

<u>Body Landmark</u>	<u>Definition</u>
Abdomen	The part of body between the thorax and pelvis that encloses the viscera.
Ankle	The joint between the foot and the lower leg.
Armpit	The level of the hollow part under the arm at the shoulder.
Bust	The part of woman's body between the neck and the abdomen.
Calf	The part of leg between the knee and ankle.
Cervical	The prominence on the seventh or lowest cervical vertebra at the back of the neck.
Chest	The part of the body between the neck and the abdomen, enclosed by the ribs and the breastbone.
Crotch	The body area adjacent to the vertex of the included angle between the legs, or the level of the base of the buttocks.
Crown	The top of the head.
Elbow	The joint which articulates between the upper arm and the lower arm.
Forearm	The part of the arm extending from the wrist to the elbow.
High Hip	The level of the fullest part of the abdomen that is located approximately 7.5 centimeters or 3 inches below the waist and parallel to the floor.
Hip	The outer bony prominence of the upper end of the thigh bone.
Knee	The joint between the lower and upper leg.

Neck **The part of the body linking the head and trunk.**

ID	Name	Definition	Category	References
6.	NeckBase-girth	The girth of the base of the neck measured around the neck passing over the base of the 7th cervical vertebra, the intersection points of shoulder and neck, and the upper borders of the collar bone at the front.	girth	NBS 5.2.d ISO 2.1.3 ASTM B.2 NBS-m 6.3.9
7.	Armscye-girth	The girth of the armscye measured through the underarm midpoint and vertically over the shoulder with subject's arms hanging naturally.	girth	NBS 5.2.f ISO 2.2.20 ASTM B.14 NBS-m 6.3.10
7.1	Armscye-girth-right			MD 1.2
7.2	Armscye-girth-left			MD 1.3
8.	UpperArm-girth	The maximum girth of the upper arm at lowest scye level measured with subject's arms hanging naturally.	girth	NBS 5.2.n ISO 2.1.13 ASTM B.15 NBS-m 6.3.11
8.1	UpperArm-girth-right			MD 1.11
8.2	UpperArm-girth-left			MD 1.12

ID	Name	Definition	Category	References
9.	Elbow-girth	The girth of the elbow measured with subject's arm bent at right angle and the hand and fingers facing forward.	girth	NBS 5.2.o ISO 2.1.14 ASTM B.16 NBS-m 6.3.12 MD 1.13
9.1	Elbow-girth-right			
9.2	Elbow-girth-left			MD 1.14
10.	Wrist-girth	The girth of the wrist measured around the arm over the wrist bone with subject's arms hanging naturally.	girth	NBS 5.2.p ISO 2.1.15 ASTM B.17
10.1	Wrist-girth-right			MD 1.17
10.2	Wrist-girth-left			MD 1.18
11.	Knee-girth	The horizontal girth of the knee measured around the leg over the knee cap.	girth	NBS 5.2.k ISO 2.1.20 ASTM B.11 NBS-m 6.3.7
11.1	Knee-girth-right			MD 1.23
11.2	Knee-girth-left			MD 1.24

ID	Name	Definition	Category	References
12.	Calf-girth	The maximum girth of the calf measured between the knee and ankle and around the leg.	girth	NBS 5.2.1 ISO 2.1.22 ASTM B.12 NBS-m 6.3.8
	12.1 Calf-girth-right			MD 1.25
	12.2 Calf-girth-left			MD 1.26
13.	Ankle-girth	The girth of the ankle measured around the leg at the level of the center of the ankle bone.	girth	NBS 5.2.m ISO 2.1.24 ASTM B.13
	13.1 Ankle-girth-right			MD 1.29
	13.2 Ankle-girth-left			MD 1.30
14.	Thigh-girth	The horizontal girth of the thigh measured around the upper part of the leg and at the highest thigh position.	girth	NBS 5.2.i ISO 2.1.18 ASTM B.9 NBS-m 6.3.6
	14.1 Thigh-girth-right			MD 1.19
	14.2 Thigh-girth-left			MD 1.20

