

**DECLARAȚIE**  
**privind valabilitatea ofertei**

Către *Societatea pe Acțiuni “Apă-Canal Chișinău”, MD 2005, Republica Moldova,*  
*mun. Chișinău, str. Albișoara 38*

**Stimați domni,**

Ne angajăm să menținem oferta valabilă, privind achiziționarea **Contoare de apă**, prin procedura de achiziție **Licitație deschisă 21631051 din 10 iunie 2026** pentru o durată de 60 zile, (șaizeci), respectiv până la data de   26.08.26   (ziua/luna/anul), și ea va rămâne obligatorie pentru noi și poate fi acceptată oricând înainte de expirarea perioadei de valabilitate.

Data completării ...25.VI.26

Cu stimă,  
Ofertant/candidat  
... PARTENER ENERGO .....  
(semnătura autorizată)

**Declarație cu privire la situația personală/calificarea ofertantului**

[Ofertantul va completa această declarație în conformitate cu instrucțiunile de mai jos. Nu se vor permite modificări în formatul declarației, precum și nu se vor accepta înlocuiri în textul acesteia.]

Licitația Nr.: \_\_\_\_\_

Nr. ord.	Conținutul cerințelor	Răspuns
<b>Informații privind operatorul economic</b>		
1.1	Denumirea operatorul economic	PARTENER ENERGO
1.2	Țara	MOLDOVA
1.3	Cod poștal	text
1.4	Oraș/Localitate	CHIȘINĂU
1.5	Adresa juridică	MEȘTERUL MANOLE 12
1.6	Pagina web	LORAWAN.MD
1.7	Persoana sau persoanele de contact	DUMITRAȘCU IVAN
1.7.1	Telefon	069108658t
1.7.2	Adresa de e-mail	PARTENER.ENERGO@YAHOO.COM
1.8	Număr unic de identificare (IDNO/IDNP)	1014600016247
1.9	Numărul cod TVA	0405060
1.10	Forma organizatorico-juridică a activității de antreprenoriat	SRL
1.11	Informația cu privire la numele acționarilor/asociaților/beneficiarului efectiv	
1.11.1	Numele acționarilor / asociaților	DUMITRAȘCU IVAN
1.11.2	Numele beneficiarului efectiv <i>[beneficiar efectiv – persoană fizică ce deține sau controlează în ultimă instanță o persoană fizică sau juridică ori beneficiar al unei societăți de investiții sau administrator al societății de investiții, ori persoană în al cărei nume se desfășoară o activitate sau se realizează o tranzacție și/sau care deține, direct sau indirect, dreptul de proprietate sau controlul asupra a cel puțin 25% din acțiuni sau din dreptul de vot al persoanei juridice ori asupra bunurilor aflate în administrare fiduciară]</i>	DUMITRAȘCU IVAN
1.12	Operatorul economic este: întreprindere mică întreprindere mijlocie și altele	MICĂ
2A.14	Operatorul economic participă la procedura de achiziții publice împreună cu alți operatori economici?	<input checked="" type="checkbox"/> Da <input checked="" type="checkbox"/> Nu
2A.14.1	<i>Dacă Da, precizați rolul operatorului economic în cadrul grupului și denumirea acestuia (lider, responsabil cu îndeplinirea unor sarcini specifice, etc).</i>	text

<b>Informații privind reprezentanții operatorului economic</b>		
Indicați numele persoanei (persoanelor) împuternicită (împuternicite) să îl reprezinte pe operatorul economic în scopurile prezentei proceduri de achiziție publică.		
2.1	Nume și prenume	DUMITRAȘCU IVAN
2.2	Poziție/acționând în calitate de ...	ADMINISTRAT OR
2.3	Țară	MOLDOVA
2.4	Telefon	[069108658]
2.5	Adresa de e-mail	partener.energ o@yahoo.com
<b>Informații privind utilizarea capacităților altor entități</b>		
3.1	Operatorul economic utilizează capacitățile altor entități pentru a satisface criteriile de calificare și selecție solicitate de entitatea contractantă	<input type="checkbox"/> Da <input checked="" type="checkbox"/> Nu
<b>Informații privind subcontractanții pe ale căror capacități operatorul economic se bazează</b>		
4.1	Operatorul economic intenționează să subcontracteze vreo parte din contract cu alți operatori economici?	<input type="checkbox"/> Da <input checked="" type="checkbox"/> Nu
4.1.1	<i>Dacă Da, enumerați subcontractanții propuși.</i>	text/
<b>Motive de excludere din cadrul procedurii de achiziție sectorială:</b>		
5.1	Operatorul economic însuși sau orice persoană care este membru al organismului de administrare, de conducere sau de supraveghere al acestuia sau care are putere de reprezentare, de decizie sau de control în cadrul acestuia a făcut obiectul unei condamnări pronunțate printr-o hotărâre definitivă pentru participare la activități ale unei organizații sau grupări criminale, pentru corupție, pentru fraudă și/sau pentru spălare de bani, pentru infracțiuni de terorism sau infracțiuni legate de activități teroriste, pentru finanțarea terorismului, exploatarea prin muncă a copiilor și pentru alte forme de trafic de persoane?	<input type="checkbox"/> Da <input checked="" type="checkbox"/> Nu
5.2	Operatorul economic și-a onorat obligațiile cu privire la plata impozitelor, taxelor și contribuțiilor sociale în conformitate cu prevederile legale în vigoare în Republica Moldova sau în țara în care este stabilit?	<input checked="" type="checkbox"/> Da <input type="checkbox"/> Nu
5.3	Operatorul economic se află într-o situație de conflict de interese care nu poate fi remediată?	<input type="checkbox"/> Da <input checked="" type="checkbox"/> Nu
<b>Criteriile de calificare și selecție a operatorilor economici</b>		
6.1	Operatorul economic îndeplinește criteriile/cerințele de calificare și selecție astfel cum a fost solicitat în anunțul de participare și în documentația de atribuire?	<input checked="" type="checkbox"/> Da <input type="checkbox"/> Nu
6.2	Operatorul economic este în măsură să furnizeze în Sistemul informațional automatizat „Registrul de stat al achizițiilor publice” sau prin mijloace electronice, sau dacă e cazul, pe suport de hârtie entității contractante: formularele, certificatele, avizele și alte documente indicate în anunțul de participare și în documentația de atribuire?	<input checked="" type="checkbox"/> Da <input type="checkbox"/> Nu

	Termen 3 zile de la solicitare.	
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Denumirea operatorului economic \_\_\_\_PARTENER ENERGO SRL\_\_\_\_

Nume, prenume\_\_\_\_DUMITRAȘCU IVAN\_\_\_\_

Funcția \_\_\_\_ADMINISTRATOR\_\_\_\_

Data \_\_\_\_25.VI.26\_\_\_\_

Semnătura \_\_\_\_\_

## Declarație pe proprie răspundere

Eu, Subsemnatul \_\_\_\_Dumitrașcu IVAN\_\_\_\_, declar pe propria răspundere că în ultimii 3 ani nu am precedente de reziliere a contractelor de livrări de bunuri, înainte de expirarea termenului, din vina mea.

Data completării ...25.VI.26....

Cu stimă,  
Ofertant/candidat  
..... PARTENER ENERGO .....  
(semnătura autorizată)

PARTENER ENERGO SRL  
(denumirea/numele operatorului economic)

**DECLARAȚIE**  
**privind neîncadrarea în situațiile prevăzute la art.16 alin.(2) lit.a) din Legea nr.246/2017 cu privire la întreprinderea de stat și întreprinderea municipală**

**Titlul achiziției:** \_\_\_\_\_ **Contoare de apă\_21631051 din 10 iunie 2026** \_\_\_\_\_

Subsemnatul, Dumitrașcu IVA, reprezentantul legal al PARTENER ENERGO SRL,  
(numele și prenumele)(denumirea operatorului economic)

în calitate de ofertant, la achiziție \_\_\_\_\_ **Contoare de apă\_21631051 din 10 iunie 2026** \_\_\_\_\_,  
(denumirea achiziției)

organizată de S.A. „Apă-Canal Chișinău”, declar pe propria răspundere, sub sancțiunea excluderii din procedură și a sancțiunilor aplicate faptei de fals în acte publice, că nu ne aflăm în situațiile prevăzute la art.16 alin.(2) lit.a) din Legea nr.246/2017 cu privire la întreprinderea de stat și întreprinderea municipală, respectiv ofertantul:

- nu are drept membrul în cadrul consiliului de administrație/organului de conducere și/sau nu avem persoane care sunt soț/soție, persoana înrudită prin sânge sau prin adopție cu subiectului declarării (părinte, frate/soră, bunic/bunică, nepot/nepoată, unchi/mătușă) și persoana înrudită prin afinitate cu subiectul declarării (cumnat/cumnată, socru/soacră, ginere/noră) inclusiv ori care se află în relații comerciale cu persoane cu funcții de decizie în cadrul Întreprinderii sau al furnizorului de servicii de achiziție implicat în procedura de atribuire.

- nu a nominalizat printre principalele persoane desemnate pentru executarea contractului persoane care sunt soț/soție, persoana înrudită prin sânge sau prin adopție cu subiectului declarării (părinte, frate/soră, bunic/bunică, nepot/nepoată, unchi/mătușă) și persoana înrudită prin afinitate cu subiectul declarării (cumnat/cumnată, socru/soacră, ginere/noră) inclusiv ori care se află în relații comerciale cu persoane cu funcții de decizie în cadrul Întreprinderii sau al furnizorului de servicii de achiziție implicat în procedura de atribuire,

Declar că informațiile furnizate în scopul demonstrării îndeplinirii criteriilor de calificare sunt complete și corecte în fiecare detaliu și înțeleg că întreprinderea are dreptul de a solicita, în scopul verificării și confirmării declarațiilor, orice documente doveditoare de care dispun.

Data completării \_\_\_\_\_ **25.VI.26** \_\_\_\_\_

**Operator economic** \_\_\_\_\_  
(semnătura)

Persoanele care dețin funcții de decizie în cadrul întreprinderii, responsabile cu achiziția:

## **Declarație de conformare**

### **la Politica în domeniul Sistemului de Management anti-mită**

Politica anti-mită a S.A. „Apă-Canal Chișinău” elaborată și aprobată de managementul de vârf, evidențiază valorile și principiile etice ale organizației, și constituie un instrument de lucru care conține reguli, valori, principii și responsabilități, care vor fi avute în vedere și respectate în toate activitățile întreprinderii, atât în interiorul acesteia, cât și în raport cu partenerii de afaceri.

Politica întreprinderii în domeniul sistemului de management anti-mită presupune implementarea măsurilor și controalelor adecvate în scopul prevenirii, detectării și contracarării mitei și reducerii incidenței acesteia, prin următoarele acțiuni:

- interzicerea mitei;
- respectarea cerințelor Sistemului de Management anti-mită conform cerințelor ISO 37001:2016 și îmbunătățirea continuă a acestuia;
- asigurarea conformării cu cerințele legale și alte cerințe aplicabile întreprinderii în domeniul anti-mită;
- încurajarea semnalării unor preocupări de bună credință sau din motive rezonabile de a crede astfel, cu toată încrederea și fără frică de represalii;
- comunicarea politicii anti-mită și a tuturor documentelor relevante în domeniu, întregului personal care lucrează în companie sau în numele companiei, precum și publicului și altor părți interesate;
- analizarea și îmbunătățirea continuă a politicii anti-mită.

Ca partener de afaceri, declar că cunosc politica anti-mită și obiectivele stabilite, îmi asum toată responsabilitatea și angajamentul de a respecta obiectivele, în limitele responsabilității și autorității desemnate de documentele organizatorice.

Denumirea operatorului economic \_\_\_\_\_PARTENER ENERGO\_\_\_\_\_

Nume, prenume \_\_\_\_\_Dumitrașcu Ivan\_\_\_\_\_

Funcția \_\_\_\_\_Administrator\_\_\_\_\_

Data \_\_\_\_\_25.VI.26\_\_\_\_\_

Semnătura \_\_\_\_\_

## Specificații tehnice

[Acest tabel va fi completat de către ofertant în coloanele 2, 3, 4, 6, 7, iar de către entitatea contractantă – în coloanele 1, 5,]

Numărul procedurii de achiziție 21631051 din 10 iunie 2026							
Obiectul achiziției: <b>Contoare de apă</b>							
Nr. poz.	Denumirea bunurilor/serviciilor	Denumirea modelului bunului/serviciului	Țara de origine	Producătorul	Specificarea tehnică deplină solicitată de către autoritatea contractantă	Specificarea tehnică deplină propusă de către ofertant	Standarde de referință
	1	2	3	4	5	6	7
	<b>Bunuri/servicii</b>						
1	<b>Contor ultrasonice de apă rece DN15</b>	Beco Y DN15 Ultrasonic Water Meter, Composite material R500; T50; IP68; 10 Years Battery Life, MID&NSF Certified LoRaWAN 868 MHz With 1 pair Coupling Nuts	CHINA	Zhejiang Bove Intelligent Technology Co., Ltd	Conform caietului de sarcini	DATA SHEET se anexează	<b>Certificate MID Directive.</b>
<b>TOTAL</b>							

Semnat: \_\_\_ PARTENER ENERGO \_\_\_ Numele, Prenumele: \_\_\_\_\_ Dumitrașcu Ivan \_\_\_\_\_ În calitate de: \_\_\_ Administrator \_\_\_\_\_

Ofertantul: \_\_\_\_\_ Adresa: \_\_\_ Meșterul Manole 12 \_\_\_\_\_



NB 2275

# CERTIFICAT CERTIFICATE

Număr RO-2275-24-568  
*Number RO-2275-24-568*

accredited for  
CERTIFICATION



SR EN ISO/CEI 17065:2013  
ACCREDITATION CERTIFICATE  
ON 041

**MRC aprobă sistemul calității aplicat de**  
*MRC approves the quality system applied by*

## **Zhejiang Bove Intelligent Technology Co., Ltd.**

Registered office: Building 23, No. 36, Changsheng South Road, Jiaxing, Zhejiang, China, 314000

În conformitate cu cerințele Directivei 2014/32/UE, anexa II, modulul D  
*In compliance with the requirements of 2014/32/EU Directive, annex II, module D*

Conformitatea cu tipul bazată pe asigurarea calității procesului de producție  
*Conformity to type based on quality assurance of the production process*

Zhejiang Bove Intelligent Technology Co., Ltd. este autorizată să aplice marcajul de conformitate CE, marcajul metrologic suplimentar, numărul de identificare al organismului notificat MRC „2275” pentru mijloacele de măsurare din anexă, fabricate în conformitate cu sistemul calității aprobat.

*Zhejiang Bove Intelligent Technology Co., Ltd. is authorized to affix the CE marking, supplementary metrology marking, MRC notified body's identification number "2275" for the measuring instruments appearing in the annex, manufactured according to the approved quality system.*

Zhejiang Bove Intelligent Technology Co., Ltd. este responsabilă de întocmirea declarației de conformitate ce respectă Directiva 2014/32/UE.

*Zhejiang Bove Intelligent Technology Co., Ltd. is responsible for drafting the declaration of conformity in accordance with 2014/32/EU Directive.*

Zhejiang Bove Intelligent Technology Co., Ltd. trebuie să informeze MRC cu privire la orice actualizare a sistemului calității.

*Zhejiang Bove Intelligent Technology Co., Ltd. must keep MRC informed of any update of the quality system.*

Sistemul de calitate este supus supravegherii și auditului anual de către MRC.

*The quality system is subject to surveillance and annual audit by MRC.*

Data certificării inițiale: 09.12.2021

*Initial certification date:*

Data recertificării: 09.12.2024

*Recertification date:*

Data expirării certificării: 09.12.2027

*Certification expiration date:*



**EXECUTIVE DIRECTOR,**  
**PhD eng. Maria Magdalena Poenaru**

Certificatul fără semnătură și ștampilă nu este valabil. Acest certificat nu poate fi reprodus decât în întregime. Nu pot fi efectuate extrase din certificat decât cu acordul Mișcării Române pentru Calitate.

*The certificate without signature and seal is not valid. This certification may not be reproduced other than in full. Extracts may be taken only with the permission of Romanian Movement for Quality.*

**MIȘCAREA ROMÂNĂ PENTRU CALITATE (MRC)**

str. Părului, nr. 8, cod 200346, Craiova, România Tel: 0351/451 047 Tel/Fax: 0251/545 553 office@mrco.ro; www.mrco.ro



NB 2275

# ANEXĂ ANNEX

LA CERTIFICATUL Nr./ TO CERTIFICATE No. **RO-2275-24-568**

DATA EMITERII/DATE OF ISSUE: 09.12.2024

Categorie mijloace de măsurare <i>Measuring instruments category</i>	Tip mijloace de măsurare <i>Measuring instruments type</i>	Număr certificat de examinare UE de tip <i>EU-type examination certificate number</i>	Observații <i>Remarks</i>
Contoare de apă  <i>Water meters</i>  (MI-001)	Contoare de apă tip BECO X, seria cu DN15, DN20, DN25, DN32, DN40  <i>Water meters BECO X type, series with DN15, DN20, DN25, DN32, DN40</i>	RO-2275-21539 Rev. 2	
	Contoare de apă tip BECO Y, seria cu DN15, DN20  <i>Water meters BECO Y type, series with DN15, DN20</i>	RO-2275-23643 Rev. 0	
	Contoare de apă tip B39 VW-M, seria cu DN50, DN65, DN80, DN100, DN125, DN150  <i>Water meters B39 VW-M type, series with DN50, DN65, DN80, DN100, DN125, DN150</i>	RO-2275-24681 Rev. 0	
	Contoare de apă tip B97 VPW, seria cu DN15, DN20  <i>Water meters B97 VPW type, series with DN15, DN20</i>	RO-2275-24682 Rev. 0	





# TEST REPORT

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Name of sample	Ultrasonic Water Meter	Trade mark	/
Name of Applicant:	Zhejiang Bove Intelligent Technology Co., Ltd	Address:	Level 5, Building 5, No. 36, Changsheng South Road, Jiaxing, Zhejiang, China,
Name of Manufacturer:	Zhejiang Bove Intelligent Technology Co., Ltd	Address:	Level 5, Building 5, No. 36, Changsheng South Road, Jiaxing, Zhejiang, China,
Name of Factory (ies)	Zhejiang Bove Intelligent Technology Co., Ltd	Address:	Level 5, Building 5, No. 36, Changsheng South Road, Jiaxing, Zhejiang, China,
Means of receiving	Sending sample	Receiving date	2023-06-16
Classification of test	Commission Test	Completing date	2023-06-20
Tested according to	IEC 60529:2013+COR2:2015	Test items	Degrees of protection provided by enclosure ( IP68)

## Test Conclusion:

According to the standard of IEC 60529:2013+COR2:2015, Degrees of protection provided by enclosures (IP code). IP68 test has been conducted on the sample. The test results are listed on page 5-6.

Conclusion: Degrees of protection provided by enclosure ( IP68) pass.

Seal of Lab.  
Date of issue: 2023.06.21

Approved by: An Xue

An Xue

Reviewed by: Shen Yunjia

Shen Yunjia

Tested by: Sun Jiafan

Sun Jiafan

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Sample description	1 Basic information:					
	<table border="1"><thead><tr><th>Name of sample</th><th>Type/Model</th><th>Quantity of sample</th></tr></thead><tbody><tr><td>Ultrasonic Water Meter</td><td>BECOY DN15 DN20</td><td>1</td></tr></tbody></table>	Name of sample	Type/Model	Quantity of sample	Ultrasonic Water Meter	BECOY DN15 DN20
Name of sample	Type/Model	Quantity of sample				
Ultrasonic Water Meter	BECOY DN15 DN20	1				
	2 Sample picture:					
	Detailed on page 7-8.					
Remarks	—					

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## **1 Degrees of protection provided by enclosure (IP68)**

### **1.1 General description**

According to the standard of IEC 60529:2013+COR2:2015 and technical requirements of the client's, test has been conducted.

### **1.2 Technical requirements**

#### **1.2.1 Test for protection against access to hazardous parts indicated by the first characteristic numeral 6**

The test wire of 1, 0 mm  $\varnothing$  shall not penetrate and adequate clearance shall be kept.

#### **1.2.2 Dust test for first characteristic numerals 6**

The test is made using a dust chamber whereby the powder circulation pump may be replaced by other means suitable to maintain the talcum powder in suspension in a closed test chamber. The talcum powder used shall be able to pass through a square-meshed sieve the nominal wire diameter of which is 50  $\mu\text{m}$  and the nominal width of a gap between wires 75  $\mu\text{m}$ . The amount of talcum powder to be used is 2 kg per cubic metre of the test chamber volume. It shall not have been used for more than 20 tests.

The enclosure under test is supported inside the test chamber and the pressure inside the enclosure is maintained below the surrounding atmospheric pressure by a vacuum pump. The suction connection shall be made to a hole specially provided for this test.

If not otherwise specified in the relevant product standard, this hole shall be in the vicinity of the vulnerable parts.

If it is impracticable to make a special hole, the suction connection shall be made to the cable inlet hole. If there are other holes (for example, more cable inlet holes or drain-holes) these shall be treated as intended for normal use on site.

The object of the test is to draw into the enclosure, by means of depression, a volume of air 80 times the volume of the sample enclosure tested without exceeding the extraction rate of 60 volumes per hour. In no event shall the depression exceed 2 kPa (20 mbar) on the manometer shown in figure 2.

If an extraction rate of 40 to 60 volumes per hour is obtained the duration of the test is 2 h.

If, with a maximum depression of 2 kPa (20 mbar), the extraction rate is less than 40 volumes per hour, the test is continued until 80 volumes have been drawn through, or a period of 8 h has elapsed.

#### **1.2.3 Test for second characteristic numeral 8: continuous immersion subject to agreement.**

Unless there is a relevant product standard, the test conditions are subject to agreement between manufacturer and user, but they shall be more severe than those prescribed in 14.2.7 and they shall take account of the condition that the enclosure will be continuously immersed in actual use.

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The test is made by completely immersing the enclosure in water in its service position as specified by the manufacturer so that the following conditions are satisfied:

- (1) the duration of the test is 60 min;
- (2) The test depth was 1 meters underwater.

## 1.3 Test results

According to: IEC 60529:2013+COR2:2015				
IP Code	Test requirement	Sample No.	Test result	Verdict
IP1X	The object probe, sphere of 50 mm $\Phi$ , shall not fully penetrate and have adequate clearance from hazardous parts.	—	—	N
IP2X	The object probe, sphere of 12.5 mm $\Phi$ , shall not fully penetrate. The jointed test finger of 12 mm $\Phi$ , shall have adequate clearance from hazardous parts.	—	—	N
IP3X	The object probe, sphere of 2.5 mm $\Phi$ , shall not penetrate at all and have adequate clearance from hazardous parts.	—	—	N
IP4X	The object probe, sphere of 1 mm $\Phi$ , shall not penetrate at all and have adequate clearance from hazardous parts.	—	—	N
IP5X	1. The object probe, sphere of 1 mm $\Phi$ , shall not penetrate at all and have adequate clearance from hazardous parts. 2. Ingress of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the apparatus or to impair safety.	—	—	N
IP6X	1. The object probe, sphere of 1 mm $\Phi$ , shall not penetrate at all and have adequate clearance from hazardous parts. 2. No ingress of dust.	1-1	1. The test wire cannot penetrate the enclosure. 2. No dust is visible in the enclosure.	P

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According to: IEC 60529:2013+COR2:2015				
IP Code	Test requirement	Sample No.	Test result	Verdict
IPX1	<p>In general, if any water has entered, it shall not:</p> <ul style="list-style-type: none"> <li>● be sufficient to interfere with the correct operation of the equipment or impair safety;</li> <li>● deposit on insulation parts where it could lead to tracking along the creepage distances;</li> <li>● reach live parts or windings not designed to operate when wet;</li> <li>● accumulate near the cable end or enter the cable if any.</li> </ul> <p>If the enclosure is provided with drain-holes, it should be proved by inspection that any water which enters does not accumulate and that it drains away without doing any harm to the equipment.</p> <p>For enclosures without drain-holes, the relevant product standard shall specify the acceptance conditions if water can accumulate to reach live parts.</p>	—	—	N
IPX2		—	—	N
IPX3		—	—	N
IPX4		—	—	N
IPX5		—	—	N
IPX6		—	—	N
IPX7		—	—	N
IPX8		1-1	No water is visible in the enclosure of the sample.	P

## 1.4 Test equipment

Test equipment			
No	Type / Model	Equipment name	Next due calibration date
1	110125921	IPX1-8 waterproof test device	2024-05-30
2	110314-2	Sand And Dust Test Chamber	2024-05-30
3	V021106	Test probe D	2024-03-01
4	1191240	Push pull meter	2024-05-30

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## Test pictures



Fig 1: Sample (Before the test)



Fig 2: Sample (Before the test)



Fig 3: Testing (IPX8)



Fig 4: After the IPX8 test  
(No water in the shell.  
The battery has been filled with glue.)



