

# smart solutions for DURAG combustion and environment GROUP

## INSTALLATION, OPERATING AND MAINTENANCE MANUAL MOBILE IGNITION SYSTEM 2 WHEEL-TYPE7-1000



Equipment	
Version	
Date	

: 2 Wheel ignition system : 0 : July 2013

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## WARNING:

Smitsvonk ignition systems multiply the inlet tension up to +/- 2000 V. Exposing to this tension can lead to physical injuries. Read the instructions carefully before start to operate the ignition system.



## INTRODUCTION

Smitsvonk Holland B.V. designs, manufactures and installs ignition systems which have their application all over the world. Years of experiences are the foundations of Smitsvonk Holland B.V. knowledge about burner technology and ignition mechanism. And yet this knowledge is still increasing. In order to increase the quality of our services the knowledge is used to improve the existing ignition systems as well as in developing new ignition systems.

The long operational life and the reliability of the ignition devices are characteristic of Smitsvonk products. Designing the products to the customer's required specification attained this and this is where Smitsvonk Holland has strongly her believes in.

Smitsvonk guarantees a safe use of the ignition systems only when this is used in the customer's required application that is mentioned in her specification. To use these ignition systems in applications of which it was not designed for is not recommendable. It can lead to dangerous situations.

Users should be informed correctly before they start to use the ignition system. Smitsvonk user manual gives detailed information about the use, mounting, maintenance and other information about ignitions system. But users should be aware that these instructions cannot be given in the finest details. Whenever there is a situation the manual is not giving an answer, Smitsvonk advises you to contact our service department.

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## SAFETY

This section provides an overview of all important safety aspects for optimum protection of personnel as well as safe, trouble free operation. Failure to observe the operating instructions and safety remarks contained in this manual can cause serious injury.

## **Owner's responsibility**

- As the gas fired igniter/ignition burner is used commercially, the owner of the gas fired igniter/ignition burner is obliged to adhere to occupational safety regulations as well as any other applicable directives, legislation and standards.
- Alongside the occupational safety remarks contained in these operating instructions, the safety, environmental and accident prevention regulations governing the field of application of the gas fired igniter/ignition burner must be adhered to, whereby the following regulations in particular apply:
- The owner must be aware of the valid occupational safety regulations and also determine any additional potential hazards arising as a result of the specific working conditions applicable at the location in which the igniter/ignition burner is used, by performing a risk assessment. This must be implemented in the form of operating instructions governing operation of the gas fired igniter/ignition burner.
- The owner must test; throughout the service life of the gas fired igniter/ignition burner, whether the operating instructions drawn up by him still correspond with the latest revision of the relevant rules and regulations, and must update these where applicable.
- The owner must clearly regulate and define fields of responsibility for installation, operation, maintenance and cleaning.
- The owner must ensure that all employees involved in working with the gas fired igniter/ignition burner have read and understood the operating instructions.

Furthermore, the owner must provide personnel training at regular intervals and inform staff of potential hazards.

- As the owner is also responsible for ensuring that the gas fired igniter/ignition burner is always in good technical working order the following requirements additionally apply:
- The owner must ensure that maintenance work is performed regularly.
- The owner must regularly check that all safety devices are fully functional and complete.
- The owner must provide the necessary protective gear for personnel.



## **Operating personnel**

## Requirements



WARNIN	IG!
Danger of	of injury due to insufficient qualification
ncorrect	handling of the equipment can result in severe personal injury and material
damage.	
- 0	nly allow activities to be performed by suitably qualified specialist personnel.

The following qualifications are required for the various fields of activity:

## Qualified personnel

are capable on the basis of their specialist training, knowledge and experience as well as their knowledge of the applicable regulations of executing the work assigned to them and of independently recognizing possible hazards.

## Electrical specialists

are capable on the basis of their specialist training, knowledge and experience as well as their knowledge of the applicable regulations of working on electrical installations and of independently recognizing possible hazards. Electrical specialists have received training specifically for the work environment in which they are employed and are familiar with the relevant standards and regulations.

## Gas specialists

are capable on the basis of their specialist training, knowledge and experience as well as their knowledge of the applicable regulations of working on gas installations and of independently recognizing possible hazards. Gas specialists have received training specifically for the work environment in which they are employed and are familiar with the relevant standards and regulations.

- Only persons who may be expected to perform their task reliably may be authorized to use the equipment. Persons whose reaction capacity is impaired, for example due to drugs, alcohol or medicine use, may not be authorized.
- When selecting suitable personnel, observe the age and profession-specific regulations applicable at the place of use.

## **Unauthorized persons**



#### WARNING! Danger for unauthorized persons!

Persons who do not comply with the requirements described here are not aware of the dangers inherent in the work area.

- Keep unauthorized persons away from the work area.
- In case of doubt, approach the person in question and direct them out of the work area.
- Interrupt work for as long as any unauthorized person remains in the work area.



## Intended purpose of the equipment

The gas fired igniter/ignition burner is exclusively designed to perform the intended purpose described here.

The gas fired igniter/ignition burner is a piece of equipment that has to be integrated into a gas-consuming installation. It must not be operated without an overriding burner control system.

It is designed for the sole purpose of lighting and supporting any gas-, oil- or solid fuel fired burner of medium heat release in industrial furnaces, thermo-processing plants and boilers.



### WARNING!

**Danger due to use not in accordance with the intended purpose!** Any application beyond and/or not in accordance with the intended purpose of the gas fired igniter/ignition burner can result in the occurrence of hazardous situations.

- Only operate the gas fired igniter/ignition burner when in a mounted condition.
   Ensure that the combustion points created by the flame are fitted with a suitable extraction facility over the exposed flue gas channel throughout the plant.
- Only operate the gas fired igniter/ignition burner according to the specifications indicated on the rating plate. Otherwise, potential danger of personal or material damage can arise.
- Adhere to all the instructions provided in this operating manual without fail.

The manufacturer cannot be held liable for physical or material harm caused by misuse of equipment or use for anything other than its intended purpose.



## Personal protective gear

- Personal protective gear must be worn while working with the equipment in order to minimize potential health hazards.
- Wear the protective gear necessary for performance of the relevant task at all times while working.
- Observe all signs relating to personal protective gear in the work area.

**To be worn at all times** Wear the following for the performance of all work:



Protective work clothing

This comprises tight-fitting work clothes which are resistant to tearing, have tight-fitting sleeves and no projecting parts. This is required primarily to protect against burns.



Safety glasses

To protect the eyes for particles, dust and sparks.



Safety Helmet

To protect the head against falling articles.



**Safety shoes** To protect the feet against heavy falling articles and to prevent slipping on floors.

To be worn	When performing special types of work, special safety equipment is required. This is
for special	covered in depth in the individual chapters of this instruction manual. These types of
types of work	special protective gear are described in the following:



#### Face protection

To protect one's eyes and face from flames, sparks or embers as well as hot particles or flue gases.



