



- 2 **Appareil ou système de protection destiné à être utilisé en atmosphères explosibles**
Equipment and protective systems intended for use in potentially explosive atmospheres

Directive 2014/34/UE
Directive 2014/34/EU

1 **ATTESTATION D'EXAMEN UE DE TYPE**
EU-TYPE EXAMINATION CERTIFICATE

- 3 Numéro de l'attestation d'examen UE de type / *Number of the EU-Type Examination Certificate*

INERIS 13ATEX0019X

INDICE / *ISSUE* : 01

- 4 Appareil ou système de protection / *Equipment or protective system:*

COFFRETS TYPE SSD...
ENCLOSURES TYPE SSD...

- 5 Fabricant / *Manufacturer:*

ABTECH LIMITED

- 6 Adresse / *Address :*

199-201 Newhall Rd
Lower Don Valley
Sheffield
South Yorkshire S9 2QJ UNITED KINGDOM

- 7 Cet appareil ou système de protection et toute autre variante acceptable de celui-ci sont décrits dans l'annexe de la présente attestation et dans les documents descriptifs cités dans cette annexe.

This equipment or protective system and any acceptable variation thereto is specified in the Annex of this certificate and the descriptive documents therein referred to.

- 8 L'INERIS, organisme notifié et identifié sous le numéro 0080, conformément aux articles 17 and 21 de la directive 2014/34/UE du Parlement Européen et du Conseil, datée du 26 février 2014, et accrédité par le COFRAC sous le n° 5-0045 dans le cadre de l'activité de certification de produits et services (portée disponible sur www.cofrac.fr) certifie que cet appareil ou système de protection répond aux Exigences Essentielles de Sécurité et de Santé en ce qui concerne la conception et la construction des appareils et des systèmes de protection destinés à être utilisés en atmosphères explosibles, décrites en annexe II de la Directive.

INERIS, notified body and identified under number 0080, in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, and accredited by COFRAC under number 5-0045 for certification of products and services (scope of accreditation available on the website www.cofrac.fr), certifies that this equipment or protective system fulfils 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.

Les procédures de certification sont disponibles sur www.ineris.fr.

The rules of certification are available on INERIS website on: www.ineris.fr.

Les examens et les essais sont consignés dans le rapport :

The examinations and the tests are recorded in report:

N° 31912

9 Le respect des Exigences Essentielles de Sécurité et de Santé est assuré par :

The respect of the Essential Health and Safety Requirements has been assured by:

- la conformité à / *Conformity with:*

EN 60079-0 :	2012/A11 :	2013	IEC 60079-0 :	2011
EN 60079-1 :	2014		IEC 60079-1 :	2014
EN 60079-11 :	2012		IEC 60079-11 :	2011
EN 60079-31 :	2014		IEC 60079-31 :	2013

- les solutions spécifiques adoptées par le fabricant pour satisfaire aux Exigences Essentielles de Sécurité et de Santé décrites dans les documents descriptifs /

Specific solutions adopted by the manufacturer to meet the Essential Health and Safety Requirements described in the descriptive documents

10 Si le signe X est placé à la suite du numéro de l'attestation d'examen UE de type, il indique que cet appareil ou système de protection est soumis à des conditions spéciales d'utilisation, mentionnées dans l'annexe de la présente attestation.

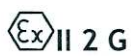




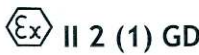
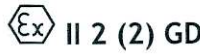


If the sign X is placed after the Number of the EU type examination certificate, it indicates that this equipment and protective system is subject to the Specific Conditions of Use, mentioned in the annex of this certificate.

11 Cette attestation d'examen UE de type se rapporte uniquement à la conception, aux examens et essais de l'appareil ou système de protection spécifié conformément à la directive 2014/34/UE. D'autres exigences de cette Directive s'appliquent à la fabrication et à la fourniture de cet appareil ou système de protection, celles-ci ne sont pas couvertes par cette attestation.

This EU-Type Examination Certificate relates only to the design, examinations and tests of the specified equipment or protective system in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

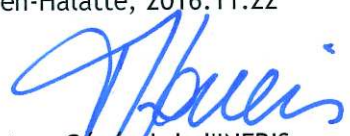
12 Le marquage de l'appareil ou du système de protection doit contenir :

The marking of the equipment or the protective system shall include the following:

 II 2 G	ou/or	 II 2 D	ou/or	 II 2 GD	ou/or
 II 2 (1) G	ou/or		 II 2 (2) G	ou/or	
 II 2 (1) GD	ou/or		 II 2 (2) GD	ou/or	
 II 2 (1) D	ou/or		 II 2 (2) D	ou/or	

Verneuil-en-Halatte, 2016.11.22




 Le Directeur Général de l'INERIS
 Par délégation
 The Chief Executive Officer of INERIS
 By delegation

13 **ANNEXE**15 **DESCRIPTION DE L'APPAREIL OU DU SYSTEME DE PROTECTION :**

Les coffrets SSD... sont réalisés en acier au carbone, acier inoxydable ou aluminium pour les groupes IIB, IIB+H2 et IIIC. Le couvercle peut être équipé de charnières.

Les coffrets peuvent contenir principalement des composants électriques "NSI" et/ou des éléments certifiés de "SI". Les coffrets comportant des éléments "NSI" et "SI" sont prévus avec une sonde thermique interne.

Les coffrets peuvent être équipés avec des composants de type certifiés tels que défini en Annexe.

Tels que défini dans les instructions, en fonction du type, de la taille et du matériau des coffrets, le couvercle doit être fixé avec des vis en acier de qualité minimale A2-80, A4-80, 8.8 ou 12.9.

Ces coffrets possèdent les degrés de protection IP6X, IPX6, IP65 ou IP66 selon la norme EN/IEC 60529.

PARAMETRES RELATIFS A LA SECURITE :13 **ANNEX**15 **DESCRIPTION OF THE EQUIPEMENT OR THE PROTECTIVE SYSTEM :**

The SSD.. enclosures are made of carbon steel, stainless steel or aluminum for groups IIB, IIB+H2 and IIIC. The lid can be hinged to the enclosure.

The enclosures are intended to contain mainly electrical "NIS" elements and/or with certified "IS" element. The enclosures fitted with internal "NIS" and "IS" elements are provided with an internal thermal probe.

These enclosures can be fitted with some certified components as listed in Annex.

As specified in the instructions, following the type, the size, and the material of the enclosures, the cover should be fixed with screws having the minimum quality A2-80, A4-80, 8.8 or 12.9.

These enclosures get the degree of protection IP6X, IPX6, IP65 or IP66 in accordance with EN/IEC 60529.

PARAMETERS RELATING TO THE SAFETY :

Paramètres électriques / Electrical parameters :	
Tension maximale des éléments "NSI" : <i>Maximum supply voltage of "NIS" elements:</i>	24 kVac - 1500 Vdc.
Tension maximale des éléments "SI" : <i>Maximum supply voltage of "IS" elements</i>	250 V.
Puissance maximale absorbée : <i>Maximum absorbed power:</i>	3500 kVa
Courant nominal : <i>Nominal current:</i>	2000 A
Fréquence : <i>Frequency:</i>	50/60/400 Hz.
Section des bornes/bus-bars: <i>Cross section of terminals/bus-bars:</i>	1,5÷300 mm ² /20÷600 mm ²
Débit maximum du ventilateur : <i>Maximum cooling fan flow rate:</i>	25 m ³ /h pour des volumes de coffrets supérieurs à 32dm ³ / For volumes of the enclosures greater than 32dm ³
Puissance maximale de la lampe de signalisation : <i>Maximum power of the signalling lamp:</i>	- 1 watt LED - 3 watt incandescent (avec classe de température T4/T135°C) / (with temperature class T4/T135°C)

La puissance maximale dissipée est fonction du type de coffret, de la classe de température et de la température ambiante définis dans les documents descriptifs du fabriquant.

Les différents paramètres des composants Ex installés sur les coffrets sont définis dans les certificats respectifs.

Les coffrets sont destinés à être utilisés dans la gamme de température ambiante de -20°C à +60°C.

The maximum dissipated power is in accordance with the type of enclosure, the temperature class and the ambient temperature as stipulated in the descriptive documents of the manufacturer.

The different parameters of the Ex components installed on the enclosures are defined in the respective certificates.