Fig 5: IP6X test  
(The wire of 1, 0 mm  $\Phi$  test of the IP6X)  
(The wire cannot penetrate the enclosure)




Fig 6: IP6X test

# TEST REPORT

No: GJWJX2023-0273

page 8 of 9

	
<p>Fig 7: After the IP6X test ( (No dust in the shell. The battery has been filled with glue. ) )</p>	

# Important

1. The test report is invalid without the stamp of Lab.;
2. Any part photocopies of the test report are forbidden without the written permission from Lab.;
3. The test report is invalid without the signatures of Author and Reviewer;
4. The test report is invalid if altered;
5. Objections to the test report must be submitted to Lab. within 15 days;
6. Generally, commission test is responsible for the tested samples only;
7. As for the test result"—"or"N"means"not applicable", " / "means"not testing", "P" means "pass" and "F"means"fail".

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中国认可  
国际互认  
检测  
TESTING  
CNAS L2865



Security Code  
ID code: 23vpu8

# TEST REPORT

Report No. LLW-20230950025

Name of Product Ultrasonic Water Meter

Client Zhejiang Bove Intelligent Technology Co.,Ltd

Tested Company Zhejiang Bove Intelligent Technology Co.,Ltd

Type of Test Entrust Test



Zhejiang Institute of Metrology

Approval Date

2023 / 10 / 09

Year / Month / Date

## Zhejiang Institute of Metrology

### TEST REPORT

<b>Name of sample</b>	Ultrasonic Water Meter	<b>Type of Test</b>	Entrust Test
<b>Model</b>	BECO Y	<b>Brand</b>	Bove
<b>Production date or batch number</b>	June, 2023	<b>Serial number</b>	See the inside page for details
<b>Entrust client</b>	Zhejiang Bove Intelligent Technology Co., Ltd	<b>Tested Company</b>	Zhejiang Bove Intelligent Technology Co., Ltd
<b>Address</b>	Level 5, Building 5, No. 36, Changsheng South Road, Jiaxing, Zhejiang, China	<b>Manufacturer</b>	Zhejiang Bove Intelligent Technology Co., Ltd
<b>Contact number</b>	18357314059	<b>Accuracy Class</b>	Class 2
<b>Sample sent by</b>	Zhejiang Bove Intelligent Technology Co., Ltd	<b>Sample grade</b>	Qualified product
<b>Quantity</b>	6 pcs	<b>Date of sample received</b>	19.06.2023
<b>Sampling number</b>	/	<b>Sampling date</b>	/
<b>Sampling basic number</b>	/	<b>Sampling location</b>	/
<b>Sampler</b>	/	<b>Test place</b>	Zhejiang Institute of Metrology
<b>Test items</b>	See the inside page for details	<b>Test period</b>	From 21.06.2023 to 16.09.2023
<b>Test standard</b>	<b>ISO 4064-2: 2014</b> <i>Water meters for cold potable water and hot water — Part 2: Test methods</i> <b>OIML R 49-2: 2013</b> <i>Water meters for cold potable water and hot water – Part 2: Test methods</i>		
<b>Sample status description</b>	Integrity, availability		
<b>Test Conclusion</b>	<p>For the request of the customer according to the standards of ISO 4064-1: 2014, ISO 4064-2: 2014, OIML R 49-1: 2013 and OIML R 49-2: 2013, the samples have been tested and the test conclusions conform to the requirements.</p>		
	Date of issue: 09 / 10		Issuing Institution (Seal for Testing) 2023
<b>Note</b>	Basis of judgment: <b>ISO 4064-1: 2014</b> <i>Water meters for cold potable water and hot water — Part 1: Metrological and technical requirements</i> <b>OIML R 49-1: 2013</b> <i>Water meters for cold potable water and hot water – Part 1: Metrological and technical requirements</i>		

Approved by:

陈贵顺

Checked by:

吴晓志

Compiled by:

方艳

**I Product parameters**

DN15	DN20
$Q_1 = 0.003125\text{m}^3/\text{h}$	$Q_1 = 0.005\text{m}^3/\text{h}$
$Q_2 = 0.005\text{m}^3/\text{h}$	$Q_2 = 0.008\text{m}^3/\text{h}$
$Q_3 = 2.5\text{m}^3/\text{h}$	$Q_3 = 4.0\text{m}^3/\text{h}$
$Q_4 = 3.125\text{m}^3/\text{h}$	$Q_4 = 5.0\text{m}^3/\text{h}$
$Q_3/Q_1 = 800$	$Q_3/Q_1 = 800$
Measuring principle	Ultrasound time difference
Accuracy class	Class 2
Temperature class/ Maximum admissible working temperature	T50/50 °C
Maximum admissible working pressure	1.6 MPa
Pressure-loss class/ Maximum admissible pressure loss	$\Delta p_{63}/ 0.063 \text{ MPa}$
Orientation limitation	H/V
Sensitivity to the upstream velocity fields classes	U0
Sensitivity to the downstream velocity fields classes	D0
Flow conditioner (details if required)	none
Flow reversal measurements	non-measurable
Connection type	screw thread
Climatic and mechanical environmental security level	Class O
EMC class	Class E2



## II Photograph of the sample

BECO Y-15



BECO Y-20



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# 1 Checklist for water meter examinations and performance tests

## 1.1 Checklist for water meter performance tests

### 1.1.1 Performance tests for all water meters

ISO 4064-1: 2014, subclause	Requirement	+	-	Remarks
<i>Static pressure test</i>				
4.2.10	<p>The meter shall be capable of withstanding the following test pressures without leakage or damage:</p> <ul style="list-style-type: none"> <li>— 1.6 times the maximum admissible pressure for 15min;</li> <li>— 2 times the maximum admissible pressure for 1min</li> </ul>	X		
<i>Intrinsic errors (of indication)</i>				
7.2.3	<p>The errors (of indication) of the water meter (in the measurement of the actual volume), shall be determined at least at the following flow raterranges:</p> <ul style="list-style-type: none"> <li>a) <math>Q_1</math> to <math>1.1Q_1</math>;</li> <li>b) <math>Q_2</math> to <math>1.1Q_2</math>;</li> <li>c) <math>0.33(Q_2 + Q_3)</math> to <math>0.37(Q_2 + Q_3)</math>;</li> <li>d) <math>0.67(Q_2 + Q_3)</math> to <math>0.74(Q_2 + Q_3)</math>;</li> <li>e) <math>0.9Q_3</math> to <math>Q_3</math>;</li> <li>f) <math>0.95Q_4</math> to <math>Q_4</math>;</li> </ul> <p>and for combinationmeters;;</p> <ul style="list-style-type: none"> <li>g) <math>0.85Q_{x1}</math> to <math>0.95Q_{x1}</math>;</li> <li>h) <math>1.05Q_{x2}</math> to <math>1.15Q_{x2}</math>.</li> </ul> <p>The water meter should be tested without its temporary supplementary devices attached (if any).</p> <p>During a test all other influence factors shall be held at reference conditions.</p> <p>Other flow rates may be tested depending on the shape of the error curve.</p> <ul style="list-style-type: none"> <li>1) The relative errors (of indication) observed for each of the flow rates shall not exceed the maximum permissible errors (MPEs) given in ISO 4064-1: 2014, 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.</li> <li>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 ISO 4064-1: 2014, 4.3.3 3) and8)</li> </ul>	X		
7.2.4	<p>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 ISO 4064-1: 2014, 4.2.2 or 4.2.3. Tests shall be carried out at nominal flow rates of <math>Q_1</math>, <math>Q_2</math>, and <math>Q_3</math></p>	X		

<b>Water temperature test</b>			
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	X	
<b>Water pressure test</b>			
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	X	
<b>Reverse flow test</b>			
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 volumes separately. The MPEs of ISO 4064-1: 2014, 4.2.2 or 4.2.3 shall be met for both forward and reverse flow	n/a	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 $Q_3$ without any deterioration or change in its metrological properties for forward flow	X	
<b>Meter characteristics at zero flow rate</b>			
4.2.9	The water meter totalization shall not change when the flow rate is zero	X	
<b>Pressure loss test</b>			
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 $Q_1$ and $Q_3$	X	
<b>Flow disturbance test</b>			
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)	X	
<b>Overload temperature test</b>			
7.2.5	Water meters with MAT $\geq 50$ °C shall be capable of withstanding a water temperature of MAT + 10 °C for 1 h	X	

<b>Durability tests</b>			
7.2.6	<p>The water meter shall undergo a durability test according to the permanent flow rate <math>Q_3</math> and the overload flow rate <math>Q_4</math> of the meter, simulating service conditions</p> <p>Meters with <math>Q_3 \leq 16 \text{ m}^3/\text{h}</math>:</p> <p>a) 100 000 flow cycles between 0 and <math>Q_3</math>;</p> <p>b) 100 h at <math>Q_4</math></p> <p>Meters with <math>Q_3 &gt; 16 \text{ m}^3/\text{h}</math>:</p> <p>a) 800 h at <math>Q_3</math>;</p> <p>b) 200 h at <math>Q_4</math>;</p> <p>and for combination meters:</p> <p>c) 50 000 flow cycles between <math>Q \geq 2Q_{x2}</math> and 0</p>	X	
7.2.6.2	<p>Accuracy class 1 meters</p> <p>The variation in the error curve shall not exceed 2 % for flow rates in the lower zone (<math>Q_1 \leq Q &lt; Q_2</math>) and 1 % for flow rates in the upper zone (<math>Q_2 \leq Q \leq Q_4</math>).</p> <p>For the purpose of these requirements, the arithmetic mean value of the errors (of indication) <math>E</math> for each flow rate shall apply.</p> <p>For flow rates in the lower flow rate zone (<math>Q_1 \leq Q &lt; Q_2</math>), the error (of indication) curve shall not exceed a maximum error limit of <math>\pm 4</math> % for all temperature classes. For flow rates in the upper flow rate zone (<math>Q_2 \leq Q \leq Q_4</math>), the error (of indication) curve shall not exceed a maximum error limit of <math>\pm 1.5</math> % for meters of temperature class T30 and <math>\pm 2.5</math> % for all other temperature classes</p>	n/a	n/a
7.2.6.3	<p>Accuracy class 2 meters</p> <p>The variation in the error curve shall not exceed 3 % for flow rates in the lower zone (<math>Q_1 \leq Q &lt; Q_2</math>) and 1.5 % for flow rates in the upper zone (<math>Q_2 \leq Q &lt; Q_4</math>).</p> <p>For the purpose of these requirements, the arithmetic mean value of the errors (of indication) <math>E</math> for each flow rate shall apply.</p> <p>For flow rates in the lower flow rate zone (<math>Q_1 \leq Q &lt; Q_2</math>), the error (of indication) curve shall not exceed a maximum error limit of <math>\pm 6</math> % for all temperature classes. For flow rates in the upper flow rate zone (<math>Q_2 \leq Q &lt; Q_4</math>) the error (of indication) curve shall not exceed a maximum error limit of <math>\pm 2.5</math> % for meters of temperature class T30 and <math>\pm 3.5</math> % for all other temperature classes</p>	X	
7.2.7	<p>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 ISO 4064-1: 2014, 7.4.6</p>	n/a	n/a
7.2.8	<p>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.</p> <p>The test shall be carried out at <math>Q_3</math> 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:</p> <p>Forward flow tests</p> <p>Reverse flow tests (where applicable) Application of the field in different planes</p>	X	

### 1.1.2 Performance tests for electronic water meters and electronic devices fitted to mechanical meters (first version)

ISO 4064-1: 2014, subclause	Requirement	+	-	Remarks
<b>Dry heat</b>				
A.5	To verify compliance with the provisions in 4.2 under conditions of high temperature (see ISO 4064-2: 2014, 8.2)	X		
<b>Cold</b>				
A.5	To verify compliance with the provisions in 4.2 under conditions of low temperature (see ISO 4064-2: 2014, 8.3)	X		
<b>Damp heat, cyclic, condensation</b>				
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 ISO 4064-2: 2014, 8.4)	X		
<b>Power voltage variation, for water meters powered by DC batteries and DC mains</b>				
A.5	To verify compliance with the provisions in 4.2 under conditions of varying DC voltage (if relevant). (see ISO 4064-2: 2014, 8.5)	X		
<b>Replaceable battery</b>				
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	n/a	
<b>Power voltage variation, for water meters powered by direct AC or by AC/DC converters</b>				
A.5	To verify compliance with the provisions in 4.2 under conditions of varying AC mains power voltage (if relevant). (see ISO 4064-2: 2014, 8.5)	n/a	n/a	
<b>Vibration (random)</b>				
A.5	To verify compliance with the provisions in 5.1.1 under conditions of random vibration. (see ISO 4064-2: 2014, 8.6)	n/a	n/a	
<b>Mechanical shock</b>				
A.5	To verify compliance with the provisions in 5.1.1 under conditions of mechanical shocks. (see ISO 4064-2: 2014, 8.7)	n/a	n/a	
<b>Short time power reductions</b>				
A.5	To verify compliance with the provisions in 5.1.1 under conditions of short time mains voltage reductions. (see ISO 4064-2: 2014, 8.8)	n/a	n/a	

<b>Bursts</b>			
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 ISO 4064-2: 2014, 8.9)	n/a	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 ISO 4064-2: 2014, 8.10)	n/a	n/a
<b>Electrostatic discharge</b>			
A.5	To verify compliance with the provisions in 5.1.1 under conditions of direct and indirect electrostatic discharges. (see ISO 4064-2: 2014, 8.11)	X	
<b>Electromagnetic susceptibility — electromagnetic fields</b>			
A.5	To verify compliance with the provisions in 5.1.1 under conditions of radiated electromagnetic fields. (see ISO 4064-2: 2014, 8.12)	X	
A.5	To verify compliance with the provisions in 5.1.1 under conditions of conducted electromagnetic fields. (see ISO 4064-2: 2014, 8.13)	n/a	n/a
<b>Surges on signal, data, and control lines</b>			
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 ISO 4064-2: 2014, 8.14)	n/a	n/a
<b>Surges on AC and DC mains power lines</b>			
A.5	To verify compliance with the provisions in 5.1.1 under conditions where electrical surges are superimposed on the mains voltage. (see ISO 4064-2: 2014, 8.15)	n/a	n/a

Note:

+	-	
X		Pass
	X	Fail
n/a	n/a	Not applicable

## 2 Test projects

### 2.1 Static pressure test (ISO 4064-2: 2014, 7.3)

Model: BECO Y Date: 12.09.2023 Observer: 方艳	Ambient temperature:	At start	At end	°C
		21.4	21.6	
	Ambient relative humidity:	63.3	62.4	%
	Ambient atmospheric pressure:	100.8	100.8	kPa
	Time:	15:02	15:53	

Meter serial No.	MAP × 1.6	Start time	Initial pressure	End time	Final pressure	Remarks
	MPa		MPa		MPa	
00000104	2.56	15:02	2.56	15:17	2.56	/
00000106	2.56	15:20	2.56	15:35	2.56	/
52052001	2.56	15:37	2.56	15:52	2.56	/

Meter serial No.	MAP × 2	Start time	Initial pressure	End time	Final pressure	Remarks
	MPa		MPa		MPa	
00000104	3.2	15:17	3.2	15:18	3.2	/
00000106	3.2	15:35	3.2	15:36	3.2	/
52052001	3.2	15:52	3.2	15:53	3.2	/

Comments: **Pass**

Model: BECO Y  
 Date: 12.09.2023  
 Observer: 方艳

	At start	At end	
Ambient temperature:	21.4	21.4	°C
Ambient relative humidity:	62.3	63.3	%
Ambient atmospheric pressure:	100.8	100.8	kPa
Time:	15:55	16:46	

Meter serial No.	MAP × 1.6	Start time	Initial pressure	End time	Final pressure	Remarks
	MPa		MPa		MPa	
00000201	2.56	15:55	2.56	16:10	2.56	/
00000205	2.56	16:12	2.56	16:27	2.56	/
00000213	2.56	16:30	2.56	16:45	2.56	/

Meter serial No.	MAP × 2	Start time	Initial pressure	End time	Final pressure	Remarks
	MPa		MPa		MPa	
00000201	3.2	16:10	3.2	16:11	3.2	/
00000205	3.2	16:27	3.2	16:28	3.2	/
00000213	3.2	16:45	3.2	16:46	3.2	/

Comments: **Pass**

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## 2.2 Determination of the intrinsic errors (of indication) and the effects of meter orientation (ISO 4064-2: 2014,7.4.4)

Model: BECO Y-15

Date: 21.06.2023~27.06.2023

Observer: 方艳

Ambient temperature: 24.2 24.8 °C

Ambient relative humidity: 60.5 68.8 %

Ambient atmospheric pressure: 101.6 101.2 kPa

Time: 09:17 11:46

	At start	At end	
Ambient temperature:	24.2	24.8	°C
Ambient relative humidity:	60.5	68.8	%
Ambient atmospheric pressure:	101.6	101.2	kPa
Time:	09:17	11:46	

Test method:	Volumetric
Volume measures/weighbridge used — m <sup>3</sup> or kg:	Volume measures
Water conductivity (electromagnetic induction meters only) — S/cm:	/
Length of straight pipe before meter (or manifold) — mm:	430
Length of straight pipe after meter (or manifold) — mm:	430
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	15
Describe flow straightener installation if used:	/



Meterserial No.: 00000104 Orientation (V, H, other): HFlow direction: / Location of indicating device: top

Actual flowrate	Tested water meter				Metrology standard			Meter error	Average error	MPE	Standard deviation	MPE /3
	Initial supply pressure	cumulative pulse	cumulative volume	Time	Water temp.	Actual volume	Time					
m <sup>3</sup> /h	MPa	/	$V_i$ L	$t_i$ s	$T_w$ °C	$V_a$ L	$t_a$ s	$E_m$ %	$\bar{E}_m$ %	%	%	%
$Q_4$	0.28	1092	20.21292	24.230	23.6	20.53008	24.258	-1.43	-1.3	±2		
	0.28	1096	20.28696	24.230	23.6	20.53077	24.258	-1.07				
$Q_3$	0.25	908	16.80708	25.687	23.6	16.97555	25.716	-0.88	-0.8	±2	0.3	0.67
	0.25	910	16.84410	25.662	23.6	16.97347	25.700	-0.61				
	0.25	907	16.78857	25.691	23.6	16.97327	25.700	-1.05				
0.67 ( $Q_2+Q_3$ )	0.20	610	11.29110	24.372	23.6	11.39347	24.426	-0.68	-0.7	±2		
	0.20	611	11.30961	24.413	23.6	11.39346	24.426	-0.68				
0.33 ( $Q_2+Q_3$ )	0.05	265	4.90515	21.383	23.6	5.68589	24.782	-0.01	-0.1	±2		
	0.05	306	5.66406	24.756	23.6	5.68627	24.782	-0.28				
$Q_2$	0.15	68	1.25868	920.823	23.6	1.31988	948.872	-1.73	-1.7	±2	0.2	0.67
	0.15	69	1.27719	931.906	23.6	1.31983	948.878	-1.47				
	0.15	69	1.27719	934.695	23.6	1.31982	948.880	-1.76				
$Q_1$	0.15	53	0.98103	1148.325	23.6	1.01179	1164.562	-1.67	-1.4	±5	1.1	1.67
	0.15	53	0.98103	1154.902	23.6	1.01179	1164.582	-2.23				
	0.15	54	1.00008	1154.356	23.6	1.01192	1164.580	-0.29				

Comments: **Pass**

Meterserial No.: 00000106 Orientation (V, H, other): HFlow direction: / Location of indicating device: top

Actual flowrate	Tested water meter				Metrology standard			Meter error	Average error	MPE	Standard deviation	MPE /3
	Initial supply pressure	cumulative pulse	cumulative volume	Time	Water temp.	Actual volume	Time					
m <sup>3</sup> /h	MPa	/	V <sub>i</sub> L	t <sub>i</sub> s	T <sub>w</sub> °C	V <sub>a</sub> L	t <sub>a</sub> s	E <sub>m</sub> %	$\bar{E}_m$ %	%	%	%
Q <sub>4</sub>	0.28	1093	20.23143	24.228	23.6	20.53061	24.258	-1.33	-1.0	±2		
	0.28	1101	20.37951	24.248	23.6	20.53126	24.258	-0.69				
Q <sub>3</sub>	0.25	913	16.89963	25.671	23.6	16.97591	25.716	-0.27	-0.3	±2	0.1	0.67
	0.25	913	16.89963	25.646	23.6	16.97382	25.700	-0.22				
	0.25	912	16.88112	25.658	23.6	16.97450	25.700	-0.38				
0.67 (Q <sub>2</sub> +Q <sub>3</sub> )	0.20	610	11.29110	24.382	23.6	11.39368	24.426	-0.72	-0.7	±2		
	0.20	610	11.29110	24.388	23.6	11.39369	24.426	-0.74				
0.33 (Q <sub>2</sub> +Q <sub>3</sub> )	0.05	306	5.66406	24.750	23.6	5.68606	24.782	-0.25	-0.5	±2		
	0.05	304	5.62704	24.704	23.6	5.68599	24.782	-0.72				
Q <sub>2</sub>	0.15	69	1.27719	936.870	23.6	1.31984	948.886	-1.99	-1.9	±2	0.2	0.67
	0.15	69	1.27719	933.373	23.6	1.31984	948.880	-1.62				
	0.15	69	1.27719	937.079	23.6	1.31979	948.872	-2.01				
Q <sub>1</sub>	0.15	52	0.96252	1129.322	23.6	1.01180	1164.205	-1.93	-2.6	±5	0.7	1.67
	0.15	52	0.96252	1140.754	23.6	1.01180	1164.206	-2.91				
	0.15	52	0.96304	1142.905	23.6	1.01184	1164.204	-3.05				

Comments: **Pass**

Meterserial No.: 52052001 Orientation (V, H, other): HFlow direction: / Location of indicating device: top

Actual flowrate	Tested water meter				Metrology standard			Meter error	Average error	MPE	Standard deviation	MPE /3
	Initial supply pressure	cumulative pulse	cumulative volume	Time	Water temp.	Actual volume	Time					
m <sup>3</sup> /h	MPa	/	V <sub>i</sub> L	t <sub>i</sub> s	T <sub>w</sub> °C	V <sub>a</sub> L	t <sub>a</sub> s	E <sub>m</sub> %	$\bar{E}_m$ %	%	%	%
Q <sub>4</sub>	0.28	1100	20.36100	24.230	23.6	20.53115	24.258	-0.71	-0.6	±2		
	0.28	1103	20.41653	24.237	23.6	20.53173	24.258	-0.47				
Q <sub>3</sub>	0.25	842	15.58542	23.590	23.6	16.97627	25.716	0.08	0.0	±2	0.2	0.67
	0.25	917	16.97367	25.677	23.6	16.97410	25.700	0.08				
	0.25	914	16.91814	25.674	23.6	16.97395	25.700	-0.22				
0.67 (Q <sub>2</sub> +Q <sub>3</sub> )	0.20	616	11.40216	24.388	23.6	11.39387	24.426	0.22	0.2	±2		
	0.20	617	11.42067	24.420	23.6	11.39392	24.426	0.25				
0.33 (Q <sub>2</sub> +Q <sub>3</sub> )	0.05	308	5.70108	24.718	23.6	5.68617	24.782	0.52	0.2	±2		
	0.05	306	5.66406	24.697	23.6	5.68648	24.782	-0.05				
Q <sub>2</sub>	0.15	70	1.29570	945.350	23.6	1.31988	948.886	-1.46	-1.1	±2	0.5	0.67
	0.15	69	1.27719	924.477	23.6	1.31984	948.884	-0.68				
	0.15	69	1.27719	928.341	23.6	1.31985	948.880	-1.09				
Q <sub>1</sub>	0.15	53	0.98103	1143.262	23.6	1.01182	1164.365	-1.25	-1.7	±5	1.1	1.67
	0.15	52	0.96252	1140.741	23.6	1.01181	1164.366	-2.90				
	0.15	54	1.00008	1162.270	23.6	1.01180	1164.362	-0.98				

Comments: **Pass**

Meterserial No.: 00000104 Orientation (V, H,other): VFlow direction: from bottom to top Location of indicating device: /

