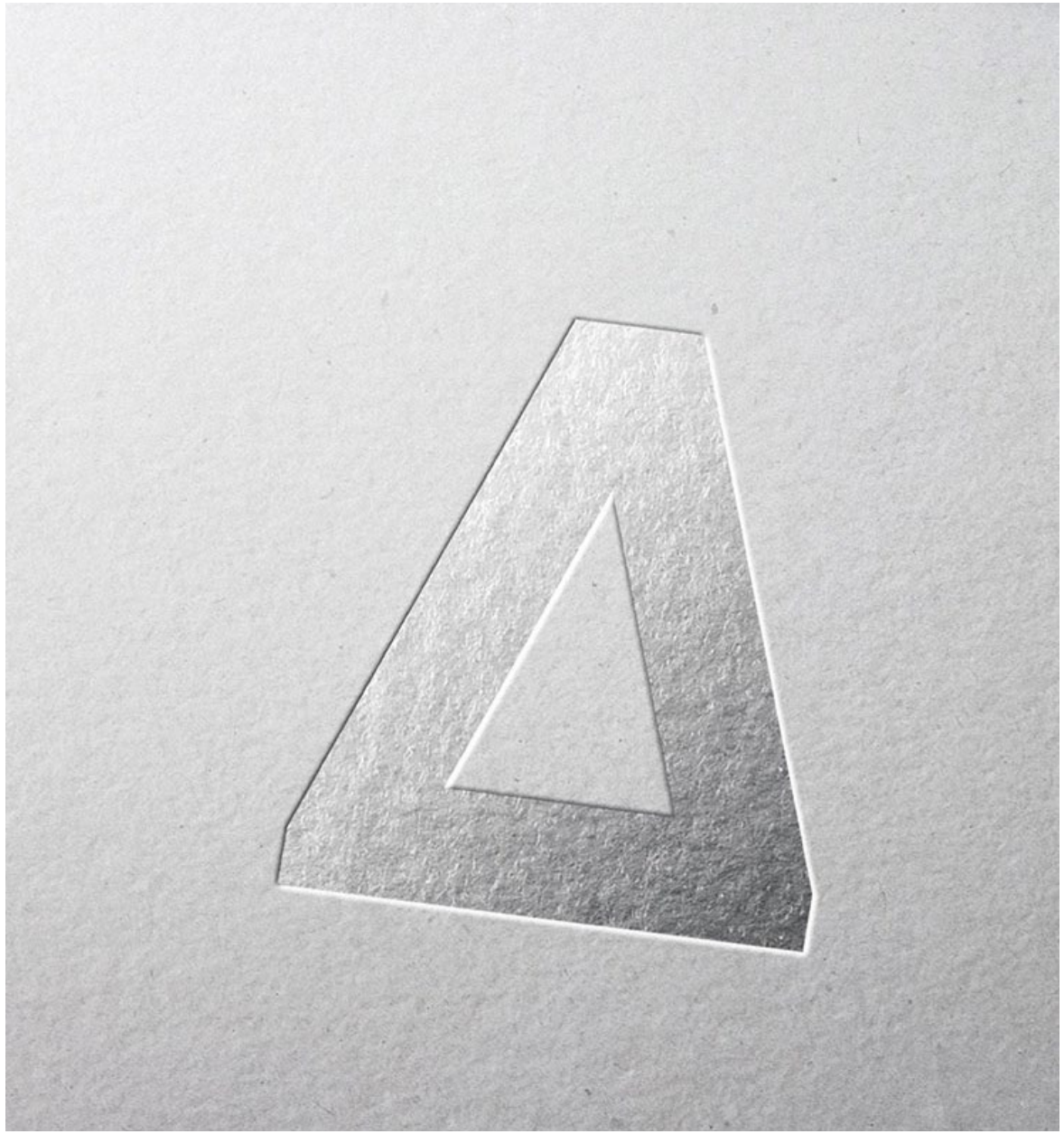

Wake up call to all IECEx stakeholders !

