The design and optimization of the external occulter geometry is one of the most discussed topics among solar coronagraph designers. To improve the performance of future coronagraphs and to stretch their inner fields of view toward the solar limb, the new concept of coronagraphs in formation flight has been introduced in the scientific debate. Solar coronagraphs in formation flight require several mechanical and technological constraints to be met, mainly due to the large dimension of the occulter and to the spacecraft's reciprocal alignment. The occulter edge requires special attention to minimize diffraction while being compatible with the handling and integrating of large delicate space components. Moreover, it is practically impossible to set up a full-scale model for laboratory tests. This article describes the design and laboratory tests on a demonstrator for a coronagraph to be operated in formation flight. The demonstrator is based on the principle of the linear edge, thus the presented results cannot be directly extrapolated to the case of the flying circular occulter. Nevertheless, we are able to confirm the results of other authors investigating on smaller coronagraphs and provide further information on the geometry and tolerances of the optimization system. The described work is one of the results of the ESA STARTIGER program on formation flying coronagraphs ["The STARTIGER's demonstrators: toward a new generation of formation flying solar coronagraphs," in 2010 International Conference on Space Optics (ICSO) (2010), paper 39]. 
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