



People.Health.Care.

VENOSAN® Flat Knit Measuring Compression Hosiery.

Measurement techniques
according to the guidelines
of the Federal Academy
of Orthopaedic Technology,
Germany



VENOSAN®
Compression Stockings

www.Lohmann-Rauscher.com

VENOSAN® Flat Knit

Measuring compression hosiery



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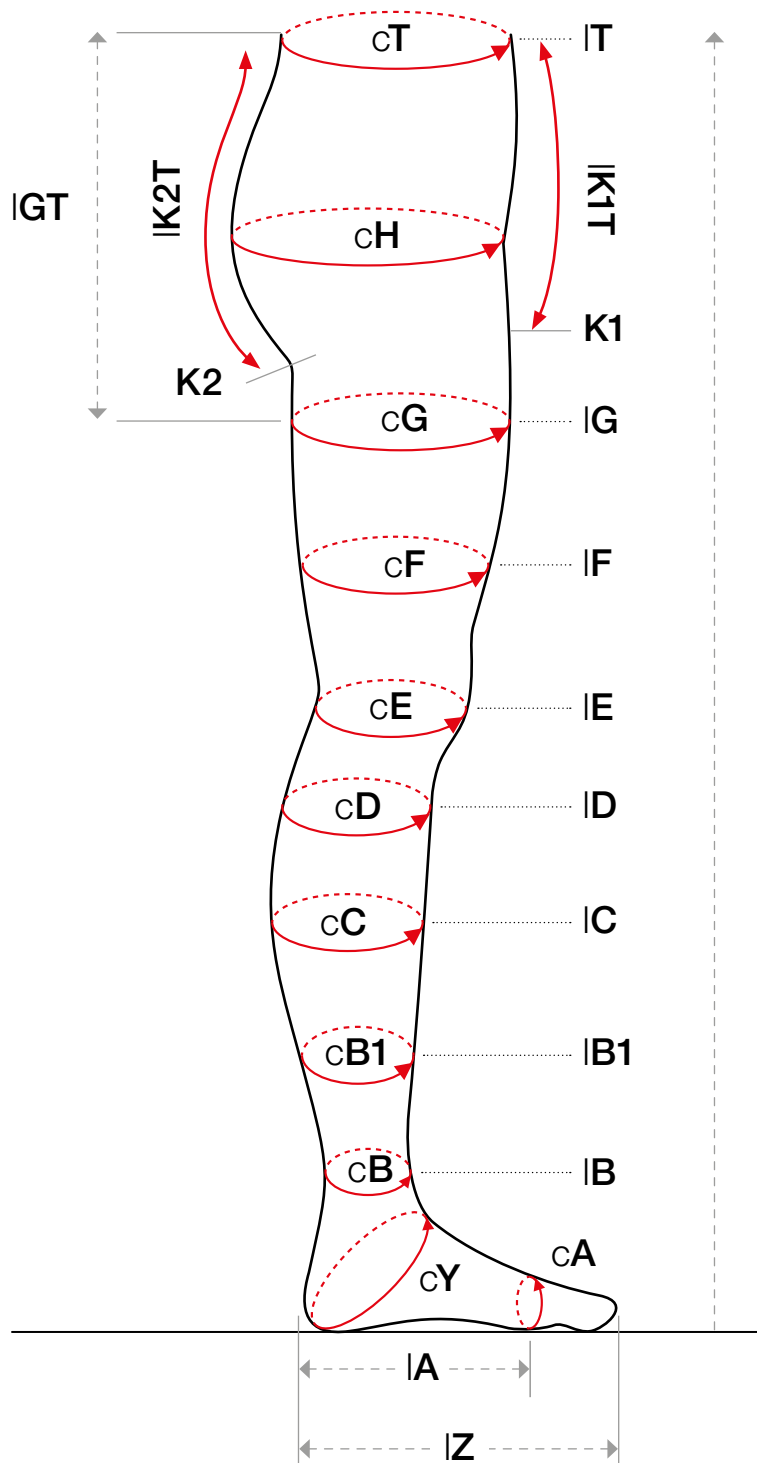
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1 Measuring lower extremities



Measurement technique for stockings

Overview



Measuring A–E

- leg in horizontal position
- lengths on the inside of the leg
- circumferences cA in standing position while bearing weight

Measuring F–T

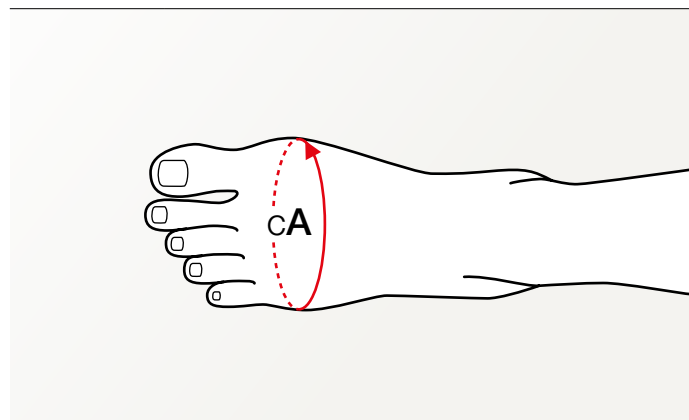
- in standing position
- lengths on the outside of the leg

General remarks

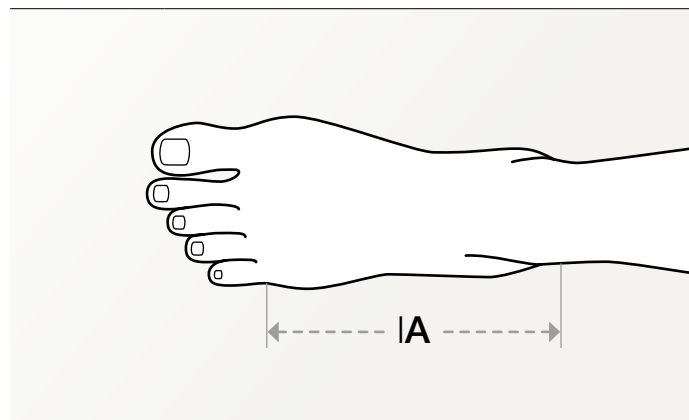
- Use a non-elastic measuring tape.
- Record all measurements in centimeters with 0.5 cm intervals.
- Measure in the morning before swelling occurs.
- Do not measure in skinfolds.
- In difficult cases photographs might be useful.
- Use a charcoal pencil to mark the measurement points. Charcoal pencils are excellent to use on the skin and are easy to remove thanks to their fat solubility.
- A measuring board is recommended to accurately measuring the lengths on the lower limbs.

