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 : **BAS02ATEX2157**

4 Equipment or Protective System: **TYPE NB-M25 SOLENOID OPERATOR**

5 Manufacturer: **ASCO JOUCOMATIC LTD**

6 Address: **Skelmersdale, Lancashire, WN8 9PG**

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°

02(C)0246 dated 29 April 2002

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

EN 50014: 1997 + Amds 1 & 2 **EN 50018: 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:-

Ex II 2 GD **EEx d IIC T* (see schedule)**

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

File No: EECS 0080/01/010

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.

HSE Health & Safety Executive

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.baseefa.com e-mail: baseefa.info.eecs@hsl.gov.uk

I M CLEARE
DIRECTOR
30 May 2002

13 **Schedule**

14 **EC-TYPE EXAMINATION CERTIFICATE N° BAS02ATEX2157**

15 **Description of Equipment or Protective System**

Type NB-M25 Solenoid Operator rated at up to 35.1W at up to 240V d.c., comprising a cylindrical cast iron housing with a cast iron screwed cover which has a locking screw. The stainless steel core tube is press-fitted into the housing. The pre-encapsulated coil and the associated flux plate assembly are retained on the core tube by a steel retaining clip. The coil leads are terminated in a terminal block secured to a plate which is fixed by screws to the flux plate.

Internal and external earthing facilities are provided.

Cable entry holes are provided for the accommodation of suitable BASEEFA certified flameproof cable entry devices for gas groups IIB or IIC, with or without the interposition of a suitable BASEEFA certified flameproof thread adaptor. Unused entries are to be fitted with suitable BASEEFA certified flameproof stopping plugs.

Suitable flameproof cable entry devices, thread adaptors and stopping plugs certified as Equipment (not a Component) under an EC Type Examination Certificate to Directive 94/9/EC may also be used in the manner indicated above.

The type number has the suffix -02 when the cable entry thread is ½" NPT.

The type number has the prefix NBET and a suffix -04 when the cable entry thread is M20 x 1.5.

A further suffix R is added if unpolarised voltage suppression is required.

VARIATION 0.1

Alternative constructional material, comprising stainless steel having a minimum tensile strength of 430 N/mm^2, together with consequential minor drawing changes.

The unit so formed is designated as the TYPE NA-M25 SOLENOID OPERATOR

The type number has the suffix -04 when the cable entry thread is M20 x 1.5.

The type number has the suffix -02 when the cable entry thread is ½" NPT.

A further suffix 'R' is added if unpolarised suppression is required.

VARIATION 0.2

Alternative coils for d.c. use with a reduction in the wattage to up to 21.4W d.c. or up to 10W d.c.

VARIATION 0.3

The addition of a voltage surge suppressor (varistor) and either two or four silicon diodes to the cast iron version to form units rated at up to 17.05W a.c. and up to 480V, 50 or 60 Hz or up to 14.2W a.c. and up to 480V, 50 or 60 Hz.

13 Schedule

14 EC-TYPE EXAMINATION CERTIFICATE N° BAS02ATEX2157

When the two diode assembly is used the solenoid operator has a suffix 'M' and when the four drive assembly is used the solenoid operator has a suffix 'P'.

The type number has the suffix -01 when the cable entry thread is ½" NPT. The unit has the type number NBET-M25 and suffix -03 when the cable entry thread is M20 x 1.5.

VARIATION 0.4

Alternative assembly as Variation 0.3, but for the stainless steel version. The type number has the suffix -01 when the cable entry thread is ½" NPT. The unit has the type number NAET-M25 and suffix -03 when the cable entry thread is M20 x 1.5.

The power ratings, ambient temperatures and temperature classes for all the above units are indicated on Table 1 and Table 2 below:-

Table 1 (Cast Iron Enclosure)

Service	Watts	Insulation Class	Dust (D)	Gas (G)	Maximum Ambient Temp °C	Maximum Cable Temp °C
			Surface Temperature			
DC	≤35.1	FB	T135°C	T4	50	86
			T135°C	T4	40	76
	≤21.4	FT	T200°C	T3	80	113
			T200°C	T3	70	103
			T135°C	T4	60	93
			T135°C	T4	50	83
			T135°C	T4	40	73
	≤10	F	T135°C	T4	80	98
			T135°C	T4	70	88
			T135°C	T4	60	78
			T100°C	T5	50	68
			T85°C	T6	40	58
AC	≤17.05	F	T200°C	T3	80	106
			T135°C	T4	70	96
			T135°C	T4	60	86
			T135°C	T4	50	76
			T100°C	T5	40	66
	≤14.2	F	T135°C	T4	80	101
			T135°C	T4	70	91
			T135°C	T4	60	81
			T100°C	T5	50	71
			T100°C	T5	40	61

(A minimum ambient temperature of -40°C applies to all the above variations).

