Spinning rings
Steel conical rings

PROSINO
A Subsidiary of the Rieter Group

Steel Conical Rings

Installation, lubrication & operating guide

The secret of the rings

Installation, Lubrication & Operating Guide

Content

Running-in Recommendations

Prosino self-lubricating conical rings are supplied with dry wool wicks. They are protected against corrosion by a thin protective oil-based film. Before using them, we recommend to clean the running path of the ring with a cloth soaked in traveler oil.

After this cleaning-lubricating procedure, we advise to fill the ring rail reservoir with traveler oil. Should it be necessary to start the spinning frames immediately after assembling the rails, it is recommended to wait at least 24 hours to allow the complete impregnation of the wicks.

At every ring change, it is recommended (in frames equipped with common reservoir) to replace also the double felt (PROSINO code PN 00602-001). This will grant regular oil flow on the ring path.

Prosino self-lubricating conical rings are also supplied with protruding wicks. When the frame is started for the first time, the travelers will cut the wicks. It is not recommended to cut the wicks with a blade since the wicks might re-enter their holes and provide insufficient oil during operation.

Prosino conical rings are intentionally supplied with wicks protruding from lubricating holes.

Procedure to be followed

% Spindle speed compared to the usual one	Frequency of traveler replacement	Ring cleaning and oiling	Running-in length in hours with 3 hours doffing
80%	1 doff	Yes	4
80%	3 doff	Yes	13
80%	6 doff	Yes	31
90%	1 doff	Yes	34
90%	3 doff	No	43
90%	6 doff	No	61
100%	1 doff	Yes	91
100%	3 doff	No	100
100%	6 doff	No	118
100%	9 doff	Yes	145

A careful inspection of the burnt travelers is key to get the best results. The running-in cycle can be skipped altogether when using nylon travelers. Please, bear in mind that if you switch to steel travelers, the running-in procedure as well as careful ring cleaning is mandatory, as if they were new rings.

The use of a higher density oil is advisable during the first months of operation. Since the new wicks carry a large amount of oil, the only way to slow it down is to use a higher density oil. It is also advisable to feed a little amount of oil in the ring rail reservoir more frequently to ensure constant oil flow.

Compliance with the following rules is mandatory:

Start with a traveler of normal weight: a lighter traveler is not necessary unless the running-in cycle is a “Difficult Running-in” as specified below.

At the second traveler replacement and, if possible, at each traveler replacement, pick at least 100 travelers for each group of frames working under similar conditions, closely examine them and classify them as follows:

Burnt: blue or black coloring with brown shades on the outer surface; usually this coloring is associated with an inner heavy wear of the travelers.

Pitted: worn inside or inside the head, foot, central body or a combination of three different spots.

Normal: no coloring on the outer surface; there might be a black mark inside but with no metal pitting of the traveler.

After having made this selection, calculate the % and the situation may be as follows:

	Burnt travelers	Pitted travelers	Normal travelers	Ends down 1 000 spindles/h
Easy running-in	0 – 2%	0 – 20%	80 – 100%	0 – 70
Normal running-in	2 – 4%	20 – 36%	60 – 78%	70 – 110
Difficult running-in	4 – 7%	36 – 50%	43 – 60%	110 – 200

Easy running-in:
with this % you can reduce by half the length of the following traveler change.

Normal running-in:
it is sufficient to follow the table.

Difficult running-in:
this situation may occur under difficult working conditions such as badly cantered spindles, lack of lubricant, etc.

In the later case, the last operation must be repeated until normal running-in is obtained and thus move to the next step. Please notice that the traveler wear must be homogenous throughout all the three working surfaces (head, foot, central body). If wear is limited to the foot only, the traveler might be too light, while a marked wear at the head may signal excessive tension.

Recommended Oils

Prosino self-lubricating conical rings can work with the main oils available in the market. The advantage of synthetic oil is that it does not leave any residues on the ring surface and allows a constant oil flow, leaving the wicks clean.

