TOST

Flugzeuggerätebau

70 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 hold in your hands one hot off the press copy of our Product Catalog, which we designed newly on the occasion of the 70th anniversary of Tost.

Since the very beginning of Tost it is our aim to be your reliable partner for all questions related to safe equipment for gliding and aviation. 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 also from your side.

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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Made in Germany

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AIRCRAFT WHEELS

Aircraft wheels

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

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

High serviceability is an important feature of an aircraft wheel. That's why we persue our philosophy of wheel hubs for tube type tires. You can easily change the tire with standard tools, even on the airfield.

The operation of Tost wheels is very economic. Not only the quality and life time persuade, 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 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 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

The smallest available wheel with pneumatic tire with the advantage of good suspension. Easy tire mounting despite very narrow dimensions! Tire diameter 150 mm respectively 180 mm, installation width only 30 mm / 35 mm. Ideal for narrow installation space. For retrofit of tail wheels, also for steerable tail wheels. Anodised in blue or in silver.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Mass kg w/o tire	Type of hub
031512	LR Mini 150	30	12 mm	150 x 30	300	
031513	LR Mini 150	30	12 mm	150 x 30	300	special valve hole
031515	LR Mini 150	30	0.5″	150 x 30	300	axle in inch
031582	LR Mini 150 F	30	12 mm	150 x 30	300	foam-filled tire
031592	LR Mini 150	30	12 mm	150 x 30	300	with valve hole cover
031812	LR Mini 180	35	12 mm	180 x 35	330	

Landing wheel Mini 150
(031512)

Landing wheel Mini 150
(031513)

Landing wheel Mini 180
(031812)

3″ Landing wheel Moritz
(032100)

3″ Landing wheel Moritz II
(032112)

3″ Landing wheel Moritz and Moritz II

Our well-tried 3″ tail wheel is available in 2 versions:
As sturdy aluminium die cast wheel hub with fins sector Moritz and as a 2-part wheel hub CNC milled from aluminium Moritz II.
The fins sector system ensures emergeny roll capability also with extremely hard landings.The CNC milled wheel hub Moritz II attracts by a bit lower weight and the considerably easier tire mounting, due to the 2-part wheel structure. Thanks to its anodized surface the Moritz II wheel hub shows a maximum of corrosion protection.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Mass kg 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 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, manufactered from brass, you can compensate too top-heavy moments, without performing changes at the aircraft.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Mass kg 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 for decades well-proven one-part die-cast wheel hub Max we now offer with the wheel hub Max II also a light-weight, 2-part version. The Max II combines most simple tire mounting with lowest possible mass. Thanks to its anodized surface, the Max II wheel hub shows a maximum of corrosion protection.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Mass kg 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	300	two-part
033120	3.5″ LR Max II	50	20	200 x 50	340	two-part
033412	3.5″ LR Max II Version Arcus	50	12	200 x 50	360	two-part, valve hole further outside
033420	3.5″ LR Max II Version Antares	50	20	200 x 50	350	two-part, valve hole further outside

3.5″ Landing wheel Max
(033100)

3.5″ Landing wheel Max II
(033112)

3.5″ Landing wheel Max II from brass

Also the wheel Max II is available in a brass version, to compensate too top-heavy moments, without performing changes at the aircraft

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Mass kg 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 as well as for special purposes our 4″ Classic landing wheels have proved their worth. They feature the well-proven 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 triple screwed.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Mass kg 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	1100	two-part
034201	4″ LR Classic 100-20 Diamond	100	20	4.00-4 / 5.00-4	1100	two-part
034300	4″ LR Classic 100-25	100	25	4.00-4 / 5.00-4	1110	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	970	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 use in amphibians or saltwater exposed equipment we manufacture the 4″ landing wheel 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	Mass kg 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 Tria are convenient for applications, where the weight as low as possible combined with a high strength are the determining factors. Through our CNC manufacturing from the solid we realize a weight-optimized wheel hub for high loads, with a high-class surface treatment (anodized in blue, other colours available on request) and a threefold bolting with high-tensile wheel bolts. The asymmetric split of the wheel halves enables most easy tire mounting without special tools.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Mass kg 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 bis 4.00-4	690	two-part
034485	4″ LRT Tria 80-60-25	60	25	60 x 85 bis 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 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	Mass kg 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	11590	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 115-30 B	115	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 saltwater exposed equipment 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	Mass kg 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 Penta

the 5 inch Penta landing wheels can be used to save weight and as 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 fivefold 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.

5″ Landing wheel Penta
(035531)

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Mass kg w/o tire	Type of hub
035520	5″ LRP Penta 100-51-20	51	20 mm	5.00-5 336 x 115-5	1480	two-part
035530	5″ LRP Penta 100-55-30	55	30 mm	5.00-5 336 x 115-5	1450	two-part
035531	5″ LRP Penta 101-77-1/1/4	77	1/1/4″	5.00-5 380 x 150 336x115-5	1670	two-part

6″ Landing wheel Mike

Beside the “small” landing wheels we also manufacture unbraked, approved landing wheels in big sizes. For high loads our 6″ landing wheels Mike from aluminium die cast with deformable fins sector are particularly suitable.

6″ Landing wheel Mike
(036650)

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Mass kg 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

6″ Landing wheel Ultralight

Adapted to our light 6″ UL disk brake wheels and the well spread tire size 4.00-6 we can also present a 6″ landing wheel UL.

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

10″ Landing wheel Classic (039000)

10″ Landing wheel Classic

Especially in the range of high-tensile special applications, our 10 inch landing wheels Classic will convince you.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Mass kg w/o tire	Type of hub
039000	10″ LR Classic 210-45	210	45	8.50-10	11,2	two-part
039040	10″ LR Classic 210-40	210	40	8.50-10	10,9	two-part

Shoe brake wheels

For a large number of gliders the Simplex shoe brake 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 lower price.

4″ Shoe brake wheels

Our smallest shoe brake wheels Liliput and Kobold are the first choice for club-class single seaters. Smallest possible installation dimensions of the wheels result in very good brake results.

4″ Shoe brake wheel Liliput

The shoe brake wheel Liliput stands out from the other wheels with its big torque flap for ideal torque transfer.

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

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 wheel Kobold.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Mass g w/o tire	Brake-momen-tum 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

For motorgliders with central wheel, vintage gliders or highest demand for load capacity with small wheel hub diameter, the 4 inch wheel Gnom with the big brake assembly should be your choice.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Mass g w/o tire	Brake-momen-tum Nm max.	Type of hub
044700	4″ BB Gnom 187-30	187	30	5.00-4	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 aircrafts: our shoe brake wheel Standard presents 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	Mass g w/o tire	Brake-momentum 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	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 from glass fibre construction, a higher brake momentum is needed due to the higher mass and landing speed. With its clearly bigger brake drum, bigger brake shoes and an optimised brake lever transmission, the 5 inch wheel Bimbo fulfills those increased requirements.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Mass g w/o tire	Brake-momentum 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 strong brake-momentum.

P/N	Description	Install. width mm	Bearing Ø mm	Tire size	Mass g w/o tire	Brake-momentum 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.
- Check minimum lining thickness.

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

Disk brake wheels have been for many years the first choice as a braked wheel for gliders, motor gliders, Ultralights, 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 in all situations an ideal braking efficiency and allow 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 and brake assemblies in the correspondent chapters of the catalogue.

Disk brake wheel Mini (051150)

Disk brake wheel Mini 150 and 180

Extremely small and light disk brake wheels find more and more application as operational and differential brake at flight objects with an all-up weight of up to about 100 kg. The smallest possible installation space show our disk brake wheels Mini 150 und Mini 180:

P/N	Description	Install. width mm	Total width mm	Bearing Ø mm	Tre size	Mass g w/o tire	Brake-momentum Nm max.	Type of hub	Suitable brake assembly
051150	SB Mini 150	30	42	12	150x30	390	15	two-part	BZM
051180	SB Mini 180	35	47	12	180x35	420	15	two-part	BZM

3.5″ Disk brake wheel Max II (053020)

3.5″ Disk brake wheel Max II

A combination of highly stressable, but small tire 200x50 and the small disk brake wheel Max II with flange-mounted brake disk:

P/N	Description	Install. width mm	Total width mm	Bearing Ø mm	Tre size	Mass g w/o tire	Brake-momentum Nm max.	Type of hub	Suitable brake assembly
053012	3.5″ SB Max II 50-12	50	62	12	200x50	460	15	two-part	BZM
053020	3.5″ SB Max II 50-20	50	62	20	200x50	450	15	two-part	BZM
053030	3.5″ SB Max II 71-50-20	50	71	20	200x50	860	100	two-part	BZT

4″ Disk brake wheels

High brake momentum combined with compact installation measurements offer our 4 inch disk brake wheels 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 from aluminium die-cast with well-proven fins sector

P/N	Description	Install. width mm	Total width mm	Bearing Ø mm	Tre size	Mass g w/o tire	Brake-momentum Nm max.	Type of hub	Suitable brake assembly
054111	4″ SB Classic 110-20	85	110	20	260x85 4.00-4	1900	370	two-part	30-9, BZT, BZT2
054131	4″ SB Classic 113-20	85	113	20	260x85 4.00-4	1900	380	two-part	30-9, BZT, BZT2
054125	4″ SB Classic 110-25	85	110	25	260x85 4.00-4	1885	370	two-part	30-9, BZT, BZT2
054100	4″ SB Classic 122-20	85	122	20	260x85 4.00-4	1840	260	two-part	TOG

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, anodized in blue as standard. Due to our production method CNC milling 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	Tre size	Mass g w/o tire	Brake-momentum Nm max.	Type of hub	Suitable brake assembly
054462	4″ SRT Tria 90-40-20	40	90	20	2.80 / 2.50-4 260x85	1330	370	two-part	30-9, BZT, BZT2
054482	4″ SRT Tria 110-60-20	60	110	20	260x85 4.00-4	1380	370	two-part	30-9, BZT, BZT2

4″ Disk brake wheel Gnom

Also for motor gliders with central wheel and ballon tire 8.00-4 we offer a disk brake wheel with 4 inch tire seat:

P/N	Description	Install. width mm	Total width mm	Bearing Ø mm	Tre size	Mass g w/o tire	Brake-momentum Nm max.	Type of hub	Suitable brake assembly
054811	4″ SB Gnom 202-172-30	172	202	30	8.00-4	3400	450	three-part	30-63A, BZT2
054812	4″ SB Gnom 212-172-30	172	212	30	8.00-4	3400	450	three-part	30-63A, BZT2

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 from stock. We should be pleased to make out an offer for you also for the production of special dimensions.

Well-proven for decades are our 5 inch disk brake wheels Classic, made from aluminium die-cast with their specific deformable fins sector.

5″ Disk brake wheel Classic (055161)

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

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 from grabbing 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	Bearing Ø mm	Tre size	Mass g w/o tire	Brake-momentum Nm max.	Type of hub	Suitable brake assembly
055520	5″ SBP Penta 100-50-20	50	100	20 mm	5.00-5 336x115-5	1650	370	two-part	30-9, BZT, BZT2
055530	5″ SBP Penta 110-55-30	55	110	30 mm	5.00-5 336x115-5 380x150	1880	370	two-part	30-9
055531	5″ SBP Penta 115-55-30	55	115	30 mm	5.00-5 336x115-5 380x150	1830	370	two-part	30-9, BZT, BZT2
055535	5″ SBP Penta 110-55-30	55	110	30 mm	5.00-5 336x115-5 380x150	1700	370	two-part	30-9, BZT, BZT2
055536	5″ SBP Penta 130-75-30	75	130	30 mm	5.00-5 336x115-5 380x150	1880	370	two-part	30-9, BZT, BZT2
055538	5″ SBP Penta 135-75-30	75	135	30 mm	5.00-5 336x115-5 380x150	1980	370	two-part	30-9, BZT, BZT2
055544	5″ SBP Penta 120-85-30	85	120	30 mm	5.00-5 336x115-5 380x150	1800	370	two-part	30-9, BZT, BZT2
055572	5″ SBP Penta 125-77.5-1¼″	77.5	125	1¼″	5.00-5 336x115-5 380x150	1860	370	two-part	30-9, BZT, BZT2
055560	5″ SBP Penta 120-55-30	55	120	30	5.00-5 336x115-5	2020	260	two-part	TOG

6″ Disk brake wheel Classic (056650)

6″ Disk brake wheel Classic

With our extremely high-stressable 6 inch disk brake wheels from aluminium die-cast with the big brake assemblies 30-63A and BZT2 we can offer an ideal combination for high landing speed and total-up weight:

P/N	Description	Install. width mm	Total width mm	Bearing Ø mm	Tre size	Mass g w/o tire	Brake-momentum Nm max.	Type of hub	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	two-part	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	two-part	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	two-part	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	two-part	30-9, BZT2

6″ Disk brake wheel Classic seawater resistant

For use in amphibians or saltwater exposed equipment we manufacture the 6 inch disk brake wheel 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	Bearing Ø mm	Tre size	Mass g w/o tire	Brake-momentum Nm max.	Type of hub	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	two-part	30-63A, BZT2

6″ Disk brake wheel Penta

Particularly for double-seated glider of the 20 m class or open class our light 6 inch Penta disk brake wheel is highly quailfied. It offers the same advantages as the 5 inch Penta disk brake wheel.

