1 # EC-TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3 EC-Type Examination Certificate Number : **BAS01ATEX2106X**

4 Equipment or Protective System: **TYPE SIZE 1 TO SIZE 9 RANGE OF JUNCTION BOXES**

5 Manufacturer: **HAWKE CABLE GLANDS LTD**

6 Address: **Ashton-under-Lyne, Lancashire, OL7 0NA**

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

8 The Electrical Equipment Certification Service, notified body number 600 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report N°

01(C)0803 dated 15 August 2001

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014: 1997 + Amds 1 & 2 **EN 50019: 2000** **EN 50281-1-1: 1998**

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign **"X"** is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment or protective system.

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

Ⓔx II 2 GD T80°C **EEx e II T(see schedule)** **$-40°C \leq T_{amb} \leq$ (see schedule)**

This certificate may only be reproduced in its entirety and without any change, schedule included.

File No: EECS 0500/03/038

This certificate is granted subject to the general conditions of the Electrical Equipment Certification Service. It does not necessarily indicate that the apparatus may be used in particular industries or circumstances.

I M CLEARE
DIRECTOR
31 August 2001

Electrical Equipment Certification Service
Health and Safety Executive
Harpur Hill, Buxton, Derbyshire, SK17 9JN, United Kingdom
Tel: +44(0)1298 28000 Fax: +44(0)1298 28244
Internet: www.buxton.co.uk e-mail: buxton.info@hsl.gov.uk

13 **Schedule**

14 **EC-TYPE EXAMINATION CERTIFICATE N° BAS01ATEX2106X**

15 **Description of Equipment or Protective System**

The Size 1 to Size 9 Range of Junction Boxes (S1 to S9 or MS1 to MS9) have previously been certified covered by certificate number BAS99ATEX2247X. They consist of type ZS1 to ZS9 stainless steel enclosures or ZMS1 to ZMS9 mild steel enclosures in which are fitted a variety of different terminal arrangements. The empty enclosures are covered by certificate No. BAS01ATEX2105U, coded EEx e II. All the terminals are covered by their own component certificates and are coded EEx e II. The terminals are listed on drawing No. D2536 held on file 0500/03/054. The actual terminals fitted to each enclosure will be listed in the schedule of the instruction sheets, AI 266, supplied with the enclosure.

The terminals must be used within their relevant temperature range, voltage and current limitations, and fitted in accordance with EN50019 with regard to creepage and clearance distances. Details on drawing C2535 describe partitioning arrangements which allow for the termination of intrinsically safe (i.s.) circuits and non i.s. circuits within the same enclosure. When i.s. circuits are present an additional label is fitted to the outside of the enclosure stating "INTRINSICALLY SAFE CIRCUIT ENCLOSED".

The maximum power dissipation within each terminal box is as follows:

Box Type	Max. Power Dissipation (Watts)										Cable length per terminal (m)
	T6 T5	amb 40°C 55°C	T6	amb 55°C	T5	amb 40°C	T6	amb 65°C	T5	amb 65°C	
Size 1	13.95		8.7		19.1		5.2		10.4		0.307
Size 2	18.15		11.3		24.9		6.8		13.6		0.425
Size 3	23.7		14.8		32.5		8.8		17.7		0.515
Size 4	29.95		18.7		41.1		11.2		22.4		0.579
Size 5	32.85		20.5		45.1		12.3		24.6		0.662
Size 6	40		25		55		15		30		0.792
Size 7	52		32.5		71.5		19.5		39		0.945
Size 8	65		40.6		89.3		24.3		48.7		1.09
Size 9	79.35		49.5		109.1		29.7		59.5		1.238

The maximum number of terminals which may be fitted into each enclosure is calculated using the following formula:

Power = $I^2 \times N(R_t + R_c)$ Watts

where:

I = actual current through the conductor up to the maximum certified current of the terminal (amps)
N = number of terminals
R_t = terminal resistance (Ohms @ 20°C)
R_c = resistance of one conductor (Ohms @ 20°C) when using a maximum diagonal cable length listed in the above table

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14 **EC-TYPE EXAMINATION CERTIFICATE N° BAS01ATEX2106X**

Earth facilities and cable entries are described on the component certificate for the empty enclosures BAS01ATEX2105U. A suitable certified internal rail mounted earth may be used. If a "clean earth" is required a rail mounted power terminal may be used.

VARIATION ONE

When required a component approved breather, drain or breather-drain may be fitted to the enclosure as specified by the component certificate BAS01ATEX2105U. When fitted the IP rating of the enclosure is reduced to the IP rating of the device fitted and may no longer be suitable for category 2D.

Fitting a Redapt breather covered by certificate SIRA 99 ATEX 3050U does not effect the IP rating of the enclosure and thus requires no change in marking.

Fitting any of the alternative breathers specified in the certification documents reduces the dust ingress protection to IP5. The designation of the enclosure will be changed as shown below:

add suffix /1 eg. S3 becomes S3/1

The marking of the enclosure shall include the following:-

Ⓔx II 2 G 3 D T80°C EEx e II T(see schedule) -40°C ≤ T_{amb} ≤ (see schedule

16. **Report No.**

01(C)0803

17 **Special Conditions For Safe Use**

1. Only the following breathers are approved for use with these enclosures:-

Manufacturer and type	Certificate No.	Code	Dust IP rating
KRON Type DLP	NEMKO Ex 94C086X	EEx e II	5
Tranberg A.S. TEF7302	NEMKO 88.217	EEx e II	5
Weidmuller BD1	BASEEFA Ex 86B3174U	EEx e II	5
Redapt	SIRA 99 ATEX 3050U	EEx e I/II	6

2. The breathers must be installed in their correct orientation in the bottom face of the enclosure. The enclosure IP rating shall match the breather and must be at least IP54.

3. Unused cable entries must be fitted with Hawke Type 375 or Type 387 Stopping Plugs.

4. All terminal screws, used and unused, shall be tightened down by the end user.

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5. Insulation of conductors must extend to within 1mm of the metal of the terminal throat unless specified otherwise on the terminal certificate.

6. No more than one single or multistrand lead shall be connected into either side of any terminal unless multiple conductors have been joined in a suitable manner, e.g. two conductors into a single insulated crimped bootlace ferrule or any method indiciated on the terminal certificate.

7. Terminals shall be installed in such a manner that the creepage and clearance distances between the terminal and adjacent components, enclosure walls and covers comply with the requirements of EN 50019 for the rated voltage of the apparatus.

8. Terminal temperatures must not exceed the operating range specified on the component certificate.

9. All terminals, and accessories such as cross-connecters, shall be installed in accordance with the terminal manufacturers instructions. Hawke Cable Glands Ltd will supply the relevant terminal manufacturers instructions with each junction box covered by this certificate

10. The maximum voltage, current and dissipated power shown on the rating label must not be exceeded.

11. When connecting conductors of cross section below the maximum allowed for a particular terminal then the maximum amps/pole must be reduced in line with the maximum amps permitted for a terminal equivalent to the conductor size fitted. e.g. If a terminal that can take a $10mm^2$ conductor at 50 Amps is fitted with a $4mm^2$ conductor then the current shall be reduced to a maximum of 21 Amps, or the rating marked on the apparatus label, whichever is the lower.

18 **Essential Health and Safety Requirements**

None that aren't covered by assessment against EN 50014: 1997, EN 50019: 1994 and EN 50281-1-1: 1998.

19 **DRAWINGS**

Number	Sheet	Issue	Date	Description
C2535		A	20/7/01	General Arrangement
AI 266	1 to 3	B	7/01	Instructions

BASEEFA List Keywords
2TERMBOX