TOST
Flugzeuggerätebau
75 years
Safety in flying
Product Catalog

www.fotokalender-segelfliegen.de · Photo: Claus Dieter Zink

Pilots in action for pilots

Dear Fellow Aviators, Dear Customers

You are holding our updated Product Catalog in your hands. It contains the information about new products and new EASA approvals of our products. The wheel selection table as central database has been updated, enlarged and filled with more information for you. The indication of tire and tube should assist you and give you a better overview, see page 31 ff.

Since the very beginning of Tost in the year 1945 it has been our aim to be your reliable partner for all questions related to safe equipment for gliding and aviation. After 75 years in the business we hope to have reached this goal and to have won your trust. Our EASA approvals as Design Organisation, Production Organisation and Maintenance Organisation show the diversity of our family run business. Our own experiences during soaring and on the airfield go directly into all product developments, as well as those of our fellow aviators. We are always amenable to suggestions from your side, too.

This cataloge provides manifold useful information for you. At the same time, it should be a pleasure to turn its pages to check out for details. The unique photos of German glider pilot Claus Dieter Zink who show the beauty of soaring are contributing their part.

We may wish you many terrific flights and always Happy Landings!

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Barbara Dörflein

München, January 2021

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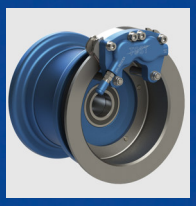

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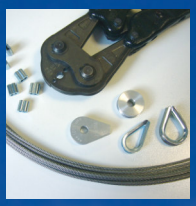

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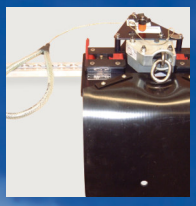

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Aircraft wheels

In 60 years of development and production of high-grade aircraft wheels, we have created a vast and varied product range and delivery programm.

Tost wheels are used worldwide in gliders, motor gliders, aircraft, ultralight, amphibium aircraft, helicopters and gyro copters. Also in heavy-duty applications Tost wheels convince with high load factors and customer-oriented solutions.

High service efficency is an important feature of an aircraft wheel. That's why we pursue our philosophy of wheel hubs for tube type tires. You can easily change the tire with standard tools, even on the airfield, without great effort.

The operation of Tost wheels is very economical. Not only the quality and durability are convincing, but also the ease of maintenance: the wheel hubs are maintenance-free and fitted with high-quality groove ball bearings. We can supply spare parts over decades and we offer maintenance and repair of your wheels.

In case you do not find "your" wheel for your aircraft, we manufacture custom-made wheels, regarding installation width and ball bearing diameter.

As a matter of course, we also deliver completely mounted wheels. Our wide range of aircraft tires and tubes are available from stock.

Being an EASA certified production and maintenance organisation, we supply most of our wheels with EASA Form 1.

Tost wheels MADE IN GERMANY are a synonym for highest quality and reliability.

5″ Disk brake wheel Penta 135-30
with brake assembly BZT2

Landing wheels

We offer landing wheels for use as nose wheel, tail wheel, support wheel or as unbraked main wheel, in various dimensions and constructions.

Landing wheel Mini 150 + 180

The smallest available wheel with pneumatic or foam-filled tire with the advantage of good suspension and absorption properties. Easy tire mounting by split wheel halves despite very narrow dimensions! Tire diameter 150 mm resp. 180 mm, installation width only 30/35 mm. Ideal for narrow installation space. For retrofit of tail wheels, as well as for steerable tail wheels. Anodised in blue or in silver.

P/N	Description	Install. width mm	Bearing Ø	Tire size	Weight g w/o tire	Type of hub
031512	LR Mini 150 N	30	12 mm	150 x 30	300	
031513	LR Mini 150 V	30	12 mm	150 x 30	300	special valve hole
031515	LR Mini 150 Z	30	0.5″	150 x 30	300	for axle in inch
031582	LR Mini 150 F	30	12 mm	150 x 30	300	foam-filled tire
031522	LR Mini 150 D	30	12 mm	150 x 30	300	with valve hole cover
031518	LR Mini 150 L	30	12 mm	150 x 30	230	light weight
031812	LR Mini 180	35	12 mm	180 x 35	330	
031816	LR Mini 180 N	35	12 mm	180 x 35	330	for tube 180x35, 062182
031882	LR Mini 180 F	35	12 mm	180 x 35	330	foam-filled tire

Explanation: LR stands for landing wheel

Landing wheel Mini 150 N (031512)

Landing wheel Mini 150 V (031513)

Landing wheel Mini 180 (031812)

3″ Landing wheel Moritz
(032100)

3″ Landing wheel Moritz and Moritz II

Our extensively tested 3″ tail wheel (LR) is available in two versions:
Moritz: as a sturdy aluminium die-cast wheel hub with fins sector
Moritz II: as a two-part wheel hub CNC milled from aluminium

The fins sector system ensures emergency roll capability also with extremely hard landings. Due to its two-part wheel structure the CNC milled wheel hub Moritz II is attaractive because of lower weight and the considerably easier tire mounting. Thanks to its anodised surface the Moritz II wheel hub shows a maximum of corrosion protection.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Type of hub
032100	3″ LR Moritz	50	20	210 x 65	360	one-part
032112	3″ LR Moritz II	50	12	210 x 65	335	two-part
032120	3″ LR Moritz II	50	20	210 x 65	330	two-part

3″ Landing wheel Moritz II
(032112)

3″ Landing wheel Moritz II brass
(032502)

3″ Landing wheel Moritz II from brass

To achieve good flight characteristics and the maximum aircraft performance the ideal position of the aircraft's center of gravity is significant. By using our heavy wheel hub Moritz II, which is manufactured from solid brass, you can compensate for too top-heavy moments without performing changes on the aircraft.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Type of hub
032501	3″ LR Moritz II brass	50	20	210 x 65	1490	two-part
032502	3″ LR Moritz II brass	50	12	210 x 65	1510	two-part

3.5″ Landing wheel Max and Max II

The tire size 200 x 50 is one of the well-established sizes for tail wheels of gliders and motor gliders. In addition to the well-tried one-part die-cast wheel hub Max we now offer with the wheel hub Max II also a light-weight, two-part version. The wheel Max II combines most simple tire mounting with lowest possible mass. Thanks to its anodised surface the Max II wheel hub shows a maximum of corrosion protection.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Type of hub
033100	3.5″ LR Max	50	20	200 x 50	430	one-part
033112	3.5″ LR Max II	50	12	200 x 50	375	two-part
033120	3.5″ LR Max II	50	20	200 x 50	365	two-part
033412	3.5″ LR Max II Version Arcus	50	12	200 x 50	375	two-part, valve hole further outside
033420	3.5″ LR Max II Version Antares	50	20	200 x 50	360	two-part, valve hole further outside
033812	3.5″ LR Max II F	50	12	200 x 50	370	two-part, with foam-filled tire
033820	3.5″ LR Max II F	50	20	200 x 50	360	two-part, with foam-filled tire

3.5″ Landing wheel Max (033100)

3.5″ Landing wheel Max II (033112)

3.5″ Landing wheel Max II from brass

The wheel Max II is also available in a brass version and can thus help you to compensate for too top-heavy moments, without performing changes on the aircraft.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Type of hub
033502	3.5″ LR Max II brass	50	12	200 x 50	2105	two-part
033501	3.5″ LR Max II brass	50	20	200 x 50	2080	two-part
033542	3.5″ LR Max II brass Version Arcus	50	12	200 x 50	2105	two-part

3.5″ Landing wheel Max II brass (033501)

4″ Landing wheel 100-20 Diamond (034201)

4″ Landing wheel Classic

Especially as sturdy nose wheels and main wheels or when used for special purposes our 4″ Classic landing wheels (LR) have proven their worth. They feature the thouroughly tested deformable fins sector and thus provide a high load capacity combined with compact installation measurements. The wheel halves are manufactured from aluminium die-cast and threefoldly screwed.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Type of hub
034000	4″ LR Classic 85-20	85	20	4.00-4/3.00-4 260 x 85	1010	two-part
034015	4″ LR Classic 85-15	85	15	4.00-4/3.00-4 260 x 85	1045	two-part
034100	4″ LR Classic 100-17	100	17	4.00-4/5.00-4 260 x 85	1200	two-part
034200	4″ LR Classic 100-20	100	20	4.00-4/5.00-4	1140	two-part
034201	4″ LR Classic 100-20 Diamond	100	20	4.00-4/5.00-4	1120	two-part
034300	4″ LR Classic 100-25	100	25	4.00-4/5.00-4	1112	two-part
034400	4″ LR Classic 60-20	60	20	2.80/2.50-4	870	two-part
034600	4″ LR Classic 85-17	85	17	4.00-4/3.00-4 260 x 85	1018	two-part
034700	4″ LR Classic 85-25	85	25	2.80/2.50-4	990	two-part

4″ Landing wheel Classic seawater resistant

For the use in amphibians or equipment exposed to saltwater we manufacture the 4″ landing wheel (LR) Classic also as seawater resistant version. With a special surface treatment bearings from stainless steel with special seals and coated wheel bolts these wheel hubs are highly corrosion-resistant.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Type of hub
034002	4″ LR Classic 85-20 seawater resistant	85	20	4.00-4/3.00-4 260 x 85	1010	two-part
034018	4″ LR Classic 85-15 seawater resistant	80	15	4.00-4/3.00-4 260 x 85	1045	two-part
034325	4″ LR Classic 100-20 seawater resistant	100	25	4.00-4 / 5.00-4	1100	two-part
034415	4″ LR Classic 60-20 seawater resistant	60	20	2.80/2.50-4	870	two-part

4″ Landing wheel seawater resistant (034002)

4″ Landing wheel Tria

4″ landing wheels (LR) Tria are convenient for applications, in which a low weight combined with a high strength are the determining factors. Through our CNC manufacturing from the solid we realize a weight-optimised wheel hub for high loads, with a high-class surface treatment (anodised in blue, other colours available on request) and a threefold bolting with high-tensile wheel bolts. The asymmetric split of the wheel halves allows for most easy tire mounting without special tools.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Type of hub
034462	4″ LRT Tria 60-40-20	40	20	2.80/2.50-4 260 x 85	645	two-part
034482	4″ LRT Tria 80-60-20	60	20	260 x 85 to 4.00-4	690	two-part
034485	4″ LRT Tria 80-60-25	60	25	260 x 85 to 4.00-4	670	two-part

4″ Landing wheel Tria (034482)

5″ Landing wheel Classic
(035420)

5″ Landing wheel Classic

The 5 inch landing wheels (LR) Classic are used as nose wheel in aircraft. Also for heavy duty applications. Wheel hub with six fold bolting, manufactured from aluminium die-cast with deformable fins sector.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Type of hub
035000	5″ LR Classic 102-20	102	20	5.00-5 336 x 115-5	1480	two-part
035100	5″ LR Classic 102-30	102	30	5.00-5 336 x 115-5	1450	two-part
035110	5″ LR Classic 100-30	100	30	5.00-5 336 x 115-5	1870	two-part
035150	5″ LR Classic 105-20	105	20	5.00-5 336 x 115-5	1500	two-part
035170	5″ LR Classic 102-25	102	25	5.00-5 336 x 115-5	1450	two-part
035200	5″ LR Classic 115-20	115	20	5.00-5 380 x 150 350 x 135 336 x 115-5	1550	two-part
035255	5″ LR Classic 115-25 B	115	25	5.00-5 380 x 150 350 x 135 336 x 115-5	1720	two-part
035305	5″ LR Classic 115-30 B	115	30	5.00-5 380 x 150 350 x 135 336 x 115-5	1780	two-part
035400	5″ LR Classic 125-17v	125	17	5.00-5 380 x 150 350 x 135 336 x 115-5	1590	two-part
035420	5″ LR Classic 125-20	125	20	5.00-5 380 x 150 350 x 135 336 x 115-5	1600	two-part
035450	5″ LR Classic 125-25	125	25	5.00-5 380 x 150 350 x 135 336 x 115-5	1600	two-part
035505	5″ LR Classic 125-30 B	125	30	5.00-5 380 x 150 350 x 135 336 x 115-5	1590	two-part

5″ Landing wheel Classic seawater resistant

For use in amphibians or equipment exposed to saltwater we manufacture the 5 inch landing wheel Classic also as a seawater resistant version. With a special surface treatment, bearings from stainless steel with special seals and coated wheel bolts these wheel hubs are highly corrosion resistant.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Type of hub
035301	5″ LR Classic 115-30 sea water resistant	115	30	5.00-5 380 x 150 350 x 135 336x115-5	1780	two-part

5″ Landing wheel Classic seawater resistant (035301)

5″ Landing wheel Penta

The 5 inch Penta landing wheels (LR) can be used to save weight as well as a possible replacement for landing wheels equipped with inch bearings. They are CNC milled from the solid and feature with a low weight and stable high load capacity, due to the high-tensile aluminium alloy. The wheel halves are fivefoldly screwed. Thanks to the set distance bushing a distortion of the bearings on the axle is not possible. Due to the asymmetric splitting of the wheel hub and the use of tire and tube, a fast and straightforward change of the tire – without special tools and special repair shop equipment – is possible. The anodized surface of the Penta wheel hubs provides the maximum corrosion protection.

P/N	Description	Install. width mm	Bearing Ø	Tire size	Weight g w/o tire	Type of hub
035520	5″ LRP Penta 79-51-20	51	20 mm	5.00-5 336 x 115-5	1020	two-part
035530	5″ LRP Penta 79-55-30	55	30 mm	5.00-5 336 x 115-5	1100	two-part
035531	5″ LRP Penta 101-77-1/1/4	77	1 1/4″	5.00-5 380 x 150 336x115-5	1222	two-part

5″ Landing wheel Penta (035531)

5″ Landing wheel tubeless

To realisze a further weight reduction you can use our 5 inch wheel tubeless.
The weight decrease is about 15% in total weight compared to a wheel hub with tire and tube (tubetype TT).
The exchange of the tire is relatively easy to handle, contrary to other TL wheels.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Weight w/o tire	Type of hub
035590	5″ LRP TL 75-30	75	30	5.00-5 TL 380 x 150 TL	1227	two-part

5″ Landing wheel Penta tubeless (035590)

6″ Landing wheel Mike
(036650)

6″ Landing wheel Mike

Apart from the “small” landing wheels (LR) we also manufacture unbraked, approved landing wheels in big sizes. Our 6″ landing wheels Mike from aluminium die-cast with deformable fins sector are particularly suitable for high loads.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Type of hub
036630	6″ LR Mike 144-95-30	95	30	6.00-6, 7.00-6, 15x6.00-6, 8.00-6	2650	two-part
036650	6″ LR Mike 144-95-40	95	40	6.00-6, 7.00-6, 15x6.00-6, 8.00-6	3170	two-part

6″ Landing wheel Ultralight
(036820)

6″ Landing wheel Ultralight

Suitable for our light 6″ UL disk brake wheels and the wide spread tire size 4.00-6 we can also supply a 6″ landing wheel (LR) for Ultralight aircraft.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Type of hub
036820	6″ LRP UL 80-50-20	50	20	4.00-6	1075	three-part

6″ Landing wheel Penta

With the 6″ Penta Landing wheel you can save weight compared to the Landing wheel (LR) of the 6″ Classic series.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Type of hub
036950	6″ LPR UL	110	30	6.00-6	2110	two-part
036970	6″ LPR UL	110	1 1/4“	6.00-6	2110	two-part

10″ Landing wheel Classic
(039000)

10″ Landing wheel Classic

Especially in the range of high-tensile special applications you will be impressed by our 10 inch landing wheels (LR) Classic.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Type of hub
039000	10″ LR Classic 210-45	210	45	8.50-10	11200	two-part
039040	10″ LR Classic 210-40	210	40	8.50-10	10900	two-part

Shoe brake wheels

For a large number of gliders the Simplex shoe brake (BB) continues to be the right choice. The advantages are the simple construction, reduced space requirements, low weight, lower force on the brake lever because of the servo action and of course, the low price.

4″ Shoe brake wheels

Our smallest shoe brake wheels (BB) Liliput and Kobold are the first choice for club-class single seaters. With smallest possible installation dimensions of the wheels very good brake results can be achieved.

4″ Shoe brake wheel Liliput

The shoe brake (BB) wheel Liliput features a big torque flap for ideal torque transfer.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Brake torque Nm max.	Type of hub
044200	4″ BB Liliput	88	17	2.80/2.50-4 260x85 4.00-4	1340	130	two-part-

Explanation: BB stands for shoe brake wheel

4″ Shoe brake wheel Liliput (044200)

4″ Shoe brake wheel Kobold

Small installation dimension with the brake power of a 5 inch wheel, this is our 4 inch shoe brake (BB) wheel Kobold.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Brake tourque Nm max.	Type of hub
044300	4″ BB Kobold 103-20	103	20	4.00-4 5.00-4	1760	200	two-part
044325	4″ BB Kobold 103-25	103	25	4.00-4 5.00-4	1740	200	two-part
044400	4″ BB Kobold 113-20	113	20	4.00-4 5.00-4	1830	200	two-part
044500	4″ BB Kobold 113-25	113	25	4.00-4 5.00-4	1810	200	two-part

4″ Shoe brake wheel Kobold (044300)

4″ Shoe brake wheel Gnom

The 4 inch wheel Gnom with the big brake assembly is ideally suited for motor-gliders with central wheel, vintage gliders or high demands in terms of load capacity with small wheel hub diameter.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Brake torque Nm max.	Type of hub
044700	4″ BB Gnom 187-30	187	30	355x150	3200	280	three-part
044800	4″ BB Gnom 213-30	213	30	8.00-4	3610	280	three-part

4″ Shoe brake wheel Gnom (044800)

5″ Shoe brake wheel Standard (045700)

5″ Shoe brake wheel Standard

For single-seater or double-seater gliders, motorgliders or aircraft: our shoe brake wheel (BB) Standard offers a huge selection of installation dimensions in the well-established wheel size 5 inch.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Brake tourque Nm max.	Type of hub
045000	5″ BB Standard 95-20	95	20	3.50-5 336x115-5 5.00-5	2170	200	two-part
045100	5″ BB Standard 113-20	113	20	336x115-5 5.00-5	2300	200	two-part
045255	5″ BB Standard 115-25	115	25	336x115-5 5.00-5 350x135	2330	200	two-part
045200	5″ BB Standard 115-30	115	30	336x115-5 5.00-5 350x135	2350	200	two-part
045417	5″ BB Standard 125-17v	125	17	336x115-5 5.00-5 380x150	2500	200	two-part
045400	5″ BB Standard 125-20	125	20	336x115-5 5.00-5 380x150	2450	200	two-part
045600	5″ BB Standard 125-25	125	25	336x115-5 5.00-5 380x150	2460	200	two-part
045430	5″ BB Standard 125-30	125	30	336x115-5 5.00-5 380x150	2440	200	two-part
045500	5″ BB Standard 130-20	130	20	336x115-5 5.00-5 380x150	2440	200	two-part
045700	5″ BB Standard 130-30	130	30	336x115-5 5.00-5 380x150	2440	200	two-part
045810	5″ BB Standard 130-35	130	35	336x115-5 5.00-5 380x150	2460	200	two-part

5″ Shoe brake wheel Bimbo (045950)

5″ Shoe brake wheel Bimbo

For double seaters made of glass fibre, a higher brake momentum is needed due to the higher mass and landing speed. With its siginificantly bigger brake drum, bigger brake shoes and an optimised brake lever transmission the 5 inch wheel Bimbo fulfills these high requirements.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Brake torque Nm max.	Type of hub
045950	5″ BB Bimbo	155	30	380 x 150	2870	280	two-part

6″ Shoe brake wheel Super

For many different 6 inch tires we can offer our 6 inch shoe brake wheel Super with its significant brake momentum.

P/N	Description	Install. width mm	Bea-ring Ø mm	Tire size	Weight g w/o tire	Brake torque Nm max.	Type of hub
046100	6″ BB Super	154	30	6.00-6 7.00-6 8.00-6	3150	270	two-part

6″ Shoe brake wheel Super (046100)

Bear in mind the following hints during installation and maintenance:

- Make sure the brake cable is laid correctly: as short and direct as possible, but without tight bends
- Use a Bowden cable with a set screw
- Adjust brake lever at regular intervals
- Roughen brake linings with emery paper (grain size 40 to 80) till the complete surface is matt
- Check minimum lining thickness (at least 1.5 mm)

Shoe brake wheel retrofit for Bocian

We offer a retrofit kit to shoe brake wheel 5″ Standard 115-25 for Bocian to improve its braking capacity. The kit consists of the shoe brake wheel, an axle with diameter 25 mm, the torque plate kit and optional a new tire 5.00-5 with tube.

P/N	Description	Remarks
045910	5″ Retrofit kit Bocian	with new tire
045911	5″ Retrofit kit Bocian	without new tire

Disk brake wheels

For many years disk brake wheels (SB) have been the first choice as a braked wheel for gliders, motor gliders, Ultralight aircraft, powered aircraft as well as for helicopters and gyrocopters. Due to the facts that the brake force can be well-applied, the automatic re-adjustment of the lining abrasion and the high, stable braking power, disk brake wheels provide an ideal braking efficiency in all situations and ensure the safe realisation of a flight.

Remark to the tables:
The indication of the mass of a wheel includes the wheel hub with ball bearings and brake disk. You can find the mass of the tires/tubes and brake assemblies in the correspondent chapters of the catalogue.

Pay attention to the following points to ensure the operational function of the brake system in your aircraft:

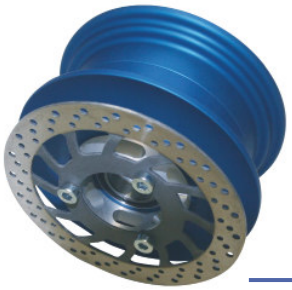
- The min. thickness of the brake disk may not be underrun, see page 29
- The minimum thickness of the brake lining may not be underrun, see page 50
- Watch out for sealings and boltings so that no leakage may occur
- Change the brake fluid regularly
- Never mix brake fluid DOT 4 and Mineral Fluid
- The brake system should be well-bleeded

Disk brake wheel Mini (051150)

Disk brake wheel Mini 150 and 180

Extremely small and light disk brake wheels (SB) are used in a growing number of applications as operational and differential brakes in flight objects with an all-up weight of up to about 100 kg. The smallest possible installation space is realised by our disk brake wheels Mini 150 und Mini 180:

P/N	Description	Install. width mm	Total width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Brake tourque Nm max.	Brake disk	Suitable brake assembly
051150	SB Mini 150	30	42	12	150x30	390	15	057310	BZM
051118	SB Mini 150 L	30	42	12	150x30	340	15	057310	BZM
051180	SB Mini 180	35	47	12	180x35	420	15	057310	BZM



3.5″ Disk brake wheel Max II (053020)

3.5″ Disk brake wheel Max II

Our Max II wheel with its flange-mounted brake disk offers a combination of a highly stressable, but small tire 200x50 and the small disk brake wheel (SB) :

P/N	Description	Install. width mm	Total width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Brake torque Nm max.	Brake disk	Suitable brake assembly
053012	3.5″ SB Max II 62-50-12	50	62	12	200x50	460	15	057310	BZM
053020	3.5″ SB Max II 62-50-20	50	62	20	200x50	450	15	057310	BZM
053032	3.5″ SB Max II 70-50-20	50	70	12	200x50	870	100	057312	BZT M
053030	3.5″ SB Max II 70-50-12	50	70	20	200x50	860	100	057312	BZT M

4″ Disk brake wheels

High brake momentum combined with compact installation measurements offer our 4 inch disk brake wheels (SB) Classic und Tria. Therefore they are qualified especially for retrofitting of hydraulic disk brake wheels in single-seated gliders or as original equipment in Ultralights or LSA/VLA.

4″ Disk brake wheel Classic (054111)

4″ Disk brake wheel Classic

4 inch Classic disk brake wheel (SB) from aluminium die-cast with well-proven fins

P/N	Description	Install. width mm	Total width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Brake torque Nm max.	Brake disk	Suitable brake assembly
054111	4″ SB Classic 110-20	85	110	20	260x85 4.00-4	1900	370	057011	30-9, BZT, BZT2
054131	4″ SB Classic 113-20	85	113	20	260x85 4.00-4	1900	380	057031	30-9, BZT, BZT2
054125	4″ SB Classic 110-25	85	110	25	260x85 4.00-4	1885	370	057011	30-9, BZT, BZT2

4″ Disk brake wheel Tria (054482)

4″ Disk brake wheel Tria

4 inchTria disk brake wheel, CNC milled from the solid, high-tensile aluminium alloy, anodised in blue as standard. Due to our CNC milling production method we can realize a weight reduction of more than 500 g compared with the Classic disk brake wheel of the same dimension.

P/N	Description	Install. width mm	Total width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Brake torque Nm max.	Brake disk	Suitable brake assembly
054462	4″ SRT Tria 90-40-20	40	90	20	2.80/ 2.50-4 260x85	1265	370	057420 vented	30-9, BZT, BZT2
054482	4″ SRT Tria 110-60-20	60	110	20	260x85 3.00-4 4.00-4	1320	370	057420 vented	30-9, BZT, BZT2

4″ Disk brake wheel Gnom

For motor gliders with central wheel and ballon tire 8.00-4 we also offer a disk brake wheel (SB) with 4 inch tire seat:

P/N	Description	Install. width mm	Total width mm	Bearing Ø mm	Tire size	Weight g w/o tire	Brake torque Nm max.	Brake disk	Suitable brake assembly
054811	4″ SB Gnom 202-172-30	172	202	30	8.00-4	3400	450	057093	30-63A, BZT2
054812	4″ SB Gnom 212-172-30	172	212	30	8.00-4	3400	450	057094	30-63A, BZT2

5″ Disk brake wheel Classic (055161)

5″ Disk brake wheel Classic

Wheels with a tire seat of 5 inch are the standard size for the main landing gear of many gliders, motor gliders and powered aircraft of various approval classes. For this wheel and tire size we can offer a wide range of disk brake wheels (SB) ex stock. We will be happy to prepare an offer for you, especially for the production of customized wheels.

Our 5 inch disk brake wheels (SB) Classic, made from aluminium die-cast with their specific ductile fins sector, have shown their well-proven perforance for decades.

P/N	Description	Install. width mm	Total width mm	Bea-ring Ø mm	Tre size	Mass g w/o tire	Brake torque Nm max.	Brake disk	Suitable brake assembly
055188	5″ SB Classic 109-92-20	92	109	20	5.00-5 336x115-5	2300	370	057000	30-9, BZT, BZT2
055191	5″ SB Classic 115-102-20	102	115	20	5.00-5 336x115-5	2365	370	057000	30-9, BZT, BZT2
055192	5″ SB Classic 115-102-25	102	115	25	5.00-5 336x115-5	2360	370	057000	30-9, BZT, BZT2
055152	5″ SB Classic 122-105-20	105	122	20	5.00-5 336x115-5	2450	370	057000	30-9, BZT, BZT2
055145	5″ SB Classic 122-105-25	105	122	25	5.00-5 336x115-5	2290	370	057000	30-9, BZT, BZT2
055151	5″ SB Classic 122-105-30	105	122	30	5.00-5 336x115-5	2415	370	057000	30-9, BZT2
055153	5″ SB Classic 134-115-30	115	134	30	5.00-5 336x115-5 380x150	2510	370	057000	30-9, BZT2
055155	5″ SB Classic 134-115-35	115	134	35	5.00-5 336x115-5 380x150	2520	370	057000	30-9, BZT2
055161	5″ SB Classic 145-115-30	115	145	30	5.00-5 336x115-5 380x150	2765	400	057070	30-9, BZT2
055162	5″ SB Classic 145-115-30v	115	145	30	5.00-5 336x115-5 380x150	2920	400	057070	30-9, BZT2
055171	5″ SB Classic 154-115-30	115	154	30	5.00-5 336x115-5 380x150	2840	400	057070	30-9, BZT2
055213	5″ SB Classic 122.5-77.5-30	77.5	122.5	30	5.00-5 336x115-5 380x150	2600	370	057513	30-9, BZT2
055212	5″ SB Classic 127-77.5-30	77.5	127	30	5.00-5 336x115-5 380x150	2620	370	057514	30-9, BZT2
055110	5″ SB Classic 135-115-30	115	135	30	5.00-5 336x115-5	2500	260	057030	TOG
055120	5″ SB Classic 135-115-35	115	135	35	5.00-5 336x115-5	2500	260	057030	TOG

Explanation: SB stands for disk brake wheel

5″ Disk brake wheel Penta

The 5 inch disk brake wheels of our series Penta captivate with their extra light wheel hub, the asymmetic split for easy tire mounting (the tube cannot be pinched between the wheel halves) and the high-grade, maintenance-free precision ball bearings. The compact wheel body prevents the accumulation of foreign particles. Thanks to the sturdy tire and tube system it is possible to change the tire fast and straightforward, without special tools and repair shop equipment.

The disk brake wheels are anodized in in blue as standard colour. Other colours (red, silver, black, orange, green) are available on request.

5″ Disk brake wheel Penta (055538)

P/N	Description	Install. width mm	Total width mm	Bea-ring Ø	Tre size	Mass g w/o tire	Brake torque Nm max.	Brake disk	Suitable brake assembly
055520	5″ SBP Penta 100-50-20	51	100	20 mm	5.00-5 336x115-5	1650	370	057220	30-9, BZT, BZT2
055523	5″ SBP Penta 10-51-20	51	103	20 mm	5.00-5 336x115-5	1700	370	057223	30-9, BZT, BZT2
055530	5″ SBP Penta 110-55-30	55	110	30 mm	5.00-5 336x115-5 380x150	1880	370	057230	30-9
055531	5″ SBP Penta 115-55-30	55	115	30 mm	5.00-5 336x115-5 380x150	1830	370	057238	30-9, BZT2
055532	5″ SBP Penta 119-55-30	55	119	30 mm	380x150	2156	370	057080	BZT2
055535	5″ SBP Penta 110-55-30	55	110	30 mm	5.00-5 336x115-5 380x150	1700	370	057236	30-9, BZT2
055536	5″ SBP Penta 130-75-30	75	130	30 mm	5.00-5 336x115-5 380x150	1880	370	057236	30-9, BZT2
055538	5″ SBP Penta 135-75-30	75	135	30 mm	5.00-5 336x115-5 380x150	1980	370	057238	30-9, BZT2
055544	5″ SBP Penta 120-85-30	85	120	30 mm	5.00-5 336x115-5 380x150	1800	370	057244	30-9, BZT2
055572	5″ SBP Penta 125-77.5-1¼″	77.5	125	1¼ inch	5.00-5 336x115-5 380x150	1860	370	057272	30-9, BZT2
055560	5″ SBP Penta 120-55-30	55	120	30 mm	5.00-5 336x115-5	2020	260	057040	TOG

5″ Disk brake wheel Penta tubeless

We can also supply 5 inch disk brake wheels of the Penta series as tubeless (TL) wheel hubs. You can save weight for the wheel unit to up to 10% compared to the tube type (TT) wheel.

Compared to other tubeless wheels, the tire exchange can be done easily with Tost tubeless wheels

5″ Disk brake wheel Penta Tubeless (055500)

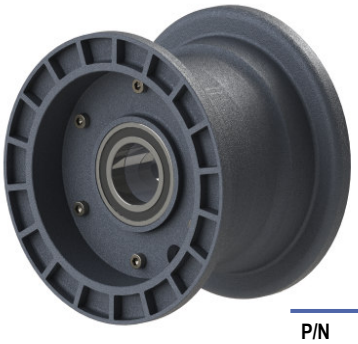
P/N	Description	Install. width mm	Total width mm	Bear. Ø mm	Tire size	Mass g w/o tire	Brake torque Nm max.	Brake disk	Suitable brake assembly
055500	5″ SBP Penta 130-75-30 tubeless	75	130	30	5.00-5 TL 380x150 TL 350x135 TL	1960	370	057500	30-9 BZT2

6″ Disk brake wheel Classic (056650)

6″ Disk brake wheel Classic

With our very highly stressable 6 inch disk brake wheels (SB) from aluminium die-cast and the big brake assemblies 30-63A and BZT2 we can offer an ideal combination for high landing speed and total take-off weight:

P/N	Description	Install. width mm	Total width mm	Bea-ring Ø	Tre size	Weight g w/o tire	Brake torque Nm max.	Brake disk	Suitable brake assembly
056161	6″ SB Super 151-113-30	113	151	30 mm	6.00-6 15x6.00-6 7.00-6	3500	420	057091	30-63A, BZT2
056607	6″ SB Classic 148,5-85-1½″	85	148,5	1½″	6.00-6 15x6.00-6 7.00-6	3500	450	057099	30-63A, BZT2
056650	6″ SB Classic 140-95-40	95	140	40 mm	6.00-6 15x6.00-6 7.00-6	3200	450	057095	30-63A, BZT2
056652	6″ SB Classic 140-80-50	80	140	50 mm	6.00-6 15x6.00-6 7.00-6	3150	370	057515	30-9, BZT2



6″ Disk brake wheel Classic seawater resistant (056640)

6″ Disk brake wheel Classic seawater resistant

For use in amphibians or saltwater exposed equipment we manufacture the 6 inch disk brake wheel (SB) Classic also as seawater resistant version. With a special surface treatment, bearings from stainless steel with special seals and coated wheel bolts these wheel hubs are highly corrosion-resistant.

