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Addendum A

Cover letter and Questionnaires

University of Pretoria

Department of Consumer Science
22 October 2002

The Department of Consumer Science of the University of Pretoria in collaboration with Ergotech and Potchefstroom University formed an initiative, known as African Body Dimensions, with the aim to establish, maintain and manage a national anthropometric database. The need for an updated South African anthropometric database was identified, and the design of many household and industrial products as well as clothing sizing and fit will be adressed. The latest scanner technology will be used to generate an accurate anthropometric database.

This study will serve as a pilot study to ensure the accuracy and representativeness of a South African anthropometric database for use by the South African clothing and footwear industry. By developing guidelines for the establishment of a database and for the identification of key dimensions to base sizing systems on, this study will ensure that such a database will be useful to the clothing and footwear industry.

Your expertise is needed for the completion of the attached questionnaire. The purpose of the questionnaire is to identify body measurements currently used by South African clothing and footwear manufacturers and retailers. Follow-up interviews will be conducted at selected manufacturers and retailers to determine the definitions of the identified body measurements. All information will be treated as confidential. Please return the questionnaire by 16 November 2002.

The list of body measurements with their definitions will be available on request to interested parties. Your participation in this study will be greatly appreciated. For more information, or if you have any questions, please contact:

Prof H M de Klerk
Study leader
Head of the Department of Consumer Science
Tel: (012) 420-2853
e-mail: deklerk@scientia.up.ac.za

Mariette Strydom
Master's student
Tel: (011) 673-2761
Fax: (012) 420-2855
e-mail: mstrydom@postino.up.ac.za

Kind regards

Ms Mariette Strydom

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

QUESTIONNAIRE: CLOTHING MANUFACTURERS/FACTORIES

Number | | | | 1 - 3

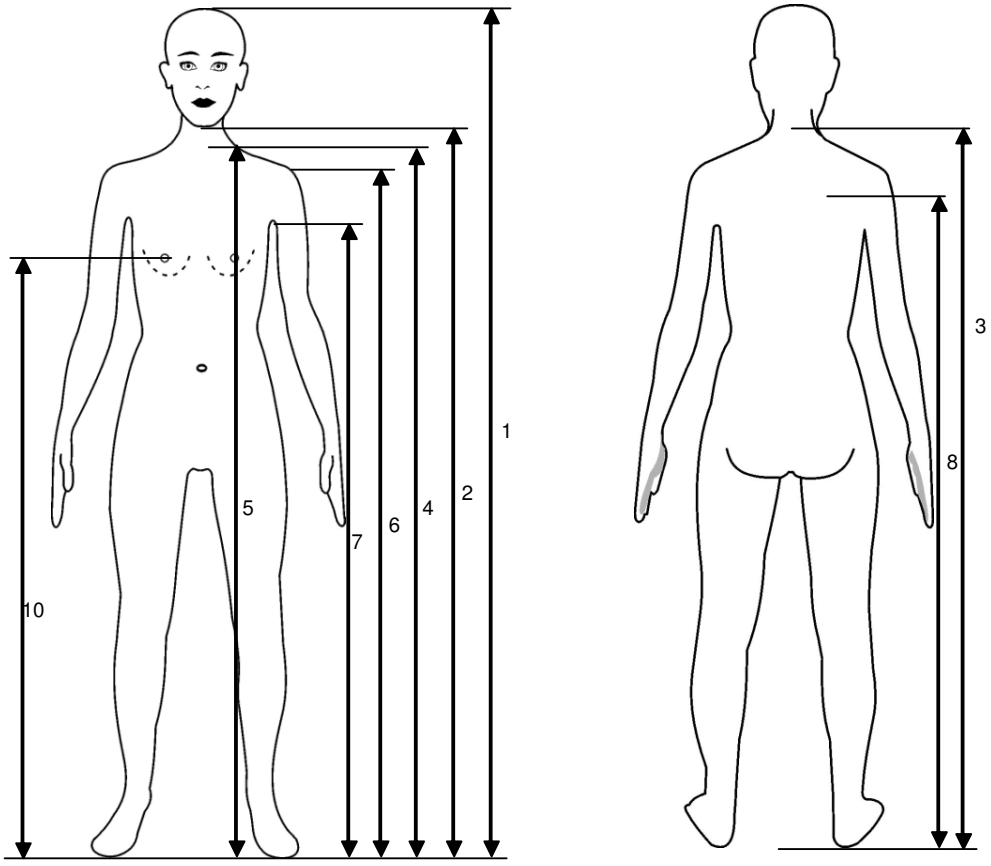
COMPANY NAME:	CONTACT PERSON:	E-MAIL / TEL NO:

1. Indicate next to the appropriate garment type which age group you cater for and how long you have been manufacturing the specific garment type.

BABIES / INFANTS	AGE GROUPS (in months)			YEARS INVOLVED			
GARMENT TYPE	0-12	12-24	24-36	0-4	5-9	10+	
BABIES' / INFANTS wear							4-7
BABIES' / INFANTS FOOTWEAR							8-11
BABIES' / INFANTS HEADWEAR							12-15
BABIES' / INFANTS GLOVES							16-19

CHILDREN	AGE GROUPS (in years)		YEARS INVOLVED			
GARMENT TYPE	1-8	9-16	0-4	5-9	10+	
BOYS' coats, overalls						20-22
BOYS' jackets, shirts, t-shirts						23-25
BOYS' pants, shorts						26-28
BOYS' swimwear						29-31
BOYS' underwear						32-34
GIRLS' dresses, coats, overalls						35-37
GIRLS' jackets, blouses, t-shirts						38-40
GIRLS' skirts, trousers, shorts						41-43
GIRLS' swimwear						44-46
GIRLS' underwear						47-49
BOYS' / GIRLS' SOCKS						50-52
BOYS' / GIRLS' HEADWEAR						53-55
BOYS' / GIRLS' GLOVES						56-58
SCHOOL WEAR						59-61

	AGE GROUPS (in years)					YEARS INVOLVED			
GARMENT TYPE	17-29	30-39	40-49	50-59	60+	0-4	5-9	10+	
MEN'S coats, overalls									62-67
MEN'S jackets, shirts, t-shirts									68-73
MEN'S pants, shorts									74-79
MEN'S swimwear									80-85
MEN'S underwear									86-91
LADIES' dresses, coats, overalls									92-97
LADIES' jackets, blouses, t-shirts									98-103
LADIES' skirts, trousers, shorts									104-109
LADIES' swimwear									110-115
LADIES' underwear									116-121
LADIES' foundation wear									122-127
MATERNITY WEAR									128-133
ETHNIC WEAR									134-139
PROTECTIVE WEAR									140-145
MEN'S / LADIES' SOCKS									146-151
MEN'S / LADIES' HEADWEAR									152-157
MEN'S / LADIES' GLOVES									158-163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FOOTWEAR	AGE GROUPS (in years)							YEARS INVOLVED			
CATEGORY	1-8	9-16	17-29	30-39	40-49	50-59	60+	0-4	5-9	10+	
MEN'S SANDALS											164-171
LADIES' SANDALS											172-179
BOYS' SANDALS											180-187
GIRLS' SANDALS											188-195
MEN'S CLOSED SHOES											196-203
LADIES' CLOSED SHOES											204-211
BOYS' CLOSED SHOES											212-219
GIRLS' CLOSED SHOES											220-227
MOULDED FOOTWEAR											228-235
HEALTH SHOES											236-243
SPORTS / ATHLETIC SHOES											244-251
SCHOOL SHOES											252-259
INDUSTRIAL FOOTWEAR (steel cap)											260-267
INDUSTRIAL FOOTWEAR (steel cap)											268-275
CONTRACT FOOTWEAR											276-283

2. Do you provide for the following special figure requirements?

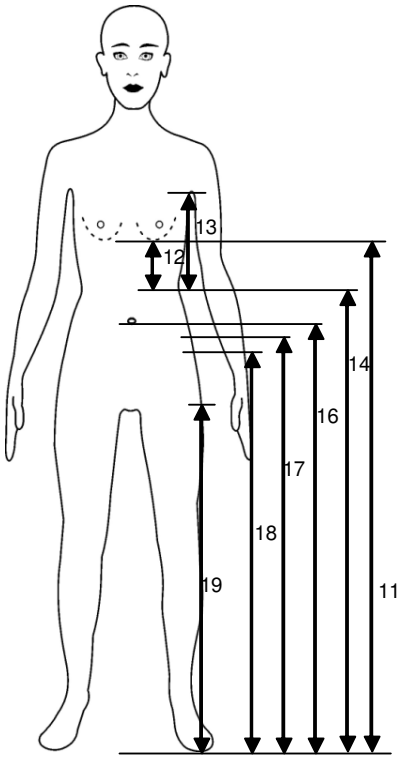
	YES	NO	
Short, Regular, Long			284
Disabled people in wheelchairs			285
Disabled people missing limbs			286
Petite figures			287
Outsizes / Plus sizes			288
Different body shapes			289
Other, specify			290-291
			292-293

3. Indicate if you have ever been involved in the process of developing sizing systems for any of the following garment types:

	MEN'S		WOMEN'S		BOYS'		GIRLS'		INFANTS		
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	
OUTERWEAR											294-298
UNDERWEAR											299-303
PROTECTIVE WEAR											304-308
FOOTWEAR											309-313
HEADWEAR											314-318
GLOVES											319-323
Other, specify											324-329
											330-335
											336-341

4. Mark the measurements that you use and if applicable indicate if you experience measuring problems with any of these.

	BODY MEASUREMENTS	USED		PROBLEMS		
	HEIGHTS - VERTICAL	YES	NO	YES	NO	
1	Height					342-343
2	Chin height					344-345
3	Cervical height					346-347
4	Side neck height					348-349
5	Side neck to front ground level					350-351
6	Shoulder height					352-353
7	Underarm height (Axilla height)					354-355
8	Across back height					356-357
9	Chest height					358-359
10	Bust level height					360-361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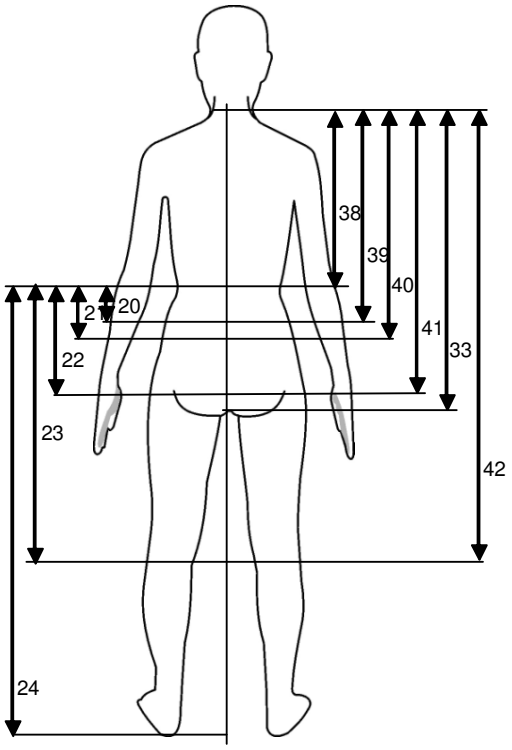
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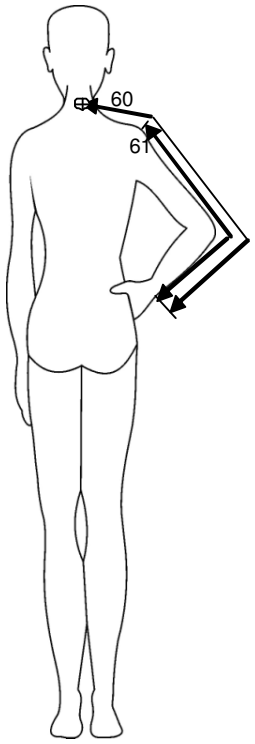
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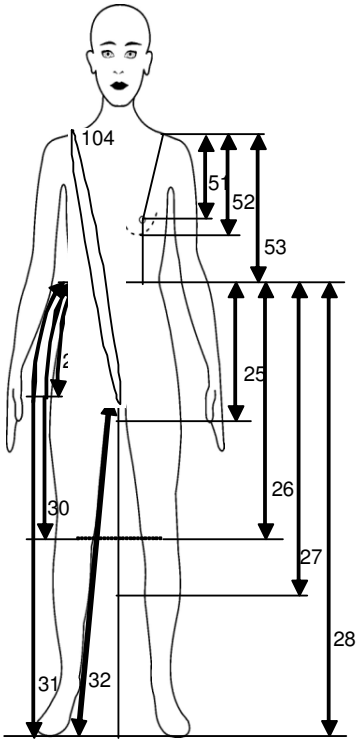
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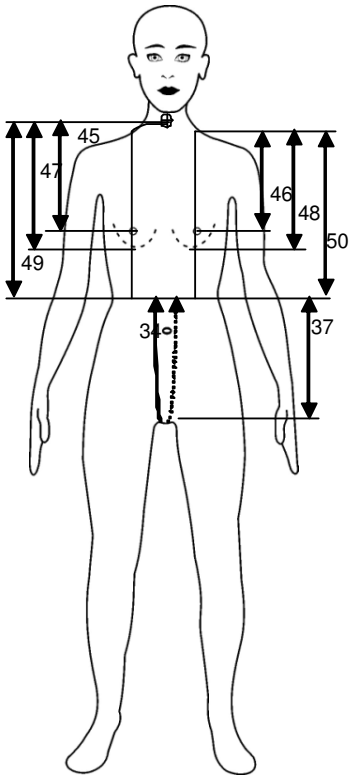
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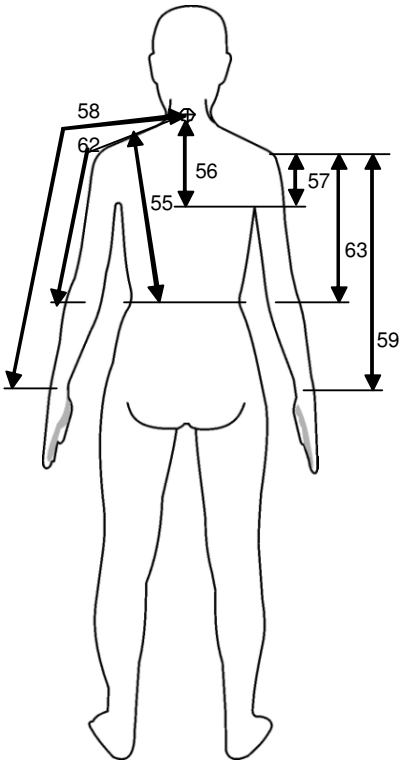
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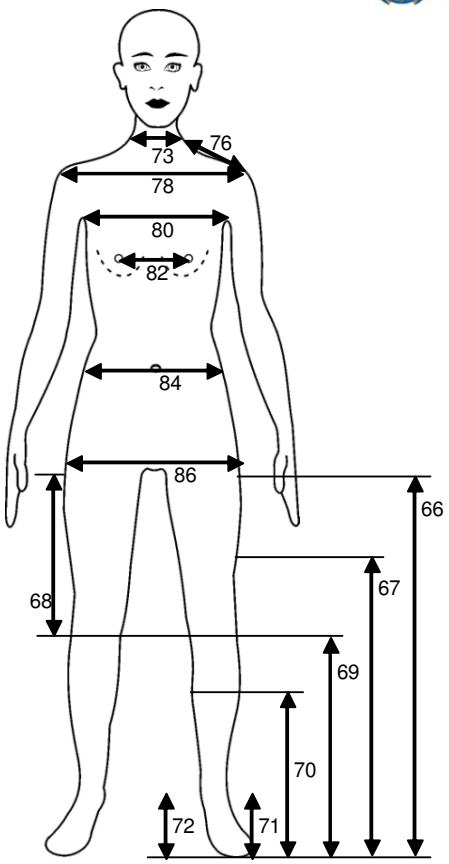
	BODY MEASUREMENTS	USED		PROBLEMS		
	HEIGHTS - VERTICAL	YES	NO	YES	NO	
11	Underbust level height					362-363
12	Underbust to waist					364-365
13	Armscye to waist					366-367
14	Waist height					368-369
15	Preferred waist height					370-371
16	Waist height (at belly button level)					372-373
17	Upper hip height					374-375
18	Top hip height					376-377
19	Hip height (at max circumference)					378-379
20	Centre back waist tot top hip					380-381
21	Centre back waist to upper hip					382-383
22	Centre back waist to hip (max circumference)					384-385
23	Centre back waist to knee					386-387
24	Centre back waist to ground					388-389
25	Front waist to thigh					390-391
26	Front waist to knee					392-393
27	Front waist to calf					394-395
28	Front waist to ground					396-397
29	Side waist to hip					398-399
30	Side waist to knee length					400-401
31	Outside leg length					402-403
32	Inside leg length / crotch height					404-405
33	Trunk length					406-407
34	Total crotch length					408-409
35	Front crotch length					410-411
36	Back crotch lenth					412-413
37	Body rise / Crotch depth					414-415
38	Back waist length (cervical to waist)					416-417
39	Cervical to top hip					418-419
40	Cervical to upper hip					420-421
41	Cervical to hip					422-423
42	Cervical to knee hollow					424-425
43	Cervical to chest level					426-427
44	Side neck to chest level					428-429
45	Cervical to breast point					430-431
46	Side neck to breast point					432-433
47	Cervical to under bust level					434-435
48	Side neck to under bust level					436-437
49	Cervical to front waist					438-439
50	Front waist length (Side neck to waist)					440-441
51	Centre shoulder to bust point					442-443
52	Centre shoulder to under bust level					444-445
53	Centre shoulder to front waist - straight					446-447
54	Centre shoulder to front waist - contoured					448-449
55	Centre shoulder to back waist - contoured					450-451
56	Armscye depth (Cervical to underarm level)					452-453
57	Top arm length (Shoulder to underarm level)					454-455
58	Arm length straight (Cervical to wrist)					456-457
59	Arm length straight (Shoulder to wrist)					458-459
60	Arm length bent (Cervical to wrist)					460-461
61	Arm length bent (Shoulder to wrist)					462-463
62	Upper arm length (Cervical to elbow)					464-465
63	Upper arm length (Shoulder to elbow)					466-467
64	Under arm length (to wrist)					468-469
65	Under arm length to elbow					470-471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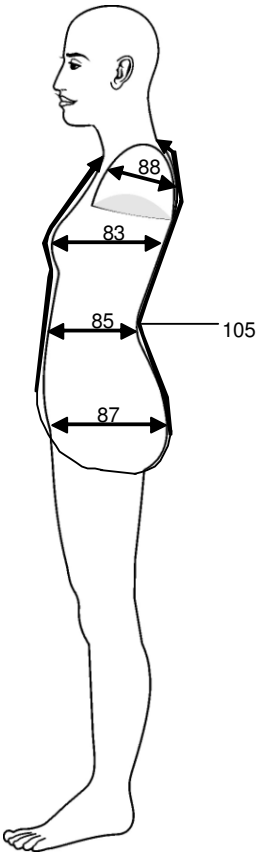
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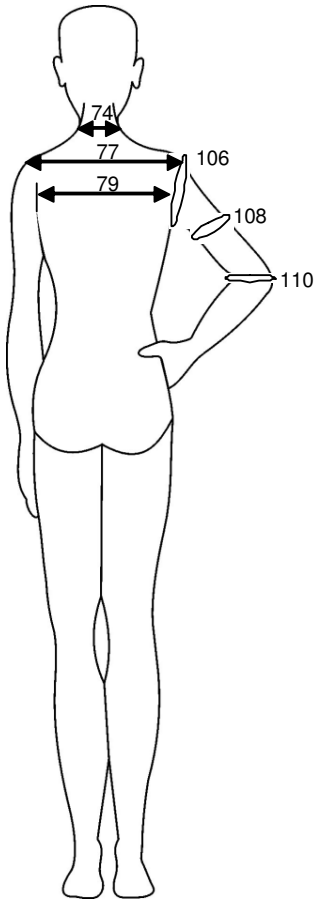
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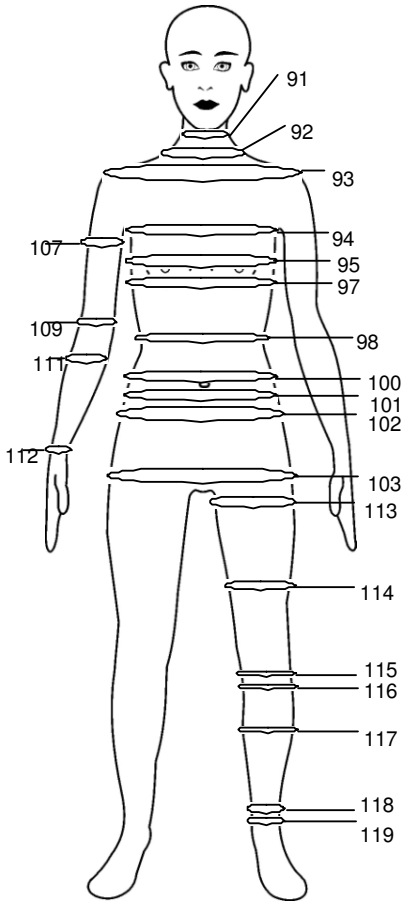
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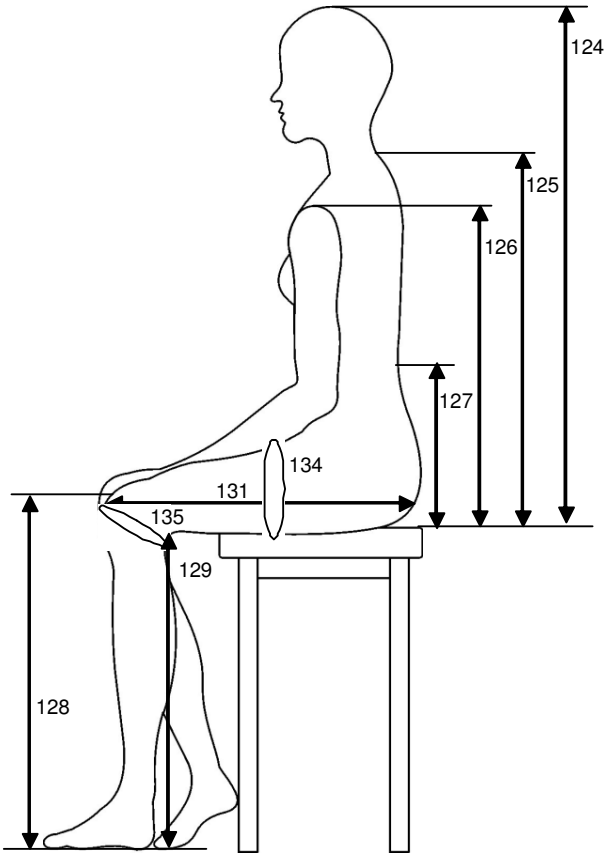
	BODY MEASUREMENTS	USED		PROBLEMS		
	HEIGHTS - VERTICAL	**YES**	**NO**	**YES**	**NO**	
66	Thigh height					472-473
67	Mid-thigh height					474-475
68	Thigh length					476-477
69	Knee height					478-479
70	Calf height					480-481
71	Ankle height (outside leg)					482-483
72	Ankle height (inside leg)					484-485
	WIDTH - HORIZONTAL					
73	Neck width - front					486-487
74	Neck width - back					488-489
75	Back Neck width contoured					490-491
76	Shoulder length					492-493
77	Shoulder width - back					494-495
78	Shoulder width - front					496-497
79	Across back width					498-499
80	Across front width					500-501
81	Breast prominence					502-503
82	Bust width					504-505
83	Chest depth					506-507
84	Waist width					508-509
85	Waist depth					510-511
86	Hip width (from front at max circumference)					512-513
87	Buttock depth (back to front at max point - measured form the side)					514-515
88	Armscye width (front to back across top of arm)					516-517
89	Armspan					518-519
	CIRCUMFERENCES					
90	Neck girth					520-521
91	Neck girth - around Adam's apple					522-523
92	Neck base girth					524-525
93	Shoulder girth					526-527
94	Chest girth					528-529
95	Bust girth					530-531
96	Bust girth contoured					532-533
97	Underbust girth					534-535
98	Waist girth					536-537
99	Preferred waist girth					538-539
100	Waist girth at belly button level					540-541
101	Upper hip girth (at prominent hip bone)					542-543
102	Top hip girth (midway between natural waist and max hip)					544-545
103	Hip girth (at max circumference)					546-547
104	Trunk circumference (Body loop)					548-549
105	Centre trunk circumference (nape through to front base of neck)					550-551
106	Armscye girth					552-553
107	Upper arm girth - straight					554-555
108	Upper arm girth - bent					556-557
109	Elbow girth - straight					558-559
110	Elbow girth - bent					560-561
111	Forearm girth					562-563
112	Wrist girth					564-565
113	Thigh girth					566-567
114	Mid-thigh girth					568-569
115	Knee girth					570-571
116	Lower knee girth					572-573
117	Calf girth					574-575
118	Minimum leg girth					576-577
119	Ankle girth					578-579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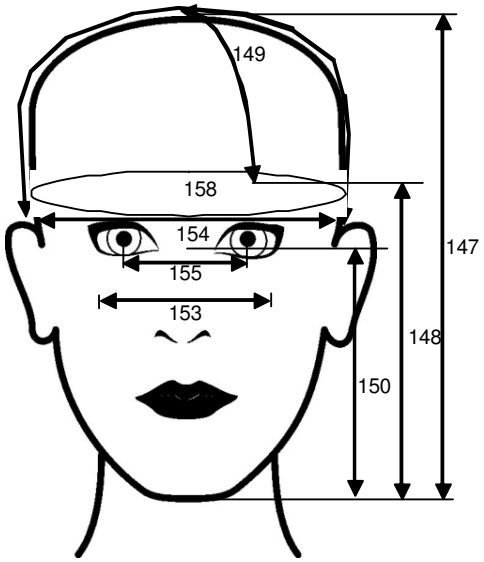
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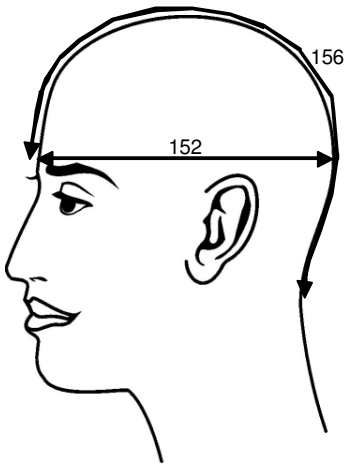
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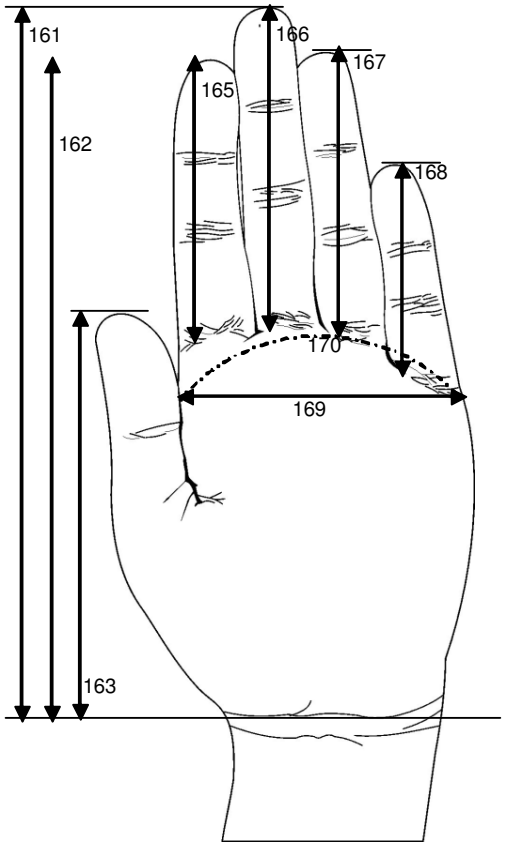
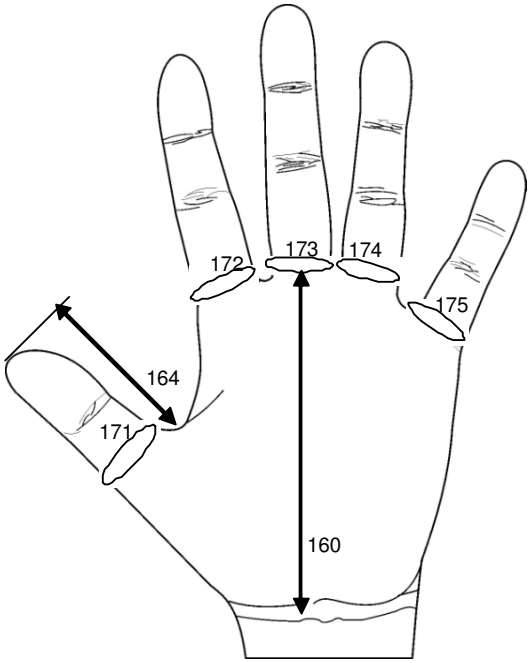
	BODY MEASUREMENTS	USED		PROBLEMS		
	ARC MEASUREMENTS	**YES**	**NO**	**YES**	**NO**	
120	Bust arc anterior					580-581
121	Waist arc anterior					582-583
122	Abdominal extension arc anterior					584-585
123	Hip arc posterior					586-587
	SEATED - HEIGHTS					
124	Height					588-589
125	Cervical height					590-591
126	Shoulder height					592-593
127	Waist height					594-595
128	Knee height					596-597
129	Popliteal height (lower leg length)					598-599
	SEATED - WIDTHS					
130	Hip width					600-601
131	Thigh length					602-603
	SEATED - GIRTHS					
132	Waist girth					604-605
133	Hip girth					606-607
134	Thigh girth					608-609
135	Knee girth					610-611
	OTHER					
136	Body mass (in kg)					612-613
137	Shoulder blade skinfold					614-615
138	Triceps skinfold					616-617
139	Bust to waist drop					618-619
140	Hip to waist drop					620-621
141	Bust to underbust drop					622-623
142	Front neck depth					624-625
143	Back neck depth					626-627
144	Back seat angle					628-629
145	Shoulder slope					630-631
146	Height (Lying - infants)					632-633
	HEAD MEASUREMENTS					
147	Head height					634-635
148	Face length (Menton-glabella)					636-637
149	Crown of scull to brows (Vertex to glabella)					638-639
150	Chin to nose bridge (Menton-sellion)					640-641
151	Chin to pit of neck					642-643
152	Head length (brow to back of scull)					644-645
153	Head width - cheekbone to cheeckbone					646-647
154	Head width - above ears					648-649
155	Inter-pupillary distance					650-651
156	Sagittal arch					652-653
157	Surface distance from above the ears across the top of the head (Bi-tragion coronal arch)					654-655
158	Head girth					656-657





