



Test Facilities:  
Tempowerkring 19  
D-21079 Hamburg  
Tel: +49 (0)40 709 73 76 - 0  
Fax: +49 (0)40 709 73 76 - 25

Donaubogen 5  
D-24539 Neumünster  
Tel: +49 (0)4321 965 32 - 35  
Fax: +49 (0)40 709 73 76 - 25



## Laboratory Test Report

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Equipment Under Test: Rolltop  
Client: GOT BAG GmbH  
Breidenbacher Str. 8-10  
D-55116 Mainz

Release Date: 2024-01-26

Reviewed by: .....  
Dr.-Ing. D. Setsika  
Head of Material Test  
Laboratory

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**List of Revisions**

<b>Issue</b>	<b>Date</b>	<b>Affected Section</b>	<b>Issued by</b>	<b>Reasons for Revision</b>
1	2024-01-26	./.	H.-P. Nowak	Initial Release

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## 2 Test Overview and Results

**Table 1: Results**

Sec.	Test	Responsible Person	Date	EUT No.	Result
4	IP5X Dust Protected Equipment, Cat. 2  including Protection against access to hazardous parts with a probe of 1 mm in diameter  DIN EN 60529: 2014-09 Amendment 1: 2017-02 Amendment 2: 2019-06 Sections 12, 13.4 and 13.5	H.-P. Nowak	2024-01-10	01	Passed <sup>1</sup>
5	IPX4 Protection against splashing water  DIN EN 60529: 2014-09 Amendment 1: 2017-02, Amendment 2: 2019-06, Sections 14.2.4 and 14.3	H.-P. Nowak	2024-01-11	02	Passed

<sup>1</sup>Further remarks are provided to the corresponding section of this report.

This test report may contain test methods which are not part of our accredited test areas. These tests are marked with an asterisk (\*). Tests implemented in an accredited external laboratory are marked with two asterisks (\*\*). Tests implemented in a non-accredited external laboratory are marked with three asterisks (\*\*\*)

Text written in *italic type* is external information, not provided by TREO. This can be for example results or additional information provided by the client. The information is not part of results witnessed by TREO, hence TREO is not in charge for the content.

**Table 2: Logistics**

EUT No.	Date	Description
01	2023-12-22	Delivery at TREO-Hamburg
01	2024-01-26	Remain at TREO-Hamburg

### 3 Equipment Under Test (EUT)

#### 3.1 Description of EUT

Table 3: Description of EUT No. 01, 02

<b>Equipment No.</b>	01,02		
<b>Manufacturer</b>	GOT BAG GmbH		
<b>Product No.</b>	./.	<b>Revision</b>	./.
<b>Type</b>	Rolltop		
<b>Serial No.</b>	./.		
<b>Software</b>	./.	<b>Version</b>	./.
<b>Voltage</b>	./.	<b>Frequency</b>	./.
<b>Dimensions</b>	./.	<b>Weight</b>	./.
<b>Description</b>	Small outer pockets shall not be evaluated.		



Figure 1: Exemplary picture of equipment under test (EUT 01). No label was attached to the EUT at the date of test, the data for identification were provided by the client.



**Figure 2: EUT filled with packaging material at the request of the client to perform the IPX4 test.**

### **3.2 Description of Auxiliary Equipment (AE)**

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### **3.3 Entrance Examination**

The test equipment was checked after arrival by visual inspection. No external damage was detected.

### **3.4 Description of Connections**

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### **3.5 Description of Functional Checks**

./.

### **3.6 Description of general Pass / Fail Criteria for Immunity tests.**

./.

## 4 IP5X Dust Protected Equipment

### 4.1 Test Specifications

#### 4.1.1 Adapted Standard

- DIN EN 60529: 2014-09, Amendment 1: 2017-02 and Amendment 2: 2019-06, Sections 12, 13.4 and 13.5

#### 4.1.2 Qualification Test Plan

./.

#### 4.1.3 Test Parameters / Category

Category: IP5X, Cat 2

Table 4: Parameters

Parameters	Value
<b>Test Device – Dust Chamber</b>	
Dust specifications	Talcum powder, particle size 75 µm max.
Test duration [hh:mm:ss]	08:00:00
<b>Test Device – Wire probe</b>	
Diameter of wire probe [mm]	1
Test Force [N]	1 ± 10 %

#### 4.1.4 Deviations

./.

#### 4.1.5 Remarks

./.

