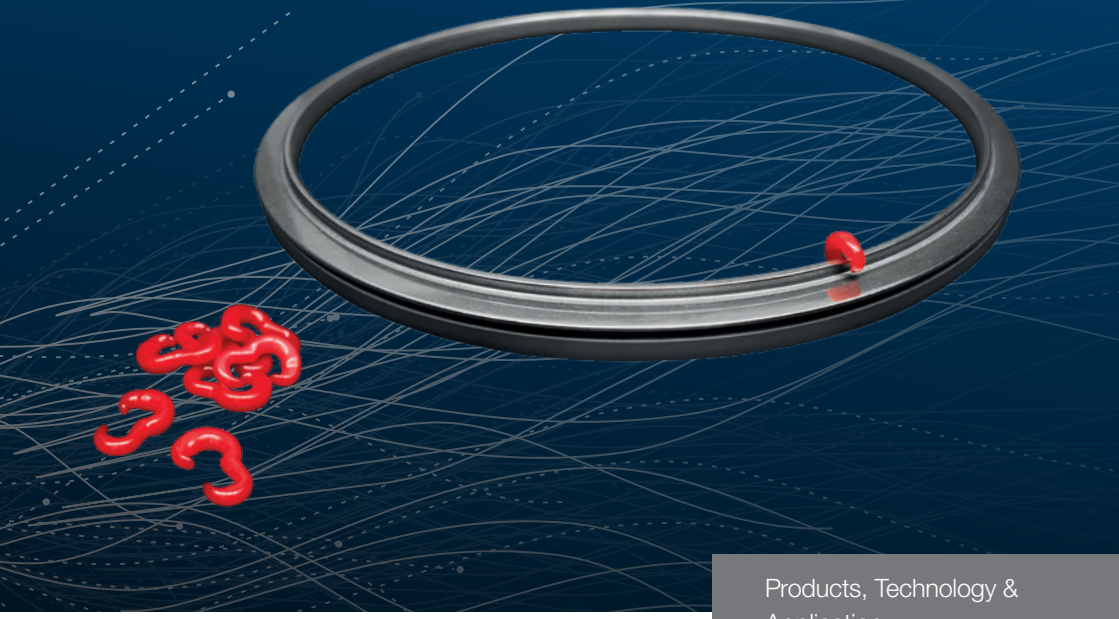
Bräcker

Long Staple Spinning, Flax Spinning and Twisting



Products, Technology & Application

Bräcker

Correlation Table for Yarn Counts – Ring Traveler Weights for Vertical and Conical Ring Systems

Yarn count		TYPE HZ vertical ISO No	TYPE J. conical ISO No
Tex	Nm		
10000	0.1	18000 – 20000	
5000	0.2	14000 – 16000	4000 – 5000
3300	0.3	10000 – 14000	3150 – 4000
2500	0.4	8000 – 11200	2800 – 3150
1650	0.6	5000 – 10000	2500 – 2800
1250	0.8	3550 – 6300	2000 – 2240
1000	1	2240 – 3150	1400 – 1800
840	1.2	1600 – 2000	1000 – 1400
710	1.4	1250 – 1400	900 – 1250
590	1.7	1000 – 1250	800 – 1000
500	2	900 – 1120	710 – 900
400	2.5	800 – 1000	630 – 710
330	3	630 – 800	560 – 630
250	4	450 – 710	450 – 500
165	6	355 – 450	280 – 315
125	8	250 – 315	250 – 280
100	10	180 – 224	224 – 250
84	12	140 – 180	160 – 180
71	14	125 – 160	125 – 140
63	16	112 – 140	112 – 125
56	18	100 – 125	100 – 112
50	20	80 – 112	90 – 100
42	24	71 – 90	80 – 90
36	28	63 – 80	71 – 80
31	32	63 – 71	63 – 71
28	36	45 – 63	50 – 63
25	40	35.5 – 50	40 – 56
22	44	28 – 40	31,5 – 40
20	50	22.4 – 35.5	
18	56	16 – 20	
16	60		
14	70		
12	85		
10	100		
8.5	120		

The values provided above are guide values.
The final ring traveler weight should be selected through trials.

Formulas

Ring traveler speed in m/s

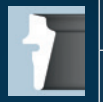
$$V_T = \frac{d \times \pi \times n}{60 \times 1\,000}$$

Spindle speed in n/min

$$n = \frac{V_T \times 60 \times 1\,000}{D \times \pi}$$

V_T = Ring traveler speed in m/s
D = Ring diameter in mm
π = Pi, 3.14 mm
n = Spindle speed (rpm)

Yarn Types and Twists – Application Overview

Fiber yarn	Ring type	Ring shape	Ring traveler type	Ring Traveler Material
Worsted wool Acrylic	Steel ring	Conical 	J 9.1 to 17.4	STEEL/NYLTEX
Chenille			J 11.1 to 17.4	STEEL/NYLTEX
Acrylic		SU 	SU	STEEL
Flax (linen)	Steel ring	F-series 	Fi2, FZ (FU)	NYLTEX
Woolen	Steel ring	HZ (vertical) 	HZ 10.3 to 16.7	STEEL/NYLTEX
Glass filament	Sintered metal		HZ 4.8 to 16.7	NYLTEX
Carpet yarn			HZ 16.7 to 25.4	NYLTEX/ STEELTEX
Tire cord			HZ 16.7	NYLTEX
Tire cord			HZ 16.7 to 38.1	
Fish net			HZ 25.4 to 38.1	
Draw twisting			HZ 9.5 to 16.7	STEEL STEELTEX

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Long Staple Spinning, Flax Spinning and Twisting

Introduction

Unlike the spinning of short staple fibers, such as cotton, polyester, viscose and their blends, long staple fiber spinning and the twisting of all thread types use lubricated rings. Wool and other long staple fibers have relatively high micronaire values and are not able to create a fiber lubrication film on the ring. This is the same for twisting of filaments.

The task of rings and ring travelers remains to impart the twist, create tension and wind the yarn or twist onto a cop or bobbin.

Since this ring/ring traveler system is actively lubricated, the tension control is not dependent on the fiber lubrication or the fiber type. Rather, the ring type, its lubrication points and the lubricant used are more important in these processes.

But the shape and weight of the ring traveler are still of high importance.

Twists result mainly in coarse counts, and heavy ring travelers are therefore used. The high speeds of these heavy ring travelers create high ring loads. Furthermore, heavy STEEL ring travelers are difficult to insert and remove from the rings. NYLTEX ring travelers are used in place of STEEL ring travelers for coarse counts. The nylon used (PA 6.6) has a higher coefficient of friction, meaning lighter ring travelers can be used while still creating the necessary tension.

STEEL ring travelers are mostly used for worsted, semi-worsted and acrylic spinning and fine count twisting.

NYLTEX ring travelers are mostly used for heavier yarn count spinning and twisting NYLTEX travelers are exclusively used for wet flax spinning and glass filament twisting.

Spinning

Worsted, Semi-Worsted and Acrylics
Conical rings and STEEL or NYLTEX ring travelers are used. Heavier yarn counts, such as carpet yarns, are also processed on vertical sintered metal rings and NYLTEX ring travelers.

Acrylics
The SU ring and SU ring traveler system is an alternative solution to conical rings and STEEL ring travelers.

Wet Flax/Linen
Wet spinning yarns are processed on non-corrosive flange rings and NYLTEX ring travelers.

Twisting

General Twisting
Vertical sintered metal rings and NYLTEX ring travelers are used.

Draw Twisting
Vertical sintered metal rings and STEEL or STEELTEX ring travelers are used.

Glass Filament Twisting
Vertical sintered metal rings and NYLTEX ring travelers are used. To prevent damage to the filament, the specially designed NYLTEX ring travelers create a consistent tension and have an optimal yarn path.

The following pages provide information on specific applications.

Long Staple Spinning

Worsted, semi-worsted and acrylic yarns are spun on conical rings with STEEL or NYLTEX ring travelers or SU rings with STEEL ring travelers.

Conical Rings and Ring travelers

Worsted and semi-worsted yarns are mainly spun on self-lubricating conical rings, with J-shaped STEEL ring travelers being used for finer yarn counts and STEEL or NYLTEX ring travelers for heavier yarn counts.