Ankle and foot

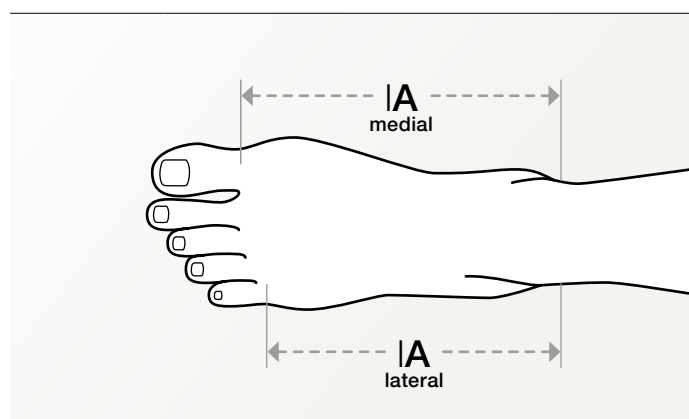
Measurement point	Circumference
cA	<p>cA is the circumference of the forefoot. This is always measured in standing position, with weight distributed on both legs, in a straight line (also in the case of oblique forefoot). It is usually taken over the widest circumference to prevent the forefoot section to become too tight.</p> <p>This is also the case when the footpart is ordered longer than this widest point. But in case of a shorter footpart it can be measured before the widest point, at the actual length you order.</p>



Measurement point	Length
IA	<p>From the back of the heel to the base of the toes. Usually there is some difference in length whether you measure up to the base of the little toe or the big toe (so laterally or medially).</p> <p>Always be careful not to apply too much compression on the little toe, but if the patient doesn't mind that the stocking covers the little toe and prefers the foot section to be longer, you can choose to take the length measurement from the base of the big toes.</p> <p>Discuss this with your patient.</p>

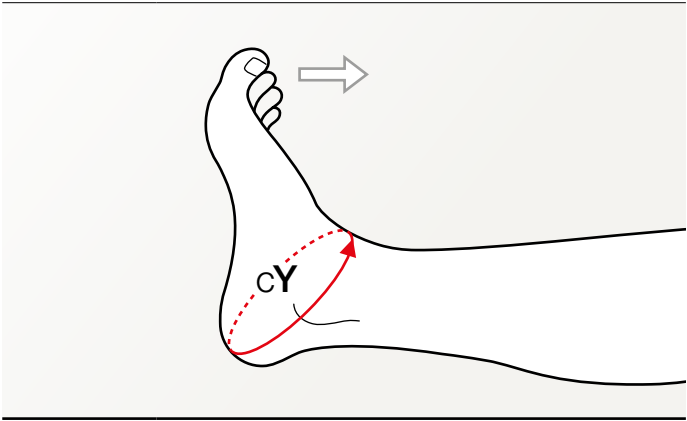


Measurement point	Length
IA medial/lateral	<p>For ordering an oblique forefoot:</p> <p>IA medial is the length from the back of the heel to the base of the big toe.</p> <p>IA lateral is the length from the back of the heel to the base of the little toe.</p>

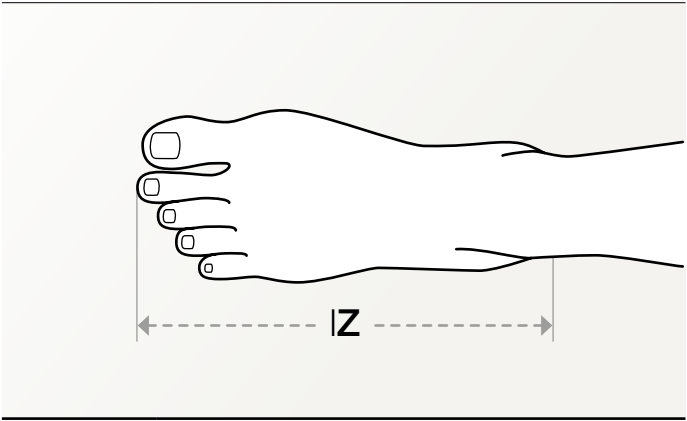


Ankle and foot

Measurement point	Circumference
cY	<p>cY is the biggest circumference over the instep around the heel at a 90 degree angle foot position.</p> <p>If you are not using a measurement board, please help your patient to maintain a dorsi flexion position.</p> <p>If you see a sharp protruding tibial anterior tendon when in dorsal flexion: order a T-Heel, to prevent it from giving too much compression on the tendon.</p>



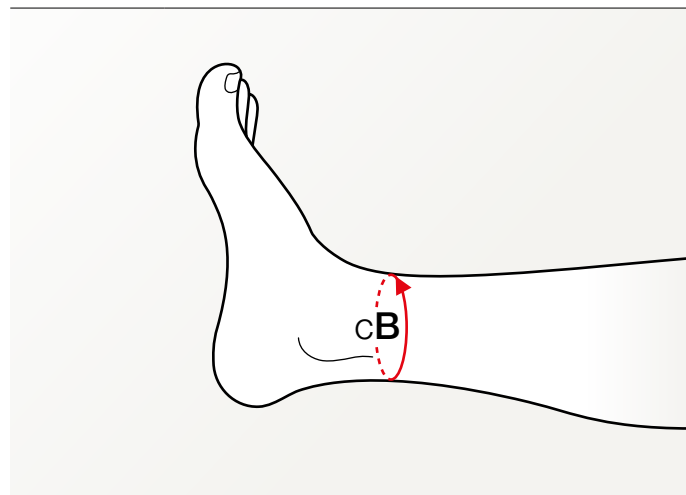
Measurement point	Length
Iz	<p>From the back of the heel to the tip of the longest toe.</p>



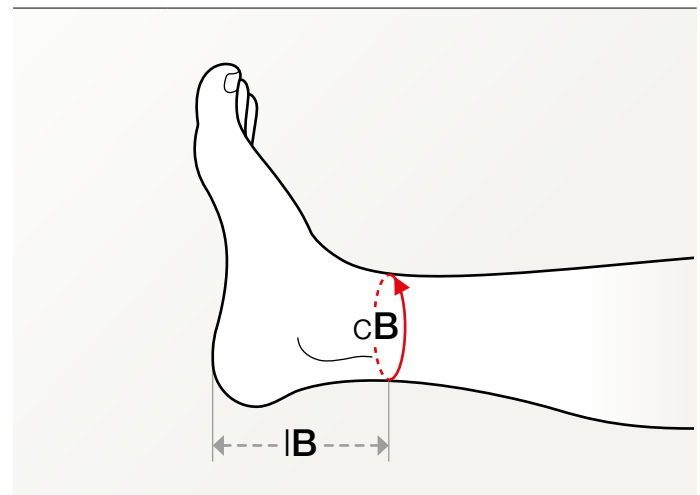
Lower leg and knee

Measure both lengths IB and IB1 on the medial side of the leg.