The enclosures could be used in the range of ambient temperatures from -20°C up to +60°C.

Pour les coffrets T6/T85°C contenant des éléments "NSI" et "SI" le seuil de coupure du thermostat sera / For enclosures T6/T85°C fitted with "NIS" and "IS" elements the threshold of thermal probe shall be:

Température ambiante des éléments de SI / Ambient Temperature of "IS" element	Seuil de coupure du thermostat / Threshold of release of the thermal probe
55°C	53°C ± 3% ou/or 51°C ± 6% ou/or 49°C ± 10%
60°C	58°C ± 3% ou/or 56°C ± 6% ou/or 54°C ± 10%
70°C	67°C ± 3% ou/or 66°C ± 6% ou/or 63°C ± 10%

MARQUAGE :

Le marquage doit être lisible et indélébile ; il doit comporter les indications suivantes :

ABTECH LIMITED
Sheffield S9 2QJ - UK
SSD...(1)
INERIS 13ATEX0019X
(Numéro de série)
(Année de construction)



Ex db (**), IIB ou IIB+H2 T(**) Gb
Ex tb (**), IIIC T(**) Db
IP(**)

...°C < Tamb < ...°C (**)

T. Câble : (**)

Entrée de câble : voir instructions

AVERTISSEMENTS :

NE PAS OUVRIR SI UNE ATMOSPHERE EXPLOSIVE PEUT ETRE PRESENTE.

Marquage additionnel dans le cas où des disjoncteurs sont montés sur le coffret :

NE PAS MANŒUVRER EN CHARGE

(1) Les points sont remplacés par une codification en accord avec les variantes d'exécution. Les différents types sont indiqués dans les documents descriptifs.

(*) Une des catégories suivantes :
II 2 G ou II 2 D ou II 2 GD ou II 2 (1) G ou II 2 (1) D
ou II 2 (1) GD ou II 2 (2) G ou II 2 (2) D ou II 2 (2) GD

(**) Le type de protection, la classe de température, la température ambiante, les degrés de protection et la température du câble seront adaptés en accord avec différents facteurs comme l'équipement interne, la température ambiante et la puissance maximale dissipée définis dans les documents descriptifs.

L'ensemble du marquage peut être réalisé dans la langue du pays d'utilisation.

L'appareil ou le système de protection doit aussi porter le marquage normalement prévu par les normes de construction qui le concernent.

MARKING :

Marking has to be readable and indelible; it has to include the following indications:

ABTECH LIMITED
Sheffield S9 2QJ - UK
SSD...(1)
INERIS 13ATEX0019X
(Serial number)
(Year of construction)



Ex db (**), IIB or IIB+H2 T(**) Gb
Ex tb (**), IIIC T(**) Db
IP(**)

...°C < Tamb < ...°C (**)

T. Cable : (**)

Cable entry: see instructions

WARNINGS:

DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE MAY BE PRESENT.

Additional warning in case of disconnectors are fitted on the enclosures:

DO NOT OPERATE UNDER LOAD

(1) The dots are replaced by a codification according to the manufacturing variations. The different types are indicated in the descriptive documents.

(*) One of the following categories:
II 2 G or II 2 D or II 2 GD or II 2 (1) G or II 2 (1) D
or II 2 (1) GD or II 2 (2) G or II 2 (2) D or II 2 (2) GD

(**) The type of protection, temperature class, the ambient temperature, degrees of protection and cable temperature will be updated in accordance with different factors as the internal equipment, ambient temperature and maximum power dissipated defined in the descriptive documents.

Marking may be carried out in the language of the country of use.

The protective system or equipment has also to carry the marking normally stipulated by its construction standards.

EXAMENS ET ESSAIS INDIVIDUELS :

Chaque exemplaire du matériel ci-dessus défini doit avoir subi avec succès, avant livraison conformément au § 16.1 de la norme EN/IEC 60079-1, une épreuve de surpression statique d'une durée comprise entre 10 et 60 secondes sous :

ROUTINE EXAMINATIONS AND TESTS:

Each pieces of equipment defined above has to have successfully passed; before delivery in accordance with clause 16.1 of the EN/IEC 60079-1 standard, an overpressure test of a period comprised between 10 and 60 seconds under:

Type du coffret / Size of enclosure	Pression pour une température ambiante jusqu'à -20°C : / Pressure for an ambient temperature down to -20°C:
De SSD001 jusqu'à SSD667 / From SSD001 up to SSD667	12.2 bar
De SSD627 jusqu'à SSD778/ From SSD627 up to SSD778	11.6 bar

16 DOCUMENTS DESCRIPTIFS :

Les documents descriptifs cités ci-après, constituent la documentation technique de l'appareil, objet de la présente attestation.

16 DESCRIPTIVE DOCUMENTS :

The descriptive documents quoted hereafter constitute the technical documentation of the equipment, subject of this certificate.

Titre / Title	Réf. / Ref.	Rév. / Rev.	Date / Date
Notice d'instruction ABTECH (17 pages) / ABTECH Instruction notice (17 pages)	ABTQ-119	02	2016-11-08
Plan de marquage ABTECH (1 page) / Marking drawing (1 page)	ABT25511	B	2016-11-18

17 CONDITIONS SPECIALES D'UTILISATION :

- Les joints antidéflagrants ont des valeurs différentes de celles spécifiées dans les tableaux de la norme EN/IEC 60079-1 pour toute réparation contacter le constructeur.

Lors de l'utilisation des composants couverts par les certificats INERIS 13ATEX9016U et INERIS 13ATEX9017U :

- La longueur des joints antidéflagrants est supérieure aux valeurs spécifiées dans les tableaux de la norme EN/IEC 60079-1.
- Lors de l'installation l'utilisateur devra tenir compte du fait que le voyant type EFL*PC* n'a subi qu'un choc mécanique faible à 2J.

Les instructions d'utilisation sont complétées par celles spécifiées dans la notice d'instructions du fabricant et des composants constitutifs de l'équipement final.

17 SPECIFIC CONDITIONS OF USE:

- The flameproof joints have a different values from those specified in the tables of the EN/IEC 60079-1 standard, for any repair to contact the manufacturer.

When using the components covered by the certificates INERIS 13ATEX9016U and INERIS 13ATEX9017U :

- The widths of the flameproof joints are superior than those specified in tables of 60079-1 standard.
- During the installation, the user will take into consideration that pilot light type EFL*PC* underwent only a shock corresponding to an energy of a low risk at 2J

The instructions for safe use are completed by those stipulated in the instructions manuals of the manufacturer and of each component fitted on the final product.

18 EXIGENCES ESSENTIELLES DE SECURITE ET DE SANTE :

Le respect des Exigences Essentielles de Sécurité et de Santé est assuré par :

- La conformité aux normes listées au paragraphe (9).
- L'ensemble des dispositions adoptées par le constructeur et décrites dans les documents descriptifs.

19 REMARQUES :

L'indice 00 fait référence à l'attestation d'examen CE de type N° INERIS 13ATEX0019X émis précédemment conformément à la directive 94/9/CE.

Les modifications de l'indice 01 concernent :

- Mise à jour de la définition des matériels.
- Application des normes EN 60079-1 : 2014/IEC60079-1 : 2014, IEC 60079-31 : 2014/IEC 60079-31 : 2013.
- Application de la nouvelle Directive 2014/34/UE.
- Mise à jour de la liste des accessoires pouvant être installés sur et dans les coffrets et des différents Ex composants listés en annexe.
- Mise à jour des puissances maximales dissipées dans les coffrets.
- Modification des paramètres électriques.
- Ajout de nouvelles tailles et ajout de hublots pour toutes les tailles
- Augmentation de l'interstice du joint plan du coffret à 0,2 mm pour l'utilisation en groupe IIB.
- Suppression de la liste des certificats des éléments "IS".
- Modification de l'épaisseur minimale des coffrets.
- Modification du type de résine pour le scellement des hublots.
- Ajout d'un nouveau degré de protection.

18 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS :

The respect of the Essential Health and Safety Requirements is ensured by:

- *Conformity to the standards quoted in clause (9).*
- *All provisions adopted by the manufacturer and defined in the descriptive documents.*

19 REMARKS :

The issue 00 refers to the EC-type examination certificate N° INERIS 13ATEX0019X issued previously according to the Directive 94/9/EC.



