Slovenský metrologický ústav
Karloveská 63, 842 55 Bratislava 4,
Slovenská republika

SNAS
Reg. No. 101/P-035

CERTIFIKÁT EÚ SKÚŠKY TYPU

EU – type examination certificate

Číslo dokumentu: SK 11-MI001-SMU018 — Revízia 12
Document number: Revízia 12 nahrádza certifikát zo dňa 11. mája 2020 — *Revision 12*
Revision 12 replaces the certificate issued by May 11, 2020

V súlade s:
In accordance with:
prílohou č. 2, Modul B nariadenia vlády Slovenskej republiky č. 145/2016 Z. z. o sprístupňovaní meradiel na trhu v znení nariadenia vlády SR č. 328/2019 Z. z., ktorým sa preberá smernica Európskeho parlamentu a Rady 2014/32/EU o harmonizácii právnych predpisov členských štátov týkajúcich sa sprístupnenia meradiel na trhu
Annex II, Module B to Government Ordinance of the Slovak Republic No. 145/2016 Coll. Relating to the making available on the market of measuring instruments as amended by Government Ordinance of the Slovak Republic No. 328/2019 Coll., which implemented the Directive 2014/32/EU of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to the making available on the market of measuring instruments

Žiadateľ/Výrobca:
Issued to (Manufacturer):
Arad Dalia Ltd.
Kibbutz Dalia 19239, Israel

Druh meradla:
Type of instrument:
Vodomer (MI-001)
Water meter (MI-001

Označenie typu:
Type designation:
M (MS)

Základné požiadavky:
Essential requirements:
príloha č. 1 a príloha č. 3 Vodomery (MI-001) k nariadeniu vlády SR č. 145/2016 Z. z. v znení nariadenia vlády SR č. 328/2019 Z. z.
Annex No. I and Annex No. III Water meters (MI-001) to Government Ordinance of the Slovak Republic No. 145/2016 Coll. as amended by Government Ordinance of the Slovak Republic No. 328/2019 Coll.

Platnosť do:
Valid until:
15. júl 2031
July 15, 2031

Notifikovaná osoba:
Notified body:
Slovenský metrologický ústav 1781
Slovak Institute of Metrology *1781*

Dátum vydania:
Date of issue:
15. júl 2021
July 15, 2021

Základné charakteristiky, popis meradla a podmienky schválenia sú uvedené v prílohe, ktorá je súčasťou tohto certifikátu. Certifikát vrátane prílohy má spolu 13 strán.
Essential characteristics, instrument description and approval conditions are set out in the appendix hereto, which forms the part of the certificate. The certificate including the appendix contains 13 pages.

Viliam Mazúr
zástupca notifikovanej osoby
representative of notified body

Poznámka. Tento certifikát EÚ skúšky typu môže byť rozmnožovaný len celý a nezmenený. Bez podpisu a odtlačku pečiatky je neplatný.
Note: This EU-type examination certificate shall not be reproduced except in full. Certificates without signature and stamp are not valid.

Place of production:

1. **Arad Dalia Ltd.,**
   Kibbutz Dalia 19239, Israel
2. **Arad Metering Technologies Wuhan Co., Ltd.,**
   Room 1613-1617, Buynow building, No. 10, Luoyulu Road, Hongshan District Wuhan City, Hubei Province, China

1 Instructions and standards used within assessment

1.1 Generally binding instructions

Meter type was examined in terms of request for given type provisions Government Ordinance of the Slovak Republic No. 145/2016 Coll. relating to the making available on the market of measuring instruments as amended by Government Ordinance of the Slovak Republic No. 328/2019 Coll., which implemented the 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 as later amended (next Government Ordinance).

Requirements are set out in Annex No. 1 and Annex No. 3 Water Meters (MI-001) to Government Ordinance of SR No. 145/2016 Coll. as amended by Government Ordinance of the Slovak Republic No. 328/2019 Coll.