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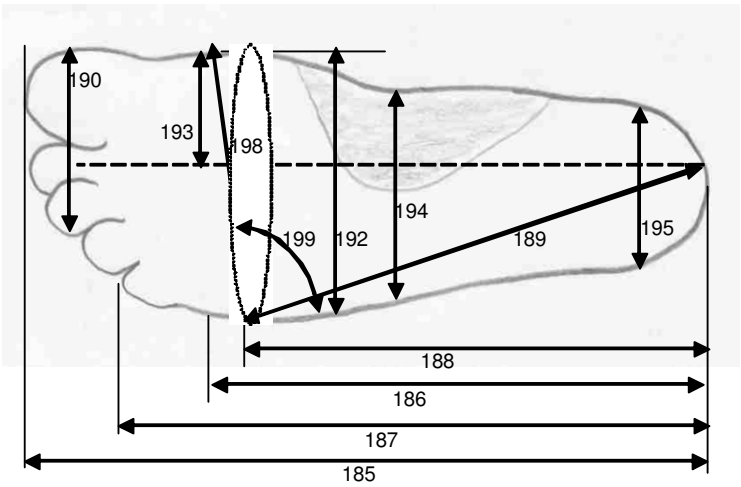

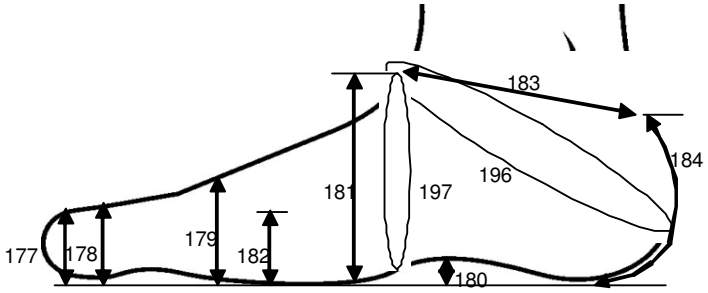

	BODY MEASUREMENTS	USED		PROBLEMS		
	HAND MEASUREMENTS	**YES**	**NO**	**YES**	**NO**	
159	Hand thickness					658-659
160	Palm length					660-661
161	Hand length (wrist to middle finger)					662-663
162	Wrist to index finger length					664-665
163	Wrist to thumb tip length					666-667
164	Thumb length					668-669
165	Index finger length					670-671
166	Middle finger length					672-673
167	Ring finger length					674-675
168	Little finger length					676-677
169	Hand width					678-679
170	Hand girth					680-681
171	Thumb girth					682-683
172	Index finger girth					684-685
173	Middle finger girth					686-687
174	Ring finger girth					688-689
175	Little finger girth					690-691
	FOOT MEASUREMENTS					
176	Height of foot arch					692-693
177	Height of the big toe					694-695
178	Toe height					696-697
179	Ball height					698-699
180	Plantar arch height					700-701
181	Dorsal arch height					702-703
182	Outside ball height					704-705
183	Ankle length					706-707
184	Posterior heel contour					708-709
185	Foot length					710-711
186	Ball length (heel to ball of foot)					712-713
187	Fifth toe length					714-715
188	Outside ball length					716-717
189	Outside ball length (diagonal)					718-719
190	Width of three forward toes					720-721
191	Foot width - diagonal					722-723
192	Foot width (ball width)					724-725
193	Width (centre line to medial border)					726-727
194	Width of instep					728-729
195	Heel width					730-731
196	Girth of heel / instep (Heel-ankle circumference)					732-733
197	Instep girth (Bridge circumference)					734-735
198	Foot girth (ball of foot)					736-737
199	Angle line					738-739
200	Flare (ratio)					740-741
201	Proportion of sole in contact with ground					742-743
202	Lateral foot contour by template					744-745
	ADDITIONAL					746-748
						749-751
						752-754
						755-757
						758-760

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QUESTIONNAIRE: RETAIL

Number | | | | 1 - 3

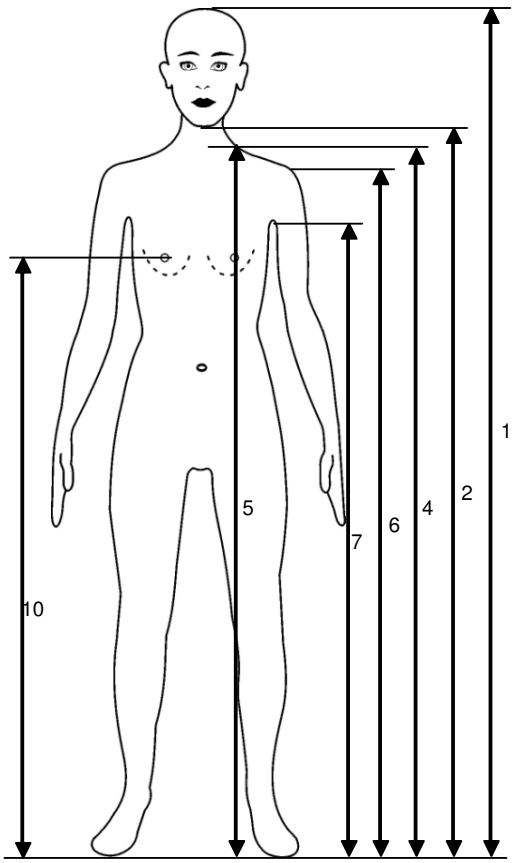
COMPANY NAME:	CONTACT PERSON:	E-MAIL / TEL NO:

1. Indicate next to the appropriate garment type which age group you cater for and how long you have been marketing the specific garment type.

BABIES / INFANTS	AGE GROUPS (in months)			YEARS INVOLVED			
GARMENT TYPE	0-12	12-24	24-36	0-4	5-9	10+	
BABIES' / INFANTS wear							4-7
BABIES' / INFANTS FOOTWEAR							8-11
BABIES' / INFANTS HEADWEAR							12-15
BABIES' / INFANTS GLOVES							16-19

CHILDREN	AGE GROUPS (in years)		YEARS INVOLVED			
GARMENT TYPE	1-8	9-16	0-4	5-9	10+	
BOYS' coats, overalls						20-22
BOYS' jackets, shirts, t-shirts						23-25
BOYS' pants, shorts						26-28
BOYS' swimwear						29-31
BOYS' underwear						32-34
GIRLS' dresses, coats, overalls						35-37
GIRLS' jackets, blouses, t-shirts						38-40
GIRLS' skirts, trousers, shorts						41-43
GIRLS' swimwear						44-46
GIRLS' underwear						47-49
BOYS' / GIRLS' SOCKS						50-52
BOYS' / GIRLS' HEADWEAR						53-55
BOYS' / GIRLS' GLOVES						56-58
SCHOOL WEAR						59-61

	AGE GROUPS (in years)					YEARS INVOLVED			
GARMENT TYPE	17-29	30-39	40-49	50-59	60+	0-4	5-9	10+	
MEN'S coats, overalls									62-67
MEN'S jackets, shirts, t-shirts									68-73
MEN'S pants, shorts									74-79
MEN'S swimwear									80-85
MEN'S underwear									86-91
LADIES' dresses, coats, overalls									92-97
LADIES' jackets, blouses, t-shirts									98-103
LADIES' skirts, trousers, shorts									104-109
LADIES' swimwear									110-115
LADIES' underwear									116-121
LADIES' foundation wear									122-127
MATERNITY WEAR									128-133
ETHNIC WEAR									134-139
PROTECTIVE WEAR									140-145
MEN'S / LADIES' SOCKS									146-151
MEN'S / LADIES' HEADWEAR									152-157
MEN'S / LADIES' GLOVES									158-163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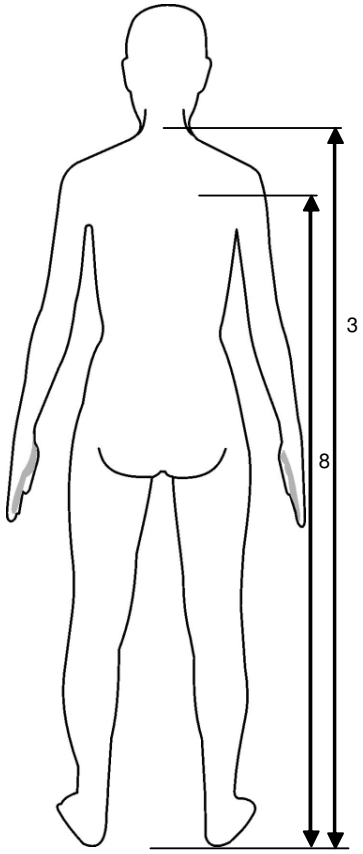
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FOOTWEAR	AGE GROUPS (in years)							YEARS INVOLVED			
CATEGORY	1-8	9-16	17-29	30-39	40-49	50-59	60+	0-4	5-9	10+	
MEN'S SANDALS											164-171
LADIES' SANDALS											172-179
BOYS' SANDALS											180-187
GIRLS' SANDALS											188-195
MEN'S CLOSED SHOES											196-203
LADIES' CLOSED SHOES											204-211
BOYS' CLOSED SHOES											212-219
GIRLS' CLOSED SHOES											220-227
MOULDED FOOTWEAR											228-235
HEALTH SHOES											236-243
SPORTS / ATHLETIC SHOES											244-251
SCHOOL SHOES											252-259
INDUSTRIAL FOOTWEAR (steel cap)											260-267
INDUSTRIAL FOOTWEAR (steel cap)											268-275
CONTRACT FOOTWEAR											276-283

2. Do you provide for the following special figure requirements?

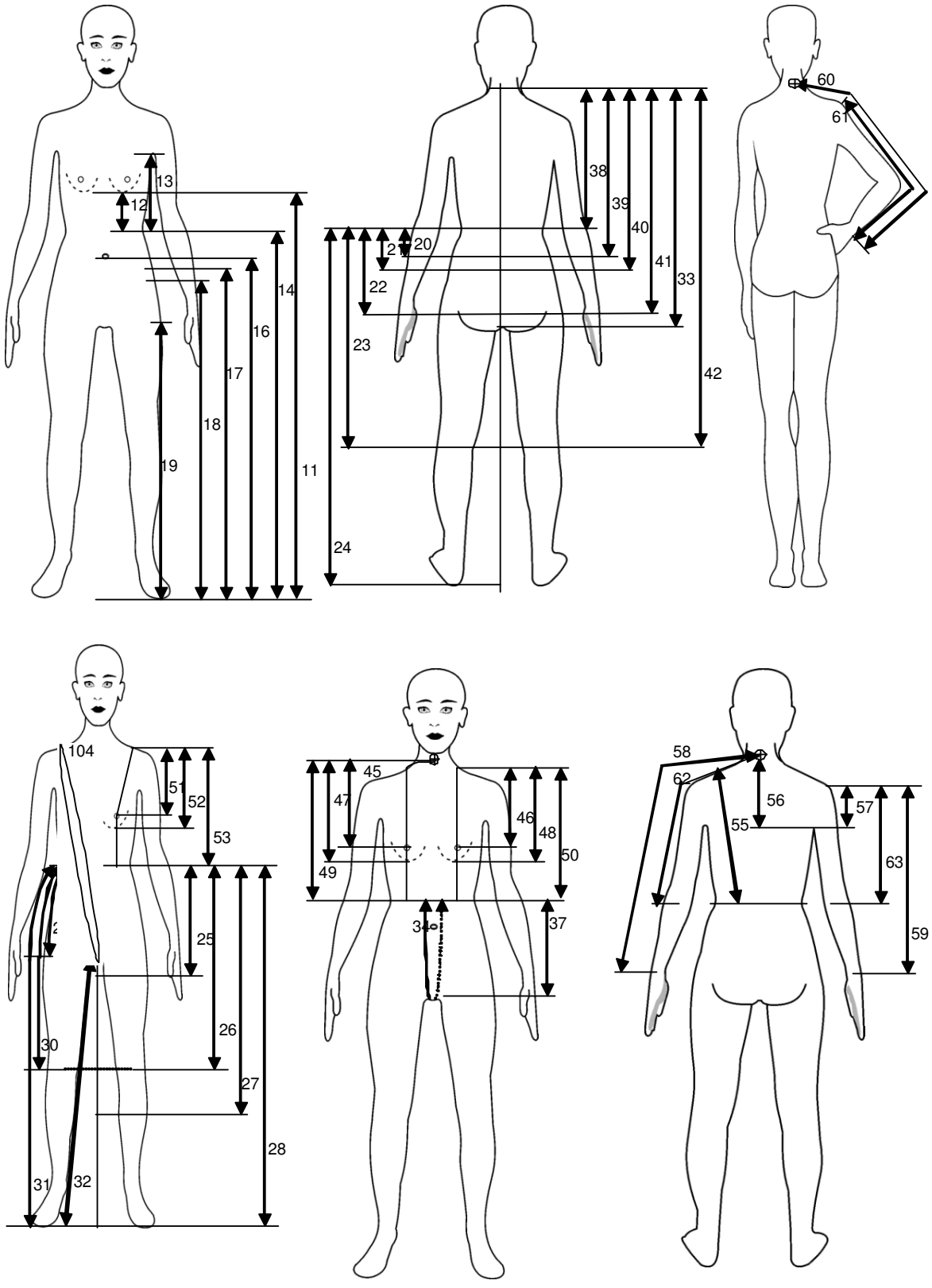
	YES	NO	
Short, Regular, Long			284
Disabled people in wheelchairs			285
Disabled people missing limbs			286
Petite figures			287
Outsizes / Plus sizes			288
Different body shapes			289
Other, specify			290-291
			292-293

3. Indicate if you have ever been involved in the process of developing sizing systems for any of the following garment types:

	MEN'S		WOMEN'S		BOYS'		GIRLS'		INFANTS		
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	
OUTERWEAR											294-298
UNDERWEAR											299-303
PROTECTIVE WEAR											304-308
FOOTWEAR											309-313
HEADWEAR											314-318
GLOVES											319-323
Other, specify											324-329
											330-335
											336-341