P/N	Description	Install. width mm	Total width mm	Bea-ring Ø mm	Tre size	Weight g w/o tire	Brake torque Nm max.	Brake disk	Suitable brake assembly
056640	6″ SB Classic 140-95-40 seawater resistant	95	140	40	6.00-6 15x6.00-6 7.00-6	3200	450	057096	30-63A, BZT2

6″ Disk brake wheel Ultralight (056820)

6″ Disk brake wheel Ultralight

For Ultralight aircraft every gram counts. That is why we designed a light disk brake wheel (SB) with compact 6-piston brake assembly. The tire seat is adapted to the well-spread Ultralight tire size 4.00-6.

P/N	Description	Install. width mm	Total width mm	Bea-ring Ø mm	Tre size	Weight g w/o tire	Brake disk	Suitable brake assembly
056820	6″ SBP UL 105-50-20	50	105	20	4.00-6	1350	057316	BZ-UL

6″ Disk brake wheel Penta

Particularly for double-seated gliders of the 20 m class or Open class our light 6 inch Penta disk brake wheel (SB) is highly suited. It offers the same advantages as the 5 inch Penta disk brake wheel (see page 21): an extra-light wheel hub with asymmetric split for easy tire mounting

6″ Disk brake wheel Penta (056960)

P/N	Description	Install. width mm	Total width mm	Bearing Ø mm	Tre size	Weigth g w/o tire	Brake torque Nm max.	Brake disk	Suitable brake assembly
056950	6″ SBP Penta 128-100-30	128	100	30	6.00-6 15x6.00-6 7.00-6	2600	370	057260	30-9, BZT2
056960	6″ SBP Penta 138-110-30	110	138	30	6.00-6 15x6.00-6 7.00-6	2711	370	057260	30-9, BZT2
056980	6″ SBP Penta 114-65-30	65	114	30	4.00-6	2390	370	057260	30-9, BZT2

6″ Disk brake wheel Penta SBL Tubeless

The production from a special aluminium alloy in combination with our new four piston brake assembly BZT 4 and a stronger brake disk leads to the new 6 inch disk brake wheel (SB) Penta tubeless which features a very high brake momentum and can thus take up a high brake energy. It is also appropriate for heavy single engine aircraft.
The tire exchange can be done easily, compared to other tubeless wheel types.

6″ Disk brake wheel Penta Tubeless (056960)

P/N	Description	Install. width mm	Total width mm	Bearing Ø mm	Tire size	Weigth g w/o tire	Brake torque Nm max.	Brake disk	Suitable brake assembly
056990	6″ SBL 145-85-40 Tubeless	85	145	40	15x6.00-6 TL 6.00-6 TL 7.00-6 TL	2980	1000	057098	BZT4

Retrofit to disk brake wheel

Many modern gliders and power gliders are originally equipped with disk brake wheels nowadays. To also make their advantages availalbe for elder aircraft types, we offer retrofit kits from shoe brake wheel to disk brake wheel.
Depending on the aircraft type, the available space varies. With very tight space in the landing gear box, the existing shoe brake wheel has to be replaced by a complete new disk brake wheel. If there is more space available, a brake disk only can be fitted to the existing wheel hub, after removing the shoe brake assembly.

Retrofit from shoe brake wheel to disk brake wheel

EASA-approved retrofit kits, where the existing shoe brake wheel is replaced by a new disk brake wheel or a brake disk is fitted onto the existing shoe brake wheel.
The extend of delivery includes the full documentation acc. to the Technical Note/Minor Change Approval with detailed installation instructions, parts list, drawing and EASA FORM 1.

P/N	Aircraft type	Disk brake wheel	Approval
051412	Discus a to Discus 2a Discus CS Ventus a to Ventus 2b	4″ Classic 110-20	Tost EASA Minor Change Approval - TN 03-2011
051415	LS4 - LS8	4″ Classic 110-20	Tost EASA Minor Change Approval - TN 01-2018
051564	Mosquito	5″ Classic 122-105-20	Streifeneder TN
051562	ASK13	5″ Classic 109-92-20	Tost EASA Minor Change Approval - TN 10
051570	Swift	5″ Classic 115-102-25	Marganski SB
051520	Twin-Astir	Brake disk 170-35-5	Grob TN
051810	Piaggio P149D	8″ Cleveland 40-98B	German Air Force
051530	Astir CS	5“ Standard	TN 01-2020

Retrofit to disk brake wheel Penta

The advantages of the 5 inch Penta disk brake wheel – low weight and good serviceability – can be transferred to modern gliders with the help of the following retrofit kits. All retrofit kits are EASA approved as Minor Change Approvals.

Important notice:
We recommend the retrofitting of your brake system to TOST brake hydraulics at the same

P/N	Aircraft type	Disk brake wheel	Remarks
051710	DuoDiscus, Arcus, Nimbus	5″ SBP 135-75-30	Replaces 5″ Classic wheel TN 01-2011
051720	DuoDiscus, Arcus, Nimbus	5″ SBP 135-70-30	Replaces 5″ Beringer wheel TN 01-2011
051740	Discus 2b bis Discus 2cT Ventus 2c bis Ventus 2cM Nimbus 2 + 3	5″ SBP 100-51-20	Replaces 5″ Classic wheel TN 02-2011
051742	Discus 2b bis Discus 2cT Ventus 2c up to Ventus 2cM	5″ SBP 100-51-20	Replaces 5″ Beringer wheel TN 02-2011
051730	ASK 21/ASK 21 Mi	5″ SBP 125-77.5-1¼″	Schleicher TN 33 Schleicher TN 5

Retrofit to disk brake wheel Classic

For the following aircraft types, we offer complete retrofit kits to disk brake that include all necessary components. Please check for an approval previously with your inspector.

P/N	Aircraft type	Disk brake wheel
051430	Avo Samburo	4″ Gnom 202-30
051433	Scheibe SF 25B Slingsby T61	4″ Gnom 212-30
051571	SZD-50 Puchacz	5″ Classic 122-25
051572	SZD-9 Bocian	5″ Classic 122-25
051567	PW-6	5″ Classic 122-20
051566	DG600	5″ Classic 122-20
051564	Glasflügel 304	5″ Classic 122-20
051564	Kiwi	5″ Classic 122-20
051565	SZD-45 Ogar	5″ Classic 115-25 /115-35
051570	Jantar	5″ Classic 115-25
051550	SZD-55 Promyk	5″ Classic 115-25
051610	Bölkow 207	6″ Classic 128-1.5″
051640	DR 400	6″ Classic 80/120-50
051651	DR 1050 / DR 1051	6″ Classic 95/50
051661	Morane	6″ Classic 95/50
051510	Scheibe SF 34 B	Brake disk is fitted to the existing wheel
051560	Kiwi	Brake disk is fitted to the existing wheel
051560	Mosquito	Brake disk is fitted to the existing wheel

The following components are included in each retrofit kit:

- Brake disk or complete hub with brake disk
- Brake calliper with the suitable anchor plate assembly
- Master cylinder
- Hydraulic hose and connecting parts

Feel free to contact us if you have any questions regarding the retrofit kits, we will be pleased to tell you more about them.

Spare parts

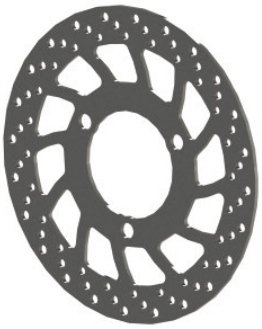
You can obtain all necessary spare parts for Tost aircraft wheels from us. Our delivery programm includes brake disks, ball bearings, wheel bolts, brake shoes, brake levers and cams. The indication of the part number and serial number of your wheel (engraved in the wheel hub side) as well as the aircraft type make the choice of the suitable parts easier.

Brake disks

Tost brake disks are made from heat-treated steel and turned from full material. So there is no welded joint between flange and disk with its problem of corrosion respectively fracture danger. The perfect true running is a further advantage.

By our special heat treatment the operating life is increased and the optimum braking efficiency achieved. The spot-grinding of the brake surface ensures a constant brake effect from the beginning and reduces the breaking-in-period.

In addition to the standard brake disks, availalbe from stock, we also manufacture brake disks custom-made to your drawing or sample.



3.5″ Brake disk Max II
(057310)

3.5″ Brake disks

for use with Mini and Max II disk brake wheels:

P/N	Ø mm	Height mm	Thick-ness mm	Application
057310	100	-	1.5	3.5″ Max II: disk brake wheel p/n 053012, 053020 flat-type Mini 150 SB: p/n 051150 Mini 180 SB: p/n 051180
057312	134	20	4	3.5″ Max II disk brake wheel: p/n 053030 Z-type for BZT M

4″ Brake disk Tria
(057420)

4″ Brake disks

for use with Classic and Tria disk brake wheels

(Z-type disk for use with brake assembly 30-9, BZT and BZT2):

P/N	Ø mm	Height mm	Thick-ness mm	Application
057011	164	28	5	4″ Classic disk brake wheel: p/n 054111
057031	168	31	5	4″ Classic disk brake wheel: p/n 054111
057093	192	36	6	4″ Gnom disk brake wheel: p/n 054811, 054812
057420	164	40	5	4″ Tria disk brake wheel: p/n 054462, 054482 vented

5″ Brake disks

for use with Classic, Cleveland and Penta disk brake wheels

(Z-type for use with brake assembly 30-9, BZT and BZT2):

P/N	Ø mm	Height mm	Thick-ness mm	Application
057710	162	52	5	Cleveland wheel 40-78B: p/n 075100
057000	166	22	5	5″ Classic disk brake wheel: p/n 055145, 055151, 055152, 055153, 055155, 055156, 055158, 055188, 055191, 055192
057090	170	35	5	Retrofit to disk brake wheel Classic Twin Astir
057070	180	42	5	5″ Classic disk brake wheel: p/n 055161, 055162, 055171
057080	180	52	8	5“ Penta disk brake wheel 055532
057220	164	33	5	5″ Penta disk brake wheel: p/n 055520
057230	180	43	5	5″ Penta disk brake wheel:p/n 055530
057236	164	43	5	5″ Penta disk brake wheel: p/n 055535, 055536
057238	180	48	5	5″ Penta disk brake wheel: p/n 055538
057244	164	43	5	5″ Penta disk brake wheel: p/n 055544
057272	162	36,3	5	5“ Penta disk brake wheel: p/n 055572

5″ Brake disk Penta (057238)

5″ Brake disks

for use with Classic disk brake wheels, vented

(Z-type for use with brake assembly 30-9, BZT and BZT2):

P/N	Ø mm	Height mm	Thick-ness mm	Application
057001	166	22	5	5″ Classic disk brake wheel: p/n 055145, 055151, 055152, 055153, 055155, 055156, 055158, 055188, 055191, 055192
057071	180	42	5	5″ Classic disk brake wheel: p/n 055161, 055162, 055171

5″ Brake disk Classic vented (057071)

5″ Step-type disks

for mounting on Classic disk brake wheels, as well as retrofit to shoe brake wheel Standard

P/N	Ø mm	Height mm	Thick-ness mm	Application
057513	164	50.5	5	5″ Classic disk brake wheel: p/n 055213
057512	164	55	5	5″ Classic disk brake wheel: p/n 055212
057509	164	45.5	5	Retrofit 5″ Standard shoe brake wheel to 5″ Classic disk brake wheel, for Astir CS, Jeans Astir, SF-34, Kiwi, Mosquito
057510	180	48	5	Retrofit 5″ Standard shoe brake wheel to 5″ Classic disk brake wheel, for ASK13
057511	180	52	5	5″ Classic disk brake wheel: p/n 055211
057815	185	56	6.5	for Speed Canard
057520	198	39	5	for DR 300 and DR 400

5″ Brake disk TOG
(057040)

5″ U-type disks
for use with TOG brake assembly with Classic and Penta disk brake wheels

P/N	Ø mm	Height mm	Thick-ness mm	Application
057030	160	42	4	5″ Classic disk brake wheel: p/n 055110, 055120, 055130, 055135, 055140
057040	160	53	4	5″ Penta disk brake wheel: p/n 055560

6″ Brake disk
(057095)

6″ Brake disks
for use with Classic, Cleveland and Penta disk brake wheels
(Z-type for use with brake assembly 30-9, 30-63A and BZT2):

P/N	Ø mm	Height mm	Thick-ness mm	Application
057075	184	25	5	6″ Classic disk brake wheel: p/n 056131
057091	184	44	6	6″ Classic disk brake wheel: p/n 056161 (Fournier RF-5)
057095	192	52	6	6″ Classic disk brake wheel: p/n 056650 (Ruschmeyer R90)
057720	190.5	54	6	Cleveland wheel 40-97A: p/n 076100
057260	180	35	5	6″ Penta disk brake wheel: p/n 057260
057098	190	50	7	6“ SBL: p/n 056990

6″ Brake disk UL
(057316)

6″ Brake disks
for use with UL Penta disk brake wheels
(flat-type for brake assembly BZ-UL):

P/N	Ø mm	Height mm	Thick-ness mm	Application
057316	185	-	2	6" UL-Penta disk brake wheel p/n 056820

Brake disks seawater resistant
for use with wheels exposed to salt water conditions

P/N	Ø mm	Height mm	Thick-ness mm	Application
057002	166	22	5	5" Classic disk brake wheel : p/n 055145, 055151, 055152, 055153, 055155, 055156, 055158, 055188, 055191, 055192
057096	192	52	6	6“ Classic disk brake wheel seawater resistant p/n 056640

Special brake disks
flat-type for special aircraft types:

P/N	Ø mm	Height mm	Thick-ness mm	Application
057314	145	-	5.5	AMS Carat A
057317	178	-	5	Klemm Kl 35

Maintenance notes for brake disks

1. Inspect brake disk for cracks, excessive wear and tear, grooves, corrosion and deformation.
2. Remove corrosion and smooth smaller nicks with fine emery paper (400 grain).
3. Replace the brake disk, if it is worn beyond the wear limit (see below). Measure this minimum at two or three spots.
4. Replace the brake disk if it has an axial throw of 0.2 mm.
5. Brake disks are surface-treated only for special applications. A rust film of varying degree may form on the brake disk. That can be removed with one or two parking brake operations.
6. If rust has progressed further, it may be necessary to dismantle the disk from the wheel so that both disk surfaces can be cleaned properly. First use a steel brush, then follow with 220 grain emery paper. Finally polish with 400 grain emery paper. This procudure may allow you to continue using the brake disk.

Wear limits

Disk thickness mm	Wear limit mm
1.5	1.3
2.0	1.7
4.0	3.3
5.0	4.3

Disk thickness mm	Wear limit mm
6.0	5.2
6.5	5.5
8.0	7.0

Spare parts for shoe brake wheels

All spare parts for Tost wheels are available ex stock. We can also supply spare parts for wheels that were built 40 years ago. You can prolong the life time of your wheel by regular maintenance and repair, see page 17.

Anchor plates

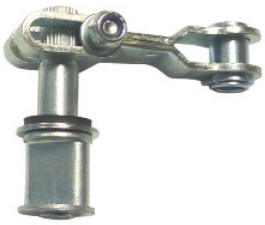
Tost anchor plates are completely fitted with all components: brake shoes with springs, anchor bolt, brake lever and cam.

P/N	Description	Application	Axle dia. mm	Anchor bolt
048428	Anchor plate 4″	4″ Liliput shoe brake wheel	17	-
048422	Anchor plate 4″	4″ Kobold shoe brake wheel	20	-
048423	Anchor plate 4″	4″ Kobold shoe brake wheel	25	-
048522	Anchor plate 5″	5″ Standard shoe brake wheel	17	M8
048520	Anchor plate 5″	5″ Standard shoe brake wheel	20	M8
048523	Anchor plate 5″	5″ Standard shoe brake wheel	25	M8
048521	Anchor plate 5″	5″ Standard shoe brake wheel	20	M10x1
048524	Anchor plate 5″	5″ Standard shoe brake wheel	25	M10x1
048525	Anchor plate 5″	5″ Standard shoe brake wheel	30	M10x1
048526	Anchor plate 5″	5″ Standard shoe brake wheel	35	M10x1
048620	Anchor plate 6″	6″ Super shoe brake wheel	30	Inside thread M8
048421	Anchor plate Gnom/ Bimbo	4″ Gnom and 5“ Bimbo shoe brake wheel	30	Inside thread M8

Anchor plate 5″ complete (048521)

With your order please indicate the type of aircraft, axle diameter and anchor bolt.

Anchor bolt M10x1 (048417)



Brake lever and cam

Beside the complete anchor plates, we can also offer all spare parts for shoe brake wheels solely:

Anchor bolt

fitted with flanged nut

P/N	Thread size	Thread length mm	Flange height of nut mm
048418	M10x1	25	6
048419	M10x1	30	3
048417	M10x1	30	6
048518	M8	25	6
048519	M8	30	3

Brake lever and cam

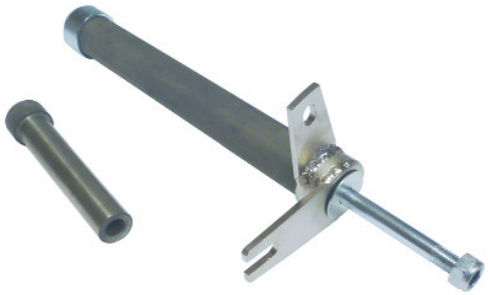
Sold only as set due to the indentation of both parts

P/N	Description	Application	Remarks
048478	Brake lever and cam, set	4″ Liliput BB wheel	
048570	Brake lever and cam, set	4″ Kobold BB wheel 5″ Standard BB wheel	
048672	Brake lever and cam, set	4″ Gnom BB wheel 5″ Bimbo BB wheel 6″ Super BB wheel	replaces p/n 048671

Brake shoes

including springs

P/N	Description	Application	Remarks
048475	Brake shoes Liliput	4″ Liliput BB wheel	
048576	Brake shoes Kobold	4″ Kobold BB wheel	
048575	Brake shoes Standard	5″ Standard BB wheel	
048675	Brake shoes Gnom/ Bimbo	BB wheel Gnom or Bimbo	from y.o.c. 1978
048685	Brake shoes Super	6″ Super BB-Rad	also: Gnom and Bimbo up to 1977



Complete axle set (048465)

Axles and axle sets for shoe brake wheels

P/N	Description	Application	Remarks
045450	Axle 17 mm	4″ Liliput BB wheel	with bushings
048461	Axle 20 mm	4″ Kobold BB wheel 103-20	p/n 044300
048465	Complete axle set Gnom	4″ Gnom BB wheel	
048660	Complete axle set Super	6″ Super BB wheel	
048665	Torque arm	p/n 048465 and 048660	

Important advise:

We can supply for all types of Tost aircraft wheels - landing wheels, tail and support wheels, shoe brake wheels and disk brake wheels - with indication of the serial number and part number: wheel bolts and ball bearings.

Manufacturer/Aircraft	Main wheel	Size	P/N	Tire	Tube	Nose wheel	Size	P/N	Tire	Tube	Tail wheel	Size	P/N	Tire	Tube
Aero AT															
AT-3	2 x 5″ LR	115-25	035255	5.00-5	5.00-5 TR67	LR 4″	100-20	034100	5.00-4	064392					
Binder															
EB 28	SB 5″	145-30	055161	380x150	5.00-5 TR67						Moritz	50-20	032100	210x65	062093
EB 29	SB 5″ Penta	110-30 115-30 119-30	055530 055531 055532	380x150	065995						Moritz Mini 180N	50-20 35-12	032100 031816	210x65 180x35	062093 062082
Brasov/Rumänien															
IS 28 B/B2, 28 M S/G/ GR	1x / 2x Standard 5″	130-35	045810	5.00-5	5.00-5 TR67						Moritz	50-20	032100	210x65	062093
IS 29 D	Standard 5″	95-20	045000	3.50-5	065192						Moritz	50-20	032100	210x65	062093
Caproni															
Calif A 21 S	2 x Standard 5″ or Kobold 4″	95-20 103-20	045000 044300	3.50-5 4.00-4	065192 064692										
Celair															
Celstar GA 1	SB 5″	115-20	055191	5.00-5	5.00-5 TR67						Max	50-20	033100	200x50	063093
Centrair															
Marianne	SB 5″	115-20	055191	5.00-5	5.00-5 TR67	LR 4″	85-17	034600	4.00-4	064692					
SF 34 Alliance	SB 5″	115-20	055191	5.00-5	5.00-5 TR67	LR 4″	85-20	034000	260x85	064292					
Comco Ikarus															
C 42	2 x 6″ SB UL	105-20	056820	4.00-6 6 pr	066692										
DG-Flugzeugbau															
DG 100/200/300/400	Standard 5″	125-20	045400	5.00-5	5.00-5 TR67						#			200x50	
DG 600	Standard 5″	125-20	045400	5.00-5	5.00-5 TR67						#			200x50	
DG 800	Standard 5″ or SB 5″	125-20 122-20	045400 055152	5.00-5	5.00-5 TR67						#			200x50	
DG 500/505, DG 1000 S/T	SB 5″	134-30	055153	380x150	5.00-5 TR67	LR 4″	85-20	034000	260x85	064292	#			200x50	
DG 1001 M	SB 5″ Penta	130-30	055536	380x150	065995	LR 4″	85-20	034000	260x85	064292	#			200x50	
LS 8	Kobold 4“ or SB 4“ retrofit	103-20 110-20	044300 054111	4.00-4	064692						Moritz	50-20	032100	210x65	062093
LS 10	Standard 5″	113-20	045100	5.00-5	5.00-5 TR67						Mini 150 V	30-12	031513	150x30	062153
Diamond Aircraft															
Dimona/Super Dimona	Cleveland			5.00-5 380x150	5.00-5 TR67						LR 4″ 4“ Tria	60-20 60-20	034400 034462	2.80/ 2.50-4	064582
Katana	Cleveland			380x150	5.00-5 TR67	LR 4″	100-20	034201	4.00-4 5.00-4	064692 064392					
Eiri / Issoire															
PIK 20 E/D/PIK 16 C	Standard 5″	113-20	045100	5.00-5	5.00-5 TR67										
FFT/Gyroflug															
Speed Canard	Cleveland or retrofit to Tost BS	40-78B 185-56-6,5	057815	5.00-5	5.00-5 TR67										

Manufacturer/Aircraft	Main wheel	Size	P/N	Tire	Tube	Nose wheel	Size	P/N	Tire	Tube	Tail wheel	Size	P/N	Tire	Tube
FFT/Gyroflug (continued)															
Kiwi	Standard 5″ or 5“ SB retrofit	113-20 122-20	045100 055152	5.00-5	5.00-5 TR67										
Glasflügel															
Salto	Liliput 4″	88-17	044200	4.00-4	064832										
Glasflügel (TCDS holder: Glasfaser-Flugzeug-Service Streifeneder)															—
Libelle 301/Standard Libelle Club Libelle	Liliput 4″	88-17	044200	4.00-4	064832										
604/Kestrel	Standard 5″	125-20	045400	5.00-5	5.00-5 TR67										
Hornet	Standard 5″ or SB 5″ retrofit	113-20 122-20	045100 055152	5.00-5	5.00-5 TR67										
Mosquito/304 B	Standard 5″ or SB 5″ retrofit	113-20 122-20	045100 055152	5.00-5	5.00-5 TR67						#				210x65
Grob (TCDS holder: Fieberglas-Technik Rudolf Lindner)															
Astir CS/77	Standard 5″ or SB 5″ retrofit	115-30 BS 164-45	045200 057509	5.00-5	5.00-5 TR67										
Jeans Astir	Standard 5“	115-30	045200	5.00-5	5.00-5 TR67										
Standard/Club/Speed Astir II	Kobold 4″	113-25	044500	4.00-4	064692						Moritz	50-20	032100	210x65	062093
Astir III	SB 5″ TOG	135-30	055110	5.00-5	5.00-5 TR67										
Twin Astir/Twin Trainer	Bimbo 5″ SB 5″ Bimbo Classic 5“	155-30 140-30 135-35	045950 055511 055120	380x150 (5.50-5) 5.50-5	5.00-5 TR67	LR 4″	85-20	034000	260x85	064292	Moritz	50-20	032100	210x65	062093
Twin II/Twin III/Twin ACRO	Cleveland	40-97A		6.00-6	6.00-6 TR20	LR 4″	85-20	034000	260x85	064292	Moritz	50-20	032100	210x65	062093
G 109/B TCDS holder = Grob Aircraft	2 x SB 5″	154-30	055171	380x150	5.00-5 TR67	LR 4″	85-20	034000	260x85	064292	LR 4″ Moritz	60-20 50-20	034400 032100	2.80/2.50-4 210x65	 062093
HB Flugtechnik															
HB 2/HB 21 (79)	Gnom 4″	187-30	044700	355x150		LR 4″	85-20	034000	260x85	064292					
HB 23/HB 21 (83)	2 x Bimbo 5″	155-30	045950	5.00-5	5.00-5 TR67	LR 4″	85-20	034000	260x85	064292					
HB 207	Kobold 4″	113-20	044400	4.00-4	4.00-4 long valve	LR 4″	85-20	034000	4.00-4	064692					
LET															—
L13 Blanik	Standard 5″ or disk brake retrofit	125-25 115-25	045600 055192	5.00-5 350x135	5.00-5 TR67										
Lindner (TCDS holder: Airbus Defence and Space)															
Phoebus	Liliput 4“	88-17	044200	4.00-4	064832										
Neukom															
Elfe S 4	Standard 5″	125-20	045400	5.00-5	5.00-5 TR67										

Manufacturer/Aircraft	Main wheel	Size	P/N	Tire	Tube	Nose wheel	Size	P/N	Tire	Tube	Tail wheel	Size	P/N	Tire	Tube
Pilatus															
Pilatus B4	Standard 5“	113-20	045100	5.50-5	5.00-5 TR67						Max	50-20 bus-hing	A33007	200x50	063093
PZL Allstar Bielsko															
SZD 36 A/Cobra 15/Foka	Standard 5"	95-20	045000	3.50-5	4.10/350-5										
SZD 50 Puchacz SZD 9 Bocian	Standard 5″ or SB 5″ retrofit	115-25 122-25	045255 055192	5.00-5	5.00-5 TR67										
SZD 54 Perkoz, SZD 59 Acro	SB 5"	122-25	055145	5.00-5	5.00-5 TR67										
PZL Swidnik															
PW 5	Liliput 4″	88-17	044200	4.00-4	064832	LR 4″	85-17		260x85		Moritz	50-20	032100	210x65	062093
PW 6	Standard 5" or SB 5″ retrofit	125-20 122-20	045400 055152	5.00-5	5.00-5 TR67	LR 4″	85-17		260x85		Moritz	50-20	032100	210x65	062093
Rolladen-Schneider (TCDS holder: DG-Flugzeugbau)															
LS 1a bis 1f	Liliput 4″	88-17	044200	4.00-4	064832										
LS 3	Liliput 4 Kobold 4“ SB 4" retrofit	88-17 103-20 110-20	044200 044300 054111	4.00-4	064832 064692										
LS 4/LS 6/LS 7	Kobold 4″ SB 4“ retrofit	103-20 110-20	044300 054111	4.00-4	064692						Moritz	50-20	032100	210x65	062093
LS9 (1997-2002)	Standard 5“	115-30	045200	5.00-5	5.00-5 TR67						Moritz II	30-12	032112	210x65	062093
Ruschmeyer															
R 90	SB 6″	163-40	056650	15x600-6	066492	LR 5″	125-30		5.00-5	5.00-5 TR67					
Scheibe (TCDS holder: Scheibe Aircraft)															
SF 25 A Motorfalke	Super 6″	154-30	046100	6.00-6	066992						Max	50-20	033100	200x50	063093
SF 25 B Einbein	Super 6″ or Gnom	154-30 213-30	046100 044800	6.00-6 8.00-4	066992 064792						Max	50-20	033100	200x50	063093
SF 25 C Zweibein SF 36 Zweibein	2x Standard 5″	130-35	045810	5.00-5	5.00-5 TR67						Moritz Max	50-20 50-20	032100 033100	210x65 200x50	062093 063093
SF 25 C Dreibein	2x Standard 5″	130-35	045810	5.00-5	5.00-5 TR67	LR 4″	85-20		5.00-4						
SF 25 E Superfalke / C Einbein	2x Super 6″	154-30	046100	6.00-6	066992						Moritz	50-20	032100	210x65	062093
SF 28 A Tandem-Falke	Gnom 4″	213-30	044800	8.00-4	064792						Moritz	50-20	032100	210x65	062093
SF 27	Liliput 4″	88-17	044200	4.00-4	064832										
SF 34	Standard 5″ or SB 5″ retrofit	113-20 118-20	045100	5.00-5	5.00-5 TR67	LR 4″	85-20		260x85	064292	Moritz	50-20	032100	210x65	062093
Bergfalke II/III/IV/Mü13	Liliput 4″ or Kobold	88-17 103-20	044200 044300	4.00-4	064832 064692						Max or Moritz		033100 032100	200x50 210x65	063093 062093
Spatz	LR 4″	various		4.00-4	064692										
Schempp-Hirth															
Cirrus Std. Cirrus	Liliput 4″ Kobold 4“ or retrofit Hydr. action	88-17 113-20	044200 044400	4.00-4	064832 4.00-4 I.V.										
Mini-Nimbus B/C	Kobold 4″ SB 4“ TM03-2011	113-20 85-20	044400 054111	4.00-4	4.00-4 I.V.										