ID	Name	Definition	Category	References
15.	MidThigh-girth	The horizontal girth of the thigh measured around the leg midway between the hip level and the knee.	girth	NBS 5.2.j ISO 2.1.19 ASTM B.10
	15.1 MidThigh-girth-right			MD 1.21
	15.2 MidThigh-girth-left			MD 1.22
16.	HighHip-girth	The horizontal girth of the high hip measured at the level of the high hip with the subject's abdomen relaxed.	girth	NBS 5.2.g ASTM B.7 MD 1.10
17.	VerticalTrunk-girth	The girth of trunk measured from the right shoulder line midway between the neck base and the shoulder point, down the back through the crotch and over the projection of the right breast to the starting point.	girth	NBS 5.2.q ISO 2.2.18 ASTM B.24 NBS-m 6.3.4
18.	UnderBust-girth	The horizontal girth of the body just below the breasts. (women)	girth	ISO 2.1.10 ASTM B.5
19.	Hand-girth	The maximum girth of the hand measured over the knuckles of the open right hand with	girth	ISO 2.1.16

subject's fingers together and the thumb excluded.

ID	Name	Definition	Category	References
20.	Head-girth	The maximum horizontal girth of the head measured above the ears.	girth	ISO 2.1.1
21.	LowKnee-girth	The horizontal girth of the lower knee measured at the level just below the right knee cap.	girth	ISO 2.1.21
22.	LowerLeg-girth	The minimum horizontal girth of the lower leg measured at the level just above the ankle.	girth	ISO 2.1.23
22.1	LowerLeg-girth-right			MD 1.27
22.2	LowerLeg-girth-left			MD 1.28
23.	Thigh-seated-girth	The girth of the upper thigh measured at the highest thigh position with the subject sitting.	girth	NBS 5.2.h
24.	HighBust-girth	The bust girth measured, not parallel to the floor, across the chest above the bust and across the back close to the underarm.	girth	ASTM B.3

25. Hip-seated-girth	The girth of the hip measured at the fullest part of hip with the subject sitting.	girth	ASTM B.54	
ID	Name	Definition	Category	References
26.	Forearm-girth	The maximum horizontal girth of the forearm measured around the forearm with subject's arms hanging naturally.	girth	
26.1	Forearm-girth-right			MD 1.15
26.2	Forearm-girth-left			MD 1.16
27.	MaxAbdomen-girth	The maximum horizontal girth of the abdomen measured below the lower chest and above the high hip.	girth	MD 1.9
28.	Shoulder-girth	The maximum horizontal girth of shoulder measured below the neck and above the underarm.	girth	MD 1.4
29.	Height	The vertical distance measured from the crown to the soles of feet with the subject standing upright and the feet together without wearing shoes, or with the subject (infants) lying on table.	vertical	NBS 5.4.a ISO 2.1.26 ISO 2.2.1 ASTM B.57 NBS-m 6.2.1

30. Hip-height	The vertical distance measured from the midpoint of the crotch to soles of feet.	vertical	NBS 5.4.e ISO 2.2.4 ASTM B.31	
ID	Name	Definition	Category	References
31. Knee-height	The vertical distance measured from the knee to the soles of feet.	vertical	NBS 5.4.g ISO 2.2.6 ASTM B.33 NBS-m 6.2.5	
32. Waist-height	The vertical distance measured from the waist to soles of feet.	vertical	NBS 5.4.c ISO 2.2.3 ASTM B.26 NBS-m 6.2.3	
33. Armscye-depth	The vertical distance measured from the 7th cervical vertebra to the armpits level.	vertical	NBS 5.5.e ISO 2.2.9 ASTM B.43 NBS-m 6.4.4	
34. Ankle-height	The vertical distance measured from the ankle to the soles of feet.	vertical	NBS 5.4.h ISO 2.2.7 ASTM B.34	