1.2 Harmonized standards and normative documents used

OIML R 49-1:2013	Water meters intended for the metering of cold potable water and hot water. Part 1: Metrological and technical requirements
OIML R 49-1:2006	Water meters intended for the metering of cold potable water and hot water. Part 1: Metrological and technical requirements
OIML R 49-2:2004	Water meters intended for the metering of cold potable water and hot water. Part 2. Test methods
EN 14154-1:2005+A2:2011	Water meters - Part 1: General requirements
EN 14154-2:2005+A2:2011	Water meters - Part 2: Installation and conditions of use
EN 14154-3:2005+A2:2011	Water meters - Part 3: Test methods and equipment

1.3 Other instructions used:

OIML R 49-2:2013	Water meters intended for the metering of cold potable water and hot water. Part 2: Test methods
OIML R 49-3:2013	Water meters intended for the metering of cold potable water and hot water. Part 3: Test report format
EN ISO 4064-1: 2017	Water meters for cold potable water and hot water. Part 1: Metrological and technical requirements
EN ISO 4064-2: 2017	Water meters for cold potable water and hot water. Part 2: Test methods
EN ISO 4064-5: 2017	Water meters for cold potable water and hot water. Part 5: Installation requirements

2 Type marking

Multi-Jet magnetic water meter - M (MS)

Meter is made in following subgroups:

Type of meter	Temperature class	Class	Nominal Diameter
M (MS)	T50	M1[1])	DN 15, DN 20, DN25, DN32, DN40, DN50

3 Description of measuring instrument

Meter name: Multi-Jet magnetic water meter

Type marking: M (MS)

Description of operating principle instrument design:

Multi-Jet magnetic vane-wheel water meter with sealed dry magnetic register and permanent flowrates from 1,6 m^3/h to 16 m^3/h have been designed to measure actual volume of clean cold potable water flowing in a completely filled up closed pipeline. The water meter is composed of a body, of the measuring mechanism and the counter. Water flowing through a meter sets the vane-wheel in a rotary motion that is transferred directly to the counting mechanism.
The meter is mainly composed of the body group and measuring unit group.

The body group consists of the body, the cap, the lid, adjusting device and the inlet strainer. The glass cover can protect the register against the external damages, and the lid provides the further protection to the register. The adjusting device built in the body is used to calibrate the meter.

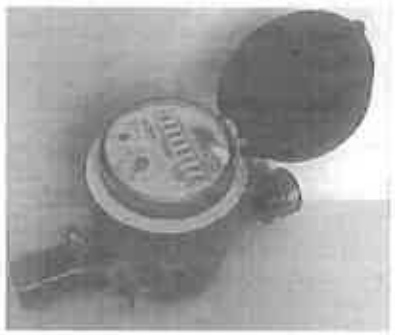
The body of the water meter is a brass casting (DN15, DN20, DN 25 and DN32 meters could be with plastic body) and version with low lead concentration with inlet and outlet screw parts. The body can be equipped an option for installation of a non-return valve.

Water meters have been fitted for mounting on pipelines in horizontal positions. Accidental occurrence of a reverse flow does not affect metrological characteristics provided for a normal flow. Version of water meter with NPSM threads is not designed for using in European Union.

All the meters can be pre-equipped for option of having a signal for remote reading purposes - automated computerized system (wireless metering system) for controlling of metering of delivered water quantity and mechanical register with option electrical output EV.

[1] according to Government Ordinance of the Slovak Republic, Annex No. 1

Picture No.1 Multi-Jet magnetic water meter



Picture No.2 Multi-Jet magnetic water meter with GK register

3.1 Description of subgroups

Marking 3P Register:

M15 Q_3=1.6, R50	**M20** Q_3=2.5, R50	**M20** Q_3=4, R63	**M25** Q_3=4, R50
M25 Q_3=6.3, R80	**M32** Q_3=6.3, R50	**M32** Q_3=10, R100	**MS40** Q_3=10, R50
MS40 Q_3=10, R100	**MS40** Q_3=16, R125	**Q3MS40** Q_3=16, R80	**MS50** Q_3=16, R50
MS50 Q_3=25, R125			

Marking 3G Register:

