

सीएसआईआर-केंद्रीय खनन एवं ईंधन अनुसंधान संस्थान, धनबाद  
CSIR-CENTRAL INSTITUTE OF MINING AND FUEL RESEARCH, DHANBAD  
वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद (Council of Scientific & Industrial Research)  
FORMAT NO.: (CIMFR: DQM: FLPO2: F-16)

[TSP/0274/2024-2025]

Title of the Project

Assessment of the electrical safety parameters of Flameproof Air Conditioner, Model No. FLP AC 5 of M/s AMANCIO Cooling Equipments, Vadodara, Gujarat for use in hazardous area.

परियोजना का शीर्षक

फ्लेमप्रूफ एयर कंडीशनर, मॉडल नंबर एफ एल पी एसी 5 के विद्युत सुरक्षा मापदंडों का आकलन खतरनाक क्षेत्र में उपयोग के लिए मेसर्स अमानसियो कूलिंग इक्विपमेंट्स, वडोदरा, गुजरात के उपयोग हेतु।



परियोजना सं./PROJECT NO.: (TSP/0274/2024-2025)

प्रायोजक/Sponsor:

M/s AMANCIO Cooling Equipments, Vadodara, Gujarat

अंतिम रिपोर्ट/FINAL REPORT

माह /MONTH, OCTOBER, 2024

Issued to M/s AMANCIO Cooling Equipments, Vadodara, Gujarat

Title of the Project

Assessment of the electrical safety parameters of Flameproof Air Conditioner, Model No. FLP AC 5 of M/s AMANCIO Cooling Equipments, Vadodara, Gujarat for use in hazardous area.

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प्रायोजक/Sponsor:

मेसर्स अमानसियो कूलिंग इक्विपमेंट्स/ M/s AMANCIO Cooling Equipments

वडोदरा-३९०००१, गुजरात/Vadodara-390001, Gujarat

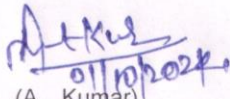
द्वारा/by ए. पी. सिंह/A. P. SINGH, आर. के. मिश्रा/R. K. Mishra, बी. मोदक/B. Modak, ए. कुमार/A. Kumar

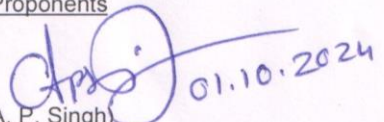
माह /MONTH, OCTOBER, 2024

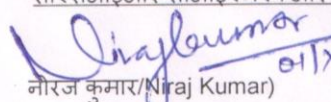
अस्वीकरण/Disclaimer

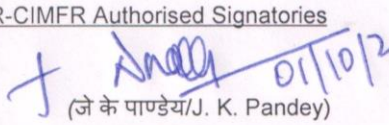
1. इस रिपोर्ट में निर्धारित की गई अनुशंसाओं का सख्ती से पालन किया जाए। *Recommendations stipulated in the report should be strictly followed.*
2. इन अनुशंसाओं को एक सक्षम एजेंसी के पर्यवेक्षण में लागू किया जाए। *Recommendations should be implemented under the supervision of a competent agency.*
3. यह रिपोर्ट केवल आपके कार्यालय के आंतरिक उपयोग के लिए है और इसे आपके कार्यालय अथवा आपके कर्मचारियों द्वारा पूर्ण या आंशिक रूप में प्रकाशित न किया जाए। इसे संबंधित सरकारी विभागों के अलावा बाह्य पार्टियों को परिचालित/प्रेषित न किया जाए। उद्योग के लाभ के लिए इस अनुसंधान के परिणामों को प्रकाशित करने का अधिकार सिम्फर के पास सुरक्षित है। *This Report is meant for the internal use of your organization only and it should not be published in full or part by your organization or staff. It should not be circulated/communicated to outside parties except concerned Government departments. CIMFR reserves the right to publish the results of research for the benefit of industry.*
4. *Conclusions & recommendations mentioned in the report are based on the relevant standard conditions specified in the report. Moreover, CSIR-CIMFR has no control in the implementation of the recommendations stipulated in the report, research team will not held responsible for any untoward incidences caused by change in any design of equipment as well as due to non-compliance of measures and conditions.*

