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Basic human body measurements for technological design —

Part 3: Worldwide and regional design ranges for use in product standards

Définitions des mesures de base du corps humain pour la conception technologique —

Partie 3: Gammes de conception régionales et mondiales pour utilisation dans les normes de produits

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 159, *Ergonomics*, Subcommittee SC 3, *Anthropometry and biomechanics.*

ISO 7250 consists of the following parts, under the general title *Basic human body measurements for technological design*:

— *Part 1: Body measurement definitions and landmarks*

— *Part 2: Statistical summaries of body measurements from national populations*

— *Part 3: Worldwide and regional design values for use in ISO equipment standards*

Basic human body measurements for technological design —

Part 3: Worldwide and regional design ranges for use in product standards

1 Scope

This part of ISO 7250 provides worldwide and regional tables of design ranges for use with product standards for equipment design and safety that require ISO 7250 body measurement data input.

Anthropometric data for technological design are used and presented in many standards. However, there is currently no systematic way to update and revise those values in a timely manner, as the body sizes and variation of member body populations change with time. Further, the schedule of member body anthropometric surveys varies widely. Many industrial products are developed for regional or worldwide markets without a clear presentation of regional and worldwide ISO 7250 design ranges. Users of standards require the most appropriate body measurement values for their intended applications.

Together with ISO/TR 7250-2, which serves as a continuously updated data source for most current anthropometric data from individual member bodies, this part of ISO 7250 provides a periodically updated data source for worldwide and regional design ranges, with guidance on sex differences. This part of ISO 7250 is intended as the single source of anthropometric data for equipment design guidance in standards.

While there are sources for individual member body data in ISO/TR 7250-2, most standards do not use individual member body data for technological specification. This part of ISO 7250 is to be used whenever worldwide or regional anthropometric data are needed. In cases when there are no suitable measurements in this part of ISO 7250, the methods and justifications used in arriving at regional and worldwide values from the body measurement data of individual populations can be used with suitable measurement data.

The scope of this part of ISO 7250 is limited to the presentation of univariate design ranges of the type currently utilized in product standards (e.g. P1, P5, P95, and P99) and does not address shortcomings of using those values in multivariate designs. A separate standard on multivariate design is in preparation. In addition, this part of ISO 7250 does not address body measurements used in product standards that are not defined in ISO 7250-1. The methods used in developing this part of ISO 7250 do not take into account the population size or sampling methodology of the member bodies, so statistical values from a sparsely populated member body could set regional or worldwide upper or lower limits. The reader is referred to ISO/TR 7250-2 for details on sampling methods used in national surveys.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 7250-1, *Basic human body measurements for technological design — Part 1: Body measurement definitions and landmarks*

ISO/TR 7250-2, *Basic human body measurements for technological design — Part 2: Statistical summaries of body measurements from national populations*

3 Worldwide and regional design ranges

Design ranges presented in this part of ISO 7250 are directly related to ISO/TR 7250-2.

Design ranges are specified as smallest to largest 1st to 99th and 5th to 95th percentile value observed in national populations. Each percentile value in a design range comes from a single member body. Typically, product design requirements specify a smallest to largest range of values to be accommodated. However, some product standards specify medium size or midrange values, so midrange estimates are also provided here.

The worldwide ranges specified in this part of ISO 7250 are normative for product standards. However, some users of this part of 7250 may be developing products designed for a more focused, regional market. For this reason, a method is presented for creating regional design ranges from individual member body data presented in ISO/TR 7250-2. Examples of this process are shown in informative Annex A. For the anthropometric data used in deriving regional and worldwide ranges, the procedure and information for acquiring these data directly follow from the process described in ISO/TR 7250-2. The process of specifying design ranges defined in this part of ISO 7250 starts from the individual member body data presented in ISO/TR 7250-2.

Similarly, for many applications, user accommodation is maximized by considering male and female design dimensions separately. For example, maximum accommodation would be achieved by designing to a range that extends from the smallest 5th percentile value, male or female, to the largest 95th percentile value, male or female. Annex B shows the results of this procedure and should be used when the largest accommodation range is desired.

4 Procedures for establishing design ranges

4.1 Worldwide ranges

Anthropometric data are collected in many countries in the world. These anthropometric surveys vary markedly in quality, frequency, methodology, and purpose. In order to produce normative design ranges, it is critical to use anthropometric data that meet only the highest standards of representativeness and reliability. In addition, ISO standards are fundamentally a service for ISO member bodies. Therefore, the worldwide ranges presented in this part of ISO 7250 are derived from national populations of ISO member bodies presented in ISO/TR 7250-2. ISO/TR 7250-2 data are known to be consistent with ISO 7250-1 measurement definitions and protocols and ISO 15535 anthropometric database methods, and ISO/TR 7250-2 statistics have been reviewed and checked with member bodies for accuracy and reliability.

For some anthropometric dimensions, the population distribution is bi-modal by sex. This means that the male mean and female mean are separated. While the male and female distributions overlap, there are significant portions of the combined distribution that are totally male or totally female. Using a "total" 5th percentile value, therefore, may exclude 5 % of the total population but it may exclude 30 % of the female population. The effect is magnified when the sex distributions of the populations are significantly unequal, for example, in a military population which might be overwhelmingly male or in a nursing population which might be overwhelmingly female. When specific work forces are differentially male or differentially female, the "total" statistics may be significantly unrepresentative of a particular work force even if they accurately represent the national population. Using a pooled male–female population, P5 and P95 values for design for these situations will result in unequal burdens of disaccommodation between the sexes. In such cases, using separated male and female design values comes closer to achieving gender-parity in the final design.

The design ranges in Clause 5 contain male values, female values and "total" values. The sample sizes are listed so it is clear that different numbers of males and females were measured in the anthropometric surveys that are found in ISO/TR 7250-2. The sex ratios in the sample may or may not represent the sex ratios in the working age population of the member bodies contributing data. Using "total" statistics as design values may be justified in certain specific cases but in general, male and female design values

should be used separately in product or workspace design in order to ensure that both men and women are equally accommodated.

In Clause 5, the worldwide P1 value represents the smallest 1st percentile observed among all the member bodies with data presented in ISO/TR 7250-2. The worldwide P5 value represents the smallest 5th percentile observed among all the member bodies with data presented in ISO/TR 7250-2. The worldwide P95 value represents the largest 95th percentile observed among all the member bodies with data presented in ISO/TR 7250-2. The worldwide P99 value represents the largest 99th percentile observed among all the member bodies with data presented in ISO/TR 7250-2. Thus, the values in the tables are based on particular surveys and only provide estimates for particular populations. The statistical confidence in the more extreme percentiles, e.g. P1 and P99, is much lower than it is for percentiles closer to the mean.

In some cases, the smallest or largest percentile values in ISO/TR 7250-2 have been identified as either unusual or derived from body scan data not validated in accordance with ISO 20685. In such cases, a more reliable value may be chosen to set the worldwide design limit.

The midrange estimates in this part of ISO 7250 are calculated as the midpoints of the interval between the worldwide P5 and P95 estimates. The user is cautioned that these midrange estimates, while centrally located between the P5 and P95 estimates, are not equivalent to statistical medians. They may not represent medium-sized males or females in any particular population.