M15 Q_3=1.6, R50 Dialog3G	**M20** Q_3=2.5, R50 Dialog3G	**M20** Q_3=4, R63 Dialog3G	**M25** Q_3=4, R50 Dialog3G
M25 Q_3=6.3, R80 Dialog3G	**M32** Q_3=6.3, R50 Dialog3G	**M32** Q_3=10, R100 Dialog3G	**MS40** Q_3=10, R50 Dialog3G
MS40 Q_3=10, R100 Dialog3G	**MS40** Q_3=16, R125 Dialog3G	**MS40** Q_3=16, R80 Dialog3G	**MS50** Q_3=16, R50 Dialog3G
MS50 Q_3=25, R125 Dialog3G			

Marking GK Register:				
	M15 GK Q_3=1.6, R50 Dialog3G	**M20 GK** Q_3=2.5, R50 Dialog3G	**M20 GK** Q_3=4, R63 Dialog3G	**M25 GK** Q_3=4, R50 Dialog3G
	M25 GK Q_3=6.3, R80 Dialog3G	**M32 GK** Q_3=6.3, R50 Dialog3G	**M32 GK** Q_3=10, R100 Dialog3G	**MS40 GK** Q_3=10, R50 Dialog3G
	MS40 GK Q_3=10, R100 Dialog3G	**MS40 GK** Q_3=16, R125 Dialog3G	**MS40 GK** Q_3=16, R80 Dialog3G	**MS50 GK** Q_3=16, R50 Dialog3G
	MS50 GK Q_3=25, R125 Dialog3G			

DN: DN 15, DN 20, DN 25, DN 32, DN 40, DN50

The meter can be equipped by following devices:

- 3G - Meters with option of having a signal for remote reading purposes which was not part of this certification,
- mechanical register with option electrical output EV which was not part of this certification.

3.2 Measuring insert

The measuring unit group consists of the sealed register, the measuring chamber, the vane wheel assembly and the pressure plate. It is a key group for the accuracy performance of the meter. The magnetic gear on the top of wane wheel shaft transmits the movement of the turbine to the clockwork and register.

3.3 Indicating device

The capacity of the counter is 99 999 m^3 for size DN 15, DN 20, DN25, DN32 and 999 999 m^3 for size DN40 and DN50 and minimum resolution of the reading is 0,05 dm^3 (for DN40 and DN50 is 0,5 dm^3). The register lens (glass, IP 68) is made of borosilicate glass on request to give the register protection against the impact damage and contamination.

The counter design does not allow for resetting of meter indications.

Counter pointers rotate clockwise. Indicated digital values increase as the drums with digits marked on them move upwards. An indication increase by one digit is complete when a digit in a lower decade change from 9 to 0. In a decade of the lowest values digital indications change continuously. Black digits marked on digital drums or black pointers indicate cubic meters or their multiples whereas red digits or pointers indicate submultiples of cubic meters.
The pointers move round scales marked with proper multipliers and placed on an indicating dial.

3.3.1 GK Register

GK (Glat Kosher) register is a mechanical register which incorporates an electronic reading and transition for remote reading (Picture No. 3). The register is installed on the meters and using a magnetic coupler, converts the rotation of the in meter element to the rotation of the digit wheels which in turn shows the amount of water consumed. This operation is being done only by the mechanical stage of the register and does not involve any electronic component. Also, the electric stage does not come in contact with the mechanical stage and there is no magnetic

influence on the cylinders rotation due to the electronic position reading. For data transmission, the register includes a transmitter board, antenna and sensing element. The element is mounted next to each digit wheel and while transmitting, reads the position of the digit wheel and transferring this data to the transmitter board.

The register differs from other Arad's registers by not requiring a continues electronic reading or accurate data transmission. It is able to perform an electronic reading in a pre-defined schedule which enables a complete electronic shut down during Saturdays and holidays. This allows the register to keep with the highest level of "kashrut" certificate.

Electric stage of the register was not part of this certification.

Picture No. 3 GK register

3.4 Principle of operation

The potable water enters the meter from the inlet of the meter and distributed by the lower orifices that equally spaced on the circumference of the measuring chamber, the Multi-Jet distributed strike the vane wheel at the tip of the vane blades to make it rotation, the measured water by the vane wheel flows out from the top orifices on the measuring chamber. The rotation of the vane wheel (proportional to the velocity of water flow) is transmitted directly to the sealed register, the register totalizes the rotation of the vane wheel and indicates the water volume passing through the meter. The water meter is dedicated to measure the flow and the delivered water quantity.

