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Summary of Description & Claims

Trade Secret:
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eXp5™ – an eXponential Shoe Sizing System – A shoe sizing system that increments sizes by a percentage increase instead of a fixed increment, e.g. $\frac{1}{6}$ " & $\frac{1}{3}$ cm for $\frac{1}{2}$ size increments in the Barleycorn & Paris Point systems and, $\frac{1}{2}$ cm & $\frac{3}{4}$ cm for the 5mm & $7\frac{1}{2}$ mm increments in the MondoPoint system. The increment is **5 steps per inch** around a $10\frac{1}{5}$ ", 259.1mm foot (9.7" to 10.7", 246 $\frac{2}{5}$ to 271 $\frac{4}{5}$ mm) and 5mm increment at 25 $\frac{1}{2}$ cm, a non-linear progression that increases the increment value as size increases. Using 6 $\frac{2}{3}$ % toe room the increment size at $\frac{1}{2}$ **UK** is $\frac{1}{6}$ " ($\frac{1}{2}$ size Barleycorn).

Better Fittings & Manufacturing Efficiency – Since this is a ratio based system it produces a more consistent and usable coverage of the sizes providing better fittings which may also reduce the number of sizes needed to cover the the same size range.

Consistent Widths Across The Size Range Produces Easy Last Scaling – The spacing between the Widths is also a percentage increase offering the same benefits. For the existing sizing systems the width increase step becomes larger in size for the smaller sizes relatively speaking, and vice-versa, smaller width increase step for the larger sizes. By using percentage scaling this problem is eliminated. Instead of using the fixed increment values for length and width of $\frac{1}{6}$ " & $\frac{1}{12}$ " for conventional Barleycorn or $\frac{1}{6}$ " & $\frac{1}{16}$ " for Brannock the relationship between widths is a percentage increment spread over 11 widths from approximately 33% to 44% of length providing a consistent increment between all widths across the size range. The **Length:Width:MetatarsalGirth** ratio percentages associated with the width labels are not fixed on a per label basis instead they reflect the **EU Dorothy** data for the most efficient alignment for manufacturing i.e. the center width is a line through the **Length:Width:MetatarsalGirth** graphs that overlays the data to cover the most popular sizes and the wider and narrower widths/girths are percentage increments on either side of this. Labels: **I X Slim, II Slim, III Narrow, IV MedNar, V Medium, VI MedWide, VII Wide, VIII X Wide, IX 2X Wide, X 3X Wide, XI 4X Wide**. This covers the approximate width range of the **US** widths **3A** through **5E** from ~33% to ~44% and could be adjusted to cover a narrower or wider range.

6 $\frac{2}{3}$ % Toe Room, $\frac{2}{3}$ ", for a 10"/254mm **Foot** and a 10 $\frac{2}{3}$ "/270 $\frac{14}{15}$ mm **Last**, is used as the Origin and the minimum average amount for Barleycorn & Paris Point sizing but more could be used. For every 1 **eXp5™** size increment there is an ~1.98% length change and an ~1.44% width change. Within the same size width spacing is ~2.92%. The toe room allowance does not limit toe box lengthening for styling purposes rather this is the minimum toe room requirement.

Use of this technology requires that the product's dimensions are faithful to the specifications for the label.

