MI-001 MODULE B TEST REPORT
MI-001 MODÜL B TEST RAPORU

Issued By: KİWA BELGELENDİRME HİZMETLERİ A.Ş.
ESENLER SANAYİ SİTESİ ORTAKLAR İŞ MERKEZİ A8 BLOK NO:36 BAŞAKŞEHİR İSTANBUL TÜRKİYE

Test Report No: MID-02-25-3-001

Applied Date: 06.05.2025 - 22.06.2025

Applied Person: GÖKHAN SEYHAN

Customer's Name: PAKSENSE ÖLÇÜM TEKNOLOJİLERİ SANAYİ VE TİCARET LTD. ŞTİ.

Customer's Adress: HADIMKÖY MAH. İBNİ SİNA CAD. NURPET NO:7 İÇ KAPI NO:3 ARNAVUTKÖY/ İSTANBUL

Type of Instrument: MULTIJET MECHANICAL WATER METER

Trademark: PAKSAY

Models: PAK-XXK or PAK-XXKS (XX: 15,20,25,32,40 and 50)

Test Specification: 2014/32/EU MI-001, TS EN ISO 4064:2024, OIML R49:2024

Result: The measuring instrument complies with the requirements of 2014/32/EU MI-001, TS EN ISO 4064:2024, OIML R49:2024, for all performed tests, as reported on the following pages.

Performed By:	**Reviewed By:**
Technical Expert	MID Department Manager
GÖKHAN SEYHAN	KEVSER NEHİR DEMİR

KİWA BELGELENDİRME HİZMETLERİ A.Ş.
MERKEZ: İTOSB 9. Cd NO:15 Tepeören Tuzla / İSTANBUL / TÜRKİYE
BAŞAKŞEHİR ŞUBE: İkitelli O.S.B. Esenler Sanayi Sitesi Ortaklar İş Merkezi A Blok No:36 Başakşehir/İSTANBUL / TÜRKİYE
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FILE NUMBER:	**MID-02-25-3**
REPORT NO NO:	**MID-02-25-3-001**
TEST ENGINEER	**GÖKHAN SEYHAN**

4 Type evaluation report

4.1 Model Submitted

New model:	
Variant of approved model(s):	-
Approval number:	-
Variation of approved model:	-

Submitted for approval tests	**Yes**	**No**	**Remarks**
Mechanical water meter (complete)	X		
Mechanical water meter (combined)		X	
Electronic water meter (complete)		X	
Electronic water meter (combined)		X	
Family of water meters	X		
Separable calculator (including indicating device)		X	
Separable measurement transducer (including flow or volume sensor)		X	
Supplementary electronic device(s) for testing (permanently attached to meter)		X	
Supplementary electronic device(s) for data transmission (permanently attached to meter)		X	
Supplementary electronic device(s) for testing (temporarily attached to meter)		X	
Supplementary electronic device(s) for data transmission (temporarily attached to meter)		X	
Ancillary devices		X	

4.1.1 Mechanical water meter (complete or combined)

	DN15	**DN15**	**DN20**	**DN20**	**DN25**	**DN32**	**DN40**	**DN50**
Q_4	**2,000**	**3,125**	**3,125**	**5,000**	**7,875**	**12,500**	**20,000**	**31,250**
Q_3	**1,600**	**2,500**	**2,500**	**4,000**	**6,300**	**10,000**	**16,000**	**25,000**
Q_2	**0,0160**	**0,0250**	**0,0250**	**0,0400**	**0,0630**	**0,1000**	**0,1600**	**0,2500**
Q_1	**0,0100**	**0,0156**	**0,0156**	**0,0250**	**0,0394**	**0,0625**	**0,1000**	**0,1563**
R	**160**	**160**	**160**	**160**	**160**	**160**	**160**	**160**

Measuring principle:	Multijet	
Accuracy class:	2	
Temperature class:	T30, T50, T70 or T90	
Environmental class:	M1	
Electromagnetic environment:	E1	
Maximum admissible temperature:	30, 50, 70 or 90	°C
Maximum admissible pressure:	16	Bar
Orientation limitation:	H	
Pressure loss class:	0,63	
Reverse flow:	b) Meters not designed to measure reverse flow	

EUT testing requirements (OIML R 49-2:2024, 8.1.8):

Category:	
Case:	

Installation details:

Connection type (flange, screw thread, concentric manifold):		
Minimum straight length of inlet pipe:		mm
Minimum straight length of outlet pipe:		mm
Flow conditioner (details if required):		
Mounting:		
Orientation:		
Other relevant information:		

Note: If a family of meters is submitted, the details in this subclause are to be given for each size of water meter.

4.1.2 Electronic water meter (complete or combined)

Manufacturer:	
Model number:	
Type details:	

Q_1		L/h			
Q_2		L/h			
Q_3		L/h	**Qx1**		m3/h
Q_4		L/h	**Qx2**		m3/h
Q_3/Q_1		L/h			

Measuring principle:				
Accuracy class:				
Temperature class:				
Environmental class:				
Electromagnetic environment:				
Maximum admissible temperature:		C		
Maximum admissible pressure:		Mpa		bar)
Orientation limitation:				
Pressure loss class:				
Reverse flow: **a) Meters designed to measure reverse flow** **b) Meters not designed to measure reverse**				
Software version (if applicable):				

EUT testing requirements (OIML R 49-2:2024, 8.1.8):

Category:		
Case:		
Installation details:		
Connection type (flange, screw thread, concentric manifold):		
Minimum straight length of inlet pipe:		mm
Minimum straight length of outlet pipe:		mm
Flow conditioner (details if required):		
Mounting:		

Orientation:	
Other relevant information:	
Installation details (electrical):	
Wiring instructions:	
Mounting arrangement:	
Orientation limitations:	
Power supply:	

Type (battery, mains AC, mains DC):

U_{max}:		Vdc
U_{min}:		V
Frequency:		Hz

Note: If a family of meters is submitted, the details in this subclause are to be given for each size of water meter.

4.1.3 Separable calculator (including indicating device)

Manufacturer:	
Model number:	
Type details:	

Q1		m3/h	for combination meters		
Q2		m3/h	**Qx1**		m3/h
Q3		m3/h	**Qx2**		m3/h
Q4		m3/h			
Q3/Q1		m3/h			

Measuring principle:		
Accuracy class:		
Temperature class:		
Environmental class:		
Electromagnetic environment:		
Maximum admissible temperature:		C
Maximum admissible pressure:		Mpa
Orientation limitation:		

Category:		
Case:		
Maximum relative error specified by the manufacturer:		
Lower flow rate zone, Q1 ≤ Q < Q2:	%	
Upper flow rate zone, Q2 ≤ Q ≤ Q4:	%	

Installation details (electrical):

Wiring instructions:	
Mounting arrangement:	
Orientation limitations:	
Power supply:	

Type (battery, mains AC, mains DC):

U_{max}:		V
U_{min}:		V
Frequency:		Hz

Approval number(s) of compatible measurement transducer(s) (including flow or volume sensor):

4.1.4 Separable measurement transducer (including flow or volume sensor)

Manufacturer:	
Model number:	
Type details:	

Q1		m3/h			
Q2		m3/h	for combination meters		
Q3		m3/h	**Qx1**		m3/h
Q4		m3/h	**Qx2**		m3/h
Q3/Q1		m3/h			

Measuring principle:	
Accuracy class:	
Temperature class:	
Environmental class:	

Electromagnetic environment:		
Maximum admissible temperature:		C
Maximum admissible pressure:		Mpa
Orientation limitation:		
Pressure loss class:		
Reverse flow: **a) Meters designed to measure reverse flow** **b) Meters not designed to measure reverse flow**		

EUT testing requirements (OIML R 49-2:2024, 8.1.8):

Category:		
Case:		
Maximum relative error specified by the manufacturer:		
Lower flow rate zone, Q1 ≤ Q < Q2:	%	
Upper flow rate zone, Q2 ≤ Q ≤ Q4:	%	

Installation details (mechanical):		
Connection type (flange, screw thread, concentric manifold):		
Minimum straight length of inlet pipe:		mm
Minimum straight length of outlet pipe:		mm
Flow conditioner (details if required):		
Mounting:		
Orientation:		
Other relevant information:		
Installation details (electrical):		
Wiring instructions:		
Mounting arrangement:		
Orientation limitations:		
Power supply:		
Type (battery, mains AC, mains DC):		
U **max**:		V
U **min**:		V
Frequency:		Hz
Approval number(s) of compatible calculator(s) (including indicating device):		

4.1.5 Supplementary electronic device(s) used for testing (permanently attached to meter)

Manufacturer:		
Model number:		
Power supply:		
Type (battery, mains AC, mains DC):		
U_{max}:		V
U_{min}:		V
Frequency:		Hz
Installation details (electrical):		
Wiring instructions:		
Mounting arrangement:		
Orientation limitations:		

4.1.6 Supplementary electronic device(s) used for data transmission (permanently attached to meter)

Manufacturer:		
Model number:		
Power supply:		
Type (battery, mains AC, mains DC):		
U_{max}:		V
U_{min}:		V
Frequency:		Hz
Installation details (electrical):		
Wiring instructions:		
Mounting arrangement:		
Orientation limitations:		

4.1.7 Supplementary electronic device(s) used for testing (temporarily attached to meter)

Manufacturer:		
Model number:		
Power supply:		
Type (battery, mains AC, mains DC):		
U_{max}:		V
U_{min}:		V
Frequency:		Hz
Installation details (electrical):		
Wiring instructions:		
Mounting arrangement:		
Orientation limitations:		

4.1.8 Supplementary electronic device(s) used for data transmission (temporarily attached to meter)

Manufacturer:		
Model number:		
Power supply:		
Type (battery, mains AC, mains DC):		
U_{max}:		V
U_{min}:		V
Frequency:		Hz

EUT testing requirements (OIML R 49-2:2024, 8.1.8):

Category:	
Case:	
Installation details (electrical):	
Wiring instructions:	
Mounting arrangement:	
Orientation limitations:	

4.1.9 Ancillary devices

Manufacturer:		
Model number:		
Power supply:		
Type (battery, mains AC, mains DC):		V
U_{max}:		V
U_{min}:		Hz
Frequency:		
Approval number(s) of compatible calculator(s) (including indicating device):		

EUT testing requirements (OIML R 49-2:2024, 8.1.8):

Category:	
Case:	
Installation details (electrical):	
Wiring instructions:	
Mounting arrangement:	
Orientation limitations:	
Approval number(s) of compatible water meters, calculator(s) (including indicating device) and measurement transducer(s) (including flow or volume sensor):	

4.1.10 Documents concerning the type

List of documents concerning the type (OIML R 49-1:2024, 7.2.9)		
Document reference	**Date**	**Brief description**
PAK K-01	Rev.00, Publish Date: 12.01.2025	Technical information and description of PAK-XXK and PAK-XXKS series.

4.2 General information concerning the test equipment

Listing of test equipment used in examinations and tests

Parameter measured or applied	Instrument or equipment	Manufacturer	Model number	Serial number
DN15	Multijet Water Meter	PAKSAY	PAK-15K	15-1
			PAK-15KS-P	15-2
DN25			PAK-25K	25-1
			PAK-25KS-P	25-2
DN40			PAK-40K	40-1
			PAK-40KS-P	40-2
Comments:				

Test Ekipmanları

Referans cihaz	Marka, model, seri no	Ölçüm aralığı	ÖB (±)	Kalibrasyon tarihi	Sertifika no	Uygunluk kontrolü
Göstergeli Sıcaklık Ölçer	MIKROCIP	20-60 °C	0,19 °C ile 0,31°C	2.07.2024	4S12418	UYGUN
Basınç Transmitter (Giriş)	KELLER, PAA-21Y, 222155.019947/22-2	0 - 15 Bar	Bağıl olarak %0,30	2.07.2024	4B4758	UYGUN
Basınç Transmitteri (Çıkış)	KELLER, PAA-21Y 222155.019947/22-1	0 - 14 Bar	Bağıl olarak %0,30	2.07.2024	4B4756	UYGUN
Terazi	Sartorius, P-TRZ.01	150 kg	-0,054 kg ile 0,024 kg	2.07.2024	4T10490	UYGUN
Debimetre	Krohne Optiflux 5300C, A13022402	600 l/h ile 6000 l/h	%0,15 ile %0,59	2.07.2024	DKA105	UYGUN
Debimetre	Krohne Optiflux 5300C, A13022398	15 l/h ile 200 l/h	%0,59 ile %0,85	2.07.2024	DKA106	UYGUN
Basınç Transmitter	PAKKENS, 2558755	0 - 40 Bar	Bağıl olarak %0,30	2.07.2024	4B4759	UYGUN

FILE NUMBER:	**MID-02-25-3**
REPORT NO NO:	**MID-02-25-3-001**
TEST ENGINEER	**GÖKHAN SEYHAN**

A.2 Identification of the instrument

Application number:	MID-02-25-3
Manufacturer:	PAKSENSE ÖLÇÜM TEKNOLOJİLERİ SANAYİ VE TİCARET LTD. ŞTİ.
Manufacturer Address:	HADIMKÖY MAH. İBNİ SİNA CAD. NURPET NO:7 İÇ KAPI NO:3 ARNAVUTKÖY/ İSTANBUL
Type designation:	PAK-XXK or PAK-XXKS (XX: 15,20,25,32,40 and 50)
Software version:	-
Report date:	7.07.2025

Documentation from the manufacturer
(Record as necessary to identify the equipment under test)

System or module name	Drawing number or software reference	Issue level	Serial no.
User Manual	-	-	-
PAK-K 01 Technical File			

Simulator documentation

System or module name	Drawing number or software reference	Issue level	Serial no.

Simulator function (summary)
(Simulator description and drawings, block diagram, etc. should be attached to the report if available).

A.3 General information concerning the type

Application number:	MID-02-25-3
Manufacturer:	PAKSENSE ÖLÇÜM TEKNOLOJİLERİ SANAYİ VE TİCARET LTD. ŞTİ.
Manufacturer Adress	HADIMKÖY MAH. İBNİ SİNA CAD. NURPET NO:7 İÇ KAPI NO:3 ARNAVUTKÖY/ İSTANBUL
Type designation:	PAK-XXK or PAK-XXKS (XX: 15,20,25,32,40 and 50)
Software version:	-
Report date:	45845

Test Equipment	Complete Instruments

*The test equipment (simulator or part of a complete instrument) connected to the module shall be defined in the test form(s) used.

Evaluation period:	
Date of report:	
Observer:	GÖKHAN SEYHAN

A.4 Information concerning the test equipment used for test

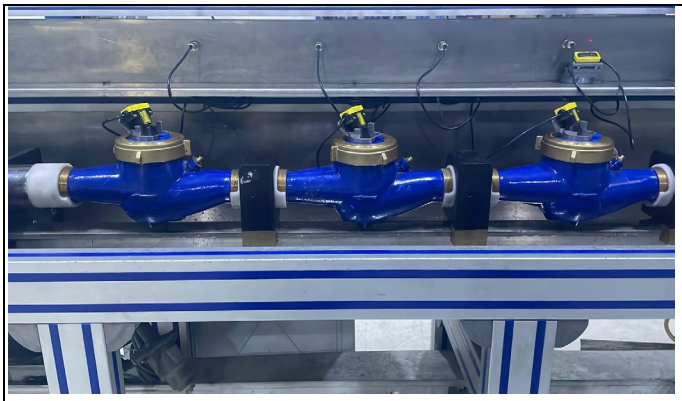
Configuration for test

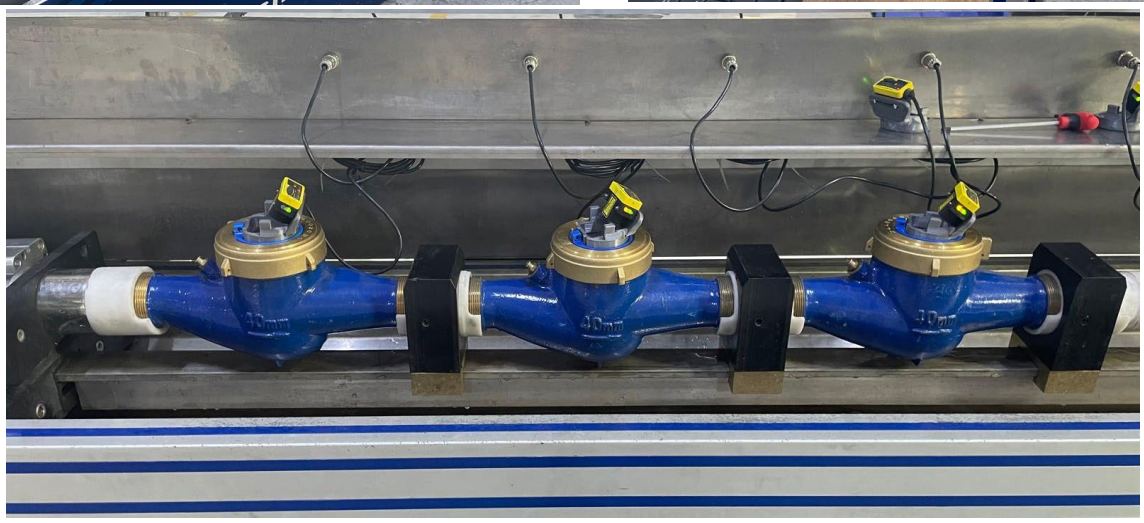
Use this space for additional information relating to equipment configuration, interfaces, data rates, load cells EMC protection options, etc., for the instrument and/or

A.5 Selection of sample(s)

Application number:	MID-02-25-3
Manufacturer:	PAKSENSE ÖLÇÜM TEKNOLOJİLERİ SANAYİ VE TİCARET LTD. ŞTİ.
Manufacturer Adress	HADIMKÖY MAH. İBNİ SİNA CAD. NURPET NO:7 İÇ KAPI NO:3 ARNAVUTKÖY/ İSTANBUL
Type designation:	PAK-XXK or PAK-XXKS (XX: 15,20,25,32,40 and 50)
Software version:	-
Report date:	45845

Use this space for additional information relating to the identification for the selection of sample(s), in particular in case of a family of instruments or modules or if specific requirements are mentioned in OIML R 49-1 and OIML R 49-2.





A.6 Adjustments or modifications

Application number:	MID-02-25-3
Manufacturer:	PAKSENSE ÖLÇÜM TEKNOLOJİLERİ SANAYİ VE TİCARET LTD. ŞTİ.
Manufacturer Adress	HADIMKÖY MAH. İBNİ SİNA CAD. NURPET NO:7 İÇ KAPI NO:3 ARNAVUTKÖY/ İSTANBUL
Type designation:	PAK-XXK or PAK-XXKS (XX: 15,20,25,32,40 and 50)
Software version:	-
Report date:	7.07.2025

Use this space for additional information relating to the identification of any authorised and agreed upon adjustments or modifications made to the sample or samples during the evaluation.

A.7 Summary of type evaluation tests

Application number:	MID-02-25-3
Manufacturer:	PAKSENSE ÖLÇÜM TEKNOLOJİLERİ SANAYİ VE TİCARET LTD. ŞTİ.
Type designation:	PAK-XXK or PAK-XXKS (XX: 15,20,25,32,40 and 50)

Test Report Number	Report page	Remarks *
	Determination of intrinsic errors (of indication) (OIML R 49-1:2024, 7.2.3)	**PASSED**
	Water temperature test (OIML R 49-1:2024, 4.2.8)	**PASSED**
	Overload water temperature test (OIML R 49-1:2024, 7.2.5)	**PASSED**
	Water pressure test (OIML R 49-1:2024, 4.2.8)	**PASSED**
	Reverse flow test (OIML R 49-1:2024, 4.2.7)	**PASSED**
	Pressure loss test (OIML R 49-1:2024, 6.5)	**PASSED**
	Flow disturbance tests (OIML R 49-1:2024, 6.3.4)	**PASSED**
	Durability tests (OIML R 49-1:2024, 7.2.6)	**PASSED**
	Magnetic field testing (OIML R 49-1:2024, 7.2.8)	**N.A.**
	Tests on ancillary devices of a water meter (OIML R 49-1:2024, 4.3)	**N.A.**
	Environmental testing (OIML R 49-1, A.2)	**N.A.**
	Performance tests related to influence factors and disturbances (OIML R 49-1:2024, 7.2.12.2)	**PASSED**
	General requirements (OIML R 49-1, A.1)	**PASSED**
	Dry heat (non-condensing) (OIML R 49-1:2024, A.5)	**N.A.**
	Cold (OIML R 49-1:2024, A.5)	**N.A.**
	Damp heat, cyclic (condensing) (OIML R 49-1:2024, A.5)	**N.A.**
	Power supply variation (OIML R 49-1:2024, A.5)	**N.A.**
	Vibration (random) (OIML R 49-1:2024, A.5)	**N.A.**
	Mechanical shock (OIML R 49-1:2024, A.5)	**N.A.**
	AC mains voltage dips, short interruptions and voltage variations (OIML R 49-1:2024, A.5)	**N.A.**
	Bursts on signal lines (OIML R 49-1:2024, A.5)	**N.A.**
	Bursts (transients) on AC and DC mains (OIML R 49-1:2024, A.5)	**N.A.**
	Electrostatic discharge (OIML R 49-1:2024, A.5)	**N.A.**

Test Report Number	Report page	Remarks *
	Radiated electromagnetic fields (OIML R 49-1:2024, A.5)	**N.A.**
	Conducted electromagnetic fields (OIML R 49-1:2024, A.5)	**N.A.**
	Surges on signal, data and control lines (OIML R 49-1:2024, A.5)	**N.A.**
	Surges on AC and DC mains power lines (OIML R 49-1:2024, A.5)	**N.A.**
	Static magnetic field (OIML R 49-1:2024, 7.2.8)	**PASSED**
	Absence of flow test (OIML R 49-1:2024, 4.2.9)	**N.A.**
	Mains power frequency electromagnetic fields test (OIML R 49-1:2024, A.5)	**N.A.**

DOSYA NO:	**MID-02-25-3**
RAPOR NO:	**MID-02-25-3-001**
KONTROL EDEN:	**GÖKHAN SEYHAN**
TARİH:	**06.05.2025 - 22.06.2025**

External examination for all water meters				
Requirements for meters and ancillary devices				
OIML R 49-1: 2024 subclause	**Requirement**	+	-	**Remarks**
4.3.1	Requirements for meters and ancillary devices The connections between the measurement transducer, the calculator and the indicating device shall be reliable and durable in accordance with OIML R 49-1:2024, 5.1.4 and Annex B2. These provisions shall also apply to connections between the primary and secondary devices of electromagnetic	+		
4.3.2	Adjustment device A meter may be provided with an electronic adjustment device, which may replace a mechanical adjustment device.			**N.A.**
4.3.3	Correction device A meter may be fitted with correction devices; such devices are always considered as an integral part of the meter. The whole of the requirements which apply to the meter, in particular the MPEs specified in OIML R 49-1:2024, 4.2, are therefore applicable to the corrected volume at metering conditions. In normal operation, non-corrected volume shall not be displayed. A water meter with correction devices shall satisfy the performance tests of OIML R 49-1:2024, Annex A5. All the parameters which are not measured and which are necessary for correcting shall be contained in the calculator at the beginning of the measurement operation. The correction device shall not allow the correction of a pre-estimated drift, e.g., in relation to time or volume. Associated measuring instruments shall be fitted with checking facilities, as specified in OIML R 49-1:2024, Annex B6. Correction devices shall not be used for adjusting the errors (of indication) of a water meter to values other than as close as practical to zero, even when these values are within the MPEs. Conditioning of the water at flow rates below Q1 by means of a moving device, e.g. spring-loaded flow accelerator, shall not be permitted.			**N.A.**
4.3.4	Calculator All parameters necessary for the elaboration of indications that are subject to legal metrological control, such as a calculation table or correction polynomial, shall be present in the calculator at the beginning of the measurement operation. The calculator may be provided with interfaces permitting the coupling of peripheral equipment. When these interfaces are used, the hardware and software of a water meter shall continue to function correctly and the metrological functions of the meter shall not be capable of being affected.	+		
4.3.5	Indicating device The indicating device shall display the volume either continuously, periodically or on demand. It shall be readily available to read.	+		
4.3.6	In addition to the indicating devices specified in 6.7.2, a water meter may include the ancillary devices specified in 3.1.8. Where national regulations permit, a remote reading device may be used for testing and verification and for remote reading of a water meter, provided that other means guarantee the satisfactory operation of the water meter. The addition of these devices, either temporary or permanent, shall not alter the metrological characteristics of the meter.			**N.A.**
5	**Water meters equipped with electronic devices**			
5.1	A water meter equipped with electronic devices shall be designed and manufactured in such a way that significant faults do not occur when it is exposed to the disturbances specified in OIML R 49-1:2024, Annex A5.			**N.A.**
5.1.2	A significant fault shall have a value equal to one half of the MPE in the upper flow rate zone.			**N.A.**
5.1.3	A water meter with electronic devices shall be provided with the checking facilities specified in OIML R 49-1:2024, Annex B, except in the case of nonresettable measurements between two constant partners. All water meters equipped with checking facilities shall prevent or detect reverse flow, as specified in OIML R 49-1:2024, 4.2.7.			**N.A.**
5.1.4	A water meter is presumed to comply with the requirements in OIML R 49-1:2024, 4.2 and 5.1.1 if it passes the design inspection and performance tests specified in OIML R 49-1:2024, 7.2.12.1 and 7.2.12.2 in the following conditions: a) the number of meters submitted shall comply with OIML R 49-1:2024, 7.2.2; b) at least one of these meters is submitted to the whole set of tests; c) no meter fails any test.			**N.A.**
5.1.5	Sampling interval For electronic water meters or mechanical water meters incorporating an electronic indicating device the sampling interval shall be appropriate in order to support the user application and billing period and therefore shall not exceed 10 seconds. The sampling interval range shall be indicated in the product documentation available to the user or indicated on the meter, either physically inscribed or via menus accessible on the display.			**N.A.**

5.1.6	Test mode Electronic water meters or mechanical water meters incorporating an electronic indicating device may be placed into a specific mode of operation called test mode. The test mode should not alter the ability of the meter to meet the acceptance criteria of any performance tests specified in this part of the standard and in OIML R 49-2:2024 and may only differ from the specifications set out in this part of the standard and in OIML R 49-2:2024 for the following aspects: • Switch the resolution of the indicating device to achieve or exceed requirements of OIML R 49-1:2024, 6.7.3.2.3 • Switch to a shorter sampling interval than in service operation to achieve or exceed requirements of OIML R 49-1:2024, 6.7.3.2.3, and OIML R 49-1:2024, 7.2, 7.3. • Activate output transmission in pulses or digital data format to the test laboratory data acquisition system. Test mode may only be used during tests to determine the error (of indication) of the meter. Following the use of test mode for testing purposes the meter shall be able to be placed into an operational/service mode and sealed. The manufacturer shall provide the necessary equipment and/or procedures to the test laboratories and national authorities to initiate test mode.			**N.A.**
5.1.7	Software For software-controlled water meters, the requirements of OIML R 49-1:2024, Annex D shall apply.			**N.A.**
External power supply				
5.2.2.1	Water meters with electronic devices shall be designed such that in the event of an external power supply failure (AC or DC), the meter indication of volume just before failure is not lost and remains accessible for a minimum of one year. The corresponding memorisation shall occur at least either once per day or for every volume equivalent to 10 min of flow at Q_3.			**N.A.**
5.2.2.2	Any other properties or parameters of a meter shall not be affected by an interruption of the electrical supply. Meters shall employ means to ensure continued and accurate operation during a short power supply interruption. Compliance with this requirement does not necessarily ensure that the meter continues to register volume during a longer-term power supply failure.			**N.A.**
5.2.2.4	Nominal value of mains voltage and frequency The manufacturer shall declare the nominal value of mains voltage and frequency.			**N.A.**
5.2.3	Non-replaceable battery The power supply connections at a meter shall be capable of being secured from tampering.			**N.A.**
5.2.3.1	The manufacturer shall ensure that the expected lifetime of the battery is such that a meter functions correctly for at least one year longer than the operational lifetime of the meter.			**N.A.**
5.2.3.2	A low battery or exhausted battery indicator or a meter replacement date shall be indicated on the meter. If the register display gives an indication of “low battery”, there shall be at least 180 days of useful life for the register display from the time “low battery” indication is displayed to end of life.			**N.A.**
5.2.4.1	Replaceable battery Where the electrical power supply is a replaceable battery, the manufacturer shall give precise rules for the replacement of the battery.			**N.A.**
5.2.4.2	A low battery or exhausted battery indicator or a battery replacement date shall be indicated on the meter. If the register display gives an indication of “low battery”, there shall be at least 180 days of useful life for the register display from the time “low battery” indication is displayed to end of life.			**N.A.**
5.2.4.3	The properties and parameters of a meter shall not be affected by the interruption of the electrical supply when the battery is replaced.			**N.A.**
5.2.4.4	Replacement of the battery shall be carried out in a way that does not necessitate breaking the seal required for statutory metrological inspections.			**N.A.**
5.2.4.5	The battery compartment shall be capable of being secured from tampering.			**N.A.**
Materials and construction of water meters				
6.1.1	A water meter shall be manufactured from materials of adequate strength and durability for the purpose for which it is to be used.	+		
6.1.2	A water meter shall be manufactured from materials which shall not be adversely affected by the water temperature variations, within the working temperature range (see OIML R 49-1:2024, 6.4).	+		
6.1.3	All parts of a water meter in contact with the water flowing through it shall be manufactured from materials which are conventionally known to be non-toxic, noncontaminating, and biologically inert and according to national regulations.	+		
6.1.4	The complete water meter shall be manufactured from materials which are resistant to internal and external corrosion or which are protected by a suitable surface treatment.	+		
6.1.5	A water meter indicating device shall be protected by a transparent window. A cover of a suitable type may also be provided as additional protection.	+		
6.1.6	Where there is a risk of condensation forming on the underside of the window of a water meter indicating device, the water meter shall incorporate devices for the prevention or elimination of condensation.	+		
6.1.7	A water meter shall be of such design, composition, and construction that it does not facilitate the perpetration of fraud.	+		
6.1.8	A water meter shall be fitted with a metrologically controlled display. The display shall be readily accessible to the customer, without requiring the use of a tool.	+		
6.1.9	A water meter shall be of such design, composition, and construction that it does not exploit the MPE or favour any party.	+		

OIML R 49-1: 2024 subclause	Requirement	+	-	Remarks
Adjustment and correction				
6.2.1	A water meter may be fitted with an adjustment device, and/or a correction device. Any adjustment and/or correction shall be performed in such a way as to adjust the errors (of indication) of the water meter to values as close as practical to zero so that the meter may not exploit the MPE or systematically favour any party.			**N.A.**
6.2.2	If these devices are mounted on the outside of the water meter, provision for sealing shall be made (see 6.8.2).	+		
6.3	Installation	+		
6.3.1	The water meter shall be installed such that it is completely filled with water under normal conditions.	+		
6.3.2	Under specific installation conditions, a strainer or filter, fitted at the inlet of a meter or in the upstream pipeline, may be required.	+		
6.3.3	Provision may be made on a water meter to allow it to be correctly levelled during installation.	+		
6.3.4	If the accuracy of a water meter is affected by disturbances in the upstream or downstream pipeline (e.g. due to the presence of bends, valves or pumps), the water meter shall be provided with a sufficient number of straight pipe lengths, with or without a flow straightener, as specified by the manufacturer, so that the indications of the installed water meter meet the requirements of OIML R 49-1, 4.2.2 or 4.2.3 with respect to MPEs and according to the accuracy class of the meter	+		
6.3.5	A water meter shall be able to withstand the influence of disturbed velocity fields as defined in the test procedures in OIML R 49-2:2024. During the application of these flow disturbances, the error (of indication) shall meet the requirements of OIML R 49-1, 4.2.2 or 4.2.3. Where a water meter may be manufactured and supplied with different lengths (as declared by the manufacturer), the meter with the shortest length shall be tested in order to demonstrate compliance with the requirements of OIML R 49-1, 4.2.2 or 4.2.3. A meter manufacturer shall specify the flow profile sensitivity class in accordance with OIML R 49-1, Table 2 and Table 3. Any specific flow conditioning section, including straightener and/or straight lengths, to be used shall be prescribed by the manufacturer.	+		
6.4	Rated operating conditions The rated operating conditions for a water meter shall be as reported in OIML R 49-1, Table 4.	+		
6.5	Pressure loss Row given further down the checklist to be completed.	+		
6.6	Marks and inscriptions Rows given further down the checklist to be completed.	+		

3 Checklist for water meter examinations and performance tests

3.1 Checklist for water meter examinations

OIML R 49-1: 2024 subclause	Requirement	+	-	Remarks
Function of the indicating device				
6.7.1.1	The indicating device shall provide an easily read, reliable and unambiguous visual indication of the indicated volume.			**N.A.**
6.7.1.1	The indicating device shall include visual means for testing and calibration.			**N.A.**
6.7.1.1	The indicating device may include additional elements for testing and calibration by other methods, e.g. for automatic testing and calibration.			**N.A.**
Unit of measurement and its placement				
6.7.1.2	The indicated volume of water shall be expressed in cubic metres	+		
6.7.1.2	The symbol m^3 shall appear on the dial or immediately adjacent to the numbered display	+		
Indicating range				
6.7.1.3	For $Q_3 \leq 6.3$, the minimum indicating range is 0 m^3 to 9 999 m^3			**N.A.**
6.7.1.3	For $6.3 < Q_3 \leq 63$, the minimum indicating range is 0 m3 to 99 999 m^3			**N.A.**
6.7.1.3	For $63 < Q_3 \leq 630$, the minimum indicating range is 0 m3 to 999 999 m^3			**N.A.**
6.7.1.3	For $630 < Q_3 \leq 6\,300$, the minimum indicating range is 0 m3 to 9 999 999 m^3			
Colour coding for indicating device				
6.7.1.4	The color black should be used to indicate the cubic metre and its multiples			**N.A.**
6.7.1.4	The color red should be used to indicate sub-multiples of a cubic metre			**N.A.**
6.7.1.4	The colors shall be applied to either the pointers, indexes, numbers, wheels, discs, dials or aperture frames			**N.A.**
6.7.1.4	Other means of indicating the cubic metre may be used provided there is no ambiguity in distinguishing between the primary indication and alternative displays, e.g. sub-multiples for verification and testing			**N.A.**
Types of indicating device: Type 1 — Analogue device				
6.7.2.1	The indicated volume shall be shown by continuous movement of either: a) one or more pointers moving relative to graduated scales; or b) one or more circular scales or drums each passing an index			**N.A.**
6.7.2.1	The value expressed in cubic metres for each scale division shall be of the form 10n, where n is a positive or a negative whole number or zero, thereby establishing a system of consecutive decades.			**N.A.**
6.7.2.1	The scale shall be graduated in values expressed in cubic metres or accompanied by a multiplying factor (×0.001; ×0.01; ×0.1; ×1; ×10; ×100; ×1 000 etc.)			**N.A.**
6.7.2.1	Rotational movement of the pointers or circular scales shall be clockwise			**N.A.**
6.7.2.1	Linear movement of pointers or scales shall be left to right			**N.A.**
6.7.2.1	Movement of numbered roller indicators shall be upwards			**N.A.**

Types of indicating device: Type 2 — Digital device				
6.7.2.2	The indicated volume is given by a line of digits appearing in one or more apertures	+		
6.7.2.2	The advance of one digit shall be completed while the digit of the next immediately lower decade changes from 9 to 0	+		
6.7.2.2	The apparent height of the digits shall be at least 4 mm	+		
6.7.2.2	For non-electronic devices, movement of numbered roller indicators (drums) shall be upwards			**N.A.**
6.7.2.2	For non-electronic devices, the lowest value decade may have a continuous movement, the aperture being large enough to permit a digit to be read without ambiguity			**N.A.**
6.7.2.2	For electronic devices with non-permanent displays the volume shall be able to be displayed at any time for at least 10 s	+		
6.7.2.2	For electronic devices, the meter shall provide visual checking of the entire display which shall have the following sequence: — for seven segment type displaying all the elements (e.g. an “eights” test); and — for seven segment type blanking all the elements (a “blanks” test). For graphical displays, an equivalent test is required to demonstrate that display faults cannot result in any digit being misinterpreted. Each step of the sequence shall last at least 1 s	+		
Types of indicating device: Type 3 — Combination of analogue and digital devices				
6.7.2.3	The indicated volume is given by a combination of type 1 and type 2 devices and the respective requirements of each shall apply			**N.A.**

Verification devices — General requirements				
6.7.3.1	Every indicating device shall provide means for visual, non ambiguous verification testing and calibration	+		
6.7.3.1	The visual verification may have either a continuous or a discontinuous movement	+		
6.7.3.1	In addition to the visual verification display, an indicating device may include provisions for rapid testing by the inclusion of complementary elements (e.g. star wheels or discs), providing signals through externally attached sensors.			**N.A.**
Verification devices — Visual verification displays				
6.7.3.2.1	The value of the verification scale interval, expressed in cubic metres, shall be of the form:1 × 10n, 2 × 10n or 5 × 10n, where n is a positive or negative whole number, or zero	+		
6.7.3.2.1	The indicated volume is given by a line of digits appearing in one or more apertures	+		
6.7.3.2.1	For analogue or digital indicating devices with continuous movement of the first element, the verification scale interval may be formed from the division into 2, 5 or 10 equal parts of the interval between two consecutive digits of the first element. Numbering shall not be applied to these divisions	+		
6.7.3.2.1	For digital indicating devices with discontinuous movement of the first element, the verification scale interval is the interval between two consecutive digits or incremental movements of the first element	+		
6.7.3.2.2	On indicating devices with continuous movement of the first element, the apparent scale spacing shall be not less than 1 mm and not more than 5 mm	+		
6.7.3.2.2	The scale shall consist of either: a) lines of equal thickness not exceeding one quarter of the scale spacing and differing only in length; or b) contrasting bands of a constant width equal to the scale spacing			**N.A.**
6.7.3.2.2	The apparent width of the pointer at its tip shall not exceed one quarter of the scale spacing and in no case shall it be greater than 0.5 mm			**N.A.**
Resolution of the indicating device				
6.7.3.2.3	The sub-divisions of the verification scale shall be small enough to ensure that the resolution of the indicating device does not exceed 0.25 % of the actual volume for accuracy class 1 meters, and 0.5 % of the actual volume for accuracy class 2 meters, for a 90 min test at the minimum flow rate, Q1. Note 1: When the display of the first element is continuous, an allowance should be made for a maximum error in each reading of not more than half of the verification scale interval. Note 2: When the display of the first element is discontinuous, an allowance should be made for a maximum error in each reading of not more than one digit of the verification scale	+		
Note: For combination meters with two indicating devices, the above requirements apply to both indicating devices.				

