SOUTH QUALITY

PROFICIENCY TESTING PROVIDER

REPORT No 11672

Date of issue: *May 7, 2026*

Status: FiNAL REPORT

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IEC 60227-5

POLYVINYL CHLORIDE INSULATED CABLES - FLEXIBLE CABLES (CORDS) -

Program: SQ-2505.V14

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Prepared by:	Reviewed by:	Approved by:
cn=VALENTYN E. KRAVCHENKO, o=PT SOUTH QUALITY SAS, ou=SOUTH QUALITY, email=tech@ptsouthquality.com, c=AR 2026.05.07 11:18:33 -03'00'	cn=ESTEBAN DI MARCO, o=PT SOUTH QUALITY SAS, ou=SOUTH QUALITY, email=edimarco@ptsouthquality.com, c=AR 2026.05.07 16:07:49 -03'00'	cn=Emiliano Medina, o=SOUTH QUALITY, ou=PT SOUTH QUALITY SAS, email=quality@ptsouthquality.com, c=ES 2026.05.08 12:28:04 -03'00'
Valentyn Kravchenko Assistant Technician	**Eng. Esteban Di Marco** Electromechanical expert	**Eng. Emiliano Medina** Quality Assurance Lead

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1. FOREWORD

This report summarizes the results of the **SQ-2505.V14** proficiency testing program on the determination of physical properties. This program is conducted in a bilateral format, following the "split-sample" design described in clause A.4.2 of ISO/IEC 17043: 2023 (Alternative interlaboratory comparisons).

South Quality conducted the testing program in March 2026 with the aim of assessing the laboratory's ability to competently perform the designated tests.

2. ORGANIZATION

Program Coordinator:	Eng. Esteban Di Marco
Assistant Technician:	Valentyn Kravchenko
Statistic:	Lic. Manuel Tozaki
Supervision:	Eng. Emiliano Medina

3. OBJECTIVE

The objective of this proficiency testing program is to determine the following parameters:

- Measurement of insulation thickness
- Test of flame retardance

These parameters were verified using the following standard:

Standard
IEC 60227-5: 2024

To verify this, batches of cables have been selected.

4. PARTICIPANT

Company:	**Saudi Inspection&Testing Co.**
Laboratory:	**Electrical Testing Lab**
Country:	Saudi Arabia
Client ID:	S361
Contact person:	Marwa Mahdy Deputy of Technical Manager saitco@saitco.com.sa

5. HOMOGENEITY

Several batches were prepared identically by the staff at South Quality.

Subsequently, a homogeneity study was conducted with an ISO 17025 accredited laboratory.

The control process followed ISO 33405: 2024, clauses 7.4.1.1 / 7.4.1.2. Stratified random sampling was applied, and samples were selected using random number generation software.

The results of this test are presented below:

Size of each batch: **200 units** Tested samples from each batch: **25 units**

DETERMINATION	HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LEM2677	BATCH: LEM2678	BATCH: LEM2679
Insulation thickness	YES	YES	YES
Flame retardance	YES	NO	YES

Size of each batch: **200 units** Tested samples from each batch: **25 units**

DETERMINATION	HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LEM2740	BATCH: LEM2741	BATCH: LEM2742
Insulation thickness	NO	YES	YES
Flame retardance	NO	YES	YES

Samples for this program are taken from the selected batches identified as **LEM2677** and **LEM2741**.

For the indicated batches, the values determined in the homogeneity study are utilized as the assigned values.

The analysis of the test data indicated that the selected samples exhibited sufficient homogeneity for the program. Therefore, the results of participants identified as outliers cannot be attributed to sample variability.

