

# TEST REPORT



**AS 60529**  
**Degrees of protection provided by enclosures**  
**(IP Code)**

**Test Report**  
Reference No.....: **13CA10682-SA00**  
Tested by (+ signature).....: Trevor Patrick  
ASSOCIATE PROJECT ENGINEER  
Approved by (+ signature).....: Stuart Foster  
STAFF ENGINEER  
Date of issue.....: 18 March 2013  
Date of testing.....: February 2013  
Contents.....: 18 pages

*Trevor Patrick*  
*Stuart Foster*



**Laboratory details**  
Name.....: **UL International New Zealand Ltd**  
Physical Address.....: 21 Tarndale Grove, Albany, Auckland 0632, New Zealand  
Contact Details.....: Telephone (+64) 9 415 3355 Facsimile (+64) 9 415 3356

**Test specification**  
Standard.....: AS 60529 – 2004


**Client details**  
Applicant.....: LAKE PRODUCTS Ltd  
Address.....: 16 Beatrice Tinsley Crescent, Albany, Auckland, NEW ZEALAND

**Product details** (see additional details on page 3)  
Type of test object.....: Electrical Enclosures with self-sealing wall boot  
Model/type reference.....: Pipetite Grommet 0-90  
Pipetite Grommet 70-135  
Rating.....: NA

**Accreditation details**



International Accreditation New Zealand (IANZ) has a Mutual Recognition Agreement (MRA) with the National Association of Testing Authorities, Australia (NATA) such that both organisations recognise accreditations by IANZ and NATA as being equivalent.



All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

TRF revision 121218

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**Possible results**

Test case does not apply to the test object ..... : N(.A.)  
Test sample does meet the requirement..... : P(ass)  
Test sample does not meet the requirement..... : F(ail)

**General remarks**

"(see remark #)" refers to a remark appended to the report.  
"(see appended table)" refers to a table appended to the report.  
"(see appended results)" refers to results appended to the report.  
The test results presented in this report relate only to the samples tested.  
The test samples were provided by the client and were tested as submitted.  
All measurements within this test report are made using instruments with an accuracy in accordance with IEC 60335-1 Decision Sheet DSH 251B. Details of specific measurement uncertainty are available upon request.  
This report does not contain corrections or erasures.  
This report shall not be reproduced except in full without the written approval of the testing laboratory.

**Specific remarks**

Model Pipetite Grommet 0-90 was supplied fitted to a 50 mm pipe and enclosure.  
Model Pipetite Grommet 70-135 was supplied fitted to a 90 mm pipe and enclosure.  
Both samples were tested as supplied.

**Statement of results**

The test samples were assessed for a classification of IP64 in accordance with the test specification.  
The test samples COMPLY with the tests for a classification of IP64.



**Product details**

Enclosure classification..... : IP64  
Enclosure type..... : thermoplastic / metal  
Conductor entry..... : none  
Product mass ..... : See appended table  
Product dimensions..... : See appended table

**Marking details**

No marking



AS 60529			
Clause	Requirement – Test	Remark	Result
1.	SCOPE AND OBJECT		NOTED
2.	NORMATIVE REFERENCES		NOTED
3.	DEFINITIONS		NOTED
4.	DESIGNATIONS		NOTED
5.	DEGREES OF PROTECTION AGAINST ACCESS TO HAZARDOUS PARTS AND AGAINST SOLID FOREIGN OBJECTS INDICATED BY THE FIRST CHARACTERISTIC NUMERAL		NOTED
6.	DEGREES OF PROTECTION AGAINST INGRESS OF WATER INDICATED BY THE SECOND CHARACTERISTIC NUMERAL		NOTED
7.	DEGREES OF PROTECTION AGAINST ACCESS TO HAZARDOUS PARTS INDICATED BY THE ADDITIONAL LETTER		NOTED
8.	SUPPLEMENTARY LETTERS		NOTED
9.	EXAMPLES OF DESIGNATIONS WITH THE IP CODE		NOTED
10.	MARKING		NOTED
	Requirements for marking given in relevant product standard		
11.	GENERAL REQUIREMENTS FOR TESTS		NOTED
12.	TESTS FOR PROTECTION AGAINST ACCESS TO HAZARDOUS PARTS INDICATED BY THE FIRST CHARACTERISTIC NUMERAL		P
12.1	Access probes as per Table 6		NOTED
12.2	Test conditions		P
	Access probe pushed against or inserted through any openings of the enclosure with a test force as specified in Table 6		P
	Access probe	1.0 mm (Ø) x 100 mm wire	
	Test force	1.0 N	



