सीएसआईआर–केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद्)
बरवा रोड , धनबाद – 826015 , झारखण्ड, भारत

CSIR-Central Institute of Mining & Fuel Research
(Council of Scientific & Industrial Research)
Barwa Road, Dhanbad - 826015 , Jharkhand , India

ORIGINAL COPY

SPEED POST/COURIER SERVICE

No. CIMFR/TC/P/MGSS Dated: 17 February 2012

Equipment ID NO. 72/12 Code No. FLP/242/11-12

To,
M/S. KAYSONS TECHNO EQUIPMENT PVT. LTD.,
1802/7, PHASE- IV, G.I.D.C ESTATE,
VITHAL UDOGNAGAR – 388 121
GUJARAT (INDIA)

Sub: Flameproof Testing as per IS/IEC 60079-1: 2007 and weatherproof testing as per IS/IEC 60529:2001 IP-66 of your **FLP & WP Flood Light Fitting,** rated 500W GLS, 400W/250W HPMV, 250W MLL, 85W CFL, 100W LED & 400W MH at 240V AC in cast aluminium Alloy LM-6 construction designated by **Type No.: KFL-A** for use in Zone 1 & 2 and Gas Group: IIB atmosphere only.

- Report on (Prototype)

Your Ref. Appl. No.: KTPL/CIMFR/KFL-A/11-12 Dated: 01/01/2012

Dear Sir,

Please find enclosed the **Test Report (Prototype)** of the above sample submitted by you.

Charges of
including applicable service charges involved towards the testing /issuing the schedule have been adjusted against the advance deposit made by you.

Kindly arrange to collect the sample within 90 days from the date of receipt of this letter failing which CIMFR would dispose off the sample by public auction without any further NOTICE to you.

Kindly acknowledge receipt.

Thanking you.

Yours faithfully,

17/02/2012

(**G. M. PRASAD**)
HEAD OF THE DEPARTMENT
TESTING CELL

Encl: As above.
Prototype Test Report in ***Four Copies***
Copy to: 1. Head, Flame & Explosion Lab.
2. Bill Section.

EPABX : 0091-326-229-6027/6028/6029
Fax : 0091-326-229-6025 , email : dcmrips@yahoo.co.in
Working Days : Monday to Friday, Website : www.cimfr.nic.in

के० ख० एवं ई० अ० सं० परीक्षण प्रकोष्ठ– CIMFR TESTING CELL
केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान
(वैज्ञानिक एवं औद्योगिक अनुसंधान परिषद)

ORIGINAL COPY

CENTRAL INSTITUTE OF MINING AND FUEL RESEARCH
FORMERLY : CENTRAL MINING RESEARCH INSTITUTE
(COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH)
बरवा रोड, धनबाद-826015 (भारत) BARWA ROAD, DHANBAD-826015 (INDIA)

परीक्षण प्रमाण पत्र–TEST CERTIFICATE

FORMAT NO.: (CIMFR: DQM: FLP02: F-01:REV-01)
(Flame & Explosion Laboratory)

Proto Report No.: CIMFR/TC/P/H655	**Dated: 17 February,2012**
Equipment ID NO.: 72/11	**Code No.: FLP/242/11-12**
Application Ref. No.: KTPL/CIMFR/KFL-A/11-12	**Dated: 01/01/2012**

1. **Applicant** : **M/S. KAYSONS TECHNO EQUIPMENT PVT. LTD.,**
1802/7, PHASE- IV, G.I.D.C ESTATE,
VITHAL UDOGNAGAR – 388 121
GUJARAT (INDIA)

2. **Manufacturer** : Same as above

3. **Apparatus** : FLP & WP Flood Light Fitting.

4. **Designated by** : Type - KFL-A

5. **Gas Group, Zone :** Gas Group : IIB and Zone 1 & Zone 2 atmospher only.

6. **Electrical ratings:** rated 500W GLS, 400W/250W HPMV, 250W MLL, 85W CFL, 100W LED & 400W MH at 240V AC

7. **Temperature Class:** **(See result # A2)**

8. **Degree of Ingress Protection:** IP-66, **(see result # A4)**

9. **Material of Construction:** Cast aluminium Alloy LM-6. Refer drawing for material thickness at different locations of the enclosure.

10. **Description of the apparatus** FLP & WP Flood Light Fitting.

A.