6. SAMPLE INFORMATION

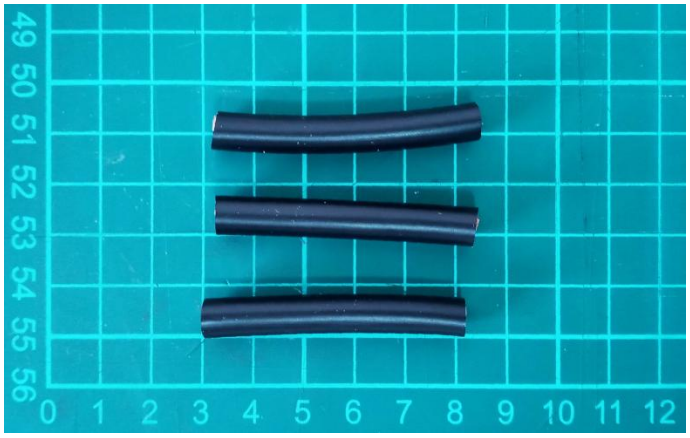
The following samples were sent for testing:

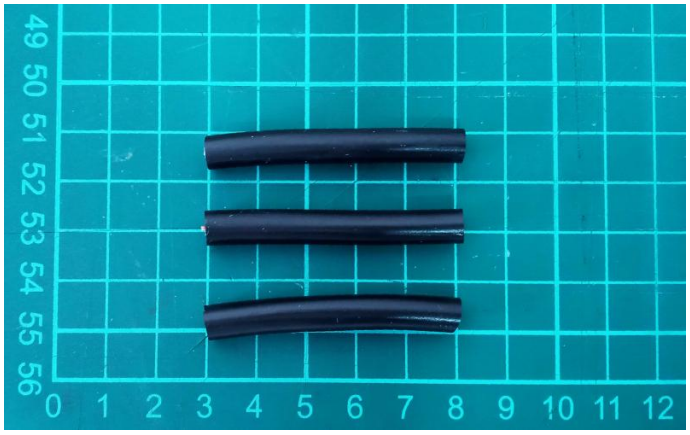
Batch:	LEM2677
Sample ID:	G13 + L24
Characteristics:	Round cable (60227 IEC 52) - 2 x 1 mm^2 - 5 cm - 3 units Round cable (60227 IEC 52) - 2 x 1 mm^2 - 100 cm - 2 units

Batch:	LEM2741
Sample ID:	G09 - L14
Characteristics:	Round cable (60227 IEC 52) - 2 x 1 mm^2 - 5 cm - 3 units Round cable (60227 IEC 52) - 2 x 1 mm^2 - 100 cm - 2 units