6″ Disk brake wheel Penta (056960)

P/N	Description	Install. width mm	Total width mm	Bearing Ø mm	Tre size	Mass g w/o tire	Brake-momentum Nm max.	Type of hub	Suitable brake assembly
056960	6″ SBP Penta 138-110-30	110	138	30	6.00-6 15x6.00-6 7.00-6	2070	370	two-part	30-9, BZT2

6″ Disk brake wheel Ultralight (056820)

6″ Disk brake wheel Ultralight

For Ultralights every gramm counts – that's why we designed a light disk brake wheel 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	Bearing Ø mm	Tre size	Mass g w/o tire	Brake-momentum Nm max.	Type of hub	Suitable brake assembly
056820	6″ SBP UL 105-50-20	50	105	20	4.00-6	1350		two-part	BZ-UL

Important advices for the operation of hydraulic brake systems:

If the brake performance of your hydraulic disk brake wheel is getting worse, this can have several reasons. Please check the following points which can be causative for the problem, singularly or in combination with each other.

- Condition and thickness of brake disk?
- Condition and thickness of brake pads?
- Condition of seals/O-ring?
- Condition of the brake fluid? Period of use?
- Correct fluid in the system? (see Operating Manual)
- Air in the hydraulic system (pressure point)?
- All connections are tightened? Any Leakage?

Retrofit to disk brake wheel

Many modern gliders and power gliders are originally equipped with disk brake wheels nowadays. To make available their advantages also 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

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.

P/N	Aircraft type	Disk brake wheel	Approval
051412	Discus a to Discus 2a Ventus a to Ventus 2b	4″ Classic 110-20	Tost EASA Minor Change Approval
051564	Mosquito	5″ Classic 122-105-20	Streifeneder TM
051562	ASK13	5″ Classic 109-92-20	Tost EASA Minor Change Approval
051570	Swift	5″ Classic 115-102-25	Marganski SB
051520	Twin-Astir	Brake disk 170-35-5	Grob TM
051810	Piaggio P149D	8″ Cleveland 40-98B	Bundeswehr

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.

P/N	Aircraft type	Disk brake wheel	Remarks
051710	DuoDiscus, Arcus, Nimbus	5″ SBP 135-70-30	replaces 5″ Classic wheel
051720	DuoDiscus, Arcus, Nimbus	5″ SBP 135-70-30	replaces 5″ Beringer wheel
051740	Discus 2b bis Discus 2cT Ventus 2c bis Ventus 2cM	5″ SBP 100-50-20	replaces 5″ Classic wheel
051742	Discus 2b bis Discus 2cT Ventus 2c up to Ventus 2cM	5″ SBP 100-50-20	replaces 5″ Beringer wheel
051730	ASK 21 / ASK 21 Mi	5″ SBP 125-77.5-1¼″	Schleicher TM

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
051411	LS 4	4″ Classic 110-20
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
051561	DG100-DG400	5″ Classic 115-20
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
051530	Astir CS	Brake disk is fitted to the existing wheel
051531	Jeans Astir	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 from us all necessary spare parts for Tost aircraft wheels. 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 more easy.

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 custom made brake disks 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″ disk brake wheel Max II: p/n 053012, 053020 flat-type Mini 150 SB: p/n 051150 Mini 180 SB: p/n 051180
057312	134	20	3.5	3.5″ disk brake wheel Max II: p/n 053030 Z-type for BZT

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: 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 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
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 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 disks
for use with Classic, Cleveland and Penta disk brake wheels
(Z-type for 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

6″ Brake disk Classic
(057095)

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

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 which 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
3.5	2.7
4.0	3.5

Disk thickness mm	Wear limit mm
5.0	4.3
6.0	5.2
6.5	5.5

Spare parts for shoe brake wheels

All spare parts for Tost wheels are available from stock. We can supply spare parts also for 40 years old wheels. Prolong the life time of your wheel by regular maintenance and repair.

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

P/N	Description	Application	Anchor bolt
048428	Anchor plate 4″	4″ Liliput BB wheel	-
048422	Anchor plate 5″	4″ Kobold BB wheel	-
048520	Anchor plate 5″	5″ Standard BB wheel	M8
048521	Anchor plate 5″	5″ Standard BB wheel	M10x1
048620	Anchor plate 6″	6″ Super BB wheel	Inside thread M8
048421	Anchor plate Gnom / Bimbo	4″ Gnom and Bimbo BB wheel	Inside thread M8

Please indicate with your order type of aircraft, axle diameter and anchor bolt.

Anchor plate 5″ complete
(048521)

Anchor bolt M10x1 (048417)

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

Brake lever and cam

are 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

with 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 y.o.c. 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, distance bushings and ball bearings.

Wheel selection table

Manufacturer / aircraft type	Main wheel	Dimen.	Tire	Nose wheel	Dimen.	Tire	Tail wheel	Dimen.	Tire
Aero AT									
AT-3	2 x 5″ Laufrad	115-25	5.00-5	Laufrad 4″	100-20	5.00-4			
Binder									
EB 28	SB 5″	145-30	380x150				Moritz	50-20	210x65
EB 29	SB 5″ Penta	110-30	380x150				Moritz	50-20	210x65
Brasov/Rumänien									
IS 28 B / B2, 28 M S / G / GR	Standard 5″	130-35	5.00-5				Moritz	50-20	210x65
IS 29 D	Standard 5″	95-20	3.50-5				Moritz	50-20	210x65
Celair									
Celstar GA 1	SB 5″	115-20	5.00-5				Max	50-20	200x50
Centrair									
Marianne	SB 5″	115-20	5.00-5	Laufrad 4″	85-17	4.00-4			
SF 34	SB 5″	115-20	5.00-5	Laufrad 4″	85-20	260x85			
Comco Ikarus									
C 42	2 x 6″ SB UL	105-20	4.00-6 Aero						
DG-Flugzeugbau									
DG 100 / 200 / 300 / 400 / 600	Standard 5″ or SB 5″ Retrofit	125-20	5.00-5						
DG 800	Standard 5″ or SB 5″	125-20 122-20	5.00-5				#		
DG 500 / 505, DG 1000 S / T	SB 5″	134-30	380x150	Laufrad 4″	85-20	260x85	#		200x50
DG 1001 M	SB 5″ Penta	130-30	380x150	Laufrad 4″	85-20	260x85	#		200x50
LS 8 / LS 10	Standard 5″	113-20	5.00-5				#		210x65
Diamond Aircraft									
Dimona / Super Dimona	Cleveland		5.00-5 380x150				Laufrad 4″	60-20	2.80/ 2.50-4
Katana	Cleveland		380x150	Laufrad 4″	100-20	4.00-4 5.00-4			
Eiri / Issoire									
PIK 20 E / D / PIK 16 C	Standard 5″	113-20	5.00-5						
FFT (Gyroflug)									
Speed Canard	Cleveland 40-78B or Retrofit Tost BS	185-56-6,5	5.00-5						
Kiwi	Standard 5″ or SB 5″ Retrofit	113-20 122-20	5.00-5						
Frank & Waldenberger									
Salto	Liliput 4″	88-17	4.00-4						
Glasflügel (Streifeneder)									
Libelle 301 / Standard Libelle Club Libelle	Liliput 4″	88-17	4.00-4						
604 / Kestrel	Standard 5″	125-20	5.00-5						
Hornet	Standard 5″ or SB 5″ Retrofit	113-20 122-20	5.00-5						
Mosquito / 304 B	Standard 5″ or SB 5″ Retrofit	113-20 122-20	5.00-5				#		210x65
Gomolzig (Caproni)									
Calif A 21 S	Standard 5″ or Kobold 4″	95-20 103-20	3.50-5 4.00-4						

Abbreviations: SB = Disk brake wheel • BS = Brake disk • BB wheel = shoe brake wheel • Laufrad (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

Manufacturer / aircraft type	Main wheel	Dimen.	Tire	Nose wheel	Dimen.	Tire	Tail wheel	Dimen.	Tire
Grob									
Astir CS / 77 / Jeans Astir	Standard 5″ or SB 5″ Retrofit	115-30 BS 164-45	5.00-5						
Standard / Club / Speed Astir II	Kobold 4″	113-25	4.00-4				Moritz	50-20	210x65
Astir III	SB 5″ TOG	135-30	5.00-5						
Twin Astir / Twin Trainer	Bimbo 5″ SB 5″ Bimbo Retrofit	155-30 140-30	380x150 (5.50-5)	Laufrad 4″	85-20	260x85	Moritz	50-20	210x65
Twin II / Twin III / Twin ACRO	Cleveland	40-97A	6.00-6	Laufrad 4″	85-20	260x85	Moritz	50-20	210x65
G 109 / B	2 x SB 5″	154-30	380x150	Laufrad 4″	85-20	260x85	Laufrad 4″ or Moritz	60-20 50-20	280-4NHS 210x65
HB Flugtechnik									
HB 2 / HB 21 (79)	Gnom 4″	187-30	355x150	Laufrad 4″	85-20	260x85			
HB 23 / HB 21 (83)	2 x Bimbo 5″	155-30	5.00-5	Laufrad 4″	85-20	260x85			
HB 207	Kobold 4″	113-20	4.00-4	Laufrad 4″	85-20	4.00-4			
LET									
L13 Blanik	Standard 5″ or SB Retrofit	122-25 115-25	5.00-5 350x135						
Lindner									
Phoebus	Liliput 4“”	88-17	4.00-4						
Neukom									
Elfe S 5	Standard 5″	125-20	5.00-5						
Pilatus									
Pilatus B4	Standard 5“	113-20	5.50-5				Max	Spezial	200x50
PZL Bielsko Allstar									
SZD 36 A / Cobra 15 / Foka	Standard 5	95-20	3.50-5						
SZD 50 Puchacz SZD 9 Bocian	Standard 5″ or SB 5″ Retrofit	122-25 115-25	5.00-5						
SZD 54 Perkoz, SZD 59 Acro	SB 5"	122-25	5.00-5						
PZL Swidnik									
PW 5	Liliput 4″	88-17	4.00-4	Laufrad 4″	85-17				
PW 6	Standard 5" or SB 5″ Retrofit	125-20 122-20	5.00-5	Laufrad 4″	85-17	260x85			
Rolladen-Schneider (Musterbetreuer: DG-Flugzeugbau)									
LS 1a bis 1f	Liliput 4″	88-17	4.00-4						
LS 3	4″ Liliput or Kobold 4"	88-17 103-20	4.00-4						
LS 4 / LS 6 / LS 7	Kobold 4″ SB 4“ Retrofit	103-20 110-20	4.00-4				Moritz	50-20	210x65
Ruschmeyer									
R 90 (230)	SB 6″	163-40	15x600-6	Laufrad 5"v	125-30	5.00-5			
Scheibe (Scheibe Aircraft)									
SF 25 A Motorfalke	Super 6″	154-30	6.00-6				Max	50-20	200x50
SF 25 B Einbein	Super 6″ or Gnom	154-30 213-30	6.00-6 8.00-4				Max	50-20	200x50
SF 25 C Zweibein SF 36	2x Standard 5″	130-35	5.00-5				Moritz Max	50-20 50-20	210x65 200x50
SF 25 C Dreibein	2x Standard 5″	130-35	5.00-5	Laufrad 4″	85-20	330x130			
SF 25 E Superfalke	Super 6″	154-30	6.00-6				Moritz	50-20	210x65
SF 28 A Tandem-Falke	Gnom 4″	213-30	8.00-4				Moritz	50-20	210x65
SF 27	Liliput 4″	88-17	4.00-4						
SF 34	Standard 5″ or SB 5″ Retrofit	113-20 118-20	5.00-5	Laufrad 4″	85-20	260x85	Moritz	50-20	210x65
Bergfalke II / III / IV / Mü13 Spatz	Laufrad 4″ or Kobold	88-17/ 103-20	4.00-4				Max or Moritz		200x50 210x65