3.5 Technical documentation

A number of drawings of technical documentations are listed in the following table:

Drawing No.	Description
1 12 381 09/00	M-SLB 3/4 M20 Q3=2.5 R50 m3 MID
3 41 491 59/00	Body SLB 190x21 arrow G1B blue epoxy
2 54 413 09/02	STRAINER 21 C, H, F
2 13 802 09/01	REGULATOR SCREW 1/2"
2 10 806 19/00	REGULATOR CAP 0.5 - 0.75
2 06 001 55/11	O-RING'S TABLE
2 45 706 09/03	PLASTIC SEAL M 1/2"-3/4"
5 43 503 29/01	MEASURING CHAMBER M N2.5 MAG. PROT. INDIA

Drawing No.	Description
5 31 517 19/00	Register M M20 R50 Q=2.5 m3 3p CE 17.44
1 12 617 19/00	M1 M25 Q3=4 R50 m3 3p MID
3 41 611 59/00	BODY M1" 30X260 BLUE EPOXY
5 31 607 29/00	Register M M25 R50 Q3=4 m3 3p CE 11.25
2 10 812 19/00	REGULATOR CAP SCREW 1
1 12 770 09/00	M1 1/4 M32 Q3=6.3 R50 m3 MID
3 41 706 59/00	Body M1 1/4" 260x30 blue epoxy
5 43 703 30/01	MEASURING CHAMBER M N3.5-N6 MAG. PROT. INDIA
5 31 762 09/00	Register M M32 R50 Q=6.3 m3 3p CE 11.25
2 58 203 29/04	REGISTER COVER 19 WITH PLASTIC LID ARAD
2 31 423 09/05	SLIDING RING
2 31 426 09/07	PRESSURE RING KMM
2 13 808 09/07	REGISTER SCREW M1 SYMMETRICAL
2 31 496 09/01	FLOW DIVERSION RING H=10
2 45 708 09/02	PLASTIC SEAL 1"
2 54 415 09/01	STRAINER M1"
1 12 804 19/00	MS 1 1/2 MS40 Q3=10 R100 m3 MID
3 41 806 59/00	BODY M 1 1/2" BLUE EPOXY SI
5 41 806 19/00	Register MS40 R100 Q3=10 m3 3p CE 32.148
5 43 807 10/00	MEASURING CHAMBER M 1 1/2 ISO 4POLE
2 10 807 19/00	REGULATOR CAP 3/4 ASSY
2 31 285 09/00	PRESSURE RING m 1 1/2" BR. COV.
2 31 402 09/01	PRESSING RING M 1 1/2"
2 31 554 09/00	SLIDING RING FOR COVER M-3G 1 1/2"
2 45 722 09/00	PLASTIC SEAL W/O LOGO L=300mm
2 54 409 09/03	STRAINER M 1 1/2"
2 58 229 19/00	COVER M 1 1/2"
2 13 300 09/00	REGULATOR SCREW M 1 1/2"
3 41 214 09/12	Body M 1/2" 17-165 NON RETURN
5 76 004 09/00	Non return valve 3/4
5 76 002 09/00	Non return valve 1/2
Drawings for 3G version	
3 41 491 59/00	Body SLB 190x21 arrow G1B blue epoxy
2 54 413 09/02	STRAINER 21 C, H, F
2 31 434 09/00	PRESSURE RING h=6.5
2 10 806 19/00	REGULATOR CAP 0.5 - 0.75
2 45 706 09/03	PLASTIC SEAL M 1/2" - 3/4"
2 13 802 09/01	REGULATOR SCREW 1/2"
1 99 029 50/00	Register M-3G M20 R50 Q3=2.5m3 IR NB EU MID
5 43 503 29/01	MEASURING CHAMER M N2.5 MAG.PROT.INDIA
1 13 039 09 /00	M-3G 1 M25 Q3=4 R50 m3 MID
3 41 611 59/00	BODY M 1" 30x260 BLUE EPOXY
2 10 812 19/00	REGULATOR CAP SCREW 1
2 54 415 09/01	STRAINER M1"
2 58 223 19/01	REGISTER COVER 19 FOR 3G
2 13 808 09/07	REGISTER SCREW M 1 SYMMETRICAL
2 45 708 09/02	PLASTIC SEAL 1"
2 31 496 09/01	FLOW DIVERSION RING H=10
2 31 423 09/05	SLIDING RING
1 99 029 54/00	Register M-3G M25 R50 Q3=4 m3 IR NB EU MID
5 43 703 30/01	MEASURING CHAMBER M N3.5-N6 MAG.PROT. INDIA

