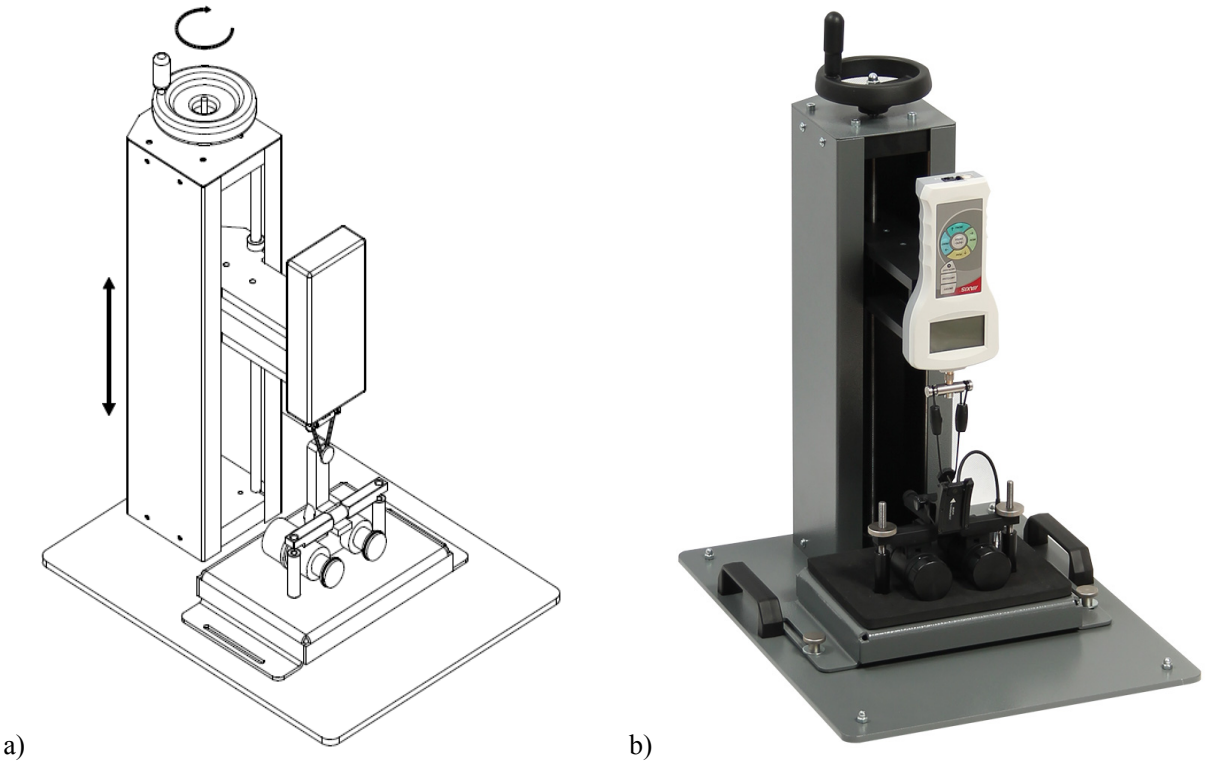
FORK

Tester of automatic breakaway force of aviator NVGs



a) b)

Fig. 1. FORK test station: a)block diagram, b)photo

BASIC INFORMATION:

Binocular night vision goggles (NVGs) enable aviators to carry out missions at night conditions. However, the goggle fixed to helmet can also break neck of aviator during accidents due to apparent increase of weight of the goggles.

In order to prevent such a situation aviator NVGs are equipped with a mechanism of automatic breakaway that disconnects the goggles with the helmet when g-force exceed a certain limit (typically force in range from 11 to 15 g).

MIL standards that regulate testing night vision goggles present a method to measure test breakaway mechanism of aviator NVGs. In detail two checks are to be done: a)if breakaway mechanism does not activate below level of 9 g; b)if breakaway mechanism disconnects with the helmet when force of 15 g is applied. Attention: different manufacturers of NVGs present sometimes slightly different requirements.

Measurement of both two levels of force looks like an easy task to be done using a force meter. Therefore tests of automatic breakaway mechanism of aviator NVGs are often done using ad-hoc set ups. The problem is that such improvised test systems generate results of low accuracy and low repeatability.

FORK is a professional station for testing automatic breakaway mechanisms of aviator NVGs. The station enables stabilization of tested NVGs to a horizontal platform, precision increasing of force in vertical direction applied to mechanical center of the goggles, and measurement of force when break way mechanism is activated. The test method is fully equivalent to method proposed in MIL standards that regulate testing aviator NVGs.

The station produces precision, repeatable test results. Station operation is simple and fast Several dozens of aviator NVGs can be tested within one hour.

FORK station is optimized for testing ANV/AVS-9 aviator goggles but basically any equivalent aviator goggles can be tested.

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STATION BLOCKS

FORK test station is built from two main blocks: FORC base block, FM200 force meter. The first block enables stabilization of position of tested NVG and precision regulation of force applied to automatic breakaway mechanism. The second block enables measurement of force needed to activate breakaway mechanism.

SPECIFICATIONS

Modules	FORC force regulator, FM200 force meter
Types of tested NVGs	ANV/AVS-9 aviator goggles and equivalent goggles
Measured force range	0-200N
Measurement resolution	0.05N
Measurement uncertainty	0.2%
Mass	15 kg
Dimensions	500x580x400mm

*specifications are subject to change without prior notice

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