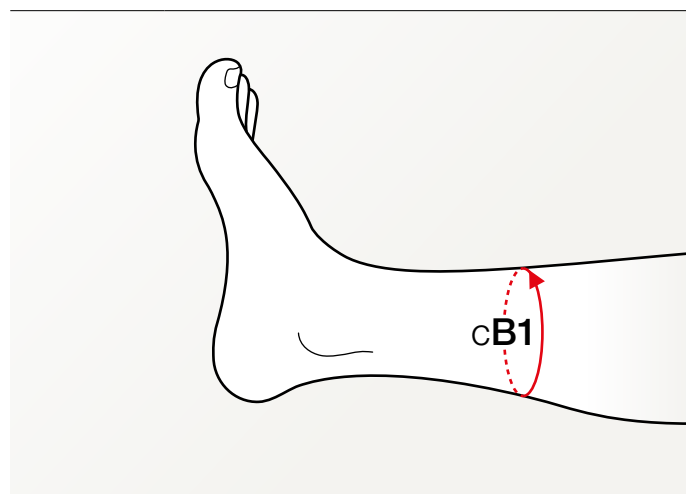
Measurement point	Circumference
cB	<p>cB is the circumference of the ankle around the narrowest point just above the malleoli.</p> <p>In case of abnormal anatomy shaped extremity, consider the normal height of B measurement point at approx. 10–12 cm from bottom of the heel.</p>



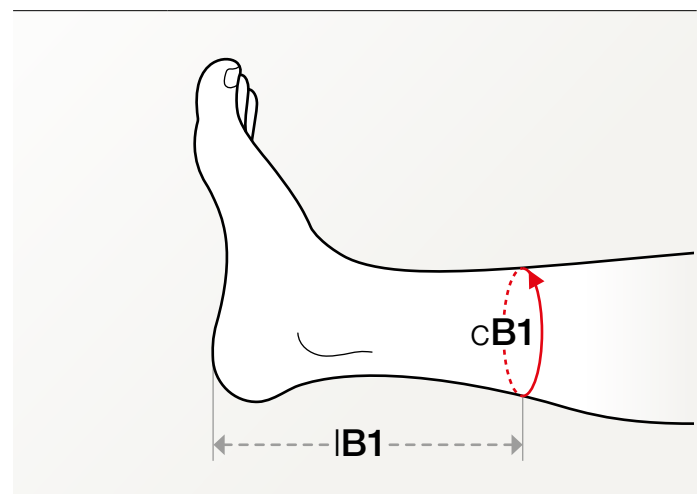
Measurement point	Length
IB	<p>IB is the length from the bottom of the heel to where cB is measured.</p>



Measurement point	Circumference
cB1	<p>cB1 is the circumference at the transition point of the Achillis tendon into the calf muscle.</p> <p>This point is often difficult to find, but is usually about 6–8 cm above the B point.</p>



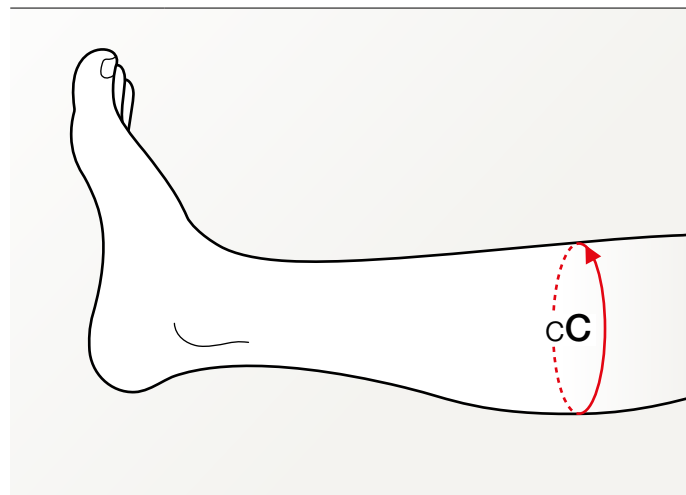
Measurement point	Length
IB1	<p>IB1 is the length from the bottom of the heel to the point where cB1 is measured.</p>



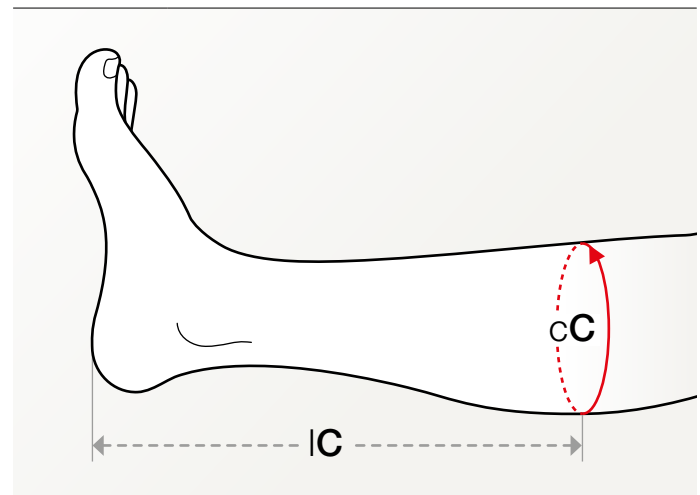
Lower leg and knee

Measure both lengths IC and ID on the medial side of the leg.

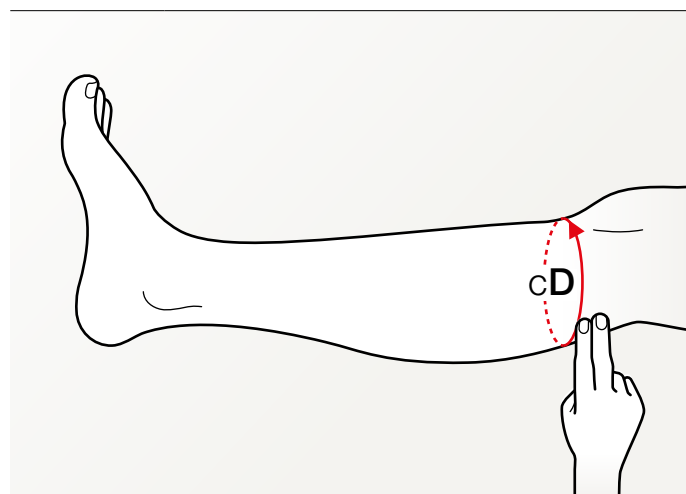
Measurement point	Circumference
cC	<p>cC is the circumference at the widest part of the calf muscle.</p> <p>In case of abnormal anatomy shaped lower extremity, consider the C circumference measurement point at approx. 8–12 cm from B1 measurement point.</p>



