

# CERTIFICATE

## of Product Conformity (QAL1)

Certificate No: 0000043526\_03

**Certified AMS:** STACKFLOW 400 for velocity

**Manufacturer:** ENVEA UK Ltd. ENVEA House,  
Rose & Crown Road  
Swavesey / Cambridge CB24 4RB  
United Kingdom

**Test Institute:** TÜV Rheinland Energy & Environment GmbH

**This is to certify that the AMS has been tested  
and found to comply with the standards  
EN 15267-1 (2009), EN 15267-2 (2023), EN 15267-3 (2007),  
EN ISO 16911-2 (2013) as well as EN 14181 (2014).**

Certification is awarded in respect of the conditions stated in this certificate  
(this certificate contains 10 pages).  
The present certificate replaces certificate 0000043526\_02 dated 2 April 2020.



Suitability Tested  
EN 15267  
QAL1 Certified  
Regular  
Surveillance

www.tuv.com  
ID 0000043526

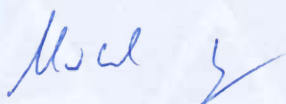
Publication in the German Federal Gazette  
(BAnz) of 26 August 2015

German Environment Agency

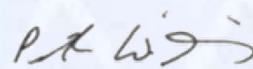
Dessau, 28 March 2025

This certificate will expire on:  
1 April 2030

TÜV Rheinland Energy &  
Environment GmbH  
Cologne, 26 March 2025



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Test institute accredited to EN ISO/IEC 17025 by DAkkS (German Accreditation Body).  
This accreditation is limited to the accreditation scope defined in the enclosure to the certificate D-PL-11120-02-00.

<b>Test report:</b>	936/21225290/B dated 2 February 2015
<b>Initial certification:</b>	2 April 2015
<b>Expiry date:</b>	1 April 2030
<b>Certificate:</b>	Renewal (of previous certificate 0000043526_02 of 2 April 2020 valid until 1 April 2025)
<b>Publication:</b>	BAnz AT 26.08.2015 B4, chapter II No. 1.1

### Approved application

The tested AMS is suitable for use at plants according to Directive 2010/75/EC, chapter III (combustion plants / 13th BImSchV:2015), chapter IV (waste incineration plants / 17th BImSchV:2013), Directive 2015/2193/EC (44th BImSchV:2022), TA Luft:2002, 27th BImSchV and 30th BImSchV:2009. The measured ranges have been selected so as to ensure as broad a field of application as possible.

The suitability of the AMS for this application was assessed on the basis of a laboratory test and a six-month field test at a waste incineration.

The AMS is approved for an ambient temperature range of -20 °C to +50 °C.

The notification of suitability of the AMS, performance testing and the uncertainty calculation have been effected on the basis of the regulations applicable at the time of testing. As changes in legal provisions are possible, any potential user should ensure that this AMS is suitable for monitoring the flue gas velocity relevant to the application.

Any potential user should ensure, in consultation with the manufacturer, that this AMS is suitable for the installation at which it will be installed.

### Note

The legal regulations mentioned correspond to the current state of legislation during certification. Each user should, if necessary, in consultation with the competent authority, ensure that this AMS meets the legal requirements for the intended use. In addition, it cannot be ruled out that legal regulations governing the use of a measuring device for emission monitoring may change during the lifetime of the certificate.

### Basis of the certification

This certification is based on:

- Test report 936/21225290/B dated 2 February 2015 of TÜV Rheinland Energie und Umwelt GmbH
- Suitability announced by the German Federal Environment Agency (UBA) as the relevant body
- The ongoing surveillance of the product and the manufacturing process

Publication in the German Federal Gazette: BAnz AT 26.08.2015 B4, chapter II No. 1.1,  
Announcement by UBA dated 22 July 2015:

**AMS designation:**

STACKFLØW 400 for velocity

**Manufacturer:**

PCME Ltd., St. Ives, UK

**Field of application:**

For measurements at plants requiring official approvals and plants in accordance with the 27<sup>th</sup> BImSchV.

**Measuring ranges during the performance test:**

Component	Certification range	Supplementary ranges	Unit
velocity	0 - 30	0 - 50	m/s

**Software versions:**

Sensor: 1.25

Control unit: 8.23

PC-ME DUST TOOLS: 2.31

**Restrictions:** None

**Notes:**

1. The maintenance interval is three months.
2. The STACKFLØW 400 measuring system is available in various configurations:

Produkt description	Configuration
<b>Sensor - straight</b>	
STACKFLOW 400	standalone configuration
STACKFLOW 400 Standard	with Interface Module
STACKFLOW 400 Plus	with MultiController
<b>Sensor - bent</b>	
STACKFLOW 400A	standalone configuration
STACKFLOW 400A Standard	with Interface Module
STACKFLOW 400A Plus	with MultiController

3. Supplementary testing (extension of maintenance interval) as regards Federal Environment Agency (UBA) notice of 25 February 2015 (BAnz AT 02.04.2015 B5, chapter II number 1.2).

