

CERTIFICATE

on Product Conformity (QAL1)

Certificate No.: 0000038500

Certified AMS: SDF 22/32/50 for velocity

Manufacturer: S.K.I. GmbH
Hanns-Martin-Schleyer-Str-22
41199 Mönchengladbach
Germany

Test Institute: TÜV Rheinland Energie und Umwelt GmbH

**This is to certify that the AMS has been tested
and found to comply with:**

**EN 15267-1: 2009, EN 15267-2: 2009, EN 15267-3: 2007
and EN 14181: 2004**

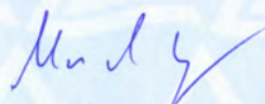
Certification is awarded in respect of the conditions stated in this certificate
(see also the following pages).



- EN 15267-3 tested
- QAL1 certified
- TUV approved
- Annual inspection

Publication in the German Federal Gazette
(BAnz.) of 05 March 2013

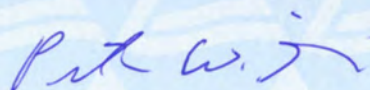
German Federal Environment Agency
Dessau, 22 March 2013



i. A. Dr. Marcel Langner

This certificate will expire on:
04 March 2018

TÜV Rheinland Energie und Umwelt GmbH
Cologne, 21 March 2013



ppa. Dr. Peter Wilbring

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Am Grauen Stein
51105 Cologne

Accreditation according to EN ISO/IEC 17025 and certified according to ISO 9001:2008.

Test report:	936/21219344/A of 08 October 2012
Initial certification:	05 March 2013
Expiry date:	04 March 2018
Publication:	BAnz AT 05 March 2013 B10, chapter II, No. 2.3

Approved application

The tested AMS is suitable for use at combustion plants according to EC Directive 2001/80/EC and at waste incineration plants according to EC Directive 2000/76/EC C and other plants requiring official approval. The measured ranges have been selected considering the wide application range of the AMS.

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

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

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

Basis of the certification

This certification is based on:

- test report 936/21219344/A of 08 October 2012 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 05 March 2013 B10, chapter II, No. 2.3

AMS designation:

SDF 22/32/50 for velocity

Manufacturer:

S.K.I. GmbH, Mönchengladbach

Field of application:

For measurements at plants requiring official approval (i. e. plants in 2000-76-EC, waste incineration directive and 2001-80-EC large combustion plants directive)

Measuring ranges during the suitability test:

Component	Certification range	Supplementary range		Unit
velocity	2 - 20	2 - 40	2 - 60	m/s

Software version:

LSE-QAL-2.10

Restriction:

The lower limit of velocity measurement ist 2 m/s.

Remarks:

1. After problems with the filter due to high dust load the probe should be checked for contamination and cleaned where necessary.
2. The maintenance interval is four weeks.
3. Three different probes varying in size and profile are available: SDF 22, 32 and 50.

Test report:

TÜV Rheinland Energie und Umwelt GmbH, Cologne
Report No.: 936/21219344/A dated 8 October 2012

Certified product

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

The measurement of the volumetric flow rate is based on the principle of differential pressure in flowing exhaust gas. This is carried out as an in-situ method of measurement by means of a dynamic pressure probe (Type SDF) and a pressure sensor (Model: SITRANS P).

The pressure transmitter is connected to the evaluation electronics (μ FLOW 100LSE). There, the calculation of the differential pressure signals by means of exhaust gas boundary conditions (temperature, pressure and density) is carried out.

Velocity signals are issued through two 4 – 20 mA analogue outputs with variable measuring range.

The manufacturer, S.K.I. GmbH, produces the probe tube in four different models (SDF-22, SDF-32 and SDF-50). These differ mainly in their thickness, which defines the maximum length of the probe. Slight differences are found in their geometrical structure.

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 Energie und Umwelt 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 can be applied to the product or used in publicity material for the certified product.

This document as well as the certification mark remains property of TÜV Rheinland Energie und Umwelt GmbH. With revocation of the publication the certificate loses its validity. After the expiration of the certificate and on requests of the TÜV Rheinland Energie und Umwelt 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: qal1.de.

Certification of SDF 22/32/50 for velocity 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. 0000038500: 22 March 2013

Expiry date of the certificate: 04 March 2018

Test report: 936/21219344/A dated 08 October 2012
TÜV Rheinland Energie und Umwelt GmbH, Cologne

Publication: BAnz AT 05 March 2013 B10, chapter II, No. 2.3
Announcement by UBA from 12 February 2013

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

Measuring system

Manufacturer	S.K.I. GmbH
Name of measuring system	SDF 22/32/50
Serial number of the candidates	1 / 2
Measuring principle	Differential pressure measurement

Test report

Test laboratory	TÜV Rheinland
Date of report	2012-10-08

Measured component

Certification range	Velocity	2 - 20 m/s
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Calculation of the combined standard uncertainty

Tested parameter

			u^2
Standard deviation from paired measurements under field conditions	u_D	m/s	0.078 (m/s) ²
Lack of fit	u_{lof}	m/s	0.007 (m/s) ²
Zero drift from field test	$u_{d,z}$	m/s	0.001 (m/s) ²
Span drift from field test	$u_{d,s}$	0.081 m/s	0.007 (m/s) ²
Influence of ambient temperature at span	u_t	0.115 m/s	0.013 (m/s) ²
Influence of supply voltage	u_v	0.025 m/s	0.001 (m/s) ²

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

Combined standard uncertainty (u_c)	$u_c = \sqrt{\sum (u_{max, j})^2}$	0.33 m/s
Total expanded uncertainty	$U = u_c * k = u_c * 1.96$	0.64 m/s

Relative total expanded uncertainty

Requirement of 2000/76/EC and 2001/80/EC	U in % of the range 20 m/s	3.2
Requirement of EN 15267-3	U in % of the range 20 m/s	10.0**
	U in % of the range 20 m/s	7.5

** For this component no requirements in the EC-directives 2001/80/EG und 2000/76/EG are given.
The chosen value is recommended by the certification body.