#### Protective gloves

To protect one's hands from rubbing, chafing, puncturing or deeper injuries and from contact with hot surfaces.



## **Special dangers**

Remaining dangers are listed in the section below.

The remarks provided here and the safety instructions in the subsequent chapters of this operating manual must be observed in order to reduce the possible risk to health and prevent the occurrence of dangerous situations.

## Incorrect transport



#### Danger of injury as a result of incorrect transport!

In the case of incorrect transport, considerable material damage can occur. Note the intrinsic weight of the gas fired igniter/ignition burner or the components. If necessary, use suitable hoisting gear.

From an outer tube length of 3 m use several lashing points or a suitable hoisting gear with supports.

Please mind the centre of gravity.

Secure the gas fired igniter/ignition burner from dropping down or falling over.

Do not stand under the load while lifting or lowering it and stay out of the danger zone.

### **Electrical current**

**DANGER!** 



#### Potentially fatal injury due to electrical current!

Contact with live components can cause fatal injury. Damage to the insulation or individual components can have potentially life-threatening consequences.

- In the event of damage to the insulation of the power supply, switch off immediately and arrange for repairs to be carried out.
- Work on the electrical system may only be carried out by suitably qualified electricians.
- Before performing any work at the electrical system, disconnect it from the power supply and check that it is no longer live.
- Before starting work, switch off the power supply and make sure it cannot be inadvertently switched back on.
- Never bypass or decommission fuses. When changing fuses, adhere to the correct amperage and the correct characteristics.
- Keep moisture away from live components. This can create a short circuit.

## Highly inflammable materials



## WARNING!

#### Danger of burns due to flammable materials!

- Highly flammable materials, liquids or gases can catch fire and cause serious to fatal injuries.
  - Do not smoke in the danger area and in the close vicinity. Do not use any naked flames or ignition sources.
  - Keep a fire extinguisher on hand.
  - Report suspicious substances, liquids or gases immediately to the responsible officer.
  - In case of fire, stop work immediately. Leave the danger area until the all-clear is given.



#### Hot surfaces



## CAUTION!

#### Danger of burns due to hot surfaces!

Contact with hot components can cause burns.

- When carrying out any work near hot components, always wear protective work clothing and safety gloves.
- Before performing any work, ensure that all components have cooled to ambient temperature.

#### Sharp edges and pointed corners



## CAUTION!

- Danger of injury on edges and corners!
- Sharp edges and pointed corners can cause chafing of the skin and cuts.
- Take particular care when performing work near to sharp edges and pointed corners.
- In unsure, wear safety gloves.

### Securing against unauthorized switching use



#### DANGER! Risk of fatal injury due to unauthorized use!

When working in the danger area, there is a risk that the energy supply could be switched on by an unauthorized person. This creates a potentially fatal hazard for persons working in the danger area.

- Observe the instructions provided on securing against unauthorized switching back on in the chapters of this operating manual.
- Always observe the procedure described below to secure against unauthorized switching back on.

Switch safeguarded by lock on: ..... at .....hours DO NOT SWITCH ON The lock may only be removed by: ..... once steps have been taken to

ensure that no persons are located in the danger area.

#### Switched off

on: ..... at .....hours **DO NOT SWITCH ON** The lock may only be removed by: ..... once steps have been taken to ensure that no persons are located in the danger area..

#### Securing against unauthorized use

- **1.** Switch off the power supply.
- **2.** If possible, secure the switch with a lock and attach a sign in an easily visible location at the switch.
- **3.** Have the key looked after by the employee named on the sign.
- **4.** Should it not be possible to secure a switch using a lock, set up a sign.
- 5. Once all the work has been carried out, ensure that there are no longer any persons located in the danger area.
- **6.** Ensure that all safety devices are installed and are fully functional.
- 7. Only then may the sign be removed.



## Response in case of danger or accident

Preventive actions	<ul> <li>Always be prepared for accidents and for fires!</li> <li>Keep first aid equipment (first aid kit, blankets etc.) and a fire extinguisher on hand.</li> <li>Familiarize personnel with accident alarm, first aid and rescue facilities.</li> <li>Ensure that access paths for emergency vehicles are kept unobstructed.</li> </ul>
In case of accident: React correctly	<ul> <li>Initiate first aid measures.</li> <li>Evacuate any persons located in the danger area.</li> <li>Inform those responsible at the incident location.</li> <li>Alert the emergency medical / fire services.</li> <li>Clear access paths for emergency vehicles.</li> </ul>



## **EQUIPMENT SPECIFICATION**

Equipment	: 2 wheeled mobile ignition system
Type gas fired igniter	: Smitsvonk Self aspirating ignition burner Type 7
Diameter	: 38 mm
Length	: 1000 mm
Insert length	: approx. 865 mm
Flame detection	: None
Capacity	: 15 KW (1,8 kg/hr 20kW propane)
Gas	: propane
Igniter material	: 310, 321 and 316 SST
-	: Explosion proof (ATEX 3G IIB) high energy ignition unit
	: Explosion proof switch
	: Explosion proof solenoid valve
	: Pressure reducer with downstream pressure gauge
	: 2 reels, incl. all cabling and gas hose
Length	: 11 meter for gas hose and ignition cable
Length	: 25 meter for power supply cable
Power supply	: 24 Volt AC
Power consumption	: 25 VA for ignition unit
	: 10,5 Watt for solenoid valve
Protection grade	: IP66 enclosure for instruments
Drawing Burner	: FM960016-0, FC950343-0
Drawing Trolley	: FM960295-0
Ignition unit type	: E-LIGHT-EJB3BA-24-150
Ignition unit housing	: EJB3BA
Material	: Aluminum alloy (copper free)
Explosion proof	: ATEX Ex II 3G Ex d IIB T5
Drawing	: NS111127-0, RS111123-0



## STORAGE AND TRANSPORTATION

### Important:

Till the day of delivery Smitsvonk is responsible for the supplied materials. Damages caused after the delivery are not under the guarantees of Smitsvonk anymore. If the customer is taking care of the transport itself the responsibility of Smitsvonk ends at the moment of transfer of the products.

To minimise the chance of damages to the supplied materials Smitsvonk advises to take note of the following points:

#### Storage:

- If no assembling takes place in a short term, keep the goods in the packing as long as possible.
- Be sure that in the storage accommodation the chances for damages are minimised.
- Check if the stored materials are not causing any danger to the environment.

#### Transportation:

• The packing protects the materials against shocks or other forms of extreme strains. During transportation of the goods and after removing the packing please take note of the following:

Prevent the goods against shocks or other extreme forms of strains that can damage the goods.

• Transport the materials by using mechanical means of conveyance that are designed for this. Manual transportation should be avoided. This increases the chances of injuries to the human body.



## **DESCRIPTION OF IGNITION SYSTEM**

This manual gives information for the use, installation and operation of a mobile ignition unit for furnaces and steam boilers in oil refineries, chemical plants and gas plants.