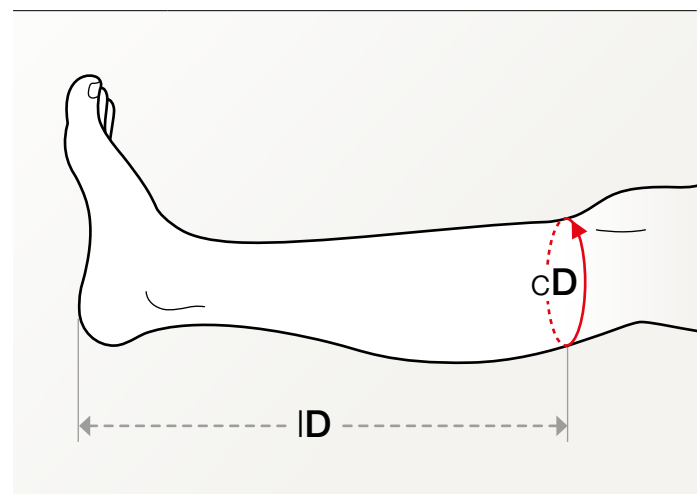
Measurement point	Length
IC	IC is the length from the bottom of the heel to where cC is measured.



Measurement point	Circumference
cD	<p>The cD circumference is measured medially, at two finger widths below the popliteal space.</p>



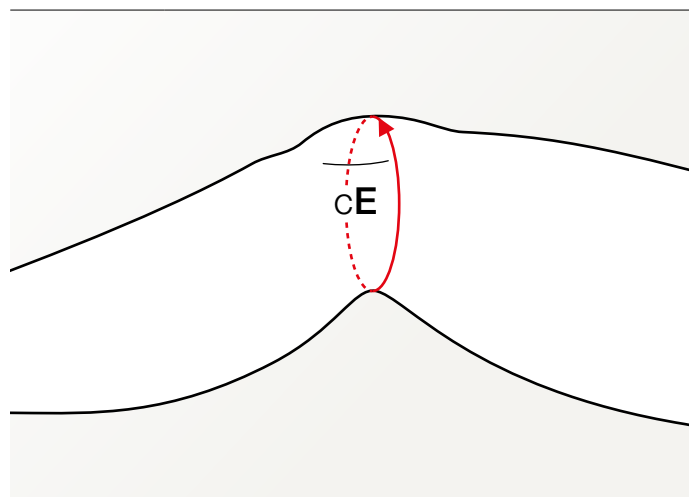
Measurement point	Length
ID	ID is the length from the bottom of the heel to where cD is measured.



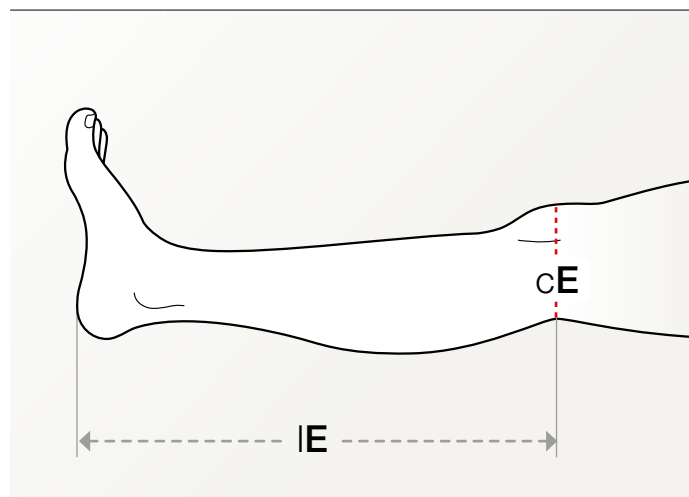
Thigh

Measure length IE on the medial side of the leg.

Measurement point	Circumference
cE	cE is measured in bended knee position with the measuring tape held around the knee though the popliteal space and above top of the patella to avoid tightness at the popliteal space.

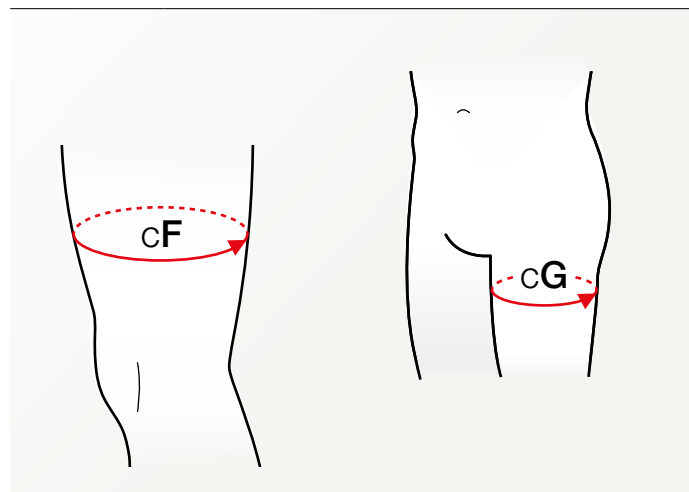


Measurement point	Length
IE	IE is the length from the bottom of the heel to the middle of patella with a complete knee extension (straight knee).

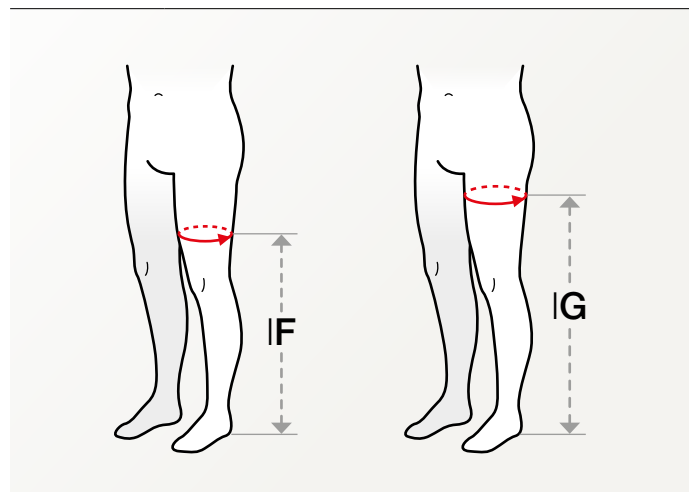


Measure both lengths IF and IG at the lateral side of the leg, with patient standing upright.

Measurement point	Circumference
cF	cF is the point where the thigh visibly changes in circumference, or if the change is gradually: about half way between cE and cG measuring points.
cG	cG is the point 5 cm below the groin (seen from the front), or three finger-widths under the transverse buttock crease (seen from behind).