Description	**Volume (in cc)**		**Min. Wall thickness**	**Nos. & Size of Bolts/Fasteners**
	Gross Volume			
Name: Main Enclosure	14000 cc	8000 cc	6mm	Grub screw.
Name: Terminal Enclosure	200 cc	150 cc	4mm	2 nos. M6 x 20 long Allen cap screw.

Note: For further details refer drawings.

सीएसआईआर - केंद्रीय ईंधन अनुसंधान परीक्षण प्रकोष्ठ
CSIR - CIMFR TESTING CELL

परीक्षण प्रकोष्ठ स्थापित - १९५६ TESTING CELL ESTD. 1956

ORIGINAL COPY

IMFR

TEST CERTIFICATE / परीक्षण प्रमाण पत्र

FORMAT NO.: CIMFR: DOM/TP02: F-01:REV-01)
(Flame & Explosion Laboratory)

ID NO.: 72/11 Code No.: FLP/242/11-1211

B.

Glass details	Max no. of aperture on cover
Size = Ø 310mm opening , Shape = Round Type = Toughened Type 'A' Thickness = 18mm Cemented Path = 34mm Sealing Material = Litharge + Glycerin with calcium sulphate. COT : – 20^0 to 220^0C	NIL

Nature of Flameproof Joint: Type of joints and gaps (Threaded, Spigot joint **for Gas Gr. IIB)**

Sr. No	Location of flamepath	Type of joint	Min. length of flamepath/Axial threaded length (in mm)		Max. gap/no. of threads (in mm)	
			Req.	Spec.	Req.	Spec.
01.	Between Main Enclosure and Glass cover.	Threaded Joint	8	19	5	9 (pitch 2mm)
02.	Between Main Enclosure and Spacer.	Threaded Joint	8	10	5	6 (pitch 1.5)
03.	Between Spacer and Terminal plate	Threaded Joint	8	10	5	6 (pitch 1.5)
04.	Between Terminal plate and Terminal Box.	Spigot Joint	12.5	12.5	0.15	0.15

Terminal Studs: 2 nos. DMC moulded terminal studs are provided in the terminal plate maintaining flamepath 25mm and diametrical clearance 0.2mm. Check nuts are provided for locking arrangement.

Max. No. & size of cable entries: One no. M25x1.5P Cable entry provided on the Terminal box maintaining 13mm threaded path with 8 nos. full thread engaged for attachment of appropriate and approved & certified double compression type cable glands.

12. Name plate and warning inscription: The name-cum-warning inscription plate and rating plate made of Brass/SS is permanently fixed on the cover of enclosure by hammer driven rivets leaving min. 3mm material thickness below the rivets. The warning inscription shall read as **"DO NOT OPEN WHILE ENERGIZED".**

13. Drawing: The unit is designed and constructed as flameproof and weatherproof in accordance with the following drawing conforming to the requirements of IS/IEC 60079-0: 2004 and IS/IEC 60079-1: 2007.

Sl. No.	Drg. No.	Title	Rev.	Sheet	Date
1.	FL001-10	FLP & WP FLOOD LIGHT FITTING.. TYPE – KFL-A	0	1 OF 1	01/01/2012

सीएसआईआर - केन्द्रीय खनन अनुसंधान संस्थान परीक्षण प्रकोष्ठ
CSIR - CIMFR TESTING CELL

ORIGINAL COPY

TEST CERTIFICATE / परीक्षण प्रमाण पत्र

FORMAT NO.: CIMFR: RSM: FLP02: F-01:REV-01)
(Flame & Explosion Laboratory)

ID NO.: 72/11 Code No.: FLP/242/11-1211

14. Any other relevant information:

1) As per Clause 4.2.1 Note – 2 of IS/IEC 60079-0:2004 the apparatus mark IIB is suitable for application requiring IIA apparatus.

2) The material of construction of the FLP/WP Flood Light Fitting may be C.I. grade FG 200/ Brass / Steel instead of cast Aluminum alloy LM6 construction.

3) The above FLP/WP Flood Light Fitting may be used as a FLP/WP high bay light fitting.

15. Declaration by the Applicant/Manufacturer:

(i) As to standards with which the apparatus complies in respect of:

a) Electrical apparatus for Potentially Explosive atmosphere – General requirements: IS/IEC 60079-0: 2004

b) As to flameproof protection IS/IEC 60079-1: 2007

c) Ingress protection as per IS/IEC 60529: 2001

(ii) Composition of the cast aluminum alloy LM-6 declared by the manufacturer: Composition of cast aluminum alloy LM-6 purported to be forming the material of construction of the enclosure has been declared by the manufacturer in the Drg. no. FL001-10, sheet no. 1, rev-0 Dated: 01/01/2012.