The changes of the issue 01 are regarding:

- *Update of the apparatus definition.*
- *Application of the standards EN 60079-1:2014/IEC 60079-1: 2014, EN 60079-31: 2014/IEC 60079-31:2013.*
- *Application of the new Directive 2014/34/EU.*
- *Update the list of accessories which can be fitted on/in the enclosures and some different Ex components listed in Annex*
- *Update of the maximum dissipated powers inside the enclosures.*
- *Modification of the electrical parameters.*
- *Add new sizes of enclosures and window for all sizes.*
- *Increase the gap up to 0.2 mm of the flanged joint of the enclosures for use in Group IIB.*
- *Deletion of the list of the certificates for the "IS" elements.*
- *Modification of the minimum thickness of the enclosures.*
- *Modification of the type of resin cementing for the windows.*
- *Added new degree of protection.*

Liste des composants utilisés/List of component used

Numéro de certificat Certificate number	Type de composant Type of component
CESI 99ATEX034U	Raccords trois pièces type R., B. ou RB.. <i>Three piece connection fittings type R., B. or RB..</i>
INERIS 06ATEX90004U	Conduits flexibles type TFII.. <i>Flexible conduits type TFII..</i>
INERIS 12ATEX9012U	Conduits flexibles type TFII.. <i>Flexible conduits type TFII..</i>
INERIS 13ATEX9016U	Operateurs type PM10X, EFP*, EFL*PC* et EFPL3 <i>Operators type PM10X, EFP*, EFL*PC* and EFPL3</i>
INERIS 13ATEX9017U	Operateurs type PM10X, EFP*, EFL*PC* et EFPL3 <i>Operators type PM10X, EFP*, EFL*PC* and EFPL3</i>
INERIS 14ATEX9009U	Unités de commande et de signalisation type DP/DFP and RS/RX <i>Command and signaling units type DP/DFP and RS/RX</i>
EXA 14ATEX0058U	Dispositif de respiration et drainage type ECD**** <i>Breathing and draining valve type ECD****</i>
EXA 14ATEX0059U	Dispositif de respiration et drainage type ECD**** <i>Breathing and draining valve type ECD****</i>
INERIS 12ATEX9013U	Dispositif de respiration et drainage type FT/VS 61090.. <i>Breathing or draining devices type FT/VS 61090..</i>
CESI 01ATEX080U	Traversées scellées pour conducteur type NPS, TP, NCS, CP et LPS <i>Conductor sealing bushings type NPS, TP, NCS, CP and LPS</i>
IMQ 09ATEX0019U	Boutons poussoirs, lamps et actionneurs type PL*, PSRC*, SRC* <i>Push buttons, pilot lamp and actuators type PL*, PSRC*, SRC*</i>

**OPERATING AND MAINTENANCE INSTRUCTION
CONTROL, SIGNALLING, POWER AND DISTRIBUTION UNIT
SERIES **SSD** .../.../.**

	EU Type Examination Certificate	INERIS 13 ATEX 0019 X
	IECEX Certificate	IECEX INE 14.0061X

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1 Marking

1.1 Example of ATEX/IECEX label for SSD.../.../. for GAS and DUST

(Manufacturer)	Abtech Limited Sheffield, S9 2QJ, UK
(type)	SSD .../.../.
(serial) /(year)	@@@ / @@
(ATEX certificate)	INERIS 13 ATEX 0019X
(IECEX certificate)	IECEX INE 14. 0061X
(ATEX Marking)	CE₀₀₈₀ II 2 GD
(type of protection)	Ex db IIB or IIB+H₂ T^(*) Gb Ex tb IIIC T^(***) °C Db IP^(**)
ambient temperature	Tamb -20°C ÷ +60°C
leave blank if Tamb -20°C ÷ +40°C	
(electrical parameters)	... V ... Hz ... A
Tmax of cable	@@@ °C
WARNING:	DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT IDENTIFICATION OF CABLE ENTRY: SEE OPERATING INSTRUCTION

1.2 Example of ATEX label for SSD.../.../. for GAS and DUST

(Manufacturer)	Abtech Limited Sheffield, S9 2QJ, UK
(type)	SSD .../.../.
(serial) /(year)	@@@ / @@
(ATEX certificate)	INERIS 13 ATEX 0019X
(ATEX Marking)	CE₀₀₈₀ II 2 GD
(type of protection)	Ex db IIB or IIB+H₂ T^(*) Gb Ex tb IIIC T^(***) °C Db IP^(**)
ambient temperature	Tamb -20°C ÷ +60°C
leave blank if Tamb -20°C ÷ +40°C	
(electrical parameters)	... V ... Hz ... A
Tmax of cable	@@@ °C
WARNING:	DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT IDENTIFICATION OF CABLE ENTRY: SEE OPERATING INSTRUCTION

1.3 Example of IECEX label for SSD.../.../. for GAS and DUST

(Manufacturer)	Abtech Limited Sheffield, S9 2QJ, UK
(type)	SSD .../.../.
(serial) /(year)	@@@ / @@
(IECEX certificate)	IECEX INE 14. 0061X
(type of protection)	Ex db IIB or IIB+H₂ T^(*) Gb Ex tb IIIC T^(***) °C Db IP^(**)
ambient temperature	Tamb -20°C ÷ +60°C
leave blank if Tamb -20°C ÷ +40°C	
(electrical parameters)	... V ... Hz ... A
Tmax of cable	@@@ °C
WARNING:	DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT IDENTIFICATION OF CABLE ENTRY: SEE OPERATING INSTRUCTION

1.4 Example of ATEX/IECEX label for SSD.../.../. for GAS and DUST with IS (1)

(Manufacturer)	Abtech Limited Sheffield, S9 2QJ, UK
(type)	SSD .../.../.
(serial) /(year)	@@@@ / @@
(ATEX certificate)	INERIS 13 ATEX 0019X
(IECEX certificate)	IECEX INE 14. 0061X
(ATEX Marking)	CE₀₀₈₀ II 2(1) GD
(type of protection)	Ex db ⁽¹⁾ IIB or IIB+H₂ T^(*) Gb Ex tb ⁽²⁾ IIIC T (***^(*)) °C Db IP (**^(*))
ambient temperature	Tamb -20°C ÷ +60°C
leave blank if Tamb -20°C ÷ +40°C	
(electrical parameters)	... V ... Hz ... A
Tmax of cable	@@@ °C
WARNING:	DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT IDENTIFICATION OF CABLE ENTRY: SEE OPERATING INSTRUCTION

1.5 Example of ATEX label for SSD.../.../. for GAS and DUST with IS (1)

(Manufacturer)	Abtech Limited Sheffield, S9 2QJ, UK
(type)	SSD .../.../.
(serial) /(year)	@@@@ / @@
(ATEX certificate)	INERIS 13 ATEX 0019X
(ATEX Marking)	CE₀₀₈₀ II 2(1) GD
(type of protection)	Ex db ⁽¹⁾ IIB or IIB+H₂ T^(*) Gb Ex tb ⁽²⁾ IIIC T (***^(*)) °C Db IP (**^(*))
ambient temperature	Tamb -20°C ÷ +60°C
leave blank if Tamb -20°C ÷ +40°C	
(electrical parameters)	... V ... Hz ... A
Tmax of cable	@@@ °C
WARNING:	DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT IDENTIFICATION OF CABLE ENTRY: SEE OPERATING INSTRUCTION

1.6 Example of IECEX label for SSD.../.../. for GAS and DUST with IS

(Manufacturer)	Abtech Limited Sheffield, S9 2QJ, UK
(type)	SSD .../.../.
(serial) /(year)	@@@@ / @@
(IECEX certificate)	IECEX INE 14. 0061X
(type of protection)	Ex db ⁽¹⁾ IIB or IIB+H₂ T^(*) Gb Ex tb ⁽²⁾ IIIC T (***^(*)) °C Db IP (**^(*))
ambient temperature	Tamb -20°C ÷ +60°C
leave blank if Tamb -20°C ÷ +40°C	
(electrical parameters)	... V ... Hz ... A
Tmax of cable	@@@ °C
WARNING:	DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT IDENTIFICATION OF CABLE ENTRY: SEE OPERATING INSTRUCTION