4. Mark the measurements that you use and if applicable indicate if you experience measuring problems with any of these.

	BODY MEASUREMENTS	USED		PROBLEMS		
	HEIGHTS - VERTICAL	YES	NO	YES	NO	
1	Height					342-343
2	Chin height					344-345
3	Cervical height					346-347
4	Side neck height					348-349
5	Side neck to front ground level					350-351
6	Shoulder height					352-353
7	Underarm height (Axilla height)					354-355
8	Across back height					356-357
9	Chest height					358-359
10	Bust level height					360-361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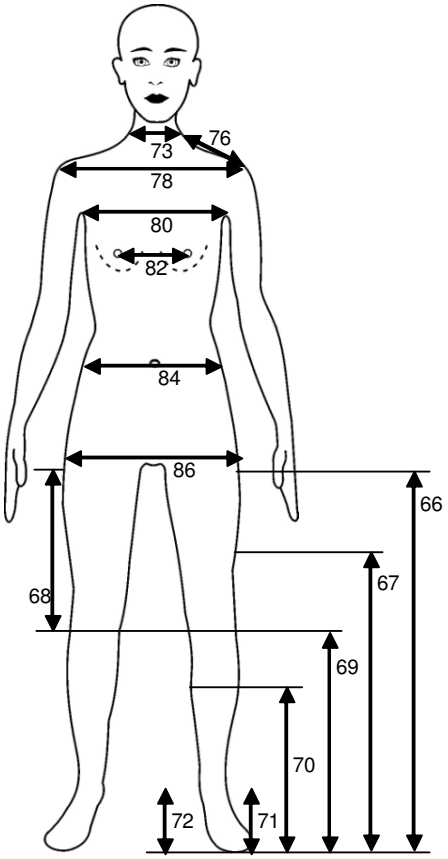
	BODY MEASUREMENTS	USED		PROBLEMS		
	HEIGHTS - VERTICAL	YES	NO	YES	NO	
11	Underbust level height					362-363
12	Underbust to waist					364-365
13	Armscye to waist					366-367
14	Waist height					368-369
15	Preferred waist height					370-371
16	Waist height (at belly button level)					372-373
17	Upper hip height					374-375
18	Top hip height					376-377
19	Hip height (at max circumference)					378-379
20	Centre back waist tot top hip					380-381
21	Centre back waist to upper hip					382-383
22	Centre back waist to hip (max circumference)					384-385
23	Centre back waist to knee					386-387
24	Centre back waist to ground					388-389
25	Front waist to thigh					390-391
26	Front waist to knee					392-393
27	Front waist to calf					394-395
28	Front waist to ground					396-397
29	Side waist to hip					398-399
30	Side waist to knee length					400-401
31	Outside leg length					402-403
32	Inside leg length / crotch height					404-405
33	Trunk length					406-407
34	Total crotch length					408-409
35	Front crotch length					410-411
36	Back crotch lenth					412-413
37	Body rise / Crotch depth					414-415
38	Back waist length (cervical to waist)					416-417
39	Cervical to top hip					418-419
40	Cervical to upper hip					420-421
41	Cervical to hip					422-423
42	Cervical to knee hollow					424-425
43	Cervical to chest level					426-427
44	Side neck to chest level					428-429
45	Cervical to breast point					430-431
46	Side neck to breast point					432-433
47	Cervical to under bust level					434-435
48	Side neck to under bust level					436-437
49	Cervical to front waist					438-439
50	Front waist length (Side neck to waist)					440-441
51	Centre shoulder to bust point					442-443
52	Centre shoulder to under bust level					444-445
53	Centre shoulder to front waist - straight					446-447
54	Centre shoulder to front waist - contoured					448-449
55	Centre shoulder to back waist - contoured					450-451
56	Armscye depth (Cervical to underarm level)					452-453
57	Top arm length (Shoulder to underarm level)					454-455
58	Arm length straight (Cervical to wrist)					456-457
59	Arm length straight (Shoulder to wrist)					458-459
60	Arm length bent (Cervical to wrist)					460-461
61	Arm length bent (Shoulder to wrist)					462-463
62	Upper arm length (Cervical to elbow)					464-465
63	Upper arm length (Shoulder to elbow)					466-467
64	Under arm length (to wrist)					468-469
65	Under arm length to elbow					470-471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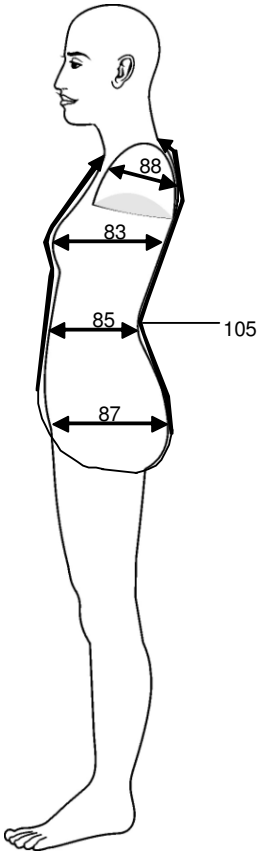
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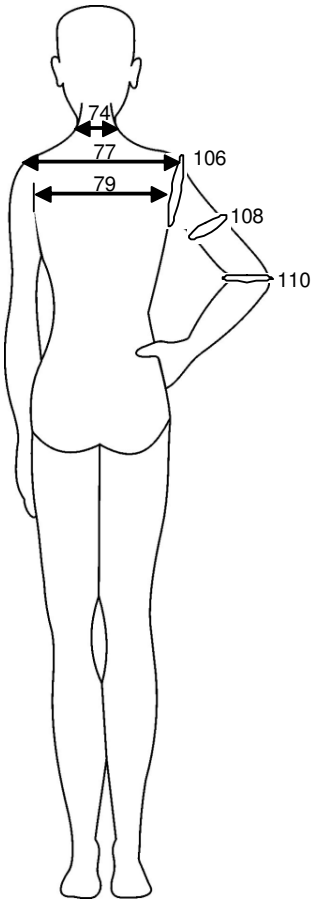
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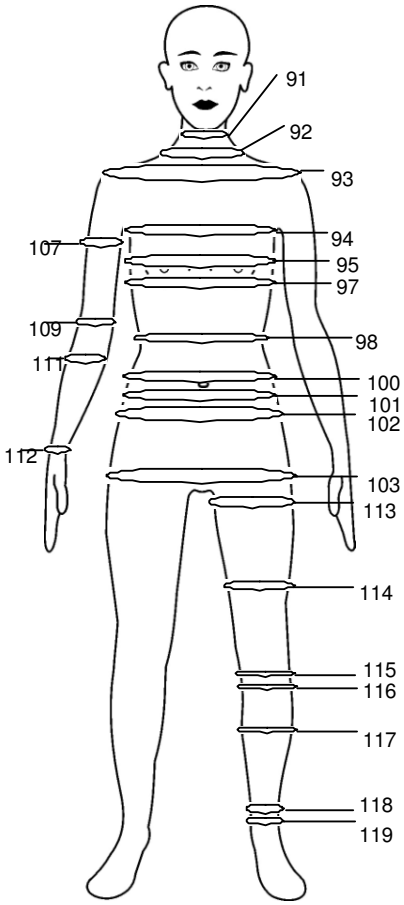
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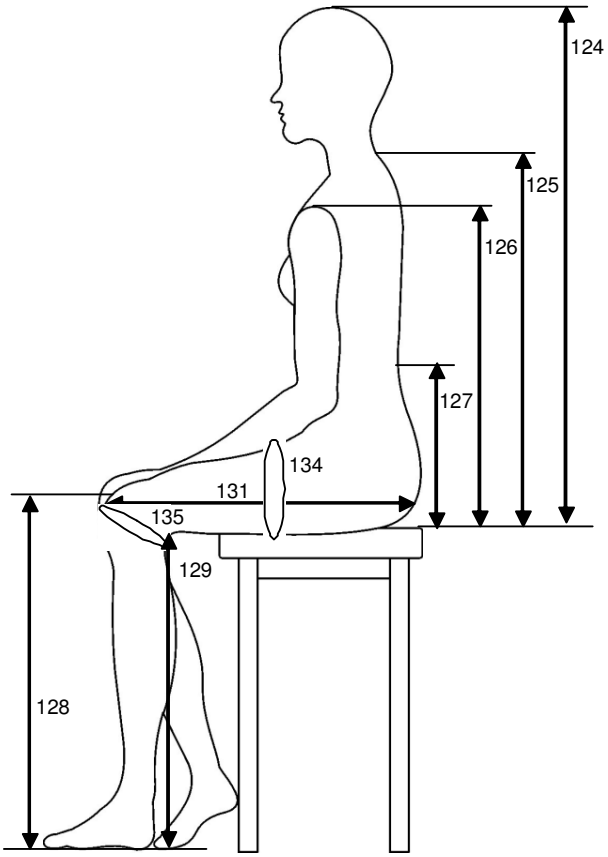
	BODY MEASUREMENTS	USED		PROBLEMS		
	HEIGHTS - VERTICAL	**YES**	**NO**	**YES**	**NO**	
66	Thigh height					472-473
67	Mid-thigh height					474-475
68	Thigh length					476-477
69	Knee height					478-479
70	Calf height					480-481
71	Ankle height (outside leg)					482-483
72	Ankle height (inside leg)					484-485
	WIDTH – HORIZONTAL					
73	Neck width – front					486-487
74	Neck width – back					488-489
75	Back Neck width contoured					490-491
76	Shoulder length					492-493
77	Shoulder width – back					494-495
78	Shoulder width - front					496-497
79	Across back width					498-499
80	Across front width					500-501
81	Breast prominence					502-503
82	Bust width					504-505
83	Chest depth					506-507
84	Waist width					508-509
85	Waist depth					510-511
86	Hip width (from front at max circumference)					512-513
87	Buttock depth (back to front at max point - measured form the side)					514-515
88	Armscye width (front to back across top of arm)					516-517
89	Armspan					518-519
	CIRCUMFERENCES					
90	Neck girth					520-521
91	Neck girth - around Adam's apple					522-523
92	Neck base girth					524-525
93	Shoulder girth					526-527
94	Chest girth					528-529
95	Bust girth					530-531
96	Bust girth contoured					532-533
97	Underbust girth					534-535
98	Waist girth					536-537
99	Preferred waist girth					538-539
100	Waist girth at belly button level					540-541
101	Upper hip girth (at prominent hip bone)					542-543
102	Top hip girth (midway between natural waist and max hip)					544-545
103	Hip girth (at max circumference)					546-547
104	Trunk circumference (Body loop)					548-549
105	Centre trunk circumference (nape through to front base of neck)					550-551
106	Armscye girth					552-553
107	Upper arm girth - straight					554-555
108	Upper arm girth - bent					556-557
109	Elbow girth - straight					558-559
110	Elbow girth - bent					560-561
111	Forearm girth					562-563
112	Wrist girth					564-565
113	Thigh girth					566-567
114	Mid-thigh girth					568-569
115	Knee girth					570-571
116	Lower knee girth					572-573
117	Calf girth					574-575
118	Minimum leg girth					576-577
119	Ankle girth					578-579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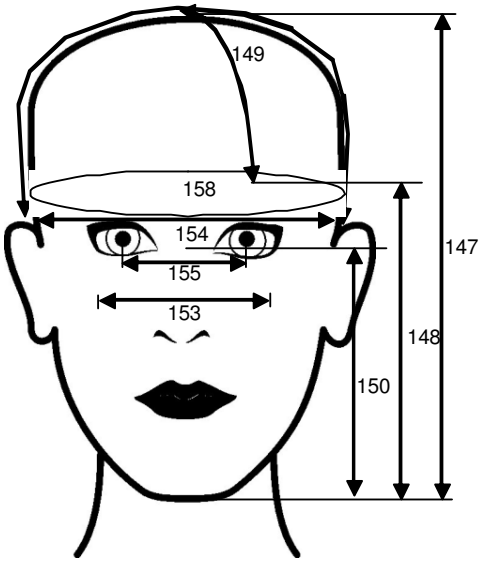
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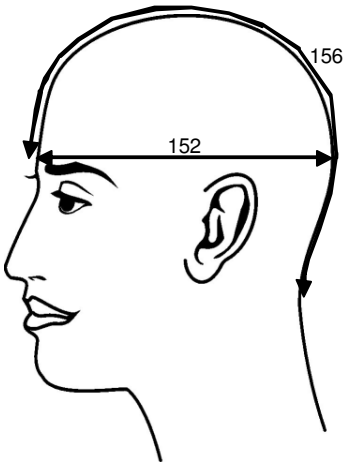
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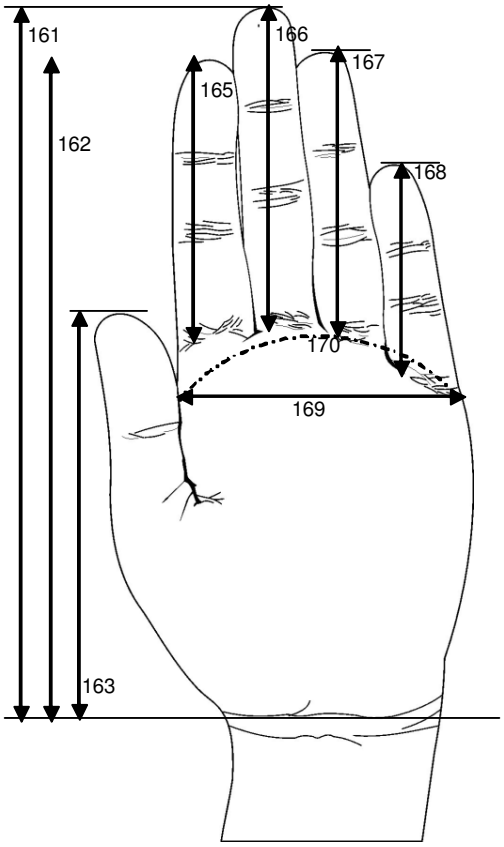
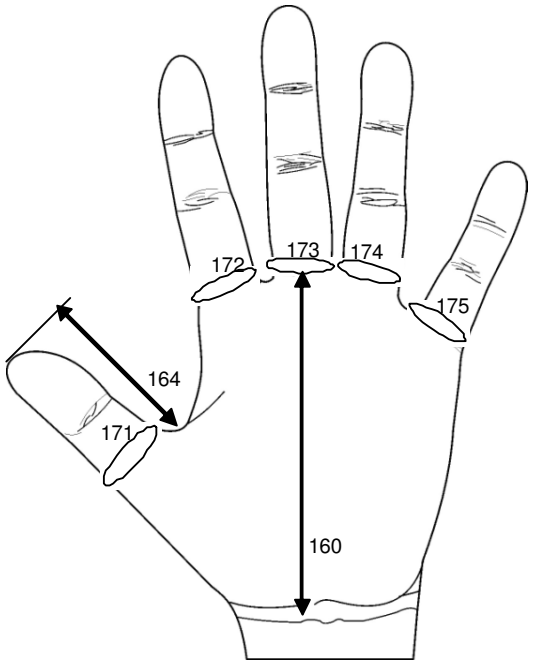
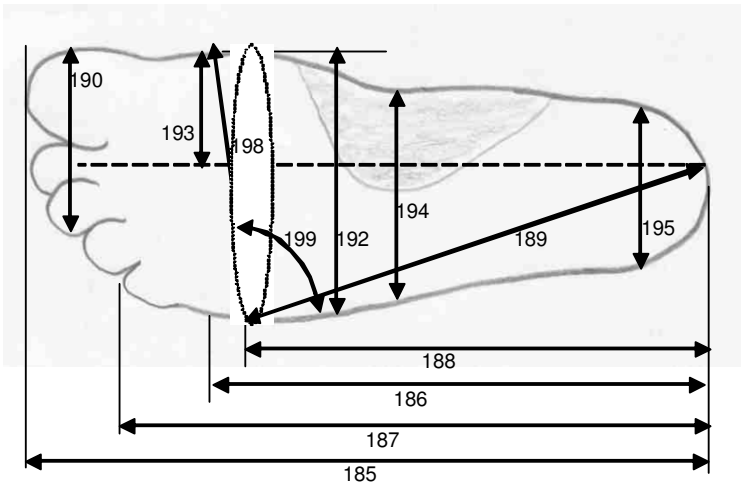
	BODY MEASUREMENTS	USED		PROBLEMS		
	ARC MEASUREMENTS	**YES**	**NO**	**YES**	**NO**	
120	Bust arc anterior					580-581
121	Waist arc anterior					582-583
122	Abdominal extension arc anterior					584-585
123	Hip arc posterior					586-587
	SEATED - HEIGHTS					
124	Height					588-589
125	Cervical height					590-591
126	Shoulder height					592-593
127	Waist height					594-595
128	Knee height					596-597
129	Popliteal height (lower leg length)					598-599
	SEATED - WIDTHS					
130	Hip width					600-601
131	Thigh length					602-603
	SEATED - GIRTHS					
132	Waist girth					604-605
133	Hip girth					606-607
134	Thigh girth					608-609
135	Knee girth					610-611
	OTHER					
136	Body mass (in kg)					612-613
137	Shoulder blade skinfold					614-615
138	Triceps skinfold					616-617
139	Bust to waist drop					618-619
140	Hip to waist drop					620-621
141	Bust to underbust drop					622-623
142	Front neck depth					624-625
143	Back neck depth					626-627
144	Back seat angle					628-629
145	Shoulder slope					630-631
146	Height (Lying - infants)					632-633
	HEAD MEASUREMENTS					
147	Head height					634-635
148	Face length (Menton-glabella)					636-637
149	Crown of scull to brows (Vertex to glabella)					638-639
150	Chin to nose bridge (Menton-sellion)					640-641
151	Chin to pit of neck					642-643
152	Head length (brow to back of scull)					644-645
153	Head width - cheekbone to cheeckbone					646-647
154	Head width - above ears					648-649
155	Inter-pupillary distance					650-651
156	Sagittal arch					652-653
157	Surface distance from above the ears across the top of the head (Bi-tragion coronal arch)					654-655
158	Head girth					656-657







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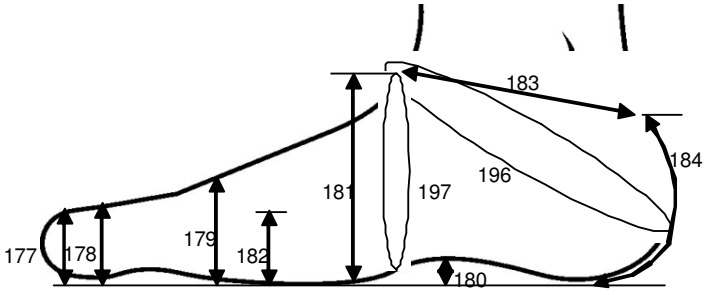

	BODY MEASUREMENTS	USED		PROBLEMS		
	HAND MEASUREMENTS	**YES**	**NO**	**YES**	**NO**	
159	Hand thickness					658-659
160	Palm length					660-661
161	Hand length (wrist to middle finger)					662-663
162	Wrist to index finger length					664-665
163	Wrist to thumb tip length					666-667
164	Thumb length					668-669
165	Index finger length					670-671
166	Middle finger length					672-673
167	Ring finger length					674-675
168	Little finger length					676-677
169	Hand width					678-679
170	Hand girth					680-681
171	Thumb girth					682-683
172	Index finger girth					684-685
173	Middle finger girth					686-687
174	Ring finger girth					688-689
175	Little finger girth					690-691
	FOOT MEASUREMENTS					
176	Height of foot arch					692-693
177	Height of the big toe					694-695
178	Toe height					696-697
179	Ball height					698-699
180	Plantar arch height					700-701
181	Dorsal arch height					702-703
182	Outside ball height					704-705
183	Ankle length					706-707
184	Posterior heel contour					708-709
185	Foot length					710-711
186	Ball length (heel to ball of foot)					712-713
187	Fifth toe length					714-715
188	Outside ball length					716-717
189	Outside ball length (diagonal)					718-719
190	Width of three forward toes					720-721
191	Foot width - diagonal					722-723
192	Foot width (ball width)					724-725
193	Width (centre line to medial border)					726-727
194	Width of instep					728-729
195	Heel width					730-731
196	Girth of heel / instep (Heel-ankle circumference)					732-733
197	Instep girth (Bridge circumference)					734-735
198	Foot girth (ball of foot)					736-737
199	Angle line					738-739
200	Flare (ratio)					740-741
201	Proportion of sole in contact with ground					742-743
202	Lateral foot contour by template					744-745
	ADDITIONAL					746-748
						749-751
						752-754
						755-757
						758-760

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YUNIBESITHI YA PRETORIA

QUESTIONNAIRE: FOOTWEAR

Number | | | | 1 - 3

COMPANY NAME:	CONTACT PERSON:	E-MAIL / TEL NO:

1. Indicate whether you manufacture lasts for the following footwear types, and how long your company have been manufacturing the specific types of lasts. (If applicable, indicate whether the last sizes would be applicable to all age groups)

BABIES / INFANTS	AGE GROUPS (in months)			YEARS INVOLVED			
GARMENT TYPE	0-12	12-24	24-36	0-4	5-9	10+	
BABIES' / INFANTS FOOTWEAR							8-11

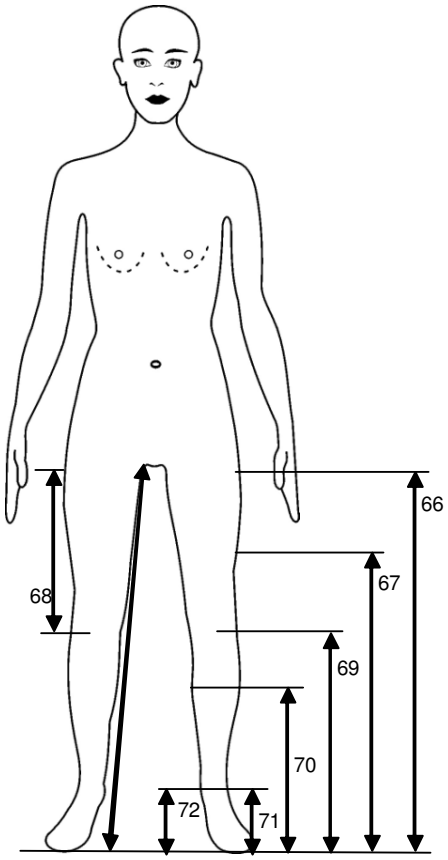
FOOTWEAR	AGE GROUPS (in years)							YEARS INVOLVED			
CATEGORY	1-8	9-16	17-29	30-39	40-49	50-59	60+	0-4	5-9	10+	
MEN'S SANDALS											164-171
LADIES' SANDALS											172-179
BOYS' SANDALS											180-187
GIRLS' SANDALS											188-195
MEN'S CLOSED SHOES											196-203
LADIES' CLOSED SHOES											204-211
BOYS' CLOSED SHOES											212-219
GIRLS' CLOSED SHOES											220-227
MOULDED FOOTWEAR											228-235
HEALTH SHOES											236-243
SPORTS / ATHLETIC SHOES											244-251
SCHOOL SHOES											252-259
INDUSTRIAL FOOTWEAR (steel cap)											260-267
INDUSTRIAL FOOTWEAR (steel cap)											268-275
CONTRACT FOOTWEAR											276-283

2. Do you provide for the following special figure requirements?

	YES	NO	
Short, Regular, Long			284
Disabled people in wheelchairs			285
Disabled people missing limbs			286
Petite figures			287
Outsizes / Plus sizes			288
Different body shapes			289
Other, specify			290-291
			292-293

3. Indicate if you have ever been involved in the process of developing sizing systems for any of the following garment types:

	MEN'S		WOMEN'S		BOYS'		GIRLS'		INFANTS		
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	
OUTERWEAR											294-298
UNDERWEAR											299-303
PROTECTIVE WEAR											304-308
FOOTWEAR											309-313
HEADWEAR											314-318
GLOVES											319-323
Other, specify											324-329
											330-335
											336-341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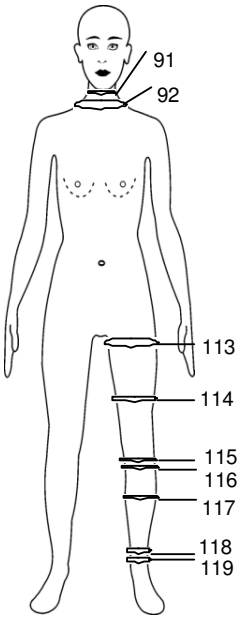
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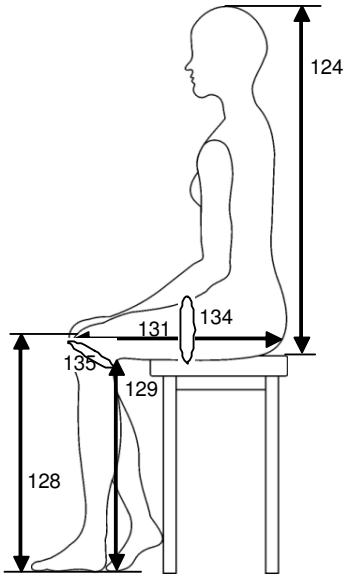
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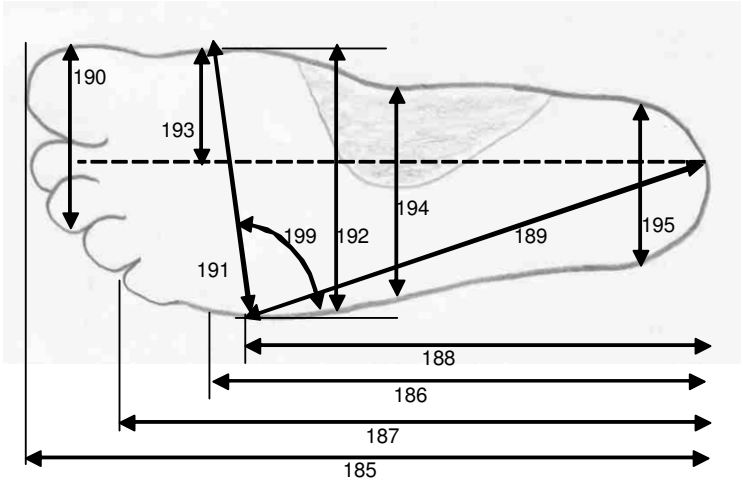
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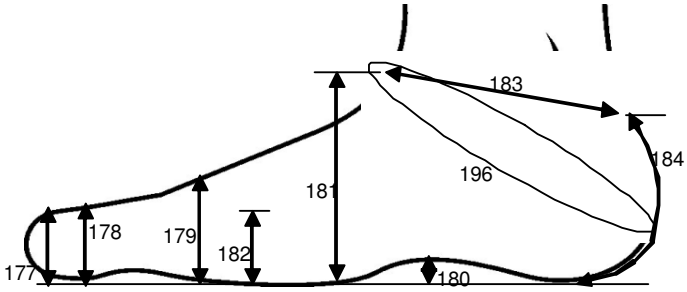
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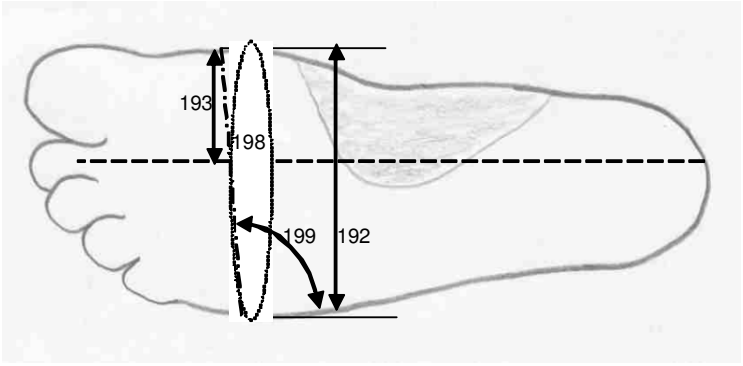
4. Mark the measurements that you use and if applicable indicate if you experience measuring problems with any of these.