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Clause	Requirement – Test	Remark	Result

12.3	Acceptance conditions		P
	Adequate clearance kept between the access probe and hazardous parts		N
	For the test of numeral 1; access probe does not completely pass through the opening		N
	For the test of numeral 2; jointed test finger may penetrate but stop face does not pass through the opening		N
12.3.1	For low voltage equipment (rated voltage not exceeding 1000V ac and 1500V dc); access probe does not touch hazardous live parts		N
12.3.2	For high voltage equipment (rated voltage exceeding 1000V ac and 1500V dc); equipment withstands dielectric strength tests as specified in the product standard with the access probe in the most unfavourable position		N
	Verification by dielectric strength test or inspection of the clearance distance in air		N
12.3.3	Access probe does not touch hazardous mechanical parts		P

13.	TESTS FOR PROTECTION AGAINST SOLID FOREIGN OBJECTS INDICATED BY THE FIRST CHARACTERISTIC NUMERAL		P
13.1	Test means and main test conditions as per Table 7		P
13.2	Test conditions for first characteristic numerals 1, 2, 3, 4		N
	Object probe pushed against any openings of the enclosure with a test force as specified in Table 7		N
	Object probe		
	Test force		
13.3	Acceptance conditions for first characteristic numerals 1, 2, 3, 4		N
	Full diameter of the object probe does not pass through any opening		N
13.4	Dust test for first characteristic numerals 5 and 6		P
	Test made using dust chamber as per Figure 2		P
	Category 1 – with underpressure		P
	Category 2 – without underpressure		N





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Clause	Requirement – Test	Remark	Result

13.5	Special conditions for first characteristic numeral 5		N
13.5.1	Test conditions for first characteristic numeral 5		N
13.5.2	Acceptance conditions for first characteristic numeral 5		N
	Talcum powder not accumulated in quantity or location such as could interfere with correct operation or impair safety		N
	No dust deposited where it could lead to tracking along creepage distances		N
13.6	Special conditions for first characteristic numeral 6		P
13.6.1	Test conditions for first characteristic numeral 6	Category 1	P
13.6.2	Acceptance conditions for first characteristic numeral 6		P
	No deposit of dust is observable inside the enclosure		P

14.	TESTS FOR PROTECTION AGAINST WATER INDICATED BY THE SECOND CHARACTERISTIC NUMERAL		P
14.1	Test means and main test conditions as per Table 8		P
14.2	Test conditions		P
	Tests conducted with fresh water as specified		P
	Water temperature	18°C	
14.2.1	Test for second characteristic numeral 1 with the drip box		N
	Enclosure placed in normal operating position on turntable		N
	Enclosures normally fixed to wall or ceiling fixed in normal position		N
	Water flow rate		
	Test duration		
14.2.2	Test for second characteristic numeral 2 with the drip box		N
	Enclosure placed in normal operating position in four positions of 15° tilt		N
	Enclosures normally fixed to wall or ceiling fixed in normal position		N
	Water flow rate		
	Test duration		



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Clause	Requirement – Test	Remark	Result
14.2.3	Test for second characteristic numeral 3 with the oscillating tube or spray nozzle		N
	Test means		
	Enclosures subjected to spraying water through angle of 120°, 60° either side of vertical		N
	Water flow rate		
	Test duration		
14.2.4	Test for second characteristic numeral 4 with the oscillating tube or spray nozzle		P
	Test means	oscillating tube	
	Enclosures subjected to spraying water through angle of almost 360°, 180° either side of vertical		P
	Water flow rate	0.07 l/min per hole	
	Test duration	10 min	
14.2.5	Test for second characteristic numeral 5 with the 6.3 mm spray nozzle		N
	Enclosure sprayed from all practicable directions with test nozzle as per Figure 6		N
	Water flow rate		
	Test duration		
14.2.6	Test for second characteristic numeral 6 with the 12.5 mm spray nozzle		N
	Enclosure sprayed from all practicable directions with test nozzle as per Figure 6		N
	Water flow rate		
	Test duration		
14.2.7	Test for second characteristic numeral 7		N
	Enclosure immersed in water as specified		N
	Depth of immersion		
	Test duration		
14.2.8	Test for second characteristic numeral 8		N
	Enclosure immersed in water as specified		N
	Depth of immersion		
	Test duration		



