

Record of Line-item Letter Ballot Review by TC Chapter for Procedural Review

Region/Locale: **North America**
 Global Technical Committee: **Gases**
 TC Chapter Cochairs: **Mohamed Saleem / Brooks Instrument**
 Standards Staff: **Laura Nguyen**

	Scheduled in Background Statement	Actual
Date	11/07/2023	11/07/2023
Location	SEMI HQ, Milpitas, CA/USA	SEMI HQ, Milpitas, CA/USA
Reason for Change of Date and/or Location (if changed)		

Note: See *Regulations* ¶ 9.5 Exceptions for allowable reason to change.

Document Information

I. Document Number, Title, Lists of Line Items

Document Number 7151		Document Title Line-Item Revision to SEMI E16-0517, Guide for Determining and Describing Mass Flow Controller Leak Rates
List of Line Items	Line Item 1	Line Item Title Update throughout to comply to Regs, PM and SM.
	Line Item 2	Line Item Title Change “must” or “shall” to “should” throughout.

Line Item 1 Adjudication

II. Tally

Voting Tally: As-cast tally after close of voting period

Note: A minimum of 60% of the Voting Interests that have TC Members within the global technical committee that issued the Letter Ballot must return Votes. (*Regulations* ¶ 9.6.2.1.1)

Voting Tally (with example values):

Voting Interest:	Returned Votes	Distribution	Return Rate	
Letter Ballot	48	÷ 80	= 60.0%	≥60%
Intercommittee Ballot	38			
Voting Interest Reject(s)	0	Total Voters with Rejects		0
Voting Interest Accept(s)	36			

Note: See *Regulations* § 3.2.1 for definition of Voting Interest.

III. Rejects
None

IV. Other Technical Issues
None

V. Comments
None

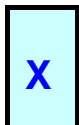
VI. Editorial Changes Other than Those Voted on in § V
None

VII. Approval Conditions Check
VII. - (i). Approval Rate

		Accepts	(Accepts + Valid Rejects)			
Approval Rate	=	36	36	=	100.0%	≥90%

VII. – (ii) Approval Level (check one)

Note: See Regulations § 9.6.2 for further information.



Globally Approved (No Ratification Ballot needed):
Line Item 1 meets the Letter Ballot approval conditions for the global technical committee.

Line Item 2 Adjudication

II. Tally

Voting Tally: As-cast tally after close of voting period

Voting Interest:	Returned Votes	Distribution	Return Rate	
Letter Ballot	48	÷ 80	= 60.0%	≥60%
Intercommittee Ballot	38			
Voting Interest Reject(s)	1	Total Voters with Rejects		1
Voting Interest Accept(s)	37			

Note: See Regulations § 3.2.1 for definition of Voting Interest.

III. Rejects

Voting Interest Reject 1 (Voting Interest Name: **Guru**)

Voter Reject 1 (Voter: **Eric Sklar / Safety Guru**)

Negative 1

Negative	Referenced Section/ Paragraph	5.1		
	Negative Text	<i>Negative: Change "General considerations" to "General Considerations".</i> <i>Reason/Justification: As this is the title of §5.1, it should be rendered in title case, i.e., each word (except for minor words such as conjunctions) should be capitalized.</i>		
	Withdrawal (check one)	<input checked="" type="checkbox"/>	No Negative withdrawal made by Voter.	GO TO "Related" subsection
Related	Motion and Reason (check one)	<input checked="" type="checkbox"/>	'Related' is mutually agreed upon. (Needs no motion.)	GO TO "Persuasive" subsection
Persuasive	Motion and Reason (check one)	<input checked="" type="checkbox"/>	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)	
			Reason	Ballot already shows the correct change.
	Motion by/ 2 nd by	By: Jeff Christian / WIKA Instrument Corporation Second: Yanli Chen / Applied Materials, Inc.		
	Discussion	None		
	Result of Vote (check one)	<input checked="" type="checkbox"/>	2/3 ≤ [Negative is related and not persuasive.] < 90%	GO TO "Final" subsection → (C)
Final	(check if applicable)	<input type="checkbox"/>	(A)	Withdrawn (counted under h in disposition)
		<input type="checkbox"/>	(B)	Not related (counted under i in disposition)
		<input checked="" type="checkbox"/>	(C)	Related and not persuasive (significant)
		<input type="checkbox"/>	(D)	Not significant (counted under j in disposition)

This table is needed for each Negative.

