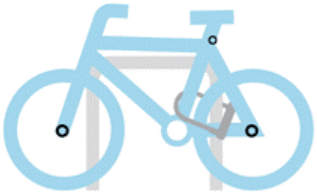

Secure skewers

'Secure skewers' can be used to replace the quick release and standard bolt fixings used to secure many bike components, particularly wheels and seat posts.

Quick release fixings were introduced to aid rapid wheel removal to change wheels, tyres or tubes during racing. Many bikes still supply such fixings as standard to increase convenience of servicing and carriage for owners, or to enable wheels to be removed for locking (if one wheel is removed and placed alongside the other a single lock can secure both wheels and the frame of a bike more easily).

Quick release fixings are equally simple for a thief to remove and such fixings account for many component thefts as naïve cyclists often neglect to secure quick release components.

Using secure skewers can increase security and convenience by removing the need to carry two locks (or one large one) to secure both wheels and the frame of a bike. A bike's components may be secured to the frame 'permanently' whilst the lock is used to secure the frame to the parking furniture.

There are several designs of secure skewer on the market, offering different degrees of protection dependent on the method by which the skewer is fitted.

Coded key: Designs such as the 'Pinhead' system utilise a 'coded key' comprising of a small hand tool with a surface plate that is compatible with the 'nuts' that cap the skewers. The positioning of the indents in the 'nuts' and the raised areas on the 'keys' is compatible and unique making it difficult for the 'nut' (and skewer and component) to be removed without the correct key.

Coded or unusual Allen key: Standard Allen keys and bolts are six sided. Some secure skewers utilise five sided Allen nuts or other less common bolt and key heads such as star shapes to reduce the likelihood of an opportunist thief having the necessary tools to remove components from a bike.

Recessed and collared 'nut' heads: Systems such as 'Pitlock' utilise a 'nut' of one of 256 shape configurations, surrounded by a protective collar such that only a tool of the same one of 256 shapes can be placed around the lock to 'undo' the nut and

remove the skewer. The protective collar also guards against attack on the ‘nut’ using an angle grinder or attempt to pry the nut loose with other hand tools.

Such secure fastenings can be used on many bike components that are bolted to the bike frame (see **components**) [link to components section of bike section].

Secure skewers can be vulnerable to grinding using electrically operated hand tools.

Weight:

Need to weigh

Dimension:

Approx. 100mm – 25mm depending on component skewer or bolt fixing is intended to secure.

Usability:

Easy to fit and to remove with the correct tool(s). Very difficult to remove should the owner lose the removal tool (key). Most brands run a replacement tool service for registered users. Once fitted the secure skewers offer good protection to parked bikes when the frame is secured to appropriate secure parking furniture with a robust lock.

Keys and Barrel:

Locking mechanisms include coded and unusually shaped keys and tools as described above.

Bikeoff Performance Rating:

The table below gives a 'user value' out of thirty, in green, and a 'security value' out of thirty, in red. The total value, out of sixty, gives the overall Bikeoff Performance Rating (BPR). If the Bikeoff Performance rating is in green then the lock is 'user biased', a red rating denotes 'security bias' and a yellow rating indicates an equal performance in relation to user and abuser considerations meaning the lock is a 'good all rounder'. Lock performance is also considered in relation to length of stay to indicate how increased risk (more time parked unattended) impacts on user and abuser values, e.g. lighter, and less secure locks will have a much lower BPR for long stops than for quick stops.

Length of stay	Quick	Short	Medium	Long
Weight	10	10	10	10
Ease of use	7	7	9	9
Storage	10	10	10	10
	27	27	29	29
Resistance	30	25	20	20
BPR	57	53	49	49

The above values show that secure skewers are a good 'all round' locking solution – FOR COMPONENTS ONLY. Their user centred value is similar to their abuser centred value for most stay lengths. Secure skewers are particularly effective for shorter stay lengths as they combine a high level of security with no carrying or fitting requirements and negligible weight. It is essential to note that secure skewers are only a secondary locking measure. They only secure components and MUST be used with an additional lock to secure the bike frame.

Useful References:

http://pitlock.com/
www.pinheadcomponents.com