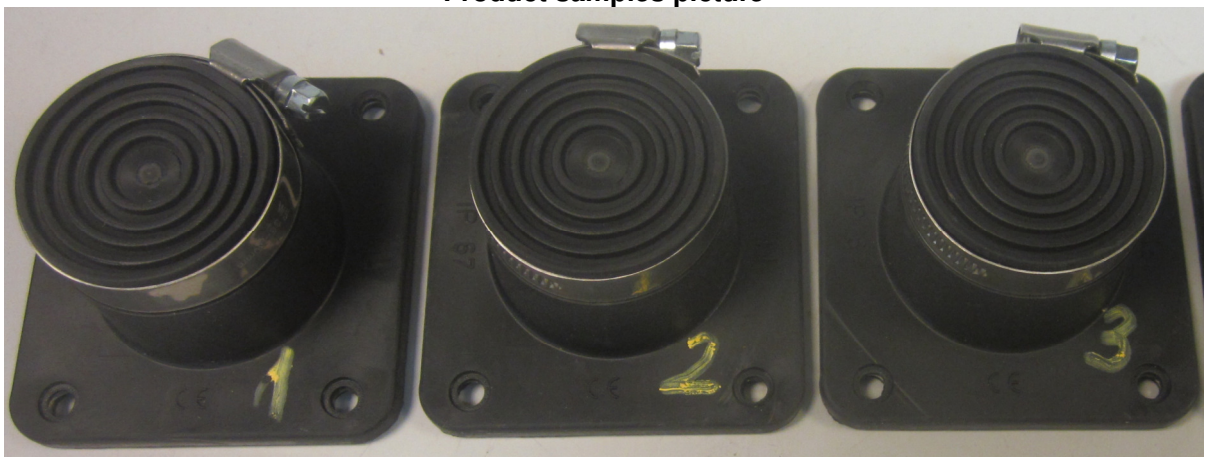
TEST REPORT No 167-25-0008

06.03.2025

Product:	Grommets KUPO M
Name and address of the applicant:	HT Hi Tech Polymers Oy Hallitie 1, 32740 SASTAMALA, FINLAND
Country of the manufacturer:	FINLAND
Name and address of the manufacturer:	Same as applicant
Rating and principal characteristics:	IP67
Normative references:	EN 60529:2007
Test method:	QMW 1308
Date(s) of the test(s)	28.02.-05.03.2025
Test scope:	Tests according to order KE2500609 27.02.2025
Trade mark (if any):	HT HI TECH POLYMERS OY
Model/type reference:	KUPO M
Note	The test results relate only to the sample tested.
Additional information:	Appendix 1

Product samples picture



Tested by: Harri Põldsalu

Expert

kiwa 167

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Product description KUPO M
Fixing holes 6mm, hole interval 70,5mm x 61mm, the cable must be tightened with a RST-clamp, IP-class IP65, cable sizes 23 mm – 48 mm, halogen free material TPE-SEBS, TPE-SEBS V0, operating temperature -40 +100 °C, country of manufacture Finland,

Picture 1. Marking on grommet



Testing
Date of receipt of test item: 27.02.2025
Date of performance of test: 03.03-.04.03.2025

Test case verdicts

Test case does not apply to the test object:	N/A
Test item does meet the requirement:	P(pass)
Test item does not meet the requirement:	F(fail)

1. General data

- ambient temperature: 18 ^{0}C
- relative humidity: 40 % to 75 % RH
- water temperature differ from that of the equipment < 5 K (16 °C)

1.2 Test program

Test program was agreed with customer order and carried out in accordance with EN 60529 and includes:

1. Visual examination
2. Degree of protection (IP67) by enclosure
3. Protection against solid foreign objects IP6X
4. Visual examination
5. Protection against water IPX7
6. Visual examination

1.3 Uncertainty of measurement:

1. The temperature measurements – ± 1 °C
2. The humidity measurements - ± 3%

1.4 Test equipment

Equipment	Manufacturer	Type
Dust chamber	ESPEC	EDC27 NoECSP01004
Water tank	Elektrikontrollikeskus	tank 5 m^3

2. Tests

2.1 Verification degree of protection enclosure IP67 (EN 60529).

2.1.1. Verification degree of protection first characteristic numeral.
Protection against solid foreign objects (dust- protected) IP6X.
Two specimens with seals did mounted on a metallic base.
The test was conducted in a dust chamber that was capable of maintaining the talcum powder in suspension. The amount of talcum powder 2 kg/m^3. The test duration was 4 hours. Visual examination after dust test.

