16} \quad 10^{11 / 16 "}$
$\underset{\text { JSG }}{ }{ }^{\mathrm{Wm}} \begin{array}{r}\text { Length } \\ 5 \%\end{array}$
Mondopoint Size Conversion by JSG ${ }^{\text {m }} \quad 5 \%$
Last E．U．U．K．U．S．${ }_{\mathrm{MP}}^{271}$ Foot CM IT 5㴍7 M W Length Mondopoint Size Conversion by JSG ${ }^{\text {mn }} \quad 5 \%$
Last
E．U．U．K．
U．S．${ }^{276}$
Foot
$29 \quad 43^{1 / 2} \quad 91 / 8 \quad 101 / 8 \quad 115 / 8 \quad 107 / 8^{\prime \prime}$
CM IT 5棌8 M W Length Mondopoint Size Conversion by JSG ${ }^{\text {m }} \quad 5 \%$
Last
E．U．
U．K．
U．S．${ }_{\mathrm{MP}}^{281}$ Foot
$291 / 2 \quad 441 / 4 \quad 9^{11} 16 \quad 10^{11} / 16 \quad 12^{3} / 16 \quad 11^{1 / 16 "}$ CM IT 5㴍 9 M W Length Mondopoint Size Conversion by JSG ${ }^{\text {n }} \quad 5 \%$
Last
E．U．U．K．
U．S．${ }_{\text {MP }}^{285}$ Foot
$\begin{array}{llllll}30 & 45 & 103 / 4 & 113 / 4 & 123 / 4 & 11 \frac{1}{4} 4^{\prime \prime}\end{array}$
CM IT 6㴍0 M W Length MondoPoint Size Conversion by JSG ${ }^{\text {m }} \quad 5 \%$
Last
E．U．U．K．
U．S．${ }_{\mathrm{MP}}^{290}$ Foot

30 ${ }^{1 / 2} \quad 4533 / 4 \quad 10^{13} / 16 \quad 11^{13 / 16} \quad 13^{5} / 16 \quad 11^{7} / 16^{\prime \prime}$ CM IT 6㴍1 M W Length Mondopoint Size Conversion by JSG ${ }^{\text {m }} \quad 5 \%$ Last E．U．U．K．U．S．${ }_{\mathrm{MP}}^{295}$ Foot $31 \quad 461 / 2 \quad 113 / 8 \quad 123 / 8 \quad 137 / 8 \quad 115 / 8^{3}$ CM IT 6㴍2 M W Length MondoPoint Size Conversion by JSG ${ }^{\text {m }} \quad 5 \%$
Last
E．U．U．K．
U．S．$\quad{ }_{\mathrm{MP}}^{300}$
Foot
$31^{1 / 2} \quad 47^{1 / 4} \quad 11^{15} / 16 \quad 12^{15} / 16 \quad 14^{7} / 16 \quad 11^{13} / 16^{\prime \prime}$ CM IT 6㴍3 M W Length MondoPoint Size Conversion by JSG ${ }^{\text {mm }} \quad 5 \%$ Last E．U．U．K．U．S．${ }_{\mathrm{MP}}^{305}$ Foot $\begin{array}{llllll}32 & 48 & 12^{11 / 2} & 13^{1 / 2} & 15 & 12 "\end{array}$ CM IT 6㴍4 M W Length MondoPoint Size Conversion by JSG ${ }^{\text {m＂}} \quad 5 \%$ Last E．U．U．K．U．S．${ }_{\text {MP }}^{309}$ Foot
$32^{1 / 2} \quad 48^{33 / 4} \quad 13^{1 / 16} \quad 14^{1 / 16} \quad 159 / 16 \quad 12^{3 / 16 "}$ CM IT 6㴍5 M W Length MondoPoint Size Conversion by JSG ${ }^{\text {m }} \quad 5 \%$

To the right is the Brannock width variance graph and as you can see it is non-linear. Only the D width is a consistent $37^{1} 2 / 2 \%$ of the length across the entire size range. This is because the $1 / 2$ size increment is $\frac{1}{6}$ " and the width increment for $1 / 2$ size is $1 / 16^{\prime \prime}, 6 \div 16=3 / 8 ; 3 / 8 \times 100=371 / 2 \%$. For scaling purposes this consistent width percentage characteristic should apply for all widths and all sizes. The standard Brannock width table is linear in respect that widths are separated by $3 / 16^{\prime \prime}$ and the width increment per $1 / 2$ size is $1 / 16^{\prime \prime}$. This linear layout of the width table does not lend itself to consistent scaling. As you can see the width \% difference for an $\mathbf{8}^{\prime \prime}$ Foot from AAA to EEE is $183 / 4 \%$ but for a $12 \frac{1}{3} \mathbf{3}^{\prime \prime}$ Foot it is $12 \frac{1}{6} \%$, a $>6 \%$ difference.