eXponential 5spi Shoe Sizing

Unisex Approximate 5mm MondoPoint Sizing Overlay

eXp5™	25 UK	24 usM	22½ usW	× 1½ IT/EU	1.019803903 Foot.mm	÷ 25⅔ Foot.in	1.066666666 Last.mm	÷ 25⅔ Last.in
7★0	1.41	2.41	3.91	33.5	209.6	8.252	223.6	8.802
7★1	1.93	2.93	4.43	34.2	213.7	8.415	228.0	8.976
7★2	2.46	3.46	4.96	34.9	218.0	8.582	232.5	9.154
7★3	3.01	4.01	5.51	35.5	222.3	8.752	237.1	9.335
7★4	3.56	4.56	6.06	36.2	226.7	8.925	241.8	9.520
7★5	4.13	5.13	6.63	37.0	231.2	9.102	246.6	9.708
7★6	4.70	5.70	7.20	37.7	235.8	9.282	251.5	9.901
7★7	5.29	6.29	7.79	38.4	240.4	9.466	256.5	10.097
7★8	5.89	6.89	8.39	39.2	245.2	9.653	261.5	10.297
7★9	6.50	7.50	9.00	40.0	250.0	9.844	266.7	10.500
8★0	7.13	8.13	9.63	40.8	255.0	10.039	272.0	10.709
8★1	7.76	8.76	10.26	41.6	260.0	10.238	277.4	10.921
8★2	8.41	9.41	10.91	42.4	265.2	10.441	282.9	11.137
8★3	9.07	10.07	11.57	43.2	270.5	10.648	288.5	11.358
8★4	9.75	10.75	12.25	44.1	275.8	10.859	294.2	11.582
8★5	10.44	11.44	12.94	45.0	281.3	11.074	300.0	11.812
8★6	11.14	12.14	13.64	45.9	286.8	11.293	306.0	12.046
8★7	11.85	12.85	14.35	46.8	292.5	11.517	312.0	12.284
8★8	12.58	13.58	15.08	47.7	298.3	11.745	318.2	12.528
8★9	13.33	14.33	15.83	48.7	304.2	11.977	324.5	12.776
9★0	14.09	15.09	16.59	49.6	310.2	12.214	330.9	13.029
9★1	14.86	15.86	17.36	50.6	316.4	12.456	337.5	13.287
9★2	15.65	16.65	18.15	51.6	322.7	12.703	344.2	13.550
9★3	16.45	17.45	18.95	52.6	329.0	12.955	351.0	13.818
9★4	17.28	18.28	19.78	53.7	335.6	13.211	357.9	14.092
9★5	18.11	19.11	20.61	54.7	342.2	13.473	365.0	14.371

Reference values specified in mm (MondoPoint)

$$\text{IT} / \text{EU} = 1\frac{1}{2} \times \text{Last.cm} = 4.064 \times \text{Foot.in}$$

$$[\text{UK}|\text{usM}|\text{usW}] = 3 \times \text{Last.in} - [25|24|22\frac{1}{2}]$$

$$= \text{IT} / \text{EU} \div 1.27 - [25|24|22\frac{1}{2}]$$

$$+6\frac{2}{3}\% \text{ Toe Room Factor} = 10\frac{2}{3} \div 10 = 1.066666666$$

