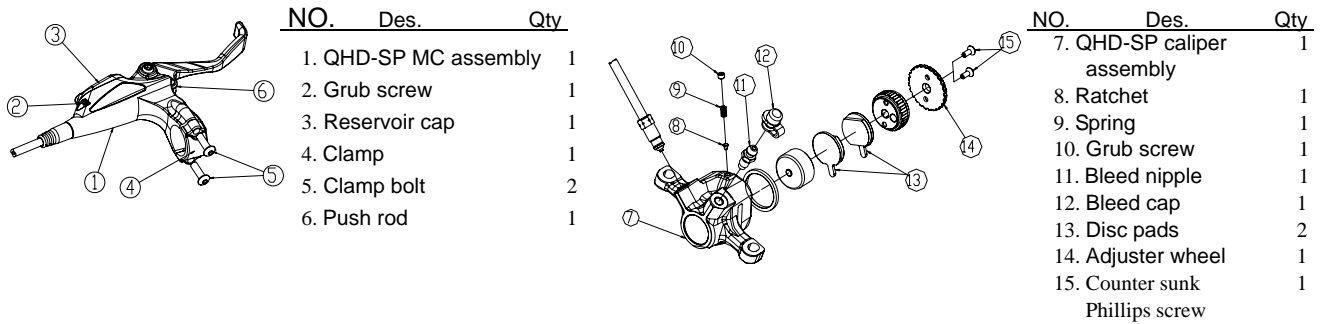


QUAD[®] QHD-SP HYDRAULIC DISC BRAKE SYSTEM



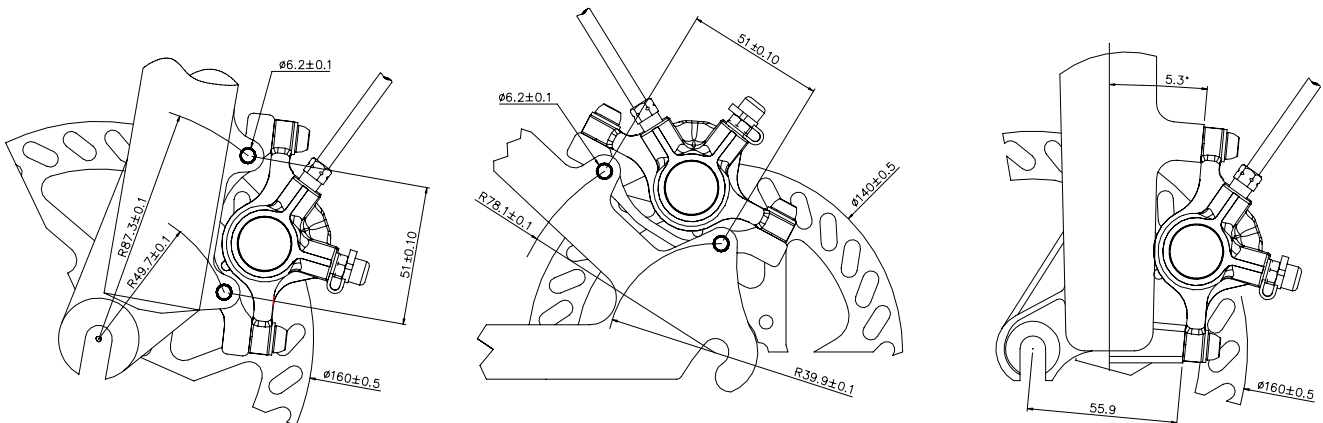
□ STANDARD FITTINGS

1. QHD-SP caliper is compatible with MANITOU forks with a distance between mounting of 74.2mm. It can be converted to International Standard when using our front and/or rear adaptor brackets.
2. Mounting bolts: M6 x 18mm (incl. Washer) x 4pcs.
3. Disc rotor : $\varnothing 160$ for the front and $\varnothing 140$ for the rear; using adaptor brackets, it can be $\varnothing 180$ for the front and $\varnothing 160$ for the rear or $\varnothing 203$ for the front and $\varnothing 180$ for the rear.
4. Rotor screws: 6 pcs.

