

INSTRUCTION MANUAL

KILO®

1. SAFETY INSTRUCTION	2
2. PRODUCT DESCRIPTION	3
2.1 KILO HISTORY.....	3
2.2 PRODUCT DESCRIPTION SHOCK.....	4
3. INSTALLATION	5
3.1 PREPARATION	5
3.2 MOUNTING DIRECTION.....	5
3.3 STEERER TUBE	5
3.4 RIM-BRAKES.....	5
3.5 DISC-BRAKES	5
3.6 HUBS.....	5
3.7 TIRES	5
4. GENERAL SHOCK INFORMATION	6
4.1 SHOCK ADJUSTMENT	6
4.2 REBOUND ADJUSTMENT	6
4.3 SPRING PRELOAD.....	6
4.4 LOCKOUT DEFINITION	6
4.5 DISMANTLING SHOCK	7
4.6 SHOCK POSITION	7
5. AIR-FORCE KILO	8
5.1 AIR PRESSURE.....	8
5.2 PRIMARY FILLING	9
5.3 INSTALLING THE LOCKOUT REMOTE CONTROL	10
6. SLR:LIGHT	11
7. STEEL SPRING SHOCK	11
8. ADVANTAGES OF THE KILO FORK SYSTEM	12
9. TECHNICAL INFORMATION	13
10. MAINTENANCE AND REBUILD	14
10.1 DISASSEMBLY OF PARTS.....	14
10.2 CLEANING AND MAINTENANCE	14
10.3 WARRANTY	14
11. OPTIONAL EQUIPMENT (MOUNTING AREAS)	15
12. CONTACT	15