2.1.2. Verification degree of protection second characteristic numeral.
Two specimens with seals did mounted on a metallic base.
Protection against water IPX7. Diving depths for 900 mm, time 0,5 h.
Visual examination after water test.

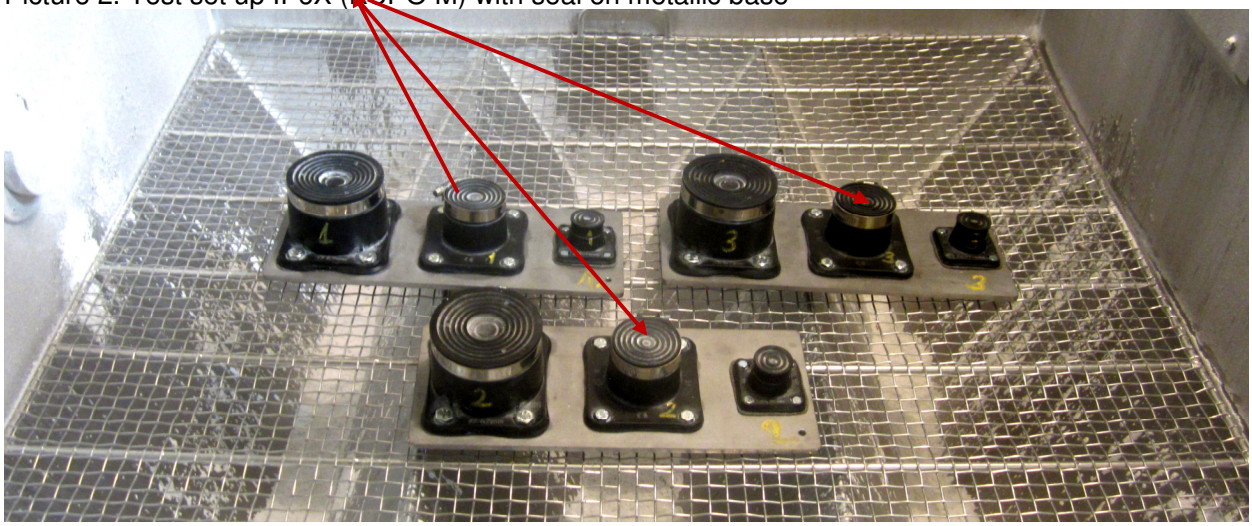
Summary of test results EN 60529

Verification degree of protection enclosure EN 60529			
Clause	**Requirement Test**	**Result - Remark**	**Verdict**
5	The first identification number IP6X	Tested	P
5.1 tab.1 12.3	Protection against access to hazardous parts IP6X	Tested Access probe Ø 1.0 mm not enter in samples	P

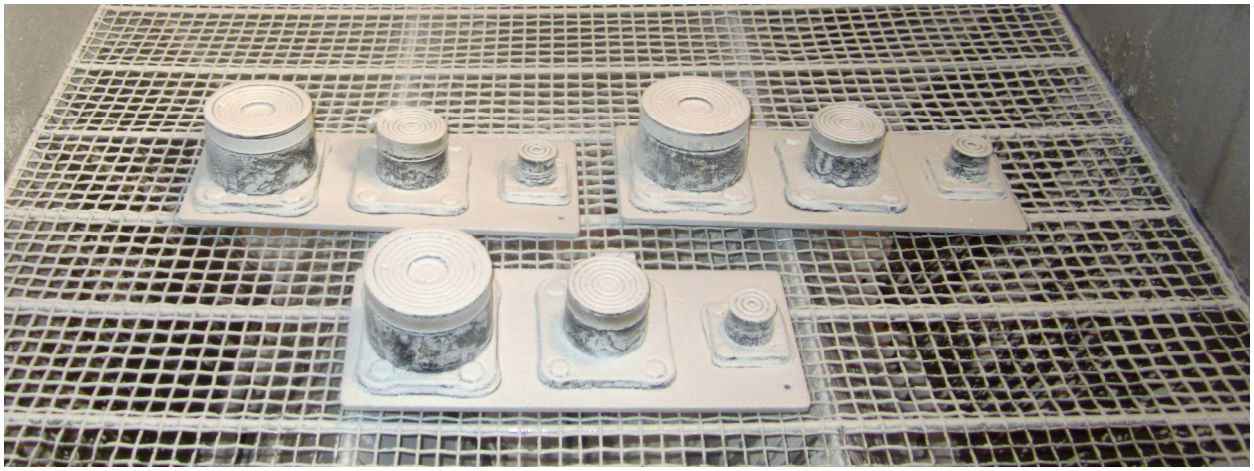
Clause	Requirement Test	Result - Remark	Verdict
5.1 tab.2	Protection against solid foreign objects	Test time 4 h. See pictures 2,3	P
	Visual examination	Results: Talcum powder does not enter through the flange and its confirmation See pictures 4 – 9	P
6	Second identification number IPX7	Tested	P
14.2.7	Test for second characteristic numeral 7 (IPX7)	Diving depths for 900 mm, time 0,5 h. See picture 10	P
	Visual examination	Water did not enters into the grommets. Water markers did not change color. See picture 11-13	P