4.2 Regional ranges

Regional design ranges illustrated in Annex A are informative in nature. In general, regional ranges are derived from only the member body data presented in ISO/TR 7250-2. In the case of defining regional ranges for the European region, existing published CEN standards were used as a starting point and where individual European member body data in ISO/TR 7250-2 exceed the published CEN standard ranges, ISO/TR 7250-2 limits were used to form the new European regional ranges.

The regional P1 value represents the smallest 1st percentile observed among all the member bodies with data presented in ISO/TR 7250-2. The regional P5 value represents the smallest 5th percentile observed among all the member bodies with data presented in ISO/TR 7250-2. The regional P95 value represents the largest 95th percentile observed among all the member bodies with data presented in ISO/TR 7250-2. The regional P99 value represents the largest 99th percentile observed among all the member bodies with data presented in ISO/TR 7250-2.

5 Worldwide design ranges

5.1 Relationship between ISO/TR 7250-2 and this part of ISO 7250

ISO/TR 7250-2 can change at any time as new data emerge from member bodies. Unlike ISO/TR 7250-2, this part of ISO 7250 presents worldwide design ranges at a fixed point in time, reviewed periodically in accordance with ISO operating procedures. Member bodies with new anthropometric data are encouraged to submit their statistics to the Secretariat of ISO TC 159/SC 3 for inclusion in ISO/TR 7250-2.

5.2 Missing or sparse data

When suitable worldwide values are not available, the cell of the table is left blank. When data are available from only a single member body, this fact is noted in the table. When P1 and P99 values were unavailable, some member bodies have only submitted P5 and P95 values for ISO/TR 7250-2, from which the values in this part of ISO 7250 are set. Using the method described in 4.1, it is possible that the data from one member body set the P5 value, and data from another member body set the P1 value. This could occasionally cause the logical impossibility that the P1 value in this part of ISO 7250 is actually greater than the P5 value. Therefore, when such occasions arise, the P1 value has been eliminated from the design range table and noted on the table. The same situation can occur at the upper end of the distribution, with P95 and P99. In those cases also, the P99 value is eliminated.

5.3 Worldwide design range table (normative)

Table 1 presents the normative worldwide design ranges for ISO 7250-1 body dimensions. The ranges in Table 1 shall be used in product standards requiring anthropometric data.

Table 1 — Worldwide design ranges

No.	ISO 7250 Measurement			MB	N	P1	MB	N	P5	MB	N	P95	MB	N	P99	Midrange
		Age	Male	KR/NL	2613/564	18	KR	2613	19	JP	2885	63	JP	2885	65	41
			Female	KR/NL	2614/698	18	IT/KR	2011/2614	19	JP	2476	63	JP	2476	65	41
			Total	KR	5227	18	IT/KR	4021/5227	19	JP	5361	63	JP	5361	65	41
1	4.1.1	Body mass (weight) kg	Male	CN	11164	44	CN	11164	48	NL	595	117	NL	595	143	83
			Female	CN	11150	39	TH/CN	1170/11150	42	NL/US[a]	679/1261	103	US	1261	141	73
			Total	JP	5338	41	JP	5338	44	KE	207	95	KE	207	108	70
2	4.1.2	Stature (body height)	Male	KE	133	1536	TH	1246	1576	NL	563	1959	NL	563	2054	1768
			Female	IT	2011	1443	TH	1170	1467	NL	679	1799	NL	679	1864	1633
			Total	IT/JP	4021/5342	1463	JP	5342	1501	KE	207	1837	KE	207	1869	1669
3	4.1.3	Eye height	Male	CN	11164	1436	TH	1246	1462	NL	558	1842	NL	558	1916	1652
			Female	CN	11150	1337	TH	1170	1353	NL	691	1689	NL	691	1749	1521
			Total	JP	5337	1352	JP	5337	1392	KE	207	1729	KE	207	1769	1560
4	4.1.4	Shoulder height	Male	CN	11164	1244	CN	11164	1281	NL	542	1625	NL	542	1682	1453
			Female	JP	2463	1151	JP	2463	1182	KE	74	1480	NL	587	1529	1331
			Total	JP	5342	1166	JP	5342	1201	KE	207	1540	KE	207	1587	1371
5	4.1.5	Elbow height	Male	CN	11164	925	TH	1246	953	NL	562	1239	NL	562	1296	1096
			Female	KE	74	811	JP	2459	889	NL	685	1126	NL	685	1181	1008
			Total	JP	5332	874	JP	5332	903	IT	3997	1152	IT	3997	1195	1028
6	4.1.6	Iliospinal height	Male	KE	132	780	KR	2606	832	KE	132	1027	KE	132	1101	929
			Female	JP	2462	748	JP	2462	774	KE	73	970	KE	73	1017	872
			Total	KR	5219	760	JP	5341	788	KE	205	1009	KE	205	1087	899
7	4.1.7	Crotch height	Male	KR	2613	677	JP/KR	2878/2613	707	NL	588	933	NL	588	1014	820
			Female	JP	2462	621	JP	2462	645	NL	674	876	NL	674	910	761
			Total	JP	5340	632	KR	5224	659	IT	3967	899	IT	3967	935	779

CN = China; DE = Germany; IT = Italy; JP = Japan; KE = Kenya; KR = Republic of Korea; TH = Thailand; NL = Netherlands; US = United States

[a] Definition is different from ISO 7250-1 or substituted.

[b] Scan-extracted.

[c] 1st or 99th percentile eliminated (see text in 5.2).

Table 1 *(continued)*

No.	ISO 7250 Measurement			MB	N	P1	MB	N	P5	MB	N	P95	MB	N	P99	Midrange
8	4.1.8	Tibial height	Male	JP	2878	376	JP	2878	387	IT	1991	511	IT	1991	538	449
			Female	JP	2463	342	JP	2463	354	KE	74	490	KE	74	503	422
			Total	JP	5341	347	JP	5341	362	IT/KE	3961/206	500	IT	3961	526	431
9	4.1.9	Chest depth, standing	Male	JP	2876	[c]	TH	1246	157	DE	0	270	KE	130	316	214
			Female	IT	2004	138	JP/TH	2452/1170	149	KE	74	265	KE	74	306	207
			Total	JP	5328	143	JP	5328	153	KE	204	266	KE	204	316	209
10	4.1.10	Body depth, standing	Male	KR	2607	171	KR	2607	186	DE	0	380	KE	127	391	283
			Female	JP	2449	175	JP	2449	185	DE	0	345	KE	74	350	265
			Total	KR	5218	176	KR	5218	190	KE	201	345	KE	201	385	268
11	4.1.11	Chest breadth, standing	Male	CN	11164	242	CN	11164	253	KE	128	361	KE	128	372	307
			Female	KE	74	215	TH	1170	232	KE	74	370	KE	74	380	301
			Total	JP	5327	230	JP	5327	239	KE	202	365	KE	202	376	302
12	4.1.12	Hip breadth, standing	Male	CN	11164	273	CN	11164	282	KE	127	387	KE	127	405	334
			Female	CN	11150	275	CN	11150	290	KE	74	423	KE	74	434	357
			Total	KE	201	286	KE	201	300	KE	201	407	KE	201	431	354
13	4.2.1	Sitting height (erect)	Male	KE	132	767	KE	132	780	NL	589	1012	NL	589	1043	896
			Female	KE	74	709	KE	74	735	NL	677	943	NL	677	973	839
			Total	KE	206	721	KE	206	750	KR	5226	962	KR	5226	989	856
14	4.2.2	Eye height, sitting	Male	KE	132	647	KE	132	670	NL	594	892	NL	594	923	781
			Female	KE	74	595	KE	74	633	NL	676	830	NL	676	856	732
			Total	KE	206	611	KE	206	646	KR	5226	846	KR	5226	869	746
15	4.2.3	Cervicale height, sitting	Male	KE	127	543	KE	127	566	KR	2613	718	KR	2613	736	642
			Female	KE	74	514	KE	74	523	KR	2614	664	IT	1970	685	594
			Total	KE	201	515	KE	201	531	KR	5227	709	KR	5227	730	620

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[c] 1st or 99th percentile eliminated (see text in 5.2).