Actual flowrate	Tested water meter				Metrology standard			Meter error	Average error	MPE	Standard deviation	MPE /3
	Initial supply pressure	cumulative pulse	cumulative volume	Time	Water temp.	Actual volume	Time					
m <sup>3</sup> /h	MPa	/	V <sub>i</sub> L	t <sub>i</sub> s	T <sub>w</sub> °C	V <sub>a</sub> L	t <sub>a</sub> s	E <sub>m</sub> %	$\bar{E}_m$ %	%	%	%
Q <sub>4</sub>	0.28	1087	20.13124	24.249	24.0	20.53021	24.258	-1.90	-1.9	±2		
	0.28	1087	20.12037	24.223	24.0	20.53080	24.258	-1.85				
Q <sub>3</sub>	0.25	899	16.64049	25.628	24.0	16.97358	25.700	-1.68	-1.7	±2	0.2	0.67
	0.25	775	14.35300	22.092	24.0	16.97319	25.700	-1.62				
	0.25	899	16.64049	25.681	24.0	16.97354	25.700	-1.88				
0.67 (Q <sub>2</sub> +Q <sub>3</sub> )	0.20	448	8.29248	17.977	24.0	11.39366	24.426	-1.10	-1.2	±2		
	0.20	581	10.75431	23.372	24.0	11.39363	24.426	-1.35				
0.33 (Q <sub>2</sub> +Q <sub>3</sub> )	0.05	302	5.59002	24.705	24.0	5.68603	24.782	-1.38	-1.2	±2		
	0.05	245	4.53495	19.970	24.0	5.68592	24.782	-1.02				
Q <sub>2</sub>	0.15	68	1.25868	922.536	24.0	1.31985	948.874	-1.91	-1.7	±2	0.4	0.67
	0.15	67	1.24017	908.011	24.0	1.31979	948.874	-1.80				
	0.15	68	1.25868	916.347	24.0	1.31975	948.868	-1.24				
Q <sub>1</sub>	0.15	53	0.98103	1138.469	24.0	1.01181	1164.225	-0.85	-0.1	±5	1.1	1.67
	0.15	54	0.99954	1143.365	24.0	1.01180	1164.216	0.59				
	0.15	52	0.96304	1122.102	24.0	1.01185	1164.208	-1.25				

Comments: **Pass**

Meterserial No.: 00000104 Orientation (V, H,other): VFlow direction: from top to bottom Location of indicating device: /

Actual flowrate	Tested water meter				Metrology standard			Meter error	Average error	MPE	Standard deviation	MPE /3
	Initial supply pressure	cumulative pulse	cumulative volume	Time	Water temp.	Actual volume	Time					
m <sup>3</sup> /h	MPa	/	V <sub>i</sub> L	t <sub>i</sub> s	T <sub>w</sub> °C	V <sub>a</sub> L	t <sub>a</sub> s	E <sub>m</sub> %	$\bar{E}_m$ %	%	%	%
Q <sub>4</sub>	0.28	1004	18.59408	22.178	23.9	20.53019	24.258	-0.93	-1.1	±2		
	0.28	1094	20.26088	24.235	23.9	20.53016	24.258	-1.21				
Q <sub>3</sub>	0.25	908	16.81616	25.669	23.9	16.97353	25.700	-0.80	-0.8	±2	0.0	0.67
	0.25	908	16.81616	25.667	23.9	16.97346	25.700	-0.80				
	0.25	909	16.83468	25.676	23.9	16.97345	25.700	-0.72				
0.67 (Q <sub>2</sub> +Q <sub>3</sub> )	0.20	609	11.27868	24.408	23.9	11.39362	24.426	-0.93	-0.8	±2		
	0.20	609	11.27868	24.350	23.9	11.39363	24.426	-0.69				
0.33 (Q <sub>2</sub> +Q <sub>3</sub> )	0.05	305	5.64860	24.722	23.9	5.68602	24.782	-0.41	-0.3	±2		
	0.05	286	5.29672	23.114	23.9	5.68597	24.782	-0.12				
Q <sub>2</sub>	0.15	70	1.29640	939.676	23.9	1.32013	948.881	-0.84	-1.1	±2	0.4	0.67
	0.15	69	1.27788	927.253	23.9	1.32016	948.872	-0.95				
	0.15	69	1.27788	932.408	23.9	1.32018	948.878	-1.49				
Q <sub>1</sub>	0.15	54	1.00008	1124.623	23.9	1.01215	1164.203	2.28	1.5	±5	1.0	1.67
	0.15	54	1.00008	1143.026	23.9	1.01216	1164.221	0.64				
	0.15	55	1.0186	1158.592	23.9	1.01221	1164.235	1.12				

Comments: **Pass**

Model: BECO Y-20

Date: 21.06.2023~28.06.2023

Observer: 方艳

Ambient temperature:

Ambient relative humidity:

Ambient atmospheric pressure:

Time:

	At start	At end	
Ambient temperature:	24.1	24.6	°C
Ambient relative humidity:	60.7	54.1	%
Ambient atmospheric pressure:	101.6	100.8	kPa
Time:	15:18	12:33	

Test method:	Volumetric
Volume measures/weighbridge used — m <sup>3</sup> or kg:	Volume measures
Water conductivity (electromagnetic induction meters only) — S/cm:	/
Length of straight pipe before meter (or manifold) — mm:	420
Length of straight pipe after meter (or manifold) — mm:	420
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	20
Describe flow straightener installation if used:	/

ZJIM

Meterserial No.: 00000201 Orientation (V, H, other): HFlow direction: / Location of indicating device: top

Actual flowrate	Tested water meter				Metrology standard			Meter error	Average error	MPE	Standard deviation	MPE /3
	Initial supply pressure	cumulative pulse	cumulative volume	Time	Water temp.	Actual volume	Time					
m <sup>3</sup> /h	MPa	/	$V_i$ L	$t_i$ s	$T_w$ °C	$V_a$ L	$t_a$ s	$E_m$ %	$\bar{E}_m$ %	%	%	%
$Q_4$	0.35	1704	31.54104	23.518	23.7	34.04836	25.054	-1.31	-1.3	±2		
	0.35	1493	27.63543	20.611	23.7	34.04827	25.054	-1.34				
$Q_3$	0.32	1502	27.81704	26.482	23.7	28.15693	26.496	-1.15	-1.1	±2	0.0	0.67
	0.32	1582	29.28282	27.874	23.7	33.15519	31.200	-1.13				
	0.32	1472	27.24672	25.923	23.7	33.15524	31.200	-1.09				
0.67 ( $Q_2+Q_3$ )	0.25	1347	24.93297	33.709	23.7	25.22931	33.738	-1.08	-1.0	±2		
	0.25	1213	22.45263	30.281	23.7	25.22927	33.738	-0.84				
0.33 ( $Q_2+Q_3$ )	0.05	649	12.01299	32.841	23.7	12.09742	32.868	-0.61	-0.7	±2		
	0.05	647	11.97597	32.817	23.7	12.09732	32.868	-0.84				
$Q_2$	0.15	80	1.48160	674.761	23.7	1.53340	689.296	-1.30	-1.2	±2	0.1	0.67
	0.15	80	1.48080	673.981	23.7	1.53309	689.308	-1.21				
	0.15	80	1.48080	672.982	23.7	1.53312	689.314	-1.07				
$Q_1$	0.15	52	0.96252	706.420	23.7	1.02010	730.186	-2.47	-2.8	±5	0.8	1.67
	0.15	52	0.96252	711.366	23.7	1.02013	730.184	-3.13				
	0.15	53	0.98156	714.782	23.7	1.02020	730.174	-1.72				

Comments: **Pass**

Meterserial No.: 00000205 Orientation (V, H, other): HFlow direction: / Location of indicating device: top

Actual flowrate	Tested water meter				Metrology standard			Meter error	Average error	MPE	Standard deviation	MPE /3
	Initial supply pressure	cumulative pulse	cumulative volume	Time	Water temp.	Actual volume	Time					
m <sup>3</sup> /h	MPa	/	V <sub>i</sub> L	t <sub>i</sub> s	T <sub>w</sub> °C	V <sub>a</sub> L	t <sub>a</sub> s	E <sub>m</sub> %	$\bar{E}_m$ %	%	%	%
Q <sub>4</sub>	0.35	1803	33.37353	25.043	23.7	34.04905	25.054	-1.94	-1.9	±2		
	0.35	1803	33.37353	25.045	23.7	34.04906	25.054	-1.95				
Q <sub>3</sub>	0.32	1761	32.59611	31.182	23.7	33.15582	31.200	-1.63	-1.7	±2	0.1	0.67
	0.32	1492	27.63184	26.477	23.7	28.15749	26.496	-1.79				
	0.32	1673	30.96723	29.618	23.7	33.15590	31.200	-1.61				
0.67 (Q <sub>2</sub> +Q <sub>3</sub> )	0.25	1348	24.96294	33.705	23.7	25.22976	33.738	-0.96	-1.0	±2		
	0.25	1145	21.20368	28.624	23.7	25.22972	33.738	-0.94				
0.33 (Q <sub>2</sub> +Q <sub>3</sub> )	0.05	513	9.49563	26.117	23.7	12.09745	32.868	-1.21	-1.2	±2		
	0.05	553	10.23603	28.143	23.7	12.09763	32.868	-1.18				
Q <sub>2</sub>	0.15	80	1.48080	675.814	23.7	1.53306	689.310	-1.48	-1.7	±2	0.4	0.67
	0.15	80	1.48080	676.412	23.7	1.53310	689.308	-1.57				
	0.15	79	1.46229	671.552	23.7	1.53313	689.314	-2.10				
Q <sub>1</sub>	0.15	51	0.94401	703.042	23.7	1.02012	730.186	-3.89	-3.9	±5	0.3	1.67
	0.15	52	0.96252	718.538	23.7	1.02015	730.184	-4.12				
	0.15	52	0.96304	715.350	23.7	1.02025	730.178	-3.65				

Comments: **Pass**

Meterserial No.: 00000213 Orientation (V, H,other): HFlow direction: / Location of indicating device: top

Actual flowrate	Tested water meter				Metrology standard			Meter error	Average error	MPE	Standard deviation	MPE /3
	Initial supply pressure	cumulative pulse	cumulative volume	Time	Water temp.	Actual volume	Time					
m <sup>3</sup> /h	MPa	/	V <sub>i</sub> L	t <sub>i</sub> s	T <sub>w</sub> °C	V <sub>a</sub> L	t <sub>a</sub> s	E <sub>m</sub> %	$\bar{E}_m$ %	%	%	%
Q <sub>4</sub>	0.35	1580	29.24580	21.865	23.7	34.04966	25.054	-1.58	-1.6	±2		
	0.35	1370	25.35870	18.958	23.7	34.04974	25.054	-1.57				
Q <sub>3</sub>	0.32	1503	27.82053	26.551	23.7	33.15642	31.200	-1.40	-1.4	±2	0.0	0.67
	0.32	1573	29.11623	27.782	23.7	33.15635	31.200	-1.38				
	0.32	1463	27.08013	25.830	23.7	33.15647	31.200	-1.34				
0.67 (Q <sub>2</sub> +Q <sub>3</sub> )	0.25	1339	24.78489	33.728	23.7	25.23014	33.738	-1.73	-1.6	±2		
	0.25	1201	22.23051	30.183	23.7	25.23010	33.738	-1.51				
0.33 (Q <sub>2</sub> +Q <sub>3</sub> )	0.05	644	11.92044	32.802	23.7	12.09781	32.868	-1.26	-1.1	±2		
	0.05	645	11.93895	32.775	23.7	12.09772	32.868	-1.03				
Q <sub>2</sub>	0.15	81	1.49931	679.559	23.7	1.53307	689.310	-0.80	-0.9	±2	0.4	0.67
	0.15	80	1.48080	672.239	23.7	1.53311	689.308	-0.96				
	0.15	80	1.48160	675.459	23.7	1.53347	689.296	-1.40				
Q <sub>1</sub>	0.15	53	0.98103	715.460	23.7	1.02013	730.186	-1.85	-1.6	±5	0.6	1.67
	0.15	53	0.98103	708.596	23.7	1.02016	730.184	-0.91				
	0.15	53	0.98156	716.449	23.7	1.02028	730.174	-1.95				

Comments: **Pass**

Meterserial No.: 00000201 Orientation (V, H,other): VFlow direction: from bottom to top Location of indicating device: /

Actual flowrate	Tested water meter				Metrology standard			Meter error	Average error	MPE	Standard deviation	MPE /3
	Initial supply pressure	cumulative pulse	cumulative volume	Time	Water temp.	Actual volume	Time					
m <sup>3</sup> /h	MPa	/	V <sub>i</sub> L	t <sub>i</sub> s	T <sub>w</sub> °C	V <sub>a</sub> L	t <sub>a</sub> s	E <sub>m</sub> %	$\bar{E}_m$ %	%	%	%
Q <sub>4</sub>	0.35	1620	29.98620	22.375	24.0	32.05072	23.584	-1.38	-1.3	±2		
	0.35	1708	31.61508	23.567	24.0	32.05114	23.584	-1.29				
Q <sub>3</sub>	0.32	1343	24.85893	23.656	24.0	25.15556	23.672	-1.11	-1.1	±2	0.0	0.67
	0.32	1342	24.84042	23.655	24.0	25.15576	23.672	-1.18				
	0.32	1196	22.13796	21.075	24.0	25.15565	23.672	-1.15				
0.67 (Q <sub>2</sub> +Q <sub>3</sub> )	0.25	921	17.04771	23.026	24.0	17.22947	23.040	-0.99	-0.9	±2		
	0.25	922	17.06622	23.022	24.0	17.22944	23.040	-0.86				
0.33 (Q <sub>2</sub> +Q <sub>3</sub> )	0.05	488	9.03288	24.698	24.0	9.09767	24.718	-0.63	-0.6	±2		
	0.05	488	9.03288	24.684	24.0	9.09764	24.718	-0.57				
Q <sub>2</sub>	0.15	80	1.48080	679.837	24.0	1.53276	689.312	-2.04	-1.8	±2	0.2	0.67
	0.15	80	1.48080	677.091	24.0	1.53305	689.308	-1.67				
	0.15	80	1.48080	677.122	24.0	1.53284	689.306	-1.66				
Q <sub>1</sub>	0.15	52	0.96252	716.082	24.0	1.01994	730.174	-3.77	-3.6	±5	0.5	1.67
	0.15	52	0.96252	713.204	24.0	1.01998	730.174	-3.39				
	0.15	52	0.96252	710.316	24.0	1.02002	730.180	-3.00				

Comments: **Pass**

Meterserial No.: 00000201 Orientation (V, H, other): VFlow direction: from top to bottom Location of indicating device: /

Actual flowrate	Tested water meter				Metrology standard			Meter error	Average error	MPE	Standard deviation	MPE /3
	Initial supply pressure	cumulative pulse	cumulative volume	Time	Water temp.	Actual volume	Time					
m <sup>3</sup> /h	MPa	/	V <sub>i</sub> L	t <sub>i</sub> s	T <sub>w</sub> °C	V <sub>a</sub> L	t <sub>a</sub> s	E <sub>m</sub> %	$\bar{E}_m$ %	%	%	%
Q <sub>4</sub>	0.35	1710	31.66920	23.573	24.0	32.05106	23.584	-1.14	-1.1	±2		
	0.35	1713	31.72476	23.580	24.0	32.05100	23.584	-0.99				
Q <sub>3</sub>	0.32	1352	25.03904	23.652	24.0	25.15581	23.672	-0.38	-0.6	±2	0.5	0.67
	0.32	1354	25.07608	23.642	24.0	25.15587	23.672	-0.19				
	0.32	1343	24.87236	23.665	24.0	25.15582	23.672	-1.10				
0.67 (Q <sub>2</sub> +Q <sub>3</sub> )	0.25	735	13.61220	18.148	24.0	18.23021	24.378	0.29	0.2	±2		
	0.25	725	13.42700	17.927	24.0	18.23023	24.378	0.15				
0.33 (Q <sub>2</sub> +Q <sub>3</sub> )	0.05	405	7.50060	20.402	24.0	9.09777	24.718	-0.11	-0.4	±2		
	0.05	478	8.85256	24.231	24.0	9.09780	24.718	-0.74				
Q <sub>2</sub>	0.15	81	1.50012	680.563	24.0	1.53295	689.298	-0.89	-1.5	±2	0.6	0.67
	0.15	80	1.48160	678.327	24.0	1.53291	689.306	-1.78				
	0.15	80	1.48160	678.939	24.0	1.53289	689.310	-1.87				
Q <sub>1</sub>	0.15	52	0.96304	710.762	24.0	1.01992	730.176	-3.00	-3.0	±5	0.7	1.67
	0.15	52	0.96304	710.253	24.0	1.01992	730.174	-2.93				
	0.15	51	0.94452	705.485	24.0	1.01992	730.170	-4.15				

Comments: **Pass**

### 2.3 Water temperature test (ISO 4064-2: 2014, 7.5) and overload water temperature test (ISO 4064-2: 2014, 7.6)

Model:	BECO Y	Ambient temperature:	At start	At end	°C
Date:	06.07.2023~12.07.2023	Ambient relative humidity:	22.0	22.6	
Observer:	方艳	Ambient atmospheric pressure:	66.0	55.1	%
		Time:	100.1	100.2	kPa
			12:00	16:00	

Test method:	Gravimetric
Volume measures/weighbridge used — m <sup>3</sup> or kg:	kg
Water conductivity (electromagnetic induction meters only) — S/cm:	/
Length of straight pipe before meter (or manifold) — mm:	1200
Length of straight pipe after meter (or manifold) — mm:	1270
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	15
Describe flow straightener installation if used:	/

Meter serial No.: 00000104 Orientation (V, H, other): H  
 Flow direction: / Location of indicating device: top

Application conditions	Nominal flow rate	Actual flow rate	Tested water meter					Metrology standard				Meter error	MPE
			Initial supply pressure	Initial reading	Final reading	cumulative volume	Time	Water temp.	Density	Actual quality	Time		
	m <sup>3</sup> /h	m <sup>3</sup> /h	MPa	L	L	L	s	°C	kg/L	kg	s	%	%
10 °C	Q <sub>2</sub>	0.005	0.30	0.00	4.20	4.20	/	14.0	0.99949	4.1345	/	1.5	±2
MAT (50 °C)	Q <sub>2</sub>	0.005	0.40	298.14	301.19	3.05	1984.611	46.6	0.98954	2.980	1984.709	1.3	±3
MAT+10°C	0.7(Q <sub>2</sub> +Q <sub>3</sub> )	1.75	0.40					58.2					
Reference (20°C)	Q <sub>2</sub>	0.005	0.40	0.25	3.27	3.02	2113.481	24.6	0.99715	2.996	2113.489	0.5	±2
Comments:	MAT +10°C/ 1 hour at reference flowrate and recovery												
	<b>Pass</b>												

Model:	BECO Y	Ambient temperature:	At start	At end	°C
Date:	06.07.2023~07.07.2023	Ambient relative humidity:	22.0	22.0	
Observer:	方艳	Ambient atmospheric pressure:	66.0	66.1	%
		Time:	100.4	101.1	kPa
			09:06	16:40	

Test method:	Gravimetric
Volume measures/weighbridge used — m <sup>3</sup> or kg:	kg
Water conductivity (electromagnetic induction meters only) — S/cm:	/
Length of straight pipe before meter (or manifold) — mm:	1200
Length of straight pipe after meter (or manifold) — mm:	1250
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	20
Describe flow straightener installation if used:	/

Meter serial No.: 00000201 Orientation (V, H, other): H  
 Flow direction: / Location of indicating device: top

Application conditions	Nominal flow rate	Actual flow rate	Tested water meter					Metrology standard				Meter error	MPE
			Initial supply pressure	Initial reading	Final reading	cumulative volume	Time	Water temp.	Density	Actual quality	Time		
	m <sup>3</sup> /h	m <sup>3</sup> /h	MPa	L	L	L	s	°C	kg/L	kg	s	%	%
10 °C	$Q_2$	0.008	0.30	0.00	4.19	4.19	/	14.4	0.99943	4.131	/	1.4	±2
MAT (50 °C)	$Q_2$	0.008	0.40	0.19	2.16	1.97	865.782	46.0	0.98979	2.002	873.198	-1.8	±3
MAT+10°C	$0.7(Q_2+Q_3)$	2.85	0.40					58.0					
Reference (20°C)	$Q_2$	0.008	0.40	0.20	3.25	3.05	1237.842	22.2	0.99771	3.001	1237.889	1.4	±2
Comments:	MAT +10°C / 1 hour at reference flowrate and recovery												
	Pass												

## 2.4 Water pressure test (ISO 4064-2: 2014, 7.7)

Model:	BECO Y	Ambient temperature:	At start	At end	°C
Date:	10.07.2023~11.07.2023	Ambient relative humidity:	22.0	22.0	
Observer:	方艳	Ambient atmospheric pressure:	66.0	66.0	%
		Time:	100.2	100.2	kPa
			13:00	13:50	

Test method:	Gravimetric
Volume measures/weighbridge used — m <sup>3</sup> or kg:	kg
Water conductivity (electromagnetic induction meters only) — S/cm:	/
Length of straight pipe before meter (or manifold) — mm:	1200
Length of straight pipe after meter (or manifold) — mm:	1270
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	15
Describe flow straightener installation if used:	/

Meter serial No.: 00000104 Orientation (V, H, other): H  
 Flow direction: / Location of indicating device: top

Application conditions	Nominal flow rate	Actual flow rate	Tested water meter					Metrology standard				Meter error	MPE
			Initial supply pressure	Initial reading	Final reading	cumulative volume	Time	Water temp.	Density	Actual quality	Time		
	m <sup>3</sup> /h	m <sup>3</sup> /h	MPa	L	L	L	s	°C	kg/L	kg	s	%	%
0.03 MPa	Q <sub>2</sub>	0.005	0.03	0.00	4.67	4.67	/	21.4	0.99814	4.577	/	1.8	±2
MAP	Q <sub>2</sub>	0.005	1.45	0.07	2.84	2.77	2002.982	24.2	0.99725	2.801	2000.088	-1.5	±2
<b>Comments:</b> Pass													

Model:	BECO Y	Ambient temperature:	At start	At end	°C
Date:	10.07.2023~11.07.2023	Ambient relative humidity:	22.0	22.1	
Observer:	方艳	Ambient atmospheric pressure:	66.0	66.1	%
		Time:	100.4	100.4	kPa
			08:50	09:30	

Test method:	Gravimetric
Volume measures/weighbridge used — m <sup>3</sup> or kg:	kg
Water conductivity (electromagnetic induction meters only) — S/cm:	/
Length of straight pipe before meter (or manifold) — mm:	1200
Length of straight pipe after meter (or manifold) — mm:	1250
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	20
Describe flow straightener installation if used:	/

Meter serial No.: 0000201 Orientation (V, H, other): H  
Flow direction: / Location of indicating device: top

Application conditions	Nominal flow rate	Actual flow rate	Tested water meter					Metrology standard				Meter error	MPE
			Initial supply pressure	Initial reading	Final reading	cumulative volume	Time	Water temp.	Density	Actual quality	Time		
	m <sup>3</sup> /h	m <sup>3</sup> /h	MPa	L	L	L	s	°C	kg/L	kg	s	%	%
0.03 MPa	Q <sub>2</sub>	0.008	0.03	0.00	4.22	4.22	/	21.5	0.99811	4.151	/	1.5	±2
MAP	Q <sub>2</sub>	0.008	1.44	0.16	3.19	3.03	1258.472	24.1	0.99727	3.004	1261.490	0.8	±2
Comments:	Pass												

## 2.5 Reverse flow test (ISO 4064-2: 2014,7.8)

### 2.5.1 Meters not designed to measure accidental reverse flow (ISO 4064-2: 2014, 7.8.3.2)

		At start	At end	
Model:	BECO Y	Ambient temperature:	23.6	23.6 °C
Date:	26.06.2023	Ambient relative humidity:	60.9	60.9 %
Observer:	方艳	Ambient atmospheric pressure:	101.8	101.8 kPa
		Time:	10:06	10:48

Test method:	Volumetric
Volume measures/weighbridge used — m <sup>3</sup> or kg:	Volume measures
Water conductivity (electromagnetic induction meters only) — S/cm:	/
Length of straight pipe before meter (or manifold) — mm:	430
Length of straight pipe after meter (or manifold) — mm:	430
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	15
Describe flow straightener installation if used:	/

Meter serial No.: 00000104 Orientation (V, H, other): H  
 Flow direction: / Location of indicating device: top

Application conditions	Nominal flow rate	Actual flow rate $Q_{(2)}$	Tested water meter				Metrology standard			Meter error $E_m$	MPE
			Initial supply pressure	cumulative pulse	cumulative volume $V_i$	Time $t_i$	Initial inlet water temperature	Actual volume $V_a$	Time $t_a$		
	m <sup>3</sup> /h	m <sup>3</sup> /h	MPa	/	L	s	°C	L	s	%	%
reverse flow	$0.9 Q_3$	2.25	0.25				24.2				
Forward flow	$Q_1$	0.00313	0.15	54	1.00008	1148.795	24.2	1.01182	1164.225	0.2	±5
Forward flow	$Q_2$	0.005	0.15	69	1.27788	932.345	24.2	1.31982	948.868	-1.5	±2
Forward flow	$Q_3$	2.377	0.25	856	15.85312	24.163	24.2	15.97260	24.184	-0.7	±2
<b>Comments: Pass</b>											

Meter serial No.: 00000106 Orientation (V, H, other): HFlow direction: / Location of indicating device: top