परियोजना प्रस्तावकों के हस्ताक्षर/ Signature of Project Proponents

  
(A. Kumar)  
Technical Officer  
परियोजना नायक  
Project Leader

  
(A. P. Singh)  
Principal Scientist & HoS  
परियोजना समन्वयक  
Project Coordinator

सीएसआईआर-सीआईएमएफआर प्राधिकृत हस्ताक्षरकर्ता/ CSIR-CIMFR Authorised Signatories  
  
निरज कुमार/Niraj Kumar)  
वरिष्ठ प्रधान वैज्ञानिक एवं प्रमुख  
Sr. Principal Scientist & HOS  
परियोजना प्रबंधन एवं अनुवीक्षण  
Project Planning and Monitoring

  
(जे के पाण्डेय/J. K. Pandey)  
मुख्य वैज्ञानिक एवं समन्वयक  
Chief Scientist & Coordinator  
परियोजना प्रबंधन एवं उद्योग संपर्क  
Project Planning & Industry Interface

TITLE: Assessment of the electrical safety parameters of Flameproof Air Conditioner, Model No. FLP AC 5 of M/s AMANCIO Cooling Equipments, Vadodara, Gujarat for use in hazardous area (Gas Group IIA & IIB).

## 2. SUMMARY:

- i. M/s AMANCIO Cooling Equipments, Vadodara, Gujarat, offered aforesaid Flameproof Air Conditioner, Model No. FLP AC 5 for necessary assessment of electric safety parameter at their manufacturing unit Vadodara, Gujarat.
- ii. CIMFR Scientist assessed the above Flameproof Air Conditioner, Model No. FLP AC 5 including their components, which are assembled by combining various certified & approved flameproof equipment regarding their compliance with IS/IEC 60079-1-2014 & IS/IEC 60079-0-2017 for use in Gas Group IIA & IIB atmosphere.
- iii. The necessary suggestion was given during assessment of the said of Flameproof Air Conditioner, Model No. FLP AC 5 at manufacturers premises in Vadodara, Gujarat.

## 3. ASSESSMENT OF EQUIPMENT

M/s AMANCIO Cooling Equipments, Vadodara, Gujarat, has developed The Air conditioner for use in Gas Group IIA & IIB Hazardous Areas like Petroleum sector/Chemical and Pharma etc.

Principle of Operation of the Air conditioner is an assembly of 5 different Components Operation in: Petroleum/Chemical/Pharma/Other Hazardous Zones To be used as : HVAC/Split AC/Panel AC/Window AC etc. without any change of tested and certified of electrical equipment which is mentioned in table.

In - brief . . .

The proposed equipment is custom designed and its purpose is for the above specified hazardous area and environmental conditions for Room Cooling

- a.) The proposed Air Conditioner equipment is custom designed and a assembly of 5 Main Different Parts that are CIMFR - PESO Certified by individual companies :

1. Compressor terminal cover fitted with FLP enclosure
2. Ex-Proof Junction Box (Control Panel)
3. Condensor / Evaporator Units Flame Proof fan Motor
4. Cable Gland
5. RTD Sensor

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**FORMAT NO.: (CIMFR: DQM: FLP02: F-16)**

**[PAR-I]**

**[TSP/0274/2024-2025]**

- b.) Compressor : Compressor : Emerson Copeland using **407 C** Ozone Friendly Gas/**134A current**.  
Voltage : 3 Phase 440 Volts. 50 Hz. Or Single Phase 220 V 50 HZ.
- c.) Condensing Part : Condenser FLP (Flame Proof) fan Motor, Compressor terminal cover fitted with FLP enclosure, Armored Cable wire and cable glands are FLP. All for IIA & IIB Gas Group.
- d.) Evaporator Part: Evaporator FLP Fan Motor, Insulation are Flame retard, Armored Cable wire and cable glands are FLP. All for IIA & IIB. It will house the Heater at the Air outlet
- e.) Flame Proof Control Panel with Digital controller and other Electrical Accessories in FLP enclosure.
- f.) Epoxy Coated Condenser/Evaporator Coils shall be made from Copper Tubes with Fins. Fans/Blower is direct drive Made from with non-sparking construction the unit casing is fabricated from M.S. Sheet Powder Coated and Inner unit is insulated with Flame Retard Insulation Material.
- g.) Temperature Rise: The above equipment were tested for temperature rise on 110% of rated supply until temperature get saturated. (Approx. 6 hrs.). The surface temperature of all the components like compressor, motor, gas discharge line were observed and the max. temperature was not more than 76°C at 30°C ambient temperature. This equipment may be classified as T5 at 40°C ambient.