COMPOSITION OF ALUMINIUM ALLOY LM-6

Copper	0.1 % (max.)	Silicon	10 to 13 % (max.)
Titanium	0.2 % (max.)	Lead	0.1 % (max.)
Tin	0.06 % (max.)	Magnesium	0.1 % (max.)
Iron	0.6 % (max.)	Zinc	0.1 % (max.)
Nickel	0.1 % (max.)	Manganese	0.5 % (max.)

Aluminium by difference 85 to 88%

However no sample of the alloy was drawn from the prototype enclosure for verifying its chemical composition declared by the manufacturer

16. Documents/Samples Submitted :

i) Application form
ii) Drawings
iii) Prototype sample

17. Compliance of prototype or sample with documents: The test sample of electrical apparatus submitted for the type tests complies with the manufacturers documents referred above.

Note: CIMFR has however not checked and tested the compliance of the apparatus to any standard other than the above standards.

SCOPE OF THE TEST CERTIFICATE

The Test Certificate issued by CIMFR testifies that the apparatus has been found to comply with the definition of flameproof-weatherproof APPARATUS contained in the relevant Standard specifications. They do not vouch for the quality of the equipment in any other respect.

This Institute reserves the right to review amend or withdraw this Test Report at any time if considered necessary in the interest of safety.

सीएसआईआर - केंद्रीय ईंधन अनुसंधान एवं परीक्षण प्रकोष्ठ
CSIR - CIMFR TESTING CELL

स्थापित - १९५६
TESTING CELL
ESTD. 1956

ORIGINAL COPY

TEST CERTIFICATE/परीक्षण प्रमाण पत्र

FORMAT NO.: (CIMFR: DQM: FLP02: F-01: REV-01)
(Flame & Explosion Laboratory)

Proto Report No. CIMFR/TC/P/H655 **Dated: 17 February,2012**

ID NO.: 72/11 **Code No.: FLP/242/11-1211**

REPORT OF TEST

Date of Test: 02/02/2012

Test Equipment Used:

(i) Computer, Kistler Piezo Electric Transducer and Charge Amplifier for conducting Explosion Pressure Tests.
(ii) Impact test setup
(iii) Weatherproof test setup
(iv) Thermal Shock test setup
(v) Temperature class test setup
(vi) Hydraulic Test Setup

Result #A: Tests as per IS/IEC 60079-0: 2004:

Type Tests			
Clause	**Tests**	**Remarks**	**Results (Complies, P- Pass, NA-Not Applicable, F-Fail) References**
1	Scope		**Complies**
2	Normative references		**Complies**
3	Terms and definitions		**Complies**
4	Apparatus grouping and temperature classification	IIB	**Complies (Result#A2)**
5	Temperatures	-20 to 40^0 Ambient	**Complies**
6	Requirements for all electrical apparatus		**Complies**
7	Non-metallic enclosures and non-metallic parts of enclosures	Tested DMC moulded terminal studs as declared by manufacturer	**Complies**
8	Enclosures containing light metals	For Gr. II, Mg 0.1% For Zone 1 & 2	**Complies**
9	Fasteners		**Complies**
10	Interlocking devices	Grub Screw	**Complies**
11	Bushings		**Complies**
12	Materials used for cementing	Litharge + Glycerine with calcium sulphate. COT: – 20^0 to 220^{0}C	**Complies**
13	Ex components	----------	**NA**
14	Connection facilities and terminal compartments		**Complies**

सीएसआईआर-केन्द्रीय मोटर वाहन परीक्षण प्रकोष्ठ
CSIR-CMVR TESTING CELL

IMFR

TEST CERTIFICATE / परीक्षण प्रमाण पत्र

FORMAT NO.: CMVR/TAP-115/AM-FLP02: F-01:REV-01)
(Flame & Explosion Laboratory)