1. Safety instruction

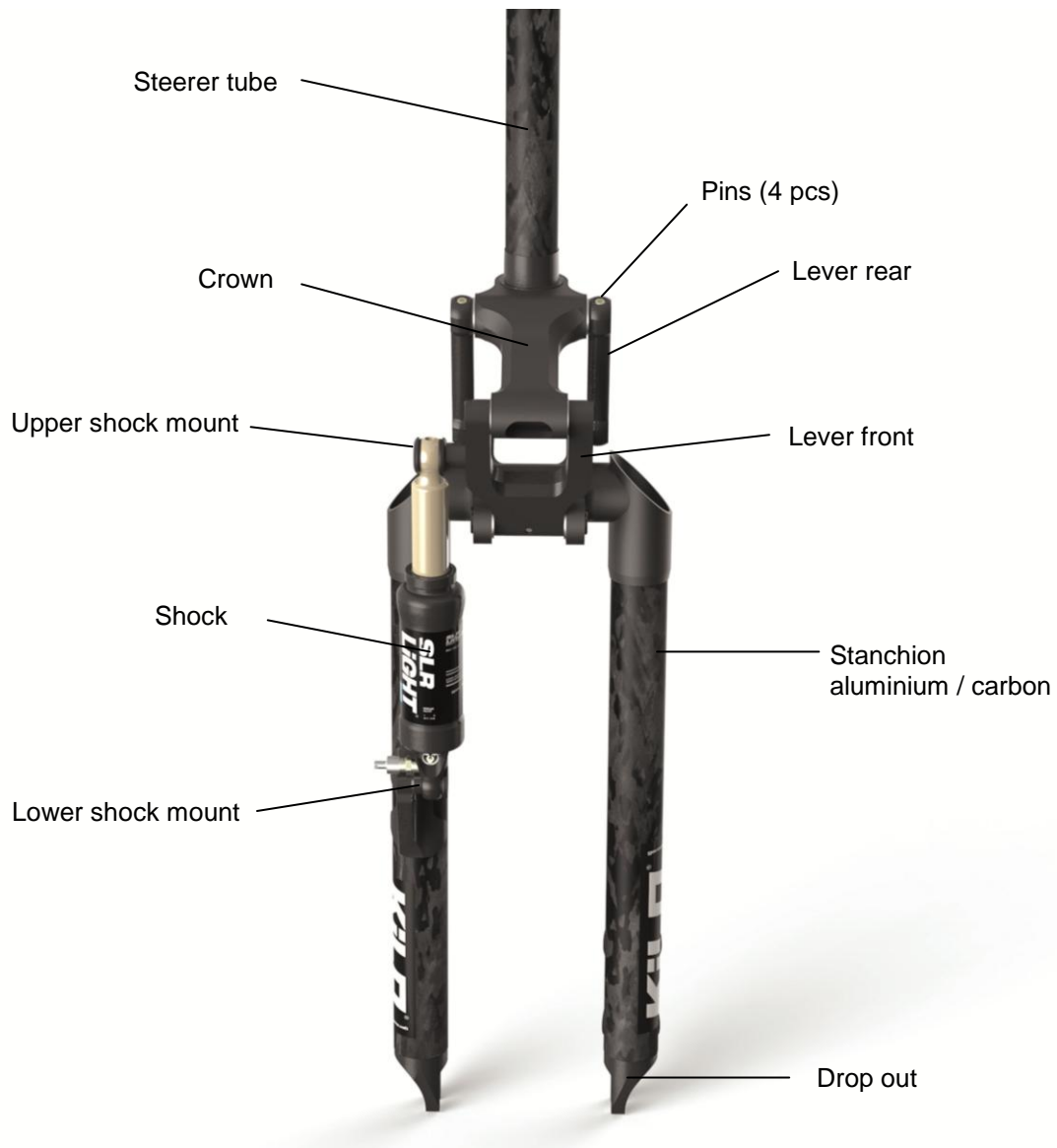
- 1) The forks of the "KILO" series are designed for Cross-Country (XC), Touring and Marathon use only. The 29inch fork is designed exclusively for the trekking area and should not be used for other purposes.
- 2) **Attention!** Always ascertain that the steel / air spring is adjusted properly to bear the riders weight for the purpose intended to avoid bottoming out. This may seriously damage the fork. If the fork has bottomed out it should be sent in for a check.
- 3) During use (ride) do not reach into the area of the moving four-link system. This may lead to serious injuries!
- 4) **Attention!** The user is responsible that the fork and shock are operating freely and have no undue contact.
- 5) Gearshift, brake cables and tires should not touch/scratch any aluminium of the fork at any time.
- 6) Do not use the active lockout for driving off-road and/or non-stop! This may seriously damage the fork.
- 7) Carefully regard specifications of all components or products attached to the fork.
- 8) The air shock contains an oil hydraulic shock. When dismantling a pressurized unit, an explosion-like pressure release may result. Always wear safety goggles when dismantling the shock!
- 9) You need special confirmation of the producer for dismantling fork and/or shock beyond normal maintenance. The warranty is void if unauthorized maintenance work is done on your fork.
- 10) The different versions of the product may differ from the illustration.
- 11) Please regularly control all screws of the fork, especially the shock mount and the threaded pins in the levers! **Especially both screws of the shock mount have to be controlled regularly:** At the upper shock mount please use a small amount of low strength thread locking on the top of the screw, use only low strength thread locking. Do not use thread locking at the lower shock mount! Just make sure to tighten both screws with 12Nm!
- 12) The 29inch fork is designed exclusively for the trekking area and should not be used for other purposes.
- 13) Forks are subject to wear and tear and must be serviced: **Minimum once a year!**

Used symbols and formatting:

PLEASE NOTE! - Points out extremely important and safety-relevant information.

Major points and important terms are **printed in bold letters.**

2. Product description



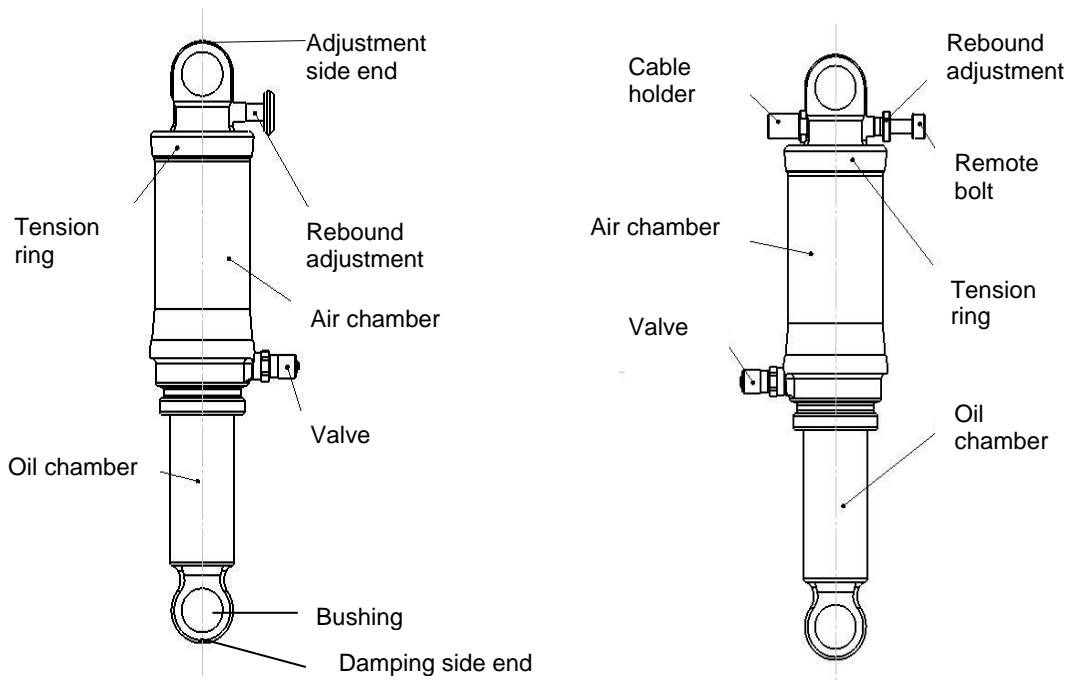
Pic. 1: Product description (product can differ from the illustration)