Marks and inscriptions				
6.6.1	A place shall be provided on the meter for affixing the verification mark, which shall be visible without dismantling the meter	+		
6.6.2	The water meter shall be clearly and indelibly marked with the information listed in the following, either grouped or distributed on the casing, the indicating device dial, an identification plate or on the meter cover if is not detachable	+		
6.6.2 a)	Unit of measurement: cubic metre	+		
6.6.2 b)	The accuracy class, where it differs from accuracy class 2	+		
6.6.2 c)	The numerical value of Q3 and the ratio Q3/Q1 (may be preceded by R). If the meter measures reverse flow and Q3 and the ratio Q3/Q1 are different in the two directions, both values of Q3 and Q3/Q1 shall be inscribed; the direction of flow to which each pair of values refers shall be clear. If the meter has different values of Q3/Q1 in horizontal and vertical positions, both values of Q3/Q1 shall be inscribed, and the orientation to which each value refers shall be clear			
6.6.2 d)	The type approval sign according to national regulations	+		
6.6.2 e)	The name or trademark of the manufacturer	+		
6.6.2 f)	The year of manufacture (or the last two digits of the year of manufacture or the month and year of manufacture)	+		
6.6.2 g)	The serial number (as near as possible to the indicating device)	+		
6.6.2 h)	The direction of flow (shown on both sides of the body; or on one side only, provided the direction of flow arrow is easily visible under all circumstances)	+		
6.6.2 i)	The maximum admissible pressure (MAP) if it exceeds 1 Mpa (10 bar) or 0.6 MPa (6 bar) for nominal diameter ≥ 500 mm. (The unit bar may be used where national regulations permit)	+		
6.6.2 j)	The letter V or H, if the meter can only be operated in the vertical or horizontal position	+		
6.6.2 k)	The temperature class where it differs from T30	+		
6.6.2 l)	The pressure loss class where it differs from Δp 63	+		
6.6.2 m)	The installation sensitivity class where it differs from U0/D0	+		
Additional markings for water meters with electronic devices				
6.6.2 n)	For an external power supply: the voltage and frequency			**N.A.**
6.6.2 o)	For a replaceable battery: the latest date by which the battery shall be replaced			**N.A.**
6.6.2 p)	For a non-replaceable battery: the latest date by which the meter shall be replaced	+		
6.6.2 q)	Environmental classification	+		
6.6.2 r)	Electromagnetic environmental class	+		
Protection devices				
6.8.1	Water meters shall include protection devices which can be sealed so as to prevent, both before and after correct installation of the water meter, dismantling or modification of the meter, its adjustment device or its correction device, without damaging these devices. In the case of combination meters, this requirement applies to both meters			**N.A.**
6.8.1	The display of the total quantity supplied or the displays from which the total quantity supplied can be derived shall not be resettable while the meter is in service to a single customer.			**N.A.**

Protection devices — Electronic sealing devices				
6.8.2.1	When access to parameters that influence the determination of the results of measurements is not protected by mechanical sealing devices, the protection shall fulfil the following provisions. a) Access shall only be allowed to authorized people, e.g. by means of a code (password) or of a special device (hard key, etc.). The code shall be capable of being changed			**N.A.**
	b) It shall be possible for at least the last intervention to be memorized. The record shall include the date and a characteristic element identifying the authorized person making the intervention [see a)]. If it is possible to memorize more than one intervention and if a previous intervention requires deletion to permit a new record, the oldest record shall be deleted			**N.A.**
6.8.2.2	For meters with parts which can be disconnected one from another by the user and which are interchangeable, the following provisions shall be fulfilled: a) it shall not be possible to access parameters that participate in the determination of results of measurements through disconnected points unless the provisions of OIML R 49-1:2024, 6.8.2.1 are fulfilled; b) interposing any device which may influence the accuracy shall be prevented by means of electronic and data processing securities or, if this is not possible, by mechanical means			**N.A.**
6.8.2.3	For meters with parts which may be disconnected one from the other by the user and which are not interchangeable, the provisions in OIML R 49-1:2024, 6.8.2.2 apply. Moreover, these meters shall be provided with devices which do not allow them to operate if the various parts are not connected according to the approved type. Note: Disconnections which are not allowed to the user may be prevented, e.g. by means of a device that prevents any measurement after disconnecting and reconnecting			**N.A.**
Examination and testing of checking facilities				
General requirements for examining checking facilities				
5.1.3	Water meters with electronic devices shall be provided with the checking facilities specified in OIML R 49-1:2024, Annex B, except in the case of non-resettable measurements between two constant partners			**N.A.**
5.1.3	All meters equipped with checking facilities shall prevent or detect reverse flow, as laid down in OIML R 49-1:2024, 4.2.7.			**N.A.**

3.2 Performance for water meter performance tests

OIML R 49-1:2024, subclause	**Requirement**	+	-	**Remarks**
4.2.10	The meter shall be capable of withstanding the following test pressures without leakage or damage: — 1.6 times the maximum admissible pressure for 15 min; — 2 times the maximum admissible pressure for 1 min			**Examined at P.BL.FR.009 MI-001 Water Meter Module B & F Test form of Kiwa art. 4.3.1.**
Intrinsic errors (of indication)				
7.2.3	The errors (of indication) of the water meter (in the measurement of the actual volume), shall be determined at least at the following flow rate ranges: a) Q1 to 1.1 Q1; b) Q2 to 1.1 Q2; c) 0.33 (Q2 + Q3) to 0.37 (Q2 + Q3); d) 0.67 (Q2 + Q3) to 0.74 (Q2 + Q3); e) 0.9 Q3 to Q3; f) 0.95 Q4 to Q4; and for combination meters:; g) 0.85 Qx1 to 0.95 Qx1; h) 1.05 Qx2 to 1.15 Qx2. The water meter should be tested without its temporary supplementary devices attached (if any).			**Examined at P.BL.FR.009 MI-001 Water Meter Module B & F Test form of Kiwa art. 4.3.3**
7.2.3	During a test all other influence factors shall be held at reference conditions. Other flow rates may be tested depending on the shape of the error curve. 1) The relative errors (of indication) observed for each of the flow rates shall not exceed the maximum permissible errors (MPEs) given in OIML R 49-1:2024, 4.2.2 or 4.2.3. If the error observed on one or more meters is greater than the MPE at one flow rate only, then if only two results have been taken at that flow rate, the test at that flow rate shall be repeated. The test shall be declared satisfactory if two out of the three results at that flow rate lie within the MPE and the arithmetic mean of the results for the three tests at that flow rate lies within the MPE. 2) If all the relative errors (of indication) of the water meter have the same sign, at least one of the errors shall not exceed one-half of the MPE. In all cases, this requirement shall be applied equitably with respect to the water supplier and the consumer (see also OIML R 49-1:2024, 4.3.3 3) and 8)			**Examined at P.BL.FR.009 MI-001 Water Meter Module B & F Test Form of Kiwa / art. 4.3.3**
7.2.4	The meter shall be repeatable: the standard deviation of three measurements at the same flow rate shall not exceed one-third of the MPEs given in OIML R 49-1:2024, 4.2.2 or 4.2.3. Tests shall be carried out at nominal flow rates of Q1, Q2, and Q3			**Examined at P.BL.FR.009 MI-001 Water Meter Module B & F Test Form of Kiwa / art. 4.3.3**
Water temperature test				
4.2.8	The requirements relating to the MPEs shall be met for all water temperature variations within the rated operating conditions of the meter			**Examined at P.BL.FR.009 MI-001 Water Meter Module B & F Test Form of Kiwa / art. 4.3.5**
Water pressure test				
4.2.8	The requirements relating to the MPEs shall be met for all water pressure variations within the rated operating conditions of the meter			**Examined at P.BL.FR.009 MI-001 Water Meter Module B & F Test Form of Kiwa / art. 4.3.6**

Reverse flow test				
4.2.7	A water meter designed to measure reverse flow shall either: a) subtract the reverse flow volume from the indicated volume; or b) record the reverse flow volume separately. The MPEs of OIML R 49-1:2024, 4.2.2 or 4.2.3 shall be met for both forward and reverse flow			**N.A.**
4.2.7	A water meter not designed to measure reverse flow shall either: a) prevent it; or b) be capable of withstanding an accidental reverse flow at a flow rate up to Q3 without any deterioration or change in its metrological properties for forward flow			**Examined at P.BL.FR.009 MI-001 Water Meter Module B & F Test Form of Kiwa / art. 4.3.7.3**
Meter characteristics at zero flow rate				
4.2.9	The water meter totalization shall not change when the flow rate is zero			**N.A.**
Pressure loss test				
6.5	The pressure loss of the water meter, including its filter where the latter forms an integral part of the water meter, shall not be greater than 0.063 MPa (0.63 bar) between Q1 and Q3			**Examined at P.BL.FR.009 MI-001 Water Meter Module B & F Test Form of Kiwa / art. 4.3.7.8**
Flow disturbance test				
6.3.4	If the accuracy of water meters is affected by disturbances in the upstream or downstream pipeline, the meter shall be provided with sufficient straight pipe lengths with or without a flow straightener (as specified by the manufacturer) so that the indications of the installed water meter do not exceed MPEs according to the accuracy class of the meter. Forward flow tests Reverse flow tests (where applicable)			**Examined at P.BL.FR.009 MI-001 Water Meter Module B & F Test Form of Kiwa / art. 4.3.9**
Overload temperature test				
7.2.5	Water meters with MAT ≥ 50 °C shall be capable of withstanding a water temperature of MAT + 10 °C for 1 h			**Examined at P.BL.FR.009 MI-001 Water Meter Module B & F Test Form of Kiwa**
Durability tests				
7.2.6	The water meter shall undergo a durability test according to the permanent flow rate Q3 and the overload flow rate Q4 of the meter, simulating service conditions			**Examined at P.BL.FR.009 MI-001 Water Meter Module B & F Test Form of Kiwa Test reports / art. 4.3.10**
7.2.6	Meters with Q3 ≤ 16 m3/h: a) 100 000 flow cycles between 0 and Q3; b) 100 h at Q4			**Examined at P.BL.FR.009 MI-001 Water Meter Module B & F Test Form of Kiwa**
7.2.6	Meters with Q3 > 16 m3/h:a) 800 h at Q3; b) 200 h at Q4; and for combination meters: c) 50 000 flow cycles between Q ≥ 2Qx2 and 0			**N.A.**
7.2.6.2	Accuracy class 1 meters The variation in the error curve shall not exceed 2 % for flow rates in the lower zone (Q1 ≤ Q < Q2) and 1 % for flow rates in the upper zone (Q2 ≤ Q ≤ Q4). For the purpose of these requirements, the arithmetic mean value of the errors (of indication) E for each flow rate shall apply. For flow rates in the lower flow rate zone (Q1 ≤ Q < Q2), the error (of indication) curve shall not exceed a maximum error limit of ±4 % for all temperature classes. For flow rates in the upper flow rate zone (Q2 ≤ Q ≤ Q4), the error (of indication) curve shall not exceed a maximum error limit of ±1.5 % for meters of temperature class T30 and ±2.5 % for all other temperature classes			**N.A.**
7.2.6.3	Accuracy class 2 meters The variation in the error curve shall not exceed 3 % for flow rates in the lower zone (Q1 ≤ Q < Q2) and 1.5 % for flow rates in the upper zone (Q2 ≤ Q < Q4). For the purpose of these requirements, the arithmetic mean value of the errors (of indication) E for each flow rate shall apply. For flow rates in the lower flow rate zone (Q1 ≤ Q < Q2), the error (of indication) curve shall not exceed a maximum error limit of ±6 % for all temperature classes. For flow rates in the upper flow rate zone (Q2 ≤ Q < Q4) the error (of indication) curve shall not exceed a maximum error limit of ±2.5 % for meters of temperature class T30 and ±3.5 % for all other temperature classes			**Examined at P.BL.FR.009 MI-001 Water Meter Module B & F Test Form of Kiwa / art. 4.3.3.10.1 & 4.3.3.10.2**
7.2.7	It shall be demonstrated that cartridge meters and exchangeable metrological modules for water meters with exchangeable metrological modules are independent of the connection interfaces they are made for, as far as their metrological performance is concerned. The cartridge meters and exchangeable metrological modules shall be tested in accordance with the test specified in OIML R 49-2:2024, 7.4.6			**Examined at P.BL.FR.009 MI-001 Water Meter Module B & F Test Form of Kiwa / art. 4.3.3.10.1 & 4.3.3.10.2**
7.2.8	All water meters where the mechanical components may be influenced by a static magnetic field and all meters with electronic components shall be tested by applying a specified field. The test shall be carried out at Q3 and show that the indications of the installed water meter do not exceed MPEs of the upper zone according to the accuracy class of the meter: Forward flow tests Reverse flow tests (where applicable) Application of the field in different planes			**Examined at P.BL.FR.009 MI-001 Water Meter Module B & F Test Form of Kiwa / art. 4.3.3.10.1 & 4.3.3.10.2**

Documentation				
7.2.9	The application for type approval of a water meter or a calculator (including indicating device) or a measurement transducer shall include the following documents:	+		
7.2.9.1 a)	a description giving the technical characteristics and the principle of operation;	+		
7.2.9.1 b)	a drawing or photograph of the complete water meter or calculator or measurement transducer;	+		
7.2.9.1 c)	a list of the parts with a description of their constituent materials when these parts have a metrological influence;	+		
7.2.9.1 d)	an assembly drawing with identification of the different parts;	+		
7.2.9.1 e)	for meters fitted with correction devices, a description of how the correction parameters are determined;	+		
7.2.9.1 f)	a drawing showing the location of seals and verification mark(s);	+		
7.2.9.1 g)	a drawing of regulatory markings;	+		
7.2.9.1 h)	for combination meters that comprise approved meters, the test reports for those meters;	+		
7.2.9.1 i)	optionally, a user guide and installation manual.	+		
7.2.9.2	In addition, the application for type approval of a water meter with electronic devices shall include:	+		
7.2.9.2 a)	a functional description of the various electronic devices;	+		
7.2.9.2 b)	a flow diagram of the logic, showing the functions of the electronic devices;	+		
7.2.9.2 c)	any document or evidence which shows that the design and construction of the water meter with electronic devices comply with the requirements of this part of OIML R 49-1, in particular OIML R 49-1:2024, 5.1 and Annex B.	+		
7.2.9.3	The applicant seeking type approval shall provide the body responsible for the evaluation with a meter or a calculator (including indicating device) or a measurement transducer which is representative of the final type, in addition to the samples provided as per 7.2.2.	+		

3.3 Performance tests for electronic water meters and electronic devices fitted to mechanical meters

OIML R 49-1:2024, subclause	**Requirement**	+	-	**Remarks**
Dry heat				
A.5	To verify compliance with the provisions in 4.2 under conditions of high temperature (see OIML R 49-2:2024, 8.2)			**Examined at P.BL.FR.009 MI-001 Water Meter Module B & F Test Form of Kiwa / art. 4.6.1**
Cold				
A.5	To verify compliance with the provisions in 4.2 under conditions of low temperature (see OIML R 49-2:2024, 8.3)			**Examined at P.BL.FR.009 MI-001 Water Meter Module B & F Test Form of Kiwa / art. 4.6.2**
Damp heat, cyclic, condensation				
A.5	To verify compliance with the provisions in 5.1.1 under conditions of high humidity when combined with cyclic temperature changes. Cyclic tests shall be applied in all the cases where condensation is important or when the penetration of vapor is accelerated by the breathing effect (see OIML R 49-2:2024, 8.4)			**Examined at P.BL.FR.009 MI-001 Water Meter Module B & F Test Form of Kiwa / art. 4.6.3.**
Power voltage variation, for water meters powered by DC batteries and DC mains				
A.5	To verify compliance with the provisions in 4.2 under conditions of varying DC voltage (if relevant). (see OIML R 49-2:2024, 8.5)			**N.A**
Replaceable battery				
5.2.4	To verify compliance with the provisions in 5.2.4.3. The properties and parameters of the meter shall not be affected by the interruption of the electrical supply when the battery is replaced			**N.A.**
Power voltage variation, for water meters powered by direct AC or by AC/DC converters				
A.5	To verify compliance with the provisions in 4.2 under conditions of varying AC mains power voltage (if relevant). (see OIML R 49-2:2024, 8.5)			**N.A.**
Vibration (random)				
A.5	To verify compliance with the provisions in 5.1.1 under conditions of random vibration. (see OIML R 49-2:2024, 8.6)			**N.A.**
Mechanical shock				
A.5	To verify compliance with the provisions in 5.1.1 under conditions of mechanical shocks. (see OIML R 49-2:2024, 8.7)			**N.A.**
Short time power reductions				
A.5	To verify compliance with the provisions in 5.1.1 under conditions of short time mains voltage reductions. (see OIML R 49-2:2024, 8.8)			**N.A.**
Bursts				
A.5	To verify compliance with the provisions in 5.1.1 under conditions where electrical bursts are superimposed on input/output and communication ports. (see OIML R 49-2:2024, 8.9)			**N.A.**
A.5	To verify compliance with the provisions in 5.1.1 under conditions where electrical bursts are superimposed on the mains voltage. (see OIML R 49-2:2024, 8.10)			**N.A.**

Electrostatic discharge				
A.5	To verify compliance with the provisions in 5.1.1 under conditions of direct and indirect electrostatic discharges. (see OIML R 49-2:2024, 8.11)			**N.A**
Electromagnetic susceptibility - electromagnetic fields				
A.5	To verify compliance with the provisions in 5.1.1 under conditions of radiated electromagnetic fields. (see OIML R 49-2:2024, 8.12)			**N.A.**
A.5	To verify compliance with the provisions in OIML R 49-1, 5.1.1 under conditions of conducted electromagnetic fields. (see OIML R 49-2:2024, 8.18)			
A.5	To verify compliance with the provisions in 5.1.1 under conditions of conducted electromagnetic fields. (see OIML R 49-2:2024, 8.13)			**N.A.**
Surges on signal, data, and control lines				
A.5	To verify compliance with the provisions in 5.1.1 under conditions where electrical surges are superimposed on I/O and communication ports. (see OIML R 49-2:2024, 8.14)			**N.A.**
Surges on AC and DC mains power lines				
A.5	To verify compliance with the provisions in 5.1.1 under conditions where electrical surges are superimposed on the mains voltage. (see OIML R 49-2:2024, 8.15)			**N.A.**

4.3 Type evaluation tests (for all water meters)
4.3.1 Static pressure test (OIML R 49-2:2024, 7.3)

Application No	MID-02-25-3
Model	PAK-15K & PAK-15KS-P
Date	06.05.2025
Observer	GÖKHAN SEYHAN

	At start	At end	
Ambient temperature:	20,0	20,1	°C
Ambient relative humidity:	52	53	%rh
Ambient atmospheric pressure:	996	996	mbar
Time:	08:00	08:40	

Meter serial no	Pressure Bar	Start time	Intial pressure Bar	End time	Final pressure Bar	Remarks
15-1	(MAP*1,6) 25,6	08:00	25,60	08:15	25,60	PASSED
	(MAP*2) 32	08:17	32,00	08:18	32,00	PASSED
15-2	(MAP*1,6) 25,6	08:00	25,60	08:15	25,60	PASSED
	(MAP*2) 32	08:17	32,00	08:18	32,00	PASSED

Comments	PASSED

Application No	MID-02-25-3
Model	PAK-25K & PAK-25KS-P
Date	06.05.2025
Observer	GÖKHAN SEYHAN

	At start	At end	
Ambient temperature:	20,1	20,2	°C
Ambient relative humidity:	53	54	%rh
Ambient atmospheric pressure:	996	995	mbar
Time:	08:40	09:20	

Meter serial no	Pressure Bar	Start time	Intial pressure Bar	End time	Final pressure Bar	Remarks
25-1	(MAP*1,6) 25,6	08:40	25,60	08:55	25,60	PASSED
	(MAP*2) 32	08:57	32,00	08:58	32,00	PASSED
25-2	(MAP*1,6) 25,6	08:40	25,60	08:55	25,60	PASSED
	(MAP*2) 32	08:57	32,00	08:58	32,00	PASSED

Comments	PASSED

Application No	MID-02-25-3
Model	PAK-40K
Date	06.05.2025
Observer	GÖKHAN SEYHAN

	At start	At end	
Ambient temperature:	20,2	20,2	°C
Ambient relative humidity:	54	53	%rh
Ambient atmospheric pressure:	995	995	mbar
Time:	09:20	10:00	

Meter serial no	Pressure Bar	Start time	Intial pressure Bar	End time	Final pressure Bar	Remarks
40-1	(MAP*1,6) 25,6	09:20	25,60	09:35	25,60	PASSED
	(MAP*2) 32	09:37	32,00	09:38	32,00	PASSED
40-2	(MAP*1,6) 25,6	09:20	25,60	09:35	25,60	PASSED
	(MAP*2) 32	09:37	32,00	09:38	32,00	PASSED

Comments	PASSED

4.3.3 Determination of the intrinsic errors (of indication) and the effects of meter orientation (OIML R 49-2:2024, 7.4.4)

Application No	MID-02-25-3
Model	PAK-15K
Date	06.05.2025
Observer	GÖKHAN SEYHAN

	At start	At end	
Ambient temperature:	20,0	20,1	°C
Ambient relative humidity:	53	55	%rh
Ambient atmospheric pressure:	995	995	mbar
Time:	10:00	11:45	

Test method:	**Gravimetric**
Volume measures/weighbridge used — m3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Length of straight pipe before meter (or manifold) — mm:	110
Length of straight pipe after meter (or manifold) — mm:	165
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN15
Describe flow straightener installation if used:	-

DN15	
Q_4	**3,125**
Q_3	**2,5**
Q_2	**0,025**
Q_1	**0,016**
R	**160**

Meter serial No.:	15-1
Orientation (V, H, other):	H (0°)
Flow direction (see Requirement 3):	Forward
Location of indicating device (see Requirement 4):	Top

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		***T*w**	***V*i(i)**	***V*i(f)**	***V*i**	***V*a**	**Em**		**Minimum Absolute Value**	**Half of MPE**	**Control**
m^3/h	**Bar**	**°C**	**m^3**	**m^3**	**m^3**	**m^3**	**%**	**%**			
3	3	20	0,36504	0,47770	0,11266	0,112263	0,35	2	0,35	1	**PASSED**
3	3	20	0,48500	0,58890	0,10390	0,103440	0,44				
						Ēm2	0,40				
						Control	**PASSED**				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		***T*w**	***V*i(i)**	***V*i(f)**	***V*i**	***V*a**	**Em**		**Minimum Absolute Value**	**Half of MPE**	**Control**
m^3/h	**Bar**	**°C**	**m^3**	**m^3**	**m^3**	**m^3**	**%**	**%**			
2,3	1,2	20	0,62438	0,72490	0,10052	0,099943	0,58	2	0,54	1,0	**PASSED**
2,3	1,2	20	0,73560	0,83770	0,10210	0,101500	0,59				
2,3	1,2	20	0,84520	0,94655	0,10135	0,100801	0,54				
						Ēm3	0,57	**PASSED**			
							Standard deviation %	**MPE(a)/3 %**			
						S (c)	0,02	0,67			
						PASSED					

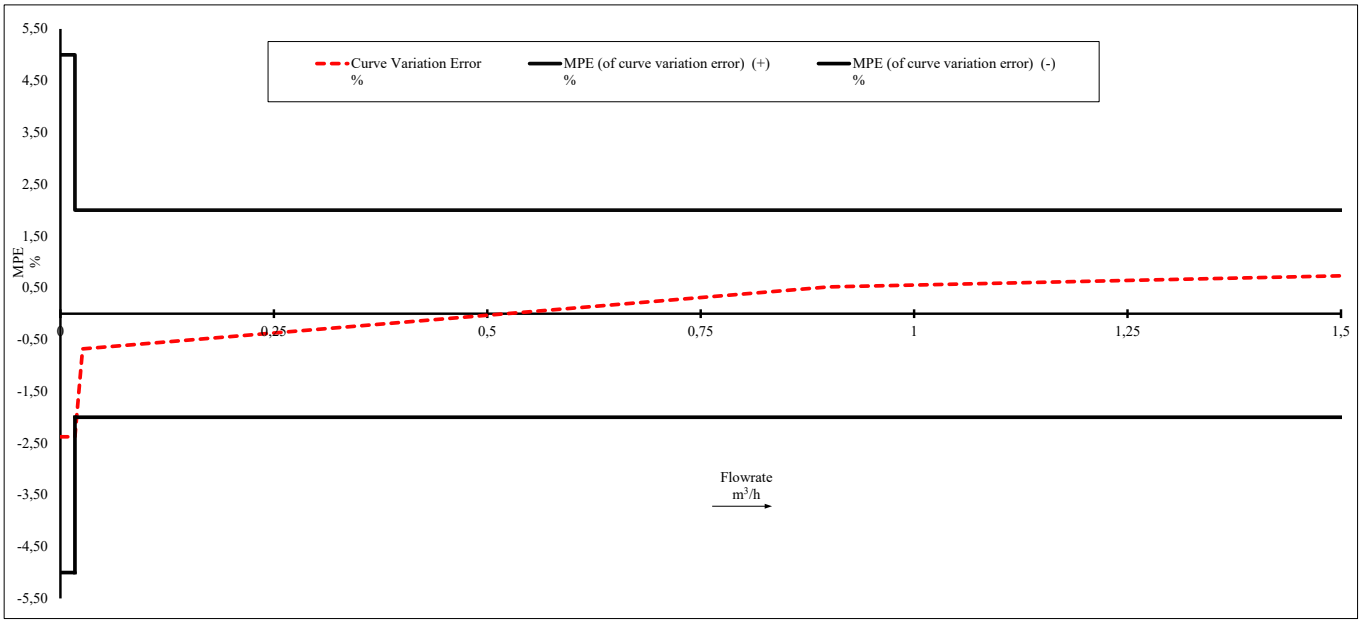
Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
1,75	1	20	1,00381	1,10691	0,10310	0,102246	0,84	2	0,81	1	PASSED
1,75	1	20	1,11440	1,21504	0,10064	0,099835	0,81				
						Ēm2	0,82				
						Control	PASSED				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
0,9	0,8	20	1,25643	1,30745	0,05102	0,050911	0,21	2	0,21	1	PASSED
0,9	0,8	20	1,31261	1,36360	0,05099	0,050576	0,82				
						Ēm2	0,52				
						Control	PASSED				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
0,026	0,5	20	1,37103	1,38098	0,00995	0,010056	-1,05	2	0,36	1,0	PASSED
0,026	0,5	20	1,38152	1,38783	0,00631	0,006350	-0,63				
0,026	0,5	20	1,38901	1,39320	0,00419	0,004205	-0,36				
						Ēm3	-0,68	PASSED			
							Standard deviation %	MPE(a)/3 %			
						S (c)	0,35	0,67			
						PASSED					

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
0,017	0,4	20	1,39423	1,39718	0,00295	0,003027	-2,54	5	2,04	2,5	PASSED
0,017	0,4	20	1,39858	1,40185	0,00327	0,003338	-2,04				
0,017	0,4	20	1,40338	1,40632	0,00294	0,003017	-2,55				
						Ēm3	-2,38	PASSED			
							Standard deviation %	MPE(a)/3 %			
						S (c)	0,29	1,67			
						PASSED					

Comments	PASSED


Curve Variation Error
%
MPE (of curve variation error) (+)
%
MPE (of curve variation error) (-)
%
MPE
%
5,50
4,50
3,50
2,50
1,50
0,50
-0,50
-1,50
-2,50
-3,50
-4,50
-5,50
0
0,25
0,5
0,75
1
1,25
1,5
Flowrate
m3/h

Application No	MID-02-25-3
Model	PAK-15KS-P
Date	06.05.2025
Observer	GÖKHAN SEYHAN

	At start	At end	
Ambient temperature:	20,1	20,0	°C
Ambient relative humidity:	55	54	%rh
Ambient atmospheric pressure:	996	995	mbar
Time:	11:45	13:05	

Test method:	**Gravimetric**
Volume measures/weighbridge used — m3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Length of straight pipe before meter (or manifold) — mm:	110
Length of straight pipe after meter (or manifold) — mm:	165
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN15
Describe flow straightener installation if used:	-

DN15	
Q_4	**3,125**
Q_3	**2,5**
Q_2	**0,025**
Q_1	**0,015625**
R	**160**

Meter serial No.:	15-2
Orientation (V, H, other):	H (0°)
Flow direction (see Requirement 3):	Forward
Location of indicating device (see Requirement 4):	Top

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
3	3	20	0,36255	0,47470	0,11215	0,112263	-0,10	2	0,09	1	PASSED
3	3	20	0,48195	0,58530	0,10335	0,103440	-0,09				
						Ēm2	-0,09				
						Control	**PASSED**				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
2,3	1,2	20	0,62065	0,72070	0,10005	0,099943	0,11	2	0,07	1,0	PASSED
2,3	1,2	20	0,73137	0,83294	0,10157	0,101500	0,07				
2,3	1,2	20	0,84040	0,94138	0,10098	0,100801	0,18				
						Ēm3	0,12	**PASSED**			
							Standard deviation %	**MPE(a)/3 %**			
						S (c)	0,06	0,67			
						PASSED					

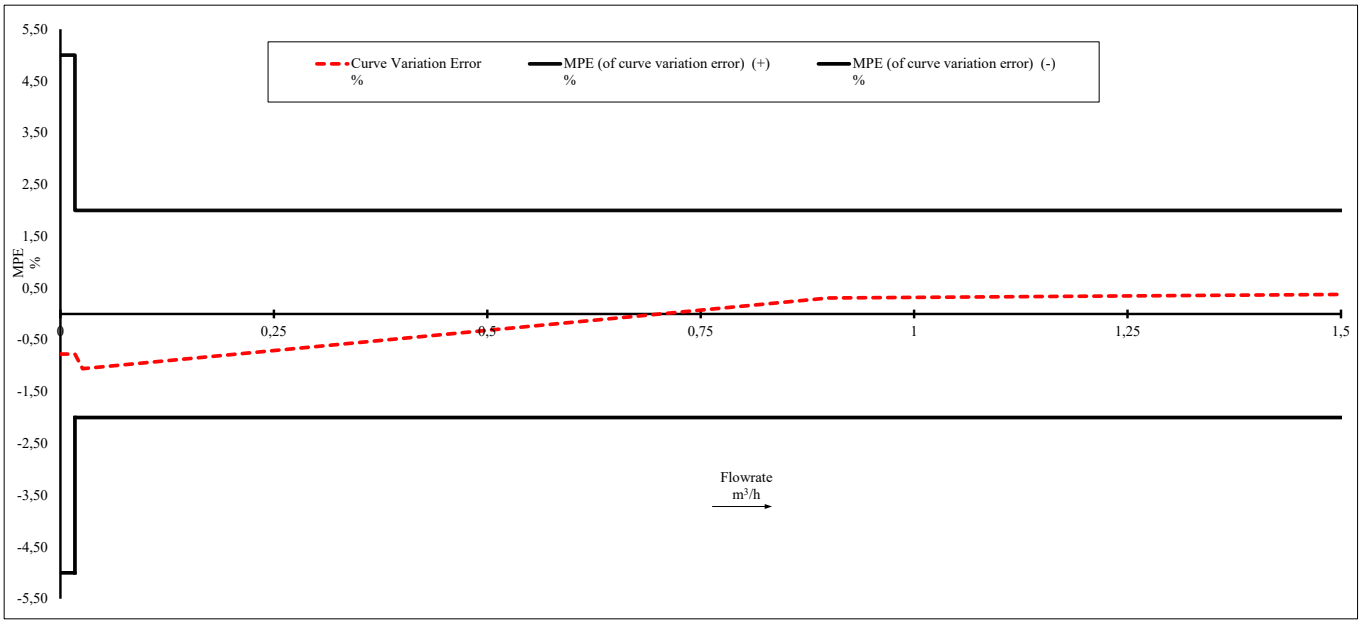
Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
1,75	1	20	0,99840	1,10105	0,10265	0,102246	0,40	2	0,40	1	PASSED
1,75	1	20	1,10850	1,20875	0,10025	0,099835	0,42				
						Ēm2	0,41				
						Control	PASSED				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
0,9	0,8	20	1,24998	1,30090	0,05092	0,050911	0,02	2	0,02	1	PASSED
0,9	0,8	20	1,30600	1,35688	0,05088	0,050576	0,60				
						Ēm2	0,31				
						Control	PASSED				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
0,026	0,5	20	1,36429	1,37419	0,00990	0,010056	-1,55	2	0,79	1,0	PASSED
0,026	0,5	20	1,37470	1,38100	0,00630	0,006350	-0,79				
0,026	0,5	20	1,38219	1,38636	0,00417	0,004205	-0,83				
						Ēm3	-1,06	PASSED			
							Standard deviation %	MPE(a)/3 %			
						S (c)	0,43	0,67			
						PASSED					

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
0,017	0,4	20	1,38740	1,39030	0,00290	0,002927	-0,92	5	0,56	2,5	PASSED
0,017	0,4	20	1,39170	1,39492	0,00322	0,003238	-0,56				
0,017	0,4	20	1,39648	1,39940	0,00292	0,002945	-0,85				
						Ēm3	-0,78	PASSED			
							Standard deviation %	MPE(a)/3 %			
						S (c)	0,19	1,67			
						PASSED					

Comments	PASSED


Curve Variation Error
%
MPE (of curve variation error) (+)
%
MPE (of curve variation error) (-)
%
5,50
4,50
3,50
2,50
1,50
0,50
-0,50
-1,50
-2,50
-3,50
-4,50
-5,50
MPE
%
0
0,25
0,5
0,75
1
1,25
1,5
Flowrate
m³/h

Application No	MID-02-25-3
Model	PAK-25K
Date	06.05.2025
Observer	GÖKHAN SEYHAN

	At start	At end	
Ambient temperature:	20,0	20,1	°C
Ambient relative humidity:	54	54	%rh
Ambient atmospheric pressure:	996	995	mbar
Time:	13:05	14:30	

Meter serial No.:	25-1
Orientation (V, H, other):	H (0°)
Flow direction (see Requirement 3):	Forward
Location of indicating device (see Requirement 4):	Top

DN25	
Q_4	**7,875**
Q_3	**6,3**
Q_2	**0,063**
Q_1	**0,039**
R	**160**

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
7,5	3	20	0,37363	0,48643	0,11280	0,112263	0,48	2	0,48	1	PASSED
7,5	3	20	0,49372	0,59770	0,10398	0,103440	0,52				
						Ēm2	0,50				
						Control	**PASSED**				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
6	1,2	20	0,63329	0,73391	0,10062	0,099943	0,68	2	0,64	1,0	PASSED
6	1,2	20	0,74464	0,84690	0,10226	0,101500	0,75				
6	1,2	20	0,85440	0,95585	0,10145	0,100801	0,64				
						Ēm3	0,69	**PASSED**			
							Standard deviation %	**MPE(a)/3 %**			
						S (c)	0,05	0,67			
						PASSED					

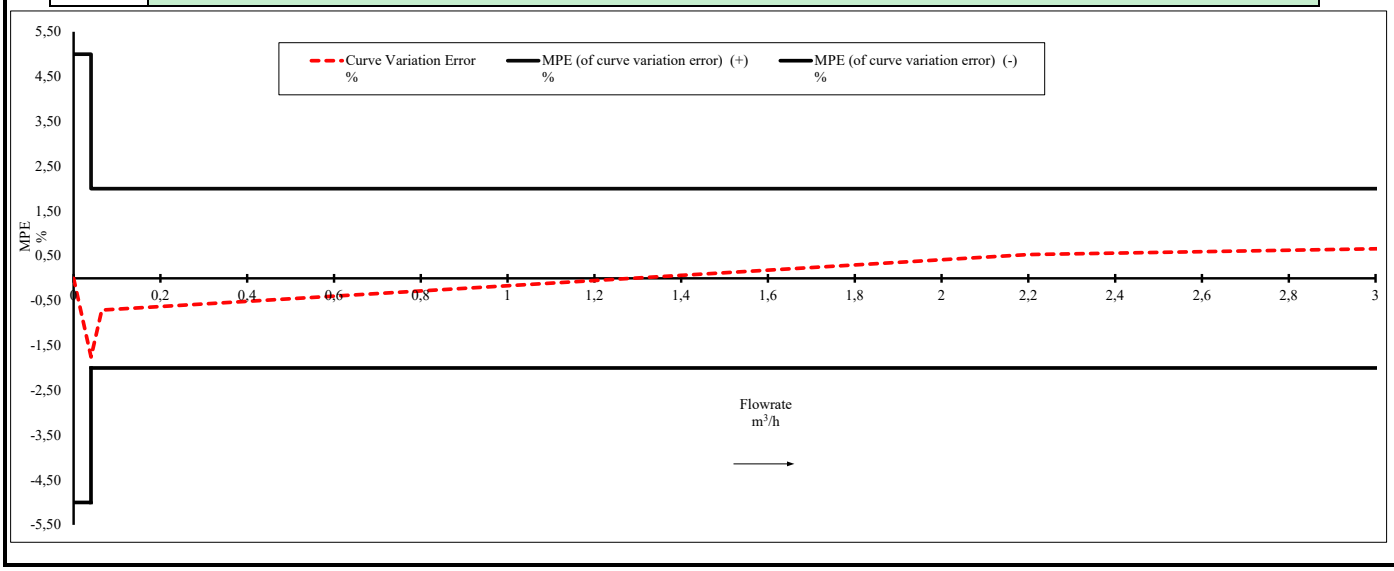
Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
4,5	1	20	1,01322	1,11659	0,10337	0,102546	0,80	2	0,80	1	PASSED
4,5	1	20	1,12408	1,22491	0,10083	0,099835	1,00				
						Ēm2	0,90				
						Control	**PASSED**				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m³/h	Bar	°C	m³	m³	m³	m³	%	%			
2,2	0,8	20	1,26640	1,31752	0,05112	0,050904	0,42	2	0,42	1	PASSED
2,2	0,8	20	1,32270	1,37380	0,05110	0,050776	0,64				
						Ēm2	0,53				
						Control	PASSED				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m³/h	Bar	°C	m³	m³	m³	m³	%	%			
0,065	0,5	20	1,38125	1,39120	0,00995	0,010056	-1,05	2	0,47	1,0	PASSED
0,065	0,5	20	1,39176	1,39808	0,00632	0,006350	-0,47				
0,065	0,5	20	1,39924	1,40342	0,00418	0,004205	-0,59				
						Ēm3	-0,71	PASSED			
							Standard deviation %	MPE(a)/3 %			
						S (c)	0,31	0,67			
						PASSED					

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m³/h	Bar	°C	m³	m³	m³	m³	%	%			
0,04	0,4	20	1,40449	1,40740	0,00291	0,002921	-0,38	5	0,38	2,5	PASSED
0,04	0,4	20	1,40882	1,41208	0,00326	0,003338	-2,34				
0,04	0,4	20	1,41360	1,41654	0,00294	0,003017	-2,55				
						Ēm3	-1,76	PASSED			
							Standard deviation %	MPE(a)/3 %			
						S (c)	1,20	1,67			
						PASSED					

Comments	PASSED



MI-001 MODULE B-F TEST REPORT

Application No	MID-02-25-3
Model	PAK-25KS-P
Date	06.05.2025
Observer	GÖKHAN SEYHAN

