



To7 Series

Ex-d Enclosure Series

Ex Assembly and
Installation Instructions

Table of Contents

1	Introduction	4
2	General Safety Instructions	5
3	Conformity to Standards	6
4	Technical Data	6
4.1	Characteristic values for explosion protection	6
4.2	Mechanical characteristic	7
4.3	Resistance against various media	10
4.4	Other	10
5	Transportation, storage, recycling	11
6	Installation and Assembly	12
6.1	Structure of the empty enclosure combinations	12
6.2	Opening of the Enclosure	13
6.3	Adapting of a Mounting Adapter	14
6.4	Drill Holes of the Cable Glands	15
6.5	Note for built-in components	16
6.6	Closing the Enclosure	16
6.7	Grounding / Potential Equalization	16
6.8	Assembly	16
7	Drawings and extended documentation.....	16
8	EU declaration of conformity 2014/34/EU.....	17
9	TÜV 18 ATEX 8217 U	18
10	IECEX TUR 18.0022U.....	22
11	Notes.....	26

List of Figures

Fig. 6.-1:	Explosion drawing of the enclosure-combination (rear view).....	12
Tab. 6-2.:	Connection elements VA1.x enclosure.....	13
Tab. 6-3.:	Connection elements, VA2.x enclosure.....	13
Tab. 6-4.	Connection elements, VA4.x enclosure.....	14
Fig. 6.-5:	VA1.x.K1 Blind holes for mounting	15

Revision History

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00	04.05.2018	S.Seibert	Document creation	
01	09.05.2018	T.Gruber	Supplement/ correction of the red entries	
02	19.06.2018	S.Seibert	Revision to restrict the T07-VA2.x.x.BOR5 empty housing Combination	
03	15.04.19	E.Schneider	Revision for the new certificates	

1 Introduction

The Ex d enclosure combination (type 07) is used as pressure-resistant components bearing a "U" certificate.

The stainless steel enclosures are available in various sizes. They also differ in length, profile, quantity of threaded holes/connecting elements, as well as in blind holes. However, the characteristic design is identical.

Different enclosure combinations also allow usage of non-ex electrical components in gas and/or dust explosion risk atmospheres. Due to the sight glass, the pressure-resistant enclosure is particularly suitable for the installation of a camera module or an illuminant.

The variety of combination possibilities guarantees a very high degree of flexibility, meeting the requirements of the various applications, for example for hazardous areas in the chemical and petrochemical industry, at off-shore installations, pits at risk of firedamp, and biogas plants (See model key and type plate!).

According to the shatter and impact-resistance tests (DIN EN 60079:0 2014), the enclosures VA1.x and VA2.x are certified both as stationary and as mobile components.

Regarding the electrical input, neither limits nor mandatory values were determined. Surface temperatures or temperatures inside the enclosure possibly caused by thermal dissipation must be evaluated in the course of the equipment approval process.

Both metal and non-metal enclosure components are highly resistant against environmental and chemical conditions, such as sea water corrosion, highly acid environments, etc.

2 General Safety Instructions



Attention!

The enclosures must not be used in zones 0 or 20! The specific values given on the nameplate of the enclosure combination must be adhered to. Rebuilding of or alterations to the devices are not permitted! The enclosure must be operated in a proper and sound condition and in the way intended.



Attention!

Be careful when opening and closing the enclosures. Absolutely observe the specified torques of threaded connections. Cylindrical surfaces must be checked for damages and residues at the fits of the flange and body, as well as at the fine threads of the cable glands (flame-proof gap).



Attention!

For repair, use only original parts of SAMCON Prozessleittechnik GmbH! Repair which affects the explosion protection may only be carried out by SAMCON Prozessleittechnik GmbH in accordance with the nationally applied regulations.



Attention!

Prior to installation, take external sources of heat or cold into account! Observe the permissible temperature range!



Attention!

The housing combination T07-VA2.x.x.BOR5 must not be used in mining (ATEX group 1) or in areas with high mechanical hazards (ATEX group 2).

3 Conformity to Standards

The VA1.x and VA2.x enclosure combinations comply with the following rules and regulations:

IEC	EN	DIN EN
IEC 60079-0:2011 (mod. +Cor.:2012 +Cor.:2013)	EN 60079-0: 2013	DIN EN 60079-0: 2014
IEC 60079-1:2014	EN 60079-1: 2014	DIN EN 60079-1: 2015
IEC 60079-31:2013	EN 60079-31: 2014	DIN EN 60079-31: 2014

4 Technical Data

4.1 Characteristic values for explosion protection

Equipment identification marks acc. to Directive 2014/34/EC:

Explosion protection (gas): II 2 G (zones 1 and 2)
 Explosion protection (dust): II 2 D (zones 21 and 22)
 Explosion protection (mining): I M2 (mining)*

Identification marks according to protection level

Explosion protection (gas): Ex db IIC GB
 Explosion protection (dust): Ex tb IIIC DB IP68
 Explosion protection (mining): Ex db I Mb*

