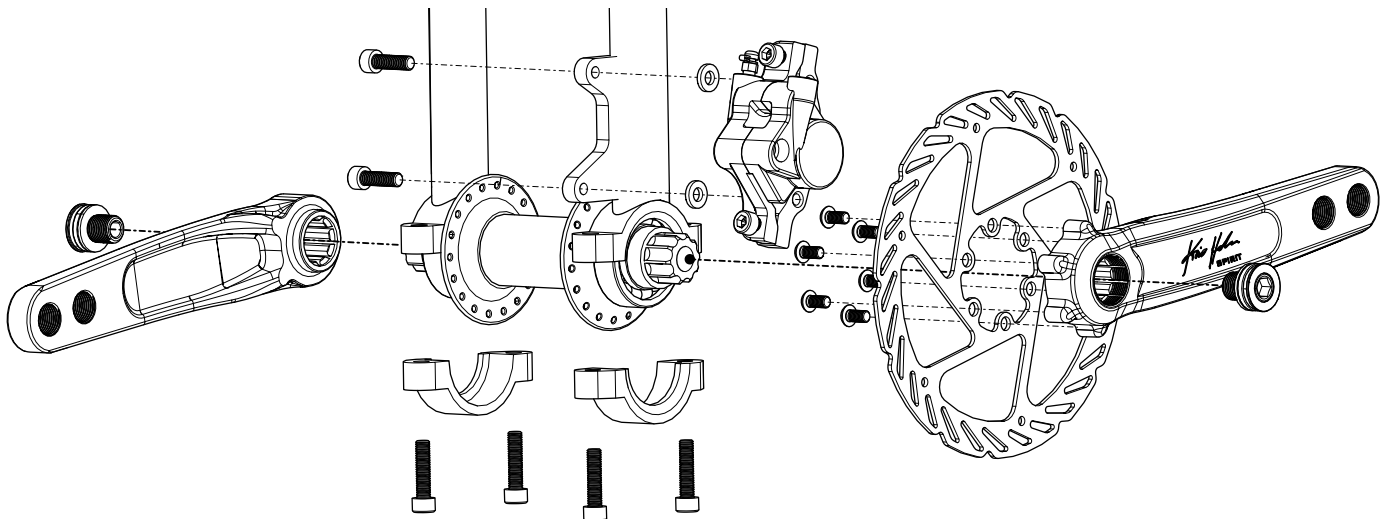


Introduction

Spirit disk cranks allow the installation of a standard disk brake rotor (*not included*) to the right hand crank on a KH unicycle. This enables the rider to install a disk brake and maintain an efficient pedalling stance, minimal weight, and the strongest possible wheel geometry.

What's Required

- ✓ Spirit disk cranks and compatible hub (see *Compatibility Requirements*)
- ✓ Compatible frame (see *Compatibility Requirements*)
- ✓ Compatible disk rotor and mounting bolts (see *Compatibility Requirements*)
- ✓ International Standard (IS) adaptor for post-mount disk brakes
- ✓ Four, 2 mm stainless steel washers
- ✓ Brake lever mount on saddle
- ✓ Zip ties (to secure brake line on frame)
- ✓ Star Fighter Brake Lever Extension (*recommended*)



Assembly

See diagram above for assembly and position of required components. Also see manufacturer instructions supplied with the disk brake and brake rotor.

1. Remove wheel from frame and remove cranks from hub.
2. Install disk rotor on cranks.
3. Install cranks on hub. Moment hubs should have a 8 mm spacer between the crank and bearing (supplied with hub). KH/Schlumpf geared hubs should not have a spacer between the crank and bearing.
4. Install disk caliper on frame. Important: Approx. 2 mm thick washers are required between frame mount and IS Adaptor, for installation with Moment hub (see diagram). Installation with KH/Schlumpf geared hub does not require spacer washers. Standard, stainless steel washers available at any cycling retailer or hardware store will work.
5. Loosen lateral adjustment bolts on disk caliper.
6. Install wheel on frame, sliding the disk rotor into caliper.
7. Center caliper on disk rotor and tighten lateral adjustment bolts. If the caliper cannot be centered on the rotor, check whether more or less spacer washers are required between the IS adaptor and frame mount.
8. Secure brake line to frame with zip ties, and install brake lever on saddle or touring handle.

Compatibility Requirements

Brakes

- ✓ Disk brake with International Standard (IS) mount or IS adaptor.
- ✓ Brake caliper must clear 20 mm slot between disk rotor and inside face of crank. Tested on Magura Marta, Bengal Helix, Shimano BR-M575, and Shimano BR-M765 hydraulic disk brakes. Will fit most hydraulic disk brakes but not guaranteed to fit mechanical disk brakes. *For a full list of known compatible disc brakes/rotors please visit www.krisholm.com.*

Disk Rotors

- ✓ 160 mm or 180 mm (160 mm recommended)

Compatible frames

- ✓ Requires IS brake mount on right fork blade or bearing housing, and 20 mm or narrower bearing housings (to ensure clearance of disk rotor bolts).
- ✓ Fits KH frames produced after June 2012. Other frames may require modifications. Older KH frames may require filing the outside face of the bearing housing to clear the disk rotor bolts. User frame modifications void the KH warranty.

Compatible hubs

- ✓ Standard 100 mm ISIS unicycle hub with 154 mm or longer axle.

Recommended brake line lengths

KH24, KH26, KH29: 80 cm
KH36: 105 cm



IMPORTANT WARNING for Use of Spirit Cranks with KH/Schlumpf Geared Hub

KH/Schlumpf geared hubs contain a knurled (rough) bearing on one side. This knurled bearing surface acts as a brace against the tightened bearing housing when you are in high gear mode. Because crank-mount disk brakes apply braking force through the crank, braking in second gear may apply additional force to the knurled braking surface beyond that experienced during normal pedalling.

This additional force may increase the risk of slippage of the knurled surface. Slippage problems were not identified during testing. However, given the newness of this braking technology and wide range of users, **we cannot guarantee that slippage of the knurled bearing will not occur for all users under all conditions.** Slippage of the knurled bearing in the frame while riding in second gear will most likely lead to falls and possible injury.

Riders using Spirit Disk Cranks with KH/Schlumpf Hubs do so at their own risk! Check the tightness of bearing housings on a regular basis. If you experience slippage, do not use disk brakes with the KH/Schlumpf hub.



Warranty

Kris Holm Unicycles products are warranted to the original owner against manufacturing defects for one (1) year following the original purchase date. For more details visit <http://www.krisholm.com/khu/warranty>



Unicycling can be hazardous and can result in injuries. Use common sense, ride within your abilities, and wear safety gear. **Disk brake rotors become very hot with use – avoid contact!** Tuck in laces and avoid wearing loose clothing that could catch in brakes, pedals or other parts of the unicycle. Kris Holm Unicycles cannot accept responsibility for any personal injury that you might sustain or that you might cause to another person as a result of the use, breakage or improper assembly of Kris Holm Unicycles equipment.