This unit is equipped with a type 7 ignition burner and has been designed for propane gas only. Its use in its present form is limited only to burners of non-pressurised furnaces. The ignition unit is intended for manual operation.

With ignition burner type 7 an optimum flame stability is obtained without the use of compressed air, whilst the ignition procedure is rendered more reliable through spark-ignition

The mobile ignition unit comprises all facilities necessary for the ignition of burners for furnaces and steam boilers. A 24 Vac power supply and a propane gas bottle must be connected to the lorry.

<u>The unit consists of the following main parts:</u> Two wheel carriage. Housing with ignition unit in enclosure. Propane gas bottle. Ignition cable 11 mtr. Gas hose 11 mtr. Power cable 25 mtr. Type 7 ignition burner, Ø 38 mm, length 1000 mm, 20kW.





# DESCRIPTION AND MOUNTING INSTRUCTIONS IGNITION BURNER, DWG FC950343-0

The type 7 ignition burner is a self-aspirating gas burner with a maximum consumption of about 1,8 kg/hr (20 kW) propane.

The burner consists of:

the main gas tube, the gas nozzle, the ventury, the stabiliser, the spark plug, the ignition electrode,

The function is based on the Bunsen principle. Air aspirated by the propane yet leaving the nozzle via the slots near the grip. The air/gas ratio (a little below stoichiometric) is such as to ensure both, smooth ignition by the spark and a stable flame. The spark plug, which produces  $\pm$  120 sparks/min., remains in operation during start and re-ignites the torch if the flame should fail due to violent air motion. This system eliminates the necessary of inserting a burning torch through the air box and air register. The gas consumption is 1,8 kg/hr. at 1 bar G.





## DESCRIPTION OF THE LOW VOLTAGE IGNITION UNIT

The unit is built into an explosion proof aluminum die-cast box, protection grade IP66.

## Explanation of the low tension ignition unit.

The diagram shows that the 24Vac power supply is connected to the primary winding of the transformer T1. The secondary voltage of 1460V is rectified by rectifier (G2-G5&R1) and supplied to a capacitor C1 which will be charged up to 2000V.

As soon as the capacitor C1 reach the ignition voltage the thyristor/diode assembly Q1/G1 will be activated by the Pulse unit. The capacitor will be discharged across the low tension spark plug in a short time and with a high current. Due to this short time of discharge and high current a flame-shaped spark on the spark plug is obtained, which is unaffected by filthiness, humidity and other disturbances.

Extra Resistors R2 are installed to ensure that the capacitor C1 will be discharged if there is no sparkplug connected to the output terminals.

The ignition unit generates about 120 sparks a minute.



Remark: the time for the ignition to produce sparks should not exceed the maximum of 3 minutes.

Remark: Ignition cable and sparkplug must always be connected to the ignition unit. The thyristor/diode can be damaged when the unit is working without a connected cable and sparkplug

Before opening the housing, switch off the power supply and wait for about half a minute. Lethal voltages of up to 2kV are generated inside the box. Do not touch any metal parts inside the ignition unit.



## **OPERATING INSTRUCTIONS**

The unit has to be placed near the furnace.

# First check the operation instructions of the furnace and be sure that it is allowed to fire the ignition burner in the furnace.

The portable ignition burner has to be placed in the main burner by unrolling the gas/ignition cable. Check gas pressure on the pressure gauge (1 bar G). Turn the main switch to the on position. The ignition unit starts to produce the sparks and ignites the burner.

If the ignition burner does not ignite;

Check the gas pressure Check if you hear the noise of the spark Check if the air inlet isn't blocked

If these points are okay then the burner should ignite.

## MAINTENANCE INSTRUCTION IGNITION BURNER.

Essential points for proper and reliable functioning of the burner is:

Correct position of the gas nozzle, viz. 3mm from the Venturi inlet. Nozzle bore 0,8 mm.

Operation on propane gas only; other types of gas could impair flame instability.

To ensure optimal function a periodical check is important.

- Test in a safe area outside a furnace.
- Connect mains and check gas pressure gas bottle.
- Hold igniter horizontal in hand or in bench.
- Ensure there is enough room for firing. (3 meter free round the igniter).
- Switch on the main switch and see if the igniter operates satisfactory.

## For inspection and maintenance of the internal of the burner

(see dwg FC950343-0)

Remove the filter and gas tube assembly (4) with nozzle (5) by unscrewing the hexagon socket screws (11). Carefully remove the filter and gas tube assembly with nozzle. Unscrew the burner head (3) out of the assembly outside (1), carefully remove it. The filter and gas tube assembly with nozzle and the stabilizer with park plug (2 & 8) are now accessible for inspection and maintenance.



## To exchange the spark plug:

Unscrew the burner head (3) out of the assembly outside (1), carefully remove it. Unscrew the nut of the spark plug (8), pull the ignition cable (9) of the spark plug. Remove the spark plug from the stabilizer. Exchange the spark plug. Make sure the spark plug is fitted correctly and remount all the parts in reversed order.

## To exchange the nozzle:

Remove the filter and gas tube assembly (4) with nozzle (5) by unscrewing the hexagon socket screws (11). Carefully remove the filter and gas tube assembly with nozzle. Now the nozzle (5) can be removed and cleaned or replaced.

The nozzle should, and the interior of the burner itself can, be cleaned with compressed air.

## MAINTENANCE INSTRUCTION IGNITION UNIT

(see dwg. NS111127-0, RS111123-0)

## Electrical

Ignition unit

Pollution / damages

The ignition unit hardly needs any maintenance during normal operation.

Periodical maintenance, e.g. once a year, is confined to inspection and cleaning of the interior of the unit. Inspect both the wiring as well as the components. Check whether all connections are still firmly fixed. When the sparkplug is worn out the load of the capacitor will flow to earth by the safety resistors.

### When this take too long, internal parts can be damaged.

Remark: Ignition cable and sparkplug should always connect to the ignition unit. The thyristor/diode can be damaged when the unit is working without a connected cable and sparkplug

Before opening the housing, switch off the power supply and wait for about half a minute. Lethal voltages are generated inside the box. Do not touch any metal part inside the ignition unit.



## **Trouble Shooting**

When the system is malfunctioning then the following checkpoints can be used in order to find the failure.

Possible causes can be:

Failure	Cause	Result	Action		
There is no flame.	The nozzle or the filter are clogged.	The burner doesn't ignite.	Clean the nozzle and the filter.		
There is no flame.	Gas air ratio is not correct.	The burner doesn't ignite.	Check and adjust the gas pressure. Check if the air inlet is not blocked.		
There is no flame.	There is no gas	The burner doesn't ignite.	Check if the solenoid valve is operating.		
There is no flame.	Gas air ratio is not correct.	The burner doesn't ignite.	Check if the air inlet is not blocked. Check the gas pressure, otherwise change the nozzle (no.5) to another drilling.		
There is no flame.	The spark plug is worn out.	The burner doesn't ignite.	Replace the spark plug(s).		
		1			

In case the above mentioned points didn't solve the problems than Smitsvonk Holland B.V. advice you to contact us.