	At start	At end	
Ambient temperature:	20,1	20,2	°C
Ambient relative humidity:	53	52	%rh
Ambient atmospheric pressure:	996	995	mbar
Time:	14:30	16:00	

Meter serial No.:	25-2
Orientation (V, H, other):	H (0°)
Flow direction (see Requirement 3):	Forward
Location of indicating device (see Requirement 4):	Top

DN25	
Q_4	**7,875**
Q_3	**6,3**
Q_2	**0,063**
Q_1	**0,039**
R	**160**

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
7,5	3	20	0,91749	1,01763	0,10014	0,100275	-0,13	2	0,12	1	PASSED
7,5	3	20	1,03100	1,13220	0,10120	0,101319	-0,12				
						Ēm2	-0,13				
						Control	PASSED				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
6	1,2	20	1,16992	1,27130	0,10138	0,101235	0,14	2	0,14	1,0	PASSED
6	1,2	20	1,28743	1,38902	0,10159	0,101446	0,14				
6	1,2	20	1,40413	1,50530	0,10117	0,101025	0,14				
						Ēm3	0,14	PASSED			
							Standard deviation %	MPE(a)/3 %			
						S (c)	0,00	0,67			
						PASSED					

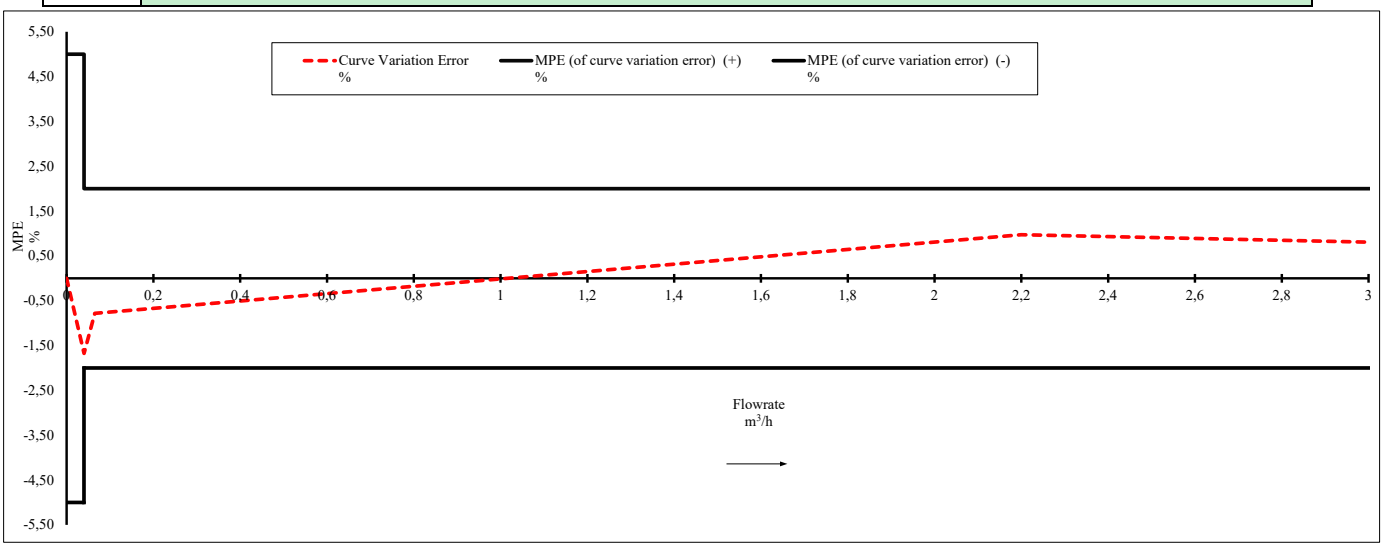
Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
4,5	1	20	1,55122	1,65235	0,10113	0,100610	0,52	2	0,48	1	PASSED
4,5	1	20	1,66315	1,76250	0,09935	0,098878	0,48				
						Ēm2	0,50				
						Control	PASSED				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m³/h	Bar	°C	m³	m³	m³	m³	%	%			
2,2	0,8	20	1,78529	1,83618	0,05089	0,050520	0,73	2	0,73	1	PASSED
2,2	0,8	20	1,84147	1,89246	0,05099	0,050379	1,21				
						Ēm2	0,97				
						Control	PASSED				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m³/h	Bar	°C	m³	m³	m³	m³	%	%			
0,065	0,5	20	1,91260	1,91756	0,00496	0,005010	-1,00	2	0,65	1,0	PASSED
0,065	0,5	20	1,91840	1,92332	0,00492	0,004954	-0,69				
0,065	0,5	20	1,92441	1,92972	0,00531	0,005345	-0,65				
						Ēm3	-0,78	PASSED			
							Standard deviation %	MPE(a)/3 %			
						S (c)	0,19	0,67			
						PASSED					

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m³/h	Bar	°C	m³	m³	m³	m³	%	%			
0,04	0,4	20	1,93170	1,93464	0,00294	0,002995	-1,84	5	0,72	2,5	PASSED
0,04	0,4	20	1,93682	1,93973	0,00291	0,002931	-0,72				
0,04	0,4	20	1,94121	1,94413	0,00292	0,002994	-2,47				
						Ēm3	-1,67	PASSED			
							Standard deviation %	MPE(a)/3 %			
						S (c)	0,89	1,67			
						PASSED					

Comments	PASSED



MI-001 MODULE B-F TEST REPORT

Application No	MID-02-25-3
Model	PAK-40K
Date	06.05.2025
Observer	GÖKHAN SEYHAN

	At start	**At end**	
Ambient temperature:	20,2	20,2	°C
Ambient relative humidity:	52	53	%rh
Ambient atmospheric pressure:	995	995	mbar
Time:	16:00	17:30	

Test method:	**Gravimetric**
Volume measures/weighbridge used — m3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Length of straight pipe before meter (or manifold) — mm:	110
Length of straight pipe after meter (or manifold) — mm:	165
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN40
Describe flow straightener installation if used:	-

DN40	
Q_4	**20**
Q_3	**16**
Q_2	**0,16**
Q_1	**0,10**
R	**160**

Meter serial No.:	40-1
Orientation (V, H, other):	H (0°)
Flow direction (see Requirement 3):	Forward
Location of indicating device (see Requirement 4):	Top

Actual flowrate	**Initial supply pressure**	**Water temp.**	**Initial reading**	**Final reading**	**Indicated volume**	**Actual volume**	**Meter error**	**MPE (a)**	**If the relative errors are all the same sign, control of this part**		
		***T*w**	***V*i(i)**	***V*i(f)**	***V*i**	***V*a**	**Em**		**Minimum Absolute Value**	**Half of MPE**	**Control**
m^3/h	**Bar**	**°C**	**m^3**	**m^3**	**m^3**	**m^3**	**%**	**%**			
19,5	3	20	0,32429	0,42508	0,10079	0,100275	0,51	2	0,51	1	**PASSED**
19,5	3	20	0,43855	0,54040	0,10185	0,101319	0,52				
						Ēm2	0,52				
						Control	**PASSED**				

Actual flowrate	**Initial supply pressure**	**Water temp.**	**Initial reading**	**Final reading**	**Indicated volume**	**Actual volume**	**Meter error**	**MPE (a)**	**If the relative errors are all the same sign, control of this part**		
		***T*w**	***V*i(i)**	***V*i(f)**	***V*i**	***V*a**	**Em**		**Minimum Absolute Value**	**Half of MPE**	**Control**
m^3/h	**Bar**	**°C**	**m^3**	**m^3**	**m^3**	**m^3**	**%**	**%**			
15	1,2	20	0,57839	0,68038	0,10199	0,101235	0,75	2	0,70	1,0	**PASSED**
15	1,2	20	0,69662	0,79878	0,10216	0,101446	0,70				
15	1,2	20	0,81394	0,91568	0,10174	0,101025	0,71				
						Ēm3	0,72	**PASSED**			
							Standard deviation %	**MPE(a)/3 %**			
						S (c)	0,02	0,67			
						PASSED					

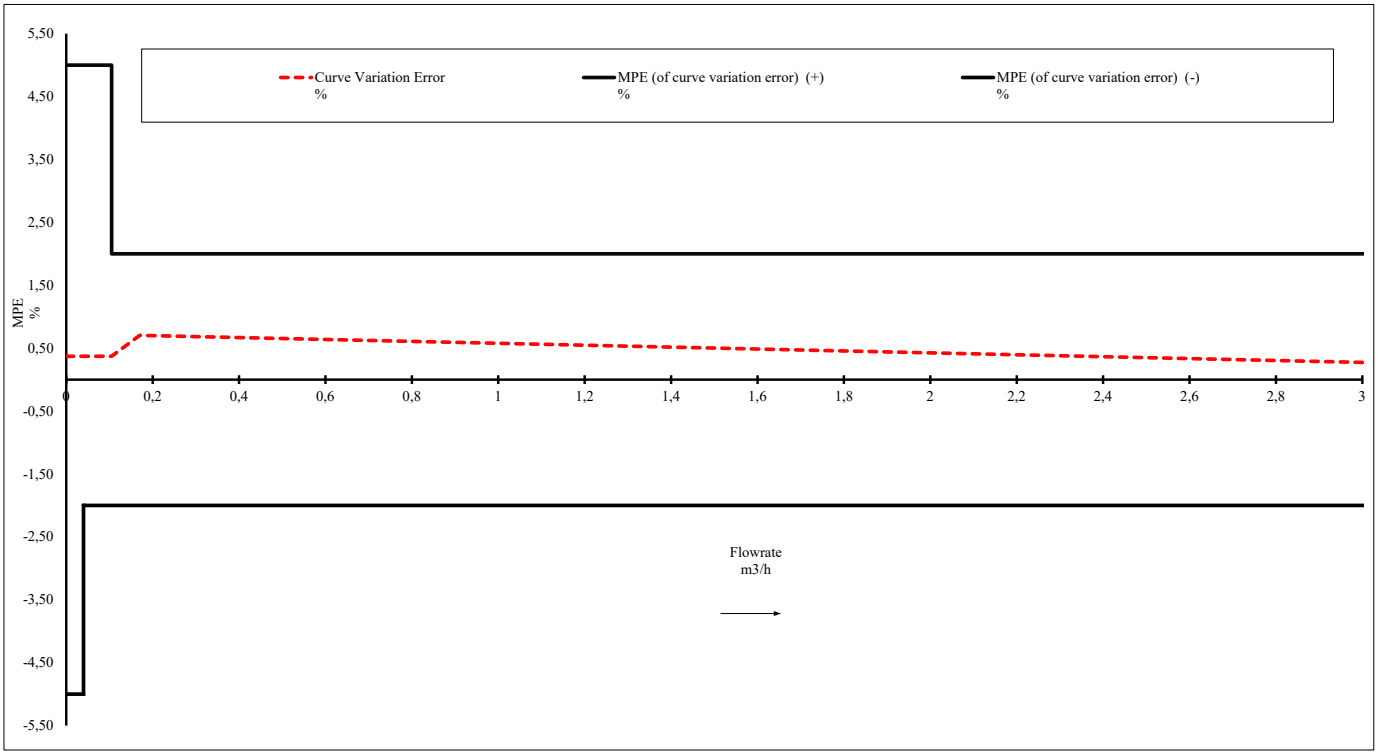
Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m³/h	Bar	°C	m³	m³	m³	m³	%	%			
11	1	20	0,96180	1,06340	0,10160	0,100770	0,82	2	0,82	1	PASSED
11	1	20	1,07430	1,17419	0,09989	0,098878	1,02				
						Ēm2	0,92				
						Control	PASSED				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m³/h	Bar	°C	m³	m³	m³	m³	%	%			
5,5	0,8	20	1,19710	1,24820	0,05110	0,051001	0,19	2			
5,5	0,8	20	1,25355	1,30472	0,05117	0,051379	-0,41				
						Ēm2	-0,11				
						Control	PASSED				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m³/h	Bar	°C	m³	m³	m³	m³	%	%			
0,17	0,5	20	1,32510	1,33017	0,00507	0,005060	0,20	2	0,20	1,0	PASSED
0,17	0,5	20	1,33114	1,33617	0,00503	0,004990	0,80				
0,17	0,5	20	1,33740	1,34284	0,00544	0,005380	1,12				
						Ēm3	0,70	PASSED			
							Standard deviation %	MPE(a)/3 %			
						S (c)	0,47	0,67			
						PASSED					

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m³/h	Bar	°C	m³	m³	m³	m³	%	%			
0,105	0,4	20	1,34490	1,34798	0,00308	0,003063	0,56	5	0,26	2,5	PASSED
0,105	0,4	20	1,35015	1,35318	0,00303	0,003021	0,30				
0,105	0,4	20	1,35494	1,35798	0,00304	0,003032	0,26				
						Ēm3	0,37	PASSED			
							Standard deviation %	MPE(a)/3 %			
						S (c)	0,16	1,67			
						PASSED					

Comments	PASSED


Curve Variation Error
%
MPE (of curve variation error) (+)
%
MPE (of curve variation error) (-)
%
MPE
%
5,50
4,50
3,50
2,50
1,50
0,50
-0,50
-1,50
-2,50
-3,50
-4,50
-5,50
0
0,2
0,4
0,6
0,8
1
1,2
1,4
1,6
1,8
2
2,2
2,4
2,6
2,8
3
Flowrate
m3/h

MI-001 MODULE B-F TEST REPORT

Application No	MID-02-25-3
Model	PAK-40KS-P
Date	06.05.2025
Observer	GÖKHAN SEYHAN

	At start	**At end**	
Ambient temperature:	20,2	20,1	°C
Ambient relative humidity:	53	54	%rh
Ambient atmospheric pressure:	996	996	mbar
Time:	17:30	19:15	

Test method:	**Gravimetric**
Volume measures/weighbridge used — m3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Length of straight pipe before meter (or manifold) — mm:	110
Length of straight pipe after meter (or manifold) — mm:	165
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN40
Describe flow straightener installation if used:	-

DN40	
Q_4	**20**
Q_3	**16**
Q_2	**0,16**
Q_1	**0,10**
R	**160**

Meter serial No.:	40-2
Orientation (V, H, other):	H (0°)
Flow direction (see Requirement 3):	Forward
Location of indicating device (see Requirement 4):	Top

Actual flowrate	**Initial supply pressure**	**Water temp.**	**Initial reading**	**Final reading**	**Indicated volume**	**Actual volume**	**Meter error**	**MPE (a)**	**If the relative errors are all the same sign, control of this part**		
		***T*w**	***V*i(i)**	***V*i(f)**	***V*i**	***V*a**	**Em**		**Minimum Absolute Value**	**Half of MPE**	**Control**
m^3/h	**Bar**	**°C**	**m^3**	**m^3**	**m^3**	**m^3**	**%**	**%**			
19,5	3	20	0,94750	1,04822	0,10072	0,100275	0,44	2	0,44	1	**PASSED**
19,5	3	20	1,06168	1,16348	0,10180	0,101319	0,47				
						Ēm2	0,46				
						Control	**PASSED**				

Actual flowrate	**Initial supply pressure**	**Water temp.**	**Initial reading**	**Final reading**	**Indicated volume**	**Actual volume**	**Meter error**	**MPE (a)**	**If the relative errors are all the same sign, control of this part**		
		***T*w**	***V*i(i)**	***V*i(f)**	***V*i**	***V*a**	**Em**		**Minimum Absolute Value**	**Half of MPE**	**Control**
m^3/h	**Bar**	**°C**	**m^3**	**m^3**	**m^3**	**m^3**	**%**	**%**			
15	1,2	20	1,20142	1,30328	0,10186	0,101235	0,62				
15	1,2	20	1,31953	1,42162	0,10209	0,101446	0,63	2	0,60	1,0	**PASSED**
15	1,2	20	1,43680	1,53843	0,10163	0,101025	0,60				
						Ēm3	0,62	**PASSED**			
							Standard deviation %	**MPE(a)/3 %**			
						S (c)	0,02	0,67			
						PASSED					

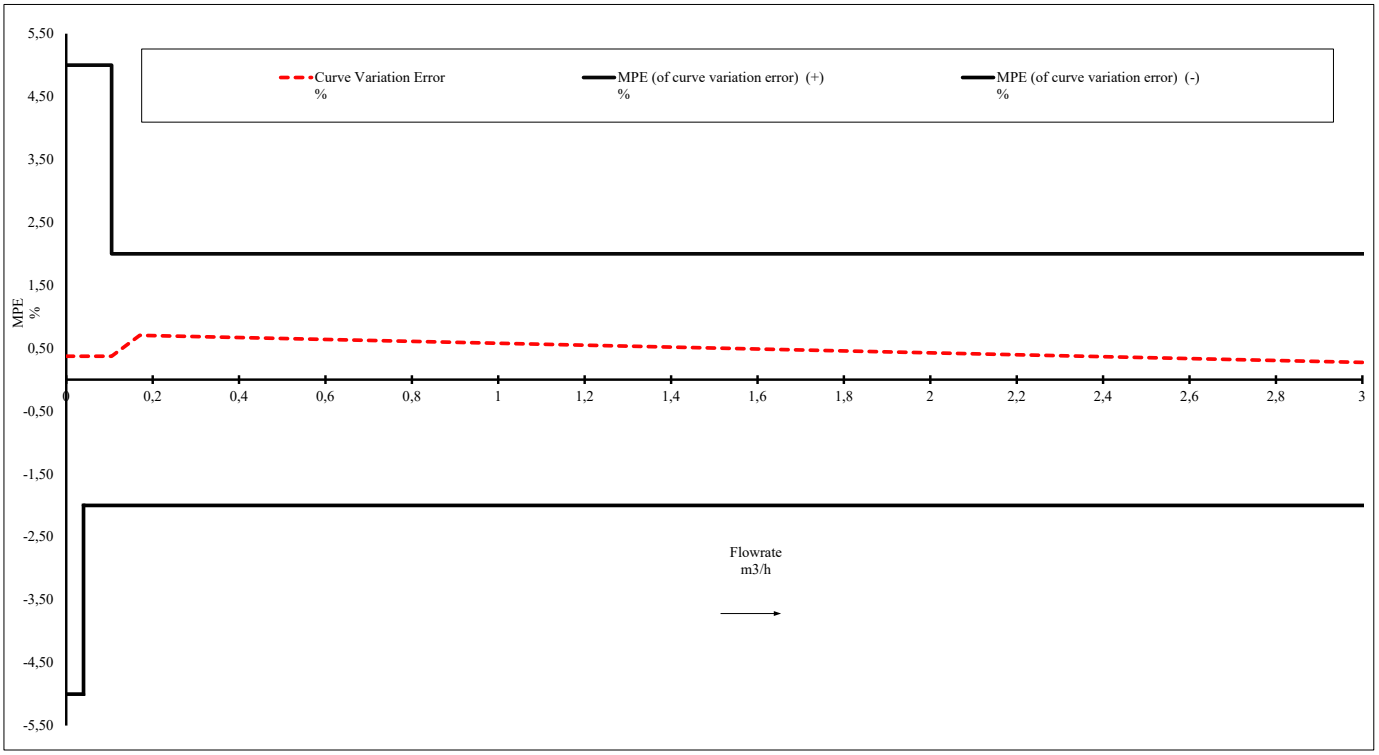
Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m³/h	Bar	°C	m³	m³	m³	m³	%	%			
11	1	20	1,58455	1,68600	0,10145	0,100610	0,83	2	0,83	1	PASSED
11	1	20	1,69681	1,79657	0,09976	0,098878	0,89				
						Ēm2	0,86				
						Control	PASSED				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m³/h	Bar	°C	m³	m³	m³	m³	%	%			
5,5	0,8	20	1,81940	1,87041	0,05101	0,051001	0,02	2			
5,5	0,8	20	1,87574	1,92684	0,05110	0,051379	-0,54				
						Ēm2	-0,26				
						Control	PASSED				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m³/h	Bar	°C	m³	m³	m³	m³	%	%			
0,17	0,5	20	1,94708	1,95206	0,00498	0,005001	-0,42	2	0,42	1,0	PASSED
0,17	0,5	20	1,95298	1,95792	0,00494	0,004978	-0,76				
0,17	0,5	20	1,95901	1,96432	0,00531	0,005345	-0,65				
						Ēm3	-0,61	PASSED			
							Standard deviation %	MPE(a)/3 %			
						S (c)	0,18	0,67			
						PASSED					

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m³/h	Bar	°C	m³	m³	m³	m³	%	%			
0,105	0,4	20	1,96631	1,96928	0,00297	0,003001	-1,03	5	1,03	2,5	PASSED
0,105	0,4	20	1,97140	1,97432	0,00292	0,003004	-2,80				
0,105	0,4	20	1,97598	1,97891	0,00293	0,002994	-2,14				
						Ēm3	-1,99	PASSED			
							Standard deviation %	MPE(a)/3 %			
						S (c)	0,89	1,67			
						PASSED					

Comments	PASSED


Curve Variation Error
%
MPE (of curve variation error) (+)
%
MPE (of curve variation error) (-)
%
MPE
%
5,50
4,50
3,50
2,50
1,50
0,50
-0,50
-1,50
-2,50
-3,50
-4,50
-5,50
0
0,2
0,4
0,6
0,8
1
1,2
1,4
1,6
1,8
2
2,2
2,4
2,6
2,8
3
Flowrate
m3/h

4.3.5 Water temperature test (OIML R 49-2:2024, 7.5) and overload water temperature test (OIML R 49-2:2024, 7.6)

Application No	MID-02-25-3
Model	PAK-15K and PAK-15KS-P
Date	07.05.2025
Observer	GÖKHAN SEYHAN

Test method:	**Gravimetric**
Volume measures/weighbridge used — m3 or kg:	m^3
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Length of straight pipe before meter (or manifold) — mm:	110
Length of straight pipe after meter (or manifold) — mm:	165
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN15
Describe flow straightener installation if used:	-

Meter serial No.:	15-1 and 15-2
Orientation (V, H, other):	H (0°)
Flow direction (see Requirement 3):	Forward
Location of indicating device (see Requirement 4):	Top

Q_1:	0,016 m^3/h
Q_2:	0,025 m^3/h
Q_3:	2,500 m^3/h
Q_4:	3,125 m^3/h

Uygulama Durumu *Application Conditions*	**Seri No** *Serial Number*	**Tarih** *Date*	**Zaman** *Time*		**Ortam sıcaklığı** *Ambient temperature* (°C)		**Ortam bağıl nemi** *Ambient relative humidity* (%)		**Atmosfer basıncı** *Atmospheric pressure* (mbar)	
			Başlangıç *At Start*	**Bitiş** *At Finish*	**Başlangıç** *At Start*	**Bitiş** *At Finish*	**Başlangıç** *At Start*	**Bitiş** *At Finish*	**Başlangıç** *At Start*	**Bitiş** *At Finish*
10 °C, Q_2	15-1 and 15-2	07.05.2025	08:00	09:00	20,6	20,5	51	52	1000	1000
(MAT) 50 °C, Q_2	15-1 and 15-2	07.05.2025	09:00	10:00	20,5	20,6	52	52	1000	1001
(MAT+10) 60°C,Q_{ref}	15-1 and 15-2	07.05.2025	10:00	11:00	20,6	20,5	53	53	1001	1001
(MAT+10) 98°C,Q_{ref} ±2,5 °C	15-2	07.05.2025	11:00	12:00	20,5	20,5	54	54	1001	1001
(T_{ref}) 20°C, Q_2	15-1 and 15-2	07.05.2025	12:00	13:00	20,6	20,5	54	54	1001	1001

Application conditions	**Serial Number**	**Nominal flow rate** m^3/h	**Actual flowrate** m^3/h	**Initial supply pressure** Bar	**Initial inlet water temp.** °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** E_m %	**MPE (a)** %	**Control**
10 °C	15-1	**Q_2**	0,026	1,1	10,3	1,29024	1,29525	0,00501	0,005076	-1,30	2	**PASSED**
MAT (50°C)		**Q_2**	0,026	1,1	50,3	1,31331	1,31840	0,00509	0,005130	-0,78	2	**PASSED**
MAT +10°C (60°C)		**Q_{ref}**	2,5	2,4	59,9	1,35300	3,83550	2,48250	-	-	-	-
Referans (20°C)		**Q_2**	0,026	1,1	20,1	3,83550	3,83995	0,00445	0,004495	-1,00	2	**PASSED**
10 °C	15-2	**Q_2**	0,026	1,1	10,3	1,29411	1,29914	0,00503	0,005021	0,08	2	**PASSED**
MAT (90°C)		**Q_2**	0,026	1,1	90,3	1,31725	1,32236	0,00511	0,005052	1,05	2	**PASSED**
MAT +10°C, (97,5°C) ±2,5 °C		**Q_{ref}**	2,5	2,4	98,2	1,35706	3,75324	2,39618	-	-	-	-
Referans (20°C)		**Q_2**	0,026	1,1	20,1	3,75324	3,75875	0,00551	0,005557	-0,81	2	**PASSED**

Comments	**PASSED**

4.3.6 Water pressure test (OIML R 49-2:2024, 7.7)

Application No	MID-02-25-3
Model	PAK-25K
Date	07.05.2025
Observer	GÖKHAN SEYHAN

	At start	**At end**	
Ambient temperature:	20,1	20,2	°C
Ambient relative humidity:	54	54	%rh
Ambient atmospheric pressure:	997	996	mbar
Time:	13:00	15:00	

Test method:	**Gravimetric**
Volume measures/weighbridge used — m3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Length of straight pipe before meter (or manifold) — mm:	260
Length of straight pipe after meter (or manifold) — mm:	260
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN25
Describe flow straightener installation if used:	-

Meter serial No.:	25-1
Orientation (V, H, other):	H (0°)
Flow direction (see Requirement 3):	Forward
Location of indicating device (see Requirement 4):	Top

Q_1:	0,039 m^3/h
Q_2:	0,063 m^3/h
Q_3:	6,300 m^3/h
Q_4:	7,875 m^3/h

Application conditions	**Nominal flow rate** m^3/h	**Actual flowrate** m^3/h	**Initial supply pressure** Bar	**Initial inlet water temp.** °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** Em %	**MPE (a)** %	**Control**
0,3 Bar	Q_2	0,065	2,0	20	2,79805	2,80303	0,00498	0,005030	-0,99	2	**PASSED**
MAP	Q_2	0,065	2,0	20	2,80781	2,81290	0,00509	0,005032	1,15	2	**PASSED**

Comments	**PASSED**

Application No	MID-02-25-3
Model	PAK-25KS-P
Date	0.01.1900
Observer	GÖKHAN SEYHAN

	At start	**At end**	
Ambient temperature:	20,2	20,2	°C
Ambient relative humidity:	54	55	%rh
Ambient atmospheric pressure:	997	998	mbar
Time:	15:00	16:00	

Meter serial No.:	25-1
Orientation (V, H, other):	H (0°)
Flow direction (see Requirement 3):	Forward
Location of indicating device (see Requirement 4):	Top

Q_1:	0,039 m^3/h
Q_2:	0,063 m^3/h
Q_3:	6,300 m^3/h
Q_4:	7,875 m^3/h

Application conditions	**Nominal flow rate** m^3/h	**Actual flowrate** m^3/h	**Initial supply pressure** Bar	**Initial inlet water temp.** °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** Em %	**MPE (a)** %	**Control**
0,3 Bar	Q_2	0,065	2,0	20	3,59754	3,60268	0,00514	0,005114	0,51	2	**PASSED**
MAP	Q_2	0,065	2,0	20	3,65642	3,66154	0,00512	0,005067	1,05	2	**PASSED**

Comments	**PASSED**

4.3.7 Reverse flow test (OIML R 49-2:2024, 7.8)

4.3.7.3 Meters not designed to measure accidental reverse flow (OIML R 49-2:2024, 7.8.3.2)

Application No	MID-02-25-3
Model	PAK-15K
Date	07.05.2025
Observer	GÖKHAN SEYHAN

	At start	**At end**	
Ambient temperature:	20,2	20,1	°C
Ambient relative humidity:	53	54	%rh
Ambient atmospheric pressure:	997,0	998,0	mbar
Time:	16:00	17:00	

Test method:	**Gravimetric**
Volume measures/weighbridge used — m3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Length of straight pipe before meter (or manifold) — mm:	110
Length of straight pipe after meter (or manifold) — mm:	165
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN15
Describe flow straightener installation if used:	-

Meter serial No.:	15-1
Orientation (V, H, other):	H (0°)
Flow direction (see Requirement 3):	Forward
Location of indicating device (see Requirement 4):	Top

Q_1:	0,016 m^3/h
Q_2:	0,025 m^3/h
Q_3:	2,500 m^3/h
Q_4:	3,125 m^3/h

Application conditions	**Nominal flow rate** m^3/h	**Actual flowrate** m^3/h	**Initial supply pressure** Bar	**Initial inlet water temp.** °C	**Initial reading** *V*i(i) m^3	**Final reading** *V*i(f) m^3	**Indicated volume** *V*i m^3	**Actual volume** *V*a m^3	**Meter error** Em %	**MPE (a)** %	**Control**
Reverse flow	**0,9 Q_3**	2,250	2,1	20	3,87420	3,91200	0,03780	-	-	-	-
Forward flow	**Q_1**	0,016	1,1	20	3,97910	3,98420	0,00510	0,005105	-0,10	5	**PASSED**
Forward flow	**Q_2**	0,025	1,2	20	4,04355	4,05412	0,01057	0,010553	0,16	2	**PASSED**
Forward flow	**Q_3**	2,500	1,7	20	4,15608	4,30478	0,14870	0,150180	-0,99	2	**PASSED**

Comments	**PASSED**

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Application No	MID-02-25-3
Model	PAK-15KS-P
Date	07.05.2025
Observer	GÖKHAN SEYHAN

	At start	**At end**	
Ambient temperature:	20,1	20,2	°C
Ambient relative humidity:	54	54	%rh
Ambient atmospheric pressure:	998,0	998,0	mbar
Time:	17:00	18:00	

Test method:	**Gravimetric**
Volume measures/weighbridge used — m3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Length of straight pipe before meter (or manifold) — mm:	110
Length of straight pipe after meter (or manifold) — mm:	165
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN15
Describe flow straightener installation if used:	-

Meter serial No.:	15-2
Orientation (V, H, other):	H (0°)
Flow direction (see Requirement 3):	Forward
Location of indicating device (see Requirement 4):	Top

Q_1:	0,016 m^3/h
Q_2:	0,025 m^3/h
Q_3:	2,500 m^3/h
Q_4:	3,125 m^3/h

Application conditions	**Nominal flow rate** m^3/h	**Actual flowrate** m^3/h	**Initial supply pressure** Bar	**Initial inlet water temp.** °C	**Initial reading** *Vi*(i) m^3	**Final reading** *Vi*(f) m^3	**Indicated volume** *Vi* m^3	**Actual volume** *Va* m^3	**Meter error** Em %	**MPE (a)** %	**Control**
Reverse flow	**0,9 Q_3**	2,250	2,1	20	3,62223	3,66147	0,03924	-	-	-	-
Forward flow	**Q_1**	0,016	1,1	20	3,76440	3,78491	0,02051	0,020315	0,96	5	**PASSED**
Forward flow	**Q_2**	0,025	1,2	20	3,85199	3,87241	0,02042	0,020154	1,32	2	**PASSED**
Forward flow	**Q_3**	2,500	1,7	20	3,94728	4,09863	0,15135	0,150141	0,81	2	**PASSED**

Comments	**PASSED**

4.3.8 Pressure-loss test (OIML R 49-2:2024, 7.9)

Application No	MID-02-25-3
Model	PAK-15K
Date	07.05.2025
Observer	GÖKHAN SEYHAN

	At start	At end	
Ambient temperature:	20,2	20,3	°C
Ambient relative humidity:	53	52	%rh
Ambient atmospheric pressure:	998	997	mbar
Time:	18:00	20:00	

Meter serial No.:	15-1
Orientation (V, H, other):	H (0°)
Flow direction (see Requirement 3):	Forward
Location of indicating device (see Requirement 4):	Top

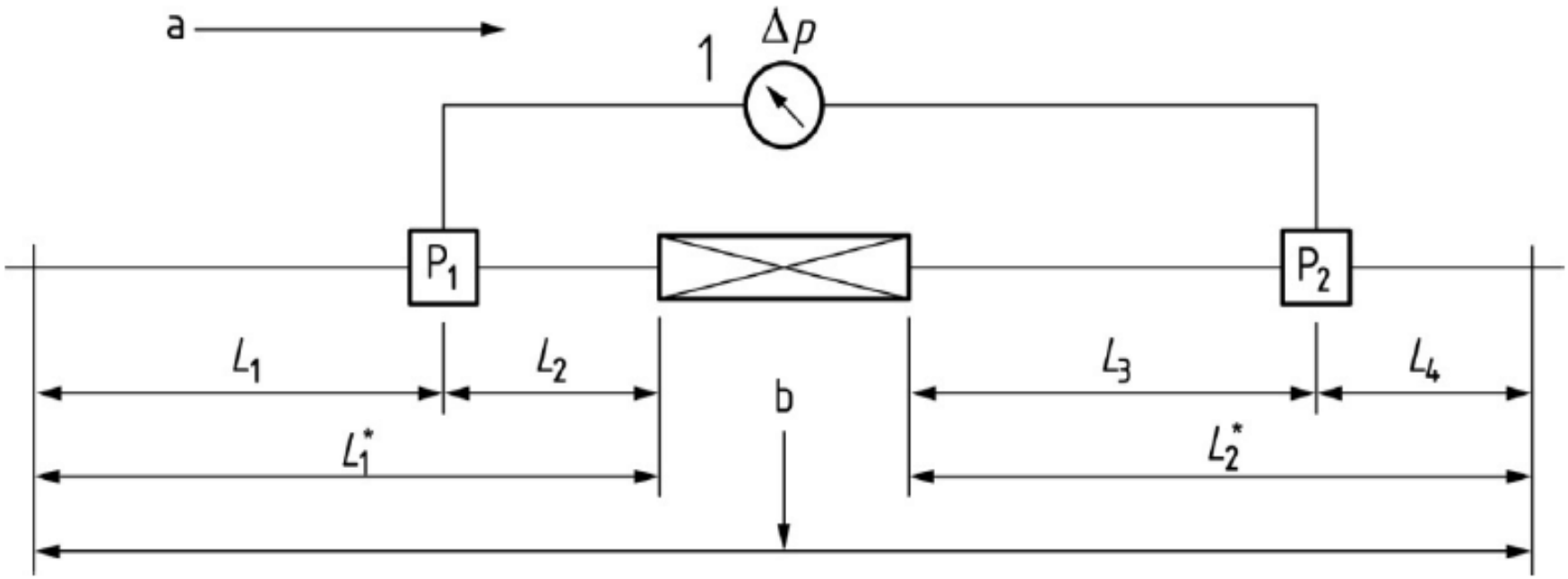
Measurement 1

Flow rate m^3/h	L1 mm	L2 mm	L3 mm	L4 mm	Initial supply pressure Bar	Water temp. °C	Measuring section mm	Pressure loss Δp1 Bar	Pressure loss Class Bar
2,500	590	1100	445	400	2,1	22	2700	0,028	0,63
0,016	590	1100	445	400	2,1	22	2700	0,112	

Measurement 2

Flow rate m^3/h	L1 mm	L2 mm	L3 mm	L4 mm	Initial supply pressure Bar	Water temp. °C	Measuring section mm	Pressure loss Δp2 Bar	Meter pressure loss Bar	Pressure loss Class Bar	Control
2,500	590	1100	445	400	2,1	22	190	0,031	0,00	0,63	PASSED
0,016	590	1100	445	400	2,1	22	190	0,198	0,09		PASSED

Comments	**PASSED**



Deney Şeması Açıklaması *Explanation of Test Schemes*			**Sayaç Anma Çapı (DN) :** ***Water meter nominal diameter***		**15**
1	**Diferansiyel Manometre** *Differential manometer*	$L_1 \geq 10$ D	≥	150	
2	**Su Sayacı** *Water Meter*	$L_2 \geq 5$ D	≥	75	
P1, P2	**Basınç Ölçerlerin Konumu** *Planes of the pressure tappings*	$L_3 \geq 10$ D	≥	150	
a	**Akış Yönü** *Flow direction*	$L_4 \geq 5$ D	≥	75	
b	**Ölçme Alanı** *Measuring section*				

4.3.9 Flow disturbance tests (OIML R 49-2:2024, 7.10, Annex C)

Application No	MID-02-25-3
Model	PAK-15K
Date	08.05.2025
Observer	GÖKHAN SEYHAN

	At start	**At end**	
Ambient temperature:	20,3	20,2	°C
Ambient relative humidity:	52	52	%rh
Ambient atmospheric pressure:	997	997	mbar
Time:	08:00	10:00	

Test method:	**Gravimetric**
Volume measures/weighbridge used — m^3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN15
Describe flow straightener installation if used:	-

Q_1:	0,016	m^3/h
Q_2:	0,025	m^3/h
Q_3:	2,500	m^3/h
Q_4:	3,125	m^3/h

Installation arrangement (see OIML R 49-2:2024, Annex C) — for each test applied, insert the actual pipe dimensions used (as stated by the meter manufacturer):

Test No.	**Flow-disturber type (location)**	**Flow straightener installed**	**Installation dimensions (see key to Figure 1)**						
			mm						
			L1	***L2***	***L3***	***L4***	***L5***	***L6***	***L7***
1	1 (upstream)	no	-	330	0	-	-	-	-
1A	1 (upstream)	yes							
2	1 (downstream)	no	540	-	-	0	-	-	-
2A	1 (downstream)	yes							
3	2 (upstream)	no	-	330	0	-	-	-	-
3A	2 (upstream)	yes							
4	2 (downstream)	no	540	-	-	0	-	-	-
4A	2 (downstream)	yes							
5	3 (upstream)	no	-	330	0	-	-	-	-
5A	3 (upstream)	yes							
6	3 (downstream)	no	540	-	-	0	-	-	-
6A	3 (downstream)	yes							

Meter serial No.:	15-1
Orientation (V, H, other):	H
Flow direction (see Requirement 1):	İleri / Forward
Location of indicating device (see Requirement 2):	Top

