

Mettler Toledo Ltd

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# Accuracy Calibration Certificate

## Customer

**Company:** Novelis UK Ltd.  
**Address:** Thelwall Lane; Latchford Locks Works  
**City:** WARRINGTON **Contact:** James McCoy  
**Zip / Postal:** WA4 1NN **Order Number:** 0331815781  
**State / Province:** Cheshire

## Weighing Device

**Manufacturer:** Avery **Instrument Type:** Weighing Instrument  
**Model:** Weighbridge **Asset Number:** Out bridge  
**Serial No.:** C011155682B1 **Terminal Model:** N/A  
**Building:** N/A **Terminal Serial No.:** N/A  
**Floor:** N/A **Terminal Asset No.:** N/A  
**Room:** Out Bridge **Alternate Asset No.:** N/A

Range	Max. Capacity	Readability (d)
1	50000 kg	20 kg

## Procedure

**Calibration Guideline:** EURAMET cg-18 v. 4.0 (11/2015)  
**METTLER TOLEDO Work Instruction:** IMS-12-0200-02

This calibration certificate contains measurements for As Found calibration. No As Left calibration was performed because the device was not modified after As Found calibration. Therefore, results for As Left correspond to As Found.

The calibration was agreed with the user below the maximum capacity of the balance.

Substitution loads were used to perform the Error of Indication test.

**As Found Calibration Date:** 02-02-2021 **Service Technician:**   
**As Left Calibration Date:** N/A  
**Issue Date:** 02-02-2021 john worth  
**Next Calibration Date:** N/A

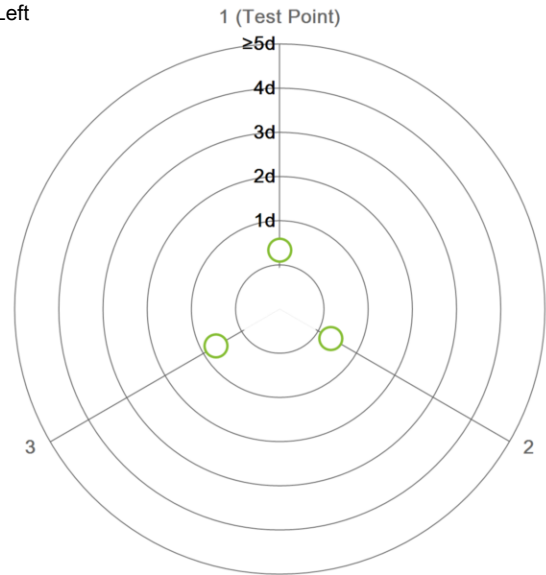
## Measurement Results

### Repeatability

Test Load: 43920 kg

	As Found	As Left
1	43920 kg	N/A
2	43920 kg	N/A
3	43900 kg	N/A
<b>Standard Deviation</b>	<b>12 kg</b>	<b>N/A</b>

○ As Found  
◆ As Left



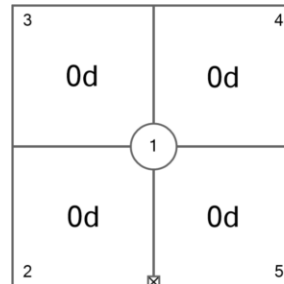
The "d" in the graph represents the readability of the range/interval in which the test was performed.

The results of this graph are based upon the absolute values of the differences from the mean value.

### Eccentricity

Test Load: 14000 kg

Position	As Found	As Left
1	14000 kg	N/A
2	14000 kg	N/A
3	14000 kg	N/A
4	14000 kg	N/A
5	14000 kg	N/A
<b>Maximum Deviation</b>	<b>0 kg</b>	<b>N/A</b>