⁽¹⁾ [ia Ga] or [ia IIA or IIB or IIC Ga]

⁽²⁾ [ia Da]

1.7 Example of ATEX/IECEX label for SSD.../.../. for GAS and DUST with IS (2)

(Manufacturer)	Abtech Limited Sheffield, S9 2QJ, UK
(type)	SSD .../.../.
(serial) /(year)	@@@@ / @@
(ATEX certificate)	INERIS 13 ATEX 0019X
(IECEX certificate)	IECEX INE 14. 0061X
(ATEX Marking)	CE₀₀₈₀ II 2(1) GD
(type of protection)	Ex db ⁽¹⁾ IIB or IIB+H₂ T^(*) Gb Ex tb ⁽²⁾ IIIC T ^(*) °C Db IP ^(*)
ambient temperature	Tamb -20°C ÷ +60°C
leave blank if Tamb -20°C ÷ +40°C	
(electrical parameters)	... V ... Hz ... A
Tmax of cable	@@@ °C
WARNING:	DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT IDENTIFICATION OF CABLE ENTRY: SEE OPERATING INSTRUCTION

1.8 Example of ATEX label for SSD.../.../. for GAS and DUST with IS (2)

(Manufacturer)	Abtech Limited Sheffield, S9 2QJ, UK
(type)	SSD .../.../.
(serial) /(year)	@@@@ / @@
(ATEX certificate)	INERIS 13 ATEX 0019X
(ATEX Marking)	CE₀₀₈₀ II 2(1) GD
(type of protection)	Ex db ⁽¹⁾ IIB or IIB+H₂ T^(*) Gb Ex tb ⁽²⁾ IIIC T ^(*) °C Db IP ^(*)
ambient temperature	Tamb -20°C ÷ +60°C
leave blank if Tamb -20°C ÷ +40°C	
(electrical parameters)	... V ... Hz ... A
Tmax of cable	@@@ °C
WARNING:	DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT IDENTIFICATION OF CABLE ENTRY: SEE OPERATING INSTRUCTION

1.9 Example of IECEX label for SSD.../.../. for GAS and DUST with IS

(Manufacturer)	Abtech Limited Sheffield, S9 2QJ, UK
(type)	SSD .../.../.
(serial) /(year)	@@@@ / @@
(IECEX certificate)	IECEX INE 14. 0061X
(type of protection)	Ex db ⁽¹⁾ IIB or IIB+H₂ T^(*) Gb Ex tb ⁽²⁾ IIIC T ^(*) °C Db IP ^(*)
ambient temperature	Tamb -20°C ÷ +60°C
leave blank if Tamb -20°C ÷ +40°C	
(electrical parameters)	... V ... Hz ... A
Tmax of cable	@@@ °C
WARNING:	DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT IDENTIFICATION OF CABLE ENTRY: SEE OPERATING INSTRUCTION

⁽¹⁾ [ib Gb] or [ib IIA or IIB or IIC Gb]

⁽²⁾ [ib Db]

1.10 Example of ATEX/IECEX label for SSD.../.../. for GAS

(Manufacturer)	Abtech Limited Sheffield, S9 2UQJUK
(type)	SSD .../.../.
(serial) /(year)	@@@@ / @@
(ATEX certificate)	INERIS 13 ATEX 0019X
(IECEX certificate)	IECEX INE 14. 0061X
(ATEX Marking)	CE₀₀₈₀ Ex II 2 G
(type of protection)	Ex db IIB or IIB+H₂ T^(*) Gb
ambient temperature	Tamb -20°C ÷ +60°C
leave blank if Tamb -20°C ÷ +40°C	
(electrical parameters)	... V ... Hz ... A
Tmax of cable	@@@ °C
WARNING:	DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT IDENTIFICATION OF CABLE ENTRY: SEE OPERATING INSTRUCTION

1.11 Example of ATEX label for SSD.../.../. for GAS

(Manufacturer)	Abtech Limited Sheffield, S9 2QJ, UK
(type)	SSD .../.../.
(serial) /(year)	@@@@ / @@
(ATEX certificate)	INERIS 13 ATEX 0019X
(ATEX Marking)	CE₀₀₈₀ Ex II 2 G
(type of protection)	Ex db IIB or IIB+H₂ T^(*) Gb
ambient temperature	Tamb -20°C ÷ +60°C
leave blank if Tamb -20°C ÷ +40°C	
(electrical parameters)	... V ... Hz ... A
Tmax of cable	@@@ °C
WARNING:	DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT IDENTIFICATION OF CABLE ENTRY: SEE OPERATING INSTRUCTION

1.12 Example of IECEX label for SSD.../.../. for GAS

(Manufacturer)	Abtech Limited Sheffield, S9 2QJ, UK
(type)	SSD .../.../.
(serial) /(year)	@@@@ / @@
(IECEX certificate)	IECEX INE 14. 0061X
(type of protection)	Ex db IIB or IIB+H₂ T^(*) Gb
ambient temperature	Tamb -20°C ÷ +60°C
leave blank if Tamb -20°C ÷ +40°C	
(electrical parameters)	... V ... Hz ... A
Tmax of cable	@@@ °C
WARNING:	DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT IDENTIFICATION OF CABLE ENTRY: SEE OPERATING INSTRUCTION

1.13 Example of ATEX/IECEX label for SSD.../.../. for GAS with IS (1)

(Manufacturer)	Abtech Limited Sheffield, S9 2QJ, UK
(type)	SSD .../.../.
(serial) /(year)	@@@@ / @@
(ATEX certificate)	INERIS 13 ATEX 0019X
(IECEX certificate)	IECEX INE xx. 00xxX
(ATEX Marking)	X ₀₀₈₀ II 2(1) G
(type of protection)	Ex db ⁽¹⁾ IIB or IIB+H₂ T^(*) Gb
ambient temperature	Tamb -20°C ÷ +60°C
leave blank if Tamb -20°C ÷ +40°C	
(electrical parameters)	... V ... Hz ... A
Tmax of cable	@@@ °C
WARNING:	DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT IDENTIFICATION OF CABLE ENTRY: SEE OPERATING INSTRUCTION

1.14 Example of ATEX label for SSD.../.../. for GAS with IS (1)

(Manufacturer)	Abtech Limited Sheffield, S9 2QJ, UK
(type)	SSD .../.../.
(serial) /(year)	@@@@ / @@
(ATEX certificate)	INERIS 13 ATEX 0019X
(ATEX Marking)	X ₀₀₈₀ II 2(1) G
(type of protection)	Ex db ⁽¹⁾ IIB or IIB+H₂ T^(*) Gb
ambient temperature	Tamb -20°C ÷ +60°C
leave blank if Tamb -20°C ÷ +40°C	
(electrical parameters)	... V ... Hz ... A
Tmax of cable	@@@ °C
WARNING:	DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT IDENTIFICATION OF CABLE ENTRY: SEE OPERATING INSTRUCTION

1.15 Example of IECEX label for SSD.../.../. for GAS with IS

(Manufacturer)	Abtech Limited Sheffield, S9 2QJ, UK
(type)	SSD .../.../.
(serial) /(year)	@@@@ / @@
(IECEX certificate)	IECEX INE xx. 00xxX
(type of protection)	Ex db ⁽¹⁾ IIB or IIB+H₂ T^(*) Gb
ambient temperature	Tamb -20°C ÷ +60°C
leave blank if Tamb -20°C ÷ +40°C	
(electrical parameters)	... V ... Hz ... A
Tmax of cable	@@@ °C
WARNING:	DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT IDENTIFICATION OF CABLE ENTRY: SEE OPERATING INSTRUCTION

⁽¹⁾ [ia Ga] or [ia IIA or IIB or IIC Ga]

1.16 Example of ATEX/IECEX label for SSD.../.../. for GAS with IS (2)

(Manufacturer)	Abtech Limited Sheffield, S9 2QJ, UK
(type)	SSD .../.../.
(serial) /(year)	@@@@ / @@
(ATEX certificate)	INERIS 13 ATEX 0019X
(IECEX certificate)	IECEX INE 14. 0061X
(ATEX Marking)	C €₀₀₈₀ II 2(2) G
(type of protection)	Ex db ⁽¹⁾ IIB or IIB+H₂ T^(*) Gb
ambient temperature	Tamb -20°C ÷ +60°C
leave blank if Tamb -20°C ÷ +40°C	
(electrical parameters)	... V ... Hz ... A
Tmax of cable	@@@ °C
WARNING:	DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT IDENTIFICATION OF CABLE ENTRY: SEE OPERATING INSTRUCTION