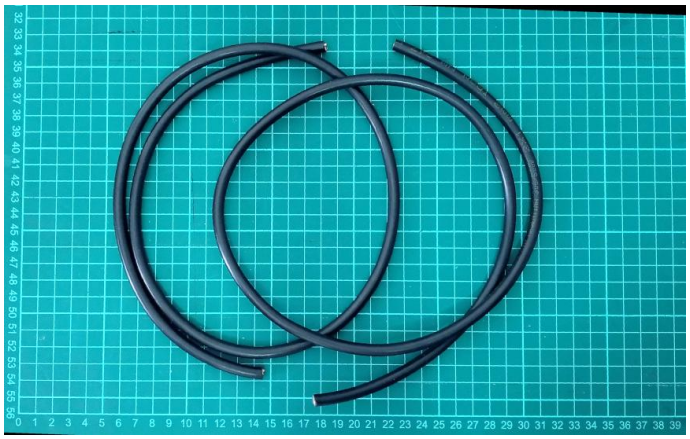
7. IMAGES

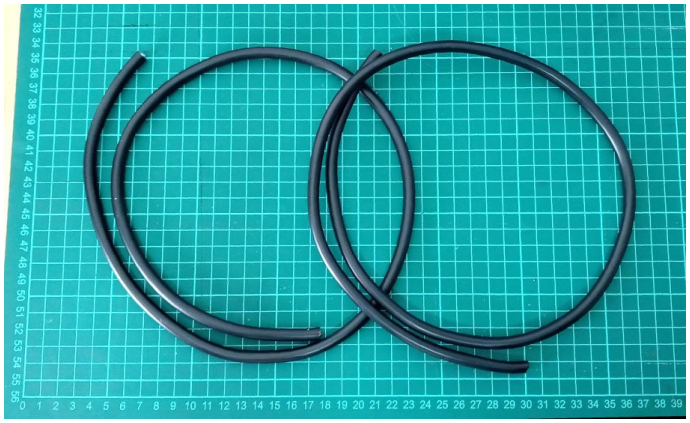
SAMPLES





SAMPLES





8. ASSIGNED VALUES

BATCH	COLOUR	INSULATION THICKNESS	
		AVG (mm)	SD
LEM2677	BROWN	0.725	0.01
	BLUE	0.746	0.01
LEM2741	BROWN	0.731	0.01
	BLUE	0.808	0.01

BATCH	DISTANCE BETWEEN	BURNING DISTANCE (Duration: 60s)	
		AVG (mm)	SD
LEM2677	Minimum - Lower edge of top support and upper onset of charring	208	19
	Maximum - Lower edge of top support and lower onset of charring	495	11
LEM2741	Minimum - Lower edge of top support and upper onset of charring	395	9
	Maximum - Lower edge of top support and lower onset of charring	482	11

9. PARTICIPANT RESULTS (SEE APPENDIX)

CODE	COLOUR	INSULATION THICKNESS AVG (mm)
LEM2677-G13	BROWN INSULATION	0.733
	BLUE INSULATION	0.750
LEM2741-G09	BROWN INSULATION	0.726
	BLUE INSULATION	0.812

CODE	DISTANCE BETWEEN	BURNING DISTANCE (Duration: 60s)
		AVG (mm)
LEM2677-L24	Minimum - Lower edge of top support and upper onset of charring	197
	Maximum - Lower edge of top support and lower onset of charring	509
LEM2741-L14	Minimum - Lower edge of top support and upper onset of charring	383
	Maximum - Lower edge of top support and lower onset of charring	491

10. STATISTICS

The results must be treated as quantitative.

The comparison is made according to B.4.1.3 of ISO 17043 and the appropriate technique is to compare participant results with the assigned values. The results can be compared using percent difference z ***score.***

$$z = \frac{x - X}{\hat{\sigma}}$$

x is the participant's result

X is the assigned value

$\hat{\sigma}$ is the standard deviation

The performance evaluation of each sample is carried out with the following criteria:

$|z| \leq 2.0$ indicates "satisfactory" performance and generates no signal;

$2.0 < |z| < 3.0$ indicates "questionable" performance and generates a warning signal;

$|z| \geq 3.0$ indicates "unsatisfactory" performance and generates an action signal;

11. EVALUATION OF PERFORMANCE

BATCH	COLOUR	INSULATION THICKNESS AVG (mm)		| z score |	PERFORMANCE RESULT
		PARTICIPANT RESULT	ASSIGNED VALUE		
LEM2677	BROWN	0.733	0.725	**0.8**	**SATISFACTORY**
	BLUE	0.750	0.746	**0.4**	**SATISFACTORY**
LEM2741	BROWN	0.726	0.731	**0.5**	**SATISFACTORY**
	BLUE	0.812	0.808	**0.4**	**SATISFACTORY**

BATCH	DISTANCE BETWEEN	DISTANCE (mm)		| z score |	PERFORMANCE RESULT
		PARTICIPANT RESULT	ASSIGNED VALUE		
LEM2677	Minimum - Lower edge of top support and upper onset of charring	197	208	**0.6**	**SATISFACTORY**
	Maximum - Lower edge of top support and lower onset of charring	509	495	**1.3**	**SATISFACTORY**
LEM2741	Minimum - Lower edge of top support and upper onset of charring	383	395	**1.3**	**SATISFACTORY**
	Maximum - Lower edge of top support and lower onset of charring	491	482	**0.8**	**SATISFACTORY**

12. CONCLUSIONS

The overall performance on this **SQ-2505.V14** program from the participant laboratory **Saudi Inspection&Testing Co. - Electrical Testing Lab**, is **SUFFICIENT** based on expected results.