ID NO.: 72/11 Code No.: FLP/242/11-1211

15	Connection facilities for earthing or bonding conductors		**Complies**
16	Entries into enclosures		**Complies**
17	Supplementary requirements for rotating electrical machines		**NA**
18	Supplementary requirements for switchgear		**NA**
19	Supplementary requirements for fuses		**NA**
20	Supplementary requirements for plugs and sockets		**NA**
21	Supplementary requirements for luminaries		**Complies**
22	Supplementary requirements for caplights and handlights		**NA**
23	Apparatus incorporating cells and batteries		**NA**
24	Documentation		**Complies**
25	Compliance of prototype or sample with documents		**Complies**
26	Type tests		**Complies**
26.3	**Tests in explosive mixtures**		
26.3	Tests for Flameproof (Ex 'd') protection	Verification for Compliance to Ex 'd' requirements as per IS/IEC 60079-1: 2007	**P/As per Result #B**
26.4	**Test of enclosures**		
26.4.2	Test for resistance to Impact		**P/As per Result #A1**
26.4.3/26.4.4	Drop test		**NA** (not a handheld apparatus or portable device)
26.4.5	**Tests for the Degree of protection IP**		
26.4.5	IP of apparatus	Ability to prevent ingress of dust & water – IP-66 as per IS/IEC 60529:2001	**P/As per esult#A4**
26.5	**Thermal tests**		
26.5.1	Temperature measurement		**P/As per Result #A2**
26.5.2	Thermal shock test – for glass parts		**P/As per Result #A3**
26.6	**Torque Test for bushings**		
26.6	Torque test for bushings	As declared by manufacturer	**Complies**

सीएसआईआर - सिम्फर परीक्षण प्रकोष्ठ
CSIR - CIMFR TESTING CELL

ORIGINAL COPY

TEST CERTIFICATE / परीक्षण प्रमाण पत्र

FORMAT NO.: (CIMFR:DOC:FLP02: F-01:REV-01)
(Flame & Explosion Laboratory)

ID NO.: 72/11 Code No.: FLP/242/11-1211

26.7	**Tests for non- metallic enclosures or of non-metallic parts of encl.**		
26.8	Thermal endurance to heat	Thermal requirements declared by manufacturer for DMC moulded terminal studs COT: - 20⁰C to 220⁰C	**Complies**
26.9	Thermal endurance to cold		
26.10	Resistance to light	-------------	**NA**
26.11	Resistance to chemical agents for Gr.I	-------------	**NA** (only applicable for Gr. I apparatus)
26.12	Earth continuity test via non-metallic enclosure		**NA**
26.13	Surface resistance test of parts of enclosures of Non metallic materials	-------------	**NA**
26.14	Charging test		**NA**
26.15	Measurement of Capacitance		**NA**
27	**Routine verification and tests**	**Manufacturer's responsibility**: Compliance to prototype of the product and physical measurement of gap and flamepath and hydraulic test at the pressure given in **Result#B2** for every sample.	
28	Manufacturer's responsibility	Conformity of the apparatus to the applicable standards	**Complies**
29	Marking		**Ex d IP-66 IIB**
30	Instructions	Instruction related to use, installation, maintenance, adjustment to be provided by the manufacturer along with the apparatus	

सीएसआईआर - केमर्ईअसं परीक्षण प्रकोष्ठ
CSIR - CIMFR TESTING CELL

ORIGINAL COPY

TEST CERTIFICATE 1958 परीक्षण प्रमाण पत्र

FORMAT NO: CIMFR: DOM: FLP02: F-01:REV-01)
(Flame Proof Division Laboratory)

ID NO.: 72/11 Code No.: FLP/242/11-1211

Result#A1: 1kg mass of hardened steel fallen vertically on the surface of the cast aluminium alloy LM-6 enclosure and 18mm thick toughened type 'A' round in glass cover to create impact energy for group II apparatus.

Result#A2: The surface temperature rise classification of the Flood Light Fitting was observed after achieving the equilibrium state with following lamps energized at 110% of 240V AC Supply.

Sl No.	Lamps with rating	Temperature Class at 40° C ambient
1.	500 W G.L.S	T3
2.	400 W HPMV	T4
3.	250 W HPMV	T5
4.	250 W MLL	T4
5.	85 W CFL	T6
6.	100 W LED	T5
7.	400 W MHL	T3

Result#A3: The 18mm thick resistant toughened type 'A' round in glass cover was subjected to thermal shock test at maximum service temperature.

Result#A4: IP-Protection: Neoprene 'O" ring rubber gasket (3mm thick) are provide at end of each joint for weatherproof protection. Tests have been conducted as per IS/IEC-60529-2001 as tabulated below for IP-66 degree of protection.