Sl No	Title	Report No.	PESO Approval No.	Manufacturer	Marking
1	FLP-WP RTD/ Thermocouple Enclosure, Type No. KTH-IIC-A	IN/CIMFR/TR19/H165 Dtd.30/09/2019	P554991/1	M/s Kaysons Techno Equipments Pvt Ltd,	Ex db IIC T6 Gb
2	FLP & WP Heater Head Type KHH-A	IN/CIMFR/TR19/2665 Dtd. 05/11/2019	P554991/3	M/s Kaysons Techno Equipments Pvt Ltd,	Ex db IIC T6 G3
3.	FLP/WP Control Station, Type No. SJB61500	IN/CIMFR/TR23/R/H122 Dtd. 07/07/2023	P568701/3	M/s. Shreya Ex-Tech (P) Ltd	Ex db IIC T6 Gb
4.	Single Phase Flameproof AC Induction Motor for Fan duty Model: K71-SP-01	KLPL/Ex/16-024X Dtd. 18/03/2016	P506557/1	M/s NAVBHARAT Motor Manufacturing Co.	Ex dB IIB T4 Gb

सीएसआईआर-केंद्रीय खनन एवं ईंधन अनुसंधान संस्थान, धनबाद  
CSIR-CENTRAL INSTITUTE OF MINING AND FUEL RESEARCH, DHANBAD  
वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद (Council of Scientific & Industrial Research)

FORMAT NO.: (CIMFR: DQM: FLPO2: F-16)

[PAR-I]

[TSP/0274/2024-2025]

5.	FLP/WP Double Compression Type No. SEPL CG 6XXX Series Cable Gland Size M12 to M100. SJB-21200	IN/CIMFR /TR22/R/H91 Dtd. 08/06/2022	P548059/2	Shreya ex-tech (P) Ltd,	Ex db IIC T6 Gb
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Documents Submitted By The Applicant/Manufacturer: The assembly drawing of  
Air Conditioner

Sl No	Drawing No	Rev.	Sheet	Date	Title
1	ACE-080824-A2	00	01of 01	19/08/24	General Assembly of Air Conditioner Unit- IIA & IIB (FLP AC 5)
2	ACE-080824-B2	00	01of 01	19/08/24	General Assembly of Air Conditioner Unit- IIA & IIB (FLP AC 5)

4. CONDITION OF EXAMINATION/ASSESSMENT:

It is following conditions towards validity of this project report: -

- The general construction design features and relative proportion of the parts must remain in all respects identical to that type examination and/or covered by certificate listed in this report.
- Any changes in the project report without signature or with alteration/deviations in any form are not valid.
- All rating/name plates should be of stainless steel material affixed permanently by hammer - drive steel rivets.
- Any variation of change in the report in any form is not allowed.
- The attention of the user should be drawn to the correct installation and careful maintenance of all moving parts and current carrying conductors. All parts liable to rubbing friction should be carefully assembled, aligned and maintained.
- Any component cover should not have PVC or any plastic material.
- User must read and follow the instructions of manufacturer for their product/components.

5. NAME OF THE APPLICANT: M/s AMANCIO Cooling Equipments  
Lukshmi Villas Palace Estate, Gate No. 4,  
Opp. Kashi Vishwanath Temple,  
Vadodara-390001, Gujarat

6. NAME OF THE MANUFACTURER: M/s AMANCIO Cooling Equipments  
Lukshmi Villas Palace Estate, Gate No. 4,  
Opp. Kashi Vishwanath Temple,  
Vadodara-390001, Gujarat

3 of 4

7. DECLARATION BY THE MANUFACTURER / APPLICANT:

Reference Standard: As to standards with which the equipment complies in respect of:

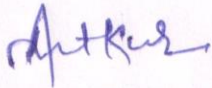
- As a Flameproof Construction : IS/IEC 60079:1-2014
- General Requirement IS/IEC 60079-0:2017
- All the Equipments are certified and approved as per requirement.

