



ExMC/305/DV  
March 2006

**INTERNATIONAL ELECTROTECHNICAL COMMISSION SCHEME  
FOR CERTIFICATION TO STANDARDS RELATING TO EQUIPMENT FOR USE  
IN EXPLOSIVE ATMOSPHERES (IECEx SCHEME)**

**Title: Re-assessment Report for the continued acceptance of BKI ExVÁ Testing Station of Explosion Proof Equipment as an Ex Test Laboratory**

**To: Members of the IECEx Management Committee, ExMC**

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**Introduction**

This document contains the IECEx Re-assessment Report for BKI ExVÁ Testing Station of Explosion Proof Equipment as an Ex Test Laboratory in accordance with the 5-year re-assessment plan for the surveillance and monitoring of bodies under the IECEx Scheme.

This Report also covers assessment for the extension of scope and is issued for voting by 28<sup>th</sup> April 2006

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# IECEx RE-ASSESSMENT REPORT FORM

## For Accepted Ex Test Laboratory (ExTL)

### 1. OBJECT AND FIELD OF APPLICATION

#### 1.1 Country

Hungary

#### 1.2 ExTL under Re-Assessment

Testing Laboratory of BKI ExVÁ Testing Station of Explosion Proof Equipment

#### 1.3 Members of the Assessment Team

Jim Munro,  
Ian Cleare

#### 1.4 Place and Date of Re-Assessment

BKI ExVÁ H-1037 Budapest, Mikoviny S u. 2-4	MEEI (subcontractor for IP testing) Hungarian Institute for Testing and Certification of Electrical Equipment Ltd Budapest1132 Vaci ut 48. A-B
10 -11 March 2005 26 September 2005 (Jim Munro only)	10 March 2005 (Jim Munro only)

#### 1.5 Assessment References

Document:

- i) IECEx 02 Second Edition
- ii) IECEx Operational Document OD/009/V1
- iii) ISO/IEC 17025
- iv) IECEx Technical Guidance Documents

#### 1.6 Current Scope of Acceptance

<u>60079-0</u>	Electrical apparatus for explosive gas atmospheres Part 0: General requirements
<u>60079-1</u>	Electrical apparatus for explosive gas atmospheres Part 1: Construction and verification test of flameproof enclosures of electrical apparatus
<u>60079-2</u>	Electrical apparatus for explosive gas atmospheres Part 2: Electrical apparatus, type of protection 'p' (Pressurization)
<u>60079-5</u>	Electrical apparatus for explosive gas atmospheres Part 5: Powder filling "q"
<u>60079-6</u>	Electrical apparatus for explosive gas atmospheres Part 6: Oil-immersion 'o'
<u>60079-7</u>	Electrical apparatus for explosive gas atmospheres Part 7: Increased safety 'e'
<u>60079-11</u>	Electrical apparatus for explosive gas atmospheres Part 11: Intrinsic safety 'i'



ExMC/305/DV  
March 2006

<u>60079-15</u>	Electrical apparatus for explosive gas atmospheres Part 15: Electrical apparatus with type of protection 'n' (Non-Sparking)
<u>60079-18</u>	Electrical apparatus for explosive gas atmospheres Part 18: Encapsulation 'm'
<u>61779-1</u>	Electrical apparatus for the detection and measurement of flammable gases Part 1: General requirements and test methods
<u>61779-2</u>	Electrical apparatus for the detection and measurement of flammable gases Part 2: Performance requirements for group I apparatus indicating a volume fraction up to 5% methane in air
<u>61779-3</u>	Electrical apparatus for the detection and measurement of flammable gases Part 3: Performance requirements for group I apparatus indicating a volume fraction up to 100% methane in air
<u>61779-4</u>	Electrical apparatus for the detection and measurement of flammable gases Part 4: Performance requirements for group II apparatus indicating up to 100% lower explosive limit
<u>61779-5</u>	Electrical apparatus for the detection and measurement of flammable gases Part 5: Performance requirements for group II apparatus indicating a volume fraction up to 100% gas

#### 1.7 **Any Changes in Scope**

<u>61241-0</u>	Electrical apparatus for use in the presence of combustible dust Part 0: General requirements
<u>61241-1</u>	Electrical apparatus for use in the presence of combustible dust Part 1: Electrical apparatus protected by enclosures
<u>61241-1-1</u>	Electrical apparatus for use in the presence of combustible dust Part 1: Electrical apparatus protected by enclosures Section 1: Specification for apparatus
<u>61241-4</u>	Electrical apparatus for use in the presence of combustible dust Part 4: Type of protection 'pD'
<u>61241-18</u>	Electrical apparatus for use in the presence of combustible dust Part 18: Protection by encapsulation 'mD'

#### 1.8 **ExTL Persons Interviewed**

Name	Position
János FEJES	Head of the Testing Laboratory
Edit MOLNÁR	Quality Management Representative
Janos MULLNER	Testing officer

#### 1.9 **Any changes in Legal Status and/or national accreditation of the ExTL**

No

#### 1.10 **Associated Certifying ExCBs**

Certification Body of Testing Station for Explosion Proof Equipment is located in the same establishment.



