

Translation

(1) 4th Supplement to the EC-Type Examination Certificate

- (2) Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC Supplement accordant with Annex III number 6
- (3) No. of EC-Type Examination Certificate: **BVS 11 ATEX E 033 X**
- (4) Equipment: **Coriolis Flow Meter type C-Flow KCE80** / KCM**** and type Tricor TCE80** / TCM**** / TCMH******
- (5) Manufacturer: **KEM Küppers Elektromechanik GmbH**
- (6) Address: **Liebigstr. 5, 85757 Karlsfeld, Germany**
- (7) The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this supplement.
- (8) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive. The examination and test results are recorded in the Test and Assessment Report BVS PP 11.2282 EG.
- (9) The Essential Health and Safety Requirements are assured by compliance with:

EN 60079-0:2012 + A11:2013 General requirements
EN 60079-1:2007 Flameproof enclosure "d"
EN 60079-11:2012 Intrinsic safety "i"

- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the appendix to this certificate.
- (11) This supplement to the EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.
- (12) The marking of the equipment shall include the following:

	II 2G Ex d [ia] IIC T4 Gb	(Transmitter housing with reference to model)
	II 2G Ex d [ia] IIB T4 Gb	(alternate Transmitter housing with reference to model)
	II (2)G [Ex ia Gb] IIC	(Transducer housing with reference to model)
	II (2)G [Ex ia Gb] IIB	(Transducer housing with reference to model)
	II 2G Ex ia IIC T4 Gb	(Transducer housing with reference to model)
	II 2G Ex ia IIB T4 Gb	(Transducer housing with reference to model)

DEKRA EXAM GmbH
Bochum, dated 2015-06-09

Signed: Dr. Eickhoff

Signed: U. Hauke

Certification body

Special services unit

(13) Appendix to

(14) **4th Supplement to the EC-Type Examination Certificate
BVS 11 ATEX E 033 X**

(15) 15.1 Subject and type

Coriolis Flow Meter type C-Flow KCE80** / KCM****

Transmitter Unit type code and Transducer Unit type code: no change.

Coriolis Flow Meter Type Tricor TCE80** / TCM***
or Type Tricor TCE80** / TCMH***, comprising:

- Transmitter Unit Type TCE80**-****-**, respectively:

- and optionally one of the following Transducer Units:

Type TCM*0100-**-****-****-**, TCM*3100-**-****-****-**,
TCM*0325-**-****-****-**, TCM*5500-**-****-****-**,
TCM*0450-**-****-****-**, TCM*7900-**-****-****-**,
TCM*0650-**-****-****-**, TCM*28K-**-****-****-**,
TCM*1550-**-****-****-**, TCM*65K-**-****-****-**,
TCM*230k-**-****-****-**.

Extended type code of Transducer Unit type TCM****-**-****-****-**_** /
type TCMH****-**-****-****-**_**

Type	Flow rate	Type	Flow rate
TCMz0100-ab-cdef-ghik-m-xx	≤ 100 kg / h	TCMz3100-ab-cdef-ghik-m-xx	≤ 3100 kg / h
TCMz0325-ab-cdef-ghik-m-xx	≤ 325 kg / h	TCMz5500-ab-cdef-ghik-m-xx	≤ 5500 kg / h
TCMz0450-ab-cdef-ghik-m-xx	≤ 450 kg / h	TCMz7900-ab-cdef-ghik-m-xx	≤ 7900 kg / h
TCMz0650-ab-cdef-ghik-m-xx	≤ 650 kg / h	TCMz28k-ab-cdef-ghik-m-xx	≤ 28000 kg / h
TCMz1550-ab-cdef-ghik-m-xx	≤ 1550 kg / h	TCMz65k-ab-cdef-ghik-m-xx	≤ 65000 kg / h
		TCMz230k-ab-cdef-ghik-m-xx	≤ 230000 kg / h

Remarks:

spacer 'a' to 'f': mechanical details, 'g' to 'k': electrical parameters
details dealing with all spacers: see table below

Spacer	Code	Feature
z =	(blanc)	Standard, specification based on liquids
	H	Specifications based on high pressure gas
ab =	AA-ZZ	Size and shape of process connection (extended to four digits, see line 'a', 'b' below)
a =	00-99	Size of process connection
b =	AA-ZZ	Standard and rating of process connection
c =	A-Z	Temperature range
d =	A-Z	Pressure range
e =	A-Z	Accuracy and mechanical design
f =	A-Z	Mounting length
g =	A	Terminal box aluminium (for IS connection to transmitter)
	C	Compact version
	K	Compact version
	E	Compact version, big housing
	H	Terminal box stainless steel (for IS connection to transmitter)
h =	P	Push pull connector (for IS connection to transmitter)
	A-Y	Non-IS interface
i =	Z	Not provided
	D	Power supply DC 24 V; non-IS
	M	Power supply AC 100 V... 240 V; non-IS
k =	Z	Not provided
	A-Z	Hardware- and Software-options not affecting Ex-relevant parameters
m =	Ex	ATEX and IECEx approval
	Ex3	ATEX and IECEx approval and other approvals
xx =	00 – 99	Special versions, due to application; not affecting Ex-relevant parameters (up to 3 options possible)

Notes: (referring to position g, h, i)

1. Separate transducer: only option A, H or P possible at position 'g'; (position 'h' and 'i': power supply and interface not provided; marked therefore with Z)
2. Compact version: only option C or E possible at position 'g', position 'h' and 'i' all listed options available.