1.17 Example of ATEX label for SSD.../.../. for GAS with IS (2)

(Manufacturer)	Abtech Limited Sheffield, S9 2QJ, UK
(type)	SSD .../.../.
(serial) /(year)	@@@@ / @@
(ATEX certificate)	INERIS 13 ATEX 0019X
(ATEX Marking)	C €₀₀₈₀ II 2(2) G
(type of protection)	Ex db ⁽¹⁾ IIB or IIB+H₂ T^(*) Gb
ambient temperature	Tamb -20°C ÷ +60°C
leave blank if Tamb -20°C ÷ +40°C	
(electrical parameters)	... V ... Hz ... A
Tmax of cable	@@@ °C
WARNING:	DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT IDENTIFICATION OF CABLE ENTRY: SEE OPERATING INSTRUCTION

1.18 Example of IECEX label for SSD.../.../. for GAS with IS

(Manufacturer)	Abtech Limited Sheffield, S9 2QJ, UK
(type)	SSD .../.../.
(serial) /(year)	@@@@ / @@
(IECEX certificate)	IECEX INE 14. 0061X
(type of protection)	Ex db ⁽¹⁾ IIB or IIB+H₂ T^(*) Gb
ambient temperature	Tamb -20°C ÷ +60°C
leave blank if Tamb -20°C ÷ +40°C	
(electrical parameters)	... V ... Hz ... A
Tmax of cable	@@@ °C
WARNING:	DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT IDENTIFICATION OF CABLE ENTRY: SEE OPERATING INSTRUCTION

(1) [ib Gb] or [ib IIA or IIB or IIC Gb]

Note : (**) See Legend of marking data
: (***) See par. 8 for max surface temperature
: X = See par. 8: special condition for safe use

Additional warning in case of disconnectors are fitted on the enclosure: DO NOT OPERATE UNDER LOAD

1.2 IMPORTANT – READ CAREFULLY

Control, check, signal, automation, interruption and/or protection units in explosion proof enclosures SSD.../. Series shall be installed in conformity to the prescriptions of the standard EN/IEC 60079-14 (Edit in force) and the maintenance operations shall be made in conformity to the prescriptions of the standard EN/IEC 60079-17 (Edit in force). Besides the user shall know about the risks due to the electric current and the chemical and physical characteristics of the gas and/or vapours and dust present in the plant.

To further guarantee of the good quality/safety of the product, the Quality System of Abtech was evaluated and approved by a Notified Body which makes the surveillance of the quality and the verification at every stage of manufacture.

Abtech, assures and guarantees the correct manufacture of its products and, so that they can guarantee a safety result, it is indispensable that the Buyer and/or the User apply all the measures of security for which they are responsible for the purposes of a correct installation and a correct maintenance, according to the instructions and the suggestions of Abtech, and according to the national and local laws in matter of installation and prevention of the accidents.

The use of a certified apparatus subjected to interventions not explicitly authorized by Abtech, excludes every responsibility of Abtech and will cause the invalidation of the relative EU Type Examination Certificate and IECEx certificate and the contractual warranty.

2 Type of protection “Ex db” - Flameproof enclosures “

- 2.1 In this mode of protection, the electric equipment is placed in an enclosure which can withstand the pressure developed during an internal explosion and which prevents the transmission of the explosion to the explosive atmosphere surrounding the enclosure.
- 2.2 The integrity of the enclosure shall not be impaired by: unauthorized holes or drillings, incorrectly installed lid, or cable entry/holes which have not been closed or fitted with appropriate certified cable glands, conduit or stopping devices with the same thread of cable entry.
- 2.3 Unused holes and/or cable entries shall be equipped with suitable certified accessories such as Ex d plugs, Ex d cable glands, Ex d three piece unions, etc....
The accessories shall have the same thread of the cable entry and guarantee a number of threads engaged ≥ 5 .
- 2.4 The enclosure shall not be subjected to any mechanical stresses or conditions that were not intended during the design and manufacture (i.e. exposure to excessive mechanical impact, exposure to corrosive agents, possibly of internal short circuits with power dissipation greater than the declared level for each enclosure size).
- 2.5 Ensure correct fastening of body-lid according to the values showed in Table 1.

Table 1 – Screws tightening torque

Screw	M6	M8	M10	M12	M14	M16	M20
Torque (Nm)	5-7	10-20	20-30	34-60	53-80	83-140	160-200

- 2.6 When connected with conduit, a suitable stopping device shall be fitted a maximum distance of 450 mm from the enclosure.
- 2.7 Cable entries shall be fitted with certified cable glands, appropriate for the cable being fitted and the type of protection and in accordance with EN/IEC 60079-14 (Edit in force), and any special condition imposed by the cable gland certificate.

3 Installation

- 3.1 Before installation, it is the Users responsibility to ensure that the apparatus is suitable for the intended application.
- 3.2 Verify that the certified apparatus is suitable for the hazardous area classification.
- 3.3 Verify that the gas or dust group of the certified apparatus is suitable for any gases, vapours or combustible dust hazard that may be present.
- 3.4 Verify that the temperature class and/or the maximum surface temperature of the certified apparatus is suitable for any flammable gases, vapours or combustible dust hazards that may be present.
- 3.5 The certified apparatus shall be installed and operated within the service limits specified for which it was built (voltage, current, mechanical impact, and ambient temperature specified in the rating/certification plate and thermal dissipation).
- 3.6 Ensure all electrical and mechanical connections are securely made.
- 3.7 Verify the integrity and the continuity of earth, protection or equipotential bonding.
- 3.8 Ensure no modification(s) not authorised by Abtech, that compromise the electrical and/or mechanical structure and functionality of the certified apparatus have been made. (e.g. the alteration of the content of certified enclosures with the addition of further equipment or components).
- 3.9 Ensure that all electrical protection devices are fully functioning.

4 Maintenance

- 4.1 The maintenance of the SSD enclosure range is critical to the performance and safe operation of the apparatus. The maintenance operations shall be made and carried out in accordance with EN/IEC 60079-17 (Edit in force).
- 4.2 It is imperative that a routine maintenance programme is carried out at regular intervals, the timing of which shall be made by the responsible person and taking into account, environmental conditions and ambient temperatures that the apparatus is subjected to. In any case, the equipment shall be inspected at least every 2 (two) years.
- 4.3 The maintenance is necessary to guarantee the safe operation of the apparatus within the hazardous area and strict adherence to the apparatus certificate and these maintenance instructions is essential.
- 4.4 The maintenance operations shall be carried out by competent personnel, whose training has included instructions on the characteristics of the apparatus and the protection type employed.
- 4.5 Any repairs or modifications to the equipment, not using Abtech spare parts, shall be agreed in writing with Abtech to ensure compliance with the certificate and to ensure any additional tests or verification that may be required.
- 4.6 All the maintenance operations shall be made with the electrical apparatus isolated or when an explosive atmosphere is not present.
- 4.7 When reassembling flameproof enclosures, the user shall verify that the flameproof joints are not damaged, all joints shall be thoroughly cleaned and lightly smeared with a suitable not hardening grease to prevent the corrosion and enhance environmental protection. It cannot be too strongly emphasized that extreme care should be exercised in the selection and application of the grease to ensure non-hardening grease is used, this will aid subsequent separation of the flameproof joints.
- 4.8 Only non-metallic brushes and non-corrosive cleaning fluids shall be used to clean flameproof joints and paths.
- 4.9 Anti condensation devices, such as thermal probes, breathing, draining or heating elements, shall be checked periodically to ensure correct operation (if installed).
- 4.10 If the certified apparatus is subject to vibrations, verify that the clamping screws, internal connections and conduit and/or cable entries are securely and properly fitted.
- 4.11 If the user shall replace the body-lid-closing screws, it is imperative that screws having the same characteristics are used.

