AMANN
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THE COMPANY

THE COMPANY

Innovation since 1854

Since 1854, AMANN has been one of the leading global producers in the field of high-quality sewing and embroidery threads. Its technical expertise, reliability and flexibility in production and service makes AMANN a strong partner worldwide.

More than 2,500 motivated employees in more than 100 countries worldwide make AMANN's success possible. AMANN Group exclusively produces at its own production sites. The company headquarters are located in Bönnigheim, Germany.

Commitment to the precepts of the UN global compact

As a global company, AMANN has made the conscious decision to enter into the UN Global Compact. "The United Nations Global Compact is the world's biggest and most important initiative for responsible corporate management. Based on ten universal principles and the Sustainable Development Goals, it pursues the vision of an inclusive and sustainable global economy to the benefit of all people, communities and markets, today and in the future." [1]

[1] German Global Compact Network office: United Nations Global Compact

It is AMANN's ambition not only to be a pioneer in terms of high-quality, sophisticated products, but also in activities in the spirit of sustainability.

Learn more about our sustainable achievements and targets in our annually published Sustainability Report.

Certification & safety

Ensuring our high quality and environmental standards is an essential part of the AMANN philosophy. That is why we comply with the following internationally recognised certifications and standards:

- Quality management system ISO 9001
- Automotive quality management system IATF 16949
- Environmental management system ISO 14001
- Higg Index Facility Environmental Module (Higg Index FEM)
- Higg Index Facility Social and Labour Module (Higg Index FSML)

Product certifications

The compliance with REACH guarantees that AMANN's products are not harmful. Moreover, they are certified according to STANDARD 100 by OEKO-TEX®, and a large number of the products are even certified to the stricter criteria of appendix 6.

Several AMANN products have been examined concerning the industrial wash resistance according to DIN EN ISO 15797, and have received the PRO-Label certification according to DIN EN ISO 30023.

The products from our Lifecycle line are Cradle to Cradle Certified® Gold and the products from our Recycled line are available as Global Recycled Standard (GRS) certified.

BASIC KNOWLEDGE

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. Subsequently, the most important stitch types are specified including graphics and pictures 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.

Determination of the sewing thread requirement

Knowing the 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 industrial 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 an overall amount. Thus, 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). It is important to consider that the sewing material thickness may influence the percentage distribution (see section sewing material thickness).

Factors that mainly influence the sewing thread requirement

Stitch density

The stitch density has huge 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%. With the 2-needle cover chainstitch (stitch type 602), the sewing thread requirement even increases by approx. 30% with the same increase in stitch density. This must be considered during calculation to avoid shortage in quantities and therefore costly subsequent deliveries.

Sewing material thickness

A change in the sewing material thickness has also big impact on the sewing thread requirement. Besides a change in the overall thread requirement, it is possible that the ratio between the thread systems could shift. An increase of 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. The double chainstitch is an example for this. 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 following overview shows stitch appearances with an optimal thread balance. If the interloopingor 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 always aim for an optimal thread balance. The cause of an incorrect thread balance can tremendously influence unbalanced thread tension setting 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, especially with stitch types of categories 500 and 600.

Additional thread requirement

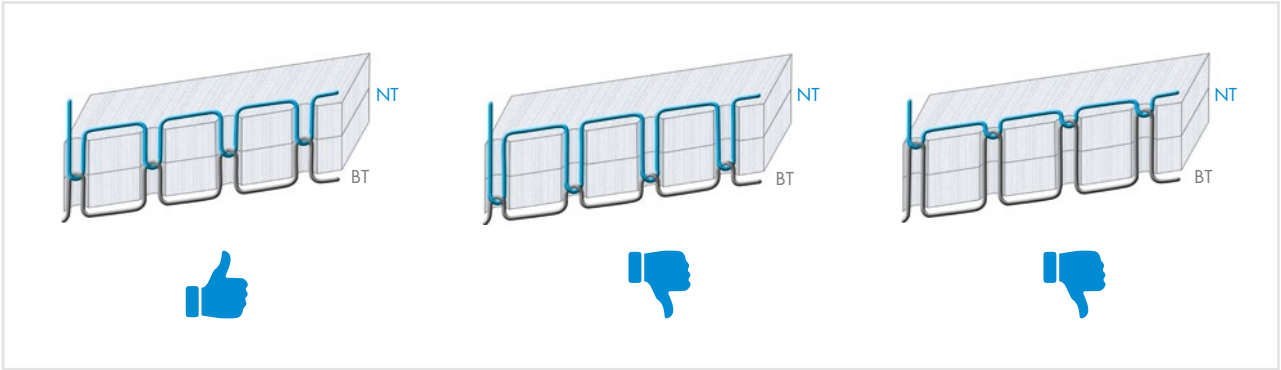
The thread requirement figures listed in the overview are so-called "net values". This means that they chapter to a seam of one meter. In practice, there is a supplement of approx. 10 – 15% calculatedon top of the net amount to ensure a sufficient thread supply during model calculation.