Sl. No	Type Tests			Results
1.	Dust Test (First Numeral 6)	Clause 13.4& 13.6	No dust had accumulated inside the enclosure.	**Pass**
2.	Water Test (Second Numeral 6)	Clause 14.2.6	No water had accumulated inside the enclosure.	**Pass**

Cable entry temperature: Max. 40^{0}C ('X' mark shall appear on apparatus if temp. is more than 70^{0}C).

सीएसआईआर - केरल्ई असं परीक्षण प्रकोष्ठ
CSIR - CMFR TESTING CELL

ORIGINAL COPY

TEST CERTIFICATE परीक्षण प्रमाण पत्र

FORMAT NO: CMFRI/TC/QSM/FLP02: F-01:REV-01)
(Flame & Explosion Laboratory)

ID NO.: 72/11 Code No.: FLP/242/11-1211

Result #B: Tests in explosive mixtures: Tests for type of protection Ex 'd' as per IS/IEC 60079-1:2007.

Type Tests			
Clause No.	**Description and relevant tests**	**Remarks**	**Results (Complies, P- Pass, NA-Not Applicable, F-Fail) References**
1	Scope		**Complies**
2	Normative references		**Complies**
3	Terms and definitions		**Complies**
4	Equipment grouping and temperature classification	Gr. IIB	**Complies (Result#A2)**
5	Flameproof joints	Threaded joint & Spigot joint	**Complies**
6	Cemented joints		**Complies**
7	Operating rods		**NA**
8	Supplementary requirements for shaft and bearings		**NA**
9	Light transmitting parts other than glass	----------	**NA**
10	Breathing and draining devices which form part of a flameproof enclosure		**NA**
11	Fasteners, associated holes and blanking elements		**Complies**
12	Materials and mechanical strength of enclosures- materials inside the enclosures		**Complies**
13	Entries for flameproof enclosures		**Complies**
14	Verification and tests		**Complies**
15.1	**Tests of ability of the enclosure to withstand pressure**		
15.1.2	Determination of Explosion pressure (Reference Pressure)		**P/As per Result #B1**
15.1.3	Over Pressure Test		**P/As per Result #B2**
15.2	**Test for non-transmission of Internal ignition**		
15.2.1.1	Test for non-transmission of an Internal ignition		**P/As per Result #B4**
15.3	Reserved for future use		
15.4	Flame proof enclosures with breathing & draining devices		**NA**
16	Routine tests		**To be conducted by the manufacturer as per Result #B2**
17	Switchgear for Group I		**NA**
18	Lamp holders and lamp caps		**NA**
19.3	**Supplementary requirements for type tests**		
19.3.1.3	Flame erosion test		**P/As per Result #B3**
19.3.2	Flammability	As declared by manufacturer test has been done by third party.	**Complies**
20	Marking		**The warning inscription shall read as "DO NOT OPEN WHILE ENERGIZED".**

Revised copy

सीएसआईआर - केंद्रीय खनन अनुसंधान संस्थान परीक्षण प्रकोष्ठ
CSIR - CIMFR TESTING CELL

ORIGINAL COPY

स्थापित - १९५६
TESTING CELL
ESTD. 1956

TEST CERTIFICATE / परीक्षण प्रमाण पत्र

FORMAT NO.: (CIMFR: DQM: FLP02: F-01:REV-01)
(Flame & Explosion Laboratory)

ID NO.: 72/11 Code No.: FLP/242/11-1211

Result # B1: Determination of Explosion pressure (Reference Pressure Test) *:

Gas mixture: Test with 8% Ethylene in air .

No. of tests: 3 nos. test with each enclosure.

Test Condition: Enclosure fitted with component. and clause 15.1.2.1

Type of Test		**Gas Group**	**Gas Mixture % in Air**		**No. of Tests**
Preliminary Test (reference pressure)		**IIB**	**8% Ethylene in air**		**Three**
Test Ref. No.	**Ignition**	**Gauge Position**	**Max. Pressure in Bar**	**Time of Pressure rise in millisecond**	**Remark**
Main Enclosure					
PPM/721201	Body	Body	**4.61**	**15.24**	No evidence of distress
PPM/721202	Body	Body	**3.52**	**24.9**	-do-
PPM/721203	Body	Body	**3.37**	**25.92**	-do-
Terminal Enclosure					
PPM/721204	Body	Body	**4.81**	**6.66**	No evidence of distress
PPM/721205	Body	Body	**3.95**	**6.84**	-do-
PPM/721206	Body	Body	**3.98**	**7.02**	-do-

Results shown for the pressure time curve (enclosed) are the highest recorded value obtained in the test.