Karel Neleman, BARTEC Group, Edinburgh, September 2023

Introduction

BARTEC

FIRST: It is not my intention to black mailing ANYONE !

IECEx is known to be consistent in Conformity to ISO/IEC standards, where

IECEx has Rules of Procedure and for any EPL a third party certification is mandatory.

ATEX however, has first party 'self' certification acceptance only for Category 3 (EPL Gc / Dc).

It is presumable that we don't accept to jeopardize these given Rules of Procedure in our IECEx System, don't we ?

So, no butchers inspecting their own meat !?

TC31 MT 60079-7 and AHG 58

BARTEC

Particularly in this Maintenance Team and AdHoc Group they're heading into a strange direction !

What is the issue ?

MT60079-7 is working on new clauses into IEC 60079-7 where an empty 'ec' Ex Equipment enclosure will be accepted…

Up till now everybody is used to empty Ex Component enclosures, so why this move ?

Probably driven by some European Manufacturers of so-called 'partially enclosed Ex Equipment'.

Question arises why some manufacturers have decided to call their products 'Ex Equipment' as anybody can understand that partially enclosed products never can be used in a hazardous area without further consideration… so, these products should have been considered as 'Ex Components'.

Remark the precisely selected wordings in above sentence !

What about the European Notified Bodies ?

BARTEC

Why did and do the European Notified Bodies accept that ?

Presumable by the definitions given in the ATEX directive:

Article 2

Definitions

For the purposes of this Directive, the following definitions shall apply:

(1) 'equipment' means machines, apparatus, fixed or mobile devices, control components and instrumentation thereof and detection or prevention systems which, separately or jointly, are intended for the generation, transfer, storage, measurement, control and conversion of energy and/or the processing of material and which are capable of causing an explosion through their own potential sources of ignition;

(3) 'components' means any item essential to the safe functioning of equipment and protective systems but with no autonomous function;

Particularly the two last yellow marked sentences cause discussion…

Let’s do the test

BARTEC

HMI operator panel for EPL Gc

INTERNATIONAL ELEC
IEC Certification Syste
for rules and details of the

Certificate No.:	**IECEx DEK 15.0049X**
Status:	**Current**
Date of Issue:	2021-11-26
Applicant:	**SIEMENS AG** Breslauer Straße 5 Fürth 90766 **Germany**
Equipment:	**Operator Panels HMI Comfort**
Optional accessory:	
Type of Protection:	**Ex ec**
Marking:	Ex ec IIC T4 Gc

Ex Equipment or Ex Component ?

SPECIFIC CONDITIONS OF USE: YES as shown below:
The front side of the Operator Panels provides a degree of protection of IP65.It shall be installed in a suitable enclosure providing a degree of protection of IP54 according to IEC 60079-0, taking into account the environmental conditions under which the equipment is used.

The equipment shall be installed in such a way that the risk of mechanical danger is low.

To avoid an electrostatic charge, wipe the enclosure surface with a damp cloth only.

Let’s do the test

BARTEC

Foundation Fieldbus Megablock with Spurguard for EPL Gb

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	**IECEx DEK 16.0036X**	Page 1 of 4	Certificate history:
Status:	**Current**	Issue No: 1	Issue 0 (2016-08-02)
Date of Issue:	2016-10-31		
Applicant:	**Relcom Inc.** 2221 Yew Street Forest Grove, OR 97116 **United States of America**		
Equipment:	**Fieldbus XE Megablock and Terminator**		
Optional accessory:			
Type of Protection:	**Ex e m**		
Marking:	Ex eb mb IIC T4 Gb		

Ex Equipment or Ex Component ?

SPECIFIC CONDITIONS OF USE: YES as shown below:

When installed in potentially explosive atmospheres, the Fieldbus XE Megablock and Terminator shall be installed into an enclosure which meets the requirements of a recognized type of protection in accordance with IEC 60079-0.