Application conditions	Nominal flow rate	Actual flow rate $Q_{(2)}$	Tested water meter				Metrology standard			Meter error Em	MPE
			Initial supply pressure	cumulative pulse	cumulative volume $V_i$	Time $t_i$	Initial inlet water temperature	Actual volume $V_a$	Time $t_a$		
	m <sup>3</sup> /h	m <sup>3</sup> /h	MPa	/	L	s	°C	L	s	%	%
reverse flow	$0.9 Q_3$	2.25	0.25				24.2				
Forward flow	$Q_1$	0.00313	0.15	52	0.96304	1134.605	24.2	1.01192	1164.240	-2.3	±5
Forward flow	$Q_2$	0.005	0.15	53	0.98156	716.868	24.2	1.02011	731.180	-1.9	±2
Forward flow	$Q_3$	2.377	0.25	845	15.64940	24.131	24.2	15.97288	24.184	-1.8	±2
<b>Comments: Pass</b>											

Meter serial No.: 52052001 Orientation (V, H, other): HFlow direction: / Location of indicating device: top

Application conditions	Nominal flow rate	Actual flow rate $Q_{(2)}$	Tested water meter				Metrology standard			Meter error Em	MPE
			Initial supply pressure	cumulative pulse	cumulative volume $V_i$	Time $t_i$	Initial inlet water temperature	Actual volume $V_a$	Time $t_a$		
	m <sup>3</sup> /h	m <sup>3</sup> /h	MPa	/	L	s	°C	L	s	%	%
reverse flow	$0.9 Q_3$	2.25	0.25				24.2				
Forward flow	$Q_1$	0.00313	0.15	53	0.98156	1158.984	24.2	1.01191	1164.362	-2.5	±5
Forward flow	$Q_2$	0.005	0.15	53	0.98156	706.933	24.2	1.01998	731.182	-0.5	±2
Forward flow	$Q_3$	2.377	0.25	856	15.85312	24.171	24.2	15.97316	24.184	-0.7	±2
<b>Comments: Pass</b>											

		At start	At end	
Model:	BECO Y	Ambient temperature:	23.6	23.6 °C
Date:	26.06.2023	Ambient relative humidity:	69.7	69.7 %
Observer:	方艳	Ambient atmospheric pressure:	101.8	101.8 kPa
		Time:	11:05	11:43

Test method:	Volumetric
Volume measures/weighbridge used — m <sup>3</sup> or kg:	Volume measures
Water conductivity (electromagnetic induction meters only) — S/cm:	/
Length of straight pipe before meter (or manifold) — mm:	420
Length of straight pipe after meter (or manifold) — mm:	420
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	20
Describe flow straightener installation if used:	/

Meter serial No.: 00000201 Orientation (V, H, other): H  
Flow direction: / Location of indicating device: top

Application conditions	Nominal flow rate	Actual flow rate $Q_{(2)}$	Tested water meter				Metrology standard			Meter error $E_m$	MPE
			Initial supply pressure	cumulative pulse	cumulative volume $V_i$	Time $t_i$	Initial inlet water temperature	Actual volume $V_a$	Time $t_a$		
	m <sup>3</sup> /h	m <sup>3</sup> /h	MPa	/	L	s	°C	L	s	%	%
Reverse flow	0.9 $Q_3$	3.6	0.32				24.0				
Forward flow	$Q_1$	0.00503	0.15	51	0.94401	708.280	24.0	1.01981	730.168	-4.6	±5
Forward flow	$Q_2$	0.00801	0.15	69	1.27719	584.699	24.0	1.33278	598.996	-1.8	±2
Forward flow	$Q_3$	3.826	0.32	1721	31.85571	30.364	24.0	33.15457	31.200	-1.3	±2
<b>Comments: Pass</b>											

Meter serial No.: 0000205 Orientation (V, H, other): HFlow direction: / Location of indicating device: top

Application conditions	Nominal flow rate	Actual flow rate $Q_2$	Tested water meter				Metrology standard			Meter error $E_m$	MPE
			Initial supply pressure	cumulative pulse	cumulative volume $V_i$	Time $t_i$	Initial inlet water temperature	Actual volume $V_a$	Time $t_a$		
			m <sup>3</sup> /h	m <sup>3</sup> /h	MPa	/	L	s	°C		
Reverse flow	0.9 $Q_3$	3.6	0.32				24.0				
Forward flow	$Q_1$	0.00503	0.15	52	0.96304	711.618	24.0	1.02030	730.178	-3.2	±5
Forward flow	$Q_2$	0.00801	0.15	70	1.29570	592.998	24.0	1.33281	598.996	-1.8	±2
Forward flow	$Q_3$	3.826	0.32	1493	27.65036	26.483	24.0	28.15805	26.496	-1.8	±2
<b>Comments: Pass</b>											

Meter serial No.: 0000213 Orientation (V, H, other): HFlow direction: / Location of indicating device: top

Application conditions	Nominal flow rate	Actual flow rate $Q_2$	Tested water meter				Metrology standard			Meter error $E_m$	MPE
			Initial supply pressure	cumulative pulse	cumulative volume $V_i$	Time $t_i$	Initial inlet water temperature	Actual volume $V_a$	Time $t_a$		
			m <sup>3</sup> /h	m <sup>3</sup> /h	MPa	/	L	s	°C		
Reverse flow	0.9 $Q_3$	3.6	0.32				24.0				
Forward flow	$Q_1$	0.00503	0.15	52	0.96252	704.898	24.0	1.01985	730.168	-2.2	±5
Forward flow	$Q_2$	0.00801	0.15	71	1.31421	590.102	24.0	1.33284	598.996	0.1	±2
Forward flow	$Q_3$	3.826	0.32	1333	24.67383	23.578	24.0	33.15600	31.200	-1.5	±2
<b>Comments: Pass</b>											

## 2.6 Pressure-loss test (ISO 4064-2: 2014,7.9)

			At start	At end	
Model:	BECO Y	Ambient temperature:	22.0	22.0	°C
Date:	07.07.2023	Ambient relative humidity:	59.8	59.8	%
Observer:	方艳	Ambient atmospheric pressure:	100.2	100.2	kPa
		Time:	15:01	15:12	

### Measurement 1

Flow rate $Q_{(3)}$	$L_1$	$L_2$	$L_3$	$L_4$	Initial supply pressure	Water temp.	Measuring section	Pressure loss $\Delta p_1$
m <sup>3</sup> /h	mm	mm	mm	mm	MPa	°C	mm	MPa
2.5	755	75	150	650	0.30	23.0	1730	0.001

### Measurement 2

Meter serial No.: 00000104 Orientation (V, H, other): H  
 Flow direction: / Location of indicating device: top

Flow rate $Q_{(3)}$	$L_1$	$L_2$	$L_3$	$L_4$	Initial supply pressure	Water temp.	Measuring section	Pressure loss $\Delta p_2$	Meter pressure loss $\Delta p_{\text{meter}}$
m <sup>3</sup> /h	mm	mm	mm	mm	MPa	°C	mm	MPa	MPa
2.5	755	75	150	650	0.40	22.1	1740	0.048	0.047

Comments: Pass

Meter serial No.: 00000106 Orientation (V, H, other): H  
 Flow direction: / Location of indicating device: top

Flow rate $Q_{(3)}$	$L_1$	$L_2$	$L_3$	$L_4$	Initial supply pressure	Water temp.	Measuring section	Pressure loss $\Delta p_2$	Meter pressure loss $\Delta p_{\text{meter}}$
m <sup>3</sup> /h	mm	mm	mm	mm	MPa	°C	mm	MPa	MPa
2.5	755	75	150	650	0.40	22.1	1740	0.055	0.054

Comments: Pass

Meter serial No.: 52052001 Orientation (V, H, other): HFlow direction: / Location of indicating device: top

Flow rate $Q^{(3)}$	$L_1$	$L_2$	$L_3$	$L_4$	Initial supply pressure	Water temp.	Measuring section	Pressure loss $\Delta p_2$	Meter pressure loss $\Delta p_{\text{meter}}$
m <sup>3</sup> /h	mm	mm	mm	mm	MPa	°C	mm	MPa	MPa
2.5	755	75	150	650	0.40	22.1	1740	0.044	0.043
<b>Comments: Pass</b>									



ZJIM

			At start	At end	
Model:	BECO Y	Ambient temperature:	22.0	22.0	°C
Date:	07.07.2023	Ambient relative humidity:	59.0	66.0	%
Observer:	方艳	Ambient atmospheric pressure:	101.1	101.1	kPa
		Time:	15:30	15:50	

**Measurement 1**

Flow rate $Q_{(3)}$	$L_1$	$L_2$	$L_3$	$L_4$	Initial supply pressure	Water temp.	Measuring section	Pressure loss $\Delta p_1$
m <sup>3</sup> /h	mm	mm	mm	mm	MPa	°C	mm	MPa
4.0	670	100	200	570	0.30	23.0	1640	0.001

**Measurement 2**Meter serial No.: 00000201 Orientation (V, H, other): HFlow direction: / Location of indicating device: top

Flow rate $Q_{(3)}$	$L_1$	$L_2$	$L_3$	$L_4$	Initial supply pressure	Water temp.	Measuring section	Pressure loss $\Delta p_2$	Meter pressure loss $\Delta p_{\text{meter}}$
m <sup>3</sup> /h	mm	mm	mm	mm	MPa	°C	mm	MPa	MPa
4.0	670	100	200	570	0.30	23.0	1670	0.063	0.062

**Comments: Pass**Meter serial No.: 00000205 Orientation (V, H, other): HFlow direction: / Location of indicating device: top

Flow rate $Q_{(3)}$	$L_1$	$L_2$	$L_3$	$L_4$	Initial supply pressure	Water temp.	Measuring section	Pressure loss $\Delta p_2$	Meter pressure loss $\Delta p_{\text{meter}}$
m <sup>3</sup> /h	mm	mm	mm	mm	MPa	°C	mm	MPa	MPa
4.0	670	100	200	570	0.30	23.0	1670	0.063	0.062

**Comments: Pass**

Meter serial No.: 00000213 Orientation (V, H, other): H  
 Flow direction: / Location of indicating device: top

Flow rate $Q^{(3)}$	$L_1$	$L_2$	$L_3$	$L_4$	Initial supply pressure	Water temp.	Measuring section	Pressure loss $\Delta p_2$	Meter pressure loss $\Delta p_{\text{meter}}$
$\text{m}^3/\text{h}$	mm	mm	mm	mm	MPa	$^{\circ}\text{C}$	mm	MPa	MPa
4.0	670	100	200	570	0.30	23.0	1670	0.063	0.062

Comments: Pass



## 2.7 Flow disturbance tests (ISO 4064-2: 2014, 7.10)

			At start	At end	
		Ambient temperature:	21.4	21.5	°C
Model:	BECO Y-15	Ambient relative humidity:	60.5	62.3	%
Date:	04.07.2023	Ambient atmospheric pressure:	101.2	101.2	kPa
Observer:	方艳	Time:	10:00	11:30	

Test method:	Volumetric
Volume measures/weighbridge used — m <sup>3</sup> or kg:	Volume measures
Water conductivity (electromagnetic induction meters only) — S/cm:	/
Length of straight pipe before meter (or manifold) — mm:	/
Length of straight pipe after meter (or manifold) — mm:	/
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	15
Describe flow straightener installation if used:	/

### Installation arrangement:

Test No.	Flow-disturber type (location)	Flow-straightener installed	Installation dimensions (see key to Figure 1)						
			mm						
			<i>L</i> <sub>1</sub>	<i>L</i> <sub>2</sub>	<i>L</i> <sub>3</sub>	<i>L</i> <sub>4</sub>	<i>L</i> <sub>5</sub>	<i>L</i> <sub>6</sub>	<i>L</i> <sub>7</sub>
1	1 (upstream)	no	—	835	0	—	—	—	—
1A	1 (upstream)	yes	—			—		—	
2	1 (downstream)	no	835	—	—	0	—	—	—
2A	1 (downstream)	yes		—	—		—		
3	2 (upstream)	no	—	835	0	—	—	—	—
3A	2 (upstream)	yes	—			—		—	
4	2 (downstream)	no	835	—	—	0	—	—	—
4A	2 (downstream)	yes		—	—		—		
5	3 (upstream)	no	—	835	0	—	—	—	—
5A	3 (upstream)	yes	—			—		—	
6	3 (downstream)	no	835	—	—	0	—	—	—
6A	3 (downstream)	yes		—	—		—		

Meter serial No.: 00000104 Orientation (V, H, other): H  
 Flow direction: / Location of indicating device: top

Test No	Actual flow rate $Q(s)$	Pressure $p_w$	Water temp $T_w$	Initial reading $V_i(i)$	Final reading $V_i(f)$	Indicated volume $V_i$	Density	Actual volume $V_a$	Meter error $E_m$	MPE <sup>a</sup>
	m <sup>3</sup> /h	MPa	°C	L	L	L	kg/L	L	%	%
1	2.5	0.30	22.0	0.00	51.64	51.64	/	51.90	-0.5	±2
1A										
2	2.5	0.30	22.0	0.00	50.99	50.99	/	51.50	-1.0	±2
2A										
3	2.5	0.30	22.0	0.00	51.26	51.26	/	51.50	-0.5	±2
3A										
4	2.5	0.30	22.0	0.00	50.87	50.87	/	51.35	-1.0	±2
4A										
5	2.5	0.30	22.0	0.00	51.00	51.00	/	51.35	-0.7	±2
5A										
6	2.5	0.30	22.0	0.00	51.00	51.00	/	51.40	-0.4	±2
6A										

Comments: **Pass**

Meter serial No.: 00000106 Orientation (V, H, other): H  
 Flow direction: / Location of indicating device: top

Test No	Actual flow rate $Q(s)$	Pressure $p_w$	Water temp $T_w$	Initial reading $V_i(i)$	Final reading $V_i(f)$	Indicated volume $V_i$	Density	Actual volume $V_a$	Meter error $E_m$	MPE <sup>a</sup>
	m <sup>3</sup> /h	MPa	°C	L	L	L	kg/L	L	%	%
1	2.5	0.30	22.0	0.00	51.01	51.01	/	51.30	-0.6	±2
1A										
2	2.5	0.30	22.0	0.00	51.26	51.26	/	51.55	-0.6	±2
2A										
3	2.5	0.30	22.0	0.00	51.62	51.62	/	51.45	0.3	±2
3A										
4	2.5	0.30	22.0	0.00	51.42	51.42	/	51.40	0.0	±2
4A										
5	2.5	0.30	22.0	0.00	51.44	51.44	/	51.45	0.0	±2
5A										
6	2.5	0.30	22.0	0.00	51.50	51.50	/	51.60	-0.2	±2
6A										

Comments: **Pass**

Meter serial No.: 52052001 Orientation (V, H, other): H  
 Flow direction: / Location of indicating device: top

Test No	Actual flow rate $Q_s$ m <sup>3</sup> /h	Pressure $p_w$ MPa	Water temp $T_w$ °C	Initial reading $V_i(i)$ L	Final reading $V_i(f)$ L	Indicated volume $V_i$ L	Density kg/L	Actual volume $V_a$ L	Meter error $E_m$ %	MPE <sup>a</sup> %
1	2.5	0.30	22.0	0.00	51.83	51.83	/	51.25	1.1	±2
1A										
2	2.5	0.30	22.0	0.00	51.10	51.10	/	51.45	-0.7	±2
2A										
3	2.5	0.30	22.0	0.00	51.15	51.15	/	51.40	-0.5	±2
3A										
4	2.5	0.30	22.0	0.00	51.06	51.06	/	51.40	-0.7	±2
4A										
5	2.5	0.30	22.0	0.00	51.00	51.00	/	51.60	-1.2	±2
5A										
6	2.5	0.30	22.0	0.00	50.86	50.86	/	51.15	-0.6	±2
6A										
Comments: <b>Pass</b>										

Model:	BECO Y	Ambient temperature:	At start	At end	°C
Date:	05.07.2023	Ambient relative humidity:	20.7	20.8	
Observer:	方艳	Ambient atmospheric pressure:	57.2	58.4	%
		Time:	100.3	100.3	kPa
			10:29	13:20	

Test method:	Volumetric
Volume measures/weighbridge used — m <sup>3</sup> or kg:	Volume measures
Water conductivity (electromagnetic induction meters only) — S/cm:	/
Length of straight pipe before meter (or manifold) — mm:	/
Length of straight pipe after meter (or manifold) — mm:	/
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	20
Describe flow straightener installation if used:	/

## Installation arrangement:

Test No.	Flow-disturber type (location)	Flow-straightener installed	Installation dimensions (see key to Figure 1)						
			mm						
			<i>L</i> <sub>1</sub>	<i>L</i> <sub>2</sub>	<i>L</i> <sub>3</sub>	<i>L</i> <sub>4</sub>	<i>L</i> <sub>5</sub>	<i>L</i> <sub>6</sub>	<i>L</i> <sub>7</sub>
1	1 (upstream)	no	—	800	0	—	—	—	—
1A	1 (upstream)	yes	—			—		—	
2	1 (downstream)	no	800	—	—	0	—	—	—
2A	1 (downstream)	yes		—	—		—		
3	2 (upstream)	no	—	800	0	—	—	—	—
3A	2 (upstream)	yes	—			—		—	
4	2 (downstream)	no	800	—	—	0	—	—	—
4A	2 (downstream)	yes		—	—		—		
5	3 (upstream)	no	—	800	0	—	—	—	—
5A	3 (upstream)	yes	—			—		—	
6	3 (downstream)	no	800	—	—	0	—	—	—
6A	3 (downstream)	yes		—	—		—		

Meter serial No.: 00000201 Orientation (V, H, other): H  
 Flow direction: / Location of indicating device: top

Test No	Actual flow rate $Q(s)$	Pressure $p_w$	Water temp $T_w$	Initial reading $V_i(i)$	Final reading $V_i(f)$	Indicated volume $V_i$	Density	Actual volume $V_a$	Meter error $E_m$	MPE <sup>a</sup>
	m <sup>3</sup> /h	MPa	°C	L	L	L	kg/L	L	%	%
1	4.0	0.30	19.0	0.00	100.96	100.96	/	102.4	-1.4	±2
1A										
2	4.0	0.30	19.0	0.00	100.54	100.54	/	102.4	-1.8	±2
2A										
3	4.0	0.30	19.0	0.00	101.22	101.22	/	102.0	-0.8	±2
3A										
4	4.0	0.30	19.0	0.00	101.77	101.77	/	102.4	-0.6	±2
4A										
5	4.0	0.30	19.0	0.00	100.82	100.82	/	101.8	-1.1	±2
5A										
6	4.0	0.30	19.0	0.00	100.72	100.72	/	102.1	-1.4	±2
6A										

Comments: **Pass**

Meter serial No.: 00000205 Orientation (V, H, other): H  
 Flow direction: / Location of indicating device: top

Test No	Actual flow rate $Q(s)$	Pressure $p_w$	Water temp $T_w$	Initial reading $V_i(i)$	Final reading $V_i(f)$	Indicated volume $V_i$	Density	Actual volume $V_a$	Meter error $E_m$	MPE <sup>a</sup>
	m <sup>3</sup> /h	MPa	°C	L	L	L	kg/L	L	%	%
1	4.0	0.30	19.0	0.00	101.23	101.23	/	102.4	-1.1	±2
1A										
2	4.0	0.30	19.0	0.00	101.18	101.18	/	102.7	-1.5	±2
2A										
3	4.0	0.30	19.0	0.00	101.55	101.55	/	102.6	-1.0	±2
3A										
4	4.0	0.30	19.0	0.00	100.75	100.75	/	102.0	-1.2	±2
4A										
5	4.0	0.30	19.0	0.00	100.67	100.67	/	102.4	-1.7	±2
5A										
6	4.0	0.30	19.0	0.00	99.99	99.99	/	101.9	-1.9	±2
6A										

Comments: **Pass**

Meter serial No.: 00000213 Orientation (V, H, other): H  
 Flow direction: / Location of indicating device: top

Test No	Actual flow rate $Q_s$ m <sup>3</sup> /h	Pressure $p_w$ MPa	Water temp $T_w$ °C	Initial reading $V_i(i)$ L	Final reading $V_i(f)$ L	Indicated volume $V_i$ L	Density kg/L	Actual volume $V_a$ L	Meter error $E_m$ %	MPE <sup>a</sup> %
1	4.0	0.30	19.0	0.00	101.85	101.85	/	102.5	-0.6	±2
1A										
2	4.0	0.30	19.0	0.00	101.23	101.23	/	102.4	-1.1	±2
2A										
3	4.0	0.30	19.0	0.00	101.60	101.60	/	102.6	-1.0	±2
3A										
4	4.0	0.30	19.0	0.00	101.45	101.45	/	102.6	-1.1	±2
4A										
5	4.0	0.30	19.0	0.00	101.27	101.27	/	102.3	-1.0	±2
5A										
6	4.0	0.30	19.0	0.00	100.58	100.58	/	101.5	-0.9	±2
6A										
Comments: <b>Pass</b>										

## 2.8 Durability tests (ISO 4064-2: 2014, 7.11)

### 2.8.1 Discontinuous flow test (ISO 4064-2: 2014, 7.11.2)

This test is applicable only to meters with values of  $Q_3 \leq 16 \text{ m}^3/\text{h}$ .

#### Ambient conditions at start

Ambient temperature	Ambient relative humidity	Ambient atmospheric pressure	Time
°C	%	kPa	/
22.0	66.0	100.3	13.07.2023

#### Readings taken during the test

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


Meter serial No.:00000104

Date	Time	Observer	Up stream pressure MPa	Down stream pressure MPa	Up stream temp. °C	Actual flowrate m <sup>3</sup> /h	Meter reading m <sup>3</sup>	Flow cycle times - s				Total volume discharged m <sup>3</sup>	Total no. of flow cycles
								rise	on	fall	off		
13.07.2023	13:25		0.32	0.06	21.4	2.48	40	1.1	15	1.1	15	0	0
14.07.2023	15:45		0.33	0.06	24.0	2.48	73	1.1	15	1.1	15	33	2930
17.07.2023	14:36		0.31	0.06	23.6	2.48	160	1.1	15	1.1	15	120	10820
18.07.2023	15:25		0.30	0.06	22.4	2.48	191	1.1	15	1.1	15	150	13595
19.07.2023	15:52		0.31	0.06	21.8	2.48	221	1.1	15	1.1	15	180	16320
20.07.2023	16:17		0.34	0.06	21.8	2.48	251	1.1	15	1.1	15	210	19047
21.07.2023	16:31		0.32	0.06	22.4	2.48	281	1.1	15	1.1	15	240	21752
23.07.2023	09:31		0.33	0.06	21.0	2.48	332	1.1	15	1.1	15	290	26327
25.07.2023	09:03		0.33	0.06	21.8	2.48	391	1.1	15	1.1	15	348	31635
26.07.2023	10:12		0.33	0.06	21.9	2.48	422	1.1	15	1.1	15	379	34440
27.07.2023	13:49		0.31	0.06	21.8	2.48	456	1.1	15	1.1	15	413	37516
28.07.2023	13:50		0.31	0.06	22.2	2.48	485	1.1	15	1.1	15	442	40200
31.07.2023	10:42		0.33	0.06	20.9	2.48	570	1.1	15	1.1	15	527	47893
01.08.2023	13:54		0.33	0.06	23.0	2.48	603	1.1	15	1.1	15	560	50929
02.08.2023	14:37		0.33	0.06	21.8	2.48	634	1.1	15	1.1	15	590	53691
03.08.2023	15:35		0.31	0.06	21.0	2.48	664	1.1	15	1.1	15	620	56480
Test interruption													
07.08.2023	09:17		0.31	0.06	22.0	2.48	664	1.1	15	1.1	15	620	56480
08.08.2023	09:37		0.34	0.06	22.3	2.48	694	1.1	15	1.1	15	650	59189
09.08.2023	09:41		0.35	0.06	21.2	2.48	724	1.1	15	1.1	15	680	61873
10.08.2023	09:50		0.33	0.06	23.2	2.48	754	1.1	15	1.1	15	710	64561
11.08.2023	09:50		0.35	0.06	20.0	2.48	784	1.1	15	1.1	15	740	67251
14.08.2023	10:32		0.35	0.06	20.3	2.48	875	1.1	15	1.1	15	830	75377
15.08.2023	10:53		0.35	0.06	22.7	2.48	906	1.1	15	1.1	15	860	78094
16.08.2023	10:56		0.33	0.06	23.6	2.48	936	1.1	15	1.1	15	890	80784
17.08.2023	10:58		0.35	0.06	21.1	2.48	966	1.1	15	1.1	15	920	83470
18.08.2023	10:58		0.35	0.06	22.3	2.48	995	1.1	15	1.1	15	950	86146
18.08.2023	16:20		0.36	0.06	22.3	2.48	1002	1.1	15	1.1	15	957	86745
Test interruption													
22.08.2023	09:40		0.36	0.06	24.1	2.48	1002	1.1	15	1.1	15	957	86745