Drawing No.	Description
1 13 043 09 /00	M-3G 1 1/4 M32 Q3=6.3 R50 m3 MID
3 41 706 59/00	Body M 1 1/4" 260x30 blue epoxy
1 99 029 53/00	Register M-3G M32 R50 Q3=6.3 m3 IR NB EU MID
1 13 053 09 /00	MS-3G 1 1/2 MS40 Q3=10 R50 m3 MID
2 58 229 49/00	REGISTER COVER M-3G 1 1/2 DI LID
1 99 029 55/00	Register MS-3G MS40 R50 Q3=10 m3 IR NB EU MID
2 13 300 09/00	REGULATOR SCREW M 1 1/2"
5 43 807 10/00	MEASURING CHAMBER M 1 1/2 ISO 4POLE
2 36 793 09/01	Dial plate MS50 Q3=25 R125 m3 3p
1 13 019 09/00	M-SLB-3G 3/4 M20 Q3=2.5 R50 m3 MID
Drawings for Plastic body meters	
11332509	M-3G polymer 3/4 M20 Q3=2.5 R50 m3 3p MID
11237909	M polymer 3/4 M20 Q3=2.5 R50 m3 3p MID
11338309	M-3G polymer 1 M25 Q3=4 R50 m3 3p MID
11262309	M polymer 1 M25 Q3=4 R50 m3 3p MID
19902950	Cartridge M-3G M20 Q3=2.5 R50 m3 3p MID
19902954	Register M-3G M25 R50 Q3=4 m3 3p IR NB EU MID
21080939	Seal screw plastic body assy
21380209	Regulator screw 0.5"
23142309	Sliding ring
23142609	Pressure ring kmm
23154709	Check valve alternative ring 3/4
23154909	Adaptor flow ring 1 h12
24572609	Seal M body & cover plastic L=17.8mm
25441520	Strainer conic M1
25441709	Strainer 21 SLB plastic
25824119	Cover plastic M assy
25824159	Cover plastic M 3G di Lid assy pin plastic
31136709	Body M plastic 3/4 21x190 BSP
31161209	Body M plastic 1" 260x30 BSP
53151719	Register M20 R50 Q=2.5 m3 3p CE17.44
53160729	Register M25 R50 Q3=4 m3 3p CE 11.25
54350329	Measuring chamber M N2.5 mag prot.
54370330	Measuring chamber M N3.5 -N6 mag prot.
1 12 782 09/00	M polymer 1 1/4 M32 Q3=6.3 R50 m3 3p MID
1 13 393 09/00	M-3G polymer 1 1/4 M32 Q3=6.3 R50 m3 3p MID
Drawings for N1.6 M15	
1 12 138 09/00	M15 5/8 polymer Q3=1.6 R50 m3 3p MID
1 12 237 09/00	M15 ½ Q3=1.6 R50 m3 3p MID
1 12 238 09/00	M 15 5/8 Q3=1.6 R50 m3 3p MID
1 13 114 09/00	M15-3G 5/8 Q3=1.6 R50 m3 3p MID
1 13 204 09/00	M15-3G 1/2 Q3=1.6 R50 m3 3p MID
1 13 310 09/00	M15-3G 5/8 Q3=1.6 R50 m3 3p MID
1 99 029 20/00	Register m15-3G q3=1.6 m3 3p DS IR MID 25.426
2 06 306 09/03	Chamber gasket 1/2"-1"
2 10 806 19/00	Regulator cap 0.5-0.75
2 10 809 39/00	Seal screw plastic body assy
2 13 802 09/01	Regulator screw ½"
2 31 423 09/06	Sliding ring
2 31 426 09/07	Pressure ring KMM
2 45 706 09/03	Plastic seal M ½"-3/4"