Test no	Nominal Flow Rate	Actual flowrate	Pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	Control
			Pw	*T* w	*V* i(i)	*V* i(f)	*V* i	*V* a	Em		
	m^3/h	m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%	
1	Q_2 to 1,1*Q_2	0,025	0,7	22	5,02214	5,02406	0,00192	0,001941	-1,08	2	PASSED
	0,9*Q_3 to Q_3	2,500	2,0	22	5,02406	5,10025	0,07619	0,077011	-1,07	2	PASSED
1A	-	-	-	-	-	-		-	-	-	
2	Q_2 to 1,1*Q_2	0,025	0,7	22	5,10025	5,10201	0,00176	0,001766	-0,34	2	PASSED
	0,9*Q_3 to Q_3	2,500	2,0	22	5,10201	5,20012	0,09811	0,098221	-0,11	2	PASSED
2A	-	-	-	-	-	-		-			
3	Q_2 to 1,1*Q_2	0,025	0,6	22	5,20012	5,20116	0,00104	0,001055	-1,42	2	PASSED
	0,9*Q_3 to Q_3	2,500	2,1	22	5,20116	5,30012	0,09896	0,09911	-0,15	2	PASSED
3A	-	-	-	-	-	-		-			
4	Q_2 to 1,1*Q_2	0,025	0,6	22	5,30012	5,30115	0,00103	0,001041	-1,06	2	PASSED
	0,9*Q_3 to Q_3	2,500	2,1	22	5,30115	5,40002	0,09887	0,09891	-0,04	2	PASSED
4A	-	-	-	-	-	-		-			
5	Q_2 to 1,1*Q_2	0,025	0,6	22	5,40002	5,40215	0,00213	0,002156	-1,21	2	PASSED
	0,9*Q_3 to Q_3	2,500	2,1	22	5,40215	5,50336	0,10121	0,101251	-0,04	2	PASSED
5A	-	-	-	-	-	-		-			
6	Q_2 to 1,1*Q_2	0,025	0,6	22	5,50336	5,50455	0,00119	0,001202	-1,00	2	PASSED
	0,9*Q_3 to Q_3	2,500	2,1	22	5,50455	5,60011	0,09556	0,095611	-0,05	2	PASSED
6A	-	-	-	-	-	-		-			

Comments	**PASSED**

4.3.9 Flow disturbance tests (OIML R 49-2:2024, 7.10, Annex C)

Application No	MID-02-25-3
Model	PAK-40KS-P
Date	08.05.2025
Observer	GÖKHAN SEYHAN

	At start	**At end**	
Ambient temperature:	20,2	20,3	°C
Ambient relative humidity:	51	52	%rh
Ambient atmospheric pressure:	997	998	mbar
Time:	10:00	12:00	

Test method:	**Gravimetric**
Volume measures/weighbridge used — m3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN40
Describe flow straightener installation if used:	-

Q_1:	0,10	m^3/h
Q_2:	0,16	m^3/h
Q_3:	16,00	m^3/h
Q_4:	20,00	m^3/h
R	160	

Installation arrangement (see OIML R 49-2:2024, Annex C) — for each test applied, insert the actual pipe dimensions used (as stated by the meter manufacturer):

Test No.	**Flow-disturber type (location)**	**Flow straightener installed**	**Installation dimensions (see key to Figure 1)**						
			mm						
			L1	***L2***	***L3***	***L4***	***L5***	***L6***	***L7***
1	1 (upstream)	no	-	330	0	-	-	-	-
1A	1 (upstream)	yes							
2	1 (downstream)	no	540	-	-	0	-	-	-
2A	1 (downstream)	yes							
3	2 (upstream)	no	-	330	0	-	-	-	-
3A	2 (upstream)	yes							
4	2 (downstream)	no	540	-	-	0	-	-	-
4A	2 (downstream)	yes							
5	3 (upstream)	no	-	330	0	-	-	-	-
5A	3 (upstream)	yes							
6	3 (downstream)	no	540	-	-	0	-	-	-
6A	3 (downstream)	yes							

Meter serial No.:	40-2
Orientation (V, H, other):	H
Flow direction (see Requirement 1):	İleri / Forward
Location of indicating device (see Requirement 2):	Top

Test no	Nominal Flow Rate	Actual flowrate	Pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	Control
			Pw	*T* w	*V* i(i)	*V* i(f)	*V* i	*V* a	Em		
	m^3/h	m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%	
1	Q_2 to 1,1*Q_2	0,161	0,7	22	5,62757	5,72619	0,09862	0,09981	-1,19	2	PASSED
	0,9*Q_3 to Q_3	16,002	2,0	22	5,73475	5,83468	0,09993	0,10066	-0,73	2	PASSED
1A	-	-	-	-	-	-		-	-	-	
2	Q_2 to 1,1*Q_2	0,161	0,7	22	5,84966	5,92968	0,08002	0,080776	-0,94	2	PASSED
	0,9*Q_3 to Q_3	16,002	2,0	22	5,93474	6,01469	0,07995	0,080646	-0,86	2	PASSED
2A	-	-	-	-	-	-		-			
3	Q_2 to 1,1*Q_2	0,161	0,6	21	6,11419	6,16504	0,05085	0,050567	0,56	2	PASSED
	0,9*Q_3 to Q_3	16,002	2,1	21	6,16614	6,21703	0,05089	0,050732	0,31	2	PASSED
3A	-	-	-	-	-	-		-			
4	Q_2 to 1,1*Q_2	0,161	0,6	22	6,22595	6,25643	0,03048	0,030328	0,50	2	PASSED
	0,9*Q_3 to Q_3	16,002	2,1	22	6,25747	6,28907	0,03160	0,031419	0,58	2	PASSED
4A	-	-	-	-	-	-		-			
5	Q_2 to 1,1*Q_2	0,161	0,6	22	6,29478	6,30491	0,01013	0,010048	0,82	2	PASSED
	0,9*Q_3 to Q_3	16,002	2,1	22	6,30564	6,31619	0,01055	0,010444	1,01	2	PASSED
5A	-	-	-	-	-	-		-			
6	Q_2 to 1,1*Q_2	0,161	0,6	22	6,33064	6,3357	0,00506	0,005118	-1,13	2	PASSED
	0,9*Q_3 to Q_3	16,002	2,1	22	6,33621	6,34111	0,00490	0,004958	-1,17	2	PASSED
6A	-	-	-	-	-	-		-			

Comments	**PASSED**

4.3.10 Durability tests (OIML R 49-2:2024, 7.11)

4.3.10.1 Discontinuous flow test (OIML R 49-2:2024, 7.11.2)

-Before Tests

Application No	MID-02-25-3
Model	PAK-15K
Date	08.05.2025
Observer	GÖKHAN SEYHAN

	At start	**At end**	
Ambient temperature:	20,3	20,5	°C
Ambient relative humidity:	52	51	%rh
Ambient atmospheric pressure:	996	995	mbar
Time:	12:00	14:00	

Test method:	Gravimetric
Volume measures/weighbridge used — m3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Length of straight pipe before meter (or manifold) — mm:	110
Length of straight pipe after meter (or manifold) — mm:	165
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN15
Describe flow straightener installation if used:	-

Q_1:	0,016 m^3/h
Q_2:	0,025 m^3/h
Q_3:	2,500 m^3/h
Q_4:	3,125 m^3/h

Meter serial No.:	15-1
Orientation (V, H, other):	H (0°)
Flow direction (see Requirement 3):	Forward
Location of indicating device (see Requirement 4):	Top

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** T_w °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
3	4,5	21	5,63890	5,73779	0,09889	0,099810	-0,92	2	0,59	1	**PASSED**
3	4,5	21	5,74635	5,84602	0,09967	0,100260	-0,59				
						Ēm2	-0,76				
						Control	**PASSED**				

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** T_w °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
2,3	3,5	21	5,86100	5,94136	0,08036	0,080776	-0,52	2	0,52	1,0	**PASSED**
2,3	3,5	21	5,94642	6,02630	0,07988	0,080646	-0,95				
2,3	3,5	21	6,03219	6,11188	0,07969	0,080202	-0,64				
						Ēm3	-0,70	**PASSED**			
							Standard deviation %	**MPE(a)/3 %**			
						S (c)	0,22	0,67			
						PASSED					

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** T_w °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
1,75	2	21	6,12567	6,17641	0,05074	0,050567	0,34	2	0,34	1	**PASSED**
1,75	2	21	6,17751	6,22849	0,05098	0,050732	0,49				
						Ēm2	0,42				
						Control	**PASSED**				

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** T_w °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
0,8	1,2	21	6,23741	6,26786	0,03045	0,030328	0,40	2	0,35	1	**PASSED**
0,8	1,2	21	6,26890	6,30043	0,03153	0,031419	0,35				
						Ēm2	0,38				
						Control	**PASSED**				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		T w	*V* i(i)	*V* i(f)	*V* i	*V* a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
0,026	1	21	6,30614	6,31629	0,01015	0,010101	0,49	2	0,49	1,0	PASSED
0,026	1	21	6,31702	6,32758	0,01056	0,010491	0,66				
0,026	1	21	6,32832	6,33886	0,01054	0,010425	1,10				
						Ēm3	0,75	PASSED			
							Standard deviation	MPE(a)/3 %			
						S (c)	0,32	0,67			
						PASSED					

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		T w	*V* i(i)	*V* i(f)	*V* i	*V* a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
0,016	0,8	21	6,34205	6,34709	0,00504	0,005118	-1,52	5	1,52	2,5	PASSED
0,016	0,8	21	6,34760	6,35252	0,00492	0,005008	-1,76				
0,016	0,8	21	6,35305	6,35835	0,00530	0,005390	-1,67				
						Ēm3	-1,65	PASSED			
							Standard deviation	MPE(a)/3 %			
						S (c)	0,12	1,67			
						PASSED					

MI001 MODULE B-F TEST REPORT

	At start (9.05.2025)	At end (17.06.2025)	
Ambient temperature:	20,2	20,5	°C
Ambient relative humidity:	54	61	%rh
Ambient atmospheric pressure:	1000	999	mbar
Time:	08:00	17:00	

	At start	At end
Date	9.05.2025	17.06.2025

Tarih *Date*	**Saat** *Time*	**Passed Hour** *Geçen Saat*	**Kontrol** *Observer*	**Giriş Basıncı** *Up stream* bar	**Çıkış Basıncı** *Down stream* bar	**Giriş Sıcaklığı** *Up stream* °C	**Gerçek Debi** *Actual* m³/h	**Sayaç Okuması** m³	**Flow cycle times** *s*				**Toplam Gecirilen** m³	**Toplam Cevrim Sayısı**
									Açılma *rise*	**Geçiş** *on*	**Kapanma** *fall*	**Durma** *off*		
9.05.2025	08:00	0	GÖKHAN SEYHAN	4,8	1,6	21	2,597	6,360	1,5	15	1,5	15	0,000	0
	17:00	9		4,8	1,6	21	2,589	16,951	1,5	15	1,5	15	10,591	982
10.05.2025	08:00	15		4,8	1,6	21	2,588	34,597	1,5	15	1,5	15	28,237	2618
	17:00	9		4,8	1,6	21	2,594	45,209	1,5	15	1,5	15	38,849	3600
11.05.2025	08:00	15		4,8	1,6	21	2,588	62,854	1,5	15	1,5	15	56,494	5236
	17:00	9		4,8	1,6	21	2,599	73,486	1,5	15	1,5	15	67,126	6218
12.05.2025	08:00	15		4,8	1,6	21	2,594	91,173	1,5	15	1,5	15	84,813	7855
	17:00	9		4,8	1,6	21	2,594	101,785	1,5	15	1,5	15	95,425	8836
13.05.2025	08:00	15		4,8	1,6	21	2,588	119,430	1,5	15	1,5	15	113,070	10473
	17:00	9		4,8	1,6	21	2,566	129,927	1,5	15	1,5	15	123,567	11455
14.05.2025	08:00	15		4,8	1,6	21	2,584	147,545	1,5	15	1,5	15	141,185	13091
	17:00	9		4,8	1,6	21	2,583	158,112	1,5	15	1,5	15	151,752	14073
15.05.2025	08:00	15		4,8	1,6	21	2,598	175,826	1,5	15	1,5	15	169,466	15709
	17:00	9		4,8	1,6	21	2,597	186,450	1,5	15	1,5	15	180,090	16691
16.05.2025	08:00	15		4,8	1,6	21	2,588	204,095	1,5	15	1,5	15	197,735	18327
	17:00	9		4,8	1,6	21	2,596	214,715	1,5	15	1,5	15	208,355	19309
17.05.2025	08:00	15		4,8	1,6	21	2,585	232,340	1,5	15	1,5	15	225,980	20945
	17:00	9		4,8	1,6	21	2,599	242,973	1,5	15	1,5	15	236,613	21927
18.05.2025	08:00	15		4,8	1,6	21	2,584	260,591	1,5	15	1,5	15	254,231	23564
	17:00	9		4,8	1,6	21	2,584	271,162	1,5	15	1,5	15	264,802	24545
19.05.2025	08:00	15		4,8	1,6	21	2,569	288,678	1,5	15	1,5	15	282,318	26182
	17:00	9		4,8	1,6	21	2,574	299,208	1,5	15	1,5	15	292,848	27164
20.05.2025	08:00	15		4,8	1,6	21	2,569	316,724	1,5	15	1,5	15	310,364	28800
	17:00	9		4,8	1,6	21	2,596	327,344	1,5	15	1,5	15	320,984	29782
21.05.2025	08:00	15		4,8	1,6	21	2,569	344,860	1,5	15	1,5	15	338,500	31418
	17:00	9		4,8	1,6	21	2,587	355,443	1,5	15	1,5	15	349,083	32400
22.05.2025	08:00	15		4,8	1,6	21	2,602	373,184	1,5	15	1,5	15	366,824	34036
	17:00	9		4,8	1,6	21	2,599	383,816	1,5	15	1,5	15	377,456	35018
23.05.2025	08:00	15		4,8	1,6	21	2,588	401,461	1,5	15	1,5	15	395,101	36655
	17:00	9		4,8	1,6	21	2,645	412,282	1,5	15	1,5	15	405,922	37636
24.05.2025	08:00	15		4,8	1,6	21	2,617	430,125	1,5	15	1,5	15	423,765	39273
	17:00	9		4,8	1,6	21	2,645	440,945	1,5	15	1,5	15	434,585	40255
25.05.2025	08:00	15		4,8	1,6	21	2,569	458,461	1,5	15	1,5	15	452,101	41891
	17:00	9		4,8	1,6	21	2,541	468,856	1,5	15	1,5	15	462,496	42873
26.05.2025	08:00	15		4,8	1,6	21	2,602	486,597	1,5	15	1,5	15	480,237	44509
	17:00	9		4,8	1,6	21	2,599	497,230	1,5	15	1,5	15	490,870	45491
27.05.2025	08:00	15		4,8	1,6	21	2,548	514,602	1,5	15	1,5	15	508,242	47127
	17:00	9		4,8	1,6	21	2,547	525,022	1,5	15	1,5	15	518,662	48109
28.05.2025	08:00	15		4,8	1,6	21	2,548	542,395	1,5	15	1,5	15	536,035	49745
	17:00	9		4,8	1,6	21	2,569	552,904	1,5	15	1,5	15	546,544	50727
29.05.2025	08:00	15		4,8	1,6	21	2,588	570,550	1,5	15	1,5	15	564,190	52364
	17:00	9		4,8	1,6	21	2,547	580,969	1,5	15	1,5	15	574,609	53345
30.05.2025	08:00	15		4,8	1,6	21	2,548	598,342	1,5	15	1,5	15	591,982	54982
	17:00	9		4,8	1,6	21	2,569	608,851	1,5	15	1,5	15	602,491	55964
31.05.2025	08:00	15		4,8	1,6	21	2,617	626,695	1,5	15	1,5	15	620,335	57600
	17:00	9		4,8	1,6	21	2,547	637,114	1,5	15	1,5	15	630,754	58582
1.06.2025	08:00	15		4,8	1,6	21	2,548	654,487	1,5	15	1,5	15	648,127	60218
	17:00	9		4,8	1,6	21	2,569	664,996	1,5	15	1,5	15	658,636	61200
2.06.2025	08:00	15		4,8	1,6	21	2,628	682,915	1,5	15	1,5	15	676,555	62836
	17:00	9		4,8	1,6	21	2,547	693,334	1,5	15	1,5	15	686,974	63818
3.06.2025	08:00	15		4,8	1,6	21	2,599	711,055	1,5	15	1,5	15	704,695	65455
	17:00	9		4,8	1,6	21	2,594	721,666	1,5	15	1,5	15	715,306	66436

Tarih *Date*	Saat *Time*	Passed Hour *Geçen Saat*	Kontrol *Observer*	Giriş Basıncı *Up stream* bar	Çıkış Basıncı *Down stream* bar	Giriş Sıcaklığı *Up stream* °C	Gerçek Debi *Actual* m³/h	Sayaç Okuması m³	Flow cycle times *s*				Toplam Gecirilen m³	Toplam Cevrim Sayısı
									Açılma *rise*	Geçiş *on*	Kapanma *fall*	Durma *off*		
4.06.2025	08:00	15		4,7	1,6	21	2,598	739,380	1,5	15	1,5	15	733,020	68073
	17:00	9		4,7	1,6	21	2,622	750,106	1,5	15	1,5	15	743,746	69055
5.06.2025	08:00	15		4,7	1,6	21	2,614	767,929	1,5	15	1,5	15	761,569	70691
	17:00	9		4,7	1,6	21	2,645	778,750	1,5	15	1,5	15	772,390	71673
6.06.2025	08:00	15		4,7	1,6	21	2,569	796,265	1,5	15	1,5	15	789,905	73309
	17:00	9		4,7	1,6	21	2,588	806,853	1,5	15	1,5	15	800,493	74291
7.06.2025	08:00	15		4,7	1,6	21	2,602	824,594	1,5	15	1,5	15	818,234	75927
	17:00	9		4,7	1,6	21	2,579	835,144	1,5	15	1,5	15	828,784	76909
8.06.2025	08:00	15		4,7	1,6	21	2,588	852,790	1,5	15	1,5	15	846,430	78545
	17:00	9		4,7	1,6	21	2,612	863,475	1,5	15	1,5	15	857,115	79527
9.06.2025	08:00	15		4,7	1,6	21	2,574	881,025	1,5	15	1,5	15	874,665	81164
	17:00	9		4,7	1,6	21	2,547	891,445	1,5	15	1,5	15	885,085	82145
10.06.2025	08:00	15		4,7	1,6	21	2,588	909,090	1,5	15	1,5	15	902,730	83782
	17:00	9		4,7	1,6	21	2,594	919,702	1,5	15	1,5	15	913,342	84764
11.06.2025	08:00	15		4,7	1,6	21	2,629	937,627	1,5	15	1,5	15	931,267	86400
	17:00	9		4,7	1,6	21	2,587	948,210	1,5	15	1,5	15	941,850	87382
12.06.2025	08:00	15		4,7	1,6	21	2,595	965,903	1,5	15	1,5	15	959,543	89018
	17:00	9		4,7	1,6	21	2,628	976,654	1,5	15	1,5	15	970,294	90000
13.06.2025	08:00	15		4,7	1,6	21	2,569	994,170	1,5	15	1,5	15	987,810	91636
	17:00	9		4,7	1,6	21	2,601	1004,810	1,5	15	1,5	15	998,450	92618
14.06.2025	08:00	15		4,7	1,6	21	2,569	1022,326	1,5	15	1,5	15	1015,966	94255
	17:00	9		4,7	1,6	21	2,569	1032,836	1,5	15	1,5	15	1026,476	95236
15.06.2025	08:00	15		4,7	1,6	21	2,598	1050,550	1,5	15	1,5	15	1044,190	96873
	17:00	9		4,7	1,6	21	2,541	1060,945	1,5	15	1,5	15	1054,585	97855
16.06.2025	08:00	15		4,7	1,6	21	2,597	1078,651	1,5	15	1,5	15	1072,291	99491
	17:00	9		4,7	1,6	21	2,633	1089,423	1,5	15	1,5	15	1083,063	100473
17.06.2025	08:00	15		4,7	1,6	21	2,588	1107,068	1,5	15	1,5	15	1100,708	102109
	17:00	9		4,7	1,6	21	2,581	1117,627	1,5	15	1,5	15	1111,267	103091
										Test Sonundaki Toplam *Totals at end of test*			1111,27	**103091**
										Theoretical total *Teorik Toplam*			1111,11	**PASSED**

Errors (of indication) measured after the discontinuous flow test

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *Vi*(i) m³	Final reading *Vi*(f) m³	Indicated volume *Vi* m³	Actual volume *Va* m³	Meter error *E* m %	MPE (a) %	Control	Curve variation error (b) *Ē* m(B) - *Ē* m(A) %	MPE (of curve variation error) (c) %	Control
3	4,5	21,0	1118,43729	1118,53837	0,10108	0,101782	-0,69	2,5	PASSED	0,06	1,5	PASSED
3	4,5	21,0	1118,54652	1118,64544	0,09892	0,099611	-0,69	2,5	PASSED			
						Ēm (B)	-0,69					
						Ēm (A)	**-0,76**					

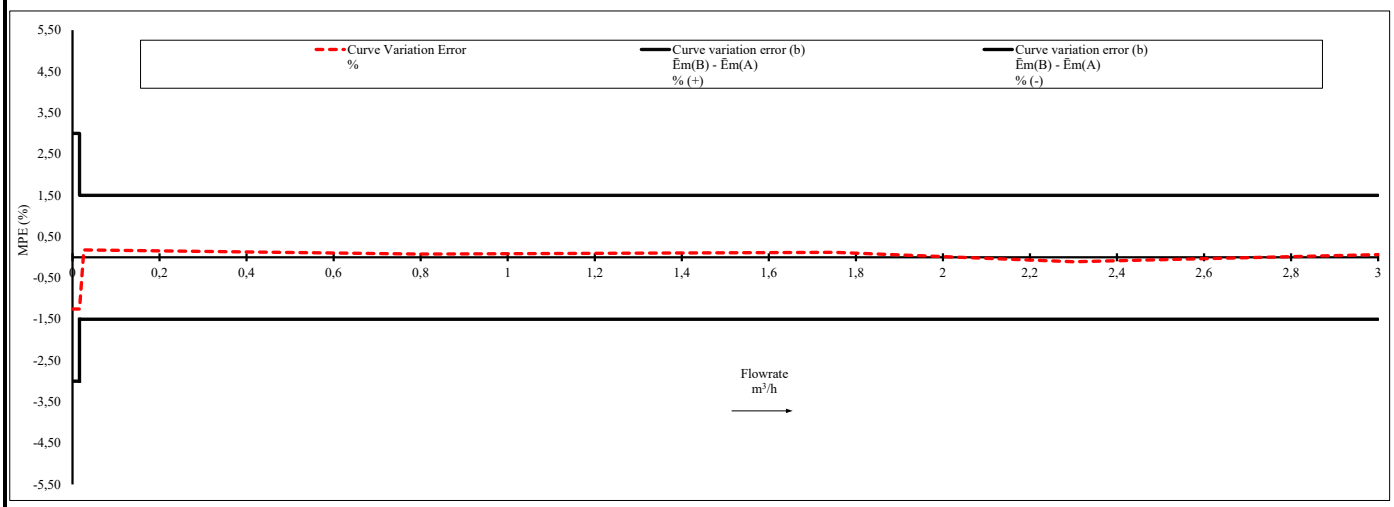
Actual flowrate m³/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *Vi*(i) m³	Final reading *Vi*(f) m³	Indicated volume *Vi* m³	Actual volume *Va* m³	Meter error *E* m %	MPE (a) %	Control	Curve variation error (b) *Ē* m(B) - *Ē* m(A) %	MPE (of curve variation error) (c) %	Control
2,3	3,5	21,0	1118,66052	1118,74077	0,08025	0,080879	-0,78	2,5	PASSED	-0,11	1,5	PASSED
2,3	3,5	20,0	1118,74606	1118,82564	0,07958	0,080335	-0,94	2,5	PASSED			
2,3	3,5	20,0	1118,8299	1118,90972	0,07982	0,080388	-0,71	2,5	PASSED			
						Ēm (B)	-0,81					
						Ēm (A)	**-0,70**					

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *Vi*(i) m³	Final reading *Vi*(f) m³	Indicated volume *Vi* m³	Actual volume *Va* m³	Meter error *E* m %	MPE (a) %	Control	Curve variation error (b) *Ē* m(B) - *Ē* m(A) %	MPE (of curve variation error) (c) %	Control
1,75	2,7	20,0	1118,92339	1118,97444	0,05105	0,050785	0,52	2,5	PASSED	0,12	1,5	PASSED
1,75	2,7	20,0	1118,97543	1119,02642	0,05099	0,050713	0,55	2,5	PASSED			
						Ēm (B)	0,53					
						Ēm (A)	**0,42**					

Actual flowrate m^3/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *Vi*(i) m^3	Final reading *Vi*(f) m^3	Indicated volume *Vi* m^3	Actual volume *Va* m^3	Meter error *E*m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$m(B) - $\bar{E}$m(A) %	MPE (of curve variation error) (c) %	Control
0,8	2,1	20,0	1119,0349	1119,06555	0,03065	0,030499	0,50	2,5	PASSED	0,08	1,5	PASSED
0,8	2,1	20,0	1119,06661	1119,098	0,03139	0,031259	0,42	2,5	PASSED			
						Ēm (B)	0,46					
						Ēm (A)	**0,38**					

Actual flowrate m^3/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *Vi*(i) m^3	Final reading *Vi*(f) m^3	Indicated volume *Vi* m^3	Actual volume *Va* m^3	Meter error *E*m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$m(B) - $\bar{E}$m(A) %	MPE (of curve variation error) (c) %	Control
0,026	2	21,0	1119,10376	1119,12423	0,02047	0,020298	0,85	2,5	PASSED	0,18	1,5	PASSED
0,026	2	20,0	1119,12497	1119,14579	0,02082	0,020645	0,85	2,5	PASSED			
0,026	2	20,0	1119,14653	1119,16729	0,02076	0,020537	1,09	2,5	PASSED			
						Ēm (B)	0,93					
						Ēm (A)	**0,75**					

Actual flowrate m^3/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *Vi*(i) m^3	Final reading *Vi*(f) m^3	Indicated volume *Vi* m^3	Actual volume *Va* m^3	Meter error *E*m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$m(B) - $\bar{E}$m(A) %	MPE (of curve variation error) (c) %	Control
0,016	1	20,0	1119,17036	1119,18017	0,00981	0,010064	-2,52	6	PASSED	-1,25	3	PASSED
0,016	1	21,0	1119,18071	1119,19053	0,00982	0,010154	-3,29	6	PASSED			
0,016	1	21,0	1119,19106	1119,20079	0,00973	0,010020	-2,89	6	PASSED			
						Ēm (B)	-2,90					
						Ēm (A)	**-1,65**					



-Before Tests

Application No	MID-02-25-3
Model	PAK-15KS-P
Date	08.05.2025
Observer	GÖKHAN SEYHAN

	At start	**At end**	
Ambient temperature:	20,5	20,4	°C
Ambient relative humidity:	52	51	%rh
Ambient atmospheric pressure:	996	997	mbar
Time:	14:00	16:00	

Test method:	Gravimetric
Volume measures/weighbridge used — m3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Length of straight pipe before meter (or manifold) — mm:	110
Length of straight pipe after meter (or manifold) — mm:	165
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN15
Describe flow straightener installation if used:	-

Q_1:	0,016 m^3/h
Q_2:	0,025 m^3/h
Q_3:	2,500 m^3/h
Q_4:	3,125 m^3/h

Meter serial No.:	15-2
Orientation (V, H, other):	H (0°)
Flow direction (see Requirement 3):	Forward
Location of indicating device (see Requirement 4):	Top

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** *T*w °C	**Initial reading** *V*i(i) m^3	**Final reading** *V*i(f) m^3	**Indicated volume** *V*i m^3	**Actual volume** *V*a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
3	4,5	21	3,50110	3,60189	0,10079	0,101782	-0,97	2	0,82	1	**PASSED**
3	4,5	21	3,61004	3,70883	0,09879	0,099611	-0,82				
						Ēm2	-0,90				
						Control	**PASSED**				

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** *T*w °C	**Initial reading** *V*i(i) m^3	**Final reading** *V*i(f) m^3	**Indicated volume** *V*i m^3	**Actual volume** *V*a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
2,3	3,5	21	3,72391	3,80406	0,08015	0,080879	-0,90	2	0,57	1,0	**PASSED**
2,3	3,5	21	3,80935	3,88901	0,07966	0,080335	-0,84				
2,3	3,5	21	3,89327	3,97320	0,07993	0,080388	-0,57				
						Ēm3	-0,77	**PASSED**			
							Standard deviation %	**MPE(a)/3 %**			
						S (c)	0,18	0,67			
						PASSED					

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** *T*w °C	**Initial reading** *V*i(i) m^3	**Final reading** *V*i(f) m^3	**Indicated volume** *V*i m^3	**Actual volume** *V*a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
1,75	2	21	3,98687	4,03786	0,05099	0,050785	0,40	2	0,40	1	**PASSED**
1,75	2	21	4,03885	4,08980	0,05095	0,050713	0,47				
						Ēm2	0,44				
						Control	**PASSED**				

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** *T*w °C	**Initial reading** *V*i(i) m^3	**Final reading** *V*i(f) m^3	**Indicated volume** *V*i m^3	**Actual volume** *V*a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
0,8	1,2	21	4,09828	4,12891	0,03063	0,030499	0,43	2	0,43	1	**PASSED**
0,8	1,2	21	4,12997	4,16138	0,03141	0,031259	0,48				
						Ēm2	0,46				
						Control	**PASSED**				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
0,026	1	21	4,16714	4,18737	0,02023	0,020298	-0,34	2	0,27	1,0	PASSED
0,026	1	21	4,18811	4,20870	0,02059	0,020645	-0,27				
0,026	1	21	4,20944	4,22992	0,02048	0,020537	-0,28				
						Ēm3	-0,29	PASSED			
							Standard deviation	MPE(a)/3 %			
						S (c)	0,04	0,67			
						PASSED					

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
0,016	0,8	21	4,23299	4,24266	0,00967	0,010001	-3,31	5	1,61	2,5	PASSED
0,016	0,8	21	4,24320	4,25295	0,00975	0,009910	-1,61				
0,016	0,8	21	4,25348	4,26311	0,00963	0,010020	-3,89				
						Ēm3	-2,94	PASSED			
							Standard deviation	MPE(a)/3 %			
						S (c)	1,18	1,67			
						PASSED					

MI001 MODULE B-F TEST REPORT

	At start (9.05.2025)	At end (17.06.2025)	
Ambient temperature:	20,2	20,5	°C
Ambient relative humidity:	54	61	%rh
Ambient atmospheric pressure:	1000	999	mbar
Time:	08:00	17:00	

	At start	At end
Date	9.05.2025	17.06.2025

Tarih *Date*	**Saat** *Time*	**Passed Hour** *Geçen Saat*	**Kontrol** *Observer*	**Giriş Basıncı** *Up stream* bar	**Çıkış Basıncı** *Down stream* bar	**Giriş Sıcaklığı** *Up stream* °C	**Gerçek Debi** *Actual* m³/h	**Sayaç Okuması** m³	**Flow cycle times** *s*				**Toplam Gecirilen** m³	**Toplam Cevrim Sayısı**
									Açılma *rise*	**Geçiş** *on*	**Kapanma** *fall*	**Durma** *off*		
9.05.2025	08:00	0	GÖKHAN SEYHAN	4,8	1,6	21	2,601	4,261	1,5	15	1,5	15	0,000	0
	17:00	9		4,8	1,6	21	2,601	14,901	1,5	15	1,5	15	10,640	982
10.05.2025	08:00	15		4,8	1,6	21	2,612	32,711	1,5	15	1,5	15	28,450	2618
	17:00	9		4,8	1,6	21	2,596	43,331	1,5	15	1,5	15	39,070	3600
11.05.2025	08:00	15		4,8	1,6	21	2,566	60,826	1,5	15	1,5	15	56,565	5236
	17:00	9		4,8	1,6	21	2,587	71,409	1,5	15	1,5	15	67,148	6218
12.05.2025	08:00	15		4,8	1,6	21	2,568	88,918	1,5	15	1,5	15	84,657	7855
	17:00	9		4,8	1,6	21	2,566	99,416	1,5	15	1,5	15	95,155	8836
13.05.2025	08:00	15		4,8	1,6	21	2,597	117,122	1,5	15	1,5	15	112,861	10473
	17:00	9		4,8	1,6	21	2,605	127,779	1,5	15	1,5	15	123,518	11455
14.05.2025	08:00	15		4,8	1,6	21	2,614	145,602	1,5	15	1,5	15	141,341	13091
	17:00	9		4,8	1,6	21	2,594	156,214	1,5	15	1,5	15	151,953	14073
15.05.2025	08:00	15		4,8	1,6	21	2,594	173,900	1,5	15	1,5	15	169,639	15709
	17:00	9		4,8	1,6	21	2,595	184,516	1,5	15	1,5	15	180,255	16691
16.05.2025	08:00	15		4,8	1,6	21	2,599	202,236	1,5	15	1,5	15	197,975	18327
	17:00	9		4,8	1,6	21	2,587	212,820	1,5	15	1,5	15	208,559	19309
17.05.2025	08:00	15		4,8	1,6	21	2,614	230,642	1,5	15	1,5	15	226,381	20945
	17:00	9		4,8	1,6	21	2,594	241,254	1,5	15	1,5	15	236,993	21927
18.05.2025	08:00	15		4,8	1,6	21	2,594	258,941	1,5	15	1,5	15	254,680	23564
	17:00	9		4,8	1,6	21	2,595	269,556	1,5	15	1,5	15	265,295	24545
19.05.2025	08:00	15		4,8	1,6	21	2,599	287,277	1,5	15	1,5	15	283,016	26182
	17:00	9		4,8	1,6	21	2,587	297,860	1,5	15	1,5	15	293,599	27164
20.05.2025	08:00	15		4,8	1,6	21	2,614	315,683	1,5	15	1,5	15	311,422	28800
	17:00	9		4,8	1,6	21	2,594	326,295	1,5	15	1,5	15	322,034	29782
21.05.2025	08:00	15		4,8	1,6	21	2,614	344,117	1,5	15	1,5	15	339,856	31418
	17:00	9		4,8	1,6	21	2,594	354,729	1,5	15	1,5	15	350,468	32400
22.05.2025	08:00	15		4,8	1,6	21	2,594	372,416	1,5	15	1,5	15	368,155	34036
	17:00	9		4,8	1,6	21	2,612	383,101	1,5	15	1,5	15	378,840	35018
23.05.2025	08:00	15		4,8	1,6	21	2,596	400,801	1,5	15	1,5	15	396,540	36655
	17:00	9		4,8	1,6	21	2,612	411,486	1,5	15	1,5	15	407,225	37636
24.05.2025	08:00	15		4,8	1,6	21	2,587	429,125	1,5	15	1,5	15	424,864	39273
	17:00	9		4,8	1,6	21	2,595	439,741	1,5	15	1,5	15	435,480	40255
25.05.2025	08:00	15		4,8	1,6	21	2,591	457,407	1,5	15	1,5	15	453,146	41891
	17:00	9		4,8	1,6	21	2,588	467,994	1,5	15	1,5	15	463,733	42873
26.05.2025	08:00	15		4,8	1,6	21	2,578	485,571	1,5	15	1,5	15	481,310	44509
	17:00	9		4,8	1,6	21	2,514	495,856	1,5	15	1,5	15	491,595	45491
27.05.2025	08:00	15		4,8	1,6	21	2,566	513,351	1,5	15	1,5	15	509,090	47127
	17:00	9		4,8	1,6	21	2,651	524,196	1,5	15	1,5	15	519,935	48109
28.05.2025	08:00	15		4,8	1,6	21	2,614	542,019	1,5	15	1,5	15	537,758	49745
	17:00	9		4,8	1,6	21	2,594	552,631	1,5	15	1,5	15	548,370	50727
29.05.2025	08:00	15		4,8	1,6	21	2,594	570,317	1,5	15	1,5	15	566,056	52364
	17:00	9		4,8	1,6	21	2,595	580,933	1,5	15	1,5	15	576,672	53345
30.05.2025	08:00	15		4,8	1,6	21	2,591	598,599	1,5	15	1,5	15	594,338	54982
	17:00	9		4,8	1,6	21	2,588	609,186	1,5	15	1,5	15	604,925	55964
31.05.2025	08:00	15		4,8	1,6	21	2,578	626,764	1,5	15	1,5	15	622,503	57600
	17:00	9		4,8	1,6	21	2,514	637,048	1,5	15	1,5	15	632,787	58582
1.06.2025	08:00	15		4,8	1,6	21	2,566	654,544	1,5	15	1,5	15	650,283	60218
	17:00	9		4,8	1,6	21	2,617	665,250	1,5	15	1,5	15	660,989	61200
2.06.2025	08:00	15		4,8	1,6	21	2,577	682,820	1,5	15	1,5	15	678,559	62836
	17:00	9		4,8	1,6	21	2,547	693,240	1,5	15	1,5	15	688,979	63818
3.06.2025	08:00	15		4,8	1,6	21	2,563	710,715	1,5	15	1,5	15	706,454	65455
	17:00	9		4,8	1,6	21	2,561	721,191	1,5	15	1,5	15	716,930	66436

Tarih *Date*	Saat *Time*	Passed Hour *Geçen Saat*	Kontrol *Observer*	Giriş Basıncı *Up stream* bar	Çıkış Basıncı *Down stream* bar	Giriş Sıcaklığı *Up stream* °C	Gerçek Debi *Actual* m³/h	Sayaç Okuması m³	Flow cycle times *s*				Toplam Gecirilen m³	Toplam Cevrim Sayısı
									Açılma *rise*	Geçiş *on*	Kapanma *fall*	Durma *off*		
4.06.2025	08:00	15		4,7	1,6	21	2,591	738,857	1,5	15	1,5	15	734,596	68073
	17:00	9		4,7	1,6	21	2,588	749,445	1,5	15	1,5	15	745,184	69055
5.06.2025	08:00	15		4,7	1,6	21	2,578	767,022	1,5	15	1,5	15	762,761	70691
	17:00	9		4,7	1,6	21	2,514	777,306	1,5	15	1,5	15	773,045	71673
6.06.2025	08:00	15		4,7	1,6	21	2,566	794,802	1,5	15	1,5	15	790,541	73309
	17:00	9		4,7	1,6	21	2,566	805,299	1,5	15	1,5	15	801,038	74291
7.06.2025	08:00	15		4,7	1,6	21	2,614	823,122	1,5	15	1,5	15	818,861	75927
	17:00	9		4,7	1,6	21	2,594	833,734	1,5	15	1,5	15	829,473	76909
8.06.2025	08:00	15		4,7	1,6	21	2,604	851,488	1,5	15	1,5	15	847,227	78545
	17:00	9		4,7	1,6	21	2,595	862,104	1,5	15	1,5	15	857,843	79527
9.06.2025	08:00	15		4,7	1,6	21	2,588	879,750	1,5	15	1,5	15	875,489	81164
	17:00	9		4,7	1,6	21	2,578	890,296	1,5	15	1,5	15	886,035	82145
10.06.2025	08:00	15		4,7	1,6	21	2,514	907,437	1,5	15	1,5	15	903,176	83782
	17:00	9		4,7	1,6	21	2,566	917,934	1,5	15	1,5	15	913,673	84764
11.06.2025	08:00	15		4,7	1,6	21	2,569	935,450	1,5	15	1,5	15	931,189	86400
	17:00	9		4,7	1,6	21	2,588	946,037	1,5	15	1,5	15	941,776	87382
12.06.2025	08:00	15		4,7	1,6	21	2,617	963,881	1,5	15	1,5	15	959,620	89018
	17:00	9		4,7	1,6	21	2,514	974,165	1,5	15	1,5	15	969,904	90000
13.06.2025	08:00	15		4,7	1,6	21	2,566	991,661	1,5	15	1,5	15	987,400	91636
	17:00	9		4,7	1,6	21	2,594	1002,272	1,5	15	1,5	15	998,011	92618
14.06.2025	08:00	15		4,7	1,6	21	2,595	1019,966	1,5	15	1,5	15	1015,705	94255
	17:00	9		4,7	1,6	21	2,599	1030,598	1,5	15	1,5	15	1026,337	95236
15.06.2025	08:00	15		4,7	1,6	21	2,588	1048,243	1,5	15	1,5	15	1043,982	96873
	17:00	9		4,7	1,6	21	2,615	1058,941	1,5	15	1,5	15	1054,680	97855
16.06.2025	08:00	15		4,7	1,6	21	2,602	1076,682	1,5	15	1,5	15	1072,421	99491
	17:00	9		4,7	1,6	21	2,566	1087,179	1,5	15	1,5	15	1082,918	100473
17.06.2025	08:00	15		4,7	1,6	21	2,599	1104,900	1,5	15	1,5	15	1100,639	102109
	17:00	9		4,7	1,6	21	2,587	1115,483	1,5	15	1,5	15	1111,222	103091
										Test Sonundaki Toplam *Totals at end of test*			1111,22	**103091**
										Theoretical total *Teorik Toplam*			1111,11	**PASSED**