The best performances have been recorded with the following oil types:

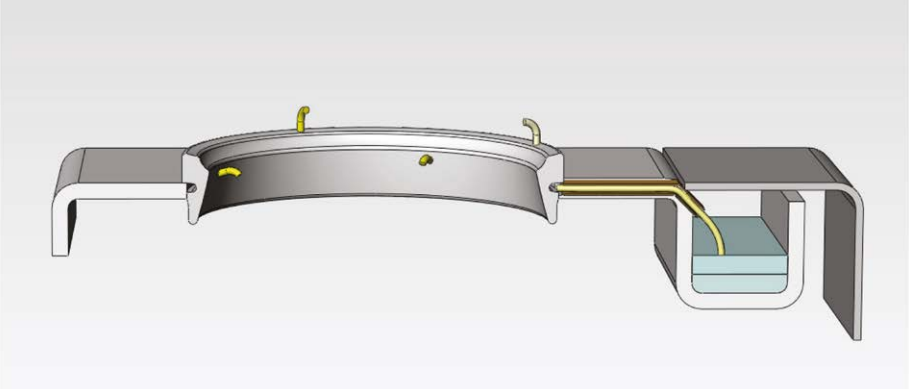
Synthetic oils
- BP – Enerssyn RC-S 46, 68
- Fuchs – Pantolube Polar 15S – 22S- 68S
- Klüber – Syntheso XOL 12
- Mobil – SHC 626 – SHC 26
- Texaco – Rando Oil HDZ 15, 46, 68
- Zeller + Gmelin – Textol RLS ISO 15-22-46-68

Mineral oils
- BP – Energol HLP – HM 32, 46, 68
- Esso – Teresso 32,46, 68 – Nuto H 32, 46, 68
- Fuchs – Renolin B 10 VG 32, B15 VG 46, B 20 VG 68
- Klüber – Lamora HLP 32, 46, 68
- Mobil – DTE 24, 25, 26
- Shell – Tellus Oil 32, 46, 68/Vexilia Oil 32, 46, 68
- Texaco – Rando HD 32, 46, 68
- Zeller + Gmelin – Textol RLA 32, 46, 68

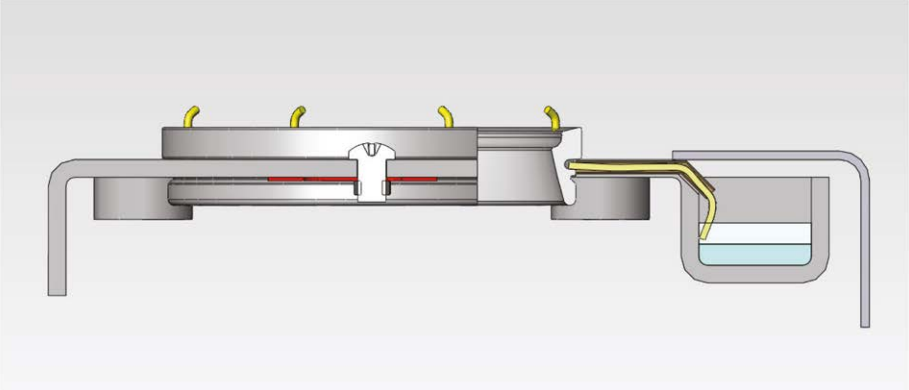
It is advisable to get in touch with the oil suppliers for advice about the optimal use of the same.

Ring Mounting Procedures

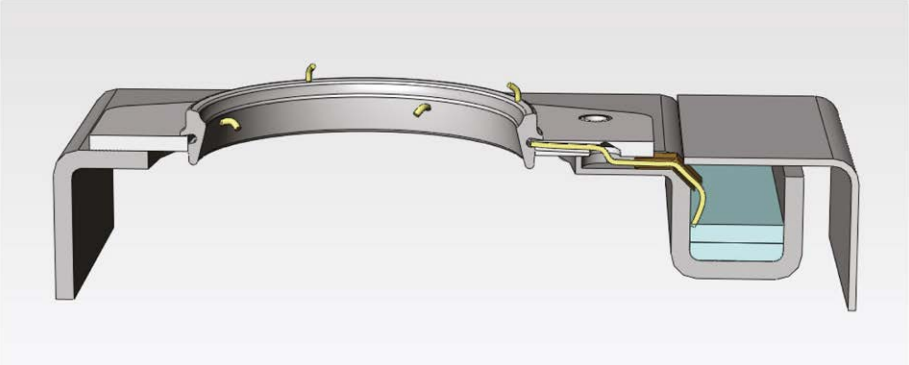
Overview of mounting systems



A. Forced fitting (ex. Zinser, recent model of Gaudino)



B. Fitting with washers (ex. Cognetex, Edera, old Gaudino model)



C. Fitting with ring holders (ex. Ishikawa, Suzuki, Textool, Tong-He)

A – forced fitting

In forced fitting mounting systems, the ring (with ground diameter) is directly inserted into the rail hole or the plate. It is a delicate operation to be performed with a hydraulic or pneumatic press. Pay attention not to squeeze the wicks between ring and ring rail hole. Rings with forced fitting have a high precision fitting diameter. Ring grinding is performed at Prosino with last generation machine tools to ensure the required precision. Before mounting the new rings the old one should be dismounted.

