

שירותי בטיחות



(Pty) Ltd
Reg No: 1999/027771/07

APPROVED INSPECTION AUTHORITY

IN TERMS OF:

R21.17.2 OF THE MINERALS ACT (INCORPORATED IN THE MINE HEALTH AND SAFETY ACT, NO 29 OF 1996); AND
EMR 8(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, NO 85 OF 1993

CERTIFICATE

**PHAMBILI
PO BOX 391076
BRAMLEY
2018**

Issued: 6 November 2007
*Expire: 07 May 2017
Page 1 of 3

Equipment: VTR Pedro- Terminal boxes
Model: VTR01 OBLO; VTR01 CIECO to VTR06 OBLO; VTR06 CIECO.
Serial No: XPL/091006/DM01 and all serial numbers of equipment covered by a valid report or an accepted product certification mark, and specified in a diagram certified by an AIA approved Ex test laboratory:

Supplied by

Phambili

Identified by Inspection Authority number

S-XPL/07262

And as described in the Explolabs test report number XPL/8834/07262 is hereby certified "Explosion Protected Ex e II T5", having been examined and inspected in accordance with the relevant requirements of South African Standards.

IEC/SANS 60079-0: 2005 "Electrical apparatus for explosive gas atmospheres, Part 0: General Requirements"

IEC/SANS 60079-7: 2003 "Electrical apparatus for explosive gas atmospheres, Part 7: Increased Safety "e"

| | | |
|----------------------|----------|--|
| Locations | Zone 2 | Gas Surface |
| Environment | Group II | Propane to Hydrogen and Acetylene |
| Frequency | | Intermittent as could occur under abnormal operation |
| Limiting Temperature | T5 | 100 °C |

This certification indicates compliance with R21.17.2 of the Mine Health and Safety Act and/or EMR 8(1) of the Occupational Health and Safety Act, provided that the apparatus is used as relevant in accordance with:

- i) SANS 10086 requirements and SANS 61241-10 requirements as applicable;
- ii) Any conditions mentioned in the above report;
- iii) Any relevant requirements and codes of practice enforced in terms of the Mine Health and Safety Act or Occupational Health and Safety Act; and
- iv) Any restrictions and conditions enforced by the Chief Inspector of Mines or the Principal Inspector or the Chief Inspector: Occupational Health and Safety.
- v) *-New equipment may only be presented for sale between the "Issued" and "Expire" dates.

XPL0105

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1. GENERAL

The enclosure tested was one of a range of enclosures which are manufactured in Italy. The enclosures are manufactured out of fibre glass and are white in colour. The range of enclosures consisted out of two types: a) OBLO (This type of enclosure makes provision for a transparent window) and b) CIECO.

Each enclosure consisted of a body and a lid. Each lid had a rubber type seal fitted into a groove and sealed the enclosure when closed and locked into position. Each locking mechanism of the lid can only be operated with a triangular tool. Each lid was secured onto the enclosure by means of two hinges.

Dimensions and accessories for the above mentioned enclosures are described in the Pedro catalogue and the certificate of approval no. CA02.02704.

| | |
|------------------------------|-----------------------------|
| Series | BOCCHIOTTI |
| Type Reference | VTR01 CIECO – VTRO 01 OBLO |
| Article/Catalogue Reference | VTR01 CIECO – VTRO 01 OBLO |
| Number of dimensions/modules | 300 x 265 x 165 mm |
| Power loss | 36W |
| Series | BOCCHIOTTI |
| Type Reference | VTR02 CIECO – VTRO 02 OBLO |
| Article/Catalogue Reference | VTR02 CIECO – VTRO 021 OBLO |
| Number of dimensions/modules | 425 x 325 x 180 mm |
| Power loss | 52W |
| Series | BOCCHIOTTI |
| Type Reference | VTR02 OBLO– VTRO 02 CIECI |
| Article/Catalogue Reference | VTR02 OBLO– VTRO 02 CIECI |
| Number of dimensions/modules | 36 mod. 425 x 325 x 180 mm |
| Power loss | 34W |
| Series | BOCCHIOTTI |
| Type Reference | VTR03 CIECO – VTRO 03 OBLO |
| Article/Catalogue Reference | VTR03 CIECO – VTRO 03 OBLO |
| Number of dimensions/modules | 500 x 430 x 210 mm |
| Power loss | 111W |
| Series | BOCCHIOTTI |
| Type Reference | VTR03 OBLO– VTRO 03 CIECI |
| Article/Catalogue Reference | VTR03 OBLO– VTRO 03 CIECI |
| Number of dimensions/modules | 54 mod. 500 x 430 x 210 mm |
| Power loss | 72W |
| Series | BOCCHIOTTI |
| Type Reference | VTR04 CIECO – VTRO 04 OBLO |
| Article/Catalogue Reference | VTR04 CIECO – VTRO 04 OBLO |
| Number of dimensions/modules | 650 x 430 x 210 mm |
| Power loss | 122W |
| Series | BOCCHIOTTI |
| Type Reference | VTR04 OBLO– VTRO 04 CIECI |
| Article/Catalogue Reference | VTR04 OBLO– VTRO 04 CIECI |
| Number of dimensions/modules | 72 mod. 650 x 430 x 210 mm |
| Power loss | 81W |
| Series | BOCCHIOTTI |
| Type Reference | VTR05 CIECO – VTRO 05 OBLO |
| Article/Catalogue Reference | VTR05 CIECO – VTRO 05 OBLO |
| Number of dimensions/modules | 650 x 540 x 260 mm |
| Power loss | 129W |