Let’s do the test

BARTEC

Empty enclosures for EPL Gb

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IEC Certification System for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com
Ex COMPONENT CERTIFICATE

Certificate No.:	**IECEx UL 23.0024U**	Page 1 of 3	Certificate history:
Status:	**Current**	Issue No: 0	
Date of Issue:	2023-07-05		
Applicant:	**Rittal GmbH + Co. KG** Auf dem Stützelberg 35745 Herborn **Germany**		
Ex Component:	Empty enclosure made of glass fiber reinforced polyester for stationary mounting, Model AX 9**.***.		

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).

Type of Protection:	**Increased Safety "eb" and Dust Ignition Protection by Enclosure "tb"**
Marking:	Ex eb IIC Gb Ex tb IIIC Db

Ex Equipment or Ex Component ?

When it is for EPL Gb so well defined, why to make for EPL Gc a different move ?

Let’s do the test

BARTEC

Remote I/O for EPL Gc

Ex Equipment or Ex Component ?

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	**IECEx DEK 15.0054X**	Page 1 of 4	Certificate history:
Status:	**Current**	Issue No: 20	Issue 19 (2022-06-08) Issue 18 (2022-05-25) Issue 17 (2022-02-08) Issue 16 (2021-02-22) Issue 15 (2020-09-04) Issue 14 (2020-05-25) Issue 13 (2019-11-20) Issue 12 (2019-06-05) Issue 11 (2018-12-05) Issue 10 (2018-07-18)
Date of Issue:	2023-04-19		
Applicant:	**SIEMENS AG** Breslauer Straße 5 Fürth 90766 **Germany**		
Equipment:	**SIPLUS Programmable Logic Controller Systems DP, ET200S, ET200M, ET200MP, ET200SP, S7-1500, S7-300 S7-400 and S7-1200.**		
Optional accessory:			
Type of Protection:	**Ex ec**		
Marking:	Ex ec IIC T6...T3 Gc		

SPECIFIC CONDITIONS OF USE: YES as shown below:
The equipment shall only be used in an area of not more than pollution degree 2, as defined in IEC 60664-1.

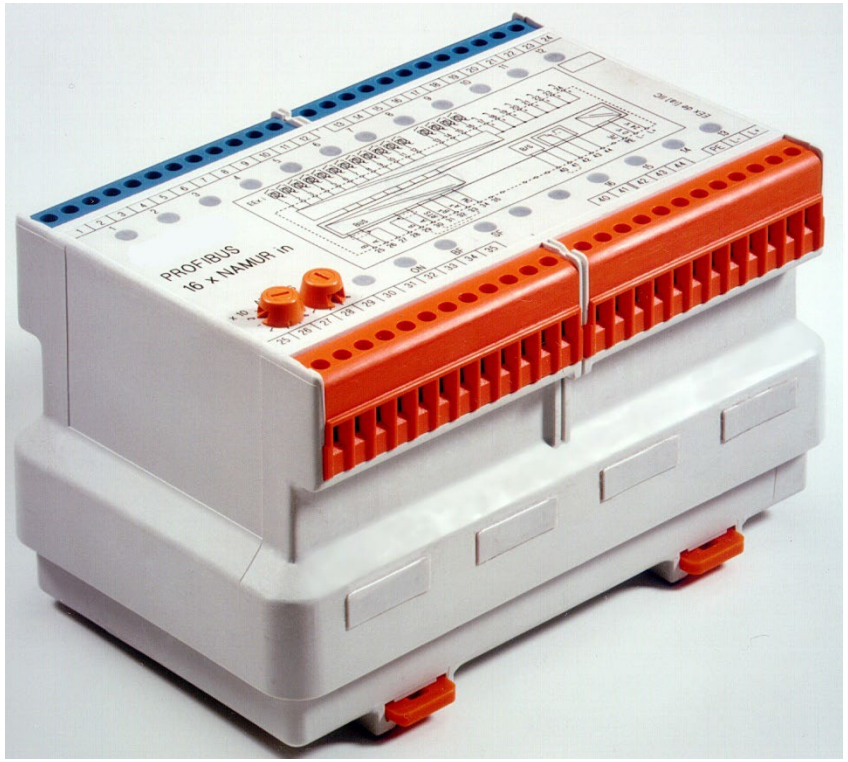
The equipment shall be installed in a suitable enclosure that provides a degree of protection not less than IP54 in accordance with IEC 60079-0.