2.1 KILO history

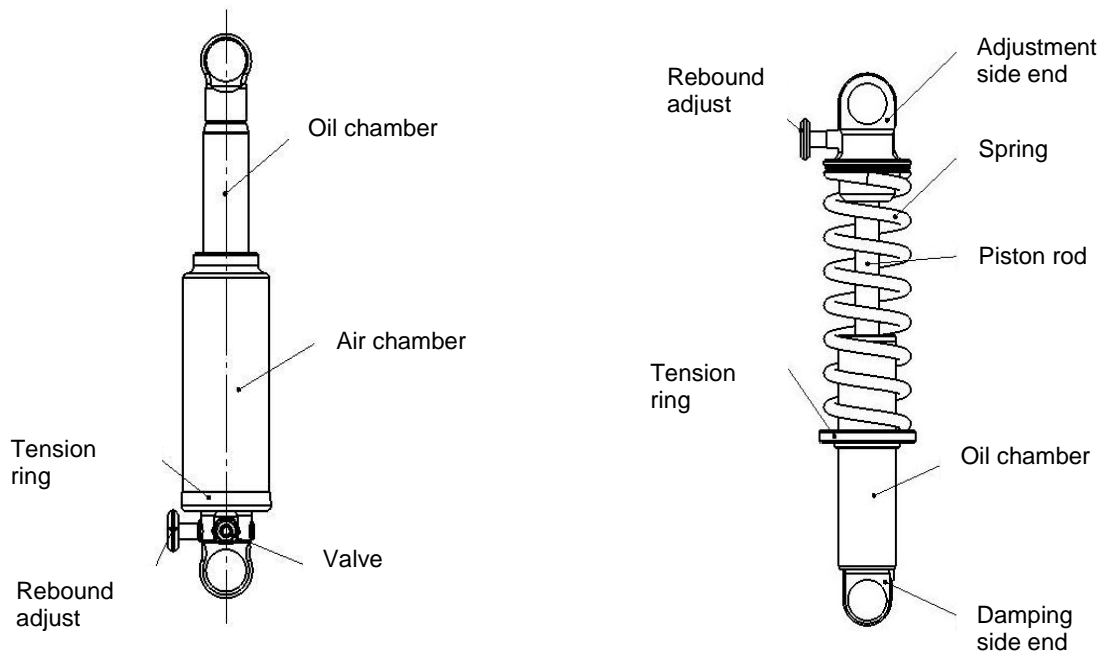


Pic. 2: Development of the KILO

2.2 Product description shock



Pic. 3: AiR-force KILO (on the left side standard version & on the right side with lockout)



Pic. 4: SLR:light (left) & steel spring shock (right)

3. Installation

3.1 Preparation

Please check follow points before installing the fork into the bike:

- Equipment compatibility (meaning brakes, headset bearing etc.)
- Right steerer tube length / size
- Correct position of headset race and bearing

3.2 Mounting direction

In moving direction, the brake adapter is mounted at the left back side (see pic.5).