	BODY MEASUREMENTS	USED		PROBLEMS		
	HEIGHTS - VERTICAL	**YES**	**NO**	**YES**	**NO**	
1	Height					342-343
32	Inside leg length / crotch height					404-405
66	Thigh height					472-473
67	Mi thigh height					474-475
68	Thigh length					476-477
69	Knee height					478-479
70	Calf height					480-481
71	Ankle height (outside leg)					482-483
72	Ankle height (inside leg)					484-485
	CIRCUMFERENCES					
113	Thigh girth					566-567
114	Mid-thigh girth					568-569
115	Knee girth					570-571
116	Lower knee girth					572-573
117	Calf girth					574-575
118	Minimum leg girth					576-577
119	Ankle girth					578-579
	SEATED - HEIGHTS					
124	Height					588-589
128	Knee height					596-597
129	Popliteal height (lower leg length)					598-599
	SEATED - WIDTHS					
131	Thigh length					602-603
	SEATED - GIRTHS					
134	Thigh girth					608-609
135	Knee girth					610-611
	OTHER					
136	Body mass (in kg)					612-613
146	Height (Lying - infants)					632-633
	FOOT MEASUREMENTS					
176	Height of foot arch					692-693
177	Height of the big toe					694-695
178	Toe height					696-697
179	Ball height					698-699
180	Plantar arch height					700-701
181	Dorsal arch height					702-703
182	Outside ball height					704-705
183	Ankle length					706-707
184	Posterior heel contour					708-709
185	Foot length					710-711
186	Ball length (heel to ball of foot)					712-713
187	Fifth toe length					714-715
188	Outside ball length					716-717
189	Outside ball length (diagonal)					718-719
190	Width of three forward toes					720-721
191	Foot width - diagonal					722-723
192	Foot width (ball width)					724-725
193	Width (centre line to medial border)					726-727
194	Width of instep					728-729
195	Heel width					730-731
196	Girth of heel / instep (Heel-ankle circumference)					732-733
197	Instep girth (Bridge circumference)					734-735



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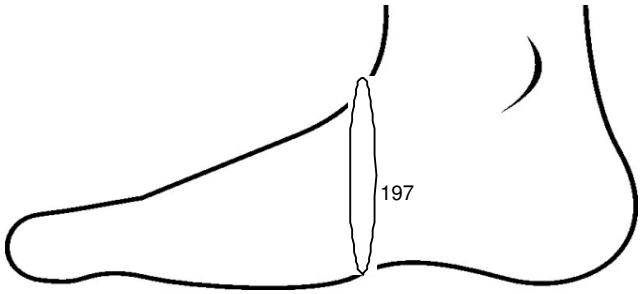

	BODY MEASUREMENTS	USED		PROBLEMS		
	FOOT MEASUREMENTS	**YES**	**NO**	**YES**	**NO**	
198	Foot girth (ball of foot)					736-737
199	Angle line					738-739
200	Flare (ratio)					740-741
201	Proportion of sole in contact with ground					742-743
202	Lateral foot contour by template					744-745
	ADDITIONAL					746-748
						749-751
						752-754
						755-757
						758-760

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QUESTIONNAIRE: HEAD AND FOOTWEAR

Number | | | | 1 - 3

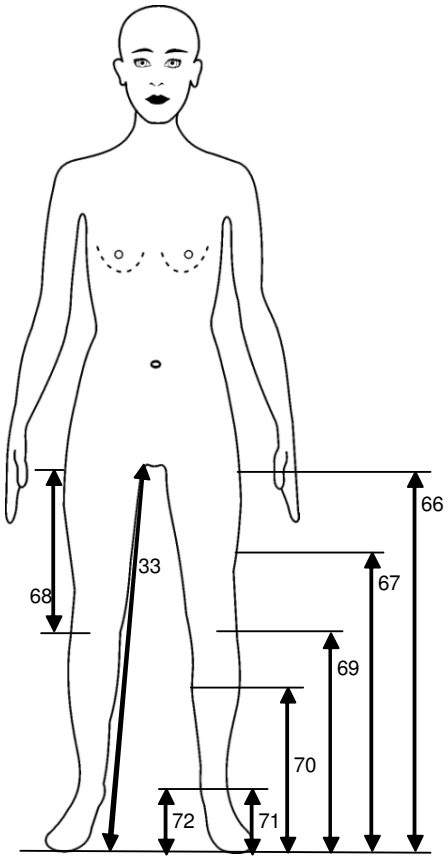
COMPANY NAME:	CONTACT PERSON:	E-MAIL / TEL NO:

1. Indicate next to the appropriate garment type which age group you cater for and how long you have been manufacturing the specific garment type.

BABIES / INFANTS	AGE GROUPS (in months)			YEARS INVOLVED			
GARMENT TYPE	0-12	12-24	24-36	0-4	5-9	10+	
BABIES' / INFANTS wear							4-7
BABIES' / INFANTS FOOTWEAR							8-11
BABIES' / INFANTS HEADWEAR							12-15
BABIES' / INFANTS GLOVES							16-19

CHILDREN	AGE GROUPS (in years)		YEARS INVOLVED			
GARMENT TYPE	1-8	9-16	0-4	5-9	10+	
BOYS' coats, overalls						20-22
BOYS' jackets, shirts, t-shirts						23-25
BOYS' pants, shorts						26-28
BOYS' swimwear						29-31
BOYS' underwear						32-34
GIRLS' dresses, coats, overalls						35-37
GIRLS' jackets, blouses, t-shirts						38-40
GIRLS' skirts, trousers, shorts						41-43
GIRLS' swimwear						44-46
GIRLS' underwear						47-49
BOYS' / GIRLS' SOCKS						50-52
BOYS' / GIRLS' HEADWEAR						53-55
BOYS' / GIRLS' GLOVES						56-58
SCHOOL WEAR						59-61

	AGE GROUPS (in years)					YEARS INVOLVED			
GARMENT TYPE	17-29	30-39	40-49	50-59	60+	0-4	5-9	10+	
MEN'S coats, overalls									62-67
MEN'S jackets, shirts, t-shirts									68-73
MEN'S pants, shorts									74-79
MEN'S swimwear									80-85
MEN'S underwear									86-91
LADIES' dresses, coats, overalls									92-97
LADIES' jackets, blouses, t-shirts									98-103
LADIES' skirts, trousers, shorts									104-109
LADIES' swimwear									110-115
LADIES' underwear									116-121
LADIES' foundation wear									122-127
MATERNITY WEAR									128-133
ETHNIC WEAR									134-139
PROTECTIVE WEAR									140-145
MEN'S / LADIES' SOCKS									146-151
MEN'S / LADIES' HEADWEAR									152-157
MEN'S / LADIES' GLOVES									158-163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FOOTWEAR	AGE GROUPS (in years)							YEARS INVOLVED			
CATEGORY	1-8	9-16	17-29	30-39	40-49	50-59	60+	0-4	5-9	10+	
MEN'S SANDALS											164-171
LADIES' SANDALS											172-179
BOYS' SANDALS											180-187
GIRLS' SANDALS											188-195
MEN'S CLOSED SHOES											196-203
LADIES' CLOSED SHOES											204-211
BOYS' CLOSED SHOES											212-219
GIRLS' CLOSED SHOES											220-227
MOULDED FOOTWEAR											228-235
HEALTH SHOES											236-243
SPORTS / ATHLETIC SHOES											244-251
SCHOOL SHOES											252-259
INDUSTRIAL FOOTWEAR (steel cap)											260-267
INDUSTRIAL FOOTWEAR (steel cap)											268-275
CONTRACT FOOTWEAR											276-283

2. Do you provide for the following special figure requirements?

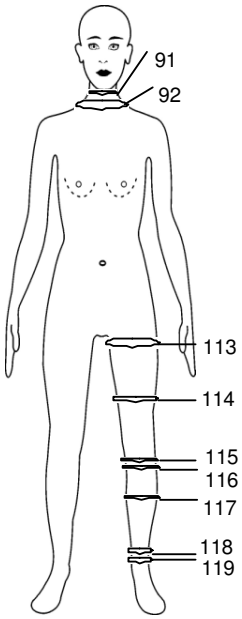
	YES	NO	
Short, Regular, Long			284
Disabled people in wheelchairs			285
Disabled people missing limbs			286
Petite figures			287
Outsizes / Plus sizes			288
Different body shapes			289
Other, specify			290-291
			292-293

3. Indicate if you have ever been involved in the process of developing sizing systems for any of the following garment types:

	MEN'S		WOMEN'S		BOYS'		GIRLS'		INFANTS		
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	
OUTERWEAR											294-298
UNDERWEAR											299-303
PROTECTIVE WEAR											304-308
FOOTWEAR											309-313
HEADWEAR											314-318
GLOVES											319-323
Other, specify											324-329
											330-335
											336-341

4. Mark the measurements that you use and if applicable indicate if you experience measuring problems with any of these.

	BODY MEASUREMENTS	USED		PROBLEMS		
	HEIGHTS - VERTICAL	YES	NO	YES	NO	
1	Height					342-343
32	Inside leg length / crotch height					404-405
66	Thigh height					472-473
67	Mid-thigh height					474-475
68	Thigh length					476-477
69	Knee height					478-479
70	Calf height					480-481
71	Ankle height (outside leg)					482-483
72	Ankle height (inside leg)					484-485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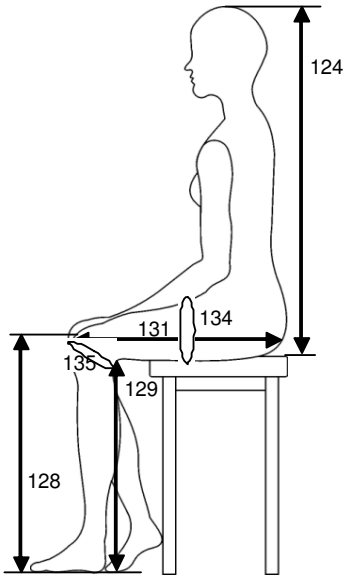
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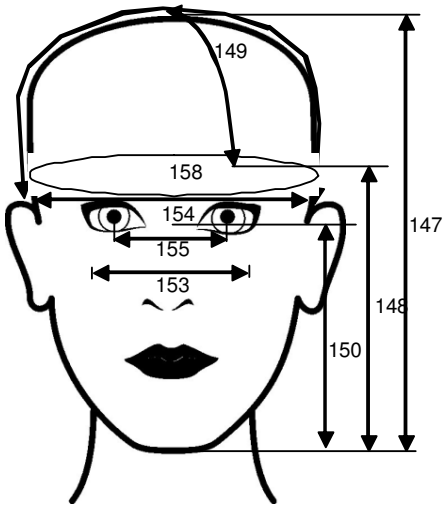
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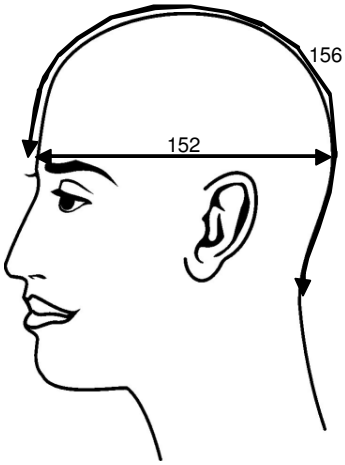
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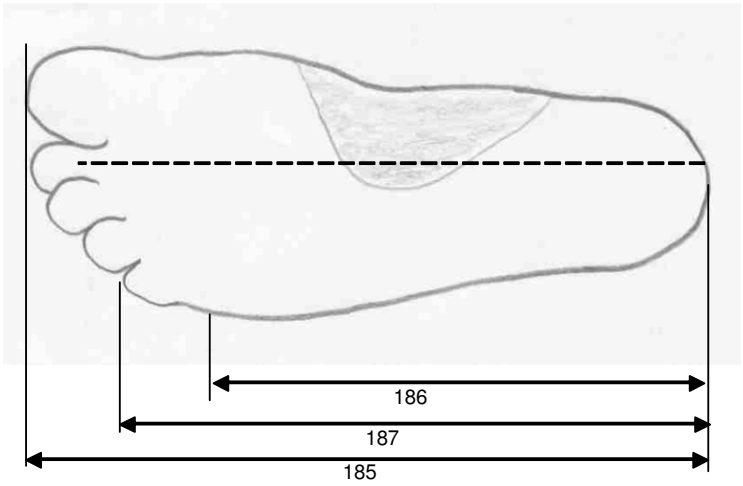
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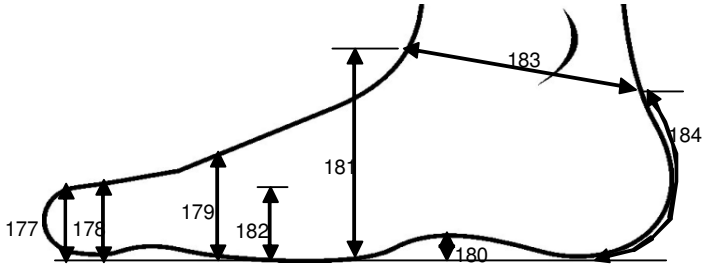
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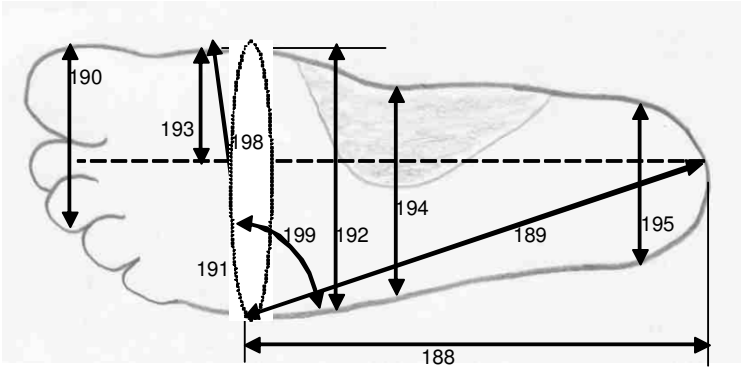
	BODY MEASUREMENTS	USED		PROBLEMS		
	WIDTH - HORIZONTAL	**YES**	**NO**	**YES**	**NO**	
73	Neck width - front					486-487
74	Neck width - back					488-489
75	Back Neck width contoured					490-491
	CIRCUMFERENCES					
90	Neck girth					520-521
91	Neck girth - around Adam's apple					522-523
92	Neck base girth					524-525
113	Thigh girth					566-567
114	Mid-thigh girth					568-569
115	Knee girth					570-571
116	Lower knee girth					572-573
117	Calf girth					574-575
118	Minimum leg girth					576-577
119	Ankle girth					578-579
	SEATED - HEIGHTS					
124	Height					588-589
128	Knee height					596-597
129	Popliteal height (lower leg length)					598-599
	SEATED - WIDTHS					
131	Thigh length					602-603
	SEATED - GIRTHS					
134	Thigh girth					608-609
135	Knee girth					610-611
	OTHER					
136	Body mass (in kg)					612-613
146	Height (Lying - infants)					632-633
	HEAD MEASUREMENTS					
147	Head height					634-635
148	Face length (Menton-glabella)					636-637
149	Crown of scull to brows (Vertex to glabella)					638-639
150	Chin to nose bridge (Menton-sellion)					640-641
151	Chin to pit of neck					642-643
152	Head length (brow to back of scull)					644-645
153	Head width - cheekbone to cheeckbone					646-647
154	Head width - above ears					648-649
155	Inter-pupillary distance					650-651
156	Sagittal arch					652-653
157	Surface distance from above the ears across the top of the head (Bi-tragion coronal arch)					654-655
158	Head girth					656-657
	FOOT MEASUREMENTS					
176	Height of foot arch					692-693
177	Height of the big toe					694-695
178	Toe height					696-697
179	Ball height					698-699
180	Plantar arch height					700-701
181	Dorsal arch height					702-703
182	Outside ball height					704-705
183	Ankle length					706-707
184	Posterior heel contour					708-709
185	Foot length					710-711
186	Ball length (heel to ball of foot)					712-713
187	Fifth toe length					714-715



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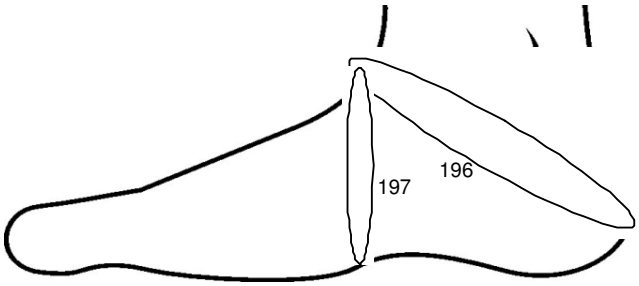

	BODY MEASUREMENTS	USED		PROBLEMS		
	FOOT MEASUREMENTS	**YES**	**NO**	**YES**	**NO**	
188	Outside ball length					716-717
189	Outside ball length (diagonal)					718-719
190	Width of three forward toes					720-721
191	Foot width - diagonal					722-723
192	Foot width (ball width)					724-725
193	Width (centre line to medial border)					726-727
194	Width of instep					728-729
195	Heel width					730-731
196	Girth of heel / instep (Heel-ankle circumference)					732-733
197	Instep girth (Bridge circumference)					734-735
198	Foot girth (ball of foot)					736-737
199	Angle line					738-739
200	Flare (ratio)					740-741
201	Proportion of sole in contact with ground					742-743
202	Lateral foot contour by template					744-745
	ADDITIONAL					**746-748**
						749-751
						752-754
						755-757
						758-760

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QUESTIONNAIRE: HEADWEAR

Number | | | | 1 - 3

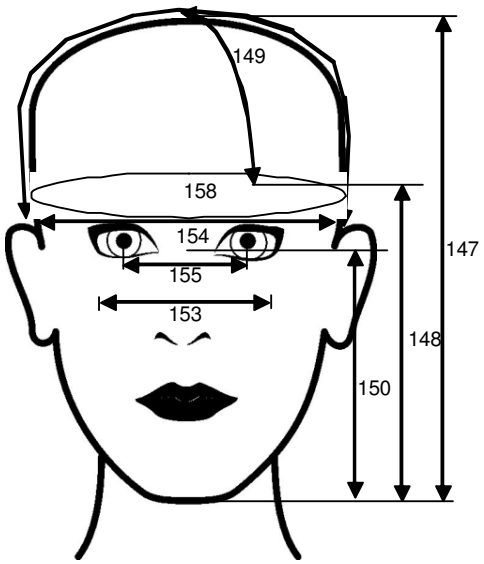
COMPANY NAME:	CONTACT PERSON:	E-MAIL / TEL NO:

1. Indicate next to the appropriate garment type which age group you cater for and how long you have been manufacturing the specific garment type.

BABIES / INFANTS	AGE GROUPS (in months)			YEARS INVOLVED			
GARMENT TYPE	0-12	12-24	24-36	0-4	5-9	10+	
BABIES' / INFANTS wear							4-7
BABIES' / INFANTS FOOTWEAR							8-11
BABIES' / INFANTS HEADWEAR							12-15
BABIES' / INFANTS GLOVES							16-19

CHILDREN	AGE GROUPS (in years)		YEARS INVOLVED			
GARMENT TYPE	1-8	9-16	0-4	5-9	10+	
BOYS' coats, overalls						20-22
BOYS' jackets, shirts, t-shirts						23-25
BOYS' pants, shorts						26-28
BOYS' swimwear						29-31
BOYS' underwear						32-34
GIRLS' dresses, coats, overalls						35-37
GIRLS' jackets, blouses, t-shirts						38-40
GIRLS' skirts, trousers, shorts						41-43
GIRLS' swimwear						44-46
GIRLS' underwear						47-49
BOYS' / GIRLS' SOCKS						50-52
BOYS' / GIRLS' HEADWEAR						53-55
BOYS' / GIRLS' GLOVES						56-58
SCHOOL WEAR						59-61

	AGE GROUPS (in years)					YEARS INVOLVED			
GARMENT TYPE	17-29	30-39	40-49	50-59	60+	0-4	5-9	10+	
MEN'S coats, overalls									62-67
MEN'S jackets, shirts, t-shirts									68-73
MEN'S pants, shorts									74-79
MEN'S swimwear									80-85
MEN'S underwear									86-91
LADIES' dresses, coats, overalls									92-97
LADIES' jackets, blouses, t-shirts									98-103
LADIES' skirts, trousers, shorts									104-109
LADIES' swimwear									110-115
LADIES' underwear									116-121
LADIES' foundation wear									122-127
MATERNITY WEAR									128-133
ETHNIC WEAR									134-139
PROTECTIVE WEAR									140-145
MEN'S / LADIES' SOCKS									146-151
MEN'S / LADIES' HEADWEAR									152-157
MEN'S / LADIES' GLOVES									158-163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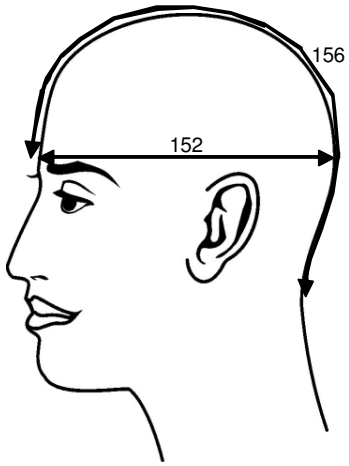
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2. Do you provide for the following special figure requirements?

