This paper deals with the design of a pair of shears for the cutting of steel tubes in an offshore environment.

A preliminary investigation [report 87.3.OS.2338], which is summarized in chapter 3, carried out with a pair of onshore scrap shears, showed that these shears were basically not suitable for the cutting of tubes. Quite large changes are required to adapt it to the cutting of tubes. The quantitative influence of the changes on the required cutting force cannot be predicted with certainty.

It is recommended to build a scale model of the tube shear, which is specially designed for the cutting of tubes. The quantification of the cutting forces, for a shear specially designed to cut tubes, is achieved by means of model experiments. This paper contains the preliminary design of the model shear, according to:

- the recommendations and conclusions of the preliminary investigation;
- the requirements of HES related to a shear for offshore use.

**Conclusion:**
A preliminary design of a shear is presented for the cutting of two concentrical tubes, 330 m and 304 mm diameter, which are on a scale of 1:5 to the tubes to be cut offshore.

**Recommendations:**

1. the model shear should be used to experimentally determine the influence on the required cutting force of:
   - the cutting speed;
   - the axial load on a tube to be cut;
   - two concentrical tubes, to be cut together;
   - the size of the tube.
   The recommended test situation is shown in a drawing in the report.
2. handling of the offshore structure components during the cutting activities should be studied.
3. a study should be carried out on how to position the shear on the tubes to be cut.