Drawing No.	Description
2 45 722 55/04	Plastic seal ARAD
2 54 419 09/07	Strainer 17 C, H, F
2 58 203 29/04	Register Cover 19 with plastic lid Arad
2 58 203 39/00	Reg. cover 19 W/Plastic lid DI
2 58 241 39/00	Cover plastic DI LID Assy
3 11 346 20/00	Body M Plastic 5/8" 17x190 Dia 72 NPSM
3 41 215 09/08	Body M ½" 17-165
3 41 346 09	Body 17/1905/8 K.M.M.
5 43 095 50/00	Measuring chamber M N1.5 5x2
1 13 901 99/00	MS50-3G Q3=16 R50 m3 MID GK
1 13 053 99/00	MS40-3G Q3=10 R50 m3 MID GK
1 12 901 09 /A	MS 2 MS50 Q3=16 R50 m3 MID
1 13 901 09 /A	MS-3G 2 MS50 Q3=16 R50 m3 MID

All drawings, schemes and technical documentations used during the conformity assessment are saved in document No. NO-343/17, NO-338/17, NO-295/15, NO-280/14, NO-266/14, NO-245/13, NO-232/13, NO-173/12, NO-149/11, No. NO-145/11, NO-413/19, NO-453/20 and NO-514/21.

4 Basic technical characteristics

Type marking		M (MS)	
Nominal diameter DN	mm	15, 20, 25, 32	40, 50
Indicating range	m^3	10^5	10^6
Resolution of the reading	m^3	0,00005	0,0005
Maximum admissible pressure	-	MAP10	
Working pressure range	bar	from 0,3 to 10	
Pressure loss	-	Δp 63	
Temperature class	-	T50	
Flow profile sensitivity classes	-	U0, D0	
Position	-	H	
Climatic and mechanical environments	-	closed spaces /from -10°C to 40°C/mech. class M1	

4.1 Additional technical characteristics

Weight	from 1,5 (0,55 for plastic body) to 9,4 kg
IP Code	IP 68

5 Basic metrological characteristics

The maximum permissible error (accurate class):

± 5 % ($Q_1 \leq Q < Q_2$)

± 2 % ($Q_2 \leq Q \leq Q_4$) for water temperature (from 0,1 to 30) °C

± 3 % ($Q_2 \leq Q \leq Q_4$) for water temperature greater than 30 °C

Diameter	DN	mm	15		20			
Minimum flowrate	Q_1	m³/h	0,04	0,032	0,063	0,05	0,080	0,063
Transitional flowrate	Q_2	m³/h	0,064	0,051	0,1	0,08	0,128	0,102
Permanent flowrate	Q_3	m³/h	1,6	1,6	2,5	2,5	4	4
Overload flowrate	Q_4	m³/h	2	2	3,125	3,125	5	5
Measuring range R	Q_3/Q_1	-	40	50	40	50	50	63
Ratio	Q_2/Q_1	-	1,6					

Diameter	DN	mm	25				
Minimum flowrate	Q_1	m³/h	0,1	0,08	0,126	0,1	0,08
Transitional flowrate	Q_2	m³/h	0,160	0,128	0,202	0,160	0,128
Permanent flowrate	Q_3	m³/h	4	4	6,3	6,3	6,3
Overload flowrate	Q_4	m³/h	5	5	7,875	7,875	7,875
Measuring range R	Q_3/Q_1	-	40	50	50	63	80
Ratio	Q_2/Q_1	-	1,6				

Diameter	DN	mm	32					
Minimum flowrate	Q_1	m³/h	0,158	0,126	0,200	0,159	0,125	0,1
Transitional flowrate	Q_2	m³/h	0,252	0,202	0,320	0,254	0,2	0,16
Permanent flowrate	Q_3	m³/h	6,3	6,3	10	10	10	10
Overload flowrate	Q_4	m³/h	7,875	7,875	12,5	12,5	12,5	12,5
Measuring range R	Q_3/Q_1	-	40	50	50	63	80	100
Ratio	Q_2/Q_1	-	1,6					