# smart solutions for DURAG combustion and environment GROUP

CE

## EC DECLARATION OF CONFORMITY

Manufacturer: SMITSVONK HOLLAND B.V.

Address: Loodstraat 57, 2718 RV Zoetermeer, the Netherlands

Product description: Ignition unit E-LIGHT ././-

The described product complies with the following provisions of council Directive, provided that it is installed, maintained and used in applications for which it was made, in accordance with relevant installation standards and manufacturer's instructions.

EC Directive 2004/108/EC (EMC directive)

EC Directive 2006/95/EC (Low Voltage Directive)

Issuer:

Smitsvonk Holland B.V.

Place, date:

Zoetermeer, 10 July 2013

Legally binding signature

## ing. Hans Gon (Managing Director)

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## **RECOMMENDED SPARE PARTS LIST**

2 Wheel ignition system

: 2-Wheel-Type7-1000 Туре Drawing : FC960295-0

Ignition burner

Burner : Type 7 Drawing : FM960016-0, FC950343-0

Ignition unit

Туре	: E-LIGHT-EJB3BA-24-150
Drawing	: NS111127-0, RS111123-0

Item	Q'ty	Description	Part number
		BURNER: Type 7	
8	1	Spark plug TP7410	HEBOUG0020
12	1	Gasket	SKRING0145
	1	Harmonica rubber	SMXX000830
		IGNITION UNIT Type: E-LIGHT-EJB3BA-24-150	
1G7	1	E-LIGHT-EJB3BA-24-150 E0049 internal	

## **REMARK:**

In case of an order for spare parts, please mention the serial number of the ignition unit and / or ignition burner.



## DRAWINGS

FC960295 FM960016	Rev. 0 Rev. 0	2 Wheel trolley Ignition burner (Outer drawing)
FC950343	Rev. 0	Ignition burner (inner parts)
NS111127	Rev. 0	Ignition unit
RS111123	Rev. 0	Enclosure ignition unit



Old drawing no. –



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vet.	Email : info@smitsvonk.nl	Approval:			Ref:	_	-	-

Old drawing no. —

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	POSECRIF HON         Title:         ASSEMBLY IGNITION BURNER TYPE 7         REV. DATE ALTERATION       CHECK DR         SMITSVONK® Amember of DURAG GROUP       SMITSVONK HOLLAND B.V. P.O. BOX 180 2700 AD ZOETERMEER Phone + 31 79 361 13 78 Email : info@smitsvonk.nl       Scale Drawn Check         Auteursrechten voorbehouden vigs. de wet.	Projection RAWN Projection 1: 2 Date: n: R.N. 02/10/95 ked: HMD 02/10/95 pval:	Client: Project: Remarks: DIMENSIONS IN mm TOL.: NEN-ISO 2768-1m Order: STD.DWG. Pos No: Stock No: Material: Stock No: Size: Drawing name: Rev: 5 A3 FC950343 - Ref:





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IS : ODE AHT FARI I = 11 LAU = 6/12/ iL-BL 6/12/ iL-BL ICHE	NACH EN60 UNG : 0,75 M BEN : 0/115/120/2; = 110/115/12 = SIGNALLEI 3 = ERDE (2, 24/48 VAC P 2/24/48 VAC AU = 6/12/22 2/24/48/110 V ELB = POTE INTERNEN	20/230/244 0/220/230 ITER 5 MM <sup>2</sup> ) HASE NEUTRA 4/48/110 ∨ /DC - NTIALFRE SIGNALL	O VAC /240 V /240 V EIE KO EITUN	PHASE AC NEUTI INTANTE GEN SINE = 1µF / 2000/ = 28 WIND. 0,71mm = 0,241 = 1µYs DSEE 55-24 NI = 1WS10 SC 320-22 MO = 1WS10 SC 320-22 MO = 24 V(prim)/1460V(sec 	RAL D NUMMERI F F1 (Spark plug) (Mass) Ø (Mass)	IERT.
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01	1	Ignition and control unit	BARTEC EJB3BA ATEX Ex II 2G Ex d IIB T5	-	-	SEKAE30001
02	1	Cable Ignition	Hawke 501/453/UNIV/0 M20 (9,5-16mm)	M20	Ø 9,5 - Ø 16	SEKWHA0120
03	1	Spare	M20 TYPE-A PLUG PA-U-1-0-04	M20	-	SEKWPA0020
04	1	Cable Power supply	Hawke 501/453/UNIV/0S/M20 (5,5-12mm)	M20	Ø 5,5 - Ø 12	SEKWHA0100

Explosion proof flameproof enclosure, ATEX certified NR. ENGRAVING Ex II 2G Ex d IIB T5 according to EN 60079 series MAKE SURE THAT EACH COVERBOLT Standards, provided with mounting plate and left side hinged cover. IS TIGHTEND WITH 18Nm - Certificate KEMA 08 ATEX 0123 \* 16 \* DO NOT OPEN WHEN ENERGIZED - Material aluminium alloy (copper free) DO NOT OPEN WHEN AN EXPLOSIVE - suitable for offshore conditions GAS ATMOSPHERE IS PRESENT

- enclosure is painted RAL 7035 - Protection degree : IP 66 (with gasket) Make : BARTEC/CORTEM Type : BARTEC B-COR-3B Enclosure : EJB3BA Weight of the unit : 20 KG Hazardous Area : Zone 2 Ambient Temperature -20 +55°C Power supply : 24Vac, 50/60Hz Power consumption : 25VA Ignition tension : 2000V, 2Hz - 3x Tapping M20x1,5mm

		* 17	*	ZONE 2 GASGROUP IIB EN 60079-14								
		* 18	*	EX LABEL ( ATEX )								
		* 19	*	SMITSVONK TYPE LABEL								
			REV	DATE		REASC	N FOR REVISIO	DN		DRAWN	СНКД.	APRVD.
			SHEE	ET 1 OF 2		Smite	svonk Holland	l b.v. Orde	r No. :		-	
			Proj	ect name :				C	lient :			
Diagram :	ENCLOSUR	E IGN		AND CONTR	OL UNIT			Projec	t No. :			
Type :	E-LIGHT-EJ	B3BA	-24-150	50 (ATEX) Stock					« No. :	101803		
SMITSVONK HOLLAND B.V. Scale : 1 : 4 Date : Size :							Drawing	name :	Rev :			
	P.O. BOX 180	MEER	TEL 31	1 (0) 79 361 35 33 1 (0) 79 361 13 78	9 361 35 33 <b>Drawn</b> : PV 28-10-2011 <b>A 3</b>				P	<u><b>Q11</b></u>	1172	$\square$
	E-MAIL : SALES@	SMITSVO	NK.NL	1 (U) /9 361 13 /8 Checked : HG 28-10-2011							1120	
	Auteursrechte	n voorb	ehouden	vlgs. de wet.	Approval :	HG	28-10-2011	Ref :		NS111	127	