5 Special condition for safe use

- 5.1 The gap between the lid and the enclosure is less than the values specified in the tables of IEC/EN 60079-1 standard. The length of the flameproof joint is greater than those specified in tables of IEC/EN 60079-1 standard.
- 5.2 The apparatus with type of protection Ex db or Ex tb, shall only be used in an ambient temperature specified on the marking plate, if nothing is specified, ambient temperature should be considered from -20°C to +40°C.
- 5.3 The apparatus with type of protection Ex db [ia] or Ex db [ib] shall only be used to an ambient temperature from -20°C up to +60°C.
- 5.4 The temperature class for SSD enclosure with IS associated apparatus [i.] inside is T6/T85 °C.
- 5.5 When intrinsically safe terminals are fitted, only intrinsically safe circuits shall be connected to these terminals and the User shall ensure that the connections are compatible within the limitation of use.
- 5.6 When enclosure contains non-intrinsically safe devices and intrinsically safe devices together, the enclosure shall be fitted with an internal thermostat. The thermostat connected with a suitable device, shall de-energize the circuit when the internal temperature reaches the max ambient temperature of the barrier in function of the IS circuit maximum operating temperature. The special conditions for safe use are complemented by those described in the examination certificates of each device (certified as component) as part of the final equipment. The other conditions of use are stipulated in the instructions.

- 5.7 When installing equipment, care shall be taken to prevent the flameproof flange joints approaching nearer than the distance specified in Table 2 to any solid obstacle which is not part of the equipment, such as steelwork, walls, weather guards, mounting brackets, pipes or other has been tested at a smaller distance of separation and has been documented.

Table 2 – Minimum distance of obstruction from the flameproof flange joints related to the gas group of the hazardous area

Gas group	Minimum distance mm
IIB	20
IIB + H ₂	30

6 Maximum painting thickness

The maximum painting thickness is showed in table 3.

Table 3 – Limitation of thickness of non-metallic layer

Gas group	Minimum thickness mm
IIB	2
IIB + H ₂	0,2

7 Parameters relating to safety

- 7.1 Maximum electrical specifications:
- | | |
|-------------------------|-----------------------|
| DC voltage | 1500 Vdc; |
| AC voltage | 24 kVac; |
| Frequency | 50 / 60 / 400 Hz; |
| Nominal current | 2000 A; |
| Rated/Nominal Power | 3500 kVA; |
| Terminals cross section | 300 mm ² ; |
| Bus-bar cross section | 600 mm ² ; |
| IS associated voltage | Um ≤ 250 V |

The electrical specification of intrinsic safety circuits are marked on the IS associated apparatus. It is possible to install internal fan (max cooling fan flow rate: 25 m³/h for V>32dm³).

- 7.2 Enclosure of EPL Gb having type of protection Ex db, has a temperature class (T rating) according to par. 8. Enclosure of EPL Gb Db in addition to the temperature class has a maximum surface temperature rating according to par. 8.
- 7.3 Enclosure having type of protection Ex db [i.] is designed by the category of the associated apparatus [ia] or [ib]. Follows the requirements of standard EN/IEC 60079-14 for the installation and the safety distances.
- 7.4 Cables: maximum service temperature of cables is shown on the marking label when necessary. The Buyer and/or the User shall use a connection cable having a maximum service temperature not lower than indicated on the marking label.
- 7.5 The degree of protection is indicated in Marking data. To grant the above degree of protection all installed accessories shall have the same degree of protection or superior.

8 Max dissipated power (W)

8.1 Table of maximum power dissipated in the enclosure SSD with/without windows

Table of maximum power dissipated for enclosure SSD*** made in carbon steel, stainless steel and Aluminium Alloy (ATEX Only)

Table 4 – Max dissipated power for enclosures in carbon steel, stainless steel and aluminium alloy with/without windows for SSD***

Enclosure model	Max dissipater power (W) depending on the ambient temperature and various temperature Classes, for carbon steel, stainless steel and aluminium alloy																									
	Surface (cm ²)	T6/T85°C					T5/T100°C					T120°C					T4/T135°C					T3/T200°C				
		40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C
		Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.
	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	
001	351	7	6	6	5	4	10	8	8	7	7	15	12	11	10	9	17	13	13	12	11	17	13	13	12	11
002	421	9	8	8	7	6	14	11	11	10	9	19	15	14	13	12	22	17	16	15	14	22	17	16	15	14
003	514	12	9	9	8	7	16	13	13	12	11	23	18	17	16	14	26	21	19	18	17	26	21	20	18	17
004	641	13	10	10	9	8	18	14	14	13	12	25	20	19	18	16	29	23	22	20	19	29	23	22	20	19
011	442	10	8	8	7	6	14	11	11	10	9	19	16	15	14	12	23	18	17	15	14	23	18	17	16	15
012	524	12	9	9	8	7	16	13	13	12	11	23	18	17	16	14	26	21	19	18	17	26	21	20	18	17
013	631	13	10	10	9	8	18	14	14	13	12	25	20	19	18	16	29	23	22	20	19	29	23	22	20	19
014	777	15	12	11	11	10	21	17	16	15	14	29	23	22	20	19	34	27	26	24	22	34	27	26	24	22
111	563	13	10	10	9	8	18	14	14	13	12	25	20	19	18	16	29	23	22	20	19	29	23	22	20	19
112	660	15	12	11	11	10	21	17	16	15	14	29	23	22	20	19	34	27	26	24	22	34	27	26	24	22
113	787	18	14	14	13	12	25	20	19	18	16	35	28	26	25	23	41	33	31	29	27	41	33	31	29	27
114	965	22	18	17	15	14	31	25	23	22	20	42	34	32	29	27	50	40	38	35	33	50	40	38	35	33
121	720	17	14	13	12	11	23	18	17	16	15	32	26	24	22	21	37	30	28	26	24	37	30	28	26	24
122	832	19	15	14	13	12	27	22	20	19	18	37	30	28	26	24	43	34	32	30	28	43	34	32	30	28
123	979	23	18	17	16	15	31	25	23	22	20	43	34	32	30	28	51	41	38	36	33	51	41	38	36	33
124	1178	27	22	20	19	18	38	30	29	27	25	52	42	39	36	34	61	49	46	43	40	61	49	46	43	40
201	584	13	10	10	9	8	18	14	14	13	12	25	20	19	18	16	29	23	22	20	19	29	23	22	20	19
202	690	15	12	11	11	10	21	17	16	15	14	29	23	22	20	19	34	27	26	24	22	34	27	26	24	22
203	829	19	15	14	13	12	27	22	20	19	18	37	30	28	26	24	43	34	32	30	28	43	34	32	30	28
204	1018	23	18	17	16	15	32	26	24	22	21	44	35	33	31	29	52	42	39	36	34	52	42	39	36	34
211	728	17	14	13	12	11	23	18	17	16	15	32	26	24	22	21	38	30	29	27	25	38	30	29	27	25
212	845	20	16	15	14	13	27	22	20	19	18	37	30	28	26	24	44	35	33	31	29	44	35	33	31	29