Table 1 *(continued)*

No.	ISO 7250 Measurement			MB	N	P1	MB	N	P5	MB	N	P95	MB	N	P99	Midrange
16	4.2.4	Shoulder height, sitting	Male	KE	130	500	KE	130	510	NL	590	688	NL	590	725	599
			Female	KE	74	480	KE	74	483	NL	675	642	NL	675	670	563
			Total	KE	204	480	KE	204	500	KR	5226	630	IT	3817	651	565
17	4.2.5	Elbow height, sitting	Male	KE	131	135	KE	131	148	NL	590	300	NL	590	328	224
			Female	KE	74	150	KE	74	159	NL	664	293	NL	664	321	226
			Total	KE	205	140	KE	205	150	KR	5224	292	IT	3988	312	221
18	4.2.6	Shoulder-elbow length	Male	IT	1950	277	IT	1950	288	NL	555	415	NL	555	434	352
			Female	IT	1922	259	IT	1922	270	NL	683	378	KE	74	398	324
			Total	IT	3871	262	IT	3871	275	KE	205	404	KE	205	425	340
19	4.2.7	Elbow-wrist length	Male	IT	1899	204	IT	1899	213	KE	130	338	KE	130	407	275
			Female	IT	1575	200	IT	1575	202	KE	74	314	KE	74	333	258
			Total	IT	3472	200	IT	3472	204	KE	204	330	KE	204	375	267
20	4.2.8	Shoulder (biacromial) breadth	Male	KE	127	232	KE	127	279	NL	542	456	NL	542	472	367
			Female	KE	72	254	KE	72	292	NL/US[b]	586/1257	412	US[b]	1257	429	352
			Total	KE	199	234	KE	199	284	IT	3987	425	KE	199	445	354
21	4.2.9	Shoulder (bideltoid) breadth	Male	KE	129	360	KE	129	387	US	1119	550	US	1119	592	469
			Female	CN	11150	347	TH	1170	362	KE	73	498	US	1261	555	430
			Total	IT	3989	359	IT	3989	375	KE	202	508	KE	202	544	441
22	4.2.10	Elbow-to-elbow breadth	Male	JP	2870	352	JP/CN	2870/11164	371	IT	2006	571	IT	2006	594	471
			Female	JP	2459	307	JP	2459	322	DE	0	555	IT	1998	570	439
			Total	JP	5329	314	JP	5329	332	IT	4004	558	IT	4004	578	445
23	4.2.11	Hip breath, sitting	Male	CN	11164	284	CN	11164	295	NL	589	438	US[a]	1117	483	366
			Female	IT	1995	292	TH/CN	1170/11150	310	US[a]	1259	501	US[a]	1259	557	406
			Total	IT	3984	288	IT	3984	308	KE	204	453	KE	204	472	381

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Table 1 *(continued)*

No.	ISO 7250 Measurement			MB	N	P1	MB	N	P5	MB	N	P95	MB	N	P99	Midrange
24	4.2.12	Lower leg length (popliteal height)	Male	KR	2612	347	KR	2612	365	NL	181	538	NL	181	556	452
			Female	KR	2614	318	KR	2614	333	NL	207	483	IT	1999	496	408
			Total	KR	5226	324	KR	5226	340	IT	3993	501	IT	3993	525	421
25	4.2.13	Thigh clearance	Male	CN	11164	103	CN	11164	112	KE	132	185	KE	132	196	148
			Female	IT	1998	101	IT	1998	110	KE	74	190	KE	74	241	150
			Total	IT	4001	102	IT	4001	112	KE	206	190	KE	206	200	151
26	4.2.14	Knee height	Male	JP	2868	440	JP/CN	2868/11164	456	NL	584	617	NL	584	661	537
			Female	JP	2453	405	JP	2453	418	KE	73	570	KE	73	590	494
			Total	JP	5321	410	JP	5321	427	KE	204	591	KE	204	610	509
27	4.2.15	Abdominal depth, sitting	Male	KR	2603	170	KR	2603	184	NL	181	349	NL	181	398	266
			Female	IT	1856	154	KR	2612	169	NL	207	358	NL	207	395	264
			Total	KR	5215	160	KR	5215	174	KE	204	337	KE	204	370	255
28	4.2.16	Thorax depth at the nipple	Male	KR	2613	173	TH	1246	179	KE	131	280	KE	131	294	230
			Female	CN	11150	159	CN	11150	170	KE	74	330	KE	74	369	250
			Total	JP	5326	170	JP	5326	181	KE	205	310	KE	205	335	246
29	4.2.17	Buttock - abdomen depth sitting	Male	JP	2874	172	TH	1246	181	KE	127	330	KE	127	354	256
			Female	JP	2452	160	JP	2452	173	KE	74	347	KE	74	392	260
			Total	JP	5326	164	JP	5326	177	KE	201	340	KE	201	370	259
30	4.3.1	Hand length	Male	CN	11164	164	CN	11164	170	NL	595	221	NL	595	232	196
			Female	CN	11150	154	CN	11150	159	NL	679	201	US	1260	209	180
			Total	IT/KR	3788/5224	158	KR	5224	164	KE	206	210	KE	206	218	187
31	4.3.2	Palm length perpendicular	Male	KR	2612	94	KE	131	96	JP/TH	2875/1246	123	JP	2875	127	110
			Female	KR	2614	88	DE/KR	0/2614	92	JP/KE	2455/74	114	JP	2455	118	103
			Total	KR	5226	89	KR	5226	93	JP	5330	121	JP	5330	126	107

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[a] Definition is different from ISO 7250-1 or substituted.

[b] Scan-extracted.

[c] 1st or 99th percentile eliminated (see text in 5.2).