### 1.11 *Financial Support*

BKI ExVÁ is a wholly-owned company belonging to the Hungarian Government, but is stated as relying entirely on the income generated from its testing, certification and inspection activities to fund its operating and investment costs.

## 2. ORGANISATION

### 2.1 *Names, Titles and Experience of the Senior Executives*

Name	Title	Experience
János FEJES	Head of the Testing Laboratory	1975 Dipl. Electrical Engineer 1975-76 Electrical engineer at the Microwave Department of Technical University Budapest 1976-83 Development Engineer 1983- Testing Officer at BKI ExVÁ Ltd.

### 2.2 *Name, Title and Experience of the Quality Management Representative*

Name	Title	Experience
Edit MOLNÁR	Quality Management Representative	1998 Graduated as an electrical engineer 1998-2002 Designer and quality management representative 2002- Testing Officer Course in Quality Management Representative in 2002 ISO 9000:2000 Series Auditor and Lead Auditor Training Course in 2003

### 2.3 *Name and Title of Nominated Principal Contact*

Name	Title
János HANKÓ	Director

### 2.4 *Other Employees in ExTL activity*

Name	Title	Responsibility
Győző BRUNN	Testing Officer	Assessor
Béla DENCZ		Testing Officer assessor



**ExMC/305/DV**  
**March 2006**

Lajos LIEBER	Testing Officer	Thermal-test Laboratory Dept
Endre KALOCSA	Testing Officer	Ex-d Laboratory Department
Csaba KECSKÉS	Testing Officer	Ex-e Laboratory Department
Gábor PONGRÁCZ	Testing Officer	Assessor
István TIHANYI	Testing Officer	Ex-i Laboratory Department
János Antal TÓKÉS	Testing Officer	Assessor

**2.5 Information about external staff (if any) working for ExTL**

BKI advised that there are none.

**2.6 Organisational Structure (Including Changes since Last Assessment)**

The organisation chart is shown at See Annex A.

### **3. RESOURCES**

BKI ExVÁ has excellent facilities for testing of Ex equipment. It is staffed with competent staff. The ExTL has all necessary resources for its operation in-house, except where noted below.

### **4. TEST METHODS**

**4.1 Procedures**

At the time of the assessment there were procedures covering Ex testing but limited procedures could be found covering the specific requirements of the IECEx Scheme. This was subsequently corrected and reviewed by the assessment team and found to satisfy IECEx requirements.

The laboratory has an excellent system of providing procedures in clear plastic racks adjacent to work areas.

**4.2 Staff Work Instructions**

Available in the Quality Manual (Procedures E-15 - 26)

**4.3 New or upgraded laboratory equipment**

The following equipment is new or upgraded since the initial assessment:

- Microscope for measuring of creepage distances and clearances
- Rubber Hardness Tester
- Megohmmeter
- MESG apparatus
- Spark Test apparatus
- CTI apparatus

**4.4 Laboratory equipment put out of service without replacement**

Engine Testing Equipment

**4.5 Subcontracted work**

Dust testing to IEC 60529 is not done at BKI ExVÁ. When this testing is required for dust protection, increased safety or intrinsic safety BKI ExVA have established a contract with the Hungarian Institute for Testing and Certification of Electrical Equipment Ltd (MEEI). They may also accept water ingress testing from this laboratory.



They do not have the capability to do EMC testing for IEC 61779-0 and so this is sub-contracted to MEEI. MEEI – Hungarian Institute for Testing and Electrical Equipment Ltd is an accepted Test Laboratory under the IECEE-CB Scheme.

## 5. TEST REPORTS AND RECORDS

### 5.1 *ExTRs Issued During the Past 2 Years:*

At the time of the assessment there were no ExTRs listed for BKI ExVÁ on the IECEx website. BKI subsequently advised that this information is now being entered on the website. There have been seven certificates issued by BKI ExVÁ in the past two years covering Ex d, Ex e, Ex i and Ex m. According to the issued certificates there were 24 ExTRs associated with those ExTRs.

### 5.2 *Other Test Reports Issued During the Past 2 Years*

The following 'ATEX' reports have been issued in the last two years (2003 and 2004). A review of BKI processes suggests that most of these reports would be based on existing European certificates and not on BKI testing.

flameproof	d	224
intrinsic safety	i	164
increased safety	e	100
special	s	8
powder filled	q	13
encapsulated	m	6
type	n	0
pressurised	p	3
Gas Detectors	not advised	
Apparatus for Dusts		0

### 5.3 **Test Records**

Information about amount of physical testing:

- number of thermal endurance tests 6
- number of dust ingress tests 0
- number of mechanical tests (impact, torque, pulling,) 34
- number of flameproof (explosion proof) explosion tests (gas group, overpressure, transmission) 51
- number of IS explosion tests (gas group, spark ignition, small hot component ignition) 12
- number of thermal tests (determination of max surface temperature) 18

Amount of witnessed testing at manufacturers' premises 0

Record keeping methods. Most records of tests are recorded directly into computer either by automated programs or by the operators.