The criteria used for evaluating the overall performance are as follows:

- **SUFFICIENT** performance: No unsatisfactory/questionable results were obtained.
- **ALMOST SUFFICIENT** performance: No unsatisfactory results were obtained, but one questionable result was found.
- **INSUFFICIENT** performance: An unsatisfactory result or two questionable results were obtained.

APPENDIX A

INSTRUCTIONS

SOUTH QUALITY
PROFICIENCY TESTING PROVIDER

INSTRUCTIONS

PROGRAM:	Polyvinyl chloride insulated cables - Flexible cables (cords) -
CODE:	SQ-2505
VERSION:	14
STANDARD:	IEC 60227-5
COORDINATOR:	Eng. Esteban Di Marco (edimarco@ptsouthquality.com)

1 - General

This document serves as a guide for managing the results of the **SQ-2505.V14** program.

2 - Standard

IEC 60227-5: 2024

3 - Tests involved

TEST	SUBTEST
Determination of physical properties	2.2 - Measurement of insulation thickness 10 - Test of flame retardance

4 - Samples

CODE	SAMPLE	QUANTITY	SUBTEST
LEM2677-G13	Round cable 2x1 mm^2 - 5 cm	3	2.2
LEM2677-L24	Round cable 2x1 mm^2 - 100 cm	2	10
LEM2741-G09	Round cable 2x1.5 mm^2 - 5 cm	3	2.2
LEM2741-L14	Round cable 2x1.5 mm^2 - 100 cm	2	10

5 - Notes

a) Being a bilateral program, there is no deadline for submitting results.
b) The participant must submit the results using the usual report employed by their laboratory.
c) The samples are to be handled as routine lab samples, with all testing, documentation, and reporting adhering to IEC 60227-5.
d) Samples must be retained until the end of the program, which concludes with the submission of the final report.
e) To review the results, test images would be appreciated. Images can be attached at the end of this document or sent by email.

PHOTOGRAPHS

APPENDIX B

PARTICIPANT RESULTS (TR #PT1 (SQ-2505))

الشركة السعودية للفحص والاختبار
SAUDI INSPECTION & TESTING CO. (SAITCO)
ملحق7 - أ:ملاحق متطلبات العملية- نتائج الاختبارات مختبر الكهرباء

SAITCO Saudi Inspection & Testing Co الشركة السعودية للفحص والاختبار

Appendix 7-A: LAB process REQ. TEST RESULTS -ELECTRICAL LAB

Code of product in Lab :	**C-102**		
LAB DATA		***بيانات المختبر***	
Laboratory name	اسم المختبر	**Saudi Inspection & Testing Co.(SAITCO)**	
Address	العنوان	**1st Industrial Area, St. No.4,5,6,7-Riyadh**	
Country	الدولة	**Saudi Arabia**	
Client Data		***بيانات العميل***	
Sample Date in	تاريخ استلام العينة	24/02/2026	
Date or period of tests	تاريخ / فترة الاختبار	08/03/2026	14/03/2026
Date of report issue	تاريخ اصدار التقرير	14/03/2026	
Laboratory test report number	رقم التقرير بالمختبر	PT1 (SQ-2505)	
Client Name	اسم العميل	SOUTH QULITY PT Provider	
Client Address	عنوان العميل	Pareja 3981 - Villa Devoto Buenos Aires Argentina	
Client Reference No. / Date	مرجع العميل	--------	
No of received Samples	عدد العينات المستلمة	1	
Sample Data		***بيانات العينة***	
Product description	وصف المنتج	Electric cables	
Brand name or trademark	العلامة التجارية	-----	
Type or reference	النوع / المرجع	------	
Country of Origin	بلد الصنع	-----	
Factory Name	اسم المصنع	-----	
Factory Address	عنوان المصنع	-----	
Manufacture Name	اسم الشركة المُصنِعة	-----	
Manufacture Address	عنوان الشركة المُصنِعة	-----	
Products Category	تصنيف المنتج	Electric Flexible Cables	
Standard / TR No.	رقم المواصفة / اللائحة	IEC 60227-1: 2024 , IEC 60227-5:2024	PT Scheme
Test case verdicts		***حالات الحكم على نتيجة الاختبار***	
Conformity to articles tested		**☒Yes**	**☐ No**
Test case does not apply to the test object		**Not Applicable**	**N/A**
Test item does meet the requirement		**Pass**	**P**
Test item does not meet the requirement		**Fail**	**F**