Pic. 5: Moving direction

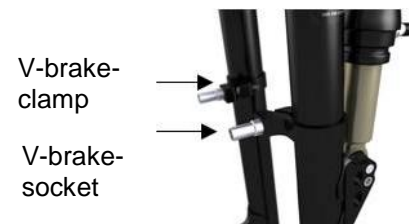
3.3 Steerer tube

The steerer tube has to be specified for 1 1/8 inch headsets.

If you have to cut the carbon tube please use a fine saw. Only for aluminium tube please use a pipe cutter. The length of the steerer depends on the frame size, the headset and the quantity of spacers. **ATTENTION! Don't use a claw fastener for carbon steerer!**

3.4 V-brake

The rim brake version is only available in v-brake. It's a system with clamps. The clamps are already mounted with the sockets. The sockets are standard metric thread (M8x1,25) with a hole length of 47mm, the threads are 23mm long. The fastening torque is **12-15Nm**. Do not tighten more than 15Nm otherwise the aluminium stanchion will break. **NOTE!** The clamps at the "KILO no.1/+" are already mounted. It's impossible to remove them!



Pic. 6: Installation V-brakes

ATTENTION! The fastening torque is **max. 4,5Nm**. Otherwise the carbon tube (leg) will break.

3.5 Disc brake

KILO forks are consistant with international standard (IS) 2000, version "disc" and designed for max. 180 mm disc rotator. For all further details, please follow the specific instructions of the brake manufacturer.

3.6 Hubs

Use only standard hubs (Ø 9mm) intended for an assembly dimension of 100mm.

3.7 Tires

Since the fork model of 2010 you can use tires with total width of 60mm. But this size depends on the pressure, the diameter and the pattern of the tire. The older versions of the fork have to be checked: Please make sure that the tire to be used can rotate freely throughout the whole travel. Therefore you have to deflate the air shock or dismantle the spring of the spring shock.

4. General shock information

4.1 Shock adjustment

Please test the fork/shock first if the spring rate is sufficient. Otherwise, you may adjust according to the attached table in the respective chapters on shock settings. Always ascertain that the air pressure is adjusted properly to bear the riders weight for the purpose intended to avoid bottoming out. This may seriously damage the fork. If the fork has bottomed out it should be sent in for a check.

NOTE! If you do not like the guideline specifications for your application or personal taste, you can customize the respective pressures. Please make sure there is no puncture and be aware of the right mounting position of the shock. Please check if your hand pump has an adapter. The pump adapter avoids the loss of air when removing the pump after filling. Pump with adapter or special shock pumps are available in stores.

4.2 Rebound adjustment

The adjustment is done by the red knurl (excluded SLR:light shock). Try the different types of adjustment by turning the knurl and compress the fork and check the rebound. Both (air and steel spring) shocks offer a wide range of rebound damping adjustments. Recommended general adjustment guide:

- Low damping: For highest sensitivity, fast response, for repeated fast deflections on fast downhill and bad track.
- High damping: Typical settings to avoid pedal pogo effects.

4.3 Spring preload

Spring preload (sag) describes how much the shock is compressed when a rider sits on the bike. The rider must be seated in a normal riding position then the spring preload should be set between 15 - 25 % of the overall travel.

Sag	15 %	20 %	25 %
Travel 90 mm	13,5 mm	18 mm	22,5 mm

4.4 Lockout definition

The lockout mode of the KILO is an over-damped rebound, e.g. when activated, the fork is compressed. The use of other kinds of lockouts is not permitted for this system.

ATTENTION! Don't use the active lockout for driving off-road, non-stop or jumps.

4.5 Dismantling shock



Pic. 7: Shock installation

ATTENTION! Avoid a sudden sag while dismantling the shock from the fork by putting a towel, paper or something similar between the levers.

Dismantling 1: Remove the upper shock mount hex socket bolt (see pic.7, pos.1) (M 6 x 25 DIN 912 A2).

Dismantling 2: Remove the lower shock mount hex socket bolt (see pic.7, pos.2) (M6 x 20 DIN 912 A2).

Assembling 1: Mount allen screw with middle strong thread guard (locktite) (see pic.7; pos. 1). Hex socket bolt M6 x 25 DIN 912 A2; torque 12 Nm.

NOTE! Please use only one drop of thread guard. Make sure that both O-seals (see pic.7; pos. 3) are mounted to avoid backlash.

- O-seals 12,5x2,5 for „AiR-force KILO“ and steel spring shock.
- O-seals 12x2 for “SLR:light”.