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Clause	Requirement – Test	Remark	Result

14.3	Acceptance conditions		P
	No water entered enclosure; or		P
	If water has entered:		N
	Not sufficient to interfere with correct operation of the equipment or impair safety		N
	Not deposited on insulation parts where it could lead to tracking along creepage distances		N
	Not reach live parts or windings not designed to operate when wet		N
	Not accumulate near cable end or enter cable		N
	Enclosure provided with drain holes; any water which enters does not accumulate and drains away		N
	Enclosure without drain holes, water cannot accumulate to reach live parts		N

15.	TESTS FOR PROTECTION AGAINST ACCESS TO HAZARDOUS PARTS INDICATED BY THE ADDITIONAL LETTER		N
15.1	Access probes as per Table 6		N
15.2	Test conditions		N
	Access probe pushed against any openings of the enclosure with a test force as specified in Table 6		N
	Access probe		
	Test force		
	Stop face does not penetrate through any opening		N
15.3	Acceptance conditions		N
	Adequate clearance kept between the access probe and hazardous parts		N
	For the test of additional letter B; jointed test finger may penetrate but stop face does not pass through the opening		N
	For the test of additional letters C and D; access probe may penetrate to full length but stop face does not pass through the opening		N





MODEL REFERENCE TABLE			
Clause	Requirement – Test	Remark	Result

Model	Height mm	Width mm	Depth mm	Mass kg
Pipetite Grommet 0-90	150	150	205	2.5
Pipetite Grommet 70-135	200	200	220	2.0

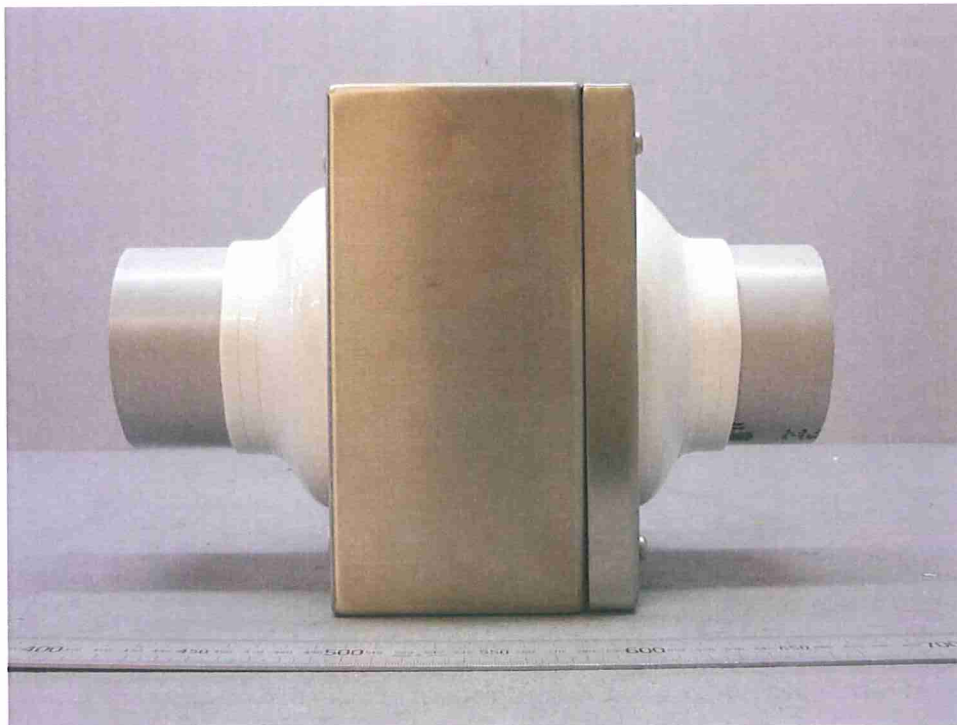
\* Dimensions and mass as per sample supplied for testing and includes electrical enclosure.