Provisions shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 119 V.

Let’s do the test

BARTEC

Remote I/O for EPL Gb



Ex Equipment or Ex Component ?

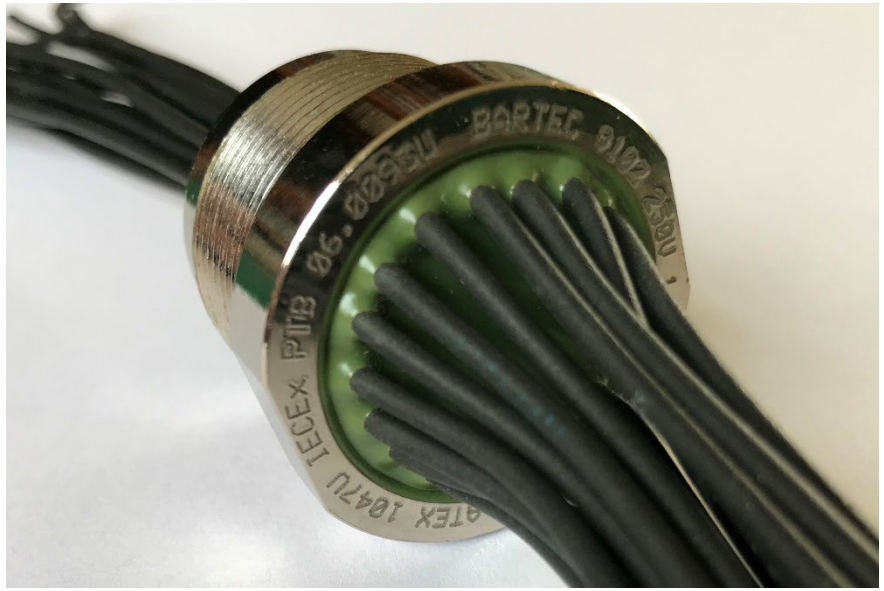
INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	**IECEx PTB 11.0082U**	Page 1 of 5	Certificate history:
Status:	**Current**	Issue No: 4	Issue 3 (2014-12-11) Issue 2 (2013-02-07) Issue 1 (2011-09-30) Issue 0 (2011-09-13)
Date of Issue:	2015-04-14		
Applicant:	**BARTEC GmbH** Max-Eyth-Straße 16 97980 Bad Mergentheim **Germany**		
Equipment:	**Control module type 07-7331-****/******		
Optional accessory:			
Type of Protection:	**db, e, ia resp. ib**		
Marking:	Ex db e [ia Ga] IIC resp. IIB Gb Ex db e [ib] IIC resp. IIB Gb Ex db e [ia Ma resp. ib] I Mb		

Let’s do the test

BARTEC

Line bushings for EPL Gb



Ex Equipment or Ex Component ?

BARTEC was IECEx PTB 06.0093 U

BARTEC now IECEx EPS 13.0045 U

QUINTEX was IECEx QPS 09.0001 (first suspended, then cancelled)

QUINTEX now IECEx EPS 11.0004 X

Why is Bureau Veritas measuring with two sizes ? One time U, other time X ?? What is here the autonomous function ?

IECEx ExCB's

This discussion about Ex Equipment or Ex Component may actually not be an issue for IECEx ExCB's because they'll have to follow the Rules of Procedure and they'll have to certify that the given product is in conformity with the given ISO/IEC standards.