Manufacturer/Aircraft	Main wheel	Size	P/N	Tire	Tube	Nose wheel	Size	P/N	Tire	Tube	Tail wheel	Size	P/N	Tire	Tube
Schempp-Hirth (continued)															
Discus a / b / 2a/ bT / bM Ventus a / b / c / 2a/ 2b Ventus-bT / cM / cT	Kobold 4″ SB 4“ TM03-2011	103-20 85-20	044300 054111	4.00-4	064692						#			200x50	
Discus-2b / 2c / 2T / 2 cT Ventus 2c/2cM / 2cT	SB 5″ SB 5″ Penta (TM 02/2011)	109-20 100-20	055188 055520	5.00-5 336x115	5.00-5 TR67 065995						# or Mini 150 V	 30-12	 031522	200x50 150x30	 062152
Janus B/C/Ce/CM/CT	Bimbo 5″ or SB 5″	155-30 145-30	045950 055161	380x150 GY	5.00-5 TR67	LR 4″	85-20	034000	3.00-4	064292	#			200x50	
Nimbus-2 / 2B/2C / 2M/ 3 / 3T	Standard 5″ or SB 5″ SB 5″ Penta (TM 02/2011)	95-20 105-20 100-20	045000 055188 055520	5.00-5 10 pr	065995										
Nimbus 4/4T/4M	SB 5″	145-30v	055162	380x150 GY	5.00-5 TR67						#			200x50	
Nimbus 3D/3DT/3DM	SB 5″	145-30v	055162	380x150 GY	5.00-5 TR67	LR 4″	85-20	034000	3.00-4	064292	#			200x50	
Duo Discus, C, T Nimbus 4DT/4DM	SB 5″ SB 5″ Penta (TM 01/2011)	145-30v 135-30	055162 055538	380x150 GY	065995	LR 4″	85-20	034000	3.00-4	064292	Max II	50-12	033112	200x50	063192
Arcus T, M	SB 5″ Penta (TM 01/2011)	135-30	055538	380x150 GY	065995	LR 4″	85-20	034000	3.00-4	064292	Max II	50-12	033412	200x50	063192
Quintus	SB 5″ Penta	115-30	055531	380x150 GY	065995						Max II	50-12	033412	200x50	063192
Ventus 3 Sport/Performance	SB 5" Penta	103-20	055523	336x115	065995						Mini 150 Max II	30-12 50-12	031582 033122	150x30 200x50	 063192
Schleicher															
Ka 6/K 8	4″ wheel	div.		4.00-4	064692						Moritz	50-20	032100	210x65	062093
Ka 7	Standard 5″	125-30	045430	380x150	5.00-5 TR67										
ASK 13	Standard 5″ or SB 5″ retrofit	125-20 109-20	045400 055188	5.00-5	5.00-5 TR67	LR 4″	100-17	034100	4.00-4	4.00-4 long valve	Moritz	50-20	032100	210x65	062093
ASW 15	Liliput or Standard	88-17 125-20	044200 045400	4.00-4 5.00-5	064832 5.00-5TR67										
K 12/ASK 14/ASK 18	Standard 5″	125-20	045400	5.00-5	5.00-5 TR67										
ASK 16/ASW 17	Standard 5″	130-35	045810	5.00-5	5.00-5 TR67						Moritz	50-20	032100	210x65	062093
ASW 19/ASW 20	Standard 5″or Hydr. actuation	125-20 122-20	045400 045925	5.00-5	5.00-5 TR67						Moritz	50-20	032100	210x65	062093
ASW 20 B/C/CL	Cleveland	40-78B		5.00-5	5.00-5 TR67						Moritz	50-20	032100	210x65	062093
ASK 21	Cleveland or SB 5″ Penta (TM)	40-78B 125- 1 1/4″	 055572	5.00-5	5.00-5 TR67 065995	LR 4″	100-17	034100	4.00-4	4.00-4 long valve	Moritz	50-20	032100	210x65	062093
ASK 21 B	SB 5" Penta	125- 1 1/4″	055572	380x150	065995	LR 4“	100-17	034100	4.004-4	4.00-4 long valve	Moritz	50-20	032100	210x65	062093
ASW 22	Cleveland	40-78/77		5.00-5	5.00-5 TR67						Moritz	50-20	032100	210x65	062093
ASK 23	Standard 5″	125-20	045400	5.00-5	5.00-5 TR67	LR 4″	85-17	034600	260x85	064292	Moritz	50-20	032100	210x65	062093

Manufacturer/Aircraft	Main wheel	Size	P/N	Tire	Tube	Nose wheel	Size	P/N	Tire	Tube	Tail wheel	Size	P/N	Tire	Tube
Schleicher (continued)															
ASH 25	SB 5″	145-30	055161	380x150	5.00-5 TR67						Moritz	50-20	032100	210x65	062093
ASH 26/ASW 24/27/28 only ASH 26	Cleveland Penta	40-78B 125-1 1/4“	 055572	5.00-5	5.00-5 TR67 065995						Moritz	50-20	032100	210x65	062093
ASG 29	SB 5″ Penta	125-1 1/4″	055572	5.00-5	065995						Moritz	50-20	032100	210x65	062093
ASH 30	SB 6″ Penta	138-30	056960	15x6.00-6	066792						Moritz	50-20	032100	210x65	062093
ASH 31	SB 5″ Penta	125-1 1/4″	055572	5.00-5 10pr	065995						Moritz	50-20	032100	210x65	062093
ASG 32	SB 6″ Penta	138-30	056960	15x6.00-6 10pr	066792						Max II Moritz	50-12 50-20	033112 032100	200x50 210x65	063192 062093
AS 33/34	SB 5“ Penta	125-1 1/4“	055572	5.00-5	065995						Max II Moritz	50-12 50-20	033112 032100	200x50 210x65	063192 062093
Slingsby															
T65 Vega	5“ Standard	125-20	045400	5.00-5	5.00-5 TR67						Max	50-20	033100	200x50	063093
Sportavia (TCDS holder: Sportavia Pützer TC Services)															
RF 5	Super 6″ or SB 6″	154-30 151-30	046100 056161	6.00-6	066992										
Sportine Aviacija															
LAK 17 a/19/20	Standard 5″ or SB 5″	113-20 115-20	045100 055191	5.00-5 380x150	5.00-5 TR67										
Stemme															
S 10/S 10-V/S 10-VT	2x 5″ SB-Standard 2x 5″ SB Penta	127-30 120-30	055212 055544	5.00-5 380x150 GY	5.00-5 TR67 065995						Moritz	50-20	032100	210x65	062093
S 12	2x 5" SB Penta	120-30	055544	380x150 GY	065995										
Zaklady Lotnicze Margański & Mysłowski															
SWIFT	5“ Standard alternatively 5″ SB retrofit	115-25 115-25	045255 055192	350x135 5.00-5	5.00-5 TR67						Moritz	50-20	032100	210x65	062093
FOX	SB 5″	134-30	055153	5.00-5	5.00-5 TR67						Moritz	50-20	032100	210x65	062093

Abbreviations: SB = Disk brake wheel • BS = Brake disk • BB wheel = shoe brake wheel • LR = landing wheel

Explanation dimensions: 1st no: installation width at bearing in mm
2nd no: bearing inner diameter in mm

Tail wheels information: # means alternative installation: Max/Max II for 12 or 20 mm axle respectively Moritz/Moritz II for 12 or 20 mm axle

Important advise on tires and tubes:
The dimensions of the tire are indicated e.g.5.00-5; you have the choice between several brands, also refer to the table on page 42.
For the tubes, the p/n is indicated in case it is definite. Otherwise, the dimensions of the tube are indicated, e.g. 5.00-5 TR67.
You can choose the tube from different manufactureres, also refer to the table on page 24.

AIRCRAFT TIRES/TUBES

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Used inner tubes
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Aircraft tires and tubes

We have a great selection of aircraft tires from 3 inch to 10 inch available from stock.

We can supply all Michelin brands: Condor, Michelin Aviator and Michelin AIR.
Typical tire sizes for General Aviation are shown in the following tables.
Also other brands are availalbe ex stock.

For more than 30 years now we have been manufacturing aircraft tires exclusively under the brand TOST AERO in the dimensions:
- 200x50
- 260x85
- 4.00-4
- 336x115-5
- 210x65 !new!

Characteristics are: long lifetime, very robust, for high load and speed.

Tire Michelin Aviator

Tire size indicator

Two-part indication of tire size: N – D

N = tire width at the largest point, indication in inch
D = diameter of the tire seat, indication in inch, equal to the wheel hub size

Example:
5.00-5 = tire width 5″ respectively 127 mm and tire seat 5″
4.00-6 = tire width 4″ respectively 102 mm and tire seat 6″

Two-part indication of tire size: M x N

M = outer diameter of the tire, indication in mm or in inch
N = tire width at the largest point, indication in mm or in inch

Example:
210x65 = Outer diameter of the tire 210 mm, tire width 65 mm

Three-part indication of tire size: M x N – D

M = outer diameter of the tire, indication in mm or in inch
N = tire width at the largest point, indication in mm or in inch
D = diameter of the tire seat, indication in inch, equal to the wheel hub size

Example:
380x150-5 = outer diameter of the tire 380 mm, tire width 150 mm, tire seat 5″ respectively 127 mm
15x6.00-5 = outer diameter tire 15″/380 mm, tire width 6″/150 mm, tire seat 5″

Please note that deviations of the outer diameter of the mounted tire are possible, depending on the wheel hub.

Tires for Mini 150 and Mini 180

Tires

P/N	Size	PR	Manufacturer	Profile	Dimensions (mounted)		Weight g	Remarks
					Outer Ø mm	Width mm		
062151	150x30	6	Industry	Rib	150	30	135	for Mini 150
062181	180x35	4	Industry	Rib	180	35	195	for Mini 180, tube: p/n 063192

Tubes

P/N	Size	Valve	weight g	Remarks
062152	150x30	30°60°25G	43	for Mini 150N, p/n 031500
062153	150x30	30°45°25G	43	for Mini 150V u. Mini 150L, p/n 031501
062182	180x35	90°30°		for Mini 180 N, p/n 031816
063192	200x50	90° 90° 28G	80	for Max II, two-part and Mini 180

Spare tires already filled with foam

P/N	Size	PR	Manufacturer	Profile	Dimensions (mounted)		Weight g	Remarks
					Outer Ø mm	Width mm		
060150	150x30	6	Industry	Rib	150	30	340	incl. foam filled tube, for Mini 150 F
060180	180x35	4	Industry	Rib	180	35	570	incl. foam filled tube, for Mini 180 F

3″ Tires

Tires

P/N	Size	PR	Manufacturer	Profile	Dimensions (mounted)		Weight g	Static load kg	Remarks
					Outer Ø mm	Width mm			
063591	255x110	4	Aero	Rib	260	110	1250	195	Nose wheel Puchacz
062095	210x65	4	TOST Aero	Rib	210	65	540	127	New! Replaces p/n 062094

Tubes

P/N	Size	Valve	Weight g	Remarks
063592	255x110	90° 45G	310	Nose wheel Puchacz
062093	2.50-3 (210x65)	90° 28G	120	for LW Moritz

3.5″ Tires

Tires

P/N	Size	PR	Manufacturer	Profile	Dimensions (mounted)		Weight g	Static load kg	Remarks
					Outer Ø mm	Width mm			
063191	200x50	6	TOST AERO	Rib	190	54	450	250	for Max and Max II

Tubes

P/N	Size	Valve	Weight g	Remarks
063093	200x50	90° 30° 28G	80	for Max, one-part
063192	200x50	90° 90° 28G	80	for Max II, two-part and Mini 180

Spare tires already filled with foam

P/N	Size	PR	Manufacturer	Profile	Dimensions (mounted)		Weight g	Remarks
					Outer Ø mm	Width mm		
060200	200x50	6	TOST AERO	Rib	200	50	1050	incl. foam filled tube, for Max II F
060201	200x50	6	TOST AERO	Rib	200	50	950	incl. foam filled tube, **special form for Schempp-Hirth wheel hubs only!**

4″ Tires

Tires

P/N	Size	PR	Manufacturer	Profile	Dimensions (mounted)		Mass g	Static load kg	Remarks
					Outer Ø mm	Width mm			
064591	2.80/2.50-4	4	STA	ZigZag Rib	230	61	840	195	Tail wheel Dimona
064181	10x3.50-4	4	STA	Rib	260	85	1080	230	
064991	260x85	6	TOST AERO	Rib	260	83	880	400	
064491	4.00-4	8	TOST AERO	Rib	300	100	1380	600	
064391	5.00-4	6	Goodyear	Rib	329	117	2050	540	replaces 330x130
064791	8.00-4	4	Goodyear	Rib	440	202	4700	500	
064891	3.00-4	4	Industry	Rib	250	79	810		Light tire for reduced requirements
064881	4.00-4	4	Industry	Rib	300	100	800		Light tire for reduced requirements
064831	4.10/3.50-4	4	Industry	ZigZag Rib	260	85	940		Light tire for reduced requirements

Tubes

P/N	Size	Valve	Mass g	Remarks
064582	2.80/2.50-4 to 3.00-4	90° TR87	110	Mulit-purpose tube
064292	260x85 3.00-4	90° 32G	160	Valve length 32 mm
064692	4.00-4 4.10/3.50-4	90° 32G	190	Valve length 32 mm
064832	260x85 3.00-4 4.10/3.50-4 4.00-4	90° 28G	250	Multi-purpose tube, valve length 28 mm
064392	5.00-4	90° TR67	470	Valve length 55 mm
064792	8.00-4	TR13	1020	Aero Classic

5″ Tires

Tires

P/N	Size	PR	Manufac-turer	TT/TL	Profile	Dimensions (mounted)		Weight g	Static load kg	Remarks
						Outer Ø mm	Width mm			
065488	11x4.00-5	8	Aero Classic	TL	Rib	280	115	1750	295	
065221	336x115-5	10	TOST AERO	TT	Rib	336	115	2650	975	for narrow installation space (e.g. Schempp-Hirth single seater)
065091	5.00-5	6	Michelin Condor	TT	Rib	353	115	2700	580	
065591	5.00-5	10	Air Hawk	TT	Rib	361	126	2350		
068521	5.00-5	10	Michelin Aviator	TT	Rib	361	126	2600		
067511	5.00-5	6	Michelin Air	TT	Rib	361	126	2530	580	
065561	5.00-5	6	Goodyear	TT	Rib	361	126	2400		Flight Special II
065501	5.00-5	10	Goodyear	TT	Rib	361	126	2600		Flight Special II
065681	380x150 (15x6.00-5)	6	Michelin Air	TT	Rib	377	131	3100	725	replaces 5.50-5
065691	380x150 (15x6.00-5)	6	Goodyear	TT	Rib	377	131	3650	725	replaces 5.50-5
065891	350x135	4	AERO	TT	Rib	350	120	2700	650	e.g. for L-13 Blanik
065881	400x140	4	Stomil TL	TT	Rib	409	149	4500	800	Suitable tube: 5.00-5
065185	3.50-5 (4.10/3.50-5)	4	Industry	TT	Rib	285	88	1000		Light tire for reduced requirements
065381	4.00-5	4	Industry	TT	Rib	320	85	1300		Light tire for reduced requirements
065481	11x4.00-5	4	Industry	TT	Rib	280	115	1000		Light tire for reduced requirements

Explanation TT/TL:
TT tube type tire: tire must be used with inner tube
TL tubeless tire: tire may be used without inner tube

Tubes

P/N	Size	Valve	Weight g	Remarks
065092	5.00-5	90° TR67	450	Michelin Airstop, standard valve length 55 mm, also for tire 380x150 and 350x135
065492	5.00-5	90° TR67	580	Aero Classic, (see above p/n 065092)
065562	5.00-5	90° TR67	510	Goodyear, (see above p/n 065092)
065995	5.00-5	90° TR87	500	Short valve 28 mm, for 5″ Penta LW and SBP, also for tire 380x150 and 350x135
065193	3.40/3.00-5	90° 28G	190	Light tube
065192	4.10/3.50-5	90° TR87	270	Light tube, also for tire 4.00-5
065482	11x4.00-5	straight TR13	200	Light tube, valve length 32 mm
065483	11x4.00-5	90° TR87	200	Light tube, valve length 32 mm

6″ Tires

Tires

P/N	Size	PR	Manufacturer	TT/TL	Pro-file	Dimensions (mounted)		Mass g	Static load kg	Remarks
						Outer Ø mm	Width mm			
066688	4.00-6	6	Aero Classic	TL	Rib	358	90	1640	260	for Ultralight
066788	4.00-6	8	Aero Classic	TL	Rib	356	102	2840	385	for Ultralight
066091	6.00-6	6	Michelin Condor	TT	Rib	433	142	4300	795	
066561	6.00-6	6	Goodyear	TT	Rib	444	160	4200	795	Flight Special II
067611	6.00-6	6	Michelin AIR	TT	Rib	444	160	4120	795	
066881	6.00-6	8	Michelin Condor	TT	Rib	444	160	4400	1065	
066591	15x6.00-6	6	Michelin Condor	TT	Rib	380	160	3400	885	
068621	15x6.00-6	6	Michelin Aviator	TT	Rib	380	160	3300	885	
066592	15x6.00-6	10	Goodyear	TL	Rib	380	132	4350	1450	Flight Special II
066381	7.00-6	8	Michelin Condor	TT	Rib	471	182	5300	1160	
068711	7.00-6	8	Michelin Aviator	TT	Rib	471	182	5400	1160	
066491	8.00-6	6	Condor	TT	Rib	495	202	5600	930	
068721	8.00-6	6	Michelin Aviator	TT	Rib	495	202	5800	930	
066681	4.10/3.50-6	4	Industry	TT	Rib	310	100	1200		Light tire for reduced requirements
066691	4.00-6	4	Industry	TT	Rib	350	80	1000		Light tire for reduced requirements
066981	13x5.00-6	4	Industry	TL	Rib	300	105	1520		Light tire for reduced requirements
066789	15x6.00-6	6	Industry	TT	Rib	325	140	2250		Light tire for reduced requirements

Tubes

P/N	Size	Valve	Mass g	Remarks
066682	4.10/3.50-6	straight TR13	225	for tire 4.00-6
066692	4.10/3.50-6	90° TR87	240	for tire 4.00-6
066092	6.00-6	straight TR20	750	Michelin Airstop
066562	6.00-6	straight TR20	600	Goodyear
066082	6.00-6	straight TR20	990	Aero Classic
066992	6.00-6	70° 32G	730	for shoe brake wheel 6″ Super 046100
066993	6.00-6	90° TR87	925	Short bent valve
066492	15x6.00-6	straight TR20	550	Michelin Airstop
066382	7.00/8.00-6	straight TR20	880	Michelin Airstop
066792	15x6.00-6	90° TR87	380	Light tube
066793	15x6.00-6	straight TR13	370	Light tube, valve length 35 mm
066982	13x5.00-6	90° TR87	280	Light tube, valve length 32 mm
066983	13x5.00-6	straight TR13	270	Light tube. valve length 35 mm

6.5″ Tires

Tires

P/N	Size	PR	Manufacturer	Profile	Dimensions (mounted)		Weight g	Static load kg	Remarks
					Outer Ø mm	Width mm			
067391	420x150 (6.00-6½)	4	Aero Classic	Rib	420	150	3200	795	

Tubes

P/N	Size	Valve	Mass g	Remarks
067392	15x6.00-6	TR20	620	Multi-purpose tube for tire 420x150 (6.00-6½)
067492	15x6.00-6	90° TR67	600	Multi-purpose tube for tire 420x150 (6.00-6½)

8″ Tires

Tires

P/N	Size	PR	Manufacturer	Profile	Dimensions (mounted)		Weigth g	Static load kg	Remarks
					Outer Ø mm	Width mm			
068391	6.50-8	8	Michelin Condor	Rib	495	172	5640	1430	

Tubes

P/N	Size	Valve	Weigth g	Remarks
068392	6.50/7.00-8	TR15	1070	Michelin Airstop

Set tire and tube

P/N	Size	PR	Valve	Mass g	Remarks
068481	4.00-8	6	TR87	3050	Light tire for reduced requirements

10″ Tires

Tires

P/N	Size	PR	Manufacturer	Profile	Dimensions (mounted)		Weight g	Static load kg	Remarks
					Outer Ø mm	Width mm			
068911	6.50-10	10	Michelin Air, TL	Rib	561	169	8.000	2.155	
068391	6.50-10	8	Micheli Condor	Rib	561	169	5.640	1.701	
068291	8.50-10	8	Michelin Condor	Rib	652	221	9.000	1.996	

Tubes

P/N	Size	Valve	Weight g	Remarks
068892	6.50-10	TR25	860	Michelin Airstop
068292	8.50-10	TR25	1590	Michelin Airstop

Valve extensions

To fill or refill the tire pressure or to check the correct tire pressure the valve extension is indispensable. We offer suitable types for all possible installation or operation situations:

P/N	Type	Length	Remark
069981	straight	24 mm, with short valve thread	incl. cap with valve key
069980	straight	24 mm	incl. cap
069987	90°	35 mm	incl. cap
069986	straight	94 mm	incl. cap

Valve extensions

Notes to aircraft tires

Tire exchange

Removal:

1. Jack up aircraft at specified point.
2. Deflate tire completely before removing wheel unit.
3. Do not unscrew the valve insert until the tire pressure has dropped to 0.2 bar.
4. Remove wheel from axle.
5. Loosen wheel bead from the hub shoulder with a rubber or plastic hammer.
6. Undo wheel bolts (with 5 mm hexagon key), remove bolts and washers, split hub halves.

Mounting:

1. Tires and wheel hubs must be clean and dry.
2. Do not apply excessive force when replacing a wheel.
3. Apply a dehesive agent (or talcum powder) to the hub shoulder.
4. Remove dirt, sand, labels, etc. from the tire. Apply a moderate amount of talcum powder to reduce friction between tube and tire.
   Caution: Too much talcum has the opposite effect.
5. Fill air into tube (placed in the tire) until it is evenly round. Remove nut and washer from valve.
6. Place tire (red mark at valve hole) and tube on the wheel half with the valve hole, push valve through valve hole.
7. Push other wheel half onto tire, match bolt holes with centering shaft.
8. Insert wheel bolts, washers and any nuts, and tighten to the correct torque (M6: 9 to 10 Nm). Tighten bolts diagonally.
9. Place a tire in a safety cage when inflating it to mounting pressure for the first time. If you do not have a safety cage, take great care when inflating the tire. Inflate the tire to mounting pressure. The mounting pressure is 10% more than the specified operating pressure. Check carefully for leaks. Leave to adjust at this pressure for 12 to 24 hours. Once the tire shows no leaks and is at operating pressure, the wheel unit can be mounted on the aircraft.
10. Make sure that the wheel unit is mounted perfectly balanced to avoid vibration and excessive wear.

Red Dot:
Larger aircraft tires are marked with a red dot. This is an indication of the lightest spot of the tire. The valve must be placed at this point to eliminate or minimize a balance/vibration problem of the tire.

Red Dot marking on larger aircraft tires

WARNING

An inflated tire is a potentially explosive device – treat it with the correct equipment and precautions!

Notes on inner tubes

Aircraft tubes are made from natural rubber and they are slightly underdimensioned so that it is easier to install them in a new tire. The layers of an aircraft tire are made of nylon – they therefore tend to become larger with use.

The inner tube also increases in size, adapting to the larger inside diameter of the tire. If a tube enlarged in this way is later fitted in a new tire, it can happen that it is too big for the inside of the tire, with the result that the tube may crease.
These creases may rub through during operation, causing the tube to lose pressure. Rubbing through slowly results in slow pressure loss – the pilot is thus warned before a dangerous situation arises. If the tube tears during a start, the pilot will fail to notice that he is flying with a flat tire.

Taking into consideration all the risks involved with fitting an old tube into a new tire, it is advisable always to fit new inner tubes in new tires.

Tire maintenance instructions

1. Maintain stipulated air pressure, check at regular intervals!
   Underpressure results in reduced load capacity and shortens service life.
2. Inspect tires at regular intervals for damages, shredding, flat areas and foreign objects.
3. Wheel units must be mounted perfectly balanced. Wheel imbalance can result in a damage to bearings and brake drums.
4. Keep tires free of oil, grease, brake fluid and tar. Clean tires with rag soaked with petrol, then wash off with soap and water.

HYDRAULIC BRAKE SYSTEM TOST

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Hydraulic brake components

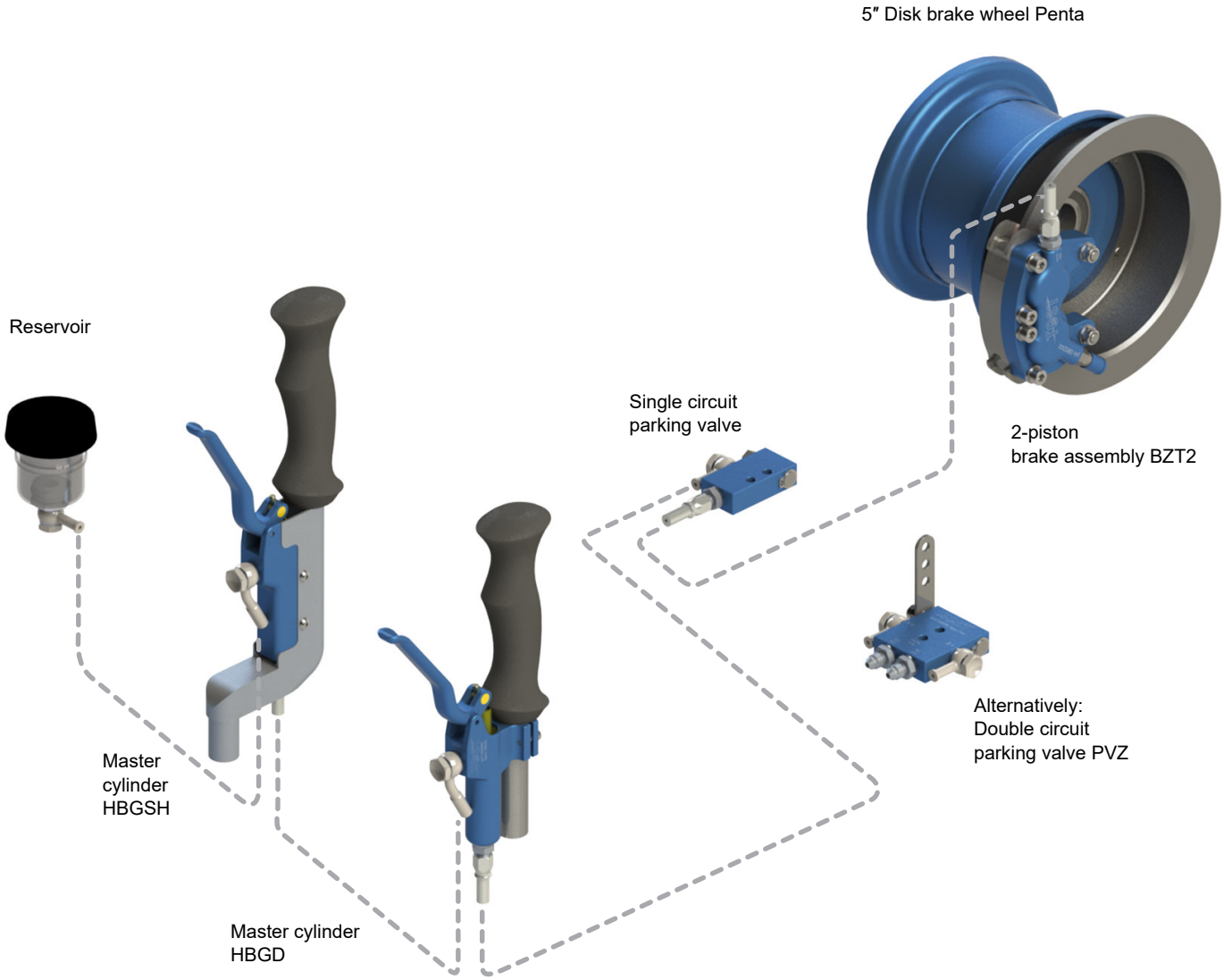
As completion of our disk brake wheels we can offer brake assemblies, master cylinders and hydraulic equipment, fitting to all our wheel dimensions. With the various hydraulic components it is possible to generate a hydraulic brake system, which combines the highest level of safety, the maximum of braking torque, a long-life cycle and easy maintenance.

The varying hydraulic components are described in the following, grouped according to their mode of operation. Furthermore, the possible combinations of the various brake components are described. Of course, we provide you with advise in the lay-up of a hydraulic brake system. In the same manner our Service Department will assist you, if there are any questions regarding one of our brake components or the whole hydraulic brake system.

For all hydraulic brake components Technical Specifications and installation drawings are available.

Brake system Tost

Overview of all components



Brake assemblies

Hydraulic brake assemblies have got many advantages compared with mechanical shoe brakes because of their mode of operation. Due to the automatic wear adjustment the maintenance is much easier.
Disk brake assemblies ensure a high rate of heat dissapation, a high and easy-to-dose brake power and they offer a remarkable endurance strength. All these advantages can be obtained with our customized brake assemblies for all wheel sizes.

Brake assembly BZT and BZT M

The 3-piston brake assembly BZT is designed as a floating brake caliper and can be fitted to 3.5″, 4″ and 5″ disk brake wheels of the series Max II, Tria and Penta. The brake assembly features an extremely light weight of 440 g and very compact dimensions. The change of the brake linings can be carried out without any special tools because of their metric screw connection. Equipped as standard with the Stahlbus bleeder valve (see page 79) filling and bleeding of the brake system can be easily performed.

3 piston brake assembly Tost BZT

Especially for light single seated sailplanes or UL-motorplanes, in which a low weight of the components is fundamental, the brake assembly BZT is convenient.

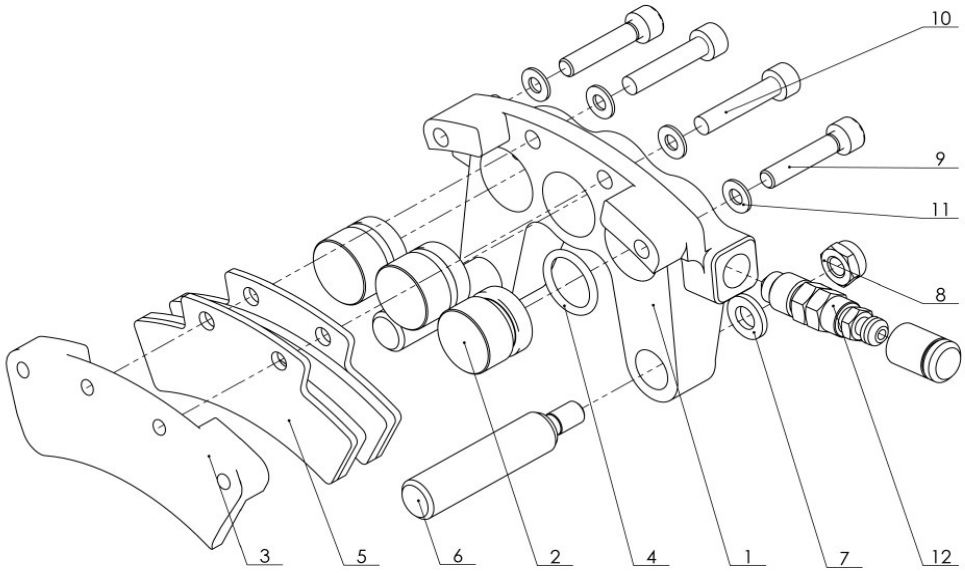
P/N	Description	Fluid	Application	Braking torque Nm	Connecting thread	Weight g	Anchor bolt length mm	Brake disk thickness mm
080100	BZT	DOT4	4″ SRT Tria 5″ SBP Penta	250	M10x1	440	52,5*	5
080101	BZT	Mineral fluid	4″ SRT Tria 5″ SBP Penta	250	M10x1	440	52,5*	5
080108	BZT	DOT4	4“ SB Classic	250	M10x1	440	45,5	
080110	BZT M	DOT4	Max II SB	100	M10x1	440	27	3.5
080111	BZT M	Mineral fluid	Max II SB	100	M10x1	440	27	3.5

* lenght variable

We can offer different universal or customized anchor (torque) plates for mounting the brake assembly to the landing gear according to your requirements.

Spare parts for brake assembly BZT

P/N	Description	Fluid	Remarks	Number
080801	Housing BZT	N/A		1
080802	Piston BZT	N/A		2
080803	Counter plate BZT	N/A		3
080805	Piston sealing BZT	DOT4		4
080806	Piston sealing BZT	Mineral fluid		4
080810	Brake lining BZT	N/A	glued to brake lining retainer	5
080811	Anchor bolt BZT	N/A	for 080100/ 080101	6
080912	Anchor bolt BZT for 4“ Classic wheel		for 080108	6
080812	Anchor bolt BZT M	N/A	for 080110/ 080111	6
080815	Washer anchor bolt BZT	N/A		7
080816	Nut anchor bolt BZT	N/A		8
080817	Housing screw BZT	N/A		9
080819	Retainer screw BZT	N/A		10
080820	Washer housing or retainer screw	N/A		11
059102	Stahlbus bleeder valve M10x1	DOT4		12
059202	Stahlbus bleeder valve M10x1	Mineral fluid		12

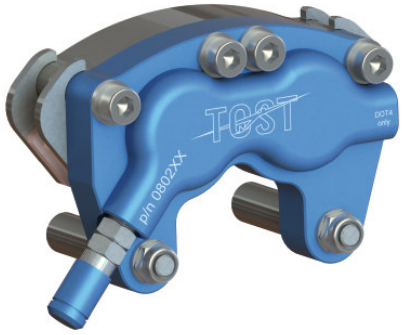


Brake lining wear limit:
The minimum replacement thickness on organic linings is 0.5 mm.
The total thickness of brake linings at no point must be less than this value.

Installation note:
After mounting the brake assembly, tighten the hexagonal bolt (Pos. 9 and 10) with a tightening torque of 6 Nm.