Table 1 *(continued)*

No.	ISO 7250 Measurement			MB	N	P1	MB	N	P5	MB	N	P95	MB	N	P99	Midrange
32	4.3.3	Hand breadth with metacarpals	Male	JP/CN	2873/11164	73	JP/TH/CN	2873/1246/11164	76	IT	1944	110	IT	1944	112	93
			Female	JP	2456	66	TH	1170	66	IT	1678	90	KE	73	94	78
			Total	JP	5329	67	JP	5329	69	IT	3622	108	IT	3622	110	89
33	4.3.4	Index finger length	Male	KR/CN	2610/11164	60	KR/CN	2610/11164	63	TH	1246	85	KE	133	88	74
			Female	KR	2614	56	KR	2614	59	KE	74	80	KE	74	87	70
			Total	KR	5224	57	KR	5224	60	KE	207	82	KE	207	89	71
34	4.3.5	Index finger breadth, proximal	Male	IT/JP/KR	990/2873/2611	16	IT/JP/KR	990/2873/2611	17	KE	130	24	KE	130	26	21
			Female	IT/JP	1003/2456	14	IT/JP/KR	1003/2456/2614	15	KE	73	22	KE	73	24	19
			Total	IT	1993	14	IT/JP	1993/5329	15	KE	203	24	KE	203	26	20
35	4.3.6	Index finger breadth, distal	Male	JP	2871	13	JP/KR	2871/2611	14	NL	181	21	KE	130	22	18
			Female	JP/NL	2454/207	12	JP/KR	2454/2614	13	KE/TH	72/207	19	NL	207	20	16
			Total	JP	5325	12	JP	5325	13	KE	202	20	KE	202	22	17
36	4.3.7	Foot length	Male	CN	11164	223	TH	1246	229	NL	594	296	NL	594	325	262
			Female	KR	2613	206	TH	1170	210	KE	74	270	KE	74	281	240
			Total	KR	5225	210	KR	5225	217	KE	206	284	KE	206	298	251
37	4.3.8	Foot breadth	Male	IT	1989	84	IT/CN	1989/11164	88	NL	542	116	NL	542	123	102
			Female	US[c]	1258	73	US[c]/CN	1258/11150	81	NL	584	107	NL	584	113	94
			Total	IT/KE	3912/206	80	IT	3912	83	KE	206	109	KE	206	117	96
38	4.3.9	Head length	Male	CN	11164	168	KR/CN	2613/11164	173	KE	132	213	KE	132	218	193
			Female	CN	11150	[c]	TH	1170	160	KE	74	210	KE	74	213	185
			Total	KR	5223	163	KR	5223	167	KE	206	211	KE	206	218	189
39	4.3.10	Head breadth	Male	IT	2004	136	IT	2004	141	JP	2873	173	JP	2873	178	157
			Female	IT	1961	130	IT	1961	134	JP	2455	164	KE	74	167	149
			Total	IT	3965	132	IT	3965	136	JP	5328	171	JP	5328	176	154

CN = China; DE = Germany; IT = Italy; JP = Japan; KE = Kenya; KR = Republic of Korea; TH = Thailand; NL = Netherlands; US = United States

[a] Definition is different from ISO 7250-1 or substituted.

[b] Scan-extracted.

[c] 1st or 99th percentile eliminated (see text in 5.2).

Table 1 *(continued)*

No.	ISO 7250 Measurement			MB	N	P1	MB	N	P5	MB	N	P95	MB	N	P99	Midrange
40	4.3.11	Face length (nasion-menton)	Male	KE	133	99	KE	133	104	NL	590	135	KR	2610	141	119
			Female	KE	73	[c]	DE	0	95	KR	2613	126	KE	73	133	111
			Total	KE	206	96	KE	206	102	JP	5337	131	KR	5223	138	117
41	4.3.12	Head circumference	Male	KE	133	424	TH	1246	529	KE	133	610	KE	133	620	570
			Female	KE	74	482	TH	1170	515	KE	74	620	KE	74	625	568
			Total	KE	207	394	KR	5223	530	KE	207	610	KE	207	625	570
42	4.3.13	Sagittal arc	Male	KE	133	312	KE	133	318	TH	1246	420	JP	2875	429	369
			Female	KR	2613	295	KR	2613	308	JP	2450	403	JP	2450	413	356
			Total	KR	5224	299	KR	5224	313	JP	5325	414	JP	5325	426	364
43	4.3.14	Bitragion arc	Male	KE	133	325	KE	133	332	TH	1246	410	KR	2612	418	371
			Female	CN	11150	318	DE	0	320	KE	73	394	KE	73	410	357
			Total	KE	206	325	KE	206	334	KR	5224	402	KR	5224	413	368
44	4.4.1	Wall-acromion distance	Male	KR	2611	59	KR	2611	65	KE	128	177	KE	128	188	121
			Female	JP	2459	55	JP	2459	64	KE	72	160	KE	72	174	112
			Total	JP	5336	57	JP/KR	5336/5220	67	KE	200	168	KE	200	186	118
45	4.4.2	Grip reach: forward reach	Male	KR	2608	594	KR	2608	621	KE	132	840	KE	132	884	731
			Female	JP	2449	565	JP	2449	588	KE	73	809	KE	73	864	699
			Total	JP	5316	575	JP	5316	599	KE	205	831	KE	205	885	715
46	4.4.3	Elbow-grip length	Male	KR	2610	288	KR	2610	300	KE	129	428	KE	129	449	364
			Female	KR	2611	264	TH	1170	268	KE	73	410	KE	73	421	339
			Total	KR	5221	270	KR	5221	281	KE	202	423	KE	202	445	352
47	4.4.4	Fist (grip axis) height	Male	KE	130	644	KE	130	660	NL	181	879	NL	181	930	769
			Female	KE	74	620	KE	74	633	NL	207	816	KE	74	839	725
			Total	KE	204	630	KE	204	646	JP/KR	5331/5220	802	JP	5331	831	724

CN = China; DE = Germany; IT = Italy; JP = Japan; KE = Kenya; KR = Republic of Korea; TH = Thailand; NL = Netherlands; US = United States

[a] Definition is different from ISO 7250-1 or substituted.

[b] Scan-extracted.

[c] 1st or 99th percentile eliminated (see text in 5.2).

Table 1 *(continued)*

No.	ISO 7250 Measurement			MB	N	P1	MB	N	P5	MB	N	P95	MB	N	P99	Midrange
48	4.4.5	Forearm-fingertip length	Male	KR	2613	402	KR	2613	416	KE	129	531	NL	181	556	474
			Female	KR	2612	369	JP	2452	382	KE	73	504	KE	73	532	443
			Total	KR	5225	374	JP/KR	5320/5225	390	KE	202	530	KE	202	540	460
49	4.4.6	Buttock-popliteal length (seat depth)	Male	KR	2613	406	TH	1246	416	NL	181	565	NL	181	584	490
			Female	CN	11150	388	CN	11150	401	KE	60	570	KE	60	609	486
			Total	KR	5227	398	KR	5227	414	KE	160	560	KE	160	587	487
50	4.4.7	Buttock-knee length	Male	CN	11164	499	CN	11164	515	NL	589	703	NL	589	736	609
			Female	CN	11150	481	CN	11150	495	NL	678	664	US[a]	1260	695	580
			Total	JP	5323	489	JP	5323	504	KE	202	660	KE	202	690	582
51	4.4.8	Neck circumference	Male	KE	132	317	KE	132	330	TH	1246	440	KE	132	449	385
			Female	KE	74	283	JP	2462	291	KR/TH	2613/1170	410	KR	2613	426	351
			Total	JP	5342	287	JP	5342	296	KE	206	410	KE	206	445	353
52	4.4.9	Chest circumference	Male	KE	132	745	TH	1246	790	NL	594	1225	US[a]	1119	1354	1008
			Female	IT	1985	665	IT	1985	705	NL	679	1249	US[a]	1261	1374	977
			Total	IT	3950	680	IT	3950	730	KE	206	1094	IT	3950	1160	912
53	4.4.10	Waist circumference	Male	CN	11154	604	CN	11154	632	IT	1978	1059	IT	1978	1160	846
			Female	CN	11150	561	CN	11150	590	IT	1973	1010	IT	1973	1110	800
			Total	JP/KR	5338/5227	597	JP	5338	629	IT	3952	1040	IT	3952	1120	834
54	4.4.11	Wrist circumference	Male	KE	133	143	KE	133	149	KE	133	190	KE	133	198	170
			Female	KR	2613	132	TH	1170	135	KE	74	185	KE	74	191	160
			Total	KR	5226	133	KR	5226	139	KE	207	190	KE	207	195	165
55	4.4.12	Thigh circumference	Male	KE	129	420	KE	129	440	TH	1246	660	JP	2878	684	550
			Female	JP	2462	451	TH	1170	465	KE	71	720	KE	71	783	593
			Total	KE	200	420	KE	200	450	KE	200	695	KE	200	740	573

CN = China; DE = Germany; IT = Italy; JP = Japan; KE = Kenya; KR = Republic of Korea; TH = Thailand; NL = Netherlands; US = United States

[a] Definition is different from ISO 7250-1 or substituted.