## 6. CALIBRATION

Equipment is either calibrated internally or sent out to an external calibration laboratory for calibration. In the latter case the traceability of measurements by that laboratory are checked (See 5.6.2 of the ExTL Quality Manual and Procedure E20).

Only a selected range of the available metrological measuring devices, such as micrometers and vernier callipers, are kept in current calibration. Many of the larger instruments kept, but not in calibration, were for measuring Group I equipment rarely seen by BKI now.

All calibrated equipment carries calibration labels and details are also contained in a computer database that is used to flag when calibration is due.



Since the initial assessment there have been six new items of equipment brought into the calibration system.

## **7. DOCUMENTATION**

### **7.1 *Quality Manual***

There is a Quality Manual specifically for the ExTL to MSZ EN ISO/IEC 17025. This manual is structured along the lines of the clauses in IEC 17025.

However, at the assessment this manual was found to contain no procedures relating to the IECEx Scheme, or any references to the Scheme. This was subsequently resolved and reviewed by the IECEx assessment Team and found to meet IECEx requirements.

Note: This manual and the system that it covers are entirely separate from the manual and system for the ExCB, and the system has a different quality representative responsible for it

### **7.2 *Document Change Control***

Document control is specified in the Quality Manual (MIKK-VL-V). However, there were no document change control procedures for IECEx documents such as rules, operational documents and ExTAG decision sheets. This was subsequently resolved and reviewed by the IECEx assessment Team and found to meet IECEx requirements.

## **8. INTERNAL AUDIT AND PERIODIC REVIEW**

Internal audit procedures are addressed in the Quality Manual (MIKK-VL-4.13) Annex MIKK-VL-M8 shows the audit schedule for 2005. Internal audit processes were looked for the organisation as part of the ExCB assessment.

## **9. EXTERNAL AUDITS**

Hungarian Accreditation Board (NAT) has issued accreditation NAT-1-1034/2005 (See Annex B) for the laboratory. NAT is an associate member of ILAC. BKI advised that NAT audits the laboratory once a year.

Subsequent to the assessment the accreditation was updated to reflect the full scope of standards covered by the re-assessment that is valid for three years to 19<sup>th</sup> December 2008.

It was advised that as part of the designation of BKI ExVÁ, the Ministry of Economy and Transport audits once every two years.

## **10. COMPLAINTS**

These are covered in the Quality Manual under MIKK-VL-4.8 and MIKK-VL-E8.

## **11. REVIEW OF ISSUED EXTRS BY ASSESSMENT TEAM**

A review was made of certification files dealing with issue of the following certificates and their associated ExTRs:

Certificate IECEx BKI 04.002 – Ex ed [ia} IIC T6 or T5: Plug and socket: certificate and ExTR were based on certificates issued by other bodies.

Certificate IECEx BKI 04.003 – Ex e II T6, Exe ib IIC T6, Ex ed T6 or Ex ed: Control Unit ExTR P-002-04/2-1: included acceptance of tests from manufacturer on drop test, torque test, thermal shock, resistance to light, insulation resistance test, tests in explosive mixtures and IP. Referred to DMT and PTB reports..

P-002-04/2-2: based on PTB and BVS certificates.

P-002-04/2-3: No signature for approval but J Hanko shown as name that would not be correct.

P-002-04/2-4 (control unit): only headings for intrinsic safety report. No reference to certificates or reports. Incomplete description of equipment here, but there is a more complete description in 2-1.

Certificate IECEx BKI 04.004 – Ex de IIC T6: plug and socket device

P-002-04/3-1: certificate and ExTR were based on certificate issued by other bodies.

See 12 3. below regarding resolution of these issues.

## **12. FINDINGS FROM THE RE-ASSESSMENT**

The following issues were found during the assessment:

1. The quality manual and procedures for the ExTL did not include any procedures for IECEx. This was subsequently corrected and found by the IECEx assessment Team to satisfactorily address IECEx requirements
2. IECEx rules, operational documents were not readily available to ExTL staff. This was subsequently done with appropriate documentation control procedures being put in place and found by the IECEx assessment Team to satisfactorily address IECEx requirements.
3. Examination of the ExTRs showed a number of errors in approach and that IECEx procedures had not always been followed. As a result of this the ExTRs were revised. It was recommended that BKI should provide further revision of the ExTRs and provide these to the assessment team and that there would be ongoing monitoring of ExTRs.
4. The inductors used for establishing external parameters for intrinsic safety were not calibrated or subjected to routine checking of their values. This was subsequently resolved and found by the IECEx assessment Team to satisfactorily address IECEx requirements.
5. A report for gas measuring instruments did not include a record for justification for the omission of tests, for example the test for alarm set points. At times it was difficult to see clearly whether the required criterion had been met. BKI will provide 'sound engineering rationale' in accordance with IECEx requirements for the omission of tests.
6. The vibration equipment for the gas measurement instrument standard was not available for viewing as it was out for repair but evidence was subsequently provided that it had been repaired and put back in service.
7. There was no capability to do EMC tests for the gas measuring instrument standard and at the time of assessment it was not clear how this would be achieved. It was subsequently advised that these tests would be subcontracted to MEEI.
8. Report R04042M1 contained a test of a general purpose junction box to EN 50014:2001. The set of the cables for the test did not comply with that standard or the IEC standard (which had slightly different requirements). There was another report for the same box R04042M that had a different test set up. This appeared to be only on the computer system. The date was later than the other report but laboratory staff were of the opinion it had been done earlier. Procedures were subsequently revised to minimise the chance of a reoccurrence of the above.
9. MEEI carries out IP6X and 5X testing on behalf of BKI. There is a signed agreement. At the time of the assessment the following matters were raised:
  - a. MEEI is an accepted body under the IECEx CB-Scheme.
  - b. Evidence was not available at the time of assessment on the calibration of the flow meter for the dust chamber.





**ExMC/305/DV**  
**March 2006**

- c. Presently BKI accepts certificates presented by manufacturers for tests done at MEEI. There is a need for BKI staff to be involved in the selection of representative samples for testing, monitoring of the tests and the decision on compliance or otherwise. This should also be done if water tests are accepted from MEEI for Ex critical tests (eg IPX4 for Ex e terminal boxes).
- d. There were no criteria specified in the procedures for acceptance of dust or water entry.
- e. The staff competencies and authorities will need to be updated for dust testing.

As part of the follow-up action, the above matters were resolved, to the satisfaction of the assessment team.

- 10. Procedure dAZ for impact test was not to latest standards and included provision for using polyamide head for light-transmitting parts. This was subsequently corrected.
- 11. The scope of the standards covered by the NAT accreditation was not provided and was not available on their website. This was subsequently provided with the expanded accreditation to cover the additional standards addressed by the re-assessment.

Copies of additional supporting information for this assessment have been provided to applicant and the IECEx Secretariat. These include:

- Details of issues raised and how these have been resolved.
- Technical guidance documents for Ex i, Ex d and Dust.
- Checklist for ISO/IEC 17025.
- Photographs of the facility.

All Items raised above had been the subject of improvements and reviewed by the IECEx assessment Team and now found to meet IECEx requirements.

### **13. RECOMMENDATIONS**

Based on the re-assessment carried out on 10 to 11 March and 26 September 2005, and follow up actions, the Assessment Team recommends the continued acceptance of BKI as an IECEx TL with a scope as shown in Section 1.6 and additional standards listed in Section 1.7 of this report.