$$\text{eXp5™ Foot Increment Factor} = \sqrt{26 \div 25} = 1.019803903$$

$$\text{eXp5™ Width Increment Factor} = \sqrt[10]{4 \div 3} = 1.029186009$$

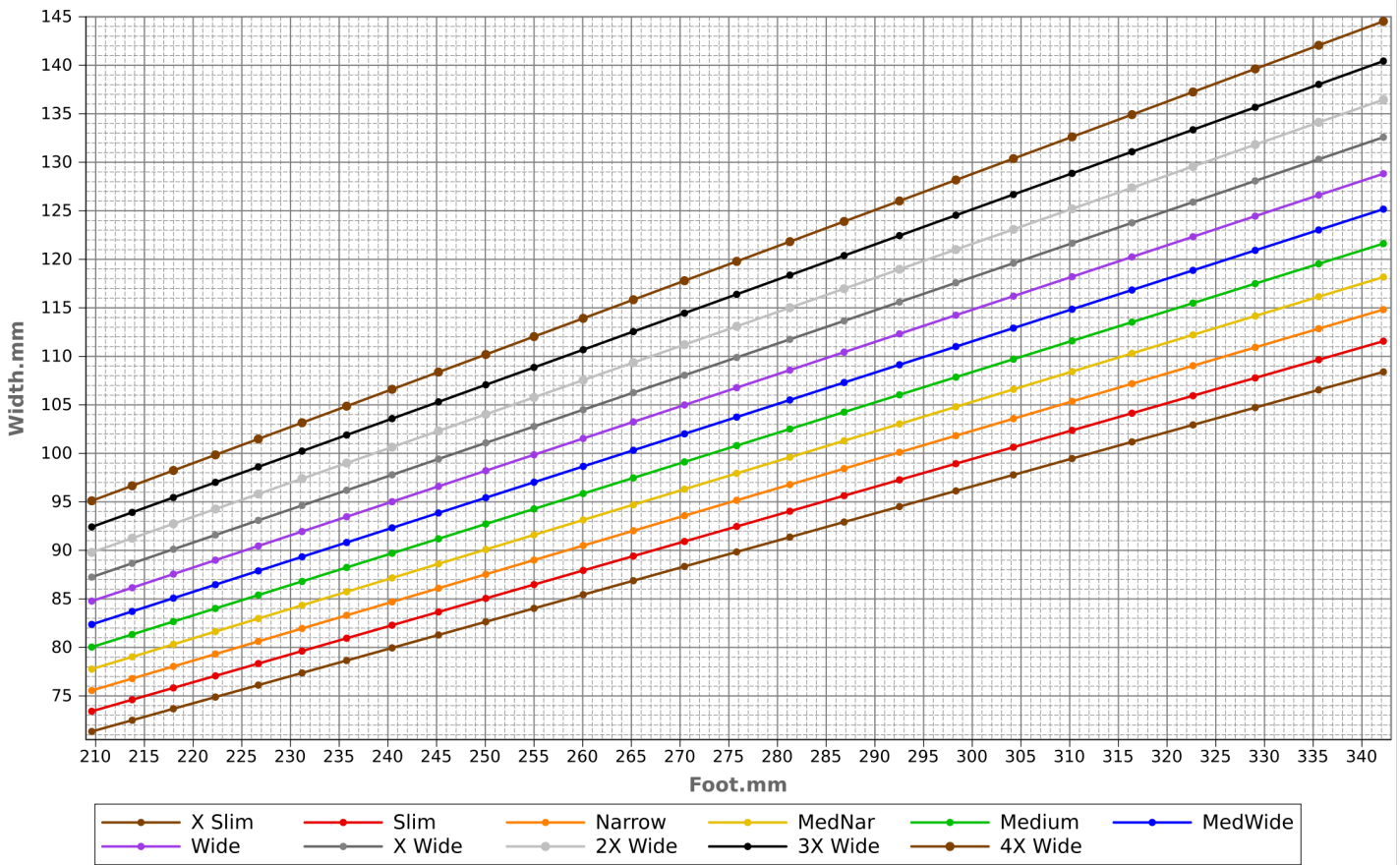
eXp5™ Width

I	II	III	IV	V	VI	VII	VIII	IX	X	XI
XS	S	N	MN	M	MW	W	XW	2XW	3XW	4XW
X Slim	Slim	Narrow	Medium Narrow	Medium	Medium Wide	Wide	X Wide	2X Wide	3X Wide	4X Wide
71.3	73.4	75.6	77.8	80.0	82.4	84.8	87.2	89.8	92.4	95.1
72.5	74.6	76.8	79.0	81.3	83.7	86.2	88.7	91.3	93.9	96.7
73.7	75.8	78.0	80.3	82.7	85.1	87.6	90.1	92.7	95.4	98.2
74.9	77.1	79.3	81.6	84.0	86.5	89.0	91.6	94.3	97.0	99.8
76.1	78.3	80.6	83.0	85.4	87.9	90.5	93.1	95.8	98.6	101.5
77.4	79.6	81.9	84.3	86.8	89.3	91.9	94.6	97.4	100.2	103.2
78.6	80.9	83.3	85.7	88.2	90.8	93.5	96.2	99.0	101.9	104.9
80.0	82.3	84.7	87.2	89.7	92.3	95.0	97.8	100.6	103.6	106.6
81.3	83.7	86.1	88.6	91.2	93.9	96.6	99.4	102.3	105.3	108.4
82.6	85.1	87.5	90.1	92.7	95.4	98.2	101.1	104.0	107.1	110.2
84.0	86.5	89.0	91.6	94.3	97.0	99.9	102.8	105.8	108.9	112.0
85.4	87.9	90.5	93.1	95.9	98.7	101.5	104.5	107.5	110.7	113.9
86.9	89.4	92.0	94.7	97.5	100.3	103.2	106.3	109.4	112.5	115.8
88.3	90.9	93.6	96.3	99.1	102.0	105.0	108.1	111.2	114.5	117.8
89.8	92.5	95.2	97.9	100.8	103.7	106.8	109.9	113.1	116.4	119.8
91.4	94.0	96.8	99.6	102.5	105.5	108.6	111.7	115.0	118.4	121.8
92.9	95.6	98.4	101.3	104.3	107.3	110.4	113.7	117.0	120.4	123.9
94.5	97.3	100.1	103.0	106.0	109.1	112.3	115.6	119.0	122.4	126.0
96.1	98.9	101.8	104.8	107.9	111.0	114.2	117.6	121.0	124.5	128.2
97.8	100.6	103.6	106.6	109.7	112.9	116.2	119.6	123.1	126.7	130.4
99.5	102.4	105.4	108.4	111.6	114.9	118.2	121.7	125.2	128.9	132.6
101.2	104.1	107.2	110.3	113.5	116.8	120.2	123.8	127.4	131.1	134.9
102.9	105.9	109.0	112.2	115.5	118.9	122.3	125.9	129.6	133.4	137.2
104.7	107.8	110.9	114.2	117.5	120.9	124.4	128.1	131.8	135.7	139.6
106.5	109.7	112.9	116.1	119.5	123.0	126.6	130.3	134.1	138.0	142.1
108.4	111.6	114.8	118.2	121.6	125.2	128.8	132.6	136.4	140.4	144.5