Negative 2

Negative	Referenced Section/ Paragraph	5.3.4		
	Negative Text	5.3.4 For the purpose of this Document, the 'measured leak rate' should be corrected to standard leak rate by multiplying by the ratio of 101.32 kPa to the absolute value of the pressurizing helium. <i>Negative: Change "to the absolute value of the pressurizing helium" to "the absolute pressure of the pressurizing helium".</i> <i>Reason/Justification: As helium is a substance, not a number, it does not have an absolute value. What is important is that the normalization be based on the "absolute pressure", that is, the pressure relative to vacuum, rather than the gauge pressure (the pressure relative to the surrounding atmosphere).</i>		
	Withdrawal (check one)	<input checked="" type="checkbox"/>	No Negative withdrawal made by Voter.	GO TO "Related" subsection

Related	Motion and Reason (check one)	<input checked="" type="checkbox"/>	'Related' is mutually agreed upon. (Needs no motion.)		GO TO "Persuasive" subsection		
	Motion and Reason (check one)	<input checked="" type="checkbox"/>	Negative is related and persuasive. (Needs >1/3 votes to pass.)				
Persuasive	Motion by/ 2 nd by	By: Jeff Christian / WIKA Instrument Corporation Second: Max van den Berg / Festo SE & Co. KG					
	Discussion	None					
	Result of Vote (check one)	16 Y-0 N; Motion passed.					
		<input checked="" type="checkbox"/>	[Negative is related and persuasive.] > 1/3	Is a technical change recommended? (check one)	<input checked="" type="checkbox"/>	Y	GO TO "Address by Technical Change Option" subsection
		<input type="checkbox"/>	[Negative is related and not persuasive.] < 2/3		<input type="checkbox"/>	N	GO TO "Final" subsection → (E)
Address by Technical Change Option	Technical Change Recommendations						
	Original section/paragraph number and at least one full sentence are required in "FROM" and "TO" fields						
	Technical Changes 1	FROM: Section/Paragraph 5.3.4					
		5.3.4 For the purpose of this Document, the 'measured leak rate' should be corrected to standard leak rate by multiplying by the ratio of 101.32 kPa to the absolute value of the pressurizing helium.					
		TO: Section/Paragraph 5.3.4					
	5.3.4 For the purpose of this Document, the 'measured leak rate' should be corrected to standard leak rate by multiplying by the ratio of 101.32 kPa to the absolute <u>pressure of the helium supply.</u> value of the pressurizing helium.						
	Justification (if necessary) pressure should be absolute						
	Motion		Negative is addressed by the technical change(s).				
	Motion by/2 nd by		By: Jeff Christian / WIKA Instrument Corporation Second: Thomas Fritz / WIKA Instrument Corporation				
	Discussion		None				
Result of Vote (check one)		14 Y-0 N; Motion passed.					
		<input checked="" type="checkbox"/>	2/3 ≤ [Negative is addressed by the technical change(s).]	GO TO "Incorporation of the Technical Change" subsection			
		<input type="checkbox"/>	[Negative is not addressed by the technical change(s).] < 2/3	GO TO "Final" subsection → (E)			
Incorporation of the Technical Change	Motion		To incorporate the technical change(s).				
	Motion by/2 nd by		By: Max van den Berg / Festo SE & Co. KG Second: Jeff Christian / WIKA Instrument Corporation				
	Discussion		None				
	Result of Vote (check one)		12 Y-0 N; Motion passed.				
<input checked="" type="checkbox"/>			90% ≤ [Agree to incorporate.]	GO TO "Final" subsection → (F)			
<input type="checkbox"/>			[Disagree to incorporate.] > 10%	GO TO "Final" subsection → (E)			

