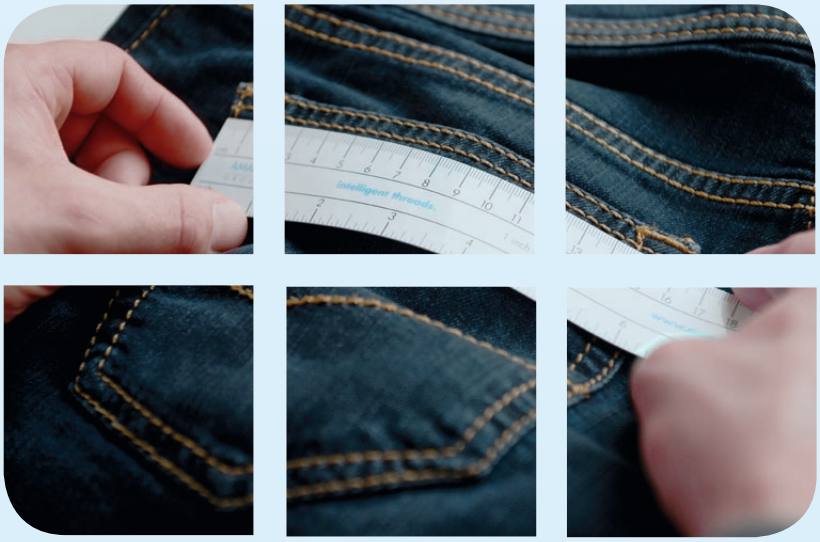
AMANN
GROUP

stitch types & sewing thread requirement.



intelligent threads.

Important stitch types at a glance.

Stitch types are the main processing element of the clothing industry. They describe the processing and are used as a "language code" for all processing descriptions. However, not everyone is familiar with the terms and numerations according to ISO 4915 and DIN 61400, the seam appearance and the correct stitch formation.

This brochure includes the most important stitch types as graphics and a picture of the corresponding seam appearance. The overview also contains industry standard data concerning seam width and stitch density per stitch type as well as the respective thread requirement.

Determining your sewing thread requirement.

Knowing your thread requirement is essential for work preparation, calculation and disposition. The basis for determining the sewing thread requirement is the stitch type. Therefore, the following overview lists the thread requirement figures based on the industry standard parameters: stitch density, sewing material thickness, seam width and seam length per stitch type.

The indicated thread requirement relates to the respective thread system (needle thread + bobbin or looper thread + cover thread) and is also listed in the overview as overall amount. This way it is possible to determine the consumption for single seam positions of a garment by multiplying seam length and thread requirement.

Furthermore, the table shows the percentage distribution of the sewing thread requirement per thread system (needle thread, bobbin or looper thread and cover thread).

Please keep in mind that the sewing material thickness can influence the percentage distribution (see section sewing material thickness).

Factors that mainly influence the sewing thread requirement:

• Stitch density

The stitch density has great influence on the sewing thread requirement, in particular for stitch types with cross-directional threads (overlock, cover chain or zig-zag stitches). An increase of the stitch density from 4 to 6 stitches/cm at the lockstitch (stitch type 301) leads, for example, to a sewing thread requirement increase of approx. 15%. At the 2-needle cover chainstitch (stitch type 602), the sewing thread requirement increases even by approx. 30% with the same increase in stitch density. This must be considered during calculation in order to avoid shortage in quantities and therefore costly subsequent deliveries.

• Sewing material thickness

A change in the sewing material thickness has a great effect on the sewing thread requirement as well. Besides a change in the overall thread requirement, it is possible that the ratio between the thread systems could shift. An increase in the sewing material thickness leads to a change in the relation between needle and looper thread for all stitch types, whose interlooping does not take place within but outside the fabric, an example is the double chainstitch. In this case, an increase of the sewing material thickness leads to an increase of the needle thread requirement, whereas the looper thread requirement remains constant.