Result #B2: Overpressure Test (Static Method): Hydraulic pressure test is conducted as per Cl. 15.1.3.1 of IS/IEC 60079-1: 2007.

Enclosure	**Test reference nos.**	**Over pressure (kg/cm^2) maintained for 1 min.**	**Remark**
Main Enclosure	OPM/721207	8.0 kg/cm^2	No damage or deformation
Terminal Enclosure	OPM/721208	8.0 kg/cm^2	No damage or deformation

Result #B3: Test for Erosion by flame:

Gas Mixture: Tests with 8% Ethylene in air for Gas Gr. IIB

No. of Tests: 50 nos. tests in the terminal Enclosure
(Test Ref.: ERF/721209 to ERF/7731158)

Test Condition: As per Clause 15.1.2.1 for DMC molded terminals studs

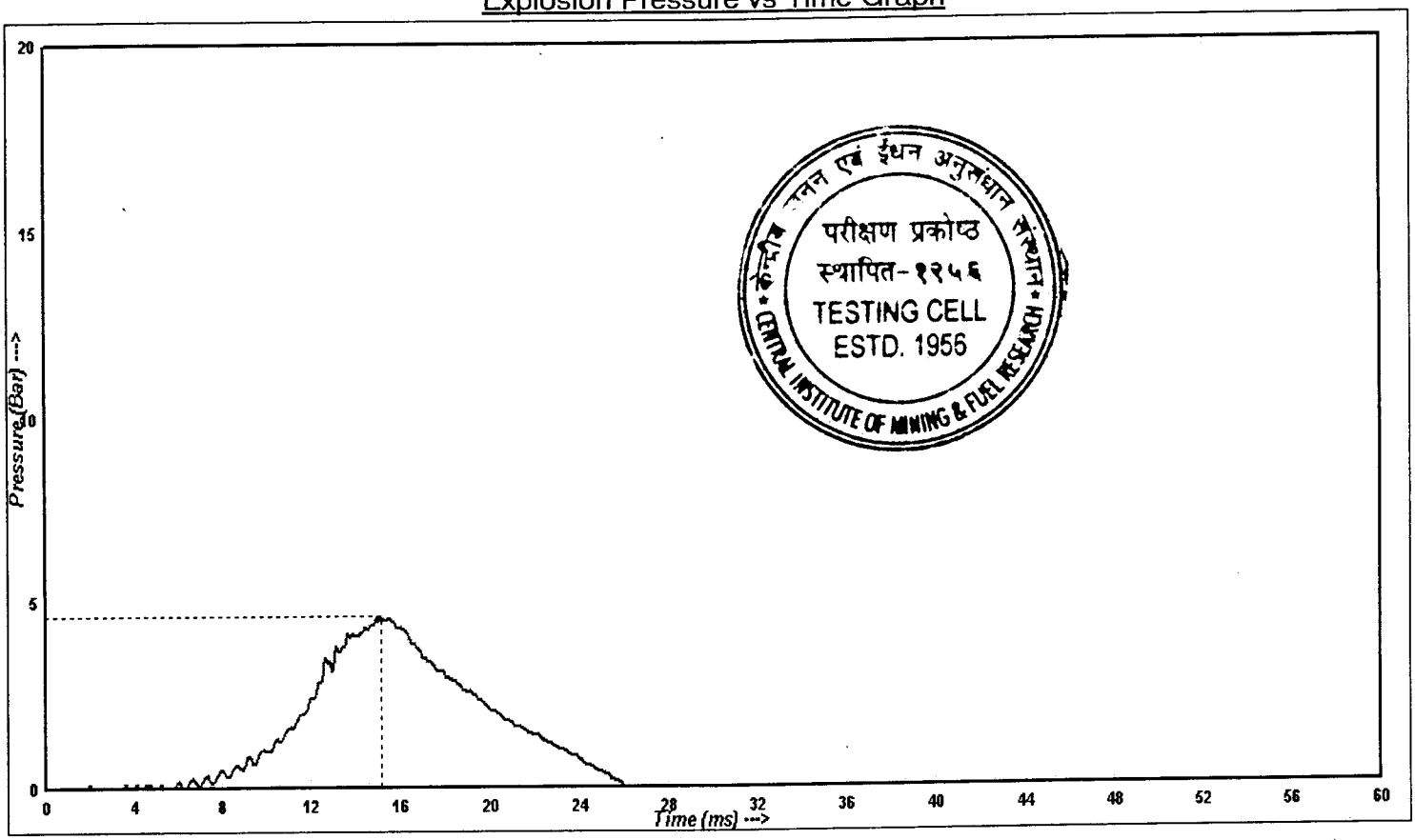
सीएसआईआर - केखईअसं परीक्षण प्रकोष्ठ
CSIR - CIMFR TESTING CELL