Manufacturer / aircraft type	Main wheel	Dimen.	Tire	Nose wheel	Dimen.	Tire	Tail wheel	Dimen.	Tire
Schempp-Hirth									
Cirrus / Cirrus VTC	Liliput 4″ or Hydr. actuation	88-17	4.00-4						
Standard-Cirrus/B/G/ Std. Cirrus CS 11-75L	4″ Liliput or Kobold or Hydr. actuation	88-17 113-20	4.00-4						
Mini-Nimbus B / C	Kobold 4″ SB 4“ TM03-2011	113-20 85-20	4.00-4						
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	4.00-4				#		200x50
Janus B / C / Ce / CM / CT	Bimbo 5″ or SB 5″	155-30 145-30	380x150	Laufrad 4″	85-20	3.00-4	#		200x50
Nimbus-2 / 2B / 2C / 2M/ 3 / 3T	Standard 5″ or SB 5″	95-20 105-20	5.00-5 10 pr						
Discus-2b / 2c / 2T / 2 cT Ventus 2c / 2cM / 2cT	SB 5″ SB 5″ Penta (TM 02/2011)	109-20 100-20	5.00-5				# or Mini 150 with valve cover	30-12	200x50 150x30
Nimbus 4 / 4T / 4M	SB 5″	145-30v	380x150				#		200x50
Nimbus 3D / 3DT / 3DM	SB 5″	145-30v	380x150	Laufrad 4″	85-20	3.00-4	#		200x50
Duo Discus, C, T Nimbus 4DT / 4DM	SB 5″ SB 5″ Penta (TM 01/2011)	145-30v 135-30	380x150	Laufrad 4″	85-20	3.00-4	#	50-12	200x50
Arcus	SB 5″ Penta (TM 01/2011)	135-30	380x150r	Laufrad 4″	85-20	3.00-4	Max II special	50-12	200x50
Quintus	SB 5″ Penta	110-30	380x150				Max II special	50-12	200x50
Schleicher									
Ka 6 / K 8	4″ Rad	div.	4.00-4				Moritz	50-20	210x65
Ka 7	Standard 5″	125-30	380x150						
ASK 13	Standard 5″ or SB 5″ Retrofit	125-20 109-20	5.00-5	Laufrad 4″	100-17	4.00-4	Moritz	50-20	210x65
ASW 15	Liliput or Standard	88-17 125-20	4.00-4 5.00-5						
K 12 / ASK 14 / ASK 18	Standard 5″	125-20	5.00-5						
ASK 16 / ASW 17	Standard 5″	130-35	5.00-5						
ASW 19 / ASW 20	Standard 5″ or Hydr. actuation	125-20 122-20	5.00-5				Moritz	50-20	210x65
ASW 20 B / C / CL	Cleveland	40-78B	5.00-5				Moritz	50-20	210x65
ASK 21	Cleveland or: SB 5″ Penta (TM)	40-78B 125-1 1/4″	5.00-5	Laufrad 4″	100-17	4.00-4	Moritz	50-20	210x65
ASW 22	Cleveland	40-78/77	5.00-5				Moritz	50-20	210x65
ASK 23	Standard 5″	125-20	5.00-5	Laufrad 4″	85-17	260x85	Moritz	50-20	210x65
ASH 25	SB 5″	145-30	380x150				Moritz	50-20	210x65
ASH 26 / ASW 24 / 27 / 28	Cleveland	40-78B	5.00-5				Moritz	50-20	210x65
ASG 29	SB 5″ Penta	125-1 1/4″	5.00-5				Moritz	50-20	210x65
ASG 32	SB 6″ Penta	138-110-30	15x6.00-6 10pr				Max II	50-12	200x50
ASH 30	SB 6″ Penta	138-30	15x6.00-6				Moritz	50-20	210x65
ASH 31	SB 5″ Penta	125-1 1/4″	5.00-5 10pr				Moritz	50-20	210x65
Sportavia (E.I.S.)									
RF 5	Super 6″ or SB 6″	154-30 151-30	6.00-6						
Sportine Aviacija									
LAK 17 a / 19 / 20	Standard 5″ or SB 5″	113-20 115-20	5.00-5 380x150						
Stemme									
S 10 / S 10-V / S 10-VT	2x 5″ SB-Standard 2x 5″ SB Penta	124-30 120-30	5.00-5 380x150				Moritz	50-20	210x65
Zaklad Bielsko									
SWIFT	alternative 5″ SB Retrofit	115-25	350x135 5.00-5				Moritz	50-20	210x65
FOX	SB 5″	134-30	5.00-5				Moritz	50-20	210x65

Abbreviations: SB = Disk brake wheel • BS = Brake disk • BB wheel = shoe brake wheel • Laufrad (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

While we have taken great care in compiling this table, we cannot guarantee that it is free of errors.
If you have any doubt, check your selection with the existing wheel and also let us know the tire size of your aircraft.

AIRCRAFT TIRES / TUBES

Aircraft tires and tubes

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

Being authorised Michelin Distributor we can supply all Michelin brands: Condor, Michelin Aviator and Michelin AIR. Typical tire sizes for General aviation are shown in the following tables. More sizes up to Commercial aviation are available on request.

For more than 30 years now we manufacture aircraft tires exclusively under the brand TOST AERO in the dimensions:
200x50, 260x85, 4.00-4 and 336x115-5.
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, lire 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)		Mass g	Static load kg	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	Mass g	Remarks
062152	150x30	45° 25G	43	for Mini 150
063192	200x50	90° 90° 28G	80	for Max II, two-part and Mini 180

3″ Tires

Tires

P/N	Size	PR	Manufacturer	Profile	Dimensions (mounted)		Mass g	Static load kg	Remarks
					Outer Ø mm	Width mm			
063591	255x110	4	Aero	Rib	260	110	1250	195	Bugrad Puchacz
062091	210x65	2	Industry	Rib	205	65	480		Light tire for reduced requirements

Tubes

P/N	Size	Valve	Mass 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)		Mass 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	Mass 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

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	Aircraft	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	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
064492	260x85 3.00-4 4.00-4	90° 39G	250	Multi purpose tube valve length 39 mm
064392	5.00-4	90° TR67	470	Valve length 55 mm
064792	8.00-4	TR12	1020	Aero Classic
064832	4.10/3.50-4	90° TR87	120	also for 4.00-4

5″ Tires

Tires

P/N	Size	PR	Manufacturer	Profile	Dimensions (mounted)		Mass g	Static load kg	Remarks
					Outer Ø mm	Width mm			
065221	336x115-5	10	TOST AERO	Rib	336	115	2650	975	for narrow landing gear space (eg. Schempp-Hirth single seater)
065091	5.00-5	6	Michelin Condor	Rib	353	115	2700	580	
068511	5.00-5	6	Michelin Aviator	Rib	361	126	2700	580	
067511	5.00-5	6	Michelin Air	Rib	361	126	2530	580	
065791	5.00-5	10	Michelin Condor	Rib	345	115	2700	980	
065681	380x150 (15x6.00-5)	6	Michelin Air	Rib	377	131	3100	725	replaces 5.50-5
065891	350x135	4	AERO	Rib	350	120	2700	650	eg. for L-13 Blanik
065881	400x140	4	Stomil TL	Rib	409	149	4500	800	Suitable tube: 5.00-5
065191	3.40/3.00-5	4	Industry	ZigZag Rib	260	83	985		Light tire for reduced requirements
065185	3.50-5 (4.10/3.50-5)	4	Industry	Rib	285	88	1000		Light tire for reduced requirements
065381	4.00-5	4	Industry	Rib	320	85	1300		Light tire for reduced requirements
065488	11x4.00-5	8	Aero Classic	Rib			1750	295	
065481	11x4.00-5	4	Industry	Rib	280	115	1000		Light tire for reduced requirements

Tubes

P/N	Size	Valve	Mass g	Remarks
065092	5.00-5	90° TR67	450	Michelin Airstop, standard valve length 55 mm, also for tire 380x150 and 350x135
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	gerade	200	Light tube Valve length 32 mm
065483	11x4.00-5	90°	200	Light tube Valve length 32 mm

6″ Tires

Tires

P/N	Size	PR	Manufacturer	Profile	Dimensions (mounted)		Mass g	Static load kg	Remarks
					Outer Ø mm	Width mm			
066688	4.00-6	6	Aero Classic	Rib	358	90	1640	260	for UL
066788	4.00-6	8	Aero Classic	Rib			2840	385	for UL
066091	6.00-6	6	Michelin Condor	Rib	433	142	4300	795	
068611	6.00-6	6	Michelin Aviator	Rib	444	160	4200	795	
066881	6.00-6	8	Michelin Condor	Rib	444	160	4400	1065	
066591	15x6.00-6	6	Michelin Condor	Rib	380	160	3400	885	
068621	15x6.00-6	6	Michelin Aviator	Rib	380	160	3300	885	
066381	7.00-6	8	Michelin Condor	Rib	471	182	5300	1160	
068711	7.00-6	8	Michelin Aviator	Rib	471	182	5400	1160	
068721	8.00-6	6	Michelin Aviator	Rib	495	202	5800	1270	
066681	4.10/3.50-6	4	Industry	Rib	310	100	1200		Light tire for reduced requirements
066691	4.00-6	4	Industry	Rib	350	80	1000		Light tire for reduced requirements
066981	13x5.00-6	4	Industry	Rib	300	105	1520		Light tire for reduced requirements
066789	15x6.00-6	6	Industry	Rib	325	140	2250		Light tire for reduced requirements

Tubes

P/N	Size	Valve	Mass g	Remarks
066682	4.10/3.50-6	TR13	225	for tire 4.00-6
066692	4.10/3.50-6	TR87	240	for tire 4.00-6
066092	6.00-6	TR20	750	Michelin Airstop
066992	6.00-6	70° 41,5G	730	for shoe brake wheel 6″ Super 046100
066993	6.00-6	90° TR87	925	Short bent valve
066492	15x6.00-6	TR20	550	Michelin Airstop
066382	7.00/8.00-6	TR20	880	Michelin Airstop
066792	15x6.00-6	90° TR87	380	Light tube
066793	15x6.00-6	straight	370	Light tube, valve length 35 mm
066982	13x5.00-6	90°	280	Light tube, valve length 32 mm
066983	13x5.00-6	straight	270	Light tube. valve length 35 mm

6,5″ Tires

Tires

P/N	Size	PR	Manufacturer	Profile	Dimensions (mounted)		Mass 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)		Mass 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	Mass 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)		Mass g	Static load kg	Remarks
					Outer Ø mm	Width mm			
068891	6.50-10	10	Michelin Aviator	Rib	552	164	8000	2150	
068871	8.50-10	8	Michelin Aviator	Rib	640	215	11400	2610	
068981	8.50-10	10	Michelin Aviator	Rib	637	215	11300	2000	

Tubes

P/N	Size	Valve	Mass 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 centring 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 loose 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

Hydraulic brake components

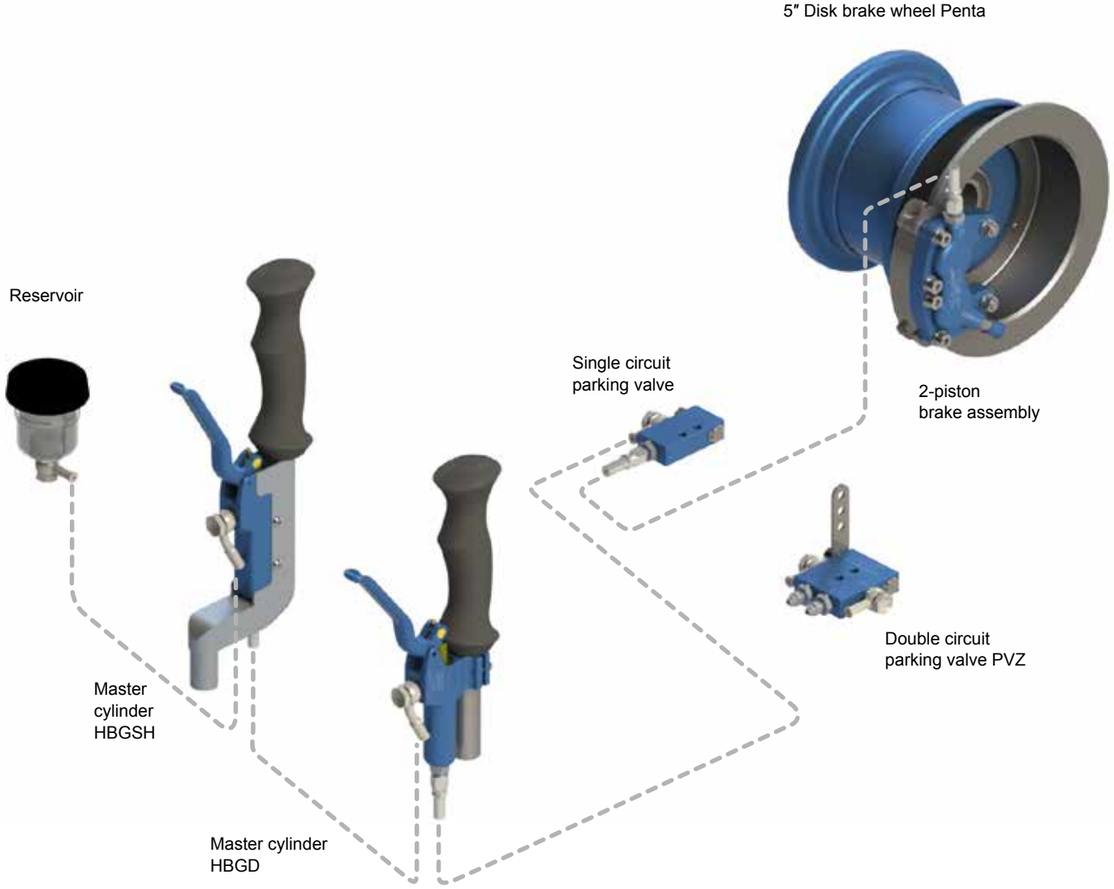
In addition to our disk brake wheels we can offer brake assemblies, master cylinders and hydraulic equipment, fitting to all our wheel dimensions. With the single hydraulic components it is possible to generate a hydraulic brake system, which combines the highest level of safety, a maximum of braking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

The different hydraulic components are described in the following, grouped according to their mode of operation. Furthermore, the possible combinations of the different 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 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 availalbe.