In actual manufacturing proper scaling of the Lasts will maintain the same percentage for a given width across the entire size range like the $D$ width. For instance in the generic graph to the right using the $17 \% \%$ width spacing for a $10^{\prime \prime}$ foot, and for every $1 / 2$ size, $\frac{1}{6} \prime \prime$, $\%$ and increments for the following widths are: AAA $281 / 8 \% 1 / 21 . \overline{3}^{\prime \prime}$
AA 30\% 1/20"
A 317/8\% 1/18.824"
B $333 / 4 \% 1 / 17.7^{\prime \prime}$
C $355 \% 1 / 16.842^{\prime \prime}$
D $371 / 2 \% 1 / 16^{\prime \prime}$
E $393 / 8 \%^{1 / 15.238 " ~}$
EE $41 \frac{1}{4} \%$ 1/14.545" EEE $431 / 8 \%$ 1/13.913"

The exact formula for calculating the denominator of each fraction is: $600 \div$ Width\%
Using this method allows the width to be specified as a percentage which can be referenced to a standard width marking and can be easily calculated using the width and length of the Foot. The metatarsal girth, circumference around the ball of the foot, associated with the width is even more important in determining how tight the shoe width fits and should also be a standard specified value expressed as a percentage of the Foot length associated with each width.

US Brannock Width Variance Graph


Generic Width Graph


Again a $10^{\prime \prime}$ Foot on the US Customary and Paris Point systems using 5\% Toe Room along with the Brannock system was chosen for the median width scaling value. Since a $10^{\prime \prime}$ Foot is in the center of overlapping lengths for both M \& W Brannock ( 6 \& 101/2) and Paris Point ( 38 \& 42) sizes the Brannock exact width increment of $17 \% \%$ is an optimal choice. Whether this is the best width $\%$ increment to use as a defined standard can be debated but it is probably the best preliminary value to use since it is the median average used on the Original Brannock Device® for a $10^{\prime \prime}$ Foot and most shoes in the past have been manufactured to fit well using the device. Whether the non-linear width curves of the original Brannock width table are of any benefit, e.g. growing feet, for adult sizes it seems to be of little if any value and would be a disadvantage when scaling Lasts for all widths and sizes. The foot rulers presented here will further optimize the spacing by using an $\sim 5 \frac{2}{5} \%$ factor increment, $\sqrt{37} 1 / 2 \div 33^{3} / 4$, between the widths, AAA $28 \frac{5}{6} \%$, AA $303 / 8 \%$, A $32 \%$, B $333 / 4 \%$,


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BY: Size Conversion by JSG ${ }^{\text {M }}$

Copy Ruler Image to ClipBoard and Paste into Image Editor. Set Print D.P.I. to 300 and Print on $81 / 2^{\prime \prime} \times 14^{\prime \prime}$ Legal Size Paper or CardStock. Cut Along Dotted Line at Top and Place on a Board with a RightAngleBackStop.

Actual ruler increment markings align with the inch scale. After printing check to see if the $12^{\prime \prime}$ mark measures $12^{\prime \prime}$.

The ruler can be used to take width measurements and a percentage can be calculated from the foot length and referenced on page 8 for the proper width.

127/3000PP



Copy Ruler Image to ClipBoard and Paste into Image Editor. Set Print D.P.I. to 299.216 and Print on $81 / 2^{\prime \prime} \times 14^{\prime \prime}$ Legal Size Paper or CardStock. Cut Along Dotted Line at Top and Place on a Board with a RightAngleBackStop.

Actual ruler increment markings align with the inch scale. After printing check to see if the $12^{\prime \prime}$ mark measures $12^{\prime \prime}$.