Ring Travelers for Long Staple Spinning – Delivery Program

STEEL					
		J 9.1	J 11.1		
No.	ISO	CST r	r	CST-B r	KST r
39	12.5	■			
38	14	■	■		
37	16	■	■		
36	18	■	■		
35	20	■	■	■	
32	22.4	■	■	■	
31	25	■	■	■	
30	28	■	■	■	
29	31.5	■	■	■	
28.5	35.5	■	■	■	
28	40	■	■	■	
27.5	45	■	■	■	
27	50	■	■	■	
26.5	56	■	■	■	
26	63	■	■	■	■
25	71	■	■	■	■
24.5	80	■	■	■	■
24	90	■	■	■	■
23.5	100	■	■	■	■
23	112	■	■	■	■
22	125	■	■	■	■
21.5	140	■	■	■	■
21	160	■	■	■	■
20	180	■	■	■	■
19.5	200	■	■	■	■
19	224	■	■	■	■
18.5	250	■	■	■	■
18	280	■	■	■	■
17.5	315	■	■	■	■
17	355	■	■	■	■
16	400	■	■	■	■
15	450	■	■	■	■
	500		■	■	■
	560		■	■	■
	630		■		■
	710		■		■
	800		■		■
	900		■		■
	1000				

STEEL traveller finishes
■ Regular type

NYLTEX					
		J 11.1		J 17.4	
ISO		ER E	LER LE	ER E	LER LE
40		■	■		
45					
50		■	■		
56					
63		■	■		
71		■	■		
80		■	■		
90		■	■		
100		■	■	■	
112		■	■	■	
125		■	■	■	
140		■	■	■	
160		■	■	■	
180		■	■	■	
200		■	■	■	
224		■	■	■	
250		■	■	■	
280		■	■	■	■
315		■	■	■	■
355		■	■	■	■
400		■	■	■	■
450		■	■	■	■
500			■	■	■
560			■	■	■
630			■	■	■
710			■	■	■
800			■	■	
900			■	■	
1000			■	■	
1120				■	
1250				■	
1400				■	
1600				■	
1800				■	
2000				■	
2240				■	
2500				■	
2800				■	
*					

NYLTEX traveller qualities
- Lubridur
- R (glass fibre reinforced)

Recommendations for spinning long staple fibers on conical rings

- STEEL ring travelers for fine to medium yarn counts
- NYLTEX ring travelers for medium to coarse yarn counts
- The ring traveler shape, in particular the yarn path, must be chosen according to the yarn count and type. There must be sufficient clearance when producing bulky yarns.

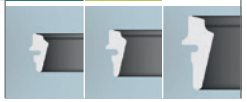
* Heavier numbers available on request

Ring/Ring Traveler Combination for Long Staple Spinning

The conical ring with J-shaped ring travelers is the most effective and proven combination for spinning wool, acrylics, cashmere and blends.

Yarn count			Ring height			Traveler weight / No.		
						Steel		NYLTEX
Tex	Nm	Ne_W	9.1	11.1	17.4	Bräcker No.	ISO No.	ISO No.
500	**2**	3.9						**710 - 900**
330	**3**	5.8						**560 - 630**
250	**4**	7.8						**450 - 500**
165	**6**	11.6				14 - 15	710 - 900	**280 - 355**
125	**8**	15.5				15 - 16	560 - 710	**250 - 280**
100	**10**	19.4				16 - 17	450 - 560	**224 - 250**
84	**12**	23.3				17 - 18	355 - 450	**160 - 180**
71	**14**	27				**18 - 19**	**250 - 355**	**125 - 140**
63	**16**	31				**19 - 20**	**180 - 250**	**112 - 125**
56	**18**	34.9				**19 - 21**	**160 - 250**	100 - 112
50	**20**	38.8				**20 - 22**	**125 - 180**	90 - 100
42	**24**	46.5				**21 - 23**	**112 - 160**	80 - 90
36	**28**	54.3				**22 - 23**	**112 - 125**	
31	**32**	62				**23 - 24**	**90 - 112**	
28	**36**	69.8				**24 - 25**	**71 - 90**	
25	**40**	77.5				**24 - 26**	**63 - 90**	
22.5	**44**	85.3				**26 - 27**	**50 - 63**	
20	**50**	96.9				**25 - 28**	**40 - 71**	
18	**56**	108				**26 - 29**	**31.5 - 63**	
16.5	**60**	116.3				**27 - 30**	**28 - 50**	
14.5	**70**	136				**28 - 31**	**25 - 40**	
12	**85**	165				**29 - 31**	**25 - 31.5**	
10	**100**	194				**30 - 34**	**20 - 28**	
8.5	**120**	232				**31 - 34**	**20 - 25**	
7.2	**140**	270				**32 - 38**	**14 - 22.4**	

recommended
possible



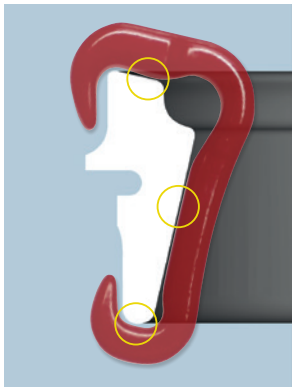
Numbers in **bold** are recommended

- The ring heights listed are recommendations. Please refer to the actual rings being used for specifications.
- All ring traveler weights listed are available. The final specifications should be confirmed by completing trials in the spinning mill.

Heavier yarn counts for carpet yarns are also processed on vertical sintered metal rings and NYLTEX ring travelers. Please see the table of ring traveler weights on page 7 and 8.

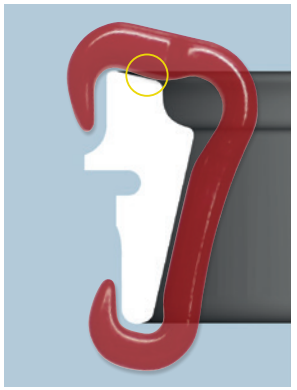
Selecting the Correct NYLTEX Ring Traveler Weight (J-Shaped Ring Travelers)

Correct weight



Uniform wear along vertical back, head and foot

Too heavy



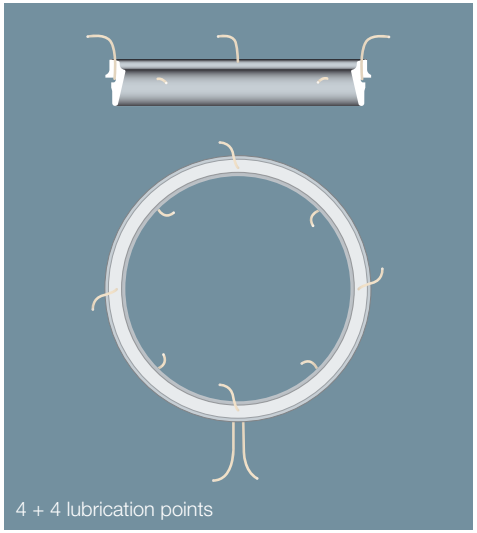
Excessive wear on head – tension is too high

Too light

Excessive wear on foot – tension is too low

Heavy wear along vertical inner back – ring lubrication needs to be checked.

Conical Rings and Ring Travelers for Processing Wool, Acrylics, Cashmere and Blends



Spinning long staple fibers requires lubricated spinning rings.

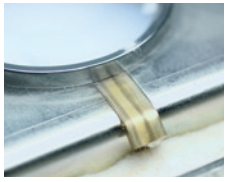
Ring Quality

Bräcker offers conical spinning rings with the following characteristics:

- Produced from grade 1 ball bearing steel
- Tempered
- Highly polished

Rings 9.1 and 11.1 4 + 4 lubrication points, 2 wick exits
Rings 17.4 6 + 6 lubrication points, 4 wick exits

Other lubrication systems available on request



Ring Fixing System

- Dependent on the existing ring rails
- Complete ring rails with integrated lubrication channel available on request

Standard Lubricating System

- A wick “transports” the oil from the ring rail to the ring
- The external wick “feeds” the oil to the internal wicks, which lubricate the ring traveler running track
- Lubricant: synthetic or mineral oil
- ISO VG viscosity
  Steel ring travelers 32
  NYLTEX ring travelers 32–46

Standard Ring Dimensions and Fixings

Fixing

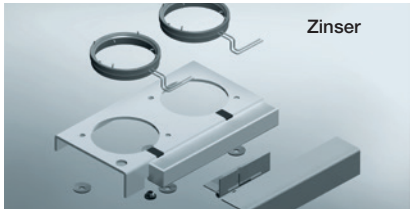
The fixing is dependent on the spinning machine type. In the most popular long staple ring spinning machines: Zinser and Cognetex

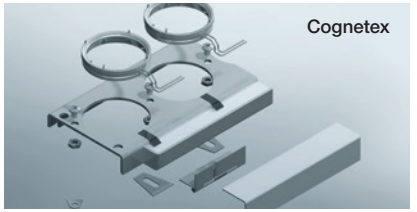
Quality

The tolerances of all rings are narrower than the required values listed in ISO Standard 96.

Ring Dimensions

General rules:
Fitting dia. = Inner dia. + 7 mm (minimum 7 mm)
Outer dia. = Inner dia. + 8.5 mm
Other dimensions available on request





Bräcker also offers complete ring rails (see above). Please ask for a quotation.

Main Conical Ring Dimensions

	Ring diameters				
Height	Inner	Fitting	Outer	Spinning frame	Fixing
9.1	45	52	52.9	Cognetex	Force fit
9.1	48	55	56.5		
11.1	48	55	56.5		
11.1	51	58	59.5		
11.1	55	62	63.5		
11.1	60	67	68.5		
11.1	65	72	73.5		
9.1	45	52	53.5	Zinser	Force fit
11.1	45	52	53.5		
11.1	48	55	56.5		
11.1	50	57	58.5		
11.1	51	58	59.5		
11.1	54	61	62.5		
11.1	55	62	63.5		
11.1	56	63	64.5		
11.1	58	65	66.5		
11.1	60	67	68.5		

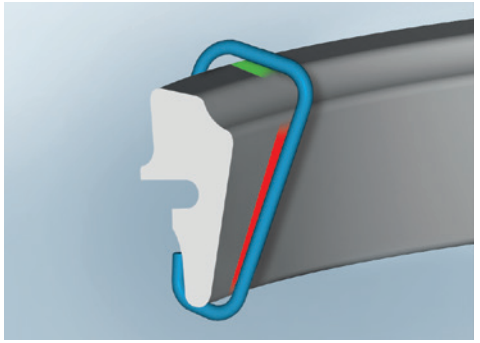
Influence of the Ring Traveler Shape and Its Contact on the Ring

Conical rings can have straight or convex raceways.