Brake assembly BZT2

The 2-piston brake assembly BZT2 is designed as a floating brake caliper and can be fitted to 5″ and 6″ disk brake wheels of the series Penta and Classic. Due to the two big pistons and special sealings high braking torques are achieved to cope with the growing demand of heavy airplanes with high touch down speeds and ensure a save operation. The brake linings with their big connecting surface are designed to achieve an outstanding cold braking performance. The brake linings can be replaced easily and fast. A with the BZT no special tools are needed to carry out a change of the brake linings. Also the brake assembly BZT2 is equipped with a Stahlbus bleeder valve.
The brake assembly BZT2 has an ETSO-approval of the EASA and is delivered with FORM 1.



2-piston brake asembly BZT2

The retrofitting of the BZT2 into different aircraft types is approved with Minor Change Approvals - see also page 70.

P/N	Description	Fluid	Application	Braking torque Nm	Connec-ting thread	Weight g	Valve position	Disk brake thickness mm
080200	BZT2 5L	DOT4	5″/6″ SBP Penta 5″ SBR Classic	480	M10x1	590	LH	5
080201	BZT2 5L	Mineral fluid	5″/6″ SBP Penta 5″ SBR Classic	480	M10x1	590	LH	5
080202	BZT2 5L	DOT4	5″/6″ SBP Penta 5″ SBR Classic	480	NPT	610	LH	5
080203	BZT2 5L	Mineral Fluid	5″/6″ SBP Penta 5″ SBR Classic	480	NPT	610	LH	5
080230	BZT2 5R	DOT4	5″/6″ SBP Penta 5″ SBR Classic	480	M10x1	590	RH	5
080231	BZT2 5R	Mineral fluid	5″/6″ SBP Penta 5″ SBR Classic	480	M10x1	590	RH	5
080233	BZT2 5R	Mineral Fluid	5″/6″ SBP Penta 5″ SBR Classic	480	NPT	610	RH	5
080234	BZT 2 5R	DOT 4	5″/6″ SBP Penta 5″ SBR Classic	480	NPT	610	RH	5
080210	BZT2 6L	DOT4	6″ SBR Classic	480	M10x1	600	LH	6
080211	BZT2 6L	Mineral fluid	6″ SBR Classic	480	M10x1	600	LH	6
080240	BZT2 6R	DOT4	6″ SBR Classic	480	M10x1	600	RH	6
080241	BZT2 6R	Mineral fluid	6″ SBR Classic	480	M10x1	600	RH	6
080250	BZT2 8L	DOT 4	for wheel 055532	480	M10x1	615	LH	8
080251	BZT2 8L	Mineral Fluid	for wheel 055532	480	M10x1	615	LH	8
080220	BZT2 8R	DOT 4	for wheel 055532	480	M10x1	615	RH	8
080221	BZT2 8R	Mineral Fluid	for wheel 055532	480	M10x1	615	RH	8

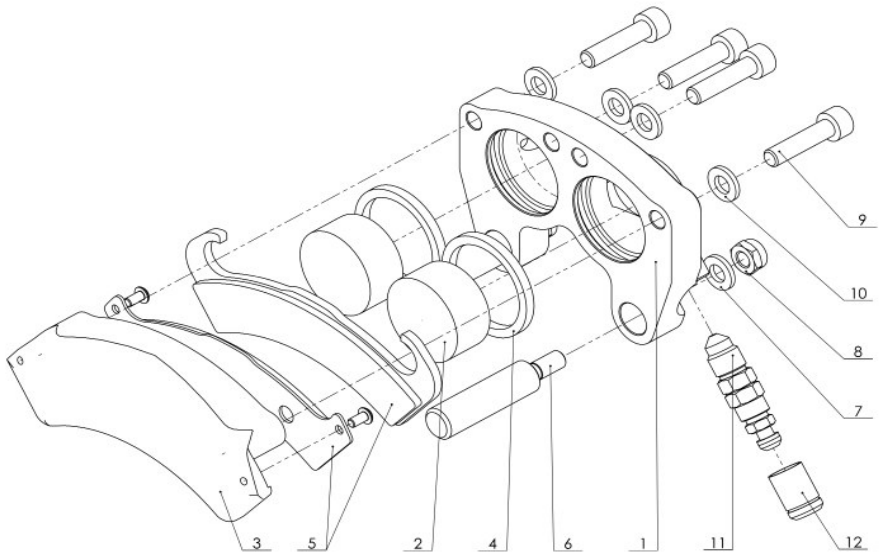
We can offer different universal or customised anchor (torque) plates for the mounting the brake assembly to the landing gear according to your requirements.

Spare parts for the brake assembly BZT2 can be found on the next page.

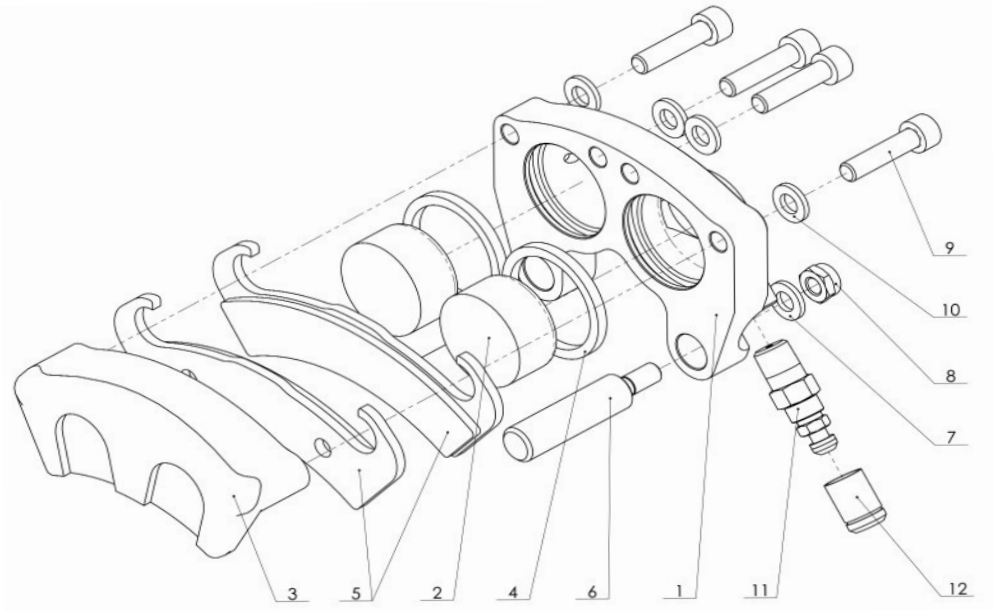
Spare parts for brake assembly BZT2

P/N	Description	Hydraulic Fluid	Remarks	Item
080901	Housing BZT2 left	N/A	valve on left side	1
080919	Housing BZT2 right	N/A	valve on right side	1
080902	Piston BZT2	N/A		2
080907	Counter plate BZT2 5 M10x1	N/A	080200/080201/080230/080231 see below	3
080903	Counter plate BZT2 5	N/A	080200/080201/080230/080231 see right	3
080904	Counter plate BZT2 6	N/A	080210/080211/080240/080241 see below	3
080938	Counter plate BZT2 M10x1 8	N/A	080220/080221/080250/080251	3
080905	Piston sealing BZT2	DOT4		4
080906	Piston sealing BZT2	Mineral fluid		4
080949	Brake lining BZT2, set	N/A	for thread M10x1, see below screwed on	5
080948	Brake lining BZT2, set	N/A	for thread NPT, see right and for all p/n prior to 2017	5
080911	Anchor bolt BZT2	N/A	length: 52.5 mm	6
080912	Anchor bolt BZT2	N/A	for 4“ Disk brake wheel Classic, length: 45.5 mm	6
080815	Washer anchor bolt BZT2	N/A		7
080816	Nut anchor bolt BZT2	N/A		8
080817	Housing screw BZT2	N/A		9
080818	Washer housing screw BZT2	N/A		10
059102	Bleeder valve M10x1	DOT4		11
059202	Bleeder valve M10x1	Mineral Fluid		11

Schematic drawing BZT2
with thread M10x1



Schematic drawing BZT2
with thread NPT



Brake lining wear limit:
The minimum replacement thickness on organic linings is 0.7 mm.
The total thickness of brake linings at no point must be less than this value.

Installation note:
After mounting the brake assembly, tighten the hexagonal bolt (item 9) with a tightening torque of 10 Nm.

Brake assembly BZT4

The four piston brake assembly BZT4 is designed as floating brake caliper and can be combined with the 6 inch disk brake wheel Penta. It has a high brake momentum and can take up a considerable brake energy, combined with the associated brake disk. It offers a high brake moment also for heavy aviations. You can exchange the brake linings easily with standard metric tools.

Brake assembly BZT4

P/N	Description	Fluid	Application	Bracking torque Nm	Connecting thread	Weight g	Brake disk thickness mm
080400	BZT4	DOT4	6“ SBL	1000	M10x1	1500	7
080401	BZT4	Min. fluid	6“ SBL	1000	M10x1	1500	7

We can offer different universal or customized torque plates for the mounting of the brake assembly to the landing gear, according to your requirements.

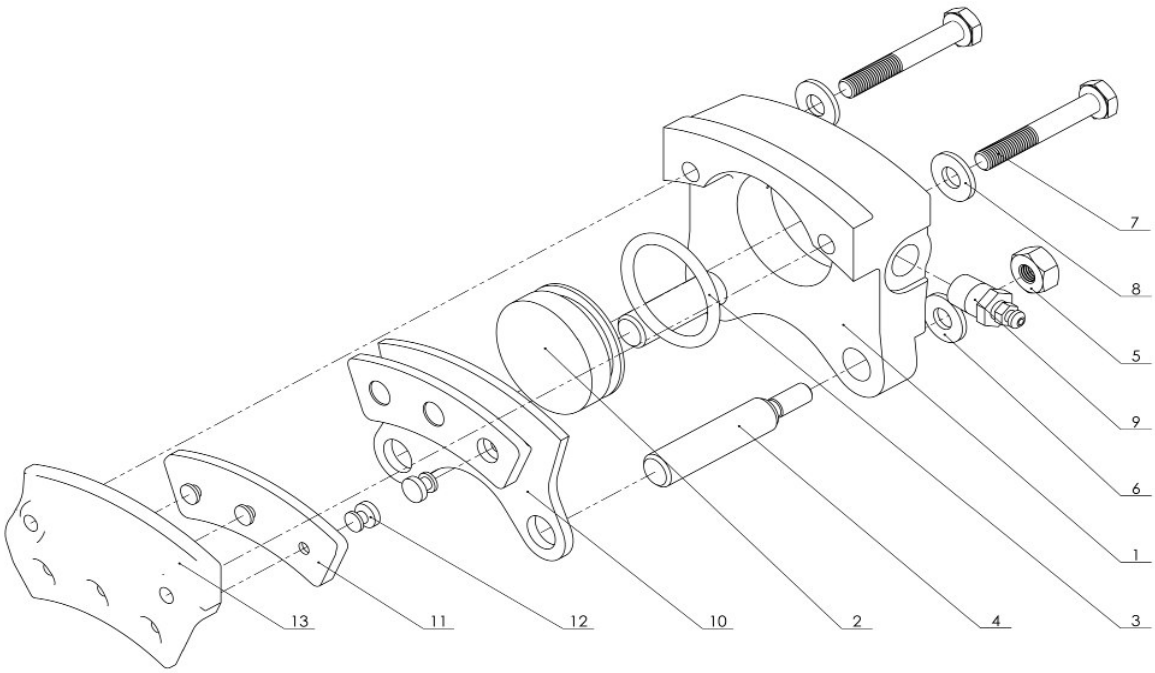
Brake assembly 30-9

Brake assembly 30-9

The brake assembly 30-9 by Cleveland is designed as a floating brake caliper and can be used with 4″, 5″ and 6″ disk brake wheels of the series Penta, Tria and Classic and the 5″ Cleveland wheels. The simple but robust design of the brake assembly ensures a long service time and easy maintenance with good deceleration values.

P/N	Descrip-tion	Mineral Fluid	Application	Bracking torque Nm	Connecting thread	Weight g	Anchor bolt length mm	Brake disk thickness mm	incl. Anchor plate
075820	30-9	DOT4	4″ SB Classic 4″ SRT Tria 5″ SB Classic	370	1/8″ NPT	700	31	5	shorte-ned
075821	30-9	DOT4	4″ SB Classic 5″ SB Classic	370	1/8″ NPT	700	29	5	shorte-ned
075823	30-9	DOT4	5″ SBP Penta 6″ SBP Penta	370	1/8″ NPT	700	44.5	5	shorte-ned
075822	30-9	Mineral fluid	4″ SB Classic 4″ SRT Tria 5″ SB Classic	370	1/8″ NPT	700	31	5	Type I
075819	30-9	DOT 4	5″ Cleveland 5″ SBP Penta 6″ SBP Penta	370	1/8″ NPT	700	44.5	5	original form
075818	30-9	Mineral fluid	4″ SB Classic 4″ SRT Tria 5″ SB Classic	370	1/8″ NPT	700	31	5	shorte-ned
075810	30-9	Mineral fluid	5″ SBP Penta 6″ SBP Penta	370	1/8″ NPT	700	44.5	5	original form

The anchor plate (torque plate) for the mounting to the landing gear is part of the scope of delivery. Customized anchor plates can be offered according to your requirements.

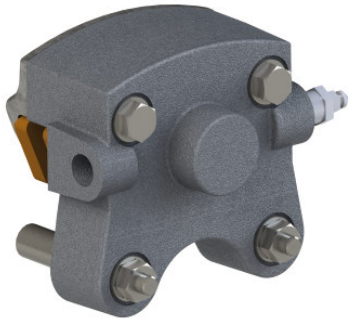


Spare parts brake assembly 30-9

P/N	Description	Fluid	Remarks	Number
075829	Piston housing	N/A		1
075825	Piston	N/A		2
075834	O-ring	Mineral fluid		3
075835	O-ring	DOT4		3
075870	Anchor bolt	N/A	5″ Cleveland, 5″/6″ SBP Penta	4
075869	Anchor bolt	N/A	4″ SRT Tria, 4″ SB Classic, 5″ SB Classic	4
075881	Nut anchor bolt	N/A		5
075882	Washer anchor bolt	N/A		6
075873	Housing bolt	N/A		7
075882	Washer housing bolt	N/A		8
075832	Bleeder valve complete	N/A	also Stahlbus bleeder valve possible	9
075872	Back plate	N/A		10 - 12
075862	Brake lining	N/A		11
075861	Rivet for brake lining	N/A		12
075871	Back plate with brake lining	N/A		11 - 13
075865	Service kit for brake lining replacement	N/A	2 x brake lining, 6 x rivet	11, 12
075891	Anchor plate for brake assy. 30-9, original, for brake disks Ø 162 mm			
075892	Anchor plate for brake assy. 30-9, shortened for Tost-wheels			

Brake lining wear limit:
The minimum replacement thickness on organic linings is 2.5 mm.
The total thickness of brake linings at no point must be less than this value.

Installation note:
After mounting the brake assembly, tighten the hexagonal bolt with a tightening torque of 6.8 Nm (60 in-lb) and secure with locking wire 0.8 mm Spec. MS-20995.



Brake assembly 30-63A

Brake assembly 30-63A

The brake assembly 30-63A by Cleveland is designed as a floating brake caliper and can be mounted to 6″ disk brake wheels of the series Classic and Cleveland. The simple but robust design of the brake assembly ensures a long service time and easy maintenance with good deceleration values.

P/N	Descrip-tion	Fluid	Application	Braking torque Nm	Connecting thread	Weight g	Brake disk thickness mm
076810	30-63A	Mineral fluid	6″ SB Classic	450	1/8″ NPT	840	6
076820	30-63A	DOT4	6″ SB Classic 6“ Cleveland	450	1/8″ NPT	840	6

The anchor plate for the mounting to the landing gear is part of the scope of delivery. Customized anchor plates can be offered according to your requirements.

Spare parts brake assembly 30-63A

P/N	Description	Fluid	Remarks	No.
076829	Piston housing	N/A		1
076825	Piston	N/A		2
076834	O-ring	Mineral fluid		3
076835	O-ring	DOT4		3
075870	Anchor bolt	N/A	5“ Cleveland, 5“/6“ SBP Penta	4
075881	Nut anchor bolt	N/A		5
075869	Anchor bolt	N/A	4“ SRT Tria, 4“SB Clas-sic, 5“ SB Classic	4
075882	Washer anchor bolt	N/A		6
075873	Housing bolt	N/A		7
075882	Washer housing bolt	N/A		8
075832	Bleeder valve complete	N/A	also Stahlbus bleeder val-ve possible, quod vide	9
076872	Pressure plate with brake lining	N/A		10-12
076862	Brake lining	N/A		11
075861	Rivet brake lining	N/A		12
076871	Back plate with brake lining	N/A		11-13
076865	Service kit for brake lining replacement	N/A	2 x brake lining, 4 x rivet	11,12
076891	Anchor plate for brake assy. 30-63A			

Brake lining wear limit:
The minimum replacement thickness on organic linings is 2.5 mm.
The total thickness of brake linings at any point must not be less than this value.

Installation note:
After mounting the brake assembly, tighten the hexagonal bolt with a tightening torque of (60 in-lb) and secure with locking wire 0.8 mm Spec. MS-20995.

For the correlation of the spare parts kindly refer to the shematic drawing of the brake assembly 30-9 on page 56.

TOG Brake assembly

The brake assembly TOG is designed as a fixed caliper brake and can be mounted to 5″ disk brake wheels of the series Penta and Classic. Due to the simple but robust design the brake assembly ensures a long service time and easy maintenance with good deceleration values.

P/N	Description	Fluid	Application	Braking torque Nm	Connecting thread	Weight g	Brake disk thickness mm
058110	TOG	DOT4	5″ SB Classic 5″ SBP Penta	260	M10x1	460	4

TOG brake assembly

Spare parts

P/N	Description	Fluid	Remarks
058530	Seal kit	DOT4	
058531	Piston gasket set f/TOG brake assy		
058533	Separation sealing	DOT4	
058534	Bleeder valve	DOT4	
058512	Set brake linings		
058511	Split pins		
058545	Gasket ring (cover for seals) for master cylinder type 6+7		

Brake lining wear limit:

The minimum replacement thickness on organic linings is 1.5 mm.
The total thickness of brake linings at no point must be less than this value.

Installation note:

1. Mount brake assembly vertically, maximum 15° inclination.
2. Tightening torque of fastening bolts M8x45 at assembly with 20 Nm, maximum 22 Nm.
3. The brake assembly is tested to 120 bar prior to delivery. On delivery the brake assembly may still contain brake fluid.
4. The M6 hexagonal bolts are tightened to a torque of 12 Nm. This torque must be maintained to prevent pressure loss.
5. Only use DOT4 brake fluid.

UL brake assembly

UL brake assembly for Utralights

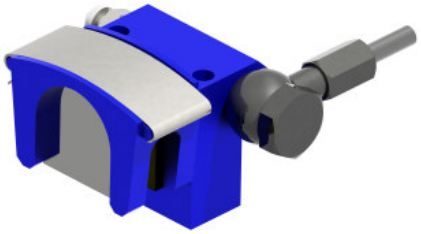
The brake assembly UL is designed as a fixed caliper brake with 6 pistons and can be mounted to the 6 inch disk brake wheel UL. The design with 6 pistons makes it possible to achieve good deceleration values with a minimum of component weight.

P/N	Description	Hydraulic Fluid	Application	Braking torque Nm	Connecting thread	Weight g	Brake disk thickness mm
058820	BZ-UL	Mineral fluid	6″ SB UL	100	M6	170	2

Spare parts UL brake assembly

P/N	Description	Hydraulic fluid	Remarks
058822	Set brake linings	Mineral fluid	

Brake lining wear limit:
The minimum replacement thickness for brake linings is 0.5 mm.
The total thickness of brake linings at no point must be less than this value.



Brake assembly BMZ

Brake assembly BZM

The brake assembly BZM is designed as an extremely small fixed caliper brake with one piston. In combination with the disk brake wheel Max II or Mini 150/180 it is the smallest variant of a hydraulic brake system. It is suitable for very light aircraft as differential brake for steering or as assisting brake for deceleration after touch-down.

P/N	Description	Hydraulic Fluid	Application	Braking torque Nm	Connecting thread	Weight g	Brake disk thickness mm
058222	BZM	Mineral fluid	Max II SB Mini 150 SB Mini 180 SB		M5	31	2

Spare parts brake assembly BMZ

P/N	Description	Hydraulic fluid	Remarks
058223	Set brake linings	Mineral fluid	

Brake lining wear limit:
The minimum replacement thickness on organic linings is 0.5 mm.
The total thickness of brake linings at no point must be less than this value.

GN
D-4812

Master cylinder

Master cylinder are the components in hydraulic brake system, which produce the necessary brake respectively hydraulic pressure to push the brake linings against the brake disk. In addition to our brake assemblies we manufacture a wide variety of master cylinders, availalbe from stock, which can be used in different combiations.

In general, three types of master cylinder can be classified:

- Hydraulic brake lever, which can be mounted directly to the control stick. The actuation is carried out directly by the pilot.
  e.g.: HBG, HBGD, HBGSH
- Rudder pedal master cylinder, which can be mounted to additional small pedals on the rudder pedals or at a user-defined place in the fuselage. If the installaton is not realized at the rudder pedals, the acutation has to be realized with a bowden cable or push-rods.
  e.g.: PHBZ, 10-30
- Universal master cylinder for user-defined installation in the fuselage. The acutation has to be realized with a bowden cable or push-rods.
  e.g.: Form 7

Master cylinder HBG

HBG

The master cylinder HBG is the smallest brake cylinder for an integrated mounting to the control stick. Due to high quality materials and optimized pressure sealings it ensures a fast response characteristic and a very good modulation of braking force.

P/N	Description	Fluid	Application (suitable brake assembly)	Max. operating press. bar	Connecting thread	Weight g
050100	HBG	DOT4	BZT, BZT2, 30-9, 30-63A	100	M10x1	125
050101	HBG	Mineral fluid	BZT, BZT2, 30-9, 30-63A	100	M10x1	125

We recommend the use of our thin and high flexible hydraulic lining Stahlflex (p/n 058002) for the feed and the pressure line, if the master cylinder is mounted to the control stick.

HBGD

The HBGD is a compact master cylinder for direct mounting to the control stick. Due to high quality materials and optimized pressure sealings it ensures a fast response characteristic and a very good modulation of braking force.

The mounting to the control stick is completed with retaining clamps, including a quick fastener. Fitting retaining clamps are available for various control stick diameters (Ø 18 mm, Ø 19 mm, Ø 20 mm, Ø 24 mm). Further diameters are customized according to your requirements.

A valve-based control mechanism always ensures that the higher braking pressure will reach the brake assembly. Especially in double seated planes this will offer you a significant plus in safety.

P/N	Description	Fluid	Application (suitable brake assembly)	Max. operating press. bar	Connecting thread	Weight g
050200	HBGD	DOT4	BZT, BZT2, 30-9, 30-63A	100	M10x1	150
050201	HBGD	Mineral fluid	BZT, BZT2, 30-9, 30-63A	100	M10x1	150

We recommend the use of our thin and high flexible hydraulic lining Stahlflex (p/n 058002) for the feed and the pressure line, if the master cylinder is mounted to the control stick.

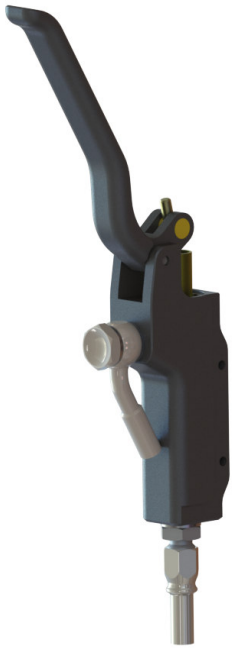
Hauptbremszylinder HBGD

HBGSH

The master cylinder HBGSH has got the same hydraulic design as the master cylinder HBGD. This ensures a fast response characteristic, a very good modulation of braking force and the overflow function. The installation is completed with four thread bores.

P/N	Description	Fluid	Application (suitable brake assembly)	Max. operating press. bar	Connecting thread	Weight g
050220	HBGSH	DOT4	BZT, BZT2, 30-9, 30-63A	100	M10x1	140
050221	HBGSH	Mineral fluid	BZT, BZT2, 30-9, 30-63A	100	M10x1	140

We recommend the use of our thin and high flexible hydraulic lining Stahlflex (p/n 058002) for the feed and the pressure line, if the master cylinder is mounted to the control stick.



Hauptbremszylinder HBGD

Master cylinder for pedals PHBZ

PHBZ

Fast response characteristic and a good modulation of braking force can also be realized with the master cylinder PHBZ. It is suitable for direct mounting at the rudder peddal and can either be fitted with fork head or rod end. Apart from the installation at the rudder pedals an alternative installation in the fuselage is possible, because of the flexible mounting length. The master cylinder PHBZ is also equipped with the overflow function and can be used in row.

P/N	Description	Hydraulic Fluid	Application (suitable brake assembly)	Max. operating press. bar	Connecting thread	Mounting device	Weight g
050300	PHBZ	DOT4	BZT, BZT2, 30-9, 30-63A	100	M10x1	Fork head	135
050301	PHBZ	Mineral fluid	BZT, BZT2, 30-9, 30-63A	100	M10x1	Fork head	135
050310	PHBZ	DOT4	BZT, BZT2, 30-9, 30-63A	100	M10x1	Rod end	149
050311	PHBZ	Mineral fluid	BZT, BZT2, 30-9, 30-63A	100	M10x1	Rod end	149

Master cylinder HBZS

HBZS

Smaller and lighter than the master cylinder PHBZ.
With the type HBZS you can replace a single master cylinder 10-30. This will result in the advantage of a clear weight reduction, a flexible installation position and more economical spare parts prices.

P/N	Description	Hydraulic Fluid	Application (suitable brake assembly)	Max. operating press. bar	Connecting thread	Mounting device	Weight g
050302	HBZS	DOT4	BZT, BZT2, 30-9, 30-63A	100	M10x1	Bore	99
050303	HBZS	Mineral Fluid	BZT, BZT2, 30-9, 30-63A	100	M10x1	Bore	99
050304	HBZS	DOT4	BZT, BZT2, 30-9, 30-63A	100	NPT	Bore	99
050305	HBZS	Mineral Fluid	BZT, BZT2, 30-9, 30-63A	100	NPT	Bore	99

Master cylinder PTC Pull-type

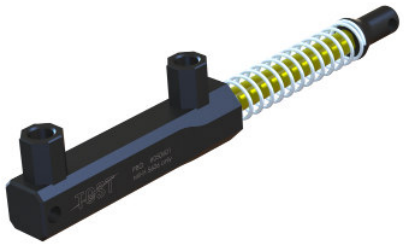
PTC Pull-type

The master cylinder PTC is a new designed product. It is special because of the actuation by pulling. The installation can be made eg. in LS gliders for actuation of the brake via the pedals. The installation dimensions are very small. The sealing and the overall quality is high grade.

P/N	Description	Hydraulic Fluid	Application (suitable brake assembly)	Max. operating press. bar	Connecting thread	Weight g
050400	PTC	DOT4	BZT, BZT2, 30-9, 30-63A	100	M10x1	120
050401	PTC	Mineral fluid	BZT, BZT2, 30-9, 30-63A	100	M10x1	120

PBG

The master cylinder PBG is qualified especially together with the four piston brake assembly BZT4 due to its big volume flow, or for the connection of two brake assemblies BZT or BZT2 to one master cylinder.
The type PBG is applicable for mounting to the rudder pedals or also the free positioning in the fuselage.
This master cylinder, too, is provided with an overflow function an can be used in row.



Master cylinder PBG

P/N	Description	Hydraulic Fluid	Application (suitable brake assembly)	Max. operating press. bar	Connecting thread	Mounting device	Weight g
050610	PBG	DOT4	BZT, BZT2, 30-9, 30-63A	100	M10x1	Bore	135
050611	PBG	Mineral fluid	BZT, BZT2, 30-9, 30-63A	100	M10x1	Bore	135

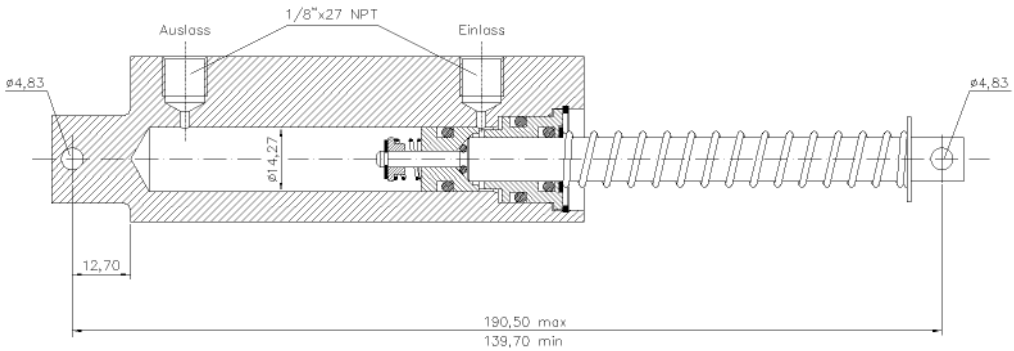
Type 10-30

Sturdy and high load capable pedal master cylinder manufactured by Clevland with overflow function.

P/N	Description	Hydraulic Fluid	Application (suitable brake assembly)	Max. operating press. bar	Connecting thread	Weight g
078230	10-30	Mineral fluid	BZT, BZT2, 30-9, 30-63A	70	NPT 1/8″	263

Spare parts

P/N	Description	Remarks
078240	Sealing kit	N/A



Master cylinder with overflow function (078230)

Universal Master cylinder Models 3, 4 and 7

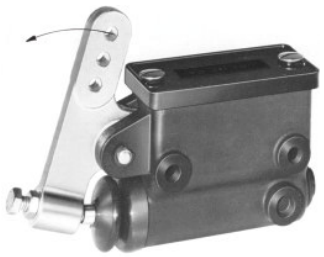
Suitable for many different installation situations. Our universal master cylinders. Due to the integrated actuation lever a remarkable enhancement of the actuation force is realized, whereby very high braking pressures can be generated. The solid design together with high quality sealings ensure long service intervals.

P/N	Description	Hydraulic fluid	Application (suitable brake assembly)	Max. operating press. bar	Connecting thread	Weight g	Remarks
058230	Model 3	DOT4	BZT, BZT2, 30-9, 30-63A, TOG	100	M10x1	400	
058240	Model 4	DOT4	BZT, BZT2, 30-9, 30-63A, TOG	100	M10x1	400	
058270	Model 7	DOT4	BZT, BZT2, 30-9, 30-63A, TOG	100	M10x1	360	Separate mounting of reservoir possible
058279	Model 7	Mineral fluid	BZT, BZT2, 30-9, 30-63A	100	M10x1	360	Separate mounting of reservoir possible

Spare parts

P/N	Description	Remarks
058541	Gasket set master cylinder Model 6+7 DOT4	N/A
058543	Gasket set master cylinder Model 3/4	N/A
058544	Gasket set master cylinder Model 6+7 Mineral fluid	N/A
058545	Gasket ring (cover for seals) for master cylinder type 6+7	N/A
058174	Bellow for master cylinder 3/4 for DOT 4	N/A
058269	Fluid reservoir master cylinder Model 7 Mineral fluid	N/A
058271	Fluid reserivor master cylinder Model 7 DOT4	N/A
058274	Bellow for fluid reservoir 058271, for DOT 4	N/A
058277	Cover, dummy ring and bellow for DOT 4	

Universal Master cylinder Model 3



Universal Master cylinder Model 4

Universal Master cylinder Model 7 with reservoir

Installation guidelines for master cylinders Model 3, 4 und 7:

1. The master cylinder must be installed in the specified position, maximum deviation 5°, ascending in direction of flight.
2. The available brake lever travel must allow for the necessary piston stroke.
3. The active stroke of the master cylinder piston must not be exceeded. The brake lever travel must therefore be restricted in both directions (Be careful not to damage the piston collars).
4. There must be play of 1 mm between piston and brake lever in release position.
5. The brake lever must be pulled back to release position by a return spring. The spring must be attached to a fixed structural element.
6. The mounting bracket for the master cylinder must not yield when the brake is activated.