XPL0105

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|------------------------------|-----------------------------|
| Series | BOCCHIOTTI |
| Type Reference | VTR05 OBLO- VTRO 05 CIECI |
| Article/Catalogue Reference | VTR05 OBLO- VTRO 05 CIECI |
| Number of dimensions/modules | 96 mod. 650 x 540 x 260 mm |
| Power loss | 84W |
| Series | BOCCHIOTTI |
| Type Reference | VTR06 CIECO - VTRO 06 OBLO |
| Article/Catalogue Reference | VTR06 CIECO - VTRO 06 OBLO |
| Number of dimensions/modules | 800 x 615 x 315 mm |
| Power loss | 207W |
| Series | BOCCHIOTTI |
| Type Reference | VTR06 OBLO- VTRO 06 CIECI |
| Article/Catalogue Reference | VTR06 OBLO- VTRO 06 CIECI |
| Number of dimensions/modules | 140 mod. 800 x 615 x 315 mm |
| Power loss | 135W |

2. SPECIAL CONDITIONS FOR SAFE (X)

None.

3. MARKING

The following (or similar) information had to be clearly and permanently marked on all units covered by this report:

- Phambili
- VTR Pedro- Terminal boxes
- Model : VTR01 Cieco;VTR01 Oblo to VTR06 Cieco; VTR06 Oblo
- Volts : 380V
- Amps : 10A
- Termination Cross Section : Maximum 4mm²
- Serial no. : ----
- Ex e II T5
- IA No. : S-XPL/07262

JJ Joubert
SENIOR TESTING OFFICER

E Zuppa
SENIOR TESTING OFFICER

CARATTERISTICHE TECNICHE DEI MATERIALI

ישראלוקס בע"מ

I prodotti Bocchiotti per installazione soddisfano le innumerevoli esigenze installative create da diverse condizioni d'uso e d'ambiente. Sono fabbricati con materiali ad elevate prestazioni; sono controllati nella costanza dei parametri qualitativi; vengono sottoposti a rigorosi controlli ed a severe prove di affidabilità alle condizioni limite di esercizio e di durata.

Qui di seguito si elencano le caratteristiche principali dei materiali:

| MATERIALI | UNITA' SI | PVC ESTRUSIONE | | ABS/PC | | ABS | | PS | |
|------------------------------------|-------------------|----------------------|-------------|------------------------|-------------|-------------------------|-------------|--------------------------|-------------|
| | | Valore | Norma | Valore | Norma | Valore | Norma | Valore | Norma |
| FISICHE | | | | | | | | | |
| Peso specifico | g/cm ³ | 1,55 | DIN 53479 | 1,17 | ASTM D792 | 1,06 | ISO 1183 | 1,04 | ISO 1183 |
| Assorbimento H ₂ O 23°C | % | <0,1 | ISO 62 | 0,6 | ASTM D570 | 0,2 | DIN 53495 | <0,1 | DIN 53495 |
| Formaldeide | ppm | assenti | - | assenti | - | assenti | - | assenti | - |
| Cadmio | ppm | assenti | - | assenti | - | assenti | - | assenti | - |
| MECCANICHE | | | | | | | | | |
| Carico di rottura a trazione | MPa | 39 | ISO 527 | 41 | ISO 527 | - | - | 17 | ISO 527 |
| Carico di snervamento a trazione | MPa | 44 | ISO 527 | 51 | ISO 527 | 49 | ISO 527 | 18 | ISO 527 |
| Allungamento a rottura | % | 130 | ISO 527 | 50 | ISO 527 | - | - | 55 | ISO 527 |
| Modulo elasticità a trazione | MPa | 4400 | ISO 527 | 2700 | ISO 527 | 2400 | ISO 527 | 1700 | ISO 527 |
| Modulo elasticità a flessione | MPa | 3200 | ISO 527 | 2600 | ISO 178 | 2400 | ISO 178 | - | - |
| TERMICHE | | | | | | | | | |
| Temperatura VICAT | °C | 84 | DIN 53460 | 93 | ASTM D1525 | 103 | ISO 306 | 90 | ISO 306 |
| Temperatura HDT | °C | 72 | ISO 75 | 90 | ASTM D648 | 93 | ISO 75 | 81 | ISO 75 |
| Coefficiente di dilatazione | K ⁻¹ | 6 · 10 ⁻⁵ | DIN 53752 | 7-9 · 10 ⁻⁵ | ASTM D696 | 8-10 · 10 ⁻⁵ | DIN 53752 | 9 · 10 ⁻⁵ | ASTM D696 |
| Calore specifico | kJ/kgK | 0,94 | interna | 1,28 | interna | - | - | 0,17 | ISO 8302 |
| Conducibilità termica | W/mK | 0,14 | DIN 52612 | 0,20 | DIN 52612 | 0,16 | DIN 52612 | 0,16 | DIN 52612 |
| ELETTRICHE | | | | | | | | | |
| Costante dielettrica | Adim. | 3,2 - 4,0 | ASTM D150 | 2,8 | IEC 250 | 2,8 | IEC 250 | 2,5 | IEC 250 |
| Rigidità dielettrica | kV/mm | 70 | IEC 243 | 26 | IEC 243 | 34 | IEC 243 | 65 | IEC 243 |
| Resistività di superficie | Ohm | 10 ¹³ | IEC 93 | > 10 ¹⁵ | IEC 93 | > 1 · 10 ¹⁵ | IEC 93 | > 1,5 · 10 ¹⁵ | IEC 93 |
| IGNEE | | | | | | | | | |
| Autoestinguenza 1,6 mm | Adim. | V0 | UL 94 | V0 | UL 94 | HB | UL 94 | HB | UL 94 |
| Autoestinguenza 3,2 mm | Adim. | V0 | UL 94 | 5VB | UL 94 | HB | UL 94 | HB | UL 94 |
| Filo incandescente 2 mm | °C | 960 | IEC 695-2-1 | 960 | IEC 695-2-1 | 650 | IEC 695-2-1 | 650 | IEC 695-2-1 |
| Indice di O ₂ | % | 43 | ISO 4589 | 32 | ISO 4589 | - | - | - | - |

La Bocchiotti S.p.A. si pone quale obiettivo primario l'ottimizzazione produttiva e tecnologica recependo costantemente l'evoluzione delle Norme e dei materiali. Ciò comporta la possibile modificazione, senza alcun preavviso, delle indicazioni relative alle caratteristiche tecniche sopra indicate.

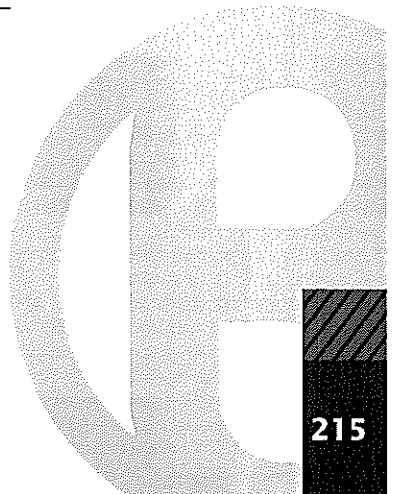
Per qualsiasi applicazione particolare o al limite delle prestazioni è necessario eseguire una verifica sperimentale e/o consultare il nostro Servizio Tecnico.