PHOTOGRAPHS



External View Pipette Grommet 70-135 Wall Boot with 90mm Pipe



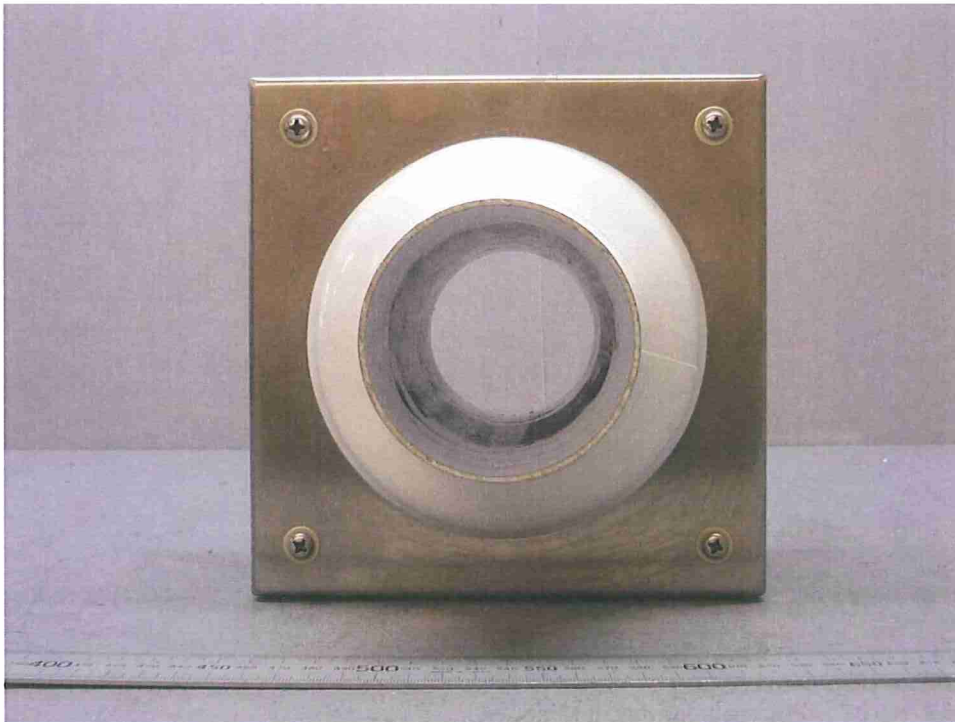
External Side View



PHOTOGRAPHS



External Upper Side View



External Front View



PHOTOGRAPHS



External Rear View

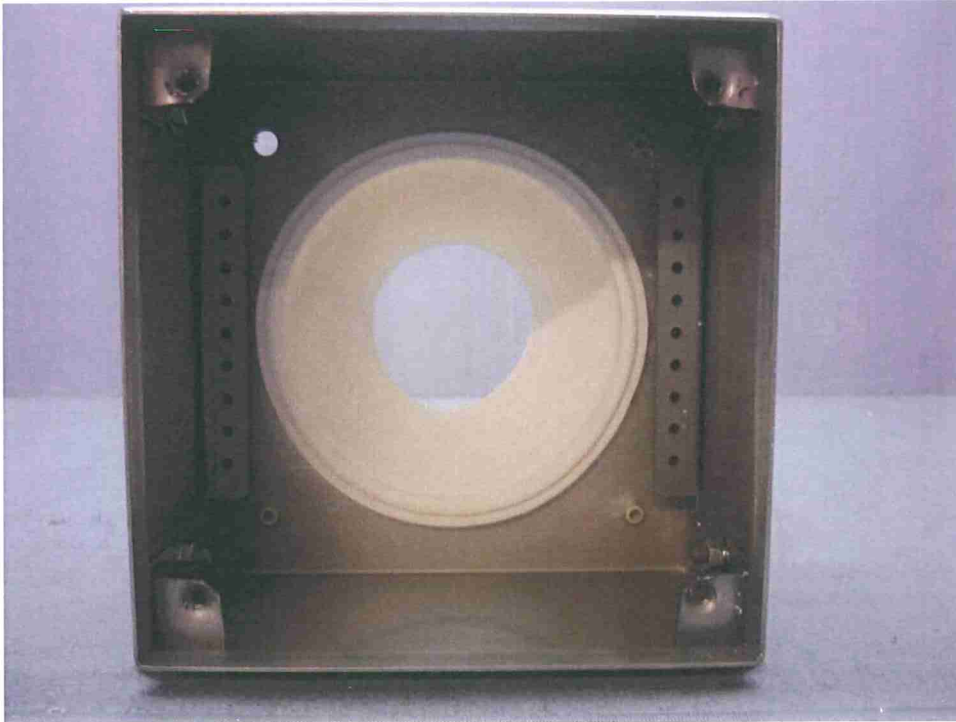


Internal View