The ruler can be used to take width measurements and a percentage can be calculated from the foot length and referenced on page 8 for the proper width.
The
Paris Point
Universal
Foot Ruler


Toe Room: $+5 \%$
$\left.0.9525 \Rightarrow(1 / x) \Rightarrow \begin{array}{c}1.050 \\ \left(-4 \frac{3}{4} \frac{1}{6}\right)\end{array}+5 \%\right)$ Last.in $=$ Foot. $\begin{gathered}(+5 \%) \\ +5 \%\end{gathered}$ IT $=$ Last. $\mathrm{cm} \times{ }^{\frac{1}{2}}$ Foot. $\mathrm{cm}=$ Last. $\mathrm{cm} \times 0.9525$

Last. $\mathrm{in}=$ Last. $\mathrm{cm} \div 2.54$ US I UK $=$ Foot. in $\times 3-$ Offset
Offsets : UK $=23$
Offsets : $U K=23 \frac{1}{2}, M=22 \frac{1}{2}, W=21$

| UK | M | W | IT |  |
| :---: | :---: | :---: | :---: | :---: |
| 1/2 | 11122 | 3 | 32 | 3 |
| 11/4 | 21/4 | 33/4 | 33 | 209 |
| 2 | 3 | 4112 | 34 | 216 |
| 23/4 | 33/4 | 51/4 | 35 | 22 |
| 3112 | 41122 | 6 | 36 | 228 |
| 41/4 | 511/4 | 63/4 | 37 | 235 |
| 5 | 6 | 7112 | 3 | 2 |
| 53/4 | 63/4 | 81/4 | 39 | 247 |
| 61/2 | 71/2 | 9 | 4 | 254 |
| 711/4 | 81/4 | 93/4 | 41 | 260 |
| 8 | 9 | 101/2 | 42 | 266 |
| 83/4 | 93/4 | $11^{11 / 4}$ | 43 | 273 |
| 9112 | 101/2 | 12 | 4 | 279 |
| 101/4 | 1111/4 | $12^{3 / 4}$ | 45 | 285 |
| 11 | 12 | 131/2 | 46 | 29 |
| 113/4 | 123/4 | 141/4 | 47 | 298 |
| 121/2 | 131/2 | 15 | 48 | 305 |
| 1311/4 | 141/4 | 153/4 | 49 | 311 |
| 14 | 15 | 161/2 | 50 | 317 |
| 143/4 | 153/4 | 171/4 | 5 | 324 |

Mearuring feet at the end of the day will produce the most accurate size and best overall fit.
Place heel against backstop and position the angle of the foot to obtain longest measurement using the longest toe.
After measuring length for size choose your normal width if available otherwise go up or down in size to compensate.
Use the scale to measure width and a percentage can be calculated using the foot length.

| mate Width Table |  |  |  |
| :---: | :---: | :---: | :---: |
| 285\% | X Slim | AAA |  |
| 3038\% | Slim | AA |  |
| 2\% | Narro |  |  |
| 333\% | Mediun |  |  |
| 354\% | Medium |  |  |
| 371 $\frac{1}{2}$ \% | Medium | d |  |
| 3912\% | Wide | E |  |
| $41 \frac{2}{3} \%$ | X Wid | EE |  |
| 437 | X Wi |  |  |

$$
\%=\frac{100 \times \text { Width }}{\text { Length }}\left(\begin{array}{l}
\text { (In) } \\
(\text { In })
\end{array}\right.
$$

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This ruler in primarily intended for Inline Skates, Ski Boots and other Athletic Footwear (Tennis, Sneakers, Trainers, etc...) that are manufactured in $1 / 2 \mathrm{~cm}$ increments for the MondoPoint system.

Copy Ruler Image to ClipBoard and Paste into Image Editor. Set Print D.P.I. to 298¹/6 and Print on $81 / 2^{\prime \prime} \times 14^{\prime \prime}$ Legal Size Paper or CardStock. Cut Along Dotted Line at Top and Place on a Board with a Right Angle BackStop.

Actual ruler increment markings align with the inch scale. After printing check to see if the 12 " mark measures $12^{\prime \prime}$. The ruler can be used to
take width measure-
ments and a percentage
can be calculated from
the foot length and
referenced on page 8 for
the proper width.