* Not valid for T07-VA2.x.x.BOR5 models

Named testing authority: TÜV Rheinland (number 0035)
 EU Type Examination Certificate: TÜV 18 ATEX 8217 U
 IECEX certificate: IECEX TUR 18.0022 U

4.2 Mechanical characteristic

Housing material: Stainless steel (according to EN 10027-2)

Mat. no. 1.4301	(X5CrNi18-10)	AISI 304	(V2A)
Mat. no. 1.4305	(X8CrNiS18-9)	AISI 303	
Mat. no. 1.4401	(X5CrNiMo17-12-2)	AISI 316	(V4A)
Mat. no. 1.4404	(X2CrNiMo17-12-2)	AISI 316L	(A4L)
Mat. no. 1.4571	(X6CrNiMoTi17-12-2)	AISI 316Ti	(A5)

Other materials: Mat. no. 1.0330 (spring steel)
 PTFE with aluminium silicate microspheres (blue),
 GYLON® Style 3504
 Boric silicate glass (conform to DIN 7080)
 Silicone casting compound
 (e.g. „XIAMETER™ ADH-6066“, „Momentive
 TSE 326 M“, Silcoset 105, etc.),
 Silicone buffer (VMQ, grade 025/SI/60 red), etc.

Absolute dimensions* and pressure chamber volumes:

(*without mounting cam)

Type	Width /mm	Height /mm	Length /mm	Weight /g	Empty volume /cm ³
VA1.1.K1.BOR	79	79	128	2000	360
VA1.2.K1.BOR	79	79	158	2200	480

VA2.0.K1.BORx	113	113	160.5	3600	1080
VA2.1.K1.BORx	113	113	210.5	4100	1520
VA2.2.K1.BORx	113	113	260.5	4600	1960
VA2.3.K3.BOR3	113	113	310.5	5900	2350

VA4.1.K1.BORx	218	218	148	16900	3550
VA4.2.K1.BORx	218	218	195	17900	5150
VA4.3.K1.BORx	218	218	320	20300	9400
VA4.3.K1.PA2	218	218	412	18500	10500

Maximum number of cable glands:

T07-VA1.x.K1...: 1x M20x1.5
 T07-VA1.x.K2...: 1x M16x1.5
 T07-VA2.x.K1...: 2x M20x1.5
 T07-VA2.x.K2...: 1x M20x1.5
 T07-VA2.x.K3...: 2x M20x1.5
 T07-VA4.x.K1...: 2x M20x1.5 + 1x M25x1.5

General tolerance of the body and flange components made of stainless steel

- "F" (fine) - lengths and angular dimensions (DIN ISO 2768-1)
 "H" - shape and position (DIN ISO 2768-2)

Flameproof gaps: (*cylindric*)

T07-VA1.x.: 2 clearance fits (ISO 286-2)
 Diameter **Ø57.00 [mm]**
 $[d_{f7}^{H8}] = -60 \dots -30 / 0 \dots +46$ [µm]
 The largest gap width: 106 µm
 The smallest gap width: 30 µm
Gap length
 BOR: 16.0 mm
 K1/2: 13.0 mm

T07-VA2.0-2.: 2 clearance fits (ISO 286-2)
 Diameter **Ø91.00 [mm]**
 $[d_{f7}^{H8}] = -71 \dots -36 / 0 \dots +54$ [µm]
 The largest gap width: 125 µm
 The smallest gap width: 36 µm
Gap length
 BOR./2/3/5: 23.0 mm
 K1/2/3: 15.0 mm

T07-VA2.3.: 2 clearance fits (ISO 286-2)
 Diameter **Ø91.00 [mm]**
 $[d_{f7}^{H8}] = -71 \dots -36 / 0 \dots +54$ [µm]
 The largest gap width: 125 µm
 The smallest gap width: 36 µm
Gap length
 BOR2/3/5: 27.5 mm
 K3: 27.5 mm

T07-VA4.x.: 2 clearance fits (ISO 286-2)
 Diameter **Ø187.00 [mm]**
 $[d_{g7}^{H8}] = -61 \dots -15 / 0 \dots +72$ [µm]
 The largest gap width: 133 µm
 The smallest gap width: 15 µm
Gap length
 BOR1/2: 27.5 mm
 PA2: 27.5 mm
 K1: 27.5 mm

Flameproof gap of the rotating shafts (wiper) (*cylindrical, movable*):

VA2.x.BOR5 1 clearance fit (ISO 286-2)
Diameter **Ø5.00 [mm]**
 $[d_{d9}^{H7}] = -60 \dots -30 / 0 \dots +12$ [μm]
The largest gap width: 72 μm
The smallest gap width: 30 μm
Gap length: 27.00 mm

VA4.x.BOR2 1 clearance fit (ISO 286-2)
Diameter **Ø5.00 [mm]**
 $[d_{d9}^{H7}] = -60 \dots -30 / 0 \dots +12$ [μm]
The largest gap width: 72 μm
The smallest gap width: 30 μm
Gap length: 29.00 mm

Surface of the cylindrical surfaces (fits)

Average surface finish

according to DIN ISO 468

T07-VAx.x :

$R_a \leq 6.3 \mu\text{m}$

4.3 Resistance against various media

General:

Acetone, alcohol, acetylene, ammonia, aniline, benzene, butane, chlorine, pressure water, compressed air, ethane, petroleum, fluorine, glycerine, sea water, methane, oils, phosphoric acid, propane etc.