Important note:
Brake fluid DOT4 is strongly hygroscopic, i.e. it absorbs water. This is the reason why old brake fluid has a corrosive effect. Replace brake fluid DOT4 once a year according to manufacturer‘s maintenance manual.

UL brake handle

The compact and light-weight brake handle UL can control one or two brake assemblies in Utlralight aircraft, depending to the installation situation. With the help of a mechanic locking lever it can also be used as a parking brake.

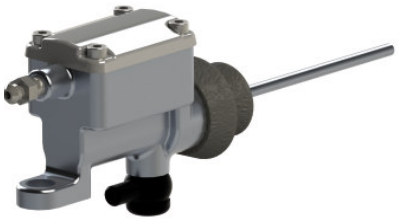
P/N	Description	Hydraulic fluid	Application (suitable brake assembly)	Max. operating press. bar	Connecting thread	Weight g
058228	UL brake handle	Mineral fluid	BZ-UL	80	M6	200

UL brake handle

Master cylinder Max and Mini HBM

Suitable for our smaller brake assembly BZM we offer the master cylinder HBM. It features compact outer dimensions, an universal actuation and an easy installation. With the generated braking pressure one or two brake assemblies BZM can be operated.

P/N	Description	Hydraulic Fluid	Application (suitable brake assembly)	Max. operating press. bar	Connecting thread	Weight g
058220	HBM	Mineral fluid	BZM	60	M5	69



Master cylinder HBM

Parking valves

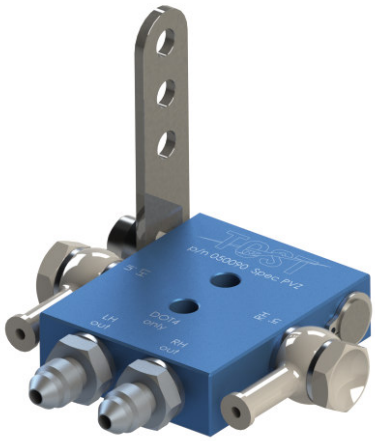
Especially when operating powered aircraft, a permanent brake is essential for parking and to perform the run-up. With the help of so-called parking valves it is possible to hold a once produced hydraulic pressure in the brake system, without actuating permanently the normal master cylinder. Suitable for our hydraulic brake components we offer parking valves for single circuit or double circuit use.

Sinlge circuit parking valve

Single circuit parking valve

For limited installation space and for different kinds of actuation, our single circuit parking valve is the proper choice. The installation is completed with two bores or two thread bores. It is actuated via a turning handle or a turnable actuation lever. The hydraulic connection can be carried out individually with different hydraulic fittings.

P/N	Description	Hydraulic fluid	Max. operating press. bar	Connecting thread	Weight g	Remarks
050094	PVE	DOT4	100	M10x1	90	Actuation lever
050095	PVE	Mineral fluid	100	M10x1	90	Actuation lever
050096	PVEmA	DOT4	100	M10x1	95	Mech. stop and turning handle
050099	PVEmA	Mineral fluid	100	M10x1	95	Mech. stop and turning handle

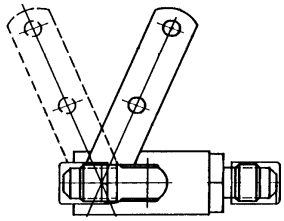


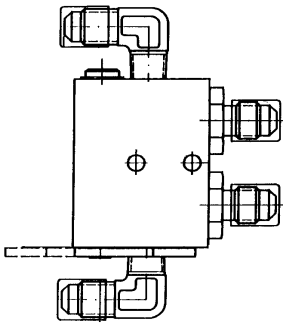
Double circuit parking valve

Dual circuit parking valve

If a differential brake is installed, we recommend our dual circuit parking valve PVZ. The mounting is completed with two bores, the actuation is carried out with a lever, turnable mounted on the control shaft. The hydraulic connection can be carried out individually with different hydraulic fittings.

P/N	Description	Hydraulic fluid	Max. operating press. bar	Connecting thread	Weight g	Remarks
050090	PVZ	DOT4	100	M10x1	125	Actuating lever
050091	PVZ	Mineral fluid	100	M10x1	125	Actuating lever





Parking valve 60-5

Parking valve 60-5

The parking valve 60-5, manufactured by Cleveland, is a very sturdy double circuit parking valve for the use with Mineral fluid. The mounting is completed with two bores and the acutation is carried out by a lever.

P/N	Description	Hydraulic fluid	Max. operating press. bar	Connecting thread	Weight g
079610	60-5	Mineral fluid	103	NPT1/8″ or JIC03	150

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D-0544

Retrofit of Complete Hydraulic Brake System

The retrofit of the Hydraulic Brake System rin Schempp-Hirth gliders results in a clear increase of the brake force, while the braking can be modulated very well. Pilot and copilot can equally brake at the same time. All control sticks are equipped with a master cylinder. The control stick itself is replaced through a CNC-milled one, in double seaters this applies only to the forward control stick. The complex acutation of the brake via a bowden cable is omitted and a clear improvement of the braking force and the operational safety can be obtained.

An existing disk brake wheel can be used furtherton, the retrofit can be realised easily and fast in a gliding club‘s workshop.

P/N	Description	Aircraft type	Remarks
050920 **050921** **050922**	Rerofit kit Schempp-Hirth double seaters	Duo-Discus Arcus Nimbus	incl. Minor Change Approval see TN 1-2015
050910 **050911** **050912**	Retrofit kit Schempp-Hirth single seaters	Discus Ventus Mini-Nimbus Nimbus 2 - 4	incl. Supplemental Type Certificate see TN 1-2016

The retrofit kit includes all components like the master cylinder, hydraulic hoses and suitable fittings and the complete documentation with installation instructions. Supplied with EASA FORM 1.

In case the glider is equipped with a drum brake wheel, you need to perform the modification to a disk brake wheel first, please refer to page 24.
Please always indicate with your order the aircraft type and the serial number.

To complete the retrofit with the brake assembly BZT2, we issued a Minor Change Approval (TN 2-2018). Further aircraft types are planned.

P/N	Description	Aircraft type	Remarks
050931	Retrofit BZT2 (080230)	ASK 13	TN 2-2018
050930	Retrofit BZT2 (080200)	Schempp-Hirth	TN 2-2018

Hydraulic shoe brake wheel

To increase the braking force of the 4 inch and 5 inch shoe brake wheels they can be fitted with a hydraulic actuated anchor plate. The advantage is that the friction of the mechanic actuating cables is omitted due to the hydraulic actuation. Thus, the brake gains power and is better dosable. The effort involved in the modification is minimal: only the anchor plate has to be exchanged. All connecting dimensions of the wheel (installation width, position of the anchor bolt) remain unchanged.

The hydraulic actuated anchor plates are supplied including master cylinder, hydraulic hose and detailed working instructions.

P/N	Description	Hydraulic fluid	Connecting thread	Remarks
045930	Hydraulic actuation - 4″ Liliput	Tost Mineral fluid	M5	Technical consultation recommended prior to modification
045940	Hydraulic actuation - 4″ Kobold	Tost Mineral fluid	M5	
045945	Hydraulic actuation - 5″ Standard	Tost Mineral fluid	M5	Axle diameter 20 mm
045943	Hydraulic actuation - 5″ Standard	Tost Mineral fluid	M5	Axle diameter 30 mm
045925	Hydraulic actuation - 5“ Standard Special version for ASW 19/20	Tost Mineral fluid	M5	Axle diameter 20 mm ! EASA approval in progress !
045948	Hydraulic actuation - 5“ Standard	Tost Mineral fluid	M5	Axle diameter 35 mm

Please indicate with your order aircraft type, axle diameter and type of anchor bolt, so that we can deliver the suitable anchor plate. If the wheel is more than 30 years old, we recommand a technical consultation prior to the modification.

Conversion kit for Schempp-Hirth Cirrus

For the Schempp-Hirth Cirrus we can supply a complete conversion kit from the 4 inch Liliput wheel to 4 inch Kobold wheel with hydraulic actuation of the shoe brake wheel. The kit is EASA approved per Minor Change Approval.
The components of the kit are shown below.

P/N	Description	Hydraulic fluid	Connecting thread	Remarks
045921	Conversion kit for Cirrus	Tost Mineral fluid	M5	Including full documentation and Minor Change Approval

Hydraulic hoses

Just as important as the brake components (master cylinder, brake assembly) is their connection with each other. Here should only be used high-quality hydraulic hoses, which are adequate for the specific fluid and for the arising operational and maximum pressure. With our hoses, ready manufactured for you, we offer you for every application and for every type of connection the correct hydraulic hose.

Stahlflex hoses

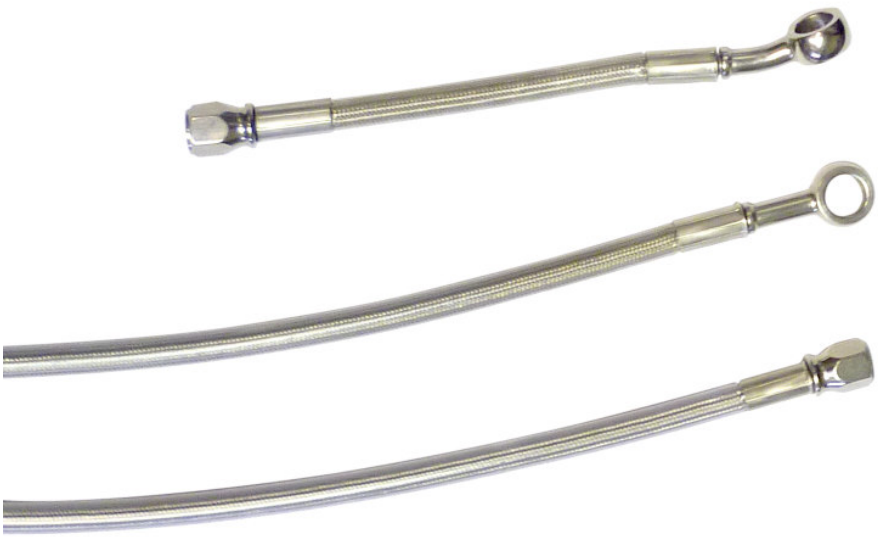
Steelflex hoses are the standard for highly stressed hydraulic systems how they get employed in the scope of aviation, motor sport or industrial plants.The multilayered structure of steelflex hoses (high pressure stable Teflon core and encasing stainless steel meshwork) provide tightest bending radii for very high operating pressure, without pressure loss also in extended hose lengths.

A special feature of our steelflex hoses are the pressed-in connection fittings. The pressing process provides a maximum of leak tightness, also after a long time of operation under high hydraulic pressure.

Stahlflex hose-03

Our standard steelflex hose features beside the stainless steel meshwork a further protective coating from PVC. Thus offering a perfect scoring protection, especially in tight fuselage spaces from fibre composit.

P/N	Description	Hydraulic fluid	Operational pressure bar	Bursting pressure bar	Possible connecting fittings (pressed into the hose)
058001	Stahlflex hydraulic hose-03, PVC coated, dia. 7.5 mm	Mineral fluid, DOT4	290	870	Banjo fitting for hollow screw M10x1 (straight, 20° cranked, 90° cranked) spigot nut JIC03



Stahlflex hose Light weight-03

For very small radii or for the connection of master cylinders at the control stick, we recommand our Steelflex hydraulic hose Light weight, without PVC coating:

P/N	Description	Hydraulic fluid	Opera-tional pressure bar	bursting pressure bar	Possible connecting fittings (pressed into the hose)
058002	Stahlflex hydraulic hose Light weight-03, dia. 6 mm	Mineral fluid, DOT4	290	870	Banjo fitting for hollow screw M10x1 (straight, 20° cranked, 90° cranked) spigot nut JIC03

Stahlflex hose-04

This Stahlflex hose with big inner diameter is extra stable. It is recommanded for applications where big flow rates are needed.

P/N	Description	Hydraulic fluid	Opera-tional pressure bar	Bursting pressure bar	Possible connecting fittings (pressed into the hose)
058008	Stahlflex hydraulic hose-04	Mineral fluid, DOT4	280	840	Spigot nut JIC04

Hydraulic hose-05

Very light hydraulic hose for small flow volume.
For brake assembly BZM and HBM.

P/N	Description	Hydraulic fluid	Opera-tional pressure bar	Bursting pressure bar	Possible connecting fittings (pressed into the hose)
058236	Hydraulic hose-05	Mineral fluid	60		

Hydraulic hose-06

Light hydraulic hose for small flow volume like in Ultralights with brake assembly BZ-UL and UL handle.

P/N	Description	Hydraulic fluid	Opera-tional pressure bar	Bursting pressure bar	Possible connecting fittings (pressed into the hose)
058225	Stahlflex hydraulic hose-06	Mineral fluid	60		

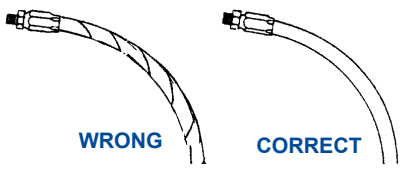
Please indicate with your order the total length of the hydraulic hose as well as the required end fittings at both sides.

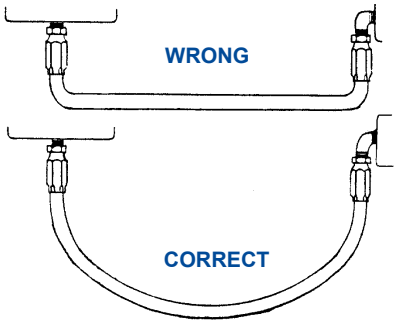
Example:
p/n 058008, length XXXX mm, o/s banjo fitting 20°, o/s spigot nut JIC 03

Standard hydraulic hoses

We also offer a large selection of standard hydraulic hoses, in addition to the individualy fitted types of hydraulic hoses. We offer Polyflex hoses with low weight or Stahlflex hoses for tight bents and greater hose lengths.

P/N	Descript.	Hydraulic fluid	Material	Length mm	Connection
058712	Type 1	Mineral fluid, DOT4	Stahlflex	250	straight pipe socket
058716	Type 1	Mineral fluid, DOT4	Stahlflex	600	straight pipe socket
058721	Type 1	Mineral fluid, DOT4	Stahlflex	1120	straight pipe socket
058724	Type 1	Mineral fluid, DOT4	Stahlflex	1240	straight pipe socket
058423	Type 2	Mineral fluid, DOT4	Polyflex	300	o/s: straight pipe socket o/s: JIC04 Überwurfmutter
058765	Type 2	Mineral fluid, DOT4	Stahlflex	500	o/s: straight pipe socket o/s: JIC04 spigot nut
058766	Type 2	Mineral fluid, DOT4	Stahlflex	600	o/s: straight pipe socket o/s: JIC04 spigot nut
058490	Type 2	Mineral fluid, DOT4	Polyflex	900	o/s: straight pipe socket o/s: JIC04 spigot nut
058330	Type 3	Mineral fluid, DOT4	Polyflex	300	o/s: eye ring Ø 10 mm o/s: JIC04 spigot nut
058350	Type 3	Mineralf fluid, DOT4	Polyflex	500	o/s: eye ring Ø 10 mm o/s: JIC04 spigot nut
058360	Type 3	Mineral fluid, DOT4	Polyflex	600	o/s: eye ring Ø 10 mm o/s: JIC04 spigot nut
058375	Type 3	Mineral fluid, DOT4	Polyflex	750	o/s: eye ring Ø 10 mm o/s: JIC04 spigot nut
058380	Type 3	Mineral fluid, DOT4	Stahlflex	850	o/s: eye ring Ø 10 mm o/s: JIC04 spigot nut
058390	Type 3	Mineral fluid, DOT4	Polyflex	900	o/s: eye ring Ø 10 mm o/s: JIC04 spigot nut
058310	Type 4	Mineral fluid, DOT4	Polyflex	700	both sides eye ring Ø 10 mm
058366	Type 5	Mineral fluid, DOT4	Polyflex	600	for Janus





Installation notes:

- Hydraulic hoses must be installed twist-free to prevent weakening of the material. If twisted hoses are put under pressure, they can work loose from their fittings.
- Hydraulic hoses must be laid with large enough bends to prevent pinching of the hose. Pinching reduces the cross-sectional area and impairs braking performance.
- The life expectancy of a hydraulic hose is reduced significantly by too small bending radii. Use hoses made of steelflex (material b) if you cannot avoid tight bends.

Hydraulic fittings

For the connection of hydraulic components (master cylinder, brake assembly etc.) or the relevant hydraulic hoses, so-called connection fittings or male stud couplings are required. We offer the suitable connectors for all our hydraulic components to joint the hydraulic hoses.

We are pleased to give you advise at any time to select the correct fitting for your brake system.

Connecting fittigs JIC03

connecting fittings from aluminium, one-sided with Standard screwing JIC03

P/N	Description	Thread size 1	Thread size 2	Thread size 3	Form
075850	Fitting straight NPT 1/8″-JIC03	JIC03	NPT 1/8″	N/A	straight
075851	Fitting 45° NPT 1/8″-JIC03	JIC03	NPT 1/8″	N/A	45°
075853	Fitting 90° NPT 1/8″-JIC03	JIC03	NPT 1/8″	N/A	90°
058050	Fitting straight M10x1-JIC03	JIC03	M10x1	N/A	straight
058051	Fitting 45° M10x1-JIC03	JIC03	M10x1	N/A	45°
058053	Fitting 90° M10x1-JIC03	JIC03	M10x1	N/A	90°
058058	T-Fitting JIC03	JIC03	JIC03	JIC03	T-Fitting

Fitting straight (058050)

Fitting straight (075850)

Fitting 90° (075853)

Connecting fittings JIC04

from aluminium, one-sided with Standard screwing JIC04

P/N	Description	Thread size 1	Thread size 2	Thread size 3	Form
075830	Fitting straight NPT 1/8″-JIC04	JIC04	NPT 1/8″	N/A	straight
075831	Fitting 45° NPT 1/8″-JIC04	JIC04	NPT 1/8″	N/A	45°
075833	Fitting 90° NPT 1/8″-JIC04	JIC04	NPT 1/8″	N/A	90°
058054	Fitting straight M10x1-JIC04	JIC04	M10x1	N/A	straight
058055	Fitting 45° M10x1-JIC04	JIC04	M10x1	N/A	45°
058056	Fitting 90° M10x1-JIC04	JIC04	M10x1	N/A	90°
075838	T-Fitting JIC04	JIC04	JIC04	JIC04	T-Fitting

Fitting 45° (075851)

T-Fitting JIC03 (058058)

Hydraulic reductions from aluminium

P/N	Description	Thread size 1	Thread size 2	Form
058063	Hydraulic reduction M10x1-M5	M5	M10x1	straight
058064	Hydraulic reduction M10x1-M6	M6	M10x1	straight

Hollow screws

For the connection of hydraulic hoses and hydraulic components, hollow scews are a very good choice. The angle between hose and axis of the hollow screw is to be defined freely.

P/N	Description	Connecting thread	Application	Gasket
058227	Hollow screw M5x14	M5	BZM	2 x O-ring included in p/n 058227
058226	Doube hollow screw M5x21	M5	BZM	2 x O-ring included in p/n 058226
058062	Hollow screw M6	M6	Hydraulic hose 06	2 x Cu gasket, included in p/n 058062
058550	Hollow screw M10	M10x1	Standard hydraulic hose p/n 058330, 058350, 058360, 058375, 058380, 058390, 058310	2 x Cu gasket, included in p/n 058550
058281	Hollow screw M10 VA	M10x1	Stahlflex hydraulic hose and Stahlflex hydraulic hose lightweight p/n 058001, 058002	2 x Aluminium gasket, included in p/n 058281
058282	Hollow screw M10 double VA	M10x1	Stahlflex hydraulic hose and Stahlflex hydraulic hose lightweight p/n 058001, 058002	3x Aluminium gasket, included in p/n 058282

Suitable Banjo fittings:

P/N	Description	Application	Remarks
058224	Banjo bolt M5	Hydraulic hose-05, p/n 058236, hollow screw M5, 058226/058227/058237	incl.cutting ring and spigot nut
058060	Banjo fitting M6	hydraulic hose-06	incl. hollow screw
058003	Banjo M10	Hydraulic hose-03, p/n 058001, hollow screw M10x1, p/n 058281/058282	incl. cutting ring and spigot nut

Suitable washers as spare parts:

P/N	Description	Application
058238	O-Ring	for hollow screw M5
058283	Copper gasket M10	for hollow screw p/n 058550
058286	Copper gasket M6	for hollow screw p/n 058062
058289	Aluminium gasket M10	for hollow screw p/n 058550, 058281, 058282

Remark:
Gaskets (from aluminium or copper) may be used only once!

Male stud connectors

a further option for the connection of hydraulic components are copper pipes.

P/N	Description
058695	Cu pipe 6x1

The connection of copper pipes to the hydraulic component is done with male stud couplings.

P/N	Descr.	Form	Connecting thread 1	Connecting thread 2	Remarks
058630	C1	straight	NPT 1/8″	M10x1	with spigot nut and cutting ring
058640	C2	90°	NPT 1/8″	M10x1	with spigot nut and cutting ring
056870	C3	straight	M10x1 taper thread	M10x1	with spigot nut and cutting ring
058680	C4	90°	M10x1 taper thread	M10x1	with spigot nut and cutting ring
058651	C5	straight	M10x1	M10x1	with copper gaskets, for connection of Master cylinder model 7 with reservoir

To interconnect copper pipes or copper pipes with hydraulic hoses:
straight couplings or T-couplings are the correct type of connector.

P/N	Description	Connecting thread 1	Connecting thread 2	Connecting thread 3	Remarks
058620	Straight coupling	M10x1	M10x1		with spigot nut and cutting ring
058610	T-coupling	M10x1	M10x1	M10x1	with spigot nut and cutting ring

Assembly notes for male stud couplings

(p/n 058630, 058640, 058670, 058680)

- Cut off pipe at right angle (do not use pipe cutter)
- Debur pipe on the inside and outside (caution: do not bevel)
- Lightly lubricate thread and cone of male stud coupling
- Lubricate cutting ring and spigot nut (on inside)
- Push spigot nut and cutting ring over pipe end
- Tighten spigot nut by hand
- Push pipe against stop of inner cone
- A mark on the spigot nut helps to check on the correct number of turns
- Turn spigot nut approx. 1½ turns (pipe must remain stationary). The tightening force increases with pressure against the stop face

Check:

- Release spigot nut and check weather visible bead fills space in front of the cutting ring face. If not, tighten spigot nut more.
- Cutting ring may turn, but may not be able to move in axial direction.

Accessories

We offer all necessary accessories and tools for the first installation or maintenance of a hydraulic brake system

Universal torque plate

Torque plate

You can realise the easy mounting of a floating brake assembly (BZT, BZT2) to the landing gear structure with the help of our Universal torque plate.

P/N	Description	Fixation	Application
075992	Universal torque plate	4 x bore Ø 6.5 mm	BZT, BZT2

On request, we can manufacture individual torque plates (5-axis CNC milled) to your requirements. Please ask for an offer.

Fluids

Hydraulic brake systems in aviation are used with two different fluids: Mineral fluid to Spec Mil-H5606, based on mineral fluid, or brake fluid DOT4, based on polyglycol. Both fluids may not be mixed or interchanged, as the sealings in the hydraulic system would be affected and destroyed.
Please always refer to the indications in the Maintenance Manual of your aircraft.

P/N	Description	Packing
059940	Mineral fluid	1qt/946 ml
059950	Brake fluid DOT4	0.5 l
059951	Brake fluid DOT4	1.0 l
058221	Hydraulic oil	100 ml

Reservoir HB 7

Reservoirs

So-called open hydraulic systems – like the majority of hydraulic systems – need a fluid reservoir or slops tank. With the help of the following fluid the wear on the brake pads is balanced.

P/N	Description	Hydraulic fluid	Volume	Connecting thread
058910	Reservoir 100	Mineral fluid	60 cm³	NPT 1/8″
058271	Fluid reservoir HB 7	DOT4	30 cm³	M10x1
058269	Fluid reservoir HB 7	Mineral fluid	30 cm³	M10x1
058971	Mounting bracket for reservoir HB 7	N/A	N/A	N/A
058972	Holding clamp for reservoir HB 7	N/A	N/A	N/A

Stahlbus bleeder valves

The filling and bleeding of hydraulic brake systems is one typical task in the maintenance field. We recommend the Stahlbus bleeder valve to simplify this task considerably. In every Tost brake assembly the Stahlbus bleeder valve is mounted as a standard, in all other brake assemblies it can be retrofitted easily. One person can perform the filling “from bottom to top” thanks to an integrated non-return valve. When filling the system “from bottom to top”, the additional integrated gasket eases the procedure clearly.

P/N	Description	Connecting thread	Hydraulic fluid	Valve type
059100	Stahlbus bleeder valve	NPT 1/8″	DOT4	screw-in valve
059200	Stahlbus bleeder valve	NPT 1/8″	Mineral fluid	screw-in valve
059102	Stahlbus bleeder valve	M10x1	DOT4	screw-in valve
059202	Stahlbus bleeder valve	M10x1	Mineral fluid	screw-in valve
059125	Stahlbus bleeder valve flat-sealing	M10x1	DOT4	screw-in valve
059225	Stahlbus bleeder valve flat-sealing	M10x1	Mineral fluid	screw-in valve
059105	Stahlbus bleeder valve	M10x1.5	DOT4	screw-in valve
059101	Stahlbus bleeder valve	M6x1	DOT4	screw-in valve
059201	Stahlbus bleeder valve	M6x1	Mineral fluid	screw-in valve
059221	Stahlbus bleeder valve	M6x1, shortened	Mineral fluid	screw-in valve
059231	Stahlbus bleeder valve	M8x1.25	DOT4	screw-in valve
059205	Stahlbus bleeder valve	1/4″-28UNF-16	Mineral fluid	screw-in valve
059206	Stahlbus bleeder valve	3/8″-24UNF-22	Mineral fluid	screw-in valve
059400	Stahlbus hollow screw	M10x1	DOT4	hollow screw
059199	Cap for Stahlbus bleeder valve	all	all	

Stahlbus bleeder valve

Stahlbus hollow screw (059400)

Service kits

We supply service kits for the installation and the filling and bleeding of the small hydraulic systems Max II SB with BZM, 6″ UL SBP with BZ-UL, hydraulic actuation of shoe brake wheels. In every service kit you will find all necessary fittings, filling tools, hydraulic hoses and Mineralfluid.

Artikel-Nr.	Bezeichnung
058202	Service kit hydraulic actuation of shoe brake wheels
058209	Service-Kit for Max II disk brake wheels Mini and Max II
058211	Service kit 6″ UL SBP with BZ-UL

Vacuum filling and bleeding pump

Filling tools

Vacuum filling and bleeding pump

The vacuum filling and bleeding pumps are helpful tools for fast and easy filling and bleeding. You can use them to evacuate the brake fluid at the brake assembly when filling “from top to bottom”. The other option is to absorb brake fluid and to fill it into the system with pressure – when filling from the brake assembly “from bottom to top”.

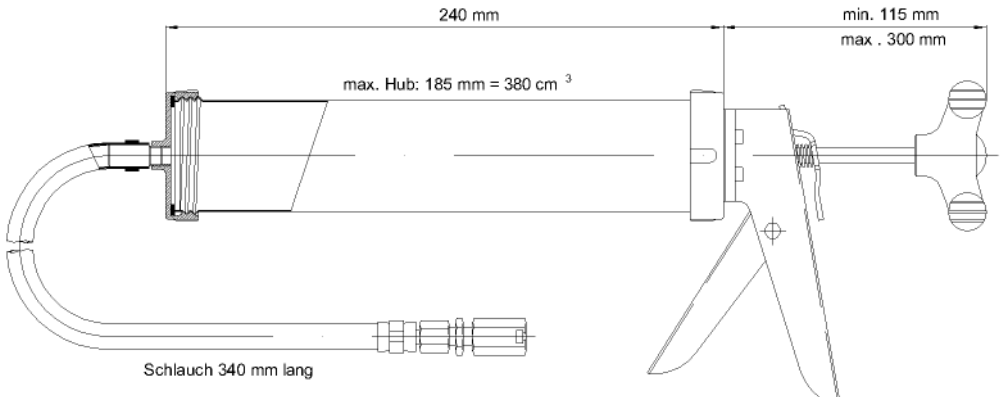
P/N	Description	Volume ml
059300	Vacuum filling and bleeding pump	50
059330	Vacuum filling and bleeding pump, big	150

Brake fluid gun

Device for initial charging and bleeding of hydraulic brake systems. Simple handling, high filling pressure and a big filling volume. Supplied with complete operating instructions.

The brake fluid gun is always supplied with lever mechanic, tube and quick-screw-connector (for connection to the bleeder valve).

P/N	Description	Hydraulic fluid
059020	Brake fluid gun Type B	DOT4
059030	Brake fluid gun Type H	DOT4 and Mineral fluid



Brake fluid gun
(059020)

Quick-screw-connector
(075899)

Quick-screw-connector

Suitable for the brake fluid gun Type B and H, we supply quick-screw-connectors for a simple, fast and clean connection of the brake fluid gun to the respective bleeder valve.

P/N	Description	Connection
075890	Quick-screw-connector, Standard	to all Cleveland bleeder valves
075899	Quick-screw-connector, Stahlbus	to all Stahlbus bleeder valves

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CRG

Schematics of Aero Towing 84
CRG - Tow Cable Retractor Winch with Guillotine 85
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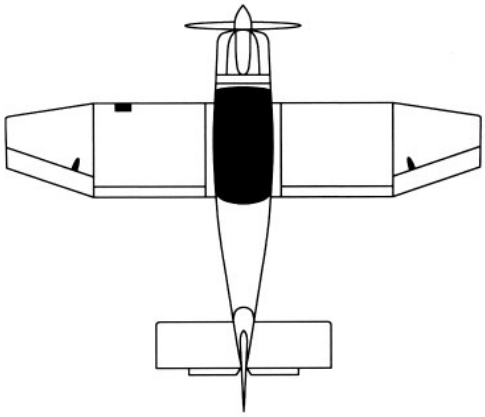
Rubber funnel
End piece
CRG Cable
CRG Spare Parts - Excerpt

Schematics



Tow release
E 85 or E 22

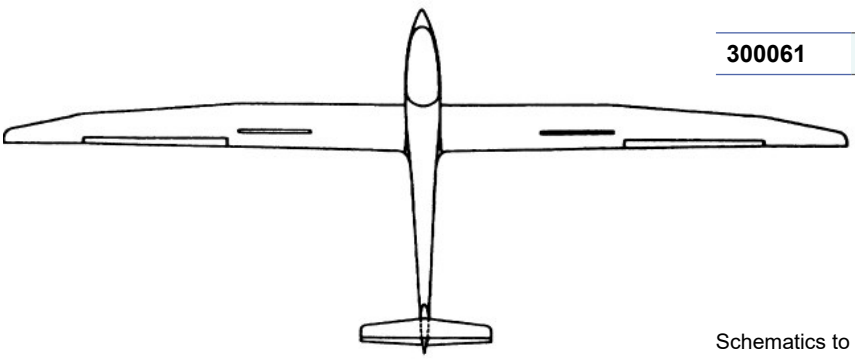
102000	Connecting ring pair
113400	Shackle

Aero Tow Rope
Length 40 – 60 m

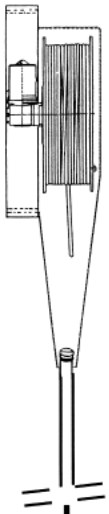
Complete weak link
with connecting ring pair

110010	Complete weak link

Nose release
E 85 or E 22



CRG
Design of winch unit depends on aircraft type



CRG cable
50 or 60 m

Cable stop plate and guillotine

End piece
with connecting ring pair and weak link

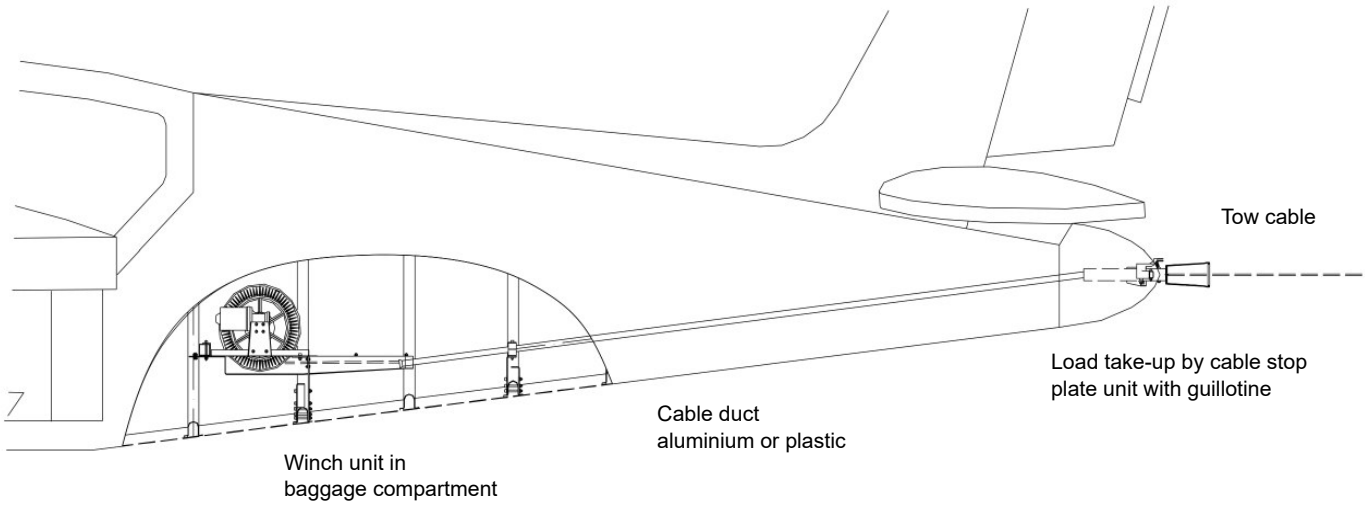
300061	End piece

Schematics to SBO in current version

CRG – Tow Cable Retractor Winch with Guillotine

The tow cable retractor winch with guillotine allows the tow cable to be retracted during descent, and, in the event of danger, to be chopped. This has substantial safety and cost benefits compared with conventional aero tow:

- No cable drop with potential risk to people or aircraft
- Considerably diminished noise levels since aircraft can land right away
- More economical operation through elimination of cable drop and reduced flight time
- No delays in aircraft starts due to tracing and retrieving tow cables
- In the event of danger, the tow cable can be chopped anytime to sever the link between glider and tug, also under high loads and large cable angles



The retractor winch is installed in the fuselage (baggage compartment); the load is taken up by the cable stop plate unit mounted to the tow support in the aircraft tail. Once the glider pilot has released the tow cable, the tug pilot retracts the cable and is ready for the next towing job.