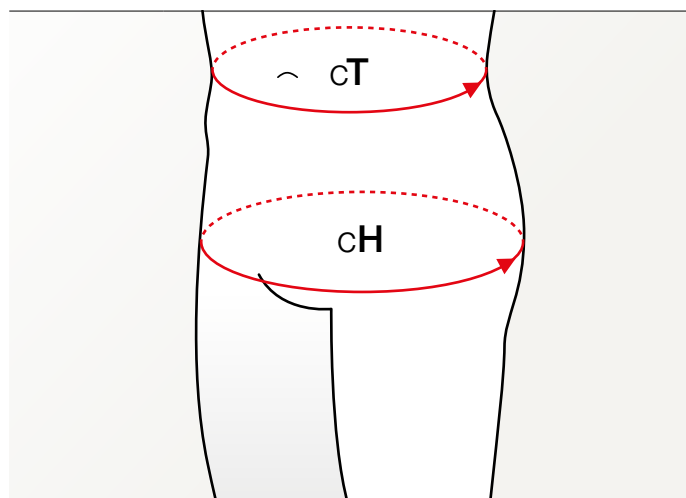
Measurement point	Length
IF	IF is the length from the bottom of the heel to the point where cF is measured.
IG	IG is the length from the bottom of the heel to the point where cG is measured.



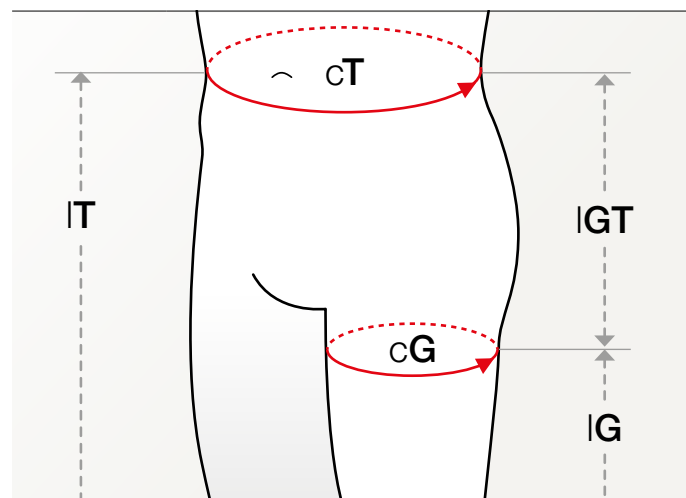
Hip/Waist

Measure IGT at the lateral side of the leg.

Measurement point	Circumference
cH	cH is the circumference of the widest point of the pelvis.
cT	cT is circumference of the natural waist-line.

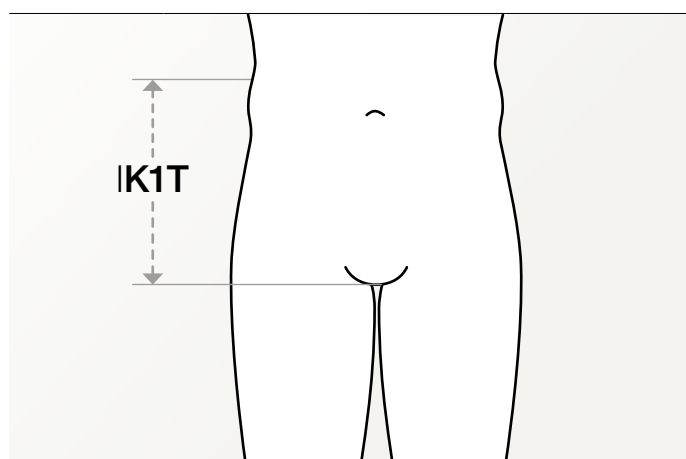


Measurement point	Length
IGT	IGT is the length between measuring points G and T.
IT	IG and IGT are used to calculate IT.

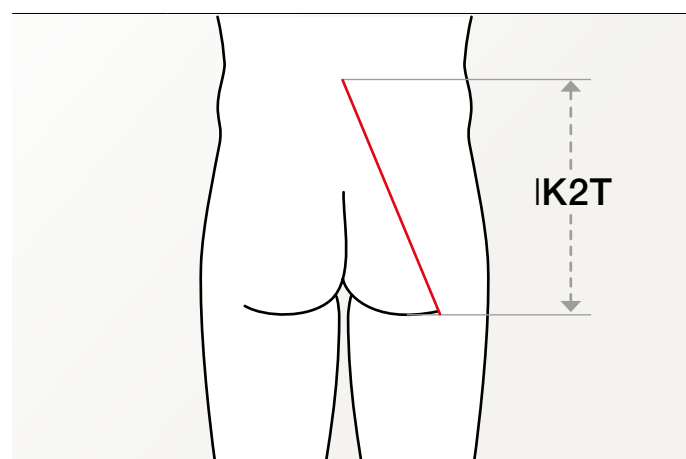


Both lengths IK1T and IK2T are needed for pantyhose (AT) style.

Measurement point	Length
IK1T	The length IK1T is measured vertically at the front, close to the body, from waist to pubic bone. If the abdominal tissue is very soft, measure the lengths while pulling the tape measure tight or lifting the abdomen. Make sure that the measurements of the abdomen are not too tight when there is a significant size.



Measurement point	Length
IK2T	The length IK2T is measured diagonal at the back, close to the body, from the midpoint of the waist to the middle of the transverse buttock crease. We measure it diagonal to make sure that the back of the bodypart will not be too short and slide down whenever the patient moves. You can also ask the patient to bend a little bit forwards while measuring. If the buttocks are of a significant size you might need to lift up the buttocks.



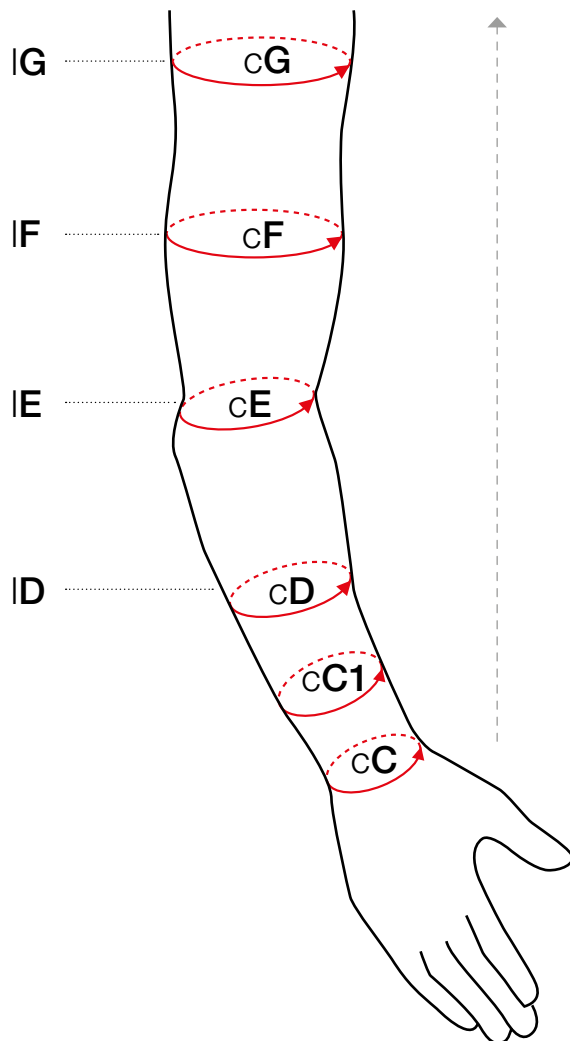
2

Measuring upper extremities



Measurement technique for hosiery

Overview



General remarks:

- It is important that the oedema is in the most reduced state.
- Measure in the morning or right after treatment.