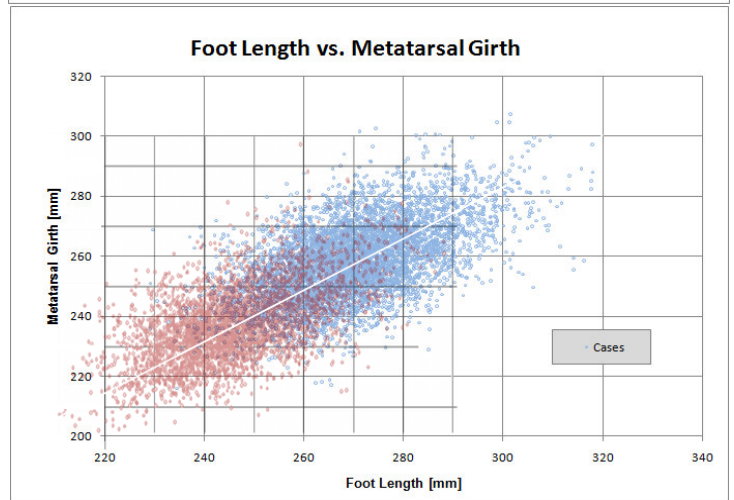
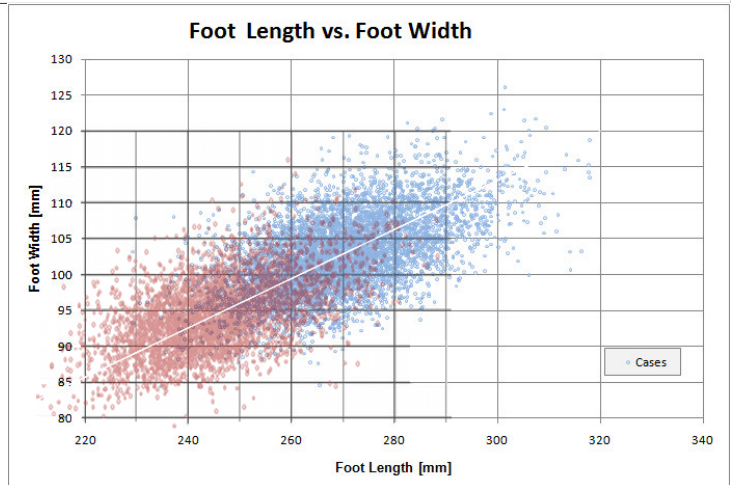
All values are in mm (MondoPoint)

