

CTCP - BIOCONFORT

EXPANSION PROJECT FOR TEST LABORATORY

**ESTUDO RELATIVO A TAMANHOS
DE CALÇADO QUE ESTABELECE UMA RELAÇÃO
ENTRE SISTEMAS DE NUMERAÇÃO**

CTCP, JULHO 2015



Introduction

During last years many footwear companies have been dealing with the size conversion problem. Therefore, the working group ISO / TC 137 “Footwear - Sizing — Conversion of sizing systems” which is accompanied by CT 57 CTCP, developed and emitted an International Standard ISO/TS 19407:2015 - Footwear - Sizing — Conversion of sizing systems.

This Technical Specification comprises three shoe size conversion tables covering the major shoe sizing systems (Mondopoint, European and United Kingdom, as well as China, Japan and United States). The tables are based on measurement of foot length, this being the logical starting point for any shoe size marking system. The tables contain the following information:

Table 1 — Adults’ technical shoe size conversion;

Table 2 — Adults’ recommended shoe size marking (simplified);

Table 3 — Children’s size conversion.

ISO/TS 19407 with the included tables offers a good compromise solution which will, if adopted, benefit the consumer.

1. Adults’ technical shoe size conversion

a) The Mondopoint system is defined in ISO 9407 and is based on foot length. The size grading intervals used with Mondopoint are given in DIN 66074-2:1975 as 5 mm (Range 1) or 7,5 mm (Range 2), both starting at zero. In practice, 10 mm intervals are commonly referred to as whole sizes and 5 mm intervals as half sizes. Intervals of 7,5 mm are used mainly for specialized footwear. China and Japan use the Mondopoint system for length designation; Japan sometimes expresses size in centimeters rather than millimetres.

b) The European system (EUR) (previously known as Paris Points, French or Continental) is based on a size grading interval of 6,67 mm, starting at zero. This system may be interpreted as being based on last length or foot length depending on the country of origin, resulting in differences in shoe size markings.

c) The United Kingdom system (UK) is based on a size grading interval of 8,47 mm, starting at 101,6 mm (4 inches or equivalent to 12 size grading intervals). The first 13 sizes are referred to as children’s sizes; the scale then re-starts at size 1 for larger sizes. This system was originally developed with regard to shoe or last length but subsequently redefined in terms of foot length.

d) The United States system (US) is based on a size grading interval of 8,47 mm, starting at 99,5 mm (3 11 12 inches). The first 13 sizes are referred to as children’s sizes; the scale then re-

starts at size 1 for larger sizes. In practice, however, the US system corresponds directly to the UK system but with the addition of an arbitrary off-set of one size difference for men’s footwear and usually two sizes difference for women’s footwear.

Table 1 gives precise conversion data utilizing mathematical relationships between the different scales based on an understanding of how the systems are generally implemented in practice.

Table 1 — Adults’ technical shoe size conversion;

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Foot length (mm) ^a	Mondopoint, China and Japan		EUR	UK	Typical effective last length range (mm) ^{b c}	
	Range 1 (5 mm)	Range 2 (7,5 mm)	{6,67 mm} ^d	{8,47 mm} ^d		
210,0	210					
211,7				2	219	231
213,4			34		220	232
215,0	215				222	234
215,9				2,5	223	237
216,8			34,5		224	236
217,5		217,5			225	237
220,1	220		35		227	239
220,2				3	227	239
223,4			35,5		230	242
224,4				3,5	231	243
225,0	225	225			232	244
226,8			36		234	246
228,7				4	236	248
230,1	230		36,5		237	249
232,5		232,5			240	252
232,9				4,5	240	252
233,5			37		240	252
235,0	235				242	254
236,8			37,5		244	256
237,1				5	244	256
240,1	240	240	38		247	259
241,4				5,5	248	260
243,5			38,5		250	262
245,0	245				252	264
245,6				6	253	265
246,8			39		254	266
247,5		247,5			255	267

NOTE See [Clause 3](#) for further explanation.

^a Footwear is generally expected to accommodate a range of foot lengths equal to $l_f \pm \frac{l_{ag}}{2}$ where l_f is foot length and l_{ag} is size grading interval (see [3.2](#)). Grade intervals are given in [3.2 a](#), b), c) and d).

^b Effective last length as defined in ISO/TS 19408.

^c Specialized footwear might fall outside this range.

^d Size grading interval for whole sizes.