Final	(check if applicable)	<input type="checkbox"/>	(A)	Withdrawn (counted under h in disposition)	
		<input type="checkbox"/>	(B)	Not related (counted under i in disposition)	
		<input type="checkbox"/>	(C)	Related and not persuasive (significant)	
		<input type="checkbox"/>	(D)	Not significant (counted under j in disposition)	
		<input type="checkbox"/>	(E)	Related and persuasive and not addressed by technical change	DOCUMENT FAILS
		<input checked="" type="checkbox"/>	(F)	Addressed by technical change (counted under k disposition)	

Negative 3

Negative	Referenced Section/ Paragraph	Equation in 5.3.4			
	Negative Text	<i>Negative: Number the equation.</i> <i>Reason/Justification: SEMI's style prescribes that equations be numbered and the numbering style.</i>			
Related	Withdrawal (check one)	<input checked="" type="checkbox"/>	No Negative withdrawal made by Voter.	GO TO "Related" subsection	
	Motion and Reason (check one)	<input checked="" type="checkbox"/>	'Related' is mutually agreed upon. (Needs no motion.)	GO TO "Persuasive" subsection	
Persuasive	Motion and Reason (check one)	<input checked="" type="checkbox"/>	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)		
		<input type="checkbox"/>	Reason	No action: per Style Manual #6-5 (2) If there are two or more equations, number them with a right aligned number in parentheses around the equation number.... (There is only 1 equation in the document, therefore there is no need to number this equation)	
	Motion by/ 2 nd by	By: Jeff Christian / WIKA Instrument Corporation Second: Yanli Chen / Applied Materials, Inc.			
	Discussion	None			
	Result of Vote (check one)	12 Y-0 N; Motion passed.			
<input checked="" type="checkbox"/>		2/3 ≤ [Negative is related and not persuasive.] < 90%	GO TO "Final" subsection → (C)		
Final	(check if applicable)	<input type="checkbox"/>	(A)	Withdrawn (counted under h in disposition)	
		<input type="checkbox"/>	(B)	Not related (counted under i in disposition)	
		<input checked="" type="checkbox"/>	(C)	Related and not persuasive (significant)	
		<input type="checkbox"/>	(D)	Not significant (counted under j in disposition)	
		<input type="checkbox"/>	(E)	Related and persuasive and not addressed by technical change	DOCUMENT FAILS
		<input type="checkbox"/>	(F)	Addressed by technical change (counted under k disposition)	

Negative 4

Negative	Referenced Section/ Paragraph	Equation in 5.3.4		
	Negative Text	<i>Negative: Change "He Actual Pressure" to "He Absolute Pressure".</i> <i>Reason/Justification: "Actual" pressure does not specify whether the pressure to be used is absolute or gauge.</i>		

	Withdrawal (check one)	<input checked="" type="checkbox"/>	No Negative withdrawal made by Voter.	GO TO “Related” subsection
Related	Motion and Reason (check one)	<input checked="" type="checkbox"/>	‘Related’ is mutually agreed upon. (Needs no motion.)	GO TO “Persuasive” subsection
Persuasive	Motion and Reason (check one)	<input checked="" type="checkbox"/>	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)	
			Reason	No action: this was addressed by Negative 2.
	Motion by/ 2nd by		By: Jeff Christian / WIKA Instrument Corporation Second: Yanli Chen / Applied Materials, Inc.	
	Discussion		None	
	Result of Vote (check one)	<input checked="" type="checkbox"/>	12 Y-0 N; Motion passed.	
		<input checked="" type="checkbox"/>	2/3 ≤ [Negative is related and not persuasive.] < 90%	GO TO “Final” subsection → (C)
Final	(check if applicable)	<input type="checkbox"/>	(A)	Withdrawn (counted under h in disposition)
		<input type="checkbox"/>	(B)	Not related (counted under i in disposition)
		<input checked="" type="checkbox"/>	(C)	Related and not persuasive (significant)
		<input type="checkbox"/>	(D)	Not significant (counted under j in disposition)