Deputy Technical Manager

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SAITCO ,First Industrial City area ,Riyadh Station area beside dry customs St.4,5,6,7 Building No.2433 , Riyadh 11427, PO 27711 , Tel : +966 11 2043000,Fax +966 1 2042888, www saitco com.sa

Test Report No :	PT1 (SQ-2505)	*Standard No:*	IEC 60227-1: 2024 , IEC 60227-5:2024	
Clause	*Requirement -Test*		*Result - Remark*	*Verdict*

Class of the conductor : Class 5 flexible copper						
6.2	**Sample**	**Insulation Type**	**Minimum Limit (mm)**	**Result (mm)**		
6.2.3 (60227-5)	LEM2677-G13 (1.0mm^2)	Thickness of insulation	0.6	Blue	Browm	P
				0.763	0.754	
				0.748	0.720	
				0.741	0.726	
				Avg 0.750	Avg 0.733	
6.5.3(60227-5)		Sheath Thickness	0.8	1.398		P
				1.411		
				1.438		
				Avrg 1.415		
6.2.3 (60227-5)	LEM2741-G09 (1.5mm^2)	Thickness of insulation	0.7	Blue	Brown	P
				0.805	0.733	
				0.829	0.735	
				0.803	0.712	
				Avg 0.812	Avg 0.726	
6.5.3(60227-5)		Sheath Thickness	0.8	1.381		P
				1.437		
				1.558		
				Avrg 1.458		

LEM2677-L24 (1.0mm^2)					
6.6.4	**Flame Retardant test**	-	-		
	Over all diameter	6.80mm			
	Duration of test	60 sec			
	Distance between top support to onset of charring	>50 mm	197mm	369mm	P
	Failure shall be recorded if charring extends downwards to a point greater than 540 mm , from the lower edge of the top support	<540 mm	508mm	509mm	P

LEM2741-L14(1.5mm^2)					
6.6.4	**Flame Retardant test**	-	-		
	Over all diameter	7.39mm			
	Duration of test	60 sec			
	Distance between top support to onset of charring	>50 mm	395mm	383mm	P
	Failure shall be recorded if charring extends downwards to a point greater than 540 mm , from the lower edge of the top support	<540 mm	491mm	488mm	P

Remarks :

Test Report No :	PT1 (SQ-2505)	Standard No:	IEC 60227-1: 2024 , IEC 60227-5:2024	
Clause	Requirement -Test		Result - Remark	Verdict

Photo No.1(Marking)

Photo No.2 (General View)

1.0mm 1.5mm

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Issue No : 3	Issue Date : 15/11/2025	Revision No: 1	Revision Date : 15/11/2025
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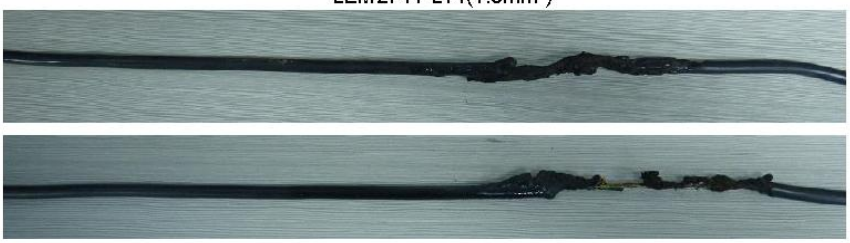
Photo No.3 (Flame test)

LEM2741-L14(1.5mm^2)