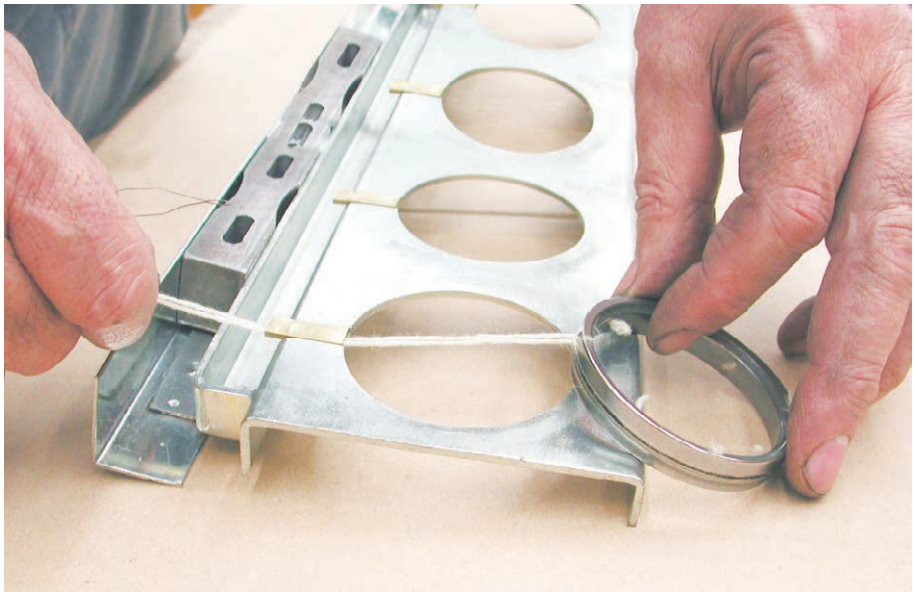
Here are the steps to be followed:

1. Flip over the ring rail after laying it on a support to prevent it from bending during the ring dismounting operation.

2. With the help of a rubber head hammer, strike a strong blow on the ring to extract it from the ring rail hole. During this operation, for ring rails equipped with wick cover tubes, some of them are likely to be damaged (and need to be replaced).

3. Scrap the rings and deliver them to a recycling plant specialized in metal parts.

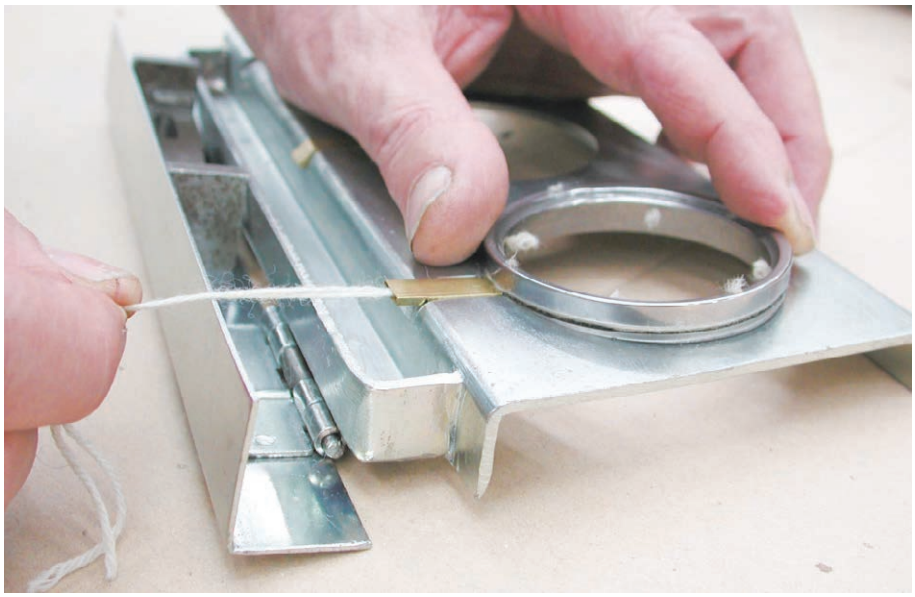
4. Insert the wick in the brass tube with the aid of a wick guide. It is advisable to replace the wick cover tubes when changing the rings to avoid any damage and ensure correct oil flow from the ring rail reservoir into the rings. For the right part number of the wick cover tubes, please refer to page 11.