-(Extract)-

Specially for stainless steel:

Mat. no.1.4301:

Water, steam (water), humidity, mild organic and anorganic acids (it is possible to optimize the corrosion resistance by electro-polishing)

Mat. no.1.4401:

Increased roughness, optimized corrosion resistance, permanent resistance against sea water (offshore plants) and aggressive chemical substances

Mat. no.1.4404:

Resistance against aggressive acids and also media containing chlorine (highly acid environments), not suitable for permanent sea water applications

4.4 Other

Ambient temperature range:

-60°C...+160°C

Temperature classes (EX):

T6, T5, T4 and T3

Enclosure protection level:

IP68 (DIN EN 60529:2014) Test conditions: 24h, 3m water column, 5°C), an additional mechanical protection against water jets is recommended

Sight glass material:

Boric silicate glass (*DIN7080 compliant*)

5 Transportation, storage, recycling

- Avoid impacts, mechanic stresses and vibrations
- Heed that neither the package nor the enclosure is damaged.
- Before the enclosure is completely installed and assembled, store it in its original package and in a dry and weatherproof place and protect it against weathering.
- Avoid extreme heat or cold sources.
- Ensure an environmentally friendly disposal of all components in accordance with national regulations for waste disposal.

6 Installation and Assembly

6.1 Structure of the empty enclosure combinations

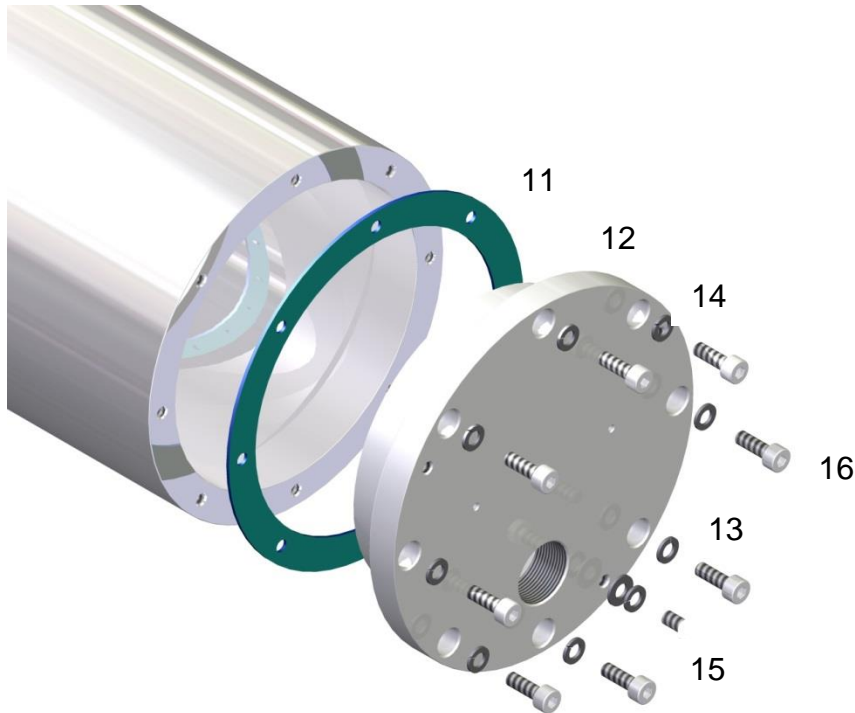


Fig. 6.-1: Explosion drawing of the enclosure-combination (rear view)

Components of the pressure-resistant enclosure

1. Cylinder screws hexagon socket
2. Spring discs
3. Optics adapter VA1.x.BOR, VA2.x.BOR, VA2.x.ZnS
4. Compound (silicone compound)
5. Sight glass VA1.BOR, VA2.BOR, VA2.GER, VA2.ZnS
6. Silicone buffer ring
7. Adjusting washer
8. Seeger V-ring
9. Flat gasket
10. Enclosure body VA1.1.R, VA1.2.R, VA2.1.R, VA2.2.R
11. Flat gasket
12. Cable gland flange VA1.x.K1, VA1.x.K2, VA2.x.K1, VA2.x.K2
13. Washer
14. Spring discs
15. Cylinder screw, slit
16. Cylinder screw, hexagon socket

6.2 Opening of the Enclosure

1. In order to open a pressure-resistant enclosure, loosen the cylinder head screws (DIN 912) situated at the flanges with an Allen-key of size 4 (included in the delivery). To avoid unintentional loosening of the screws, the threaded connection has a spring washer (DIN 127 Form A) (see chart 6-1/2 sec. 1, 2, 14 and 16).
 Attention: to avoid the unintentional loosening of the threaded connection because of impacts, vibrations, etc. as well as to allow for an additional sealing purpose, an acrylate (LOCTITE® 243™) is applied to the threads. Avoid contact with skin and/or clothes!