In order to achieve optimal contact between the ring and ring traveler during running, the right ring/ring traveler combination must be selected:

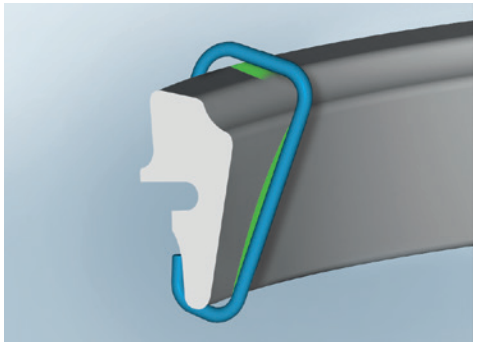
- **Straight** raceway → **Convex** ring traveler back
- **Convex** raceway → **Straight** ring traveler back

Example:



Unfavorable combination:

Straight raceway/straight ring traveler back
Small contact area



Favorable combination:

Convex raceway/straight ring traveler back
Large contact area

Contact
No contact

SU Ring and Ring Traveler System

Acrylic yarns can also be processed on SU rings, which have an oblique flange, and specially shaped SU ring travelers. This system does not require any additional lubricants.

For Synthetics and Their Blends

The SU ring/ring traveler system is suitable for processing synthetics (PAC, CV, PES) and fiber blends (requires a significant proportion of synthetics) in the medium to coarse yarn count range. In some applications in which lubricated conical rings are used, these can be replaced by the SU ring/ring traveler system.

Design Features

- Large contact area between the ring and ring traveler reduces the specific pressure
- Optimal heat dissipation from ring traveler to ring

Advantages

- No lubrication required (as with conical rings; not suitable for pure wool)
- Consistent yarn tension, therefore better and more even yarn quality
- No thermal fiber damage
- Longer service life of ring travelers and rings
- Higher spindle speeds
- Lower yarn break rate
- No yarn stain

Ring Traveler Finish

The following finishes are available:

SAPHIR (diffusion finish)
For all fiber types

STARLET (special nickel plating)
For fibers with special softening agent and for applications in aggressive environments

Ring Travelers for SU Rings

Type	Shape	Wire section	ISO No.	Applications	Ne
SU-B		drh	31.5 - 400	Acrylics Polyester	12 - 36
SU-B		r	35.5 - 280	Acrylics	10 - 24*
SU-BM		drh	35.5 - 280	Acrylics Polyester Viscose	20 - 50
SU-BF		udr	28 - 90	Viscose	28 - 50

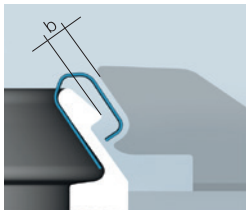
* For fibers with strong fiber finish

Ring Traveler Insertion Tool

Easy and economic replacement of ring travelers using the proven Bräcker STRAP SU ring travelers and the RAPID insertion tool.

Setting the Ring Traveler Cleaner

Certain types of fiber can accumulate and wrap around the outside of the ring traveler. This can be largely avoided by using the ring traveler cleaner, developed by Bräcker. The device must be set based on the ring traveler profile and weight.



Traveller No ISO	"b"
< ISO 63	1.7 mm
ISO 56 - 112	1.9 mm
> ISO 100	2.1 mm

SU Rings

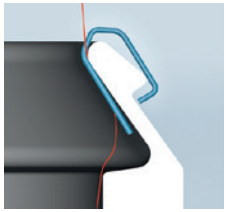
The foot of the SU ring is designed with a supporting area to prevent unthreading of the yarn during the doffing process. An additional supporting ring is required in certain ring spinning machines.

Ring Dimensions

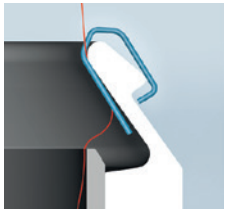
- Inner diameter: 42 mm to 45 mm (48 mm, 51 mm and 54 mm are also possible)
- Seating diameter: dependent on existing ring rail

Ring Finish

The proven Bräcker TITAN finish is standard for all applications. Other finishes must be requested.



SU ring with supporting area



SU ring with supporting area and additional supporting ring

Application

Ring traveler weights (in mg; SU ring travelers do not have "numbers").

The recommended weight depends on various factors, such as spinning geometry, spinning speed or fiber softening agent. The final ring traveler weight should be selected through trials.

Tex	Nm	Ne	SU			
			PES		PAC and CV	
			ISO			
100	10	6			250	315
72	14	8	250	315	200	280
59	17	10	224	280	140	200
50	20	12	200	250	100	160
42	24	14	160	250	90	140
36	27	16	125	200	80	112
30	34	20	80	160	63	80
25	40	24	80	140	50	71
20	50	30	63	112	31.5	63
17	60	36	56	80	31.5	50
15	68	40	56	71	31.5	45
12	85	50	50	63	31.5	40
10	100	60	40	50		

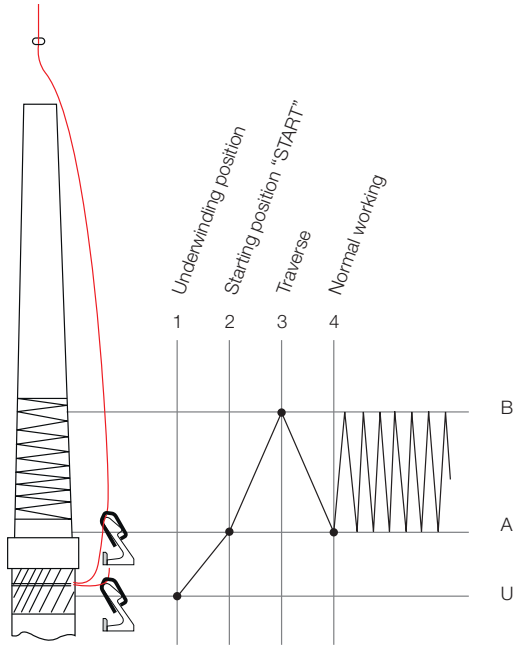
Starting Procedure After Doffing

Function of the Supporting Area and the Supporting Ring

The supporting area or supporting ring prevent slip-off of the yarn in the event of movement of the ring rail while the spindles are not running. This ensures that the yarn is not under permanent tension.

Recommended Starting Procedure

General: Wherever possible, start the spindle when the ring traveler is at the lowest winding position on the spinning tube.



B = Traverse

A = Starting position

U = Underwinding position for spinning (spindle start)

Wet Spinning of Flax / Linen

In linen spinning, a distinction is made between dry- and wet-processed yarns. Longer staple fibers are mostly wet-spun, while shorter fibers go through a different process and are dry-spun. The wet spinning process uses rust-resistant flange rings and NYLTEX ring travelers.

NYLTEX F-Series Ring Travelers

Wet flax spinning requires non-corrosive ring travelers. The special design of the Bräcker NYLTEX F-series ring travelers are a solution for this specific application. All NYLTEX ring travelers for wet flax spinning are glass fiber-reinforced.

Fi2

Wet flax spinning for S- and Z-twist

For the medium to fine range of ring traveler weights

FZ

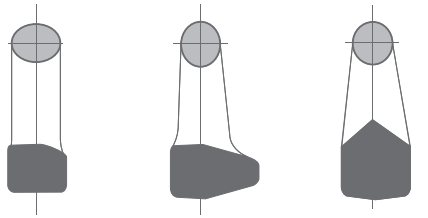
Wet flax spinning for Z-twist only; dry spinning also possible

For higher ring traveler speeds and finer yarn counts

FU

Wet flax spinning for S- and Z-twist; dry spinning also possible

For heavier ring traveler weights



F-series NYLTEX ring travelers are produced in the ISO number range from 63 to 800. Other numbers are available on request.

Using NYLTEX F-Series Ring Travelers for Flax Spinning

The ring traveler numbers given are approximate. The exact number must be determined through tests.

Tex	Nm	NeL	Traveler ISO No Wet	Traveler ISO No Dry
280	3.6	6		710 - 800
200	5	8		560 - 630
170	6	10		450 - 560
140	7	12		355 - 400
125	8	13	560 - 630	250 - 315
100	10	16	450 - 500	200 - 250
84	12	20	355 - 400	180 - 200
72	14	23	280 - 315	160 - 180
64	16	27	250 - 280	140 - 160
50	20	33	200 - 224	112 - 125
42	24	40	160 - 180	90 - 100
33	30	50	140 - 160	80 - 90
30	34	57	125 - 140	71 - 80
25	40	67	112 - 125	
20	50	83	100 - 112	
17	60	100	80 - 90	
12.5	80	135	63 - 71	

The below table shows the corresponding weights and colors.