Assembling 2: At the lower shock mount it's not allowed to use thread locking, make sure to tighten the screw with **torque 12Nm**. If you use thread locking, the “steel threaded insert” (helicoil) will be removed with the screw and need to be replaced.

NOTE! Make sure that both O-seals are mounted to avoid backlash.

- O-seal 10,5x2,5 (see pic.7; pos.4).
- O-seal 10x3 (see pic.7; pos.5).

4.6 Shock position

The lower shock mount has 2 different shock positions:

KILO 1.2: The air shock “AiR-force KILO” or “SLR:light.” has to be mounted in the upper position (see pic.8+10). The length of both shocks is 195mm.

KILO 1.3: The steel spring shock has to be mounted in the down position (see pic. 9). The shock length is 200mm.

KILO no.1: The air shock “AiR-force KILO” or “SLR:light.” has to be mounted in the upper position (see pic.8+10). The length of both shocks is 195mm.

NOTE! If you use the wrong position you can damage the fork and the shock. So be sure to use the right position.



Pic.8: KILO 1.2 AiR-force KILO



Pic.9: KILO 1.3 Steel spring shock



Pic.10: KILO No.1/+ SLR:light.

5. AiR-force KILO

5.1 Air pressure

The AiR-force KILO has a negative chamber which is filled automatically using the valve in the main chamber. The rebound is controlled by the rebound adjustment. The lockout version has a remote control.

Chart 1: Air pressure AiR-force KILO (guidelines only)

Weight of biker (kg)	Air pressure (Tour) (bar)	Air pressure (Race) (bar)
Up to 70	~ 6	7 - 8
70 – 75	~ 7	8 - 9
75 – 80	~ 8	9 - 10
80 – 85	~ 9	10 - 11
85 – 90	~ 10	11 - 12
90 – 95	~ 11	12 - 14

Pressure minimum 4 bar – max. 20 bar
NOTE! Please read the notes in the chapter entitled “shock adjustment”
 (chapter 4.1).

The pressure table contains only recommended values. Air pressure also depends on the intended use, riding style and personal preferences.

NOTE! Please avoid puncture. This may seriously damage the fork. If the fork hit through it should be sent in for a check.

5.2 Primary filling

The AiR-force KILO is already inflated with 6-8 bar pressure by delivery. Before the first ride, please make sure that the fork can move through its entire travel without grinding. To adjust the shock to your weight or turn the position of the valve you have to release the air and refill.

- 1. Release air:** Put off the valve cap and release pressure by pushing the insert. **Attention!** The shock is under pressure.
- 2. Before you start filling:** The shock has to be in maximum travel position.
- 3. Filling:** **NOTE!** Check at first that the shock is not compressed. The necessary pressure depends on the weight of the rider, the ratio of the bike and the application area. Fit your suspension pump and fill the shock by pumping according to table (chart 1).

NOTE! Sometimes the shock is contracted by filling the pressure. In that case please follow the next steps:

1. Release the air.
2. Pull it apart until the shock is no longer compressed (see pic.11)!
3. Refill the shock again.



Pic. 11: Uncompress the KILO-fork

5.3 Installing the lockout remote control



Pic. 12: Provided parts



Pic. 13: Remote control



Pic. 14: Fit the wire



Pic. 15: Stretching the wire

Provided parts are (see pic.12):

Spring, remote bolt, end cap (not pictured).

NOTE! Before mounting the red rebound adjustment it has to be turned towards the casing until dead stop.

Tip: The turning in of the red rebound adjustment is much easier if you push the black remote bolt into the red rebound adjustment till dead stop.

NOTE! First activate the lockout at the remote control lever until the lever is locked in place (see pic. 13).

Step 1: Fit the wire through the shock.

Step 2: Insert the spring and the remote bolt into the red rebound adjustment. Push the black bolt into the shock till dead stop and pull the wire into opposite direction (see pic. 14).

NOTE! The wire counter bracket (red encircled) has to slip into the cable holder (silver aluminium part at the shock) (see pic.15).

Step 3: After stretching the wire you have to seize both M3 tread bolts in the black rebound bolt with a socket wrench 1.5 mm. Finally you can fix the thread bolts with liquid screw lock. It's not necessary to stretch the wire until the thread bolts are seized. The easiest way will be to put your thumb to the black part and fix the wire too.