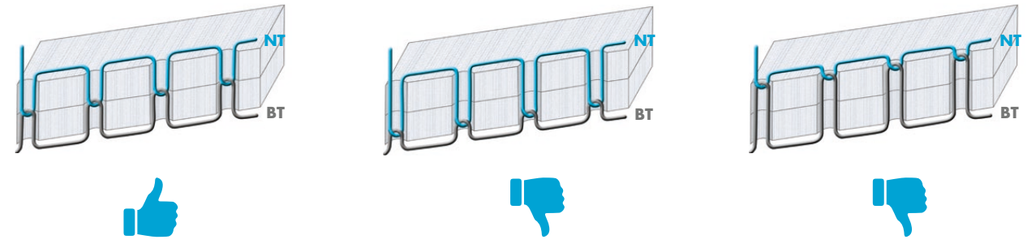
• Thread tension and thread balance

The overview on the subsequent pages shows stitch appearances with an optimal thread balance. If the interlooping or interlacing does not take place on the ideal position, there is an incorrect thread balance. This does not only affect the thread requirement, but also the seam strength and the seam elasticity. Therefore, it is crucial to aim always for an optimal thread balance.

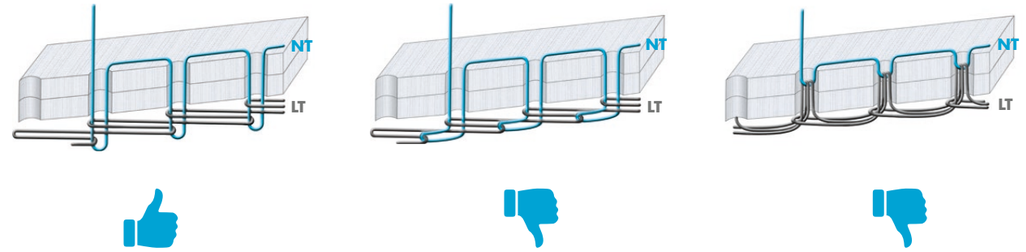
The cause of incorrect thread balance lies in unbalanced thread tension settings of the sewing machine. This changes the ratio between needle thread, bobbin or looper thread and, if applicable, cover thread and can influence the overall thread requirement tremendously, especially in stitch types of categories 500 and 600.

The optimal thread balance in the seam.

Lockstitch



Double chainstitch



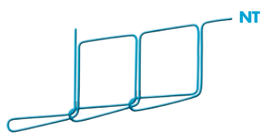
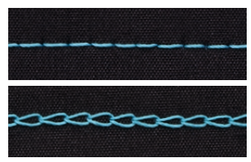
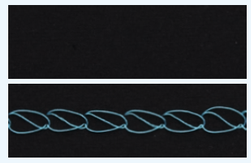
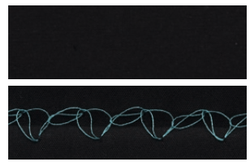
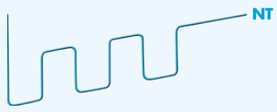
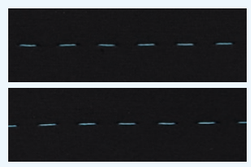
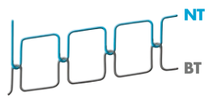
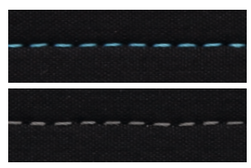
NT = needle thread | BT = bobbin thread | LT = looper thread

• Additional thread requirement

The thread requirement figures listed in the overview are so-called "net values". This means that they refer exclusively to a seam of one meter. In practice, there is a supplement of approx. 10 – 15% calculated on top of the net amount in order to ensure a sufficient thread supply during model calculation. This supplement considers the following procedures:

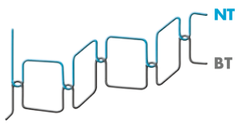
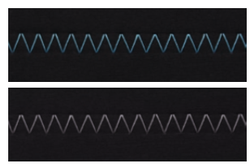
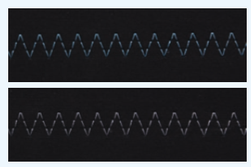
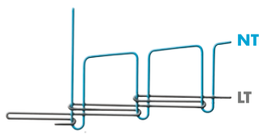
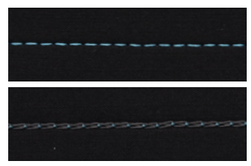
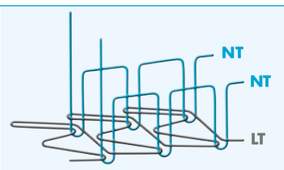
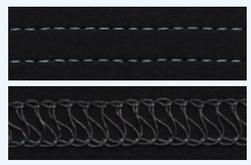
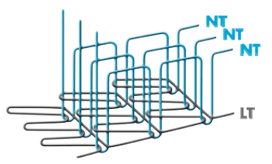
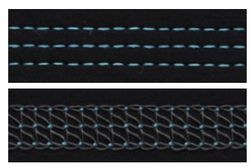
- Securing of seam beginning and seam end with lockstitch seams, e.g. by bar tacking
- Sewing seam ends of chainstitches
- Change of colour
- Remaining meters in case of spool or cone change
- Variability in sizes
- Model or production related changes

