

## Ceský metrologický institut

Okružní 31, 638 00 Brno tel. +420 545 555 111 www.cmi.cz







Calibration laboratory No. 2202 accredited by the Czech Accreditation Institute according to ISO/IEC 17025:2005

Laboratory:

Regional Inspectorate Brno, Okružní 31, 638 00 Brno

Department of primary metrology of liquid flow, flow velocity and heat

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## CERTIFICATE OF CALIBRATION

## 6015-KL-P0094-17

This certificate is consistent with the capabilities that are included in Appendix C of the MRA drawn up by the International Committee for Weights and Measures (CIPM). Under the MRA, all participating institutes recognize the validity of each other's calibration and measurement certificates for the quantities, ranges and measurement uncertainties specified in Appendix C (for details see www.bipm.org).

Date of issue:

13.2.2017

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**Customer:** 

Remix Bulgaria Ltd.

2 Eng. Georgi Belov St.

1712 Sofia

Meas. instrument:

Mass flowmeter

Manufacturer:

Micro Motion

Type:

CNG050S / 3500

Serial No.:

13001689

**Specification:** 

K-factor: 140.404.50; K1: 4085,13403 μs; K2: 4250.217777 μs; mass flow rate factor:

0,9990; zero:  $0,02621 \mu s$ ; range: (2-12) kg/min.

The results of the calibration have been obtained following the procedures reported in this Certificate and are related only to the date, place and conditions of the calibration.

Measurement standards used: Gravimetric test rig SENSUS PREMATEST 32Z/E-95-SP, scale Mettler Toledo, type WM3002-L22, Ser. No. 4230440891, calibrated by ČMI OI Brno, certificate of calibration No. 6051-KL-H0188-16; scale Mettler Toledo, type WMHCC300-22, Ser. No. 3113910, calibrated by ČMI OI Brno, certificate of calibration No. 6012-KL-V0001-16; scale Mettler Toledo, type WMHA32-S-22, Ser. No. 3113909, calibrated by ČMI OI Brno, certificate of calibration No. 6051-KL-H0187-16.

Used standards are traceable to national standard of Czech Republic.

Date of calibration: 9. - 10.2.2017

Calibrated by:

Jaroslav Foltýnek

Vedoucí oddělení:

Calibration procedure:

Flying start gravimetric method acording to procedure no. 615-MP-C142.

Meter output:

Pulse output (1000 imp/kg).

Place of calibration:

ČMI OI Brno

**Ambient conditions:** 

Temperature  $(23 \pm 2)$  °C; RH  $(20 \pm 10)$  %

**Calibration conditions:** 

Water temperature  $(20 \pm 2)$ 

**Results of calibration:** 

Before adjustment: mass flow rate factor 1,0030

| Flowrate | Error | Expanded uncertainty |
|----------|-------|----------------------|
| [kg/min] | [%]   | [%]                  |
| 0,13     | 0,41  | 0,10                 |
| 0,46     | 0,41  | 0,10                 |
| 0,71     | 0,42  | 0,10                 |

After adjustment: mass flow rate factor 0,9990

| Flowrate | Error | Expanded uncertainty |
|----------|-------|----------------------|
| [kg/min] | [%]   | [%]                  |
| 0,13     | 0,06  | 0,10                 |
| 0,44     | 0,04  | 0,10                 |
| 0,70     | 0,02  | 0,10                 |

The standard uncertainty of measurement has been determined in accordance with EA- $\frac{4}{02}$  document. The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k corresponding to a coverage probability of approximately 95 %, which for normal distribution corresponds to a coverage factor k = 2.

End of calibration certificate.

Český metrologický institut Oblastní inspektorát Brno Okružní 31 638 00 Brno -18-