F-Series Ring Travelers

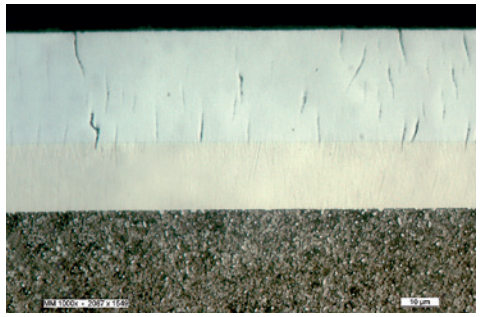
ISO No	Colour	ISO No	Colour	ISO No	Colour
		100	gray	1'000	orange
		112	purple	1'120	red
		125	turquoise	1'250	purple
		140	yellow	1'400	green
		160	red	1'600	azure
		180	blue	1'800	yellow
		200	orange	2'000	turquoise
		224	gray		
		250	dark brown		
		280	green		
		315	yellow		
		355	azure		
		400	red		
45	orange	450	orange		
50	purple	500	purple		
56	turquoise	560	turquoise		
63	red	630	blue		
71	dark blue	710	yellow		
80	green	800	gray		
90	yellow	900	dark brown		

TRITON – The F-Series T-Flange Spinning Ring

TRITON rings are specially designed for the wet spinning of flax fibers over the full yarn count range. The TRITON surface coating combines both abrasive and chemical wear resistance. The coating offers the following advantages:

- Smooth and even surface properties ensure low yarn break rate, long ring traveler service life and excellent yarn quality
- High abrasive wear resistance
- Long ring service life
- Good value for money

The TRITON ring replaces the conventional stainless steel (INOX) rings and can be supplied in the most commonly used dimensions.



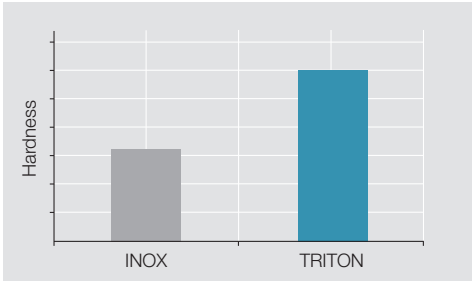
Highly resistant TRITON layer

TRITON Rings with 4.4-mm Flange

Shape A

Shape B

Hardness Comparison: INOX vs. TRITON



Twisting

The twisting process is usually carried out on vertical HZ sintered metal rings and NYLTEX and STEELTEX ring travelers, since mostly heavier yarn counts are processed. STEEL ring travelers are only used for twisting finer counts.

General Twisting

For Twisting, Carpet Yarn Spinning and Draw Twisting

Polyamide (nylon) has a higher coefficient of friction than steel. This means that NYLTEX and STEELTEX ring travelers can create sufficient yarn tension with a lower ring traveler weight.

Advantages of NYLON Ring Travelers
- Lower load and less wear on spinning rings
- Higher speeds and longer ring traveler service life
- Easy insertion and removal of heavy ring travelers

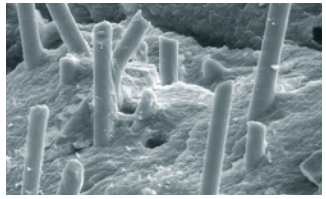
NYLTEX Produced from Virgin Compounds
Bräcker exclusively uses carefully selected first grade compounds for the production of its NYLTEX and STEELTEX ring travelers. The following two compounds are used:

Lubridur
- Finely structured compound for improved gliding properties
- This compound is used for twists with normal abrasion tendency and for twisting and doubling of delicate yarns

“R” Reinforced
- Compound reinforced with glass fibers
- The increased stiffness of this material prevents pull-off of the ring travelers when starting (mainly with light ring travelers)
- Wear resistance against abrasive yarns is increased

STEELTEX Ring Travelers with Metal Insert for Optimal Wear Resistance

- The extra-hard metal insert in the yarn path features outstanding wear resistance
- Prevents filament damage
- Extended ring traveler service life when twisting or doubling abrasive yarns or filaments
- Guarantees perfect yarn quality over an extremely long ring traveler service life
- Mainly used in carpet yarn spinning, draw twisting and for expensive special yarns and filaments
- For draw twisting, see page 30



“R” Reinforced

Delivery Program for NYLTEX Ring Travelers

HZ 9.5 3/8'' CE - CER ISO No.	HZ 9.5 3/8'' CLE - CLER ISO No.	HZ 16.7 21/32'' CE - CER ISO No.	HZ 16.7 21/32'' CLE - CLER ISO No.	HZ 25.4 1'' CE - CER ISO No.	HZ 38.1 1 1/2'' CER ISO No.	HZ 38.1 1 1/2'' CLE - CLER ISO No.
20		80				
		90				
25		100				
28		112				
31,5		125				
35,5		140	140	280		
40		160	160	315		
45		180	180	355		
50	50	200	200	400		
	56	224	224	450		
63	63	240	240	500	1000	
71	71	250	250	560	1120	
80	80	280	280	630	1250	
90	90	315	315	710	1400	
100	100	355	355	800	1600	
112	112	400	400	900	1800	
125	125	450	450	1000	2000	
140	140	500	500	1120	2240	
160	160	560	560	1250	2500	
180	180	630	630	1400	2800	
200	200	710	710	1600	3150	
224	224	800	800	1800	3550	
250	250	900	900	2000	4000	
280	280	1000	1000	2240	4500	
315	315	1120	1120	2500	5000	
355	355	1250	1250	2800	5600	
400	400	1400	1400	3150	6300	
450	450	1600	1600	3550	7100	
	500	1800	1800	4000	8000	8000
	560	2000	2000	4500	9000	9000
	630	2240	2240	5000	10000	10000
	710	2500	2500	5600		11200
	800					12500
	900	3150	3150			14000
	1000					16000
				9000		18000

Delivery Program for STEELTEX Ring Travelers

HZ 9.5 3/8'' CS ISO No.	HZ 10.3 13/32'' CS ISO No.	HZ 11.1 7/16'' CS ISO No.	HZ 16.7 21/32'' CS ISO No.	HZ 25.4 1'' CS ISO No.	HZ 25.4 1'' US ISO No.	HZ 38.1 1 1/2“ CS ISO No.
63						
71						
80		80				
90		90				
100		100				
112	112	112				
125	125	125	125			
140	140	140	140			
160	160	160	160			
180	180	180	180			
200		200	200		500	
224		224	224		560	
250		250	250		630	
280			280		710	
315	315	315	315	800	800	
355		355	355	900		
400		400	400	1000		
450		450	450	1120		
500		500	500	1250		3150
			560	1400		
			630	1600		
			710	1800		4500
			800	2000		
			900			
			1000	2500		6300
			1120	2800		7100
			1250	3150		8000
			1400			9000
			1600			10000
			1800			
			2000 CLS			12500
			2500 CLS			16000
						20000

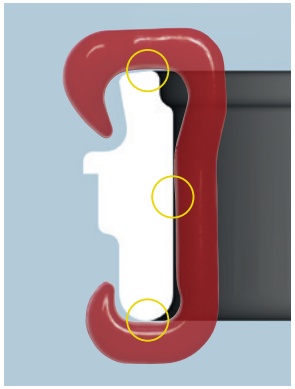
General twisting, including in carpet yarn production, typically uses lubricated sintered metal rings HZ 9.5 – HZ 38.1 with NYLTEX and STEELTEX ring travelers.

Recommended Ring Traveler Weights – Twisting

Yarn count			NYLTEX / STEELTEX ISO No*			
Tex	Nm	Ne	2 ply	3 ply	4 ply	6 ply
3300	0.3	0.18	18000 - 20000			
2500	0.4	0.24	12500 - 16000			
1650	0.6	0.35	10000 - 11200			
1250	0.8	0.47	8000 - 9000	12500 - 14000		
1000	1	0.6	6300 - 7100	10000 - 11200		
840	1.2	0.7	5600 - 6300	8000 - 9000		
710	1.4	0.8	4500 - 5000	6300 - 7100	9000 - 10000	
590	1.7	1	3550 - 4000	5000 - 5600	7100 - 8000	11200 - 12500
500	2	1.2	2500 - 3150	4000 - 4500	5600 - 6300	9000 - 10000
400	2.5	1.48	1800 - 2240	3150 - 3550	4500 - 5000	8000 - 9000
330	3	1.8	1250 - 1600	2500 - 2800	3550 - 4000	6300 - 7100
250	4	2.4	1000 - 1120	1800 - 2240	2800 - 3150	4500 - 5600
165	6	3.6	800 - 900	1250 - 1600	2000 - 2500	3150 - 4000
125	8	4.8	630 - 710	900 - 1120	1600 - 1800	2240 - 2800
100	10	5.9	500 - 560	710 - 800	1120 - 1400	1400 - 2000
84	12	7	400 - 450	560 - 630	800 - 1000	1120 - 1250
71	14	8.3	315 - 355	450 - 500	630 - 710	900 - 1000
63	16	9.4	250 - 280	355 - 400	500 - 560	800 - 900
56	18	10.5	200 - 224	280 - 315	400 - 450	710 - 800
42	24	14	160 - 180	224 - 250	315 - 355	560 - 630
36	28	16	125 - 140	180 - 200	250 - 280	450 - 500
30	34	20	112 - 125	140 - 160	200 - 224	355 - 400
25	40	24	100 - 112	112 - 125	160 - 180	280 - 315
20	50	30	90 - 100	100 - 112	125 - 140	
18	54	33	80 - 90	90 - 100		
16	60	36	71 - 80	80 - 90		
14	70	42	63 - 71	63 - 71		
12	85	49	50 - 63			
10	100	59	40 - 50			

Selecting the Correct NYLTEX Ring Traveler Weight (HZ Ring Travelers)