Additional information

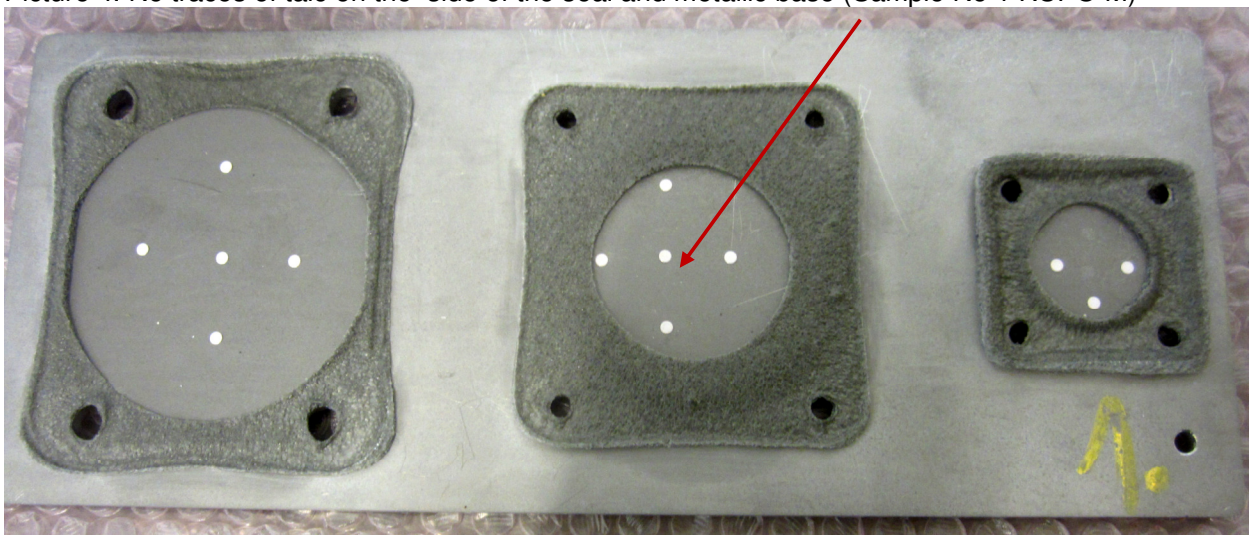
Picture 2. Test set up IP6X (KUPO M) with seal on metallic base