[b] Scan-extracted.

[c] 1st or 99th percentile eliminated (see text in 5.2).

Table 1 *(continued)*

No.	ISO 7250 Measurement			MB	N	P1	MB	N	P5	MB	N	P95	MB	N	P99	Midrange
56	4.4.13	Calf circumference	Male	KE	131	299	KE	131	307	JP	2877	422	KE	131	464	364
			Female	KR	2613	290	TH	1170	300	KE	74	416	KE	74	456	358
			Total	KR	5226	294	KE/KR	205/5226	312	KE	205	416	KE	205	469	364

CN = China; DE = Germany; IT = Italy; JP = Japan; KE = Kenya; KR = Republic of Korea; TH = Thailand; NL = Netherlands; US = United States

[a] Definition is different from ISO 7250-1 or substituted.

[b] Scan-extracted.

[c] 1st or 99th percentile eliminated (see text in 5.2).

Annex A
(informative)

A.1 There are occasionally business reasons to develop products for a more focused, regional market. In this Annex, a method for creating regional design ranges from individual member body data presented in ISO/TR 7250-2 is illustrated. Two examples are presented here: one is Europe, where anthropometric standards are used to help show conformity with European legislation; the other is Asia, since Asian markets are among the fastest growing in the world. Note that regional design ranges are informative in nature.

In general, regional ranges should be derived from only the member body data presented in ISO/TR 7250-2 for reasons described in 4.1. In the case of defining regional ranges for the European region, existing CEN and ISO standards were used as a starting point (e.g. EN 547-3:1997, ISO 14738:2002, ISO 15534-3:2000). Where individual European member body data in ISO/TR 7250-2 exceed the published CEN standard ranges, the ISO/TR 7250-2 limits were used to update the European design ranges.

At this time, European data are available only for Germany, Italy, and the Netherlands. It is possible that these example design ranges will need to be extended when anthropometric data from other European member bodies are submitted for inclusion in ISO/TR 7250-2.

Table A.1 — Example of regional design ranges for the European region

No.	ISO 7250 measurement			Country	N	P1	Country	N	P5	Country	N	P95	Country	N	P99	Midpoint
		Age	Male	NL	564	18	NL	564	19	NL	564	60	NL	564	64	40
			Female	NL	698	18	IT	2011	19	IT	2011	60	NL	698	64	40
			Total	IT	4021	19	IT	4021	19	IT	4021	60	IT	4021	64	40
1	4.1.1	Body mass (weight) kg	Male	IT	1974	54	IT	1974	60	NL	595	117	NL	595	143	89
			Female	IT	1980	43	IT	1980	48	NL	679	103	NL	679	119	76
			Total	IT	3954	45	IT	3954	50	IT	3954	83	IT	3954	96	67
2	4.1.2	Stature (body height)	Male	IT	2011	1563	IT	2011	1601	NL	563	1959	IT	2011	2054	1780
			Female	IT	2011	1443	IT	2011	1490	NL	679	1799	IT	2011	1864	1645
			Total	IT	4021	1463	IT	4021	1512	IT	4021	1806	IT	4021	1862	1659
3	4.1.3	Eye height	Male	NL	558	1488	DE		1530	NL	558	1842	NL	558	1916	1686
			Female	NL	691	1397	DE		1430	NL	691	1689	NL	691	1749	1560
			Total													
4	4.1.4	Shoulder height	Male	IT	1919	1303	IT	1919	1323	NL	542	1625	IT	1919	1682	1474
			Female	IT	1990	1166	IT	1990	1210	NL	587	1477	IT	1990	1529	1344
			Total	IT	3909	1187	IT	3909	1232	IT	3909	1485	IT	3909	1535	1359
5	4.1.5	Elbow height	Male	NL	562	965	IT	2002	1004	NL	562	1239	IT	2002	1296	1122
			Female	IT	1995	888	IT	1995	925	NL	685	1126	IT	1995	1181	1026
			Total	IT	3997	903	IT	3997	941	IT	3997	1152	IT	3997	1195	1047
6	4.1.6	Iliospinal height	Male													
			Female													
			Total													
7	4.1.7	Crotch height	Male	NL	588	696	NL	588	743	NL	588	933	NL	588	1014	838
			Female	NL	674	624	DE		689	NL	674	876	NL	674	910	783
			Total	IT	3997	671	IT	3997	704	IT	3997	899	IT	3997	935	802
8	4.1.8	Tibial height	Male	IT	1991	397	IT	1991	411	IT	1991	511	IT	1991	538	461
			Female	IT	1970	373	IT	1970	386	IT	1970	480	IT	1970	497	433
			Total	IT	3961	378	IT	3961	395	IT	3961	500	IT	3961	526	448

DE = Germany; IT = Italy; NL= Netherlands

[a] 1st or 99th percentile eliminated (see text in 5.2).

Table A.1 *(continued)*

No.	ISO 7250 measurement			Country	N	P1	Country	N	P5	Country	N	P95	Country	N	P99	Midpoint
9	4.1.9	Chest depth, standing	Male	IT	2006	166	IT	2006	180	DE		270	IT	2006	277	225
			Female	IT	2004	138	IT	2004	152	DE		235	IT	2004	271	194
			Total	IT	4010	144	IT	4010	158	IT	4010	250	IT	4010	275	204
10	4.1.10	Body depth, standing	Male				DE		260	DE		380				320
			Female				DE		245	DE		345				295
			Total													
11	4.1.11	Chest breadth, standing	Male													
			Female													
			Total													
12	4.1.12	Hip breadth, standing	Male				DE		340	DE		385				363
			Female				DE		340	DE		400				370
			Total													
13	4.2.1	Sitting height (erect)	Male	IT	1986	804	IT	1986	820	NL	589	1012	NL	589	1043	916
			Female	IT	2005	747	IT	2005	775	NL	677	943	NL	677	973	859
			Total	IT	3991	758	IT	3991	787	IT	3991	934	IT	3991	966	861
14	4.2.2	Eye height, sitting	Male			[a]	DE		740	NL	594	892	NL	594	923	816
			Female			701	DE		705	NL	676	830	NL	676	856	768
			Total													
15	4.2.3	Cervicale height, sitting	Male	IT	1976	563	IT	1976	586	IT	1976	702	IT	1976	730	644
			Female	IT	1970	529	IT	1970	550	IT	1970	659	IT	1970	685	605
			Total	IT	3947	536	IT	3947	561	IT	3947	690	IT	3947	718	626
16	4.2.4	Shoulder height, sitting	Male	IT	1893	501	IT	1893	520	NL	590	688	NL	590	725	604
			Female	IT	1924	484	IT	1924	501	NL	675	642	NL	675	670	572
			Total	IT	3817	490	IT	3817	507	IT	3817	620	IT	3817	651	564
17	4.2.5	Elbow height, sitting	Male	IT	2000	164	IT	2000	186	NL	590	300	NL	590	328	243
			Female	IT	1988	170	DE		185	NL	664	293	NL	664	321	239
			Total	IT	3988	167	IT	3988	188	IT	3988	288	IT	3988	312	238

DE = Germany; IT = Italy; NL= Netherlands

[a] 1st or 99th percentile eliminated (see text in 5.2).