Brake system Tost

Overview of all components



Brake assemblies

Hydraulic brake assemblies have got many advantages copared with mechanic drum 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 flow, a high and easy-to-dose brake power and they offer a good endurance strength. All these advantages can be optained with our customized brake assemblies for all wheel sizes.

Brake assembly BZT and BZTM

The 3-piston brake assembly BZT is designed as a floating brake caliper and can be mounted to 3.5″, 4″ and 5″ disk brake wheels of the series Max II, Tria and Penta. The brake assembly features an extremly light weight of 440 g and very compact outer dimensions. The change of the brake linings can be carried out without any special tools because of the metric screw connection.
Especially for light, single seated sailplanes or UL-motorplanes, where a low weight of the components is important, the brake assembly BZT is convenient.

3 piston brake assembly Tost

P/N	Description	Hydraulic fluid	Application	Braking torque Nm	Connec-ting thread	Weight g	Anchor bolt length mm	Brake disk thickness mm
080100	BZT	DOT4	4″ SRT Tria 5″ SBP Penta	250	M10x1	440		5
080101	BZT	Mil-H	4″ SRT Tria 5″ SBP Penta	250	M10x1	440		5
080110	BZT M	DOT4	Max II SB	100	M10x1	440		3.5
080111	BZT M	Mil-H	Max II SB	100	M10x1	440		3.5

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

Spare parts for brake assembly BZT

P/N	Description	Hydraulic fluid	Remarks
080801	Housing BZT	N/A	
080802	Piston BZT	N/A	
080803	Counter plate BZT	N/A	
080805	Piston sealing BZT	DOT4	
080806	Piston sealing BZT	Mil-H	
080810	Brake lining BZT	N/A	glued to brake lining retainer
080811	Anchor bolt BZT	N/A	applicable for 080100 / 080101
080812	Anchor bolt BZT	N/A	applicable for 080110 / 080111

Spare parts for brake assembly BZT (continuation)

P/N	Description	Hydraulic fluid	Remarks
080815	Washer anchor bolt BZT	N/A	
080816	Nut anchor bolt BZT	N/A	
080817	Housing screw BZT	N/A	
080819	Retainer screw BZT	N/A	
080820	Washer housing or retainer screw	N/A	

Brake lining wear limit:
The minimum replacement thickness on organic linings is 0.7 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 6 Nm.

2-piston brake asembly BZT2

Brake assembly BZT2

The 2-piston brake assembly BZT2 is designed as a floating brake caliper and can be mounted to 5″ and 6″ disk brake wheels of the series Penta and Classic. Due to the two pistons with big diameter and special sealings, high braking torques can be achieved, which ensures a save operation of heavy airplanes with high touch down speeds. The brake linings are designed to achieve a good cold braking performance with its big connecting surface. They can be replaced easily and quickly. Like for the BZT no special tools are needed to carry out a replacement of the brake linings.

P/N	Description	Hydraulic fluid	Application	Braking torque Nm	Connecting thread	Weight g	Valve position	Disk brake thickness mm
080200	BZT2 5L	DOT4	5″ / 6″ SBP Penta 5″ SBR CLassic	480	M10x1	580	LH	5
080201	BZT2 5L	Mil-H	5″/ 6″ SBP Penta 5″ SBR CLassic	480	M10x1	580	LH	5
080230	BZT2 5R	DOT4	5″/ 6″ SBP Penta 5″ SBR CLassic	480	M10x1	580	RH	5
080231	BZT2 5R	Mil-H	5″/ 6″ SBP Penta 5″ SBR CLassic	480	M10x1	580	RH	5
080210	BZT2 6L	DOT4	6″ SBR Classic	480	M10x1	580	LH	6
080211	BZT2 6L	Mil-H	6″ SBR CLassic	480	M10x1	580	LH	6
080240	BZT2 6R	DOT4	6″ SBR CLassic	480	M10x1	580	RH	6
080241	BZT2 6R	Mil-H	6″ SBR CLassic	480	M10x1	580	RH	6

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

Spare parts for brake assembly BZT2

P/N	Description	Hydraulic fluid	Remarks
080901	Housing BZT2	N/A	
080902	Piston BZT2	N/A	
080903	Counter plate BZT2 5	N/A	080200 / 080201 / 080230 / 080231
080904	Counter plate BZT2 6	N/A	080210 / 080211 / 080240 / 080241
080905	Piston sealing BZT2	DOT4	
080906	Piston sealing BZT2	Mil-H	
080910	Brake lining BZT2	N/A	glued to brake lining retainer
080911	Anchor bolt BZT2	N/A	applicable for 080100 / 080100
080815	Washer anchor bolt	N/A	
080816	Nut anchor bolt	N/A	
080817	Housing screw BZT2	N/A	
080818	Washer housing screw BZT2	N/A	

Brake lining wear limit:
The minimum replacement thickness on organic linings is 0.7 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 10 Nm.

Brake assembly 30-9

Brake assembly 30-9

The brake assembly 30-9 from 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	Description	Hydraulic 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	shortened
075821	30-9	DOT4	4″ SB Classic 5″ SB Classic	370	1/8″ NPT	700	29	5	shortened
075823	30-9	DOT4	5″ SBP Penta 6″ SBP Penta	370	1/8″ NPT	700	44,5	5	shortened
075822	30-9	Mil-H	4″ SB Classic 4″ SRT Tria 5″ SB Classic	370	1/8″ NPT	700	31	5	Type I

Further brake assemblies 30-9 for hydraulic fluid Mil-H see next page.

Brake assembly 30-9 (continuation)

P/N	Description	Hydraulic fluid	Application	Braking torque Nm	Connecting thread	Weight g	Anchor bolt length mm	Brake disk thickness mm	incl. Anchor plate
075819	30-9	Mil-H	5″ Cleveland 5″ SBP Penta 6″ SBP Penta	370	1/8″ NPT	700	44.5	5	original form
075818	30-9	Mil-H	4″ SB Classic 4″ SRT Tria 5″ SB Classic	370	1/8″ NPT	700	31	5	shortened
075810	30-9	Mil-H	5″ SBP Penta 6″ SBP Penta 5“ Cleveland	370	1/8″ NPT	700	44.5	5	original form

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 30-9

P/N	Description	Hydraulic fluid	Remarks
075829	Piston housing	N/A	
075825	Piston	N/A	
075834	O-ring	Mil-H	
075835	O-ring	DOT4	
075870	Anchor bolt	N/A	5″ Cleveland, 5″/ 6″ SBP Penta
075869	Anchor bolt	N/A	4″ SRT Tria, 4″ SB Classic, 5″ SB Classic
075881	Nut anchor bolt	N/A	
075882	Washer anchor bolt	N/A	
075873	Housing bolt	N/A	
075882	Washer housing bolt	N/A	
075832	Bleeder valve complete	N/A	also Stahlbus bleeder valve possible, quod vide
075872	Back plate	N/A	
075862	Brake lining	N/A	
075861	Rivet brake lining	N/A	
075871	Back plate with brake lining	N/A	
075865	Service kit for brake lining replacement	N/A	2 x brake lining, 6 x rivet
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 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.

Brake assembly 30-63A

The brake assembly 30-63A from 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.

Brake assembly 30-63A

P/N	Description	Hydraulic fluid	Application	Braking torque Nm	Connecting thread	Weight g	Brake disk thickness mm
076810	30-63A	Mil-H	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	Hydraulic fluid	Remarks
076829	Piston housing	N/A	
076825	Piston	N/A	
076834	O-ring	Mil-H	
076835	O-ring	DOT4	
075870	Anchor bolt	N/A	
075881	Nut anchor bolt	N/A	
075882	Washer anchor bolt	N/A	
075873	Housing bolt	N/A	
075882	Washer housing bolt	N/A	
075832	Bleeder valve complete	N/A	also Stahlbus bleeder valve possible, quod vide
076872	Pressure plate with brake lining	N/A	
076862	Brake lining	N/A	
075861	Rivet brake lining	N/A	
076871	Back plate with brake lining	N/A	
076865	Service kit for brake lining replacement	N/A	2 x brake lining, 4 x rivet
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.

TOG brake assembly

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 servie time and easy maintenance with good deceleration values.

P/N	Description	Hydraulic 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

Spare parts

P/N	Description	Hydraulic fluid	Remarks
058530	Seal kit	DOT4	
058533	Separation sealing	DOT4	
058534	Bleeder valve	DOT4	
058512	Set brake linings		
058511	Split pins		

Brake lining wear limit:
The minimum replacement thickness on organic linings is 1.5 mm.
The total thickness of brake linings at any point must not 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

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	Mil-H	6″ SB UL	100	M6	170	2

UL brake assembly

Spare parts UL brake assembly

P/N	Description	Hydraulic fluid	Remarks
047711	Set brake linings		

Brake lining wear limit:
The minimum replacement thickness on organic linings is 0.5 mm.
The total thickness of brake linings at any point must not be less than this value.

Brake assembly BMZ

The brake assembly BZM is designed as a really 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	Mil-H	Max II SB Mini 150 SB Mini 180 SB		M5	31	2

Brake assembly BMZ

Spare parts brake assembly BMZ

P/N	Description	Hydraulic fluid	Remarks
058223	Set brake linings		

Brake lining wear limit:
The minimum replacement thickness on organic linings is 0.5 mm.
The total thickness of brake linings at any point must not be less than this value.

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 represents the smallest brake cylinder for an integrated mounting at the control stick. Due to high quality materials and optimized pressure sealings it ensures a fast response characteristic and a very good dosability of braking force.

P/N	Description	Hydraulic 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	Mil-H	BZT, BZT2, 30-9, 30-63A	100	M10x1	125

We recommend to use 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 represents a compact master cylinder for direct mounting at the control stick. Due to high quality materials and optimized pressure sealings it ensures a fast response characteristic and a very good dosability of braking force.

The mounting to the control stick is realized with retaining clamps, including a quick fastener. Fitting retaining clamps are available for a 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 ensures that always the higher braking pressure will reach the brake assembly. Especially in double seated planes that will offers you a great benefit of safety.

P/N	Description	Hydraulic 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	Mil-H	BZT, BZT2, 30-9, 30-63A	100	M10x1	150

We recommend to use 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, which ensures a fast response characteristic and a very good dosability of braking force and the overflow function. The installation is realized with four thread bores.

P/N	Description	Hydraulic fluid	Application (suitable brake assembly)	Max. operating press. bar	Connecting thread	Weight g
050220	HBGSH	DOT4	BZT, BZT2, 30-9, 30-63A	100	M10x1	150
050221	HBGD	Mil-H	BZT, BZT2, 30-9, 30-63A	100	M10x1	150

We recommend to use 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

Fast response characteristic and a good dosability 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. Besides the installation at the rudder pedals an alternative installation in the fuselage is possible, because of the flexible mounting length. The master cylinder PHBZ has also got the overflow function.

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
050300	PHBZ	Mil-H	BZT, BZT2, 30-9, 30-63A	100	M10x1	Fork head	135
050310	PHBZ	DOT4	BZT, BZT2, 30-9, 30-63A	100	M10x1	Rod end	140
050311	PHBZ	DOT4	BZT, BZT2, 30-9, 30-63A	100	M10x1	Rod end	140

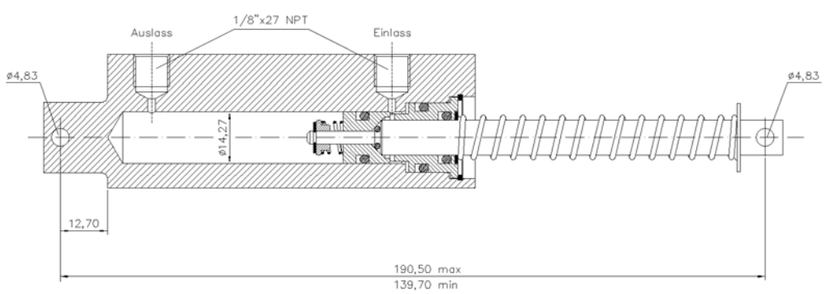
Type 10-30

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

P/N	Description	Hydraulic fluid	Application (suitable brake assembly)	Max. operating press. bar	Connecting thread	Weight g
078230	10-30	Mil-H	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

Suitabel for many different installation situations: our universal master cylinder. Due to the integrated actuation lever a remarkable enhancement of the actuation force is realized, what generates very high braking pressures. The solid design together with high quality sealings ensures 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	Seperate mounting of reservoir possible
058279	Model 7	Mil-H	BZT, BZT2, 30-9, 30-63A	100	M10x1	360	Seperate mounting of reservoir possible

Spare parts

P/N	Description	Remarks
058541	Sealing kit master cylinder Model 7 DOT4	N/A
058544	Sealing kit master cylinder Model 7 Mil-H	N/A
058543	Sealing kit master cylinder Model 3, Form 4	N/A
058271	Sealing kit master cylinder Model 7 DOT4	N/A
058269	Sealing kit master cylinder Model 7 Mil-H	N/A

Universal Master cylinder Model 3

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

1. The master cylinder must be installed in the speciefied 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 (take care 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 strucktural 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, ie, 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.