23.08.2023	10:02		0.36	0.06	20.8	2.48	1033	1.1	15	1.1	15	987	89477		
24.08.2023	10:24		0.36	0.06	23.0	2.48	1064	1.1	15	1.1	15	1018	92196		
25.08.2023	10:24		0.36	0.06	23.0	2.48	1093	1.1	15	1.1	15	1047	94848		
25.08.2023	16:20		0.36	0.06	23.0	2.48	1101	1.1	15	1.1	15	1055	95524		
Test interruption															
28.08.2023	08:50		0.36	0.06	23.2	2.48	1101	1.1	15	1.1	15	1055	95524		
29.08.2023	09:58		0.36	0.06	23.6	2.48	1133	1.1	15	1.1	15	1086	98336		
30.08.2023	00:55		/	/	21.4	/	1152	/	/	/	/	1105	100000		
												Totals at end of test =		1105	100000
												Theoretical total <sup>a</sup> =		1111	



## Meter serial No.:00000106

Date	Time	Observer	Up stream pressure	Down stream pressure	Up stream temp.	Actual flowrate m <sup>3</sup> /h	Meter reading m <sup>3</sup>	Flow cycle times - s				Total volume discharged m <sup>3</sup>	Total no. of flow cycles
			MPa	MPa	°C			rise	on	fall	off		
13.07.2023	13:25		0.32	0.06	21.4	2.48	35	1.1	15	1.1	15	0	0
14.07.2023	15:45		0.33	0.06	24.0	2.48	68	1.1	15	1.1	15	33	2930
17.07.2023	14:36		0.31	0.06	23.6	2.48	155	1.1	15	1.1	15	120	10820
18.07.2023	15:25		0.30	0.06	22.4	2.48	185	1.1	15	1.1	15	150	13595
19.07.2023	15:52		0.31	0.06	21.8	2.48	215	1.1	15	1.1	15	180	16320
20.07.2023	16:17		0.34	0.06	21.8	2.48	246	1.1	15	1.1	15	210	19047
21.07.2023	16:31		0.32	0.06	22.4	2.48	276	1.1	15	1.1	15	240	21752
23.07.2023	09:31		0.33	0.06	21.0	2.48	326	1.1	15	1.1	15	290	26327
25.07.2023	09:03		0.33	0.06	21.8	2.48	385	1.1	15	1.1	15	348	31635
26.07.2023	10:12		0.33	0.06	21.9	2.48	416	1.1	15	1.1	15	379	34440
27.07.2023	13:49		0.31	0.06	21.8	2.48	450	1.1	15	1.1	15	413	37516
28.07.2023	13:50		0.31	0.06	22.2	2.48	479	1.1	15	1.1	15	442	40200
31.07.2023	10:42		0.33	0.06	20.9	2.48	564	1.1	15	1.1	15	527	47893
01.08.2023	13:54		0.33	0.06	23.0	2.48	597	1.1	15	1.1	15	560	50929
02.08.2023	14:37		0.33	0.06	21.8	2.48	627	1.1	15	1.1	15	590	53691
03.08.2023	15:35		0.31	0.06	21.0	2.48	658	1.1	15	1.1	15	620	56480
Test interruption													
07.08.2023	09:17		0.31	0.06	22.0	2.48	658	1.1	15	1.1	15	620	56480
08.08.2023	09:37		0.34	0.06	22.3	2.48	687	1.1	15	1.1	15	650	59189
09.08.2023	09:41		0.35	0.06	21.2	2.48	718	1.1	15	1.1	15	680	61873
10.08.2023	09:50		0.33	0.06	23.2	2.48	748	1.1	15	1.1	15	710	64561
11.08.2023	09:50		0.35	0.06	20.0	2.48	778	1.1	15	1.1	15	740	67251
14.08.2023	10:32		0.35	0.06	20.3	2.48	869	1.1	15	1.1	15	830	75377
15.08.2023	10:53		0.35	0.06	22.7	2.48	899	1.1	15	1.1	15	860	78094
16.08.2023	10:56		0.33	0.06	23.6	2.48	929	1.1	15	1.1	15	890	80784
17.08.2023	10:58		0.35	0.06	21.1	2.48	959	1.1	15	1.1	15	920	83470
18.08.2023	10:58		0.35	0.06	22.3	2.48	989	1.1	15	1.1	15	950	86146
18.08.2023	16:20		0.36	0.06	22.3	2.48	996	1.1	15	1.1	15	957	86745
Test interruption													
22.08.2023	09:40		0.36	0.06	24.1	2.48	996	1.1	15	1.1	15	957	86745
23.08.2023	10:02		0.36	0.06	20.8	2.48	1026	1.1	15	1.1	15	987	89477
24.08.2023	10:24		0.36	0.06	23.0	2.48	1057	1.1	15	1.1	15	1018	92196
25.08.2023	10:24		0.36	0.06	23.0	2.48	1087	1.1	15	1.1	15	1047	94848
25.08.2023	16:20		0.36	0.06	23.0	2.48	1094	1.1	15	1.1	15	1055	95524
Test interruption													
28.08.2023	08:50		0.36	0.06	23.2	2.48	1094	1.1	15	1.1	15	1055	95524
29.08.2023	09:58		0.36	0.06	23.6	2.48	1126	1.1	15	1.1	15	1086	98336
30.08.2023	00:55		/	/	21.4	/	1145	/	/	/	/	1105	100000
											Totals at end of test =	1105	100000
											Theoretical total <sup>a</sup> =	1111	

## Meter serial No.:52052001

Date	Time	Observer	Up stream pressure MPa	Down stream pressure MPa	Up stream temp. °C	Actual flowrate m <sup>3</sup> /h	Meter reading m <sup>3</sup>	Flow cycle times - s				Total volume discharged m <sup>3</sup>	Total no. of flow cycles
								rise	on	fall	off		
13.07.2023	13:25		0.32	0.06	21.4	2.48	33	1.1	15	1.1	15	0	0
14.07.2023	15:45		0.33	0.06	24.0	2.48	66	1.1	15	1.1	15	33	2930
17.07.2023	14:36		0.31	0.06	23.6	2.48	152	1.1	15	1.1	15	120	10820
18.07.2023	15:25		0.30	0.06	22.4	2.48	183	1.1	15	1.1	15	150	13595
19.07.2023	15:52		0.31	0.06	21.8	2.48	212	1.1	15	1.1	15	180	16320
20.07.2023	16:17		0.34	0.06	21.8	2.48	242	1.1	15	1.1	15	210	19047
21.07.2023	16:31		0.32	0.06	22.4	2.48	272	1.1	15	1.1	15	240	21752
23.07.2023	09:31		0.33	0.06	21.0	2.48	322	1.1	15	1.1	15	290	26327
25.07.2023	09:03		0.33	0.06	21.8	2.48	381	1.1	15	1.1	15	348	31635
26.07.2023	10:12		0.33	0.06	21.9	2.48	411	1.1	15	1.1	15	379	34440
27.07.2023	13:49		0.31	0.06	21.8	2.48	445	1.1	15	1.1	15	413	37516
28.07.2023	13:50		0.31	0.06	22.2	2.48	474	1.1	15	1.1	15	442	40200
31.07.2023	10:42		0.33	0.06	20.9	2.48	558	1.1	15	1.1	15	527	47893
01.08.2023	13:54		0.33	0.06	23.0	2.48	592	1.1	15	1.1	15	560	50929
02.08.2023	14:37		0.33	0.06	21.8	2.48	622	1.1	15	1.1	15	590	53691
03.08.2023	15:35		0.31	0.06	21.0	2.48	652	1.1	15	1.1	15	620	56480
Test interruption													
07.08.2023	09:17		0.31	0.06	22.0	2.48	652	1.1	15	1.1	15	620	56480
08.08.2023	09:37		0.34	0.06	22.3	2.48	681	1.1	15	1.1	15	650	59189
09.08.2023	09:41		0.35	0.06	21.2	2.48	711	1.1	15	1.1	15	680	61873
10.08.2023	09:50		0.33	0.06	23.2	2.48	741	1.1	15	1.1	15	710	64561
11.08.2023	09:50		0.35	0.06	20.0	2.48	771	1.1	15	1.1	15	740	67251
14.08.2023	10:32		0.35	0.06	20.3	2.48	861	1.1	15	1.1	15	830	75377
15.08.2023	10:53		0.35	0.06	22.7	2.48	891	1.1	15	1.1	15	860	78094
16.08.2023	10:56		0.33	0.06	23.6	2.48	921	1.1	15	1.1	15	890	80784
17.08.2023	10:58		0.35	0.06	21.1	2.48	950	1.1	15	1.1	15	920	83470
18.08.2023	10:58		0.35	0.06	22.3	2.48	980	1.1	15	1.1	15	950	86146
18.08.2023	16:20		0.36	0.06	22.3	2.48	987	1.1	15	1.1	15	957	86745
Test interruption													
22.08.2023	09:40		0.36	0.06	24.1	2.48	987	1.1	15	1.1	15	957	86745
23.08.2023	10:02		0.36	0.06	20.8	2.48	1017	1.1	15	1.1	15	987	89477
24.08.2023	10:24		0.36	0.06	23.0	2.48	1048	1.1	15	1.1	15	1018	92196
25.08.2023	10:24		0.36	0.06	23.0	2.48	1077	1.1	15	1.1	15	1047	94848
25.08.2023	16:20		0.36	0.06	23.0	2.48	1085	1.1	15	1.1	15	1055	95524
Test interruption													
28.08.2023	08:50		0.36	0.06	23.2	2.48	1085	1.1	15	1.1	15	1055	95524
29.08.2023	09:58		0.36	0.06	23.6	2.48	1116	1.1	15	1.1	15	1086	98336
30.08.2023	00:55		/	/	21.4	/	1135	/	/	/	/	1105	100000
											Totals at end of test =	1105	100000
											Theoretical total <sup>a</sup> =	1111	

**Ambient conditions at finish**

Ambient temperature	Ambient relative humidity	Ambient atmospheric pressure	Time
°C	%	kPa	/
23.2	64.2	101.3	30.08.2023

Observer: 方艳



**Errors (of indication) measured after the discontinuous flow test**

			At start	At end	
		Ambient temperature:	23.3	23.3	°C
Model:	BECO Y	Ambient relative humidity:	60.3	60.3	%
Date:	31.08.2023	Ambient atmospheric pressure:	101.3	101.3	kPa
Observer:	方艳	Time:	09:15	10:58	

Test method:	Volumetric
Volume measures/weighbridge used — m <sup>3</sup> or kg:	Volume measures
Water conductivity (electromagnetic induction meters only) — S/cm:	/
Length of straight pipe before meter (or manifold) — mm:	430
Length of straight pipe after meter (or manifold) — mm:	430
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	15
Describe flow straightener installation if used:	/



**Errors (of indication) measured after the discontinuous flow test**

Meter serial No.: 00000104

Actual flowrate	Tested water meter				Metrology standard			Meter error	Average error	MPE	Curve variation error $\bar{E}_m(B) - \bar{E}_m(A)$	MPE (of curve variation error)
	Initial supply pressure	cumulative pulse	cumulative volume	Time	Water temp.	Actual volume	Time					
m <sup>3</sup> /h	MPa	/	$V_i$ L	$t_i$ s	$T_w$ °C	$V_a$ L	$t_a$ s	$E_m$ %	$\bar{E}_m$ %	%	%	%
$Q_4$	0.28	1032	19.10232	23.027	24.4	19.52973	23.076	-1.98	-1.8	±2.5	-0.5	1.5
	0.28	1037	19.19487	23.048	24.4	19.52989	23.076	-1.60				
$Q_3$	0.25	851	15.75201	24.175	24.4	15.97344	24.186	-1.34	-1.1	±2.5	-0.3	1.5
	0.25	854	15.80754	24.157	24.4	15.97233	24.184	-0.92				
	0.25	852	15.77776	24.166	24.4	15.97303	24.186	-1.14				
0.67 ( $Q_2+Q_3$ )	0.20	610	11.29110	24.382	24.4	11.39369	24.426	-0.72	-0.7	±2.5	0.0	1.5
	0.20	587	10.86537	23.430	24.4	11.39359	24.426	-0.58				
0.33 ( $Q_2+Q_3$ )	0.05	304	5.62704	24.663	24.4	5.68600	24.782	-0.56	-0.5	±2.5	-0.4	1.5
	0.05	305	5.64555	24.732	24.4	5.68593	24.782	-0.51				
$Q_2$	0.15	53	0.98103	714.165	24.4	1.00605	723.022	-1.28	-1.1	±2.5	0.6	1.5
	0.15	43	0.79593	577.703	24.4	1.00596	723.020	-0.98				
	0.15	64	1.18518	859.730	24.4	1.21284	871.232	-0.97				
$Q_1$	0.15	54	1.00008	1135.265	24.4	1.00413	1152.414	1.10	0.9	±6.0	2.3	3.0
	0.15	54	1.00008	1136.208	24.4	1.00415	1152.463	1.02				
	0.15	54	1.00008	1133.626	24.4	1.00770	1150.426	0.71				

Comments: Pass

Meter serial No.: 00000106

Actual flowrate	Tested water meter				Metrology standard			Meter error	Average error	MPE	Curve variation error $\bar{E}_m(B) - \bar{E}_m(A)$	MPE (of curve variation error)
	Initial supply pressure	cumulative pulse	cumulative volume	Time	Water temp.	Actual volume	Time					
m <sup>3</sup> /h	MPa	/	$V_i$ L	$t_i$ s	$T_w$ °C	$V_a$ L	$t_a$ s	$E_m$ %	$\bar{E}_m$ %	%	%	%
$Q_4$	0.28	1042	19.28742	23.044	24.4	19.53012	23.076	-1.11	-1.0	±2.5	0.0	1.5
	0.28	1044	19.32444	23.054	24.4	19.53028	23.076	-0.96				
$Q_3$	0.25	856	15.84456	24.149	24.4	15.97372	24.186	-0.66	-0.5	±2.5	-0.2	1.5
	0.25	612	11.32812	17.196	24.4	15.97261	24.184	-0.26				
	0.25	858	15.89016	24.165	24.4	15.97339	24.186	-0.43				
0.67 ( $Q_2+Q_3$ )	0.20	609	11.27259	24.401	24.4	11.39386	24.426	-0.96	-1.0	±2.5	-0.3	1.5
	0.20	608	11.25408	24.363	24.4	11.39380	24.426	-0.97				
0.33 ( $Q_2+Q_3$ )	0.05	286	5.29386	23.167	24.4	5.68610	24.782	-0.41	-0.4	±2.5	0.1	1.5
	0.05	304	5.62704	24.644	24.4	5.68602	24.782	-0.48				
$Q_2$	0.15	53	0.98103	714.481	24.4	1.00606	723.022	-1.32	-1.2	±2.5	0.7	1.5
	0.15	53	0.98103	712.221	24.4	1.00608	723.020	-1.01				
	0.15	64	1.18528	861.929	24.4	1.21284	871.232	-1.22				
$Q_1$	0.15	52	0.96252	1122.606	24.4	1.00415	1152.414	-1.60	-1.1	±6.0	1.5	3.0
	0.15	53	0.98103	1131.663	24.4	1.00417	1152.463	-0.51				
	0.15	53	0.98103	1132.623	24.4	1.00770	1150.426	-1.12				

Comments: Pass

## Meter serial No.: 52052001

Actual flowrate	Tested water meter				Metrology standard			Meter error	Average error	MPE	Curve variation error $\bar{E}_m(B) - \bar{E}_m(A)$	MPE (of curve variation error)
	Initial supply pressure	cumulative pulse	cumulative volume	Time	Water temp.	Actual volume	Time					
m <sup>3</sup> /h	MPa	/	$V_i$ L	$t_i$ s	$T_w$ °C	$V_a$ L	$t_a$ s	$E_m$ %	$\bar{E}_m$ %	%	%	%
$Q_4$	0.28	1044	19.32444	23.035	24.4	19.53052	23.076	-0.88	-0.7	±2.5	-0.1	1.5
	0.28	1048	19.39848	23.053	24.4	19.53067	23.076	-0.58				
$Q_3$	0.25	800	14.80800	22.426	24.4	15.97401	24.186	-0.03	0.0	±2.5	0.0	1.5
	0.25	719	13.30869	20.145	24.4	15.97290	24.184	0.02				
	0.25	862	15.96424	24.164	24.4	15.97375	24.186	0.03				
0.67 ( $Q_2+Q_3$ )	0.20	616	11.40216	24.396	24.4	11.39404	24.426	0.19	0.1	±2.5	-0.1	1.5
	0.20	615	11.38365	24.393	24.4	11.39399	24.426	0.04				
0.33 ( $Q_2+Q_3$ )	0.05	227	4.20177	18.229	24.4	5.68620	24.782	0.46	0.3	±2.5	0.1	1.5
	0.05	307	5.68257	24.748	24.4	5.68610	24.782	0.07				
$Q_2$	0.15	42	0.77742	564.214	24.4	1.00603	723.022	-0.97	-1.2	±2.5	-0.1	1.5
	0.15	52	0.96252	702.275	24.4	1.00612	723.020	-1.51				
	0.15	63	1.16667	848.265	24.4	1.21284	871.275	-1.20				
$Q_1$	0.15	51	0.94401	1122.352	24.4	1.00417	1152.414	-3.47	-2.7	±6.0	-1.0	3.0
	0.15	52	0.96252	1127.630	24.4	1.00419	1152.463	-2.04				
	0.15	53	0.98103	1155.120	24.4	1.00782	1156.436	-2.55				

Comments: Pass

## 2.8.2 Continuous flow test (ISO 4064-2: 2014, 7.11.3)

### Readings taken during the test

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

#### Ambient conditions at start

Ambient temperature	Ambient relative humidity	Ambient atmospheric pressure	Time
°C	%	kPa	/
22.0	59.6	101.2	02.09.2023

#### Meter serial No.:00000104

Date	Time	Observer	Up stream Pressure MPa	Down stream Pressure MPa	Up stream Temp. °C	Actual flowrate m <sup>3</sup> /h	Meter reading m <sup>3</sup>	Total volume discharged m <sup>3</sup>	Hours Run h
02.09.2023	10:22		0.45	0.02	24.1	3.08	1153	0	0
03.09.2023	13:14		0.45	0.02	20.4	3.08	1233	82	27
04.09.2023	16:26		0.45	0.02	21.2	3.08	1314	166	54
05.09.2023	16:37		0.45	0.02	22.1	3.08	1386	240	78
06.09.2023	16:20		/	/	22.4	/	1450	314	102
Totals at end of test =								314	102
Minimum volume discharged =								312.5	

#### Meter serial No.:00000106

Date	Time	Observer	Up stream Pressure MPa	Down stream Pressure MPa	Up stream Temp. °C	Actual flowrate m <sup>3</sup> /h	Meter reading m <sup>3</sup>	Total volume discharged m <sup>3</sup>	Hours Run h
02.09.2023	10:22		0.45	0.02	24.1	3.08	1147	0	0
03.09.2023	13:14		0.45	0.02	20.4	3.08	1227	82	27
04.09.2023	16:26		0.45	0.02	21.2	3.08	1309	166	54
05.09.2023	16:37		0.45	0.02	22.1	3.08	1381	240	78
06.09.2023	16:20		/	/	22.4	/	1445	314	102
Totals at end of test =								314	102
Minimum volume discharged =								312.5	

Meter serial No.:52052001

Date	Time	Observer	Up stream Pressure MPa	Down stream Pressure MPa	Up stream Temp. °C	Actual flowrate m <sup>3</sup> /h	Meter reading m <sup>3</sup>	Total volume discharged m <sup>3</sup>	Hours Run h
02.09.2023	10:22		0.45	0.02	24.1	3.08	1138	0	0
03.09.2023	13:14		0.45	0.02	20.4	3.08	1218	82	27
04.09.2023	16:26		0.45	0.02	21.2	3.08	1298	166	54
05.09.2023	16:37		0.45	0.02	22.1	3.08	1369	240	78
06.09.2023	16:20		/	/	22.4	/	1433	314	102
Totals at end of test =								314	102
Minimum volume discharged =								312.5	

## Ambient conditions at finish

Ambient temperature °C	Ambient relative humidity %	Ambient atmospheric pressure kPa	Time /
21.8	60.2	101.4	06.09.2023

Observer: 方艳

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

		At start	At end	
Model:	BCEO Y	24.7	24.7	°C
Date:	08.09.2023	48.9	48.9	%
Observer:	方艳	101.1	101.1	kPa
		12:15	16:30	Time:

Test method:	Volumetric
Volume measures/weighbridge used — m <sup>3</sup> or kg:	Volume measures
Water conductivity (electromagnetic induction meters only) — S/cm:	/
Length of straight pipe before meter (or manifold) — mm:	430
Length of straight pipe after meter (or manifold) — mm:	430
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	15
Describe flow straightener installation if used:	/



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**Errors (of indication) measured after the continuous flow test****Meter serial No.: 00000104**

Actual flowrate	Tested water meter				Metrology standard			Meter error	Average error	MPE	Curve variation error $\bar{E}_m(B) - \bar{E}_m(A)$	MPE (of curve variation error)
	Initial supply pressure	cumulative pulse	cumulative volume	Time	Water temp.	Actual volume	Time					
m <sup>3</sup> /h	MPa	/	$V_i$ L	$t_i$ s	$T_w$ °C	$V_a$ L	$t_a$ s	$E_m$ %	$\bar{E}_m$ %	%	%	%
$Q_4$	0.28	1095	20.26845	24.238	24.4	20.53055	24.258	-1.20	-1.3	±2.5	0.5	1.5
	0.28	1093	20.23143	24.238	24.4	20.53105	24.258	-1.38				
$Q_3$	0.25	853	15.78903	24.134	24.4	15.97420	24.186	-0.95	-0.8	±2.5	0.3	1.5
	0.25	856	15.85312	24.156	24.4	15.97303	24.186	-0.63				
	0.25	629	11.64279	17.757	24.4	15.97373	24.186	-0.72				
0.67 ( $Q_2+Q_3$ )	0.20	433	8.01483	17.227	24.4	11.39374	24.426	-0.26	-0.5	±2.5	0.2	1.5
	0.20	610	11.29110	24.375	24.4	11.39368	24.426	-0.69				
0.33 ( $Q_2+Q_3$ )	0.05	269	4.97919	21.694	24.4	5.68616	24.782	0.03	-0.2	±2.5	0.3	1.5
	0.05	305	5.64555	24.688	24.4	5.68601	24.782	-0.33				
$Q_2$	0.15	63	1.16613	855.203	24.4	1.21296	872.196	-1.95	-2.1	±2.5	-1.0	1.5
	0.15	64	1.18464	867.786	24.4	1.21284	872.224	-1.83				
	0.15	63	1.16613	859.382	24.4	1.21279	872.204	-2.41				
$Q_1$	0.15	54	1.00008	1134.423	24.4	1.00798	1150.362	0.61	0.3	±6.0	-0.6	3.0
	0.15	53	0.98103	1126.608	24.4	1.00773	1150.639	-0.57				
	0.15	51	0.94401	1069.592	24.4	1.00768	1150.224	0.74				

Comments: Pass

**Meter serial No.: 00000106**

Actual flowrate	Tested water meter				Metrology standard			Meter error	Average error	MPE	Curve variation error $\bar{E}_m(B) - \bar{E}_m(A)$	MPE (of curve variation error)
	Initial supply pressure	cumulative pulse	cumulative volume	Time	Water temp.	Actual volume	Time					
m <sup>3</sup> /h	MPa	/	$V_i$ L	$t_i$ s	$T_w$ °C	$V_a$ L	$t_a$ s	$E_m$ %	$\bar{E}_m$ %	%	%	%
$Q_4$	0.28	1101	20.37951	24.247	24.4	20.53111	24.258	-0.69	-0.6	±2.5	0.4	1.5
	0.28	1102	20.39802	24.221	24.4	20.53149	24.258	-0.50				
$Q_3$	0.25	860	15.91860	24.136	24.4	15.97454	24.186	-0.14	-0.1	±2.5	0.4	1.5
	0.25	861	15.93711	24.131	24.4	15.97458	24.186	-0.01				
	0.25	861	15.93711	24.159	24.4	15.97397	24.186	-0.12				
0.67 ( $Q_2+Q_3$ )	0.20	439	8.12589	17.509	24.4	11.39391	24.426	-0.51	-0.6	±2.5	0.4	1.5
	0.20	609	11.27259	24.353	24.4	11.39385	24.426	-0.77				
0.33 ( $Q_2+Q_3$ )	0.05	304	5.62704	24.650	24.4	5.68625	24.782	-0.51	-0.6	±2.5	-0.2	1.5
	0.05	305	5.64555	24.754	24.4	5.68610	24.782	-0.60				
$Q_2$	0.15	63	1.16613	855.923	24.4	1.21301	872.196	-2.04	-2.1	±2.5	-0.9	1.5
	0.15	63	1.16676	856.844	24.4	1.21284	872.220	-2.07				
	0.15	63	1.16613	857.599	24.4	1.21283	872.204	-2.21				
$Q_1$	0.15	55	1.01805	1145.853	24.4	1.00778	1150.426	1.42	0.9	±6.0	2.0	3.0
	0.15	55	1.01805	1145.460	24.4	1.00775	1150.089	1.43				
	0.15	54	1.00008	1142.723	24.4	1.00799	1150.485	-0.11				

Comments: Pass

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**Meter serial No.: 52052001**