Table 1 (continued)

Foot length (mm) ^a	Mondopoint, China and Japan		EUR	UK	Typical effective last length range (mm) ^{b c}	
	Range 1 (5 mm)	Range 2 (7,5 mm)	(6,67 mm) ^d	(8,47 mm) ^d		
249,8	250			6,5	257	269
250,1			39,5		257	269
253,5			40		260	272
254,1				7	261	273
255,0	255	255			262	274
256,8			40,5		264	276
258,3				7,5	265	276
260,1	260		41		267	279
262,5		262,5		8	270	282
263,5			41,5		270	282
265,0	265				272	284
266,8			42	8,5	274	286
270,1	270	270	42,5		277	289
271,0				9	278	290
273,5			43		280	292
275,2	275			9,5	282	294
276,8			43,5		284	296
277,5		277,5			285	297
279,5				10	286	298
280,1	280		44		287	299
283,5			44,5		290	302
283,7				10,5	291	303
285,0	285	285			292	304
286,8			45		294	306
287,9				11	295	307
290,1	290		45,5		297	309
292,2		292,5		11,5	299	311
293,5			46		300	312
295,0	295				302	314
296,4				12	303	315
296,8			46,5		304	316
300,2	300	300	47		307	319

NOTE See [Clause 3](#) for further explanation.

^a Footwear is generally expected to accommodate a range of foot lengths equal to $l_f \pm \frac{l_{sg}}{2}$ where l_f is foot length and l_{sg} is size grading interval (see [3.2](#)). Grade intervals are given in [3.2.a](#)), b), c) and d).

^b Effective last length as defined in ISO/TS 19408.

^c Specialized footwear might fall outside this range.

^d Size grading interval for whole sizes.

Table 1 (continued)

Foot length (mm) ^a	Mondopoint, China and Japan		EUR	UK	Typical effective last length range (mm) ^{b c}	
	Range 1 (5 mm)	Range 2 (7,5 mm)	(6,67 mm) ^d	(8,47 mm) ^d		
300,6				12,5	308	320
303,5			47,5		310	322
304,9	305			13	312	324
306,8			48		314	326
307,5		307,5			315	327
309,1				13,5	316	328
310,2	310		48,5		317	329
313,4				14	320	332
313,5			49		320	332
315,0	315	315			322	334
316,8			49,5		324	336
317,6				14,5	325	337
320,2	320		50		327	339
321,8				15	329	341

NOTE See [Clause 3](#) for further explanation.

^a Footwear is generally expected to accommodate a range of foot lengths equal to $l_f \pm \frac{l_{sg}}{2}$ where l_f is foot length and l_{sg} is size grading interval (see [3.2](#)). Grade intervals are given in [3.2 a](#)), b), c) and d).

^b Effective last length as defined in ISO/TS 19408.

^c Specialized footwear might fall outside this range.

^d Size grading interval for whole sizes.

2. Adults' recommended shoe size marking (simplified);

To simplify Table 1 and Table 2 for the practical requirement of shoe labelling, while retaining the highest degree of accuracy with respect to foot length, requires a knowledge of which system was used to manufacture and grade the footwear.

Table 2 therefore gives the most accurate size conversions possible based on each of the three main sizing systems (Mondopoint, EUR or UK). It should be noted however, that even in this table, approximate size conversions have had to be used because the fundamental difference in size grading interval means that exact size conversions cannot be given to whole or half sizes. It is suggested that shoe labels might also reflect this information, for example, by use of bold font to indicate the size grading system used to manufacture the footwear, with the converted sizes following in plain font:

Women's	Mondo	EUR	UK	US
	240	38	5,5	7,5

Men's	Mondo	EUR	UK	US
	260	41	7,5	8,5

Table 2 — Adults' recommended shoe size marking (simplified);

Table 2 — Adults' recommended shoe size marking (simplified)