Errors (of indication) measured after the discontinuous flow test

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *Vi*(i) m³	Final reading *Vi*(f) m³	Indicated volume *Vi* m³	Actual volume *Va* m³	Meter error *E* m %	MPE (a) %	Control	Curve variation error (b) *Ē* m(B) - *Ē* m(A) %	MPE (of curve variation error) (c) %	Control
3	4,5	21,0	1115,75218	1115,85278	0,10060	0,101799	-1,18	2,5	PASSED	-0,38	1,5	PASSED
3	4,5	21,0	1115,86093	1115,95956	0,09863	0,100021	-1,39	2,5	PASSED			
						Ēm (B)	-1,28					
						Ēm (A)	**-0,90**					

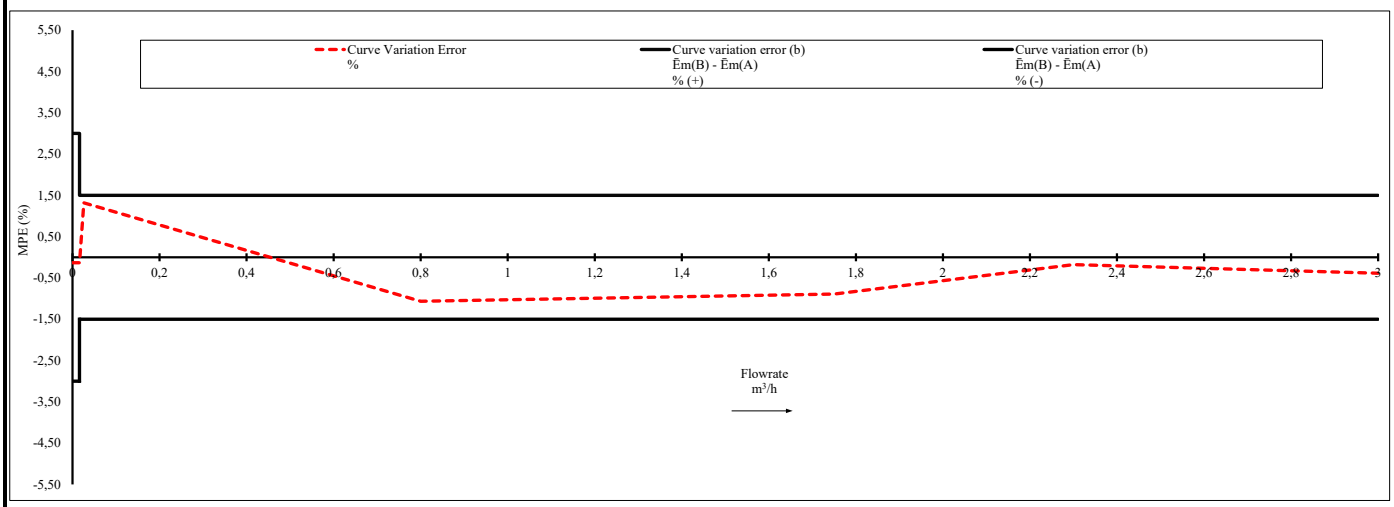
Actual flowrate m³/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *Vi*(i) m³	Final reading *Vi*(f) m³	Indicated volume *Vi* m³	Actual volume *Va* m³	Meter error *E* m %	MPE (a) %	Control	Curve variation error (b) *Ē* m(B) - *Ē* m(A) %	MPE (of curve variation error) (c) %	Control
2,3	3,5	21,0	1115,97464	1116,05498	0,08034	0,080879	-0,67	2,5	PASSED	-0,18	1,5	PASSED
2,3	3,5	20,0	1116,06027	1116,14012	0,07985	0,081012	-1,43	2,5	PASSED			
2,3	3,5	20,0	1116,14438	1116,22417	0,07979	0,080388	-0,74	2,5	PASSED			
						Ēm (B)	-0,95					
						Ēm (A)	**-0,77**					

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *Vi*(i) m³	Final reading *Vi*(f) m³	Indicated volume *Vi* m³	Actual volume *Va* m³	Meter error *E* m %	MPE (a) %	Control	Curve variation error (b) *Ē* m(B) - *Ē* m(A) %	MPE (of curve variation error) (c) %	Control
1,75	2,7	20,0	1116,23784	1116,28889	0,05105	0,051785	-1,42	2,5	PASSED	-0,89	1,5	PASSED
1,75	2,7	20,0	1116,28988	1116,34085	0,05097	0,050713	0,51	2,5	PASSED			
						Ēm (B)	-0,46					
						Ēm (A)	**0,44**					

Actual flowrate m^3/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *Vi*(i) m^3	Final reading *Vi*(f) m^3	Indicated volume *Vi* m^3	Actual volume *Va* m^3	Meter error *E* m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$m(B) - $\bar{E}$m(A) %	MPE (of curve variation error) (c) %	Control
0,8	2,1	20,0	1116,34933	1116,37996	0,03063	0,031099	-1,51	2,5	PASSED	-1,06	1,5	PASSED
0,8	2,1	20,0	1116,38102	1116,41237	0,03135	0,031259	0,29	2,5	PASSED			
						Ēm (B)	-0,61					
						Ēm (A)	**0,46**					

Actual flowrate m^3/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *Vi*(i) m^3	Final reading *Vi*(f) m^3	Indicated volume *Vi* m^3	Actual volume *Va* m^3	Meter error *E* m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$m(B) - $\bar{E}$m(A) %	MPE (of curve variation error) (c) %	Control
0,026	2	21,0	1116,41813	1116,43867	0,02054	0,020298	1,19	2,5	PASSED	1,32	1,5	PASSED
0,026	2	20,0	1116,43941	1116,46026	0,02085	0,020645	0,99	2,5	PASSED			
0,026	2	20,0	1116,461	1116,48172	0,02072	0,020537	0,89	2,5	PASSED			
						Ēm (B)	1,03					
						Ēm (A)	**-0,29**					

Actual flowrate m^3/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *Vi*(i) m^3	Final reading *Vi*(f) m^3	Indicated volume *Vi* m^3	Actual volume *Va* m^3	Meter error *E* m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$m(B) - $\bar{E}$m(A) %	MPE (of curve variation error) (c) %	Control
0,016	1	20,0	1116,48479	1116,49451	0,00972	0,010064	-3,42	6	PASSED	-0,13	3	PASSED
0,016	1	21,0	1116,49505	1116,50494	0,00989	0,010154	-2,60	6	PASSED			
0,016	1	21,0	1116,50547	1116,51517	0,00970	0,01002	-3,19	6	PASSED			
						Ēm (B)	-3,07					
						Ēm (A)	**-2,94**					



-Before Tests

Application No	MID-02-25-3
Model	PAK-25K
Date	08.05.2025
Observer	GÖKHAN SEYHAN

	At start	**At end**	
Ambient temperature:	20,3	20,3	°C
Ambient relative humidity:	51	51	%rh
Ambient atmospheric pressure:	997,0	997,0	mbar
Time:	16:00	18:00	

Test method:	**Gravimetric**
Volume measures/weighbridge used — m3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Length of straight pipe before meter (or manifold) — mm:	110
Length of straight pipe after meter (or manifold) — mm:	165
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN25
Describe flow straightener installation if used:	-

Q_1:	0,039 m^3/h
Q_2:	0,063 m^3/h
Q_3:	6,300 m^3/h
Q_4:	7,875 m^3/h

Meter serial No.:	25-1
Orientation (V, H, other):	H (0°)
Flow direction (see Requirement 3):	Forward
Location of indicating device (see Requirement 4):	Top

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** T_w °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
7,5	4,3	22,0	6,53739	6,63842	0,10103	0,101952	-0,90	2	0,90	1	**PASSED**
7,5	4,4	22,0	6,64698	6,74669	0,09971	0,100661	-0,94				
						Ēm2	-0,92				
						Control	**PASSED**				

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** T_w °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
6	3,7	21,0	6,76167	6,84171	0,08004	0,080492	-0,56	2	0,50	1,0	**PASSED**
6	3,7	21,0	6,84677	6,92667	0,07990	0,080592	-0,86				
6	3,7	21,0	6,93256	7,01280	0,08024	0,080646	-0,50				
						Ēm3	-0,64	**PASSED**			
							Standard deviation %	**MPE(a)/3 %**			
						S (c)	0,19	0,67			
						PASSED					

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** T_w °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
4,5	2,7	21,0	7,02659	7,07738	0,05079	0,050501	0,57	2	0,38	1	**PASSED**
4,5	2,8	20,0	7,07848	7,12908	0,05060	0,050406	0,38				
						Ēm2	0,48				
						Control	**PASSED**				

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** T_w °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
2,25	2,1	21,0	7,13800	7,16928	0,03128	0,031163	0,38	2	0,38	1	**PASSED**
2,25	1,9	20,0	7,17032	7,20093	0,03061	0,030467	0,47				
						Ēm2	0,42				
						Control	**PASSED**				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m³/h	Bar	°C	m³	m³	m³	m³	%	%			
0,065	2,2	20,0	7,20664	7,21719	0,01055	0,010601	-0,48	2	0,11	1,0	PASSED
0,065	1,9	21,0	7,21792	7,22812	0,01020	0,010250	-0,49				
0,065	2	21,0	7,22886	7,23905	0,01019	0,010201	-0,11				
						Ēm3	-0,36	PASSED			
							Standard deviation	MPE(a)/3 %			
						S (c)	0,22	0,67			
						PASSED					

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		*T*w	*V*i(i)	*V*i(f)	*V*i	*V*a	Em		Minimum Absolute Value	Half of MPE	Control
m³/h	Bar	°C	m³	m³	m³	m³	%	%			
0,040	1,2	21,0	7,24224	7,24726	0,00502	0,005101	-1,59	5	1,53	2,5	PASSED
0,040	1,1	20,0	7,24777	7,25299	0,00522	0,005301	-1,53				
0,040	1,2	20,0	7,25352	7,25855	0,00503	0,005197	-3,21				
						Ēm3	-2,11	PASSED			
							Standard deviation	MPE(a)/3 %			
						S (c)	0,96	1,67			
						PASSED					

	At start (9.05.2025)	At end (17.06.2025)	
Ambient temperature:	20,3	20,6	°C
Ambient relative humidity:	56,0	60,0	%rh
Ambient atmospheric pressure:	1003,0	1000,0	mbar
Time:	08:00	17:00	

	At start	At end
Date	9.05.2025	17.06.2025

Tarih *Date*	**Saat** *Time*	**Passed Hour** *Geçen Saat*	**Kontrol** *Observer*	**Giriş Basıncı** *Up stream* bar	**Çıkış Basıncı** *Down stream* bar	**Giriş Sıcaklığı** *Up stream* °C	**Gerçek Debi** *Actual* m³/h	**Sayaç Okuması** m³	**Flow cycle times** *s*				**Toplam Geçirilen** m³	**Toplam Cevrim Sayısı**
									Açılma *rise*	**Geçiş** *on*	**Kapanma** *fall*	**Durma** *off*		
9.05.2025	08:00	0	GÖKHAN SEYHAN	4,5	1,2	21	6,497	7,674	1,5	15	1,5	15	0,000	0
	17:00	9		4,5	1,2	21	6,588	34,625	1,5	15	1,5	15	26,951	982
10.05.2025	08:00	15		4,5	1,2	21	6,496	78,916	1,5	15	1,5	15	71,242	2618
	17:00	9		4,5	1,2	21	6,487	105,454	1,5	15	1,5	15	97,780	3600
11.05.2025	08:00	15		4,5	1,2	21	6,495	149,738	1,5	15	1,5	15	142,064	5236
	17:00	9		4,5	1,2	21	6,529	176,447	1,5	15	1,5	15	168,773	6218
12.05.2025	08:00	15		4,5	1,2	21	6,498	220,752	1,5	15	1,5	15	213,078	7855
	17:00	9		4,5	1,2	21	6,499	247,339	1,5	15	1,5	15	239,665	8836
13.05.2025	08:00	15		4,5	1,2	21	6,478	291,507	1,5	15	1,5	15	283,833	10473
	17:00	9		4,5	1,2	21	6,495	318,077	1,5	15	1,5	15	310,403	11455
14.05.2025	08:00	15		4,5	1,2	21	6,488	362,314	1,5	15	1,5	15	354,640	13091
	17:00	9		4,5	1,2	21	6,481	388,827	1,5	15	1,5	15	381,153	14073
15.05.2025	08:00	15		4,5	1,2	21	6,511	433,220	1,5	15	1,5	15	425,546	15709
	17:00	9		4,5	1,2	21	6,512	459,860	1,5	15	1,5	15	452,186	16691
16.05.2025	08:00	15		4,5	1,2	21	6,512	504,260	1,5	15	1,5	15	496,586	18327
	17:00	9		4,5	1,2	21	6,495	530,830	1,5	15	1,5	15	523,156	19309
17.05.2025	08:00	15		4,5	1,2	21	6,529	575,346	1,5	15	1,5	15	567,672	20945
	17:00	9		4,5	1,2	21	6,498	601,929	1,5	15	1,5	15	594,255	21927
18.05.2025	08:00	15		4,5	1,2	21	6,499	646,240	1,5	15	1,5	15	638,566	23564
	17:00	9		4,5	1,2	21	6,478	672,741	1,5	15	1,5	15	665,067	24545
19.05.2025	08:00	15		4,5	1,2	21	6,495	717,025	1,5	15	1,5	15	709,351	26182
	17:00	9		4,5	1,2	21	6,488	743,567	1,5	15	1,5	15	735,893	27164
20.05.2025	08:00	15		4,5	1,2	21	6,481	787,756	1,5	15	1,5	15	780,082	28800
	17:00	9		4,5	1,2	21	6,495	814,326	1,5	15	1,5	15	806,652	29782
21.05.2025	08:00	15		4,5	1,2	21	6,529	858,842	1,5	15	1,5	15	851,168	31418
	17:00	9		4,5	1,2	21	6,498	885,425	1,5	15	1,5	15	877,751	32400
22.05.2025	08:00	15		4,5	1,2	21	6,499	929,736	1,5	15	1,5	15	922,062	34036
	17:00	9		4,5	1,2	21	6,478	956,237	1,5	15	1,5	15	948,563	35018
23.05.2025	08:00	15		4,5	1,2	21	6,495	1000,521	1,5	15	1,5	15	992,847	36655
	17:00	9		4,5	1,2	21	6,488	1027,063	1,5	15	1,5	15	1019,389	37636
24.05.2025	08:00	15		4,5	1,2	21	6,481	1071,252	1,5	15	1,5	15	1063,578	39273
	17:00	9		4,5	1,2	21	6,423	1097,528	1,5	15	1,5	15	1089,854	40255
25.05.2025	08:00	15		4,5	1,2	21	6,415	1141,266	1,5	15	1,5	15	1133,592	41891
	17:00	9		4,5	1,2	21	6,497	1167,845	1,5	15	1,5	15	1160,171	42873
26.05.2025	08:00	15		4,5	1,2	21	6,495	1212,129	1,5	15	1,5	15	1204,455	44509
	17:00	9		4,5	1,2	21	6,529	1238,839	1,5	15	1,5	15	1231,165	45491
27.05.2025	08:00	15		4,5	1,2	21	6,498	1283,143	1,5	15	1,5	15	1275,469	47127
	17:00	9		4,5	1,2	21	6,499	1309,730	1,5	15	1,5	15	1302,056	48109
28.05.2025	08:00	15		4,5	1,2	21	6,478	1353,898	1,5	15	1,5	15	1346,224	49745
	17:00	9		4,5	1,2	21	6,495	1380,469	1,5	15	1,5	15	1372,795	50727
29.05.2025	08:00	15		4,5	1,2	21	6,488	1424,705	1,5	15	1,5	15	1417,031	52364
	17:00	9		4,5	1,2	21	6,574	1451,599	1,5	15	1,5	15	1443,925	53345
30.05.2025	08:00	15		4,5	1,2	21	6,569	1496,387	1,5	15	1,5	15	1488,713	54982
	17:00	9		4,5	1,2	21	6,574	1523,281	1,5	15	1,5	15	1515,607	55964
31.05.2025	08:00	15		4,5	1,2	21	6,547	1567,919	1,5	15	1,5	15	1560,245	57600
	17:00	9		4,5	1,2	21	6,495	1594,490	1,5	15	1,5	15	1586,816	58582
1.06.2025	08:00	15		4,5	1,2	21	6,529	1639,006	1,5	15	1,5	15	1631,332	60218
	17:00	9		4,5	1,2	21	6,574	1665,899	1,5	15	1,5	15	1658,225	61200
2.06.2025	08:00	15		4,5	1,2	21	6,569	1710,688	1,5	15	1,5	15	1703,014	62836
	17:00	9		4,5	1,2	21	6,574	1737,582	1,5	15	1,5	15	1729,908	63818
3.06.2025	08:00	15		4,5	1,2	21	6,547	1782,220	1,5	15	1,5	15	1774,546	65455
	17:00	9		4,5	1,2	21	6,488	1808,762	1,5	15	1,5	15	1801,088	66436
4.06.2025	08:00	15		4,5	1,2	21	6,481	1852,951	1,5	15	1,5	15	1845,277	68073
	17:00	9		4,5	1,2	21	6,599	1879,947	1,5	15	1,5	15	1872,273	69055

Tarih *Date*	Saat *Time*	Passed Hour *Geçen Saat*	Kontrol *Observer*	Giriş Basıncı *Up stream* bar	Çıkış Basıncı *Down stream* bar	Giriş Sıcaklığı *Up stream* °C	Gerçek Debi *Actual* m³/h	Sayaç Okuması m³	Flow cycle times *s*				Toplam Geçirilen m³	Toplam Cevrim Sayısı
									Açılma *rise*	Geçiş *on*	Kapanma *fall*	Durma *off*		
5.06.2025	08:00	15	GÖKHAN SEYHAN	4,5	1,2	21	6,574	1924,769	1,5	15	1,5	15	1917,095	70691
	17:00	9		4,5	1,2	21	6,569	1951,643	1,5	15	1,5	15	1943,969	71673
6.06.2025	08:00	15		4,5	1,2	21	6,574	1996,465	1,5	15	1,5	15	1988,791	73309
	17:00	9		4,5	1,2	21	6,547	2023,249	1,5	15	1,5	15	2015,575	74291
7.06.2025	08:00	15		4,5	1,2	21	6,581	2068,119	1,5	15	1,5	15	2060,445	75927
	17:00	9		4,5	1,2	21	6,478	2094,620	1,5	15	1,5	15	2086,946	76909
8.06.2025	08:00	15		4,5	1,2	21	6,495	2138,904	1,5	15	1,5	15	2131,230	78545
	17:00	9		4,5	1,2	21	6,488	2165,446	1,5	15	1,5	15	2157,772	79527
9.06.2025	08:00	15		4,5	1,2	21	6,481	2209,634	1,5	15	1,5	15	2201,960	81164
	17:00	9		4,5	1,1	21	6,487	2236,172	1,5	15	1,5	15	2228,498	82145
10.06.2025	08:00	15		4,5	1,1	21	6,574	2280,995	1,5	15	1,5	15	2273,321	83782
	17:00	9		4,5	1,1	21	6,569	2307,868	1,5	15	1,5	15	2300,194	84764
11.06.2025	08:00	15		4,5	1,1	21	6,574	2352,691	1,5	15	1,5	15	2345,017	86400
	17:00	9		4,5	1,1	21	6,547	2379,474	1,5	15	1,5	15	2371,800	87382
12.06.2025	08:00	15		4,5	1,1	21	6,499	2423,785	1,5	15	1,5	15	2416,111	89018
	17:00	9		4,5	1,1	21	6,478	2450,286	1,5	15	1,5	15	2442,612	90000
13.06.2025	08:00	15		4,5	1,1	21	6,495	2494,570	1,5	15	1,5	15	2486,896	91636
	17:00	9		4,5	1,1	21	6,574	2521,464	1,5	15	1,5	15	2513,790	92618
14.06.2025	08:00	15		4,5	1,1	21	6,574	2566,287	1,5	15	1,5	15	2558,613	94255
	17:00	9		4,5	1,1	21	6,569	2593,160	1,5	15	1,5	15	2585,486	95236
15.06.2025	08:00	15		4,5	1,1	21	6,574	2637,983	1,5	15	1,5	15	2630,309	96873
	17:00	9		4,5	1,1	21	6,547	2664,766	1,5	15	1,5	15	2657,092	97855
16.06.2025	08:00	15		4,5	1,1	21	6,574	2709,589	1,5	15	1,5	15	2701,915	99491
	17:00	9		4,5	1,1	21	6,569	2736,462	1,5	15	1,5	15	2728,788	100473
17.06.2025	08:00	15		4,5	1,1	21	6,574	2781,284	1,5	15	1,5	15	2773,610	102109
	17:00	9		4,5	1,1	21	6,547	2808,068	1,5	15	1,5	15	2800,394	103091
													Test Sonundaki Toplam *Totals at end of test*	2800,39	**103091**
													Theoretical total *Teorik Toplam*	2800,00	**PASSED**

Errors (of indication) measured after the discontinuous flow test

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp °C	Initial reading *Vi*(i) m³	Final reading *Vi*(f) m³	Indicated volume *Vi* m³	Actual volume *Va* m³	Meter error *Em* %	MPE (a) %	Control	Curve variation error (b) *Ē*m(B) - *Ē*m(A) %	MPE (of curve variation error) %	Control
7,5	4,4	21,0	2811,76931	2811,87031	0,10100	0,101952	-0,93	2,5	PASSED	-0,14	1,5	PASSED
7,5	4,2	21,0	2811,87887	2811,97888	0,10001	0,101228	-1,20	2,5	PASSED			
						Ēm (B)	-1,07					
						Ēm (A)	**-0,92**					

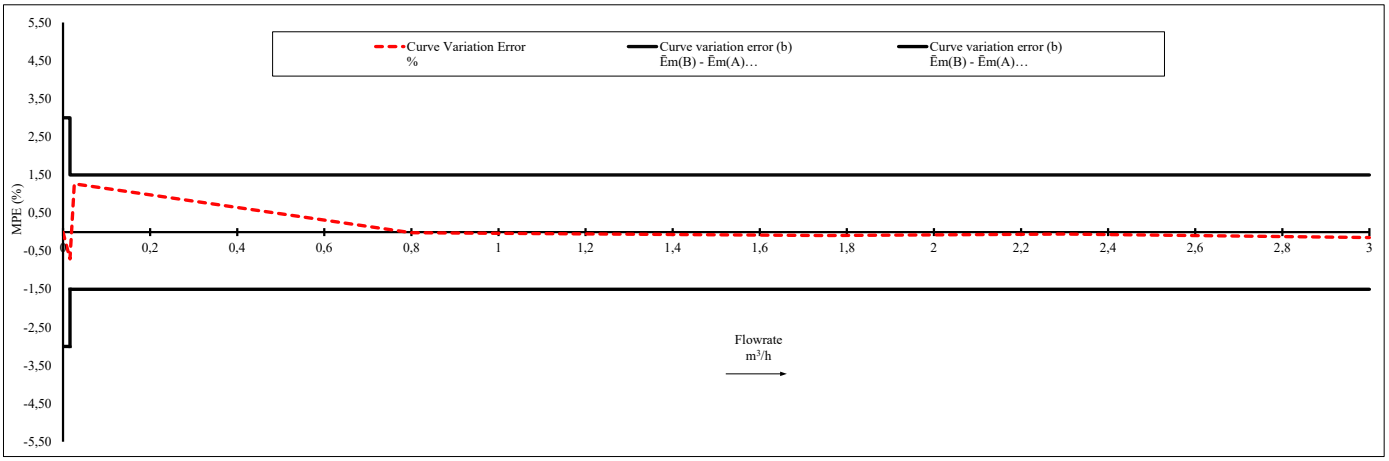
Actual flowrate m³/h	Working pressure *p* w Bar	Working temp °C	Initial reading *Vi*(i) m³	Final reading *Vi*(f) m³	Indicated volume *Vi* m³	Actual volume *Va* m³	Meter error *Em* %	MPE (a) %	Control	Curve variation error (b) *Ē*m(B) - *Ē*m(A) %	MPE (of curve variation error) %	Control
6	3,9	21,0	2811,99386	2812,0738	0,07994	0,080492	-0,69	2,5	PASSED	-0,05	1,5	PASSED
6	3,6	20,0	2812,07886	2812,15899	0,08013	0,080592	-0,57	2,5	PASSED			
6	3,5	20,0	2812,16488	2812,24487	0,07999	0,080646	-0,81	2,5	PASSED			
						Ēm (B)	-0,69					
						Ēm (A)	**-0,64**					

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp °C	Initial reading *Vi*(i) m³	Final reading *Vi*(f) m³	Indicated volume *Vi* m³	Actual volume *Va* m³	Meter error *Em* %	MPE (a) %	Control	Curve variation error (b) *Ē*m(B) - *Ē*m(A) %	MPE (of curve variation error) %	Control
4,5	2,7	20,0	2812,25866	2812,30933	0,05067	0,050501	0,33	2,5	PASSED	-0,09	1,5	PASSED
4,5	2,7	20,0	2812,31043	2812,36106	0,05063	0,050406	0,44	2,5	PASSED			
						Ēm (B)	0,39					
						Ēm (A)	**0,48**					

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp °C	Initial reading *Vi*(i) m³	Final reading *Vi*(f) m³	Indicated volume *Vi* m³	Actual volume *Va* m³	Meter error *Em* %	MPE (a) %	Control	Curve variation error (b) *Ē*m(B) - *Ē*m(A) %	MPE (of curve variation error) %	Control
2,25	2,1	20,0	2812,36998	2812,40126	0,03128	0,031163	0,38	2,5	PASSED	-0,02	1,5	PASSED
2,25	2,1	20,0	2812,4023	2812,4329	0,03060	0,030467	0,44	2,5	PASSED			
						Ēm (B)	0,41					
						Ēm (A)	**0,42**					

Actual flowrate m^3/h	Working pressure p w Bar	Working temp °C	Initial reading Vi(i) m^3	Final reading Vi(f) m^3	Indicated volume Vi m^3	Actual volume Va m^3	Meter error Em %	MPE (a) %	Control	Curve variation error (b) $\bar{E}m(B) - \bar{E}m(A)$ %	MPE (of curve variation error) %	Control
0,065	2,1	21,0	2812,43861	2812,44915	0,01054	0,010439	0,97	2,5	PASSED	1,27	1,5	PASSED
0,065	2,1	20,0	2812,44988	2812,46007	0,01019	0,010091	0,98	2,5	PASSED			
0,065	2	20,0	2812,46081	2812,47097	0,01016	0,010082	0,77	2,5	PASSED			
						$\bar{E}m$ (B)	0,91					
						$\bar{E}m$ (A)	**-0,36**					

Actual flowrate m^3/h	Working pressure p w Bar	Working temp °C	Initial reading Vi(i) m^3	Final reading Vi(f) m^3	Indicated volume Vi m^3	Actual volume Va m^3	Meter error Em %	MPE (a) %	Control	Curve variation error (b) $\bar{E}m(B) - \bar{E}m(A)$ %	MPE (of curve variation error) %	Control
0,04	1,1	20,0	2812,47416	2812,47918	0,00502	0,005162	-2,75	6	PASSED	-0,70	3	PASSED
0,04	1,1	21,0	2812,47969	2812,4849	0,00521	0,005374	-3,05	6	PASSED			
0,04	1,1	21,0	2812,48543	2812,49049	0,00506	0,005197	-2,64	6	PASSED			
						$\bar{E}m$ (B)	-2,81					
						$\bar{E}m$ (A)	**-2,11**					



MI001 MODULE B-F TEST REPORT

-Before Tests

Application No	MID-02-25-3
Model	PAK-25KS-P
Date	08.05.2025
Observer	GÖKHAN SEYHAN

	At start	**At end**	
Ambient temperature:	20,2	20,2	°C
Ambient relative humidity:	50	51	%rh
Ambient atmospheric pressure:	997,0	997,0	mbar
Time:	18:00	20:00	

Test method:	**Gravimetric**
Volume measures/weighbridge used — m3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Length of straight pipe before meter (or manifold) — mm:	110
Length of straight pipe after meter (or manifold) — mm:	165
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN25
Describe flow straightener installation if used:	-

Q_1:	0,039 m^3/h
Q_2:	0,063 m^3/h
Q_3:	6,300 m^3/h
Q_4:	7,875 m^3/h

Meter serial No.:	25-2
Orientation (V, H, other):	H (0°)
Flow direction (see Requirement 3):	Forward
Location of indicating device (see Requirement 4):	Top

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** T_w °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
7,5	4,3	22,0	10,43836	10,53978	0,10142	0,101952	-0,52	2	0,52	1	**PASSED**
7,5	4,4	22,0	10,54834	10,64812	0,09978	0,100704	-0,92				
						Ēm2	-0,72				
						Control	**PASSED**				

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** T_w °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
6	3,7	21,0	10,66310	10,74295	0,07985	0,080492	-0,80	2	0,47	1,0	**PASSED**
6	3,7	21,0	10,74801	10,82822	0,08021	0,080592	-0,47				
6	3,7	21,0	10,83411	10,91410	0,07999	0,080646	-0,81				
						Ēm3	-0,70	**PASSED**			
							Standard deviation %	**MPE(a)/3 %**			
						S (c)	0,19	0,67			
						PASSED					

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** T_w °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
4,5	2,7	21,0	10,92789	10,97864	0,05075	0,050501	0,49	2	0,33	1	**PASSED**
4,5	2,8	20,0	10,97974	11,03031	0,05057	0,050406	0,33				
						Ēm2	0,41				
						Control	**PASSED**				

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** T_w °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
2,25	2,1	21,0	11,03923	11,07052	0,03129	0,031163	0,41	2	0,41	1	**PASSED**
2,25	1,9	20,0	11,07156	11,10218	0,03062	0,030467	0,50				
						Ēm2	0,45				
						Control	**PASSED**				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		T w	*V* i(i)	*V* i(f)	*V* i	*V* a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
0,065	2,2	20,0	11,10789	11,11829	0,01040	0,010439	-0,37	2	0,21	1,0	PASSED
0,065	1,9	21,0	11,11902	11,12909	0,01007	0,010091	-0,21				
0,065	2	21,0	11,12983	11,13989	0,01006	0,010082	-0,22				
						Ēm3	-0,27	PASSED			
							Standard deviation	MPE(a)/3 %			
						S (c)	0,09	0,67			
						PASSED					

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		T w	*V* i(i)	*V* i(f)	*V* i	*V* a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
0,040	1,2	21,0	11,14308	11,14804	0,00496	0,005002	-0,84	5	0,84	2,5	PASSED
0,040	1,1	20,0	11,14855	11,15371	0,00516	0,005265	-1,99				
0,040	1,2	20,0	11,15424	11,15923	0,00499	0,005098	-2,12				
						Ēm3	-1,65	PASSED			
							Standard deviation	MPE(a)/3 %			
						S (c)	0,71	1,67			
						PASSED					

	At start (9.05.2025)	At end (17.06.2025)	
Ambient temperature:	20,3	20,6	°C
Ambient relative humidity:	56,0	60,0	%rh
Ambient atmospheric pressure:	1003,0	1000,0	mbar
Time:	08:00	17:00	

	At start	At end
Date	9.05.2025	17.06.2025

Tarih *Date*	**Saat** *Time*	**Passed Hour** *Geçen Saat*	**Kontrol** *Observer*	**Giriş Basıncı** *Up stream* bar	**Çıkış Basıncı** *Down stream* bar	**Giriş Sıcaklığı** *Up stream* °C	**Gerçek Debi** *Actual* m³/h	**Sayaç Okuması** m³	**Flow cycle times** *s*				**Toplam Geçirilen** m³	**Toplam Cevrim Sayısı**
									Açılma *rise*	**Geçiş** *on*	**Kapanma** *fall*	**Durma** *off*		
9.05.2025	08:00	0	GÖKHAN SEYHAN	4,5	1,2	21	6,588	12,021	1,5	15	1,5	15	0,000	0
	17:00	9		4,5	1,2	21	6,545	38,796	1,5	15	1,5	15	26,775	982
10.05.2025	08:00	15		4,5	1,2	21	6,547	83,435	1,5	15	1,5	15	71,414	2618
	17:00	9		4,5	1,2	21	6,584	110,369	1,5	15	1,5	15	98,348	3600
11.05.2025	08:00	15		4,5	1,2	21	6,512	154,769	1,5	15	1,5	15	142,748	5236
	17:00	9		4,5	1,2	21	6,586	181,712	1,5	15	1,5	15	169,691	6218
12.05.2025	08:00	15		4,5	1,2	21	6,591	226,651	1,5	15	1,5	15	214,630	7855
	17:00	9		4,5	1,2	21	6,543	253,417	1,5	15	1,5	15	241,396	8836
13.05.2025	08:00	15		4,5	1,2	21	6,549	298,070	1,5	15	1,5	15	286,049	10473
	17:00	9		4,5	1,2	21	6,592	325,037	1,5	15	1,5	15	313,016	11455
14.05.2025	08:00	15		4,5	1,2	21	6,569	369,826	1,5	15	1,5	15	357,805	13091
	17:00	9		4,5	1,2	21	6,567	396,691	1,5	15	1,5	15	384,670	14073
15.05.2025	08:00	15		4,5	1,2	21	6,588	441,609	1,5	15	1,5	15	429,588	15709
	17:00	9		4,5	1,2	21	6,547	468,392	1,5	15	1,5	15	456,371	16691
16.05.2025	08:00	15		4,5	1,2	21	6,584	513,283	1,5	15	1,5	15	501,262	18327
	17:00	9		4,5	1,2	21	6,584	540,217	1,5	15	1,5	15	528,196	19309
17.05.2025	08:00	15		4,5	1,2	21	6,512	584,617	1,5	15	1,5	15	572,596	20945
	17:00	9		4,5	1,2	21	6,586	611,560	1,5	15	1,5	15	599,539	21927
18.05.2025	08:00	15		4,5	1,2	21	6,591	656,499	1,5	15	1,5	15	644,478	23564
	17:00	9		4,5	1,2	21	6,586	683,441	1,5	15	1,5	15	671,420	24545
19.05.2025	08:00	15		4,5	1,2	21	6,591	728,380	1,5	15	1,5	15	716,359	26182
	17:00	9		4,5	1,2	21	6,543	755,147	1,5	15	1,5	15	743,126	27164
20.05.2025	08:00	15		4,5	1,2	21	6,549	799,799	1,5	15	1,5	15	787,778	28800
	17:00	9		4,5	1,2	21	6,592	826,766	1,5	15	1,5	15	814,745	29782
21.05.2025	08:00	15		4,5	1,2	21	6,569	871,555	1,5	15	1,5	15	859,534	31418
	17:00	9		4,5	1,2	21	6,512	898,195	1,5	15	1,5	15	886,174	32400
22.05.2025	08:00	15		4,5	1,2	21	6,584	943,086	1,5	15	1,5	15	931,065	34036
	17:00	9		4,5	1,2	21	6,512	969,726	1,5	15	1,5	15	957,705	35018
23.05.2025	08:00	15		4,5	1,2	21	6,586	1014,631	1,5	15	1,5	15	1002,610	36655
	17:00	9		4,5	1,2	21	6,586	1041,573	1,5	15	1,5	15	1029,552	37636
24.05.2025	08:00	15		4,5	1,2	21	6,591	1086,512	1,5	15	1,5	15	1074,491	39273
	17:00	9		4,5	1,2	21	6,543	1113,279	1,5	15	1,5	15	1101,258	40255
25.05.2025	08:00	15		4,5	1,2	21	6,549	1157,931	1,5	15	1,5	15	1145,910	41891
	17:00	9		4,5	1,2	21	6,527	1184,632	1,5	15	1,5	15	1172,611	42873
26.05.2025	08:00	15		4,5	1,2	21	6,569	1229,421	1,5	15	1,5	15	1217,400	44509
	17:00	9		4,5	1,2	21	6,586	1256,364	1,5	15	1,5	15	1244,343	45491
27.05.2025	08:00	15		4,5	1,2	21	6,591	1301,302	1,5	15	1,5	15	1289,281	47127
	17:00	9		4,5	1,2	21	6,543	1328,069	1,5	15	1,5	15	1316,048	48109
28.05.2025	08:00	15		4,5	1,2	21	6,549	1372,721	1,5	15	1,5	15	1360,700	49745
	17:00	9		4,5	1,2	21	6,592	1399,689	1,5	15	1,5	15	1387,668	50727
29.05.2025	08:00	15		4,5	1,2	21	6,569	1444,477	1,5	15	1,5	15	1432,456	52364
	17:00	9		4,5	1,2	21	6,591	1471,441	1,5	15	1,5	15	1459,420	53345
30.05.2025	08:00	15		4,5	1,2	21	6,543	1516,052	1,5	15	1,5	15	1504,031	54982
	17:00	9		4,5	1,2	21	6,549	1542,843	1,5	15	1,5	15	1530,822	55964
31.05.2025	08:00	15		4,5	1,2	21	6,592	1587,789	1,5	15	1,5	15	1575,768	57600
	17:00	9		4,5	1,2	21	6,569	1614,662	1,5	15	1,5	15	1602,641	58582
1.06.2025	08:00	15		4,5	1,2	21	6,584	1659,553	1,5	15	1,5	15	1647,532	60218
	17:00	9		4,5	1,2	21	6,586	1686,496	1,5	15	1,5	15	1674,475	61200
2.06.2025	08:00	15		4,5	1,2	21	6,586	1731,400	1,5	15	1,5	15	1719,379	62836
	17:00	9		4,5	1,2	21	6,555	1758,216	1,5	15	1,5	15	1746,195	63818
3.06.2025	08:00	15		4,5	1,2	21	6,543	1802,827	1,5	15	1,5	15	1790,806	65455
	17:00	9		4,5	1,2	21	6,549	1829,619	1,5	15	1,5	15	1817,598	66436
4.06.2025	08:00	15		4,5	1,2	21	6,592	1874,564	1,5	15	1,5	15	1862,543	68073
	17:00	9		4,5	1,2	21	6,569	1901,437	1,5	15	1,5	15	1889,416	69055