Negative 5

Negative	Referenced Section/ Paragraph	NOTE 4		
	Negative Text	Negative: <i>Change “Pascal” to “pascal”.</i> Reason/Justification: <i>As this is the name of the SI unit and not at the start of the sentence, it should not be capitalized.</i>		
	Withdrawal (check one)	<input checked="" type="checkbox"/>	No Negative withdrawal made by Voter.	GO TO “Related” subsection
Related	Motion and Reason (check one)	<input checked="" type="checkbox"/>	‘Related’ is mutually agreed upon. (Needs no motion.)	GO TO “Persuasive” subsection
Persuasive	Motion and Reason (check one)	<input checked="" type="checkbox"/>	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)	
			Reason	Editorial in nature.
	Motion by/ 2nd by		By: Jeff Christian / WIKA Instrument Corporation Second: Yanli Chen / Applied Materials, Inc.	
	Discussion		None	
	Result of Vote (check one)	<input checked="" type="checkbox"/>	12 Y-0 N; Motion passed.	
		<input checked="" type="checkbox"/>	2/3 ≤ [Negative is related and not persuasive.] < 90%	GO TO “Final” subsection → (C)
		<input type="checkbox"/>	(B)	Not related (counted under i in disposition)
		<input checked="" type="checkbox"/>	(C)	Related and not persuasive (significant)
	<input type="checkbox"/>	(D)	Not significant (counted under j in disposition)	
	(check if applicable)	<input checked="" type="checkbox"/>	Comment generated. See Section V-(ii) Comment # NC-1.	

Negative 6

Negative	Referenced Section/ Paragraph	NOTE 4	
	Negative Text	<i>Negative:</i> Change "Atm -cc/s is acceptable" to ""Atm -cc/s is an acceptable unit for reporting leak rate" <i>Reason/Justification:</i> Because of the preceding sentence, this sentence implies that "Atm -cc/s" is a unit of pressure, which it is not.	
Related	Withdrawal (check one)	<input checked="" type="checkbox"/>	No Negative withdrawal made by Voter. GO TO "Related" subsection
	Motion and Reason (check one)	<input checked="" type="checkbox"/>	'Related' is mutually agreed upon. (Needs no motion.) GO TO "Persuasive" subsection
Persuasive	Motion and Reason (check one)	<input checked="" type="checkbox"/>	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)
			Reason: Editorial in nature to clarify "unit"
	Motion by/ 2 nd by		By: Jeff Christian / WIKA Instrument Corporation Second: Yanli Chen / Applied Materials, Inc.
	Discussion		None
	Result of Vote (check one)	<input checked="" type="checkbox"/>	12 Y-0 N; Motion passed.
	<input checked="" type="checkbox"/>	$\frac{2}{3} \leq [\text{Negative is related and not persuasive.}] < 90\%$	GO TO "Final" subsection → (C)
Final	(check if applicable)	<input type="checkbox"/>	(A) Withdrawn (counted under h in disposition)
	(check if applicable)	<input type="checkbox"/>	(B) Not related (counted under i in disposition)
	(check if applicable)	<input checked="" type="checkbox"/>	(C) Related and not persuasive (significant)
	(check if applicable)	<input type="checkbox"/>	(D) Not significant (counted under j in disposition)
	(check if applicable)	<input checked="" type="checkbox"/>	Comment generated. See Section V-(ii) Comment # NC-2.