Enclosure model		Max dissipater power (W) depending on the ambient temperature and various temperature Classes, for carbon steel, stainless steel and aluminium alloy																									
		Surface (cm ²)	T6/T85°C					T5/T100°C					T120°C					T4/T135°C					T3/T200°C				
			40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C
			Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.
	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)		
213	999	23	18	17	16	15	32	26	24	22	21	44	35	33	31	29	52	42	39	36	34	52	42	39	36	34	
214	1207	28	22	21	20	18	39	31	29	27	25	53	42	40	37	34	63	50	47	44	41	63	50	47	44	41	
221	928	22	18	17	15	14	30	24	23	21	20	41	33	31	29	27	48	38	36	34	31	48	38	36	34	31	
222	1059	25	20	19	18	16	34	27	26	24	22	47	38	35	33	31	55	44	41	39	36	55	44	41	39	36	
223	1233	29	23	22	20	19	39	31	29	27	25	54	43	41	38	35	64	51	48	45	42	64	51	48	45	42	
224	1469	34	27	26	24	22	47	38	35	33	31	65	52	49	46	42	76	61	57	53	49	76	61	57	53	49	
231	1192	28	22	21	20	18	38	30	29	27	25	52	42	39	36	34	62	50	47	43	40	62	50	47	43	40	
232	1344	31	25	23	22	20	43	34	32	30	28	59	47	44	41	38	70	56	53	49	46	70	56	53	49	46	
233	1544	36	29	27	25	23	49	39	37	34	32	68	54	51	48	44	80	64	60	56	52	80	64	60	56	52	
234	1816	42	34	32	29	27	58	46	44	41	38	80	64	60	56	52	94	75	71	66	61	94	75	71	66	61	
301	767	17	14	13	12	11	23	18	17	16	15	32	26	24	22	21	38	30	29	27	25	38	30	29	27	25	
302	900	19	15	14	13	12	27	22	20	19	18	37	30	28	26	24	43	34	32	30	28	43	34	32	30	28	
303	1075	25	20	19	18	16	34	27	26	24	22	47	38	35	33	31	55	44	41	39	36	55	44	41	39	36	
304	1313	29	23	22	20	19	39	31	29	27	25	54	43	41	38	35	64	51	48	45	42	64	51	48	45	42	
305	1635	46	37	35	32	30	63	50	47	44	41	87	70	65	61	57	102	82	77	71	66	102	82	77	71	66	
323	1579	37	30	28	26	24	51	41	38	36	33	69	55	52	48	45	82	66	62	57	53	82	66	62	57	53	
324	1863	43	34	32	30	28	60	48	45	42	39	82	66	62	57	53	97	78	73	68	63	97	78	73	68	63	
325	2249	52	42	39	36	34	72	58	54	50	47	99	79	74	69	64	117	94	88	82	76	117	94	88	82	76	
333	1579	46	37	35	32	30	63	50	47	44	41	87	70	65	61	57	102	82	77	71	66	102	82	77	71	66	
334	1863	53	42	40	37	34	73	58	55	51	47	101	81	76	71	66	119	95	89	83	77	119	95	89	83	77	
335	2249	63	50	47	44	41	87	70	65	61	57	120	96	90	84	78	141	113	106	99	92	141	113	106	99	92	
343	2491	58	46	44	41	38	80	64	60	56	52	110	88	83	77	72	130	104	98	91	85	130	104	98	91	85	
344	2861	66	53	50	46	43	92	74	69	64	60	126	101	95	88	82	149	119	112	104	97	149	119	112	104	97	
345	3361	59	47	44	41	38	81	65	61	57	53	110	88	83	77	72	132	106	99	92	86	132	106	99	92	86	
413	1675	46	37	35	32	30	63	50	47	44	41	87	70	65	61	57	102	82	77	71	66	102	82	77	71	66	
414	1999	53	42	40	37	34	73	58	55	51	47	101	81	76	71	66	119	95	89	83	77	119	95	89	83	77	
415	2437	56	45	42	39	36	77	62	58	54	50	105	84	79	74	68	125	100	94	88	81	125	100	94	88	81	
416	3027	68	54	51	48	44	93	74	70	65	60	129	103	97	90	84	152	122	114	106	99	152	122	114	106	99	
423	2044	47	38	35	33	31	65	52	49	46	42	90	72	68	63	59	106	85	80	74	69	106	85	80	74	69	

Enclosure model	Max dissipater power (W) depending on the ambient temperature and various temperature Classes, for carbon steel, stainless steel and aluminium alloy																									
	Surface (cm ²)	T6/T85°C					T5/T100°C					T120°C					T4/T135°C					T3/T200°C				
		40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C
		Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.
	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	
424	2395	56	45	42	39	36	77	62	58	54	50	105	84	79	74	68	125	100	94	88	81	125	100	94	88	81
425	2870	67	54	50	47	44	92	74	69	64	60	126	101	95	88	82	149	119	112	104	97	149	119	112	104	97
426	3510	62	50	47	43	40	84	67	63	59	55	115	92	86	81	75	138	110	104	97	90	138	110	104	97	90
433	2534	59	47	44	41	38	81	65	61	57	53	112	90	84	78	73	132	106	99	92	86	132	106	99	92	86
434	2921	68	54	51	48	44	93	74	70	65	60	129	103	97	90	84	152	122	114	106	99	152	122	114	106	99
435	3444	51	41	38	36	33	83	66	62	58	54	113	90	85	79	73	135	108	101	95	88	135	108	101	95	88
443	3199	56	45	42	39	36	77	62	58	54	50	105	84	79	74	68	125	100	94	88	81	125	100	94	88	81
444	3635	64	51	48	45	42	87	70	65	61	57	119	95	89	83	77	142	114	107	99	92	142	114	107	99	92
445	4225	74	59	56	52	48	101	81	76	71	66	139	111	104	97	90	166	133	125	116	108	166	133	125	116	108
446	5020	88	70	66	62	57	120	96	90	84	78	165	132	124	116	107	197	158	148	138	128	197	158	148	138	128
453	4095	72	58	54	50	47	98	78	74	69	64	134	107	101	94	87	161	129	121	113	105	161	129	121	113	105
454	4597	81	65	61	57	53	110	88	83	77	72	151	121	113	106	98	180	144	135	126	117	180	144	135	126	117
455	5276	93	74	70	65	60	127	102	95	89	83	173	138	130	121	112	207	166	155	145	135	207	166	155	145	135
456	6192	109	87	82	76	71	149	119	112	104	97	203	162	152	142	132	243	194	182	170	158	243	194	182	170	158
524	3113	55	44	41	39	36	75	60	56	53	49	102	82	77	71	66	122	98	92	85	79	122	98	92	85	79
525	3708	65	52	49	46	42	89	71	67	62	58	122	98	92	85	79	145	116	109	102	94	145	116	109	102	94
526	4511	79	63	59	55	51	108	86	81	76	70	148	118	111	104	96	177	142	133	124	115	177	142	133	124	115
527	5572	98	78	74	69	64	134	107	101	94	87	183	146	137	128	119	218	174	164	153	142	218	174	164	153	142
528	7034	124	99	93	87	81	169	135	127	118	110	231	185	173	162	150	276	221	207	193	179	276	221	207	193	179
534	3778	66	53	50	46	43	91	73	68	64	59	124	99	93	87	81	148	118	111	104	96	148	118	111	104	96
535	4422	78	62	59	55	51	106	85	80	74	69	145	116	109	102	94	173	138	130	121	112	173	138	130	121	112
536	5290	93	74	70	65	60	127	102	95	89	83	174	139	131	122	113	207	166	155	145	135	207	166	155	145	135
537	6438	113	90	85	79	73	155	124	116	109	101	211	169	158	148	137	252	202	189	176	164	252	202	189	176	164
538	8020	141	113	106	99	92	192	154	144	134	125	263	210	197	184	171	314	251	236	220	204	314	251	236	220	204
544	4681	82	66	62	57	53	112	90	84	78	73	154	123	116	108	100	183	146	137	128	119	183	146	137	128	119
545	5391	95	76	71	67	62	129	103	97	90	84	177	142	133	124	115	211	169	158	148	137	211	169	158	148	137
546	6348	112	90	84	78	73	152	122	114	106	99	208	166	156	146	135	249	199	187	174	162	249	199	187	174	162
547	7614	134	107	101	94	87	183	146	137	128	119	250	200	188	175	163	298	238	224	209	194	298	238	224	209	194
554	5897	165	132	124	116	107	225	180	169	158	146	307	246	230	215	200	367	294	275	257	239	367	294	275	257	239