Universal Master cylinder Model 4

Universal Master cylinder Model 7 with reservoir

UL brake handle

The compact and lightweight brake handle UL can control one or two brake assemblies UL, according 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	Mil-H	BZ-UL	80	M6	200

Master cylinder Max and Mini

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 produced 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	Mil-H	BZM	80	M5	69

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.

Single circuit parking valve

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

P/N	Description	Hydraulic fluid	Max. operating press. bar	Connecting thread	Weight g	Remarks
050094	PVE	DOT4	100	M10x1	60	Actuation lever
050095	PVE	Mil-H	100	M10x1	60	Actuation lever
050096	PVEmA	DOT4	100	M10x1	80	Mech. stop and turning handle
050099	PVEmA	Mil-H	100	M10x1	80	Mech. stop and turning handle

Sinlge circuit parking valve

Double circuit parking valve

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

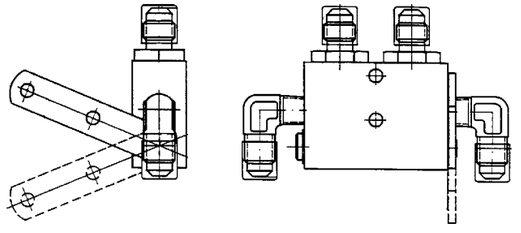
P/N	Description	Hydraulic fluid	Max. operating press. bar	Connecting thread	Weight g	Remarks
050090	PVZ	DOT4	100	M10x1	100	Actuating lever
050091	PVZ	Mil-H	100	M10x1	100	Actuating lever

Double circuit parking valve

Parking valve 60-5

The parking valve 60-5, made from Cleveland, is a very sturdy double circuit parking valve for the use with hydraulic fluid Mil-H. The mounting is realized 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	Mil-H	103	NPT1/8″ or JIC03	150



Parking valve 60-5

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 of the modification is very low: 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 Hydraulic fluid	M5	Technical consultation recommanded prior to modification
045940	Hydraulic actuation 4″ Kobold	Tost Hydraulic fluid	M5	
045945	Hydraulic actuation 5″ Standard	Tost Hydraulic fluid	M5	Axle diameter 20 mm
045943	Hydraulic actuation 5″ Standard	Tost Hydraulic fluid	M5	Axle diameter 30 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 5 inch Kobold wheel with hydraulic actuation of the shoe brake wheel. The kit is EASA approved per Minor Change Approval.

P/N	Description	Hydraulic fluid	Connecting thread	Remarks
045921	Conversion kit for Cirrus	Tost Hydraulic 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 hydraulic fluid and for the arising operational and maximum pressure. Withour hoses, eady 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 Standard

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, PVC coated	Mil-H, DOT4	290	870	banjo fitting for hollow screw M10x1 (straight, 20° cranked, 90° cranked) spigot nut JIC03

Stahlflex hose Light weight

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	Mil-H, 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	Mil-H, DOT4	280	840	Spigot nut JIC04

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

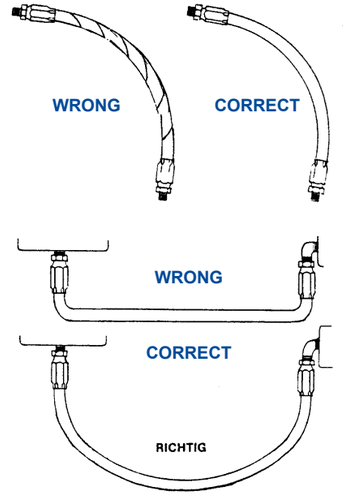
Standard hydraulic hoses

We also offer a large selection of standard hydraulic hoses, in addition to the indi-vidualy 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	Mil-H, DOT4	Stahlflex	250	straight pipe socket
058716	Type 1	Mil-H, DOT4	Stahlflex	600	straight pipe socket
058721	Type 1	Mil-H, DOT4	Stahlflex	1120	straight pipe socket
058724	Type 1	Mil-H, DOT4	Stahlflex	1240	straight pipe socket
058423	Type 2	Mil-H, DOT4	Polyflex	300	o/s: straight pipe socket o/s: JIC04 Überwurfmutter
058765	Type 2	Mil-H, DOT4	Stahlflex	500	o/s: straight pipe socket o/s: JIC04 spigot nut
058766	Type 2	Mil-H, DOT4	Stahlflex	600	o/s: straight pipe socket o/s: JIC04 spigot nut
058490	Type 2	Mil-H, DOT4	Polyflex	900	o/s: straight pipe socket o/s: JIC04 spigot nut
058330	Type 3	Mil-H, DOT4	Polyflex	300	o/s: eye ring Ø 10 mm o/s: JIC04 spigot nut
058350	Type 3	Mil-H, DOT4	Polyflex	500	o/s: eye ring Ø 10 mm o/s: JIC04 spigot nut
058360	Type 3	Mil-H, DOT4	Polyflex	600	o/s: eye ring Ø 10 mm o/s: JIC04 spigot nut
058375	Type 3	Mil-H, DOT4	Polyflex	750	o/s: eye ring Ø 10 mm o/s: JIC04 spigot nut
058380	Type 3	Mil-H, DOT4	Stahlflex	850	o/s: eye ring Ø 10 mm o/s: JIC04 spigot nut
058390	Type 3	Mil-H, DOT4	Polyflex	900	o/s: eye ring Ø 10 mm o/s: JIC04 spigot nut
058310	Type 4	Mil-H, DOT4	Polyflex	700	both sides eye ring Ø 10 mm
058366	Type 5	Mil-H, 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 per-formance.
- 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.

Fitting straight
(058050)

Fitting straight
(075850)

Fitting 90°
(075853)

Fitting 45°
(075851)

T-Fitting JIC03
(058058)

Connecting fittigs

connecting fitting from aluminium, one-sided with Standard screwing JIC-03

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

Fittings from aluminium

one-sided with Standard screwing JIC-04

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
075838	T-Fitting JIC04	JIC04	JIC04	JIC04	T-Fitting

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	M10x1	with spigot nut and cutting ring
058610	T-coupling	M	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.

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
058620	Hollow screw M10	M10x1	Standard hydraulic hose p/n 058330, 058350, 058360, 058375, 058380, 058390, 058310	2 x Cu gasket, included in p/n 058620
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

Suitable washers as spare parts:

P/N	Description	Application
058283	Copper gasket	for hollow screw p/n 058620
058289	Aluminium gasket	for hollow screw p/n 058281

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

Accessories

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

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.

Universal torque plate

Fluids

Hydraulic brake systems in aviation are used with two different fluids: Hydraulic fluid to Spec MIL-H5606, based on mineral oil, 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	Hydraulic fluid Aeroshell 41	1.0 l
059950	Brake fluid DOT4	0.5 l
059951	Brake fluid DOT4	1.0 l

Reservoir

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	Mil-H	60 cm³	NPT 1/8″
058271	Fluid reservoir HB 7	DOT4	30 cm³	M10x1
058269	Fluid reservoir HB 7	Mil-H	30 cm³	M10x1

Reservoir HB 7

Stahlbus bleeder valve

Stahlbus hollow screw
(059400)

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	Hydraulic fluid	Volume	Valve type
059100	Stahlbus bleeder valve	NPT 1/8″	DOT4	screw-in valve
059200	Stahlbus bleeder valve	NPT 1/8″	Mil-H	screw-in valve
059102	Stahlbus bleeder valve	M10x1	DOT4	screw-in valve
059202	Stahlbus bleeder valve	M10x1	Mil-H	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	Mil-H	screw-in valve
059221	Stahlbus bleeder valve	M6x1, shortened	Mil-H	screw-in valve
059231	Stahlbus bleeder valve	M8x1,25	DOT4	screw-in valve
059205	Stahlbus bleeder valve	1/4″-28UNF-16	Mil-H	screw-in valve
059206	Stahlbus bleeder valve	3/8″-24UNF-22	Mil-H	screw-in valve
059400	Stahlbus hollow screw	M10x1	DOT4	hollow screw

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 hydraulic fluid.

Artikel-Nr.	Bezeichnung
058202	Service kit hydraulic actuation of shoe brake wheels
058229	Service kit Max II disk brake wheel with BZM
058211	Service kit 6″ UL SBP with BZ-UL

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

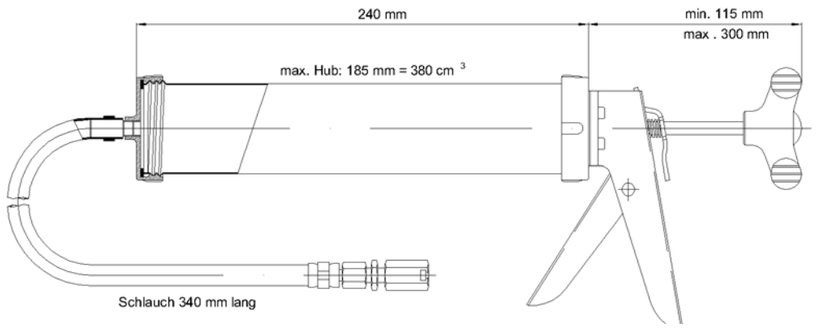
Vacuum filling and bleeding pump

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 Mil-H



Brake fluid gun
(059020)

Quick-screw-connector

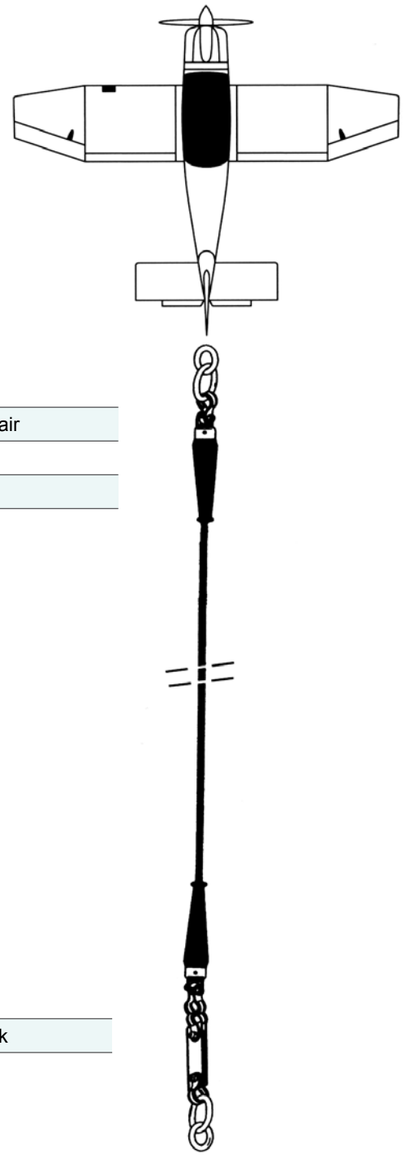
Suitable for the brake fluid gun Type B and H, we supply quick-screw-connectors for a simple, fast and clean connection of the brake fluid gun to the respective bleeder valve.

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

Quick-screw-connector
(075899)

CRG

Schematics



Tow release
E 85 or E 22

102000	Connecting ring pair

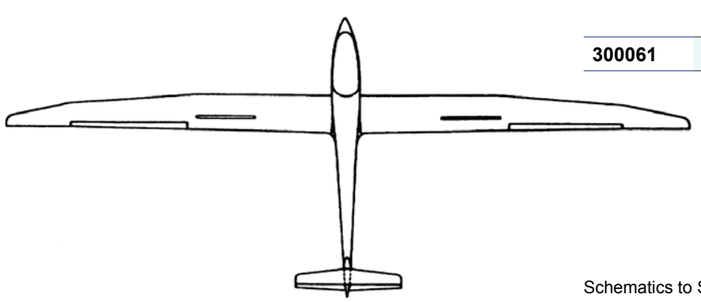
113400	Shackle

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

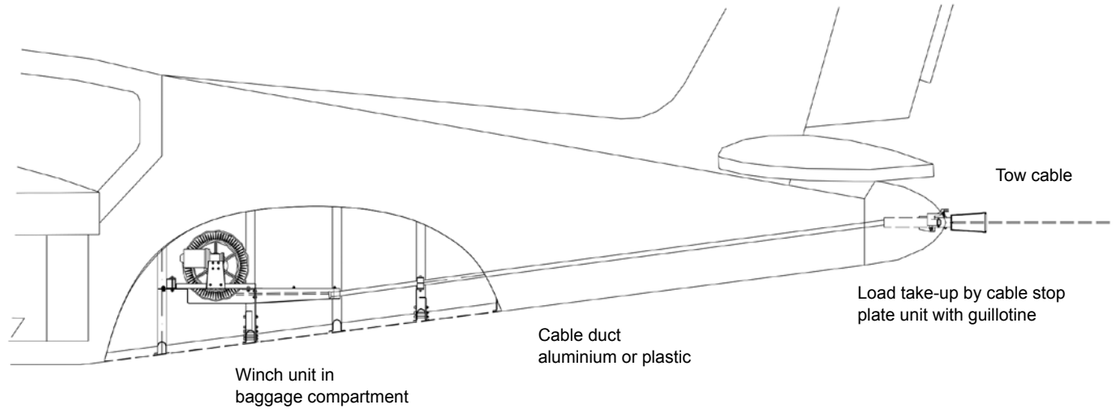
300061	End piece

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

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

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 passes through or under the fuselage, in an aluminium or plastic cable duct, to the cable stop plate unit.