This supplement considers the following procedures:

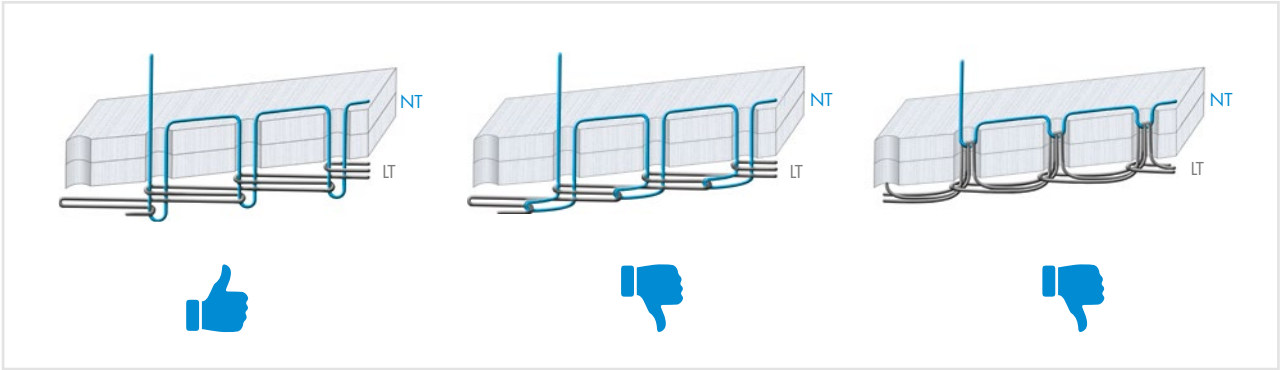
- Securing of seam beginning and seam end with lockstitch seams, e.g. by bar tacking
- Sewing seam ends of chainstitches
- Change of colour
- Remaining meters in case of spool or cone change
- Variability in sizes
- Model- or production-related changes

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

The recommended thread balance in the seam



Lockstitch

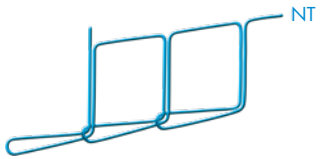
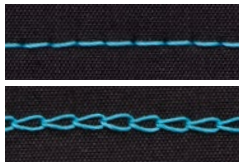


Double chainstitch

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

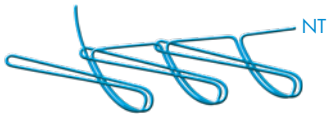
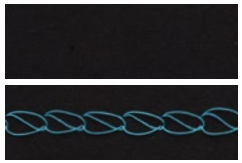
STITCH TYPES & SEWING THREAD REQUIREMENT

Single thread chainstitch

ISO 4915	Stitch appearance	Seam appearance top/bottom	Seam width in mm
101			–

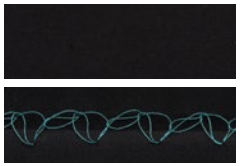
Stitch density per cm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam			
	NT*	BT/LT*	CT*	Total	NT*	BT/LT*	CT*	Total
2	3.57	–	–	3.57	100	–	–	100
3	3.85	–	–	3.85	100	–	–	100

Blindstitch

ISO 4915	Stitch appearance	Seam appearance top/bottom	Seam width in mm
103			–

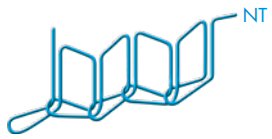
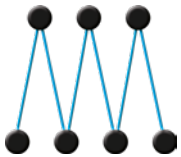
Stitch density per cm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam			
	NT*	BT/LT*	CT*	Total	NT*	BT/LT*	CT*	Total
2	4.57	–	–	4.57	100	–	–	100
3	4.85	–	–	4.85	100	–	–	100