Tarih *Date*	Saat *Time*	Passed Hour *Geçen Saat*	Kontrol *Observer*	Giriş Basıncı *Up stream* bar	Çıkış Basıncı *Down stream* bar	Giriş Sıcaklığı *Up stream* °C	Gerçek Debi *Actual* m³/h	Sayaç Okuması m³	Flow cycle times *s*				Toplam Geçirilen m³	Toplam Cevrim Sayısı
									Açılma *rise*	Geçiş *on*	Kapanma *fall*	Durma *off*		
5.06.2025	08:00	15	GÖKHAN SEYHAN	4,5	1,2	21	6,586	1946,342	1,5	15	1,5	15	1934,321	70691
	17:00	9		4,5	1,2	21	6,591	1973,305	1,5	15	1,5	15	1961,284	71673
6.06.2025	08:00	15		4,5	1,2	21	6,543	2017,916	1,5	15	1,5	15	2005,895	73309
	17:00	9		4,5	1,2	21	6,549	2044,708	1,5	15	1,5	15	2032,687	74291
7.06.2025	08:00	15		4,5	1,2	21	6,592	2089,653	1,5	15	1,5	15	2077,632	75927
	17:00	9		4,5	1,2	21	6,569	2116,526	1,5	15	1,5	15	2104,505	76909
8.06.2025	08:00	15		4,5	1,2	21	6,512	2160,926	1,5	15	1,5	15	2148,905	78545
	17:00	9		4,5	1,2	21	6,543	2187,693	1,5	15	1,5	15	2175,672	79527
9.06.2025	08:00	15		4,5	1,2	21	6,543	2232,305	1,5	15	1,5	15	2220,284	81164
	17:00	9		4,5	1,1	21	6,543	2259,071	1,5	15	1,5	15	2247,050	82145
10.06.2025	08:00	15		4,5	1,1	21	6,549	2303,724	1,5	15	1,5	15	2291,703	83782
	17:00	9		4,5	1,1	21	6,584	2330,658	1,5	15	1,5	15	2318,637	84764
11.06.2025	08:00	15		4,5	1,1	21	6,512	2375,058	1,5	15	1,5	15	2363,037	86400
	17:00	9		4,5	1,1	21	6,586	2402,001	1,5	15	1,5	15	2389,980	87382
12.06.2025	08:00	15		4,5	1,1	21	6,591	2446,940	1,5	15	1,5	15	2434,919	89018
	17:00	9		4,5	1,1	21	6,543	2473,706	1,5	15	1,5	15	2461,685	90000
13.06.2025	08:00	15		4,5	1,1	21	6,549	2518,359	1,5	15	1,5	15	2506,338	91636
	17:00	9		4,5	1,1	21	6,584	2545,293	1,5	15	1,5	15	2533,272	92618
14.06.2025	08:00	15		4,5	1,1	21	6,512	2589,693	1,5	15	1,5	15	2577,672	94255
	17:00	9		4,5	1,1	21	6,584	2616,628	1,5	15	1,5	15	2604,607	95236
15.06.2025	08:00	15		4,5	1,1	21	6,512	2661,028	1,5	15	1,5	15	2649,007	96873
	17:00	9		4,5	1,1	21	6,586	2687,971	1,5	15	1,5	15	2675,950	97855
16.06.2025	08:00	15		4,5	1,1	21	6,591	2732,909	1,5	15	1,5	15	2720,888	99491
	17:00	9		4,5	1,1	21	6,543	2759,676	1,5	15	1,5	15	2747,655	100473
17.06.2025	08:00	15		4,5	1,1	21	6,549	2804,328	1,5	15	1,5	15	2792,307	102109
	17:00	9		4,5	1,1	21	6,574	2831,222	1,5	15	1,5	15	2819,201	103091
													Test Sonundaki Toplam *Totals at end of test*	2819,20	**103091**
													Theoretical total *Teorik Toplam*	2800,00	**PASSED**

Errors (of indication) measured after the discontinuous flow test

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp °C	Initial reading *Vi*(i) m³	Final reading *Vi*(f) m³	Indicated volume *Vi* m³	Actual volume *Va* m³	Meter error *Em* %	MPE (a) %	Control	Curve variation error (b) *Ē*m(B) - *Ē*m(A) %	MPE (of curve variation error) %	Control
7,5	4,4	21,0	2831,82006	2831,91972	0,09966	0,101081	-1,41	2,5	PASSED	-0,67	1,5	PASSED
7,5	4,5	21,0	2831,92787	2832,02808	0,10021	0,101599	-1,37	2,5	PASSED			
						Ēm (B)	-1,39					
						Ēm (A)	**-0,72**					

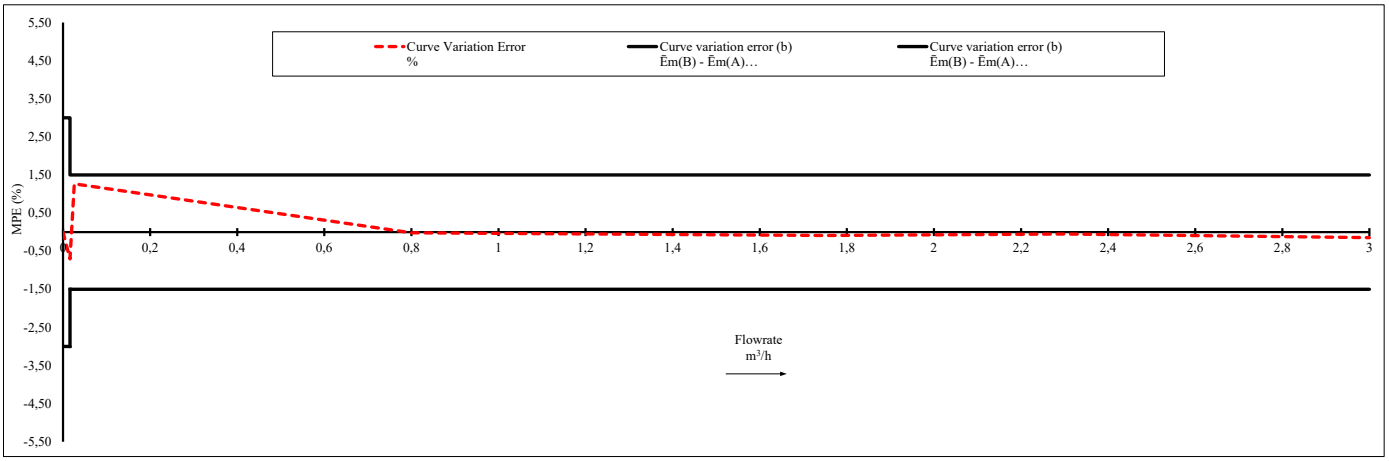
Actual flowrate m³/h	Working pressure *p* w Bar	Working temp °C	Initial reading *Vi*(i) m³	Final reading *Vi*(f) m³	Indicated volume *Vi* m³	Actual volume *Va* m³	Meter error *Em* %	MPE (a) %	Control	Curve variation error (b) *Ē*m(B) - *Ē*m(A) %	MPE (of curve variation error) %	Control
6	4	21,0	2832,04316	2832,12256	0,07940	0,080394	-1,24	2,5	PASSED	-0,49	1,5	PASSED
6	4	20,0	2832,12785	2832,20647	0,07862	0,079555	-1,18	2,5	PASSED			
6	4	20,0	2832,21073	2832,2894	0,07867	0,079581	-1,14	2,5	PASSED			
						Ēm (B)	-1,19					
						Ēm (A)	**-0,70**					

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp °C	Initial reading *Vi*(i) m³	Final reading *Vi*(f) m³	Indicated volume *Vi* m³	Actual volume *Va* m³	Meter error *Em* %	MPE (a) %	Control	Curve variation error (b) *Ē*m(B) - *Ē*m(A) %	MPE (of curve variation error) %	Control
4,5	2,7	20,0	2832,30307	2832,35352	0,05045	0,050791	-0,67	2,5	PASSED	-0,97	1,5	PASSED
4,5	2,7	20,0	2832,35451	2832,40453	0,05002	0,050248	-0,45	2,5	PASSED			
						Ēm (B)	-0,56					
						Ēm (A)	**0,41**					

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp °C	Initial reading *Vi*(i) m³	Final reading *Vi*(f) m³	Indicated volume *Vi* m³	Actual volume *Va* m³	Meter error *Em* %	MPE (a) %	Control	Curve variation error (b) *Ē*m(B) - *Ē*m(A) %	MPE (of curve variation error) %	Control
2,25	2,1	20,0	2832,41301	2832,44406	0,03105	0,031103	-0,17	2,5	PASSED	-0,73	1,5	PASSED
2,25	2,1	20,0	2832,44512	2832,47638	0,03126	0,031377	-0,37	2,5	PASSED			
						Ēm (B)	-0,27					
						Ēm (A)	**0,45**					

Actual flowrate m^3/h	Working pressure p w Bar	Working temp °C	Initial reading Vi(i) m^3	Final reading Vi(f) m^3	Indicated volume Vi m^3	Actual volume Va m^3	Meter error E m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A) %	MPE (of curve variation error) %	Control
0,065	2,1	21,0	2832,48214	2832,50301	0,02087	0,020835	0,17	2,5	PASSED	0,44	1,5	PASSED
0,065	2,1	20,0	2832,50375	2832,52391	0,02016	0,020121	0,19	2,5	PASSED			
0,065	2,1	20,0	2832,52465	2832,5456	0,02095	0,020915	0,17	2,5	PASSED			
						Ēm (B)	0,18					
						Ēm (A)	**-0,27**					

Actual flowrate m^3/h	Working pressure p w Bar	Working temp °C	Initial reading Vi(i) m^3	Final reading Vi(f) m^3	Indicated volume Vi m^3	Actual volume Va m^3	Meter error E m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A) %	MPE (of curve variation error) %	Control
0,04	1,1	20,0	2832,54867	2832,55861	0,00994	0,010235	-2,88	6	PASSED	-1,15	3	PASSED
0,04	1,1	21,0	2832,55915	2832,56883	0,00968	0,010006	-3,26	6	PASSED			
0,04	1,1	21,0	2832,56936	2832,57916	0,00980	0,010026	-2,25	6	PASSED			
						Ēm (B)	-2,80					
						Ēm (A)	**-1,65**					



-Before Tests

Application No	MID-02-25-3
Model	PAK-40K
Date	08.05.2025
Observer	GÖKHAN SEYHAN

	At start	**At end**	
Ambient temperature:	20,2	20,3	°C
Ambient relative humidity:	50	51	%rh
Ambient atmospheric pressure:	997,0	997,0	mbar
Time:	20:00	21:00	

Test method:	**Gravimetric**
Volume measures/weighbridge used — m3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Length of straight pipe before meter (or manifold) — mm:	110
Length of straight pipe after meter (or manifold) — mm:	165
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN40
Describe flow straightener installation if used:	-

Q_1:	0,10	m^3/h
Q_2:	0,16	m^3/h
Q_3:	16,00	m^3/h
Q_4:	20,00	m^3/h

Meter serial No.:	40-1
Orientation (V, H, other):	H (0°)
Flow direction (see Requirement 3):	Forward
Location of indicating device (see Requirement 4):	Top

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** *T*w °C	**Initial reading** *V*i(i) m^3	**Final reading** *V*i(f) m^3	**Indicated volume** *V*i m^3	**Actual volume** *V*a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
19,5	4,3	22,0	11,61414	11,71395	0,09981	0,101081	-1,26	2	0,81	1	**PASSED**
19,5	4,4	22,0	11,72210	11,82288	0,10078	0,101599	-0,81				
						Ēm2	-1,03				
						Control	**PASSED**				

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** *T*w °C	**Initial reading** *V*i(i) m^3	**Final reading** *V*i(f) m^3	**Indicated volume** *V*i m^3	**Actual volume** *V*a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
15	3,7	21,0	11,83796	11,91769	0,07973	0,080394	-0,83				
15	3,7	21,0	11,92298	12,00196	0,07898	0,079555	-0,72	2	0,64	1,0	**PASSED**
15	3,7	21,0	12,00622	12,08529	0,07907	0,079581	-0,64				
						Ēm3	-0,73	**PASSED**			
							Standard deviation %	**MPE(a)/3 %**			
						S (c)	0,09	0,67			
						PASSED					

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** *T*w °C	**Initial reading** *V*i(i) m^3	**Final reading** *V*i(f) m^3	**Indicated volume** *V*i m^3	**Actual volume** *V*a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
11	2,7	21,0	12,09896	12,15001	0,05105	0,050791	0,51	2	0,51	1	**PASSED**
11	2,8	20,0	12,15100	12,20151	0,05051	0,050248	0,52				
						Ēm2	0,52				
						Control	**PASSED**				

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** *T*w °C	**Initial reading** *V*i(i) m^3	**Final reading** *V*i(f) m^3	**Indicated volume** *V*i m^3	**Actual volume** *V*a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
5,5	2,1	21,0	12,20999	12,24125	0,03126	0,031103	0,50	2	0,49	1	**PASSED**
5,5	1,9	20,0	12,24231	12,27384	0,03153	0,031377	0,49				
						Ēm2	0,50				
						Control	**PASSED**				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		T w	*V* i(i)	*V* i(f)	*V* i	*V* a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
0,175	2,2	20,0	12,27960	12,30063	0,02103	0,020835	0,94	2	0,79	1,0	PASSED
0,175	1,9	21,0	12,30137	12,32165	0,02028	0,020121	0,79				
0,175	2	21,0	12,32239	12,34356	0,02117	0,020915	1,22				
						Êm3	0,98	PASSED			
							Standard deviation %	MPE(a)/3 %			
						S (c)	0,22	0,67			
						PASSED					

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		T w	*V* i(i)	*V* i(f)	*V* i	*V* a	Em		Minimum Absolute Value	Half of MPE	Control
m^3/h	Bar	°C	m^3	m^3	m^3	m^3	%	%			
0,105	1,2	21,0	12,34663	12,35670	0,01007	0,010235	-1,61	5	1,61	2,5	PASSED
0,105	1,1	20,0	12,35724	12,36701	0,00977	0,010036	-2,65				
0,105	1,2	20,0	12,36754	12,37750	0,00996	0,010126	-1,64				
						Êm3	-1,97	PASSED			
							Standard deviation %	MPE(a)/3 %			
						S (c)	0,59	1,67			
						PASSED					

MI001 MODULE B-F TEST REPORT

	At start (45786)	At end (45825)	
Ambient temperature:	20,4	20,6	°C
Ambient relative humidity:	56,0	61,0	%rh
Ambient atmospheric pressure:	1001,0	1000,0	mbar
Time:	18:30	19:45	

	At start	At end
Date	9.05.2025	17.06.2025

Tarih *Date*	**Saat** *Time*	**Passed Hour** *Geçen Saat*	**Kontrol** *Observer*	**Giriş Basıncı** *Up stream* bar	**Çıkış Basıncı** *Down stream* bar	**Giriş Sıcaklığı** *Up stream* °C	**Gerçek Debi** *Actual* m³/h	**Sayaç Okuması** m³	**Flow cycle times** *s*				**Toplam Geçirilen** m³	**Toplam Cevrim Sayısı**
									Açılma *rise*	**Geçiş** *on*	**Kapanma** *fall*	**Durma** *off*		
9.05.2025	08:00	0	GÖKHAN SEYHAN	4,5	1,2	21	16,585	13,622	1,5	15	1,5	15	0,000	0
	17:00	9		4,5	1,2	21	16,557	81,355	1,5	15	1,5	15	67,733	982
10.05.2025	08:00	15		4,5	1,2	21	16,585	194,435	1,5	15	1,5	15	180,813	2618
	17:00	9		4,5	1,2	21	16,587	262,291	1,5	15	1,5	15	248,669	3600
11.05.2025	08:00	15		4,5	1,2	21	16,564	375,227	1,5	15	1,5	15	361,605	5236
	17:00	9		4,5	1,2	21	16,547	442,919	1,5	15	1,5	15	429,297	6218
12.05.2025	08:00	15		4,5	1,2	21	16,555	555,794	1,5	15	1,5	15	542,172	7855
	17:00	9		4,5	1,2	21	16,536	623,442	1,5	15	1,5	15	609,820	8836
13.05.2025	08:00	15		4,5	1,2	21	16,578	736,473	1,5	15	1,5	15	722,851	10473
	17:00	9		4,5	1,2	21	16,505	803,994	1,5	15	1,5	15	790,372	11455
14.05.2025	08:00	15		4,5	1,2	21	16,577	917,019	1,5	15	1,5	15	903,397	13091
	17:00	9		4,5	1,2	21	16,558	984,756	1,5	15	1,5	15	971,134	14073
15.05.2025	08:00	15		4,5	1,2	21	16,525	1097,427	1,5	15	1,5	15	1083,805	15709
	17:00	9		4,5	1,2	21	16,545	1165,111	1,5	15	1,5	15	1151,489	16691
16.05.2025	08:00	15		4,5	1,2	21	16,584	1278,183	1,5	15	1,5	15	1264,561	18327
	17:00	9		4,5	1,2	21	16,569	1345,966	1,5	15	1,5	15	1332,344	19309
17.05.2025	08:00	15		4,5	1,2	21	16,557	1458,854	1,5	15	1,5	15	1445,232	20945
	17:00	9		4,5	1,2	21	16,585	1526,702	1,5	15	1,5	15	1513,080	21927
18.05.2025	08:00	15		4,5	1,2	21	16,587	1639,795	1,5	15	1,5	15	1626,173	23564
	17:00	9		4,5	1,2	21	16,564	1707,557	1,5	15	1,5	15	1693,935	24545
19.05.2025	08:00	15		4,5	1,2	21	16,547	1820,377	1,5	15	1,5	15	1806,755	26182
	17:00	9		4,5	1,2	21	16,555	1888,102	1,5	15	1,5	15	1874,480	27164
20.05.2025	08:00	15		4,5	1,2	21	16,536	2000,848	1,5	15	1,5	15	1987,226	28800
	17:00	9		4,5	1,2	21	16,578	2068,667	1,5	15	1,5	15	2055,045	29782
21.05.2025	08:00	15		4,5	1,2	21	16,505	2181,201	1,5	15	1,5	15	2167,579	31418
	17:00	9		4,5	1,2	21	16,587	2249,057	1,5	15	1,5	15	2235,435	32400
22.05.2025	08:00	15		4,5	1,2	21	16,564	2361,993	1,5	15	1,5	15	2348,371	34036
	17:00	9		4,5	1,2	21	16,547	2429,686	1,5	15	1,5	15	2416,064	35018
23.05.2025	08:00	15		4,5	1,2	21	16,555	2542,561	1,5	15	1,5	15	2528,939	36655
	17:00	9		4,5	1,2	21	16,536	2610,208	1,5	15	1,5	15	2596,586	37636
24.05.2025	08:00	15		4,5	1,2	21	16,587	2723,301	1,5	15	1,5	15	2709,679	39273
	17:00	9		4,5	1,2	21	16,564	2791,063	1,5	15	1,5	15	2777,441	40255
25.05.2025	08:00	15		4,5	1,2	21	16,547	2903,883	1,5	15	1,5	15	2890,261	41891
	17:00	9		4,5	1,2	21	16,555	2971,608	1,5	15	1,5	15	2957,986	42873
26.05.2025	08:00	15		4,5	1,2	21	16,536	3084,354	1,5	15	1,5	15	3070,732	44509
	17:00	9		4,5	1,2	21	16,587	3152,210	1,5	15	1,5	15	3138,588	45491
27.05.2025	08:00	15		4,5	1,2	21	16,564	3265,146	1,5	15	1,5	15	3251,524	47127
	17:00	9		4,5	1,2	21	16,547	3332,838	1,5	15	1,5	15	3319,216	48109
28.05.2025	08:00	15		4,5	1,2	21	16,555	3445,713	1,5	15	1,5	15	3432,091	49745
	17:00	9		4,5	1,2	21	16,536	3513,361	1,5	15	1,5	15	3499,739	50727
29.05.2025	08:00	15		4,5	1,2	21	16,587	3626,454	1,5	15	1,5	15	3612,832	52364
	17:00	9		4,5	1,2	21	16,564	3694,216	1,5	15	1,5	15	3680,594	53345
30.05.2025	08:00	15		4,5	1,2	21	16,547	3807,036	1,5	15	1,5	15	3793,414	54982
	17:00	9		4,5	1,2	21	16,555	3874,761	1,5	15	1,5	15	3861,139	55964
31.05.2025	08:00	15		4,5	1,2	21	16,536	3987,507	1,5	15	1,5	15	3973,885	57600
	17:00	9		4,5	1,2	21	16,587	4055,362	1,5	15	1,5	15	4041,740	58582
1.06.2025	08:00	15		4,5	1,2	21	16,564	4168,299	1,5	15	1,5	15	4154,677	60218
	17:00	9		4,5	1,2	21	16,547	4235,991	1,5	15	1,5	15	4222,369	61200
2.06.2025	08:00	15		4,5	1,2	21	16,555	4348,866	1,5	15	1,5	15	4335,244	62836
	17:00	9		4,5	1,2	21	16,536	4416,513	1,5	15	1,5	15	4402,891	63818
3.06.2025	08:00	15		4,5	1,2	21	16,587	4529,607	1,5	15	1,5	15	4515,985	65455
	17:00	9		4,5	1,2	21	16,577	4597,422	1,5	15	1,5	15	4583,800	66436

Tarih *Date*	Saat *Time*	Passed Hour *Geçen Saat*	Kontrol *Observer*	Giriş Basıncı *Up stream* bar	Çıkış Basıncı *Down stream* bar	Giriş Sıcaklığı *Up stream* °C	Gerçek Debi *Actual* m³/h	Sayaç Okuması m³	Flow cycle times *s* Açılma *rise*	Geçiş *on*	Kapanma *fall*	Durma *off*	Toplam Geçirilen m³	Toplam Cevrim Savısı
4.06.2025	08:00	15	GÖKHAN SEYHAN	4,5	1,2	21	16,585	4710,501	1,5	15	1,5	15	4696,879	68073
	17:00	9		4,5	1,2	21	16,857	4779,462	1,5	15	1,5	15	4765,840	69055
5.06.2025	08:00	15		4,5	1,2	21	16,585	4892,541	1,5	15	1,5	15	4878,919	70691
	17:00	9		4,5	1,2	21	16,587	4960,397	1,5	15	1,5	15	4946,775	71673
6.06.2025	08:00	15		4,5	1,2	21	16,547	5073,217	1,5	15	1,5	15	5059,595	73309
	17:00	9		4,5	1,2	21	16,555	5140,942	1,5	15	1,5	15	5127,320	74291
7.06.2025	08:00	15		4,5	1,2	21	16,536	5253,688	1,5	15	1,5	15	5240,066	75927
	17:00	9		4,5	1,2	21	16,578	5321,507	1,5	15	1,5	15	5307,885	76909
8.06.2025	08:00	15		4,5	1,2	21	16,505	5434,041	1,5	15	1,5	15	5420,419	78545
	17:00	9		4,5	1,2	21	16,877	5503,083	1,5	15	1,5	15	5489,461	79527
9.06.2025	08:00	15		4,5	1,2	21	16,000	5612,174	1,5	15	1,5	15	5598,552	81164
	17:00	9		4,5	1,1	21	16,000	5677,629	1,5	15	1,5	15	5664,007	82145
10.06.2025	08:00	15		4,5	1,1	21	16,857	5792,563	1,5	15	1,5	15	5778,941	83782
	17:00	9		4,5	1,1	21	16,585	5860,411	1,5	15	1,5	15	5846,789	84764
11.06.2025	08:00	15		4,5	1,1	21	16,587	5973,504	1,5	15	1,5	15	5959,882	86400
	17:00	9		4,5	1,1	21	16,564	6041,266	1,5	15	1,5	15	6027,644	87382
12.06.2025	08:00	15		4,5	1,1	21	16,547	6154,086	1,5	15	1,5	15	6140,464	89018
	17:00	9		4,5	1,1	21	16,555	6221,811	1,5	15	1,5	15	6208,189	90000
13.06.2025	08:00	15		4,5	1,1	21	16,557	6334,700	1,5	15	1,5	15	6321,078	91636
	17:00	9		4,5	1,1	21	16,585	6402,547	1,5	15	1,5	15	6388,925	92618
14.06.2025	08:00	15		4,5	1,1	21	16,587	6515,641	1,5	15	1,5	15	6502,019	94255
	17:00	9		4,5	1,1	21	16,564	6583,402	1,5	15	1,5	15	6569,780	95236
15.06.2025	08:00	15		4,5	1,1	21	16,547	6696,223	1,5	15	1,5	15	6682,601	96873
	17:00	9		4,5	1,1	21	16,555	6763,948	1,5	15	1,5	15	6750,326	97855
16.06.2025	08:00	15		4,5	1,1	21	16,536	6876,693	1,5	15	1,5	15	6863,071	99491
	17:00	9		4,5	1,1	21	16,578	6944,512	1,5	15	1,5	15	6930,890	100473
17.06.2025	08:00	15		4,5	1,1	21	16,505	7057,047	1,5	15	1,5	15	7043,425	102109
	17:00	9		4,5	1,1	21	16,577	7124,862	1,5	15	1,5	15	7111,240	103091
										Test Sonundaki Toplam *Totals at end of test*			7111,24	103091
										Theoretical total *Teorik Toplam*			7111,11	PASSED

Errors (of indication) measured after the discontinuous flow test

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp °C	Initial reading *V*i(i) m³	Final reading *V*i(f) m³	Indicated volume *V*i m³	Actual volume *V*a m³	Meter error *E*m %	MPE (a) %	Control	Curve variation error (b) *Ē*m(B) - *Ē*m(A) %	MPE (of curve variation error) %	Control
19,5	4,4	21,0	7126,92579	7127,12517	0,19938	0,201309	-0,96	2,5	PASSED	0,11	1,5	PASSED
19,5	4,2	21,0	7127,13372	7127,33367	0,19995	0,201754	-0,89	2,5	PASSED			
						Ēm (B)	-0,93					
						Ēm (A)	**-1,03**					

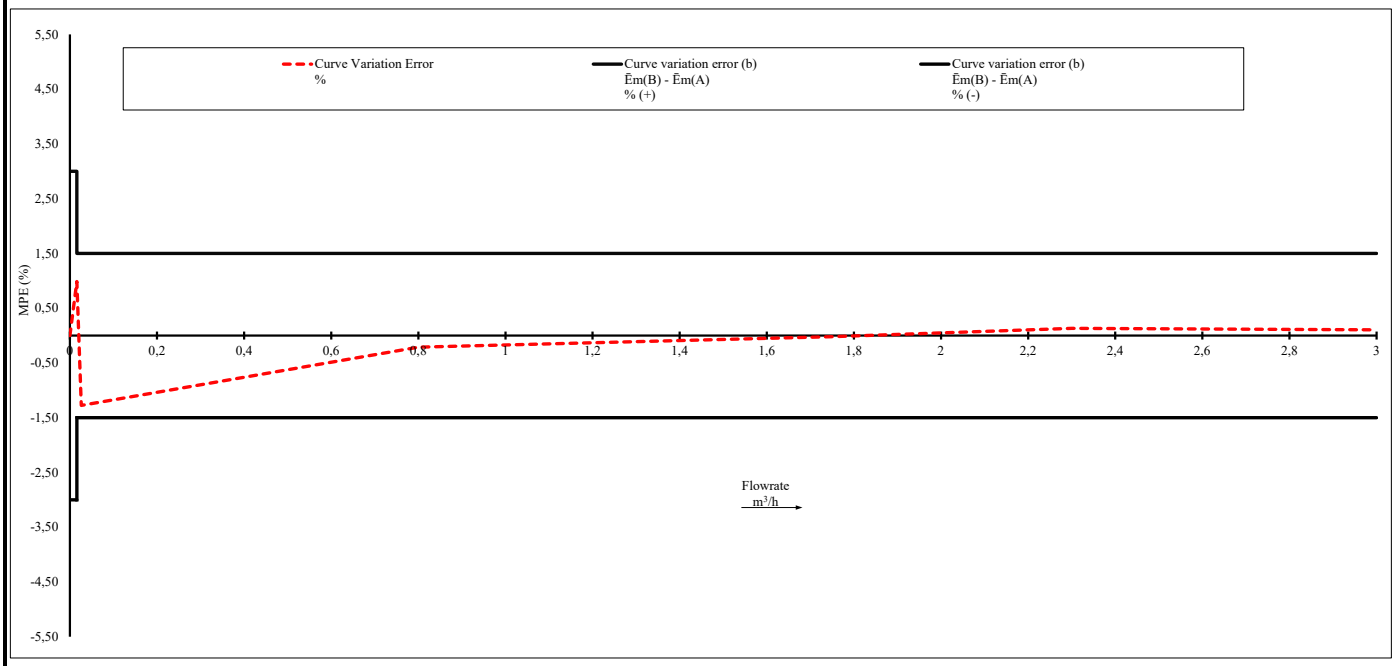
Actual flowrate m³/h	Working pressure *p* w Bar	Working temp °C	Initial reading *V*i(i) m³	Final reading *V*i(f) m³	Indicated volume *V*i m³	Actual volume *V*a m³	Meter error *E*m %	MPE (a) %	Control	Curve variation error (b) *Ē*m(B) - *Ē*m(A) %	MPE (of curve variation error) %	Control
15	3,9	21,0	7127,34888	7127,49924	0,15036	0,151112	-0,50	2,5	PASSED	0,13	1,5	PASSED
15	3,6	20,0	7127,50484	7127,65619	0,15135	0,152311	-0,63	2,5	PASSED			
15	3,5	20,0	7127,66077	7127,81145	0,15068	0,151695	-0,67	2,5	PASSED			
						Ēm (B)	-0,60					
						Ēm (A)	**-0,73**					

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp °C	Initial reading *V*i(i) m³	Final reading *V*i(f) m³	Indicated volume *V*i m³	Actual volume *V*a m³	Meter error *E*m %	MPE (a) %	Control	Curve variation error (b) *Ē*m(B) - *Ē*m(A) %	MPE (of curve variation error) %	Control
11	2,7	20,0	7127,82449	7127,92679	0,10230	0,101685	0,60	2,5	PASSED	-0,02	1,5	PASSED
11	2,7	20,0	7127,92785	7128,02974	0,10189	0,101499	0,39	2,5	PASSED			
						Ēm (B)	0,50					
						Ēm (A)	**0,52**					

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp °C	Initial reading *V*i(i) m³	Final reading *V*i(f) m³	Indicated volume *V*i m³	Actual volume *V*a m³	Meter error *E*m %	MPE (a) %	Control	Curve variation error (b) *Ē*m(B) - *Ē*m(A) %	MPE (of curve variation error) %	Control
5,5	2,1	20,0	7128,03854	7128,11941	0,08087	0,080802	0,08	2,5	PASSED	-0,21	1,5	PASSED
5,5	2,1	20,0	7128,12052	7128,20181	0,08129	0,080899	0,48	2,5	PASSED			
						Ēm (B)	0,28					
						Ēm (A)	**0,50**					

Actual flowrate m^3/h	Working pressure p w Bar	Working temp °C	Initial reading $Vi(i)$ m^3	Final reading $Vi(f)$ m^3	Indicated volume Vi m^3	Actual volume Va m^3	Meter error Em %	MPE (a) %	Control	Curve variation error (b) $\bar{E}m(B) - \bar{E}m(A)$ %	MPE (of curve variation error) %	Control
0,175	2,1	21,0	7128,2078	7128,2237	0,01590	0,015936	-0,23	2,5	PASSED	-1,28	1,5	PASSED
0,175	2,1	20,0	7128,22441	7128,23937	0,01496	0,015008	-0,32	2,5	PASSED			
0,175	2	20,0	7128,24008	7128,25585	0,01577	0,015823	-0,33	2,5	PASSED			
						Ēm (B)	-0,29					
						Ēm (A)	**0,98**					

Actual flowrate m^3/h	Working pressure p w Bar	Working temp °C	Initial reading $Vi(i)$ m^3	Final reading $Vi(f)$ m^3	Indicated volume Vi m^3	Actual volume Va m^3	Meter error Em %	MPE (a) %	Control	Curve variation error (b) $\bar{E}m(B) - \bar{E}m(A)$ %	MPE (of curve variation error) %	Control
0,105	1,1	20,0	7128,25896	7128,26397	0,00501	0,005026	-0,32	6	PASSED	0,99	3	PASSED
0,105	1,1	21,0	7128,26448	7128,26967	0,00519	0,005212	-0,42	6	PASSED			
0,105	1,1	21,0	7128,2702	7128,27522	0,00502	0,005133	-2,20	6	PASSED			
						Ēm (B)	-0,98					
						Ēm (A)	**-1,97**					



-Before Tests

Application No	MID-02-25-3
Model	PAK-40KS-P
Date	08.05.2025
Observer	GÖKHAN SEYHAN

	At start	**At end**	
Ambient temperature:	20,1	20,2	°C
Ambient relative humidity:	50	51	%rh
Ambient atmospheric pressure:	997,0	997,0	mbar
Time:	21:00	22:00	

Test method:	**Gravimetric**	
Volume measures/weighbridge used — m3 or kg:	m^3 or L	
Water conductivity (electromagnetic induction meters only) — S/cm:	-	
Length of straight pipe before meter (or manifold) — mm:	110	
Length of straight pipe after meter (or manifold) — mm:	165	
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN40	
Describe flow straightener installation if used:	-	

Q_1:	0,10	m^3/h
Q_2:	0,16	m^3/h
Q_3:	16,00	m^3/h
Q_4:	20,00	m^3/h

Meter serial No.:	40-2
Orientation (V, H, other):	H (0°)
Flow direction (see Requirement 3):	Forward
Location of indicating device (see Requirement 4):	Top

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** T_w °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
19,5	4,3	22,0	17,85842	18,05796	0,19954	0,201369	-0,91	2	0,65	1	**PASSED**
19,5	4,4	22,0	18,06651	18,26715	0,20064	0,201954	-0,65				
						Ēm2	-0,78				
						Control	**PASSED**				

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** T_w °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
15	3,7	21,0	18,28236	18,43211	0,14975	0,151112	-0,90	2	0,62	1,0	**PASSED**
15	3,7	21,0	18,43771	18,58908	0,15137	0,152311	-0,62				
15	3,7	21,0	18,59366	18,74427	0,15061	0,151695	-0,72				
						Ēm3	-0,74	**PASSED**			
							Standard deviation %	**MPE(a)/3 %**			
						S (c)	0,14	0,67			
						PASSED					

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** T_w °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
11	2,7	21,0	18,75731	18,85951	0,10220	0,101885	0,31	2	0,31	1	**PASSED**
11	2,8	20,0	18,86057	18,96259	0,10202	0,101487	0,53				
						Ēm2	0,42				
						Control	**PASSED**				

Actual flowrate m^3/h	**Initial supply pressure** Bar	**Water temp.** T_w °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** Em %	**MPE (a)** %	**If the relative errors are all the same sign, control of this part**		
									Minimum Absolute Value	**Half of MPE**	**Control**
5,5	2,1	21,0	18,97139	19,05243	0,08104	0,080568	0,59	2	0,48	1	**PASSED**
5,5	1,9	20,0	19,05354	19,13477	0,08123	0,080840	0,48				
						Ēm2	0,53				
						Control	**PASSED**				

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		T w	*V* i(i)	*V* i(f)	*V* i	*V* a	Em		Minimum Absolute Value	Half of MPE	Control
m³/h	Bar	°C	m³	m³	m³	m³	%	%			
0,175	2,2	20,0	19,14076	19,15666	0,01590	0,015936	-0,23	2	0,23	1,0	PASSED
0,175	1,9	21,0	19,15737	19,17234	0,01497	0,015008	-0,25				
0,175	2	21,0	19,17305	19,18881	0,01576	0,015823	-0,40				
						Êm3	-0,29	PASSED			
							Standard deviation %	MPE(a)/3 %			
						S (c)	0,09	0,67			
						PASSED					

Actual flowrate	Initial supply pressure	Water temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE (a)	If the relative errors are all the same sign, control of this part		
		T w	*V* i(i)	*V* i(f)	*V* i	*V* a	Em		Minimum Absolute Value	Half of MPE	Control
m³/h	Bar	°C	m³	m³	m³	m³	%	%			
0,105	1,2	21,0	19,19192	19,19693	0,00501	0,005026	-0,32	5	0,32	2,5	PASSED
0,105	1,1	20,0	19,19744	19,20264	0,00520	0,005330	-2,44				
0,105	1,2	20,0	19,20317	19,20820	0,00503	0,005163	-2,58				
						Êm3	-1,78	PASSED			
							Standard deviation %	MPE(a)/3 %			
						S (c)	1,27	1,67			
						PASSED					

MI001 MODULE B-F TEST REPORT

	At start (9.05.2025)	At end (17.06.2025)	
Ambient temperature:	20,4	20,6	°C
Ambient relative humidity:	56,0	61,0	%rh
Ambient atmospheric pressure:	1001,0	1000,0	mbar
Time:	21:00	22:00	