Cable stop plate unit with guillotine

For tugs of type Robin and Morane, or for motor gliders or ultralights, the new cable stop plate is bolted to the existing tow support. For tail wheel aircraft, eg, 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 one time.

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

Rewinding 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 for mounting 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 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 commence operation immediately after the approval. The aluminium cable duct is not supplied as part of the standard kit due to the high transport cost. We can include this item on request in the scope of delivery correctly flared.

CRG Optional Equipment

Cable retraction sensor with cut-off

It is not always possible to observe 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, longer motor service life. Easy to upgrade on all systems.
We recommend this option for all original installations. Retrofitting is also possible in all units already in operation.

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. The cable drum needs to be exchanged only, there is not required a bigger installation space than for the 50 m cable drum. With smaller root diameter, the 60 m drum is optimised to match the motor torque.

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.

300942	Driving unit PM 42 12 V

CRG for Aircraft

Basically, our CRG can be installed in every tug which is certified for towing. We make out an offer and consult you about the installation and the approval.
All units for Class E towing aircraft are equipped with the powerful driving unit PM 42, available in 12 V and 24 V on board voltage. This driving unit guarantees the full cable wind-up also for fast descents.

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

EASA approved installatins in aircraft

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

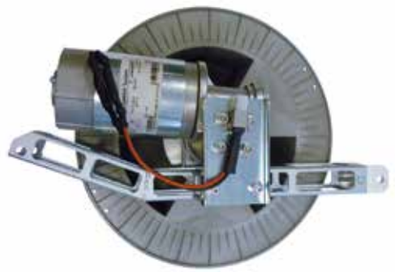
TCDS	Type
1001	DR 300/180 R, DR 400/RP, DR 400/180, DR 400/180 R
741	DR 253, DR 253 B
661	Job 15-150, Job 15-180/2
640	MS 880 B, MS 883, MS 887 Ralley 150 ST-D, Ralley 150 T-D, Ralley 180 T-D, Ralley 180 TS, Ralley 150 SVS
657	MS 892-A 150, MS 893 A, MS 894 A, MS 892E-150, MS 893E, MS 893E-D, MS 894 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
586	Piper PA 25
1098	Zlin Z 143

CRG for Motor Gliders

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

The CRGs are installed as standard in the following motor gliders and are EASA approved. Retrofit always 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 for Scheibe Falke SF 25

Cable stop plate with guillotine for UL

CRG for Ultralight

All components of our minimal 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 be disassembled easily.

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

309000	CRG for UL

Approval through manufacturer of Ultralight, installation as standard in:

Manufacturer	Type
Dyn Aero	MCR R100
Aerospool	Dynamic
Aeropro	Eurofox
A2 CZ	Elipse Spirit

Winch unit installed in Dynamic

Cable stop plate unit with guillotine and rubber funnel in MCR

Those installations have already been performed:
Zodiak 601/602
Zenair
Flight Design CTLS
Stemme S6
C 42

In preparation:
DR 400 Ecoflyer

Please ask for further installation options, we will be pleased to offer you a solution.
We conituously enlarge the range of application 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. And you will find there product improvements like the advanced terminator with steel bush. Especially for previous models those improved spare parts could be of interest. You can easily exchange them and they will optimize the function of your CRG.
All spare parts available from stock, so that you can overcome AOG situations fast.

"Bestseller"

Rubber funnel

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

P/N	Description	Mass g
300149	Rubber funnel	190

Terminator with steel bush

End piece

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 put a white weak link = 500 daN breaking load. Good to know: only one weak link is needed, which sticks in a narrow version of the protective sleeve (111030).

300061	End piece	230

End piece

CRG Cable

50 m on cardboard reel, 60 m on cardboard reel or
250 m on cardboard reel – the big cable reel with the most economic price.
You can cut the cable to length, recommended eg. for flight schools.

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

Mirror black
with ball-and-socket-joint

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, from aluminium, two-part	30
A30120	Cable drum for 50 m cable with attachment	755
300031	Helical drum cover	382
300148	Complete guillotine for CRG, knifes from niro steel	220

Cable drum 50 m

TOW RELEASES

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. The release also conforms to JAR 22 regulations.

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, or the release cable can be attached directly to one of the segment holes.

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.

P/N	Release	Mass 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
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.

Piccolo

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

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

G 88 with lever

G 88 without lever

G 88/1-83

SH 72 DG

Piccolo

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) 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 lever
Allows a release lever to be fitted by the aircraft manufacturer, or the release cable can 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 spaces and has a special angled release lever.

E 85/1-85
This version has a standard segment, but has 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. Works also as optional equipment parallel to the CRG, eg. for banner towing.

P/N	Release	Mass 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	Mass 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	Mass 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 itself. 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	Mass 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
303034	Citabria with spring pad 1,5″	2100
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 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 KT12 adapter to replace the Aerazur release.
LBA-/EASA-approved for Morane and DR 400.

P/N	Description	Mass g
300182	KT12 adapter for Aerazur including lateral special release lever and mounting bolts	500

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 at the trailer hitch of the car, the neccessary tools are included in the extend of delivery.
A self-launching glider or at least an auxiliary power unit are recommended.

Overhaul of tost releases

Releases are approved aeronautical parts. Tost company, as 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 overhaul 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.
Simultanious, 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 connection ring pair and thus the glider. Furthermore, manual release force and release angle are being testet and newly adjusted.
The overhauled release goes back to the customer with new issued EASA Fom1.

Exchange releases

The offer of exchange releases is 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, this 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.

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

TOWING / LAUNCHING EQUIPMENT

Tost weak links

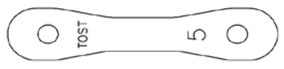
Tost weak links in optimized format combine the following improvements:
- Longer service life
- Correct marking with load group and manufacturer's name
- Made of high-quality certified aircraft steel
- Clear determination from inferior copies
- Manufacturing tolerance only 5% (10 % are demanded in the requirements)

Like our type-approved products, also our weak links are 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 insert are be 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 increase of the breaking load
- Never use two equal inserts, eg, both with round holes, in a reserve system weak link, 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 - ovel hole
for
reserve-insert system

Example
without protective sleeve

with protective sleeve

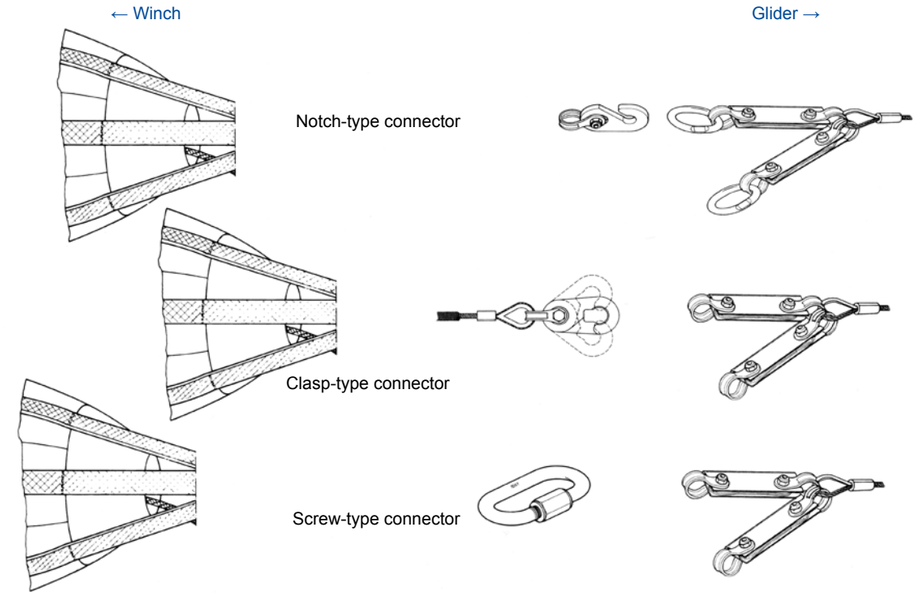
Load table
Winch launch and aero tow

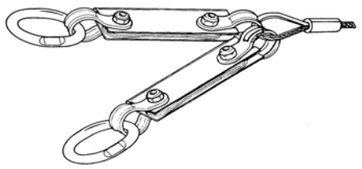
Insert No.	Coulour	Bruchlast Breaking load	Single insert round hole P/N	Reserve insert oval hole P/N
1	Black	1000±100	**110101**	**110121**
2	Brown	850±85	**110102**	**110122**
3	Red	750±75	**110103**	**110123**
4	Blue	600±60	**110104**	**110124**
5	White	500±50	**110105**	**110125**
6	Yellow	400±40	**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±10	**110114**	**110134**
11	Orange	80±10	**110111**	**110131**

Tow cable and fan assembly





Tost weak link shackles

Weak link shackles

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

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 to LN 65091

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)

Such a connecting ring pair must be stamped with the manufacturer‘s name and the standard number.

Welded rings are generally 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.

Feel free to ask for the tolerable measurements.

102000	Connecting ring pair to LN 65091

Connectors / Quick-release links

The German SBO regulation stipulates when operating a double drum winch, that the leeward winch cable is used first and the parachute of the other cable must be disconnected.

Quick-release links

We offer practicable solutions or all connections in the cable preamble which must be disconnected easily, eg the fan-assembly, weak links, cable parachutes.

Tost notch-type connector

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

Tost notch-type connector

Tost clasp type connector

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

P/N	Description	Load kN	Mass g	Connection with shackle	Eyelet mm
096000	Tost notch-type connector, two-part	15	116	**112800**	8 mm
097000	Tost clasp-type connector one-part	15 (when closed)	98	**112312**	6 mm

Tost clasp-type connector

Screw-type connector

the connection is screwed, to be used universaly for winch launch and aero tow.

Screw-type connector

Delta screw-type connector

Universal connector with screw plug, especially eligible for belts (eg shroud line belts of BT parachute).

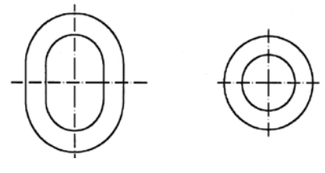
P/N	Description	Load kN	Mass g	Eyelet mm
095000	Screw-type connector	55	135	12
095010	Delta Screw-type connector	45	152	12

Delta screw-type connector

Connecting rings

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

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



Connecting rings

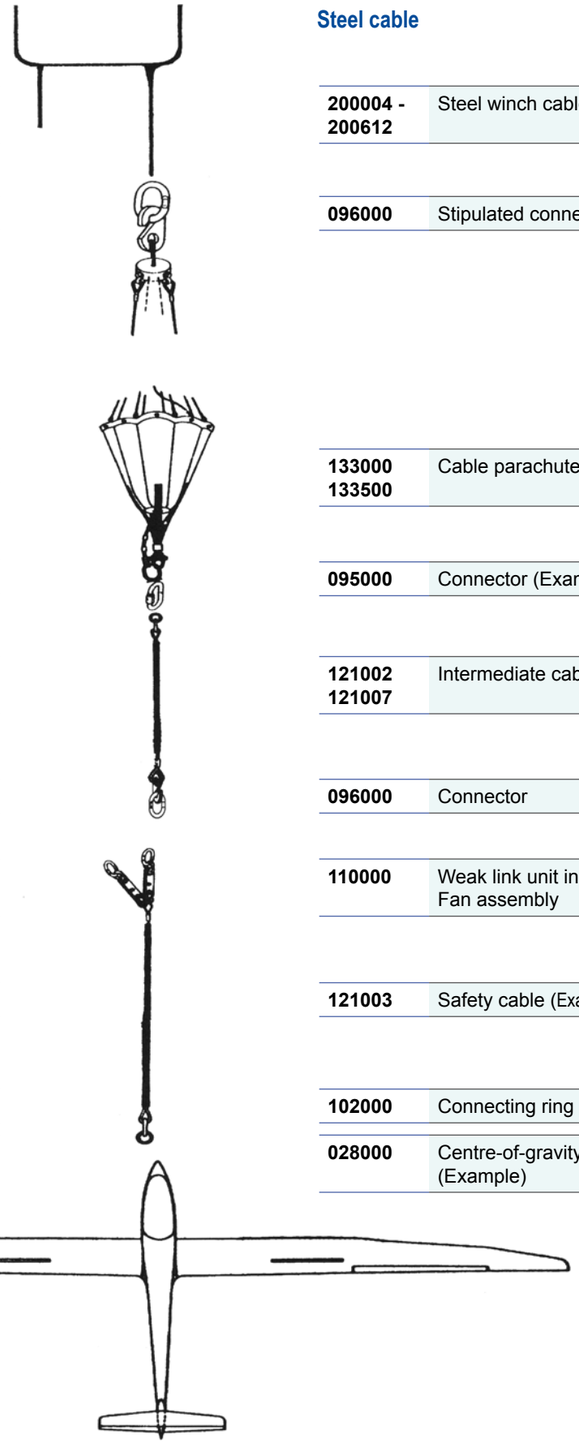
Schematics

Synthetic cable

205050	Dynalauch synthetic winch cable
096000	Stipulated connector
133600	Cable parachute Kuwi
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, ungalvanized, non-rotating, stress-free, breaking load 14.8 kN, mass 7 kg per 100 m.
Standard length 1200 m from stock, other lengths available on short notice.