□ RELATED MOUNTING SPECIFICATIONS

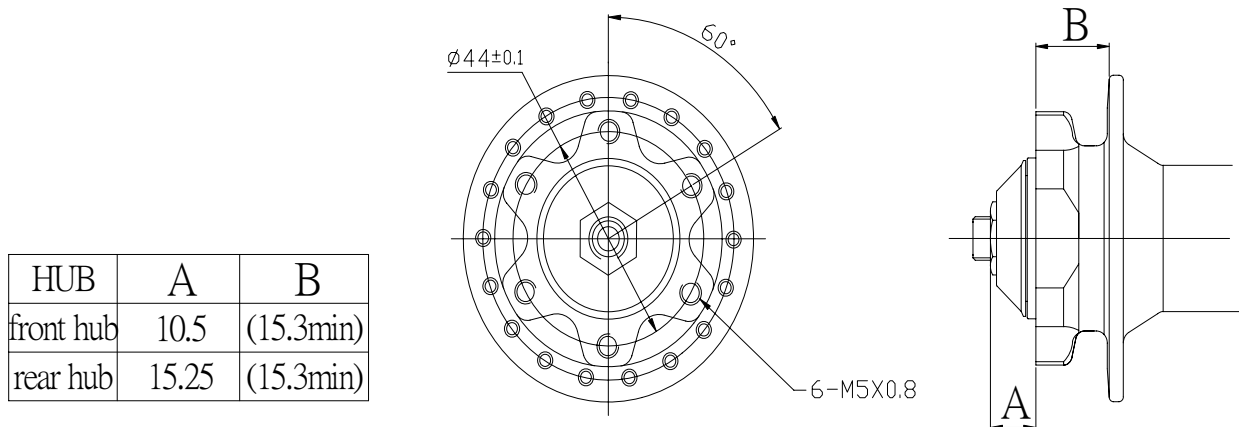
1. Specifications of front fork and rear dropout

QHD-SP is compatible to International Standard and Manitou fork, see drawings below :



2. Hub

The offset of hubs for QHD-SP disc brake system is the same as Hayes (SHIMANO) specifications, see drawings below :



3. Caliper

QHD-SP caliper is completely sealed, and has been tested to take high pressure. It is prohibited to loosen any screw/bolt on the caliper (the bleed nipple can be loosened only when changing brake fluid); otherwise it could cause leaking and consequently no braking.

***Warning :** No brake fluid leaking is allowed. Riding should be stopped at once when there is leaking.
Repairing should be performed by qualified dealers !

4. Rotor

QHD-SP rotor specifications are φ 160x2mm (thickness) for front, φ 140x2mm for rear. They can be φ 180x2mm for front, φ 160x2mm for rear or φ 203x2mm for front, φ 180x2mm for rear when using adaptor brackets.

***Warning :** 1. **Under normal riding condition**, there will be slight wear on rotor, the wear will be more after more braking. Therefore it is required to check the wear on rotor regularly. Disc rotor should be changed when it has been deformed or worn.
2. After use and or intensive braking, the temperature of the rotor becomes high. Do not touch the rotor.

ASSEMBLY

***Warning :** As the disc pads are self adjusting, **DO NOT** pull brake lever before it is fully assembled with rotor. The more pulls on brake lever without rotor in makes the gap between disc pads smaller and become unable to allow disc rotor in. Use divider to insert in between the pads and push them back to original positions.

I ∙ Assemble BMC bracket onto handle bar.

II ∙ Use the 6 rotor screws (3mm Allen key, torque 40~50 kg-cm) to tighten disc rotor onto the disc hub.

※Caution :

1. Follow the arrow mark for rotor direction.
2. The 6 rotor screws must be tightened before riding.
3. The 6 rotor screws should be tightened in diagonal sequence.
4. The 6 rotor screws should be replaced after disassembly for 3-4 times as the Nylok will not function as well as it should be then.

III ∙ Assemble the wheel fixed with rotor onto the front fork or rear dropout and tighten the wheel.

IV ∙ Assemble the caliper onto the front fork or rear dropout. :

1. International standard fork :

Tighten the front or rear adaptor bracket onto the front fork or dropout. (Use 2pcs M6 × 18mm bolts , torque 60 ± 5 kg-cm).