	At start	At end
Date	9.05.2025	17.06.2025

Tarih *Date*	**Saat** *Time*	**Passed Hour** *Geçen Saat*	**Kontrol** *Observer*	**Giriş Basıncı** *Up stream* bar	**Çıkış Basıncı** *Down stream* bar	**Giriş Sıcaklığı** *Up stream* °C	**Gerçek Debi** *Actual* m³/h	**Sayaç Okuması** m³	**Flow cycle times** *s*				**Toplam Geçirilen** m³	**Toplam Cevrim Sayısı**
									Açılma *rise*	**Geçiş** *on*	**Kapanma** *fall*	**Durma** *off*		
9.05.2025	08:00	0	GÖKHAN SEYHAN	4,5	1,2	21	16,422	20,112	1,5	15	1,5	15	0,000	0
	17:00	9		4,5	1,2	21	16,815	88,901	1,5	15	1,5	15	68,789	982
10.05.2025	08:00	15		4,5	1,2	21	16,487	201,312	1,5	15	1,5	15	181,200	2618
	17:00	9		4,5	1,2	21	16,652	269,434	1,5	15	1,5	15	249,322	3600
11.05.2025	08:00	15		4,5	1,2	21	16,812	384,061	1,5	15	1,5	15	363,949	5236
	17:00	9		4,5	1,2	21	16,815	452,850	1,5	15	1,5	15	432,738	6218
12.05.2025	08:00	15		4,5	1,2	21	16,487	565,261	1,5	15	1,5	15	545,149	7855
	17:00	9		4,5	1,2	21	16,652	633,383	1,5	15	1,5	15	613,271	8836
13.05.2025	08:00	15		4,5	1,2	21	16,468	745,665	1,5	15	1,5	15	725,553	10473
	17:00	9		4,5	1,2	21	16,458	812,993	1,5	15	1,5	15	792,881	11455
14.05.2025	08:00	15		4,5	1,2	21	16,455	925,186	1,5	15	1,5	15	905,074	13091
	17:00	9		4,5	1,2	21	16,499	992,682	1,5	15	1,5	15	972,570	14073
15.05.2025	08:00	15		4,5	1,2	21	16,458	1104,896	1,5	15	1,5	15	1084,784	15709
	17:00	9		4,5	1,2	21	16,812	1173,672	1,5	15	1,5	15	1153,560	16691
16.05.2025	08:00	15		4,5	1,2	21	16,815	1288,320	1,5	15	1,5	15	1268,208	18327
	17:00	9		4,5	1,2	21	16,487	1355,767	1,5	15	1,5	15	1335,655	19309
17.05.2025	08:00	15		4,5	1,2	21	16,652	1469,303	1,5	15	1,5	15	1449,191	20945
	17:00	9		4,5	1,2	21	16,812	1538,079	1,5	15	1,5	15	1517,967	21927
18.05.2025	08:00	15		4,5	1,2	21	16,815	1652,727	1,5	15	1,5	15	1632,615	23564
	17:00	9		4,5	1,2	21	16,487	1720,174	1,5	15	1,5	15	1700,062	24545
19.05.2025	08:00	15		4,5	1,2	21	16,652	1833,710	1,5	15	1,5	15	1813,598	26182
	17:00	9		4,5	1,2	21	16,468	1901,079	1,5	15	1,5	15	1880,967	27164
20.05.2025	08:00	15		4,5	1,2	21	16,458	2013,293	1,5	15	1,5	15	1993,181	28800
	17:00	9		4,5	1,2	21	16,812	2082,069	1,5	15	1,5	15	2061,957	29782
21.05.2025	08:00	15		4,5	1,2	21	16,652	2195,606	1,5	15	1,5	15	2175,494	31418
	17:00	9		4,5	1,2	21	16,405	2262,717	1,5	15	1,5	15	2242,605	32400
22.05.2025	08:00	15		4,5	1,2	21	16,812	2377,344	1,5	15	1,5	15	2357,232	34036
	17:00	9		4,5	1,2	21	16,815	2446,133	1,5	15	1,5	15	2426,021	35018
23.05.2025	08:00	15		4,5	1,2	21	16,487	2558,544	1,5	15	1,5	15	2538,432	36655
	17:00	9		4,5	1,2	21	16,652	2626,666	1,5	15	1,5	15	2606,554	37636
24.05.2025	08:00	15		4,5	1,2	21	16,812	2741,293	1,5	15	1,5	15	2721,181	39273
	17:00	9		4,5	1,2	21	16,815	2810,082	1,5	15	1,5	15	2789,970	40255
25.05.2025	08:00	15		4,5	1,2	21	16,487	2922,493	1,5	15	1,5	15	2902,381	41891
	17:00	9		4,5	1,2	21	16,652	2990,615	1,5	15	1,5	15	2970,503	42873
26.05.2025	08:00	15		4,5	1,2	21	16,468	3102,897	1,5	15	1,5	15	3082,785	44509
	17:00	9		4,5	1,2	21	16,458	3170,225	1,5	15	1,5	15	3150,113	45491
27.05.2025	08:00	15		4,5	1,2	21	16,812	3284,852	1,5	15	1,5	15	3264,740	47127
	17:00	9		4,5	1,2	21	16,815	3353,641	1,5	15	1,5	15	3333,529	48109
28.05.2025	08:00	15		4,5	1,2	21	16,487	3466,052	1,5	15	1,5	15	3445,940	49745
	17:00	9		4,5	1,2	21	16,499	3533,548	1,5	15	1,5	15	3513,436	50727
29.05.2025	08:00	15		4,5	1,2	21	16,812	3648,176	1,5	15	1,5	15	3628,064	52364
	17:00	9		4,5	1,2	21	16,812	3716,952	1,5	15	1,5	15	3696,840	53345
30.05.2025	08:00	15		4,5	1,2	21	16,815	3831,600	1,5	15	1,5	15	3811,488	54982
	17:00	9		4,5	1,2	21	16,652	3899,722	1,5	15	1,5	15	3879,610	55964
31.05.2025	08:00	15		4,5	1,2	21	16,812	4014,349	1,5	15	1,5	15	3994,237	57600
	17:00	9		4,5	1,2	21	16,815	4083,137	1,5	15	1,5	15	4063,025	58582
1.06.2025	08:00	15		4,5	1,2	21	16,487	4195,549	1,5	15	1,5	15	4175,437	60218
	17:00	9		4,5	1,2	21	16,652	4263,671	1,5	15	1,5	15	4243,559	61200
2.06.2025	08:00	15		4,5	1,2	21	16,468	4375,952	1,5	15	1,5	15	4355,840	62836
	17:00	9		4,5	1,2	21	16,812	4444,729	1,5	15	1,5	15	4424,617	63818
3.06.2025	08:00	15		4,5	1,2	21	16,815	4559,377	1,5	15	1,5	15	4539,265	65455
	17:00	9		4,5	1,2	21	16,433	4626,602	1,5	15	1,5	15	4606,490	66436

Tarih *Date*	Saat *Time*	Passed Hour *Geçen Saat*	Kontrol *Observer*	Giriş Basıncı *Up stream* bar	Çıkış Basıncı *Down stream* bar	Giriş Sıcaklığı *Up stream* °C	Gerçek Debi *Actual* m³/h	Sayaç Okuması m³	Flow cycle times *s* Açılma *rise*	Geçiş *on*	Kapanma *fall*	Durma *off*	Toplam Geçirilen m³	Toplam Çevrim Sayısı
4.06.2025	08:00	15	GÖKHAN SEYHAN	4,5	1,2	21	16,812	4741,230	1,5	15	1,5	15	4721,118	68073
	17:00	9		4,5	1,2	21	16,815	4810,018	1,5	15	1,5	15	4789,906	69055
5.06.2025	08:00	15		4,5	1,2	21	16,487	4922,430	1,5	15	1,5	15	4902,318	70691
	17:00	9		4,5	1,2	21	16,652	4990,552	1,5	15	1,5	15	4970,440	71673
6.06.2025	08:00	15		4,5	1,2	21	16,812	5105,179	1,5	15	1,5	15	5085,067	73309
	17:00	9		4,5	1,2	21	16,815	5173,967	1,5	15	1,5	15	5153,855	74291
7.06.2025	08:00	15		4,5	1,2	21	16,487	5286,379	1,5	15	1,5	15	5266,267	75927
	17:00	9		4,5	1,2	21	16,652	5354,501	1,5	15	1,5	15	5334,389	76909
8.06.2025	08:00	15		4,5	1,2	21	16,468	5466,782	1,5	15	1,5	15	5446,670	78545
	17:00	9		4,5	1,2	21	16,458	5534,111	1,5	15	1,5	15	5513,999	79527
9.06.2025	08:00	15		4,5	1,2	21	16,812	5648,738	1,5	15	1,5	15	5628,626	81164
	17:00	9		4,5	1,1	21	16,425	5715,931	1,5	15	1,5	15	5695,819	82145
10.06.2025	08:00	15		4,5	1,1	21	16,487	5828,342	1,5	15	1,5	15	5808,230	83782
	17:00	9		4,5	1,1	21	16,652	5896,464	1,5	15	1,5	15	5876,352	84764
11.06.2025	08:00	15		4,5	1,1	21	16,422	6008,432	1,5	15	1,5	15	5988,320	86400
	17:00	9		4,5	1,1	21	16,425	6075,626	1,5	15	1,5	15	6055,514	87382
12.06.2025	08:00	15		4,5	1,1	21	16,487	6188,037	1,5	15	1,5	15	6167,925	89018
	17:00	9		4,5	1,1	21	16,422	6255,218	1,5	15	1,5	15	6235,106	90000
13.06.2025	08:00	15		4,5	1,1	21	16,425	6367,207	1,5	15	1,5	15	6347,095	91636
	17:00	9		4,5	1,1	21	16,487	6434,653	1,5	15	1,5	15	6414,541	92618
14.06.2025	08:00	15		4,5	1,1	21	16,652	6548,190	1,5	15	1,5	15	6528,078	94255
	17:00	9		4,5	1,1	21	16,422	6615,371	1,5	15	1,5	15	6595,259	95236
15.06.2025	08:00	15		4,5	1,1	21	16,425	6727,359	1,5	15	1,5	15	6707,247	96873
	17:00	9		4,5	1,1	21	16,487	6794,806	1,5	15	1,5	15	6774,694	97855
16.06.2025	08:00	15		4,5	1,1	21	16,652	6908,342	1,5	15	1,5	15	6888,230	99491
	17:00	9		4,5	1,1	21	16,468	6975,712	1,5	15	1,5	15	6955,600	100473
17.06.2025	08:00	15		4,5	1,1	21	16,458	7087,925	1,5	15	1,5	15	7067,813	102109
	17:00	9		4,5	1,1	21	16,422	7155,106	1,5	15	1,5	15	7134,994	103091
											Test Sonundaki Toplam *Totals at end of test*		7134,99	**103091**
											Theoretical total *Teorik Toplam*		7111,11	**PASSED**

Errors (of indication) measured after the discontinuous flow test

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp °C	Initial reading *Vi*(i) m³	Final reading *Vi*(f) m³	Indicated volume *Vi* m³	Actual volume *Va* m³	Meter error *E*m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$m(B) - $\bar{E}$m(A) %	MPE (of curve variation error) %	Control
19,5	4,4	21,0	7156,96755	7157,16574	0,19819	0,199885	-0,85	2,5	PASSED	0,09	1,5	PASSED
19,5	4,2	21,0	7157,1746	7157,37397	0,19937	0,200421	-0,52	2,5	PASSED			
						Ēm (B)	-0,69					
						Ēm (A)	**-0,78**					

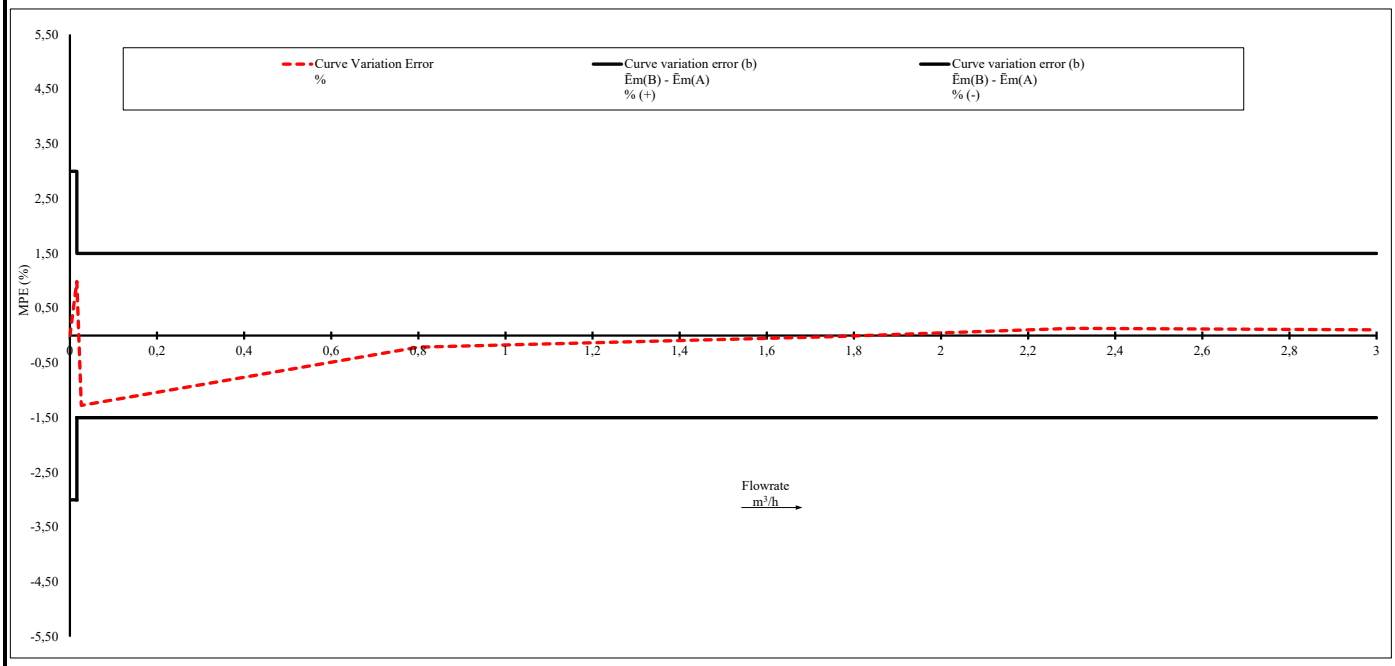
Actual flowrate m³/h	Working pressure *p* w Bar	Working temp °C	Initial reading *Vi*(i) m³	Final reading *Vi*(f) m³	Indicated volume *Vi* m³	Actual volume *Va* m³	Meter error *E*m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$m(B) - $\bar{E}$m(A) %	MPE (of curve variation error) %	Control
15	3,9	21,0	7157,38968	7157,54164	0,15196	0,152639	-0,44	2,5	PASSED	0,17	1,5	PASSED
15	3,6	20,0	7157,5471	7157,69692	0,14982	0,150999	-0,78	2,5	PASSED			
15	3,5	20,0	7157,70186	7157,85153	0,14967	0,150407	-0,49	2,5	PASSED			
						Ēm (B)	-0,57					
						Ēm (A)	**-0,74**					

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp °C	Initial reading *Vi*(i) m³	Final reading *Vi*(f) m³	Indicated volume *Vi* m³	Actual volume *Va* m³	Meter error *E*m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$m(B) - $\bar{E}$m(A) %	MPE (of curve variation error) %	Control
11	2,7	20,0	7157,86592	7157,96693	0,10101	0,100531	0,48	2,5	PASSED	0,09	1,5	PASSED
11	2,7	20,0	7157,96796	7158,06994	0,10198	0,101431	0,54	2,5	PASSED			
						Ēm (B)	0,51					
						Ēm (A)	**0,42**					

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp °C	Initial reading *Vi*(i) m³	Final reading *Vi*(f) m³	Indicated volume *Vi* m³	Actual volume *Va* m³	Meter error *E*m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$m(B) - $\bar{E}$m(A) %	MPE (of curve variation error) %	Control
5,5	2,1	20,0	7158,07845	7158,15902	0,08057	0,080316	0,32	2,5	PASSED	-0,21	1,5	PASSED
5,5	2,1	20,0	7158,16004	7158,24053	0,08049	0,080223	0,33	2,5	PASSED			
						Ēm (B)	0,32					
						Ēm (A)	**0,53**					

Actual flowrate m^3/h	Working pressure p w Bar	Working temp °C	Initial reading Vi(i) m^3	Final reading Vi(f) m^3	Indicated volume Vi m^3	Actual volume Va m^3	Meter error Em %	MPE (a) %	Control	Curve variation error (b) $\bar{E}m(B) - \bar{E}m(A)$ %	MPE (of curve variation error) %	Control
0,175	2,1	21,0	7158,24606	7158,27652	0,03046	0,03051	-0,16	2,5	PASSED	0,08	1,5	PASSED
0,175	2,1	20,0	7158,27727	7158,30839	0,03112	0,031182	-0,20	2,5	PASSED			
0,175	2	20,0	7158,30913	7158,34028	0,03115	0,031234	-0,27	2,5	PASSED			
						$\bar{E}m$ (B)	-0,21					
						$\bar{E}m$ (A)	**-0,29**					

Actual flowrate m^3/h	Working pressure p w Bar	Working temp °C	Initial reading Vi(i) m^3	Final reading Vi(f) m^3	Indicated volume Vi m^3	Actual volume Va m^3	Meter error Em %	MPE (a) %	Control	Curve variation error (b) $\bar{E}m(B) - \bar{E}m(A)$ %	MPE (of curve variation error) %	Control
0,105	1,1	20,0	7158,3434	7158,35864	0,01524	0,015596	-2,28	6	PASSED	-1,16	3	PASSED
0,105	1,1	21,0	7158,35916	7158,37378	0,01462	0,015096	-3,15	6	PASSED			
0,105	1,1	21,0	7158,37431	7158,38921	0,01490	0,01542	-3,37	6	PASSED			
						$\bar{E}m$ (B)	-2,94					
						$\bar{E}m$ (A)	**-1,78**					



4.3.10.2 Continuous flow test (OIML R 49-2:2024, 7.11.3)

Application No.:	MID-02-25-3
Test method:	Gravimetric
Volume measures/weighbridge used — m3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Length of straight pipe before meter (or manifold) — mm:	110
Length of straight pipe after meter (or manifold) — mm:	165
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN15
Describe flow straightener installation if used:	-

Readings taken during the test

Meter serial No.:	15-1

Note: Readings are recorded every 24 h or once for every shorter period, if so divided

	At start	**At end**
Date	18.06.2025	22.06.2025

	At start (18.06.2025)	**At end (22.06.2025)**	
Ambient temperature:	20,3	20,6	°C
Ambient relative humidity:	55,0	63,0	%rh
Ambient atmospheric pressure:	1003,0	1000,0	mbar
Time:	08:00	12:00	

Q_1:	0,016 m^3/h
Q_2:	0,025 m^3/h
Q_3:	2,500 m^3/h
Q_4:	3,125 m^3/h

Date	**Time**	**Observer**	**Giriş Basıncı** *Up stream pressure* Bar	**Çıkış Basıncı** *Down stream pressure* Bar	**Giriş Sıcaklığı** *Up stream temp* °C	**Gerçek Debi** *Actual* m^3/h	**Sayaç Okuması** *Meter reading* m^3	**Toplam Geçirilen Hacim** *Total volume discharged* m^3	**Çalışma Saati** *Hours run* h
18.06.2025	08:00	GÖKHAN SEYHAN	6,2	1,1	21	3,127	1120,122	0,000	0
	17:00		6,2	1,1	21	3,129	1148,283	28,161	9
19.06.2025	08:00		6,2	1,0	21	3,130	1223,394	75,111	15
	17:00		6,2	1,0	21	3,118	1326,567	103,173	9
20.06.2025	08:00		6,2	1,1	21	3,119	1476,525	149,958	15
	17:00		6,2	1,0	21	3,121	1654,572	178,047	9
21.06.2025	08:00		6,2	1,1	21	3,129	1879,554	224,982	15
	17:00		6,2	1,0	21	3,128	2132,688	253,134	9
22.06.2025	08:00		6,2	1,0	21	3,127	2432,727	300,039	15
	12:00		6,2	1,1	21	3,128	2745,278	312,551	4
						Test Sonundaki Toplam *Totals at end of test*		312,551	**100**
						Geçmesi gereken Minimum Hacim *Minimum volume discharged*		312,500	**PASSED**

-Errors (of indication) measured after the continuous flow test

Actual flowrate m^3/h	**Working pressure *p* w** Bar	**Working temp *T* w** °C	**Initial reading *V*i(i)** m^3	**Final reading *V*i(f)** m^3	**Indicated volume *V*i** m^3	**Actual volume *V*a** m^3	**Meter error *E* m** %	**MPE (a)** %	**Control**	**Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A)** %	**MPE (of curve variation error) (c)** %	**Control**
3	4,4	21,0	2747,92822	2748,12657	0,19835	0,199885	-0,77	2,5	**PASSED**	-0,20	1,5	**PASSED**
3	4,2	21,0	2748,13543	2748,33358	0,19815	0,200421	-1,13	2,5	**PASSED**			
						$\bar{E}$m (B)	-0,95					
						$\bar{E}$m (A)	**-0,76**					

Actual flowrate m^3/h	**Working pressure *p* w** Bar	**Working temp *T* w** °C	**Initial reading *V*i(i)** m^3	**Final reading *V*i(f)** m^3	**Indicated volume *V*i** m^3	**Actual volume *V*a** m^3	**Meter error *E* m** %	**MPE (a)** %	**Control**	**Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A)** %	**MPE (of curve variation error) (c)** %	**Control**
2,3	3,9	21,0	2748,34929	2748,50094	0,15165	0,152639	-0,65	2,5	**PASSED**	0,04	1,5	**PASSED**
2,3	3,6	20,0	2748,5064	2748,65607	0,14967	0,150999	-0,88	2,5	**PASSED**			
2,3	3,5	20,0	2748,66101	2748,81072	0,14971	0,150407	-0,46	2,5	**PASSED**			
						$\bar{E}$m (B)	-0,66					
						$\bar{E}$m (A)	**-0,70**					

Actual flowrate m^3/h	**Working pressure *p* w** Bar	**Working temp *T* w** °C	**Initial reading *V*i(i)** m^3	**Final reading *V*i(f)** m^3	**Indicated volume *V*i** m^3	**Actual volume *V*a** m^3	**Meter error *E* m** %	**MPE (a)** %	**Control**	**Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A)** %	**MPE (of curve variation error) (c)** %	**Control**
1,75	2,7	20,0	2748,82511	2748,92606	0,10095	0,100531	0,42	2,5	**PASSED**	0,03	1,5	**PASSED**
1,75	2,7	20,0	2748,92709	2749,029	0,10191	0,101431	0,47	2,5	**PASSED**			
						$\bar{E}$m (B)	0,44					
						$\bar{E}$m (A)	**0,42**					

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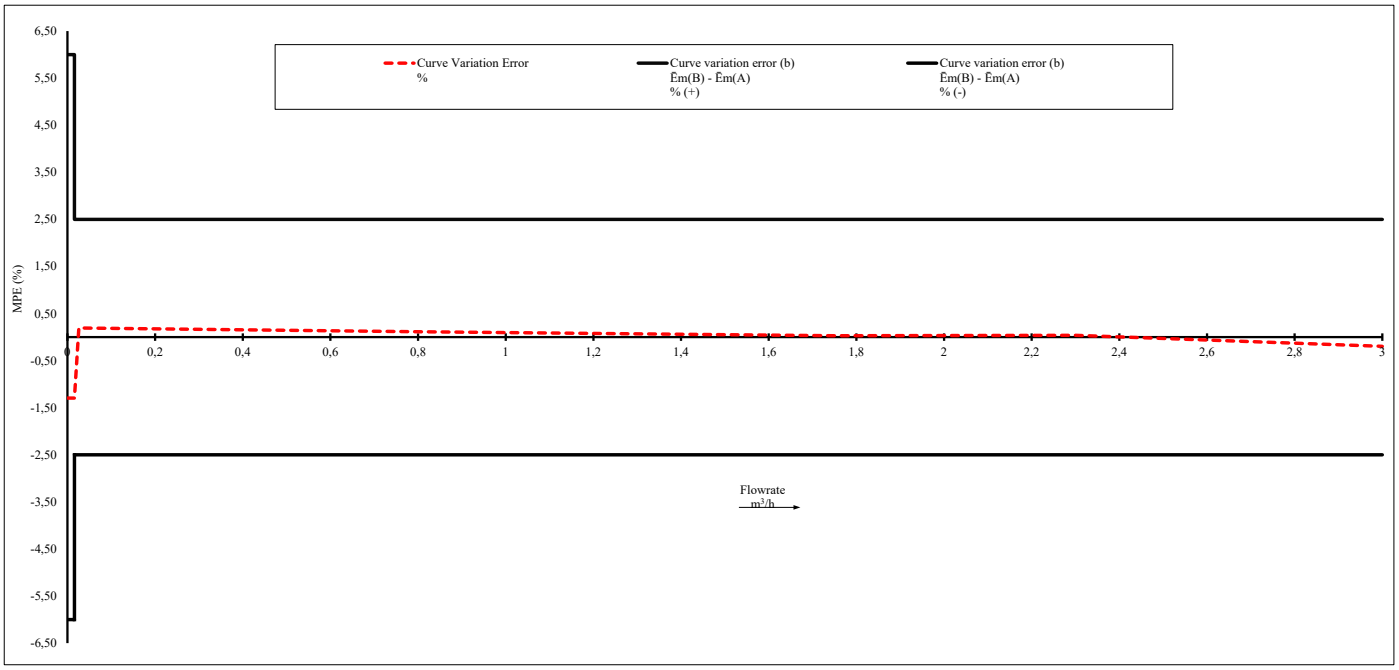
Actual flowrate m^3/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *V*i(i) m^3	Final reading *V*i(f) m^3	Indicated volume *V*i m^3	Actual volume *V*a m^3	Meter error *E* m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A) %	MPE (of curve variation error) (c) %	Control
0,8	2,1	20,0	2749,03751	2749,11827	0,08076	0,080316	0,55	2,5	PASSED	0,11	1,5	PASSED
0,8	2,1	20,0	2749,11929	2749,19986	0,08057	0,080223	0,43	2,5	PASSED			
						Ēm (B)	0,49					
						Ēm (A)	**0,38**					

Actual flowrate m^3/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *V*i(i) m^3	Final reading *V*i(f) m^3	Indicated volume *V*i m^3	Actual volume *V*a m^3	Meter error *E* m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A) %	MPE (of curve variation error) (c) %	Control
0,026	2,1	21,0	2749,20539	2749,23624	0,03085	0,03051	1,11	2,5	PASSED	0,19	1,5	PASSED
0,026	2,1	20,0	2749,23699	2749,26845	0,03146	0,031182	0,89	2,5	PASSED			
0,026	2	20,0	2749,26919	2749,30068	0,03149	0,031234	0,82	2,5	PASSED			
						Ēm (B)	0,94					
						Ēm (A)	**0,75**					

Actual flowrate m^3/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *V*i(i) m^3	Final reading *V*i(f) m^3	Indicated volume *V*i m^3	Actual volume *V*a m^3	Meter error *E* m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A) %	MPE (of curve variation error) (c) %	Control
0,016	1,1	20,0	2749,3038	2749,31927	0,01547	0,015896	-2,68	6	PASSED	-1,30	3	PASSED
0,016	1,1	21,0	2749,31979	2749,33451	0,01472	0,015196	-3,13	6	PASSED			
0,016	1,1	21,0	2749,33504	2749,35011	0,01507	0,01554	-3,02	6	PASSED			
						Ēm (B)	-2,95					
						Ēm (A)	**-1,65**					



4.3.10.2 Continuous flow test (OIML R 49-2:2024, 7.11.3)

Application No.:	MID-02-25-3
Test method:	Gravimetric
Volume measures/weighbridge used — m3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Length of straight pipe before meter (or manifold) — mm:	110
Length of straight pipe after meter (or manifold) — mm:	165
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN15
Describe flow straightener installation if used:	-

Readings taken during the test

Meter serial No.:	15-2

	At start	**At end**
Date	18.06.2025	22.06.2025

Note: Readings are recorded every 24 h or once for every shorter period, if so divided

	At start (18.06.2025)	**At end (22.06.2025)**	
Ambient temperature:	20,3	20,6	°C
Ambient relative humidity:	55	58	%rh
Ambient atmospheric pressure:	1003	1000	mbar
Time:	08:00	12:00	

Q_1:	0,016 m^3/h
Q_2:	0,025 m^3/h
Q_3:	2,500 m^3/h
Q_4:	3,125 m^3/h

Date	**Time**	**Observer**	**Giriş Basıncı** *Up stream pressure* Bar	**Çıkış Basıncı** *Down stream pressure* Bar	**Giriş Sıcaklığı** *Up stream temp* °C	**Gerçek Debi** *Actual* m^3/h	**Sayaç Okuması** *Meter reading* m^3	**Toplam Geçirilen Hacim** *Total volume discharged* m^3	**Çalışma Saati** *Hours run* h
18.06.2025	08:00	GÖKHAN SEYHAN	6,2	1,1	21	3,126	1119,234	0,000	0
	17:00		6,2	1,1	21	3,128	1147,386	28,152	9
19.06.2025	08:00		6,2	1,0	21	3,132	1222,518	75,132	15
	17:00		6,2	1,0	21	3,122	1325,748	103,230	9
20.06.2025	08:00		6,2	1,1	21	3,125	1475,853	150,105	15
	17:00		6,2	1,0	21	3,134	1654,164	178,311	9
21.06.2025	08:00		6,2	1,1	21	3,123	1879,320	225,156	15
	17:00		6,2	1,0	21	3,129	2132,637	253,317	9
22.06.2025	08:00		6,2	1,0	21	3,129	2432,889	300,252	15
	12:00		6,2	1,1	21	3,131	2745,665	312,776	4
						Test Sonundaki Toplam *Totals at end of test*		312,776	**100**
						Geçmesi gereken Minimum Hacim *Minimum volume discharged*		312,500	**PASSED**

-Errors (of indication) measured after the continuous flow test

Actual flowrate m^3/h	**Working pressure *p* w** Bar	**Working temp *T* w** °C	**Initial reading *V*i(i)** m^3	**Final reading *V*i(f)** m^3	**Indicated volume *V*i** m^3	**Actual volume *V*a** m^3	**Meter error *E* m** %	**MPE (a)** %	**Control**	**Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A)** %	**MPE (of curve variation error) (c)** %	**Control**
3	4,4	21,0	2746,86998	2747,06711	0,19713	0,199885	-1,38	2,5	**PASSED**	-0,47	1,5	**PASSED**
3	4,2	21,0	2747,07597	2747,27368	0,19771	0,200421	-1,35	2,5	**PASSED**			
						$\bar{E}$m (B)	-1,37					
						$\bar{E}$m (A)	**-0,90**					

Actual flowrate m^3/h	**Working pressure *p* w** Bar	**Working temp *T* w** °C	**Initial reading *V*i(i)** m^3	**Final reading *V*i(f)** m^3	**Indicated volume *V*i** m^3	**Actual volume *V*a** m^3	**Meter error *E* m** %	**MPE (a)** %	**Control**	**Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A)** %	**MPE (of curve variation error) (c)** %	**Control**
2,3	3,9	21,0	2747,28939	2747,44025	0,15086	0,152639	-1,17	2,5	**PASSED**	-0,41	1,5	**PASSED**
2,3	3,6	20,0	2747,44571	2747,59485	0,14914	0,150999	-1,23	2,5	**PASSED**			
2,3	3,5	20,0	2747,59979	2747,74849	0,14870	0,150407	-1,13	2,5	**PASSED**			
						$\bar{E}$m (B)	-1,18					
						$\bar{E}$m (A)	**-0,77**					

Actual flowrate m^3/h	**Working pressure *p* w** Bar	**Working temp *T* w** °C	**Initial reading *V*i(i)** m^3	**Final reading *V*i(f)** m^3	**Indicated volume *V*i** m^3	**Actual volume *V*a** m^3	**Meter error *E* m** %	**MPE (a)** %	**Control**	**Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A)** %	**MPE (of curve variation error) (c)** %	**Control**
1,75	2,7	20,0	2747,76288	2747,86283	0,09995	0,100531	-0,58	2,5	**PASSED**	-1,03	1,5	**PASSED**
1,75	2,7	20,0	2747,86386	2747,96468	0,10082	0,101431	-0,60	2,5	**PASSED**			
						$\bar{E}$m (B)	-0,59					
						$\bar{E}$m (A)	**0,44**					

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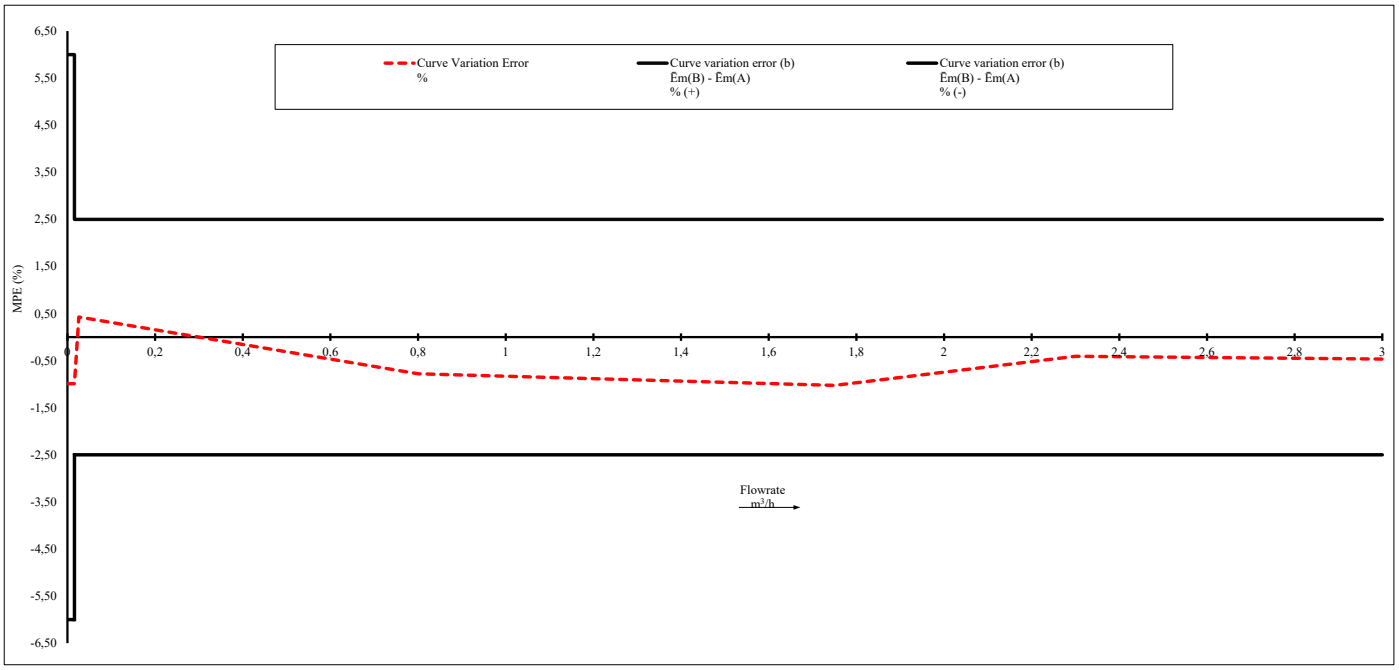
Actual flowrate m^3/h	Working pressure p w Bar	Working temp T w °C	Initial reading Vi(i) m^3	Final reading Vi(f) m^3	Indicated volume Vi m^3	Actual volume Va m^3	Meter error E m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A) %	MPE (of curve variation error) (c) %	Control
0,8	2,1	20,0	2747,97319	2748,05321	0,08002	0,080316	-0,37	2,5	PASSED	-0,78	1,5	PASSED
0,8	2,1	20,0	2748,05423	2748,13423	0,08000	0,080223	-0,28	2,5	PASSED			
						$\bar{E}$m (B)	-0,32					
						$\bar{E}$m (A)	**0,46**					

Actual flowrate m^3/h	Working pressure p w Bar	Working temp T w °C	Initial reading Vi(i) m^3	Final reading Vi(f) m^3	Indicated volume Vi m^3	Actual volume Va m^3	Meter error E m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A) %	MPE (of curve variation error) (c) %	Control
0,026	2,1	21,0	2748,13976	2748,17031	0,03055	0,03051	0,13	2,5	PASSED	0,43	1,5	PASSED
0,026	2,1	20,0	2748,17106	2748,20229	0,03123	0,031182	0,15	2,5	PASSED			
0,026	2	20,0	2748,20303	2748,2343	0,03127	0,031234	0,12	2,5	PASSED			
						$\bar{E}$m (B)	0,13					
						$\bar{E}$m (A)	**-0,29**					

Actual flowrate m^3/h	Working pressure p w Bar	Working temp T w °C	Initial reading Vi(i) m^3	Final reading Vi(f) m^3	Indicated volume Vi m^3	Actual volume Va m^3	Meter error E m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A) %	MPE (of curve variation error) (c) %	Control
0,016	1,1	20,0	2749,21363	2749,22892	0,01529	0,015896	-3,81	6	PASSED	-0,99	3	PASSED
0,016	1,1	21,0	2749,22944	2749,24405	0,01461	0,015196	-3,86	6	PASSED			
0,016	1,1	21,0	2749,24458	2749,25948	0,01490	0,01554	-4,12	6	PASSED			
						$\bar{E}$m (B)	-3,93					
						$\bar{E}$m (A)	**-2,94**					



MI001 MODULE B-F TEST REPORT

Application No.:	MID-02-25-3
Test method:	Gravimetric
Volume measures/weighbridge used — m3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Length of straight pipe before meter (or manifold) — mm:	110
Length of straight pipe after meter (or manifold) — mm:	165
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN25
Describe flow straightener installation if used:	-

Readings taken during the test

Meter serial No.:	25-1

Note: Readings are recorded every 24 h or once for every shorter period, if so divided

	At start (18.06.2025)	**At end (22.06.2025)**	
Ambient temperature:	20,3	20,6	°C
Ambient relative humidity:	55	57	%rh
Ambient atmospheric pressure:	1003	1000	mbar
Time:	08:00	12:00	

	At start	**At end**
Date	18.06.2025	22.06.2025

Q_1:	0,039 m^3/h
Q_2:	0,063 m^3/h
Q_3:	6,300 m^3/h
Q_4:	7,875 m^3/h

Date	**Time**	**Observer**	**Giriş Basıncı** *Up stream pressure* Bar	**Çıkış Basıncı** *Down stream pressure* Bar	**Giriş Sıcaklığı** *Up stream temp* °C	**Gerçek Debi** *Actual* m^3/h	**Sayaç Okuması** *Meter reading* m^3	**Toplam Geçirilen Hacim** *Total volume discharged* m^3	**Çalışma Saati** *Hours run* h
18.06.2025	08:00	GÖKHAN SEYHAN	6,2	1,1	21	7,889	2813,321	0,000	0
	17:00		6,2	1,1	21	7,892	2884,349	71,028	9
19.06.2025	08:00		6,2	1,0	21	7,871	3073,442	189,093	15
	17:00		6,2	1,0	21	7,876	3333,419	259,977	9
20.06.2025	08:00		6,2	1,1	21	7,867	3711,401	377,982	15
	17:00		6,2	1,0	21	7,878	4160,285	448,884	9
21.06.2025	08:00		6,2	1,1	21	7,887	4727,474	567,189	15
	17:00		6,2	1,0	21	7,881	5365,592	638,118	9
22.06.2025	08:00		6,2	1,0	21	7,889	6122,045	756,453	15
	12:00		6,2	1,1	21	7,883	6910,030	787,985	4
						Test Sonundaki Toplam *Totals at end of test*		787,985	**100**
						Geçmesi gereken Minimum Hacim *Minimum volume discharged*		787,500	**PASSED**