		REV	DATE		REASC	N FOR REVISIO	DN .		DRAWN	CHKD.	APRVD.
		SHEE	T 2 OF 2	Smitsvonk Holland b.v.			l b.v. Order	' No. :			
		Proj	ect name :				С	lient :			
Diagram :	INTERNAL LAY-C	OUT IGN	IITION AND C	CONTROL UN	IT		Project	t No. :			
Type :	E-LIGHT-EJB3BA	-24-150	(ATEX)				Stock	( No. :	101803		
	SMITSVONK	HOLL	AND B.V.	Scale :	1:2	Date :	Size :		Drawing	name :	Rev :
	P.O. BOX 180	TEL 31	(0) 79 361 35 33	Drawn :	PV	28-10-2011	<b>ν</b> 3	D	Q11	1172	
	E-MAIL : SALES@SMITSVC	ONK.NL	1 (0) 73 301 13 70	Checked :	HG	28-10-2011	AJ AJ			1123	
	Auteursrechten voorb	ehouden	vlgs. de wet.	Approval :	HG	28-10-2011	Ref :		NS111	127	



## **EXPLOSION PROOF CERTIFICATES**

Ignition unit enclosure Cable glands enclosure Solenoid valve Main Switch

KEMA 08 ATEX 0123 BAS 06 ATEX 0057X KEMA 98 ATEX 2542X PTB 01 ATEX 1024



## (I) EC-TYPE EXAMINATION CERTIFICATE

- (2) Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC
- (3) EC-Type Examination Certificate Number: KEMA 08ATEX0123 Issue Number: 1
- (4) Equipment: Control/Distribution Panel Types BARTEC B, C, D and E
- (5) Manufacturer: BARTEC NEDERLAND b.v. and/or BARTEC GmbH
- (6) Address (1): Boelewerf 25, 2987 VD Ridderkerk, The Netherlands

Address (2): Max-Eyth-Straße 16, 97980 Bad Mergentheim, Germany

- (7) This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- (8) KEMA Quality B.V., notified body number 0344 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment 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 test report number 210688500.

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

EN 60079-0 : 2006 EN 60079-1 : 2004 EN 60079-7 : 2003 EN 61241-0 : 2006 EN 61241-1: 2004

- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.
- (11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment according to the Directive 94/9/EC. Further requirements of the directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.
- (12) The marking of the equipment shall include the following:



II 2 G Ex d... IIB, IIB + H<sub>2</sub> or IIC T6 to T4 II 2(1, 2 or 3) G Ex d... IIB, IIB + H<sub>2</sub> or IIC T6 to T4

II 2 G Ex e... II... T6 to T4 II 2(1, 2 or 3) G Ex e... II... T6 to T4

II 2 D Ex tD... A21 T80 °C to T130 °C II 2(1, 2 or 3) D Ex tD...A21 T80 °C to T130 °C

This certificate is issued on July 15, 2008 and, as far as applicable, shall be revised before the date of cessation of presumption of conformity of (one of) the standards mentioned above as communicated in the Official Journal of the European Union.

KEMA Quality B T. Pijpker Certification Manager

Page 1/2

<sup>®</sup> Integral publication of this certificate and adjoining reports is allowed. This Certificate may only be reproduced in its entirety and without any change.

KEMA Quality B.V. Utrechtseweg 310, 6812 AR Arnhem P.O. Box 5185, 6802 ED Arnhem The Netherlands T +31 26 3 56 20 00 F +31 26 3 52 58 00 customer@kema.com www.kema.com Registered Arnhem 09085396



## (13) SCHEDULE

#### (14) to EC-Type Examination Certificate KEMA 08ATEX0123

Issue No. 1

#### (15) Description

The Control/Distribution Panel consists of one or more enclosures in type of protection flameproof enclosure "d", increased safety "e" or protection by enclosure "tD" in which the electrical apparatus is mounted. Combinations of enclosures are allowed and separately certified electrical apparatus can be installed in or mounted to the enclosure, according to the technical details laid down in the test documentation.

The apparatus marking is completed by using the codes e, d, [e], ia, ib, [ia], [ib], [ic], [nL], [p], [px], [py], [pz] m, ma, mb, op is, op pr, op sh, [op is], [op pr], [op sh], q, iaD, ibD, [iaD], [ibD], [icD] or [pD] as applicable, depending on the built-in apparatus and components.

Max. ambient temperature range -55 °C to +80 °C, where applicable limited by the built-in apparatus and components used.

#### **Electrical data**

The data are dependent on the built-in apparatus and the cable entries and line bushings used and are to be taken from the applicable certificates and manufacturers data.

Rated supply voltage	1	max. 1000 Vac or 1500 Vdc
Rated supply current	2	max. 1000 A
Working voltage in Ex d or Ex tD only	4	max. 25 kV
Working voltage as soon as Ex e applies	2	max. 11 kV

#### Installation instructions

The manual provided with the equipment shall be followed in detail to assure safe operation.

(16) Test Report

KEMA No. 210688500.

#### (17) Special conditions for safe use

None.

#### (18) Essential Health and Safety Requirements

Assured by compliance with the standards listed at (9) and where applicable other specific standards depending on the types of protection used for the built-in apparatus and components.

#### (19) Test documentation

As listed in Test Report No. 210688500.



Issued 19 July 2006 Page 1 of 2

#### 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 Baseefa06ATEX0057X Certificate Number: 4 Equipment or Protective System: Type 501/453UNIV Cable Glands 5 Manufacturer: Hawke International Address: 6 Oxford Street West, Ashton-under-Lyne, Lancashire, OL7 0NA This equipment or protective system and any acceptable variation thereto is specified in the schedule to this 7 certificate and the documents therein referred to. 8 Baseefa (2001) Ltd., Notified Body number 1180, 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 No. GB/BAS/ExTR 06.0012/00 9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with: EN60079-0: 2004, EN60079-1: 2004, EN60079-7: 2003 + Amendment 1, IEC61241-0: 2004, IEC61241-1: 2004

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

#### $\langle f_x \rangle$ II 2GD Ex d IIC Ex e II Ex tD A21 IP66 (- 60°C $\leq$ ta $\leq$ + 80°C)

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

Baseefa Customer Reference No. 0500

#### Project File No. 04/0382

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

#### Baseefa

Rockhead Business Park, Staden Lane, Buxton, Derbyshire SK17 9RZ Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601 e-mail <u>info@baseefa.com</u> web site <u>www.baseefa.com</u> Baseefa is a trading name of Baseefa (2001) Ltd Registered in England No. 4305578 at the above address

R S SINCLAIR DIRECTOR On behalf of Baseefa (2001) Ltd.