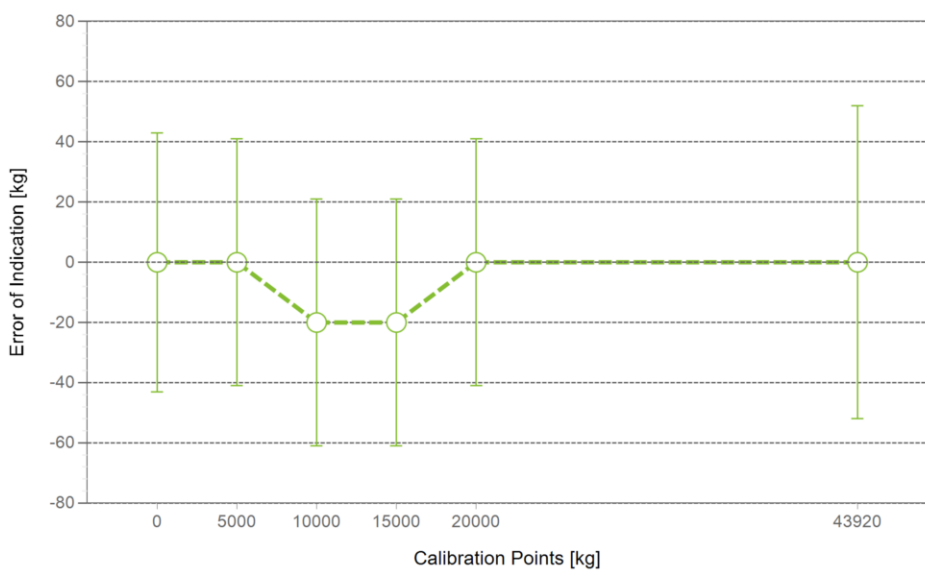
As Found

The "d" in the graph represents the readability of the range/interval in which the test was performed.

**Error of Indication**

**As Found**

	Substitution Load	Standard Load	Test Load:	Indication	Error of Indication	Expanded Uncertainty	k
1	N/A	0 kg	0 kg	0 kg	0 kg	43 kg	3.31
2	N/A	1000 kg	1000 kg	1000 kg	0 kg	41 kg	2.87
3	N/A	2000 kg	2000 kg	2000 kg	0 kg	41 kg	2.87
4	N/A	5000 kg	5000 kg	5000 kg	0 kg	41 kg	2.87
5	N/A	10000 kg	10000 kg	9980 kg	-20 kg	41 kg	2.87
6	N/A	15000 kg	15000 kg	14980 kg	-20 kg	41 kg	2.87
7	N/A	20000 kg	20000 kg	20000 kg	0 kg	41 kg	2.87
Substitution Load				23920 kg	N/A		
9	23920 kg	20000 kg	43920 kg	43920 kg	0 kg	52 kg	2.13



○ As Found

◆ As Left

For improved legibility of the graphics only increasing measurement points are shown and measurement points close to zero are not displayed.

The uncertainty stated is the expanded uncertainty at calibration obtained by multiplying the standard combined uncertainty by the coverage factor k – which can be larger than 2 according to EURAMET cg-18. The value of the measurand lies within the assigned range of values with a probability of approximately 95%.

The user is responsible for maintaining environmental conditions and the settings of the weighing instrument when it was calibrated.

**Measurement Uncertainty of the Weighing Instrument in Use**

Stated is the expanded uncertainty with k=2 in use. The formula shall be used for the estimation of the uncertainty under consideration of the errors of indication. The value R represents the net load indication in the unit of measure of the device.

Temperature coefficient for the evaluation of the measurement uncertainty in use: 10.0 · 10<sup>-6</sup> / K

Temperature range on site for the evaluation of the measurement uncertainty in use: 20 K

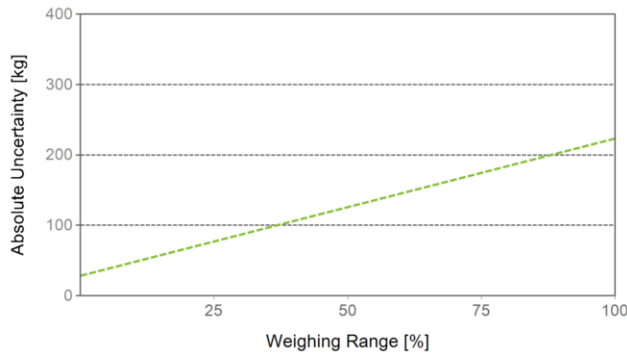
**Linearization of Uncertainty Equation**

	Range		As Found	As Left
	d	Max		
1	20 kg	43920 kg	$U_1 = 28284 \text{ g} + 4.44 \text{ g/kg} \cdot R$	N/A

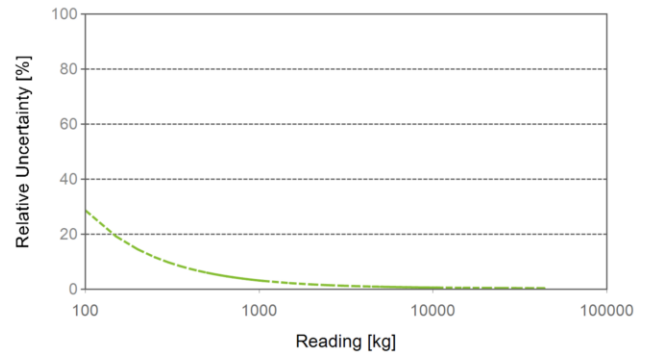
To optimize the stability of the linearization, besides of the zero load only increasing measurement points with a test load of 5% of the measurement range or larger are taken for the calculation of the linear equation.