Threaded connections of enclosure combinations

	VA1.x.BOR	VA1.x.K1	VA1.x.K2
Type	Cylinder screw, hexagon socket	Cylinder screw, hexagon socket	Cylinder screw, hexagon socket
Specification	M4X0.7 ISO metric, right-handed	M4X0.7 ISO metric, right-handed	M4X0.7 ISO metric, right-handed
Number	6	6	6
Thread length	10 mm	10 mm	25 mm
Materials	1.4301, 1.4404	1.4301, 1.4404	1.4301, 1.4404
Grade	6g	6g	6g
Norm	DIN 912/ ISO 4762	DIN 912/ ISO 4762	DIN 912/ ISO 4762
Tightening torque	3.0 Nm	3.0 Nm	3.0 Nm

Tab. 6-2.: Connection elements VA1.x enclosure

	VA2.x.BORx	VA2.x.K1/K3	VA2.x.K2
Type	Cylinder screw, hexagon socket	Cylinder screw, hexagon socket	Cylinder screw, hexagon socket
Specification	M4X0.7 ISO metric, right-handed	M4X0.7 ISO metric, right-handed	M4X0.7 ISO metric, right-handed
Number	8	8	7
Thread length	12 mm	12 mm	30 mm
Material	1.4301, 1.4404	1.4301, 1.4404	1.4301, 1.4404
Grade	6g	6g	6g
Norm	DIN 912/ ISO 4762	DIN 912/ ISO 4762	DIN 912/ ISO 4762
Tightening torque	3 Nm	3 Nm	3 Nm

Tab. 6-3.: Connection elements, VA2.x enclosure

	VA4.x.BORx	VA4.x.PA2	VA4.x.K1
Type	Cylinder screw, hexagon socket	Cylinder screw, hexagon socket	Cylinder screw, hexagon socket
Specification	M6X0.7 ISO metric, right-handed	M6X0.7 ISO metric, right-handed	M6X0.7 ISO metric, right-handed
Number	12	12	12
Length	25 mm	25 mm	25 mm
Material	1.4301, 1.4404	1.4301, 1.4404	1.4301, 1.4404
Grade	6g	6g	6g
Norm	DIN 912/ ISO 4762	DIN 912/ ISO 4762	DIN 912/ ISO 4762
Tightening torque	8 Nm	8 Nm	8 Nm

Tab. 6-4. Connection elements, VA4.x enclosure

2. Pull out the flanges carefully and straight (see Fig. 6-1 Item 3 and Fig.6-2 Item12). Because of under-pressure created during separating the flanges, you might need to apply a little more force.

Heed that the components are not canted! Absolutely heed that the cylindrical clearance-fit surface (H8f7 – ISO 286) of body and flange components (drill holes and arbour) will not get damaged (flame-proof gap – DIN EN 60079-1)!

Attention: At the cylindrical fit surfaces of the body and flange components, a thin lubrication layer (Molykote® P-40) is applied in order to avoid fits' corrosion and to ensure protection against mechanical stresses. Avoid contact with skin and/or clothes.

6.3 Adapting of a Mounting Adapter

For flexible adapting of built-in components, you can use inside blind threaded holes (M3x0.5 or M4x0.7). Spacing and positions of the threaded holes at the cable and inlet flange are flexible or customized. Size limits for the drill-hole grid are mandatory. They were determined by SAMCON GmbH acc. to the explosion protection concept in the course of the ATEX/ IECEx certification procedure.

Figure 6-3 illustrates the standard version of the VA1.x.K1 cable gland flange. The minimum residual wall thickness from thread to thread or from thread to flame-proof gap must be 3mm and not smaller. The maximum thread depth is 8mm.