200012	Winch launching cable 4.2 mm on disposable wooden reel

Winch cable Ø 4.6 mm

6x7x0.52 mm construction with one 7 x 0.60 steel core, rest see above
Breaking load 17.7 kN, mass 8 kg per 100 m.
Standard length 1200 m from stock, other lengths available on short notice.

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 96
“Schematics Winch Launch”.

Safety Cable

To reduce the danger of loops and cable hangups 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. Now the weak link position can also be between Connecting ring pair and 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; that means the use of a intermediate cable of 2 m length.

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.

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

Safety cable from steel

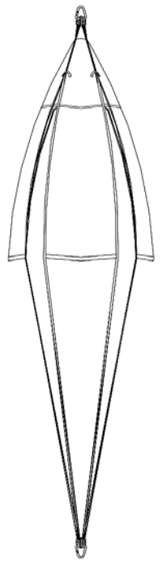
Intermediate cables

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 finding 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 8 mm shackles.

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

Intermediate cable from steel



BT cable parachute

Cable parachutes for steel winch cables

BT Cable parachute

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

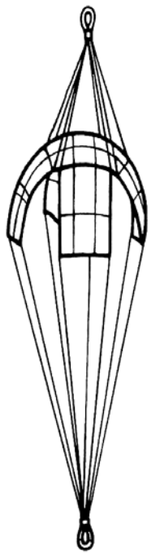
Description

Four-segment canopy, material nylon, UV-resistant. With 8 ea. one-piece shroud belts in black, 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 by yourselves.
The shroud lines are belt together in a delta screw-type connector.

P/N	Description	Colour	Canopy base Ø m (in flight)	Length parachute mm	Mass g
133000	BT Cable parachute	yellow	1800	3500	2400
		red			
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 meters.
The total length of the parachute – with closed canopy and stretched shroud belts – may not exceed 4 meters.
The distance between tow release and canopy vent is stipulated with at least 13 m.
The sequence is thus: 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 means the parachute descend very slowly and nearly non-rotating.

Desription

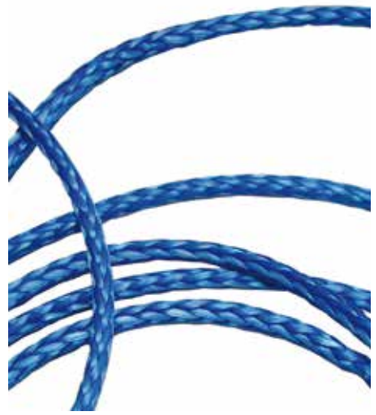
Canopy made of 2 polyamide panels stitched together cross-shaped. The canopy edges are reinforced with belts. Parachute colour: white. Eight shroud lines are belt together at top and bottom in large leather thimbles. The shroud belts are knotted through loops at the canopy base.

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

The canopy diameter is less than 1.5 meters.
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 through an improved protection against abrasive wear thanks to a special impregnation



Synthetic winch cable DYNALAUNCH

Advantages of DYNALAUNCH to steel cable

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

Technical data

- Material 100 % Dyneema
- 12-fold plaited
- Special impregnation
- Best UV-resistance
- Water and soil 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 how to adapt your winch
- 2 Jumbo solid thimbles from aluminium

We can supply every cable length at customer‘s choice from stock.
Due to the minor weight, the cable can be shipped as standard post parcel.

P/N	Description	Colour	Ø mm	Breaking load kN	Mass 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 sythetic winch cables. The wire basket can be opened to catch the synthetic cable. The wire loops are being spread and take up the cable strands. Close the wire basket and it holds tight the synthetic winch cable. You can start to splice. A detailed instruction is included.

P/N	Description	Length mm	Mass g
205050	Splicing needle	25	35

Splicing needle for synthetic winch cable

Cable preamble – Equipment for synthetic cables

Safety cable 3 m

Manufactured from stiff synthetic rope, accessory parts sewed in directly to the rope ends: at the glider side the connecting ring pair, at the winch cable side a large oval ring, to fit here 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.

Safety cable for synthetic cables
3 m length

121006	Safety cable, colour white, length 3 m with oval ring and connecting ring pair

Intermediate cables

Length depends from 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.

Into the bore of our “Jumbo” thimbles the screw type connector can be fitted directly.

Intermediate cable for synthetic cable
10 m length

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

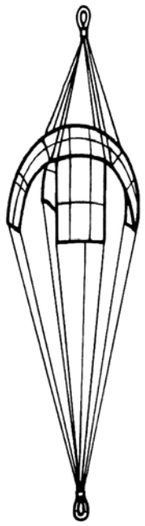
Cable parachutes for sythetic winch cables

Cross-panel cable parachute Kuwi

This light parachute combines high strength with a very good price/performance ratio. Its special construction means the parachute 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 2 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.

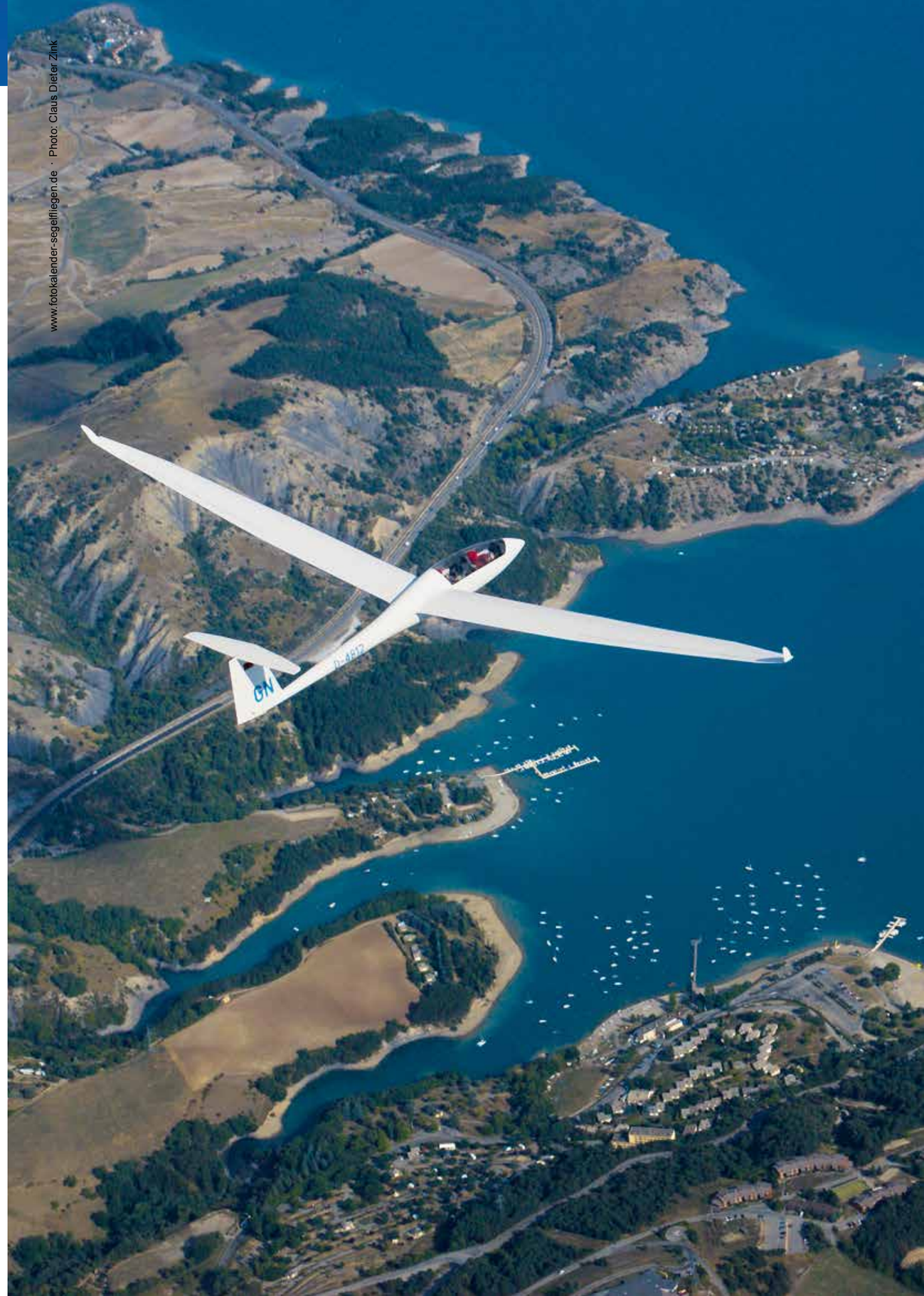


Cross-panel cable parachute Kuwi

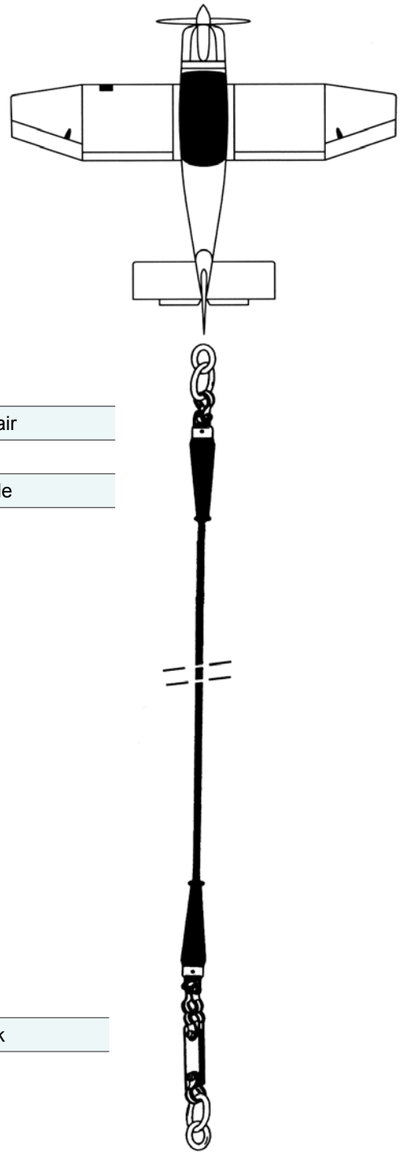
P/N	Description	Canopy basis Ø m (open during flight)	Length Schirm mm	Mass g
133600	Cross-panel cable parachute Kuwi	1200	3400	1200

Important operating notes for the use of the cross-panel parachute KUWI

The canopy diameter is less than 1.5 meters.
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

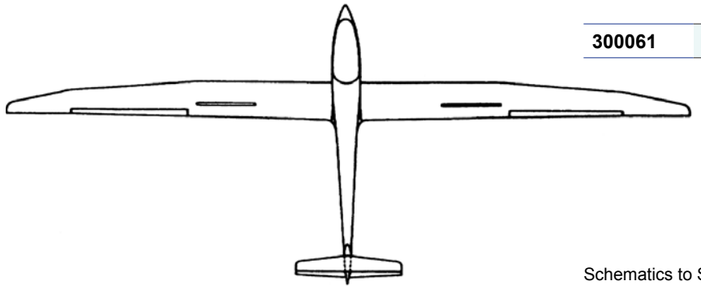
102000	Connecting ring pair
113400	Connecting shackle

Aero tow ropes
Length 40 – 60 m

Complete weak link
with connecting ring pair

110010	Complete weak link

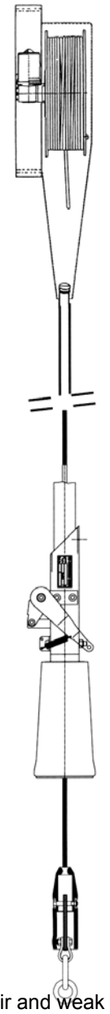
Nose release
E 85 or E 22



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 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.