35.	Cervical-height	The vertical distance measured from the 7th cervical vertebra to the soles of feet.	vertical	NBS 5.4.b ASTM B.27 NBS-m 6.2.2
36.	Crotch-height	The vertical distance measured from the midway point of the crotch to the soles of feet.	vertical	NBS 5.4.f ASTM B.32 NBS-m 6.2.4
ID	Name	Definition	Category	References
37.	HighHip-height	The vertical distance measured from the high hip level to the soles of feet.	vertical	NBS 5.4.d ASTM B.30
38.	Trunk-length	The vertical distance measured from the 7th cervical vertebra to the crotch level.	vertical	ISO 2.2.2
39.	InsideLeg-length	The vertical distance measured from the crotch to the ground with subject's feet slightly apart.	vertical	ISO 2.2.27
40.	Cervical-seated-height	The vertical distance measured from the 7th cervical vertebra to the top of the table with the subject sitting erect on the table.	vertical	ISO 2.2.8
41.	Thigh-length	The vertical distance measured on the inside leg from the crotch level to the knee level.	vertical	ISO 2.2.26

42.	Waist-to-crotch	The vertical distance measured from the waist level to the crotch level.	vertical	ISO 2.2.5
43.	Waist-to-highHip	The vertical distance measured on the right side of the body from the waist level to the high hip level.	vertical	ASTM B.28
ID	Name	Definition	Category	References
44.	Bust-to-waist	The vertical distance measured from the bust point to the waist level.	vertical	
44.1	Bust-to-waist-right			MD
2.3				
44.2	Bust-to-waist-left			MD
2.5				
45.	BackNeck-to-waist	The vertical distance measured from the intersection of the shoulder and the neck to the waist level.	vertical	
45.1	BackNeck-to-waist-right			MD 2.32
45.2	BackNeck-to-waist-left			MD 2.33
46.	Underarm-length	The distance measured from the mid-point of the armpit to the far end of the prominent wrist	length	NBS 5.5.1 ISO 2.2.24

B.48	bone, with subject's arms hanging naturally.		ASTM
46.1 Underarm-length-right			MD 2.19
46.2 Underarm-length-left			MD 2.20
47. Waist-to-hip	The length measured along the side of the body from the waist level to the hips at the level of greatest lateral trochanteric projection following the hip contour.	length	NBS 5.5.g ISO 2.2.17 ASTM B.29 NBS-m 6.4.7
ID	Name	Definition	Category
48. NeckShoulder-to-bust	The length measured from the intersection of shoulder and neck to the bust point.	length	NBS 5.5.d ISO 2.2.15 ASTM B.37
48.1 NeckShoulder-to-bust-right			MD 2.6
48.2 NeckShoulder-to-bust-left			MD 2.7
49. UpperArm-length	The distance measured from the shoulder point, along the outside of the arm, to the elbow, with the subject's right fist clenched and placed on the hip, and with the arm bent at right angle.	length	NBS 5.5.k ISO 2.2.21 ASTM B.46
49.1 UpperArm-length-right			MD 2.13
49.2 UpperArm-length-left			MD 2.14

50. Shoulder-length	The distance measured from the intersection of shoulder and neck, along the shoulder, to the shoulder point, with subject's arms hanging naturally.	length	NBS 5.5.h ISO 2.1.4 ASTM B.45 NBS-m 6.4.1
50.1 Shoulder-length-right			MD 2.35
50.2 Shoulder-length-left			MD 2.36

ID	Name	Definition	Category	References
51.	Arm-length	The distance measured from the right shoulder point, along the outside of the arm, over the elbow, to the far end of the prominent wrist bone, with the subject's right fist clenched and placed on the hip, and with the arm bent at right angle.	length	NBS 5.5.j ISO 2.2.22 ASTM B.47
52.	CrossBack-width	The horizontal distance measured across the back of the body from armscye to armscye approximately at the level midway between the upper armscye and lower armscye.	length	NBS 5.5.a ISO 2.1.6 ASTM B.40 NBS-m 6.4.2 MD 2.27
53.	Crotch-length	The distance measured from the center point of the front body at the waist level, through the	length	NBS 5.5.m ISO 2.2.19

		crotch, to the center point of the back body at the waist level.		ASTM B.49 NBS-m 6.3.5
54.	BackWaist-length	The distance measured from the 7th cervical vertebra, along the rear contour of the spinal column, to the waist level.	length	NBS 5.5.p ISO 2.2.10 ASTM B.25 NBS-m 6.4.5 MD 2.26
55.	Bust-width	The horizontal distance measured between the bust points (nipples).	length	NBS 5.5.c ISO 2.1.9 ASTM B.36 MD 2.8
ID	Name	Definition	Category	References
56.	NeckBase-to-waist	The distance measured from the center front of the neck base line to the center front at the waist level.	length	NBS 5.5.o ASTM B.39 NBS-m 6.4.6 MD 2.1
57.	CrossChest-width	The horizontal distance measured across the front of the body from armscye to armscye approximately at the level midway between the upper armscye and the lower armscye.	length	NBS 5.5.b ASTM B.35 NBS-
				m 6.4.3
58.	Armscye-to-waist	The distance measured from the mid-point of the armpit, along the side of the body, to the waist	length	NBS 5.5.f ASTM B.44

level.

