




TEST REPORT No. 87/1/BT/2025**REPLACES THE RESEARCH REPORT 87/BT/2025 *****(RESEARCH REPORT NO. 87/BT/2025 HAS EXPIRED)**

Subject:	Testing the IP68 ingress protection rating of "QuCube/ QuBox Cube series" enclosures
Orderer:	Wireless Instruments Kościuszki 27, 52-116 Iwiny
Project No:	UP/BT-34444/OR
Release date of the Report:	13.06.2025
Date and place of tests:	11-13.06.2025 at the KOMAG Institute of Mining Technology at Pszczynska 37 in Gliwice, Poland

Project leader:	Arkadiusz Rybka, M. Sc. Eng. /name/	 /signature/
Authorized by:	Arkadiusz Rybka, M. Sc. Eng. /name/	 /signature/
Approved by:	Łukasz Orzech, Ph. D. Eng. /Laboratory Manager /	 /signature/

Reservation: Test report includes only the results, which are related to the tested object.

Report is a Laboratory property and any changes cannot be made without authors permission. It cannot be copied without a written approval otherwise as an entire document. Komag takes an obligation to keep in secret all test results and the results will not be published without a permission of Orderer. This will be not in force if law regulations are different.

Copies:

Wireless Instruments – 2 copies

KOMAG Laboratory of Applied Tests – 1 copy

1. Subject of testing

The enclosures, delivered by the Orderer, were the objects of testing. The objects were marked by the Laboratory with the following sample numbers:

- 74/25/1 – IP6X test,
- 74/24/2 – IPX7 and IPX8 test.

The tested objects are presented in Fig. 1

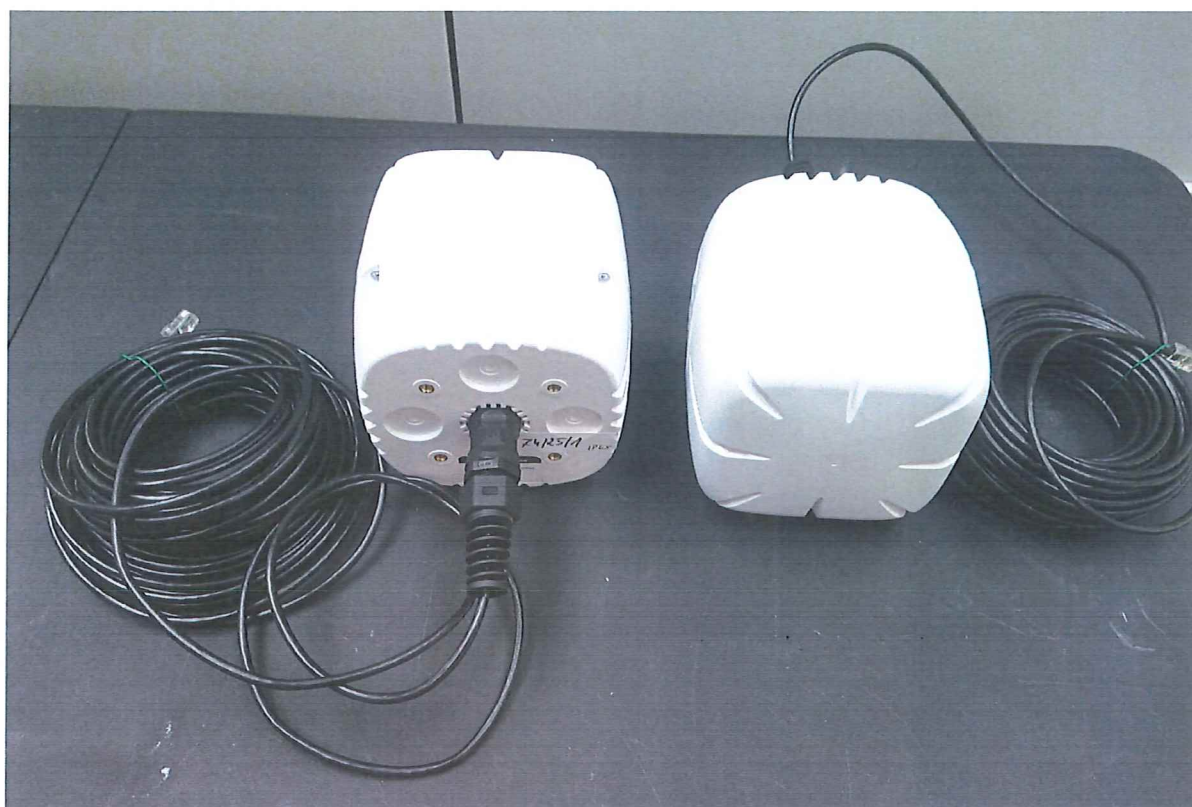


Fig. 1. Tested objects


2. Scope of tests

The scope of tests included testing the IP68 ingress protection rating, according to the requirements of the *PN-EN 60529:2003+A2:2014-07 Degrees of protection provided by enclosures (IP Code) Standard*.

3. List of instruments used for tests

The following instruments were used for tests:

<i>Name of the instrument</i>	<i>Id number</i>
Dust chamber with vacuum pump	KiŚ5
Test stand for water ingress protection testing	KiŚ6

	Laboratory of Applied Tests	
	Test Report No. 87/1/BT/2025	page 3 / 3

4. Test results

4.1. Testing the IP 6X ingress protection rating

The test consisted in verification of protection level against ingress of dust (the first characteristic numeral IP6X). The test was carried out according to the requirements of item 13.4 and 13.6 of the PN-EN 60529:2003+A2:2014-07 Standard.

After the test for the first characteristic numeral IP6X, no dust was found inside the tested enclosure.

Test result for the first characteristic numeral IP6X of the tested enclosure is positive.

4.2. Testing the IPX7 ingress protection rating

The test consisted in verification of water ingress protection (second characteristic numeral IPX7). The test was carried out according to the requirements of item 14.2.7 of PN-EN 60529:2003+A2:2014-07 Standard and following conditions agreed with the Orderer:

- immersion: 1 m below water surface (immersion simulated by placing the tested sample in a pressure enclosure under the water pressure of 0.1 bar),
- exposure time: 30 min.,
- water temperature: $(23 \pm 3) ^\circ\text{C}$.

After the test for the second characteristic numeral IPX7, no water was found inside the tested enclosure.

Test result for the second characteristic numeral IPX7 of the tested enclosure is positive.

4.3. Testing the IPX8 ingress protection rating

The test consisted in verification of water ingress protection (second characteristic numeral IPX8). The test was carried out according to the requirements of item 14.2.8 of PN-EN 60529:2003+A2:2014-07 Standard and following conditions agreed with the Orderer:

- immersion: 2 m below water surface (immersion simulated by placing the tested sample in a pressure enclosure under the water pressure of 0.2 bar),
- exposure time: 1 day (24 h),
- water temperature: $(23 \pm 3) ^\circ\text{C}$.

After the test for the second characteristic numeral IPX8, no water was found inside the tested enclosure.

Test result for the second characteristic numeral IPX8 of the tested enclosure is positive.

On the basis of tests, protection level IP68 is confirmed.

- END OF THE REPORT -