Disposition of Voting Interest Reject 1

5	Original number (#) of Negatives	(g)	
0	Number of Negatives withdrawn	(h)	
0	Number of Negatives found not related	(i)	
0	Number of Negatives found not significant	(j)	
1	Number of Negatives addressed by technical change (Negative becomes not significant)	(k)	
Final	<input type="checkbox"/>	$g - (h + i + j + k) = 0$	Reject is Not Valid and is not included in the denominator of § VI. Approval Conditions Check
	<input checked="" type="checkbox"/>	$g - (h + i + j + k) > 0$	Reject is included in the denominator of § VI. Approval Conditions Check
	<input type="checkbox"/>	Reject without a Negative	Not Valid

Note: If all of the Negatives included with a Reject Vote are withdrawn, determined to be not related, or determined to be not significant, the Reject Vote is not valid. (Regulations ¶ 9.4.3.3)

Note: A Negative addressed by a technical change is automatically considered to be not significant. (Regulations ¶ 9.6.1.4.5.2)

IV. Other Technical Issues

None

V. Comments

V- (i) Voters' Comments

None

V-(ii) Comments Created by Handling Negative

Comment (Created by Handling Negative) NC – 1

Comment	*TF/TC Chapter to fill in	
	<i>Negative: Change "Pascal" to "pascal". Reason/Justification: As this is the name of the SI unit and not at the start of the sentence, it should not be capitalized.</i>	
Action	The TC Chapter agreed to do one of the following actions.	
	*No motion is required in this step.	
	<input checked="" type="checkbox"/>	Editorial change
	Options for editorial change (check one)	<input type="checkbox"/> Case 1: No vote in this section: To be included and voted on as a group in § VI. Editorial Changes Other than Those Voted on in § V.
		<input checked="" type="checkbox"/> Case 2: Voted in this section: Original section number and at least one full sentence are required in "FROM" and "TO" fields.
Editorial Changes	1	FROM: Section/Paragraph Note 4 NOTE 4: The Pascal (1 Pa = 1 N/m ²) is defined as the pressure unit of the international unit system SI. Atm-cc/s is acceptable, as it is widely used in the semiconductor industry.
		TO: Section/Paragraph Note 4 NOTE 4: The P _p ascal (1 Pa = 1 N/m ²) is defined as the pressure unit of the international unit system SI. Atm-cc/s is acceptable, as it is widely used in the semiconductor industry
		Justification (If necessary) Editorial in nature.
Motion	To approve above editorial change(s)	
Motion by/2 nd by	By: Jeff Christian / WIKA Instrument Corporation Second: Yanli Chen / Applied Materials, Inc.	
Discussion	None	
Vote	11 Y-0 N; Motion passed.	

This table is needed for each Comment created by handling Negative.

Comment (Created by Handling Negative) NC – 2

Comment	*TF/TC Chapter to fill in	
	<p><i>Negative: Change “Atm –cc/s is acceptable” to ““Atm –cc/s is an acceptable unit for reporting leak rate”</i></p> <p><i>Reason/Justification: Because of the preceding sentence, this sentence implies that “Atm –cc/s” is a unit of pressure, which it is not.</i></p>	
Action	The TC Chapter agreed to do one of the following actions.	
	*No motion is required in this step.	
X	Editorial change	
Options for editorial change (check one)	X	Case 1: No vote in this section:
		To be included and voted on as a group in § VI. Editorial Changes Other than Those Voted on in § V.
	X	Case 2: Voted in this section:
		Original section number and at least one full sentence are required in “FROM” and “TO” fields.
Editorial Changes	1	FROM: Section/Paragraph Note 4
		NOTE 4: The pascal (1 Pa = 1 N/m ²) is defined as the pressure unit of the international unit system SI. Atm-cc/s is acceptable, as it is widely used in the semiconductor industry.
		TO: Section/Paragraph Note 4
		5.3.5.1 Standard leak rate should be expressed in the following units: <ul style="list-style-type: none"> Pa-m³/s (He) = ‘Pascal cubic meters per second, helium’ or, alternatively, atm-cc/s (He) = ‘atmospheric cubic centimeters per second, helium’ NOTE 3: The ‘mass spectrometer helium leak detector’ is generally used for leak rate testing of high and medium level vacuum apparatus. Units of sccs, Torr-L/s, and m bar-L/s, have been used in the past but are not encouraged. Reference materials include MIL STD-202E, C-1. NOTE 4: The pascal (1 Pa = 1 N/m ²) is defined as the pressure unit of the international unit system SI. Atm-cc/s is <u>an acceptable unit for reporting leak rate</u> , as it is widely used in the semiconductor industry
Justification (If necessary)		
Editorial in nature to clarify “unit”		
Motion	To approve above editorial change(s)	
Motion by/2nd by	By: Jeff Christian / WIKA Instrument Corporation Second: Yanli Chen / Applied Materials, Inc.	
Discussion	None	
Vote	11 Y-0 N; Motion passed.	