Mount the caliper to the adaptor bracket with 2pcs M6 × 18 bolts. (DO NOT TIGHTEN THE BOLTS, so that the caliper can move on bracket)

2. MANITOU fork :

Mount the caliper to the MANITOU fork with 2pcs M6 x 18 bolts. (DO NOT TIGHTEN THE BOLTS, so that the caliper can move on bracket)

V ∙ Pull the brake lever to make disc pads clamp to disc rotor (caliper will self adjust alignment) Check that the rotor is centralized in the caliper slot and that there is equal pad material showing either side, if not adjust the rear index to move the rear pad in or out until the rotor is centralised. Pull the lever and tighten the two M6 bolts clamping the caliper to mounting bracket.

VI ∙ Spin the wheel to make sure the disc rotor is clear to disc pads. If it is clear, then it is OK; if not, then slack the index wheel by one or two clicks to give space, otherwise repeat step V above.

VII ∙ Adjust the angle of brake lever on the push rod with 2mm Allen key. (Clockwise, for larger angle; Counter clockwise, for smaller angle).

VIII ∙ Test riding :

Braking force on the first 10~30 pulls is not as powerful. (New disc pads need to be bedded in)

[***Warning :** Do not ride at high speed when doing test riding, keep safe distance.]

MAINTENANCE

I. Changing disc pads :

QHD-SP hydraulic caliper is designed with self-adjustment function on the outer disc pad , The inner disc pad should be adjusted to compensate the wear when feels necessary.

It is required to stop riding and change new disc pads when the adjuster wheel can not be adjusted further in and the brake lever needs to be pulled with a large travel to stop the bike or there is noise between disc pads and rotor.

***Warning :** Keep disc pads free from oil or grease; otherwise it will cause no braking.

1. Remove the wheel.
2. Insert the divider into the gap between the disc pads and push the disc pads back to original positions. See picture 1.
3. Slack off the grub screw on top of caliper with 2mm Allen key, then totally unscrew off the rear adjuster wheel. Use needle nose pliers to help take out the old rear disc pad through rear end, then push the piston back to its original position on the other pad before taking it out. See picture 2 , 3 and 4.
4. Replace new disc pads in with correct sides, screw the rear adjuster wheel back on the caliper to push the rear pad to the position to leave proper space between the two pads to allow disc rotor in. Then tighten the grub screw on top of the caliper. See picture 5.
(**Caution:** Do not totally unscrew the grub screw when slacking off it. This will avoid losing the spring and ratchet underneath the grub screw.)
5. Put the wheel back on the fork or dropout and fasten it. See picture 6.
6. Spin the wheel and make sure it is clear between the rotor and disc pads. If it doesn't clear, redo the step VI in Assembly above.

※Caution :

1. Braking force on the first 10~30 pulls is not as powerful.(New disc pads need to be bedded in)
Do not ride at high speed when doing test riding, keep a safe distance.
2. It is normal that there might be braking noise in the wet. The noise will disappear after the disc pads become dry.

II · Changing brake fluid :

QHD-SP hydraulic disc brake uses Fuchs DOT#4 brake fluid. Other branded DOT#4 brake fluid is compatible.

***Warning :**

1. Never add or mix with other mineral oil or other than DOT#4 fluid as it will cause damage to the oil seals in the system and cause failure of braking.
2. Brake fluid absorbs moisture after a period of time, which will reduce its boiling temperature. Brake fluid should be changed in 2 years to avoid poor braking.
3. Brake fluid causes stimulation to skin, avoid direct contact the brake fluid.
Water skin once contact to brake fluid.

1. Tools :

- Empty container(for used fluid)
- DOT#4 Oil Bleed kit (includes: DOT#4 fluid, 6mm I/D tubing)
- 8mm open-end wrench
- 2mm Allen key
- divider or disc rotor
- Clean water and a cloth

2. Remove the caliper from front fork or dropout, and keep the grub screw on BMC upright. See picture 7.
3. Using the DOT#4 brake fluid bottle, connect the clear soft tube to cone shaped end of the bottle, then connect the other end of soft tube to the bleed nipple. Invert the bottle and allow any air bubbles to rise in the bottle. See picture 8.
4. Loosen the bleed nipple with an 8mm open-end wrench. See picture 9.
5. Insert the divider or disc rotor between the 2 disc pads, and place the empty container below the reservoir.
6. Remove the grub screw on the BMC. See picture 10.
7. Inject brake fluid :
 - 1) Keep the caliper at lower position, inject fluid into caliper slowly by squeezing the bottle and the fluid will come out from BMC end. Make sure the fluid is injected with no bubbles appearing.
See picture 11.
 - 2) Then screw in and tighten the grub screw on BMC(10kgf.cm),and tighten the bleed nipple (torque 50kgf.cm). See picture 12 and 13.