Blindstitch

ISO 4915	Stitch appearance	Seam appearance top/bottom	Seam width in mm
105			–

Stitch density per cm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam			
	NT*	BT/LT*	CT*	Total	NT*	BT/LT*	CT*	Total
2	3.93	–	–	3.93	100	–	–	100
3	4.39	–	–	4.39	100	–	–	100

Spot tacking single thread chainstitch (zig-zag)

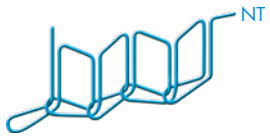
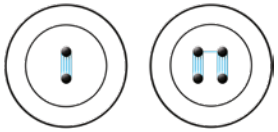
ISO 4915	Stitch appearance	Seam appearance top/bottom	Stitches per cm
107			25

No. of stitches	Implementation in mm	Thread requirement* in m per 1 m seam			Thread requirement* in % per 1 m seam		
		NT*	BT/LT*	Total	NT*	BT/LT*	Total
7	2	0.06	–	0.06	100	–	100

NT = needle thread | BT = bobbin thread

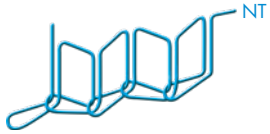
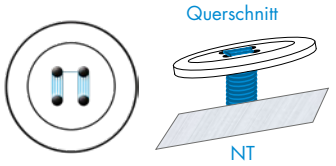
* Thread requirement: Net value for sewing material thickness of 1 mm (double layer of sewing material)

Set/attach button single thread chainstitch (zig-zag)

ISO 4915	Stitch appearance	Seam appearance top/bottom	Stitches per cm
107			30

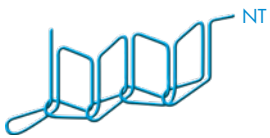
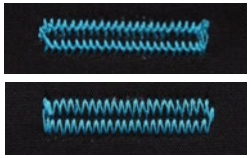
No. of stitches	Implementation	Thread requirement* in m per 1 m seam			Thread requirement* in % per 1 m seam		
		NT*	BT/LT*	Total	NT*	BT/LT*	Total
10	2-Loch	0.13	–	0.13	100	–	100
20	4-Loch	0.25	–	0.25	100	–	100

Spot tacking single thread chainstitch (zig-zag)

ISO 4915	Stitch appearance	Seam appearance top/bottom	Stitches per cm
107			35

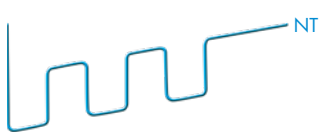
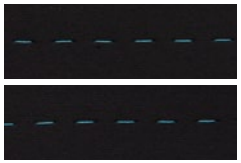
No. of stitches	Implementation	Thread requirement* in m per 1 m seam			Thread requirement* in % per 1 m seam		
		NT*	BT/LT*	Total	NT*	BT/LT*	Total
25	4-Loch	0.37	–	0.37	100	–	100

Shirt buttonhole single thread chainstitch (zig-zag)

ISO 4915	Stitch appearance	Seam appearance top/bottom	Stitches per cm
107			30

No. of stitches	Implementation in mm	Thread requirement* in m per 1 m seam			Thread requirement* in % per 1 m seam		
		NT*	BT/LT*	Total	NT*	BT/LT*	Total
90	16	0.70	–	0.70	100	–	100

Single thread lockstitch (hand stitch)

ISO 4915	Stitch appearance	Seam appearance top/bottom	Seam width in mm
209			–

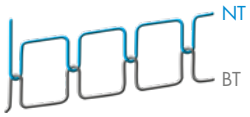
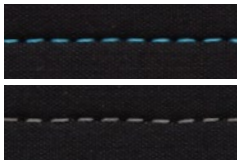
Stitch density per cm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam			
	NT*	BT/LT*	CT*	Total	NT*	BT/LT*	CT*	Total
4	1.8	–	–	1.8	100	–	–	100
6	2.2	–	–	2.2	100	–	–	100

NT = needle thread | BT = bobbin thread

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

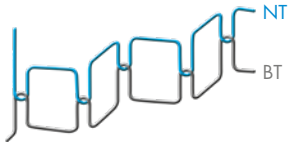
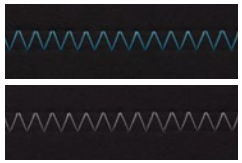
STITCH TYPES & SEWING THREAD REQUIREMENT