Inserting of the wick into the wick-cover tubes

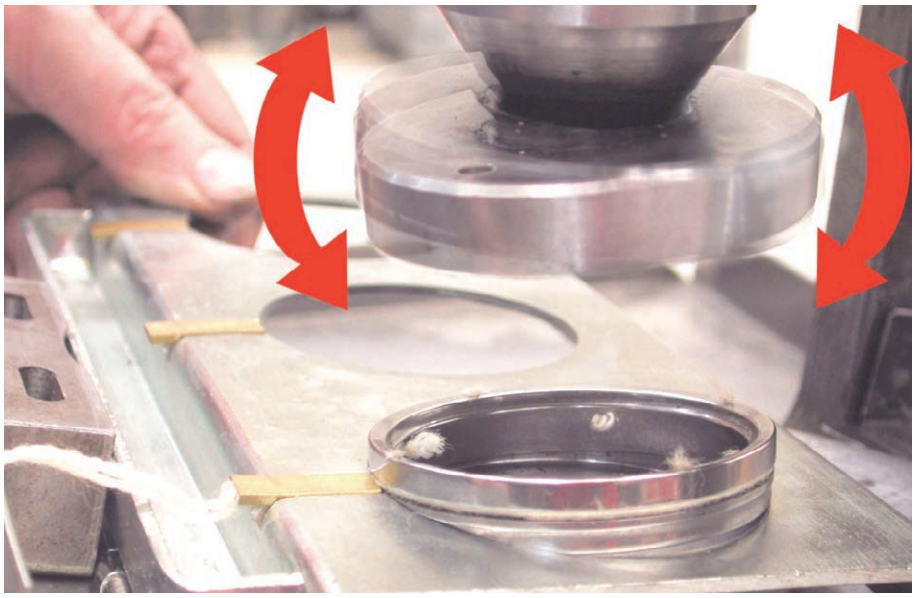
Wick-guide

5. Insert the ring in the ring rail starting from end where the wick comes out and at the same time pull the wick lightly so that it will not be damaged while pressing the ring in the rail.



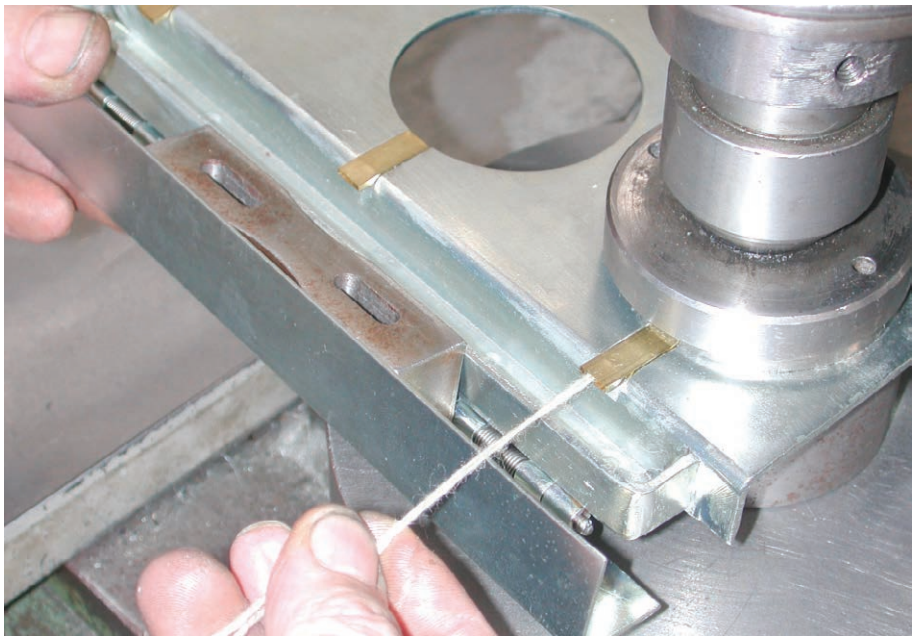
Placing the ring into the ring rail

6. With the help of a pneumatic press, push the ring into the ring rail hole. The area of the press that pushes the ring should be free to move in every direction to apply the same force throughout all the ring area. We suggest the use of the Alfamatic press devices (www.alfamatic.com) to perform this job.