Step 4: At last you will have to trim the wire. The wire should have a maximum length of 10 mm. As a last step position the end cap. Turn the rebound adjust knurl 5-6 mm out of the shock (your rebound will get faster). Pull the lock lever out of lockout position, the shock is ready for use. With the red knurl of the rebound adjustment you are able to adjust the rebound without changing the lockout performance.

6. SLR:light.

The advantage of the SLR:light. is (besides weight) the characteristic curve, which is placed between the AiR-force KILO and the steel spring shock. Thereby the SLR:light. is less progressive and can use more travel. Furthermore the SLR:light. features a negative chamber which is filled automatically via main chamber (patented setback valve system).

Chart 2: Air pressure SLR:light. (guidelines only)

Weight of biker (kg)	Air pressure (Tour) (bar)	Air pressure (Race) (bar)
Up to 70	Bis 6,5	Bis 8,0
70 – 75	6,5 – 7,5	8,0 – 8,5
75 – 80	7,5 – 8,5	8,5 – 9,5
80 – 85	8,5 – 9,5	9,5 – 10,5
85 – 90	9,5 – 10,5	10,5 – 11,5
90 – 95	10,5 – 11,5	11,5 – 12,5
Pressure minimum 4 bar – max. pressure 15 bar NOTE! Please read the notes in the chapter entitled “Shock adjustment” (chapter 4.1).		

The pressure table contains only recommended values. Air pressure also depends on the intended use, riding style and personal preferences.

7. Steel spring shock

The basic setup of the spring preload results from the choice of spring rate. The spring is only allowed to be preloaded max. 10mm. If the most possible spring preload is too soft you have to mount a harder spring rate.

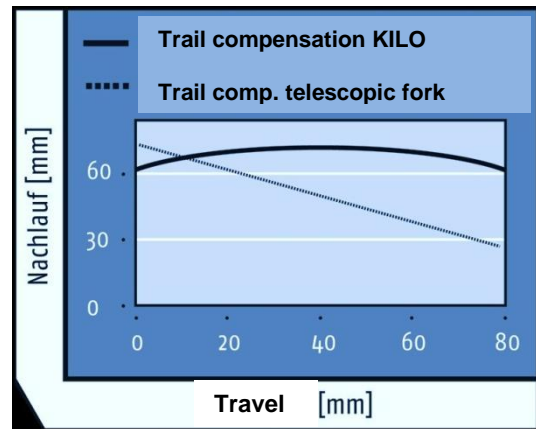
Chart 3: Guidelines for steel spring

Spring rate (kg)	Spring rate (N/mm)	Weight spring (g)	Weight spring shock (g)
Up to 70	27	130 black (green mark)	259
70 – 80	32	142 black (yellow mark)	271
80 – 90	38	172 silver	301
90 – 95	42	181 black (no mark)	310
Unlisted: For lightweight / kids: 15,7N/mm (black) & 12N/mm (silver) NOTE! Please read the notes in the chapter entitled “shock adjustment” (chapter 4.1).			

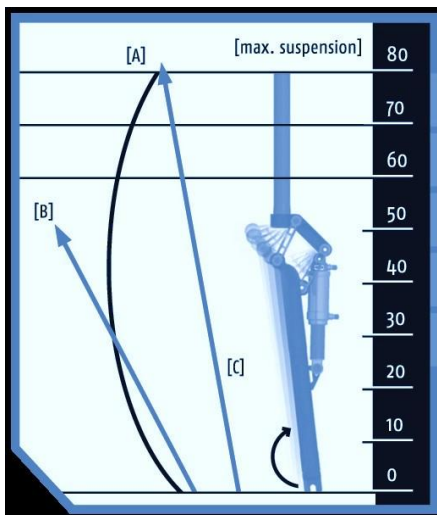
8. Advantages of the KILO fork system

Trail compensation: When a telescopic fork compresses, the trail becomes continuously smaller, making the steering characteristics of the bike rather “nervous” especially when you are braking.

As a trapezoid fork the KILO trail can and has been modified, so a constant trail and steady steering characteristics are achieved.