**Absolute and Relative Measurement Uncertainty in Use for Various Net Indications (Examples)**

Net Indication	As Found		As Left	
439 kg	30 kg	6.9%	N/A	N/A
4392 kg	48 kg	1.1%	N/A	N/A
8784 kg	67 kg	0.77%	N/A	N/A
21960 kg	126 kg	0.57%	N/A	N/A
43920 kg	223 kg	0.51%	N/A	N/A



**As Found**



**As Left**

**Test Equipment**

All weights used for metrological testing are traceable to national or international standards. The weights were calibrated and certified by an accredited calibration laboratory.

**Weight Set 1: OIML M1**

Weight Set No.:	Test truck	Date of Issue:	N/A
Certificate Number:	N/A	Calibration Due Date:	N/A

**Weight Set 2: OIML M1**

Weight Set No.:	PB21-41 48-49	Date of Issue:	21-12-2020
Certificate Number:	TR11138	Calibration Due Date:	21-12-2021

**Remarks**

This document is issued to record completion of the work performed by METTLER TOLEDO on the subject device in accordance with agreed standards. It does not guarantee the continued performance of the subject device. Any measurements recorded are based on the subject device's performance at a given time as tested by METTLER TOLEDO and, except where explicitly stated otherwise, do not express an opinion as to the sufficiency of any customer designed procedures used to test the device. This document is not a warranty, either implied or express. METTLER TOLEDO expressly disclaims any liability arising from the use of the information in this document for any purpose other than as specified herein.

# OIML MPE Assessment (In Service)

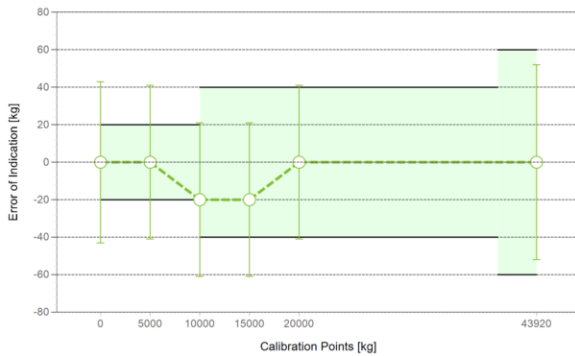
Assessment done without considering measurement uncertainty.

The measurements from the attached calibration certificate were assessed against the Maximum Permissible Errors (MPE) defined by OIML R 76.

**Overall**      **As Found**      **As Left**   
N/A      = Passed      = Failed

## Weighing Device

Range	Max. Capacity	Readability (d)	Verification Scale Interval (e)	Class
1	50000 kg	20 kg	20 kg	III



MPE according to OIML R 76

Test Load		MPE
From	To	
0 kg	0 kg	5 kg
20 kg	10000 kg	20 kg
10020 kg	40000 kg	40 kg
40020 kg	43920 kg	60 kg

As Found  
 As Left  
 MPE

## Eccentricity and Repeatability

Test	Test Load	MPE	As Found		As Left	
			Maximum Error / Range	Result	Maximum Error / Range	Result
Eccentricity	14000 kg	40 kg	0 kg		N/A	N/A
Repeatability	43920 kg	60 kg	20 kg		N/A	N/A

**Maximum Error (Eccentricity):** Maximum of the absolute values of the individual errors.

**Range (Repeatability):** Difference between largest and smallest measurement value.

## Error of Indication

	Total Load:	MPE	As Found	
			Error of Indication	Result
1	0 kg	5.0 kg	0 kg	
2	1000 kg	20.0 kg	0 kg	
3	2000 kg	20.0 kg	0 kg	
4	5000 kg	20.0 kg	0 kg	
5	10000 kg	20.0 kg	-20 kg	
6	15000 kg	40.0 kg	-20 kg	
7	20000 kg	40.0 kg	0 kg	
8	43920 kg	60.0 kg	0 kg	