Lockstitch

ISO 4915	Stitch appearance	Seam appearance top/bottom	Seam width in mm
301			–

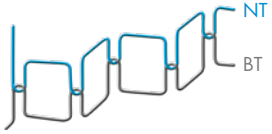
Stitch density per cm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam			
	NT*	BT/LT*	CT*	Total	NT*	BT/LT*	CT*	Total
4	1.31	1.31	–	2.62	50	50	–	100
6	1.49	1.49	–	2.98	50	50	–	100

Lockstitch (zig-zag)

ISO 4915	Stitch appearance	Seam appearance top/bottom	Seam width in mm
304			3

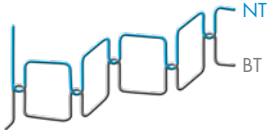
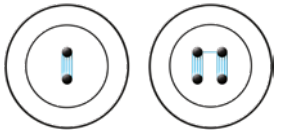
Stitch density per cm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam			
	NT*	BT/LT*	CT*	Total	NT*	BT/LT*	CT*	Total
4	1.84	1.84	–	3.68	50	50	–	100
6	2.5	2.5	–	5	50	50	–	100

Bar tack lockstitch (zig-zag)

ISO 4915	Stitch appearance	Seam appearance top/bottom	Stitches per cm
304			35

No. of stitches	Implementation in mm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam		
		NT*	BT/LT*	CT*	Total	NT*	BT/LT*	Total
42	12	0.14	0.10	–	0.24	100	–	100

Set/attach button lockstitch (zig-zag)

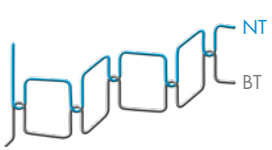
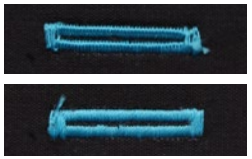
ISO 4915	Stitch appearance	Seam appearance top/bottom	Stitches per cm
304			25

No. of stitches	Implementation	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam		
		NT*	BT/LT*	CT*	Total	NT*	BT/LT*	Total
10	2-Loch	0.06	0.06	–	0.12	50	50	100
20	4-Loch	0.12	0.10	–	0.22	53	47	100

NT = needle thread | BT = bobbin thread

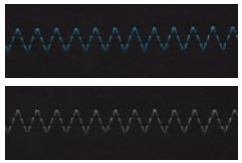
* Thread requirement: Net value for sewing material thickness of 1 mm (double layer of sewing material)

Shirt buttonhole lockstitch (zig-zag)

ISO 4915	Stitch appearance	Seam appearance top/bottom	Stitches per cm
304			30

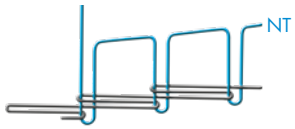
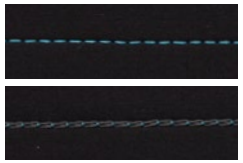
No. of stitches	Implementation in mm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam		
		NT*	BT/LT*	CT*	Total	NT*	BT/LT*	Total
160	18	0.11	0.87	–	0.98	11	89	100

Lockstitch (multiple zig-zag)

ISO 4915	Stitch appearance	Seam appearance top/bottom	Seam width in mm
321			6

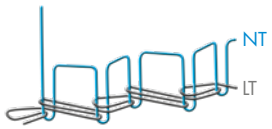
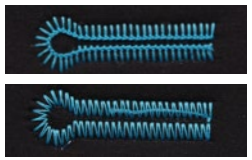
Stitch density per cm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam			
	NT*	BT/LT*	CT*	Total	NT*	BT/LT*	CT*	Total
4	1.58	1.58	–	3.16	50	50	–	100
6	2.02	2.02	–	4.04	50	50	–	100

Double chainstitch

ISO 4915	Stitch appearance	Seam appearance top/bottom	Seam width in mm
401			–

Stitch density per cm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam			
	NT*	BT/LT*	CT*	Total	NT*	BT/LT*	CT*	Total
4	1.61	3.53	–	5.14	31	69	–	100
6	2.01	3.80	–	5.81	35	65	–	100

Eyelet buttonhole without bar tack double chainstitch (zig-zag)

ISO 4915	Stitch appearance	Seam appearance top/bottom	Stitches per cm
404			30

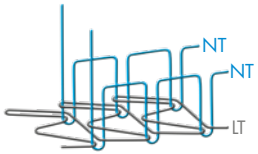
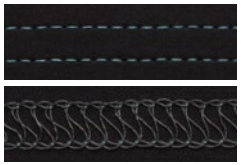
No. of stitches	Implementation in mm	Thread requirement* in m per 1 m seam			Thread requirement* in % per 1 m seam		
		NT*	BT/LT*	Total	NT*	BT/LT*	Total
96	30	0.33	0.62	0.95	35	65	100