Table A.1 *(continued)*

No.	ISO 7250 measurement			Country	N	P1	Country	N	P5	Country	N	P95	Country	N	P99	Midpoint
18	4.2.6	Shoulder-elbow length	Male	IT	1950	277	IT	1950	288	NL	595	415	NL	595	434	352
			Female	IT	1922	259	IT	1922	270	NL	683	378	NL	683	389	324
			Total	IT	3871	262	IT	3871	275	IT	3871	351	IT	3871	375	313
19	4.2.7	Elbow-wrist length	Male	IT	1899	204	IT	1899	213	IT	1899	282	IT	1899	310	248
			Female	IT	1575	200	IT	1575	202	IT	1575	253	IT	1575	279	228
			Total	IT	3472	200	IT	3472	204	IT	3472	276	IT	3472	299	240
20	4.2.8	Shoulder (biacromial) breadth	Male	IT	2005	325	IT	2005	344	NL	542	456	NL	542	472	400
			Female	IT	1981	291	IT	1981	308	NL	586	412	NL	586	427	360
			Total	IT	3987	299	IT	3987	317	IT	3987	425	IT	3987	443	371
21	4.2.9	Shoulder (bideltoid) breadth	Male	IT	2001	404	IT	2001	421	DE		525	NL	590	564	473
			Female	IT	1988	353	IT	1988	368	NL	678	490	NL	678	522	429
			Total	IT	3989	359	IT	3989	375	IT	3989	491	IT	3989	510	433
22	4.2.10	Elbow-to-elbow breadth	Male	IT	2006	379	DE		415	IT	2006	571	IT	2006	594	493
			Female	IT	1998	338	IT	1998	372	DE		555	IT	1998	570	464
			Total	IT	4004	348	IT	4004	383	IT	4004	558	IT	4004	578	471
23	4.2.11	Hip breath, sitting	Male	IT	1989	285	IT	1989	305	NL	589	438	NL	589	465	371
			Female	IT	1995	292	IT	1995	312	NL	677	487	NL	677	523	399
			Total	IT	3984	288	IT	3984	308	IT	3984	410	IT	3984	450	359
24	4.2.12	Lower leg length (popliteal height)	Male	IT	1994	399	DE		410	NL	181	538	NL	181	556	474
			Female	IT	1999	342	IT	1999	362	NL	207	483	NL	207	496	423
			Total	IT	3993	350	IT	3993	371	IT	3993	501	IT	3993	525	436
25	4.2.13	Thigh clearance	Male	IT	2003	104	IT	2003	116	DE		180	NL	181	189	148
			Female	IT	1998	101	IT	1998	110	DE		175	NL	207	184	143
			Total	IT	4001	102	IT	4001	112	IT	4001	160	IT	4001	172	136
26	4.2.14	Knee height	Male	IT	2007	464	IT	2007	486	NL	584	617	NL	584	661	552
			Female	IT	2005	412	IT	2005	439	NL	664	560	NL	664	578	500
			Total	IT	4012	425	IT	4012	448	IT	4012	573	IT	4012	596	510

DE = Germany; IT = Italy; NL= Netherlands

[a] 1st or 99th percentile eliminated (see text in 5.2).

Table A.1 *(continued)*

No.	ISO 7250 measurement			Country	N	P1	Country	N	P5	Country	N	P95	Country	N	P99	Midpoint
27	4.2.15	Abdominal depth, sitting	Male	IT	1881	180	IT	1881	194	NL	181	349	NL	181	398	271
			Female	IT	1856	154	IT	1856	175	NL	207	358	NL	207	395	267
			Total	IT	3737	161	IT	3737	181	IT	3737	314	IT	3737	350	248
28	4.2.16	Thorax depth at the nipple	Male													
			Female													
			Total													
29	4.2.17	Buttock - abdomen depth sitting	Male													
			Female													
			Total													
30	4.3.1	Hand length	Male	IT	1906	168	DE/IT	- /1906	175	NL	595	221	NL	595	232	198
			Female	IT	1882	155	DE		162	NL	679	201	NL	679	206	181
			Total	IT	3788	158	IT	3788	165	IT	3788	205	IT	3788	210	185
31	4.3.2	Palm length perpendicular	Male				DE		104	DE		121				113
			Female				DE		92	DE		108				100
			Total													
32	4.3.3	Hand breadth with meta-carpals	Male	IT	1944	76	IT	1944	79	IT	1944	110	IT	1944	112	95
			Female	IT	1678	67	IT	1678	70	IT	1678	90	IT	1678	91	80
			Total	IT	3622	68	IT	3622	71	IT	3622	108	IT	3622	110	90
33	4.3.4	Index finger length	Male				DE		68	DE		83				76
			Female				DE		62	DE		77				70
			Total									0				0
34	4.3.5	Index finger breadth, proximal	Male	IT	990	16	IT	990	17	DE		23	IT	990	23	20
			Female	IT	1003	14	IT	1003	15	DE		21	IT	1003	21	18
			Total	IT	1993	14	IT	1993	15	IT	1993	21	IT	1993	22	18
35	4.3.6	Index finger breadth, distal	Male	NL	181	15	NL	181	16	NL	181	21	NL	181	21	19
			Female	NL	207	12	NL	207	14	NL	207	19	NL	207	20	16
			Total													

DE = Germany; IT = Italy; NL= Netherlands

[a] 1st or 99th percentile eliminated (see text in 5.2).