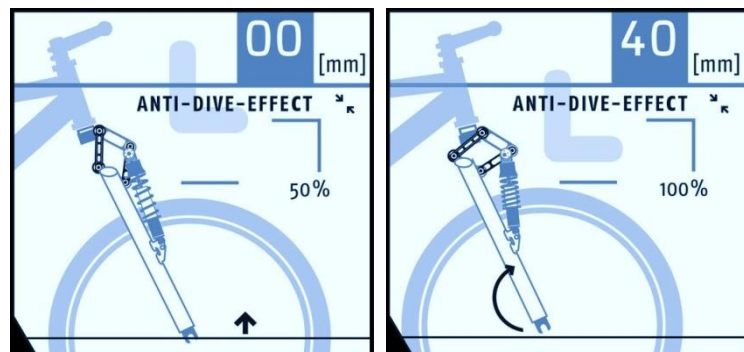
Pic.16: Trail compensation



Pic.17: Wheel trajectory curve

The **wheel trajectory curve** describes the movement of the front hub during the compression of the fork. Together with the friction free bearings used in the joints of the linkage this curve is the primary reason for the ultra smooth responsive behavior of the fork. The beginning of the curve shows in the same direction in which the front wheel is forced by obstacles on the trail. This is extremely useful for absorbing high frequency impacts.

Anti-Dive-Effect: The compression of the fork during braking is avoidable through a change of geometry of the trapezoid fork. This enables us to exactly define, at what amount of travel the anti-dive-effect completely compensates the acting forces.



Pic18: Anti-Dive-Effect

9. Technical information

Chart 4: Technical information KILO-fork *

	KILO No. 1+	KILO No. 1	KILO 1.2	KILO 1.3
System	Trapezoid multiple link system	Trapezoid multiple link system	Trapezoid multiple link system	Trapezoid multiple link system
Material	Carbon	Carbon/Aluminium	Aluminium	Aluminium
Sizes	26"	26" 27,5" 28" 29"	26" 27,5" 29"	26" 27,5" 29"
Travel	Long travel 90mm	Long travel 90mm	Long travel 90mm	Long travel 90mm
Shock	SLR:light; AiR-force KILO Steel spring shock	SLR:light; AiR-force KILO Steel spring shock	SLR:light; AiR-force KILO	Steel spring shock
Damping	Damping oil (based on silicone / adjustable in tension)	Damping Oil (based on silicone / adjustable in tension)	Damping Oil (based on silicone / adjustable in tension)	Damping Oil (based on silicone / adjustable in tension)
Brakes	IS2000 Standard, Disc max. 180mm; V-Brakes	IS2000 Standard, Disc max. 180mm; V-Brakes	IS2000 Standard, Disc max. 180mm; V-Brakes	IS2000 Standard, Disc max. 180mm; V-Brakes
Axle to crown 26inch	478mm	478mm	478mm	478mm
Axle to crown 27,5 inch		489mm	488mm	488mm
Axle to crown 29inch		510mm	510mm	510mm
Dropouts	QR9	QR9	QR9	QR9
Steerer	1 1/8" Carbon	1 1/8" Aluminium	1 1/8" Aluminium	1 1/8" Aluminium
Steerer length	Carbon 250mm	Aluminium 250mm	Aluminium 250mm	Aluminium 250mm
Drivers Weight	Up to 85kg	Up to 95kg	Up to 95kg	Up to 95kg
Use	Cross-Country, Tour- and Marathon**	Cross-Country, Tour- and Marathon**	Cross-Country, Tour- and Marathon**	Cross-Country, Tour- and Marathon**
Bearings	8 sealed ball bearings	8 sealed ball bearings	8 sealed ball bearings	8 sealed ball bearings
Properties	Trail compensation, wheel trajectory, Anti-Dive-Effect	Trail compensation, wheel trajectory, Anti-Dive-Effect	Trail compensation, wheel trajectory, Anti-Dive-Effect	Trail compensation, wheel trajectory, Anti-Dive-Effect
Options	Lockout with remote control; V-brake as gripper clamp system; fender mount	Lockout with remote control; V-brake as gripper clamp system; fender mount	Lockout with remote control; V-brake as gripper clamp system; fender mount, mounting areas for carrier mounts	Lockout with remote control; V-brake as gripper clamp system; fender mount, mounting areas for carrier mounts
*Subject to change and errors excepted.				
**ATTENTION! The 29inch fork is designed exclusively for the trekking area and should not be used for other purposes.				

Chart 5: Weight of the KILO-fork *

	KILO No. 1+	KILO No. 1	KILO 1.2	KILO 1.3
Fork	1098g	1187g	1246g	1390g
AiR-force KILO	+40g	+40g	+40g	
Steel spring shock	+150g	+150g		
Lockout & Remote	+77g	+77g	+77g	+77g
27,5 Zoll		+19g	+25g	+25g
29 Zoll		+41g	+59g	+59g
*Subject to change and errors excepted				

10. Maintenance and rebuild

Note! Please observe the safety instructions described in chapter 1.