Mondopoint grading					European grading					UK grading				
Mondo	EUR	UK	US	US	EUR	Mondo	UK	US	US	UK	Mondo	EUR	US	US
Men and women			Men		Men and women			Men	Women	Men and women			Men	Women
215	34	2,5	3,5	4,5	34	215	2	3	4	2	210	34	3	4
220	35	3	4	5	34,5	215	2,5	3,5	4,5	2,5	215	34,5	3,5	4,5
225	35,5	3,5	4,5	5,5	35	220	3	4	5	3	220	35	4	5
230	36,5	4	5	6	35,5	225	3,5	4,5	5,5	3,5	225	35,5	4,5	5,5
235	37	4,5	5,5	6,5	36	225	4	5	6	4	230	36,5	5	6
240	38	5,5	6,5	7,5	36,5	230	4	5	6	4,5	235	37	5,5	6,5
245	38,5	6	7	8	37	235	4,5	5,5	6,5	5	235	37,5	6	7
250	39,5	6,5	7,5	8,5	37,5	235	5	6	7	5,5	240	38	6,5	7,5
255	40	7	8	9	38	240	5,5	6,5	7,5	6	245	39	7	8
260	41	7,5	8,5	9,5	38,5	245	5,5	6,5	7,5	6,5	250	39,5	7,5	8,5
265	41,5	8,5	9,5	10,5	39	245	6	7	8	7	255	40	8	9
270	42,5	9	10	11	39,5	250	6,5	7,5	8,5	7,5	260	40,5	8,5	9,5
275	43	9,5	10,5	11,5	40	255	7	8	9	8	260	41,5	9	10
280	44	10	11	12	40,5	255	7,5	8,5	9,5	8,5	265	42	9,5	10,5
285	44,5	10,5	11,5	12,5	41	260	7,5	8,5	9,5	9	270	42,5	10	11
290	45,5	11	12	13	41,5	265	8	9	10	9,5	275	43,5	10,5	11,5
295	46	12	13	14	42	265	8,5	9,5	10,5	10	280	44	11	12
300	47	12,5	13,5	14,5	42,5	270	9	10	11	10,5	285	44,5	11,5	12,5
305	47,5	13	14	15	43	275	9,5	10,5	11,5	11	290	45	12	13
310	48,5	13,5	14,5	15,5	43,5	275	9,5	10,5	11,5	11,5	290	46	12,5	13,5
315	49	14	15	16	44	280	10	11	12	12	295	46,5	13	14
320	50	15	16	17	44,5	285	10,5	11,5	12,5	12,5	300	47	13,5	14,5
					45	285	11	12	13	13	305	47,5	14	15
					45,5	290	11,5	12,5	13,5	13,5	310	48,5	14,5	15,5
					46	295	11,5	12,5	13,5	14	315	49	15	16
					46,5	295	12	13	14	14,5	320	49,5	15,5	16,5
					47	300	12,5	13,5	14,5	15	320	50	16	17
					47,5	305	13	14	15					
					48	305	13	14	15					
					48,5	310	13,5	14,5	15,5					
					49	315	14	15	16					
					49,5	315	14,5	15,5	16,5					
					50	320	15	16	17					

3. Children's size conversion

Shoe size and typical effective last length are based on foot length plus a toe allowance of 8 % of foot length.

The US system is based on the UK system but with the addition of an arbitrary offset of usually half a size difference for children's footwear.

Table 3 — Children's size conversion

Table 3 — Children's recommended shoe size marking

Foot length (mm) ^a	Mondopoint	EUR	UK	US	Typical effective last length (mm) ^b	
					Min.	Max.
120	120	19,5	3,5	4	130	136
123	125	20	4	4,5	133	139
127		20,5	4,5	5	137	143
130	130	21	5	5,5	140	146
133		21,5	5,5	6	143	149
135	135	22			147	153
138	140	22,5	6	6,5	150	156
142		23	6,5	7	153	159
146	145	23,5	7	7,5	157	163
148		24			160	166
150	150	24,5	7,5	8	163	169
154	155	25	8	8,5	167	173
157		25,5	8,5	9	170	176
160	160	26	9	9,5	173	179
164		26,5			177	183
166	165	27	9,5	10	180	186
169	170	27,5	10	10,5	183	189
173		28	10,5	11	187	193
176	175	28,5	11	11,5	190	196
179	180	29	11,5	12	193	199
182		29,5			197	203
185	185	30	12	12,5	200	206
188		30,5	12,5	13	203	209
192	190	31	13	13,5	207	213
195	195	31,5	13,5	1	210	216
198		32			213	219
200	200	32,5	1	1,5	217	223
204	205	33	1,5	2	220	226
207		33,5			223	229
210	210	34	2	2,5	227	233
213		34,5	2,5	3	230	236
217	215	35	3	3,5	233	239
220	220	35,5	3,5	4	237	243
224		36			240	246

NOTE See [Clause 3](#) for further explanation.

^a Footwear is generally expected to accommodate a range of foot lengths equal to $l_f \pm \frac{l_{ag}}{2}$ where l_f is foot length and l_{ag} is size grading interval.

^b Effective last length as defined in ISO/TS 19408.