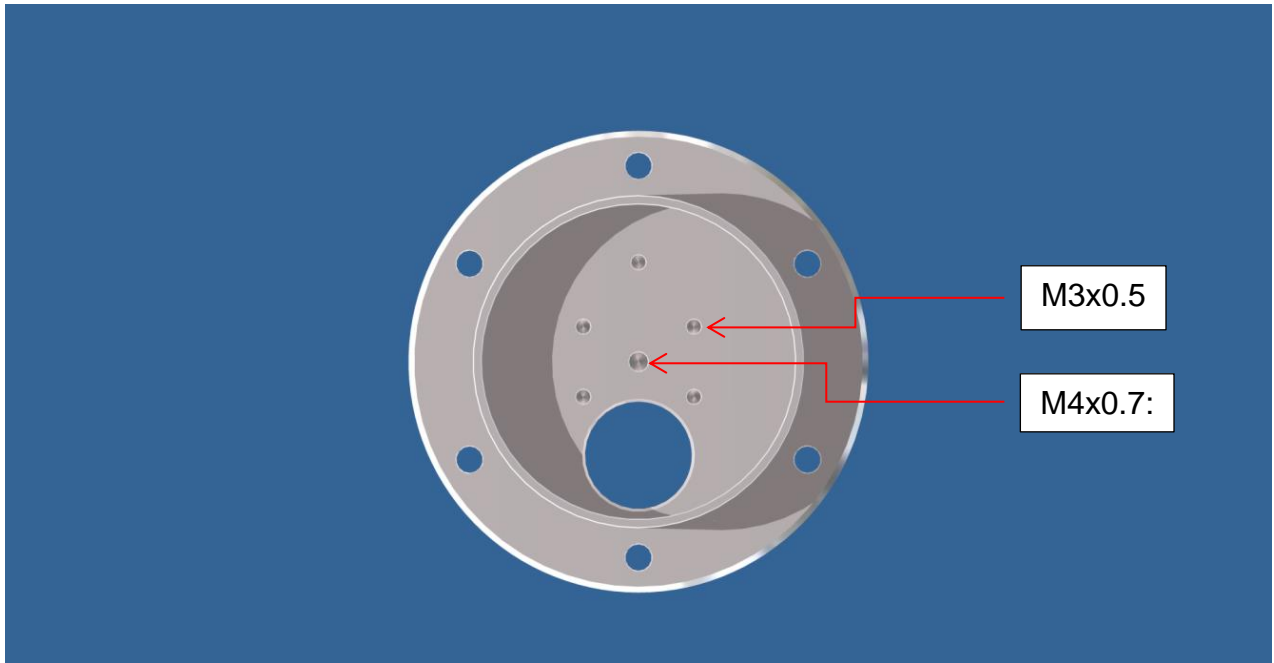


Fig. 6.-5: VA1.x.K1 Blind holes for mounting

Via the threaded holes, it is possible to adapt the position of sheet metal bending parts, etc. Bolting together the built-in components must not cause any mechanical overstress to the threads (deformations). If adapting is necessary, use only the screws specified in the Installation Instructions! The installations must be applied in a stationary/fixed manner (immovable) and must resist potential impacts and vibrations. Mounting adapters are not included in the delivery scope. However, SAMCON GmbH offers several universal adapters for cameras and illuminants.

Attention: According to DIN EN 60079-1: 2008 Annex [D.3.10], you can arrange the built-in components in ex-component housings of groups I, IIA and IIB as you like, provided that, at least, **20%** of each cross-sectional surface remains free. It is necessary to allow the unobstructed gas flow so that an explosion can develop without obstacles. In the case of ex-component housings of group **IIC**, you can arrange the built-in in components as you like, provided that, at least, **40%** of each cross-sectional surface remains free - it is necessary to allow the unobstructed gas flow so that an explosion can freely develop without obstacles. To achieve the aforementioned rates, it is possible to combine individual areas; however, each area must have a minimum size of 12.5 mm in any direction.

6.4 Drill Holes of the Cable Glands

For the pressure-resistant threaded cable connections at the cable glands, the number, specification and position of the fine tapped holes can be selected within the limits of the Approval (see Chapter 6.2). Unused holes must be covered with suitable blind plugs. Adhere to Standard IEC 60079-0/1/14!

6.5 Note for built-in components

Evaluation of batteries and acceptable primary cells according to DIN EN 60079-1: 2015 Tab. [E.1].

Evaluation of temperatures and electric input according to DIN EN 60079-0: 2014 [26.5.1.1] Adhere to Standard IEC 60079-0/1/14!

6.6 Closing the Enclosure

1. Heed that the flanges are not jammed when being inserted!
2. The tightening torque of the M4 cylinder head screw is 3 Nm.
The screws must be tightened crosswise. Make sure that the spring washers are inserted.
3. Heed that the flat gaskets are placed correctly and not damaged. The GYLON seals/hole grids for the optics adapter are identical for the K1 and K2 flange.

6.7 Grounding / Potential Equalization

The potential equalisation of the enclosure shall be absolutely adhered to (danger of sparks because of electrostatic charging!). At a specified location, a cable eye or clip must be applied in full accordance with the national rules and regulations for grounding (minimum $Q = 4\text{mm}^2$ fixed).

6.8 Assembly

---- lateral cam(s), fixation, possibilities of adapting at the cable gland flange and at the optics adapter ----

7 Drawings and extended documentation

<https://www.samcon.eu/en/products/ex-d-camera-enclosures/>



8 EU declaration of conformity 2014/34/EU

EU - Konformitätserklärung

EU – Declaration of Conformity / UE – Déclaration de Conformité

Der Hersteller / The manufacturer / Le fabricant



erklärt in alleiniger Verantwortung, dass sein Produkt / declares under his sole responsibility, that his product /
déclare sous sa seule responsabilité, que son produit

To7 Ex-d Enclosure Series

gekennzeichnet mit / marked with / marqué avec


Gas:

 II 2G Ex d IIC Gb

Dust:

 II 2D Ex tb IIIC Db

Mining:

 I M2 Ex d I Mb

bescheinigt mit EG-Baumusterprüfbescheinigung / certified by EC type examination certificate /
ayant fait l'objet de l'attestation CE de type

TÜV 18 ATEX 8217 U

auf das sich diese Erklärung bezieht, mit der/den folgenden Richtlinien, Normen oder normativen Dokumenten übereinstimmt:
referred to by this declaration is in conformity with the following directives, standards or normative documents:
auquel se rapporte la présente déclaration, est conforme aux directives, normes ou aux documents normatifs suivants:

ATEX Richtlinie/ ATEX Directive/ Directive ATEX
2014/34/EU
2014/34/EU
2014/34/UE

Normen / Standards / Normes
EN 60079-0: 2013
EN 60079-1: 2014
EN 60079-31: 2014



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 Geschäftsführer

Lohra-Altenvers, den / the / le 15.05.2018

9 TÜV 18 ATEX 8217 U


(1) **EU-TYPE EXAMINATION CERTIFICATE** 

(2) Equipment and Protective Systems intended for use in Potentially Explosive Atmosphere - **Directive 2014/34/EU**


(3) EU-Type Examination Certificate Number

TÜV 18 ATEX 8217 U Issue: 00

- (4) Equipment: **Ex d enclosure series T07**
- (5) Manufacturer: **SAMCON Prozessleittechnik GmbH**
- (6) Address: **Schillerstraße 17,
D-35102 Lohra-Altenvers**
- (7) This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.
- (8) The TÜV Rheinland Zertifizierungsstelle für Explosionsschutz of TÜV Rheinland Industrie Service GmbH, Notified Body No. 0035 in accordance with Article 21 of the Council Directive 2014/34/EU of 26th February 2014, certifies this product which 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 atmosphere, given in Annex II to the Directive.
- The examination and test results are recorded in the confidential report 557/Ex8217.00/18
- (9) Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to:
- EN 60079-0/A11:2013 EN 60079-1:2014 EN 60079-31:2014**
- (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 schedule to this certificate.
- (11) This EU-Type Examination Certificate relates only to the design and specification for construction of the equipment or protective system. It does not cover the process for actual manufacture or supply of the equipment or protective system, for which further requirements of the directive are applicable.
- (12) The marking of the equipment shall include the following:

 II 2G Ex db IIC Gb

 I M2 Ex db I Mb

 II 2D Ex tb IIIC Db

TÜV Rheinland Zertifizierungsstelle für Explosionsschutz

Cologne, 2018-10-30

Dipl.-Ing. Klauspeter Gräff

This EU-Type Examination Certificate without signature and stamp shall not be valid.
 This EU-Type Examination Certificate may be circulated only without alteration. Extracts or alterations are subject to approval by the TÜV Rheinland Industrie Service GmbH TÜV Rheinland Group Am Grauen Stein 51105 Köln
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(13)

Annex

(14)

EU Type Examination Certificate**TÜV 18 ATEX 8217 U**

Issue: 00

(15) Description of equipment

15.1 Equipment and type:

Ex d Enclosure Series T07

15.2 Description

General product information:

The T07 stainless steel enclosure is available in different sizes. The characteristic design is always identical. Two side flanges cover a central body. Usually, but not necessarily, one side-flange is used as an optical adapter and the second flange as cable entry. This allows the introduction of one, or several, explosion-proof cable glands and/or compatible sealing plugs. The design allows different and free combinations of bodies and flanges. The enclosures are suitable for Group I with a low risk of mechanical hazard and zone 1, 2 as well as 21 and 22 including the explosion groups IIC/IIIC with a high risk of mechanical hazard.

Regarding the electrical input, neither limits nor mandatory values have been determined. Surface temperatures or temperatures inside the enclosure which may be caused by thermal dissipation, have to be evaluated in the course of the equipment approval process.

Ex marking:

The housing combination T07-VA2.x.x.BOR5 must not be used in mining (ATEX group 1) or in areas with high mechanical hazards (ATEX group 2)! Observe ex-marking on the type plate!

Technical Data:

All VA1 bodies:

Model Key	Protection level	T _{Amb min}	T _{Amb max}
T07-VA1.x.K1.K1	IP68	-60°C	+160°C
T07-VA1.x.K1.BOR	IP68	-60°C	+160°C

All VA2 bodies:

Model Key	Protection level	T _{Amb min}	T _{Amb max}
T07-VA2.x.K3.K3	IP68	-60°C	+160°C
T07-VA2.x.K3.BOR2	IP68	-60°C	+160°C
T07-VA2.x.K3.BOR3	IP68	-60°C	+160°C
T07-VA2.x.K3.BOR5	IP68	-60°C	+160°C

All VA2 bodies shorter/equal to VA2.2.R:

Model Key	Protection level	T _{Amb min}	T _{Amb max}
T07-VA2.x.K1.K1	IP68	-60°C	+160°C
T07-VA2.x.K1.BOR	IP68	-60°C	+160°C
T07-VA2.x.K1.BOR2	IP68	-60°C	+160°C
T07-VA2.x.K1.BOR3	IP68	-60°C	+160°C
T07-VA2.x.K1.BOR5	IP68	-60°C	+160°C

T07-VA2.x.K2.K2	IP68	-60°C	+160°C
T07-VA2.x.K2.BOR	IP68	-60°C	+160°C
T07-VA2.x.K2.BOR2	IP68	-60°C	+160°C
T07-VA2.x.K2.BOR3	IP68	-60°C	+160°C
T07-VA2.x.K2.BOR5	IP68	-60°C	+160°C

T07-VA2.x.K3.K3	IP68	-60°C	+160°C
T07-VA2.x.K3.BOR	IP68	-60°C	+160°C
T07-VA2.x.K3.BOR2	IP68	-60°C	+160°C
T07-VA2.x.K3.BOR3	IP68	-60°C	+160°C
T07-VA2.x.K3.BOR5	IP68	-60°C	+160°C

All VA4 bodies:

Model Key	Protection level	T _{Amb min}	T _{Amb max}
T07-VA4.x.K1.K1	IP68	-60°C	+160°C
T07-VA4.x.K1.BOR1	IP68	-60°C	+160°C
T07-VA4.x.K1.BOR2	IP68	-60°C	+160°C

(16) Test-Report No. 557/Ex8217.00/18

This EU Type Examination Certificate without signature and official stamp shall not be valid.
 This certificate may be circulated without alteration. Extracts or alterations are subject to approval by:
 Zertifizierungsstelle of TÜV Rheinland Industrie Service GmbH

(17) Schedule of Limitations

1. No holes, whether blind or clear, may be drilled in the Ex component enclosure other than already provided by the manufacturer.
2. The content of the Ex component enclosure may be placed in any arrangement, providing that an area of at least 40% (for IIB 20%) of each cross-sectional area remains free to permit unimpeded gas flow and unrestricted development of an explosion.
3. Oil-filled circuit breakers and contactors shall not be used.
4. When evaluating the component enclosure as equipment, the requirements of EN/IEC 60079-1 must be applied.
5. For Group I, and T07-VA2.x.x.BOR5 models, the enclosure is only suitable with a low risk of mechanical hazard.
6. All used cable glands and plugs have to be certified.

(18) Basic Safety and Health Requirements

Covered by afore mentioned standard

TÜV Rheinland Zertifizierungsstelle für Explosionsschutz

Cologne, 2018-10-30


Dipl.-Ing. Klauspeter Graff


This EU Type Examination Certificate without signature and official stamp shall not be valid.
This certificate may be circulated without alteration. Extracts or alterations are subject to approval by:
Zertifizierungsstelle of TÜV Rheinland Industrie Service GmbH

10 IECEx TUR 18.0022U

	<h2 style="margin: 0;">IECEX Certificate of Conformity</h2>
<p>INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres <small>for rules and details of the IECEx Scheme visit www.iecex.com</small> Ex COMPONENT CERTIFICATE</p>	
<p>Certificate No.: IECEx TUR 18.0022U</p> <p>Status: Current</p> <p>Date of Issue: 2018-10-16</p> <p>Applicant: SAMCON Prozessleittechnik GmbH Schillerstraße 17 D-35102 Lohra-Altenvers Germany</p> <p>Ex Component: Ex d enclosure series T07</p>	<p>Issue No: 0</p> <p>Page 1 of 3</p> <p>Certificate history: Issue No. 0 (2018-10-16)</p>
<p>This component is NOT intended to be used alone and requires additional consideration when incorporated into other equipment or systems for use in explosive atmospheres (refer to IEC: 60079-0).</p>	
<p>Type of Protection: Ex db I Mb ; Ex db IIC Gb ; Ex tb IIIC Db</p>	
<p>Marking:</p> <p style="margin-left: 40px;">Ex db I Mb</p> <p style="margin-left: 40px;">Ex db IIC Gb</p> <p style="margin-left: 40px;">Ex tb IIIC Db</p>	
<p>Approved for issue on behalf of the IECEx Certification Body:</p> <p>Position:</p> <p>Signature: (for printed version)</p> <p>Date:</p>	<p>Dipl.-Ing. Klauspeter Graffi</p> <p>Head of Certification Body</p> <div style="text-align: center;">  <hr style="border: 0.5px solid black;"/> <p>2018-10-16</p> </div>
<p>1. This certificate and schedule may only be reproduced in full. 2. This certificate is not transferable and remains the property of the issuing body. 3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.</p>	
<p>Certificate issued by:</p> <p style="text-align: center;"> TUV Rheinland Industrie Service GmbH Am Grauen Stein 51105 Cologne Germany </p> <div style="text-align: center;">  TÜVRheinland </div>	



IECEX Certificate of Conformity

Certificate No: IECEX TUR 18.0022U Issue No: 0
Date of Issue: 2018-10-16 Page 2 of 3
Manufacturer: SAMCON Prozessleittechnik GmbH
Schillerstraße 17
D-35102 Lohra-Altenvers
Germany

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex Component covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The Ex Component and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2017 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "T"

This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the Ex Component listed has successfully met the examination and test requirements as recorded in

Test Report:

[DE/TUR/ExTR18.0022/00](#)

Quality Assessment Report:

[DE/BVS/QAR14.0006/04](#)



IECEx Certificate of Conformity

Certificate No: IECEx TUR 18.0022U

Issue No: 0

Date of Issue: 2018-10-18

Page 3 of 3

Schedule

Ex Component(s) covered by this certificate is described below:

The T07 stainless steel enclosure is available in different sizes.