The mentioned relations have to be considered during model calculation. If the parameters such as stitch density, sewing material thickness, thread tension, seam width etc. of the piece being calculated do not match the information in this brochure, it is possible to easily identify the missing sewing thread requirement figures through unravelling and measuring a seam.

Stitch type Name	ISO 4915	Stitch appearance	Seam appearance top bottom	Seam width mm	Stitch density per cm	Thread requirement* in m per 1 m seam NT*	BT/LT*	CT*	Total	Thread requirement* in % per 1 m seam NT*	BT/LT*	CT*	Total
Single thread chainstitch	101			–	2	3,57	–	–	3,57	100%	–	–	100%
					3	3,85	–	–	3,85	100%	–	–	100%
Single thread blindstitch	103			–	2	4,57	–	–	4,57	100%	–	–	100%
					3	4,85	–	–	4,85	100%	–	–	100%
Single thread blindstitch	105			–	2	3,93	–	–	3,93	100%	–	–	100%
					3	4,39	–	–	4,39	100%	–	–	100%
Single thread lockstitch (handstitch)	209			–	4	1,80	–	–	1,80	100%	–	–	100%
					6	2,20	–	–	2,20	100%	–	–	100%
Lockstitch	301			–	4	1,31	1,31	–	2,62	50%	50%	–	100%
					6	1,49	1,49	–	2,98	50%	50%	–	100%

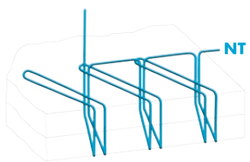
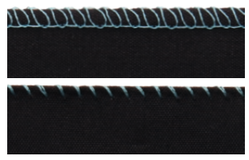
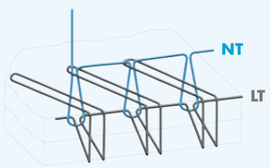
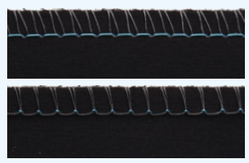
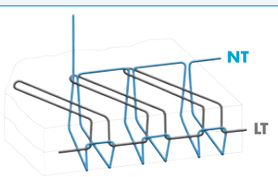
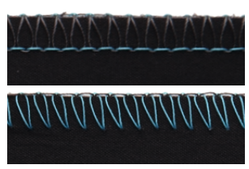
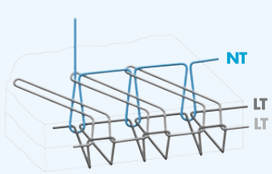
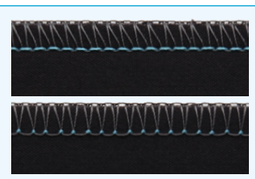
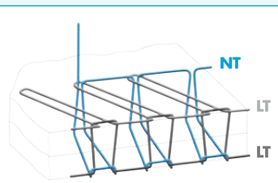
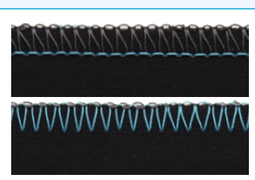
NT = needle thread | BT = bobbin thread
LT = looper thread | CT = cover thread

* Thread requirement: Net value for sewing material thickness of 1 mm (double layer of sewing material)