#### **LIST OF ANNEXES**

**Annex A: Organisation Chart**

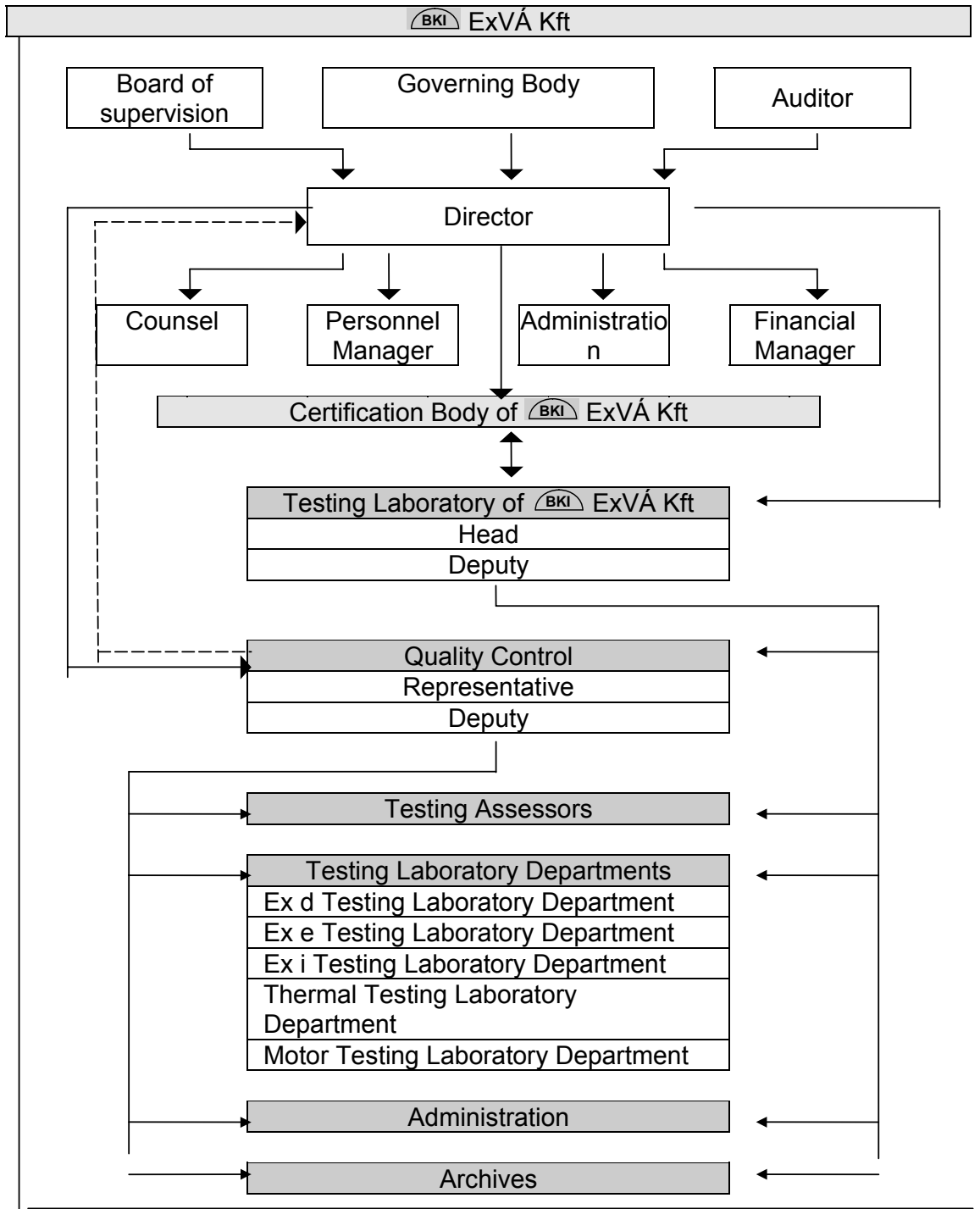
**Annex B: Certificate**

**Annex C: NAT accreditation schedule**

**Jim Munro**  
**Lead Assessor**

**Ian Cleare**  
**Assessor**

## Annex A Organisation Chart





# AKKREDITÁLÁSI OKIRAT

## ACCREDITATION CERTIFICATE

### A NEMZETI AKKREDITÁLÓ TESTÜLET

az 1995. évi XXIX. törvény felhatalmazása alapján elismeri, hogy a  
*Authorized by the law XXIX of 1995 the Hungarian Accreditation Board recognizes that*

**ExVÁ Robbanásbiztos Berendezések Vizsgáló Állomása Kft.**  
*Vizsgálólaboratórium*

1037 Budapest, Mikoviny Sámuel u. 2-4.

megfelel az MSZ EN ISO/IEC 17025:2001 szabvány követelményeinek és a  
*complies with the criteria of MSZ EN ISO/IEC 17025:2001 standard as*

**VIZSGÁLÓLABORATÓRIUM**  
**TESTING LABORATORY**

**kategóriába az alábbi számon bejegyzi**  
*and has been assigned registration number*

**NAT-1-1034/2005**

**Az akkreditálás területét az akkreditálási határozat tartalmazza.**  
*The scope of accreditation is specified in the accreditation decision.*

**Az akkreditálási okirat érvényes**  
*The accreditation certificate is valid until*

**2008. december 19.**

**Az akkreditálási okirat kiadva**  
*The accreditation certificate is issued*

**Budapest, 2005. december 20.**

  
a Nemzeti Akkreditáló Testület ügyvezető igazgatója  
*Director of the Hungarian Accreditation Board*



# National Accreditation Board

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AI-9933/2005

File No.: NAT-1 -1034/2005

Executive: Proksa Ferenc

Subject: Awarding of the  
assessed status

## RESOLUTION

As a result of the assessment procedure initiated by the application of ExVÁ Testing Station for Explosion Proof Equipment Co. Ltd. (1037 Budapest, Mikoviny S. u. 2-4.) the National Accreditation Board is **issuing** present **Assessment Document** for the

**Testing Laboratory of**  
**ExVÁ Testing Station for Explosion Proof Equipment Company Limited**  
(1037 Budapest, Mikoviny Sámuel u. 2-4)

reckoned from the date of the entering into force of present resolution, under the registration number **NAT-1-1034/2005**, with a validity up to 19<sup>th</sup> December 2008, confirming conformity to the MSZ EN ISO/IEC 17025:2001 Standard, for the scope:

*testing of products (devices, equipment, systems resp. their components) and protective systems intended for use in potentially explosive atmosphere (mixture of flammable substances in the form of gases, vapours, mists or dusts with air, under atmospheric conditions, in which, after ignition, the combustion spreads to the entire unburned mixture).*

The assessed scope determined above covers those listed in the Annex of the Resolution.

Simultaneously, by virtue of a) (2) § 7 of Act XXIX/1995, the National Accreditation Board registers the body in the authentic record up to 13<sup>th</sup> September 2008 provided that its assessed status exists.

By virtue of (2) § 19 and § 24 of Act XXIX/1995 modified by Act LV/2001 the appeal against present resolution can be lodged within 15 days reckoned from receipt, addressed to the Committee of Appeal of the National Accreditation Board, presented to the managing director of the National Accreditation Board.