13 **Schedule**

14 **EC-TYPE EXAMINATION CERTIFICATE N° BAS02ATEX2157**

Table 2 (Stainless Steel Enclosure)

Service	Watts	Insulation Class	Dust (D) / Surface Temperature	Gas (G) / Surface Temperature	Maximum Ambient Temp °C	Maximum Cable Temp °C
DC	≤35.1	FB	T200°C	T3	50	101
			T200°C	T3	40	91
	≤21.4	FT	T200°C	T3	80	117
			T200°C	T3	70	107
			T200°C	T3	60	97
			T200°C	T3	50	87
			T135°C	T4	40	77
	≤10	F	T200°C	T3	80	104
			T200°C	T3	70	94
			T135°C	T4	60	84
			T135°C	T4	50	74
			T135°C	T4	40	64
AC	≤17.05	F	T200°C	T3	80	115
			T200°C	T3	70	105
			T200°C	T3	60	95
			T200°C	T3	50	85
			T135°C	T4	40	75
	≤14.2	F	T200°C	T3	80	108
			T200°C	T3	70	98
			T135°C	T4	60	88
			T135°C	T4	50	78
			T135°C	T4	40	68

(A minimum ambient temperature of -40°C applies to all the above variations).

16 Report No.

02(C)0246

17 Special Conditions For Safe Use

None.

13 **Schedule**

14 **EC-TYPE EXAMINATION CERTIFICATE N° BAS02ATEX2157**

18 **Essential Health and Safety Requirements**

Essential Health & Safety Requirements not covered by Standards listed at (9) - None.

19 **DRAWINGS**

Number	Issue	Date	Description
JVA145455	A	30.04.02	General Arrangement NB-M25 & NBET-M25 Solenoid Operators (Cast Iron)
JVA145463	A	29.04.02	General Arrangement NA-M25 & NAET-M25 Solenoid Operators (Stainless Steel)

BASEEFA List Keywords
2SOLENOI

EC TYPE-EXAMINATION CERTIFICATE VARIATION

CERTIFICATE NUMBER	BAS02ATEX2157	Dated	30 May 2002
SIRA VARIATION NUMBER	1 (ONE)	Dated	16 September 2002

VARIATION TO EQUIPMENT

To permit:

1 The amendment of the label to allow the notified body number associated with the CE marking to be non-specific.

DESCRIPTIVE DOCUMENTS

Number	Sheet	Rev	Date	Description
JVA145455	1 of 1	B	24 July 2002	General Arrangement NB-M25 & NBET-M25 Solenoid Operators (Cast Iron)
JVA145463	1 of 1	B	24 July 2002	General Arrangement NA-M25 & NAET-M25 Solenoid Operators (Stainless Steel)

ADDITIONAL CONDITIONS OF CERTIFICATION

None

File No 51V9341

Report No. NA

M D Shearman
Certification Manager

Sira Certification Service
Rake Lane, Eccleston, Chester, CH4 9JN, England
Tel: +44 (0) 1244 670900 Fax: +44 (0) 1244 681330
Email: exhazard@siratc.co.uk
Sira Certification Service is a service of Sira Test & Certification Ltd

EC TYPE-EXAMINATION CERTIFICATE VARIATION

CERTIFICATE NUMBER	BAS02ATEX2157	Dated	30 May 2002
SIRA VARIATION NUMBER	2 (TWO)	Dated	30 June 2004

VARIATION TO EQUIPMENT

To include:

1 An alternative insulation class HC d.c. solenoid with the following rating:

Nominal watts (W)	Ambient temperature range	Max fluid temp.	Temperature class	Surface temperature
≤35.1 W d.c.	-40°C to +60°C	121°C	T3	T200°C

DESCRIPTIVE DOCUMENTS

Number	Sheet	Rev	Date	Description
145455	1 of 1	C	6 Apr 04	NB-M25 and NBET-M25 Solenoids

File No 51A11832

Report No. R51A11832A

D R Stubbings
Certification Manager

Sira Certification Service
Rake Lane, Eccleston, Chester, CH4 9JN, England
Tel: +44 (0) 1244 670900 Fax: +44 (0) 1244 681330
Email: exhazard@siratc.co.uk
Sira Certification Service is a service of Sira Test & Certification Ltd