How to measure the arm:

- Let the arm rest on a pillow.
- First mark the various lengths with stretched elbow on the inside of the arm.
- Circumference of the arm is measured with slightly bent arm.

General remarks

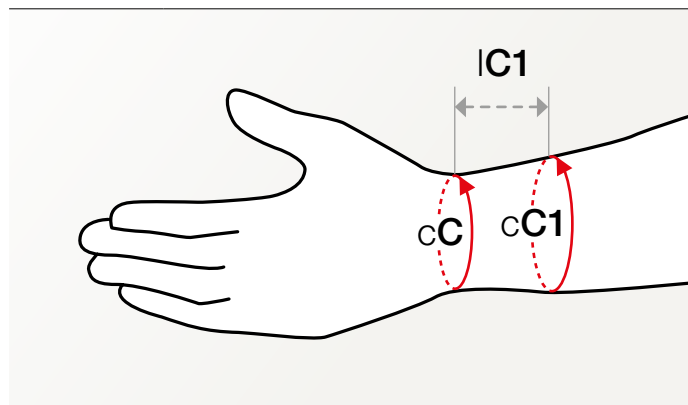
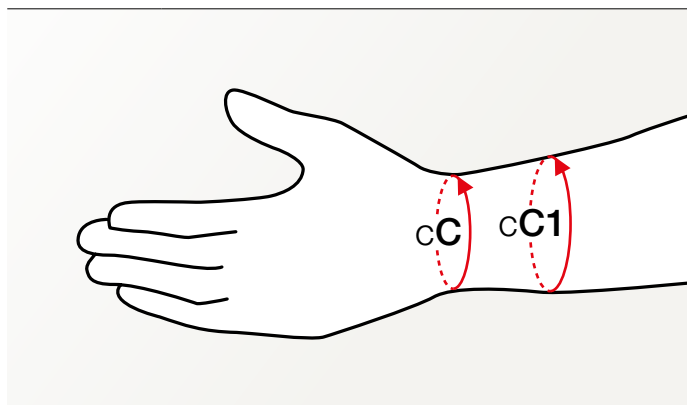
- Use a non-elastic measuring tape.
- Record all measurements in centimeters with 0.5 cm intervals.
- Measure in the morning before swelling occurs.
- Do not measure in skinfolds.
- In difficult cases photographs might be useful.
- Use a charcoal pencil to mark the measurement points. Charcoal pencils are excellent to use on the skin and are easy to remove thanks to their fat solubility.
- A measuring board is recommended to accurately measuring the lengths on the lower limbs.

Lower arm

Measure lengths IC and IC1 on the medial side of the (stretched) arm.

Measurement point	Circumference
cC	Place the measuring tape at the narrowest part of the wrist, at the transition from the hand to the forearm and measure the circumference loosely. C is the point of greatest compression and therefore a very important point.
cC1	C1 is found in the middle of D and C and usually about 6–8 cm from C.

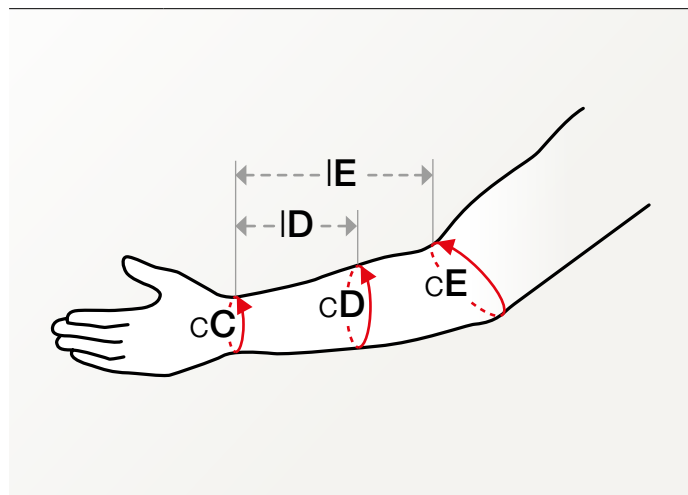
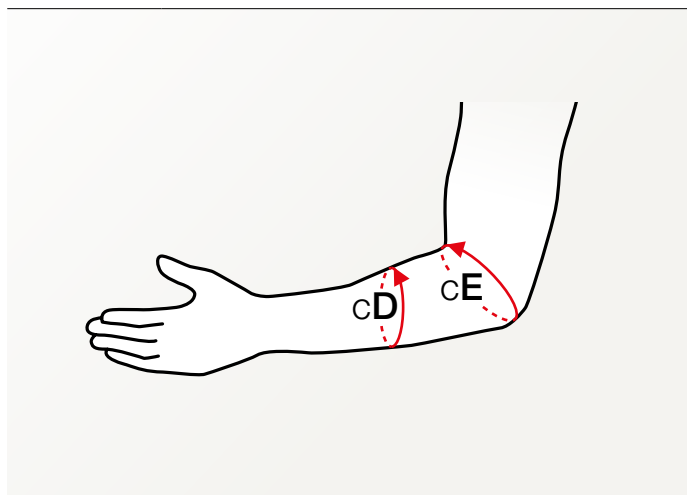
Measurement point	Length
IC1	IC1 is the length between the two measuring points C and C1 from the medial side of the stretched arm.



Measure lengths ID and IE on the medial side of the (stretched) arm.

Measurement point	Circumference
cD	cD is the circumference at the thickest part of the forearm, between point C1 and E.
cE	cE is the circumference around the elbow, measured in a 45 degree bent position.