	YES	NO	
Short, Regular, Long			284
Disabled people in wheelchairs			285
Disabled people missing limbs			286
Petite figures			287
Outsizes / Plus sizes			288
Different body shapes			289
Other, specify			290-291
			292-293

3. Indicate if you have ever been involved in the process of developing sizing systems for any of the following garment types:

	MEN'S		WOMEN'S		BOYS'		GIRLS'		INFANTS		
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	
OUTERWEAR											294-298
UNDERWEAR											299-303
PROTECTIVE WEAR											304-308
FOOTWEAR											309-313
HEADWEAR											314-318
GLOVES											319-323
Other, specify											324-329
											330-335
											336-341

4. Mark the measurements that you use and if applicable indicate if you experience measuring problems with any of these.

	BODY MEASUREMENTS	USED		PROBLEMS		
	HEIGHTS - VERTICAL	YES	NO	YES	NO	
1	Height					342-343
	WIDTH - HORIZONTAL					
73	Neck width - front					486-487
74	Neck width - back					488-489
	CIRCUMFERENCES					
90	Neck girth					520-521
91	Neck girth - around Adam's apple					522-523
92	Neck base girth					524-525
	HEAD MEASUREMENTS					
149	Crown of scull to brows (Vertex to glabella)					638-639
150	Chin to nose bridge (Menton-sellion)					640-641
151	Chin to pit of neck					642-643
152	Head length (brow to back of scull)					644-645
153	Head width - cheekbone to cheeckbone					646-647
154	Head width - above ears					648-649
155	Inter-pupillary distance					650-651
156	Sagittal arch					652-653
157	Surface distance from above the ears across the top of the head (Bi-tragion coronal arch)					654-655
158	Head girth					656-657
	ADDITIONAL					746-748
						749-751
						752-754
						755-757
						758-760

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QUESTIONNAIRE: HEADWEAR AND GLOVES

Number | | | | 1 - 3

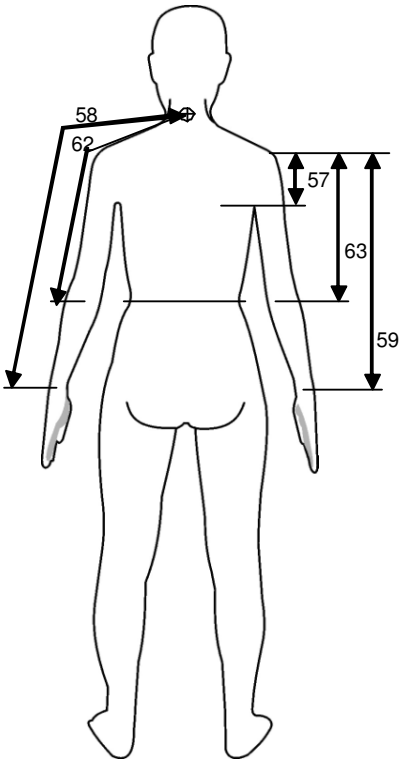
COMPANY NAME:	CONTACT PERSON:	E-MAIL / TEL NO:

1. Indicate next to the appropriate garment type which age group you cater for and how long you have been manufacturing the specific garment type.

BABIES / INFANTS	AGE GROUPS (in months)			YEARS INVOLVED			
GARMENT TYPE	0-12	12-24	24-36	0-4	5-9	10+	
BABIES' / INFANTS wear							4-7
BABIES' / INFANTS FOOTWEAR							8-11
BABIES' / INFANTS HEADWEAR							12-15
BABIES' / INFANTS GLOVES							16-19

CHILDREN	AGE GROUPS (in years)		YEARS INVOLVED			
GARMENT TYPE	1-8	9-16	0-4	5-9	10+	
BOYS' coats, overalls						20-22
BOYS' jackets, shirts, t-shirts						23-25
BOYS' pants, shorts						26-28
BOYS' swimwear						29-31
BOYS' underwear						32-34
GIRLS' dresses, coats, overalls						35-37
GIRLS' jackets, blouses, t-shirts						38-40
GIRLS' skirts, trousers, shorts						41-43
GIRLS' swimwear						44-46
GIRLS' underwear						47-49
BOYS' / GIRLS' SOCKS						50-52
BOYS' / GIRLS' HEADWEAR						53-55
BOYS' / GIRLS' GLOVES						56-58
SCHOOL WEAR						59-61

	AGE GROUPS (in years)					YEARS INVOLVED			
GARMENT TYPE	17-29	30-39	40-49	50-59	60+	0-4	5-9	10+	
MEN'S coats, overalls									62-67
MEN'S jackets, shirts, t-shirts									68-73
MEN'S pants, shorts									74-79
MEN'S swimwear									80-85
MEN'S underwear									86-91
LADIES' dresses, coats, overalls									92-97
LADIES' jackets, blouses, t-shirts									98-103
LADIES' skirts, trousers, shorts									104-109
LADIES' swimwear									110-115
LADIES' underwear									116-121
LADIES' foundation wear									122-127
MATERNITY WEAR									128-133
ETHNIC WEAR									134-139
PROTECTIVE WEAR									140-145
MEN'S / LADIES' SOCKS									146-151
MEN'S / LADIES' HEADWEAR									152-157
MEN'S / LADIES' GLOVES									158-163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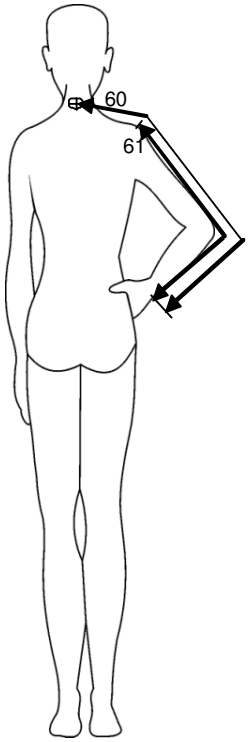
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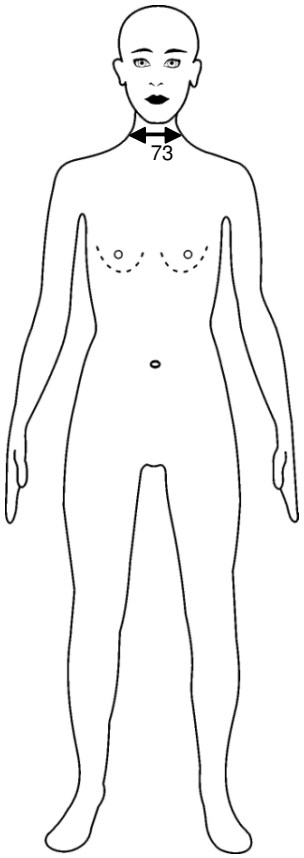
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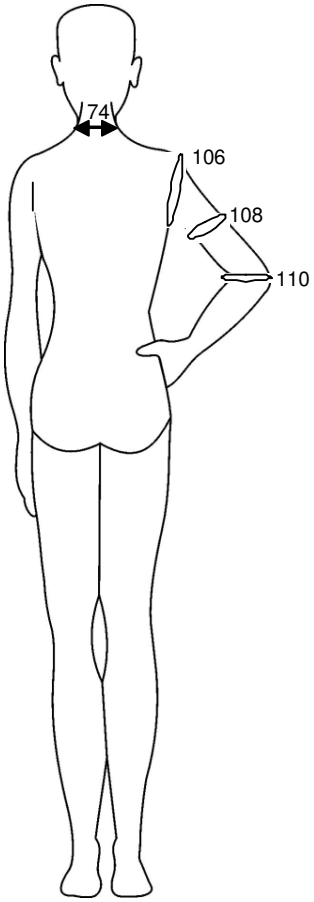
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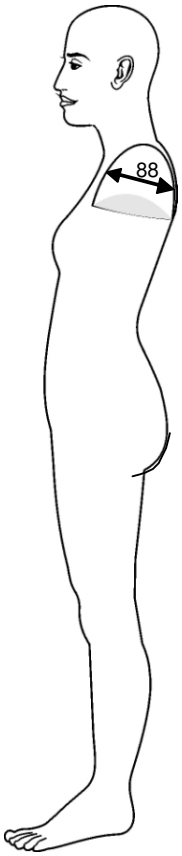
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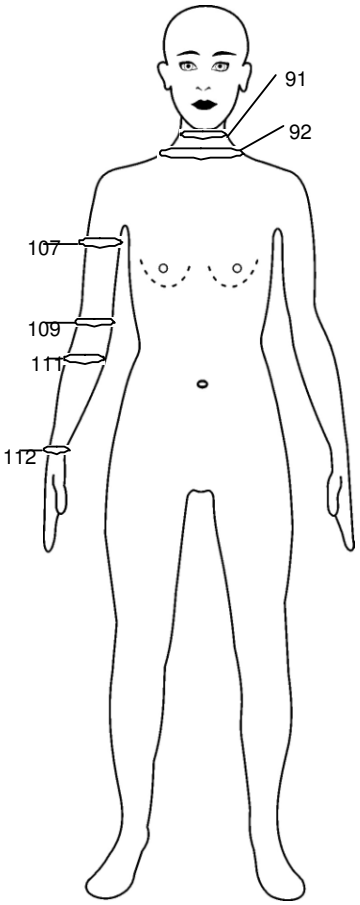
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2. Do you provide for the following special figure requirements?

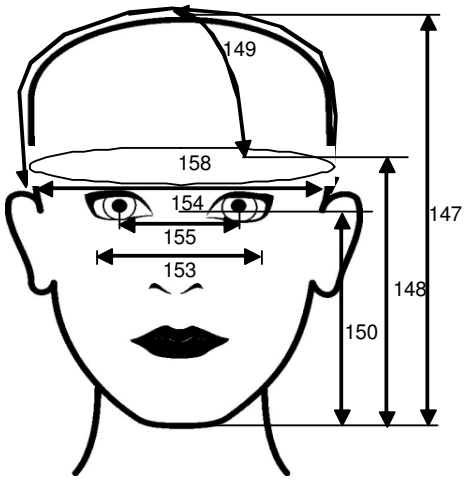
	YES	NO	
Short, Regular, Long			284
Disabled people in wheelchairs			285
Disabled people missing limbs			286
Petite figures			287
Outsizes / Plus sizes			288
Different body shapes			289
Other, specify			290-291
			292-293

3. Indicate if you have ever been involved in the process of developing sizing systems for any of the following garment types:

	MEN'S		WOMEN'S		BOYS'		GIRLS'		INFANTS		
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	
OUTERWEAR											294-298
UNDERWEAR											299-303
PROTECTIVE WEAR											304-308
FOOTWEAR											309-313
HEADWEAR											314-318
GLOVES											319-323
Other, specify											324-329
											330-335
											336-341

4. Mark the measurements that you use and if applicable indicate if you experience measuring problems with any of these.

	BODY MEASUREMENTS	USED		PROBLEMS		
	HEIGHTS - VERTICAL	YES	NO	YES	NO	
1	Height					342-343
57	Top arm length (Shoulder to underarm level)					454-455
58	Arm length straight (Cervical to wrist)					456-457
59	Arm length straight (Shoulder to wrist)					458-459
60	Arm length bent (Cervical to wrist)					460-461
61	Arm length bent (Shoulder to wrist)					462-463
62	Upper arm length (Cervical to elbow)					464-465
63	Upper arm length (Shoulder to elbow)					466-467
64	Under arm length (to wrist)					468-469
65	Under arm length to elbow					470-471
	WIDTH - HORIZONTAL					
73	Neck width - front					486-487
74	Neck width - back					488-489
75	Back Neck width contoured					490-491
88	Armscye width (front to back across top of arm)					516-517
89	Armspan					518-519
	CIRCUMFERENCES					
90	Neck girth					520-521
91	Neck girth - around Adam's apple					522-523
92	Neck base girth					524-525
106	Armscye girth					552-553
107	Upper arm girth - straight					554-555
108	Upper arm girth - bent					556-557
109	Elbow girth - straight					558-559
110	Elbow girth - bent					560-561
111	Forearm girth					562-563
112	Wrist girth					564-565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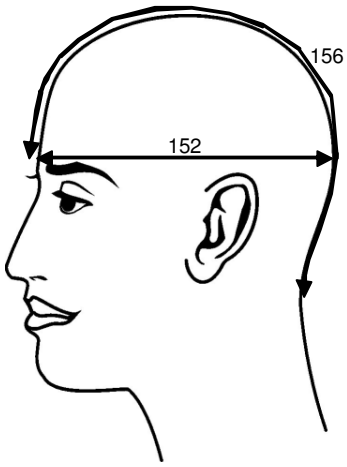
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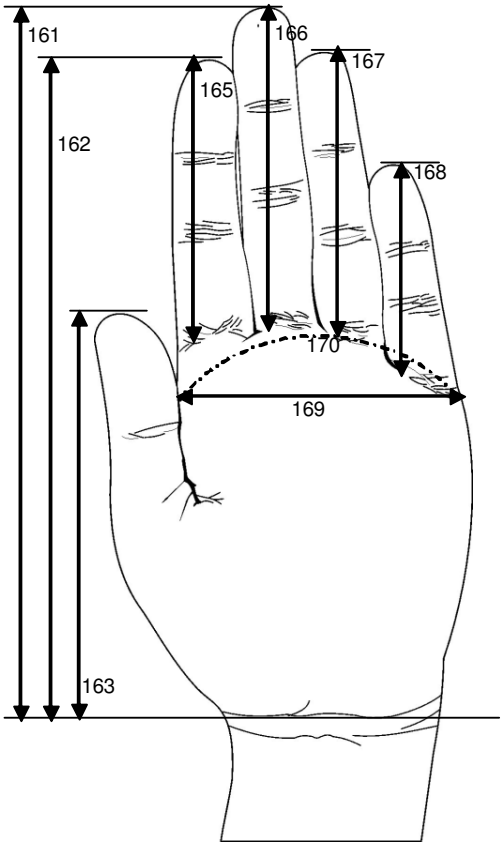
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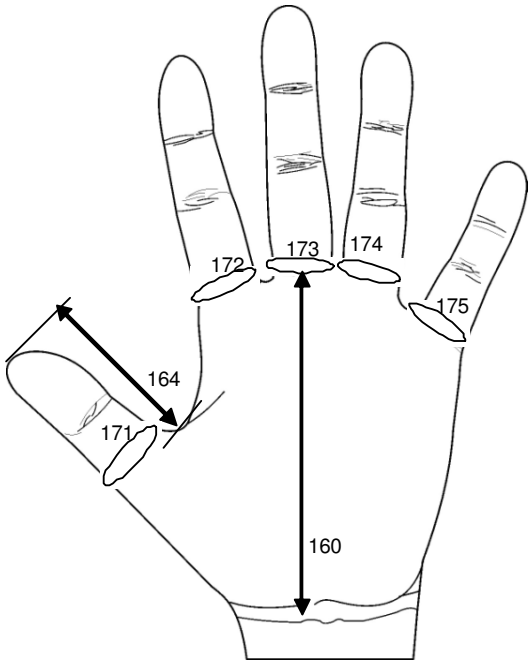
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	BODY MEASUREMENTS	USED		PROBLEMS		
	OTHER	**YES**	**NO**	**YES**	**NO**	
136	Body mass (in kg)					612-613
137	Shoulder blade skinfold					614-615
138	Triceps skinfold					616-617
139	Bust to waist drop					618-619
140	Hip to waist drop					620-621
141	Bust to underbust drop					622-623
142	Front neck depth					624-625
143	Back neck depth					626-627
144	Back seat angle					628-629
145	Shoulder slope					630-631
146	Height (Lying - infants)					632-633
	HEAD MEASUREMENTS					
147	Head height					634-635
148	Face length (Menton-glabella)					636-637
149	Crown of scull to brows (Vertex to glabella)					638-639
150	Chin to nose bridge (Menton-sellion)					640-641
151	Chin to pit of neck					642-643
152	Head length (brow to back of scull)					644-645
153	Head width - cheekbone to cheeckbone					646-647
154	Head width - above ears					648-649
155	Inter-pupillary distance					650-651
156	Sagittal arch					652-653
157	Surface distance from above the ears across the top of the head (Bi-tragion coronal arch)					654-655
158	Head girth					656-657
159	Hand thickness					658-659
160	Palm length					660-661
161	Hand length (wrist to middle finger)					662-663
162	Wrist to index finger length					664-665
163	Wrist to thumb tip length					666-667
164	Thumb length					668-669
165	Index finger length					670-671
166	Middle finger length					672-673
167	Ring finger length					674-675
168	Little finger length					676-677
169	Hand width					678-679
170	Hand girth					680-681
171	Thumb girth					682-683
172	Index finger girth					684-685
173	Middle finger girth					686-687
174	Ring finger girth					688-689
175	Little finger girth					690-691
	ADDITIONAL					746-748
						749-751
						752-754
						755-757
						758-760

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QUESTIONNAIRE: GLOVES

Number | | | | 1 - 3

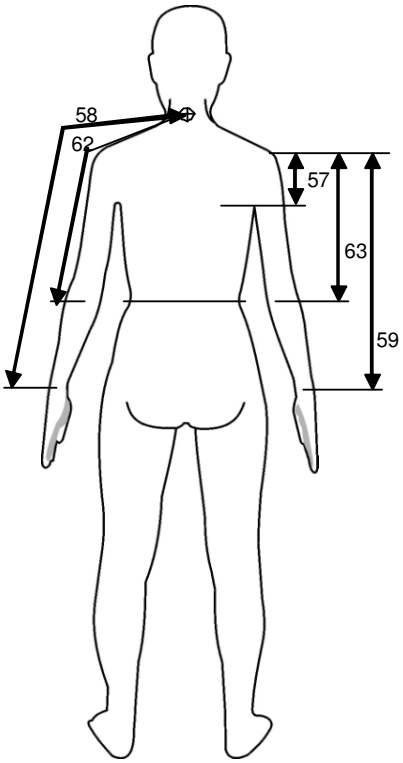
COMPANY NAME:	CONTACT PERSON:	E-MAIL / TEL NO:

1. Indicate next to the appropriate garment type which age group you cater for and how long you have been manufacturing the specific garment type.

BABIES / INFANTS	AGE GROUPS (in months)			YEARS INVOLVED			
GARMENT TYPE	0-12	12-24	24-36	0-4	5-9	10+	
BABIES' / INFANTS wear							4-7
BABIES' / INFANTS FOOTWEAR							8-11
BABIES' / INFANTS HEADWEAR							12-15
BABIES' / INFANTS GLOVES							16-19

CHILDREN	AGE GROUPS (in years)		YEARS INVOLVED			
GARMENT TYPE	1-8	9-16	0-4	5-9	10+	
BOYS' coats, overalls						20-22
BOYS' jackets, shirts, t-shirts						23-25
BOYS' pants, shorts						26-28
BOYS' swimwear						29-31
BOYS' underwear						32-34
GIRLS' dresses, coats, overalls						35-37
GIRLS' jackets, blouses, t-shirts						38-40
GIRLS' skirts, trousers, shorts						41-43
GIRLS' swimwear						44-46
GIRLS' underwear						47-49
BOYS' / GIRLS' SOCKS						50-52
BOYS' / GIRLS' HEADWEAR						53-55
BOYS' / GIRLS' GLOVES						56-58
SCHOOL WEAR						59-61

	AGE GROUPS (in years)					YEARS INVOLVED			
GARMENT TYPE	17-29	30-39	40-49	50-59	60+	0-4	5-9	10+	
MEN'S coats, overalls									62-67
MEN'S jackets, shirts, t-shirts									68-73
MEN'S pants, shorts									74-79
MEN'S swimwear									80-85
MEN'S underwear									86-91
LADIES' dresses, coats, overalls									92-97
LADIES' jackets, blouses, t-shirts									98-103
LADIES' skirts, trousers, shorts									104-109
LADIES' swimwear									110-115
LADIES' underwear									116-121
LADIES' foundation wear									122-127
MATERNITY WEAR									128-133
ETHNIC WEAR									134-139
PROTECTIVE WEAR									140-145
MEN'S / LADIES' SOCKS									146-151
MEN'S / LADIES' HEADWEAR									152-157
MEN'S / LADIES' GLOVES									158-163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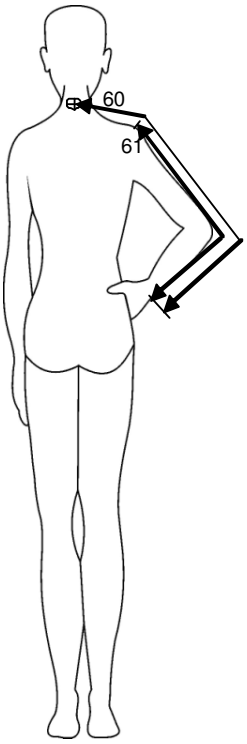
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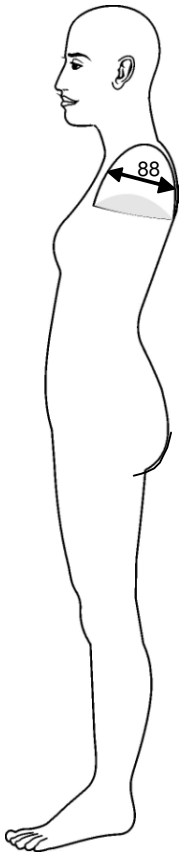
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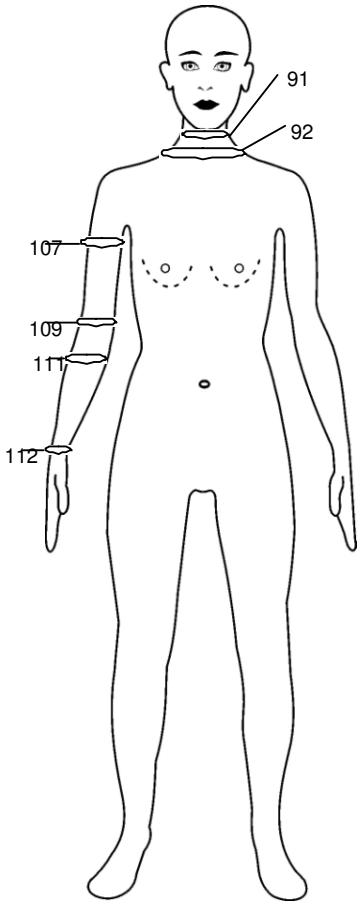
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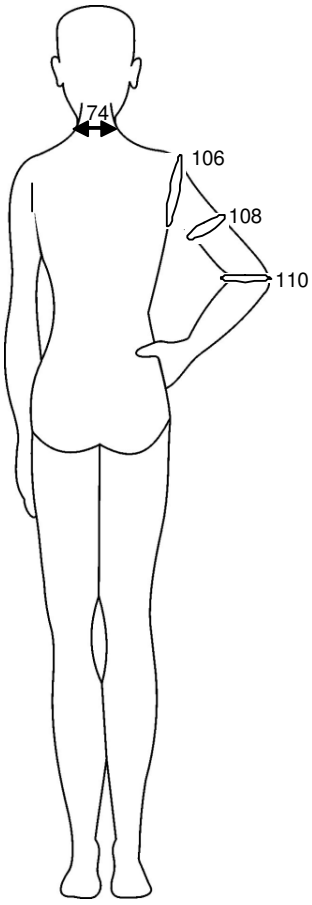
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2. Do you provide for the following special figure requirements?