EC TYPE-EXAMINATION CERTIFICATE VARIATION

CERTIFICATE NUMBER	BAS02ATEX2157	Dated	30 May 2002
SIRA VARIATION NUMBER	3 (THREE)	Dated	21 September 2004

VARIATION TO EQUIPMENT

To include:

1 The yoke inside the enclosure to be mechanically held by a high shock clip.

2 The fluxplate/sleeve assembly to be manufactured as one complete assembly.

3 The upper fluxplate, lower fluxplate, yoke and terminal block bracket to be zinc coated.

DESCRIPTIVE DOCUMENTS

Number	Sheet	Rev	Date	Description
145463	1 of 1	C	13 Sept 2004	Explosion Solenoid Operator

ADDITIONAL CONDITIONS OF CERTIFICATION

None

File No. 51V12454

Report No. R51V12454A

C Ellaby
Certification Officer

Sira Certification Service
Rake Lane, Eccleston, Chester, CH4 9JN, England
Tel: +44 (0) 1244 670900 Fax: +44 (0) 1244 681330
Email: exhazard@siratc.co.uk
Sira Certification Service is a service of Sira Test & Certification Ltd

EC TYPE-EXAMINATION CERTIFICATE VARIATION

CERTIFICATE NUMBER	BAS02ATEX2157	Dated	30 May 2002
VARIATION NUMBER	4 (FOUR)	Dated	7 August 2007

VARIATION TO EQUIPMENT

To permit:

1 The introduction of an alternative EBW tube/plug nut assembly to improve the magnetic efficiency.

2 The introduction of an alternative yoke construction that utilises the revised iron circuit approved in Sira Variation 3 (THREE).

3 The addition of catalogue numbers to cover the new constructions.

4 The inclusion of an alternative manufacturing site:

ASCO JOUCOMATIC
53 rue de Beauce
B.P.17
28111 Luce Cedex - France.

DESCRIPTIVE DOCUMENTS

Number	Sheet	Rev.	Date (Sira stamp)	Description
145455	1 of 1	D	02 Aug 07	FLAMEPROOF CAST IRON SOLENOID OPERATOR, CATA. NOS. NB-M25 AND NBET-M25
145463	1 of 1	D	02 Aug 07	FLAMEPROOF 316 ST.ST. SOLENOID OPERATOR, CATA. NOS. NA-M25 AND NAET-M25

ADDITIONAL CONDITIONS OF CERTIFICATION

1 To prove the integrity of the welds they shall be subjected to a routine pressure test of 35 bar for at least 10 s, as required by clause 16.1 of EN 50018; there shall be no damage or permanent deformation as a result of the tests.

C Ellaby
Certification Officer

File No. 51A17021

Report No. R51A17021A

Sira Certification Service
Rake Lane, Eccleston, Chester, CH4 9JN, England
Tel: +44 (0) 1244 670900
Fax: +44 (0) 1244 681330
Email: info@siracertification.com
Web: www.siracertification.com

EC TYPE-EXAMINATION CERTIFICATE VARIATION

CERTIFICATE NUMBER	BAS02ATEX2157	Dated	30 May 2002
VARIATION NUMBER	5 (FIVE)	Dated	31 October 2007

SIRA VARIATION TO EQUIPMENT

Following appropriate re-assessment to demonstrate compliance with the requirements of the EN 60079 series of standards, the documents originally listed, EN 50014: 1997 +A1 & A2, EN 50018: 2000, and EN 50282-1-1: 1998, were replaced by EN 60079-0: 2006, EN 60079-1: 2007, EN 61241-0: 2006, and EN 61241-1: 2004, the markings are as follows:

II 2 G D
Ex d IIC T* (Ta = -40°C to *°C) (* See certificate scedule)
Ex tD A21 IP66 T*°C

DESCRIPTIVE DOCUMENTS

Number	Sheet	Rev.	Date	Description
145455	1 of 1	E	20 Aug 07	General AssemblyNB-M25 Solenoid Operator (Cast Iron)
145463	1 of 1	E	21 Aug 07	General AssemblyNA-M25 Solenoid Operator (S. Steel)

ADDITIONAL CONDITIONS OF CERTIFICATION

None

File No. 51A16573

Report No. R51A16573A

C Ellaby
Certification Officer

Sira Certification Service
Rake Lane, Eccleston, Chester, CH4 9JN, England
Tel: +44 (0) 1244 670900
Fax: +44 (0) 1244 681330
Email: info@siracertification.com
Web: www.siracertification.com