Stitch type Name	ISO 4915	Stitch appearance	Seam appearance top bottom	Seam width mm	Stitch density per cm	Thread requirement* in m per 1 m seam NT*	BT/LT*	CT*	Total	Thread requirement* in % per 1 m seam NT*	BT/LT*	CT*	Total
Lockstitch (zig-zag)	304			3	4	1,84	1,84	–	3,68	50%	50%	–	100%
					6	2,50	2,50	–	5,00	50%	50%	–	100%
Lockstitch (multiple zig-zag)	321			6	4	1,58	1,58	–	3,16	50%	50%	–	100%
					6	2,02	2,02	–	4,04	50%	50%	–	100%
Double chainstitch	401			–	4	1,61	3,53	–	5,14	31%	69%	–	100%
					6	2,01	3,80	–	5,81	35%	65%	–	100%
2-needle cover chain-stitch (without cover thread)	406			5	4	3,22	9,63	–	12,85	25%	75%	–	100%
					6	4,03	12,25	–	16,28	25%	75%	–	100%
3-needle cover chain-stitch (without cover thread)	407			6	4	4,83	12,11	–	16,94	28%	72%	–	100%
					6	6,04	15,10	–	21,15	29%	71%	–	100%

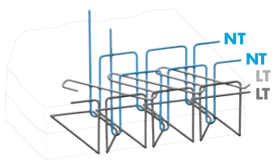
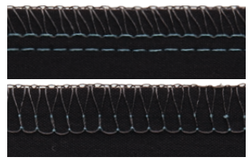
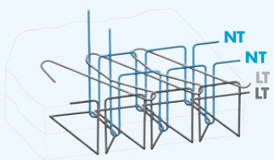
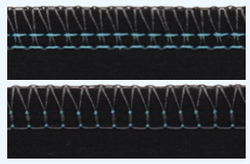
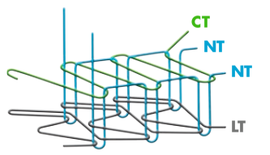
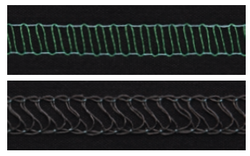
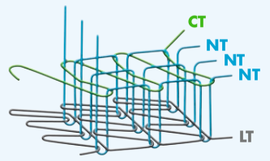
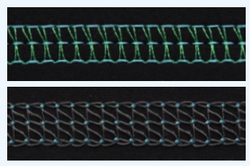
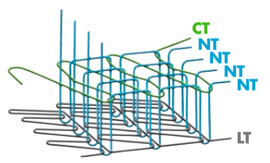
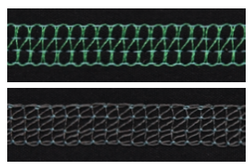
NT = needle thread | BT = bobbin thread
LT = looper thread | CT = cover thread

* Thread requirement: Net value for sewing material thickness of 1 mm (double layer of sewing material)

Stitch type Name	ISO 4915	Stitch appearance	Seam appearance top bottom	Seam width mm	Stitch density per cm	Thread requirement* in m per 1 m seam NT*	BT/LT*	CT*	Total	Thread requirement* in % per 1 m seam NT*	BT/LT*	CT*	Total
Single thread overlock stitch	501			5	4	11,40	–	–	11,40	100%	–	–	100%
					6	16,22	–	–	16,22	100%	–	–	100%
2-thread overlock stitch (inter-looped at needle hole)	502			5	4	1,61	10,60	–	12,21	13%	87%	–	100%
					6	2,01	15,02	–	17,03	12%	88%	–	100%
2-thread overlock stitch (inter-looped on edge)	503			5	4	6,51	5,79	–	12,30	53%	47%	–	100%
					6	9,12	8,20	–	17,31	53%	47%	–	100%
3-thread overlock stitch (inter-looped at needle hole)	504			5	4	1,61	12,02	–	13,63	12%	88%	–	100%
					6	2,01	16,73	–	18,75	11%	89%	–	100%
3-thread overlock stitch (inter-looped on edge)	505			5	4	6,27	7,46	–	13,73	46%	54%	–	100%
					6	8,76	10,19	–	18,95	46%	54%	–	100%