Force fitting of the ring into ring rail hole

7. When the mounting is completed please check that the wick has not been squeezed between the ring and the rail hole.



Inspection of the wick

Part numbers of the wick cover tubes for ZINSER frames

Ring dimensions	Wick cover part number
45 x 52 x 53.5 x 9.1	PN003-08215 (L = 21)
45 x 52 x 53.5 x 11.1	PN003-08215 (L = 21)
48 x 55 x 56.5 x 9.1	PN003-08573 (L=19.5)
48 x 55 x 56.5 x 11.1	PN003-08573 (L=19.5)
50 x 57 x 58.5 x 11.1	PN003-08493 (L=18.5)
51 x 58 x 59.5 x 11.1	PN003-08876 (L=18)
52 x 59 x 60.5 x 11.1	PN003-13898 (L=17.5)
54 x 61 x 62.5 x 11.1	PN003-08494 (L=16.5)
55 x 62 x 63.5 x 11.1	PN003-08721 (L=16)
56 x 63 x 64.5 x 11.1	PN003-13897 (L=15.5)
57 x 64 x 65.5 x 11.1	PN003-14013 (L=15)
58 x 65 x 66.5 x 11.1	PN003-06348 (L=14.5)
60 x 67 x 68.5 x 11.1	PN003-12655 (L=13.5)

B – fitting with washers

The rings are tightened with round or trapezoidal washers. This method is easier compared to the force fitting system, but it requires some skill to prevent the ring from rotating after being mounted on the rail. Rings fitted with washers have a special recess in the mounting area. This recess is made by Prosino using state-of-the-art machine tools in order to achieve high accuracy of the operation. Unfit the old rings before mounting the new ones.

Here are the steps to be followed:

1. Flip over the ring rail after laying it on a support, unscrew the nut and untightening the washers (it is not necessary to untighten them completely).

2. Push back the washers.

3. Repeat it in the opposite direction.

4. Remove the old rings with the help of a rubber seal hammer.

5. After thoroughly cleaning the ring rail, place the first felt on the ring rail reservoir.
6. With the help of wick guide insert the wick into the its cover.

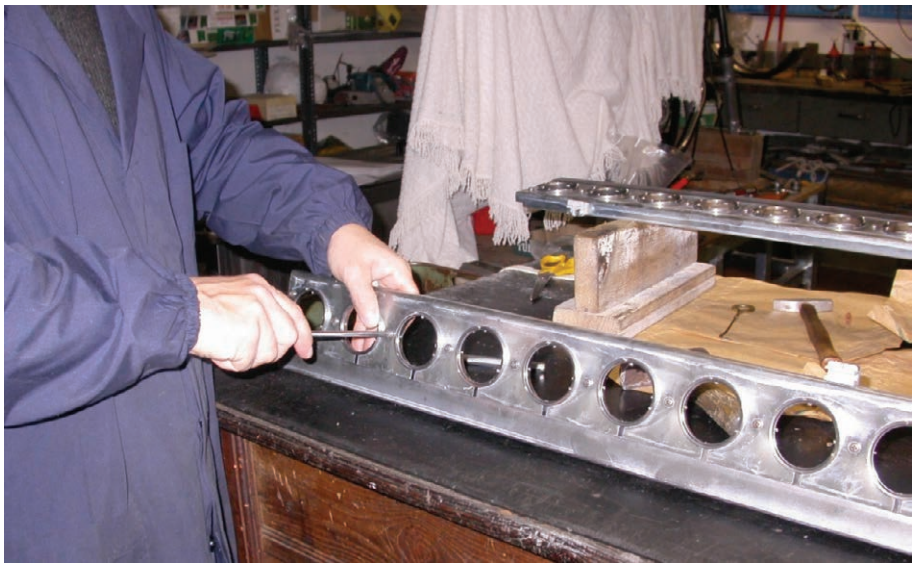
7. Push the washers in the ring recess.

8. Do the same in the opposite direction.
9. Place the second felt.

10. Using a chisel push the washers into the groove.

11. Close the nuts tightly on the upper part.

12. Repeat the same operation in the opposite direction.



C – fitting with ring holder

It is the easiest method for ring mounting. Simply place the ring inside the holder and tighten it with the screw. To dismount the ring unscrew the nut and extract the ring. To mount the ring, with the help of a wick guide insert the wick into the small hole connecting the ring fitting area with the holder reservoir. Subsequently, place the ring in the ring holder, making sure that the wick will not be squeezed between ring and holder. Finally close with the screw.

Lubrication Systems and Wick Recommendations

Lubrication systems

New rings are supplied with wicks protruding from the lubrication holes. The standard lubrication configuration for Prosino steel conical rings is the 4+4 system, providing eight lubrication points evenly distributed around the ring. Other lubrication configurations can be supplied upon request.

Main lubricating systems

4+4	3+3+1	4SG
• 8 lubrication points • Uniform oil distribution around the ring circumference • Recommended configuration for all new installations and replacements • Compatible with the requirements of major spinning frame manufacturers	• Available on request • Primarily used in former Cognetex machine installations • May provide lower oil distribution compared with the standard 4+4 system	• Available on request • Lubrication oil is supplied indirectly through grooves • Suitable only where specifically required by existing machine configurations
Standard	It can be supplied but it is not recommended.	It can be supplied but it is not recommended.