Diameter	DN	mm	40				
Minimum flowrate	Q_1	m³/h	0,250	0,200	0,159	0,125	0,1
Transitional flowrate	Q_2	m³/h	0,400	0,320	0,254	0,200	0,16
Permanent flowrate	Q_3	m³/h	10	10	10	10	10
Overload flowrate	Q_4	m³/h	12,5	12,5	12,5	12,5	12,5
Measuring range R	Q_3/Q_1	-	40	50	63	80	100
Ratio	Q_2/Q_1	-	1,6				

Diameter	DN	mm	40				
Minimum flowrate	Q_1	m³/h	0,320	0,254	0,2	0,160	0,13
Transitional flowrate	Q_2	m³/h	0,512	0,406	0,32	0,256	0,2
Permanent flowrate	Q_3	m³/h	16	16	16	16	16
Overload flowrate	Q_4	m³/h	20	20	20	20	20
Measuring range R	Q_3/Q_1	-	50	63	80	100	125
Ratio	Q_2/Q_1	-	1,6				

Diameter	DN	mm	50		
Minimum flowrate	Q_1	m^3/h	0,4	0,320	0,2
Transitional flowrate	Q_2	m^3/h	0,64	0,512	0,32
Permanent flowrate	Q_3	m^3/h	16	16	25
Overload flowrate	Q_4	m^3/h	20	20	31,25
Measuring range R	Q_3/Q_1	-	40	50	125
Ratio	Q_2/Q_1	-	1,6		

6 Results of conformity assessment

The results of tests, assessments and evaluations given in the evaluation report No. NO-514/21/B/ER dated July 14, 2021 give sufficient evidence, that the technical design of the measuring instrument – Multi-Jet magnetic water meter type M (MS) is in compliance with the technical requirements of the Slovak Republic Governmental Ordinance No. 145/2016 Coll. relating to the making available on the market of measuring instruments as amended by Government Ordinance of the Slovak Republic No. 328/2019 Coll., Annex No. 1 and Annex No. 3 Water Meters (MI-001) and the EN 14154-1:2005+A2:2011, EN 14154-2:2005+A2:2011, EN 14154-3:2005+A2:2011 and OIML R49-1:2006, OIML R49-2:2004 (harmonised standards and normative documents) and other instructions OIML R49-2:2013, EN ISO 4064-1:2017, EN ISO 4064-2:2017 and EN ISO 4064-3:2014 standards, which are relevant for this type of meter.

7 Data placed on the measuring instrument

On the shroud, the dial of the indicating device or on an identification plate of every water meter or in the product documentation minimum the following data should be marked:

a) Manufacturer's name, registered trade name or registered mark
b) Postal address of manufacturer at which they can be contacted
c) Type of the Multi-Jet meter
d) Measuring unit (m^3)
e) Numerical value of Q_3 in m^3/h (Q_3 x,x) and ratio Q_3/Q_1 (Rxxx)
f) Year of production
g) Production serial number
h) Number of EU-type examination certificate and conformity mark
i) The highest admissible pressure if it differs from 1 MPa (MAP xx)
j) Flow direction
k) The letter V or H, if the meter can only be operated in the vertical or horizontal position
l) Class of pressure loss if it differs from Δp63 (Δp XX)
m) Flow profile sensitivity classes (Ux Dx)
n) The temperature class where it differs from T30
o) Environmental classification

8 Conditions of conformity assessment of measuring instruments produced with type approval

Multi-Jet magnetic water meter put onto the market in line with the procedure of conformity assessment according to the Annex No.2 (Module D or F) of the Governmental ordinance should be in compliance with the technical description by the item 3 of this report and at test should be in compliance with the requirements determined in OIML R 49-1:2006 and EN ISO 4064-1:2017. Metrological test is performed by testing equipment which should be in compliance with the requirements determined in STN EN 14154-3:2005+A2 and EN ISO 4064-2:2017 and water at temperature 20 °C ± 5 °C in following point of flowrate:

a) Minimum flowrate $Q_1 \leq Q \leq 1{,}1Q_1$
b) Transitional flowrate $Q_2 \leq Q < 1{,}1Q_2$
c) Permanent flowrate $0{,}9Q_3 \leq Q \leq Q_3$

A metrological test may only be performed by a producer, or a notified body respectively in line with the conformity assessment procedure according to the D or F Annexes of the Governmental ordinance respectively.