Issued 19 July 2006 Page 2 of 2

## Schedule

13 14

#### Certificate Number Baseefa06ATEX0057X

#### 15 Description of Equipment or Protective System

The Type 501/453 Universal Cable Gland may be manufactured in brass, stainless steel or aluminium and is intended for use with an effectively filled and circular armoured or braided cable and comprises the following components:

- a. An entry component, in the size range Os to F (M16 to M75)
- b. A combined silicone inner seal, polymer support ring and metallic armour clamping cone.
- c. A reversible armour clamping ring.
- d. A middle nut.
- e. An outer seal assembly (sleeve seal and support ring).
- f. A back nut.
- g. An optional earth continuity device for use with metallic inner sheathed cables

These glands may be supplied with specified alternative entry thread forms

#### 16 Report Number

Baseefa Certification Report GB/BAS/ExTR 06.0012/00

#### 17 Special Conditions for Safe Use

- 1. These glands are suitable for use within an operating temperature range of -60°C to +80°C.
- 2. When the gland is used for increased safety or dust protection, the entry thread shall be suitably sealed to maintain the ingress protection rating of the associated enclosure
- 3. Glands for use with braided cables are only suitable for fixed installations, the cable for which must be effectively clamped to prevent pulling and twisting

#### 18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawi	ngs and Documents	5	
Number	Issue	Date	Description
501/453 UNIV	F	26/11/04	G. A., Type 501/453 Universal Cable Gland

This drawing are common to BAS IECEx 05.0014X and is controlled on and held with GB/BAS/ExTR 06.0012/00



Issued 21 May 2008 Page 1 of 2

## <sup>1</sup> SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2

## Equipment or Protective System Intended for use in Potentially Explosive Atmospheres

Directive 94/9/EC

3 Supplementary EC - Type Baseefa06ATEX0057X/1 Examination Certificate Number:

4 Equipment or Protective System: Type 501/453UNIV Cable Glands

- 5 Manufacturer: Hawke International, A Division of Hubbell Limited
- 6 Address: Oxford Street West, Ashton-under-Lyne, Lancashire OL7 0NA
- 7 This supplementary certificate extends EC Type Examination Certificate No. **Baseefa06ATEX0057X** to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

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

Baseefa Customer Reference No. 0500

Project File No. 08/0234

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

#### Baseefa

Rockhead Business Park, Staden Lane, Buxton, Derbyshire SK17 9RZ Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601 e-mail <u>info@baseefa.com</u> web site <u>www.baseefa.com</u> Baseefa is a trading name of Baseefa Ltd Registered in England No. 4305578. Registered address as above.

Manney MPOWNEY DIRECTOR On behalf of

Baseefa



Issued 21 May 2008 Page 2 of 2

13	Schedule						
14		Certificat	e Number Baseefa06ATEX0057X/1				
15	Description of the	e variation to the	Equipment or Protective System				
Variatio	on 1.1						
The intr	oduction an alterna	tive diaphragm as	sembly.				
16	Report Number						
Baseefa	Confidential Report	rt No. UK/BAS/04	/0259/03				
17	Special Condition	ns for Safe Use					
None ad	ditional to those lis	ted previously					
18	Essential Health	and Safety Requi	rements				
Complia	nce with the Essen	tial Health and Sa	fety Requirements is not affected by this variation.				
19	9 Drawings and Documents						
Number	r Issue	Date	Description				
501/453	UNIV G	14/09/07	General Arrangement, Type 501/453 Universal Cable Gland				

This drawing is common to, and held with, IECEx BAS 06.0014X



Issued 25 September 2008 Page 1 of 2

# SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE Equipment or Protective System Intended for use in Potentially Explosive Atmospheres

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

- 3 Supplementary EC Type Baseefa06ATEX0057X/2 Examination Certificate Number:
- 4 Equipment or Protective System: Type 501/453 UNIV Cable Gland
- 5 Manufacturer: Hawke International
- 6 Address: Oxford Street West, Ashton-under-Lyne, Lancashire, OL7 0NA
- 7 This supplementary certificate extends EC Type Examination Certificate No. Baseefa06ATEX0057X to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

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

Baseefa Customer Reference No. 0500

Project File No. 07/0769

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

#### Baseefa

Rockhead Business Park, Staden Lane, Buxton, Derbyshire SK17 9RZ Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601 e-mail <u>info@baseefa.com</u> web site <u>www.baseefa.com</u> Baseefa is a trading name of Baseefa Ltd Registered in England No. 4305578. Registered address as above.

Monney Monney DIRECTOR On behalf of

Baseefa



Issued 25 September 2008 Page 2 of 2

## Schedule

13 14

## Certificate Number Baseefa06ATEX0057X/2

### 15 Description of the variation to the Equipment or Protective System

#### Variation 2.1

To allow the use of a modified entry component 3256 and an alternative middle nut 3257 on glands sizes Os to F, and a modified 3041 RAC clamping ring on the gland sizes Os/O and A.

#### 16 Report Number

Baseefa Certification Report GB/BAS/ExTR008.0172/00

#### 17 Special Conditions for Safe Use

None additional to those listed previously

#### 18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

#### 19 Drawings and Documents

Number	Issue	Date	Description
501/453 UNIV	G	14/09/07	G.A of 501/453 Universal Cable Gland

This drawing is common to IECEx BAS 06.0014X and is held with that certificate



Issued 14 September 2009 Page 1 of 2

### SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2

1

# Equipment or Protective System Intended for use in Potentially Explosive Atmospheres

**Directive 94/9/EC** 

3 Supplementary EC - Type Baseefa06ATEX0057X/3 Examination Certificate Number:

4 Equipment or Protective System: 501/453 Universal Cable Gland

- 5 Manufacturer: **HAWKE International**
- Address: Oxford Street West, Ashton-under-Lyne, Lancashire, OL7 0NA 6
- 7 This supplementary certificate extends EC – Type Examination Certificate No. Baseefa06ATEX0057X to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

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

Baseefa Customer Reference No. 0500

Project File No. 09/0174

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

## Baseefa

Rockhead Business Park, Staden Lane, Buxton, Derbyshire SK17 9RZ Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601 e-mail info@baseefa.com web site www.baseefa.com Baseefa is a trading name of Baseefa Ltd Registered in England No. 4305578. Registered address as above.

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DIRECTOR On behalf of Baseefa



Issued 14 September 2009 Page 2 of 2

13				Schedule	
14		Certi	ficate Numb	er Baseefa06ATEX0057X/3	
15	Description of the	ne variation to	o the Equipme	nt or Protective System	
Variati	ion 1.1				
To reco	ord changes in the s	ealing sizes of	f the Os size cal	ble gland	
16	<b>Report Number</b>				
Baseefa	Certification Rep	ort GB/BAS/E	x ExTR09/016	4/00 held with IECEX BAS 06.0014X.	u.
17	Special Condition	ons for Safe U	se		
None a	dditional to those 1	isted previous	y		
18	Essential Health	and Safety F	Requirements		
Compli	ance with the Esse	ntial Health a	nd Safety Requi	rements is not affected by this variation.	
19	Drawings and D	ocuments			
Numbe	er	Issue	Date	Description	
501/45	3 UNIV	Η	12/08/09	G.A. 501/453 Universal Cable Gland	

This drawing is common to IECEx BAS 06.0014X and Baseefa09ATEX0233X and is held with the former.