#### 4.1.6 Pass/Fail Criteria

- Ingress of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the apparatus or to impair safety.
- An 1mm probe shall not enter the unit, if a force of 1N ±10% is applied.  
Barriers, shapes of openings or any other means suitable to prevent the penetration of the specified test probes are considered as a part of the enclosure, except when they can be removed without the use of a key or tool.
- Access to hazardous live and/or mechanical parts shall be prevented.

## 4.2 Test Location and Conditions

Test Facility: TREO – Hamburg



Ambient Conditions in the Laboratory:

**Table 5: Limits of Ambient Conditions**

Temperature [°C]	Ambient Pressure abs.[mbar]	Relative Humidity [% RH]
+15 to +35	860 to 1060	30 to 75

#### 4.3 Test Equipment

**Table 6: Test Equipment**

Description	Type	Manufacturer	Inventory No.	Calibration due
Dust Cabinet	SK1000	ITS	10741	./.
Flow Meter	mems EGZ-6	MEMS AG	10740	2025-02-22
1 mm Wire Probe	MP-100.04J	STAHL	10529	Verified with 20111
Caliper	-	Mitutoyo Deutschland GmbH	20111	2024-12-07
Force Sensor	MP-100.15A	STAHL	10293	2025-02-21
Scale	PE 3600	Mettler-Toledo	10319	2025-01-23
Stop watch	Stopstar 2	Hanhart	10291	./.

Expanded measurement uncertainty: Dimension 0.03 mm, Flow 0.14 m<sup>3</sup>/h, Force 0.07 N, Weight 1.2g

#### 4.4 External Witnessing Persons

./.

#### 4.5 Test Set-up



Figure 3: Test set-up

#### 4.6 Results

During the naked eye visual inspection after the test, no damages were detected.

No dust was detected in the EUT.

The 1mm probe entered the EUT.

*a) The tested product is a backpack which contains neither any electronical, technical or any critical which impose any danger to people using the product.*

*b) The tested product does not contain any dangerous content.*

*c) The purpose of a backpack is that it is easily accessible for people using the product to fill in and carry their belongings. So the access into the product through the main compartments (ROLLTOP) is mandatorily required and a constituting part of the product.*

The EUT passed the test considering the client's comment.

**Table 7: Overview of Results**

<b>EUT No.</b>	<b>Result</b>	<b>Comment</b>
01	Passed	Considering the client's comment.

4.6.1 Results EUT No. 01



Figure 4: No dust was detected in the EUT.

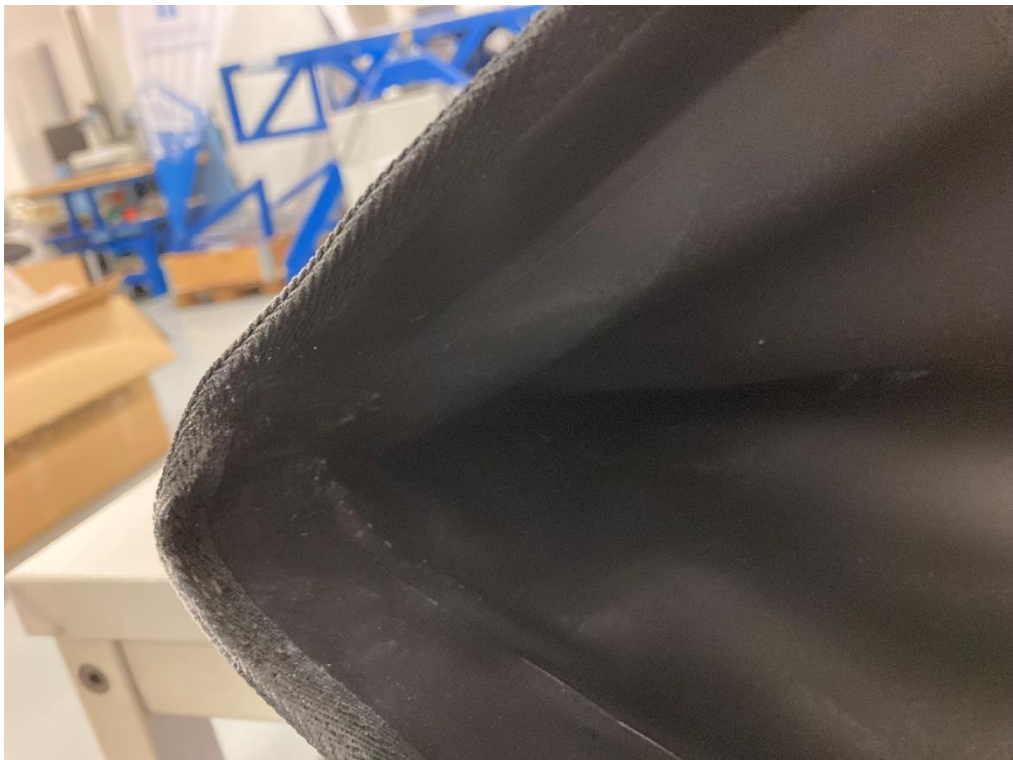


Figure 5: No dust was detected in the EUT.





