



ELECTRIC BICYCLE FOR BIKE-SHARE

APPENDIX 1, ANNEX A5: DESCRIPTION OF DRAWING PACKAGES

Design project New city bikeshare bike



This drawing is only for information – advertisement options - the drawing is not fully up to date with other material.

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1. Background

This document provides an overview of the result of the design project carried out by Kildemoes for Bysykkelen AS.

The document has two purposes: First, to describe the outcome of the design process and second, to provide the input for the Prototype production and subsequent completion of the product design to make it ready for production.

The document has two main sections:

- General design considerations. In this section describe the background information and list special design considerations that are not shown in the enclosed drawings.
- List of all components in the design packages. These components are all the products developed as output of the design process.

2. General design considerations

This section describes solutions not defined or shown clearly in the enclosed drawings.

2.1. Battery lock system

The design doesn't have a traditional battery lock with individual key. Instead the battery is held in position by alloy plate/ battery cap using 4 bolts: At the BB Yoke the battery will be mounted and removed. Battery and cables in this area will be protected by cover in alloy material. Fixation of cover will be done by 3 screws. These must use an anti-theft system (head of bolt requires special tool when removing).

2.2. Bike trailer connection

The Bike must support a trailer connector point. In the current design the trailer connector of Hamax or similar to Hamax, can be mounted at the rear wheel hub nut (left side).

Reference: <https://www.hamax.com/>

2.3. Kick stand

The design is elaborated to support the 28" Jumbo kickstand. However, the connector may also be used for a standard single side kick stand.

2.4. Bike bags

The rear mudguard stays are designed strong enough to support bike bags carrying up to 6 kg each side.

2.5. Advertisement area´s on the bike

The bike is prepared for placement of advertisement/ information in different positions. This will be possible on handlebar, front carrier, rear fender, side of rear fender. Plates on rear fender + front carrier are not included in bike specification.

2.6. Saddle adjustment

On the bike it is possible to adjust the saddle height by using the quick release clamp below the saddle. Maximum saddle height above ground 1130 mm, lowest position 845 mm above ground -> Stroke 285 mm. Quick release clamp with arm in 120 mm. in order to make it easy for all users to adjust the saddle position.

2.7. Anti-theft fasteners

In order to prevent theft of components which are part of the bike, fasteners using anti-theft system should be used. These fasteners are used on seat clamps, fender stays, lock, chainguard, front carrier, cover for Bike PCB & controller, cover for battery, docking point components on fork & seat post.

2.8. Cable routing & fixation of motor cable + rear disc brake cable.

Routing of the motor cable and rear brake hose will be inside the chain stay of the frame. Motor cable should have connector hidden inside the chain stay at the end towards rear wheel. In order to make sure these are not easily damaged or object to vandalism they will be protected by a braided cable sock and fixated by plastic cable guide to dropout using screw.

2.9. Cable routing charging cables + brake hose on fork

Brake hose for front brake should have routing from handlebar to calibre on front fork. Fixation of the hose should be done by cable guide on left blade of fork. Charging cables should come out from bottom side of headtube cover and enter fork blades (left + right side) on fork shoulder. Part of cables or hose that are on the outside should be wrapped with reinforcement protection material.

3. Design packages

The design package consists of two parts:

- Specification of the bike with PDF drawings and a commercial BoM list. These packages contain all information needed to calculate delivery time and price. All specifications and drawings in this section is delivered to all bidding companies.
- 3D CAD drawings are developed and owned by the supplier/manufacturer of the part/parts on the BOM list. If the winner of the tender chose to use the suppliers/manufacturers on the BOM list he can enter into an agreement with the supplier/manufacturer to get access to the drawings. The supplier may also decide to use the enclosed 2D drawings to complete the design of the bike with own resources or sub-supplier.

- The ownership of 3D CAD drawings must be transferred to Bysykkelen AS as part of the delivery of the first 500 bikes. These drawings are detailed drawings prepared for prototype or production purposes. All tooling and moulds shall be the ownership of Bysykkelen AS.