Actual flowrate	Tested water meter				Metrology standard			Meter error	Average error	MPE	Curve variation error $\bar{E}_m(B) - \bar{E}_m(A)$	MPE (of curve variation error)
	Initial supply pressure	cumulative pulse	cumulative volume	Time	Water temp.	Actual volume	Time					
m <sup>3</sup> /h	MPa	/	$V_i$ L	$t_i$ s	$T_w$ °C	$V_a$ L	$t_a$ s	$E_m$ %	$\bar{E}_m$ %	%	%	%
$Q_4$	0.28	1088	20.13888	24.224	24.4	20.53166	24.258	-1.78	-1.2	±2.5	-0.5	1.5
	0.28	1100	20.36100	24.222	24.4	20.53194	24.258	-0.69				
$Q_3$	0.25	859	15.90009	24.160	24.4	15.97484	24.186	-0.36	-0.1	±2.5	-0.1	1.5
	0.25	689	12.75339	19.301	24.4	15.97474	24.186	0.04				
	0.25	737	13.64187	20.680	24.4	15.97421	24.186	-0.12				
0.67 ( $Q_2+Q_3$ )	0.20	597	11.05047	23.632	24.4	11.39402	24.426	0.24	0.3	±2.5	0.2	1.5
	0.20	617	11.42067	24.392	24.4	11.39413	24.426	0.37				
0.33 ( $Q_2+Q_3$ )	0.05	307	5.68257	24.746	24.4	5.68618	24.782	0.08	0.2	±2.5	-0.1	1.5
	0.05	307	5.68257	24.705	24.4	5.68614	24.782	0.24				
$Q_2$	0.15	63	1.16613	856.494	24.4	1.21306	872.196	-2.11	-2.0	±2.5	-0.8	1.5
	0.15	64	1.18464	864.411	24.4	1.21294	872.224	-1.45				
	0.15	63	1.16613	858.781	24.4	1.21287	872.204	-2.35				
$Q_1$	0.15	52	0.96304	1139.066	24.4	1.00800	1150.256	-3.52	-3.5	±6.0	-0.8	3.0
	0.15	52	0.96304	1140.363	24.4	1.00777	1150.725	-3.57				
	0.15	51	0.94401	1116.765	24.4	1.00772	1150.023	-3.53				

Comments: **Pass**

## 2.9 Static magnetic field test (ISO 4064-2: 2014, 7.12, 8.16)

		At start	At end	
Model:	BECO Y	Ambient temperature:	20.9	21.1 °C
Date:	28.06.2023	Ambient relative humidity:	60.8	60.3 %
Observer:	方艳	Ambient atmospheric pressure:	100.8	100.8 kPa
		Time:	12:17	12:32

Test method:	Volumetric
Volume measures/weighbridge used — m <sup>3</sup> or kg:	Volume measures
Water conductivity (electromagnetic induction meters only) — S/cm:	/
Length of straight pipe before meter (or manifold) — mm:	430
Length of straight pipe after meter (or manifold) — mm:	430
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	15
Describe flow straightener installation if used:	/

Meter serial No.: 00000104 Orientation (V, H, other): H  
 Flow direction: / Location of indicating device: top

Application conditions	Nominal flow rate	Actual flow rate	Initial supply pressure	Initial inlet water temperature	Initial reading $V_i(i)$	Final reading $V_i(f)$	Indicated volume $V_i$	Density	Actual volume	Meter error $E_m$	MPE
	m <sup>3</sup> /h	m <sup>3</sup> /h	MPa	°C	L	L	L	kg/L	L	%	%
Location 1	$Q_3$	2.5	0.28	20.8	737.58	788.35	50.77		50.95	-0.4	±2
Location 2	$Q_3$	2.5	0.28	20.8	838.97	889.94	50.97		51.25	-0.5	±2
Location 3	$Q_3$	2.5	0.28	20.8	788.35	838.97	50.62		50.95	-0.6	±2
Comments: Location 1- left <b>Pass</b> Location 2- right <b>Pass</b> Location 3- top <b>Pass</b>											

		At start	At end	
Model:	BECO Y	Ambient temperature:	21.1	21.1 °C
Date:	29.06.2023	Ambient relative humidity:	62.0	62.0 %
Observer:	方艳	Ambient atmospheric pressure:	100.6	100.6 kPa
		Time:	13:09	13:19

Test method:	Volumetric
Volume measures/weighbridge used — m <sup>3</sup> or kg:	Volume measures
Water conductivity (electromagnetic induction meters only) — S/cm:	/
Length of straight pipe before meter (or manifold) — mm:	430
Length of straight pipe after meter (or manifold) — mm:	430
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	20
Describe flow straightener installation if used:	/

Meter serial No.: 00000201 Orientation (V, H, other): H  
 Flow direction: / Location of indicating device: top

Application conditions	Nominal flow rate	Actual flow rate	Initial supply pressure	Initial inlet water temperature	Initial reading $V_i(i)$	Final reading $V_i(f)$	Indicated volume $V_i$	Density	Actual volume	Meter error $E_m$	MPE
	m <sup>3</sup> /h	m <sup>3</sup> /h	MPa	°C	L	L	L	kg/L	L	%	%
Location 1	$Q_3$	4.0	0.28	20.9	602.89	701.12	98.23		99.0	-0.8	±2
Location 2	$Q_3$	4.0	0.28	20.9	701.12	797.14	96.02		96.7	-0.7	±2
Location 3	$Q_3$	4.0	0.28	20.9	507.73	602.89	95.16		96.2	-1.1	±2
Comments: Location 1- left <b>Pass</b> Location 2- right <b>Pass</b> Location 3- top <b>Pass</b>											

## 2.10 Dry heat (non-condensing) (ISO 4064-2:2014, 8.2)

Model:	BECO Y	Ambient temperature:	At start	At end	°C
Date:	29.06.2023	Ambient relative humidity:	21.1	21.4	
Observer:	方艳	Ambient atmospheric pressure:	63.3	62.9	%
		Time:	100.6	100.6	kPa
			08:35	13:54	

Test method:	Volumetric
Volume measures/weighbridge used — m <sup>3</sup> or kg:	Volume measures
Water conductivity (electromagnetic induction meters only) — S/cm:	/
Length of straight pipe before meter (or manifold) — mm:	340
Length of straight pipe after meter (or manifold) — mm:	340
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	15
Describe flow straightener installation if used:	/

Meter serial No.: 00000104 Orientation (V, H, other): H

Flow direction: / Location of indicating device: top

Application conditions	Actual or simulated flow rate	Working pressure	Working temperature	Initial reading	Final reading	Indicated volume	Density	Actual volume	Meter error	MPE
	$Q_1$	$p_w$	$T_w$	$V_i(i)$	$V_i(j)$	$V_i$	$\rho$	$V_a$	$E_m$	
	m <sup>3</sup> /h	MPa	°C	L	L	L	kg/L	L	%	%
20 °C	1.75	0.28	20.8	0.00	50.71	50.71		50.90	-0.4	±2
55 °C	1.75	0.23	24.8	0.00	50.79	50.79		50.55	0.5	±2
20 °C	1.75	0.28	21.0	0.00	50.44	50.44		50.75	-0.6	±2

Comments: **Pass**

**2.11 Cold (ISO 4064-2:2014, 8.3)**

Model:	BECO Y	Ambient temperature:	At start	At end	°C	
		Ambient relative humidity:	21.4	21.3		
		Ambient atmospheric pressure:	62.9	63.3		%
		Date:	29.06.2023~30.06.2023	100.6		100.6
Observer:	方艳	Time:	13:58	08:50		

Test method:	Volumetric
Volume measures/weighbridge used — m <sup>3</sup> or kg:	Volume measures
Water conductivity (electromagnetic induction meters only) — S/cm:	/
Length of straight pipe before meter (or manifold) — mm:	340
Length of straight pipe after meter (or manifold) — mm:	340
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	15
Describe flow straightener installation if used:	/

Meter serial No.: 00000104 Orientation (V, H, other): H  
 Flow direction: / Location of indicating device: top

Application conditions	Actual or simulated flow rate	Working pressure	Working temperature	Initial reading	Final reading	Indicated volume	Density	Actual volume	Meter error	MPE
	$Q_{(t)}$	$p_w$	$T_w$	$V_i(i)$	$V_i(j)$	$V_i$	$\rho$	$V_a$	$E_m$	
	m <sup>3</sup> /h	MPa	°C	L	L	L	kg/L	L	%	%
20 °C	1.75	0.28	21.0	0.00	50.44	50.44		50.75	-0.6	±2
-25 °C	1.75	0.23	25.0	449.86	499.74	49.88		50.45	-1.1	±2
20 °C	1.75	0.28	21.0	0.00	50.08	50.08		50.30	-0.4	±2

Comments: **Pass**

## 2.12 Damp heat, cyclic (condensing) (ISO 4064-2:2014, 8.4)

Model:	BECO Y	Ambient temperature:	At start	At end	°C
Date:	30.06.2023~03.07.2023	Ambient relative humidity:	21.3	21.1	
Observer:	方艳	Ambient atmospheric pressure:	63.3	56.7	%
			100.6	100.8	kPa
		Time:	08:55	09:05	

Test method:	Volumetric
Volume measures/weighbridge used — m <sup>3</sup> or kg:	Volume measures
Water conductivity (electromagnetic induction meters only) — S/cm:	/
Length of straight pipe before meter (or manifold) — mm:	800
Length of straight pipe after meter (or manifold) — mm:	800
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	15
Describe flow straightener installation if used:	/

Meter serial No.: 00000104 Orientation (V, H, other): H  
 Flow direction: / Location of indicating device: top

Application conditions	Actual or simulated flow rate $Q_{( )}$	Working pressure $p_w$	Working temperature $T_w$	Initial reading $V_i(i)$	Final reading $V_i(j)$	Indicated volume $V_i$	Density $\rho$	Actual volume $V_a$	Meter error $E_m$	MPE
	m <sup>3</sup> /h	MPa	°C	L	L	L	kg/L	L	%	%
Reference conditions Before cycling	1.75	0.28	21.0	0.00	50.08	50.08		50.30	-0.4	±2

Precondition meter.

Apply damp heat cycles (duration 24 h), two cycles between 25 °C and 40 °C.

Application conditions	Actual or simulated flow rate $Q_{( )}$	Working pressure $p_w$	Working temperature $T_w$	Initial reading $V_i(i)$	Final reading $V_i(j)$	Indicated volume $V_i$	Actual volume $V_a$	Meter error $E_m$	MPE	Fault $E_{m(2)} - E_{m(1)}$	Significant fault
	m <sup>3</sup> /h	MPa	°C	L	L	L	L	%	%	%	%
2) After cycling	1.75	0.28	21.5	0.00	51.13	51.13	50.95	0.4	±2	0.8	±1
Comments: EUT functioning correctly    yes											
<b>Pass</b>											

**2.13 Power supply variation (ISO 4064-2:2014, 8.5)****2.13.1 Meters powered by primary batteries or by external DC voltage (ISO 4064-2:2014, 8.5.3)**

			At start	At end	
		Ambient temperature:	21.1	21.2	°C
Model:	BECO Y	Ambient relative humidity:	62.4	62.8	%
Date:	12.09.2023	Ambient atmospheric pressure:	100.8	100.87	kPa
Observer:	方艳	Time:	13:37	13:57	

Test method:	Volumetric
Volume measures/weighbridge used — m <sup>3</sup> or kg:	Volume measures
Water conductivity (electromagnetic induction meters only) — S/cm:	/
Length of straight pipe before meter (or manifold) — mm:	800
Length of straight pipe after meter (or manifold) — mm:	800
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	15
Describe flow straightener installation if used:	/

**Meter serial No.:** 00000104      **Orientation (V, H, other):** H

**Flow direction:** /      **Location of indicating device:** top

Application conditions	$U_i$	Actual or simulated flow rate $Q_{(i)}$	Working pressure $p_w$	Working temperature $T_w$	Initial reading $V_i(i)$	Final reading $V_i(j)$	Indicated volume $V_i$	Actual volume $V_a$	Meter error $E_m$	MPE
	v	m <sup>3</sup> /h	MPa	°C	L	L	L	L	%	%
$U_{max}$	3.6	1.75	0.30	20.5	0.00	50.28	50.28	50.40	-0.2	±2
$U_{min}$	2.7	1.75	0.30	20.5	0.00	50.32	50.32	50.65	-0.7	±2
Comments: <b>Pass</b>										

## 2.14 Electrostatic discharge (ISO 4064-2:2014, 8.11)

			At start	At end	
Model:	BECO Y	Ambient temperature:	21.2	21.2	°C
Date:	28.06.2023	Ambient relative humidity:	62.5	62.5	%
Observer:	方艳	Ambient atmospheric pressure:	100.8	100.8	kPa
		Time:	12:39	12:59	

Test method:	Volumetric
Volume measures/weighbridge used — m <sup>3</sup> or kg:	Volume measures
Water conductivity (electromagnetic induction meters only) — S/cm:	/
Length of straight pipe before meter (or manifold) — mm:	800
Length of straight pipe after meter (or manifold) — mm:	800
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	15
Describe flow straightener installation if used:	/

Meter serial No.: 00000104 Orientation (V, H, other): H  
 Flow direction: / Location of indicating device: top

Test conditions	Actual or simulated flow rate	Working pressure	Working temp.	Initial reading	Final reading	Indicated volume	Density	Actual volume	Meter error	MPE	Fault	Significant fault
	$Q()$ m <sup>3</sup> /h	$p_w$ MPa	$T_w$ °C	$V_i(i)$ L	$V_i(j)$ L	$V_i$ L	$\rho$ kg/L	$V_a$ L	$E_m$ %	%	$E_{m2})$ $E_{m1})$ %	
Reference conditions (no discharge)	1.75	0.28	21.0	0.00	50.41	50.41		50.60	-0.4	±2		
C	1.75	0.28	21.0	0.00	51.78	51.78		52.15	-0.7	±2	-0.3	±1
C	1.75	0.28	21.0	0.00	50.83	50.83		50.80	0.1	±2	0.5	±1
A	1.75	0.28	21.0	0.00	51.31	51.31		51.90	-1.1	±2	-0.7	±1
A	1.75	0.28	21.0	0.00	50.19	50.19		50.35	-0.3	±2	0.1	±1
Comments: EUT functioning correctly    yes												
<b>Pass</b>												

**2.15 Radiated electromagnetic field (ISO 4064-2:2014, 8.12)**

		At start	At end	
Model:	BECO Y	21.5	21.5	°C
Date:	28.06.2023	56.0	56.0	%
Observer:	方艳	100.8	100.8	kPa
		13:00	13:42	Time:

Test method:	/
Volume measures/weighbridge used — m <sup>3</sup> or kg:	/
Water conductivity (electromagnetic induction meters only) — S/cm:	/
Length of straight pipe before meter (or manifold) — mm:	/
Length of straight pipe after meter (or manifold) — mm:	/
Nominal diameter DN of pipe before and after meter (or manifold) — mm:	15
Describe flow straightener installation if used:	/



ZJIM

Meter serial No.: 00000104 Orientation (V, H, other): /  
 Flow direction: / Location of indicating device: /

Test conditions	Antenna polarization	Actual or simulated flow rate	Working pressure	Working temp.	Initial reading	Final reading	Indicated volume	Actual volume	Meter error	MPE	Fault $E_{m2}$ - $E_{m1}$	Significant fault
		$Q()$	$p_w$	$T_w$	$V_i(i)$	$V_i(j)$	$V_i$	$V_a$	$E_m$			
		m <sup>3</sup> /h	MPa	°C	L	L	L	L	%	%	%	%
1) Reference conditions (no disturbance)	V											
2) Disturbance												
26-40 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
40-60 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
60-80 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
80-100 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
100-120 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
120-144 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
144-150 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
150-160 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
160-180 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
180-200 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
200-250 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
250-350 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
350-400 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
400-435 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
435-500 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
500-600 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
600-700 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
700-800 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
800-934 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
934-1000 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
1000-1400 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				
1400-2000 MHz	V	0.00		21.5	29.021	29.021	0.000	0.000				

After the application of the disturbance: all the functions of the EUT shall operate as designed.-- **Pass**

Comments: **Pass**

Meter serial No.: 00000104 Orientation (V, H, other): /  
 Flow direction: / Location of indicating device: /

Test conditions	Antenna polarization	Actual or simulated flow rate $Q()$	Working pressure $p_w$	Working temp. $T_w$	Initial reading $V_i(i)$	Final reading $V_i(j)$	Indicated volume $V_i$	Actual volume $V_a$	Meter error $E_m$	MPE	Fault $E_{m2}$ - $E_{m1}$	Significant fault
1) Reference conditions (no disturbance)	H											
2) Disturbance												
26-40 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
40-60 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
60-80 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
80-100 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
100-120 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
120-144 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
144-150 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
150-160 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
160-180 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
180-200 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
200-250 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
250-350 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
350-400 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
400-435 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
435-500 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
500-600 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
600-700 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
700-800 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
800-934 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
934-1000 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
1000-1400 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				
1400-2000 MHz	H	0.00		21.5	29.021	29.021	0.000	0.000				

After the application of the disturbance: all the functions of the EUT shall operate as designed.-- **Pass**  
 Comments: **Pass**

**2.16 Absence of flow test (ISO 4064-2:2014, 8.17)**

			At start	At end	
Model:	BECO Y	Ambient temperature:	21.7	21.1	°C
Date:	28.06.2023	Ambient relative humidity:	62.3	63.0	%
Observer:	方艳	Ambient atmospheric pressure:	100.8	100.8	kPa
		Time:	16:17	16:57	

Meter serial No.: 00000104 Orientation (V, H, other): H  
 Flow direction: / Location of indicating device: top

Application conditions	Working pressure	Working temperature	Initial reading	Final reading after 15 min	Indicated volume	EUT functioning correctly
	$p_w$	$T_w$	$V_i(i)$	$V_i(j)$	$V_i$	
	MPa	°C	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	
Meter filled with water, purging out all air	0.28	21.0	29.73758	29.73758	0.00000	yes
Water fully discharged from the meter			29.73760	29.73760	0.00000	yes
Comments: <b>Pass</b>						

			At start	At end	
Model:	BECO Y	Ambient temperature:	21.7	21.1	°C
Date:	29.06.2023	Ambient relative humidity:	62.0	61.8	%
Observer:	方艳	Ambient atmospheric pressure:	100.6	100.6	kPa
		Time:	13:19	13:55	

Meter serial No.: 00000201 Orientation (V, H, other): H  
 Flow direction: / Location of indicating device: top

Application conditions	Working pressure	Working temperature	Initial reading	Final reading after 15 min	Indicated volume	EUT functioning correctly
	$p_w$	$T_w$	$V_i(i)$	$V_i(j)$	$V_i$	
	MPa	°C	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	
Meter filled with water, purging out all air	0.28	21.0	10.79714	10.79714	0.00000	yes
Water fully discharged from the meter			10.79724	10.79724	0.00000	yes
Comments: <b>Pass</b>						

## Annex A

## Listing of test equipment used in examinations and tests

Parameter measured or applied	Instrument or equipment	Manufacturer	Model number	Serial number	Calibration date		Used in test No. (ISO 4064-2:2014, subclause)
					Last	Next	
Static pressure	Pressure gauge	Shanghai yichuan Instrument Factory	(0~4) MPa	157251C	27.09.2023	26.03.2024	7.3
	Electronic stopwatch	Shanghai watch five factory	E7-2II	065638C	21.03.2023	20.03.2024	
The error of indication	Multifunction test device of water meters	Ningbo Gangyin Flow Detection Equipment Co., Ltd.	LJS-III DN15~DN50	075957A	31.08.2022	30.08.2024	7.4, 7.5, 7.6, 7.7, 7.8, 7.11
	Piston type standard facility for liquid flowrate	Zhejiang Province Institute of Metrology	LP-80-I DN(8~25)	177829D	16.02.2023	15.02.2025	
	Quality method multifunction test device of water meters e	Hangzhou Tianma Measurement Technology Co., Ltd	LZS 15~50	228643C	06.09.2022	05.09.2024	
	Test rig of water meters	Ningbo Gangyin Flow Detection Equipment Co., Ltd.	LJS-II DN15 ~ DN50	014135A	15.02.2023	14.02.2025	
Pressure loss	Differential pressure transmitter	Yokogawa Sichuan Instrument Co,Ltd	EJA110E (0 ~ 500) kPa	188252C	13.10.2022	12.10.2023	7.9
Durability	Durability test device of water meters	Ningbo Gangyin Flow Detection Equipment Co., Ltd.	LNJ-I DN15 ~ DN25	157586H-1	06.07.2023	05.07.2025	7.11
Static magnetic field test	Standard magnet steel	/	70*32*15	167657C	30.09.2022	29.09.2025	8.16
Climatic Environment	Water meter environmental adaptability testing device	Zhejiang Shengdi Technology Co., Ltd.	HS-6763 DN(15~50)	208520C	24.11.2022	23.11.2024	8.2, 8.3, 8.4
	Ambient test box	Guangzhou Wusuo Environmental Equipment Co., Ltd.	EW0140	157247B	05.05.2023	04.05.2024	

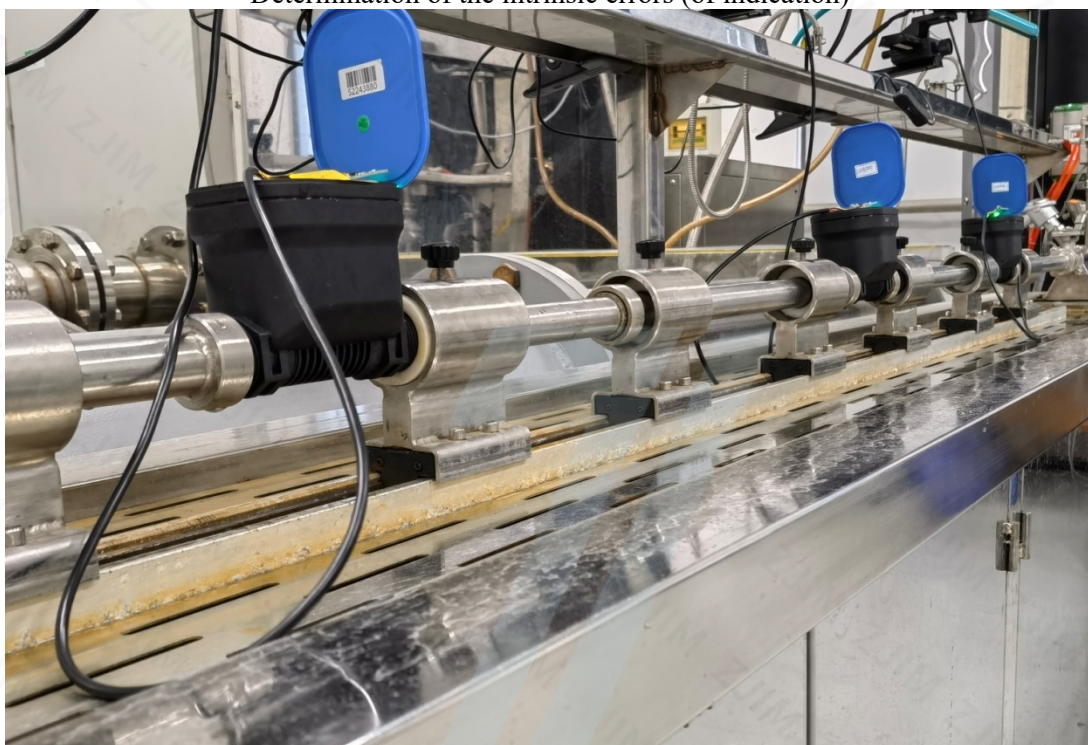
(Continued)

Parameter measured or applied	Instrument or equipment	Manufacturer	Model number	Serial number	Calibration date		Used in test No. (ISO 4064-2:2014, subclause)
					Last	Next	
DC supply voltage	Precision Regulated DC Power Supply	Goodway electronics (Suzhou) Co., Ltd.	GPS-3030D	147109F	24.05.2023	23.05.2024	8.5
Electrostatic discharge	Electrostatic Discharge Generator	Hangzhou Yuanfang Instrument Co., Ltd.	EMS61000-2A	198392C-12	19.11.2022	18.11.2023	8.11
Radiated electromagnetic field	GTEM cell	National Institute of Metrology, China	NIM-8815	045178C	27.10.2022	26.10.2025	8.12
	Three meter anechoic chamber	Albatross Projects GmbH	/	075860C	27.10.2022	26.10.2025	

## Annex B

### Photographs of Tests

Determination of the intrinsic errors (of indication)



Cold



Electrostatic discharge



Durability tests



End of report



Shenzhen BALUN Technology Co., Ltd.

Block B, FL 1, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, ShenZhen, GuangDong Province, P. R. China 518055.