Number of oil wicks to be used on conical rings

Use the following recommendation when installing steel conical rings:

Applications

Recommended wicks	Part number
Rind ID up to 51 mm = 2 wicks	PN003-08215 (L = 21)
Above 51 mm of ID = 4 wicks	PN003-08215 (L = 21)
100% pure wool/cachemire/vicunha/alpaca/guanaco = 2 wicks	PN003-08573 (L=19.5)
Acrylic or mix wool-acrylic = 4 wicks	PN003-08573 (L=19.5)

Technical Rules and Best Practices

Rule to enlarge ring rail fitting hole

The ring diameter can be enlarged applying the following rule to ensure perfect functionality of the rails and enough room for the traveler movement:

(Gauge - max ring external diameter) / 2 > 4 mm

Example:
Ring frame with gauge of 75 mm requiring a 60 mm ring (with max external diameter of 68.5 mm)

(75 – (68.5)) / 2 = 3.25 **Increasing ring ID is not possible**

I will have to propose to the customer a 58 mm ring ID (with max external diameter of 66.5 mm)

(75 – 66.5) / 2 = 4.25 **Increasing ring ID is possible**

Rule for a perfect traveler-ring matching

Prosino self-lubricating conical rings may have a conical-convex or straight traveler path. Follow this simple rule for a perfect matching of ring and travelers:

Ring rail convex path + **straight travelers**

Ring rail straight path + **convex travelers**

Appendix A: Available Ring Dimensions

Spinning frame brand	Dimensions (mm)	Suggested lubrication system	Fitting type
Cognetex – Italy	45×52×52.6×9.1	4+4 – 2 wicks	Force-fit on plate
Cognetex – Italy	48×55×55.6×9.1	4+4 – 2 wicks	Force-fit on plate
Cognetex – Italy	48×55×56.5×11.1	4+4 – 2 wicks	With trapezoidal washer
Cognetex – Italy *	51×58×59.5×11.1	4+4 – 2 wicks	With trapezoidal washer
Cognetex – Italy *	55×62×63.5×11.1	4+4 – 4 wicks	With trapezoidal washer
Cognetex – Italy *	60×67×68.5×11.1	4+4 – 4 wicks	With trapezoidal washer
Cognetex – Italy	65×72×73.5×11.1	4+4 – 4 wicks	With trapezoidal washer
Cognetex – Italy	70×77×78.5×11.1	4+4 – 2 wicks	With trapezoidal washer
Zinser – Germany	45×52×53.5×9.1	4+4 – 2 wicks	Force-fit on ring rail
Zinser – Germany	45×52×53.5×11.1	4+4 – 2 wicks	Force-fit on ring rail
Zinser – Germany	48×55×56.5×9.1	4+4 – 2 wicks	Force-fit on ring rail
Zinser – Germany	48×55×56.5×11.1	4+4 – 2 wicks	Force-fit on ring rail
Zinser – Germany	50×57×58.5×11.1	4+4 – 2 wicks	Force-fit on ring rail
Zinser – Germany	51×58×59.5×11.1	4+4 – 2 wicks	Force-fit on ring rail
Zinser – Germany	52×59×60.5×11.1	4+4 – 2 wicks	Force-fit on ring rail
Zinser – Germany	54×61×62.5×11.1	4+4 – 4 wicks	Force-fit on ring rail
Zinser – Germany	55×62×63.5×11.1	4+4 – 4 wicks	Force-fit on ring rail
Zinser – Germany	56×63×64.5×11.1	4+4 – 2 wicks	Force-fit on ring rail
Zinser – Germany	57×64×65.5×11.1	4+4 – 4 wicks	Force-fit on ring rail
Zinser – Germany	58×65×66.5×11.1	4+4 – 4 wicks	Force-fit on ring rail
Zinser – Germany	60×67×68.5×11.1	4+4 – 4 wicks	Force-fit on ring rail
Süssen – Germany	48×55×57.4×11.1	4+4 – 2 wicks	Force-fit on plate
Süssen – Germany	50×57×59.4×11.1	4+4 – 2 wicks	Force-fit on plate
Süssen – Germany	55×62×64.4×11.1	4+4 – 4 wicks	Force-fit on plate
Süssen – Germany	58×65×67.4×11.1	4+4 – 4 wicks	Force-fit on plate
Edera – Italy	51×58×59.5×11.1	4+4 – 2 wicks	With washers
Edera – Italy	55×62×63.5×11.1	4+4 – 4 wicks	With washers
Edera – Italy	57×64×65.5×11.1	4+4 – 4 wicks	With washers
Edera – Italy	61×68×69.5×11.1	4+4 – 4 wicks	With washers
Gaudino – Italy	45×52×53.5×9.1	4+4 – 2 wicks	Force-fit on ring rail
Gaudino – Italy	48×55×56.5×9.1	4+4 – 2 wicks	Force-fit on ring rail
Gaudino – Italy	51×60.5×61.5×11.1	4+4 – 2 wicks	Force-fit on ring rail
Gaudino – Italy	51×58×59.5×11.1	4+4 – 2 wicks	Force-fit on ring rail
Gaudino – Italy	52×59×60.5×11.1	4+4 – 2 wicks	Force-fit on ring rail
Gaudino – Italy	57×64×65.5×11.1	4+4 – 2 wicks	Force-fit on ring rail
Gaudino – Italy	65×72×73.5×11.1	4+4 – 4 wicks	Force-fit on ring rail
Gaudino – Italy	75×82×83.5×11.1	4+4 – 4 wicks	Force-fit on ring rail