- Lasts or Inside Lengths in CentiMeters -

MondoPoint

> 1/2
> CentiMeter
> TM
> Universal Foot Ruler





Mondo W M UK IT $\begin{gathered}\text { Point } \\ 205\end{gathered}$ $\begin{array}{lllll}33 / 4 & 21 / 4 & 11 / 4 & 33 & 209 \\ & & & & 214\end{array}$
$\begin{array}{lllll}47 / 8 & 33 / 8 & 23 / 8 & 341 / 2 & 219 \\ & & & & 224 \\ 6 & 41 / 2 & 3^{11 / 2} & 36 & 228\end{array}$

|  |  |  | 233 |  |
| :--- | :--- | :--- | :--- | :--- |
| $71 / 8$ | $55 / 8$ | $45 / 8$ | $371 / 2$ | 238 |
|  |  |  |  | 243 |

$\begin{array}{lllll}81 / 4 & 63 / 4 & 53 / 4 & 39 & 247 \\ & & & & 252\end{array}$
$\begin{array}{lllll}93 / 8 & 77 / 8 & 67 / 8 & 401 / 2 & 257 \\ & & & & 262\end{array}$

| $10^{1} / 2$ | 9 | 8 | 42 | 266 |
| :--- | :--- | :--- | :--- | :--- |
|  |  |  |  | 271 |

$\begin{array}{lllll}115 / 8 & 10 \frac{1}{1} 8 & 91 / 8 & 43^{1 / 2} 2 & 276 \\ & & & & 281\end{array}$
$123 / 4 \quad 111 / 4 \quad 10^{1 / 4} 45$
$\begin{array}{lllll}137 / 8 & 12^{3} / 8 & 113 / 8 & 461 / 2\end{array}$
$15 \quad 13^{1 ⁄ 2} 2 \quad 12^{11 / 2} 48$
161/8 $\quad 145 / 8 \quad 135 / 8 \quad 491 / 2$
$171 / 4 \quad 153 / 4 \quad 143 / 4 \quad 51$

 9 12 12 3/8 - 12 3/4

Mearuring feet at the end of the day will produce the most accurate size and best overall fit.

Place heel against backstop and position the angle of the foot to obtain longest measurement using the longest toe.

After measuring length for size choose your normal width if available otherwise go up or down in size to compensate.

Use the scale to measure width and a percentage can be calculated using the foot length.

| Approximate Width Ta |  |  |
| :---: | :---: | :---: |
| 285\% | X Slim | AAA |
| 303\% | Sli | AA |
| 32 \% | Narrow | A |
| $3 \frac{3}{4} \%$ | Mediu | B |
| 354, | Mediu | C |
| 371 $\frac{1}{2}$ \% | Medium | d |
| 3912\% | Wid | E |
| $1 \frac{2}{3} \%$ | X Wide | EE |
| 4378\% | XX Wide | EEE |
| $=\frac{100 \times \text { Width }}{\text { Length }}(\mathrm{CM})$ |  |  |
|  |  |  |

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 $81 / 4$ $\begin{array}{llll}7 / 16 & 33^{3} / 4 & 1^{13} / 16 & 2^{13} / 16\end{array} \quad 4^{5 / 16}$ $8^{5 / 8} 1365^{1 / 4} \quad 2^{15} / 16 \quad 3^{15} / 16 \quad 5^{7 / 16}$ $\begin{array}{lllll}3 / 16 & 363 / 4 & 4^{1 / 16} & 5^{1 / 16} & 6^{9 / 16}\end{array}$ $93 / 8$ $\begin{array}{lllll}9 & 9 / 16 & 381 / 4 & 5^{3 / 16} & 6^{3 / 16}\end{array} \quad 7^{11 / 16}$ $93 / 4$ $9^{15} / 16 \quad 393 / 4 \quad 65 / 16 \quad 7^{5 / 16} \quad 8^{13 / 16}$ $\begin{array}{lllll}10^{1 / 8} \\ & 51 / 16 & 41 / 4 & 7^{7 / 16} & 8^{7 / 16}\end{array} 9^{15 / 16}$ 10 1/2 $10^{11} / 16 \quad 423 / 4 \quad 8^{9 / 16} \quad 9^{9 / 16} \quad 11^{1 / 16}$ 10 7/8 $11^{1 / 16} \quad 44^{1 / 4} \quad 9^{11 / 16} \quad 10^{11 / 16} \quad 12^{3 / 16}$ $111 / 4$
$\begin{array}{llllll} & 11 & 763 & 10^{13} / 16 & 11^{13} / 16 & 13\end{array} 3^{5 / 16}$ 11 5/8
$11^{13 / 16} \quad 47^{1 / 4} \quad 11^{15} / 16 \quad 12^{15} / 16 \quad 14^{7 / 16}$
$-12^{3 / 16} \quad 483 / 4 \quad 13^{1 / 16} \quad 14^{1 / 16} \quad 15^{9 / 16}$
$\begin{array}{llllllll}-12 & 9 / 16 & 501 / 4 & 14 & 15^{3} / 16 & 16^{11} / 16\end{array}$