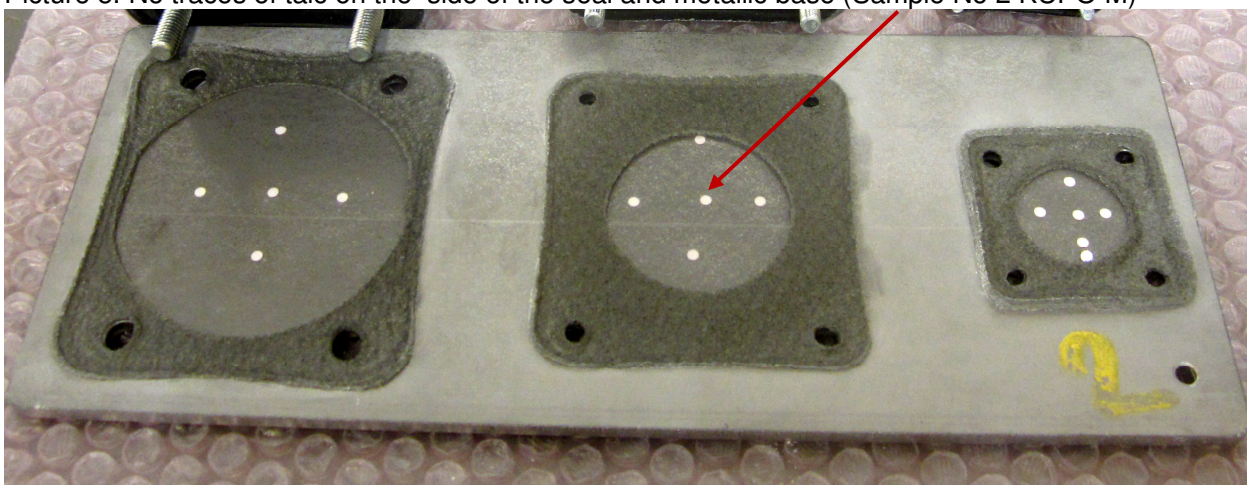
Picture 3. After test IP6X



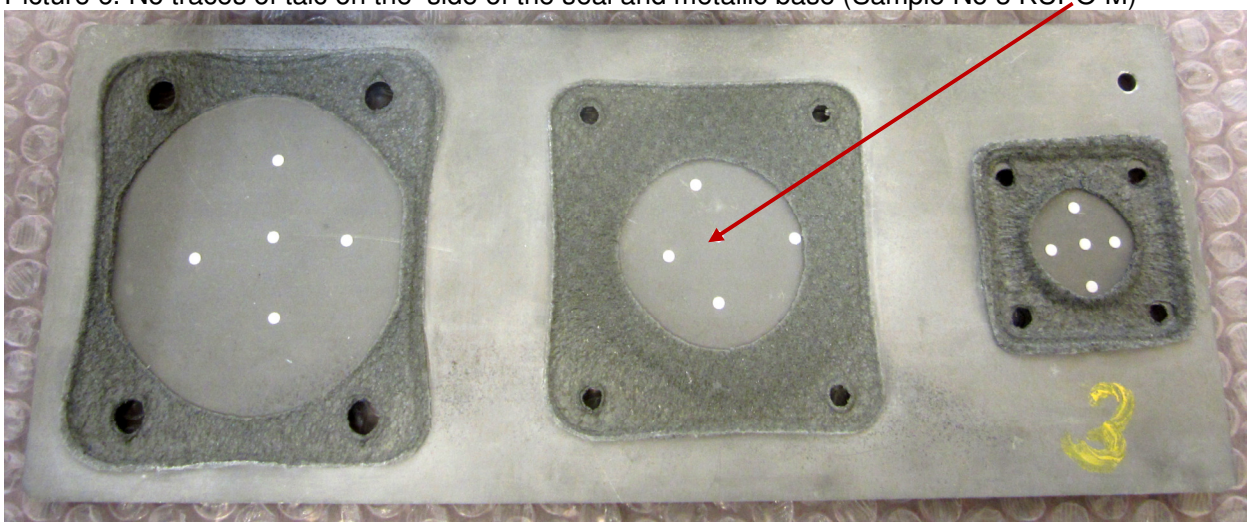
Picture 4. No traces of talc on the side of the seal and metallic base (Sample No 1 KUPO M)