Table A.1 *(continued)*

No.	ISO 7250 measurement			Country	N	P1	Country	N	P5	Country	N	P95	Country	N	P99	Midpoint
36	4.3.7	Foot length	Male	IT	1991	234	IT	1991	242	NL	594	296	NL	594	325	269
			Female	NL	679	208	IT	2001	220	NL	679	264	NL	679	273	242
			Total	IT	3991	214	IT	3991	223	IT	3991	278	IT	3991	288	251
37	4.3.8	Foot breadth	Male	IT	1989	84	IT	1989	88	NL	542	116	NL	542	123	102
			Female	IT	1923	80	IT	1923	82	NL	584	107	NL	584	113	94
			Total	IT	3912	80	IT	3912	83	IT	3912	108	IT	3912	114	96
38	4.3.9	Head length	Male	IT	1935	176	IT	1935	179	NL	590	210	NL	590	216	195
			Female	IT	1739	167	DE		170	NL	679	199	NL	679	203	184
			Total	IT	3674	170	IT	3674	173	IT	3674	200	IT	3674	205	187
39	4.3.10	Head breadth	Male	IT	2004	136	IT	2004	141	DE		165	NL	593	169	153
			Female	IT	1961	130	IT	1961	134	DE		160	IT	1961	161	147
			Total	IT	3965	132	IT	3965	136	IT	3965	162	IT	3965	167	149
40	4.3.11	Face length (nasion-menton)	Male	NL	590	105	DE		105	NL	590	135	NL	590	138	120
			Female	NL	679	[a]	DE		95	DE		125	NL	679	129	110
			Total													
41	4.3.12	Head circumference	Male	NL	589	532	NL	589	544	NL	589	606	NL	589	616	575
			Female	NL	676	517	DE		520	NL	676	574	NL	676	583	547
			Total													
42	4.3.13	Sagittal arc	Male				DE		330	DE		375				353
			Female				DE		310	DE		360				335
			Total													
43	4.3.14	Bitragion arc	Male				DE		340	DE		385				363
			Female				DE		320	DE		360				340
			Total													
44	4.4.1	Wall-acromion distance	Male													
			Female													
			Total													

DE = Germany; IT = Italy; NL= Netherlands

[a] 1st or 99th percentile eliminated (see text in 5.2).

Table A.1 *(continued)*

No.	ISO 7250 measurement			Country	N	P1	Country	N	P5	Country	N	P95	Country	N	P99	Midpoint
45	4.4.2	Grip reach: forward reach	Male	NL	181	647	NL	181	670	NL	181	823	NL	181	871	747
			Female	NL	207	592	NL	207	625	NL	207	750	NL	207	770	688
			Total													
46	4.4.3	Elbow-grip length	Male	NL	181	310	NL	181	324	NL	181	393	NL	181	414	359
			Female	NL	207	284	NL	207	294	NL	207	350	NL	207	364	322
			Total													
47	4.4.4	Fist (grip axis) height	Male	NL	181	698	DE		730	NL	181	879	NL	181	930	804
			Female	NL	207	647	DE		670	NL	207	816	NL	207	839	743
			Total													
48	4.4.5	Forearm-fingertip length	Male	NL	181	427	DE		440	NL	181	530	NL	181	556	485
			Female	NL	207	393	DE		400	NL	207	470	NL	207	484	435
			Total													
49	4.4.6	Buttock-popliteal length (seat depth)	Male	IT	1992	413	IT	1992	434	NL	181	565	NL	181	584	499
			Female	IT	1988	409	IT	1988	427	NL	207	545	NL	207	567	486
			Total	IT	3980	410	IT	3980	430	IT	3980	525	IT	3980	545	478
50	4.4.7	Buttock-knee length	Male	NL	589	559	DE		565	NL	589	703	NL	589	736	634
			Female	NL	678	541	DE		545	NL	678	664	NL	678	693	605
			Total													
51	4.4.8	Neck circumference	Male				DE		335	DE		410				373
			Female				DE		305	DE		385				345
			Total													
52	4.4.9	Chest circumference	Male	IT	1965	835	IT	1965	870	NL	594	1225	NL	594	1301	1048
			Female	IT	1985	665	IT	1985	705	NL	679	1249	NL	679	1339	977
			Total	IT	3950	680	IT	3950	730	IT	3950	1082	IT	3950	1160	906
53	4.4.10	Waist circumference	Male	IT	1978	700	DE		700	IT	1978	1059	IT	1978	1160	880
			Female	IT	1973	591	IT	1973	630	IT	1973	1010	IT	1973	1110	820
			Total	IT	3952	610	IT	3952	650	IT	3952	1040	IT	3952	1120	845

DE = Germany; IT = Italy; NL= Netherlands

[a] 1st or 99th percentile eliminated (see text in 5.2).

Table A.1 *(continued)*

No.	ISO 7250 measurement			Country	N	P1	Country	N	P5	Country	N	P95	Country	N	P99	Midpoint
54	4.4.11	Wrist circumference	Male				DE		160	DE		190				175
			Female				DE		150	DE		180				165
			Total													
55	4.4.12	Thigh circumference	Male				DE		490	DE		640				565
			Female				DE		485	DE		670				578
			Total													
56	4.4.13	Calf circumference	Male				DE		325	DE		415				370
			Female				DE		325	DE		415				370
			Total													

DE = Germany; IT = Italy; NL= Netherlands

[a] 1st or 99th percentile eliminated (see text in 5.2).

A.2 In the case of Asia, no regional standards were available as a starting point, so all design range values were derived from ISO/TR 7250-2, using methods described in 4.2. At this time, Asian data are available only for Japan, Korea, and Thailand. It is likely that these example design ranges will need to be extended when anthropometric data from other Asian member bodies are submitted for inclusion in ISO/TR 7250-2.

Table A.2 — Example of regional design ranges for the Asian region

No.	ISO 7250 measurement			MB	N	P1	MB	N	P5	MB	N	P95	MB	N	P99	Midrange
		Age	Male	KR	2613	18	KR	2613	19	JP	2885	63	JP	2885	65	41
			Female	KR	2614	18	KR	2614	19	JP	2476	63	JP	2476	65	41
			Total	KR	5227	18	KR	5227	19	JP	5361	63	JP	5361	65	41
1	4.1.1	Body mass (weight) kg	Male	CN	11164	44	CN	11164	48	KR	2611	87	JP	2877	96	68
			Female	CN	11150	39	CN	11150	42	KR	2612	71	KR	2612	78	56
			Total	JP	5338	41	JP	5338	44	KR	5223	83	KR	5223	93	64
2	4.1.2	Stature (body height)	Male	CN	11164	1543	TH	1246	1576	KR	2613	1805	KR	2613	1847	1691
			Female	JP	2462	1446	TH	1170	1467	KR	2614	1670	KR	2614	1707	1569
			Total	JP	5342	1463	JP	5342	1501	KR	5227	1787	KR	5227	1835	1644
3	4.1.3	Eye height	Male	CN	11164	1436	TH	1246	1462	KR	2613	1687	KR	2613	1728	1575
			Female	CN	11150	1337	TH	1170	1353	KR	2613	1556	KR	2613	1591	1455
			Total	JP	5337	1352	JP	5337	1392	KR	5226	1668	KR	5226	1712	1530
4	4.1.4	Shoulder height	Male	CN	11164	1244	CN	11164	1281	KR	2612	1479	KR	2612	1516	1380
			Female	JP	2463	1151	JP	2463	1182	KR	2613	1366	KR	2613	1399	1274
			Total	JP	5342	1166	JP	5342	1201	KR	5225	1460	KR	5225	1501	1331
5	4.1.5	Elbow height	Male	CN	11164	925	TH	1246	953	TH	695	1115	KR	2613	1140	1034
			Female	JP	2459	861	JP	2459	889	KR	2613	1032	KR	2613	1057	961
			Total	JP	5332	874	JP	5332	903	KR	5226	1099	KR	5226	1130	1001
6	4.1.6	Iliospinal height	Male	KR	2606	799	KR	2606	832	TH	695	995	KR	2606	1022	914
			Female	JP	2462	748	JP	2462	774	TH	854	937	KR	2613	942	856
			Total	KR	5219	760	JP	5341	788	KR	5219	974	KR	5219	1010	881
7	4.1.7	Crotch height	Male	KR	2613	677	JP/KR	2878/2613	707	CN	11164	856	CN	11164	887	781
			Female	JP	2462	621	JP	2462	645	CN	11150	792	CN	11150	819	719
			Total	JP	5340	632	KR	5224	659	KR	5224	830	KR	5224	861	745
8	4.1.8	Tibial height	Male	JP	2878	376	JP	2878	387	TH	695	498	KR	2609	505	443
			Female	JP	2463	342	JP	2463	354	CN	11150	444	CN	11150	459	399
			Total	JP	5341	347	JP	5341	362	KR	5221	470	KR	5221	494	416

CN = China; JP = Japan; KR = Republic of Korea; TH = Thailand

[a] 1st or 99th percentile eliminated (see text in 5.2).