**JUSTIFICATION**

ExVÁ Testing Station for Explosion Proof Equipment Co. Ltd. (1037 Budapest, Mikoviny S.u. 2-4) applied on 13<sup>th</sup> July 2005 for the performance of the assessment procedure concerning its Testing Laboratory, which was completed on 22<sup>nd</sup> August 2005. On the basis of its power conferred upon him by virtue of b) (1) § 6 of Act XXIX/1995 modified by Act LV/2001, as well as the “Procedure of the assessment of laboratories” NAR-01L, the Mining-Metallurgic-Mechanical Technical Assessment Committee of the National Accreditation Board performed the assessment procedure. In the course of the procedure it was established that the applicant complied with the requirements of standard MSZ EN ISO/IEC 17025:2001. The Mining-Metallurgic-Mechanical Technical Accreditation Committee made his decision about the award of the assessed status during his meeting of 20<sup>th</sup> December 2005.

On the day following the one on which the assessed status expires, the organisation will be cancelled from the authentic record kept on the basis of a) (2) § 7 of Act XXIX/1995.

Budapest, 30<sup>th</sup> December 2005



**Dr. Ring Rózsa**  
Managing Director

***Parties informed:***

1. Applicant
2. Journal “Hungarian Quality” for publication
3. NAT (National Accreditation Board) archives
4. NAT website ([www.nat.hu](http://www.nat.hu))

Enclosures: 7 pages



# National Accreditation Board



## ANNEX to the Assessment document NAT-1-1034/2005

Assessed technical scope of the Testing Laboratory of ExVÁ Testing Station for Explosion Proof Equipment Co. Ltd. (1037 Budapest, Mikoviny S. u. 2-4)

*testing of products (devices, equipment systems resp. their components) and protective systems intended for use in potentially explosive atmosphere (mixture of flammable substances in the form of gases, vapours, mists or dusts with air, under atmospheric conditions, in which, after ignition, the combustion spreads to the entire unburned mixture*

according to the following laboratory testing procedures:

<i>Tested product/material</i>	<i>Tested/measure parameter, test type, measuring range</i>	<i>Identification of the testing/measuring method</i>
Electrical products intended for use in potentially explosive atmosphere	General requirements - Type verification and type test - Tests for resistance to impact - Drop test - Torque test for bushings - Temperature measurements - Thermal stability - Resistance to cold - Insulation resistance - Tests of cable entries	MSZEN 50014: 2001 HSZExVÁ-2G-014:2002 (=MSZEN 50014: 1995) HSZExVÁ-IG-014: 1999 (= MSZEN 50014: 1992) HSZ ExVÁ-a-IEC : 1999 (=IEC 79-0) HSZ ExVÁ-a-MSZ : 1999 (=MSZ 4814/1-72) HSZ ExVÁ-a-KGST : 1999 (=MSZ-05-43.4814/1-86) HSZ ExVÁ-a-ATEX : 1999 (=EN 50014 : 1997)





<i>Tested product/material</i>	<i>Tested/measured parameter, test type, measuring range</i>	<i>Identification of the testing/measuring method</i>
Electrical products intended for use in potentially explosive atmosphere	<p>Oil immersion</p> <ul style="list-style-type: none"> <li>- Type test</li> <li>- Temperature measurement</li> <li>- Seal test</li> <li>- Explosion test</li> </ul> <p>Pressurisation</p> <ul style="list-style-type: none"> <li>- Type verification and type test</li> <li>- Pressure test</li> <li>- Seal test</li> <li>- Temperature measurement</li> </ul> <p>Powder filling</p> <ul style="list-style-type: none"> <li>- Type test</li> <li>- Hydraulic type test</li> <li>- Temperature measurement</li> <li>- Test of protection degree</li> </ul>	<p>MSZEN 50015 : 2000 HSZ ExVÁ-2G-015 : 2002 (=MSZEN 50015: 1997)</p> <p>HSZExVÁ-IG-015: 1999 (= MSZEN 50015 : 1992)</p> <p>HSZ ExVÁ-o-IEC : 1999 (=IEC 79-6)</p> <p>HSZ ExVÁ-o-MSZ : 1999 (=MSZ 4814/5-74)</p> <p>HSZ ExVÁ-o-KGST : 1999 (=MSZ-05-43.4814/5-86) HSZ ExVÁ-o-ATEX: 1999 (=EN 50015 : 1998) MSZEN 50016: 1999 HSZ ExVÁ-IG-016 :2002 (MSZEN 50016: 1993)</p> <p>HSZ ExVÁ-p-IEC : 1999 (=IEC 79-2)</p> <p>HSZ ExVÁ-p-MSZ : 1999 (=MSZ 4814/4-74, 4814/8-74)</p> <p>HSZ ExVÁ-p-KGST : 1999 (=MSZ-05-43.4814/4-86) HSZ ExVÁ-p-ATEX : 1999 (=EN 50016: 1995) MSZEN 50017: 2000 HSZ ExVÁ-2G-017: 2002 (=MSZEN 50017: 1997)</p> <p>HSZExVÁ-IG-017: 1999 (=MSZEN 50017: 1992)</p> <p>HSZ ExVÁ-q-IEC : 1999 (=IEC 79-5)</p> <p>HSZ ExVÁ-q-MSZ : 1999 (=MSZ 4814/9-75)</p> <p>HSZ ExVÁ-q-KGST : 1999 (=MSZ-05-43.4814/9-86) HSZ ExVÁ-q-ATEX: (=EN 50017 : 1998)</p>