ORIGINAL COPY

TEST CERTIFICATE / परीक्षण प्रमाण पत्र

ID Number:	72/12	Code Number:	FLP/242/11
Test Date :	02/02/2012		
Manufacturer Details :	M/S KAYSONS TECHNO EQUIPMENTS PVT . LTD .		
Manufacturer Address :	1802/7 , GIDC ESTATE , V . U . NAGAR , DIST . ANAND , GUJARAT .		
Model / Type :	TYPE NO . : KFL - A		
Category No. :	NA		
Gas :	ETHYLENE		
Gas Group :	IIB		
Equipment Details :	FLP/WP FLOOD LIGHT FITTING		
Enclosure Details :	MAIN ENCLOSURE		
Serial / Badge No. :	NA		
Peak Pressure :	4.61 Bar at 15.24 ms		

Explosion Pressure vs Time Graph



केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान
CENTRAL INSTITUTE OF MINING & FUEL RESEARCH
परीक्षण प्रकोष्ठ
स्थापित-१९५६
TESTING CELL
ESTD. 1956

16.2.12
(Testing Officer)

16/02/12
(Discipline Head)

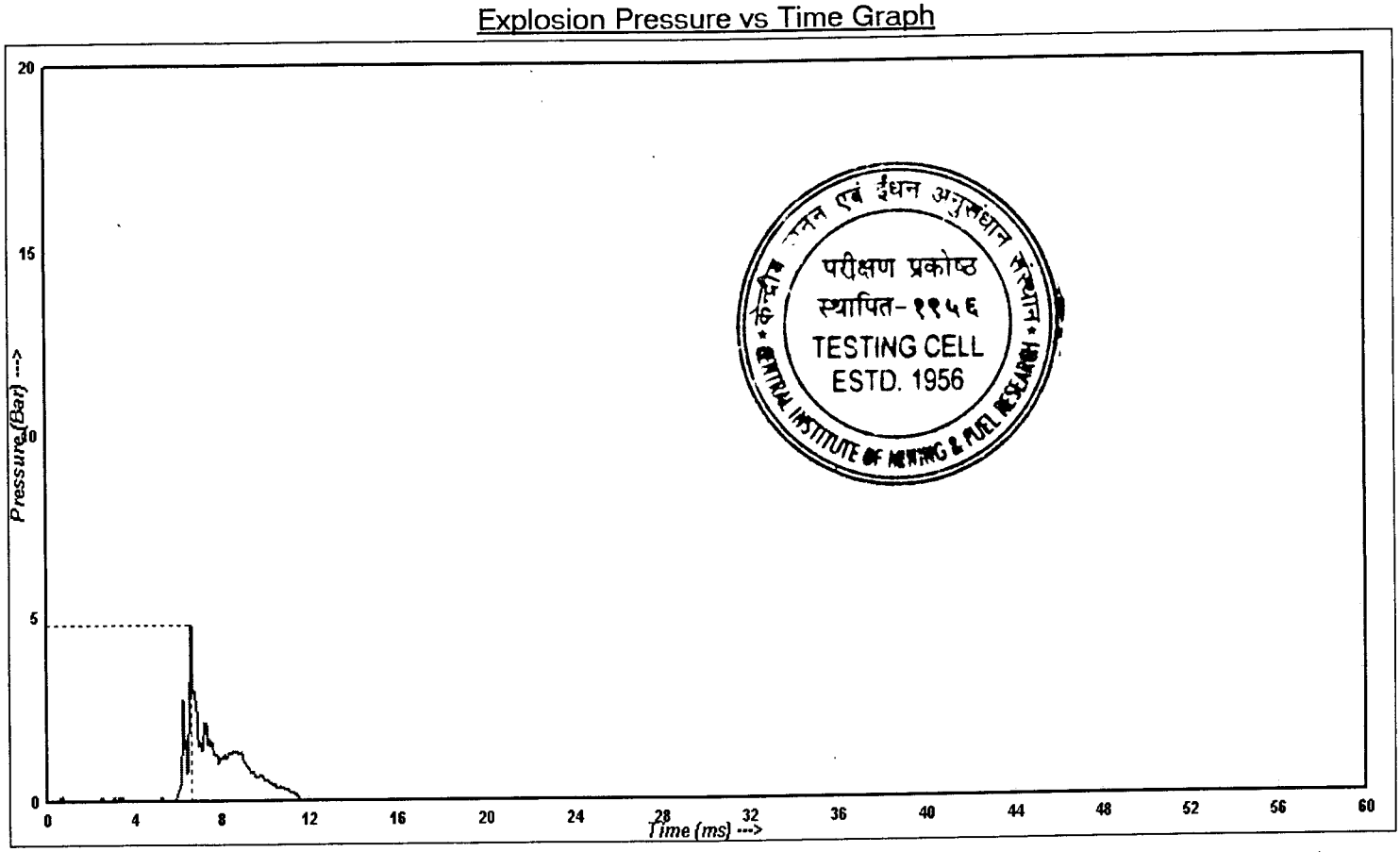
सीएसआईआर - केखईअसं परीक्षण प्रकोष्ठ
CSIR - CIMFR TESTING CELL