NT = needle thread | BT = bobbin thread

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

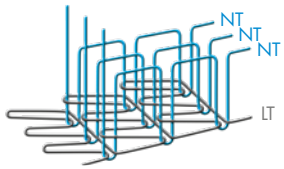
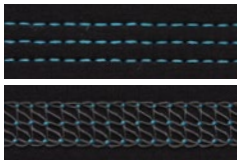
STITCH TYPES & SEWING THREAD REQUIREMENT

2-needle cover chain stitch (without cover thread)

ISO 4915	Stitch appearance	Seam appearance top/bottom	Seam width in mm
406			5

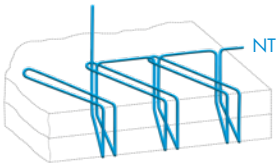
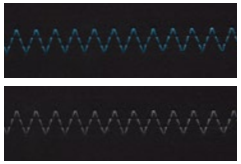
Stitch density per cm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam			
	NT*	BT/LT*	CT*	Total	NT*	BT/LT*	CT*	Total
4	3.22	9.63	–	12.85	25	75	–	100
6	4.03	12.25	–	16.28	25	75	–	100

3-needle cover chain stitch (without cover thread)

ISO 4915	Stitch appearance	Seam appearance top/bottom	Seam width in mm
407			6

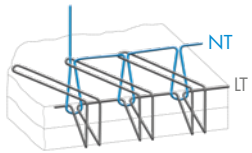
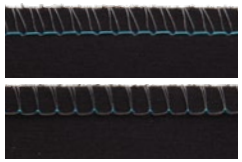
Stitch density per cm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam			
	NT*	BT/LT*	CT*	Total	NT*	BT/LT*	CT*	Total
4	4.83	12.11	–	16.94	28	72	–	100
6	6.04	15.10	–	21.15	29	71	–	100

1-thread overlock stitch

ISO 4915	Stitch appearance	Seam appearance top/bottom	Seam width in mm
501			5

Stitch density per cm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam			
	NT*	BT/LT*	CT*	Total	NT*	BT/LT*	CT*	Total
4	11.40	–	–	11.40	100	–	–	100
6	16.22	–	–	16.22	100	–	–	100

2-thread overlock stitch (interlaced at needle hole)

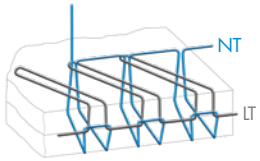
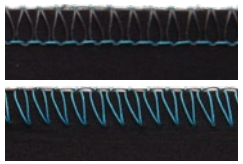
ISO 4915	Stitch appearance	Seam appearance top/bottom	Seam width in mm
502			5

Stitch density per cm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam			
	NT*	BT/LT*	CT*	Total	NT*	BT/LT*	CT*	Total
4	1.61	10.60	–	12.21	13	87	–	100
6	2.01	15.02	–	17.03	12	88	–	100

NT = needle thread | BT = bobbin thread

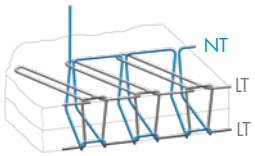
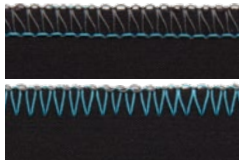
* Thread requirement: Net value for sewing material thickness of 1 mm (double layer of sewing material)

2-thread overlock stitch (interlaced on edge)

ISO 4915	Stitch appearance	Seam appearance top/bottom	Seam width in mm
503			5

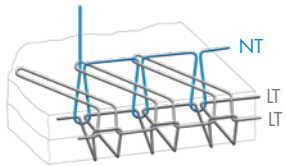
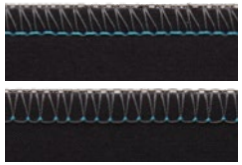
Stitch density per cm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam			
	NT*	BT/LT*	CT*	Total	NT*	BT/LT*	CT*	Total
4	6.51	5.79	–	12.30	53	47	–	100
6	9.12	8.20	–	17.31	53	47	–	100

3-thread overlock stitch (interlaced on edge)