58.1 Armscye-to-waist-right

MD 2.17

58.2 Armscye-to-waist-left

MD 2.18

59. BackShoulder-width

The horizontal distance measured along the back of the shoulder between the left and right shoulder points, with the subject's arms hanging naturally.

length

ISO 2.1.5
ASTM B.41
MD 2.34

60. FrontBust-arc

The length measured the front portion of the bust girth.

length

NBS 5.3.a
ASTM B.18

ID Name

Definition

Category

References

61. FrontWaist-arc

The length measured the front portion of the waist girth.

length

NBS 5.3.b
ASTM B.19

62. FrontHighHip-arc

The length measured the front portion of the high hip girth.

length

NBS 5.3.c
ASTM B.20

63. Hand-length

The distance measured between the tips of the middle finger and the first crease at the base of the right hand, with subject's lower arm in line with the open hand and fingers together and thumb extended.

length

ISO 2.1.17

64. Foot-length	The horizontal distance measured between perpendiculars in contact with the end of the most prominent toe and the most prominent part of the heel, with the subject barefoot.	length	ISO 2.1.25	
65. BackHip-arc	The length measured the back portion of the hip girth.	length	NBS 5.3.d ASTM B.21	
66. Cervical-to-wrist	The distance measured from the 7th cervical vertebra, along the outside of the arm, over the elbow, to the far end of the prominent wrist bone, with subject's arm bent at right angle in a horizontal position.	length	ISO 2.2.23 NBS-m 6.4.9	
ID	Name	Definition	Category	References
67. Cervical-to-waist	The distance measured from the 7th cervical vertebra, along the neck line, to the intersection of neck and shoulder, then to the center front at the waist level.	length	NBS 5.5.n ASTM B.38	
68. Cervical-bust-to-waist	The distance measured from the 7th cervical vertebra, around the base of the neck, to the bust point, then vertically to the waist level.	length	ISO 2.2.14	
69. Cervical-neck-to-bust	The distance measured from the 7th cervical	length	ISO 2.2.13	

vertebra, around the base of the neck, to the bust point.

70. Cervical-to-knee **The distance measured from the 7th cervical vertebra, along the rear contour of the spinal column, to the level of the hips, then vertically to the knee level.** **length** **ISO 2.2.11**

71. Cervical-length **The distance measured from the 7th cervical vertebra, along the rear contour of the spinal column to the level of the hips, then vertically down to the ground.** **length** **ISO 2.2.12**

ID	Name	Definition	Category	References
72.	Neck-to-waist	The distance measured from the intersection of shoulder and neck, along the body, to the bust point, then vertically to the waist level.	length	ISO 2.2.16
	72.1 Neck-to-waist-right			MD 2.11
	72.2 Neck-to-waist-left			MD 2.12
73.	OutsideLeg-length	The distance measured the outside of the leg from the waist, along the contour of the hip,	length	ISO 2.2.25

then vertically down to the ground.

74.	FrontCrotch-length	The distance measured along the body from the center point of the front body at the waist level to the midway point of the crotch.	length	ASTM B.50 MD 2.25
75.	HighHip-seated-arc	The length measured the front portion of the high hip girth with the subject sitting erect on the table.	length	ASTM B.56
76.	BackCrotch-length	The distance measured from the center point of the back body at the waist level to the midway point of the crotch.	length	ASTM B.51
77.	FrontCrotch-depth	The depth distance measured at the midway point of the crotch using an L-square with right angle against the abdomen and up against the crotch.	length	ASTM B.52
ID	Name	Definition	Category	References
78.	FrontTrunk-length	The distance measured over the front of the body, from the midway point of the right shoulder to the midway point of the crotch.	length	ASTM B.22
79.	BackTrunk-length	The distance measured over the back of the body, from the midway point of the right shoulder to the midway point of the crotch.	length	ASTM B.23