* San Marco – India (Cognetex, Indian j.v.) spinning frame have the same dimensions

Erfan-ji – China	48×55×56.5×11.1	4+4 – 2 wicks	On ring-holder
Erfan-ji – China	51×58×59.5×11.1	4+4 – 2 wicks	On ring-holder
Erfan-ji – China	55×62×63.5×11.1	4+4 – 4 wicks	On ring-holder
Jingwei – China	42×49×50.5×11.1	4+4 – 2 wicks	On ring-holder
Jingwei – China	45×52×53.5×11.1	4+4 – 2 wicks	On ring-holder
Jingwei – China	48×55×56.5×11.1	4+4 – 2 wicks	On ring-holder
Jingwei – China	51×58×59.5×11.1	4+4 – 2 wicks	On ring-holder
Jingwei – China	55×62×63.5×11.1	4+4 – 4 wicks	On ring-holder
Jingwei – China	57×64×65.5×11.1	4+4 – 4 wicks	On ring-holder
Jingwei – China	60×67×68.5×11.1	4+4 – 4 wicks	On ring-holder
Jingwei – China	70×77×78.5×11.1	4+4 – 4 wicks	On ring-holder
Jingwei – China	75×82×83.5×11.1	4+4 – 4 wicks	On ring-holder
Tong He – China	48×55×56.5×11.1	4+4 – 2 wicks	On ring-holder
Tong He – China	51×58×59.5×11.1	4+4 – 2 wicks	On ring-holder

Appendix B: Maximum Reachable Speed

Rings 45 – 70 mm

Rings of 45 mm		
ISO weight of travelers	RPM	MT/S
20	12 750	30.03
22.4	13 050	30.73
25	13 300	31.32
28	13 600	32.03
31.5	13 900	32.73
35.5	14 250	33.56
40	14 600	34.38
45	14 950	35.21
50	14 650	34.50
56	14 300	33.68
63	13 900	32.73
71	13 550	31.91
80	13 200	31.09
90	12 850	30.26
100	12 550	29.56
112	12 200	28.73
125	11 950	28.14
140	11 650	27.44
160	11 300	26.61
180	11 000	25.91
200	10 750	25.32
224	10 500	24.73
250	10 250	24.14
280	9 950	23.43
315	9 700	22.84
355	9 450	22.25
400	9 200	21.67
450	9 000	21.20

Rings of 48 mm		
ISO weight of travelers	RPM	MT/S
20	11 800	29.64
22.4	12 050	30.27
25	12 300	30.90
28	12 600	31.65
31.5	12 900	32.40
35.5	13 200	33.16
40	13 550	34.04
45	13 850	34.79
50	13 950	35.04
56	13 550	34.04
63	13 250	33.28
71	12 900	32.40
80	12 550	31.53
90	12 200	30.65
100	11 950	30.02
112	11 650	29.26
125	11 400	28.64
140	11 050	27.76
160	10 750	27.00
180	10 450	26.25
200	10 200	25.62
224	10 000	25.12
250	9 750	24.49
280	9 500	23.86
315	9 250	23.24
355	9 000	22.61
400	8 750	21.98
450	8 550	21.48

