

# SON Schmidts Original Nabendynamo

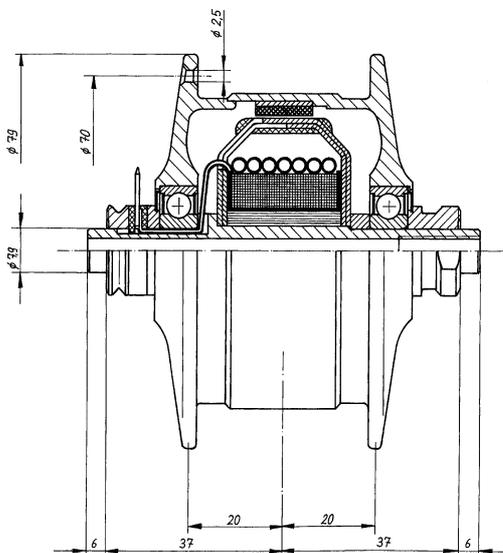
## SON XS Version for Brompton

8 mm diameter axle ends

## Installation Instructions

The **SON XS** hub dynamo is designed for 16"-20" wheels measuring 394 to 528 mm overall. It brings the famous high efficiency of the SON concept to the folding bike with narrow fork. The low weight of only 390 g ensures the bike won't be heavier than with a conventional front hub and sidewall dynamo. The **SON XS Brompton** with its 74 mm measure over locknuts and the 8 mm diameter axle ends is especially designed for the Brompton folding bike. There are different versions available for other folding bikes with 70 or 74 mm fork width and 9 mm wide fork dropouts.

The necessary partner for the **SON XS** is a modern halogen headlamp with integral switch. The best choice considering the limited room between mudguard and front bag mounting block are the round Lumotec with toggle switch or the E6-B with ring switch. All these headlamps are provided with an integrated overvoltage protection. Since year of manufacture 2007 you can recognize it by this test symbol:



## Wheelbuilding

The SON XS is designed for the usual tangent (crossed) form of spoking. Radial spoking is also permitted. Flange thickness and spoke holes are optimized for high quality 2 mm (14g) spokes. For the current Brompton rim 349x19 (available since 2005, wear-indicator groove at the sidewall) with 28 spoke holes 148 mm long spokes are recommended, mounted 2 cross not interlaced. For radial spoking use 133 mm long spokes. Older Brompton rims (marked "Alesa") need spokes 2 mm longer.

**Attention! Unlike the classic SON the axle is made from aluminum and correspondingly more delicate. The axle end should in no case be clamped from the sides or highly loaded during the wheelbuilding process.**

## Fitting the front wheel

A Brompton with the original mudguards has one mudguard stay clamped onto the hub axle on the left side of the fork. The axle ends are longer than usual for hollow axle hubs to hold the retaining washers, which also embraces the eyelet of the mudguard stay on the left side. The hub is secured using the included skewer set. It fits the same way as a quick-release, but fastens with a 4 mm Allen key. **Apply a little grease on thread and screw-head but not on the shank** (to prevent clogging up the pressure compensation system leading into the hollow axle). **Recommended fastening torque is 8 to 10 Nm** - easily achieved with the normal length of the Allen key. If the skewer tension is too low, the axle may move inside the fork end causing a rattling noise. **The skewer has to be screwed into the nut for at least 5 turns before noteworthy force is necessary to tighten it. You might have to remove a washer on the right side to achieve this.**



## Fitting the headlamp

The room between the locking-lever of the mounting block for the Brompton front bag system and the mudguard is very limited. The round Lumotec with toggle switch and our E6 with ring switch can be fitted. The lamp bracket has to be appropriately bent to make sure the headlamp won't touch the mounting block and the brake function is not affected.

Mounting at the handlebar means more freedom of choice between headlamps. A good solution is the handlebar bracket made by riese & müller.

Our headlamps with integrated switch are usually equipped with 50 cm coaxial cable. This is a little too long for the Brompton fork. A cable loop at the fork crown is the easiest solution. It is suggested, that you fasten the cable to the fork blade with nylon zip-ties, leaving enough slack by the axle to facilitate disconnection from and re-connection to the hub. Either plug may be connected to either spade terminal (they simply push together), it makes no difference which way round.

If you wish to mount the headlamp at the handlebar, it is possible to order an E6 or Lumotec headlamp equipped with a longer cable and separate plugs etc. This can be trimmed to the required length, after which you must attach the plugs yourself according to the process illustrated below.

<p>1</p>	<ul style="list-style-type: none"> <li>Remove about 4 cm of outer insulation</li> <li>Twist the underlying wires together and slide a piece of thin shrink-sleeve over them</li> </ul>
<p>2</p>	<ul style="list-style-type: none"> <li>Heat with a hot air gun or flame (carefully) to shrink this sleeve, then do the same with a piece of fatter shrink-sleeve overlapping the junction.</li> <li>Trim the sleeve and inner insulation to bare about 5 mm of each cable</li> </ul>
<p>3</p>	<ul style="list-style-type: none"> <li>Fit the plugs, using a crimp tool or pliers to secure both the insulation and the cables. The first pair of claws must grip the insulation.</li> </ul>
<p>4</p>	<ul style="list-style-type: none"> <li>Slide and shrink a piece of sleeve over each plug</li> </ul>

Headlamps with integrated switch by other manufacturers (e.g. Lumotec oval senso plus) are usually equipped with twin cables instead of coaxial cable. Instead of step 1 and 2 the cable only has to be cut to length, the two wires separated for about 3 cm and the insulation removed at about 5 mm.

## Connection of a rear lamp

**The generator should always be connected to a 6V3W load. The usual way is the combination of the 2.4W halogen headlight and a 0.6W rear light or a special 6V3W halogen bulb. The permanent use of a 6V2.4W bulb alone will shorten the bulb lifetime radically (not relevant for the E6 headlamp)! We recommend a good quality LED rear lamp with capacitor standlight (e.g. Toplight D plus by Busch+ Müller).**

The rear lamp should be connected to the head lamp by double wiring, because the bicycle frame with its bearings and links is no good conductor.

Most reliable and elegant cables are the Schmidt coaxial cables for rear lamps. The cable for rear lamp with overvoltage protection (item no. 72095) must be used in case the headlight itself is not provided with an integrated overvoltage protection.

## Maintenance

The generator is fully enclosed and maintenance free: there are no gears or other moving parts inside. The wiring and lamps should be checked regularly, and any defects repaired in order to avoid dangers caused by high voltage. The ball-bearing cartridges are pre-lubricated and similarly maintenance free in normal everyday use. A slight amount of play is normal with this type of bearing - do not attempt to adjust or regrease them.

**The aluminium axle and the parts that are pushed on are threadless. They cannot and must not be twisted.**

**To avoid water ingress do not immerse the hub and take care when washing it never to spray water (from a hose etc.) directly at the axle.** In case of any problems (e.g. worn bearings, damaged electrical contacts) let your bike shop contact the manufacturer or importer. For warranty claims (5 years from date of purchase) please add a copy of the purchase receipt.

## Important advice

**With lights switched off, the fast spinning generator induces a high and possibly dangerous voltage. For this reason the switch and generator must be connected by a fully insulated cable like the one provided, i.e. with no bare parts.**

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