NAT-1-1034/2005

<i>Tested product/material</i>	<i>Tested/measured parameter, test type, measuring range</i>	<i>Identification of the testing/measuring method</i>
Electrical products intended for use in potentially explosive atmosphere	Flameproof enclosure - Type test - Routine test - Explosion pressure test - Test for protection against flame transmission - Test of cable entries	MSZEN 50018: 2001 HSZ ExVÁ-2G-018: 2002 (=MSZEN 50018: 1998)  HSZExVÁ-IG-018: 1999 (=MSZEN 50018 : 1992)  HSZ ExVÁ-d-IEC : 1999 (=IEC 79-1)  HSZ ExVÁ-d-MSZ: 1999 (=MSZ 4814/2-73)  HSZ ExVÁ-d-KGST: 1999 (=MSZ-05-43.4814/2-86) HSZ ExVÁ-d-ATEX: 2001 (=EN 50018: 2000)
	Increased safety - Type test - Routine test - Test for electrical strength - Test for tracking resistance - Tests for motors, luminaries	MSZEN 50019: 2000 HSZ ExVÁ-2G-019 :2002 (=MSZEN 50019: 1997)  HSZExVÁ-IG-019: 1999 (=MSZEN 50019: 1992) HSZ ExVÁ-e-IEC : 1999 (=IEC 79-7)  HSZ ExVÁ-e-MSZ : 1999 (=MSZ 4814/6-66, 4814/6-66K (1972))  HSZ ExVÁ-e-KGST : 1999 (=MSZ-05-43.481/6-86) HSZ ExVÁ-e-ATEX : 2001 (=EN 50019 : 2000)



<i><b>Tested product/material</b></i>	<i><b>Tested/measured parameter, test type, measuring range</b></i>	<i><b>Identification of the testing/measuring method</b></i>
Electrical products intended for use in potentially explosive atmosphere	Intrinsic safety - Type test - Spark tests - Voltage tests, test for electrical strength - RLC measurements	MSZ EN 50020 : 2003  MSZEN 50020: 1997  HSZExVÁ-IG-020 : 1999 (=MSZ EN 50020 : 1992)  HSZ ExVÁ-i-IEC : 1999 (=IEC 79-11)  HSZ ExVÁ-i-MSZ : 1999 (=MSZ 4814/7-77)  HSZ ExVÁ-i-KGST : 1999 (=MSZ-05-43.4814/7 : 86) HSZ ExVÁ-i-ATEX: 1999 (= EN 50020 : 1994) MSZ EN 50028 : 1992
	Encapsulation - Type test - Voltage test - Thermal tests - Tests for electrical strength - Tensile test of cables	HSZ ExVÁ-m-79 : 1999 (=IEC 79-18)
	Intrinsically safe electrical systems - Type test - Test for electrical strength - RLC measurements	MSZEN 50039: 1992
	Electrostatic, hand-held spraying equipment - Type test - Tests for explosion safety - Voltage test - Test for resistance to impact - Temperature measurement - Drop test - Tensile test of cables	MSZEN 50050 :2001 HSZ ExVÁ-IG-050 : 2002 (= MSZ EN 50050 : 1993)
	Cap lamps for mines susceptible to fire damp - Tensile test (cable) - Drop test - Ignition test - Thermal shock test	MSZ EN 50033 : 1993

<i>Tested product/material</i>	<i>Tested/measured parameter, type test, measuring range</i>	<i>Identification of the testing/measuring method</i>
Electrical products intended for use in potentially explosive atmosphere	Tests after repair - General requirements - Seal test - Explosion test - Torque test - Routine test	MSZ EN 60079-17: 1999 MSZ EN 60079-19 : 2000
Electrical apparatus for the detection and measurement of combustible gases	General requirements and test methods - Type test - Calibration, setting - Testing the change of the measured value - Testing the effects of the environmental characteristics - Resistance to the environment - Electrical tests - Mechanical tests  Performance requirements indicating for Group I apparatus up to 5% (V/V) methane in air - Plotting the calibration curve - Testing the changes of the measured value - Testing the effect of the environmental characteristics - Electrical tests - Mechanical tests  Performance requirements of Group I apparatus indicating up to 100% (V/V) methane in air - Plotting the calibration curve - Testing the changes of the measured value - Testing the effect of the environmental characteristics - Electrical tests - Mechanical tests	MSZ EN 50054 : 2000 HSZ ExVÁ-IG-054 :2002 (= MSZ EN 50054 : 1994)  HSZ ExVÁ-54-ATEX : 1999 (=EN 50054 : 1998)  MSZ EN 50055 : 2000 HSZ ExVÁ-IG-055: 2002 (= MSZ EN 50055 : 1994)  HSZ ExVÁ-55-ATEX : 1999 (=EN 50055 : 1998)  MSZ EN 50056 : 2000 HSZ ExVÁ-IG-056 :2002 (= MSZ EN 50056 : 1994)  HSZ ExVÁ-56-ATEX : 1999 (=EN 50056 : 1998)