Forks are subject to wear and tear and must be serviced: **Minimum once a year!**

Service means dismantling, change of (silicon) oil, exchange of seals and parts if they are worn out. Due to the modular build-up of the fork almost any worn parts can be exchanged if necessary (you will be given an estimate) and the unit will be as good as new afterwards.

For a proper service please send in the fork including the original papers **and the service paper** (see to our homepage/downloads) to your dealer or directly to the address you'll find on our homepage. Please check first the address and the service costs on our homepage / webshop: www.german-a.de.

10.1 Disassembly of parts

Any further dismantling of parts requires the agreement of the manufacturer. All warranties are invalid when dismantling parts of the fork or shock on a private base without a written consent of the manufacturer.

10.2 Cleaning and maintenance

Fork and shock may be cleaned with cleaners generally used for bicycles. Ascertain that valve caps are properly seated on valves. Solvents and aggressive cleaners may attack labels and surfaces.

Ball bearings should be lubricated regularly (together with chain and sprockets). Do not use water, just a clean cloth or a soft brush. Apply a drop of oil to each bearing, wipe off any excessive oil.

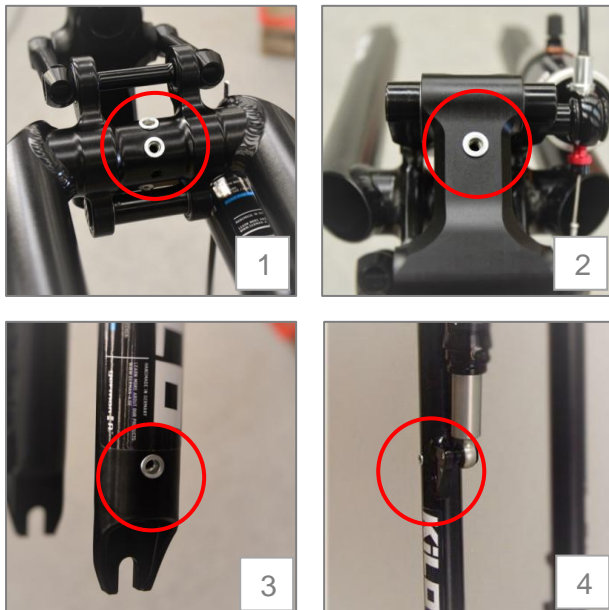
10.3 Warranty

German Answer may allow individual support beyond governmental regulations. In such a case parts may be obtained at cost price. No warranty is available in the following cases:

- Sheared off valves
- Destroyed valve threads
- Damper noises while damping properly
- Worn out glide bushings

- Wear and tear due to use (seals, guide-bushings, surfaces)
- Mechanical damage / bent adjusters
- Improper / missing maintenance and service
- Missing serial number
- Damage due to falls, jumps and competitions
- All unauthorized work on fork or shocks
- Abrasion of surface by shifting/brake cables or tire
- Use of disc brakes with a rotor diameter larger than 185 mm

11. Optional equipment (mounting areas)



The mounting options are thread clinches (eyelets) made of galvanized steel, each mounted individually on request from the factory.

TIP! Please mount steel screws with some grease to prevent oxidation.

1. Fender mounting areas (pos. 1)
2. Mounting areas for lighting installation (pos. 2)
3. Mounting areas for fenders at the front wheel (pos. 3)
4. Mounting areas for carrier mounts (pos. 3 u. 4) for low-rider
(**Note!** Total luggage payload max. 10kg)

Pic. 19: Position mounting areas
(product can differ from the illustration)

12. Contact

GERMAN ANSWER bike technology GmbH & Co. KG
 Siemensstraße 4, 63674 Altstadt, Germany
 Phone: +49 (0) 6047-95339-10, Fax: +49 (0) 6047-95339-19
 E-Mail: info@german-a.de, Homepage: www.german-a.de

Register court: District court Friedberg HRA 1723, VAT Id.: DE213068319, Personally liability corporation: creative sport products GmbH, Domicile D- 63674 Altstadt / Germany, Register court: District court Friedberg HRB 2845, General manager: Graduate engineer of economy Thomas Kamm.