Table A.2 *(continued)*

No.	ISO 7250 measurement			MB	N	P1	MB	N	P5	MB	N	P95	MB	N	P99	Midrange
9	4.1.9	Chest depth, standing	Male	JP	2876	[a]	TH	1246	157	KR	2613	244	KR	2613	261	201
			Female	JP	2452	140	TH	1170	149	KR	2614	224	KR	2614	244	187
			Total	JP	5328	143	JP	5328	153	KR	5227	237	KR	5227	256	195
10	4.1.10	Body depth, standing	Male	KR	2607	171	KR	2607	186	JP	2871	296	JP	2871	321	241
			Female	JP	2449	175	JP	2449	185	KR	2611	285	KR	2611	312	235
			Total	KR	5218	176	KR	5218	190	JP	5320	289	JP	5320	312	240
11	4.1.11	Chest breadth, standing	Male	CN	11164	242	CN	11164	253	KR	2612	351	KR	2612	370	302
			Female	CN	11150	219	TH	1170	232	KR	2612	312	KR	2612	333	272
			Total	JP	5327	230	JP	5327	239	KR	5224	343	KR	5224	361	291
12	4.1.12	Hip breadth, standing	Male	CN	11164	273	CN	11164	282	KR	2613	360	JP	2874	374	321
			Female	CN	11150	275	CN	11150	290	TH	1170	362	JP	2459	375	326
			Total	KR	5227	291	KR	5227	302	JP	5333	359	JP	5333	375	331
13	4.2.1	Sitting height (erect)	Male	JP	2870	[a]	TH	1246	813	KR	2612	974	KR	2612	996	894
			Female	JP	2459	774	TH	1170	778	KR	2614	905	KR	2614	927	842
			Total	JP	5337	786	JP	5337	812	KR	5226	962	KR	5226	989	887
14	4.2.2	Eye height, sitting	Male	JP	2874	[a]	TH	1246	705	KR	2613	857	KR	2613	876	781
			Female	JP	2457	665	JP	2457	687	KR	2613	792	KR	2613	812	740
			Total	JP	5331	675	JP	5331	699	KR	5226	846	KR	5226	869	773
15	4.2.3	Cervicale height, sitting	Male	CN	11164	[a]	TH	1246	590	KR	2613	718	KR	2613	736	654
			Female	CN	11150	[a]	TH	1170	560	KR	2614	664	KR	2614	681	612
			Total	JP	5337	570	JP	5337	591	KR	5227	709	KR	5227	730	650
16	4.2.4	Shoulder height, sitting	Male	JP	2875	523	JP	2875	542	CN	11164	641	CN	11164	659	592
			Female	JP	2457	487	JP	2457	504	KR	2613	597	KR	2613	615	550
			Total	JP	5332	493	JP	5332	513	KR	5226	630	KR	5226	650	572
17	4.2.5	Elbow height, sitting	Male	JP	2870	[a]	TH	1246	185	CN	11164	298	KR	2612	313	242
			Female	JP	2455	183	TH	1170	197	CN	11150	284	CN	11150	299	241
			Total	JP	5325	188	JP	5325	203	KR	5224	292	KR	5224	307	248

CN = China; JP = Japan; KR = Republic of Korea; TH = Thailand

[a] 1st or 99th percentile eliminated (see text in 5.2).

Table A.2 *(continued)*

No.	ISO 7250 measurement			MB	N	P1	MB	N	P5	MB	N	P95	MB	N	P99	Midrange
18	4.2.6	Shoulder-elbow length	Male	KR	2612	302	KR	2612	313	TH	695	375	KR	2612	[a]	344
			Female	KR	2613	273	KR	2613	283	JP	2460	337	JP	2460	348	310
			Total	KR	5225	278	KR	5225	288	JP/KR	5331/5225	359	JP	5331	371	324
19	4.2.7	Elbow-wrist length	Male	JP	2868	229	JP	2868	237	TH	1246	305	KR	2612	[a]	271
			Female	JP	2455	206	JP	2455	215	KR	2611	264	KR	2611	276	240
			Total	JP	5323	210	JP	5323	220	KR	5223	285	KR	5223	297	253
20	4.2.8	Shoulder (biacromial) breadth	Male	CN	11164	330	TH	1246	330	JP	2877	431	KR	2613	447	381
			Female	CN	11150	304	TH	1170	305	KR	2613	390	KR	2613	399	348
			Total	KR	5226	323	KR	5226	337	KR	5226	424	KR	5226	441	381
21	4.2.9	Shoulder (bideltoid) breadth	Male	CN	11164	383	CN	11164	398	KR	2612	506	KR	2612	528	452
			Female	CN	11150	347	TH	1170	362	KR	2611	458	KR	2611	476	410
			Total	JP	5338	371	JP	5338	383	KR	5223	497	KR	5223	519	440
22	4.2.10	Elbow-to-elbow breadth	Male	JP	2870	352	JP	2870	371	KR	2611	546	KR	2611	589	459
			Female	JP	2459	307	JP	2459	322	KR	2613	492	KR	2613	525	407
			Total	JP	5329	314	JP	5329	332	KR	5224	533	KR	5224	575	432
23	4.2.11	Hip breath, sitting	Male	CN	11164	284	CN	11164	295	JP	2868	393	JP	2868	413	344
			Female	CN	11150	295	CN	11150	310	TH	1170	400	JP	2454	420	355
			Total	KR	5226	303	KR	5226	316	JP	5322	395	JP	5322	417	356
24	4.2.12	Lower leg length (popliteal height)	Male	KR	2612	347	KR	2612	365	TH	1246	450	CN	11164	463	408
			Female	KR	2614	318	KR	2614	333	TH	854	423	KR	2614	[a]	378
			Total	KR	5226	324	KR	5226	340	JP	5324	434	JP	5324	451	387
25	4.2.13	Thigh clearance	Male	CN	11164	103	CN	11164	112	KR	2613	179	KR	2613	195	146
			Female	CN	11150	107	CN	11150	113	KR	2611	159	KR	2611	170	136
			Total	JP	5317	110	JP	5317	117	KR	5224	173	KR	5224	188	145
26	4.2.14	Knee height	Male	JP	2868	440	JP	2868	456	TH	1246	556	KR	2766	568	506
			Female	JP	2453	405	JP	2453	418	TH	1170	532	KR	2752	[a]	475
			Total	JP	5321	410	JP	5321	427	KR	5518	542	KR	5518	561	485

CN = China; JP = Japan; KR = Republic of Korea; TH = Thailand

[a] 1st or 99th percentile eliminated (see text in 5.2).