9 Measures asked for providing measuring instrument integrity

9.1 Identification

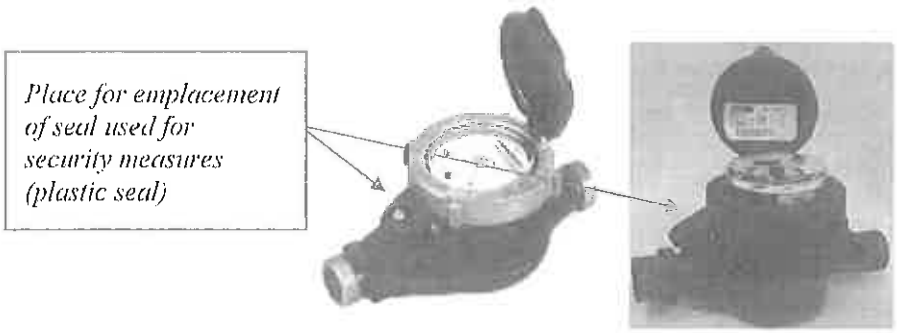
The Multi-Jet magnetic meter should be in compliance with the description provided on the item 3 of this Annex and should be in compliance with the marking specified by the item 7 of this Annex. The number given to the EU-type examination certificate is put at each piece of the measuring instrument.

Emplacement of the conformity mark is followed by § 15 of the Governmental ordinance.

9.2 Sealing of the measuring instrument

The Multi-Jet magnetic water meter shall be before the conformity assessment according to the Annex No.2 (Module D or F) of the Governmental ordinance sealed by following sealing marks:

Connection of counter shroud and water meter body shall be sealed by seal used for security measures (plastic seal) (Picture No. 4)

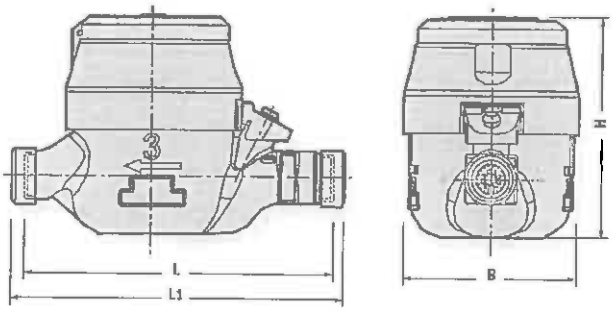


Picture No.4 Emplacement of the seal for security measures

10 Requirements for installation, especially conditions of usage

10.1 Installation data

Nominal size	[mm]	DN15		DN20	DN25	DN32	DN40	DN50
	[inch]	1/2	5/8	3/4	1	1 1/4	1 1/2	2
Construction length [mm] - *L*		165	190	190	260	260	300	300
Length with couplings [mm] - L_1		260	285	285	375	375	435	460
Width [mm] - *B*		95	95	95	105	105	125	150
High [mm] - *H*		102	112	108	108	108	140	157
High for 3G version [mm] - *H*		117	127	111	118	117,4	145	181
Weight [kg]		1,5	2	2	2,8	2,8	4,65	8
Weight with couplings [kg]		1,7	2,2	2,3	3,3	3,45	5,65	9,4



Picture No.5 Installation dimensions

10.2 Installation requirements

A Multi-Jet magnetic water meter is introduced into the operation by a worker having a certificate for this activity performance. The Multi-Jet magnetic meter is possible to be put into use after a construction in line with this report and in line with a producer instruction by "Instruction of installation and conditions of use of water meters". A measuring instrument should be installed in direction of water flow arrow marked on the meter body.

10.3 Conditions of use

Within using the measuring instrument it is needed to be managed by recommendations of a producer by "Instruction of installation and conditions of use of water meters".

Assessment done by: Ing. Viliam Mazúr

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