8. SCOPE OF PROJECT REPORT: The Flameproof Air Conditioner, Model No. FLP AC 5 under consideration has been manufactured and assembled by M/s AMANCIO Cooling Equipments, Vadodara, Gujarat using different tested and certified flameproof equipment and flameproof cable glands. The unused cable entries should be properly closed using FLP/WP stopping plugs. The assembled equipment as mentioned in the drawing may be used in the Gas Group IIA & IIB atmosphere. However, CIMFR do not vouch for the quality of the system in any other respect.

*"This institute reserves the right to review, amend or withdraw this Project Report at any time, if considered necessary in the interest of safety."*

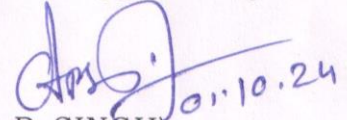
9. CONCLUSIONS: Based upon the examination and assessment of assembly of Flameproof Air Conditioner, Model No. FLP AC 5 using Ex electrical equipment and mechanical parts of verifications of the submitted documents the above Flameproof Air Conditioner, Model No. FLP AC 5 under reference is suitable for use in Gas Group IIA & IIB, EPL Gb temperature class T5 at 40°C ambient atmosphere.

Reported by



(A. KUMAR)  
Technical Officer  
Project Leader

Checked and Approved by



(A.P. SINGH)  
Prin. Scientist & HOS

Dated: 01<sup>st</sup> October, 2024

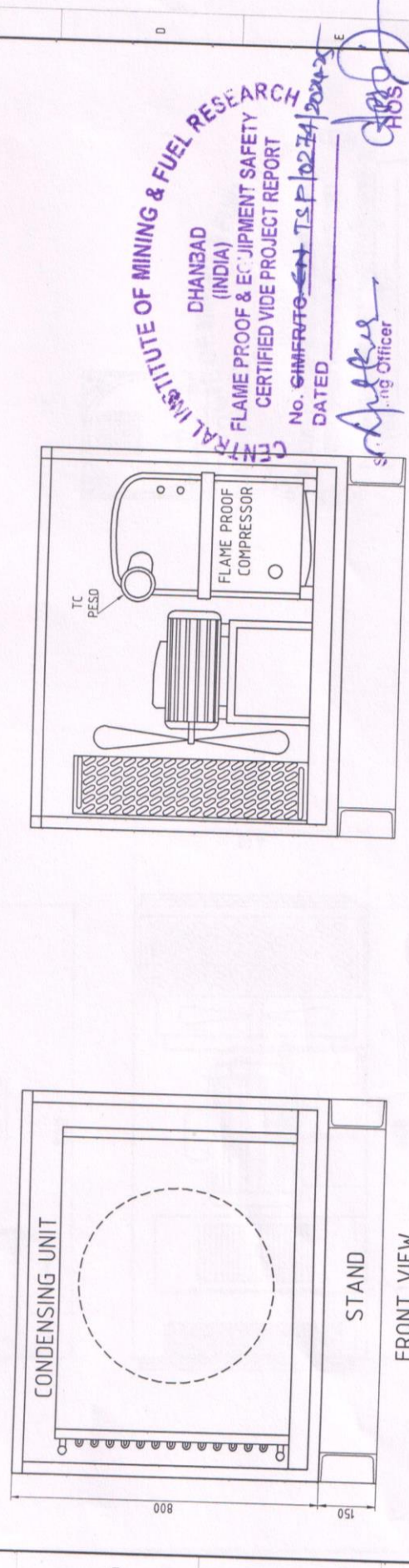
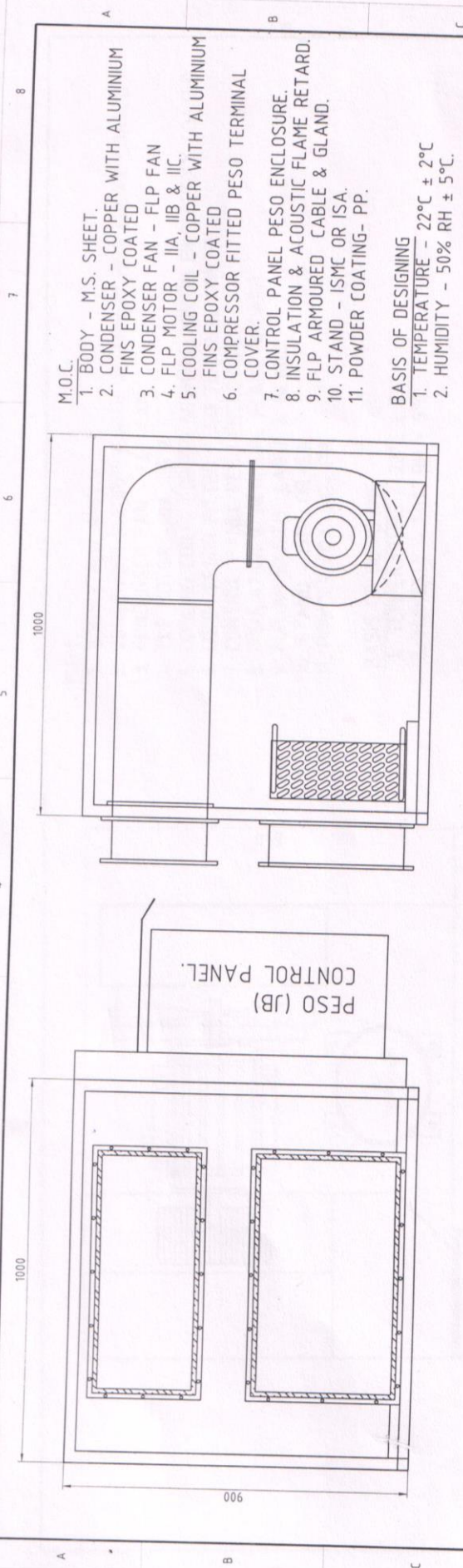
Flameproof & Equipment Safety