The characteristic design is always identical. Two side flanges cover a central body. Usually, but not necessarily, one side-flange is used as an optical adapter and the second flange as cable entry. This allows the introduction of one, or several, explosion-proof cable glands and/or compatible sealing plugs. The design allows different and free combinations of bodies and flanges.

The enclosures are suitable for Group I with a low risk of mechanical hazard and zone 1, 2 as well as 21 and 22 including the explosion groups IIC/IIB with a high risk of mechanical hazard.

Regarding the electrical input, neither limits nor mandatory values have been determined. Surface temperatures or temperatures inside the enclosure which may be caused by thermal dissipation, have to be evaluated in the course of the equipment approval process.

The housing combination T07-VA2.x.x.BOR5 must not be used in mining (ATEX group 1) or in areas with high mechanical hazards (ATEX group 2)

SCHEDULE OF LIMITATIONS:

1. No holes, whether blind or clear, may be drilled in the Ex component enclosure other than already provided by the manufacturer.
2. The content of the Ex component enclosure may be placed in any arrangement, providing that an area of at least 40% (for IIB 20%) of each cross-sectional area remains free to permit unimpeded gas flow and unrestricted development of an explosion.
3. Oil-filled circuit breakers and contactors shall not be used.
4. When evaluating the component enclosure as equipment, the requirements of EN/IEC 60079-1 must be applied.
5. For Group I, the enclosure T07-VA2.x.x.BOR5 is suitable with a low risk of mechanical hazard.
6. All used Cable glands and plugs have to be certified.

Annex:

[IECEx_TUR_18.0022U_00_Attachment_Revision_01.pdf](#)


 Attachment to Certificate
 IECEX TUR 18.0022U
 Revision 0

Attachment to Certificate IECEX TUR 18.0022U

Device: Ex d Enclosure Series
Type: T07... (Details refer to technical data section)

Manufacturer: SAMCON Prozessleittechnik GmbH

Address: Schillerstraße 17
 35102 Lohra- Altenvers, Germany

General product information:
Technical data

All VA1 bodies:

Model Key	Protection level	T _{Amb min}	T _{Amb max}
T07-VA1.x.K1.K1	IP68	-60°C	+160°C
T07-VA1.x.K1.BOR	IP68	-60°C	+160°C

All VA2 bodies:

Model Key	Protection level	T _{Amb min}	T _{Amb max}
T07-VA2.x.K3.K3	IP68	-60°C	+160°C
T07-VA2.x.K3.BOR2	IP68	-60°C	+160°C
T07-VA2.x.K3.BOR3	IP68	-60°C	+160°C
T07-VA2.x.K3.BOR5	IP68	-60°C	+160°C

All VA2 bodies shorter/equal to VA2.2.R:

Model Key	Protection level	T _{Amb min}	T _{Amb max}
T07-VA2.x.K1.K1	IP68	-60°C	+160°C
T07-VA2.x.K1.BOR	IP68	-60°C	+160°C
T07-VA2.x.K1.BOR2	IP68	-60°C	+160°C
T07-VA2.x.K1.BOR3	IP68	-60°C	+160°C
T07-VA2.x.K1.BOR5	IP68	-60°C	+160°C

T07-VA2.x.K2.K2	IP68	-60°C	+160°C
T07-VA2.x.K2.BOR	IP68	-60°C	+160°C
T07-VA2.x.K2.BOR2	IP68	-60°C	+160°C
T07-VA2.x.K2.BOR3	IP68	-60°C	+160°C
T07-VA2.x.K2.BOR5	IP68	-60°C	+160°C

T07-VA2.x.K3.K3	IP68	-60°C	+160°C
T07-VA2.x.K3.BOR	IP68	-60°C	+160°C
T07-VA2.x.K3.BOR2	IP68	-60°C	+160°C
T07-VA2.x.K3.BOR3	IP68	-60°C	+160°C
T07-VA2.x.K3.BOR5	IP68	-60°C	+160°C

All VA4 bodies:

Model Key	Protection level	T _{Amb min}	T _{Amb max}
T07-VA4.x.K1.K1	IP68	-60°C	+160°C
T07-VA4.x.K1.BOR1	IP68	-60°C	+160°C
T07-VA4.x.K1.BOR2	IP68	-60°C	+160°C

11 Notes



SAMCON

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