## VERIFICATION OF CONFORMITY

**Certificate No.:** BL-SZ2490735D01  
**Applicant:** Zhejiang Bove Intelligent Technology Co., Ltd  
**Address:** Building 23, No. 36, Changsheng South Road, Jiaxing, Zhejiang, China  
**Manufacturer:** Zhejiang Bove Intelligent Technology Co., Ltd  
**Address:** Building 23, No. 36, Changsheng South Road, Jiaxing, Zhejiang, China  
**Product:** Ultrasonic Water Meter  
**Brand name:** BOVE TECHNOLOGY  
**Model name:** BECO Y

The submitted sample of the above product has been tested according with following standards. Standard(s) used for showing compliance with the essential requirements in the **RED directive 2014/53/EU**:

Essential requirements	Standards:	Report No.:
Safety (Article 3.1 a)	IEC 62368-1: 2018 EN IEC 62368-1: 2020+A11: 2020	BL-SZ2490735-101
EMC (Article 3.1 b)	ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-3 V2.3.2 (2023-01)	BL-SZ2490735-401
Radio (Article 3.2)	ETSI EN 300 220-1 V3.1.1 (2017-02) ETSI EN 300 220-2 V3.2.1 (2018-06)	BL-SZ2490735-601 BL-SZ2490735-602
Health (Article 3.1 a)	EN IEC 62311: 2020	BL-SZ2490735-701



Sunny Zou

Sunny Zou  
(Technical Director)  
Date of Issue: October 31, 2024



GUVERNUL  
REPUBLICII  
MOLDOVA



SERVICIUL FISCAL DE STAT



# CERTIFICAT

privind lipsa sau existența restanțelor față de bugetul public național

Nr.  
№ 0947247

Din  
От 25.06.2026 09:47

## DATE DESPRE CONTRIBUABIL / ИНФОРМАЦИЯ О НАЛОГОПЛАТЕЛЬЩИКЕ

### Codul fiscal / Numărul de identificare

Фискальный код / Идентификационный номер

1014600016247

### Denumirea

Наименование

Societatea cu Răspundere Limitată "PARTENER ENERGO"

## ATESTAREA LIPSEI SAU EXISTENȚEI RESTANȚELOR CONFORM DATELOR SISTEMULUI

INFORMAȚIONAL AUTOMATIZAT / ПОДТВЕРЖДЕНИЕ ОТСУТСТВИЯ ИЛИ НАЛИЧИЯ  
ЗАДОЛЖНОСТЕЙ СОГЛАСНО ДАННЫМ ИНФОРМАЦИОННОЙ АВТОМАТИЗИРОВАННОЙ  
СИСТЕМЫ

### La data emiterii prezentului certificat restanța față de bugetul public național constituie

На дату выдачи данной справки задолженность перед национальным публичным бюджетом составляет

6.1099999999999999 MDL

În temeiul art. 129 pct. 13) lit. c) din Codul fiscal, suma neachitată a obligațiilor fiscale în cuantum de până la 500 de lei inclusiv nu se consideră restanță față de bugetul public național în scopul atestării lipsei restanțelor față de bugetul public național ale contribuabililor.

## VALABIL PÂNĂ LA / ДЕЙСТВИТЕЛЕН ДО

10.07.2026 09:47



Prezentul document este eliberat în temeiul Art. 29, alin. (3) din Legea cu privire la registre nr. 71/2007 și în baza datelor furnizate de Serviciul Fiscal de Stat în Portalul guvernamental integrat EVO / Справка выдана в соответствии со ст. 29 п. (3) Закона о реестрах № 71/2007 на основании данных, предоставленных Государственной налоговой службой на Интегрированный правительственный портал EVO.

Generat și semnat de Portalul guvernamental integrat EVO la 25.06.2026 09:47

Prezentul certificat este semnat electronic în conformitate cu Legea nr.124 din 19.05.2022

Сертификат подписан электронной подписью в соответствии с Законом № 124 от 19.05.2022



Certificatul este descărcat din Portalul guvernamental integrat EVO ([evo.gov.md](http://evo.gov.md)) și este semnat electronic de către posesorul acestui portal și are aceeași valoare juridică ca și documentele eliberate pe suport de hârtie de către organele cu atribuții de administrare fiscală. Verificarea autenticității semnăturii electronice poate fi realizată cu ajutorul Serviciului Guvernamental de Semnătură Electronică ([msign.gov.md](http://msign.gov.md))

Сертификат скачен с Интегрированный правительственный портал EVO ([evo.gov.md](http://evo.gov.md)) и подписан электронной подписью владельца портала и имеет такую же юридическую силу, как и документы выдаваемые на бумаге органами налоговой администрации. Проверку подлинности электронной подписи можно осуществить с помощью Интегрированный правительственный портал EVO ([msign.gov.md](http://msign.gov.md))



## EU Declaration of Conformity

Ultrasonic water meter  
Type Designation: Beco Y

We,

**Zhejiang Bove Intelligent Technology Co., Ltd**  
**Building 23, No.36, Changsheng South Rd**  
**Jiaxing, Zhejiang, China, 314000**

declare that under our sole responsibility we issued the Declaration of Conformity for the above mentioned ultrasonic water meter with the type described in the certificate:

**Number RO-2275-23643, revision 0**

issued on 11.12.2023, valid until 11.12.2033 by the notified body ROMANIAN MOVEMENT FOR QUALITY in accordance with:

**Directive 2014/32/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of measuring instruments (recast), Annex I- Essential requirements Annex II Module B: EU-Type Examination, Annex III - Water meters (M1-001)**

As well as hereby we declare under our sole responsibility that the products listed above are in conformity with the requirements of:

- **OIML R 49-1:2013 (E) Water meters for cold potable water and hot water. Part 1: Metrological and technical requirements.**
- **OIML R 49-2:2013 (E) Water meters for cold potable water and hot water. Part 2: Test methods.**
- **EN ISO 4064-1:2014 Water meters for cold potable water and hot water. Part 1: Metrological and technical requirements.**
- **EN ISO 4064-2:2014 Water meters for cold potable water and hot water. Part 2: Test methods.**
- **EN ISO 4064-5:2014 Water meters for cold potable water and hot water. Part 5: Installation requirements.**

The quality system for production, final product inspection and testing of the water meters was approved by the RMQ in compliance with the requirements of 2014/32/EU Directive, Annex II Module D, Certificate No.RO-2275-24-568,(reissued on December 09, 2024 and valid until December 09,2027).MRC Notified body's identification number: 2275.

On behalf of:

**Zhejiang Bove Intelligent Technology Co., Ltd**  
Place of Issue: ZHEJIANG, CHINA  
Date: September 24, 2025  
Signature:  
Designation: CEO



**Camera Înregistrării de Stat**

**DECIZIE**  
**privind înregistrarea persoanei juridice**

**04.06.2014**

**Dosar Nr. 1014600016247**

**Oficiul Teritorial Chișinău**

Prin cererea depusă la 13.05.2014 s-a solicitat înregistrarea  
Societatea cu Răspundere Limitată "PARTENER ENERGO"

Examinînd actele prezentate:

1. Cerere din 13.05.2014
2. Decizia nr.1 a fondatorului unic din 13.05.2014
3. Statutul
4. Ordin de încasare din 13.05.2014

și constatînd, că sînt respectate cerințele legale ce țin de constituirea și înregistrarea persoanei juridice, în temeiul art. 11 al Legii nr. 220-XVI din 19.10.2007 privind înregistrarea de stat a persoanelor juridice și a întreprinzătorilor individuali, registratorul

**DECIDE:**

1. A admite cererea de înregistrare.
2. A înregistra persoana juridică și a consemna în Registrul de stat al persoanelor juridice următoarele date:

Numărul de identificare de stat: **1014600016247** din 04.06.2014

Forma juridică de organizare: Societate cu răspundere limitată

Denumirea: Societatea cu Răspundere Limitată "PARTENER ENERGO"

Sediul: MD-2044, str. Meșterul Manole, 12, mun. Chișinău, Republica Moldova

Administrator: DUMITRAȘCU IVAN, anul nașterii 09.10.1987, locul nașterii s. Horești, rl. Fălești, Republica Moldova, CA BULETIN DE IDENTITATE AL CETĂȚEANULUI RM A 01159045 eliberat la data de 05.02.2013, codul de identitate 2005037075586, domiciliu: MD-5901, str. Tineretului, 22, or. Fălești, Republica Moldova  
Desemnat pe termen nelimitat.

Genurile principale de activitate:

1. Comerțul cu ridicata al altor mașini și echipamente utilizate în industrie, comerț și transporturi
2. Comerțul cu ridicata al altor componente și echipamente electronice
3. Alte tipuri de comerț cu amănuntul în magazine specializate
4. Alte tipuri de comerț cu ridicata
5. Lucrări de instalații electrice și montare a armăturii electrice
6. Construcțiile de clădiri și (sau) construcții ingineresti, instalații și rețele tehnico-edilitare, reconstrucțiile, consolidările, restaurările
7. Repararea aparatelor pentru distribuție și comandă electrică

Capitalul social: 1000 lei.

**Fondator(i):**

1. DUMITRAȘCU IVAN, anul nașterii 09.10.1987, locul nașterii s. Horești, rl. Fălești, Republica Moldova, CA BULETIN DE IDENTITATE AL CETĂȚEANULUI RM A 01159045 eliberat la data de 05.02.2013, codul de identitate 2005037075586, domiciliu: MD-5901, str. Tineretului, 22, or. Fălești, Republica Moldova, parte socială în valoare de 1000 lei (100,00%)

Termenul de activitate al întreprinderii este nelimitat.

3. Prezenta Decizie este întocmită în două exemplare, care au aceeași valoare juridică, dintre care un exemplar se păstrează la Camera Înregistrării de Stat în dosarul de evidență al persoanei juridice, iar celălalt se eliberează solicitantului.

**Registrator**



Jimbei Mihai  
L.Ș.



# CERTIFICAT

## DE ÎNREGISTRARE A SUBIECTULUI IMPUNERII CU TVA

0405060

### SUBIECTUL IMPUNERII ÎNREGISTRAT

Зарегистрированный субъект налогообложения

<b>Denumirea</b> Наименование	SOCIETATEA CU RASPUNDERE LIMITATA PARTENER ENERGO
<b>Data înregistrării</b> Дата регистрации	01.06.2015
<b>Adresa juridică</b> Юридический адрес	SEC.CIOCANA Mesterul Manole nr.12
<b>Codul fiscal</b> Фискальный код	1014600016247
<b>Numărul de înregistrare ca subiect impozabil cu TVA</b> Номер регистрации в качестве субъекта налогообложения НДС	0405060

**Tipul activității economice desfășurate în conformitate cu clasificatorul activităților**

Тип осуществляемой деятельности согласно статистическому классификатору деятельности

5187

### PRIMA PERIOADĂ FISCALĂ ПЕРВЫЙ НАЛОГОВЫЙ ПЕРИОД

din 01.06.2015

от

pînă la 30.06.2015

до

### PERIOADĂ FISCALĂ ULTERIOARĂ ПОСЛЕДУЮЩИЙ НАЛОГОВЫЙ ПЕРИОД

din 01.07.2015

от

pînă la 31.07.2015

до

LOC PENTRU ȘTAMPILĂ

МЕСТО ДЛЯ ПЕЧАТИ



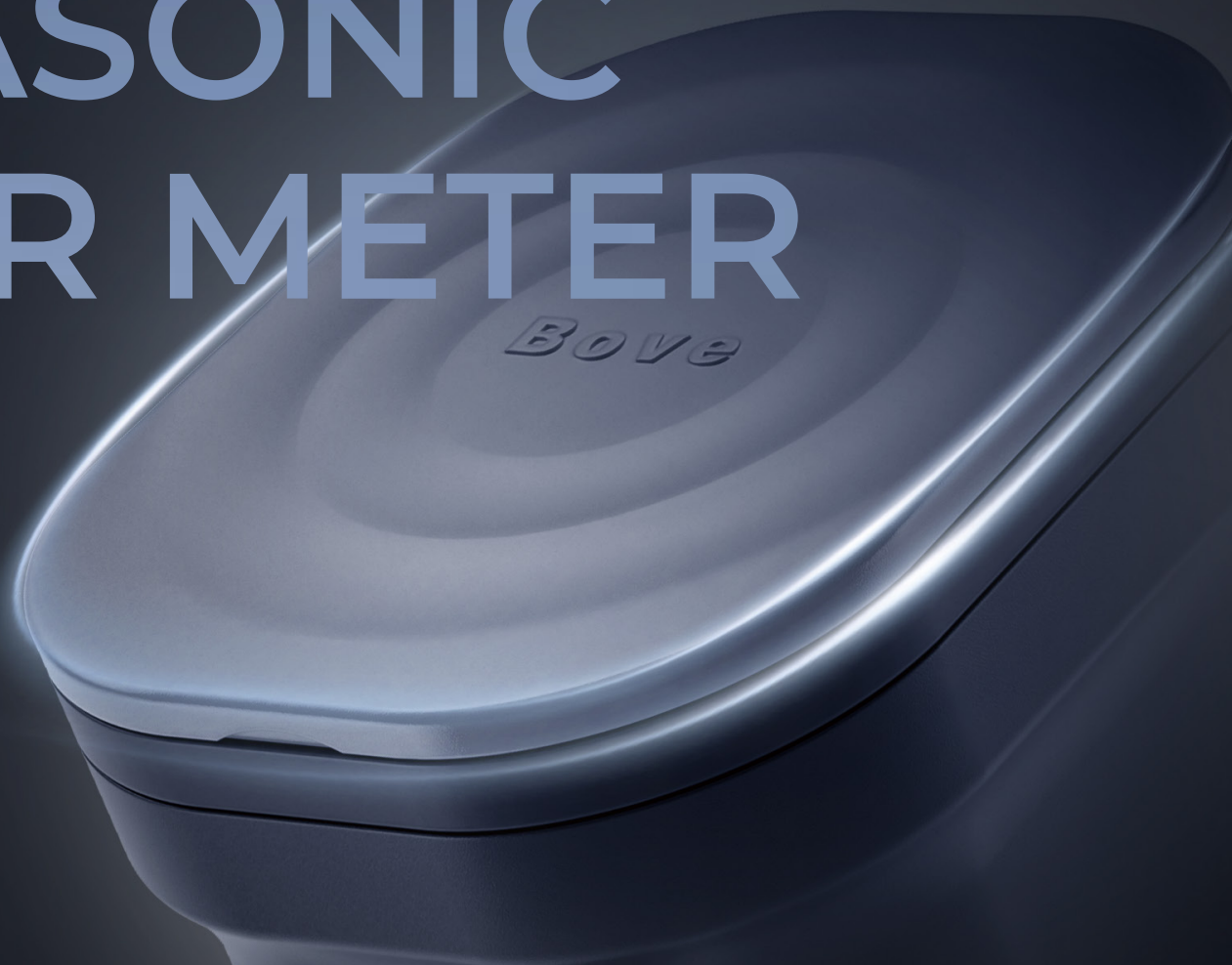
**DATA ANULĂRII ÎNREGISTRĂRII**  
ДАТА АНУЛИРОВАНИЯ РЕГИСТРАЦИИ

LOC PENTRU ȘTAMPILĂ

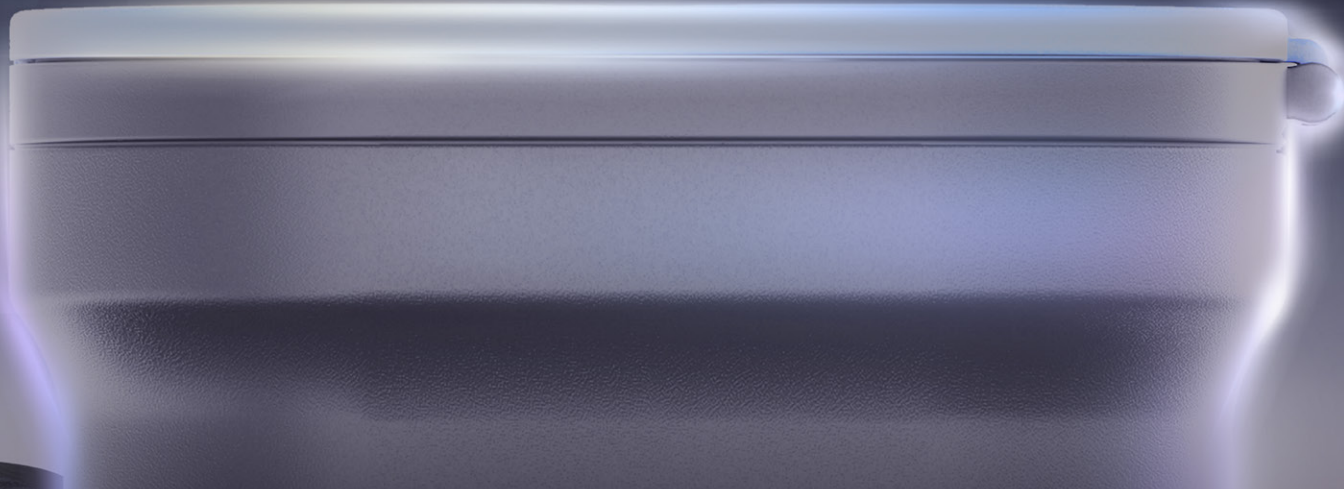
МЕСТО ДЛЯ ПЕЧАТИ

# ULTRASONIC WATER METER

BECO Y



# BECO Y



An eco-friendly residential water meter crafted from sustainable composite materials. Utilizing cutting-edge ultrasonic measurement technology, it ensures exceptional accuracy to combat non-revenue water (NRW). With integrated IoT capabilities for wireless data transmission, the BECO Y offers an innovative and efficient solution for smart water management.



## High Accuracy


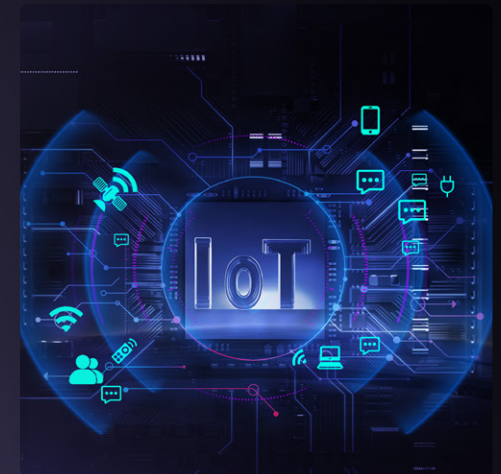
The BECO Y is engineered for precision with its innovative design featuring no internal moving parts. It boasts a dynamic range up to R800 and can accurately measure flow rates as low as 2 L/s. This ensures consistent and precise metering, even at extremely low flow rates.

## IoT Ready

BECO Y offers versatile connectivity with a range of both wired and wireless communication interfaces, including LoRaWAN, NB-IoT, Sigfox, 4G, wM-Bus, Pulse, LoRaWAN+wMbus, etc.





## Long Lifespan

BECO Y features a robust battery with low power consumption, delivering an impressive lifespan of 10 to 16 years with reliable functionality. Its longevity varies based on IoT configuration and transmission frequency.

## Durable Material

Crafted from robust PPS+GF material, BECO Y is built to withstand impacts, damage, and falls. Its exceptional durability ensures reliable performance across varying temperatures, humidity levels, and UV exposure.



Heat / Cold  
Resistance



IP68



UV  
Resistance



High  
Durability

HOT



COLD

## Hot & Cold Water Measurement

Both hot water (T70) and cold water (T50) versions are available for different installation scenarios.

**COVER**

ASA material for UV protection.

**LCD**

Comprehensive LCD functionality with protector.

**UPPER SHELL**

PPS+GF material sealed with meter body by ultrasonic welding with IP68.

**PCBA**

State-of-the-art technology designed for unparalleled precision — capturing and measuring every single drop of water with exceptional accuracy.

**STRAINER**

Prevent irrelevant objects from entering the water meter pipe.

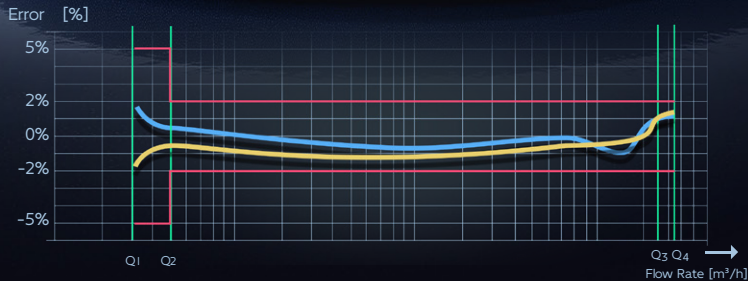
**BODY**

PPS+GF high durability material, 100% lead free with NSF water safety certification.



**SECTIONAL VIEW**

# TECHNICAL SPECIFICATION



Model	BECO Y			
Pipe Diameter	DN15	DN20	DN25	DN40
Q1 (m <sup>3</sup> /h) <sub>@R800</sub>	0.003125	0.005	0.007875	0.02
Q2 (m <sup>3</sup> /h)	0.003625	0.0058	0.0126	0.032
Q3 (m <sup>3</sup> /h)	2.5	4.0	6.3	16
Connection	G¾"	G1"	G¾"	G2"
Length (mm)	110/165	130/190	260	300
Width (mm)	78	78	78	78
Height (mm)	91	95	104	118
Temperature	<ul style="list-style-type: none"> <li>• Medium Range: 0.1°C...50/70°C (T50/T70)</li> <li>• Ambient temperature: 5~55 °C</li> <li>• Storage temperature: -20~60 °C</li> </ul>			
Metrological Class	Class 2, R250, R400, R500, R800			
Maximum Operation Pressure	1.6 Mpa			
Pressure Loss	ΔP < 40kPa			
Protection Class	IP68			
Battery	10- 16 years service life			
Data Storage	120 history data			
Environmental Requirement	E2, M1, O			
Interface & Communication	<ul style="list-style-type: none"> <li>• LoRaWAN</li> <li>• NB-IoT</li> <li>• Sigfox</li> <li>• 4G</li> <li>• LoRaWAN+wM-Bus</li> <li>• wM-Bus</li> </ul>			
Installation & Sensitivity	H/V, U0D0			
Display and Indication	<ul style="list-style-type: none"> <li>• Unit: m<sup>3</sup> / Gallon (optional)</li> <li>• LCD: 10-digits</li> </ul>			
Standard Compliance	<ul style="list-style-type: none"> <li>• EN14154</li> <li>• ISO4064</li> <li>• OIML R49</li> </ul>			
Certification	<ul style="list-style-type: none"> <li>• MID</li> <li>• NSF</li> <li>• UV</li> </ul>			

# Creating an **Eco** Society

Add: Building 23, No. 36, Changsheng South Road, Jiaxing, Zhejiang, China, 314000

[www.bovetech.com](http://www.bovetech.com)

+86(0)573 83525916

[bove@bovetech.com](mailto:bove@bovetech.com)

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\*The images in the file are only for showcasing technological effects, and the actual product shall prevail.



# BC „MOLDINDCONBANK” S.A.

## Sucursala „Invest”

Republica Moldova, MD-2068  
mun. Chișinău bd. Moscovei, 14/1  
Tel.: (373 22) 43-46-07, 43-46-24  
Fax: (373 22) 43-44-22

Data 16.02.2022  
Nr. 03-170

Республика Молдова, MD-20638  
мун. Кишинэу, бул. Московей, 14/1  
Тел.: (373 22) 43-46-07, 43-46-24  
Факс: (373 22) 43-44-22

### CERTIFICAT

B.C. „Moldindconbank” S.A., confirmă că **PARTENER ENERGO S.R.L** , IDNO **1014600016247**, la data de **14 februarie 2022 14:42** deține următoarele conturi bancare:

Nr	IBAN	Valuta
1	MD86ML000000022511292404	MDL
2	MD86ML000000022511292404	USD
3	MD86ML000000022511292404	EUR
4	MD86ML000000022511292404	RUB

Director  
BC "Moldindconbank" S.A.  
sucursala Invest



Denis Cebanu

Ex.: Mariana Dogotari  
Tel:  
ID: 561161C9768

**Confidențial – MICB**

Atenție! Se interzice deținerea, sustragerea, alterarea, multiplicarea, distrugerea sau folosirea acestui document fără a dispune de drept de acces autorizat!