Extended type code of Transmitter Unit type TCE80**-*_*-****-*_*-****:

- TCE800n-a-bcde-m-xx Reduced driver power electronics designed for Transducer type TCM0100-**-****-AZZS-*_*-**** to type TCM7900-**-****-AZZS-*_*-****
- TCE801n-a-bcde-m-xx Enhanced driver power electronics designed for Transducer type TCM28k-**-****-AZZS-*_*-**** to type TCM230k-**-****-AZZS-*_*-****
- TCE802n-a-bcde-m-xx Enhanced driver power electronics providing adjustable amplification factor designed for Transducer type TCM28k-**-****-AZZS-*_*-**** to type TCM230k-**-****-AZZS-*_*-****

Spacer	Code	Feature
n =	0... 9	Hardware and Software options not affecting Ex-relevant parameters
a =	W	Wall-mountable flameproof enclosure
	E	Big wall-mountable flameproof enclosure
	I	Wall-mountable flameproof enclosure
	L	Panel-mountable housing (associated Equipment for installation in the safe area only)
b =	A-Z	Interface (details see manual)
c =	B	Power supply DC 24 V and AC 100 V... 240 V
	D	Power supply DC 24 V
	M	Power supply AC 100 V ... 240 V
d =	A-Z	Hardware- and Software-options not affecting Ex-relevant parameters
e =	A-Z	Length of sensor cable to TCM or connector type (for use with separate cable)
m =	Ex	ATEX and IECEx approval
	Ex3	ATEX and IECEx approval and other approvals
xx =	00 – 99	Special versions, due to application; not affecting Ex-relevant parameters (up to 3 options possible)

15.2 Description

The entry for intrinsically safe multi-wire transducer circuit into the flameproof enclosure of Transmitter Unit type TCE80**-W-****-*_*-**** is subjected to optional variation.

The previous direct cable entry is replaced optionally by a bushing, terminating the flameproof enclosure.

The open leads of the bushing outside the flameproof enclosure are located in a flanged intrinsically safe terminal box and either permanently connected to the multi-wire transducer circuit or fitted with a plug.

The plug, or a cable gland in case of permanently connected multi-wire transducer circuit, is mounted in the bottom plate of the intrinsically safe terminal box.

Type codes of Transmitter Unit type TCE80**-*_*-****-*_*-**** and Transducer Unit type TCM****-*_*-****-****-*_*-**** / type TCMH****-*_*-****-****-*_*-**** have been subjected to extension.

15.3 Parameters

No change

(16) Test and Assessment Report

BVS PP 11.2282 EG as of 2015-06-09

(17) Special conditions for safe use

17.1 Transmitter Unit type KCE80**-WE**-Ex / type TCE80**-E-****-**-** /
 type KCE80**-WG**-Ex / type TCE80**-W-****-**-** /
 type TCE80**-I-****-**-**

and Compact Version type KCM****-EF/EFH/EM/EMH/E*(H)'-**-**-**-Ex /
 type KCM****-CF/CFH/CM/CMH/C*(H)'-**-**-**-Ex /
 type TCM****-**-****-C****-**-** / type TCMH****-**-****-C****-**-** /
 type TCM****-**-****-K****-**-** / type TCMH****-**-****-K****-**-**
 type TCM****-**-****-E****-**-** / type TCMH****-**-****-E****-**-**

None

17.2 Transmitter Unit type KCE80**-SE**-Ex / type TCE80**-L-****-**-**

17.2.1 The Transmitter Units shall be installed in the safe area only.

17.2.2 The installation of Transmitter Units shall be carried out in such a way that the clearances of bare conductive parts of intrinsically safe circuits to grounded metal parts of the enclosure are at least 3 mm, and bare conductive parts of non-intrinsically safe circuits of other apparatus are located in a distance of at least 50 mm away from terminals for external intrinsically safe circuits, or are separated from them by a partition wall according to clause 6.2.1 of EN 60079-11:2012.

17.3 External Transducer Units type KCM****-0**-**-**-Ex / type KCM****-1**-**-**-Ex /
 type TCM****-**-****-AZZ**-**-** / type TCMH****-**-****-AZZ**-**-**

None

We confirm the correctness of the translation from the German original.
 In the case of arbitration only the German wording shall be valid and binding.

DEKRA EXAM GmbH
 44809 Bochum, 2015-06-09
 BVS-Scha/Ma A 20150344



Certification body



Special services unit