

AUGUST 2022 | CASE STUDY

# LEAK TESTS OF OPTICAL SYSTEMS

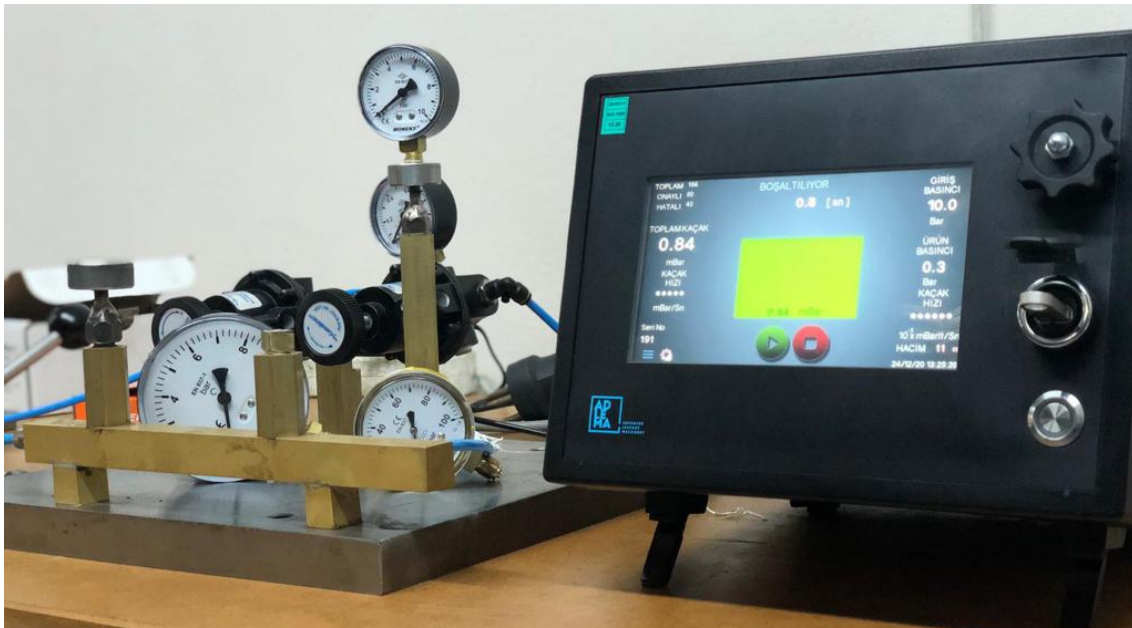
Sniper binoculars, sights, and thermal cameras are types of equipment that are often used next to soldiers in the field or in critical security facilities. These equipments, which are essential to the field, are used in harsh environments such as rain, underwater, snow, or desert. These equipments, which need to work perfectly in different environmental conditions, must have leak-proof feature. This equipment, whose operational performance decreases in dust, dirt, water vapor, or water permeation, puts the soldiers in the field in a difficult situation.

Tested with Adlema BT 4000 series leak testing devices, these equipment are used safely even in the most challenging environmental conditions.

# 1

## Leak Test of Cast Body

It is sealed with systems containing pneumatic pistons and special quick connectors that can be controlled with the Adlema BT 4000 series. After the test pressure is applied to the casting part, the stabilization phase is started. The stabilization stage is necessary to stagnate the air supplied into the part and to exclude pressure decay due to expansion from the test result. After this stage, the test is started. During the test phase, faults and leakage amounts in the cast part are checked with the differential pressure decay method. The reason why the leak test is done at this early stage is to prevent the damaged parts from moving on to the next operations during the assembly phase. It saves time and money. When the cast part passes the first leak test, it moves on to other stages for processing.

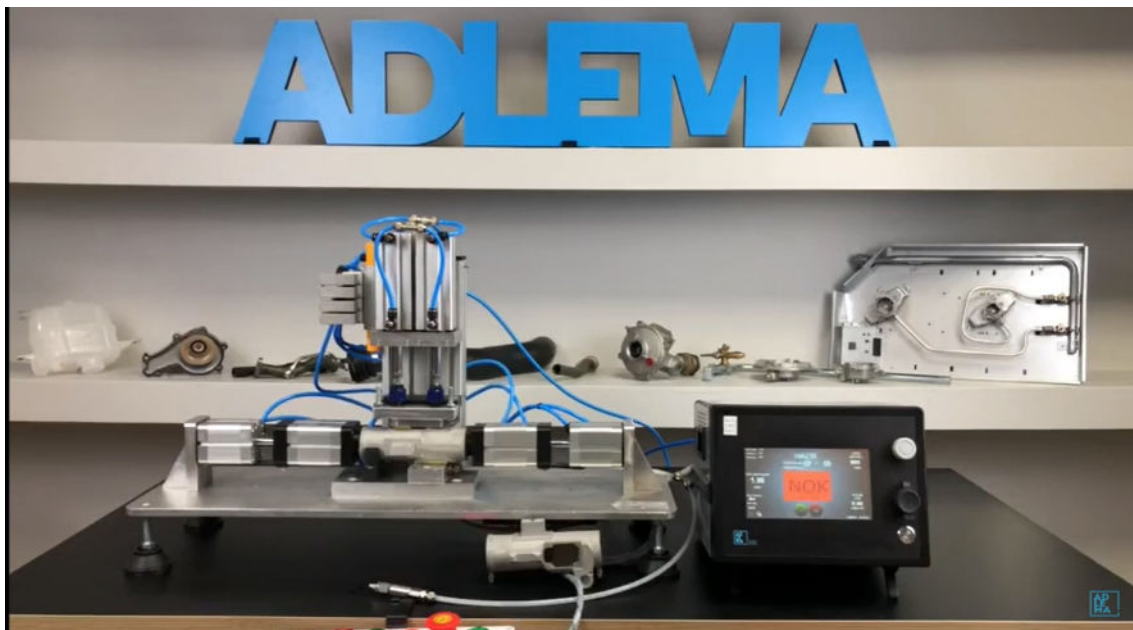




# 2

## Leak Test of Machined Cast Part

Due to machining operations on machined casting parts with mounting holes, damages may occur. The machined part is tested with ADLEMA BT 4000 series leak testing devices in order to control these damages and detect them before they progress on the assembly line. Machined bodies are sealed with systems containing these special quick connectors controlled by ADLEMA BT 4000 series leak testers. If the parts that pass the pressurization, stabilization, and test stages are not leaking, they can move on to the next stage.



# 3 Nihai Ürünün Test Edilmesi

A leak test should also be done on the final product that has come off the assembly line. Test pressure is given from the purge valve in the sniper scopes. Then comes the stabilization phase, which is necessary for correct testing. After the stabilization phase, the test begins. First of all, the whole scope is tested for leakage, but no approval or rejection result is given. It is necessary that the moving mechanisms in the binocular body, where adjustments such as zoom ratio and sharpness are made, should not lose their leak-proof feature, especially during these movements. Therefore, at this stage, while the test is in progress, an operator tests the functions of the moving mechanisms. If a leak occurs in the parts during this movement, the device will give a "NOK" warning to the tested product. Solid parts are ready to be packed after approval.