ISO 4915	Stitch appearance	Seam appearance top/bottom	Seam width in mm
505			5

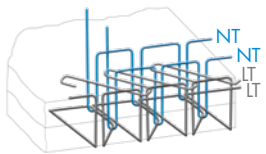
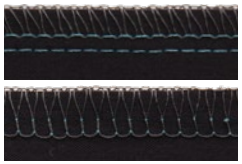
Stitch density per cm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam			
	NT*	BT/LT*	CT*	Total	NT*	BT/LT*	CT*	Total
4	6.27	7.46	–	13.73	46	54	–	100
6	8.76	10.19	–	18.95	46	54	–	100

3-thread overlock stitch (interlaced at needle hole)

ISO 4915	Stitch appearance	Seam appearance top/bottom	Seam width in mm
504			5

Stitch density per cm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam			
	NT*	BT/LT*	CT*	Total	NT*	BT/LT*	CT*	Total
4	1.61	12.02	–	13.63	12	88	–	100
6	2.01	16.73	–	18.75	11	89	–	100

4-thread overlock stitch (imitated safety stitch)

ISO 4915	Stitch appearance	Seam appearance top/bottom	Seam width in mm
512			7

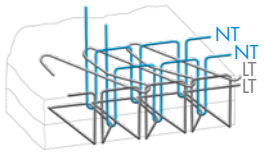
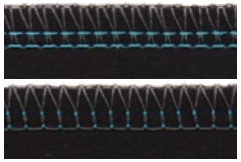
Stitch density per cm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam			
	NT*	BT/LT*	CT*	Total	NT*	BT/LT*	CT*	Total
4	3.22	13.36	–	16.58	19	81	–	100
6	4.03	18.58	–	22.61	18	82	–	100

NT = needle thread | BT = bobbin thread

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

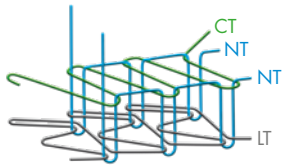
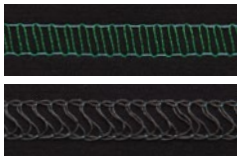
STITCH TYPES & SEWING THREAD REQUIREMENT

4-thread overlock stitch

ISO 4915	Stitch appearance	Seam appearance top/bottom	Seam width in mm
514			7

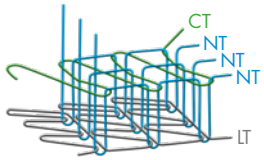
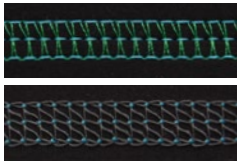
Stitch density per cm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam			
	NT*	BT/LT*	CT*	Total	NT*	BT/LT*	CT*	Total
4	3.22	15.65	–	18.87	17	83	–	100
6	4.03	22.10	–	26.13	15	85	–	100

2-needle cover chain stitch (with cover thread)

ISO 4915	Stitch appearance	Seam appearance top/bottom	Seam width in mm
602			4

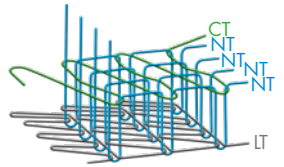
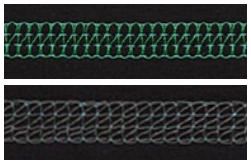
Stitch density per cm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam			
	NT*	BT/LT*	CT*	Total	NT*	BT/LT*	CT*	Total
4	3.30	8.08	4.15	15.52	21	52	27	100
6	4.15	10.28	5.99	20.42	20	50	30	100

3-needle cover chain stitch (with cover thread)

ISO 4915	Stitch appearance	Seam appearance top/bottom	Seam width in mm
605			6

Stitch density per cm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam			
	NT*	BT/LT*	CT*	Total	NT*	BT/LT*	CT*	Total
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 chain stitch (with cover thread)

ISO 4915	Stitch appearance	Seam appearance top/bottom	Seam width in mm
607			7

Stitch density per cm	Thread requirement* in m per 1 m seam				Thread requirement* in % per 1 m seam			
	NT*	BT/LT*	CT*	Total	NT*	BT/LT*	CT*	Total
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

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

EMPIRICAL DATA FOR 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 serve as a guidance. The figures contained are based on fashionable and qualitative characteristics of the garments. The supplements for seam beginning and seam end and colour change are considered in the following.

LADIESWEAR

Article	Range of variation (m)	Orientation value (m)	Orientation value includes (m)		
			Closing seam	Serging seam	Decorative seam
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 (m)		
			Closing seam	Serging seam	Decorative seam
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 (m)		
			Closing seam	Serging seam	Decorative seam
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 (m)		
			Closing seam	Serging seam	Decorative seam
Sports 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

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