All **Foot** measurements are taken Barefoot, with Hose or Thin Socks. If thicker socks are intended to be worn with a particular type of shoe or boot then the Lasts from which they are made from should have a slight increase in size made to them to compensate. A given percentage increase should be established for the type of sock to be worn for each shoe or boot design. Different increases in the **Length**, **Width** & **MetatarsalGirth** will be needed, most for the **MetatarsalGirth** and least for the **Length**.

eXp5™ Width



The **Width** and **MetatarsalGirth** tables and graphs for unisex sizing are derived from an overlay of the Men's and Women's **EU Dorothy** graphs to the right. A line drawn through the center defines the center width/girth.



eXp5™ Girth

I	II	III	IV	V	VI	VII	VIII	IX	X	XI
XS	S	N	MN	M	MW	W	XW	2XW	3XW	4XW
X Slim	Slim	Narrow	Medium Narrow	Medium	Medium Wide	Wide	X Wide	2X Wide	3X Wide	4X Wide
180.1	184.9	189.9	194.9	200.1	205.4	210.9	216.5	222.2	228.1	234.2
183.3	188.1	193.1	198.3	203.5	209.0	214.5	220.2	226.1	232.1	238.2
186.4	191.4	196.5	201.7	207.1	212.6	218.2	224.0	230.0	236.1	242.4
189.7	194.7	199.9	205.2	210.7	216.3	222.0	227.9	234.0	240.2	246.6
193.0	198.1	203.4	208.8	214.4	220.1	225.9	231.9	238.1	244.4	250.9
196.4	201.6	207.0	212.5	218.1	223.9	229.9	236.0	242.2	248.7	255.3
199.8	205.1	210.6	216.2	221.9	227.8	233.9	240.1	246.5	253.0	259.8
203.3	208.7	214.3	220.0	225.8	231.8	238.0	244.3	250.8	257.5	264.3
206.9	212.4	218.0	223.8	229.8	235.9	242.2	248.6	255.2	262.0	269.0
210.5	216.1	221.9	227.8	233.8	240.1	246.4	253.0	259.7	266.6	273.7
214.3	220.0	225.8	231.8	238.0	244.3	250.8	257.5	264.3	271.3	278.6
218.1	223.9	229.8	235.9	242.2	248.6	255.2	262.0	269.0	276.1	283.5
221.9	227.8	233.9	240.1	246.5	253.0	259.8	266.7	273.8	281.0	288.5
225.9	231.9	238.1	244.4	250.9	257.5	264.4	271.4	278.6	286.0	293.6
229.9	236.0	242.3	248.7	255.3	262.1	269.1	276.3	283.6	291.1	298.9
234.0	240.2	246.6	253.2	259.9	266.8	273.9	281.2	288.7	296.3	304.2
238.2	244.5	251.0	257.7	264.6	271.6	278.8	286.2	293.8	301.6	309.7
242.5	248.9	255.5	262.3	269.3	276.5	283.8	291.3	299.1	307.0	315.2
246.8	253.4	260.1	267.0	274.1	281.4	288.9	296.6	304.5	312.6	320.9
251.3	257.9	264.8	271.8	279.1	286.5	294.1	301.9	309.9	318.2	326.6
255.8	262.6	269.6	276.7	284.1	291.6	299.4	307.4	315.5	323.9	332.5
260.4	267.3	274.4	281.7	289.2	296.9	304.8	312.9	321.2	329.8	338.5
265.1	272.2	279.4	286.8	294.4	302.3	310.3	318.6	327.0	335.7	344.6
269.9	277.1	284.5	292.0	299.8	307.8	315.9	324.3	333.0	341.8	350.9
274.8	282.1	289.6	297.3	305.2	313.3	321.7	330.2	339.0	348.0	357.3
279.8	287.2	294.9	302.7	310.8	319.0	327.5	336.2	345.2	354.3	363.7

All values are in mm (MondoPoint)

This unisex profile with ~5mm increment is good for work/athletic/walking shoes or work/hiking/motorcycle/military/combat boots and when these are worn with thick absorbable socks.

eXp5™ Girth