Issued 6 January 2010 Page 1 of 2

### SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2

7

1

Equipment or Protective System Intended for use in Potentially Explosive Atmospheres

**Directive 94/9/EC** 

Supplementary EC - Type Baseefa06ATEX0057X/4 3 Examination Certificate Number:

Equipment or Protective System: 4 501/453 Universal Cable Gland

5 Manufacturer: Hawke International (A Division of Hubbell Limited)

Address: 6

> This supplementary certificate extends EC – Type Examination Certificate No. Baseefa06ATEX0057X to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

Oxford Street West, Ashton-under-Lyne, Lancashire, OL7 0NA

This supplementary certificate shall be held with the original certificate.

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

Baseefa Customer Reference No. 0500

Project File No. 09/0882

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

#### Baseefa

Rockhead Business Park, Staden Lane, Buxton, Derbyshire SK17 9RZ Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601 e-mail info@baseefa.com web site www.baseefa.com Baseefa is a trading name of Baseefa Ltd Registered in England No. 4305578. Registered address as above.

**R S SINCLAIR** DIRECTOR On behalf of Baseefa

Re-issued to replace original



Issued 6 January 2010 Page 2 of 2

### Schedule

## 13 14

### Certificate Number Baseefa06ATEX0057X/4

#### 15 Description of the variation to the Equipment or Protective System

#### Variant 4.1

To confirm that the equipment covered by this certificate has been reviewed against the requirements of EN 60079-1: 2007 in respect of the differences from the standards to which this certificate was issued; none of these differences affect this equipment.

#### 16 Report Number

Baseefa Certification Report GB/BAS/ExTR09.0247/00

#### 17 Special Conditions for Safe Use

None additional to those listed previously

#### 18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19	Drawings and Documents						
Number		Issue	Date	Description			
501/453	UNIV	J	10/12/09	501/453 Universal Gland - GA Drawing			

The above drawing is common to, and held with, IECEx BAS 06.0014X



## (1) EC-TYPE EXAMINATION CERTIFICATE

(2) Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC

(3) EC-Type Examination Certificate Number: KEMA 98ATEX2542 X

Issue Number: 6

- (4) Equipment: Solenoid Valve Operator Type EM-M ...
- (5) Manufacturer: Asco Controls B.V.
- (6) Address: Industrielaan 21, 3925 BD Scherpenzeel, The Netherlands
- (7) This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- (8) KEMA Quality B.V., notified body number 0344 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment 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 test report number 210962800.

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

EN 60079-0 : 2006 EN 60079-7 : 2007 EN 60079-18 : 2004 EN 61241-0 : 2006 EN 61241-1 : 2004

- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.
- (11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment according to the Directive 94/9/EC. Further requirements of the directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.
- (12) The marking of the equipment shall include the following:



II 2 G Ex e mb II T3 ... T6 II 2 D Ex tD A21 IP6X T85 °C ... T200 °C

This certificate is issued on July 20, 2009 and, as far as applicable, shall be revised before the date of cessation of presumption of conformity of (one of) the standards mentioned above as communicated in the Official Journal of the European Union.

KEMA Quality B.V. C.G. van Es Certification Manager



Integral publication of this certificate and adjoining reports is allowed. This Certificate may only be reproduced in its entirety and without any change.

KEMA Quality B.V. Utrechtseweg 310, 6812 AR Arnhem P.O. Box 5185, 6802 ED Arnhem The Netherlands T +31 26 3 56 20 00 F +31 26 3 52 58 00 customer@kema.com www.kema.com Registered Arnhem 09085396



## (13) SCHEDULE

#### (14) to EC-Type Examination Certificate KEMA 98ATEX2542 X Issue No. 6

#### (15) Description

Solenoid Valve Operator Type EM-M... to be used for pushing or pulling valve action with mounted valve. Differences in models concern size, rated voltage and power.

Ambient temperature range -40 °C to +90 °C.

The actual ambient temperature range is within these limits and will be marked when it differs from -20 °C to +40 °C.

#### Technical data

The apparatus enclosure provides a degree of protection of at least IP66/IP67 in accordance with EN 60529.

The relation between temperature class, the maximum surface temperature "T" of the enclosure, the ambient and medium temperature and the rated power is shown in the following table:

Temperature class	Maximum surface temperature "T" (°C)	Ambient/ medium temperature (max., °C)	Nominal power (max., W) Type EM- M6	Nominal power (max., W) Type EM- MXX	Nominal power (max., W) Type EM- M12 I	Nominal power (max., W) Type EM- M12 II
		ac	operation onl	У		
		40	9,2	11,0	13,6	16,1
Т3	200	65	7,0	8,4	10,4	12,3
		90	4,3	4,5	6,4	6,6
		dc	or ac (rectified	d)		
	200	40	12,5	13,0	16,0	20,1
Т3		65	8,7	9,4	10,9	13,5
		90	4,4	4,6	5,3	7,0
		40	7,0	7,7	9,0	11,3
Τ4	135	75	3,7	3,8	4,4	6,0
		90	2,3	2,6	3,0	3,9
		40	3,7	3,8	4,4	6,0
Τ5	100	55	2,3	2,6	3,0	3,9
		75	1,0	1,1	1,3	1,6
T6	85	40	2,3	2,6	3,0	3,9
10	00	60	1,0	1,1	1,3	1,6



## (13) SCHEDULE

#### (14) to EC-Type Examination Certificate KEMA 98ATEX2542 X Issue No. 6

#### Installation instructions

The cable entry device shall be certified, providing a degree of protection of at least IP 65, suitable for the application and correctly installed.

Under the conditions of ambient temperature and rated power as specified in following table, a special heat resistant cable and cable entry device must be used:

Ambient temperature	Rated power				
	Type EM-M6	Type EM-MXX	Type EM-M12 I	Type EM-M12 II	
> 55 °C	> 3,7 W	> 3,8 W	> 4,4 W	> 6,0 W	
> 60 °C	> 1,0 W	> 1,1 W	> 1,3 W	> 1,6 W	
> 70 °C	all	all	all	all	

#### **Routine tests**

- 1. Each encapsulated coil shall be subjected to visual inspection according to clause 9.1 of EN 60079-18.
- Each Solenoid Valve Operator shall be subjected to the dielectric strength tests according to clause 7.1 of EN 60079-7 and to clause 9.2 of EN 60079-18.

#### (16) Test Report

KEMA No. 210962800.