CSIR-Central Institute of Mining & Fuel Research

(Barwa Road, Dhanbad – 826015, JHARKHAND (INDIA))

Phone : +91-326-2296019 (Direct) EPBX: 2296027/028

Fax : + 91-326-2296025/2296019 Website: www.cimfr.nic.in



- M.O.C.
1. BODY - M.S. SHEET.
  2. CONDENSER - COPPER WITH ALUMINIUM FINS EPOXY COATED
  3. CONDENSER FAN - FLP FAN
  4. FLP MOTOR - IIA, IIB & IIC.
  5. COOLING COIL - COPPER WITH ALUMINIUM FINS EPOXY COATED
  6. COMPRESSOR FITTED PESO TERMINAL COVER.
  7. CONTROL PANEL PESO ENCLOSURE.
  8. INSULATION & ACOUSTIC FLAME RETARD.
  9. FLP ARMoured CABLE & GLAND.
  10. STAND - ISMC OR ISA.
  11. POWDER COATING- PP.

**BASIS OF DESIGNING**

1. TEMPERATURE -  $22^{\circ}\text{C} \pm 2^{\circ}\text{C}$
2. HUMIDITY -  $50\% \text{ RH} \pm 5^{\circ}\text{C}$ .

**CENTRAL INSTITUTE OF MINING & FUEL RESEARCH**  
**DHANBAD**  
**(INDIA)**  
**FLAME PROOF & EQUIPMENT SAFETY**  
**CERTIFIED VIDE PROJECT REPORT**  
 No. ~~61MFRFO/2017~~ TSP/10274/2017  
 DATED \_\_\_\_\_

S. Akhila  
 Designing Officer

SIDE VIEW

FRONT VIEW

NOTE:-

1. Flameproof Exd. IIA & IIB as per IS / IEC-60079-0-2017.

TITLE : GENERAL ASSEMBLY OF AIR  
 CONDITIONER UNIT- IIA & IIB (FLP AC 5)  
 MATERIAL: PESO CERTIFIED.