Enclosure model	Max dissipater power (W) depending on the ambient temperature and various temperature Classes, for carbon steel, stainless steel and aluminium alloy																									
	Surface (cm ²)	T6/T85°C					T5/T100°C					T120°C					T4/T135°C					T3/T200°C				
		40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C
		Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.
	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	
555	6697	104	83	78	73	68	142	114	107	99	92	193	154	145	135	125	231	185	173	162	150	231	185	173	162	150
556	7774	118	94	89	83	77	161	129	121	113	105	220	176	165	154	143	263	210	197	184	171	263	210	197	184	171
557	9199	137	110	103	96	89	187	150	140	131	122	255	204	191	179	166	305	244	229	214	198	305	244	229	214	198
558	11163	162	130	122	113	105	221	177	166	155	144	302	242	227	211	196	361	289	271	253	235	361	289	271	253	235
564	7540	196	157	147	137	127	268	214	201	188	174	366	293	275	256	238	438	350	329	307	285	438	350	329	307	285
565	8460	133	106	100	93	86	181	145	136	127	118	247	198	185	173	161	296	237	222	207	192	296	237	222	207	192
566	9700	149	119	112	104	97	203	162	152	142	132	277	222	208	194	180	332	266	249	232	216	332	266	249	232	216
567	11340	171	137	128	120	111	233	186	175	163	151	318	254	239	223	207	380	304	285	266	247	380	304	285	266	247
568	13600	200	160	150	140	130	272	218	204	190	177	372	298	279	260	242	445	356	334	312	289	445	356	334	312	289
624	4089	89	71	67	62	58	122	98	92	85	79	167	134	125	117	109	200	160	150	140	130	200	160	150	140	130
625	4848	72	58	54	50	47	98	78	74	69	64	134	107	101	94	87	160	128	120	112	104	160	128	120	112	104
626	5870	85	68	64	60	55	116	93	87	81	75	159	127	119	111	103	190	152	143	133	124	190	152	143	133	124
627	7224	103	82	77	72	67	141	113	106	99	92	193	154	145	135	125	230	184	173	161	150	230	184	173	161	150
628	9088	127	102	95	89	83	173	138	130	121	112	237	190	178	166	154	283	226	212	198	184	283	226	212	198	184
634	4942	160	128	120	112	104	218	174	164	153	142	298	238	224	209	194	356	285	267	249	231	356	285	267	249	231
635	5750	87	70	65	61	57	119	95	89	83	77	162	130	122	113	105	194	155	146	136	126	194	155	146	136	126
636	6838	101	81	76	71	66	138	110	104	97	90	189	151	142	132	123	225	180	169	158	146	225	180	169	158	146
637	8278	120	96	90	84	78	164	131	123	115	107	224	179	168	157	146	268	214	201	188	174	268	214	201	188	174
638	10263	146	117	110	102	95	199	159	149	139	129	272	218	204	190	177	324	259	243	227	211	324	259	243	227	211
644	6101	181	145	136	127	118	246	197	185	172	160	337	270	253	236	219	402	322	302	281	261	402	322	302	281	261
645	6975	107	86	80	75	70	146	117	110	102	95	200	160	150	140	130	239	191	179	167	155	239	191	179	167	155
646	8153	123	98	92	86	80	167	134	125	117	109	229	183	172	160	149	273	218	205	191	177	273	218	205	191	177
647	9711	143	114	107	100	93	196	157	147	137	127	267	214	200	187	174	320	256	240	224	208	320	256	240	224	208
648	11858	171	137	128	120	111	233	186	175	163	151	319	255	239	223	207	381	305	286	267	248	381	305	286	267	248
654	7663	209	167	157	146	136	285	228	214	200	185	389	311	292	272	253	465	372	349	326	302	465	372	349	326	302
655	8626	135	108	101	95	88	184	147	138	129	120	251	201	188	176	163	300	240	225	210	195	300	240	225	210	195
656	9924	152	122	114	106	99	207	166	155	145	135	283	226	212	198	184	338	270	254	237	220	338	270	254	237	220
657	11642	175	140	131	123	114	238	190	179	167	155	326	261	245	228	212	389	311	292	272	253	389	311	292	272	253
658	14008	205	164	154	144	133	279	223	209	195	181	382	306	287	267	248	456	365	342	319	296	456	365	342	319	296

Enclosure model	Max dissipater power (W) depending on the ambient temperature and various temperature Classes, for carbon steel, stainless steel and aluminium alloy																									
	Surface (cm ²)	T6/T85°C					T5/T100°C					T120°C					T4/T135°C					T3/T200°C				
		40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C
		Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.
	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	
664	9772	247	198	185	173	161	336	269	252	235	218	459	367	344	321	298	549	439	412	384	357	549	439	412	384	357
665	10856	172	138	129	120	112	235	188	176	165	153	321	257	241	225	209	383	306	287	268	249	383	306	287	268	249
666	12316	191	153	143	134	124	261	209	196	183	170	356	285	267	249	231	426	341	320	298	277	426	341	320	298	277
667	14248	217	174	163	152	141	296	237	222	207	192	404	323	303	283	263	483	386	362	338	314	483	386	362	338	314
668	16911	251	201	188	176	163	342	274	257	239	222	467	374	350	327	304	559	447	419	391	363	559	447	419	391	363
674	12638	222	178	167	155	144	303	242	227	212	197	415	332	311	291	270	495	396	371	347	322	495	396	371	347	322
675	13885	244	195	183	171	159	333	266	250	233	216	455	364	341	319	296	544	435	408	381	354	544	435	408	381	354
676	15567	274	219	206	192	178	374	299	281	262	243	511	409	383	358	332	610	488	458	427	397	610	488	458	427	397
677	17791	313	250	235	219	203	427	338	319	299	279	584	467	438	409	380	697	558	523	488	453	697	558	523	488	453
678	20855	367	294	275	257	239	501	401	376	351	326	684	547	513	479	445	818	654	614	573	532	818	654	614	573	532
735	7473	164	131	123	115	107	224	179	168	157	146	306	245	230	214	199	366	293	275	256	238	366	293	275	256	238
736	8927	196	157	147	137	127	268	214	201	188	174	366	293	275	256	238	437	350	328	306	284	437	350	328	306	284
737	10760	237	190	178	166	154	323	258	242	226	210	441	353	331	309	287	527	422	395	369	343	527	422	395	369	343
738	13287	292	234	219	204	190	399	319	299	279	259	545	436	409	382	354	651	521	488	456	423	651	521	488	456	423
745	9111	200	160	150	140	130	273	218	205	191	177	374	299	281	262	243	446	357	335	312	290	446	357	335	312	290
746	10587	233	186	175	163	151	318	254	239	223	207	434	347	326	304	282	519	415	389	363	337	519	415	389	363	337
747	12538	276	221	207	193	179	376	301	282	263	244	514	411	386	360	334	614	491	461	430	399	614	491	461	430	399
748	15228	335	268	251	235	218	457	366	343	320	297	624	499	468	437	406	746	597	560	522	485	746	597	560	522	485
755	11228	247	198	185	173	161	337	270	253	236	219	460	368	345	322	299	550	440	413	385	358	550	440	413	385	358
756	12824	282	226	212	197	183	385	308	289	270	250	526	421	395	368	342	628	502	471	440	408	628	502	471	440	408
757	14934	329	263	247	230	214	448	358	336	314	291	612	490	459	428	398	732	586	549	512	476	732	586	549	512	476
758	17843	393	314	295	275	255	535	428	401	375	348	732	586	549	512	476	874	699	656	612	568	874	699	656	612	568
765	14086	310	248	233	217	202	423	338	317	296	275	578	462	434	405	376	690	552	518	483	449	690	552	518	483	449
766	15845	349	279	262	244	227	475	380	356	333	309	650	520	488	455	423	776	621	582	543	504	776	621	582	543	504
767	18170	400	320	300	280	260	545	436	409	382	354	745	596	559	522	484	890	712	668	623	579	890	712	668	623	579
768	21375	470	376	353	329	306	641	513	481	449	417	876	701	657	613	569	1047	838	785	733	681	1047	838	785	733	681
775	17970	395	316	296	277	257	539	431	404	377	350	737	590	553	516	479	881	705	661	617	573	881	705	661	617	573
776	19949	439	351	329	307	285	598	478	449	419	389	818	654	614	573	532	978	782	734	685	636	978	782	734	685	636
777	22567	496	397	372	347	322	677	542	508	474	440	925	740	694	648	601	1106	885	830	774	719	1106	885	830	774	719

Enclosure model		Max dissipater power (W) depending on the ambient temperature and various temperature Classes, for carbon steel, stainless steel and aluminium alloy																								
		T6/T85°C					T5/T100°C					T120°C					T4/T135°C					T3/T200°C				
		40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C	40°C	45°C	50°C	55°C	60°C
		Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.	Tamb.
778	26174	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)
		576	461	432	403	374	785	628	589	550	510	1073	858	805	751	697	1283	1026	962	898	834	1283	1026	962	898	834

The enclosures with windows are only feasible for temperature class T6/T85° or T5/T100°C or T120°C or T4/T135 °C.
The cable temperature is defined as follows table:

Table 5 – Cable Temperature

Max surface temperature	Tmax cable
≤ 120 °C	80°C
120 °C ÷ 135 °C	90°C
135 °C ÷ 200 °C	110°C