What is the definition in that standards today ?

IEV 60050-426-01-13 and IEC 60079-0 clause 3.36 are clear enough:

'Ex Component = equipment intended to be part of Ex Equipment, marked with symbol 'U', which is not intended to be used alone, and requires additional consideration when incorporating into Ex Equipment.'

So, this definition doesn't match at all with the previous shown definition as in ATEX Directive 2014/34/EU where:

'Component = any item essential to the safe functioning of Equipment, but with no autonomous function'

IECEx ExCB's versus Manufacturers

BARTEC

It shall be clear that there is a need for better understanding and that it is always a negotiation !

But… in my opinion it can't be true that we are going to 'fix' the mistakes from the past by introduction of a new big mistake, being empty 'ec' Ex Equipment enclosures.

Presume we don't want to become listed in this captivating history ?

We'll better decide to fix it from the base ! And that is possible !

Please consider an ExTAG Decision Sheet where <u>all</u> ExCB's are forced to change these particular existing IECEx CoC's from Ex Equipment into Ex Component Certificates.

Because; when we let the user assemble all that partial enclosed Ex Equipment together with Ex terminals inside an empty 'ec' Ex equipment enclosure, it appears to become 'self certification' where exactly IECEx is eager to prohibit…

So, actually TC31 is undermining our IECEx System !

BARTEC

We’ll see an identical strange discussion in MT 60079-1. The National Committes are asked for their opinion on cable entry devices with a plain cylindrical joint for Group II, certified as an Ex Equipment.

This looks like asking for troubles; because how to get the correct tolerances required to have a controlled gap ?

Such Ex Components shall have to remain at the responsibility of the Ex Equipment manufacturer.

BARTEC

It appears from the past already rather strange. In IEC 60079-15 it was accepted to have partial enclosed products being Ex Equipment certified. Though not called as such…

'Degree of protection provided by installation' Remark: such text in a product standard ?

See IEC 60079-15: 2005 Ed. 3, clause 6.6.2

See IEC 60079-15: 2010 Ed. 4, clause 6.3.2

But, as decided, we now will have 'nA' integrated as 'ec' in IEC 60079-7, so it shall be fixed.

However; please make this fix in the correct way !

Not by introducing a 'forgotten' enclosure, but first by certifying partial enclosed equipment as an Ex Component !

ExTAG DS 2020/004

A debatable document… probably accepted in May 2020 when all IECEx members were in the ban of Covid-19.

Apparently for ’protection by enclosure Ex t’ it has been recognized that products which only partially meet the enclosure requirements of IEC 60079-31, can only be treated as an Ex Component with a Schedule of Limitations.

With the effect that: Two different certificates (?!) have to be issued for one single product if:

- **Ex ec as Ex Equipment for Group II with ’X’ and**
- **Ex tc as Ex Component for Group III with ’U’.**

This sounds to me as ’the other way around!’

Why still keep that old nA thought?

Better withdraw this DS and go for Ex Component !

Existing CoC's

In the recent past this has not been recognized: <u>One single</u> CoC covering both:

- **Ex nA for Group II and**
- **Ex tc for Group III,**

as Ex Equipment with 'X'.

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Certificate No.:	**IECEx DEK 15.0049X**	Page 1 of 4	Certificate history:
Status:	**Current**	Issue No: 7	Issue 6 (2019-12-06) Issue 5 (2019-07-19) Issue 4 (2019-04-16) Issue 3 (2018-03-06) Issue 2 (2017-08-23) Issue 1 (2017-07-11) Issue 0 (2016-02-18)
Date of Issue:	2020-02-05		
Applicant:	**SIEMENS** Breslauer Straße 5 D-90766 Fürth **Germany**		
Equipment:	**Operator Panels HMI Comfort**		
Optional accessory:			
Type of Protection:	**Ex nA and Ex tc**		
Marking:	Ex nA IIC T4 Gc Ex tc IIIC T70 °C Dc		

<u>Observation</u>:

Does this implicate that all previous issues need to be changed from 'current' into 'cancelled' ?