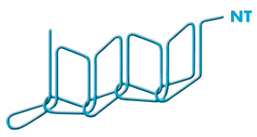
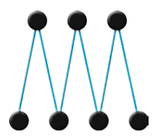
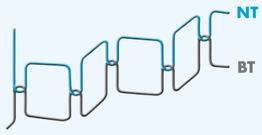
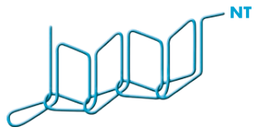
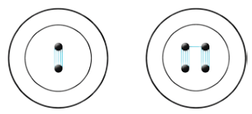
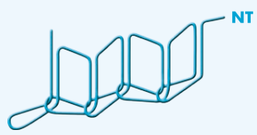
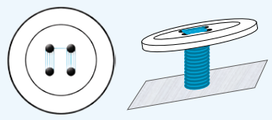
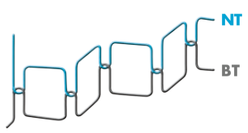
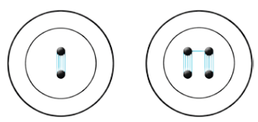
NT = needle thread | BT = bobbin thread
LT = looper thread | CT = cover thread

* Thread requirement: Net value for sewing material thickness of 1 mm (double layer of sewing material)

Stitch type Name	ISO 4915	Stitch appearance	Seam appearance top bottom	Seam width mm	Stitch density per cm	Thread requirement* in m per 1 m seam NT*	BT/LT*	CT*	Total	Thread requirement* in % per 1 m seam NT*	BT/LT*	CT*	Total
4-thread overlock stitch (imitated safety stitch)	512			7	4	3,22	13,36	–	16,58	19%	81%	–	100%
					6	4,03	18,58	–	22,61	18%	82%	–	100%
4-thread overlock stitch	514			7	4	3,22	15,65	–	18,87	17%	83%	–	100%
					6	4,03	22,10	–	26,13	15%	85%	–	100%
2-needle cover chainstitch (with cover thread)	602			4	4	3,30	8,08	4,15	15,52	21%	52%	27%	100%
					6	4,15	10,28	5,99	20,42	20%	50%	30%	100%
3-needle cover chainstitch (with cover thread)	605			6	4	4,95	10,91	5,66	21,52	23%	51%	26%	100%
					6	6,22	13,80	8,32	28,34	22%	49%	29%	100%
4-needle cover chainstitch (with cover thread)	607			7	4	6,60	14,15	6,43	27,18	24%	52%	24%	100%
					6	8,30	17,84	9,51	35,64	23%	50%	27%	100%

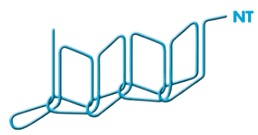
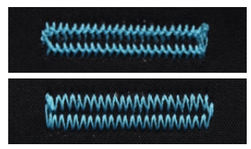
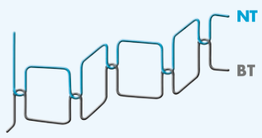
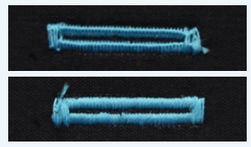
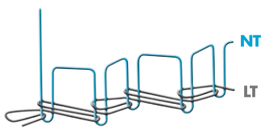
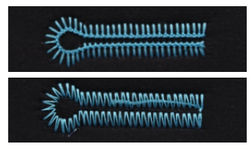
NT = needle thread | BT = bobbin thread
LT = looper thread | CT = cover thread

* Thread requirement: Net value for sewing material thickness of 1 mm (double layer of sewing material)

Stitch type Name	ISO 4915	Stitch appearance	Seam appearance	Stitches per cm	No. of stitches	Imple-men-tation	Thread requirement in m NT*	BT/LT*	Total	Thread requirement (%) NT*	BT/LT*	Total
Spot tack Single thread chainstitch (zig-zag)	107			25	7	2 mm	0,06	–	0,06	100%	–	100%
Bar tack Lockstitch (zig-zag)	304			35	42	12 mm	0,14	0,10	0,24	60%	40%	100%
Attach button Single thread chainstitch (zig-zag)	107			30	10	2-hole	0,13	–	0,13	100%	–	100%
					20	4-hole	0,25	–	0,25	100%	–	100%
Attach button with button shank Single thread chainstitch (zig-zag)	107			30	25	4-hole	0,37	–	0,37	100%	–	100%
Attach button Lockstitch (zig-zag)	304			30	10	2-hole	0,06	0,06	0,12	50%	50%	100%
					20	4-hole	0,12	0,10	0,22	53%	47%	100%

NT = needle thread | BT = bobbin thread
LT = looper thread | CT = cover thread

* Thread requirement: Net value for sewing material thickness of 1 mm (double layer of sewing material)