**AMANGIO COOLING EQUIPMENTS**  
 LUKSHMI VILLAS PALACE ESTATE,  
 GATE -4, VADODARA-390001 (INDIA)

C							
B							
A							
F							

DRN	VD	DRG. NO.
CHK	LOBO	REV.
SCALE	NTS	00 01 01 00

TOT SHEET (SHEET NO/CONV)

19/08/24

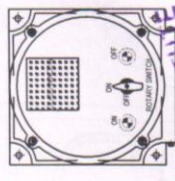
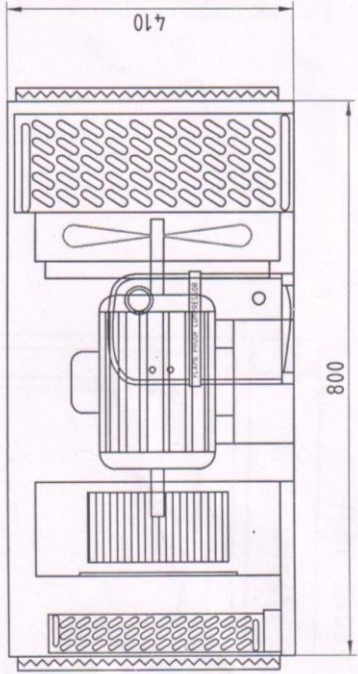
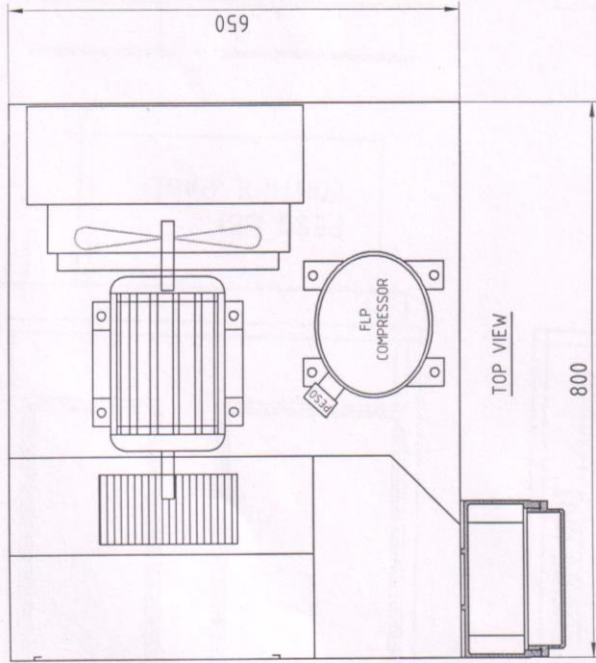
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A B C D E F

M.O.C.

1. BODY - M.S. SHEET.
2. CONDENSER - COPPER WITH ALUMINIUM FINS EPOXY COATED
3. CONDENSER FAN - FLP FAN
4. FLP MOTOR - IIA, IIB & IIC.
5. COOLING COIL - COPPER WITH ALUMINIUM FINS EPOXY COATED
6. COMPRESSOR FITTED PESO TERMINAL COVER.
7. CONTROL PANEL PESO ENCLOSURE.
8. INSULATION & ACOUSTIC FLAME RETARD.
9. FLP ARMoured CABLE & GLAND.
10. STAND - ISMC OR ISA.
11. POWDER COATING- PP.

BASIS OF DESIGNING

1. TEMPERATURE - 22°C ± 2°C
2. HUMIDITY - 50% RH ± 5°C.



FLP JUNCTION BOX  
DHANBAD  
(INDIA)  
FLAME PROOF & EQUIPMENT SAFETY  
CERTIFIED VIDE PROJECT REPORT  
No. SHMRFR/TSP/274/2024-25  
DATED \_\_\_\_\_

*[Signature]*  
S. P. Singh  
S. P. Singh Officer

NOTE:-

1. Flameproof Exd. IIA & IIB as per IS / IEC 60079-0-2017.



AMANCIO COOLING EQUIPMENTS  
LUKSHMI VILLAS PALACE ESTATE,  
GATE -4, VADODARA-390001 (INDIA)

TITLE : GENERAL ASSEMBLY OF AIR  
CONDITIONER UNIT-IIA & IIB (FLP AC 5)  
MATERIAL: PESO CERTIFIED.