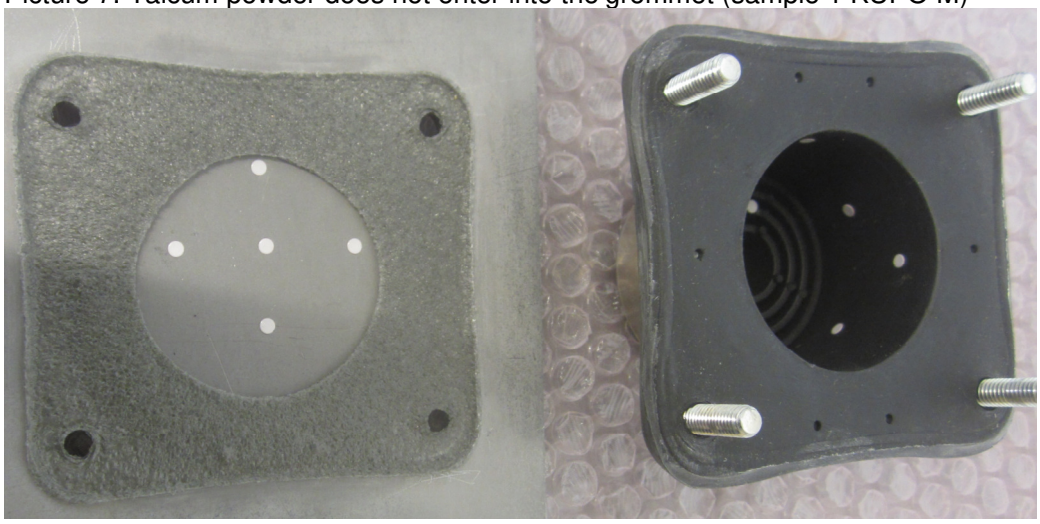
Picture 5. No traces of talc on the side of the seal and metallic base (Sample No 2 KUPO M)



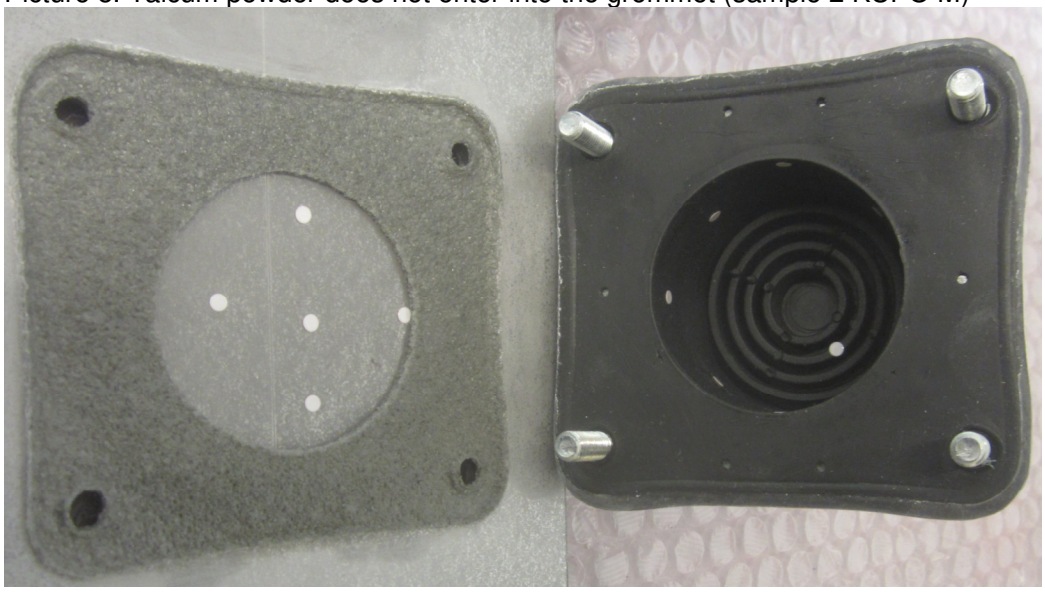
Picture 6. No traces of talc on the side of the seal and metallic base (Sample No 3 KUPO M)



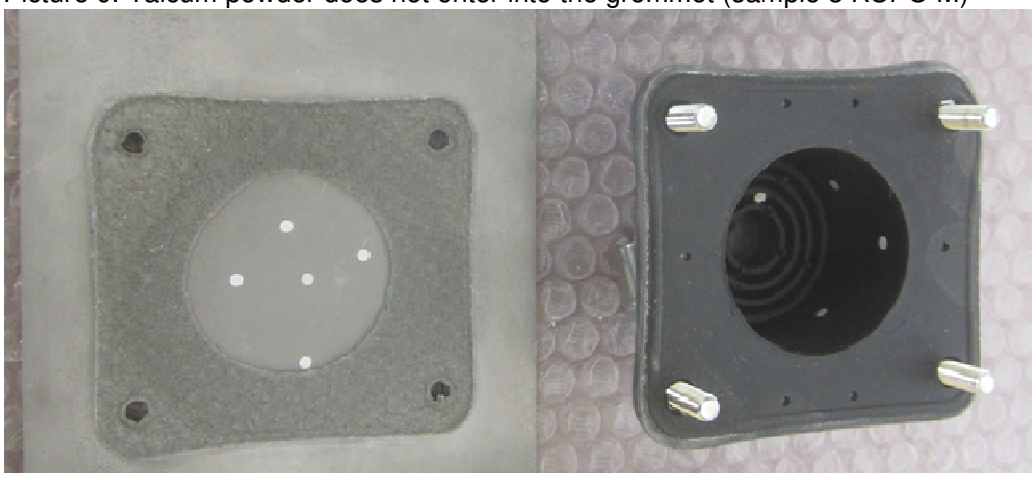
Picture 7. Talcum powder does not enter into the grommet (sample 1 KUPO M)