**Test Institute:**

TÜV Rheinland Energie und Umwelt GmbH, Cologne

Report No.: 936/21225290/B dated 2<sup>nd</sup> February 2015

Publication in the German Federal Gazette: BAnz AT 14.03.2016 B7, Chap. V notification 28,  
Announcement by UBA dated 18 February 2016:

**28 Notification as regards Federal Environment Agency (UBA) notices of 22 July 2015 (BAnz AT 26.08.2015 B4, chapter II number 1.1)**

The current software versions of the measuring equipment STACKFLØW 400 for waste gas speed of PCME Ltd. is for:

operator units: 8.41  
sensor software: 1.29.2

Statement of TÜV Rheinland Energie und Umwelt GmbH of 22 October 2015

Publication in the German Federal Gazette: BAnz AT 26.03.2018 B8, Chap. V notification 35,  
Announcement by UBA dated 21 February 2018:

**35 Notification as regards Federal Environment Agency (UBA) notices of 22 July 2015 (BAnz AT 26.08.2015 B4, chapter II number 1.1) and of 18 February 2016 (BAnz AT 14.03.2016 B7, chapter V notification 28)**

The new software versions of the STACKFLØW 400 measuring system for velocity manufactured by PCME Ltd. are:

Control unit: 9.03  
Sensor software: 1.29.2

Statement issued by TÜV Rheinland Energy GmbH dated 18 August 2017

Publication in the German Federal Gazette: BAnz AT 26.03.2019 B7, Chap. IV notification 53, Announcement by UBA dated 27 February 2019:

**53 Notification as regards Federal Environment Agency notices of 25 February 2015 (BAnz AT 02.04.2015 B5, chapter II number 1.3) and of 21 February 2018 (BAnz AT 26.03.2018 B8, chapter V notification 35)**

The STACKFLØW 400 measuring system for total dust manufactured by PCME Ltd. may also be operated with the operational units Interface Module, MultiController or ProController.

The current software versions of the STACKFLØW 400 measuring system are:

Sensor software: 2.03  
Control units:  
Interface module: 9.04  
MultiController: 9.04  
ProController: 2.19

Statement issued by TÜV Rheinland Energy GmbH dated 2 October 2018

Publication in the German Federal Gazette: BAnz AT 24.03.2020 B7, Chap. IV notification 46, Announcement by UBA dated 24 February 2020:

**46 Notification as regards Federal Environment Agency (UBA) notices of 25 February 2015 (BAnz AT 02.04.2015 B5, chapter II number 1.3) and of 27 February 2019 (BAnz AT 26.03.2019 B7, chapter IV notification 53)**

The company name has changed from PCME Ltd. to ENVEA UK Ltd.  
The name of the STACKFLØW 400 measuring system for velocity manufactured by ENVEA UK Ltd. was changed to PCME STACKFLØW 400.  
The new production site for the PCME STACKFLØW 400 measuring system for velocity manufactured by ENVEA UK Ltd. is:

ENVEA UK Ltd.  
ENVEA House  
Rose & Crown Road  
Swavesey  
Cambridge CB24 4RB  
United Kingdom

The latest software version of the PCME STACKFLOW 400 measuring system for velocity manufactured by ENVEA UK Ltd. is:

Sensor: 2.04  
Control units:  
Interface module: 9.04  
MultiController: 9.04  
ProController: 2.26

Statement issued by TÜV Rheinland Energy GmbH dated 4 December 2019

Publication in the German Federal Gazette: BAnz AT 31.07.2020 B10, Chap. II notification 8, Announcement by UBA dated 27 May 2020:

**8 Notification as regards Federal Environment Agency (UBA) notices of 25 February 2015 (BAnz AT 02.04.2015 B5, chapter II number 1.3) and of 24 February 2020 (BAnz AT 24.03.2020 B7, chapter IV, notification 46)**

The PCME STACKFLOW 400 measuring system for Velocity manufactured by ENVEA UK Ltd. may now be operated with the optional netController control unit.

The netController software version is:  
1.04.

Statement issued by TÜV Rheinland Energy GmbH dated 11 March 2020

Publication in the German Federal Gazette: BANz AT 03.05.2021 B9, Chap. III notification 27, Announcement by UBA dated 31 March 2021:

**27 Notification as regards Federal Environment Agency (UBA) notices of 25 February 2015 (BANz AT 02.04.2015 B5, chapter II number 1.3) and of 27 May 2020 (BANz AT 31.07.2020 B10, chapter II notification 8)**

Due to a component discontinuation of the manufacturer, the preamplifier of the PCME STACKFLOW 400 measuring system for exhaust gas velocity manufactured by ENVEA UK Ltd. must be replaced.