※Caution : The position of caliper should be higher than BMC when tightening the bleed nipple to

avoid fluid flowing out due to gravity.

8. Remove the hose and clean the excessive fluid. See picture 14 and 15.
9. Priming test : Place disc rotor into the caliper, pull the brake lever several times to check if the pressure has been built up. While feels firm pulls , the pressure has been built up. If not, it means that there is air in the hose, filling should be redone. See picture 16, 17 and 18.
10. Assemble caliper back to fork or dropout, follow steps IV, V, VI in Assembly above for adjustments.

III 、 Changing hose or cutting hose :

1. Tools :

- Empty container (for used fluid)
- 8mm open-end wrench
- divider or disc rotor
- 2mm Allen key
- Hose cutter
- Hose connection ×1 (maintenance kit)
- DOT#4 bleed kit
- QUAD QHD-1/QHD-SP maintenance kit
- Compression joint×1(maintenance kit)
- O ring ×1 (maintenance kit)
- Compression bush ×1 (maintenance kit)

※ **Hose must be of correct specification.**

2. Cutting hose :

- 1) Loosen compression joint and cut the hose to the required length. Brake hose must be cut square without fibers come out.

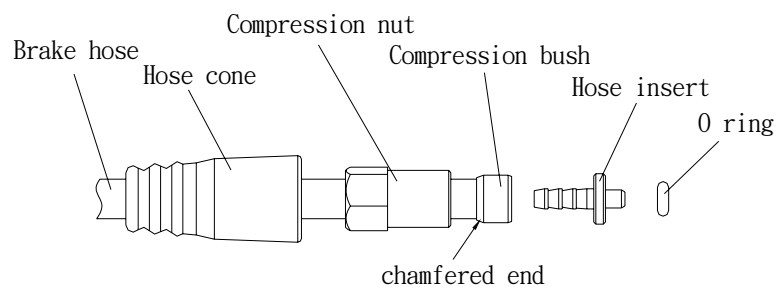
Standard hose length of QHD-SP : for front →1000mm

for rear →1550mm

※**Caution** : a. Brake fluid must be totally drained before cutting the hose.

b. The hose on BMC end should be cut for easier reassembly.

- 2) Put rubber cover through first, then compression joint, then compression bush. Hose should be put through the chamfered end of compression bush, and the other end of compression bush flash the end of hose.



- 3) Put hose insert on hose then put on an O ring, then screw compression joint into the BMC.

[※**Caution** : hose insert must be completely assembled into the hose, otherwise it might cause leaking and no braking] .

- 4) Tighten compression nut with 8mm open-end wrench , suggested torque 50~60kg-cm.

- 5) Put hose cone in place.

- 6) Inject fluid according to the steps in section of **Changing brake fluid** above. (Make sure the air is released) .

3. Changing hose :

Please contact a qualified dealer for correct replacement accessories.



Picture 1



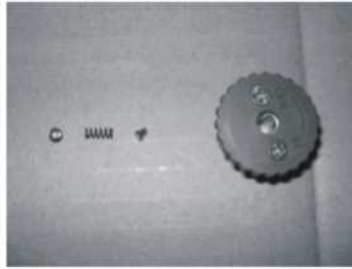
Picture 2



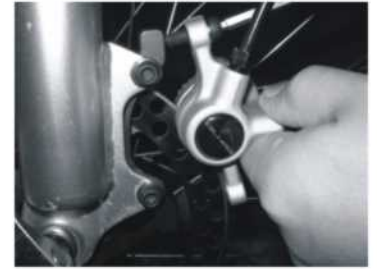
Picture 3



Picture 4



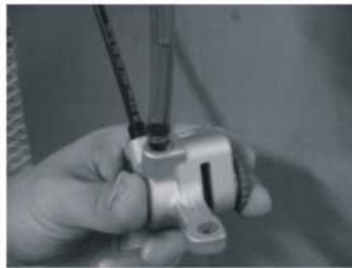
Picture 5



Picture 6



Picture 7



Picture 8



Picture 9



Picture 10



Picture 11



Picture 12



Picture 13



Picture 14



Picture 15



Picture 16



Picture 17



Picture 18