Correct weight

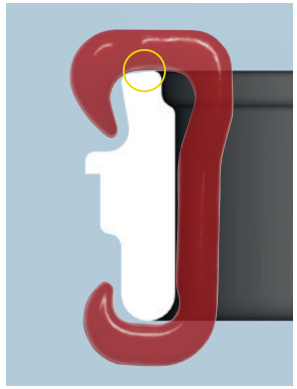


Uniform wear along vertical back, head and foot

Too heavy

Excessive wear on foot – tension is too high

Too light

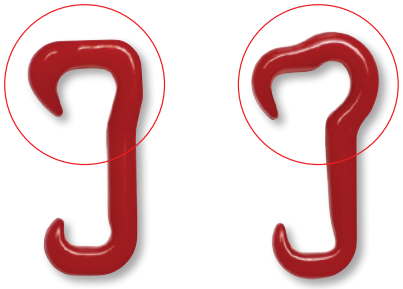


Excessive wear on head – tension is too low

Vertical HZ Ring/Ring Traveler Combination

The vertical HZ ring/ring traveler combination with ring heights from 9.5 mm to 38.1 mm is used is used for the following traveler types:

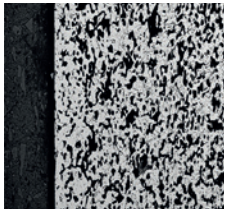
Ring Traveler Types



CE type
Normal, low yarn path for fine to medium yarn counts

CLE type
Increased, wide yarn path for medium, bulky and coarse yarn counts

Ring Quality for HZ Rings



Structure of sintered metal

Sintered metal ring with individual holder

The lubricated rings are manufactured from sintered metal. The porous structure of the sintered metal guarantees optimum distribution of the oil over the entire ring traveler running track.

Sintered Metal Rings

Characteristics
The sintered ring has a porous metal structure. Microscopic, interconnected pores contain oil, which is transported to the ring surface by means of capillary action and thermal support.

Advantages of Sintered Rings
Sintered rings provide a controlled, continuous oil supply over the entire bearing surface.

This solution offers the following advantages:

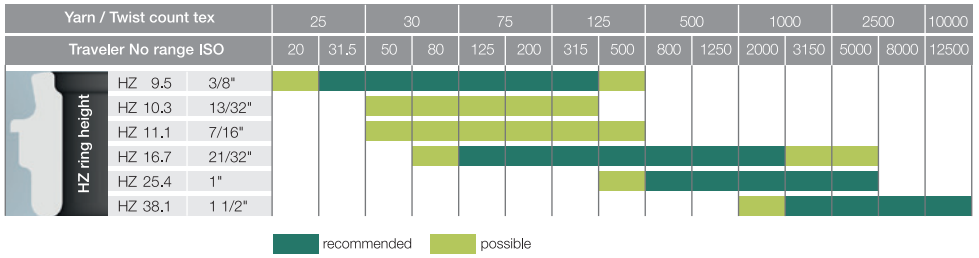
- Increased spindle speed
- Consistent yarn tension
- Lower yarn break rate
- Longer ring traveler service life
- Less oil stains on the yarn
- Less maintenance
- Lower oil consumption
- Greater control of oil consumption

Function
When ring travelers start to run, the friction between the ring traveler and ring generates heat. This heat causes the oil to expand and escape from the pores onto the running surface and provides the necessary lubrication. The system is self-adjusting; the higher the friction, the greater the flow of oil and therefore the stronger the lubrication effect.

Application
Sintered metal rings are specially designed for the production of man-made fibers – mainly filaments. Only NYLTEX and STEELTEX ring travelers should be used. STEEL ring travelers should only be used for fine yarn counts.

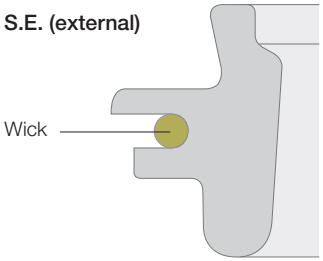
Quality
The density of the sintered metal is adapted to the use of NYLTEX and STEELTEX ring travelers to ensure optimum oil flow over the full ring traveler running area.

The HZ ring height depends on the yarn/twist count range

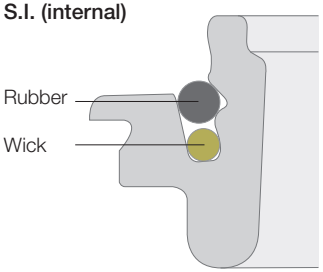


Lubrication
Before use, the sintered metal rings must be impregnated. The regular supply of oil comes from a tank integrated in the ring holder, and is transported by a wick around the ring. There are two lubricating systems:

S.E. (external)



S.I. (internal)



Wherever possible, use the S.E. system (more flexibility with regard to diameter, but also depends on the ring holder).

Installation
The sintered metal rings are impregnated and packed individually in plastic bags. Remove the rings just before mounting in the ring holders. Do not wipe the oil or use any solvent. Fill up the lubrication reservoir with oil and wait 12 to 24 hours before starting up.

Running-In
Since NYLTEX or STEELTEX ring travelers are used on sintered metal rings, no special running-in procedure is required. However, the following must be ensured:

- The normal ring traveler weight must be used
- The ring traveler must be changed after two doffs and the ring traveler wear checked (wear pattern and wear rate)
  - If normal values are achieved, follow the normal schedule
  - If the wear pattern is abnormal, check the oil flow or change the ring traveler weight
- Check the oil flow after 24 and 48 hours
  - If there is too much oil, increase the oil viscosity
  - If there is not enough oil, reduce the oil viscosity

Maintenance
Depending on the working conditions, sintered metal rings have to be re-impregnated. This is recommended when abnormal ring traveler wear or uneven yarn tension are noticed. Impregnation with warm oil (most popular method):

- Remove the old wicks and clean any visible dirt from the rings
- Submerge the rings in a tank containing warm oil (90°C to 110°C)
  - Any air, oil and residues in the pores are pushed out (overpressure)
- Cool down to room temperature
- Change the oil
- Heat the oil and rings to between 90°C and 110°C
  - The old oil and any remaining residue are pushed out
- Cool down to room temperature
  - The pores are refilled with fresh oil
  - The rings are ready for re-wicking (special instruction brochure available on request)

Draw Twisting

Traditional draw twisting with rings and ring travelers follows the spinning of PA and PES filaments to give them the necessary orientation and strength for further processing. The bundle of filaments is fixed and undergoes minimal twisting before being unwound onto bobbins. The draw twisting uses vertical sintered metal rings and with STEEL or STEELTEX ring travelers.

Draw twisting of filaments requires special treatment of the yarn path of the ring traveler. The high delivery speeds due to low twist results in increased abrasion in the yarn path. To prevent filament breaks, Bräcker recommends using the following special ring travelers.

STEELTEX
For coarser twists only

- STEELTEX ring travelers with extra-hard steel inserts
- Guaranteed extended ring traveler operating time

Ring Traveler Delivery Program for Draw Twisting

HZ ring height	STEELTEX travelers
9. 5 / 3/8"	ISO 50 to 500
10.3 / 13/32"	ISO 112 to 315
11.1 / 7/16"	ISO 80 to 500

Glass Filament Twisting

These are single-twisted yarns that come directly from the spinning or single- and multiple-twist process for downstream processes such as weaving, knitting or coating.

Delivery Program

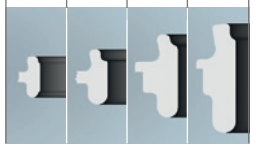
HZ 3.8 5/32" CLB ISO No.	HZ 4.8 3/16" CLB ISO No.	HZ 6.35 1/4" CLB ISO No.	HZ 6.35 1/4" CLB / W ISO No.	HZ 9.5 3/8" CLB ISO No.	HZ 9.5 3/8" CLB / W ISO No.	HZ 9.5 3/8" CE ISO No.	Corresp. American No.	HZ 16.7 21/32" CE ISO No.	Corresp. American No.
8	8								
10	10							80	12
12.5	12.5							90	14
								100	16
	16							112	18
	18	18						125	20
20	20	20				20	3	140	22
	22.4	22.4						160	25
25	25	25				25	4	180	28
	28	28				28		200	31
	31.5	31.5		31.5		31.5	5	224	35
	35.5					35.5		250	38
	40	40		40		40	6	280	42
	45			42/45			7	315	48
	50		50	50		50	8	355	55
				56			9	400	62
	63		63	63		63	10	450	70
			71	71	71	71	11	500	77
			80	80	80	80	12	520	80
			90	90	90	90	14	560	86
			100	100	100	100	16	630	97
			112	112	112	112	18	710	110
			125	125	125	125	20	800	125
				140	140	140	22	900	138
				160	160	160	25	1000	155
				180	180	180	28	1120	173
				200	200	200	31	1250	193
				224	224	224	35	1400	216
				250	250	250	38	1600	248
				280	280	280	42	1800	278
				315	315	315	48	2000	310
				355	355	355	55	2240	346
					400	400	62	2500	386
					450	450	70		
					500		77	3150	486

Glass filament twists are usually processed on lubricated vertical sintered metal rings HZ 4.8–HZ 16.7 using NYLTEX ring travelers only.