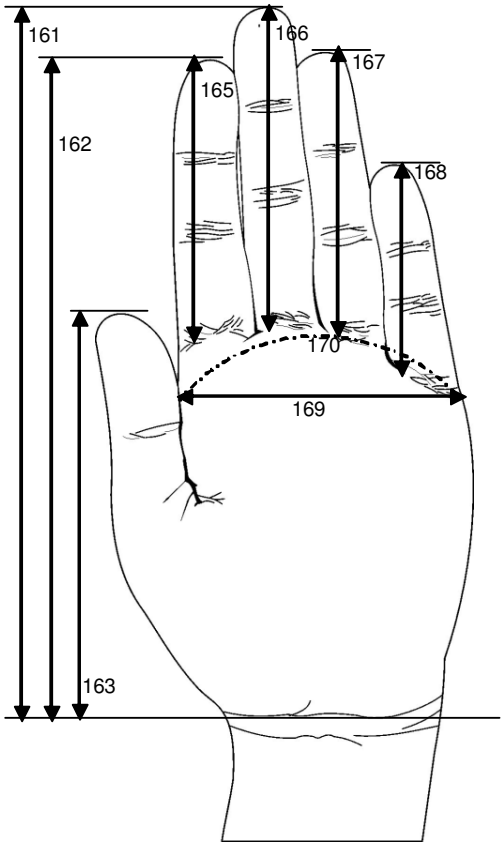
	YES	NO	
Short, Regular, Long			284
Disabled people in wheelchairs			285
Disabled people missing limbs			286
Petite figures			287
Outsizes / Plus sizes			288
Different body shapes			289
Other, specify			290-291
			292-293

3. Indicate if you have ever been involved in the process of developing sizing systems for any of the following garment types:

	MEN'S		WOMEN'S		BOYS'		GIRLS'		INFANTS		
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	
OUTERWEAR											294-298
UNDERWEAR											299-303
PROTECTIVE WEAR											304-308
FOOTWEAR											309-313
HEADWEAR											314-318
GLOVES											319-323
Other, specify											324-329
											330-335
											336-341

4. Mark the measurements that you use and if applicable indicate if you experience measuring problems with any of these.

	BODY MEASUREMENTS	USED		PROBLEMS		
	HEIGHTS - VERTICAL	YES	NO	YES	NO	
1	Height					342-343
57	Top arm length (Shoulder to underarm level)					454-455
58	Arm length straight (Cervical to wrist)					456-457
59	Arm length straight (Shoulder to wrist)					458-459
60	Arm length bent (Cervical to wrist)					460-461
61	Arm length bent (Shoulder to wrist)					462-463
62	Upper arm length (Cervical to elbow)					464-465
63	Upper arm length (Shoulder to elbow)					466-467
64	Under arm length (to wrist)					468-469
65	Under arm length to elbow					470-471
	WIDTH - HORIZONTAL					
88	Armscye width (front to back across top of arm)					516-517
89	Armspan					518-519
	CIRCUMFERENCES					
107	Upper arm girth - straight					554-555
108	Upper arm girth - bent					556-557
109	Elbow girth - straight					558-559
110	Elbow girth - bent					560-561
111	Forearm girth					562-563
112	Wrist girth					564-565
	OTHER					
136	Body mass (in kg)					612-613
138	Triceps skinfold					616-617
146	Height (Lying - infants)					632-633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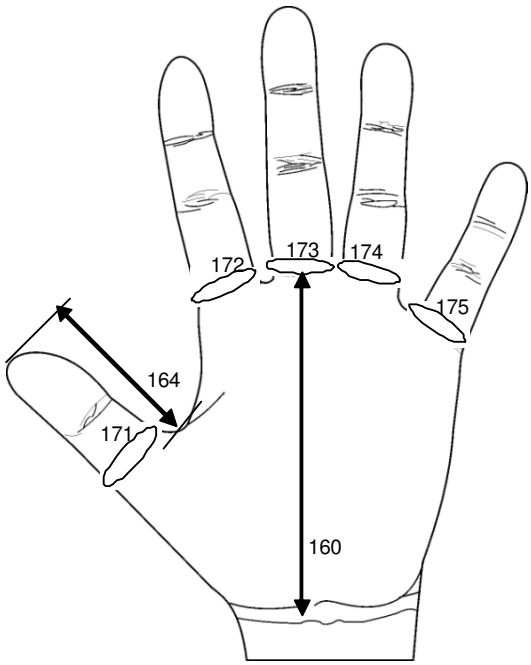
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	BODY MEASUREMENTS	USED		PROBLEMS		
	HAND MEASUREMENTS	**YES**	**NO**	**YES**	**NO**	
159	Hand thickness					658-659
160	Palm length					660-661
161	Hand length (wrist to middle finger)					662-663
162	Wrist to index finger length					664-665
163	Wrist to thumb tip length					666-667
164	Thumb length					668-669
165	Index finger length					670-671
166	Middle finger length					672-673
167	Ring finger length					674-675
168	Little finger length					676-677
169	Hand width					678-679
170	Hand girth					680-681
171	Thumb girth					682-683
172	Index finger girth					684-685
173	Middle finger girth					686-687
174	Ring finger girth					688-689
175	Little finger girth					690-691
	ADDITIONAL					746-748
						749-751
						752-754
						755-757
						758-760

Addendum B

Interview Schedule

COMPANY NAME: _____

RESPONDENT: _____

POSITION: _____

TEL NO: _____

FAX NO: _____

e-MAIL: _____

1. How many **returns** does the company experience? (% of sales)

2. Which garment types are mostly returned?

Garment	Men	Ladies	Boys	Girls	Infants
Coats					
Jackets					
Shirts					
t-shirts					
Sweaters					
Jerseys					
Skirts					
Shorts					
Trousers					
Underwear					
Other					

Shoes					
Sandals					
Closed shoes					
Boots					
Moulded shoes					
Sports / Athletic shoes					
Other					

3. Are returns related to the following problems: (Order of importance)

Quality of construction	
Quality of fabric	
Wrong size	
Fit Body dimensions Distribution of sizes Type of ease added Grading Variation of body shape	

4. What is the origin of the **basic block patterns** currently used?

Retailers supply	
Create own – which method?	
Existing blocks	

5. **Fit testing** – How is it done?

Live fit models	
Dummy – Figure form	

5.1 How often are dummies of models re-measured?

Weekly	Monthly	Quarterly	Every 6 months	Once a year	Other

5.2 Are different body shapes, as influenced by culture or age, considered? How? Which body shapes?

5.3 How and by whom is garment fit evaluated during testing?

How?	**Who?**
	Model (person fitting)
	Designer
	Pattern maker
	Buyer
	Other

5.4 Is any wear testing done on garments? How?

6. **Sizing systems** currently used in SA:
   How do they define figure types?

Height	Drop value (Hip-Bust)	Age	Body shape

7. How are garment sizes described by the sizing systems? (on the garment label)

Garment type	Size description

8. Which key dimensions are used for the sizing system?

Garment type	Key dimensions

9. How are garment types grouped?

Outerwear, Underwear and Others Sub: Upper body, Whole body, Lower body	
Outerwear and Underwear Sub: Upper body, Whole body, Lower body	
Outerwear, Underwear, Lounge wear and Swimwear Sub: Upper body, Whole body, Lower body	
Classify by item: coat/dress, skirt, pants, uniform, sweater/jacket/blouse/shirt, underwear and swimwear	
Other	

10. How long has this system been in use in SA?

11. Where did this system originate from?

Britain	
USA	
France	
Japan	
Self developed	More info
SA	More info
Other	More info

12. Is the system adjusted from time to time to accommodate the changing shape / dimensions of customers?
13. How often?

14. How do you become aware of changes in the dimensions / shape of your customer?

15. **Definitions**

    Describe how the following measurements should be taken, as well as the position on the body. Name the landmarks for each measurement.

16. Explain why the following measurements were identified as problems.

Addendum C

Coding plan

1. How much **returns** do the company experience? (% of sales)

   Categories were established according to the responses.

Confidential information	1
0-1% (including very low, or very little)	2
1,1-2%	3
Unknown	4

2. Which garment type is mostly returned?

   Respondents were given a range of garment types to choose from. Returns were not more related to any specific garment type except for the two which were added to the coding plan.

Not specific	1
Wetsuits	2
Sport shoes & ladies high heel shoes	3

3. Are returns related to the following problems:

   Pattern making was listed as a problem related to returns. This was coded as a problem of fit, because if the pattern is wrong the garment will not fit properly.

Quality of construction	1
Quality of fabric	2
Wrong size	3
Customer abuse	4
Fit	5

4. What is the origin of the basic block patterns currently used?

Retailers supply	1
Create own	2
Existing blocks	3

Other	4

5. Fit testing – how is it done?

Fit models only	1
Dummy only	2
Both fit model and dummy	3
Staff only	4
Fit model, dummy and crèche/school	5
Dummy and staff	6
Dummy, staff and crèche/school	7

5.1 How often are models re-measured?

Weekly	1
Monthly	2
Quarterly	3
Every 6 months	4
Once a year	5
Don't know	6
Not applicable	7

5.2 Are different body shapes, as influenced by culture or age, considered?

Yes	1
No	2

5.3 How? Which body shapes?

Different shops or ranges cater for different figure types	1
Average figure	2
Customised garments	3

5.4 How and by whom is garment fit evaluated during testing?

Fit technologist	1
Designer	2
Buyer / Merchandiser	3
Pattern maker	4
Production manager	5
Fit model	6
Garment technologist	7
SABS	8

5.5 Is any **wear testing** done on garments?

Yes	1
No	2

5.6 How?

Respondents were not really willing to disclose exactly how wearer trials are being done. They did, however, supply more information on the reasons why wear testing is done.

To test fabric behaviour & performance (functionality & durability)	1
Test style & colour	2
Test new fabric	3
Test fit	4
Only done on high volume products	5
Not done	6

The questions regarding **sizing systems** used in South Africa were formulated with reference to a comparison of internationally used sizing systems (Chun-Yoon & Jasper, 1993). This enabled the researcher to describe the South African sizing systems in terms of internationally used sizing systems.

6. How do they define figure types?

   The international sizing systems discussed by Chun-Yoon and Jasper (1993) differentiate between different body shapes according to a combination of height, drop value and/or age. These aspects, namely height, drop value, age and body shape, were listed as answer options, and more categories were added and coded from the responses received.

Height	1
Drop value	2
Age	3
Body shape	4
Fuller figure	5
Average only	6
Age & weight	7
Petite / Short	8
Height & age	9

7. How are garment sizes described by the sizing systems? (on the garment label). The size designation was coded according to different garment types. This was an open-ended question and the responses were then coded according to the information gathered.

Size designation of **Sportswear / Non-fitting garments**	S,M,L …	Age
	1	2

Size designation of **Trousers**	8,10…	32,34…	8/32, 10/34…	Men's suit sizes	76, 81, 87…	Age (yrs) 2, 3, 4…
	1	2	3	4	5	6

Size designation of **Skirts**	8,10,12…	32,34,36…	8/32, 10/34…	76, 81, 87…	Age(yrs) 2, 3, 4…
	1	2	3	4	5

Size designation of **Upper body garments**	8,10 12,…	32,34,36…	8/32, 10/34…	Men's suit sizes	76,81,87,…	Age (yrs) 2, 3, 4…	Neck girth cm
	1	2	3	4	5	6	7

Size designation of **Hats**	Children & adult S,M,L…	Baby sizes (months) 0-6; 6-12; 12-18; 18-24; 24-36	
Caps	1	2	Baby all fit: 2-6 yrs; 7-14 yrs; Adult all fit
			3

Garment type	Ladies size 3, 4, 5…	Men's size 6, 7, 8…
Ladies' shoes	1	2
Men's shoes	3	4

8. Which key dimensions are used for the sizing system?

   The key dimensions were coded according to the garment type that they are used for. This was an open-ended question and the responses were then coded according to the information gathered.

Key dimensions for **Trousers**	Waist girth	Hip girth	Outer leg	Inner leg	Crotch length	Rise height	Thigh girth
	1	2	3	4	5	6	7

Key dimensions for **Skirts**	Waist girth	Hip girth	Centre Back length	Centre Front length
	1	2	3	4

Key dimensions for **Upper body garments**	
Bust / Chest girth	1
Waist girth	2
Hip girth	3
Centre back length	4
Bicep girth	5
Elbow girth	6
Wrist girth	7
Neck girth	8
Nape to waist	9
Across back	10
Across front	11
Over-arm / Sleeve length	12
Shoulder to shoulder	13
Shoulder to bust point	14
Bust point to bust point	15
Scye depth	16
Forearm girth	17
Underarm length	18

Key dimensions for **Full body garments**	Neck shoulder point to foot	Neck shoulder point to crotch	Total height
	1	2	3

Key dimensions for **Headwear**	Head girth
	1

Key dimensions for **Shoes**	Foot length	Foot width	Instep girth	Joint girth
	1	2	3	4

9. How are garment types grouped?

   The international comparison of sizing systems (Chun-Yoon & Jasper, 1993) refers to the classification of garments and therefore similar classifications were offered as possible responses.

Outerwear, Underwear, Lounge wear and Swimwear Sub: Upper body, Whole body, Lower body	1
Classify by garment type: coat/dress, skirt, pants, uniform, sweater/jacket/blouse/shirt, underwear and swimwear	2
Formal, Casual, Outerwear, Underwear	3
Smart, Casual, Active, Lingerie Sub: Knitted tops and bottoms; woven tops and bottoms	4
SAFLIA classification of shoes	5

10. How long has this system been in use in SA?

Always / Forever	1
Don't know	2

11. Where did this system originate from?

Britain	1
USA	2
Europe	3
Japan	4

Self developed	5
South Africa	6
Don't know	7

12. Is the system adjusted from time to time to accommodate the changing shape / dimensions of customers?

Yes	1
No	2

13. How often?

    The companies that did adjust their size charts all indicated that it was not done at regular intervals.

14. How do you become aware of changes in the dimensions / shape of your customer?

Customer complaints	1
Research (surveys)	2
Fit testing	3
Sales figures	4

15. Descriptions

    Describe how the following measurements should be taken, as well as the position on the body. Name the landmarks for each measurement.

    The complete list of body measurements used in the questionnaire was used. Each body measurement was used as a theme for coding the comments and or description regarding that specific body measurement. Interpreted descriptions of body measurements will be verified by comparing them to existing definitions used by International Standards

Organisations, and definitions used in other anthropometrical surveys such as CEASER and SizeUK.

16. Explain why the following measurements were identified as problems.
    The problems experienced were coded according to body measurement, as they occurred in the responses.

The respondents' descriptions for the body measurements were compared to the international descriptions available, with regard to:

- ✓ whether an international description was available;
- ✓ whether there was consensus among the international descriptions or only one international description;
- ✓ whether there was consensus among the respondents' descriptions, only one description or no description from respondents;
- ✓ whether problems were related to no consensus about measuring straight or on the contour;
- ✓ whether problems were related to landmarking;
- ✓ whether problems were related to landmarking as well as no consensus.

Tables with the summary of these comparisons are presented, discussed and interpreted in the following chapter. The discussion of body measurements for which no international description was available, and for which no description or only one description was received from respondents, are presented in **Addendum D**.

Addendum D

Descriptions of measurements with no international descriptions, no description by respondents or not used by respondents

1. Vertical height measurements

Chin height (2)

This measurement was not used by any of the survey respondents and no problems were indicated with this measurement.

International description of the measurement:

✓ Distance between the chin point and the ground (SizeUK).

Side neck to front ground level (5)

This is a measurement that is not generally used for the manufacturing of most ordinary garments. The measurement could however be useful for the manufacturing of special garments that cover the full body and for the manufacturing of fit dummies. Both of the survey respondents that use this measurement experienced problems with it. Of the 13 respondents interviewed, only one used the measurements and also experienced problems with the measurement.

International description of the measurement:

✓ Only the SizeUK standards describe the measurement, namely as the distance from the right shoulder neck point, over the breast point and straight down to the outside of the foot on the ground (UK Sizing).

Interview respondents' descriptions:

Respondent 4: *Side neck to floor, over the bust contour.*

The respondent did not mention that the measurement should be taken on the right side of the body and down to the outside of the foot. The difficulty with landmarking the neck point and taking the measurement over the body contour, is probably the reason why 100% of the survey respondents that used the measurement also experienced problems with the measurement. Identifying the exact location of side neck point, as stated before, is the main problem with regard to all measurements involving the side neck point. The comment of respondent 9 at the side neck height measurement (4), about taking a straight measurement and adding to it when making

the pattern, implies that taking the measurement over the contours also presents some problems. It is understandable that it would be easier to take an accurate measurement in a straight line. But the fact that the pattern maker has to add something to the measurement to accommodate the bust, highlights the necessity of taking the measurement over the contour of the body.

Preferred waist height (15)

This measurement can be useful in the manufacturing of skirts and trousers, especially if one considers the currently fashionable hipster styles. The measurement is used by 20,59% of survey respondents and two of the survey respondents using it experienced problems with the measurement. Of the 13 respondents interviewed, two use the measurement and none indicated that they experienced problems with the measurement.

International descriptions of the measurement:

- ✓ This measurement was listed as a measurement taken for the Nedscan sizing survey; however, no international description was listed in the Nedscan document, or could be found in any of the other international standards available.

Interview respondents' descriptions:

Respondent 4: *From where the customer prefers the garment waist to be, to the floor.*

Respondent 11: No description given.

Most manufacturers that manufacture ready-to-wear garments would probably not use the measurement. Those who manufacture for a specific client that indicated the preferred waistline measurement may however use the measurement. It is not clear why more than 20% of the survey respondents indicated that they experienced problems with the measurement, however. It could be due to the fact that it may be difficult for the manufacturer to pin-point the measurement as to be taken "x centimetres below or above the natural waistline" position, as most probably then given by the client. To ensure that such a measurement is useful to the pattern maker it is important that an additional control measurement be taken. Another

explanation why more than the number of respondents that use the measurement, indicated that they experienced problems with the measurement is because the actual measurement data is not available in the normal size charts.

Waist height (at belly button level) (16)

This measurement is also useful for dropped waistline fashions as is currently in fashion. The measurement is used by 35,29% of survey respondents and one of the survey respondents using it experienced problems with the measurement. One might have expected a higher usage of this measurement but this survey was done just before the current dropped waistline styles became so popular. It could also be due to the fact that the actual measurement is not generally available in the size charts. Of the 13 respondents interviewed, four use the measurement and none indicated that they experienced problems with the measurement.

International descriptions of the measurement:

No international description could be found.

Interview respondents' descriptions:

Respondent 3: *Belly button level straight to the floor.*
Respondent 4: *From belly button to the floor.*
Respondent 11: *From narrowest point above hip.*
Respondent 12: *Belly button straight to floor.*

This is not a complicated measurement to take and therefore few respondents experienced problems with the measurement. The description given by respondent 11 refers to natural waist height rather, since the belly button is usually a little lower than the narrowest point above the hip. The other three respondents' descriptions corresponded with each other.

Centre back waist to top hip (20)

This measurement is useful for the shaping of the patterns for lower body garments. It can also be useful in the manufacturing of fit dummies. This measurement is used by 44,12% of survey respondents, and one respondent experienced problems with

the measurement. Of the 13 respondents interviewed, seven indicated that they use the measurement and none experienced problems with the measurement.

International description of the measurement:
No international description could be found.

Interview respondents' descriptions:

Respondent 1: *10cm down from waistline at centre back.*
Respondent 3: *Centre back waist to a position on the same level as the prominent hipbone.*
Respondent 4: *From the waist at centre back to where the top hip bone is.*
Respondent 6: No description given.
Respondent 7: *10cm below waist.*
Respondent 11: *10cm down from waist.*
Respondent 12: *10cm below waist.*

From the respondents' descriptions it is not clear whether this measurement should be taken straight or on the contour of the body. To be of any use in pattern making it is advisable to take the measurement on the contour of the body. Four of the respondents refer to taking it at 10cm below waist, in which case it is not necessary to take the measurement from waist to 10cm below waist, because the dimension is already specified. The respondents probably referred to the top hip height measurement that is taken from a level 10cm below waist. When taking the measurement on the body contour to a level that is 10cm straight down from the waist, one would most probably get a dimension slightly longer than 10cm, which highlights the importance of taking the measurement on the body contour. Since there is no consensus among the companies about how to take the measurement, one would have expected more of the respondents to experience problems with the measurement. The reason that it is not indicated as a problem measurement could be because it is accepted as being 10cm.

Centre back waist to upper hip (21)

This measurement is useful for the shaping of the patterns for lower body garments and can also be useful in the manufacturing of fit dummies. This measurement is

used by 38,24% of survey respondents, and none experienced problems with the measurement. Of the 13 respondents interviewed, six indicated that they use the measurement and none experienced problems with the measurement.

International description of the measurement:
No international description could be found.

Interview respondents' descriptions:
Respondent 1: *20cm down from waistline at centre back.*
Respondent 4: *From the waist at centre back to 20cm below the natural waist.*
Respondent 6: No description given.
Respondent 7: *20cm below waist.*
Respondent 11: *20cm down from waist.*
Respondent 12: *20cm below the waist.*

Again, taking the measurement to 20cm below the waist is not necessary since the dimension is already known. Taking the measurement on the contour of the body to a level 20cm straight down from the waist would be more useful.

Centre back waist to maximum hip (22)
This measurement is useful for the shaping of patterns for lower body garments and for the manufacturing of fit dummies. It is particularly useful when shaping the hip curve from the waist to the widest part of the hip. This measurement is used by 26,47% of survey respondents and none experienced problems with the measurement. Of the 13 respondents interviewed, six indicated that they use the measurement and none experienced problems with the measurement.

International description of the measurement:
No international description could be found.

Interview respondents' descriptions:
Respondent 3: *Centre back to the widest part of the hips.*
Respondent 4: *From the waist at centre back to the maximum hip.*
Respondent 6: *Centre back down to where the biggest part is.*

Respondent 7: *Waist to widest hip circumference.*
Respondent 11: *From waist to widest part.*
Respondent 12: *Waist to where the widest part is.*

The descriptions of the respondents do correspond with each other. However, the respondents do not indicate clearly whether the measurement is taken in a straight line or on the body contour. For use in pattern making it would be more useful to have the measurement taken on the body contour, since this would give a better indication of the shape of the hip curve. Confusion and inconsistency as to how to take the measurement could lead to bad fit in fitted skirts and trousers.

Centre back waist to knee (23)

This measurement could be useful when manufacturing garments covering the full body, for example to determine the hem positions on knee length dresses. It could also be useful for the manufacturing of fit dummies. The measurement is used by 26,47% of the survey respondents and none experienced problems with the measurement. Of the 13 respondents interviewed, five used the measurement and none experienced problems with the measurement.

International description of the measurement:
No international description could be found.

Interview respondents' descriptions:
Respondent 3: *Natural waist to the level of the knee, at centre back.*
Respondent 4: *From the waist at centre back to the crease of the knee.*
Respondent 7: *Waist over the back curve to the crease of the knee.*
Respondent 11: *To the crease of the knee.*
Respondent 12: *Waist to midpoint of kneecap.*

The descriptions of the respondents do not correspond with regard to identifying the position of the knee.

Centre back waist to ground (24)

This measurement is useful for determining the length of skirts and trousers. This measurement is used by 38,24% of survey respondents and none of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, seven indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

No international description could be found.

Interview respondents' descriptions:

Respondent 3: *Natural waist to the floor, at centre back.*

Respondent 4: *From the waist at centre back on the contour of the body, to the floor.*

Respondent 6: *Centre back waist over the bum to the ground, from waist to floor.*

Respondent 7: *Measure against the body and then straight.*

Respondent 9: *Over the curve of the back and then straight.*

Respondent 11: *Follow the curve to the widest hip and then straight to the floor.*

Respondent 12: *Waist to hip on the contour of the body and then straight down.*

The descriptions of the respondents correspond with each other with regard to the landmarks. Respondent 3 does not clearly indicate whether it is a straight or contoured measurement. All the other respondents agree that this measurement should be taken over the contour at the back of the body and then straight to the floor. Taking the measurement over the contour and then straight, allows for the extra length that might be needed over the back to ensure that a skirt's hem hangs straight.

Front waist to knee (26)

This measurement could be useful when manufacturing knee length skirts, to determine the front length of the garment, and it can also be useful in the manufacturing of fit dummies. The measurement is used by 29,41% of the survey respondents and one respondent experienced problems with the measurement. Of

the 13 respondents interviewed, five used the measurement and one experienced problems with the measurement.

International description of the measurement:
No international description could be found.

Interview respondents' descriptions:
Respondent 3: *Natural waist to the level of the knee, at centre front.*
Respondent 4: *Centre front waist to knee.*
Respondent 7: *Waist to the level of the crease.*
Respondent 11: *Waist to the middle of the kneecap.*
Respondent 13: *Waist to knee, straight.*

The descriptions of the respondents do not correspond with regard to identifying the knee position.