3.1. Specifications and PDF drawings

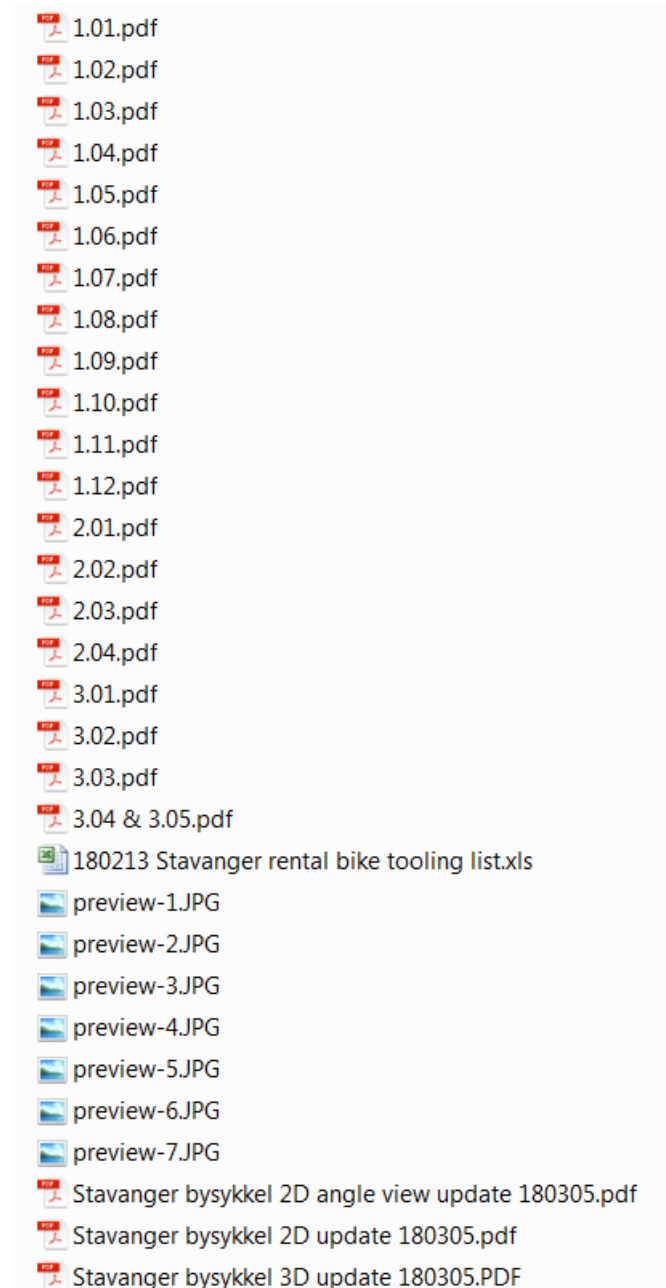
Id	Document Name	Version	Status	Date
11	Specification Stavanger rental bike Bilag 1 Vedlegg A7 BOM (180211) AKA 180211 Final Specification Stavanger rental bike.xlsx	180211	Delivered	11/02/18
12	Stavanger rental bike tooling list 180213 Stavanger rental bike tooling list.xlsx	180213	Delivered	13/02/18
13	Stavanger bysykkel 2D drawing update 180305.pdf Stavanger bysykkel 2D drawing angle view update 180305.pdf	180305	Delivered	05/03/18
14	3D pdf format design drawings (20 individual 3D Pdf files): 1.01.pdf; 1.02.pdf; 1.03.pdf; 1.04.pdf; 1.05.pdf; 1.06.pdf; 1.07.pdf; 1.08.pdf; 1.09.pdf; 1.10.pdf; 1.11.pdf; 1.12.pdf; 2.01.pdf; 2.02.pdf; 2.03.pdf; 2.04.pdf; 3.01.pdf; 3.02.pdf; 3.03.pdf; 3.04 & 3.05.pdf;	180212	Delivered	12/02/18
15	Images (7) preview-1.JPG; preview-2.JPG; preview-3.JPG; preview-4.JPG; preview-5.JPG; preview-6.JPG; preview-7.JPG		Delivered	05/03/18
16	Stavanger bysykkel 3D update 180305.pdf	180305	Delivered	05/03/18
17	Design Document (This document: Bilag 1 vedlegg A5)	180215	Delivered	15/02/18

Notes to the supplied documents:

- 1) Id 11: Specification Stavanger rental bike is a commercial BOM list. The Production BoM list is assumed to be prepared by winner of the tender.
- 2) Id 12, 13, 14, 15 and 16 in total 31 files are found in Bilag 1 Vedlegg A6

4. List of contents: Appendix 1 Annex A6

File List: Design packages. All files are listed, except this document (id 17) and the Bom list (id 11):



5. Document information

Version	Date	Issued by	Status	Purpose of update
1.0	13 mar 18	PSA	Final	Initial: Created based on material received from the design project by Kildemoes.
2.0	04. June 18	PSA	Final	Update due to internal comments.
3.0	20. Jun 18	PSA	Final	Main document language changed to English.