Stitch type Name	ISO 4915	Stitch appearance	Seam appearance top bottom	Stitches per cm	No. of stitches	Imple-men-tation	Thread requirement in m NT*	BT/LT*	Total	Thread requirement (%) NT*	BT/LT*	Total
Button hole Single thread chainstitch (zig-zag)	107			30	90	16 mm	0,70	–	0,70	100%	–	100%
Button hole Lockstitch (zig-zag)	304			30	160	18 mm	0,11	0,87	0,98	11%	89%	100%
Eyelet button hole without bar tack Double chain-stitch (zig-zag)	404			30	96	30 mm	0,33	0,62	0,95	35%	65%	100%

NT = needle thread | BT = bobbin thread
LT = looper thread | CT = cover thread

* Thread requirement: Net value for sewing material thickness of 1 mm (double layer of sewing material)

stitch types & sewing thread requirement.

Empirical data for roughly calculating the thread requirement.

It is important to know the amount of thread required for each piece. This is the precondition for ordering the right quantities, reducing stock and optimising costs. The following tables help herewith. The figures contained in them are based on fashionable as well as qualitative characteristics of the garments. A blazer with lining, for example, does normally not require any serging seams. This leads to a lower thread requirement in comparison to the thread requirement of a blazer without lining. Sporting elements such as decorative seams lead to an increased thread requirement. The supplements for seam beginning and seam end as well as change of colour have already been considered.

Ladieswear

Article	Range of variation (m)	Orientation value (m)	Orientation value includes		
			Closing seam (m)	Serging seam (m)	Decorative seam (m)
Trousers	180-350	265	40	172	53
Skirts	100-200	150	20	100	30
Blouses	80-200	140	21	91	28
Dresses (classic, with lining)	200-300	250	25	200	25
Dresses (sporting, without lining)	300-500	400	60	260	80
Blazers (classic, with lining)	100-400	250	212	0	38
Blazers (sporty, without lining)	300-500	400	140	200	60
Winter jackets (with lining)	150-500	325	225	0	100
Summer jackets (without lining)	150-700	425	85	300	40
Coats	200-1000	600	180	210	210

Menswear

Article	Range of variation (m)	Orientation value (m)	Orientation value includes		
			Closing seam (m)	Serging seam (m)	Decorative seam (m)
Classic trousers	200-300	250	75	163	12
5-pocket trousers	180-300	240	72	84	84
Blazers	100-260	180	162	0	18
Coats/jackets	250-350	300	240	0	60
Shirts (short-sleeve)	70-100	85	75	0	10
Shirts (long-sleeve)	100-130	115	104	0	11

Underwear

Article	Range of variation (m)	Orientation value (m)	Orientation value includes		
			Closing seam (m)	Serging seam (m)	Decorative/cover seam (m)
Vests/t-shirts	70-150	110	27	77	6
Underpants Ladies/Men	20-100	60	3	9	48
Bras	20-80	50	10	20	20
Homewear	170-250	210	53	105	52
Nightgowns	130-190	160	40	104	16

Shoes

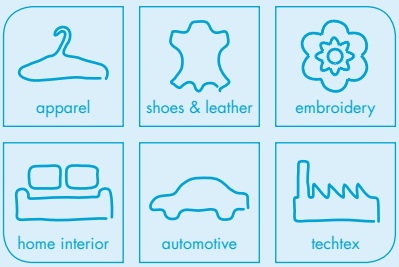
Article	Range of variation (m)	Orientation value (m)	Orientation value includes		
			Closing seam (m)	Serging seam (m)	Decorative seam (m)
Football shoes	20-80	50	5	0	45
Men's shoes	15-30	23	5	0	18
Women's shoes	20-30	25	5	0	20
Women's boots	25-45	35	7	0	28

Our service for you:

Sewing thread recommendations for your specific fabric and sewing parameters as well as thread requirement calculations are available on request from AMANN's technical sewing service.

100023
EN 02700115

intelligent threads.



Our management systems are certified according to

Amann & Söhne GmbH & Co. KG
Hauptstraße 1 | D-74357 Bönnigheim | Phone +49 7143 277-0
E-Mail: service@amann.com | www.amann.com