Since 1981, about 750 of these CRGs (previously known as System Feuerstein) have been successfully deployed all over the world. Refer to the tables for a list of EASA-approved installations.

CRGs are installed as standard by aircraft manufacturers, but retrofitting older aircraft is also possible and is done very often by gliding clubs. We consult you profoundly.

The requirements of the regional authorities for airfield approvals are increasing. With the installation of a CRG in the towing aircraft those requirements can be fulfilled more easy. Also the neighbours will profit from the decreasing emissions.

Winch unit for DR 400 with strong Tendo driving unit

CRG Modules

Winch unit

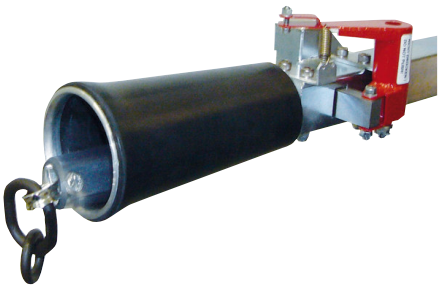
Depending on the model, the retractor winch is mounted either on a base plate or a motor support and installed in the fuselage of the tug either behind the seat or in the baggage compartment. If necessary, the winch unit can be dismantled quickly. The main components are a 12 V (standard) or 24 V (optional) motor with a worm gear, motor bracket, cable drum and cable cover.

The tow cable runs through or under the fuselage, either in an aluminium or in a plastic cable duct, to the cable stop plate unit at the tail.

Cable stop plate unit with guillotine

For tugs of the type Robin and Morane or for motor gliders or ultralight aircraft the new cable stop plate is bolted to the existing tow support. For tail wheel aircraft, e.g. Piper, Maule or Husky, the system is supplied with a new tow support on which the cable stop plate with guillotine is mounted.

The guillotine is activated by the existing release cable. The cable is simply transferred to the guillotine lever. A tow release can be used optionally, eg, for banner tows or double tows by transferring the cable from the guillotine back to the tow release. **Please note**: Only one of the two towing devices may be used at a time.



Cable stop plate unit with guillotine with rubber funnel and end piece

The cable load is taken up by the stop plate via a sleeve screwed over a knot in the tow cable. The cable load is not taken by the winch unit. The permitted cable load is equivalent to the permitted towing capacity of the tug.

A rubber funnel takes up the conical end-piece after rewinding the tow cable. The fuselage is protected against damages.

Electric switch unit

The rewinding of the cable is started by means of a toggle switch fitted with a control light. The switch unit (switch, fuse and cable set for standard 12 V on-board voltage) is prewired and assembled on an aluminium plate that can be mounted on the instrument panel in the pilot‘s line of sight.

Once the glider has been released, the electrical switch unit starts the retractor winch. Operation can be checked in the rear-view mirror. The control light in the panel is on during the whole duration of rewinding. After the cable has been fully rewound, an overload switch switches the motor off automatically. If the cable retraction sensor is installed, the motor will be cut-off immediately.

Tow cable

The tow cable with 6.1 mm diameter has a standard length of 50 m. The cable is terminated by an aluminium end piece, complete with weak link and connecting ring pair. Breaking load of the weak link according to your requirements. Unless otherwise specified with the order we supply a standard 500 daN white weak link.

The kit is ready-to-tow, ie, you receive all necessary parts for the installation. You can start operation immediately after the approval. The aluminium cable duct is not supplied as part of the standard kit due to the high transport cost. On request we can include this item in the scope of delivery correctly flared.

CRG Optional Equipment

Cable retraction sensor with cut off

It is not always possible to monitor the cable retraction in the rear-view mirror.

The solution: An approximation switch permits contactless detection of the end piece and a control light indicates that the cable is completely retracted. The drive switches off immediately and cannot be switched on again.

Benefits: Increased safety because of monitored cable retraction and a longer motor service life. Easy to upgrade on all systems.
We recommend this option for all original installations. Retrofitting of all units already in operation ia also possible.

P/N	Description
300200	Cable retraction sensor with cut off

Modification to 60 m cable length

For flight students the use of a 60 m cable is more comfortable. This is why we offer a modification kit to 60 m cable length for the existing CRGs. Only the cable drum needs to be exchanged. A bigger installation space than for the 50 m cable drum is not required. With smaller root diameter, the 60 m drum is optimised to match the motor torque.

P/N	Description
300020	Cable drum for 60 m cable
300556	60 m cable

Cable drum for 60 m cable

Powerful Driving Unit PM 42

Higher torque and higher rpm for faster cable retraction, also during fast descents. The increased performance ensures a longer service life especially under tough long-term operation. Available for 12 V and 24 V.

P/N	Description
300942	Driving unit PM 42 12V

When retrofitting the driving unit PM 42, the fuse and the toggle switch must be exchanged, as well.

CRG for Aircraft

Our CRG basically can be installed in every tug which is certified for towing. We are happy to prepare an offer and advise you about the installation and the approval. All units for Class E towing aircrafts are equipped with the powerful driving unit PM 42 available in 12 V and 24 V on-board voltage. This driving unit also guarantees the full cable wind-up for fast descents.

Scope of delivery CRG for Husky including cable retraction sensor with automatic cut-off

CRG in PA 25 with parallel use of tow release E 85

EASA approved installations in aircraft

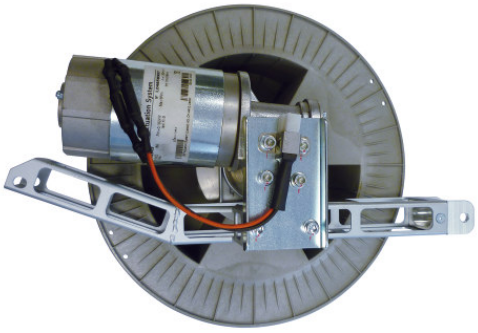
TCDS	Type
1001	DR 300/180 R, DR 400/RP, DR 400/180, DR 400/180 R
741	DR 253, DR 253 B
661	Job 15-150, Job 15-180/2
640	MS 880 B, MS 883, MS 887 Ralley 150 ST-D, Ralley 150 T-D, Ralley 180 T-D, Ralley 180 TS, Ralley 150 SVS
657	MS 892-A 150, MS 893 A, MS 894 A, MS 892E-150, MS 893E, MS 893E-D, MS 894 E, MS 235 E-D
548	Piper PA 12
722	Piper PA 18, PA 19
525	Champion Citabria 7GBC, 7GCBC
525a	Champion Citabria 8GCBC and all types approved for towing
674	Stinson L 5
536	Stinson 108-3 and all types approved for towing
739	Cessna FR 172
1088	Christen A-1 Husky, A-1A, A-1B
669	Maule M-6-235, M-7-235, MX-7-180, MX-7-235
1000	Piper PA 25
1098	Zlin Z 143

CRG for Motor Gliders

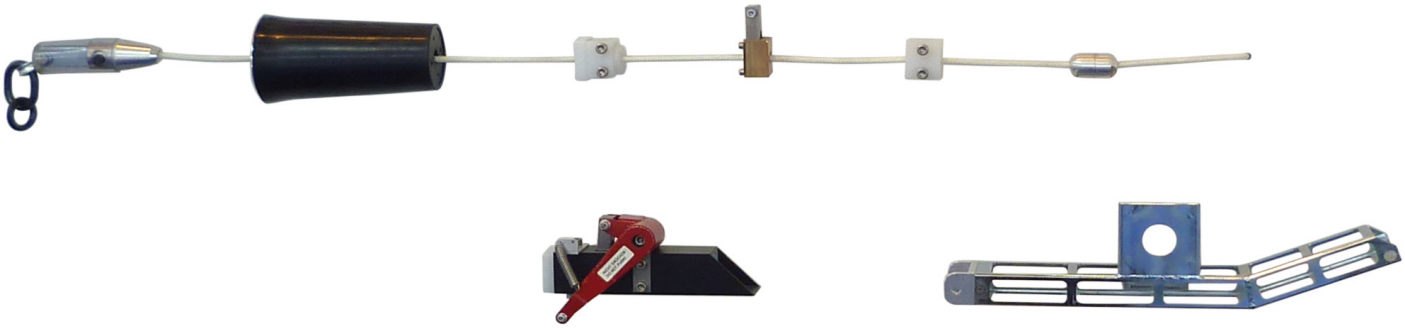
We have modified the CRG according to the certification of motor gliders for aero tow. Winch and tow support are optimised in terms of size and weight.

The CRGs are installed as standard in the following motor gliders and are EASA approved. Retrofit only in coordination with the manufacturer.

Manufacturer	Type
Scheibe Aircraft	SF 25C
Diamond Aircraft	Super Dimona HK 36



Winch unit for Scheibe Falke SF 25



Schematics of the CRG modules

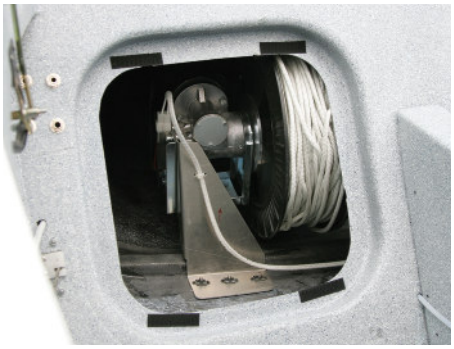
Cable stop plate with guillotine for UL

CRG for Ultralight

All components of our lightweight version for Ultralight are weight- and volume-optimized. With driving unit PM 41 in 12 V. For installation in the baggage compartment; If required, the winch unit can quickly be disassembled.

Weigth: Winch 4.4 kg, stop plate and guillotine 1.2 kg

P/N	Description
309000	CRG for UL



Winch unit installed in Dynamic

Cable stop plate unit with guillotine and rubber funnel in MCR

Approval through manufacturer of Ultralight, installation as standard in:

Manufacturer	Type
A2 CZ	Ellipse Spirit
Aerospool	WT9 Dynamic
Aeropro	Eurofox
Breezer Aircraft	LSA B400-6
Comco Ikarus	C42
Dyn Aero	MCR 01 / MCR R180
Flight Design	CTLS
G1 Aviation	G1 SPYJ
Zenair	Zodiak 601/602

Please ask for further installation options. We will be happy to offer you a solution.

We are continously enlarging the range of applications of the CRG in Ultralight.

CRG Spare Parts

When have you had a closer look at your retraction winch the last time?
When have you checked if all components are okay? If the cable drum and the rubber funnel are still in good shape?
The complete spare parts list helps you to check everything. There you will also find product improvements like the advanced terminator with steel bush. Especially for older models those improved spare parts could be of interest. You can easily replace them and they will optimize the function of your CRG.
All spare parts are available from stock so that you can quickly overcome AOG situations.

Terminator with steel bush

„Bestsellers“ :

Rubber funnel

Made from UV-resistant material; The alu ring stiffens the rubber funnel and impedes the slipping out of the end piece.

P/N	Description	Mass g
300149	Rubber funnel	190

End piece

Made from aluminium, smaller, less mass, slides better into the rubber funnel. Complete with weak link, ring pair and silicon sleeve. Please specify required breaking load of weak link according to the Flight Manual. As standard, we supply a white weak link = 500 daN breaking load. Good to know: Only one weak link is needed, which is inserted in a narrow version of the protective sleeve (111030).

End piece

300061	End piece	230

CRG Cable

50 m on cardboard reel, 60 m on cardboard reel or
250 m on cardboard reel – the big cable reel at the most economic price.
You can cut the cable to length. Recommended e.g. for flight schools.

Mirror black
with ball-and-socket-joint

300550	CRG cable 50 m on cardboard reel	1920
300556	CRG cable 60 m on cardboard reel	2250
300560	CRG cable 250 m on cardboard reel	8700

CRG Spare Parts - Excerpt

Please ask for the complete spare parts list.

300150	Terminator with steel bush	275
300071	Mirror, colour white, mounting on left side or right side	318
300070	Mirror, colour black, mounting on left side or right side	318
300116	Drum hub for cable drum	500
300057	Aluminium sleeve, two-part	30
A30120	Cable drum for 50 m cable with attachment	755
300031	Helical drum cover	382
300148	Complete guillotine for CRG, knives from niro steel	220

Cable drum 50 m

TOW RELEASES

Centre-of-gravity releases **95**
G88 series
S 72/SH 72/Piccolo release series

Nose and tail releases **96**
E 85 series
E 22 series

Hang glider retaining release **97**

Release supports **97**

KT 12 adapter for Tost releases **97**

Vehicle tow device **98**

Overhaul of Tost releases **99**

Exchange releases **99**

Releases

Since 1952 Tost company has manufactured releases for gliders. The first product was the manual actuated nose release type “BUG”.
1953 followed the first Tost safety release (Universal), that has been installed near to the centre-of-gravity. Its automatic release at a defined cable angle made the winch launch safe.

Tost releases are the standard worldwide for safe gliding starts for all types of starts and are being operated “from Australia to Cyprus”.
In total, more than 73.000 units have been produced. All are still being serviced, also those units from the very beginning. Most of the releases are still serviceable and even in service for further decades.

History of Tost releases
During the decades, Tost releases have been developed further and optimised as well. The sequence of the release types is as follows:
For the nose and tail releases: BUG - E 72 - E 75 - E 85
For the centre-of-gravity releases: UNIVERSAL - KK - G 72 - G 73 - G 88

One important step to high dimensional accuracy and rigidity of the releases was the use of precision casting components: hook, segment, ring automatic as well as fine cast release housing as successor of the welded release housing (up to type E 72 and G 72). When used in vintage gliders, please always check the installation space: narrow release brackets possibly may not allow the installation of the latest release types G 73/G 88 and E 75/E 85, which need a bit more space.
A further milestone was the increase of the cable force from 11,7 kN for the predecessor types to 14,1 kN for the E 85 and G 88 series.
The exchange of the elder release types against the recent ones has always been guaranteed through the retention of the outer dimensions and fixation holes of the releases.

Important operating advise to the connecting ring pair

Connecting ring pair to LN 65091

Connecting ring pairs are vital for the safe connection and reliable separation of tow cable and tow release.
The type certification stipulates that every Tost tow release must be operated only with a ring pair meeting the Aeronautical Standard LN 65091.
Such a ring pair must be stamped with the manufacturer's name and the standard number. Welded ring pairs are generally prohibited and imply a potential danger for the pilot. Their use voids our warranty for the release. Welded rings damage the release. Moreover, undersized or deformed rings can cause the ring pair to jam the release and inhibit correct operation under load.
Ring pairs must be visually checked and measured at regular intervals to ensure correct operation. Ring pairs that deviate from the standard dimensions must be replaced.

TOST Releases for winch launching

G 88 series

The Europa G 88 safety release is installed at the centre of gravity of gliders and motor gliders. The release is approved by the German aviation authority (LBA) under TCDS 60.230/2 to the airworthiness regulations for tow releases: for cable loads up to 14.1 kN, for maximum all-up weight of 900 kg; automatic release at a cable angle of 83°±7°, maximum manual release force is 140 N.

G 88 with lever

G 88 with lever

Standard version, with 4-position release lever.

G 88 without lever

Allows a release lever to be fitted by the aircraft manufacturer.
The release cable can also be attached directly to one of the segment holes.

G 88 without lever

G 88/1-83

For the cramped conditions in some gliders: the segment is shortened by three holes and the segment bolt is extended for fitting a special release lever at the side of the release body.

G 88/1-83

P/N	Release	Weight g
028000	G 88 with lever	720
028200	G 88 without lever	670
028400	G 88/1-83, bushing 33x10x2, for lever left hand	670
028450	G 88/1-83, bushing 34.5x8x1, for lever left hand	670
028470	G 88/1-83, bushing 20x9x1,5, for lever left hand	670
028500	G 88/1-83, bushing 34.5x8x1, for lever right hand	670

S 72/SH 72/Piccolo release series

The release types S 72 and SH 72 for light-weight gliders and motor gliders are constructed without movable ring mechanism. Aircraft-sided cable deflectors are stipulated to ensure release even for extreme lateral cable angles. Approved by LBA TCDS 60.230/2 for a maximum all-up-weight of 500 kg.

S 72

Without release lever, for attaching the release cable directly to one of the segment holes.

SH 72

For space reasons, the segment is shortened by three holes, the segment bolt is extended for an external release lever.

SH 72 DG

Piccolo

Specially designed for winch launching of light gliders of up to 200 kg.
Same design as for the S 72.

Piccolo

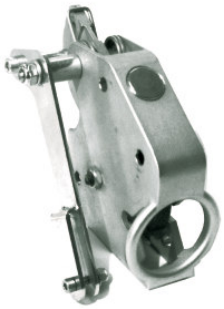
P/N	Release	Weight g
022100	S 72	620
022200	SH 72 DG, lever left hand	585
022210	SH 72 GL, lever right hand	585
022300	Piccolo	270

E 85 with lever

E 85 without lever

E 85/1-79

E 85/1-85



E 85 with special release lever
eg for CRG and release support

E 22

E 85 series

The E 85 tow release is used as nose release for gliders. As tail release for tugs it can be used for aero tow and banner towing. Approved for maximum cable load of 14.1 kN. The E 85 has no automatic release. The maximum manual release force is 140 N. Approved by the German aviation authority (LBA – Luftfahrt-Bundesamt) under TCDS 60.230/1, as conforming to airworthiness regulations for tow releases, it also corresponds to JAR 22 requirements. For all-up weight up to 900 kg. Approved for all aircraft.

E 85 with lever

Standard version with 4-position release lever.

E 85 with out lever

Allows a release lever to be fitted by the aircraft manufacturer. The release cable can also be attached directly to one of the segment holes.

E 85/1-79

This nose and tail tow release is offered with a shortened segment for mounting in tight installation spaces and has a special angled release lever.

E 85/1-85

This version is equipped with a standard segment, but disposes of an extended segment bolt for fitting a special release lever outside the release body.

E 85 with special release lever

This version of the E 85 is equipped with the lateral special release lever (300320). It is used for the installation at various release supports, eg. Piper. Aso works as optional equipment parallel to the CRG, e.g. for banner towing.

P/N	Release	Weight g
014000	E 85 with lever	560
014100	E 85 without lever	525
014200	E 85/1-79	535
014210	E 85/1-85	550

E 22 series

Small light nose and tail release. Type approval through the LBA as per type certificate 11.402/9NTS for maximum all-up weights of 700 kg. Compared with the E 85, the mounting space is reduced by almost half to 75x65 mm, the mass to just 310 g. Installation is compatible with E 85.

P/N	Release	Weight g
015000	E 22	310

Hang glider retaining release

Retaining unit for hang gliders for start with rubber cable. Maximum operating load 150 daN.

P/N	Release	Weight g
012000	Hang glider retaining release	115

Hang glider retaining release

Tow support

For banner towing or aero tow without CRG you need to have a release support at the rear of your aircraft to mount the tow release. We manufacture this release support for various aircraft types, see table.
The Tost tow release E 85 is mounted on this support.
This release has an airworthiness approval and can be mounted on any aircraft type. The release support has no certification of its own. It is certified as a component of the EASA-certified Tow Cable Retractor Winch.
The scope of delivery of a release support includes a bowden cable of 10 m length for actuation.

P/N	Aircraft type	Weight g
303030	PA 12/18/19	2100
018525	PA 25	1050
303030	Husky A-1, A-1A	2100
018540	Maule, with new rudder operating lever	2400
018510	Husky A-1B	1350
303035	Citabria with spring pad 1.75	2100
018570	Cessna 172	2450
018620	Zenair 650	1200
303037	Zenair CH 640	2300

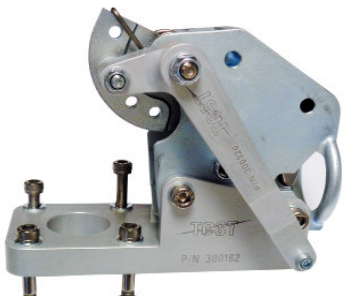
Release support PA 12/18/19

Release support PA 25

Retrofit of Tost release

The Aearzur release from a since long defunct manufacturer is not approved for towing outside Germany. Extensive load tests have shown that at loads above 300 daN the safe operation of this release is no longer guaranteed.
To protect the pilot and the aircraft from this serious safety defect, a Tost E 85 tow release can be mounted on the KT 12 adapter to replace the Aerazur release.
LBA/EASA-approved for Morane and DR 400.

P/N	Description	Weight g
300182	KT 12 adapter for Aerazur including lateral special release lever and mounting bolts	380



KT 12 adapter

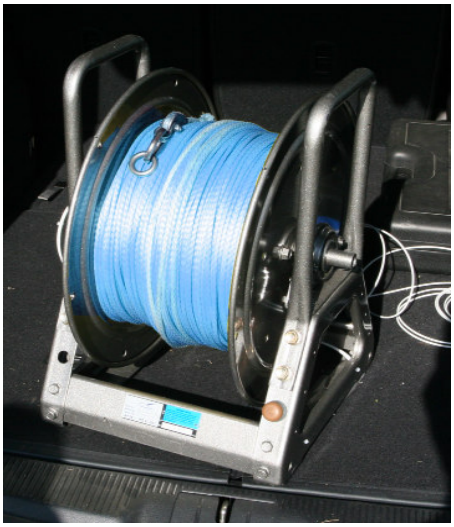
Vehicle tow device

Vehicle tow device

An alternative way of getting up in the air is being used again, known from former times: the vehicle tow. The pilot just needs an airfield and a helper with a car to get up into the air.

The vehicle tow device is fixed to the trailer hitch of the car, the neccessary tools are included in the scope of delivery. No modifications at the vehicle are needed. The vehicle tow device is based on a tow release E 85; the releasing is made through the driver with a bowden cable.
For the vehicle tow we recommand the synthetic winch cable Dynalaunch which we can supply in every length. On one side, a Jumbo thimble can be spliced into the cable. We can also supply the complete cable preamble according to the German SBO (Gliding regulation).

We offer as additional „helper“ a device for winding up the cable which is stored in the trunk of your car. This device helps to wind up the cable which is laying on the airfield after the tow. It is powered by the 12-V on board electric of the car.



Device for winding up the cable

Beside the development of the equipment described above, we also have achieved a broad knowledge in the file of vehicle tow. You can contact us with your questions regarding the legal situation or the qualification of the pilot.

P/N	Description	Weight g
011520	Vehicle tow device E 85 with brackets, Bowden cable, release unit and tooling	3700
200700	Device for winding up the cable	

Overhaul of Tost releases

Releases are approved aeronautical parts. Tost company, aa EASA Maintenance organisation, has the right to maintain own products. This certification excludes at the same time, that others perform the overhaul of Tost products. The servicing of Tost releases is only permitted in the Tost premises in Munich.

During the overhaul procedure, the release spring is exchanged, the life time limiting element in a release. The maximum possible number of 10.000 actuations result in the regulation of the TBO of 2000 starts.
Simultaniously, all components of the release are being checked on their condition and exchanged, if needed. Often this is the case with the release hook, the connection to the connecting ring pair and thus the glider. Furthermore, manual release force and release angle are being testet and newly adjusted.
The overhauled release is delivered to the customer with a newly issued EASA FORM 1 and new Operating Manual.

We may ask you to demount all external levers and brackets from the release before sending them to Tost. Every additional part results in extra work which we have to charge.

Exchange releases

We offer exchange releases as a customer service:
If the release is due for overhaul in the middle of the gliding season, you can save time with an exchange release. The customer will receive an exchange release out of our stocks, suitable for his aircraft (subject to prior sale). The demounting of his own release and the mounting of the exchange release can be done at the same time.Thus, the glider can fly again immediately. The demounted release is sent to Tost company, overhauled and goes into the stock of exchange releases. The customer keeps the exchange release which means that the serial number of his release will change.

IMPORTANT ADVISE: GENERAL OVERHAUL OF TOST RELEASES

Tow releases are approval obligated aircraft parts. Only through the compliance with the mandatory maintenance intervals the safety and the life time of the releases are ensured. After 10.000 actuations (corresponding to 2000 starts) the general overhaul and retesting at the manufacturer is stipulated.

We recommend the **general overhaul after 4 years** as through environmental influences corrosion and sluggishness can occur which can result in malfunction.
The aircraft holder is responsible for the supervision and compliance of the maintenance intervals.

TOWING/LAUNCHING EQUIPMENT

Weak links 102

Shackles .....

Protective sleeves

Connecting ring pair

Connectors/Quick-release links 105

Tost notch-type connector

Tost clasp-type connector, screw-type connector

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Cable for CRG

Aero tow rope RED STAR

Aero tow rope for banner tow

Aero tow rope EXKLUSIV

Aero tow rope ELASTIK

Tost weak links

Tost weak links in their optimized format combine the following improvements:

- Longer service life
- Correct marking with load group and manufacturer's name
- Made of high-quality certified aircraft steel
- Clear distinction from inferior copies
- Manufacturing tolerance only 5% (10 % are demanded in the requirements)

Like our type-approved products, our weak links are also manufactured according to EASA approved production methods. Each batch is tested on computerized test equipment and the results are documented. This guarantees consistent high quality and traceability.

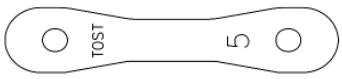
Important Notes

- Weak links protect your aircraft against overloading
- Use only the weak link stipulated in your aircraft TCDS or aircraft manual
- Checking the cable preamble is mandatory according to SBO (German Gliding Operation Regulations); this includes the inspection of weak links
- Replace the weak link immediately in the case of a visible damage
- We recommend that the weak link inserts are replaced after 200 starts:
  an insert exchanged in time is always safer and cheaper than one single aborted launch
- Always use the protective steel sleeve
- Use only the correct shackles: they prevent the weak link and the steel sleeve from twisting, leading to an undefined increase of the breaking load
- Never use two equal inserts, eg, both with round holes, in a reserve system, since this would double the breaking load

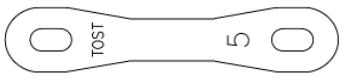
Warning

Using combinations of weak link inserts from different manufacturers can double the breaking load because of the elongation of inferior inserts!

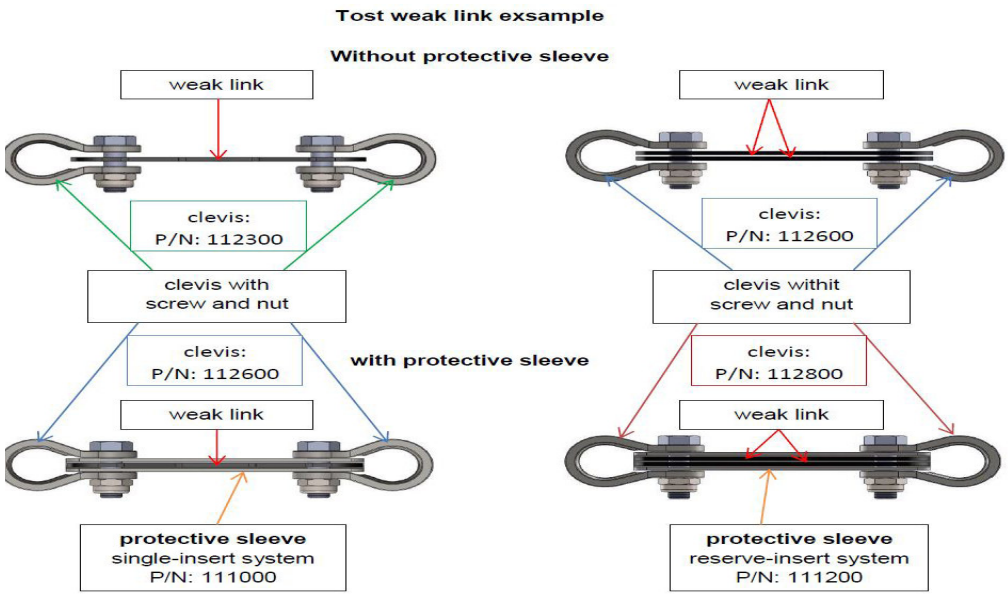
Tost weak links - examples



Weak link insert - round hole for
single-insert system



Weak link insert - round hole for
reserve-insert system



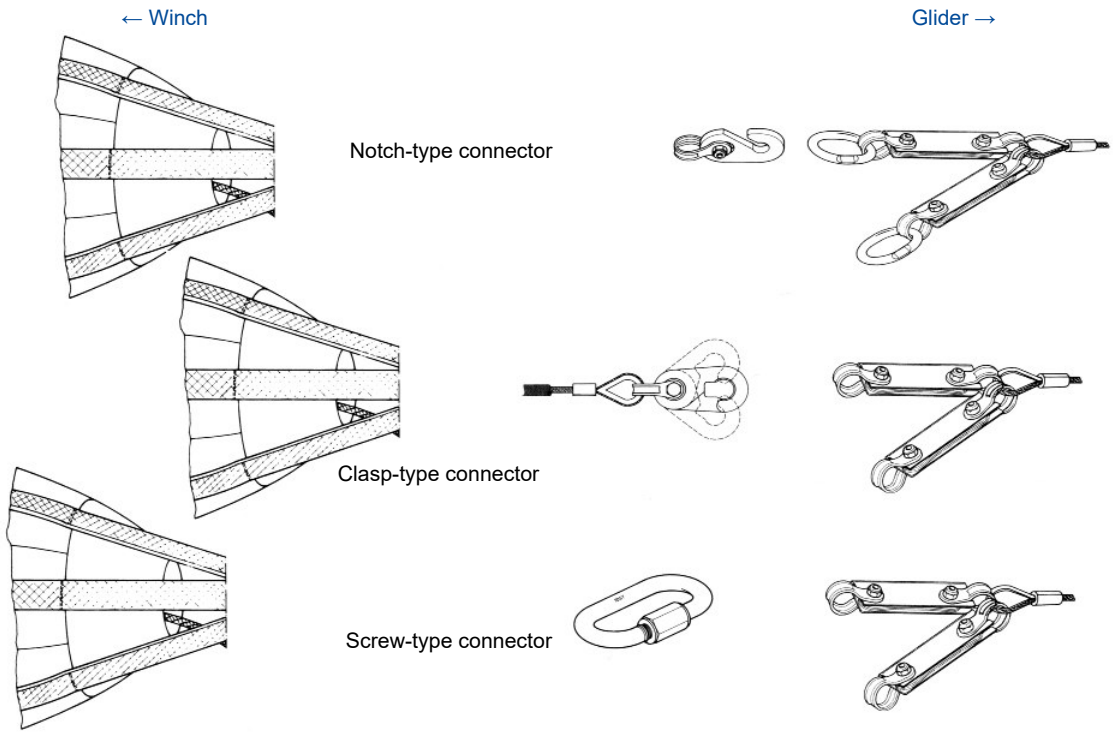
Load table
Winch launch and aero tow

Insert No.	Coulour	Breaking load daN	Single insert round hole P/N	Reserve insert oval hole P/N
1	Black	1000±100	**110101**	**110121**
2	Brown	850±85	**110102**	**110122**
3	Red	750±75	**110103**	**110123**
4	Blue	600±60	**110104**	**110124**
5	White	500±50	**110105**	**110125**
6	Yellow	400±40	**110106**	**110126**
7	Green	300±30	**110107**	**110127**

Load table
Kites, hang gliders, ultralights

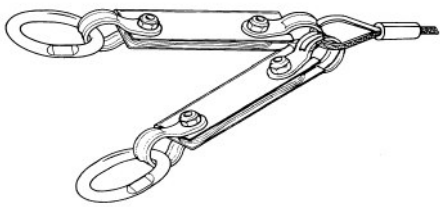
Insert No.	Colour	Breaking load daN	Single insert round hole P/N	Reserve insert oval hole P/N
8	Mauve	200±20	**110108**	**110128**
9	Grey	150±15	**110109**	**110129**
14	Turquoise	120±12	**110114**	**110134**
11	Orange	80±10	**110111**	**110131**

Tow cable and fan assembly



Weak link shackles

Tost weak link shackles, made from stainless steel, with high-strength bolt (length of shaft matched to the open width) and self-locking nut



Tost weak link shackles

P/N	Open width mm	Bolt	Application
112300	3	M6x15	Single system without protective sleeve
112600	6	M6x20	Single system with protective sleeve or Reserve system without protective sleeve
112800	8	M6x23	Reserve system with protective sleeve

Protective sleeves

Protect the weak link against deformation, premature wear and tear and uncontrolled change of breaking load.
Tost protective sleeves are manufactured from stainless steel. They have inspection holes on both sides to check for the correct weak link insert and its condition.