19/08/24

DRN	VD	DRG. NO.
CHK	LOBO REV.	ACE-080824-B2
SCALE	NTS 00	TOT SHEET SHEET NO./COUNT
		01 01 00

A B C D E F  
1 2 3 4 5 6 7 8



TITLE: Assessment of the electrical safety parameters of Flameproof Air Conditioner, Model No. FLP AC 5 of M/s AMANCIO Cooling Equipments, Vadodara, Gujarat for use in hazardous area (Gas Group IIC).

## 2. SUMMARY:

- i. M/s AMANCIO Cooling Equipments, Vadodara, Gujarat, offered aforesaid Flameproof Air Conditioner, Model No. FLP AC 5 for necessary assessment of electric safety parameter at their manufacturing unit Vadodara, Gujarat.
- ii. CIMFR Scientist assessed the above Flameproof Air Conditioner, Model No. FLP AC 5 including their components, which are assembled by combining various certified & approved flameproof equipment regarding their compliance with IS/IEC 60079-1-2014 & IS/IEC 60079-0-2017 for use in Gas Group IIC atmosphere.
- iii. The necessary suggestion was given during assessment of the said of Flameproof Air Conditioner, Model No. FLP AC 5 at manufacturers premises in Vadodara, Gujarat.

## 3. ASSESSMENT OF EQUIPMENT

M/s AMANCIO Cooling Equipments, Vadodara, Gujarat, has developed The Air conditioner for use in Gas Group IIC Hazardous Areas like Petroleum sector/Chemical and Pharma etc.

Principle of Operation of The Air conditioner is an assembly of 5 different Components Operation in: Petroleum/Chemical/Pharma/Other Hazardous Zones To be used as : HVAC / Split AC / Panel AC / Window AC etc. without any change of tested and certified of electrical equipment which is mentioned in table.

In – brief . . .

The proposed equipment is custom designed and its purpose is for the above specified hazardous area and environmental conditions for Room Cooling

- a.) The proposed Air Conditioner equipment is custom designed and a assembly of 5 Main Different Parts that are CIMFR - PESO Certified by individual companies :

1. Compressor terminal cover fitted with FLP enclosure
2. Ex-Proof Junction Box (Control Panel)
3. Condensor / Evaporator Units Flame Proof fan Motor
4. Cable Gland
5. RTD Sensor

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FORMAT NO.: (CIMFR: DQM: FLPO2: F-16)

[PAR-II]

[TSP/0274/2024-2025]

- b.) Compressor : Emerson Copeland using **407 C** Ozone Friendly Gas/**134A**  
**current.**  
Voltage : 3 Phase 440 Volts. 50 Hz. Or Single Phase 220 V 50 HZ.
- c.) Condensing Part : Condenser FLP (Flame Proof) fan Motor, Compressor terminal cover fitted with FLP enclosure, Armored Cable wire and cable glands are FLP. All for IIC Gas Group.
- d.) Evaporator Part: Evaporator FLP Fan Motor, Insulation are Flame retard, Armored Cable wire and cable glands are FLP. All for IIC. It will house the Heater at the Air outlet
- e.) Flame Proof Control Panel with Digital controller and other Electrical Accessories in FLP enclosure.
- f.) Epoxy Coated Condenser/Evaporator Coils shall be made from Copper Tubes with Fins. Fans/Blower is direct drive Made from with non-sparking construction the unit casing is fabricated from M.S. Sheet Powder Coated and Inner unit is insulated with Flame Retard Insulation Material.
- g.) Temperature Rise: The above equipment were tested for temperature rise on 110% of rated supply until temperature get saturated. (Approx. 6 hrs.). The surface temperature of all the components like compressor, motor, gas discharge line were observed and the max. temperature was not more than 48°C at 30°C ambient temperature. This equipment may be classified as T6 at 40°C ambient.