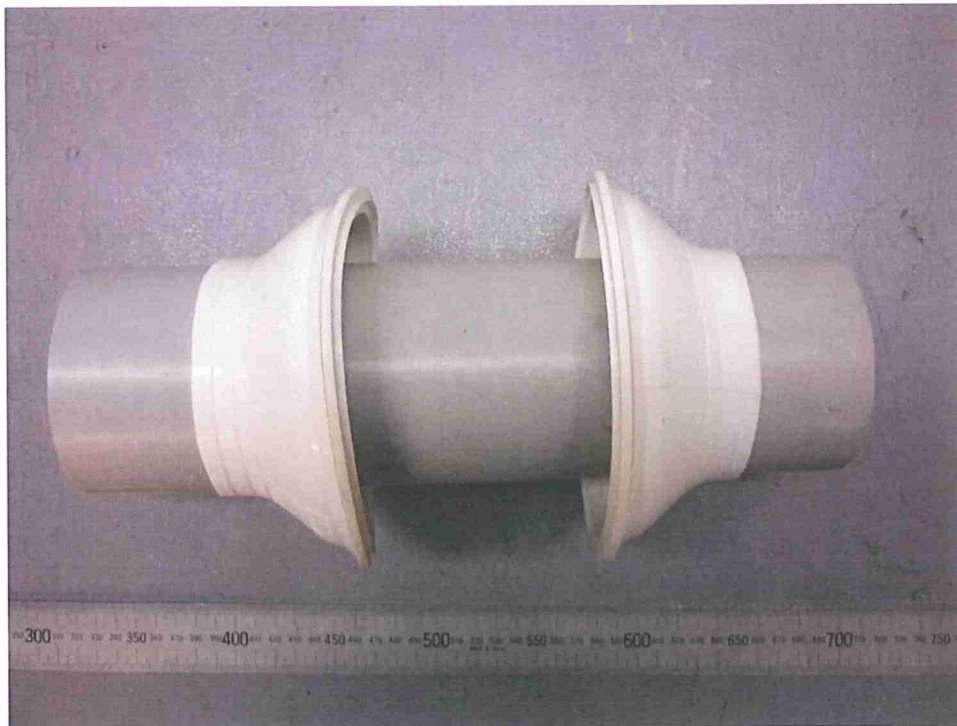




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Internal View



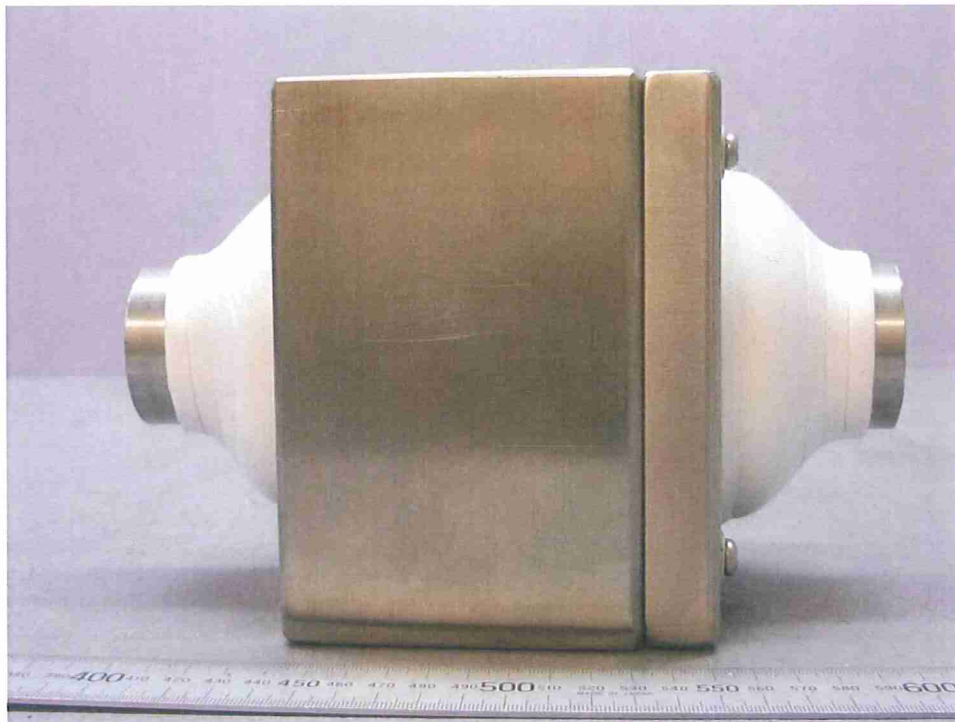
Pipe With Wall Boot



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External View Pipetite Grommet 0-90 Wall Boot with 50mm Pipe