The previously used preamplifier type Texas Instruments LME49870 L200 is replaced by the successor product type Texas Instruments OPA1611.

Statement issued by TÜV Rheinland Energy GmbH dated 25 November 2020

Publication in the German Federal Gazette: BANz AT 20.03.2023 B6, Chap. IV notification 23, Announcement by UBA dated 21 February 2023:

**23 Notification as regards Federal Environment Agency (UBA) notices of 25 February 2015 (BANz AT 02.04.2015 B5, chapter II number 1.3) and of 31 March 2021 (BANz AT 03.05.2021 B9, chapter III notification 27)**

The current software versions of the PCME STACKFLOW 400 measuring system for waste gas velocity from the company ENVEA UK Ltd. are:

Sensor Software:	2.04
Control units:	
Interface Module/MultiController:	9.04
ProController:	2.27
netController:	1.04

Statement issued by TÜV Rheinland Energy GmbH dated 16 September 2022

Publication in the German Federal Gazette: BANz AT 10.05.2024 B7, Chap. V notification 16, Announcement by UBA dated 19 March 2024:

**16 Notification as regards Federal Environment Agency (UBA) notices of 25 February 2015 (BANz AT 02.04.2015 B5, chapter II number 1.3) and of 21 February 2023 (BANz AT 20.03.2023 B6, chapter IV notification 23)**

The PCME STACKFLOW 400 measuring system for waste gas velocity from ENVEA UK Ltd. can now also be fitted with a newly designed housing cover with embossed ENVEA design.

The optional ProController and netController control units for the measuring system can be fitted with an alternative Traco Power TPP 65-251 power supply unit.

Statement issued by TÜV Rheinland Energy GmbH dated 07 August 2023

## Certified product

This certificate applies to automated measurement systems conforming to the following description:

The AMS STACKFLOW 400 is a measuring system for the continuous measurement of waste gas velocity in waste gas ducts. As an in-situ flow meter it determines the measured values directly in the waste gas duct.

The measuring system basically consists of the following components:

- adjustable chimney flange for ultrasound probe
- ultrasound probe with sensor housing and fixed sensor measurement path
- 24 V voltage transformer
- software PCME-ME DUST TOOLS
- **OPTIONAL:** control unit (MultiController or Interface Module) for easier parameterisation, and visualisation of measurement data and implementation of AST and QAL3

The STACKFLØW 400 uses a flow measurement technology based on ultrasound for measuring waste gas velocity. The sensor probe is equipped with two sensor elements. Each flow transducer emits an ultrasonic pulse which is detected by the other sensor element. In the waste gas duct, the sensor is usually installed at an angle ( $\alpha$ ) of  $45^\circ$  in the direction of flow so that the sensor elements are situated above and below the other in the waste gas flow.

The motion time ( $t$ ) of an ultrasonic pulse moving between the two sensor elements depends on the distance between them ( $L$ ), the speed of sound within the gas and the gas velocity ( $v$ ). The motion time of an ultrasonic pulse moving in the direction of the gas flow is shorter than the motion time of a pulse moving against the direction of flow. The difference between the motion times is directly proportional to the waste gas velocity.

## General notes

This certificate is based upon the equipment tested. The manufacturer is responsible for ensuring that on-going production complies with the requirements of the EN 15267. The manufacturer is required to maintain an approved quality management system controlling the manufacture of the certified product. Both the product and the quality management systems shall be subject to regular surveillance.

If a product of the current production does not conform to the certified product, TÜV Rheinland Energy & Environment GmbH must be notified at the address given on page 1.

A certification mark with an ID-Number that is specific to the certified product is presented on page 1 of this certificate. This certification mark may be applied to the product or used in advertising materials for the certified product.

This document as well as the certification mark remains property of TÜV Rheinland Energy & Environment GmbH. With revocation of the publication the certificate loses its validity. After the expiration of the certificate and on requests of the TÜV Rheinland Energy & Environment GmbH this document shall be returned and the certificate mark must not be employed anymore.

The relevant version of this certificate and its expiration is also accessible on the internet: [gal1.de](http://gal1.de).