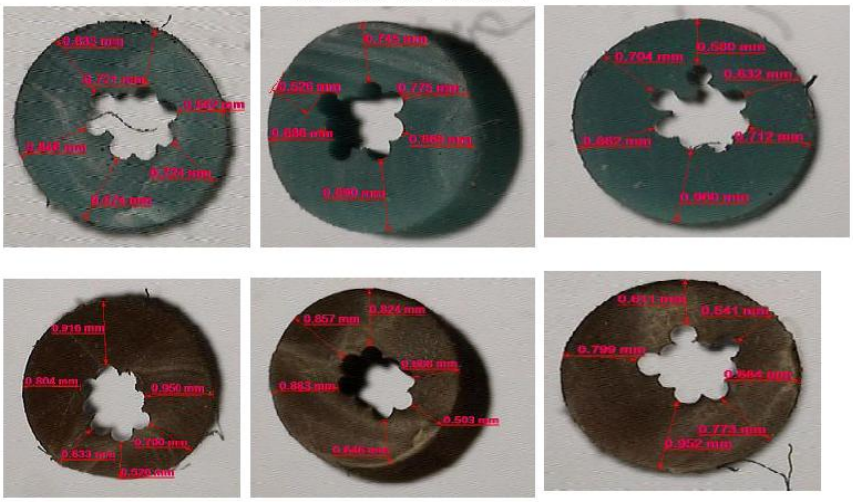
LEM2677-L24 (1.0mm^2)

Test Report No :	PT1 (SQ-2505)	Standard No:	IEC 60227-1: 2024 , IEC 60227-5:2024	
Clause	Requirement -Test		Result - Remark	Verdict

Photo No. 4 (Insulation thickness and sheath thickness)

LEM2741-G09 (1.5mm^2)

LEM2677-G13 (1.0mm^2)



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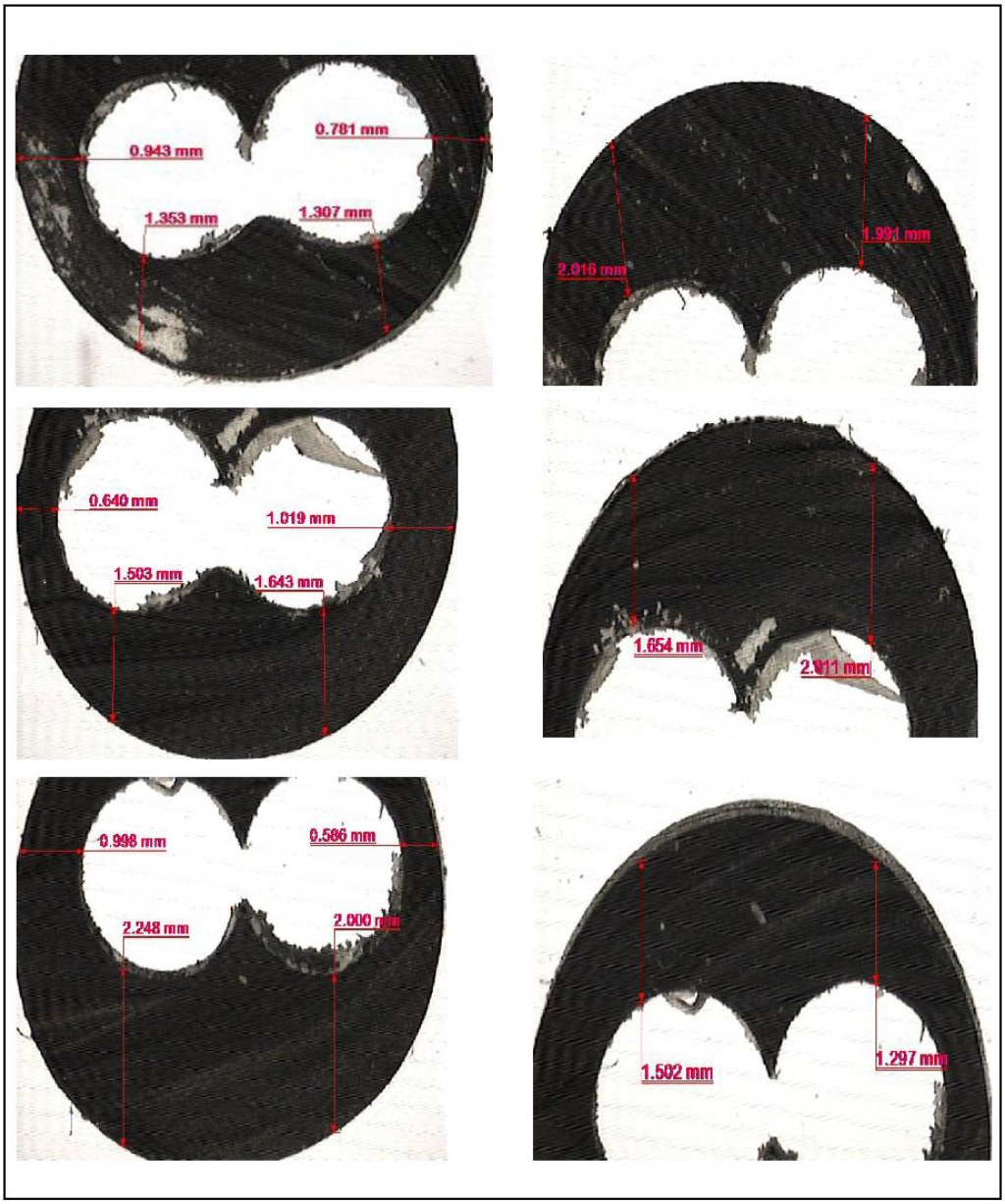
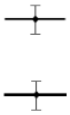
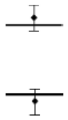
Clause	Requirement -Test		Result - Remark	Verdict