VI. Editorial Changes Other than Those Voted on in § V
None

VII. Approval Conditions Check

VII. - (i). Approval Rate

APPROVAL CONDITION 1: All Negatives have been discussed and were withdrawn, found not related, found not persuasive, or addressed by a technical change. (*Regulations ¶ 9.6.2.1.2*)

APPROVAL CONDITION 2: At least 90% of the sum of valid Voting Interest Accept and Voting Interest Reject Votes must be Accept. (*Regulations ¶ 9.6.2.1.3*)

Note: If both approval conditions are not satisfied, the Document fails.

		Accepts	(Accepts + Valid Rejects)						
Approval Rate	=	37	38	=	97.4%			≥90%	

VII. – (ii) Approval Level (check one)

Note: See *Regulations § 9.6.2* for further information.

Globally Approved (No Ratification Ballot needed):

Line Item 1 meets the Letter Ballot approval conditions for the global technical committee.

Need a Ratification Ballot:

Line Item 2 meets the Letter Ballot approval conditions for the TC Chapter and a Ratification Ballot will be issued to validate technical changes.

Checks for Entire Document Including All Approved Line Items

VIII. Safety Check

Note: This Safety check applies to the entire Standard or Safety Guideline including all the approved Line Items. See § 15 of the *Regulations* for further information.

Motion	<input checked="" type="checkbox"/>	This is not a Safety Document, when all safety-related information is removed, the Document is still technically sound and complete. (<i>Regulations ¶ 8.7.1</i>)
	<input type="checkbox"/>	This is a Safety Document, when all safety-related information is removed, the Document is not technically sound and complete. (<i>Regulations ¶ 8.7.2</i>)
	<input type="checkbox"/>	Safety Checklist (<i>Regulations ¶ 15.3</i>) is complete and has been included with the Document throughout the balloting process. (<i>Regulations ¶ 15.1.2</i>)
Motion by/2 nd by	By: Max van den Berg / Festo SE & Co. KG Second: Jeff Christian / WIKA Instrument Corporation	
Discussion	None.	
Vote	10 Y- 0 N; Motion passed.	

IX. Intellectual Property (IP) Check

Note: This Letter Ballot may cover all or part of a Standard or Safety Guideline. Regardless of the coverage, this IP check applies to the entire Standard or Safety Guideline including all the approved Line Items*. See *Regulations § 16* for further information.

X	The TC Chapter meeting chair asked those participating, if they were aware of any patented technology that might be relevant (see <i>Regulations ¶ 16.3.1.1</i>) to the Standard or Safety Guideline; or, any copyrighted items or trademarks that are used/reproduced (see <i>Regulations ¶ 16.4.1.2</i>) in the Standard or Safety Guideline. (Also see, <i>Regulations § 8.8</i>)	
	X	The question is NOT answered in affirmative (No potentially material patented technology or use/reproduction of copyrighted items/trademarks is known.)
		GO TO SECTION X.

X. Action for This Document

Motion (Check all applicable items)	X	Line item [1] passed TC Chapter review as balloted and will be forwarded to the ISC A&R SC for procedural review.
	X	Line item [2] passed TC Chapter review with technical changes and with or without editorial changes and will be forwarded to the ISC A&R SC for procedural review. A Ratification Ballot will be issued to verify the technical changes.
Motion by/ 2nd by	By: John Zawada / Swagelok Second: Max van den Berg / Festo SE & Co. KG	
Discussion	None	
Vote	16 Y-0 N	
Final Action	X	Motion passed
		Motion failed

Note: If the use of PMPT or copyrighted item is justified by the TC Chapter, LOA or release form must be received before publication can proceed.