Back to Europe (and nevertheless also UK)

Standards, and so the Standardization Committees, don’t have to say anything about legal CE or UKCA marking.

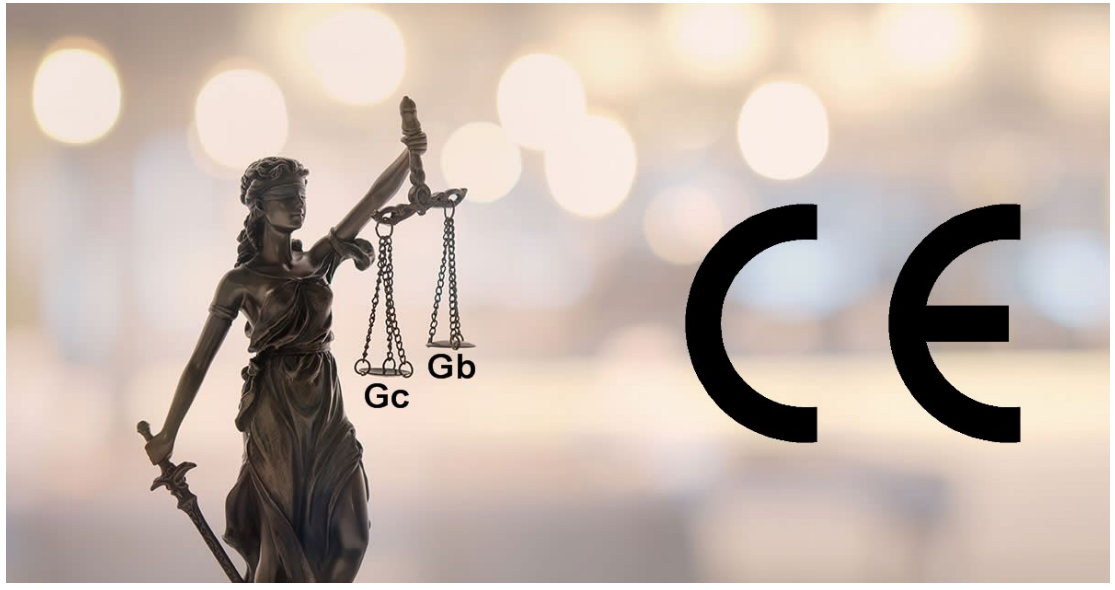
However, under ATEX, for an Ex Equipment the CE marking is mandatory.

Do the European members who are in favour of an empty ’ec’ Ex Equipment enclosure understand the consequences ?

That will implicate that we’ll get empty Ex enclosures with a CE marking… ?!

And we will going to allow that for Zone 2 (EPL Gc) where this is for Zone 1 (EPL Gb) prohibited ?

Legally that sounds to me untenable !



The solution can be simple:

BARTEC

Findings:

1. **There are more than sufficient enclosure manufacturers having already Ex Component certified enclosures available.**
2. **There are sufficient Ex Equipment manufacturers having an Ex Equipment Certificate to cover the Ex Components.**

<u>Recommendations:</u>

1. **IECEx to decide to issue an ExTAG Decision Sheet covering that all certified partial enclosed equipment shall be reconsidered as Ex Component.**
2. **The previous mentioned IECExTAG DS 2020/004 to be withdrawn.**
3. **IEC TC31 MT60079-7 to delete all clauses about empty 'ec' Ex Equipment enclosures and disband AHG 58…**

So, it can't be accepted that major manufacturers of partial enclosed equipment are going to argue:

'how to sell my product without a complete Certification ?'