Conformity Decision is usually included in the report, unless the agreement states otherwise by the client.		
Results Notes: The acceptance criterion is based on :	TR Requirements ☐ A-The relevant	B-The relevant standard specifications ☑
	C- Manufacturer's manual (product	D- Customer requirements ☑

Test Report No :	PT1 (SQ-2505)	*Standard No:*	IEC 60227-1: 2024 , IEC 60227-5:2024	
Clause	*Requirement -Test*		*Result - Remark*	*Verdict*

		☐ technical data sheet)		
Acceptance Rule is based on:		**Special Case**	**Rejection Rule (Failing)is based on:**	
A- The measured value (+) measurement uncertainty value is less than the maximum required to criteria of .acceptance B- The measured value (-) measurement uncertainty value is greater than the minimum required to criteria of acceptance.	Accept when a confidence level of less than 95% is acceptable	May be accept if: Measured result ≤ the upper limit Measured result ≥lower limit May be rejected if : measured value < the upper limit measured result >lower limit	when a Reject confidence level of less than 95% is acceptable	A- The measured value (+) measurement uncertainty value is greater than the maximum required to criteria of acceptance. B- The measured value (-) measurement uncertainty value is less than the minimum required to criteria of acceptance.
				
♦ = measurement result with agreed method			I = uncertainty interval of agreed method	

☑ The sample passed all the above-mentioned tests in accordance with the requirements of the product			
☐ The sample passed all the tests mentioned above in accordance with the requirements for the product, except for the …… test where the measured value does not meet the requirements of the product mentioned in the attached standard specifications.			
The result is for the sample referred to in the report, which has been tested only and is only .representative of itself			
Accreditation statues :	All tests are accredit : ☑	All tests are accredit except: ……	
REMARK : SOFT COPY OF THE CONTROL TEST RESULT SHEET IS AUDITED BY THE LAB SUPERVISOR			
	Inspected by	Lab supervisor/ Reviewer	Deputy Technical Manager
Name	Patrick Perea	Mark John	Marwa Mahdy
Sign			
Date	14/03/2026	14/03/2026	14/03/2026
"End of Report"			

----- END OF REPORT -----