For ring traveler weights not stated in the table above, please contact your local agent or Bräcker
American No.: The ring traveler weight indicates the weight of 10 ring travelers in grains (1 grain = 64.8 mg)

Using NYLTEX Ring Travelers for Glass Filament Twisting

Metric system		US customary system		Traveler weight		Ring height recommendation			
Tex	Microns	Yield	Yarn count	ISO**	Grains***	HZ 4.8 3/16"	HZ 6.35 1/4"	HZ 9.5 3/8"	HZ 16.7 21/32"
	µm	Filament size	h.y.p.p.*						
2.75	5	D	1800	10 - 14	1.5 - 2	■	■		
5.5	5	D	900	16 - 25	2.5 - 3	■	■		
11	5	D	450	35.5 - 45	5 - 7	■	■	■	
22	6	DE	225	40 - 56	6 - 9	□	■	■	
33	6	DE	150	63 - 80	10 - 12		□	■	
45	6	DE	110	90 - 125	14 - 20		□	■	
50	6	DE	100	100 - 140	15 - 22			■	
66	9	G	75	160 - 250	25 - 38			■	
90	9	G	55	224 - 315	34 - 48			□	□
99	9	G	50	280 - 450	43 - 70			□	■
134	9	G	37	315 - 500	49 - 78			□	■
198	11	H	25	500 - 800	78 - 125				■
275	13	K	18	800 - 1250	125 - 200				■



■ recommended
□ possible

Note:

The recommended ring traveler weights are guide values.
The final ring traveler weight should be selected through trials.

* h.y.p.p hundred yards per pound
** ISO No. Weight of 1 000 ring travelers in grams

*** American No. in grains/10 ring travelers (1 grain = 64.8 mg)

Conversion – metric to h.y.p.p: 4 961/tex
Conversion – h.y.p.p to metric: 4 961/h.y.p.p.

NYLTEX Ring Travelers and Sintered Metal Rings for Glass Filament Twisting

NYLTEX Ring Traveler Quality

Bräcker produces its ring travelers from first-grade compounds.

Do not use glass fiber-reinforced NYLTEX ring travelers for glass twisting!

- The seam in the yarn path is reduced to the lowest-possible grade. This prevents damage on the glass filaments.
- Bräcker NYLTEX ring travelers are manufactured in accordance with international standard ISO 96-2.
- The weight increases by 12.5% with each number
- The ring traveler weight tolerance is 0% to 5%

Rings for Glass Filament Twisting

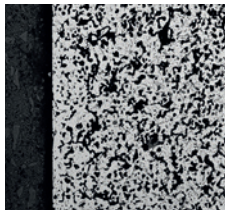
Rings produced from porous sintered metal are used for glass filament twisting. The continuous oil flow ensures an even twisting tension over the full bobbin filling.

Lubrication systems S.I. and S.E. are available for sintered metal rings. To avoid any soiling of the produced yarn, the S.I. system is recommended.

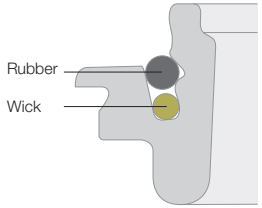
Bräcker supplies sintered metal rings for ring heights 4.8 to 16.7 mm in all standard dimensions.

Seamless yarn path

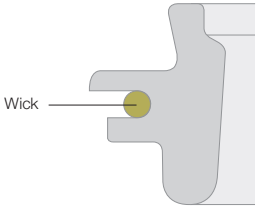
Sintered metal ring with individual holder



Structure of sintered metal



S.I. lubrication system (internal wick)



S.E. lubrication system (external wick)

Glass Filament Quality Control

The quality control procedure described below is typically performed visually on full spools with back lighting. This type of check only detects faults on the surface, and it is therefore recommended to also perform tests on full spools (unwinding) or using quality data from downstream processes. Control parameters are not standardized.

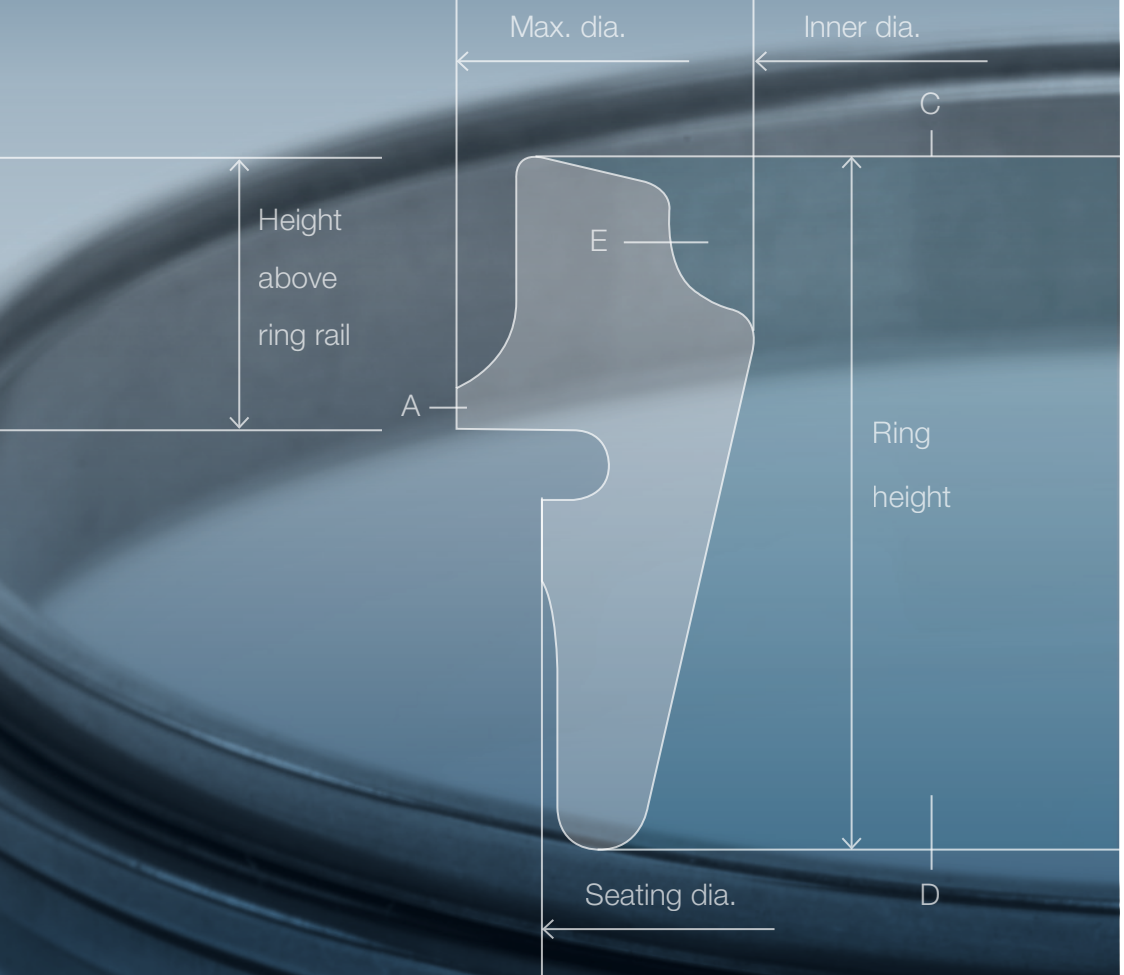
The following parameters are checked by the glass fiber twist producer:

Hairiness
Number of filament breaks

Loop
Unwinding issues (curling twist)

Protruding fibers
Accumulation of fibers (soiling)

General Technical Information



Numbering of Yarns and Twists

Desired / Given	Abbreviation	den	tex	dtex	Nm	Ne_a	Ne_L	Ne_W	Ne_K
Tex	tex	9 tex	-	10 tex	$\frac{1000}{dtex}$	$\frac{590}{dtex}$	$\frac{1654}{dtex}$	$\frac{1938}{dtex}$	$\frac{886}{dtex}$
Decitex	dtex	0,9 tex	0,1 dtex	-	$\frac{10000}{dtex}$	$\frac{5900}{dtex}$	$\frac{16540}{dtex}$	$\frac{19380}{dtex}$	$\frac{8860}{dtex}$
Den	den	-	0,111 den	1,111 den	$\frac{9000}{den}$	$\frac{5315}{den}$	$\frac{14882}{den}$	$\frac{17440}{den}$	$\frac{7972}{den}$
Metric no	Nm	$\frac{9000}{Nm}$	$\frac{1000}{Nm}$	$\frac{10000}{Nm}$	-	0,590 Nm	1,654 Nm	1,938 Nm	0,886 Nm
Engl. cotton no	Ne_B	$\frac{5315}{Ne_B}$	$\frac{590}{Ne_B}$	$\frac{5900}{Ne_B}$	1,693 Ne_B	-	2,80 Ne_B	3,28 Ne_B	1,5 Ne_B
Engl. linen no	Ne_L	$\frac{14882}{Ne_L}$	$\frac{1654}{Ne_L}$	$\frac{16540}{Ne_L}$	0,605 Ne_L	0,357 Ne_L	-	1,172 Ne_L	0,536 Ne_L
Engl. woolen no	Ne_W	$\frac{17440}{Ne_W}$	$\frac{1938}{Ne_W}$	$\frac{19380}{Ne_W}$	0,516 Ne_W	0,305 Ne_W	0,853 Ne_W	-	0,457 Ne_W
Engl. comb. no	Ne_K	$\frac{7972}{Ne_K}$	$\frac{886}{Ne_K}$	$\frac{8860}{Ne_K}$	1,129 Ne_K	0,667 Ne_K	1,867 Ne_K	2,188 Ne_K	-