#### (17) Special conditions for safe use

The Solenoid shall be protected by a suitably rated fuse, capable of interrupting the prospective short circuit current.

#### (18) Essential Health and Safety Requirements

Assured by compliance with the standards listed at (9).

#### (19) Test documentation

As listed in Test Report No. 210962800.



**Braunschweig und Berlin** 



## (1) EC-TYPE-EXAMINATION CERTIFICATE

(Translation)

- (2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - Directive 94/9/EC
- (3) EC-type-examination Certificate Number:



## PTB 01 ATEX 1024

- (4) Equipment: Control and distribution box, type 8146/5...-...
- (5) Manufacturer: R. STAHL Schaltgeräte GmbH
- (6) Address: Am Bahnhof 30, 74638 Waldenburg (Württ.), Germany
- (7) This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.
- (8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment 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 the confidential report PTB Ex 01-11059.

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

EN 50014:1997 + A1 + A2	EN 50017:1998	EN 50018:1994
EN 50019:2000	EN 50020:1994	EN 50028:1987

- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.
- (11) This EC-type-examination Certificate relates only to the design and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.
- (12) The marking of the equipment shall include the following:

## 🔄 II 2 G EEx edmq ia/ib [ia/ib] T6, T5 or T4

Braunschweig, Juli 24, 2001



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EC-type-examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt. In case of dispute, the German text shall prevail.



Braunschweig und Berlin

## (13) **SCHEDULE**

## (14) EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1024

#### (15) Description of equipment

The control and distribution box, type 8146/5...-... comprises a polyester resin enclosure of type of protection Increased Safety "e". It is designed to accommodate control and switch gear as well as measuring instruments and terminals for intrinsically safe and non-intrinsically safe circuits, and it may be provided with actuator elements, pilot lamps and inspection windows as required. The box area intended for intrinsically safe circuits will be marked by a specific colour (e.g. light blue). Connection will be by means of explosion-proof cable entries.

All installed and attached components have been tested and certified under a separate test certificate.

#### Technical data

Rated voltage	)*	up to	1100 V
Rated current	*	max.	630 A
Rated cross s	ection*	max.	240 mm <sup>2</sup>

\*) depending on type of terminal and explosion-proof components used

Ambient temperature range -40 °C to +55 °C

The ratings specified are maximum values, actual values will be subject to the electrical equipment used from case to case. Depending on the system conditions, the mode of operation, the utilisation category, etc., the manufacturer will define the definitive ratings which will be within the range of these limiting values and will comply with the relevant standards.

The composition of the protection symbol will be based on the types of protection of the components actually used.

#### (16) <u>Test report</u> PTB Ex 01-11059

#### (17) Special conditions for safe use

None;

#### Notes for installation and use

Equipment of the type of protection Intrinsic Safety "i" shall be installed in such a way that the clearances and creepage distances between intrinsically safe and non-intrinsically safe circuits as set forth in 60079-14 are duly accounted for.

If the clearance requirements for the connectors as specified in EN 50020 cannot be safeguarded with the system installation and layout, wiring that meets the quality criteria Increased Safety "e" shall be used, or the wiring shall be of the fail-safe type.

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EC-type-examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt. In case of dispute, the German text shall prevail.



#### **Braunschweig und Berlin**

### SCHEDULE TO EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1024

When using more than one intrinsically safe circuit, the rules and regulations for interconnection shall duly be observed.

The actual ambient temperature range will be based on the admissible temperature range of the components used.

This EC type-examination certificate as well as any future supplements thereto shall at the same time be regarded as supplements to Certificate of Conformity PTB No. Ex-95.D.3155.

#### (18) Essential health and safety requirements

The tests and the favourable results these have produced reveal that the control and distributor box of type 8146/5...-... meets the requirements of directive 94/9/EC as well as those of the standards quoted on the cover sheet.

Zertifizierungsstelle Explosionsschutz By order:

Dr.-Ing. H. Wehinger Direktor und Professor



Braunschweig, Juli 24, 2001



**Braunschweig und Berlin** 

## 1. SUPPLEMENT

## according to Directive 94/9/EC Annex III.6

## to EC-TYPE-EXAMINATION CERTIFICATE PTB 01 ATEX 1024

## (Translation)

Equipment: Control and distribution box, type 8146/5...-...

Marking: (II 2 G EEx edmq ia/ib [ia/ib] T6, T5 or T4

Manufacturer: R. STAHL Schaltgeräte GmbH

Address: Am Bahnhof 30 74638 Waldenburg (Württ.), Germany

### **Description of supplements and modifications**

The marking of the control and distribution box, type 8146/5...-... is supplemented by the specification of the gas group.

Therefore the marking is changed into:

## 🔄 II 2 G EEx edmq ia/ib [ia/ib] IIA, IIB resp. IIC T6, T5 or T4

Zertifizierungsstelle Explosionsschutz By order: Dipl.-Phys. U. Völke

Braunschweig, March 20, 2003

Sheet 1/1

EC-type-examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt. In case of dispute, the German text shall prevail.



## PTB 01 ATEX 1024

Wir (we; nous)						
R. STAHL Schaltgeräte GmbH, Am Bahnhof 30, D-74638 Waldenburg (Württ.)						
erklären in alleiniger Verantwortung, da	Steuer- und Verteilerkasten					
hereby declare in our sole responsibility, t	Control and Distribution Station					
déclarons de notre seule responsabilité, q	Equipement de commande et de distribution Type 8146/5					
auf das sich diese Erklärung bezieht, mit der/den folgenden Norm(en) oder normativen Dokumenten übereinstimmt which is the subject of this declaration, is in conformity with the following standard(s) or normative documents auquel cette déclaration se rapporte, est conforme aux norme (s) ou aux documents normatifs suivants						
Bestimmungen der Richtlinie erms of the directive orescription de la directiveTitel und/oder title and/or No. titre et/ou No. a		Nr. sowie Ausgabedatum der Norm and date of issue of the standard nsi que date d'émission des normes				
94/9/EG: Geräte und Schutzsysteme zur bestimmungsgemäßen Verwen- dung in explosionsgefährdeten Bereichen 94/9/EC: Equipment and protective systems intended for use in potentially explosive atmospheres 94/9/CE: Appareils et systèmes de protection destinés á êtré utilisés en atmosphéres explosibles	EN 50014:1997 EN 50017:1998 EN 50018:1994	EN 50019:1994 EN 50020:1994 EN 50028:1987				
89/336/EWG: Elektromagnetische Verträglichkeit 89/336/EEC: Electromagnetic compatibility 89/336/CEE: Compatibilité électromagnétique	EN 60947-1:199 EN 60439-1:199	9 9				

Waldenburg, 22.11.2001

Ort und Datum Place and date lieu et date Leiter Marketing und Entwicklung Head of Marketing and Development Directeur Marketing et Développrment

Leiter Qualitätsmanagement Head of Quality Management Chef du dept.assurance de qualité