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INSTALLAZIONE
A PARETE

INSTALLAZIONE
SOPRA-SOTTO PAVIMENTO

| PA 6 | | PC | | PVC PLASTIFICATO | | PP TALCO | | VETRORESINA | |
|-----------------------|-------------|----------------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|
| Valore | Norma | Valore | Norma | Valore | Norma | Valore | Norma | Valore | Norma |
| 1,14 | ASTM D792 | 1,2 | ISO 1183 | 1,24 | ISO 1183 | 1,05 | ASTM D1505 | 1,70 | UNI 7092 |
| 2,5 | ASTM D570 | 0,35 | ISO 62 | 0,2 | ISO 62 | < 0,1 | ISO 62 | < 0,2 | ISO 62 |
| assenti | - | assenti | - | assenti | - | assenti | - | assenti | - |
| assenti | - | assenti | - | assenti | - | assenti | - | assenti | - |
| 45 | ISO 527 | 70 | ISO 527 | 13 | ISO 527 | 28 | ASTM D638 | 200 | ISO 527 |
| 55 | ISO 527 | 63 | ISO 527 | - | - | - | - | - | - |
| 250 | ISO 527 | 110 | ISO 527 | 300 | ISO 527 | 40 | ASTM D638 | - | - |
| 950 | ISO 527 | 2350 | ISO 527 | - | - | 2100 | ASTM D638 | - | - |
| 1100 | ISO 178 | 2300 | ISO 178 | - | - | - | - | 9000 | EN 63 |
| 198 | ISO 306 | 140 | ISO 306 | - | - | 115 | ASTM D1525 | > 200 | ISO 306 |
| 185 | ISO 75 | 125 | ISO 75 | - | - | 87 | ASTM D648 | > 200 | UNI 5641 |
| 8-10 10 ⁻⁵ | ASTM D696 | 7 10 ⁻⁵ | ISO 11359-2 | - | - | - | - | - | - |
| 1,7 | ASTM C351 | - | - | - | - | - | - | - | - |
| 0,29 | ASTM C177 | 0,2 | ISO 8302 | - | - | - | - | - | - |
| 5,0 | VDE 0303 | 3,0 | VDE 0303 | 6,0 | VDE 0303 | 2,7 | VDE 0303 | 5,5 | VDE 0303 |
| 35 | IEC 243 | 15 | IEC 243 | 30 | IEC 243 | 50 | IEC 243 | 30 | IEC 243 |
| 5 10 ¹¹ | IEC 93 | > 1 10 ¹⁵ | IEC 93 | 10 ¹¹ | IEC 93 | 10 ¹³ | IEC 93 | 10 ¹³ | IEC 93 |
| HB | UL 94 | HB | UL 94 | V2 | UL 94 | HB | UL 94 | - | - |
| HB | UL 94 | HB | UL 94 | V2 | UL 94 | HB | UL 94 | V0 | UL 94 |
| 650 | IEC 695-2-1 | 850 | IEC 695-2-1 | 850 | IEC 695-2-1 | 650 | IEC 695-2-1 | 960 | IEC 695-2-1 |
| 25 | ASTM D2863 | 25 | ASTM D2863 | 22 | ISO 4589 | - | - | - | - |



5.4 TEST RESULTS

The following tests were performed (not necessarily in the given order).

IEC/SANS 60079-0 Clause 26.4.2: Test for resistance to impact.

An impact test was performed on the transparent lid of the enclosure. An impact of 7J was conducted. No visible damage occurred (after conditioning requirements as set out in IEC/SANS 60079-0 Clause 26.8 and 26.9).

IEC/SANS 60079-7 Clause 4.4 and 4.5: Creepage and clearance distances

Only approved terminals are to be fitted inside the enclosure

IEC/SANS 60079-7 Clause 4.8: Temperature tests.

A temperature test was conducted on a sample of an enclosure with 110 10A Ex e Weidmuller terminals placed inside of it. Max recorded temperature was 86°C at 26°C ambient. There for at a max operating ambient of 40°C the temperature would be 100°C.

IEC/SANS 60079-0 Clause 26.13: Surface resistance test of parts of enclosure of non-metallic materials

This test was conducted in accordant with IEC/SANS 60079-0:2005 clause 26.13. 500V was placed on the electrodes for a period of 60s a reading of 1388MΩ was measured. The standard allows a reading of 1000MΩ. There for a warning label must be placed on the enclosure. ONLY WIPE WITH DAMP CLOTH.

6 MARKING

The following (or similar) information had to be clearly and permanently marked on all units covered by this report:

Prepared by Phambili

VTR Pedro- Terminal boxes

Model/Type : VTR01 Cieco;VTR01 Oblo to VTR06 Cieco; VTR06 Oblo

Volts : 380V

Amps : 10A

Serial No : ----

Ex e II T5

IA No. : S-XPL/07262

7 DOCUMENTATION

The following documentation was submitted as part of the approval:

| No | Description | Identification |
|----|-----------------|----------------|
| 1 | Approval Cert | CA02.02704 |
| 2 | Pedro catalogue | Pedro |

8 VALIDITY

This report covers only the unit described in Paragraph 2 of this report. Other identical units will only be covered by:

- a. additional approvals covering all serial numbers, or
- b. approval of certified equipment under a product certification scheme accepted by the Department of Minerals and Energy and/or the Department of Labour as relevant.

This type approval report remains valid unless modifications are made to the equipment without obtaining prior approval.

Assessed by:



JJ Joubert
SENIOR TESTING OFFICER

Checked by:



E Zuppa
SENIOR TESTING OFFICER

EXPLOLABS EXPLOSION PREVENTION SERVICES

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