<i>Tested product/material</i>	<i>Tested/measured parameter, test type, measuring range</i>	<i>Identification of the testing/measuring method</i>
Electrical apparatus for the detection and measurement of combustible gases	<p>Performance requirements of Group II apparatus indicating up to 100% explosive limit</p> <ul style="list-style-type: none"> <li>- Plotting the calibration curve</li> <li>- Testing the changes of the measured value</li> <li>- Testing the effect of the environmental characteristics</li> <li>- Electrical tests</li> <li>- Mechanical tests</li> </ul> <p>Performance requirements of Group II apparatus indicating up to 100% (V/V) gas</p> <ul style="list-style-type: none"> <li>- Plotting the calibration curve</li> <li>- Testing the changes of the measured value</li> <li>- Testing the effect of the environmental characteristics</li> <li>- Electrical tests</li> <li>- Mechanical tests</li> </ul>	<p>MSZ EN 50057 : 2000 HSZ ExVÁ-IG-057: 2002 (= MSZ EN 50017: 1994)</p> <p>HSZ ExVÁ-57-ATEX : 1999 (=EN 50057 : 1998)</p> <p>MSZ EN 50058 : 2000 HSZ ExVÁ-IG-058 :2002 (= MSZ EN 50058 : 1994)</p> <p>HSZ ExVÁ-58-ATEX : 1999 (=EN 50058: 1998)</p>
Electrical apparatus for the detection and measurement of oxygen	<p>Operating conditions and test methods</p> <ul style="list-style-type: none"> <li>- Testing the effect of the environmental characteristics</li> <li>- Calibration, setting</li> <li>- Determination of the setting time</li> <li>- Electrical tests</li> <li>- Seal test</li> <li>- Testing the change of the measured value</li> </ul>	<p>MSZ EN 50104: 2002 HSZ ExVÁ-104-ATEX: 1999 (=EN 50104: 1998)</p>
Electrical apparatus in explosive gaseous atmosphere	<p>Classification of explosive areas</p> <ul style="list-style-type: none"> <li>- Gas concentration measurement</li> <li>- Testing the degree of ventilation</li> </ul> <p>Installation of electrical products in explosive atmospheres</p> <ul style="list-style-type: none"> <li>- Testing of supplementary requirements</li> <li>- Routine test</li> </ul>	<p>MSZ EN 60079-10: 1998</p> <p>HSZ ExVÁ-1600/8-MSZ : 1999 (=MSZ 1600/8-77)</p> <p>MSZ EN 60079-14 : 1999</p> <p>HSZ ExVÁ-1600/8-MSZ : 1999 (=MSZ 1600/8-77)</p>
Fan suitable for the delivery of explosive gases, vapours	<p>type test</p> <p>checking of spark safety</p>	<p>HSZExVÁ-MSZ-09/10.0326 1988</p>

<i>Tested product/material</i>	<i>Tested/measured parameter, test type, measuring range</i>	<i>Identification of the testing/measuring method</i>
Industrial trucks in explosive atmosphere	- temperature measurement - checking of safety fittings - checking of the flame arrester – impact spark testing	HSZExVA-CEN 150/WG7:1999 (=CEN/TC 150/WG7N77:1994)
Safety fittings Flame arrester Explosion arrester Detonation arrester	- Type test - permanent flame resistance - testing of capability of halting moving flame front	MSZ 15659-4:1992 MSZ 15659-5:1990 MSZ 15659-6:1990
Rubber and plastic hoses	Determination of the electrical resistance	MSZ ISO 8031:1991
Fuel cans of polyethylene	Checking of sealing capacity at 75 °C in explosion proof test chamber	HSZExVÁ-DIN 16904:1999 (=DIN16904:1969)
Gland gaskets	Construction and size checking	MSZ 11264:1985
Petrol station (filling station) Plastic materials	Checking and testing of fittings  Flammability testing	MSZ 9943:1994  MSZ 10383:1980
Electrostatic spraying devices using combustible materials	selection, installation, operation provisions, Parts 1,2,3	MSZ EN 50053-1 : 1994 MSZ EN 50053-2 :1994 MSZ EN 50053-3:1994
Electrical apparatus for use in the presence of combustible dust	Method for the determination of the specific electrical resistance of dust layers  Electrical apparatus protected by enclosure. Construction and tests	MSZ EN 61241-2-2:1999  MSZ EN 50281-1-1:2003

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