Front (35) and back crotch length (36)
Front crotch length and back crotch length are both used by 66,71% of the survey respondents. For both measurements three of the survey respondents using them experienced problems with the measurements. Of the 13 respondents interviewed, seven indicated that they used the measurements and one company experienced problems with the measurement.

International description of the measurement:
No international description could be found.

During the interview it became clear that the respondents were referring to garment measurements and not actual body measurements. The following comment illustrates this: "But we do front and back (crotch length), we use the separate measurements when we're measuring on the garment." It is not possible to take such measurements by hand since there is no physical landmark to define where the front or back crotch should stop. Total crotch length is already a sensitive measurement to take on a person. However, all the companies agreed that it would be very useful measurements if it was possible to measure it on the human body. Allocating the

total crotch length correctly to the front and the back of the garment is critical to ensure well-fitting trousers. With the development of body scanning it seems as if such measurements are not just wishful thinking anymore. According to Simmons and Istook (2003:314), it is possible with the [TC]2 body scanning system to define whether a front, back or full crotch length is needed.

Cervical to top hip (39)

This measurement is used by 17,65% of the survey respondents and none experienced problems with the measurement. Of the 13 respondents interviewed, four used the measurement and none experienced problems with the measurement.

International description of the measurement:

No international description could be found.

Interview respondents' descriptions:

Respondent 4: *Nape to the level of the top hip bone following the contour of the back.*

Respondent 6: *Cervical to 10cm below waist.*

Respondent 11: *Nape to 10cm below waist following the shape of the back.*

Respondent 12: *Nape, following the contour to 10cm below waist.*

The descriptions of the respondents do not correspond with each other.

Cervical to upper hip (40)

This measurement is useful when shaping the waist to hip curve on lower body garments such as skirts and trousers. It is important to know where to apply the corresponding girth positions on the pattern. The measurement could also be useful for the manufacturing of fit dummies. The measurement is used by 20,59% of the survey respondents and none experienced problems with the measurement. Of the 13 respondents interviewed, four used the measurement and none experienced problems with the measurement.

International description of the measurement:

No international description could be found.

Interview respondents' descriptions:

Respondent 1: *Nape to 10cm below waistline.*

Respondent 4: No description given.

Respondent 11: *Nape to 20cm below waist following the shape of the back.*

Respondent 12: *Nape to 20cm below waist, against the contour.*

From the descriptions it is clear that the respondents confused the top hip and upper hip positions. One respondent marked that they use cervical to upper hip on the survey questionnaire; however, the description given corresponds with the cervical to top hip (number 39) description. It is clear that the measurement should be taken against the contour of the back. This is very important when making patterns for figures with protruding buttocks. To get to a level 20cm below the natural waist, when following the contour of the back the actual dimension might be quite a few centimetres longer than 20cm.

Cervical to hip (41)

This measurement is useful when shaping the waist to hip curve on lower body garments such as skirts and trousers. It is important to know where to apply the corresponding girth positions on the pattern. The measurement could also be useful for the manufacturing of fit dummies. This measurement is used by 20,59% of the survey respondents and none experienced problems with the measurement. Of the 13 respondents interviewed, four used the measurement and none experienced problems with the measurement.

International description of the measurement:

No international description could be found.

Interview respondents' descriptions:

Respondent 1: *Nape to 20cm below waistline.*

Respondent 4: *Nape to maximum hip, following the contour of the back.*

Respondent 11: *Nape to widest hip, following the shape of the back.*

Respondent 12: *Nape to widest part, against the body.*

The descriptions of the respondents do not correspond with each other. The description of the one respondent corresponds with the cervical to upper hip description, number 40. It seems that there is some confusion among the respondents about the position of the top hip, upper hip and hip positions on the body. This could also explain the similarity in the use of these measurements.

Cervical to chest level (43)

This measurement is used by 17,65% of the survey respondents and one respondent experienced problems with the measurement. Of the 13 respondents interviewed, four used the measurement and none experienced problems with the measurement.

International description of the measurement:

No international description could be found.

Interview respondents' descriptions:

Respondent 4: *Nape over the shoulder to the widest part of the chest, on men.*

Respondent 7: *Nape over the side neck to the level of the widest part of the chest.*

Respondent 11: *Nape to widest chest level, at the nipple point.*

Respondent 12: *Nape over the shoulder to the most prominent part of the chest.*

The descriptions of the respondents correspond with each other.

Arm length straight (cervical to wrist) (58)

This measurement is used for determining the sleeve length mainly on men's wear, shirts and jackets. This measurement is used by 61,76% of the survey respondents and two respondents experienced problems with the measurement. Of the 13 respondents interviewed, eight indicated that they used the measurement and one company experienced problems with the measurement.

International description of the measurement:

No international description could be found.

Interview respondents' descriptions:

Respondent 1: *Back neck to wrist bone, arm hanging naturally.*

Respondent 3: No description given.

Respondent 4: *Nape over the shoulder to the wrist, arm hanging comfortably.*

Respondent 6: *Centre back, half a shoulder, and then I go just a little bit bent and down to the wrist.*

Respondent 7: *From nape around to wrist. On the bent arm and on the straight arm, we do it both.*

Respondent 8: This measurement was not marked on the questionnaire, but the respondent mentioned that *a tailor would measure arm length from the centre back around to the wrist*.

Respondent 9: *Back neck over shoulder, elbow to the wrist. Arm should be slightly bent.*

Respondent 11: Although this measurement was marked on the questionnaire, the respondent indicated that they measure *the arm bent*.

Respondent 12: *I have them bend their arm just slightly, not 90°. I just found that that (bent at 90°) adds in too much. (On women)*

The descriptions of the respondents refer to the arm hanging naturally or comfortably or just slightly bent, which implies not forcing the arm into a straight position and also not bent as much as 90°. No international description has been found to compare the descriptions to. The descriptions given by the respondents correspond with one another. Since the nape is seen as a controllable landmark, this measurement is preferred by some respondents.

Underarm length (to elbow) (65)

This measurement is used for determining the underarm length of short sleeves and the positioning of elbow darts on long sleeves. This measurement is used by 37,14% of the survey respondents and one respondent experienced problems with the measurement. Of the 13 respondents interviewed, five indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

No international description could be found.

Interview respondents' descriptions:

Respondent 1: *Under arm to the crease of the elbow.*

Respondent 3: No description given.

Respondent 4: *Under arm to where the elbow bends.*

Respondent 9: *Front crease to the elbow crease.*

Respondent 11: No description given.

This measurement is taken in the same way as the previous measurement, but only up to the landmark at the elbow. Again, the descriptions of the respondents do not correspond with each other nor with the international descriptions because the armpit and the crease of the arm where the arm joins the body are two completely different landmarks. Similar problems can be expected with this measurement with regard to identifying the underarm position. The exact position of the elbow can also be described in more detail. There is no agreement among the respondents about how to take the measurement.

2. Circumferences

Bust girth contoured (96)

This measurement could be useful for the manufacturing of ladies' underwear and swimwear, and it could also be useful for the manufacturing of fit dummies. The measurement is used by 20% of the survey respondents and none experienced problems with the measurement. Of the 13 respondents interviewed, three used the measurement and none experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

- ✓ Maximum circumference measured over/under the shoulder blades, under the armpits, across the bust points and into the centre front between the breasts (UK Sizing).

Interview respondents' descriptions:

Respondent 3: *Around the most prominent part of the bust following the contour in between and over the bust.*

Respondent 4: No description given. *This measurement is necessary for underwear.*

Respondent 11: No description given.

Only one of the respondents offered a description, and it corresponds with the international description. Most respondents did not give any descriptions, which probably indicates that they are unsure about how the measurement should be taken.

Preferred waist girth (99)

This measurement could be useful when making patterns for the currently fashionable dropped waist styles. The measurement is used by 29,41% of the survey respondents and one respondent experienced problems with the measurement. Of the 13 respondents interviewed, four used the measurement and none experienced problems with the measurement.

International description of the measurement:

- ✓ This measurement was listed as a measurement taken for the Nedscan sizing survey; however, no international description was listed in the Nedscan document, and no international description could be found in other standards.

Interview respondents' descriptions:

Respondent 1: *Measure where the customer wants the waist to be.*

Respondent 4: No description given.

Respondent 11: No description given.

Respondent 12: Did not know how to measure this but *would find it interesting. If there were some kind of consistency it would be interesting.*

The respondents were not sure how this measurement should be taken. The measurement would only be useful if it can be taken consistently. A vertical measurement would have to be taken together with this measurement to identify the

position on the body. In this way, it would also be possible to transfer the measurement onto a pattern.

Waist at belly button girth (100)

This measurement is used to determine the waist length on dropped waist garments. This measurement is used by 44,12% of the survey respondents and none experienced problems with the measurement. Of the 13 respondents interviewed, five indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

- ✓ No international description could be found. This is confirmed by Simmons and Istook (2003:311) who also state that: "No current standard could be found that had a waist-at-the-navel definition."

Interview respondents' descriptions:

Respondent 3: *Measure around the body at the level of the belly button.*

Respondent 4: *At the level of the belly button parallel to the floor.*

Respondent 11: *Measure at the level of the navel.*

Respondent 12: *5cm below waist, not at the belly button specifically.*

Respondent 13: *If you ran it across the navel it's spot on. For men and ladies. I would say again, around the belly button is going to have to be the spot.*

It seems that measuring at belly button level parallel to the floor would be the acceptable position. This measurement could be useful when manufacturing the currently fashionable hipster styles. Knowing only the circumference would not contribute to manufacturing better fitting garments. It is also necessary to know how much lower the belly button is in relation to the natural waistline. The natural waistline is used as a point of reference when drafting a basic pattern. Therefore the pattern maker will need to know the vertical distance from the natural waist to the belly button in order to take the waist position lower on the pattern.

3. Other body measurements

3.1 Arc measurements

All four of the arc measurements were listed as problem measurements. The first two, namely bust and waist arc anterior, were only used by one (2,94%) of the survey respondents and both measurements were marked as problem measurements. The abdominal extension and hip arc anterior were not used by any of the respondents included in the postal survey, but in both cases one respondent did indicate that these were problem measurements. These measurements are probably not used by the respondents because they are seen as problem measurements. The main problem with these measurements is identifying the position of the side seam, since the arc measurements are measured from side seam to side seam. The arc measurements are also not used directly for pattern making or garment construction. They are however useful measurements because they can be helpful in giving an indication of the body shape, that is of the distribution of the circumference measurements, and can thus lead to the creation of a balanced garment.

Bust arc anterior (120)

This measurement was used by only one of the survey respondents. It was also indicated as a problem measurement. The respondent that used the measurement was included for the interview.

International description of the measurement:

- ✓ Distance, at level of nipples, from the mid-point of the scye width at right underarm, over the breasts to the corresponding point at left underarm (UK Sizing).
- ✓ Measure parallel to the floor from one mid-underarm point across the nipples to the other mid-underarm point (ASTM 5586, 1995).

It is clear that the international descriptions correspond with each other. However it might present a problem to locate the mid-underarm point consistently on the human body.

Interview respondent's description:

Respondent 4: *From the front at the bust level over the bust curve from side seam to side seam.*

This description corresponds with the international descriptions. Identifying the side seam is however the main concern with this measurement.

Waist arc anterior (121)

This measurement was used by only one of the survey respondents. It was also indicated as a problem measurement. The respondent that used the measurement was included for the interview.

International description of the measurement:

Only one international description was found:

✓ Measure across the front of the body at waist level from one imaginary side seam to the other imaginary side seam (ASTM 5586, 1995).

The word "imaginary" is problematic here. One would expect a better indication on how to locate this side seam position.

Interview respondent's description:

Respondent 4: *From side seam to side seam on the contour of the body at natural waist level.*

The description corresponds with the international description. Again, locating the position of the side seam consistently is the main concern regarding the measurement.

Abdominal extension arc anterior (122)

This measurement was not used by any of the survey respondents although one respondent indicated a problem with the measurement. However, none of the respondents interviewed indicated a problem with the measurement.

International description of the measurement:

Only one international description was found:

- ✓ The distance from one imaginary side seam to the other imaginary side seam at the high-hip level (ASTM 5219, 1999, 1995).

Again, locating this "imaginary side seam" consistently on the human body can present a problem.

Hip arc posterior (123)

This measurement was not used by any of the survey respondents although one respondent indicated a problem with the measurement. However, none of the respondents interviewed indicated a problem with the measurement.

International description of the measurement:

Only one international description was found:

- ✓ Measure across the back at the fullest hip level from one imaginary side seam to the other imaginary side seam (ASTM 5586, 1995).

Again, one would have expected a better indication on how to locate this imaginary side seam position on the human body. Such a vague description can present problems with the accuracy and consistency of measurements.

3.2 Seated measurements

3.2.1 Heights

Height (124)

This measurement was not used by any of the survey respondents.

International description of the measurement:

Only one international description was found:

- ✓ The vertical distance between a sitting surface and the top of the head. The subject sits erect and symmetrical with the head in the Frankfort plane, a block is placed on the crown of the head and the level indicates the reading. The shoulders and upper arms are relaxed (Ergotech).

Cervical height (125)

The measurement was used by one of the survey respondents and none of the survey respondents experienced problems with the measurement. This respondent was included in the interview but did not give a description for this measurement.

International description of the measurement:

Only one international description was found:

Distance from the nape to the seat base (UK Sizing).

Shoulder height (126)

This measurement was not used by any of the survey respondents.

International description of the measurement:

Only one international description was found:

- ✓ The vertical distance between a sitting surface and the acromion landmark on the tip of the right shoulder. The subject sits erect looking straight ahead. The shoulders and upper extremities are relaxed (Ergotech).

Waist height (127)

This measurement was used by one of the survey respondents and none of the survey respondents experienced problems with the measurement. This respondent was included in the interview but did not give a description for this measurement.

International description of the measurement:

Only one international description was found:

- ✓ Distance between the right side at natural waist level and the seat base (UK Sizing).

Knee height (128)

The measurement was used by one of the survey respondents and none of the survey respondents experienced problems with the measurement. This respondent was included in the interview but did not give a description for this measurement.

International description of the measurement:

Only one international description was found:

- ✓ The vertical distance between a footrest surface and the patella landmark at the top of the right knee (located and drawn while the subject stands). The subject sits with the thighs parallel, the feet in line with the thighs, and the knees flexed at 90° (Ergotech).

Popliteal height (129)

This measurement was not used by any of the survey respondents.

International description of the measurement:

Only one international description was found:

- ✓ The vertical distance from a footrest surface to the under surface of the right knee (where the knee meets the thigh). The subject sits with the thighs parallel, the feet in line with the thighs, and the knees flexed at 90°.

3.2.2 Widths

Hip width (130)

This measurement was used by two of the survey respondents and none of them experienced problems with the measurement. One of the respondents that used the measurement was included in the interview.

International description of the measurement:

Only one international description was found:

- ✓ The distance between the lateral points of the hips at the junction of the hips and the thighs. The subject sits erect with the feet and knees together and is measured from the front at an angle of 45° (Ergotech).

Interview respondents' descriptions:

Respondent 4: *In a straight line from side to side at the position of the hips.*

The description given by the respondent is very vague regarding how to find the hip position when the person is sitting.

Thigh length (131)

This measurement was used by two of the survey respondents and none of them experienced problems with the measurement. One of the respondents that used the measurement was included in the interview.

International description of the measurement:

Only one international description was found:

- ✓ The horizontal distance between the buttocks of a subject (seated against the contact point of the seated surface and the wall) and the anterior surface of the patella (knee). The subject sits erect. The thighs are parallel to the floor and the knees flexed 90° with the feet in line with the thighs (Ergotech).

Interview respondents' descriptions:

Respondent 4: *From the hip position to the front of the bent knee.*

The description does not correspond with the international description. The starting point of the measurement differs for the two descriptions; the hip position and the buttocks cannot be regarded as the same point on the body.

3.2.3 Girths

Waist girth (132)

The measurement was used by two of the survey respondents and none of the survey respondents experienced problems with it. Both respondents were included in the interview but one did not give a description for this measurement.

International description of the measurement:

Only one international description was found:

- ✓ Circumference of the natural waist (UK Sizing).

Interview respondents' descriptions:

Respondent 3: No description given

Respondent 4: *Around the natural waist, sitting comfortably upright.*

The description of the respondent corresponds with the international description.

Hip girth (133)

The measurement was used by two of the survey respondents and none of them experienced problems with it. Both respondents were included in the interview but one did not give a description for this measurement.

International description of the measurement:

- ✓ Circumference of the hips measured diagonally around the buttocks and stomach (UK Sizing).
- ✓ With the subject seated on a rigid flat surface and the thighs together, the distance around the hips (diagonally) from the point where the back of the buttocks contacts the sitting surface and over the widest part of the hips (ASTM 1999).

The international descriptions correspond with each other.

Interview respondents' descriptions:

Respondent 3: No description given.

Respondent 4: *Diagonally around the seat.*

Although the description given by the respondent is vague it does correspond with the international descriptions.

Thigh girth (134)

The measurement was used by two of the survey respondents and none of the survey respondents experienced problems with the measurement. Both respondents were included in the interview but one did not give a description for this measurement.

International description of the measurement:

Only one international description was found:

✓ Maximum circumference of the right thigh (UK Sizing).

Interview respondents' descriptions:

Respondent 3: No description given

Respondent 4: *Around the widest part of the thigh with the knee bent at 90°.*

The international description does not mention that the knee must be bent, but since it is a seated measurement one can assume that this is implied. The description given by the respondent corresponds with the international description although the respondent did not mention measuring on the right side of the body. As discussed earlier, it is important for consistency to take measurements on the same side of the body throughout a body measurement survey.

Knee girth (135)

This measurement was used by one of the survey respondents and no problems were indicated with it. This respondent was included in the interview.

International description of the measurement:

Only one international description was found:

✓ Circumference of the right knee bent at 90° (UK Sizing).

Interview respondents' descriptions:

Respondent 4: *Circumference taken diagonally around the knee, bent at 90°.*

The description given by the respondent corresponds with the international description.

3.3 Other body measurements

Body mass (kg) (136)

The measurement was used by four of the survey respondents and no problems were indicated with the measurement. All four respondents using the measurement were included in the interview.

International description of the measurement:

Only one international description was found:

✓ The value in kilograms indicated on a balance (UK Sizing). Mass in kilograms (ASTM 1999).

Interview respondents' descriptions:

Respondent 3: *Weight; the weight distribution is important. On the bigger woman how the weight is distributed.*

Respondent 4: *Weight is not critical.*

Respondent 12: *Only as an inference.*

Respondent 13: *Body mass, it is necessary to tell us that there's something incorrect with the measurements.*

The respondents did not describe how to measure weight, but highlighted the necessity of the measurement as a control for the accuracy of the actual body measurements.

Shoulder blade skinfold (137)

This measurement was not used by any of the survey respondents and no international description could be found.

Triceps skinfold (138)

This measurement was also not used by any of the survey respondents and no international description could be found.

Bust to waist drop (139)

The drop measurements are used for classifying the figure type and they can be useful for the manufacturing of fit dummies. Although only 11,76% of the survey respondents used this measurement, 25% of the survey respondents using it experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

Only one international description was found.

✓ The difference between the chest and the waist girth (ASTM 5219, 1999).

Interview respondents' descriptions:

Respondent 4: *Difference between the bust and waist measurements.*

Respondent 7: No description given.

The description corresponds with the international description. As discussed earlier, locating the natural waist can be problem. The other problem with these measurements is that they are not widely available; therefore they are not used and are also seen as problem measurements.

Hip to waist drop (140)

The drop measurements are used for classifying the figure type and they can be useful for the manufacturing of the dummies. The measurement was used by five of the survey respondents and none of them experienced problems with the measurement. Of the 13 respondents interviewed, three indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

No international description could be found.

Interview respondents' descriptions:

Respondent 4: *Difference between the hip and waist measurements.*

Respondent 7: No description given.

Respondent 11: No description given.

The measurement is important for classifying figure types, and therefore the hip and waist measurements should be accurate and clear descriptions as to how and where to locate the landmarks is essential. The fact that no international description and only one national description could be found, indicate however an ignorance or "don't care" attitude towards the importance of figure types to achieve good fit.

Bust to underbust drop (141)

The drop measurements are used for classifying the figure type and they can be useful for the manufacturing of the dummies. The measurement was used by four of the survey respondents and one of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, three indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

No international description could be found.

Interview respondents' descriptions:

Respondent 4: *Difference between the bust and the underbust measurement.*

Respondent 7: No description given.

Respondent 13: No description given.

This dimension is mostly used for the sizing of ladies' underwear, for identifying the bra cup size. It should however become more important when certain styles, such as empire lines and close fitting tops, are in fashion.

Front neck depth (142)

This measurement can be useful to shape the neckline curve when drafting a bodice pattern, and it is used for the manufacturing of fit dummies. The measurement was used by five of the survey respondents and one of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, three indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

- ✓ Distance between the right neck shoulder point and the centre front neck (UK Sizing).

Interview respondents' descriptions:

Respondent 3: *Shoulder neck point to the level of the front neck base.*

Respondent 4: No description given.

Respondent 11: No description given.

The description corresponds with the international description. The problem experienced with this measurement is related to the landmarks. As discussed earlier, the location of the shoulder neck point is no easy task. Being able to consistently identify the landmark on different bodies is very important when taking measurements. It has been suggested that the base of the neck be marked with a chainette, since the chainette makes it easier to identify the neck shoulder intersection.

Back neck depth (143)

This measurement can also be of help in shaping the neckline curve when drafting a bodice pattern and it is used for the manufacturing of fit dummies. The measurement was used by five of the survey respondents and one of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, three indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

- ✓ Distance between the centre back neck level and the right neck shoulder point level (UK Sizing).

Interview respondents' descriptions:

Respondent 3: *Shoulder neck point to the level of the nape.*

Respondent 4: No description given.

Respondent 11: No description given.

The description corresponds with the international description. This measurement can be very useful to improve the fit of garments for older people with a hunchback. Again the problems are related to the landmarks. As discussed previously, the location of the shoulder neck point can be problematic. Being able to consistently identify the landmark on different bodies is very important when taking measurements. It has been suggested that the base of the neck be marked with a chainette, since the chainette makes it easier to identify the neck shoulder intersection.

Back seat angle (144)

This measurement is useful to study the posture of a person. Posture has an influence on how a garment fits the body. The measurement was used by two of the survey respondents and two of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and one company experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

- ✓ Value in degrees of the angle of inclination between the centre back waist level and the hip level (UK Sizing).

Interview respondents' descriptions:

Respondent 3: No description given. *Posture has a very important influence on fit.*

No description was given but the importance of the measurement was highlighted since posture can indeed influence fit.

Shoulder slope (145)

This measurement is used for style choices and also to determine the size of shoulder pads in certain upper body garments, and it is also necessary for the manufacturing of fit dummies. The measurement was used by nine of the survey respondents and three of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, five indicated that they used the measurement and two companies experienced problems with the measurement.

International description of the measurement:

- ✓ Value in degrees of the angle of inclination following a line joining the right side neck point and the shoulder point (UK Sizing).
- ✓ The value, in degrees, on the angle of inclination measured using the inclinometer placed on the shoulder following a line joining the acromion and the neck-base shoulder point (ISO 8559, 1989).
- ✓ The angle formed when the slant of the shoulder line deviates from the horizontal line that originates at the side neck base (ASTM 5219, 1999).

The international descriptions do correspond with each other, although only one description states that it must be measured on the right shoulder.