P/N	Desription	Length m	Max. load daN	Colour	Ø mm	Mass 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

Cable for CRG

Aero tow ropes RED STAR, ELASTIK, EXKLUSIV

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

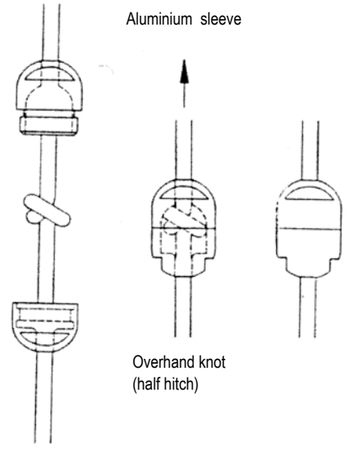
- At the tug side equipped with connecting ring pair to LN 65091
- At the glider side equipped with complete weak link unit in reserve system including protective sleeve and connecting ring pair

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 an other weak link breaking load. In this case we shall fit the required weak link ex works.

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 releases first

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



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

Aero tow rope RED STAR

Aero tow rope RED STAR

The allrounder of tow aero tow cables 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 living 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 which could damage the aircraft fuselage. Metal parts are reduced to the minimum.

P/N	Description	Length m	Minimum breaking load daN	Colour	Ø mm	Mass g
185400	Rope RED STAR	40	1100	red	9	2550
185500	Rope RED STAR	50	1100	red	9	3110
185600	Rope RED STAR	60	1100	red	9	3690

Banner tow rope

Step-index fibre rope from Polyester, spliced rope eye at both ends,
Connecting parts directly fitted to the eyes:
One side oval ring
other side complete weak link in reserve system with connecting ring pair to LN 65091

P/N	Description	Length m	Minimum breaking load daN	Colour	Ø mm	Mass g
185900	Banner tow rope	25	1100	red	9	1720

Aero tow rope EXKLUSIV

The high-grade, durable rope for hard operational demands

Material PES, cable-laid, UV-resistant

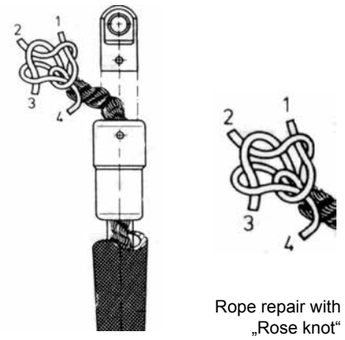
High load capability and ruggedness make the EXKLUSIV to a rope for all range of application with expect a long service life.

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-yearself repair is possible, just make new knots, see picture (knot is called “rose knot”).

Aero tow rope EXKLUSIV

P/N	Description	Length m	Minimum breaking load daN	Colour	Ø mm	Mass 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

Stretching more than 30 % under normal load results in a particularly elastic tow, without dangerous recoil.
The ELASTIK rope put itself forward especially for the motor glider tow and the Ultralight tow. With this elastic rope a smooth tow can be achieved, too, with these not so powerful tugs.

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

P/N	Description	Length m	Minimum breaking load daN	Colour	Ø mm	Mass 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, under normal load.

Aero tow rope ELASTIK

ACCESSORIES AND TOOLS

Nicopress sleeve
from copper

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 point

Detailed operating instructions supplied with the tool

Allocation Nicopress sleeve to cable and tool

P/N sleeve	Cable Ø mm	Grimping gauge	P/N tool
217280	1.2 stainless steel	VB4	**217221**
217291	1.5 - 2.0 stainless	C	**217000, 217221, 217240**
217281	1.5 - 2.0	C	**217000, 217221, 217240**
218282	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 / Hebel mm	Mass 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.

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

Tost Cable crimping tool

Aluminium cable clamps and 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

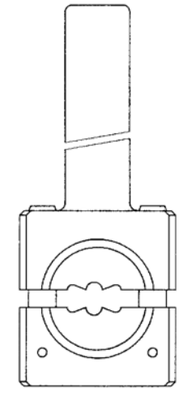
Operating notes:

- 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 - 4.1	4.5	**221450**
220500	4.2 - 4.6	5	**221500**



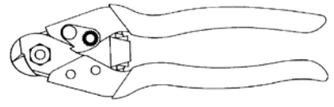
Tost Top and bottom tool

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	Mass g
216070	up to 5 mm	Steel cable with steel or hemp core also stainless steel cable	170	290

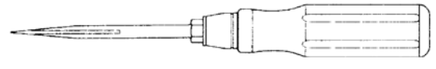


Cable cutter

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	Mass g
212000	210	90	85



Splicing needle

Control cable

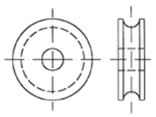
Control Cables

Aircraft control cable 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.

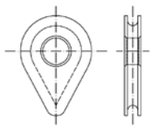
P/N	Diameter mm	Wire construction	Minimum breaking load	Mass g/m
200024	2,4	7 x 7	4.1 kN	24 g/m
200032	3,2	7 x 19	8.9 kN	43 g/m



Round thimble

Tost solid thimbles from aluminium

- From Tost production
- Light weight, high load capacity, keep the form
- High strength prevents the thimble from deforming to protect the winch cable from damage
- We recommand the Jumbo solid thimble especially for the use with synthetic winch cables, which lays well protected in the notch

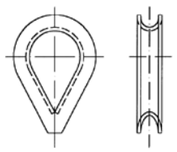


Solid thimble

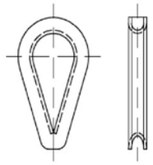
Solid thimble Jumbo

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

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



Heart-shaped thimble



Thimble

Steel thimbles

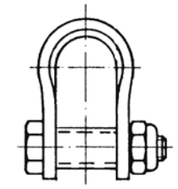
Made in Germany, for control cables and steel winch cables

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
113212	12	14	M6x26
113400	14	14	M6x30
113900	19	19	M6x35

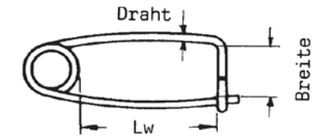


Connecting shackle

Safety pins

Material: spring wire

P/N	Width mm (Breite)	Lw mm	Wire mm (Draht)
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 Zoll)

920080	Roll with approx. 0.5 kg

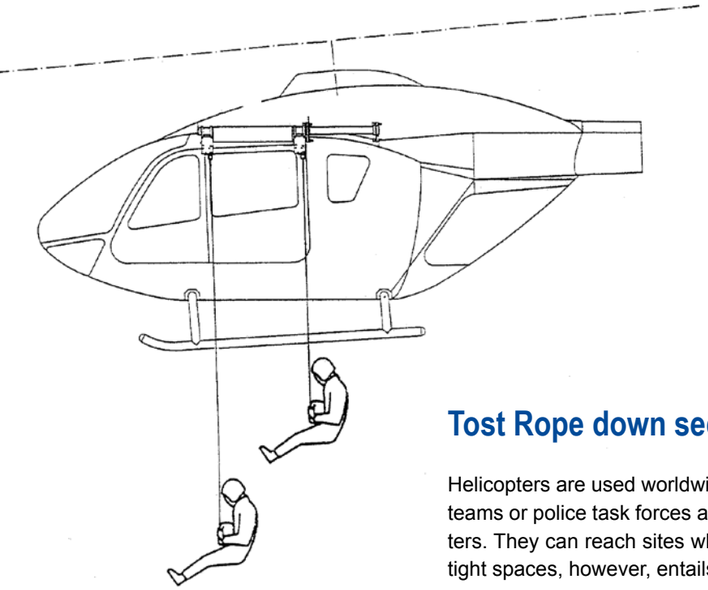
Locking wire

HELICOPTER-EQUIPMENT

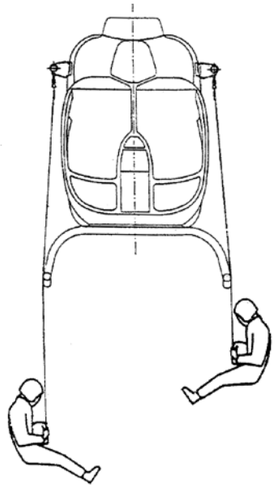
Helicopter Equipment

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. That 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

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

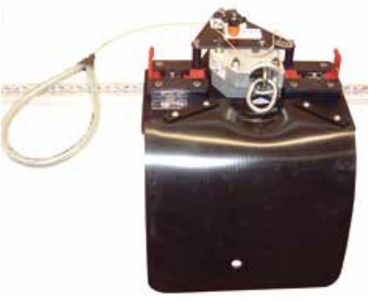
The installation in the helicopter is compleded with edge protection mats.

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

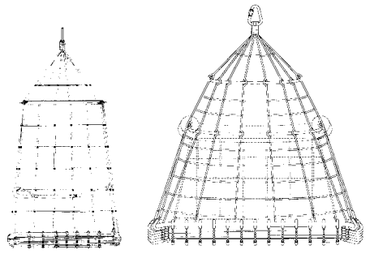
4-man Rope down securing unit

6-man Rope down securing unit



1-man Rope down securing unit with protection mat

Tost-External Rope down securing unit



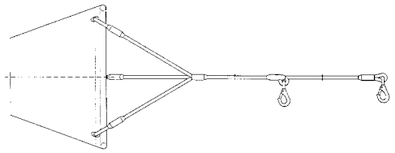
Rescue cage for 1 person

Rescue cage for 2 person

Rescue cages

The rescue cage is used to pick up or drop people (also injured people) in difficult terrain, from water, etc.
The frame is made of nonrusting 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 can swim through the optional mounting of floating bodies.

P/N	Description	Mass g
190211	Rescue cage for 1 person	6000
190210	Rescue cage for 2 person	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 up to 6 mm diameter. It can also be supplied with safety wrist strap.

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

Pocket Assy

The Cable Cutter can be stored in a handy leather pouch, attached to the cabin wall. With defined attachment points. Can be delivered optional 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	Mass 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

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 mm. 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 request (e.g. with 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
- 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

Beside 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, including a seawater proof type, with mechanical activation, with electrical remote activation or 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 seewater 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

Contrary to all other release variants the unactuated setting of the fail safe release is open. By applying an electric voltage the release is locked. The release opens immediately, when the voltage is removed.

015100	E 22 Fail Safe	20 kN

E 22 Fail Safe

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

Wheels for special solutions

Also beyond the aviation application the quality of Tost wheels is proven. 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
- Snowplow
- Transportation wheels
- Camera holding and guidance systems for movie and TV productions

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

Please let us know your requirements regarding load capability, tire size and application and we will 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 aircraft.

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 bleeding valves are availalbe in a wide variety of thread sizes, application fluids and dimensions.
With our experience and know-how we support you with the conceptional desing and construction of hydraulic brake systems for unique applications or small series.

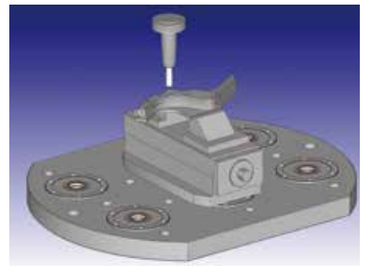
Construction, Design, Simulation, Contract manufacturing

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

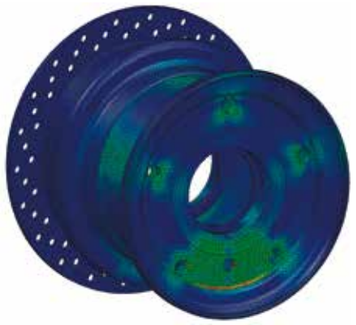
Our portfolio includes

- 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 strenght and dimension calculations
- CAM, with milling center connected to network
- 5-axis CNC-milling
- CNC-turning
- Classic machining (focus on precision mechanics)
- Gas-shielded welding (acc. to aviation standards)
- Manufacturing of simulators/Mock-Ups
- Product marking with engraving laser or engraving milling machine

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



CAM Computer-aided Manufacturing



FEM-based analysis of
Penta disk brake wheel

Testing infrastructure

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

Examples of our test machines, devices and procedures:

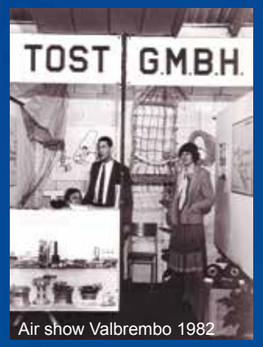
- Static and dynamic load tests
- Determination of static and dynamic tire deflection curves
- Endurance test of tires and wheels
- Linear tensile and pressure tests
- Leakage and function test of hydraulic components
- Hardness testing
- Dynamometer test with flywheel
- Experimental determination of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

Static load test of a complete wheel

70
1945 – 2015


Founder Richard Tost
in the first workshop 1948


Richard Tost with the young
pilots Barbara + Hans-Jürgen



Air show Valbrembo 1982


3 generations of enthusiastic aviators:
Susanne, Barbara + Anneliese


Barbara Dörflein
Michael Dörflein, Susanne Dupont


Continous improvement


First solo of Hans Jürgen Fenzl 1960


The Tost Team 2010

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

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

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 Certification as EASA Development Organization and EASA Maintenance Organization
Light weight wheels 5″ Penta and 4″ Tria

2010 65th anniversary of the company
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

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

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EASA Maintenance Organisation DE.145.0411
EASA Design Organisation EASA.AP230