External Side View



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External Upper Side View



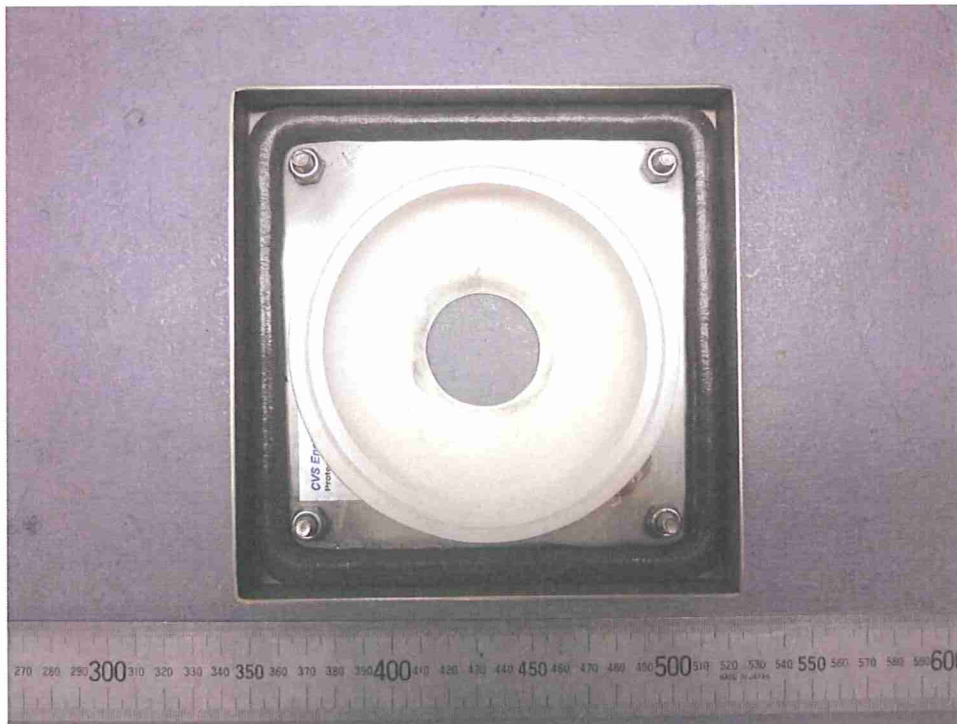
External Front View



PHOTOGRAPHS



External Rear View

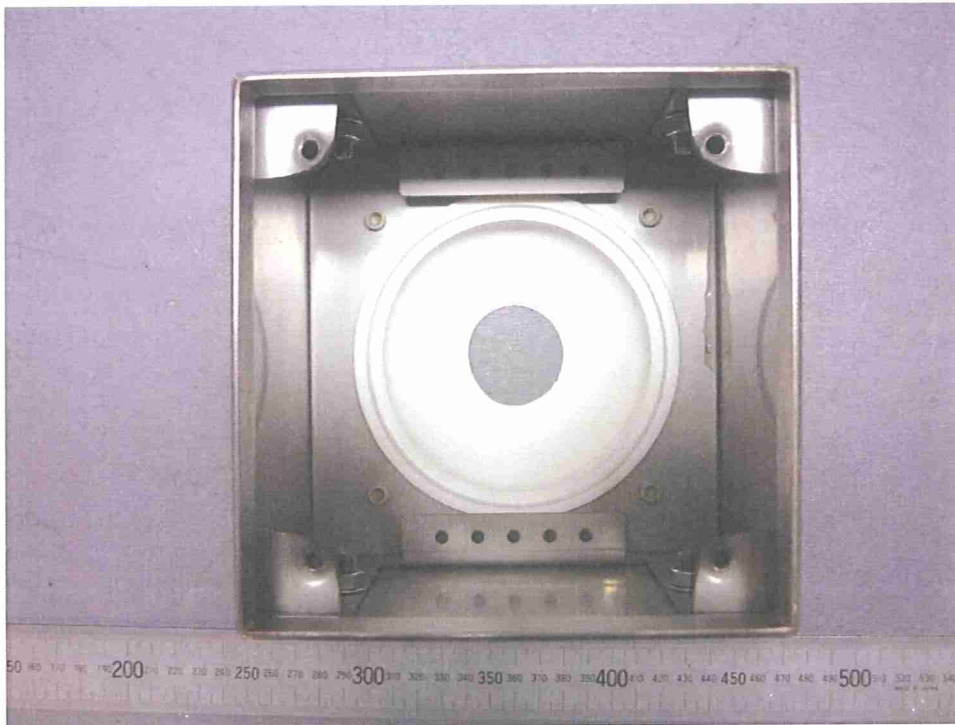