80.	Waist-seated-arc	The length measured along the front portion of the waist girth with the subject sitting erect on the table.	length	ASTM B.55
81.	Armscye-depth	The vertical distance measured from the shoulder point to the level of the lower armscye.	length	ASTM B.42
82.	MidShoulder-to-waist	The distance measured along the body from the midway point of the shoulder, over the fullest part of the back shoulder blade, down to the waist.	length	
	82.1 MidShoulder-to-waist-right			MD 2.28
	82.2 MidShoulder-to-waist-left			MD 2.29
83.	FrontShoulder-width	The distance between the left and right shoulder points measured along the front of the shoulder with the subject's arms hanging naturally.	length	MD 2.23
ID	Name	Definition	Category	References
84.	InsideLeg-to-ankle	The distance measured from the midway point of the crotch, along the inside of the leg, to the ankle.	length	
	84.1 InsideLeg-to-ankle-right			MD 2.21
	84.2 InsideLeg-to-ankle-left			MD 2.22

85. FrontChest-width	The distance measured across the front chest from the right side of body to the left side of the body, approximately at the level one-half inch below the underarm.	length	MD 2.24
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86. Elbow-to-wrist	The distance measured from the elbow, along the outside of the arm, to the far end of the prominent wrist bone, with subject's arms hanging naturally.	length	
86.1 Elbow-to-wrist-right			MD 2.15
86.2 Elbow-to-wrist-left			MD 2.16

87. MidShoulder-to-bust	The distance measured from the midway point of the shoulder to the bust point.	length	
87.1 MidShoulder-to-bust-right			MD 2.2
87.2 MidShoulder-to-bust-left			MD 2.4

ID	Name	Definition	Category	References
88.	Armscye-to-ftWaist	The distance measured from the shoulder point to the center front at the waist level.	length	
88.1	Armscye-to-ftWaist-right			MD 2.9
88.2	Armscye-to-ftWaist-left			MD 2.10

89. Armscye-to-bkWaist	The distance measured along the back from the shoulder point to the center back point of the waist.	length	
	Armscye-to-bkWaist-right		MD 2.30
	Armscye-to-bkWaist-left		MD 2.31
90. Shoulder-slope	The value, in degrees, measured the slope of the shoulder with respect to the horizontal.	angle	NBS 5.5.i ISO 2.3.1 ASTM B.53 NBS-m 6.4.8
91. Weight	The value, in kilograms, measured the mass of the subject.	weight	NBS 5.1 ISO 2.3.2 ASTM B.58

Body Landmark Definition

Shoulder	The joint that connects the arm with the trunk.
Shoulder Point	The juncture of the collarbone and the shoulder blade.
Waist	The part of the body at the location between the lowest rib and hip identified by bending the body to the side.
Wrist	The joint which articulates between the end of the lower arm and the hand.

ID	Name	Definition	Category	References
1.	Bust-girth	The maximum horizontal girth at bust level measured under the armpits and across the nipples with the subject breathing normally. (women)	girth	NBS 5.2.a ISO 2.1.8 ASTM B.4 MD 1.6
2.	Chest-girth	The maximum horizontal girth at chest level measured under the armpits and across the nipples with the subject breathing normally. (men)	girth	ISO 2.1.7 NBS-m 6.3.1 MD 1.5
3.	Waist-girth	The girth measured at waist level with the subject breathing normally and the abdomen relaxed.	girth	NBS 5.2.b ISO 2.1.11 ASTM B.6 NBS-m 6.3.2 MD 1.7
4.	Hip-girth	The maximum horizontal girth measured at the hip level.	girth	NBS 5.2.c ISO 2.1.12 ASTM B.8 NBS-m 6.3.3 MD 1.8

5. Neck-girth

The girth of the neck measured below the Adam's apple and at the level of the 7th cervical vertebra.

girth

**NBS 5.2.e
ISO 2.1.2
ASTM B.1
MD 1.1**