STEEL Ring Traveler Numbers and Weights – Comparison Chart

Traveler no	Bräcker		R + F			KANAI		CARTER	
	europ. ISO	americ. HZ 9,5 3/8"	HZ + J	HZ-EN europ.	HZ-AN HZ 9,5 am. 3/8"	SB 6 HZ 9,5	SB 17 J 11,1	9,5 mm 3/8"	11,1 mm 7/16"
19	250	140	255	255	136	185	210	152	180
19 1/2	224		220						
20	180	100	185	170	104	130	180	108	130
20 1/2	(170)		165				165		
21	160	80	150	141	84	110	150	89	105
21 1/2	140		140				143		
22	125	63	130	123	65	87,5	135	73	82
22 1/2	(118)		120				128		
23	112	56	110	117	53	71,3	120	59	68
23 1/2	100		100				113		
24	90	45	92	94	42	58,3	105	45	55
24 1/2	80		83				98		
25	71	35,5	75	75	36	45,4	90	35,5	42,5
25 1/2	(67)		67				83		
26	63	31,5	60	62	30	38,9	75	28	34
26 1/2	56		53				72		
27	50	25	48	49	25	32,4	68	25,5	30
27 1/2	45		44				65		
28	40	20	39	39	19	25,9	61	22	26
28 1/2	35,5		36				58		
29	31,5	16	33	32	16,2	22,7	54	18,5	22,5
29 1/2	(30)		31				51		
30	28	12,5	29	28	13	19,4	47	16	19
31	25	10,8	26	24	11,3	17,5	40	13,5	16
32	22,4	9	24	21	9,7	14,9	36		
34	20		21	17	7,7		28		
36	18		18	14			20		
38	14		15	12					

Bräcker NYLTEX ring travelers are numbered based on the ISO system only!

Valid for J and HZ ring travelers up to a ring height of 17.4 mm.
The ISO number corresponds to the weight of 1000 ring travelers in grams or the weight of 1 ring traveler in milligrams.
The ISO number guarantees an even percentage grading:
100 + 12.5 % + 12.5 % + 12.5 % etc.

Ring Traveler Speeds – Spinning

Ring Ø		Spindle speed n/min																											
mm	inch/"	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500	9000	9500	10000	10500	11000	11500	12000	12500	13000	13500	14000	14500	15000	15500	16000	16500	17000
		Traveler speed m/s																											
216	8 1/2	33	39	45	50	56	62																						
200	8	31	36	41	47	52	57	62																					
190	7 1/2	29	34	39	44	49	54	59	64																				
180	7	28	32	37	42	47	51	56	61	65																			
165	6 1/2	25	30	34	38	43	47	51	56	60	64																		
140	5 1/2	21	25	29	32	36	40	43	47	51	54	58	62																
125	5	19	22	26	29	32	35	39	42	45	49	52	55	58	62														
115	4 1/2	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63												
100	4	15	18	20	23	26	28	31	34	36	39	41	44	47	49	52	54	57	60										
90	3 1/4	14	16	18	21	23	25	28	30	32	35	37	40	42	44	47	49	51	54	56	58								
80	3 1/8		14	16	18	20	23	25	27	29	31	33	35	37	39	41	43	46	48	50	52	54	56	58					
75	3			15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	52	54	56	58			
70	2 3/4			14	16	18	20	21	23	25	27	29	31	32	34	36	38	40	42	43	45	47	49	51	53	54	56	58	
67	2 5/8				15	17	19	21	22	24	26	28	29	31	33	35	36	38	40	42	43	45	47	49	50	52	54	56	57	59
63	2 1/2					16	18	19	21	23	24	26	28	29	31	32	34	36	37	39	41	42	44	46	47	49	51	52	54	56
60	2 3/8					15	17	18	20	21	23	25	26	28	29	31	32	34	36	37	39	40	42	43	45	47	48	50	51	53
57	2 1/4						16	17	19	20	22	23	25	26	28	29	31	32	34	35	37	38	40	41	43	44	46	47	49	50
54	2 1/8							16	18	19	21	22	24	25	26	28	29	31	32	33	35	36	38	39	40	42	43	45	46	48
51	2								17	18	20	21	22	24	25	26	28	29	30	32	33	34	36	37	38	40	41	42	44	45
48	1 7/8								16	17	18	20	21	22	23	25	26	27	28	30	31	32	33	35	36	37	38	40	41	42
45	1 3/4									16	17	18	20	21	22	23	24	25	27	28	29	30	31	32	34	35	36	37	38	40
42	1 5/8										16	17	18	19	20	21	23	24	25	26	27	28	29	30	31	32	34	35	36	37
40	1 9/16											16	17	18	19	20	21	23	24	25	26	27	28	29	30	31	32	33	34	35

Ring traveler speed in m/s (rounded figures)

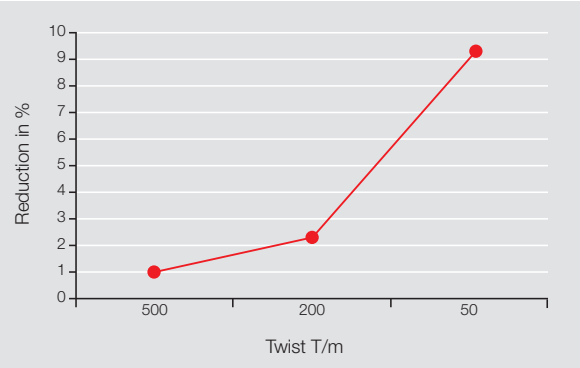
Formulas

Ring traveler speed in m/s $V_T = \frac{d \times \pi \times n}{60 \times 1\,000}$

Spindle speed in n/min $n = \frac{V_T \times 60 \times 1\,000}{D \times \pi}$

V_T = Ring traveler speed in m/s
D = Ring diameter in mm
π = Pi, 3.14 mm
n = Spindle speed (rpm)

Ring Traveler Speeds – Twisting

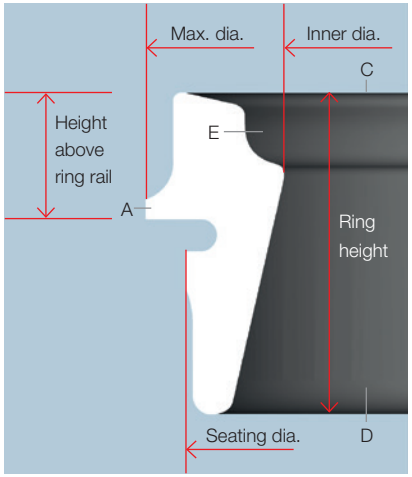


Ring traveler speed reduction as a percentage of the calculated speed

With low twist rates, the effective ring traveler speed is significantly lower than the calculated speed.

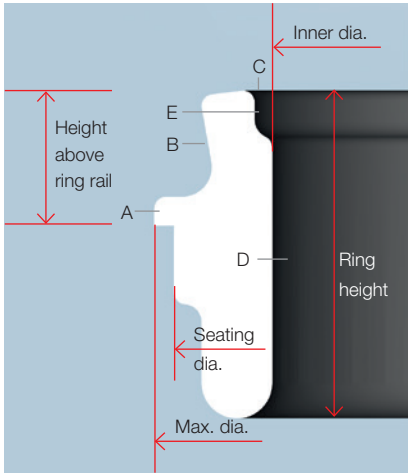
Designations of Ring Parts

Conical Ring (J)



A Shoulder
C Upper running surface
D Inner running surface
E Yarn recess

Vertical Ring (HZ)



A Shoulder
B Back slope feature for better grip on nylon ring travelers
C Upper running surface
D Inner running surface
E Yarn recess

Bräcker Abbreviations for Steel Ring Traveler Parts

B	B Back	Convex ring traveler back for **conical rings** with straight inner raceway	
BS	Back slope	Ring traveler head shape, specially designed for use on **HZ-BS rings**	
CST	CST heel	The **CST bow on the lower inner ring traveler part** prevents contact on the lower ring radius. Improved start-up and running, especially if the rings are scratched when heavy ring travelers are inserted.	
KST	KST head	Conical ring travelers with **wide yarn path** for voluminous and coarse yarns	
Express	Express toe	The **bent ring traveler toe** prevents damage to sintered rings when ring travelers are inserted	
RP	Head shape	HZ ring traveler with **optimized head shape** and enlarged yarn path	
RST	Head shape	HZ ring traveler with special **yarn path for man-made fibers and filaments**	

Yarn Types and Twists – Application Overview

Fiber yarn	Ring type	Ring shape	Ring traveler type	Ring Traveler Material
Worsted wool Acrylic	Steel ring	Conical 	J 9.1 to 17.4	STEEL/NYLTEX
Chenille			J 11.1 to 17.4	STEEL/NYLTEX
Acrylic		SU 	SU	STEEL
Flax (linen)	Steel ring	F-series 	Fi2, FZ (FU)	NYLTEX
Woolen	Steel ring	HZ (vertical) 	HZ 10.3 to 16.7	STEEL/NYLTEX
Glass filament	Sintered metal		HZ 4.8 to 16.7	NYLTEX
Carpet yarn			HZ 16.7 to 25.4	NYLTEX/STEELTEX
Tire cord			HZ 16.7	NYLTEX
2-ply to 6-ply twist			HZ 16.7 to 38.1	
Fish net			HZ 25.4 to 38.1	
Draw twisting			HZ 9.5 to 16.7	STEEL/STEELTEX

Running-In Solid Steel and Sintered Rings

Instructions are included with every ring order confirmation and ring shipment.