-Errors (of indication) measured after the continuous flow test

Actual flowrate m^3/h	**Working pressure** p_w Bar	**Working temp** T_w °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** E_m %	**MPE (a)** %	**Control**	**Curve variation error (b)** $\bar{E}_m(B) - \bar{E}_m(A)$ %	**MPE (of curve variation error) (c)** %	**Control**
7,5	4,4	21,0	6919,35418	6919,55276	0,19858	0,201512	-1,46	2,5	PASSED	-0,39	1,5	PASSED
7,5	4,2	21,0	6919,56021	6919,75756	0,19735	0,200147	-1,40	2,5	PASSED			
						$\bar{E}_m$ (B)	-1,43					
						$\bar{E}_m$ (A)	**-1,03**					

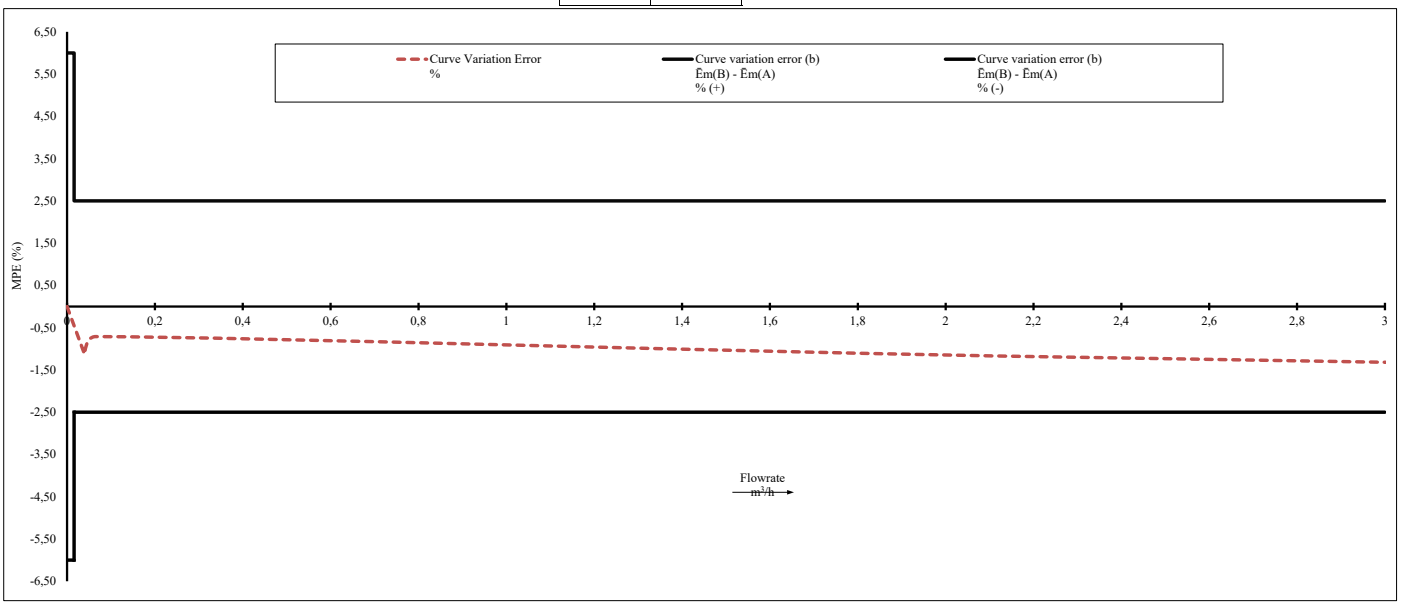
Actual flowrate m^3/h	**Working pressure** p_w Bar	**Working temp** T_w °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** E_m %	**MPE (a)** %	**Control**	**Curve variation error (b)** $\bar{E}_m(B) - \bar{E}_m(A)$ %	**MPE (of curve variation error) (c)** %	**Control**
6	3,9	21,0	6919,76483	6919,91364	0,14881	0,150612	-1,20	2,5	PASSED	-0,57	1,5	PASSED
6	3,6	20,0	6919,91789	6920,06744	0,14955	0,151588	-1,34	2,5	PASSED			
6	3,5	20,0	6920,07241	6920,22257	0,15016	0,152224	-1,36	2,5	PASSED			
						$\bar{E}_m$ (B)	-1,30					
						$\bar{E}_m$ (A)	**-0,73**					

Actual flowrate m^3/h	**Working pressure** p_w Bar	**Working temp** T_w °C	**Initial reading** $V_i(i)$ m^3	**Final reading** $V_i(f)$ m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** E_m %	**MPE (a)** %	**Control**	**Curve variation error (b)** $\bar{E}_m(B) - \bar{E}_m(A)$ %	**MPE (of curve variation error) (c)** %	**Control**
4,5	2,7	20,0	6920,22815	6920,32738	0,09923	0,100108	-0,88	2,5	PASSED	-1,41	1,5	PASSED
4,5	2,7	20,0	6920,33302	6920,43218	0,09916	0,100066	-0,91	2,5	PASSED			
						$\bar{E}_m$ (B)	-0,89					
						$\bar{E}_m$ (A)	**0,52**					

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *V*i(i) m³	Final reading *V*i(f) m³	Indicated volume *V*i m³	Actual volume *V*a m³	Meter error *E* m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A) %	MPE (of curve variation error) (c) %	Control
2,25	2,1	20,0	6920,44167	6920,52239	0,08072	0,081297	-0,71	2,5	PASSED	-1,19	1,5	PASSED
2,25	2,1	20,0	6920,52828	6920,60832	0,08004	0,08059	-0,68	2,5	PASSED			
						$\bar{E}$m (B)	-0,70					
						$\bar{E}$m (A)	**0,50**					

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *V*i(i) m³	Final reading *V*i(f) m³	Indicated volume *V*i m³	Actual volume *V*a m³	Meter error *E* m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A) %	MPE (of curve variation error) (c) %	Control
0,065	2,1	21,0	6920,61503	6920,63017	0,01514	0,0151	0,26	2,5	PASSED	-0,71	1,5	PASSED
0,065	2,1	20,0	6920,63592	6920,65144	0,01552	0,015469	0,33	2,5	PASSED			
0,065	2	20,0	6920,65474	6920,66998	0,01524	0,015207	0,22	2,5	PASSED			
						$\bar{E}$m (B)	0,27					
						$\bar{E}$m (A)	**0,98**					

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *V*i(i) m³	Final reading *V*i(f) m³	Indicated volume *V*i m³	Actual volume *V*a m³	Meter error *E* m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A) %	MPE (of curve variation error) (c) %	Control
0,040	1,1	20,0	6920,67389	6920,67868	0,00479	0,004904	-2,32	6	PASSED	-1,13	1,5	PASSED
0,040	1,1	21,0	6920,68051	6920,68541	0,00490	0,00503	-2,58	6	PASSED			
0,040	1,1	21,0	6920,68674	6920,69216	0,00542	0,005669	-4,39	6	PASSED			
						$\bar{E}$m (B)	-3,10					
						$\bar{E}$m (A)	**-1,97**					



MI001 MODULE B-F TEST REPORT

Application No.:	MID-02-25-3
Test method:	Gravimetric
Volume measures/weighbridge used — m3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Length of straight pipe before meter (or manifold) — mm:	110
Length of straight pipe after meter (or manifold) — mm:	165
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN25
Describe flow straightener installation if used:	-

Readings taken during the test

Meter serial No.:	25-2

Note: Readings are recorded every 24 h or once for every shorter period, if so divided

	At start (18.06.2025)	**At end (22.06.2025)**	
Ambient temperature:	20,3	20,4	°C
Ambient relative humidity:	55	57	%rh
Ambient atmospheric pressure:	1003	1000	mbar
Time:	08:00	12:00	

	At start	**At end**
Date	18.06.2025	22.06.2025

Q_1:	0,039 m^3/h
Q_2:	0,063 m^3/h
Q_3:	6,300 m^3/h
Q_4:	7,875 m^3/h

Date	**Time**	**Observer**	**Giriş Basıncı** *Up stream pressure* Bar	**Çıkış Basıncı** *Down stream pressure* Bar	**Giriş Sıcaklığı** *Up stream temp* °C	**Gerçek Debi** *Actual* m^3/h	**Sayaç Okuması** *Meter reading* m^3	**Toplam Geçirilen Hacim** *Total volume discharged* m^3	**Çalışma Saati** *Hours run* h
18.06.2025	08:00	GÖKHAN SEYHAN	6,2	1,1	21	7,889	2833,016	0,000	0
	17:00		6,2	1,1	21	7,892	2904,044	71,028	9
19.06.2025	08:00		6,2	1,0	21	7,871	3093,137	189,093	15
	17:00		6,2	1,0	21	7,876	3353,114	259,977	9
20.06.2025	08:00		6,2	1,1	21	7,867	3731,096	377,982	15
	17:00		6,2	1,0	21	7,878	4179,980	448,884	9
21.06.2025	08:00		6,2	1,1	21	7,887	4747,169	567,189	15
	17:00		6,2	1,0	21	7,881	5385,287	638,118	9
22.06.2025	08:00		6,2	1,0	21	7,889	6141,740	756,453	15
	12:00		6,2	1,1	21	7,883	6929,725	787,985	4
						Test Sonundaki Toplam *Totals at end of test*		787,985	**100**
						Geçmesi gereken Minimum Hacim *Minimum volume discharged*		787,500	**PASSED**

-Errors (of indication) measured after the continuous flow test

Actual flowrate m^3/h	**Working pressure** p_w Bar	**Working temp** T_w °C	**Initial reading** V_i(i) m^3	**Final reading** V_i(f) m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** E_m %	**MPE (a)** %	**Control**	**Curve variation error (b)** $\bar{E}_m(B) - \bar{E}_m(A)$ %	**MPE (of curve variation error) (c)** %	**Control**
7,5	4,4	21,0	6929,54577	6929,74511	0,19934	0,201512	-1,08	2,5	PASSED	-0,29	1,5	PASSED
7,5	4,2	21,0	6929,7517	6929,94997	0,19827	0,200147	-0,94	2,5	PASSED			
						$\bar{E}_m$ (B)	-1,01					
						$\bar{E}_m$ (A)	**-0,72**					

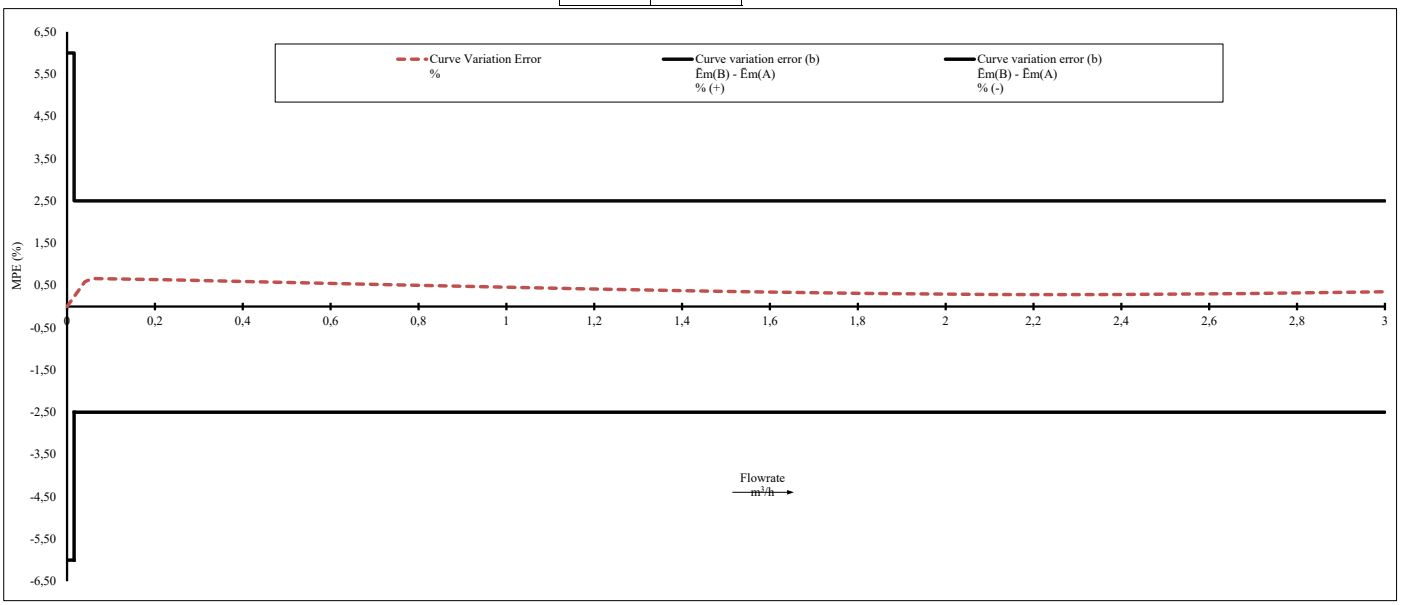
Actual flowrate m^3/h	**Working pressure** p_w Bar	**Working temp** T_w °C	**Initial reading** V_i(i) m^3	**Final reading** V_i(f) m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** E_m %	**MPE (a)** %	**Control**	**Curve variation error (b)** $\bar{E}_m(B) - \bar{E}_m(A)$ %	**MPE (of curve variation error) (c)** %	**Control**
6	3,9	21,0	6929,95732	6930,10852	0,15120	0,150612	0,39	2,5	PASSED	1,04	1,5	PASSED
6	3,6	20,0	6930,11245	6930,26452	0,15207	0,151588	0,32	2,5	PASSED			
6	3,5	20,0	6930,26894	6930,42168	0,15274	0,152224	0,34	2,5	PASSED			
						$\bar{E}_m$ (B)	0,35					
						$\bar{E}_m$ (A)	**-0,70**					

Actual flowrate m^3/h	**Working pressure** p_w Bar	**Working temp** T_w °C	**Initial reading** V_i(i) m^3	**Final reading** V_i(f) m^3	**Indicated volume** V_i m^3	**Actual volume** V_a m^3	**Meter error** E_m %	**MPE (a)** %	**Control**	**Curve variation error (b)** $\bar{E}_m(B) - \bar{E}_m(A)$ %	**MPE (of curve variation error) (c)** %	**Control**
4,5	2,7	20,0	6930,42678	6930,52804	0,10126	0,100208	1,05	2,5	PASSED	0,67	1,5	PASSED
4,5	2,7	20,0	6930,53297	6930,63424	0,10127	0,100166	1,10	2,5	PASSED			
						$\bar{E}_m$ (B)	1,08					
						$\bar{E}_m$ (A)	**0,41**					

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *V*i(i) m³	Final reading *V*i(f) m³	Indicated volume *V*i m³	Actual volume *V*a m³	Meter error *E* m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A) %	MPE (of curve variation error) (c) %	Control
2,25	2,1	20,0	6930,64356	6930,72547	0,08191	0,081297	0,75	2,5	PASSED	0,28	1,5	PASSED
2,25	2,1	20,0	6930,73008	6930,81125	0,08117	0,08059	0,72	2,5	PASSED			
						Ēm (B)	0,74					
						Ēm (A)	**0,45**					

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *V*i(i) m³	Final reading *V*i(f) m³	Indicated volume *V*i m³	Actual volume *V*a m³	Meter error *E* m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A) %	MPE (of curve variation error) (c) %	Control
0,065	2,1	21,0	6930,81832	6930,83365	0,01533	0,015221	0,72	2,5	PASSED	0,66	1,5	PASSED
0,065	2,1	20,0	6930,84048	6930,85618	0,01570	0,015869	-1,06	2,5	PASSED			
0,065	2	20,0	6930,85883	6930,87427	0,01544	0,015207	1,53	2,5	PASSED			
						Ēm (B)	0,39					
						Ēm (A)	**-0,27**					

Actual flowrate m³/h	Working pressure *p* w Bar	Working temp *T* w °C	Initial reading *V*i(i) m³	Final reading *V*i(f) m³	Indicated volume *V*i m³	Actual volume *V*a m³	Meter error *E* m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A) %	MPE (of curve variation error) (c) %	Control
0,040	1,1	20,0	6930,87837	6930,88316	0,00479	0,004804	-0,29	6	PASSED	0,58	1,5	PASSED
0,040	1,1	21,0	6930,8854	6930,89031	0,00491	0,004931	-0,43	6	PASSED			
0,040	1,1	21,0	6930,89159	6930,89702	0,00543	0,005569	-2,50	6	PASSED			
						Ēm (B)	-1,07					
						Ēm (A)	**-1,65**					



Application No.:	MID-02-25-3
Test method:	Gravimetric
Volume measures/weighbridge used — m3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Length of straight pipe before meter (or manifold) — mm:	110
Length of straight pipe after meter (or manifold) — mm:	165
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN40
Describe flow straightener installation if used:	-

Readings taken during the test

Meter serial No.:	40-1

Note: Readings are recorded every 24 h or once for every shorter period, if so divided

	At start (18.06.2025)	**At end (22.06.2025)**	
Ambient temperature:	20,3	20,6	°C
Ambient relative humidity:	54	64	%rh
Ambient atmospheric pressure:	1003	1000	mbar
Time:	08:00	12:00	

	At start	**At end**
Date	18.06.2025	22.06.2025

Q_1:	0,10	m^3/h
Q_2:	0,16	m^3/h
Q_3:	16,00	m^3/h
Q_4:	20,00	m^3/h

Date	**Time**	**Observer**	**Giriş Basıncı** *Up stream pressure* Bar	**Çıkış Basıncı** *Down stream pressure* Bar	**Giriş Sıcaklığı** *Up stream temp* °C	**Gerçek Debi** *Actual* m^3/h	**Sayaç Okuması** *Meter reading* m^3	**Toplam Geçirilen Hacim** *Total volume discharged* m^3	**Çalışma Saati** *Hours run* h
18.06.2025	08:00	GÖKHAN SEYHAN	6,2	1,10	21	20,022	7128,344	0,000	0
	17:00		6,2	1,10	21	19,978	7308,146	179,802	9
19.06.2025	08:00		6,2	1,00	21	20,021	7788,263	480,117	15
	17:00		6,2	1,00	21	20,023	8448,587	660,324	9
20.06.2025	08:00		6,2	1,10	21	20,005	9408,986	960,399	15
	17:00		6,2	1,00	21	20,004	10549,421	1140,435	9
21.06.2025	08:00		6,2	1,10	21	20,006	11989,946	1440,525	15
	17:00		6,2	1,00	21	19,991	13610,390	1620,444	9
22.06.2025	08:00		6,2	1,00	21	19,994	15530,744	1920,354	15
	12:00		6,2	1,10	21	20,006	17531,122	2000,378	4
						Test Sonundaki Toplam *Totals at end of test*		2000,378	**100**
						Geçmesi gereken Minimum Hacim *Minimum volume discharged*		2000,000	**PASSED**

-Errors (of indication) measured after the continuous flow test

Actual flowrate m^3/h	**Working pressure *p* w** Bar	**Working temp** °C	**Initial reading *V*i(i)** m^3	**Final reading *V*i(f)** m^3	**Indicated volume *V*i** m^3	**Actual volume *V*a** m^3	**Meter error *E* m** %	**MPE (a)** %	**Control**	**Curve variation error (b) *Ē* m(B) - *Ē* m(A)** %	**MPE (of curve variation error)** %	**Control**
19,5	4,4	21,0	17131,36913	17131,56847	0,19934	0,201512	-1,08	2,5	PASSED	0,02	1,5	PASSED
19,5	4,2	21,0	17131,57506	17131,77333	0,19827	0,200147	-0,94	2,5	PASSED			
						Ēm (B)	-1,01					
						Ēm (A)	**-1,03**					

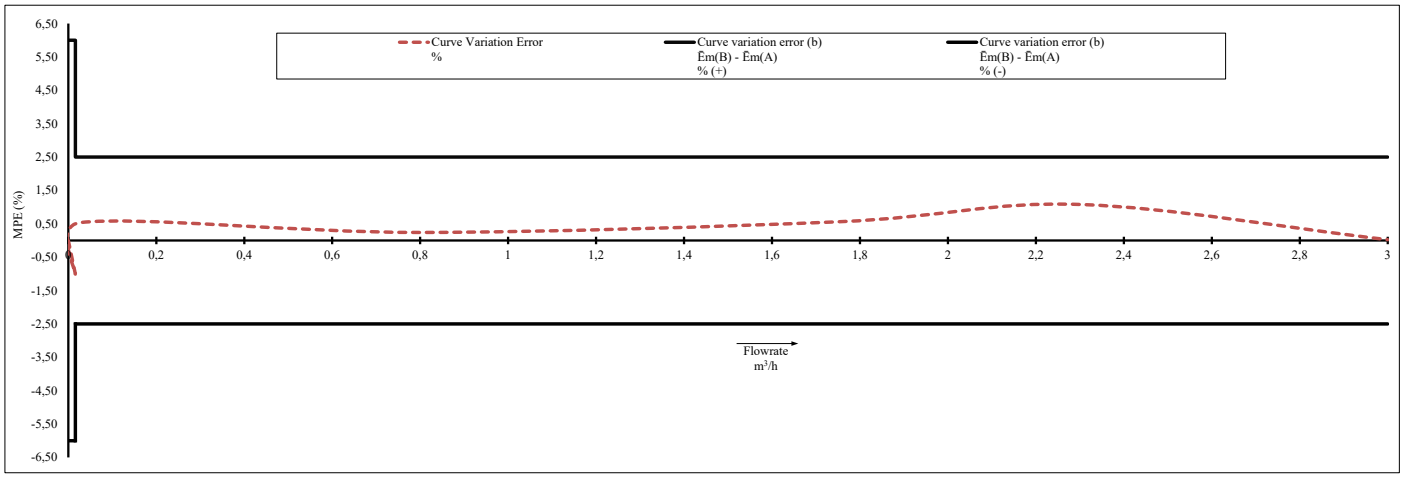
Actual flowrate m^3/h	**Working pressure *p* w** Bar	**Working temp** °C	**Initial reading *V*i(i)** m^3	**Final reading *V*i(f)** m^3	**Indicated volume *V*i** m^3	**Actual volume *V*a** m^3	**Meter error *E* m** %	**MPE (a)** %	**Control**	**Curve variation error (b) *Ē* m(B) - *Ē* m(A)** %	**MPE (of curve variation error)** %	**Control**
15	3,9	21,0	17131,78068	17131,93188	0,15120	0,150612	0,39	2,5	PASSED	1,08	1,5	PASSED
15	3,6	20,0	17131,93581	17132,08788	0,15207	0,151588	0,32	2,5	PASSED			
15	3,5	20,0	17132,09230	17132,24504	0,15274	0,152224	0,34	2,5	PASSED			
						Ēm (B)	0,35					
						Ēm (A)	**-0,73**					

Actual flowrate m^3/h	**Working pressure *p* w** Bar	**Working temp** °C	**Initial reading *V*i(i)** m^3	**Final reading *V*i(f)** m^3	**Indicated volume *V*i** m^3	**Actual volume *V*a** m^3	**Meter error *E* m** %	**MPE (a)** %	**Control**	**Curve variation error (b) *Ē* m(B) - *Ē* m(A)** %	**MPE (of curve variation error)** %	**Control**
11	2,7	20,0	17132,25014	17132,35140	0,10126	0,100208	1,05	2,5	PASSED	0,56	1,5	PASSED
11	2,7	20,0	17132,35633	17132,45760	0,10127	0,100166	1,10	2,5	PASSED			
						Ēm (B)	1,08					
						Ēm (A)	**0,52**					

Actual flowrate m^3/h	Working pressure p w Bar	Working temp °C	Initial reading Vi(i) m^3	Final reading Vi(f) m^3	Indicated volume Vi m^3	Actual volume Va m^3	Meter error E m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A) %	MPE (of curve variation error) %	Control
5,5	2,1	20,0	17132,46692	17132,54883	0,08191	0,081297	0,75	2,5	PASSED	0,24	1,5	PASSED
5,5	2,1	20,0	17132,55344	17132,63461	0,08117	0,08059	0,72	2,5	PASSED			
						Ēm (B)	0,74					
						Ēm (A)	**0,50**					

Actual flowrate m^3/h	Working pressure p w Bar	Working temp °C	Initial reading Vi(i) m^3	Final reading Vi(f) m^3	Indicated volume Vi m^3	Actual volume Va m^3	Meter error E m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A) %	MPE (of curve variation error) %	Control
0,175	2,1	21,0	17132,64168	17132,65701	0,01533	0,0151	1,52	2,5	PASSED	0,53	1,5	PASSED
0,175	2,1	20,0	17132,66384	17132,67954	0,01570	0,015469	1,49	2,5	PASSED			
0,175	2	20,0	17132,68219	17132,69763	0,01544	0,015207	1,53	2,5	PASSED			
						Ēm (B)	1,52					
						Ēm (A)	**0,98**					

Actual flowrate m^3/h	Working pressure p w Bar	Working temp °C	Initial reading Vi(i) m^3	Final reading Vi(f) m^3	Indicated volume Vi m^3	Actual volume Va m^3	Meter error E m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A) %	MPE (of curve variation error) %	Control
0,105	1,1	20,0	17132,70173	17132,70652	0,00479	0,004904	-2,32	6	PASSED	-1,01	3	PASSED
0,105	1,1	21,0	17132,70876	17132,71367	0,00491	0,00503	-2,39	6	PASSED			
0,105	1,1	21,0	17132,71495	17132,72038	0,00543	0,005669	-4,22	6	PASSED			
						Ēm (B)	-2,98					
						Ēm (A)	**-1,97**					



Application No.:	MID-02-25-3
Test method:	Gravimetric
Volume measures/weighbridge used — m3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Length of straight pipe before meter (or manifold) — mm:	110
Length of straight pipe after meter (or manifold) — mm:	165
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	DN40
Describe flow straightener installation if used:	-

Readings taken during the test

Meter serial No.:	40-2

Note: Readings are recorded every 24 h or once for every shorter period, if so divided

	At start (18.06.2025)	**At end (22.06.2025)**	
Ambient temperature:	20,3	20,6	°C
Ambient relative humidity:	54	64	%rh
Ambient atmospheric pressure:	1003	1000	mbar
Time:	08:00	12:00	

	At start	**At end**
Date	18.06.2025	22.06.2025

Q_1:	0,10	m^3/h
Q_2:	0,16	m^3/h
Q_3:	16,00	m^3/h
Q_4:	20,00	m^3/h

Date	**Time**	**Observer**	**Giriş Basıncı** *Up stream pressure* Bar	**Çıkış Basıncı** *Down stream pressure* Bar	**Giriş Sıcaklığı** *Up stream temp* °C	**Gerçek Debi** *Actual* m^3/h	**Sayaç Okuması** *Meter reading* m^3	**Toplam Geçirilen Hacim** *Total volume discharged* m^3	**Çalışma Saati** *Hours run* h
18.06.2025	08:00	GÖKHAN SEYHAN	6,2	1,10	21	20,022	7160,232	0,000	0
	17:00		6,2	1,10	21	19,977	7340,025	179,793	9
19.06.2025	08:00		6,2	1,00	21	20,021	7820,133	480,108	15
	17:00		6,2	1,00	21	20,023	8480,448	660,315	9
20.06.2025	08:00		6,2	1,10	21	20,005	9440,838	960,390	15
	17:00		6,2	1,00	21	20,004	10581,264	1140,426	9
21.06.2025	08:00		6,2	1,10	21	20,006	12021,780	1440,516	15
	17:00		6,2	1,00	21	19,991	13642,215	1620,435	9
22.06.2025	08:00		6,2	1,00	21	19,994	15562,560	1920,345	15
	12:00		6,2	1,10	21	20,006	17562,929	2000,369	4
						Test Sonundaki Toplam *Totals at end of test*		2000,369	**100**
						Geçmesi gereken Minimum Hacim *Minimum volume discharged*		2000,000	**PASSED**

-Errors (of indication) measured after the continuous flow test

Actual flowrate m^3/h	**Working pressure *p* w** Bar	**Working temp** °C	**Initial reading *V*i(i)** m^3	**Final reading *V*i(f)** m^3	**Indicated volume *V*i** m^3	**Actual volume *V*a** m^3	**Meter error *E* m** %	**MPE (a)** %	**Control**	**Curve variation error (b) *Ē* m(B) - *Ē* m(A)** %	**MPE (of curve variation error)** %	**Control**
19,5	4,4	21,0	17912,43091	17912,63001	0,19910	0,201512	-1,20	2,5	PASSED	-0,42	1,5	PASSED
19,5	4,2	21,0	17912,63756	17912,83529	0,19773	0,200147	-1,21	2,5	PASSED			
						Ēm (B)	-1,20					
						Ēm (A)	**-0,78**					

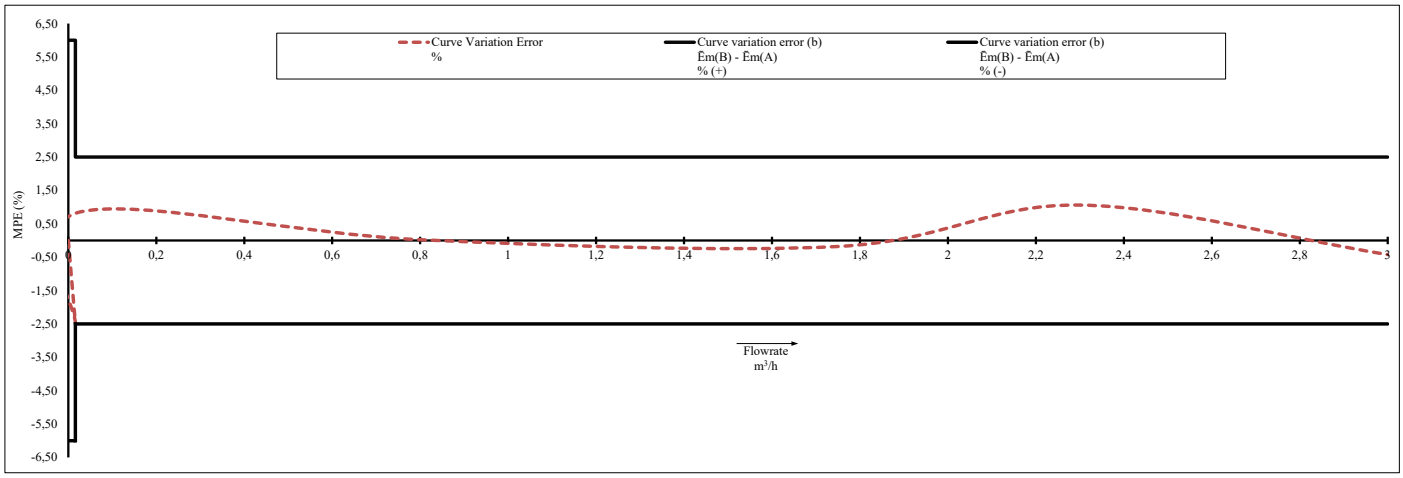
Actual flowrate m^3/h	**Working pressure *p* w** Bar	**Working temp** °C	**Initial reading *V*i(i)** m^3	**Final reading *V*i(f)** m^3	**Indicated volume *V*i** m^3	**Actual volume *V*a** m^3	**Meter error *E* m** %	**MPE (a)** %	**Control**	**Curve variation error (b) *Ē* m(B) - *Ē* m(A)** %	**MPE (of curve variation error)** %	**Control**
15,0	3,9	21,0	17912,84046	17912,99160	0,15114	0,150612	0,35	2,5	PASSED	1,06	1,5	PASSED
15,0	3,6	20,0	17912,99540	17913,14745	0,15205	0,151588	0,30	2,5	PASSED			
15,0	3,5	20,0	17913,15211	17913,30478	0,15267	0,152224	0,29	2,5	PASSED			
						Ēm (B)	0,32					
						Ēm (A)	**-0,74**					

Actual flowrate m^3/h	**Working pressure *p* w** Bar	**Working temp** °C	**Initial reading *V*i(i)** m^3	**Final reading *V*i(f)** m^3	**Indicated volume *V*i** m^3	**Actual volume *V*a** m^3	**Meter error *E* m** %	**MPE (a)** %	**Control**	**Curve variation error (b) *Ē* m(B) - *Ē* m(A)** %	**MPE (of curve variation error)** %	**Control**
11	2,7	20,0	17913,31128	17913,41222	0,10094	0,100208	0,73	2,5	PASSED	-0,18	1,5	PASSED
11	2,7	20,0	17913,41754	17913,51745	0,09991	0,100166	-0,26	2,5	PASSED			
						Ēm (B)	0,24					
						Ēm (A)	**0,42**					

Actual flowrate m^3/h	Working pressure p w Bar	Working temp °C	Initial reading Vi(i) m^3	Final reading Vi(f) m^3	Indicated volume Vi m^3	Actual volume Va m^3	Meter error E m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A) %	MPE (of curve variation error) %	Control
5,5	2,1	20,0	17913,52763	17913,60941	0,08178	0,081297	0,59	2,5	PASSED	0,02	1,5	PASSED
5,5	2,1	20,0	17913,61421	17913,69522	0,08101	0,08059	0,52	2,5	PASSED			
						Ēm (B)	0,56					
						Ēm (A)	**0,53**					

Actual flowrate m^3/h	Working pressure p w Bar	Working temp °C	Initial reading Vi(i) m^3	Final reading Vi(f) m^3	Indicated volume Vi m^3	Actual volume Va m^3	Meter error E m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A) %	MPE (of curve variation error) %	Control
0,175	2,1	21,0	17913,70297	17913,71829	0,01532	0,0151	1,46	2,5	PASSED	0,85	1,5	PASSED
0,175	2,1	20,0	17913,72478	17913,74048	0,01570	0,015769	-0,44	2,5	PASSED			
0,175	2	20,0	17913,74325	17913,75896	0,01571	0,015607	0,66	2,5	PASSED			
						Ēm (B)	0,56					
						Ēm (A)	**-0,29**					

Actual flowrate m^3/h	Working pressure p w Bar	Working temp °C	Initial reading Vi(i) m^3	Final reading Vi(f) m^3	Indicated volume Vi m^3	Actual volume Va m^3	Meter error E m %	MPE (a) %	Control	Curve variation error (b) $\bar{E}$ m(B) - $\bar{E}$ m(A) %	MPE (of curve variation error) %	Control
0,105	1,1	20,0	17913,76287	17913,76766	0,00479	0,005004	-4,28	6	PASSED	-2,48	3	PASSED
0,105	1,1	21,0	17913,76965	17913,77456	0,00491	0,00513	-4,29	6	PASSED			
0,105	1,1	21,0	17913,77622	17913,78165	0,00543	0,005669	-4,22	6	PASSED			
						Ēm (B)	-4,26					
						Ēm (A)	**-1,78**					



4.3.11 Static magnetic field test (OIML R 49-2:2024, 7.12, 8.16)

Application No	MID-02-25-3
Model	PAK-15K
Date	22.06.2025
Observer	GÖKHAN SEYHAN

	At start	**At end**	
Ambient temperature:	20,2	20,2	°C
Ambient relative humidity:	53	53	%rh
Ambient atmospheric pressure:	997	996	mbar
Time:	20:00	21:00	

Test method:	**Gravimetric**
Volume measures/weighbridge used — m3 or kg:	m^3 or L
Water conductivity (electromagnetic induction meters only) — S/cm:	-
Length of straight pipe before meter (or manifold) — mm:	110
Length of straight pipe after meter (or manifold) — mm:	165
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	PAK-15K
Describe flow straightener installation if used:	-

Meter serial No.:	15-1
Orientation (V, H, other):	H (0°)
Flow direction (see Requirement 3):	Forward
Location of indicating device (see Requirement 4):	Top

Q_1:	0,016 m^3/h
Q_2:	0,025 m^3/h
Q_3:	2,500 m^3/h
Q_4:	3,125 m^3/h

-Test applied without magnet

Application conditions	**Nominal flow rate** m^3/h	**Actual flow rate**	**Initial supply pressure** Bar	**Initial inlet water** °C	**Initial reading Vi(i)** m^3	**Final reading Vi(f)** m^3	**Indicated volume** m^3	**Actual volume Va** m^3	**Meter error Em** %	**MPE (a)** %	**Control**
Location 1	Q_3	2,5	2,1	21	284,23219	284,38255	0,15036	0,150220	0,09	2	**PASSED**
Location 2 (optional)	Q_3	2,5	2,1	22	284,48558	284,63745	0,15187	0,151841	0,02	2	**PASSED**
Location 3 (optional)	Q_3	2,5	2,1	22	284,72753	284,88201	0,15448	0,154313	0,11	2	**PASSED**

-Test applied with magnet

Application conditions	**Nominal flow rate** m^3/h	**Actual flow rate**	**Initial supply pressure** Bar	**Initial inlet water** °C	**Initial reading Vi(i)** m^3	**Final reading Vi(f)** m^3	**Indicated volume** m^3	**Actual volume Va** m^3	**Meter error Em** %	**MPE (a)** %	**Control**
Location 1	Q_3	2,5	2,1	21	284,86734	285,017	0,14966	0,150220	-0,37	2	**PASSED**
Location 2 (optional)	Q_3	2,5	2,1	22	285,11939	285,27057	0,15118	0,151841	-0,44	2	**PASSED**
Location 3 (optional)	Q_3	2,5	2,1	22	285,36012	285,51391	0,15379	0,154313	-0,34	2	**PASSED**

Comments	**PASSED**

Meter serial No.:	15-2
Orientation (V, H, other):	H (0°)
Flow direction (see Requirement 3):	Forward
Location of indicating device (see Requirement 4):	Top

Q_1:	0,016 m^3/h
Q_2:	0,025 m^3/h
Q_3:	2,500 m^3/h
Q_4:	3,125 m^3/h

Test applied without magnet

Application conditions	**Nominal flow rate** m^3/h	**Actual flow rate**	**Initial supply pressure** Bar	**Initial inlet water** °C	**Initial reading Vi(i)** m^3	**Final reading Vi(f)** m^3	**Indicated volume** m^3	**Actual volume Va** m^3	**Meter error Em** %	**MPE (a)** %	**Control**
Location 1	Q_3	2,5	3,1	21,0	2749,98092	2750,13237	0,15145	0,150220	0,82	2	**PASSED**
Location 2 (optional)	Q_3	2,5	3,1	22,0	2750,23461	2750,38753	0,15292	0,151841	0,71	2	**PASSED**
Location 3 (optional)	Q_3	2,5	3,1	22,0	2750,47783	2750,63318	0,15535	0,154313	0,67	2	**PASSED**

-Test applied with magnet

Application conditions	**Nominal flow rate** m^3/h	**Actual flow rate**	**Initial supply pressure** Bar	**Initial inlet water** °C	**Initial reading Vi(i)** m^3	**Final reading Vi(f)** m^3	**Indicated volume** m^3	**Actual volume Va** m^3	**Meter error Em** %	**MPE (a)** %	**Control**
Location 1	Q_3	2,5	3,1	21	2751,39859	2751,50111	0,10252	0,104	-0,97	2	**PASSED**
Location 2 (optional)	Q_3	2,5	3,1	22	2751,59990	2751,69927	0,09937	0,100	-1,08	2	**PASSED**
Location 3 (optional)	Q_3	2,5	3,1	22	2751,76602	2751,86609	0,10007	0,101	-0,88	2	**PASSED**

Comments	**PASSED**