NB 2275

# Certificat de examinare UE de tip EU-type examination certificate

Număr RO-2275-23643, revizia 0  
Number RO-2275-23643, revision 0

accredited for  
CERTIFICATION



SR EN ISO CEI 17065:2013  
ACCREDITATION CERTIFICATE  
ON 041

Eliberat de  
*Issued by*

MIȘCAREA ROMÂNĂ PENTRU CALITATE/ ROMANIAN MOVEMENT FOR QUALITY  
Str. Părului nr. 8, Craiova, Județul Dolj, România  
Tel: 0351/451 047; Tel/Fax: 0251/545 553; office@mrco.ro, www.mrco.ro

În conformitate cu  
*According to*

Directiva 2014/32/UE a Parlamentului European și a Consiliului din 26 februarie 2014 privind armonizarea legislației statelor membre referitoare la punerea la dispoziție pe piață a mijloacelor de măsurare (reformare), Anexa I Cerințe esențiale, Anexa II Modulul B: Examinarea UE de tip, Anexa III Contoare de apă (MI – 001)

*Directive 2014/32/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of measuring instruments (recast), Annex I – Essential requirements, Annex II Module B: EU-Type Examination, Annex III – Water meters (MI-001)*

Producător  
*Manufacturer*

Zhejiang Bove Intelligent Technology Co., Ltd.  
Address: Building 23, No. 36, Changsheng South Road, Jiaxing, Zhejiang, postal code 314000, China

Referitor la  
*Concerning to*

Contor de apă tip BECO Y  
Water meter BECO Y type

Caracteristici  
*Characteristics*

Clasa de temperatură/ *Temperature class:* T 50  
Presiunea maximă admisă/ *Maximum admissible pressure:* 16 bar

Descriere și  
documentație  
*Description and  
documentation*

Mijlocul de măsurare corespunde cu cerințele Directivei 2014/32/UE și este descris în Anexă, parte integrantă din prezentul certificat.  
*The measuring instrument meets the requirements of Directive 2014/32/EU and it is described in Annex, a part of this certificate.*

Eliberat la  
*Issued on*

11.12.2023

Valabil până la  
*Valid until*

11.12.2033

Organism notificat nr. 2275  
*Notified Body no. 2275*

PhD eng. Maria-Magdalena POENARU  
EXECUTIVE DIRECTOR





NB 2275

Certificat de examinare UE de tip  
*EU-type examination certificate*  
No. RO-2275-23643  
Revizia 0/ *Revision 0*

ANEXA/ *ANNEX*  
page 2 of 11

Istoricul certificatului  
*History of the certificate*

Emiterea certificatului/ <i>Certificate issuance</i>	Data/ <i>Date</i>	Modificări/ <i>Changes</i>
RO-2275-23643, revizia 0 <i>RO-2275-23643, revision 0</i>	11.12.2023	Certificat inițial/ <i>Initial certificate</i>

Generalități  
*General*

Această anexă este scrisă în două limbi; originalul este scris în limba română.  
*This annex is written in two languages; the original is represented by the Romanian version.*

Contoarele de apă trebuie să corespundă următoarelor specificații:  
*The water meters shall correspond to the following specifications:*

Prevederi legale  
*Legal provisions*

Mijloacele de măsurare care fac obiectul acestui certificat sunt în conformitate cu Directiva 2014/32/UE, Anexa I Cerințe esențiale și Anexa III Contoare de apă (MI-001).  
*The measuring instruments covered by this certificate are in accordance with Directive 2014/32/EU, Annex I Essential requirements and Annex III Water meters (MI-001).*

Caracteristicile contoarelor de apă seria BECO Y, menționate sau nu, nu sunt în conflict cu legislația.  
*The characteristics of the water meters BECO Y series, mentioned or not, are not in conflict with the legislation.*

Documente de referință aplicate  
*Reference documents applied*

- OIML R 49-1:2013 (E) Water meters for cold potable water and hot water. Part 1: Metrological and technical requirements.
- OIML R 49-2:2013 (E) Water meters for cold potable water and hot water. Part 2: Test methods.
- EN ISO 4064-1:2014 Water meters for cold potable water and hot water. Part 1: Metrological and technical requirements.
- EN ISO 4064-2:2014 Water meters for cold potable water and hot water. Part 2: Test methods.
- EN ISO 4064-5:2014 Water meters for cold potable water and hot water. Part 5: Installation requirements.



NB 2275

## 1. Descrierea contoarelor de apă

### *1. Description of the water meters*

#### 1.1 Construcția

##### *1.1 Construction*

Contoarele de apă seria BECO Y sunt destinate măsurării, memorării și afișării volumului de apă care trece printr-un traductor de debit în condiții nominale de măsurare, funcționarea acestora având la bază principiul ultrasonic.

Contoarele de apă seria BECO Y fac parte dintr-o familie omogenă, alcătuită din 2 modele: BECO Y cu diametrele nominale DN 15 mm și 20 mm (Figura nr. 1).

Contorul este compus dintr-un traductor de măsurare, calculatorul și dispozitivul de indicare, care nu sunt separabile.

Corpurile contoarelor de apă seria BECO Y sunt executate din PPS Plastic.

Contorul este dotat cu o baterie cu litiu care nu este înlocuibilă, durata garantată de viață a acesteia fiind mai mare de 10 ani.

*The water meters BECO Y series are designed to measure, memorize and display the volume of water passing through a flow transducer under rated operating conditions, their operation being based on the ultrasonic principle.*

*The water meters BECO Y series are part of a homogeneous family consisting of 2 models: BECO Y with nominal diameters DN 15 mm and 20 mm (Figure no. 1).*

*The meter is composed of a measuring transducer, the calculator and the indicating device which are not separable.*

*The bodies of the water meters BECO Y series are made of PPS Plastic.*

*The meter is equipped with a non-replaceable lithium battery, the lifetime warranty of the battery being higher than 10 years.*

#### 1.2 Traductorul de măsurare ultrasonic

##### *1.2 Ultrasonic measurement transducer*

Contorul de apă BECO Y utilizează o pereche (două bucăți) de traductoare ultrasonice pentru a emite și recepționa semnalele sub formă de unde ultrasonore.

Diferențele de timp dintre semnalele transmise și cele recepționate sunt convertite de calculator în viteza apei, respectiv în valori ale volumului, care sunt afișate de dispozitivul indicator digital.

*The BECO Y water meter uses a pair (two pieces) of ultrasonic transducers, in order to send and receive the ultrasonic waves signals.*

*The time differences between the transmitted and received signals are converted by the calculator into flow velocity, respectively volume values, which are displayed by the digital indicating device.*

#### 1.3 Unitatea de calcul

##### *1.3 Calculation unit*

Calculatorul contorului de apă conține un dispozitiv indicator LCD cu 10 digiți. Prin apăsarea butonului calculatorului, toate datele furnizate de contorul de apă sunt indicate în conformitate cu procedurile documentate în manualul de utilizare al contorului de apă.

Calculatorul este componenta contorului care primește semnalele generate de traductorul de debit ultrasonic și le transformă în valori ale debitului și volumului de apă care trece prin contor.



NB 2275

*The water meter calculator contains a 10 digits LCD indicating device. By pushing the calculator button, all data provided by the water meter are displayed according to the documented procedures in the user manual. The calculator is the part of the meter that receives the signals generated by the ultrasonic flow transducer and converts them into water flow and volume values passing through the meter.*

#### 1.4 Echipamente și funcțiuni opționale care fac obiectul Directivei 2014/32/UE *1.4 Equipment and optional functions which are covered by Directive 2014/32/EU*

Nu este aplicabil.  
*It is not applicable.*

#### 1.5 Documentație tehnică *1.5 Technical documentation*

Documentația tehnică a producătorului este păstrată de MRC-NB nr. 2275 în folderul BECO Y.  
*The technical documentation of the manufacturer is stored by MRC-NB no. 2275 in folder BECO Y.*

#### 1.6 Echipamente și funcții care nu fac obiectul certificatului de examinare UE de tip *1.6 Equipment and functions which are not subject to EU-Type Examination Certificate*

Contoarele de apă pot fi echipate cu următoarele interfețe de comunicare:  
*The water meters can be equipped with the following communication interfaces:*

- *Optical interface;*
- *RS485;*
- *LoRaWAN;*
- *Sigfox;*
- *Wired M-BUS;*
- *GPRS;*
- *NB-IoT;*
- *Pulse output.*

#### 2. Date tehnice *2. Technical data*

În tabelele nr. 1 și 2 sunt prezentate datele tehnice ale contoarelor, în condiții nominale de funcționare.

*In tables no. 1 and 2 there are presented the technical data of the meters, under rated operating conditions.*

Tabel 1/ Table 1

Contor tip/ <i>Meter type</i>	Diametrul nominal/ <i>Nominal diameter</i> DN [mm]	Debite/ <i>Flow rates</i> [m <sup>3</sup> /h]				Lungime totală/ <i>Total length</i> [mm]	Conectori/ <i>Connectors</i>
		Q <sub>1</sub>	Q <sub>2</sub>	Q <sub>3</sub>	Q <sub>4</sub>		
BECO Y	15	0.003125	0.005	2.500	3.125	110	G ¾'
BECO Y	20	0.005	0.008	4.00	5.00	130	G 1'



NB 2275

Certificat de examinare UE de tip  
EU-type examination certificate  
No. RO-2275-23643  
Revizia 0/ Revision 0

ANEXA/ ANNEX  
page 5 of 11

Tabel 2/ Table 2

Diametrul nominal/ <i>Nominal diameter DN [mm]:</i>	15	20
Clasa de exactitate/ <i>Accuracy class:</i>	2	
Raport/ <i>Ratio Q<sub>3</sub>/Q<sub>1</sub>:</i>	800	
Raport/ <i>Ratio Q<sub>2</sub>/Q<sub>1</sub>:</i>	1,6	
Raport/ <i>Ratio Q<sub>4</sub>/Q<sub>3</sub>:</i>	1,25	
Clasa de presiune apă/ <i>Water pressure class:</i>	MAP 16	
Clasa de temperatură/ <i>Temperature class:</i>	T50	
Material corp/ <i>Body:</i>	PPS Plastic / <i>PPS Plastic</i>	
Intervalul de temperatură al apei/ <i>Temperature range of the water (°C):</i>	(0,1... 50,0)°C	
Poziția de montaj/ <i>Assembly orientation:</i>	Orizontal sau Vertical/ <i>Horizontal or Vertical</i>	
Interval de indicare/ <i>Indicating range [m<sup>3</sup>]:</i>	99 999	
Eroare maximă admisă/ <i>Maximum permissible error (MPE):</i>	<p>domeniu de debit/ <i>flow range (Q<sub>1</sub> ≤ Q &lt; Q<sub>2</sub>): ± 5%</i> domeniu de debit/ <i>flow range (Q<sub>2</sub> ≤ Q ≤ Q<sub>4</sub>):</i> ± 2% apa are temperatura ≤ 30°C ± 2% <i>water having temperature ≤ 30°C</i> ± 3% apa are temperatura &gt; 30°C ± 3% <i>water having temperature &gt; 30°C</i></p> <p>Contorul nu trebuie să utilizeze abuziv eroarea maximă tolerată sau să favorizeze în mod sistematic una dintre părți. <i>The meter shall not exploit the MPE or systematically favour any party.</i></p>	
Domeniu presiune/ <i>Pressure range:</i>	0,3 bar (0,03 MPa) ÷ 16 bar (1,6 MPa)	
Pierderi presiune/ <i>Pressure loss:</i>	0,63 bar (0,063 MPa)	
Condiții de instalare/ <i>Installation conditions:</i>	Amonte/ <i>Upstream</i> 0 DN and Aval/ <i>Downstream</i> 0 DN	
Diviziunea de verificare/ <i>Verification scale interval:</i>	0,01 liter (DN15, DN20)	
Temperatura ambientală/ <i>Ambient temperature:</i>	5°C ÷ 55°C	
Clasa mecanică de mediu/ <i>Mechanical environment class:</i>	M1	
Debit invers/ <i>Reverse flow:</i>	Este permis, dar nu este măsurat/ <i>Permitted, but not measured.</i>	
Unități afișate/ <i>Displayed units:</i>	m <sup>3</sup> , m <sup>3</sup> /h, h	
Clasa electromagnetică de mediu/ <i>Electromagnetic environment class:</i>	E2	
Condiții mecanice și climatice de mediu/ <i>Mechanical and environmental climatic conditions:</i>	0 (conform/ <i>according to</i> OIML R49-1:2013)	
Clasa de sensibilitate la curgere/ <i>Flow profile sensitivity classes:</i>	U0D0 (conform/ <i>according to</i> OIML R49-1:2013)	

## 2.1 Diverse condiții de funcționare 2.1 Other operating conditions

Nu este aplicabil.  
*It is not applicable.*



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**3. Interfețe și condiții de compatibilitate în conformitate cu cerințele Directivei 2014/32/UE**  
***3. Interfaces and compatibility conditions in accordance with the requirements of Directive 2014/32/EU***

Nu este aplicabil.  
*It is not applicable.*

**4. Cerințe pentru producție, punere în funcțiune și utilizare**  
***4. Requirements on production, putting into use and utilization***

**4.1 Cerințe pentru producție**  
***4.1 Requirements on production***

Verificarea produsului se va efectua în conformitate cu EN ISO 4064-2:2014 Water meters for cold potable water and hot water. Part 2: Test methods, Article 10 "Initial verification of complete and combined water meters".

Erorile de măsurare trebuie să fie în conformitate cu Directiva 2014/32/UE - Anexa III Contoare de apă (MI-001).

*The product verification will be in accordance with EN ISO 4064-2:2014 Water meters for cold potable water and hot water. Part 2: Test methods, Article 10 "Initial verification of complete and combined water meters".  
The measurement errors must be in accordance with Directive 2014/32/EU – Annex III Water meters (MI-001).*

**4.2 Cerințe pentru punerea în funcțiune**  
***4.2 Requirements on putting into use***

La instalare se vor respecta cerințele producătorului incluse în manualul contorului de apă cu ultrasunete BECO Y și schema de instalare. Fiecare contor de apă trebuie să fie însoțit de instrucțiunile de exploatare și montaj.

*On installation, there shall be complied the manufacturer's requirements included in the BECO Y ultrasonic water meter manual and installation scheme. Each water meter must be accompanied by operating and installation instructions.*

**4.3 Cerințe pentru utilizare**  
***4.3 Requirements on utilization***

Orice dotări suplimentare trebuie să se realizeze doar în condițiile specificate la punctul 4.2.  
*Any additional equipment must be carried out under the conditions specified in section 4.2.*

Contoarele de apă menționate trebuie să fie utilizate în condițiile nominale de funcționare documentate în tabelele 1 și 2.

*The water meters shall be used under the rated operating conditions mentioned in tables 1 and 2.*



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## 5. Controlul funcțiilor de măsurare pentru aparatele aflate în funcțiune

### 5. Control of the measuring functions for devices in use

#### 5.1 Echipamente utilizate pentru încercare

##### 5.1 Equipment used for tests

##### 5.1.1. Identificarea versiunii de software

###### 5.1.1 The software version identification

Contorul de apă utilizează versiunea software „r441148b”, identificată prin codul de control „8b”. Informațiile privind versiunea software-ului și codul de control sunt afișate pe display când meniul LCD se modifică (conform capitolului nr. 6 Operation&Display, din manual). Software-ul utilizat are următoarele specificații, în conformitate cu Ghidul WELMEC 7.2:

- Clasa de risc: C;
- Tipul software: P;
- Extensia: L.

Încercarea contoarelor de apă poate fi efectuată prin metoda gravimetrică, volumetrică sau comparare, conform EN ISO 4064-2:2014 Water meters for cold potable water and hot water. Part 2: Test methods, Article 10 "Initial verification of complete and combined water meters".

*The water meter uses the software version "r441148b", identified by the checksum "8b".  
The information on the software version and the checksum are indicated on the display when the LCD menu changes (according to the manual chapter no. 6 Operation&Display).  
The software has the following specifications, in accordance with WELMEC Guide 7.2:*

- Risk Class: C;
- Software Type: P;
- Extension: L.

*The water meters tests can be performed through gravimetric, volumetric or comparison method, according to EN ISO 4064-2:2014 Water meters for cold potable water and hot water. Part 2: Test methods, Article 10 "Initial verification of complete and combined water meters".*

#### 5.3 Identificare

##### 5.3 Identification

Contorul trebuie să corespundă cu documentația tehnică descrisă la secțiunea 1.5. Inscricțiunile și marcasele trebuie să fie în conformitate cu secțiunea 7.

*The meter shall comply with the technical documentation described in section 1.5.  
The inscriptions and markings shall be in accordance with section 7.*

## 6. Măsuri de securitate

### 6. Security measures

#### 6.1 Sigilare

##### 6.1 Sealing

Conexiunea corpului traductorului de debit cu calculatorul electronic și, de asemenea, carcasa calculatorului sunt protejate prin lipire cu material plastic indestructibil (Figura nr. 3). Contorul este protejat prin lipire cu ultrasunete și nu poate fi deschis fără a se distruge.



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*The connection of the flow sensor body with the electronic calculator and also the calculator housing are protected using indestructible plastic welding (Figure no. 3).*

*The meter is protected by ultrasonic welding and cannot be opened without being destroyed.*

## 7. Marcaje și inscripționări

### 7. Markings and inscriptions

#### 7.1 Informații care trebuie să însoțească contorul de apă

##### 7.1 Information which must accompany the water meter

Fiecare contor trebuie să fie însoțit de instrucțiunile de exploatare și montaj.

Pe contor trebuie să existe cel puțin următoarele informații (Figura nr. 4):

- sigla, adresa poștală și numele producătorului și/sau marca sa de fabrică;
- valoarea numerică a  $Q_3$  ( $Q_3 \times x.x$ ) și raportul  $Q_3/Q_1$ , ( $Rxx$ ) ( $m^3/h$ );
- anul de fabricație (ultimele două cifre);
- numărul de fabricație (dacă este posibil cât mai aproape de dispozitivul indicator);
- numărul certificatului de examinare UE de tip;
- marcajul "CE" și marcajul metrologic suplimentar, urmat de numărul organismului notificat, în conformitate cu Art. 20, 21, 22 din Directiva 2014/32/UE;
- unitatea de măsură ( $m^3$ );
- presiunea maximă admisă (MAP xx bar);
- clasa de temperatură (Txx);
- direcția de curgere săgeata pe carcasa contorului;
- data limită la care contorul trebuie înlocuit ca urmare a expirării perioadei garantate de funcționare a bateriei.

Dispozițiile documentate în capitolul 2/ articolul 8/ alineatul 6/ punctul 9.2 al Anexei I din Directiva 2014/32/UE trebuie respectate.

*Each water meter must be accompanied by instructions for use and installation.*

*There should be at least the following data on the water meter: (fig. 4)*

- *the manufacturer's logo, postal address and name and/or his trademark;*
- *the numerical value  $Q_3$  ( $Q_3 \times x.x$ ) and the ratio  $Q_3/Q_1$ , ( $Rxx$ ) ( $m^3/h$ );*
- *the manufacturing year (last two digits);*
- *the manufacturing number (as near as possible to the indicating device);*
- *the EU-type examination certificate number;*
- *the "CE" marking and supplementary metrology marking, followed by the notified body's number, in accordance with art. 20, 21, 22 of Directive 2014/32/EU;*
- *the measurement unit ( $m^3$ );*
- *the maximum admissible pressure (xxMPa or xx bar);*
- *the temperature class (Txx);*
- *the direction of flow - arrow on the meter housing;*
- *the latest date when the water meter has to be replaced as a result of the expiration of the battery's lifetime warranty.*

*The documented provisions in chapter 2/article 8/paragraph 6 and point 9.2 of Annex I of Directive 2014/32/EU shall be respected.*

8. Imagini  
*8. Drawings*



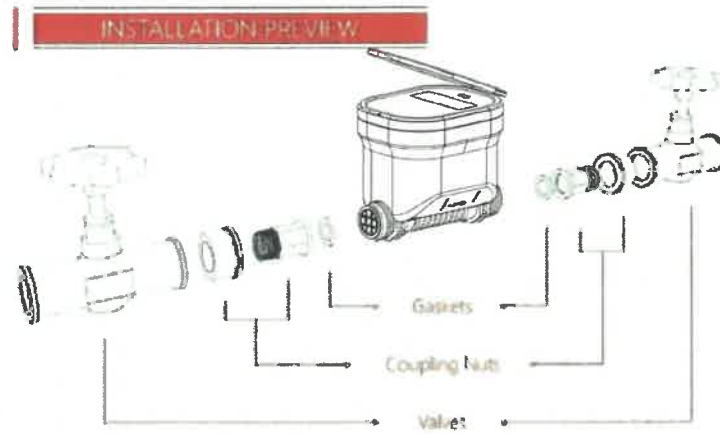


Figura 2 Schema de instalare/  
*Figure 2 Installation scheme*

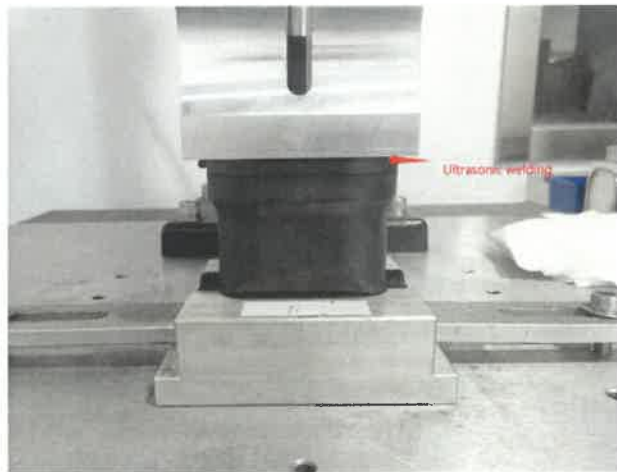
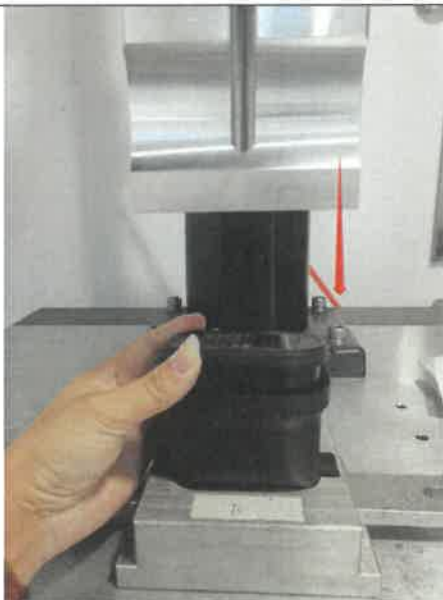


Figura 3 Schema de sigilare BECO Y/  
*Figure 3 Sealing plan of BECO Y*



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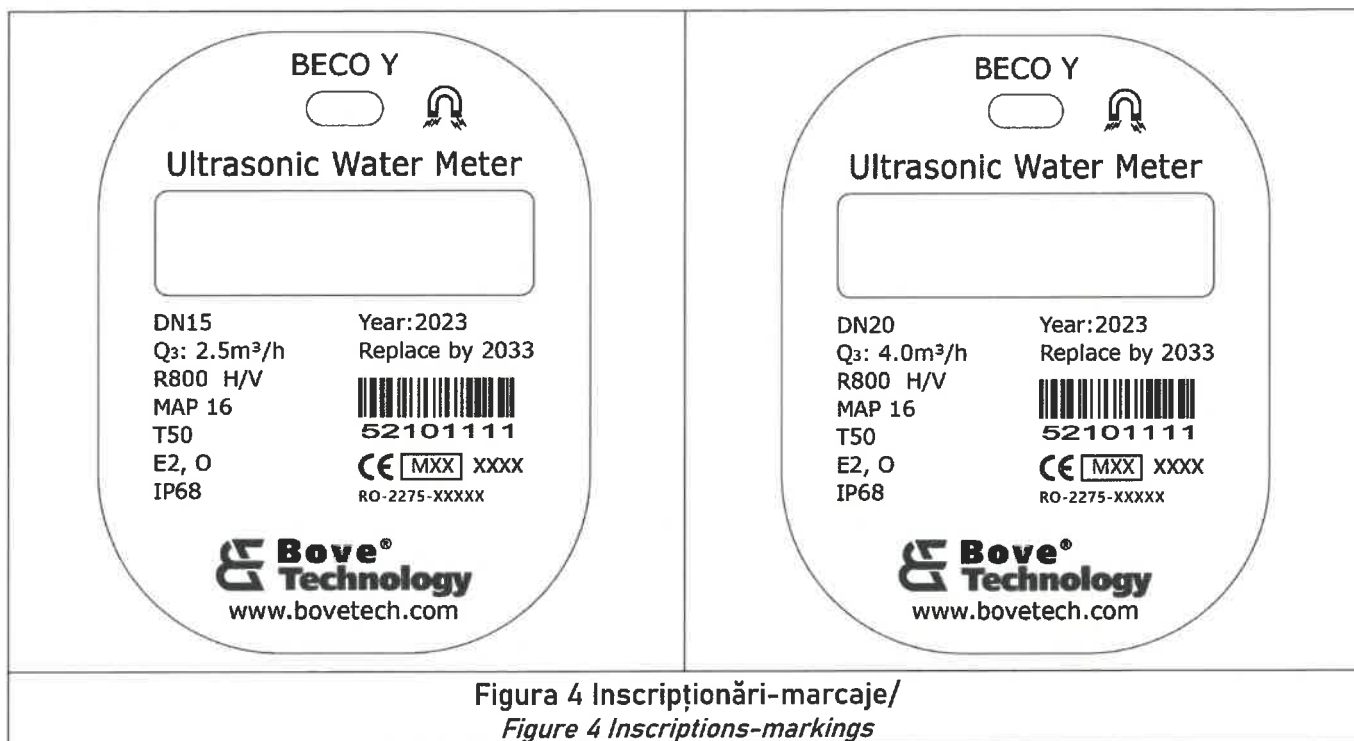


Figura 4 Inscriciuni-marcaje/  
Figure 4 Inscriptions-markings