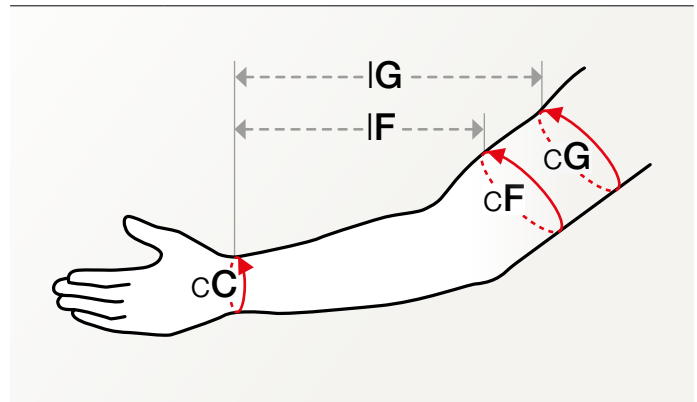
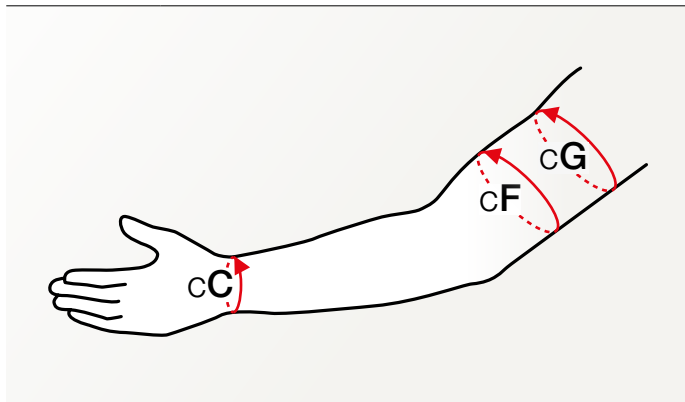
Measurement point	Length
ID	ID is the length between the measuring points C and D from the medial side of the stretched arm.
IE	IE is the length between the measuring points C and E from the medial side of stretched arm.



Upper arm

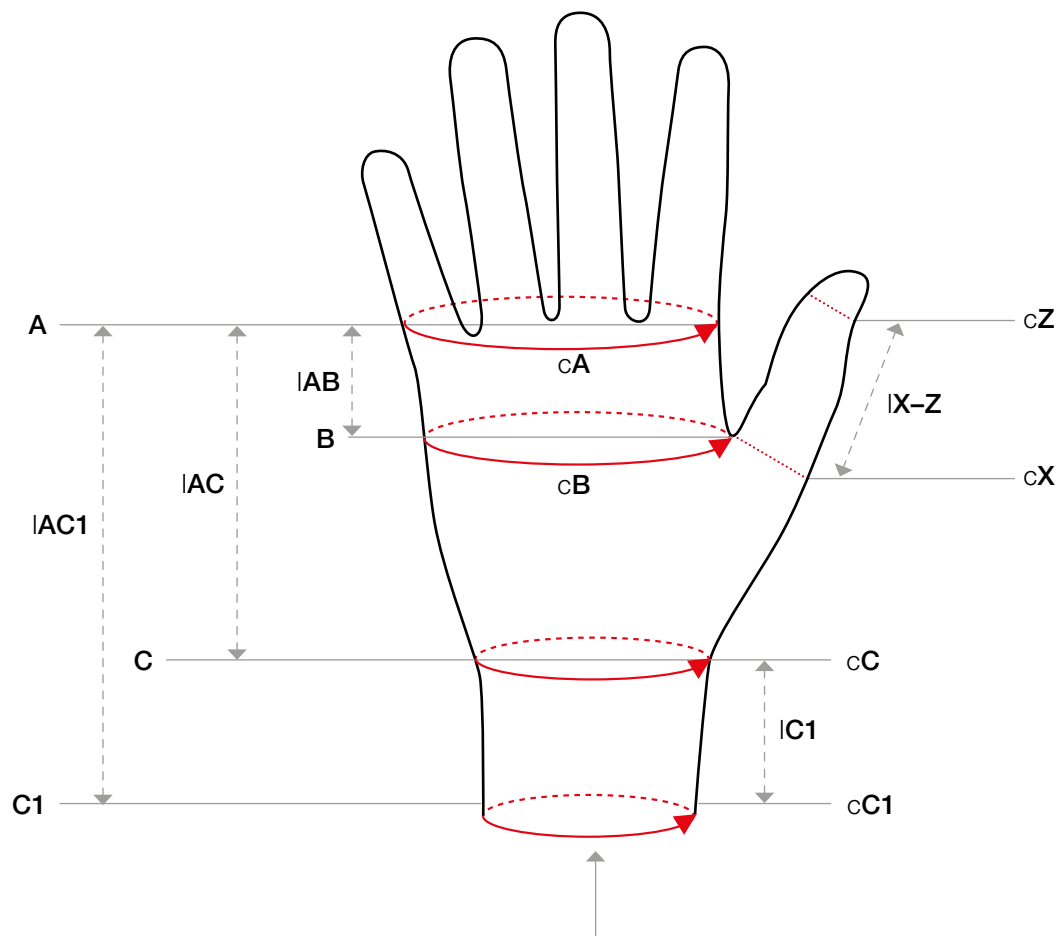
Measure lengths IF and IG on the medial side of the (stretched) arm.

Measurement point	Circumference	Measurement point	Length
cF	cF is the circumference in the middle of the upper arm.	IF	IF is the length between the two measuring points C and F from the medial side of the stretched arm.
cG	cG is the circumference around the upper arm in the axillary fold.	IG	IG is the length between the two measuring points C and G from the medial side of the stretched arm. To determine the correct location of G it is helpful to place a book or a magazine into the armpit. Don't use a single piece of paper since it might cut the skin. The measuring point will be even with the top end of the book or magazine.



Measurement technique for gloves

Overview



How to measure the hand:

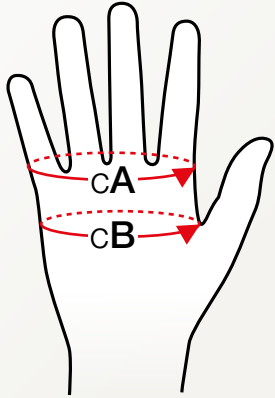
- Fingers should be spread when measuring the hand.
- First mark points A, B and C on the inside and at the middle of the hand.
- C-C1 part is made without extra compression.

Reduced compression in combination with a **CG Armsleeve** at the overlapping area.

Hand

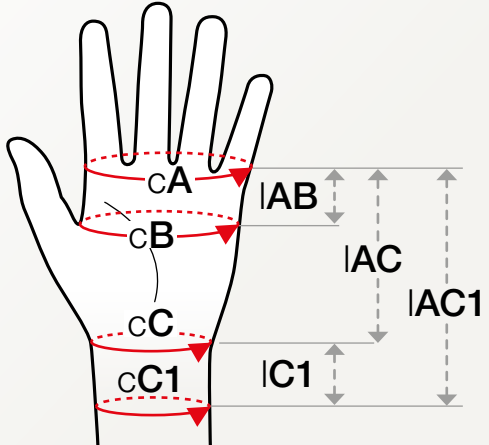
Measure cB and cA with stretched and spread fingers.