Interview respondents' descriptions:

Respondent 3: *Angle that the shoulder drops from the neck shoulder point.*

Respondent 4: *Very important for the development of dummies.* No description given.

Respondent 7: *Now you need a special thing for that.*

Respondent 11: No description given.

Respondent 12: *Do not know how to measure shoulder slope. Information regarding a reliable shoulder slope measurement would be vital. It needs to be an angle more than a measurement.*

It seems that the respondents did not know how to take the measurement. Only one respondent offered a vague description and it corresponded with the international descriptions. This is the main reason for problems with the measurement, together with not having the equipment to take the measurement with. This measurement is also not available in the general size charts. The importance of such a measurement is however highlighted by the respondents.

The head, hand and foot measurements are not directly used for the manufacturing of fashion garments. The manufacturing process for shoes differs completely from that of clothes, and could therefore constitute a separate study. These measurements were however included in order to make this study more complete. Therefore, not all the measurements will be discussed in detail but the focus will be more on those measurements that are necessary for the production of clothes.

Height (Infants – lying down) (146)

The measurement was used by two of the survey respondents and none experienced problems with the measurement. Of the 13 respondents interviewed, only one used this measurement.

International description of the measurement:

Only one international description was found:

- ✓ Measure from the top of the head to the soles of the feet while subject is lying down flat with legs extended (ASTM 1999).

Interview respondents' descriptions:

Respondent 3: *Top of head to the feet while child lies down.*

The description corresponds with the international description.

3.4 Head measurements

These measurements are not necessarily used for the manufacturing of fashion garments such as hats and caps, but also for any other form of headwear or protective headwear such as helmets and gas masks. It is also important to keep in mind that fashion headwear are made using a block or replica of the head. Patterns for fashion headwear are made according to the block and then used for production of the items. Some measurements are therefore necessary for the production of these blocks, and not for making the headwear as such.

Face length (148)

The measurement was used by two of the survey respondents, one respondent experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

- ✓ Distance from menton at the bottom of the chin to glabella on the brow ridge in mid-sagittal plane (Ergotech).

Interview respondents' descriptions:

Respondent 7: No description given.

Respondent 12: No description given.

No descriptions were given. This can only be explained as follows: that the respondents did not know how the measurement should be taken and therefore experience problems with the measurement. This measurement is more applicable to full-face helmets, although it might also be useful in the case of hooded garments.

Chin to nose bridge (Menton-sellion) (150)

Although none of the respondents used this measurement, one respondent indicated that they experienced problems with the measurement. Again the explanation for this could be that the measurement is not used by any of the companies because it is seen as a problem measurement. None of the 13 respondents interviewed indicated a problem with this measurement.

International description of the measurement:

Only one international description was found:

- ✓ The distance between the menton landmark at the bottom of the chin and the sellion landmark at the deepest point of the nasal root depression is measured with the teeth closed lightly together (Ergotech).

Chin to pit of neck (151)

The measurement was used by two of the survey respondents and two respondents experienced problems with the measurement. Both respondents that use the measurements were included for the interviews and one experienced problems with the measurement.

International description of the measurement:

No international description could be found.

Interview respondents' descriptions:

Respondent 3: No description given

Respondent 7: No description given.

The respondents were not sure how this measurement should be taken and this is the reason why problems are experienced. This dimension is also not readily available in the general size charts used by manufacturers.

Head width (cheekbone to cheekbone) (153)

The measurement was used by seven of the survey respondents and one of the respondents experienced problems with the measurement. Of the 13 respondents

interviewed, two indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

- ✓ The distance between the lateral points of the zygion (cheekbone) landmarks (Ergotech).

Interview respondents' descriptions:

Respondent 4: *Width of the face across the cheekbones.*

Respondent 7: No description given.

The description corresponds with the international description.

Inter-pupillary distance (155)

This measurement was not used by any of the survey respondents, although one of the survey respondents indicated that it was a problem measurement. None of the 13 respondents interviewed experienced problems with this measurement and no international description could be found.

Sagittal arch (156)

The measurement was used by three of the survey respondents and one of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

- ✓ Distance from glabella to nugal point over the rounding of the head (Ergotech).

Interview respondents' descriptions:

Respondent 4: No description given.

Respondent 12: No description given.

The respondents did not know how to take this measurement and this is probably the reason why problems are experienced.

Surface distance from above the ears across the top of the head (Bi-tragion coronal arch) (157)

Although only two of the survey respondents used this measurement, one of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, one indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

- ✓ The surface distance between the right and left tragion landmarks across the top of the head. The head is in the Frankfort plane (Ergotech).

Interview respondents' descriptions:

Respondent 2: *From above the ears over the top of the head.*

The description corresponds with the international description.

3.5 Hand measurements

As with the arc measurements, the hand measurements are used by only one of the survey respondents or not at all. All of them are however indicated as problem measurements, whether they are used or not. The explanation is that the measurements are probably not used because they are seen as problem measurements and therefore not accurate. The hand measurements are also not readily available in size charts, as pointed out by one of the respondents.

Hand thickness (159)

This measurement could assist the pattern maker when determining the minimum circumference at the wrist of fitted knitwear. It is important, especially in children's

and babies' garments, that the hand could pass comfortably through the sleeve opening. The measurement was used by two of the survey respondents and one of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

- ✓ The thickness of the right hand at metacarpal III joint, the fingers are held together in a straight plane. The middle finger is parallel to the long axis of the forearm (Ergotech).

Interview respondents' descriptions:

Respondent 3: No description given, but *would find these measurements interesting. "Things that would also be interesting are things like hands."*

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Palm length (160)

The measurement was used by two of the survey respondents and two of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and one company experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

- ✓ The distance between the interstylion line and the base of the 3rd metacarpal. The palm is open and held straight (Ergotech).

Interview respondents' descriptions:

Respondent 3: No description given, but *would find these measurements interesting.*

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Hand length (wrist to middle finger) (161)

The measurement was used by two of the survey respondents and two of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and one company experienced problems with the measurement.

International description of the measurement:

✓ The distance between the tip of the longest finger and the crease nearest the base of the right hand (UK Sizing).

Interview respondents' descriptions:

Respondent 3: No description given, but *would find these measurements interesting.*

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Wrist to index finger length (162)

The measurement was used by two of the survey respondents and one of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

✓ The distance between the stylion landmark on the right wrist and the tip of the right index finger. The fingers are aligned together in a straight line (Ergotech).

Interview respondents' descriptions:

Respondent 3: No description given, but *would find these measurements interesting.*

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Wrist to thumb tip length (163)

The measurement was used by two of the survey respondents and two of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and one experienced problems with the measurement.

International description of the measurement:

Only one international description was found.

- ✓ The horizontal distance between the stylion landmark on the right wrist and the tip of the right thumb. The thumb is adducted against the index finger and the hand is measured with the palm in a vertical plane (Ergotech).

Interview respondents' descriptions:

Respondent 3: No description given, but *would find these measurements interesting.*

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Thumb length (164)

The measurement was used by two of the survey respondents and one of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

- ✓ The distance between the distal point of the thumb and the webspace between the thumb and the index finger (Ergotech).

Interview respondents' descriptions:

Respondent 3: No description given, but *would find these measurements interesting.*

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Index finger length (165)

The measurement was used by two of the survey respondents and one of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

- ✓ The distance between the webspace and the distal point of index finger (Ergotech).

Interview respondents' descriptions:

Respondent 3: No description given, but *would find these measurements interesting.*

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Middle finger length (166)

The measurement was used by two of the survey respondents and one of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

- ✓ The distance between the webspace and the distal point of middle finger (Ergotech).

Interview respondents' descriptions:

Respondent 3: No description given, but *would find these measurements interesting.*

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Ring finger length (167)

The measurement was used by two of the survey respondents and one of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

- ✓ The distance between the webspace and the distal point of ring finger (Ergotech).

Interview respondents' descriptions:

Respondent 3: No description given, but *would find these measurements interesting.*

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Little finger length (168)

The measurement was used by two of the survey respondents and one of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

Only one international description was found.

- ✓ The distance between the webspace and the distal point of little finger (Ergotech).

Interview respondents' descriptions:

Respondent 3: No description given, but *would find these measurements interesting.*

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Hand width (169)

This measurement could also assist the pattern maker when determining the minimum circumference at the wrist of fitted knitwear. It is important, especially in children's and babies' garments, that the hand pass easily through the sleeve opening. The measurement was used by two of the survey respondents and two of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and one company experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

✓ Maximum width across knuckles with palm facing upwards (UK Sizing).

Interview respondents' descriptions:

Respondent 3: No description given, but *would find these measurements interesting.*

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Hand girth (170)

This measurement could also assist the pattern maker when determining the minimum circumference at the wrist of fitted knitwear. It is important, especially in children's and babies' garments, that the hand pass easily through the sleeve opening. The measurement was used by two of the survey respondents and two of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and one company experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

- ✓ Maximum circumference of the open right hand measured over the knuckles (UK Sizing).

Interview respondents' descriptions:

Respondent 3: No description given, but *would find these measurements interesting.*

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Hand girth, hand width and hand thickness should be considered together with wrist circumference, to ensure that the sleeve opening on knitwear are big enough for the hands to pass through easily and comfortably.

Thumb girth (171)

The measurement was used by one of the survey respondents and one of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, one indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

- ✓ The circumference of the thumb at the head of the proximal phalanx (Ergotech).

Interview respondents' descriptions:

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Index finger girth (172)

The measurement was used by one of the survey respondents and one of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, one indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

✓ The circumference of the proximal interphalangeal joint (Ergotech).

Interview respondents' descriptions:

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Middle finger girth (173)

The measurement was used by one of the survey respondents and one of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, one indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

✓ The circumference of the proximal interphalangeal joint (Ergotech).

Interview respondents' descriptions:

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Ring finger girth (174)

The measurement was used by one of the survey respondents and one of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, one indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

✓ The circumference of the proximal interphalangeal joint (Ergotech).

Interview respondents' descriptions:

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Little finger girth (175)

The measurement was used by one of the survey respondents and one of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, one indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

✓ The circumference of the proximal interphalangeal joint (Ergotech).

Interview respondents' descriptions:

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

It is clear that the respondents did not know how the hand measurements should be taken, but felt that it would be beneficial to have access to such information. The problem with the hand measurements is that they are not available in the size charts for the respondents to use and that is why so few of the survey respondents use them.

3.6 Foot measurements

Manufacturing of footwear differs in the sense that footwear is made according to a last. The same pattern cannot just be altered for different styles as is sometimes done with garment patterns. Different lasts are used for different types of shoes, for example closed shoes and sandals, and lasts also vary with regard to heel height. The measurements are therefore actually not used by the manufacturers of footwear but rather by the last manufacturers and they did not respond to the survey questionnaire.

Height of foot arch (176)

The measurement was used by nine of the survey respondents and two of the respondents experienced problems with the measurement. Although only 18% of the survey respondents used this measurement, 22,2% of the survey respondents using it experienced problems with the measurement. Of the 13 respondents interviewed, three indicated that they used the measurement and one company experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

- ✓ Distance between the highest point of the arch of the right foot and the ground (UK Sizing).

Interview respondents' descriptions:

Respondent 3: No description given

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Respondent 10: No description given. *The arch is a big problem. There is a big variation in measurements; some people have a high arch, some a low arch and some people haven't got an arch.*

It is clear that the respondents did not know how this measurement is taken. This is probably the reason why problems are experienced with the measurement.

Height of the big toe (177)

The measurement is used by eight of the survey respondents and one experienced problems with the measurement. Of the 13 respondents interviewed, four used the measurement and none experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

Distance between the highest level of the tip of the big toe on the right foot and the ground (UK Sizing).

Interview respondents' descriptions:

Respondent 5: *From the floor to the top of the big toe, straight.*

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Respondent 10: No description given. *Does not really know where the measurements must be taken. Suggests that I contact the SABS.*

Respondent 12: No description given.

The one description given does correspond with the international description. A number of respondents did not offer any description, which indicates their ignorance regarding how body measurements should be taken.

Toe height (178)

The measurement is used by eight of the survey respondents and none experienced problems with the measurement. Of the 13 respondents interviewed, three used the measurement and none experienced problems with the measurement.

International description of the measurement:

No international description could be found.

Interview respondents' descriptions:

Respondent 5: No description given.

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Respondent 10: No description given. *Does not really know where the measurements must be taken. Suggests that I contact the SABS.*

Ball height (179)

The measurement was used by six of the survey respondents and two of the respondents experienced problems with the measurement. Although only 12% of the survey respondents used this measurement, 33,3% of the survey respondents using it experienced problems with the measurement. Of the 13 respondents interviewed, three indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

- ✓ Although no international description could be found, the measurement was taken from a picture in the Technical Report EP-10 by Jeffrey and Thurstone (1955:6).

Interview respondents' descriptions:

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Respondent 10: No description given. *Does not really know where the measurements must be taken. Suggests that I contact the SABS.*

Respondent 12: No description given.

It is clear that the respondents did not know how this measurement is taken. This is probably the reason why problems are experienced with the measurement.

Plantar arch height (180)

The measurement was used by six of the survey respondents and two of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and one company experienced problems with the measurement.

International description of the measurement:

- ✓ Although no international description could be found, the measurement was taken from a picture in the Technical Report EP-10 by Jeffrey and Thurstone (1955:6).

Interview respondents' descriptions:

Respondent 3: No description given

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

It is clear that the respondents did not know how this measurement is taken. This is probably the reason why problems are experienced with the measurement.

Dorsal arch height (181)

The measurement was used by five of the survey respondents and three of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

- ✓ Although no international description could be found, the measurement was taken from a picture in the Technical Report EP-10 by Jeffrey and Thurstone (1955:6).

Interview respondents' descriptions:

Respondent 3: No description given

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

It is clear that the respondents did not know how this measurement is taken. This is probably the reason why problems are experienced with the measurement.

Outside ball height (182)

The measurement was used by six of the survey respondents and three of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, three indicated that they used the measurement and one company experienced problems with the measurement.

International description of the measurement:

- ✓ Although no international description could be found, the measurement was taken from a picture in the Technical Report EP-10 by Jeffrey and Thurstone (1955:6).

Interview respondents' descriptions:

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Respondent 10: No description given. *Does not really know where the measurements must be taken. Suggests that I contact the SABS.*

Respondent 12: No description given.

No descriptions were given. This is probably the reason why problems are experienced with the measurement.

Ankle length (183)

The measurement is used by five of the survey respondents and none experienced problems with the measurement. Of the 13 respondents interviewed, two used the measurement and none experienced problems with the measurement.

International description of the measurement:

No international description could be found.

Interview respondents' descriptions:

Respondent 3: No description given

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Posterior heel contour (184)

The measurement is used by six of the survey respondents and one of the respondents that use the measurement experienced problems with the measurement. Of the 13 respondents interviewed, one used the measurement and none experienced problems with the measurement.

International description of the measurement:

No international description could be found.

Interview respondents' descriptions:

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Ball length (heel to ball of foot) (186)

The measurement is used by six of the survey respondents and none experienced problems with the measurement. Of the 13 respondents interviewed, two used the measurement and none experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

- ✓ The distance from the back of the heel to the landmark at the first metatarsophalangeal protrusion on the ball of the right foot. The subject stands erect with the body weight evenly distributed on both feet (Ergotech).

Interview respondents' descriptions:

Respondent 5: *From the back of the heel to the ball of the foot.*

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

The description given by one respondent does not clearly state how the ball of the foot must be located and also does not refer to measuring the right foot.

Fifth toe length (187)

The measurement is used by three of the survey respondents and none experienced problems with the measurement. Of the 13 respondents interviewed, one used the measurement.

International description of the measurement:

No international description could be found.

Interview respondents' descriptions:

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Outside ball length (188)

The measurement is used by five of the survey respondents and none experienced problems with the measurement. Of the 13 respondents interviewed, two used the measurement and none experienced problems with the measurement.

International description of the measurement:

No international description could be found.

Interview respondents' descriptions:

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Respondent 12: No description given.

Outside ball length (diagonal) (189)

The measurement is used by four of the survey respondents and none experienced problems with the measurement. Of the 13 respondents interviewed, two used the measurement and none experienced problems with the measurement.

International description of the measurement:

No international description could be found.

Interview respondents' descriptions:

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Respondent 12: No description given.

Width of three forward toes (190)

The measurement is used by four of the survey respondents and none experienced problems with the measurement. Of the 13 respondents interviewed, two used the measurement and none experienced problems with the measurement.

International description of the measurement:

No international description could be found.

Interview respondents' descriptions:

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Respondent 10: No description given. *Does not really know where the measurements must be taken. Suggests that I contact the SABS.*

Foot width (diagonal) (191)

This measurement is used by 24% of the survey respondents and four of the survey respondents using it experienced problems with it. Of the 13 respondents interviewed, four indicated that they used the measurement and one company experienced problems with the measurement.

International description of the measurement:

No international description could be found.

Interview respondents' descriptions:

Respondent 3: No description given

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Respondent 10: No description given. *Does not really know where the measurements must be taken. Suggests that I contact the SABS.*

Respondent 12: No description given.

It is clear that the respondents did not know how this measurement is taken. This is probably the reason why problems are experienced with the measurement.

Foot width (ball width) (192)

This measurement is used by 24% of the survey respondents and three of the survey respondents using it experienced problems with it. Of the 13 respondents interviewed, three indicated that they used the measurement and one company experienced problems with the measurement.

International description of the measurement:

- ✓ The maximum breadth of the foot, between the lateral aspect of the protrusion of the large toe metacarpal to the lateral aspect of the protrusion of the metacarpal of the 5th toe. The subject stands erect with the body weight evenly distributed between both feet (Ergotech).
- ✓ With the subject standing barefoot, the distance from the one side of the foot to the other at the widest part at the bottom (ASTM 5219, 1999).

Interview respondents' descriptions:

Respondent 5: *Width of the foot at the ball of the foot.*

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Respondent 12: No description given.

Only one description was given and it corresponds with the international descriptions. Neither the respondent, nor the international descriptions indicate taking the measurement on the right foot. It is however advisable to continue taking the measurement on the same side if previous measurement were taken on the right side. The other respondents did not know how the measurement should be taken and this is probably the reason why problems are experienced with the measurement.

Width (centre line to medial border) (193)

The measurement is used by eight of the survey respondents and none experienced problems with the measurement. Of the 13 respondents interviewed, three used the measurement and none experienced problems with the measurement.

International description of the measurement:

No international description could be found.

Interview respondents' descriptions:

Respondent 3: No description given

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Respondent 10: No description given. *Does not really know where the measurements must be taken. Suggests that I contact the SABS.*

Width of instep (194)

The measurement was used by nine of the survey respondents and two of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

- ✓ Although no international description could be found, the measurement was taken from a picture in the Technical Report EP-10 by Jeffrey and Thurstone (1955:6).

Interview respondents' descriptions:

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Respondent 12: No description given.

It is clear that the respondents did not know how this measurement is taken. This is probably the reason why problems are experienced with the measurement.

Heel width (195)

The measurement is used by seven of the survey respondents and one experienced problems with the measurement. Of the 13 respondents interviewed, two used the measurement and none experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

- ✓ The maximum horizontal distance of the widest portion between the medial and lateral aspects of the heel. The subject stands erect with the body weight evenly distributed between the feet (Ergotech).

Interview respondents' descriptions:

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Respondent 10: No description given. *Does not really know where the measurements must be taken. Suggests that I contact the SABS.*

Girth of heel/Instep (heel-ankle girth) (196)

This measurement is not only useful in the manufacturing of shoes, but also for trousers. The measurement is important to determine the minimum circumference for trousers' hemline to allow the foot to pass through the trouser leg comfortably, especially for trousers styles with narrow tapered legs.

The measurement was used by seven of the survey respondents and two of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, three indicated that they used the measurement and one experienced problems with the measurement.

International description of the measurement:

- ✓ Widest circumference measured around the right back of the heel and diagonally over the instep (UK Sizing).
- ✓ The circumference of the right foot at the ankle and base of the heel is measured with a tape passing over the point at which the heel first contacts the surface and over the dorsal juncture of foot and leg landmark at the front of the ankle. The subject stands erect with the weight distributed evenly on both feet (Ergotech).
- ✓ With the subject standing barefoot, the distance around the foot from the point where the back of the heel contacts the floor and over the juncture of the foot and leg at the front of the ankle and back to the starting point (ASTM 5219, 1999).

The international descriptions correspond with each other, although one of the descriptions does not state that the measurement should be taken on the right foot.

Interview respondents' descriptions:

Respondent 3: No description given

Respondent 7: *Measured diagonally across the ankle with toes pointed.*

Respondent 12: No description given.

The description given does not correspond to the international descriptions because it states that the measurement must be taken with the toes pointed, and also no reference is made to whether the left or the right foot should be measured. Two of the international descriptions indicate that the measurement should be taken on the right side and that the foot is measured with the person standing barefoot. Not being clear about whether to measure with a flat foot or pointed toe is probably the reason why problems are experienced with the measurement.

Foot girth (ball of foot) (198)

This measurement is used by 26% of the survey respondents and four of the survey respondents using it experienced problems with it. Of the 13 respondents interviewed, five indicated that they used the measurement and one company experienced problems with the measurement.

International description of the measurement:

Only one international description was found:

- ✓ Circumference of the right foot measured over the 'knuckles' of the toes (UK Sizing).

Interview respondents' descriptions:

Respondent 3: No description given

Respondent 5: *Circumference around the ball of the foot, just behind the toes. Also called joint girth.*

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Respondent 10: No description given. *Does not really know where the measurements must be taken. Suggests that I contact the SABS.*

Respondent 12: No description given.

The description given corresponds with the international description. The majority of respondents however did not offer any descriptions. This indicates that they are experiencing problems with the measurement.

Angle line (199)

The measurement was used by four of the survey respondents and one of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

- ✓ Although no international description could be found, the measurement was taken from a picture in the Technical Report EP-10 by Jeffrey and Thurstone (1955:6).

Interview respondents' descriptions:

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available*.

Respondent 10: No description given. *Does not really know where the measurements must be taken. Suggests that I contact the SABS.*

It is clear that the respondents did not know how this measurement is taken. This is probably the reason why problems are experienced with the measurement.

Flare (ratio) (200)

The measurement was used by three of the survey respondents and two of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, one indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

- ✓ Although no international description could be found, the measurement was taken from a picture in the Technical Report EP-10 by Jeffrey and Thurstone

(1955:6). This is not an actual measurement, but a calculation given in the above-mentioned source.

Interview respondents' descriptions:

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

It is clear that the respondents did not know how this measurement is taken. This is probably the reason why problems are experienced with the measurement.

Proportion of sole in contact with ground (201)

This measurement was used by six of the survey respondents and two of the respondents experienced problems with the measurement. Of the 13 respondents interviewed, two indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

✓ Although no international description could be found, the measurement was taken from a picture in the Technical Report EP-10 by Jeffrey and Thurstone (1955:6).

Interview respondents' descriptions:

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

Respondent 10: No description given. *Does not really know where the measurements must be taken. Suggests that I contact the SABS.*

It is clear that the respondents did not know how this measurement is taken. This is probably the reason why problems are experienced with the measurement.

Lateral foot contour by template (202)

The measurement was used by four of the survey respondents and one of the respondents experienced problems with the measurement. Of the 13 respondents

interviewed, one indicated that they used the measurement and none experienced problems with the measurement.

International description of the measurement:

- ✓ Although no international description could be found, the measurement was taken from a picture in the Technical Report EP-10 by Jeffrey and Thurstone (1955:6).

Interview respondents' descriptions:

Respondent 7: No description given. Marked all measurements since *no information on hands and feet is available.*

It is clear that the respondents did not know how this measurement is taken. This is probably the reason why problems are experienced with this measurement.