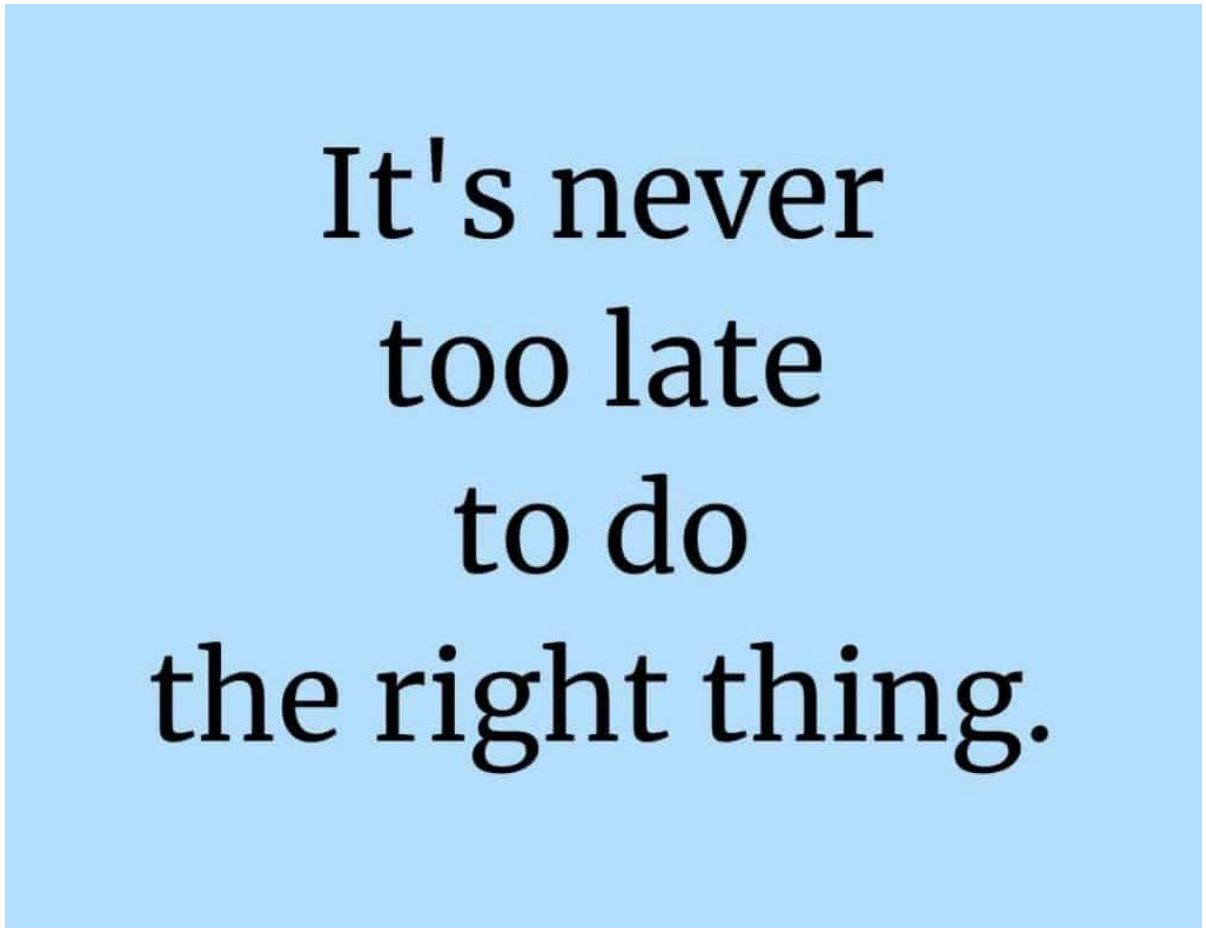
When such manufacturers don't want to be the manufacturer of the Ex enclosure,

they still can redirect their customers to Ex Equipment manufacturers having the right competency & certification…

Please, wake up !

BARTEC

AND



This can become the next tile with a saying ?

Thank you for your attention.

Tile : IECEx Conference Shanghai

(2017)