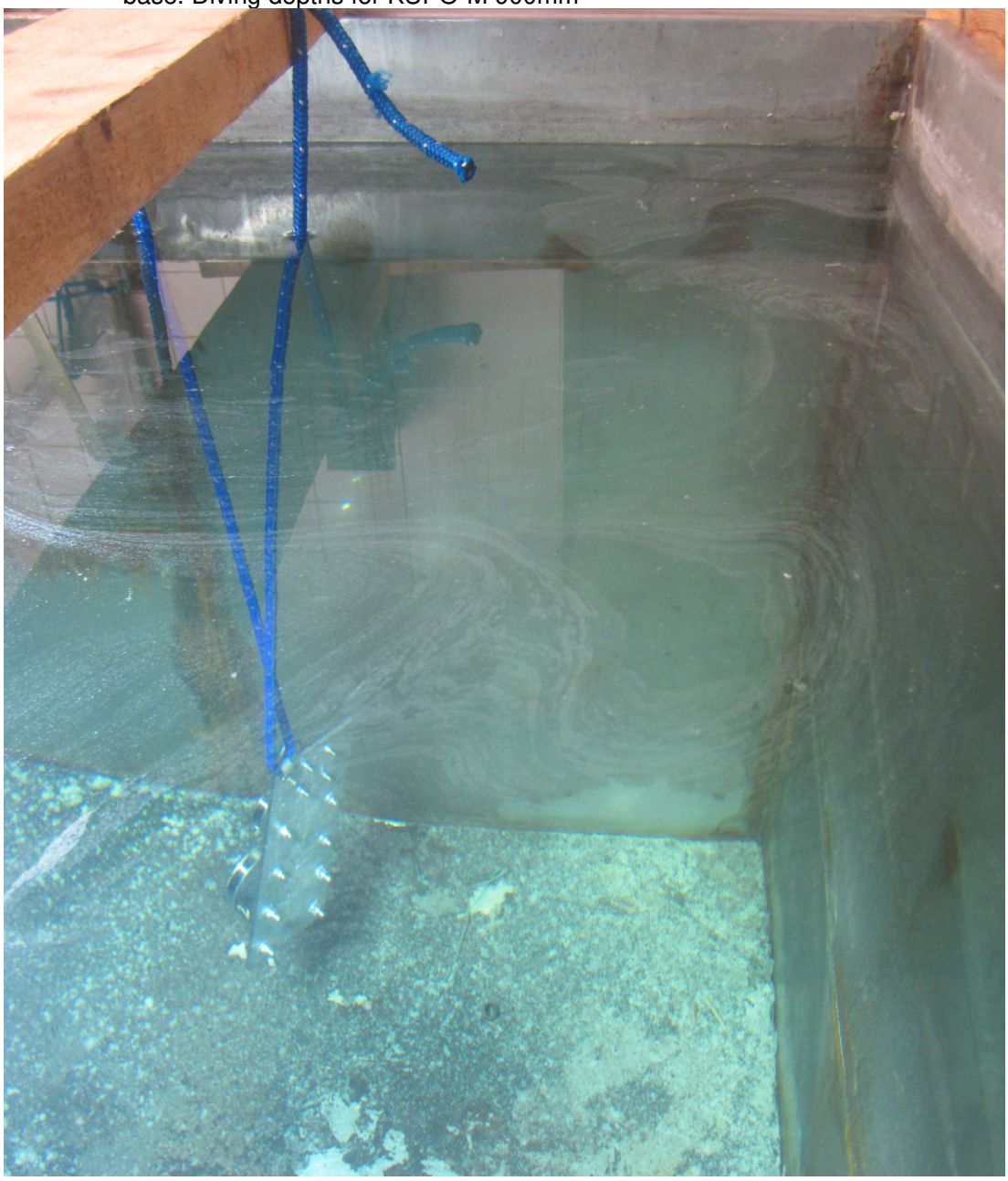
Picture 8. Talcum powder does not enter into the grommet (sample 2 KUPO M)