## History of documents

Certification of STACKFLØW 400 is based on the documents listed below and the regular, continuous monitoring of the Quality Management System of the manufacturer:

### Initial certification according to EN 15267

Certificate No. 0000043526\_00: 30 April 2015  
Expiry date of the certificate: 1 April 2020  
Test report: 936/21225290/A dated 18 September 2014  
TÜV Rheinland Energie und Umwelt GmbH  
Publication: BAnz AT 02.04.2015 B5, chapter II number 1.3  
UBA announcement dated 25 February 2015

### Supplementary testing according to EN 15267

Certificate No. 0000043526\_01: 30 September 2015  
Expiry date of the certificate: 1 April 2020  
Test report: 936/21225290/B dated 2 February 2015  
TÜV Rheinland Energie und Umwelt GmbH  
Publication: BAnz AT 26.08.2015 B4, chapter II number 1.1  
UBA announcement dated 22 July 2015



**Notifications**

Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 22 October 2015  
Publication: BAnz AT 14.03.2016 B7, chapter V notification 28  
UBA announcement dated 18 February 2016  
(Software changes)

Statement issued by TÜV Rheinland Energy GmbH dated 18 August 2017  
Publication: BAnz AT 26.03.2018 B8, chapter V notification 35  
UBA announcement dated 21 February 2018  
(Software changes)

Statement issued by TÜV Rheinland Energy GmbH dated 2 October 2018  
Publication: BAnz AT 26.03.2019 B7, chapter IV notification 53  
UBA announcement dated 27 February 2019  
(Soft- and hardware changes)

Statement issued by TÜV Rheinland Energy GmbH dated 4 December 2019  
Publication: BAnz AT 24.03.2020 B7, chapter IV notification 46  
UBA announcement dated 24 February 2020  
(Various changes)

**Renewal of certificates**

Certificate No. 0000043526\_02: 2 April 2020  
Expiry date of the certificate: 1 April 2025

**Notifications**

Statement issued by TÜV Rheinland Energy GmbH dated 11 March 2020  
Publication: BAnz AT 31.07.2020 B10, chapter II notification 8  
UBA announcement dated 27 May 2020  
(Soft- and hardware changes)

Statement issued by TÜV Rheinland Energy GmbH dated 25 November 2020  
Publication: BAnz AT 03.05.2021 B9, chapter III notification 27  
UBA announcement dated 31 March 2021  
(Hardware changes)

Statement issued by TÜV Rheinland Energy GmbH dated 16 September 2022  
Publication: BAnz AT 20.03.2023 B6, chapter IV notification 23  
UBA announcement dated 21 February 2023  
(Software changes)

Statement issued by TÜV Rheinland Energy GmbH dated 7 August 2023  
Publication: BAnz AT 10.05.2024 B7, chapter V notification 16  
UBA announcement dated 19 March 2024  
(Hardware changes)

**Renewal of certificates**

Certificate No. 0000043526\_03: 28 March 2025  
Expiry date of the certificate: 1 April 2030

**Calculation of overall uncertainty according to EN 14181 and EN 15267-3**

**Measuring system**

Manufacturer	PCME Ltd.
AMS designation	STACKFLØW 400
Serial number of units under test	46098 / 46099 / 46910 / 47404
Measuring principle	Ultrasound

**Test report**

Test laboratory	936/21225290/B
Date of report	TÜV Rheinland
	2015-02-02

**Measured component**

Certification range	Velocity
	0 - 30 m/s

**Calculation of the combined standard uncertainty**

**Tested parameter**

			$u^2$
Standard deviation from paired measurements under field conditions *	$u_D$	0.133 m/s	0.018 (m/s) <sup>2</sup>
Lack of fit	$u_{lof}$	0.116 m/s	0.013 (m/s) <sup>2</sup>
Zero drift from field test	$u_{dz}$	0.208 m/s	0.043 (m/s) <sup>2</sup>
Span drift from field test	$u_{d,s}$	-0.104 m/s	0.011 (m/s) <sup>2</sup>
Influence of ambient temperature at span	$u_t$	0.026 m/s	0.001 (m/s) <sup>2</sup>
Influence of supply voltage	$u_v$	0.012 m/s	0.000 (m/s) <sup>2</sup>
Uncertainty of reference material at 70% of certification range	$u_{rm}$	0.242 m/s	0.059 (m/s) <sup>2</sup>

\* The larger value is used :  
"Repeatability standard deviation at span" or  
"Standard deviation from paired measurements under field conditions"

Combined standard uncertainty ( $u_c$ )	$u_c = \sqrt{\sum (u_{max,j})^2}$	0.38 m/s
Total expanded uncertainty	$U = u_c * k = u_c * 1.96$	0.75 m/s

**Relative total expanded uncertainty**

<b>Requirement of 2010/75/EU</b>	<b>U in % of the range 30 m/s</b>	<b>2.5</b>
Requirement of EN 15267-3	U in % of the range 30 m/s	10.0 **
	U in % of the range 30 m/s	7.5

\*\* For this component no requirements in the EC-directives 2010/75/EU on industrial emissions are given.  
A value of 10 % was chosen.