Figure 6: No dust was detected in the EUT.



Figure 7: The 1-mm-wire probe entered the EUT.

## 5 IPX4 Protection against splashing water

### 5.1 Test Specifications

#### 5.1.1 Adapted Standard

- DIN EN 60529: 2014-09, Amendment 1: 2017-02 and Amendment 2: 2019-06, Sections 14.2.4 and 14.3

#### 5.1.2 Qualification Test Plan

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#### 5.1.3 Test Parameters / Category

Category: IPX4

**Table 8: Parameters**

Parameter	Value	Comment
Difference between water and EUT temperature [K]	5 max.	./.
<b>Test Device – Oscillating Tube</b>		
Oscillating tube radius [mm]	400	./.
Spray angle	+/-180° from vertical	./.
Water flow rate [l/min]	1.75 ± 5%	./.
Turntable	Active	The EUT is sprayed from every direction
Test duration [min]	10	./.
Distance EUT from spraying nozzles [mm]	max. 200	./.

#### 5.1.4 Deviations

./.

#### 5.1.5 Remarks

The EUT was filled with approx. 5 l packaging materials at request of the client.

#### 5.1.6 Pass/Fail Criteria

- The amount of water entering the EUT shall not be sufficient to interfere with the correct operation or impair safety.
- Water shall not deposit on insulation parts where it could lead to tracking along the creepage distances.
- Water shall not reach live parts or windings not designed to operate when wet.
- Water shall not accumulate near the cable end or enter the cable, if any.

- If the enclosure is provided with drain holes, it should be proved by inspection that any water which enters does not accumulate and that it drains away without doing any harm to the EUT.

## 5.2 Test Location and Conditions

Test Facility: TREO – Hamburg

Ambient Conditions in the Laboratory:

**Table 9: Limits of Ambient Conditions**

Temperature [°C]	Ambient Pressure abs.[mbar]	Relative Humidity [% RH]
+15 to +35	860 to 1060	30 to 75

## 5.3 Test Equipment

**Table 10: Test Equipment IPX4**

Description	Type	Manufacturer	Inventory no.	Calibration due
Water Cabinet	SPK R600	ITS GmbH	20149	./.
Turntable	0°	ITS GmbH	20154	./.
Oscillating Tube	400mm	ITS GmbH	20151	./.
Flow Meter IPX3, IPX4(K), IPX5, IPX6(K)	OPTIFLUX 1050 C	KROHNE Messtechnik GmbH & CO. KG	20144	2025-06-12
Pressure Sensor IPX3, IPX4(K)	PT5415	IFM Electronic GmbH	20147	2025-06-13
Stop Watch	Stopstar 2	Hanhart 1882 GmbH	10291	2026-06-03
Steel Ruler	1500 mm	Würth GmbH & Co. KG	10671	2032-03-07
Thermometer	GMH3750- GE	GHM Messtechnik GmbH	10722	2025-10-31
Temperature Detector	PT100 GTF 601 1/3 DIN	GHM Messtechnik GmbH	11058-P	2025-10-31

Expanded measurement uncertainty: Pressure 0.14 bar, Flow 4.2 l /min, Temperature 1.9 K, Dimension 0.85 mm.

## 5.4 External Witnessing Persons

./.

## 5.5 Test Set-up



Figure 8: Test set-up

## 5.6 Results

During the naked eye visual inspection after the test, no damages were detected.

No water was detected in the EUT.

The EUT passed the test.

Table 11: Overview of Results

EUT No.	Result	Comment
02	Passed	./.



5.6.1 Results EUT No. 02



Figure 9: EUT 02 without visible ingress of water.



Figure 10: EUT 02 without visible ingress of water.



Figure 11: EUT 02 without visible ingress of water.



Figure 12: EUT 02 without visible ingress of water.

END OF REPORT