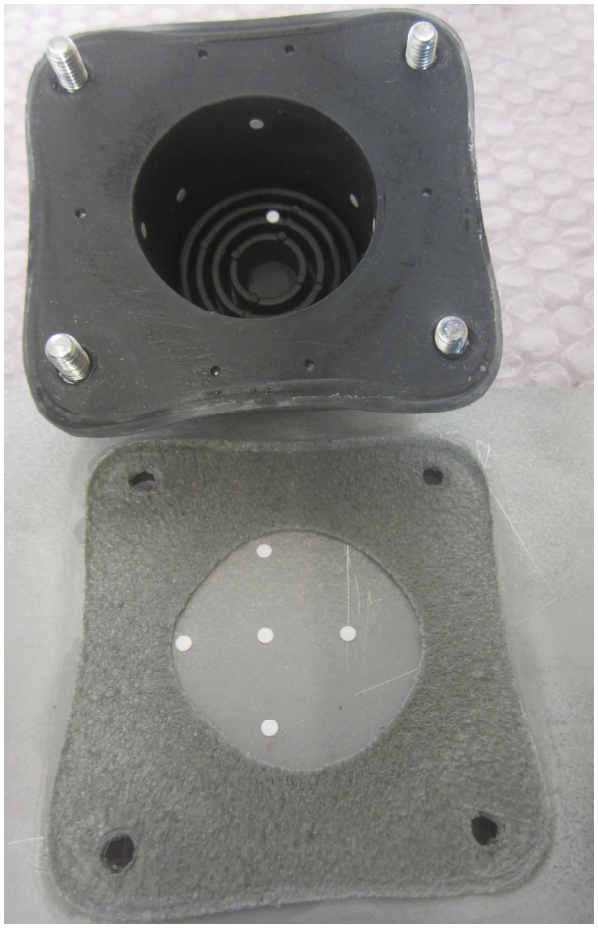
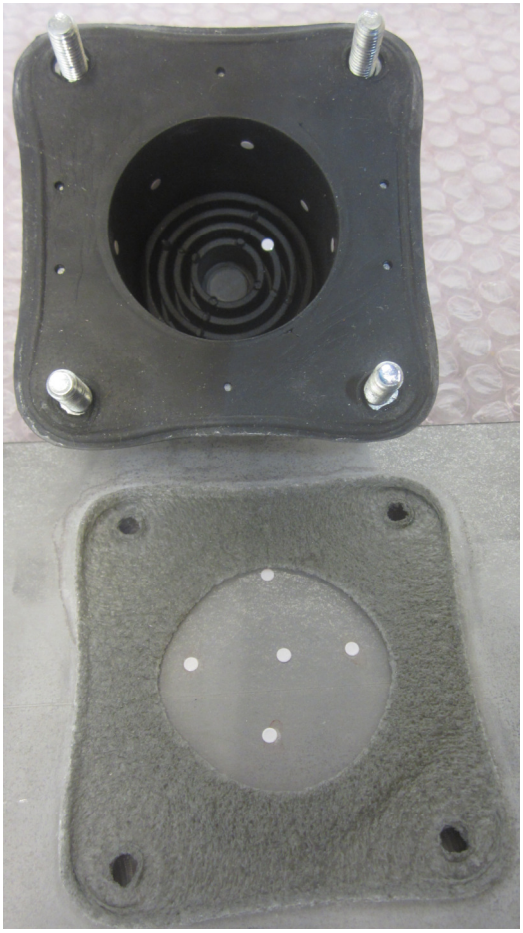


Picture 9. Talcum powder does not enter into the grommet (sample 3 KUPO M)



Picture 10. Test set up IPX7 KUPO-M. Specimens with water markers did mounted on a metallic base. Diving depths for KUPO-M 900mm



Picture 11. Sample No1 KUPO-M. Water did not enter into grommets. Water markers did not change color	Picture 12. Sample No 2 KUPO-M Water did not enter into grommets. Water markers did not change color
	

Picture 13. Sample No 3 KUPO-M.Water did not enter into grommets. Water markers did not change color