P/N	Application
111000	Single-insert weak link (1 weak link)
111200	Reserve-insert weak link (2 weak links)

Connecting ring pair

Connecting ring pairs are vital for the safe connection and reliable separation of tow cable and tow release.
The type certification stipulates that every Tost tow release must be operated only with a ring pair meeting the Aeronatical Standard LN 65091 (in its respective current edition).
These connecting ring pairs must be stamped with the manufacturer‘s name and the standard number.

Connecting ring pair to LN 65091

Welded rings are categorically prohibited.

Their use voids the warranty of our releases. Welded rings cause damages to the releases. Moreover, undersized or deformed rings can cause the ring pair to jam the release and inhibit correct operation under load, a potential danger for the pilot.

Connecting ring pairs must be visually checked and measured at regular intervals. Ring pairs that deviate from the standard dimensions must be replaced.

102000	Connecting ring pair to LN 65091

Connectors/Quick-release links

The German SBO regulation stipulates that when operating a double drum winch, the leeward winch cable has to be used first and the parachute of the other cable has to be disconnected.
For this purpose we offer quick disconnect points for a simple and fast connection, e.g. for predetermined breaking points in fan circuits and rope parachutes.

Quick-release links

We offer practical solutions for all connections in the cable preamble which must be disconnected easily, e.g. the fan-assembly, weak links, cable parachutes.

Tost notch-type connector

This combined connector consists of a drop-forged hook and an oval ring with a flat section, to be inserted into the notch of the hook. Low weight, no sharp edges, no deformation even under heavy cable load, considerable long service life.

Tost notch-type connector

P/N	Description	Load kN	Weight g	Connection with shackle	Eyelet mm
096000	Tost notch-type connector, two-part	15	116	**112800**	8

Tost clasp type connector

One-part connector, simply clip it onto connecting shackle.

Tost clasp-type connector

P/N	Description	Load kn	Weight g	Connection with shackle	Eyelet mm
097000	Tost clasp-type connector one-part	15 (when close	98	112312	12

Screw-type connector

The connection is screwed, Universaly usable for winch launch and aero tow.

Screw-type connector

Delta screw-type connector

Universal connector with screw plug, especially suited for belts, e.g. shroud line belts of BT parachute.

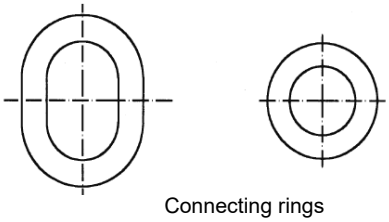
P/N	Description	Load kN	Weight g	Eyelet mm
095000	Screw-type connector	55	135	12
095010	Delta Screw-type connector	45	152	12

Delta screw-type connector

Connecting rings

Connection with shackle 8 mm. Do not use with Tost releases!

P/N	Form	Dimensions mm	Weight g
096010	large, oval	50x41x Ø 8	48
101100	small, round	Ø 35x Ø 7	27

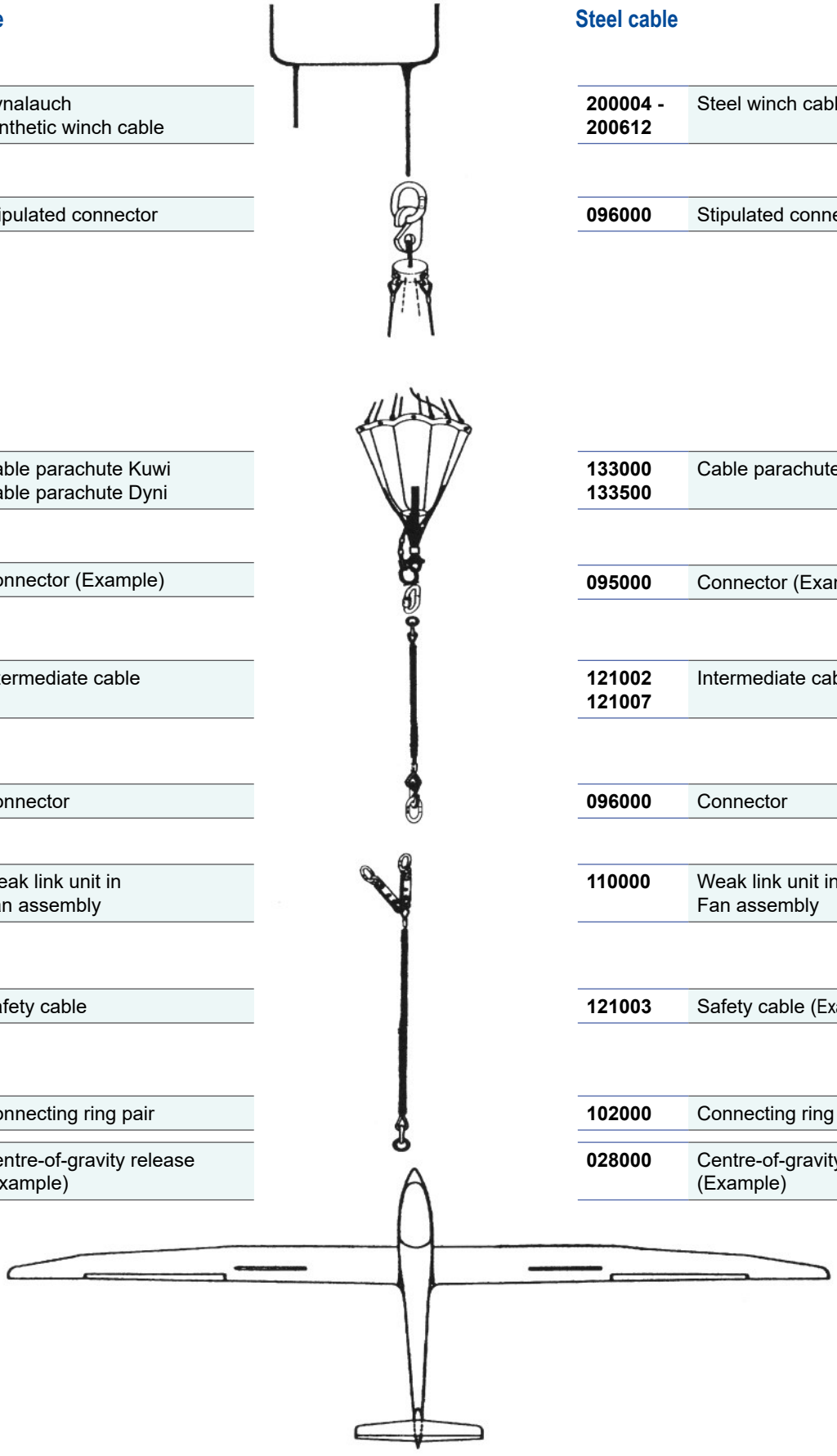


Connecting rings

Schematics

Synthetic cable

205050	Dynalauch synthetic winch cable
096000	Stipulated connector
133600 **133100**	Cable parachute Kuwi Cable parachute Dyni
095000	Connector (Example)
121012 **121017**	Intermediate cable
096000	Connector
110000	Weak link unit in Fan assembly
121006	Safety cable
102000	Connecting ring pair
028000	Centre-of-gravity release (Example)



Steel cable

200004 - **200612**	Steel winch cable
096000	Stipulated connector
133000 **133500**	Cable parachute
095000	Connector (Example)
121002 **121007**	Intermediate cable
096000	Connector
110000	Weak link unit in Fan assembly
121003	Safety cable (Example)
102000	Connecting ring pair
028000	Centre-of-gravity release (Example)

Steel winch cables

Winch cable Ø 4.2 mm

6x7x0.45 mm construction with one 7x0.50 steel core, right-hand cross-lay, un-galvanized, non-rotating, stress-free, breaking load 14.8 kN, mass 7 kg per 100 m. Standard length 1200 m ex stock, other lengths available on short notice.

P/N	Description
200012	Winch launching cable 4.2 mm on disposable wooden reel

Winch cable Ø 4.6 mm

6x7x0.52 mm construction with one 7x0.60 steel core, rest see above
Breaking load 17.7 kN, mass 8 kg per 100 m.
Standard length 1200 m ex stock, other lengths available on short notice.

P/N	Description
200612	Winch launching cable 4.6 mm on disposable wooden reel

Steel winch launching cable

Operating instructions
To improve the life time of your winch launching cable, you should observe the following hints (excerpt from the operating instruction)

- Wind on the cable with lowest drum torque
- Use swivel only if necessary. Never use the swivel during the launch, only during pulling out the cable
- Only experienced winch drivers should do the launching with a new cable
- Increase the load gradually up to the maximum load capacity of the cable
- Always retrieve the cable with constant, moderate speed.

We deliver our winch cables with a detailed operating instruction for the correct “Cable treatment”.

Swivel

Maintenance-free, rugged, with high-grade ball bearings.
Connect with 14 mm shackle. Operating instruction is included.
Caution: Use only when pulling out the cable, never during launching!

P/N	Description	Length mm	Mass g
215000	Swivel	85	175

Swivel

Cable preamble winch launch

The German Gliding Operation Order (SBO), latest edition, also newly regulates the winch cable equipment, however considerung the Air Technical Note LTA 73-16:

Connecting sequence

- 3 m safety cable with connecting ring pair
- Weak link
- Intermediate Cable: Length 2 m or 10 m

Please see picture of the connecting sequence on page 106
“Schematics Winch Launch”.

Safety Cable

To reduce the danger of loops and tangled cables at the glider, at the beginning of the launch a “stiffened” safety cable of 3 m length is stipulated.

Weak link

Select the correct breaking load according to the manual or TCDS of the towed glider.
The weak link position, now, can also be between the connecting ring pair and the safety cable.

Quick release link

When using a double drum winch the leeward winch cable has to be used first. The parachute of the other cable must be disconnected.
Please look for suitable parts on page “Connectors/Quick Release Links”.

Intermediate cable

With a diameter of the parachute canopy of 1.5 to 2.0 m to the LTA 73-16 a distance of at least 13 m between the release of the glider and the parachute vent is stipulated. In addition to the 3 m safety cable an intermediate cable of 10 m must be used.
With a canopy diameter of less than 1.5 m the distance between the release and the parachute vent can be less. The minimum distance, however, is 5 m, which means that an intermediate cable of 2 m length has to be used.

Cable parachute

The maximum permissible canopy diameter of the cable parachute is 2.0 m.

Cable preamble – Equipment for steel winch cables

Safety cable 3 m

Manufactured from steel cable encased with a rubber tubing.
We use a red tubing for a better finding of the safety cable in the field.
Both ends are fitted with Tost aluminium solid thimbles, for an optimal durability.
At the glider side the connecting ring pair is fitted with an 8 mm shackle.
Connect the appropriate weak link to the winch cable side. An 8 mm shackle is pre-assembled.

Safety cable from steel

P/N	Description	Colour	Length m
121003	Safety cable from steel	red	3

Our Safty rope for synthetic winch cable is also well suited for use with steel cables (weight saving).

P/N	Description	Colour	Length m
121006	Safety cable from steel	red	3

Intermediate cables

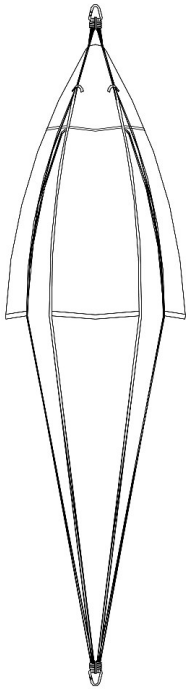
The length depends on the canopy diameter of the cable parachute.
Manufactured from steel wire encased with a rubber tubing.
We use a red tubing for a better findability of the safety cable in the field.

The stiffening rubber tubing is not stipulated for the intermediate cable, but it is recommendable.
Both ends are fitted with Tost aluminium solid thimbles for optimal durability and with 8 mm shackles.

Intermediate cable from steel

P/N	Description	Colour	Canopy Ø m	Length m
121002	Intermediate cable from steel	red	up to 1.5	2
121007	Intermediate cable from steel	red	more than 1.5	10

Cable parachutes for steel winch cables



BT cable parachute

BT Cable parachute

The durable parachute with high life expectancy. The large canopy enables pulling in of the winch cable at a low engine torque. Available in two colours: yellow and red – for clearer distinction between the leeward and windward cable of a double drum winch.

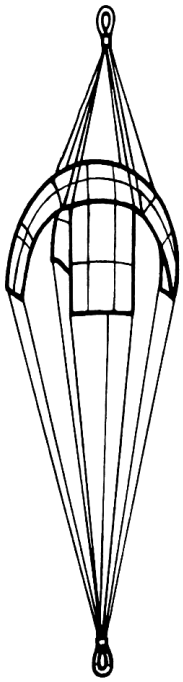
Description

Four-segment canopy, material nylon, UV-resistant. With 8 black end-to-end shroud belts, reinforced parachute edges, the upper belts are doubled.
The long shroud belts are exchangeable. When damaged, you can order replacement belts and can exchange them yourself.
The shroud lines are held together by a delta screw-type connector.

P/N	Description	Colour	Canopy base Ø m (in flight)	Length parachute mm	Weight g
133000	BT Cable parachute	red	1800	3500	2600
133500	Cross-panel cable parachute	white	1400		1500

Important notes for the use of the BT cable parachute

Excerpt from the LTA 73-16 (aeronautical technical advice) which is part of the SBO:
The diameter of the open parachute may not exceed 2 m.
The total length of the parachute – with closed canopy and stretched shroud belts – may not exceed 4 m.
The distance between tow release and canopy vent is stipulated with at least 13 m.
The sequence is as follows: 3 m safety cable – weak link element (can also be positioned between connecting ring pair and safety cable) – 10 m intermediate cable.



Cross-panel cable parachute

Cross-panel cable parachute

This light parachute combines high strength with a very good price/performance ratio. Its special construction allows for the parachute to descend very slowly and nearly non-rotating.

Desription

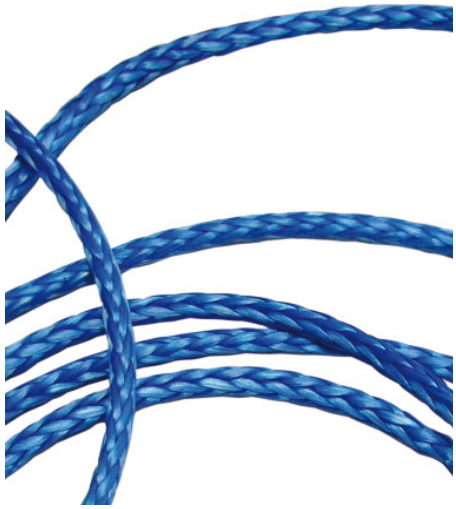
Canopy made of 2 polyamide panels stitched together cross-shaped. The canopy edges are reinforced with belts. Parachute colour: white. Eight shroud lines are held together at top and bottom in large leather thimbles. The shroud belts are tied to loops at the canopy base.

Important notes for the use of the cross-panel cable parachute

The canopy diameter is less than 1.5 m.
Thus the sequence is: 3 m safety cable – weak link element (can also be positioned between connecting ring pair and safety cable) – 2 m intermediate cable.

Synthetic winch cable DYNALAUNCH

The synthetic winch cable DYNALAUNCH has been specially designed for winch launching. It stands out due to its improved protection against abrasive wear thanks to a special impregnation



Synthetic winch cable
DYNALAUNCH

Advantages of DYNALAUNCH as compared to steel cable

- More launching heigth
- Minor weight – only 15% of a steel cable
- Easy handling
- Simple to splice
- Long service life

Technical data

- Material 100 % Dyneema
- 12-fold plaited
- Special impregnation
- High UV-resistance
- Water and dirt repellent

Special offer - from Tost company only:

With your first order of at least 1000 m cable length we offer you a free splicing kit:

- A premium splicing needle
- A detailed, illustrated splicing instruction
- Important hints on how to adapt your winch
- 2 Jumbo solid thimbles from aluminium

We can supply every cable length at customer‘s wish ex stock.
Due to its minimal weight the cable can be shipped as standard post parcel.

P/N	Description	Colour	Ø mm	Breaking load kN	Weight g/100 m
205050	Dynalaunch	blue	5	25	1240

Splicing needle for synthetic winch cable

A well-designed tool made from aluminium, for splicing of synthetic winch cables. The wire basket can be opened to catch the synthetic cable. The wire loops are spread and take up the cable strands. Then the wire basket is closed and holds the synthetic winch cable in place. You can now start to splice.
A detailed instruction is included.

Splicing needle
for synthetic winch cable

P/N	Description	Length mm	Weight g
213000	Splicing needle	300	35

Safety cable for synthetic cables
3 m length

Safety cable for synthetic cables
3 m length

Cable preamble – Equipment for synthetic cable

Safety cable 3 m

Manufactured from stiff synthetic rope, accessory parts sewed in directly into the rope ends: at the glider side the connecting ring pair, at the winch cable side a large oval ring, for fitting the appropriate weak link.

The special construction of the synthetic rope – multi layer construction with tight braided cover – shows a very smooth surface and a high stiffness, it corresponds to the requirements of the SBO. An additional stiffening cover is not longer stipulated.
Stitching and junction at the rope ends are protected with a shrunk-on hose. No sharp edges can damage the glider.
This safety cable can also be used with steel winch cables.

121006	Safety cable, colour white, length 3 m with oval ring and connecting ring pair
121016	Safety cable, as above, with special reinforced area for use in double seaters with nose wheel and for vehicle tow

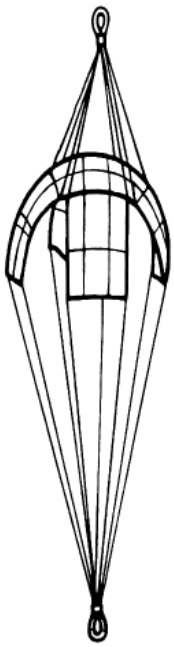
Intermediate cable for synthetic cable
10 m length

Intermediate cables

Length depends on the diameter of the cable parachute.
Manufactured from Dyneema rope with high load capability. At both ends our solid aluminium thimbles “Jumbo” are spliced in. The splices are double protected trough a shrinkable tubing and a synthetic cover.

The screw type connector can be fitted directly into the bore of our “Jumbo” thimbles

P/N	Description	Length in m	for canopy Ø
121012	Intermediate cable from Dyneema	2	up to 1.5 m
121017	Intermediate cable from Dyneema	10	over 1.5 m



Cross-panel cable parachute Kuwi

Cable parachutes for synthetic winch cables

Cross-panel cable parachute ‚Kuwi‘

This light parachute combines high strength with a very good price/performance ratio. Its special construction allows for the parachute to descend very slowly and nearly non-rotating. This smaller canopy is specially constructed for the use with synthetic winch launching cable.

Description

Canopy made of two polyamide panels stitched together cross-shaped. The canopy edges are reinforced with belts. Parachute colour: white. Eight shroud lines are belt together at top and bottom in large leather thimbles. The shroud belts are knotted through loops at the canopy base.

P/N	Description	Canopy basis Ø m (open during flight)	Length parach. mm	Weight g
133600	Cross-panel cable parachute Kuwi	1200	3400	1200

Cable parachute for synthetic cable

‚Dyni‘

The durable cable parachute with high life expectancy.
BT parachute reduced in size, especially for use with synthetic winch launching cable.

Description

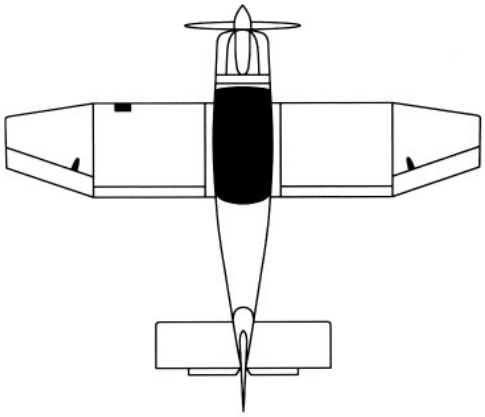
Four segemetn canopy from nylon, UV-resistant. 8 ea. one-pice shroud belts in black with high tensile strength sewed on, reinforced parachute edges. The long shroud belts are exchangeable. Whe damaged you can order replacement belts and exchange them by yourself.
The shroud lines are belt together in a Delta screw-type connector.

P/N	Description	Canopy Basis Ø m (open during flight)	Length parach. mm	Weight g
133100	Dyni	1200	3400	2200

Important operating notes for the use of the parachute:

The canopy diameter is less than 1.5 m.
Thus the sequence is: 3 m safety cable weak link element (can also be positioned between connecting ring pair and safety cable) – 2 m intermediate cable.

Schematics Aero tow



Tow release
E 85 or E 22

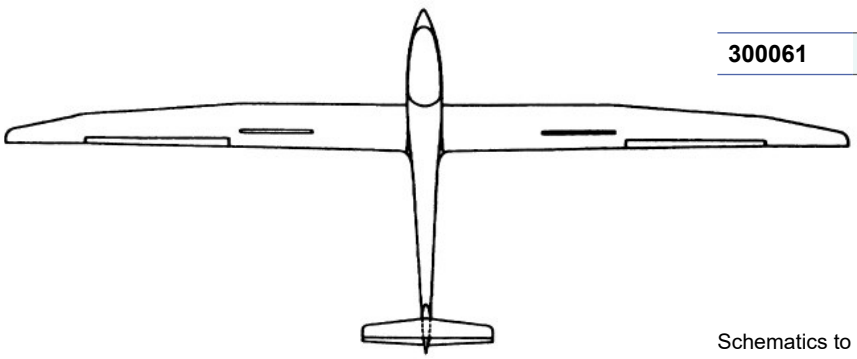
102000	Connecting ring pair
113400	Connecting shackle

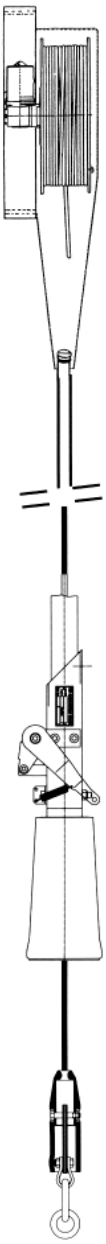
Aero tow ropes
Length 40 – 60 m

Complete weak link
with connecting ring pair

110010	Complete weak link

Nose release
E 85 or E 22





CRG
Form of winch unit depending on aircraft type

CRG cable
50 or 60 m

Cable stop plate with guillotine

End piece
with connecting ring pair and weak link

300061	End piece

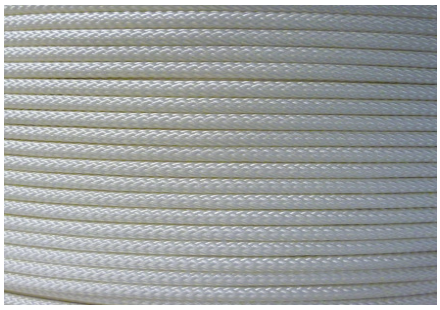
Schematics to SBO in current edition

Aero tow ropes

We distinguish between the special cable for the tow cable retraction winch and ropes for aero tows and the rope for banner towing.

Cable for CRG

Synthetic cable in multi-layer construction, smooth surface for knot-free cable retraction.
The cable is delivered on a cardboard reel, for direct winding onto the cable drum in the aircraft's fuselage.



Cable for CRG

· P/N	Desription	Length m	Max. load daN	Colour	Ø mm	Weight g
300550	Cable for CRG, standard length	50	1160	white	6.1	1920
300556	Cable for CRG	60	1160	white	6.1	2250
300560	Cable for CRG, cut to length	250	1160	white	6.1	8700

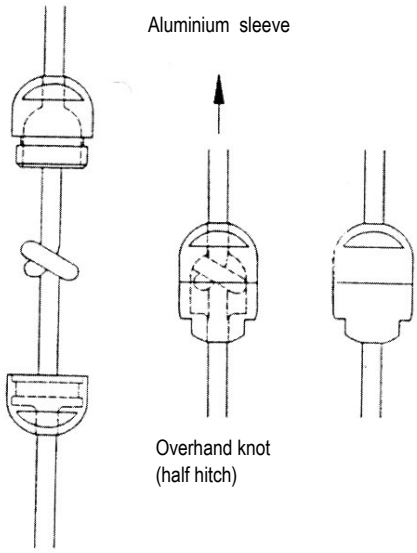
Aero tow ropes RED STAR, ELASTIK, EXKLUSIV

All aero tow ropes from Tost are delivered completely fitted "ready to tow".

- At the tug side equipped with connecting ring pair to LN 65091
- At the glider side equipped with complete weak link unit in reserve system including protective sleeve and connecting ring pair

As standard the white weak link No. 5 with a breaking load of 500 daN is fitted.

Please note on your order if you need another weak link breaking load. In this case, we will fit the required weak link ex works.



2-part aluminium sleeve
screwed over the knot in the cable

Excerpt from the SBO
Regarding aero tow ropes please refer to section 2.2 for single tow and 2.3 for double tow.

The following rope lengths are stipulated:
Single tow 40 - 60 m length
Double tow short rope 30 - 40 m length
Lee-position long rope 50 - 60 m must be released first

The difference between the short and the long rope has to be at least 20 m.

Aero tow rope RED STAR

Aero tow rope RED STAR

The allrounder of tow aero tow ropes with an excellent price/performance ratio:

- Step-index fibre from polyester, 32-fold casing
- Code colour red
- Rope diameter 9 mm
- Minimum breaking load 11 kN
- On both sides spliced-in rope eye, with directly fitted connecting parts,
  one side connecting ring pair to LN 65091,
  other side large oval ring
- On glider side equipped with complete weak link unit in reserve system with protection sleeve and connecting ring pair to LN 65091

Advantages

- High grade and long lasting rope thanks to step-in-fibre construction
- Easy to find on the airfield due to its code colour red
- Connecting parts are directly spliced-in. Rope ends protected with scoring coating
- There are no sharp edges that could damage the aircraft fuselage. Metal parts are reduced to a minimum.

P/N	Description	Length m	Minimum breaking load daN	Colour	Ø mm	Weight g
185400	Rope RED STAR	40	1100	red	8	2550
185500	Rope RED STAR	50	1100	red	8	3110
185600	Rope RED STAR	60	1100	red	8	3690

Banner tow rope

- Step-index fibre rope from Polyester
- Code color red
- Spliced rope eye at both ends
- Equipped ready for towing
  – one side oval ring, for connecting of Banner,
  – other side complete weak link in reserve system with connecting ring pair to LN 65091.

Please indicate the desired load of the Tost weak links when ordering

P/N	Description	Length m	Minimum breaking load daN	Colour	Ø mm	Weight g
185900	Banner tow rope	25	1100	red	8	1720

Aero tow rope EXKLUSIV

The high-grade, durable rope for heavy-duty operational demands.

Material PES, cable-laid, UV-resistant

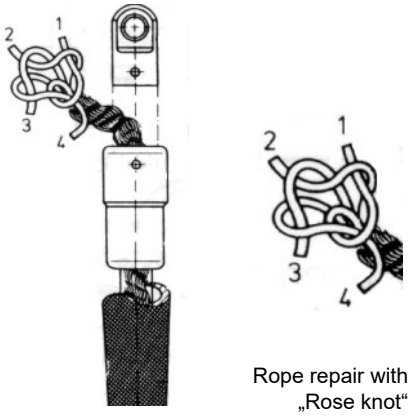
High load capability and ruggedness make the EXKLUSIV a rope for all range of applications with a long service life.

At both ends are fitted with knots the Alu end pieces. As additional protection we use stable rubber sheaths.

In case of wear and tear at the rope ends an easy do-it-yourself repair is possible. Just tie new knots, see picture (the knot is called “rose knot”).

Aero tow rope EXKLUSIV

P/N	Description	Length m	Minimum breaking load daN	Colour	Ø mm	Weight g
181400	Rope EXKLUSIV	40	1000	white	10	3700
181500	Rope EXKLUSIV	50	1000	white	10	4400
181600	Rope EXKLUSIV	60	1000	white	10	5200



Rope repair with „Rose knot“

Aero tow rope ELASTIK

The lightest and most comfortable aero tow rope

Material crimpe crepe white, hawser-laid

The stretching of more than 30% under normal load results in a particularly elastic tow, without dangerous recoil.
The ELASTIK rope is ecommanded especially for motor glider tow and Ultralight tow. With this elastic rope a smooth tow can be achieved even with less powerful tugs.

To save weight we manufacture the ELASTIK rope without aluminium end pieces and rubber sheaths. The connecting parts are spliced directly into the rope ends.

Aero tow rope ELASTIK

P/N	Description	Length m	Minimum breaking load daN	Colour	Ø mm	Weight g
183300	Rope ELASTIK	40	870	white	10	1500
183400	Rope ELASTIK	50	870	white	10	1900
183500	Rope ELASTIK	60	870	white	10	2100

The declaration of rope length is in stretched condition and under normal load.