General
- Rings only need to be run-in when STEEL ring travelers are used. It is not necessary when NYLTEX/STEELTEX ring travelers are used. However, it must be performed subsequently if STEEL ring travelers are used in later processes.

Preparation
- After installation in the ring rails, the rust protection oil must be cleaned from the rings using an oily cloth (do not use solvents).
- Do not cut off or remove the slightly protruding wicks (steel rings). These will be cut off by the ring travelers during the first rotation.
- Select the oil type according to the application.
- Fill the lubrication channels with oil and wait 12 to 24 hours before starting.

Yarn type and ring traveler weight
- Since oil splashes occur during the running-in phase, non-sensitive, dark-colored yarns should be used.
- The normal ring traveler weight must be used.

Starting procedure
- Before the first run-in, manually oil all the rings to guarantee a complete lubrication film.

Running-in
The following running-in program is prescribed for normal conditions. In case of heavier ring traveler wear, the replacement intervals should be adjusted accordingly.

Running-In

	Nm 20 and coarser	Nm 20 and finer	
Spindle speed	Traveler change after	Traveler change after	Ring cleaning
80 %	1 hour	1 hour	yes
	1 doff	1 doff	
	3 doffs	2 doffs	
	8 doffs	6 doffs	
90 %	1 doff	1 doff	yes
	3 doffs	2 doffs	
	8 doffs	6 doffs	
	16 doffs	12 doffs	
100%	1 doff	1 doff	yes
	3 doffs	2 doffs	
	8 doffs	6 doffs	
	16 doffs	12 doffs	

Maintenance
The flow of oil through the wicks must be checked. If necessary, re-wicking should be performed.

Lubricants for Self-Lubricating Rings

The lubricants are classified according to ISO viscosity grades (VG):

- Low viscosity highly fluid e.g. ISO VG 15
- High viscosity semi-fluid e.g. ISO VG 68

The lubricants must be adapted to the application. Check details with the supplier.

Application Recommendations (Guide Values)

Steel rings

Traveler type	Viscosity ISO VG
Steel	32
NYLTEX / STEELTEX	32 / 46

Sintered metal rings

Ring height	4,8 - 11,1	16,7- 38,1
Traveler type	Viscosity ISO VG	
STEEL	15 / 32	15 / 32
NYLTEX / STEELTEX	23 / 46	48 / 68

Lubricant Suppliers (Incomplete Selection)

Lubricants Suppliers	Synthetic oils / Viscosity ISO VG			
	15	22	46	68
BP			Enerssyn RC-S 46	Enerssyn RC-S 68
Fuchs	Pantolube Polar 15 S	Pantolube Polar 22 S		Plantohyd 68 S
Klüber	Syntheso XOL 12			
Mobil			Mobil SHC 626	Mobil SHC 26
Texaco	Rando Oil HDZ 15		Hydra 46	Hydra 68
Zeller + Gmelin	Textol RLS ISO 15	Textol RLS ISO 22	Textol RLS ISO 46	Textol RLS ISO 68

Lubricants Suppliers	Mineral oils / Viscosity ISO VG		
	32	46	68
BP	Energol HLP - HM 32	Energol HLP - HM 46	Energol HLP - HM 68
Esso	Teresso 32, Nuto 32, Nuto H 32	Teresso 46, Nuto 32, Nuto H 46	Teresso 68, Nuto 32, Nuto H 68
Fuchs	Renolin B 10 VG 32	Renolin B 15 VG 46	Renolin B 20 VG 68
Klüber	Lamora HLP 32	Lamora HLP 46	Lamora HLP 68
Mobil	Mobil DTE 24	Mobil DTE 25	Mobil DTE 26
Shell	Tellus Oil 32, Vexilla Oil 32	Tellus Oil 46, Vexilla Oil 46	Tellus Oil 68, Vexilla Oil 68
Texaco	Rando HD 32, Alcor DD 32	Rando HD 46, Alcor DD 46	Rando HD 68, Alcor DD 68
Zeller + Gmelin	Textol RLA ISO 32	Textol RLA ISO 46	Textol RLA ISO 68

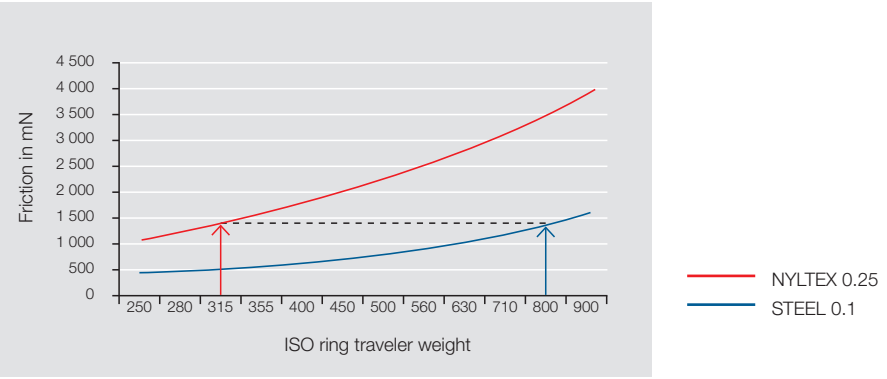
Advantages of NYLTEX Ring Travelers Compared with STEEL Ring Travelers

Coefficient of Friction

The coefficient of friction of NYLTEX ring travelers is two to three times higher than that of STEEL ring travelers, which means that a NYLTEX ring traveler is able to produce sufficient spinning/twisting tension with a lower weight. This offers the following advantages:

- Lower ring load (especially when processing heavy yarn counts)
- Easier insertion and removal of ring travelers
- Higher ring traveler speeds
- Less ring wear
- Smoother ring traveler running and thus better yarn quality and low ends down rates

Example Coefficient of Friction



A NYLTEX ring traveler weight of 315 mg creates the same amount of friction as a STEEL ring traveler with a weight of 800 mg (the coefficient of friction may vary in practice due to lubrication, environment, etc).

STEEL ring travelers can be replaced by NYLTEX ring travelers, with a weight of around 40–50% of the STEEL ring traveler weight.

NYLTEX and STEELTEX ring travelers are different colors in order to avoid mix-ups. The below table shows the corresponding weights and colors.

HZ and J-Shaped Ring Travelers

ISO No	Colour	ISO No	Colour	ISO No	Colour	ISO No	Colour
10	orange	100	yellow	1'000	blue	10'000	orange
		112	orange	1'120	yellow	11'200	blue
12.5	red	125	red	1'250	red	12'500	red
14	azure	140	turquoise	1'400	turquoise	14'000	blue
16	brown	160	brown	1'600	purple	16'000	yellow
18	purple	180	purple	1'800	green	18'000	dark brown
20	yellow	200	green	2'000	orange	20'000	green
22.4	green	224	orange	2'240	scarlet		
25	red	250	dark blue	2'500	dark blue		
28	azure	280	natural	2'800	azure		
31.5	brown	315	dark brown	3'150	purple		
35.5	turquoise	355	blue	3'550	blue		
40	green	400	yellow	4'000	dark brown		
45	orange	450	orange	4'500	yellow		
50	scarlet	500	red	5'000	orange		
56	yellow	560	brown	5'600	red		
63	azure	630	orange	6'300	turquoise		
71	purple	710	scarlet	7'100	brown		
80	dark brown	800	natural	8'000	purple		
90	blue	900	purple	9'000	green		

Correlation Table for Yarn Counts – Ring Traveler Weights for Vertical and Conical Ring Systems

Yarn count		TYPE HZ vertical ISO No	TYPE J. conical ISO No
Tex	Nm		
10000	0.1	18000 - 20000	
5000	0.2	14000 - 16000	4000 - 5000
3300	0.3	10000 - 14000	3150 - 4000
2500	0.4	8000 - 11200	2800 - 3150
1650	0.6	5000 - 10000	2500 - 2800
1250	0.8	3550 - 6300	2000 - 2240
1000	1	2240 - 3150	1400 - 1800
840	1.2	1600 - 2000	1000 - 1400
710	1.4	1250 - 1400	900 - 1250
590	1.7	1000 - 1250	800 - 1000
500	2	900 - 1120	710 - 900
400	2.5	800 - 1000	630 - 710
330	3	630 - 800	560 - 630
250	4	450 - 710	450 - 500
165	6	355 - 450	280 - 315
125	8	250 - 315	250 - 280
100	10	180 - 224	224 - 250
84	12	140 - 180	160 - 180
71	14	125 - 160	125 - 140
63	16	112 - 140	112 - 125
56	18	100 - 125	100 - 112
50	20	80 - 112	90 - 100
42	24	71 - 90	80 - 90
36	28	63 - 80	71 - 80
31	32	63 - 71	63 - 71
28	36	45 - 63	50 - 63
25	40	35.5 - 50	40 - 56
22	44	28 - 40	31,5 - 40
20	50	22.4 - 35.5	
18	56	16 - 20	
16	60		
14	70		
12	85		
10	100		
8.5	120		

The values provided above are guide values.
The final ring traveler weight should be selected through trials.

Bräcker

We have been successfully serving our customers in the textile industry since 1835

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Swiss Premium Quality

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