Rings of 51 mm		
ISO weight of travelers	RPM	MT/S
20	10 950	29.23
22.4	11 200	29.89
25	11 450	30.56
28	11 700	31.23
31.5	12 000	32.03
35.5	12 300	32.83
40	12 600	33.63
45	12 900	34.43
50	13 150	35.10
56	12 950	34.56
63	12 600	33.63
71	12 300	32.83
80	12 000	32.03
90	11 650	31.09
100	11 400	30.43
112	11 100	29.63
125	10 800	28.83
140	10 550	28.16
160	10 250	27.36
180	10 000	26.69
200	9 750	26.02
224	9 500	25.36
250	9 300	24.82
280	9 050	24.15
315	8 850	23.62
355	8 600	22.95
400	8 350	22.29
450	8 150	21.75

Rings of 55 mm		
ISO weight of travelers	RPM	MT/S
20	10 000	28.78
22.4	10 250	29.50
25	10 450	30.08
28	10 700	30.80
31.5	10 950	31.52
35.5	11 200	32.24
40	11 500	33.10
45	11 750	33.82
50	12 000	34.54
56	12 200	35.12
63	11 900	34.25
71	11 600	33.39
80	11 300	32.53
90	11 000	31.66
100	10 750	30.94
112	10 500	30.22
125	10 200	29.36
140	9 950	28.64
160	9 700	27.92
180	9 400	27.06
200	9 200	26.48
224	8 950	25.76
250	8 750	25.19
280	8 550	24.61
315	8 350	24.03
355	8 100	23.31
400	7 900	22.74
450	7 650	22.02

Rings of 57 mm

ISO weight of travelers	RPM	MT/S
20	9 600	28.64
22.4	9 800	29.23
25	10 000	29.83
28	10 250	30.58
31.5	10 500	31.32
35.5	10 750	32.07
40	11 000	32.81
45	11 250	33.56
50	11 500	34.30
56	11 750	35.05
63	11 600	34.60
71	11 250	33.56
80	11 000	32.81
90	10 700	31.92
100	10 450	31.17
112	10 200	30.43
125	9 950	29.68
140	9 700	28.94
160	9 400	28.04
180	9 200	27.44
200	8 950	26.70
224	8 750	26.10
250	8 500	25.36
280	8 300	24.76
315	8 100	24.16
355	7 850	23.42
400	7 650	22.82
450	7 450	22.22

Rings of 60 mm

ISO weight of travelers	RPM	MT/S
20	9 000	28.26
22.4	9 250	29.05
25	9 400	29.52
28	9 650	30.30
31.5	9 850	30.93
35.5	10 100	31.71
40	10 350	32.50
45	10 600	33.28
50	10 800	33.91
56	11 100	34.85
63	11 100	34.85
71	10 800	33.91
80	10 550	33.13
90	10 300	32.34
100	10 050	31.56
112	9 750	30.62
125	9 550	29.99
140	9 350	29.36
160	9 050	28.42
180	8 800	27.63
200	8 600	27.00
224	8 400	26.38
250	8 200	25.75
280	8 000	25.12
315	7 750	24.34
355	7 600	23.86
400	7 400	23.24
450	7 200	22.61

Rings of 65 mm		
ISO weight of travelers	RPM	MT/S
20	8 200	27.89
22.4	8 350	28.40
25	8 550	29.08
28	8 750	29.76
31.5	8 950	30.44
35.5	9 150	31.13
40	9 400	31.98
45	9 650	32.83
50	9 800	33.34
56	10 050	34.19
63	10 300	35.04
71	10 150	34.53
80	9 900	33.68
90	9 650	32.83
100	9 450	32.15
112	9 200	31.30
125	8 950	30.44
140	8 750	29.76
160	8 500	28.91
180	8 300	28.23
200	8 100	27.55
224	7 850	26.70
250	7 700	26.19
280	7 500	25.51
315	7 300	24.83
355	7 100	24.15
400	6 950	23.64
450	6 750	22.96

Rings of 70 mm		
ISO weight of travelers	RPM	MT/S
20	7 500	27.48
22.4	7 650	28.02
25	7 850	28.76
28	8 000	29.31
31.5	8 200	30.04
35.5	8 400	30.77
40	8 600	31.50
45	8 800	32.24
50	9 000	32.97
56	9 200	33.70
63	9 400	34.44
71	9 650	35.35
80	9 350	34.25
90	9 100	33.34
100	8 900	32.60
112	8 700	31.87
125	8 500	31.14
140	8 250	30.22
160	8 000	29.31
180	7 800	28.57
200	7 650	28.02
224	7 450	27.29
250	7 250	26.56
280	7 050	25.83
315	6 900	25.28
355	6 700	24.54
400	6 550	23.99
450	6 350	23.26

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