Measurement point	Circumference
cA	Circumference point cA is measured around the metacarpal bones, around the base of the fingers.
cB	Circumference point cB is found at the base of the thumb / thumb web and runs parallel to point cA.

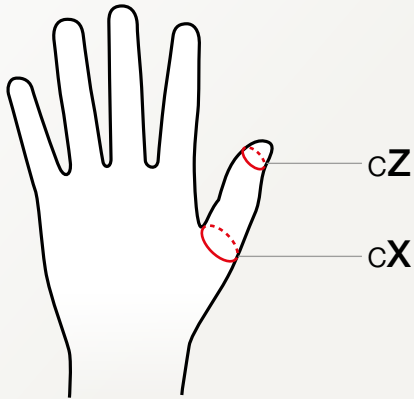


Measure lAC, lAC1 and lAB with stretched handpalm.

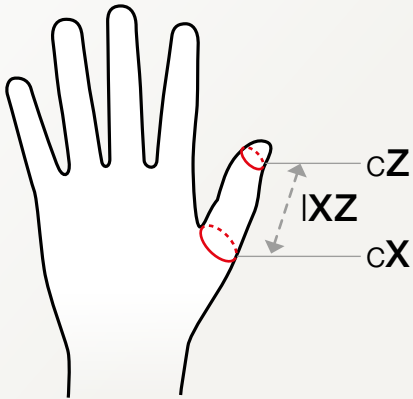
Measurement point	Length
lAC	lAC, the length AC is the distance between the marked points A and C.
lAC1	lAC1 is the length between the two measuring points A and C1.
lAB	lAB is the length between the two measuring points A and B.








Measurement point	Circumference
cZ	Circumference point cZ is taken distally on the thumb at the point right where the end of the glove is desired.
cX	Circumference point cX is taken proximally on the base of the thumb. While the distal point is flexible it is strongly recommended to avoid ending the glove on the crease/joint of the thumb.



Measurement point	Length
lXZ	Is the length between the two measuring point Z and X.



Model overview for lower limbs.

		VENOSAN® SOFT Latex Free			VENOSAN® PRO		VENOSAN® STRONG Latex Free		
Colour range		 Beige & Black 			 Beige & Black 		 Beige		
Compression Class		Class 1 18–21 mmHg	Class 2 23–32 mmHg	Class 3 34–46 mmHg	Class 2 23–32 mmHg	Class 3 34–46 mmHg	Class 3 34–46 mmHg	Class 4 > 49 mmHg	Class 4S > 49 mmHg
Lower Extremity									
AB	Anklet	•	•	•	•	•	•	–	–
AD	Below Knee	•	•	•	•	•	•	•	•
AF	Mid Thigh	•	•	•	•	•	•	•	•
AG	Thigh High	•	•	•	•	•	•	•	•
AGT	Thigh High w. Waist Attachment	•	•	•	•	•	•	•	•
AT	Pantyhose	•	•	•	•	•	•	•	•
ATS	Single Leg Pantyhose, short side finishing at point F or G	•	•	•	•	•	•	•	•
BD	Ankle To Knee	•	•	•	•	•	•	•	•
BT	Ankle To Waist	•	•	•	•	•	•	•	•
DF	Knee to mid Thigh	•	•	•	•	•	•	•	•
DG	Knee To Thigh	•	•	•	•	•	•	•	•
DGT	Knee To Thigh w. Hip Attachment	•	•	•	•	•	•	•	•
DT	Knee To Waist (Capri)	•	•	•	•	•	•	•	•
DTS	Single Leg Capri, short side finishing at point F or G	•	•	•	•	•	•	•	•
FT	Bermuda Pantyhose	•	•	•	•	•	•	•	•
FTS	Single Leg Bermuda Pantyhose	•	•	•	•	•	•	•	•

The right measuring material – what to use when.

Skin Marker:

For marking the measurement points on the body. These markers are skin-friendly and can be easily removed.



Roller tape measure:

Sufficient for determining circumferences and lengths (feet, legs, possibly abdomen, hand and arm).








Paper tape measure:

For measuring the circumference of fingers and thumbs and one-piece wrist and arm sleeves.




Model overview for additional options.

		VENOSAN® SOFT Latex Free			VENOSAN® PRO		VENOSAN® STRONG Latex Free		
Colour range		 Beige & Black 			 Beige & Black 		 Beige		
Compression Class		Class 1 18–21 mmHg	Class 2 23–32 mmHg	Class 3 34–46 mmHg	Class 2 23–32 mmHg	Class 3 34–46 mmHg	Class 3 34–46 mmHg	Class 4 > 49 mmHg	Class 4S > 49 mmHg
Lower Extremity									
Options									
	3 cm elastic band, beige (only AD)	•	•	•	•	•	•	•	•
	3 cm silicone band (only AD)	•	•	•	•	•	•	•	•
	5 cm elastic band	•	•	•	•	•	•	•	•
	5 cm silicone band	•	•	•	•	•	•	•	•
	5 cm silicone micro dot band	•	•	•	•	•	•	•	•
	Soft waist band with Velcro closure	•	•	•	•	•	•	•	•
	Tunnel & elastic band (not for full compression)	•	•	•	•	•	•	•	•
	Finish without band (not for full compression)	•	•	•	•	•	•	•	•
	Open Toe	•	•	•	•	•	•	•	•
	Closed Toe	•	•	•	•	•	•	•	•
	Oblique Toe (open or closed toe)	•	•	•	•	•	•	•	•
	Stocking in 2 parts (e.g. AD + DG)	•	•	•	•	•	•	•	•
	Oblique finish with G	•	•	•	•	•	•	•	•
	T-heel	•	•	•	•	•	Standard option	Standard option	Standard option
	Knee function zone	•	•	•	•	•	•	•	•
	Stump finishing	•	•	•	•	•	•	•	•
	Full compression body part	•	•	•	•	•	•	•	•
	Compression until the groin (only AGT)	•	•	•	•	•	•	•	•
	Horizontal fly	•	•	•	•	•	•	•	•
	Open crotch	•	•	•	•	•	•	•	•
	Waist without a band	•	•	•	•	•	•	•	•

Upper Extremity									
AC1	Gauntlet	–	–	–	•	•			
AG	Palm To Axilla	–	–	–	•	•			
CG	Wrist To Axilla	•	•	•	•	•			
Options/Modifications									
	Oblique finish (only at VENOSAN Soft)	•	•	•	–	–			
	3 cm elastic band (only beige)	•	•	•	•	•			
	3 cm silicone band	•	•	•	–	–			
	5 cm elastic band	•	•	•	•	•			
	5 cm silicone band	•	•	•	•	•			
	5 cm silicone micro dot band	•	•	•	•	•			
	Without topband	•	•	•	•	•			



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