Internal View

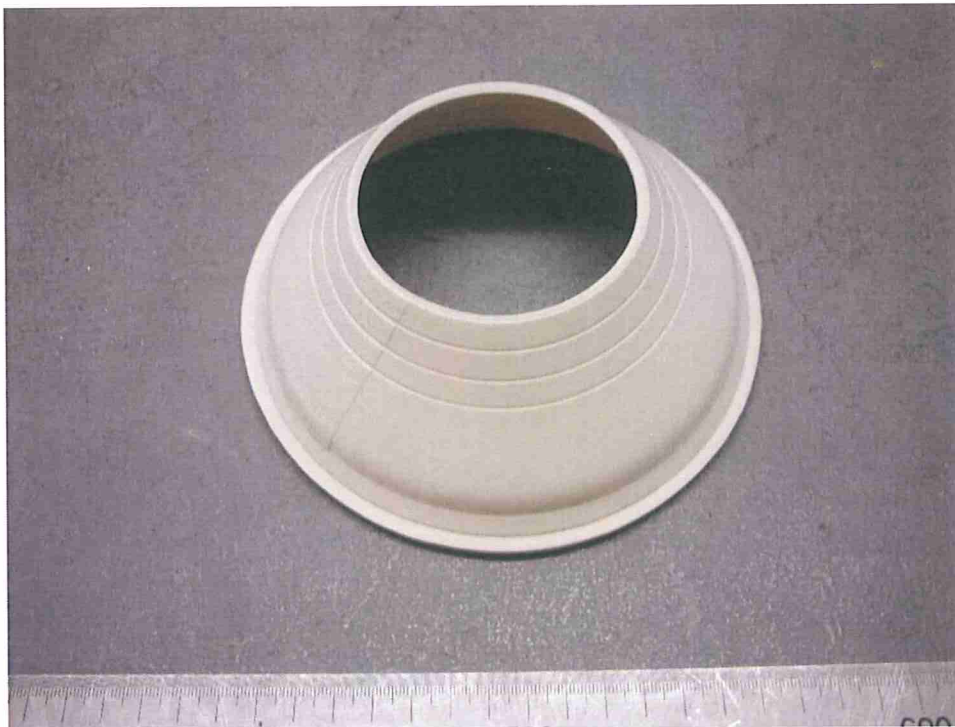




PHOTOGRAPHS



Internal View



Self Sealing Boot



<b>REMARKS</b>
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No remarks.

**\*\* END OF TEST REPORT \*\***