TOOLS AND ACCESSORIES

Cable tools 120
Nicopress sleeves/Stop sleeves
Nicopress tools
Tost cable crimping tool

Cable clamps and tools 121
Tost Top and bottom tool
Cable Cutter
Splicing needle

Control Cables 122
Control cables
Tost solid thimbles from aluminium
Steel thimbles

Connectors 123
Connecting shackles
Safety pins
Locking wire

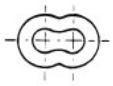
Nicopress sleeves and tools

for Nicopress sleeves from copper

Operating notes (excerpt):

- Grease crimping gauge before each crimping
- Follow correct sequence for partial crimping
- Never re-crimp a sleeve at the same spot

Detailed operating instructions supplied with the tool



Nicopress sleeve from copper

Allocation Nicopress sleeve to cable and tool

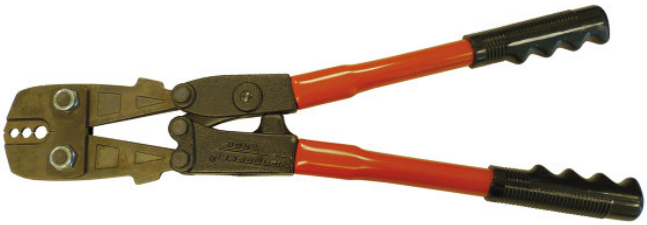
P/N sleeve	Cable Ø mm	Crimping gauge	P/N tool
217280	1.2 stainless steel	VB4	**217221**
217291	1.5 - 2.0 stainless steel	C	**217000, 217221, 217240**
217281	1.5 - 2.0	C	**217000, 217221, 217240**
217282	2.4 - 2.6	G	**217000, 217200, 217221, 217240**
217283	3.0 - 3.2	M	**217000, 217100, 217200**
217284	4.0 - 4.2	P	**217000, 217100, 217200**
217286	4.6 - 5.0	X	**217100**

Nicopress Stop sleeves

Nicopress Stop sleeves

For proper crimping of cable ends of control cables with a Nicopress tool. The stop sleeve prevents the cable end from uncoiling.

P/N	Cable Ø in mm	Crimping gauge
217371	1.5 - 2.0	C
217372	2.4 - 2.6	G
217373	3.0 - 3.2	G



Nicopress tool (217100)

Nicopress tool

Detailed operating instructions supplied with the tool

P/N	Cable Ø mm	Crimping gauge	Length mm	Handle/lever mm	Weight g
217000	1.5 - 4.2	C, G, M, P	520	370	2530
217100	3.0 - 5.0	M, P, X	520	370	2530
217221	1.2 - 2.6	VB4, C, G	296	220	1000
217240	1.8 - 2.6	C, G	296	220	1000

Nicopress tool (217221)

Tost Cable crimping tool

Compact, without long lever arms. Tool can be used in cramped spaces of the fuselage. The most economic alternative to Nicopress tools.

Tost Cable crimping tool

P/N	Cable Ø in mm	Crimping gauge	Length mm	Handle mm	Weight g
217200	2.4 - 4.2	G, M, P	280	160	390

Aluminium cable clamps and tools

Tools for cable clamps from aluminium

Tost Top and bottom tool for aluminium cable clamps

For making of simple and economical cable connections using cable clamps made of aluminium, type A, cylindrical.
Tool sizes 2-5, forged steel, specially hardened, extra strong version, replaceable guide pins. Tool length 185 mm, mass 1580 g.

Cable clamp
from Aluminium

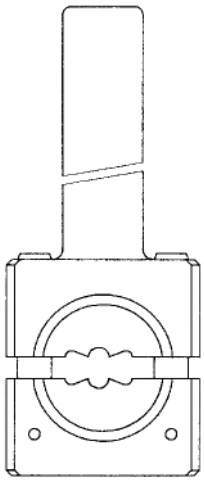
Operating notes:

- Grease the bore hole well before pressing
- Stand the tool on a thick steel plate
- Choose the correct combination of cable/clamp/tool
- Put the tool halves together correctly

Detailed operating instructions supplied with the tool

Allocation cable clamp to cable and tool

P/N tool	Cable Ø in mm	Tool No.	P/N clamp
220200	1.2 - 1.6	2	**221200**
220250	1.7 - 2.1	2.5	**221250**
220300	2.2 - 2.6	3	**221300**
220350	2.7 - 3.1	3.5	**221350**
220400	3.2 - 3.6	4	**221400**
220450	3.7 - 4.2	4.5	**221450**
220500	4.3 - 4.6	5	**221500**



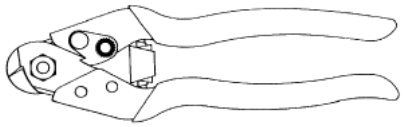
Tost Top and bottom tool

Cable cutter

For proper cutting of steel cables

- Proper cut, no deformation or crushing
- Single strands do not uncoil
- Cutting without excessive effort, easy one-handed operation
- Suitable for use inside aircraft fuselage

P/N	Cable Ø in mm	Type of cable	Length mm	Weight g
216070	up to 5 mm	Steel cable with steel or hemp core also stainless steel cable	170	290

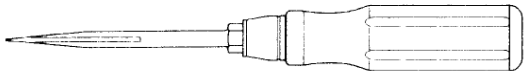


Cable cutter

Splicing needle

For splicing and thimble splicing of steel cables. Tool with wooden handle and hardened needle with strand groove.

P/N	Length mm	Length of needle mm	Weight g
212000	210	90	85



Splicing needle

Control cables

Control cable

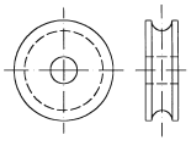
Aircraft control cable according to DIN ISO 2020 (previously LN 9374), steel galvanized, low-twist, low stress, flexible.

Delivered in coils of 10, 15, 20, 25, 50, 100 and 200 m. Available ex stock.
Certificate of Conformance on request.

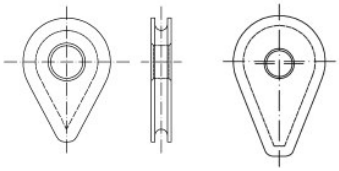
Other cables or dimensions available on request.

P/N	Diameter mm	Wire construction	Minimum breaking load	Weight g/m
200024	2.4	7 x 7	4.1 kN	24 g/m
200032	3.2	7 x 19	8.9 kN	43 g/m

Tost solid thimbles from aluminium



Round thimble



Solid thimble

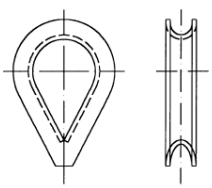
Solid thimble Jumbo

- From Tost production
- Light-weight, high load capacity, non-deformable
- High strength prevents the thimble from deforming, thus protecting the winch cable from damage
- We recommend the Jumbo solid thimble especially for the use with synthetic winch cables. It lays well protected in the notch.

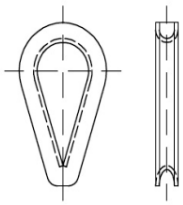
P/N	Description	Cable in mm	Connection
222500	Round thimble	4.2 - 5.0	Shackle 8 mm
222700	Solid thimble	4.2 - 5.0	Shackle 8 mm
227500	Solid thimble Jumbo	4.2 - 5.0	Screw-type connector

Manufacturing of thimbles to your requirements, also possible with anodised surface in your brand colour.

Steel thimbles



Heart-shaped thimble



Thimble

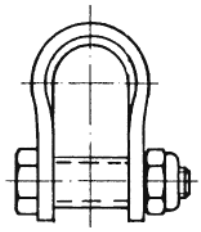
Made in Germany, for control cables and steel winch cables

P/N	Description	Cable in mm	Material
222200	Heart-shaped thimble 2	1.5 - 2.0	stainless steel
222300	Heart-shaped thimble 3	2.1 - 3.0	stainless steel
222350	Thimble 3.5	3.1 - 4.0	galvanized
222500	Heart-shaped thimble 5	4.1 - 5.0	galvanized
222600	“Strong” thimble 6 for safety cable	4.6 - 6.0	galvanized

Connecting shackles

Stainless steel shackle, with spacer bushing, high-strength bolt and self-locking nut.

P/N	Width mm	Eylet mm	Bolt mm
113000	10	14	M6x22
112312	12	14	M6x26
113400	14	14	M6x30
113900	19	19	M6x35

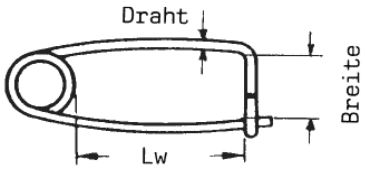


Connecting shackle

Safety pins

Material: spring wire

P/N	Width mm	Lw mm	Wire mm
920010	5	20	1.4
920011	12	35	1.2
920012	8	51	1.3



Safety pin

Locking wire

to MS 20995-C-32, for aircraft.
Material: stainless steel 0.8 mm Ø (0.032 inchl)

920080	Roll with approx. 0.5 kg

Locking wire

HELICOPTER-EQUIPMENT

Rope down securing unit 126

Attachment to the floor unit, inside

Attachment outside, type „External“

Helicopter equipment..... 128

Rescue cages

Drag anchor

Cable Cutter / Pocket Assy

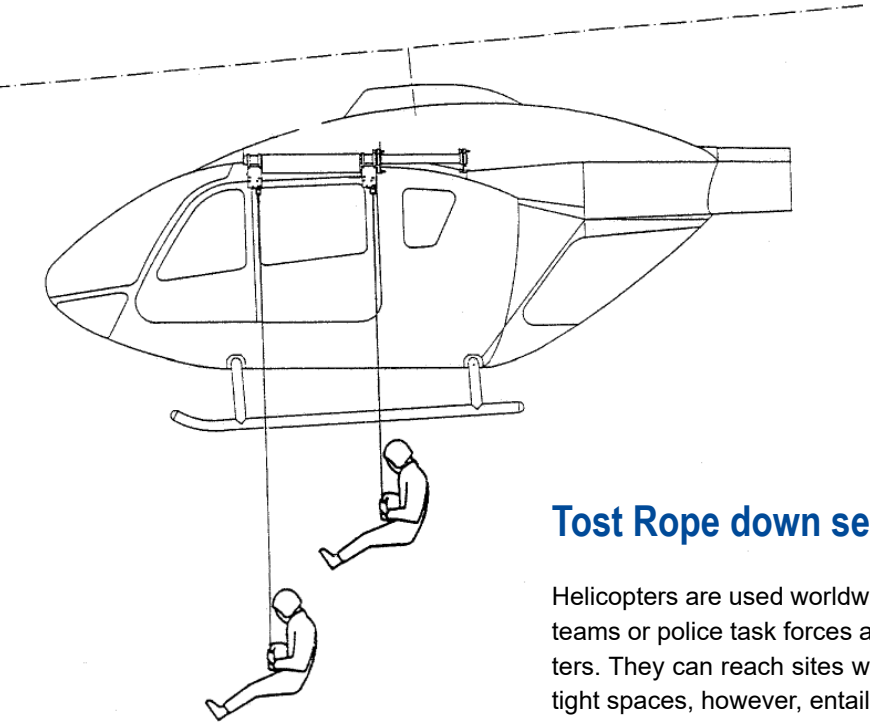
Load cables

Connectors

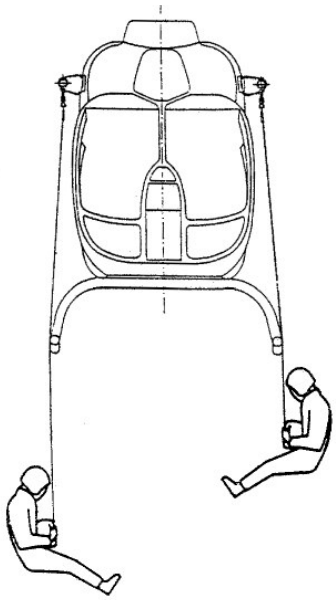
Helicopter Equipment

We develop and manufacture equipment for various applications:

- For the descend of task forces through internal or external attached rope down securing units
- Rescue cages for picking-up people or for transport of high loads
- Cable Cutter as redundant safety system for cable winches, with suitable pockets
- Load cables for the transportation of external loads, hanging under the helicopter
- High-tensile connectors



2-person rope down securing unit
“External” for EC 135 and BK117 C-2



Tost Rope down securing unit

Helicopters are used worldwide as a fast and safe means of transport. Fire-fighting teams or police task forces are quickly brought into an operational area by helicopters. They can reach sites which are inaccessible for surface transport. Landing in tight spaces, however, entails great risks for any helicopter

To expand the mission scope of helicopters we developed our “rope-down securing unit” to ensure the safe descend of rescue teams. They rope-down to a precise location while the helicopter hovers in position overhead.
During the rope-down operation, members of the task force are safely attached to the helicopter via the Tost rope-down securing unit, installed internal or external of the helicopter. On completion of the rope-down operation, the pilot or a crew member disconnects the rope with 1 pull to release the team members, either singly or in groups. The helicopter is ready for the next mission immediately.

Apart from standard police or fire-fighting missions, the rope-down securing unit can be used in a number of special applications, eg:

- Fighting forest fires
- Flood rescue operations
- Mountain and sea rescue operations
- Fire in multistorey buildings
- Dropping emergency personnel
- Redundant safety system
- Operations of special forces teams

Attachment to the floor unit, inside

for 1-, 2-, 4-, 6- or 8-man teams

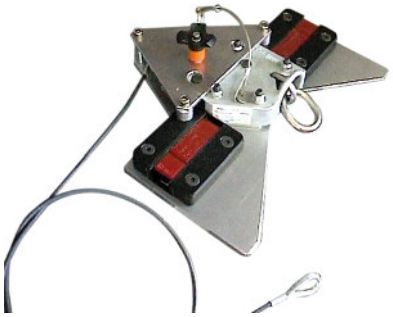
- with self-centering snap-on connectors in airline rails
- fixed to stretcher adapter rail
- bolted directly to the floor unit

All Tost rope down securing units for internal installation can be loaded by 15 kN Ultimate Load per attaching point and can also be released under this load. This means that the load capability is only limited through the load capacity of the helicopter or the fixing points.

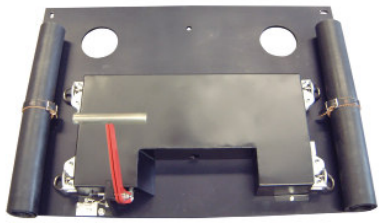
Used in: BO 105/BO 105 S/BO 105 CBS,
BK 117, BK 117 C2,
EC135, EC145, EC155 MD Explorer,
Bell 212, PZL Sokol

Manufacturing for other types on request.

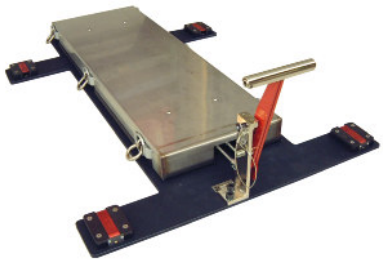
P/N	Description	Number of persons
190162	Rope down securing unit with snap-on connectors	1
190143	Rope down securing unit for EC135/MD Explorer Attachment with self-centering snap-on connectors	2
190121	Rope down securing unit EC 135 Attachment with self-centering snap-on connectors	4
190080	Rope down securing unit HEXA für EC 155 Attachment with self-centering snap-on connectors	6
190030	Rope down securing unit Attachment with self-centering snap-on connectors	8



1-man Rope down securing unit



4-man Rope down securing unit



6-man Rope down securing unit

Attachment outside, Type “External”

for 1- or 2-man teams (per side)

The Tost rope down securing unit is appropriate for the technique of fast-roping or rapelling, as the fixation point is above the cabin. The person can start the rope down procedure directly into the tight rope.

Attachment

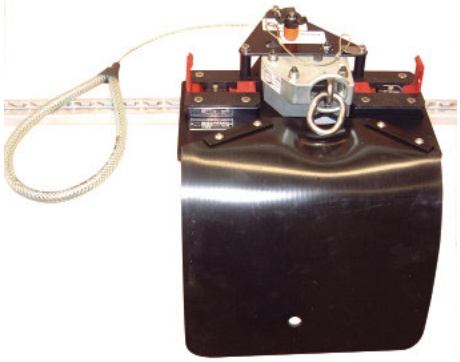
- on existing winch fittings with ball lock pins
- attachment either left hand, right hand or on both sides

For version 192141 left hand and version 192142 right hand the Ultimate Load to JAR 29 is 8 kN = 800 kg per attaching point.

Used in: EC 135, BK 117 C-2

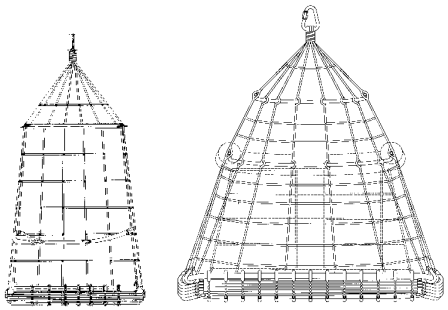
The installation in the helicopter is completed with edge protection mats.

P/N	Attachment	Number persons
192141	External, attachment left hand	1-2
192142	External, attachment right hand	1-2



1-man Rope down securing unit with protection mat

Tost-External Rope down securing unit



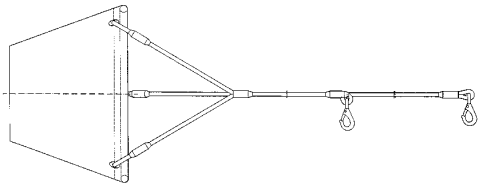
Rescue cage for 1 person

Rescue cage for 2 person

Rescue cages

The rescue cage is used for picking up or droping people (also injured people) in difficult terrain, from water etc.
The frame is made of non-rusting and acidproof tubing, the cage mesh is made of polypropylene rope. Rope material is light, rot-resistant and unsinkable.
Colour bright orange. The rescue cage is floatable through the optional mounting of floating bodies.

P/N	Description	Weight g
190211	Rescue cage for 1 person	6000
190210	Rescue cage for 2 persons	14000



Drag anchor

Drag anchor

for stabilizing rescue cages; prevents twisting of cage. The drag anchor consists of a textile funnel with a sewn-in retaining ring and the cable harness to attach to the rescue cage. Two spring hooks allow the drag anchor to be attached in different positions from the rescue cage (load-dependent).

190300	Drag anchor	1080

Cable Cutter with safety wrist-strap

Cable Cutter

Manual cable cutter for cutting winch cables in the event of on-board power failure. The catching of the cable is eased through the integrated capture angle brackets. The cable cutter cuts steel wire cables of up to 6 mm diameter. The cable cutter can also be supplied with a safety wrist strap.

216160	Cable cutter with safety wrist strap	950
216161	Cable cutter	925

Poket Assy

Pocket Assy

The cable cutter can be stored in a handy leather pouch, which can be attached to the cabin wall. With defined attachment points. Can optionally be delivered with opening for the safety wrist strap. Different pocket types for BO 105/BK 117 and EC 135 available.

216166	Cable cutter Pocket Assy, with opening for safety wrist strap, for 216160	570
216167	Cable cutter Pocket Assy, without opening for safety wrist strap, for 216161	575

Load cable

Load cables

for transportation of loads, fixed under the helicopter

- Manufacturing to your drawing or requirements
- End fittings either cable fittings or thimbles
- Cable diameter: 6.4 or 8 mm
- Test load from 17 up to 30 kN (breaking load from 29 to 44 kN)

Alternative load cables on request.

Connectors

P/N	Description	Load kN	Load capacity kN	Breaking load kN	Weight g
113410 **113428** **113435**	Load shackles for all connections	15 28 38			34 120 208
215020	Load swivel, eye diamter 30 mm		20		495
096062	Suspension ring for heavy-duty releases eyelet 75x135 mm				830
095500	Delta scew-type connector to hang in harnesses		25		400
095014 **095100**	Screw-type connectors for all connections		15 20		270 270
102010	Connecting ring pair, high tensile			30	70
191300	Edge protection mat, width 1000 mm, Width can be adapted, with self-centering snap-on connectors				5000

SPECIAL PURPOSE SOLUTIONS

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Releases for special applications 133

Heavy duty releases

Fail safe releases

Wheels for special applications 134

Cable retractors with guillotine 134

Hydraulic components 134

Construction, design,
simulation, contract manufacturing 135

Testing infrastructure 135

Weak links for special applications

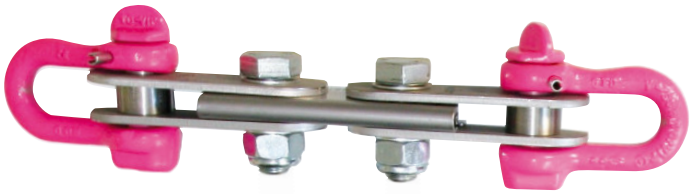
We manufacture custom made weak link elements to your requirements with defined breaking load. We can cover the low load range of 100 N to 10 kN; beyond that, also the demand in the high load range of 11 kN to 50 kN can be met. By the use of different materials we can meet your requirements regarding corrosion protection, food compatibility or any other standard. An individual marking of the weak links, according to customer wishes (e.g. with the corporate logo) can be carried out easily.

Application examples:

- Bracing of antennas
- Retaining of flagpoles
- Testing of parachutes
- Ship rigging
- Off-Shore-operations
- Harbor tugs
- Balloon mooring
- Trade fair constructions
- Food industry
- Mechanical Engineering

Configuration of weak link element

3- to 5-part weak link element, with or without protective sleeve, weak link inserts in single or reserve system, with two heavy duty shackles, in the load range of 11 kN to 50 kN.



4-part weak link element,
single circuit

P/N	Description	Load range
190550	Heavy-duty weak link element, 5 pcs., in reserve system	11 to 20 kN
190560	Heavy-duty weak link element, 4 pcs., in single system	20 to 50 kN
190561	Weak link insert for p/n 190560	

Special tow releases

Apart from our aviation releases we offer a wide variety of special tow releases for defined holding and determined release of loads.The specific load range and the type of remote activation (mechanical, electric, hydraulic, pneumatic) can be varied.

Application examples:

- Test rigs
- Drop tests
- Harbor tugs
- Cable positioning
- Towing of oil barriers
- Rope down securing units
- Mining and surface mining
- Automotive engineering
- Towing and securing units

Please contact us for an offer for your special application.

Heavy duty release E 85 L with electrical remote actuation and side plates

Heavy duty releases

The load release E 85 L is available in different variants such as a seawater proof type or variants equipped with mechanical activation, with electrical remote activation or with special side plates. Further special versions of the load release are realised according to your requirements (e.g. with mounting supports, hydraulic or pneumatic activation etc.).

P/N	Description	Max. load
011320	Heavy duty release E 85 L	20 kN
011321	Heavy duty release E 85 L seawater proof	20 kN
011395	Heavy duty release E 85 L with mechanical acitvation + side plates	20 kN
011390	Heavy duty release E 85 L with electrical remote activation + side plates	20 kN
011490	Heavy duty release E 85 L with electrical remote activation + side plates	30 kN

Fail safe release

As opposed to all other release variants the unactuated setting of the fail safe release is always open. By applying an electric voltage the release is locked.
The release opens immediately once the voltage is removed.

015100	E 22 Fail Safe	2 kN

E 22 Fail Safe

Wheels for special solutions

5 inch wheel with tire
336x115-5 TOST AERO 10 pr
as a ground handling wheel
for EC 145 T2

The quality of Tost wheels is also proven beyond the aviation application. Because of the high working load and the maintenance free bearings Tost wheels are the perfect solution for a wide variety of standard and heavy duty applications.

- Guidance pulley in transportation systems
- Heavy load carriage
- Airships
- Vehicle trailers
- Snowplough
- Transportation wheels
- Camera holding and guidance systems for movie and TV productions

Seawater proof wheels with a special corrosion protection, e.g. for amphibian planes, are listed in the chapter “Aircraft wheels”.

Please let us know your requirements regarding load capability, tire size and application and we will be happy to prepare an individual offer for you.

Cable retractors with guillotine

Different variants of the Tow Cable Retractor Winch with Guillotine (CRG) have already been constructed for special applications. They are used for test flights, trailing probes, trailing antennas and targeting with helicopters and aircrafts.

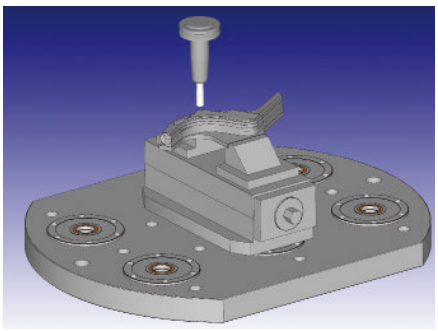
Quick release connector

Hydraulic components

A further sector in which custom solutions are developed and realised is the field of hydraulic components. Draining valves, hydraulic quick connectors and bleed valves are available in a wide variety of thread sizes, application fluids and dimensions.
With our experience and know-how we support you with the conceptional design and construction of hydraulic brake systems for individual applications or small series.

Construction, Design, Simulation, Contract manufacturing

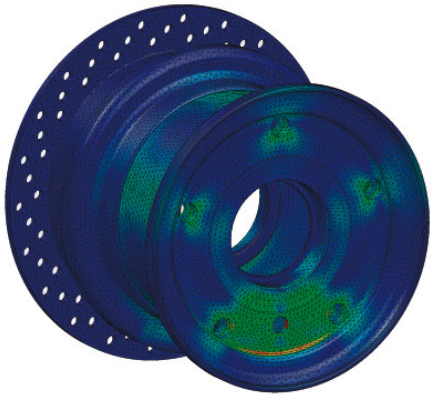
Based on our long-term experience in the design and production of aviation components we develop special solutions for you, also for individujal applications and small batches.
We offer design, simulation, construction, prototyping and production from one source.



CAM Computer-aided Manufacturing

Our portfolio includes:

- CAD, 2D and 3D
- Data transfer in all established data formats (dwg, dxf, stp, igs etc.)
- Preparation and management of product documents (PDM)
- FEM-based simulation and analysis of parts and assemblies
- Conservative strength and dimension calculations
- CAM, with milling center connected to network
- 5-axis CNC-milling
- 7-axis CNC-turning
- Classic machining (focus on precision mechanics)
- Gas-shielded welding (according to aviation standards)
- Manufacturing of simulators/mock-ups
- Product marking with engraving laser or engraving milling machine
- Production according to drawing within the framework of a DOPO agreement, delivery with EASA Form 1



FEM-based analysis of
Penta disk brake wheel

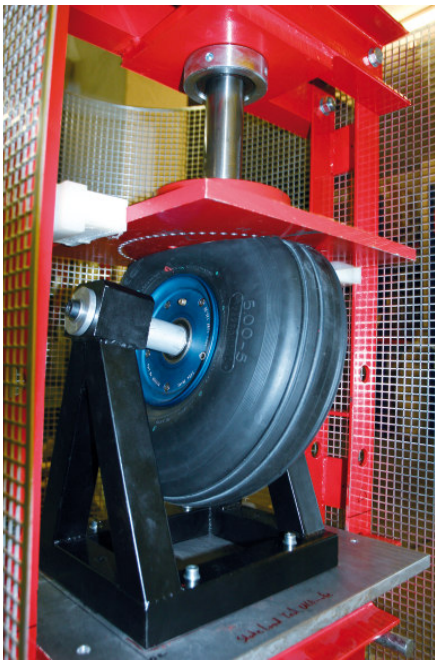
Let us know your requirements and we will be happy to prepare an individual offer for you.

Testing infrastructure

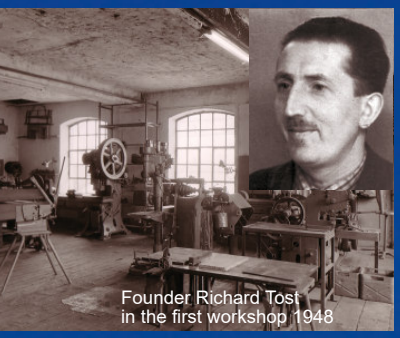
In our facilities we can prepare, carry out and document a wide variety of tests for customers. Necessary testing parameters are determined with the customer beforehand and are subsequently verified and documented.

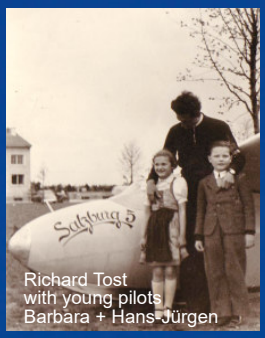
Examples of our test machines, devices and procedures:

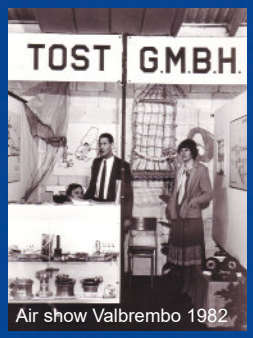
- Static and dynamic load tests
- Determination of static and dynamic tire deflection curves
- Endurance test of tires and wheels
- Linear tensile and pressure tests
- Leakage and function test of hydraulic components
- Hardness testing
- Dynamometer test with flywheel
- Experimental determination of brake energy and brake momentum



Static load test of a complete wheel


Founder Richard Tost
in the first workshop 1948


Richard Tost
with young pilots
Barbara + Hans-Jürgen



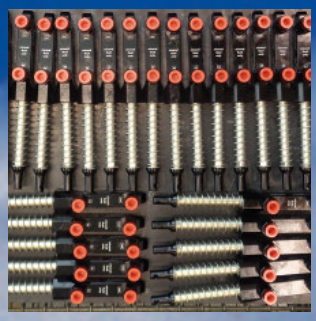
Air show Valbrembo 1982

3 generations of enthusiastic aviators:
Susanne, Barbara + Anneliese

Barbara Dörflein,
Michael Dörflein, Susanne Dup

First solo of Hans Jürgen Fenzl 1960

At the trade fair



1945 Foundation of Tost company as a locksmith's shop

1951 Gliding is again permitted in Germany. Tost begins developing safety equipment for gliding

1952 Manufacture of the first Tost nose release

1953 Type approval of the Tost weak link.The first Tost safety releases are produced in series. Today over 70.000 Tost releases are used day in, day out, all over the world

1955 Start of manufacture of aircraft wheels: Landing wheels, shoe brake wheels and hydraulic disk brake wheels for use in gliders, motor gliders and aircraft

1958 Development and production of Shoulder harness release for aircraft

1978 Start of development and manufacture of rescue cages and rope-down securing units to ensure the safety of rescue teams

1981 Focus on the core business of safety equipment, tow releases and wheels

1982 Start of production of a proprietary aircraft tire: TOST AERO 4.00-4, 260x85, 200x50

1987 Development of retrofit kits for disk brake wheels for gliders and motor gliders

1992 Tost production of Tow Cable Retractor Winch with Guillotine (CRG)

1998 Rope-down device External for EC 135

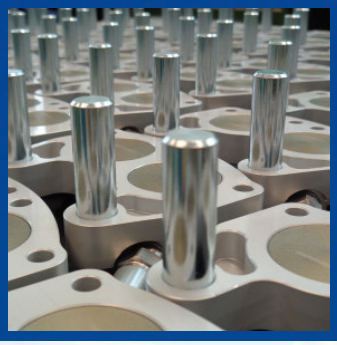
1999 LBA approval as production organisation LBA.G.0065

2000 For helicopter rescue teams: 1-man rope down securing unit for fast mounting in airline rails

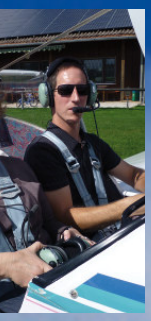
2001 Distributor for Condor Aircraft tires

2002 Distributor for Michelin Aircraft tires

Continous improvement



The Tost Team 2010



2003 LBA approval of the small, light tow release E22

2004 Certification as EASA production organisation DE.21G.0065

2006 Redesign of the Tost premises

2007 Tost weak links in optimised format

2008 Stahlbus bleeder valve – exclusive distribution for aviation
Split tail wheels Max II and Moritz II
Brass tail wheels Max II and Moritz II

2009 Design Organisation EASA.AP230
EASA Maintenance Organisation DE.145.0411
Light weight wheels 5″ Penta and 4″ Tria

2010 Hydraulic actuation of shoe brake wheels

2011 6″ Disk brake wheel for UL
6″ Disk brake wheel Penta

2012 Mini 180 Disk brake wheel
Special Tire 336x115 TOST AERO 10 pr for narrow landing gear boxes

2013 New development of Tost Hydraulic Brake System

2014 Landing wheel Mini 150 F foam-filled

2015 70th anniversary of Tost

2016 Retrofit of Tost Hydraulic Brake System with EASA approval

2017 Design of 14“ wheel for Me 109

2018 ETSO approval of BZT2
Retrofit disk brake wheel in LS4-8 with new master cylinder PTC pull-type

2019 EASA approval of retrofit BZT2 for Schleicher and Schempp-Hirth gliders

2020 75th anniversary of Tost

Order your copy of the Gliding calendar at www.fotokalender-segelfliegen.de · Photo: Claus Dieter Zink

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EASA Production Organisation DE.21G.0065
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EASA Design Organisation EASA.AP230