ORIGINAL COPY

TEST CERTIFICATE / परीक्षण प्रमाण पत्र

ID Number:	72/12	Code Number:	FLP/242/11
Test Date :	02/02/2012		
Manufacturer Details :	M/S KAYSONS TECHNO EQUIPMENTS PVT . LTD .		
Manufacturer Address :	1802/7 , GIDC ESTATE , V . U . NAGAR , DIST . ANAND , GUJARAT .		
Model / Type :	TYPE NO . : KFL - A		
Category No. :	NA		
Gas :	ETHYLENE		
Gas Group :	IIB		
Equipment Details :	FLP/WP FLOOD LIGHT FITTING		
Enclosure Details :	TERMINAL ENCLOSURE		
Serial / Badge No. :	NA		
Peak Pressure :	4.81 Bar at 6.66 ms		

Explosion Pressure vs Time Graph



परीक्षण प्रकोष्ठ
स्थापित- १९५६
TESTING CELL
ESTD. 1956
CENTRAL INSTITUTE OF MINING & FUEL RESEARCH

(Testing Officer)

16.2.12

(Discipline Head)

16/02/12

सीएसआईआर - केखईअसं परीक्षण प्रकोष्ठ
CSIR - CIMFR TESTING CELL

ORIGINAL COPY

TEST CERTIFICATE / परीक्षण प्रमाण पत्र

FORMAT NO.: (CIMFR: DQM: EP/02: F-01:REV-01)
(Flame & Explosion Laboratory)

ID NO.: 72/11 Code No.: FLP/242/11-1211

Result #B4: Test for Non transmission of internal ignition:

Gas Mixture: **Test with 37% Hydrogen in air for Gas Gr. IIB**

No. of Tests: **5 nos. test with each enclosure.**

Test Condition: Clause 15.2, Table 6 and 15.2.1.1 (No precompression required)

Name of Enclosure	Test Ref. Nos.	Gas Group	Gas Mixture % in Air	No. of Test	Result
Main Enclosure	EIT/721259 to EIT/721263	IIB	37 % Hydrogen	Five	Pass
Terminal Enclosure	EIT/721264 to EIT/721268	IIB	37 % Hydrogen	Five	Pass

CONCLUSION: The **FLP & WP Flood Light Fitting,** in cast aluminium Alloy LM-6 construction designated by **Type No.: KFL-A,** meets the test requirements for flameproofness as per IS/IEC 60079-1:2007, general requirements as per IS/IEC 60079-0:2004 and weatherproof (IP-66 degree) as per IS/IEC 60529:2001. Hence, the above mentioned apparatus may be used in Gas Group: IIB and zone 1 & 2 atmospheres only.

Reported By

Arvind Kumar 16.2.12

(ARVIND KUMAR)
Group III (2)

Dated: 16th February,2012
Flame & Explosion Laboratory
Central Institute of Mining & Fuel Research, (CSIR)
(Erstwhile: Central Mining Research Institute)
Barwa Road, DHANBAD – 826 015,
(JHARKHAND) INDIA

Approved By

16/02/12

(A. K. SINGH)
Head of the Department