Sl No	Title	Report No.	PESO Approval No.	Manufacturer	Marking
1	FLP-WP RTD/ Thermocouple Enclosure, Type No. KTH-IIC-A	IN/CIMFR/TR19/H165 Dtd.30/09/2019	P554991/1	M/s Kaysons Techno Equipments Pvt Ltd,	Ex db IIC T6 Gb
2	FLP & WP Heater Head Type KHH-A	IN/CIMFR/TR19/2665 Dtd. 05/11/2019	P554991/3	M/s Kaysons Techno Equipments Pvt Ltd,	Ex db IIC T3 Gb
3.	FLP/WP Control Station, Type No. SHB61500	IN/CIMFR/TR23/R/H122 Dtd. 07/07/2023	P56870/3	M/s. Shreya Ex-Tech (P) Ltd	Ex db IIC T6 Gb
4.	Single Phase Flameproof AC Induction Motor for Fan duty Model: K80-SP-02	KLPL/Ex/14-055X Dtd. 10/09/2020	P489023/1	M/s NAVBHARAT Motor Manufacturing Co.	Ex db IIC T5 Gb

सीएसआईआर-केंद्रीय खनन एवं ईंधन अनुसंधान संस्थान, धनबाद  
CSIR-CENTRAL INSTITUTE OF MINING AND FUEL RESEARCH, DHANBAD  
वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद (Council of Scientific & Industrial Research)

FORMAT NO.: (CIMFR: DQM: FLP02: F-16)

[PAR-II]

[TSP/0274/2024-2025]

5.	FLP/WP Double Compression Type No. SEPL CG 6XXX Series, Cable Gland Size M12 to M100. SJB-21200	IN/CIMFR /TR22/R/H91 Dtd. 08/06/2022	P548059/2	Shreya ex-tech (P) Ltd,	Ex db IIC T6 Gb
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Documents Submitted By The Applicant/Manufacturer: The assembly drawing of Air Conditioner

Sl No	Drawing No	Rev.	Sheet	Date	Title
1	ACE-080824-A1	00	01of 01	19/08/24	General Assembly of Air Conditioner Unit-IIC (FLP AC 5)
2	ACE-080824-B1	00	01of 01	19/08/24	General Assembly of Air Conditioner Unit- IIC (FLP AC 5)

4. CONDITION OF EXAMINATION/ASSESSMENT:

It is following conditions towards validity of this project report: -

- The general construction design features and relative proportion of the parts must remain in all respects identical to that type examination and/or covered by certificate listed in this report.
- Any changes in the project report without signature or with alteration/deviations in any form are not valid.
- All rating/name plates should be of stainless steel material affixed permanently by hammer – drive steel rivets.
- Any variation of change in the report in any form is not allowed.
- The attention of the user should be drawn to the correct installation and careful maintenance of all moving parts and current carrying conductors. All parts liable to rubbing friction should be carefully assembled, aligned and maintained.
- Any component cover should not have PVC or any plastic material.
- User must read and follow the instructions of manufacturer for their product/components.

5. NAME OF THE APPLICANT: M/s AMANCIO Cooling Equipments  
Lukshmi Villas Palace Estate, Gate No. 4,  
Opp. Kashi Vishwanath Temple,  
Vadodara-390001, Gujarat

6. NAME OF THE MANUFACTURER: M/s AMANCIO Cooling Equipments  
Lukshmi Villas Palace Estate, Gate No. 4,  
Opp. Kashi Vishwanath Temple,

3 of 4

Issued to M/s AMANCIO Cooling Equipments, Vadodara, Gujarat

Vadodara-390001, Gujarat

7. DECLARATION BY THE MANUFACTURER / APPLICANT:

Reference Standard: As to standards with which the equipment complies in respect of:

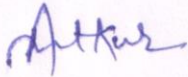
- As a Flameproof Construction : IS/IEC 60079:1-2014
- General Requirement IS/IEC 60079-0:2017
- All the Equipments are certified and approved as per requirement.

8. SCOPE OF PROJECT REPORT: The Flameproof Air Conditioner, Model No. FLP AC 5 under consideration has been manufactured and assembled by M/s AMANCIO Cooling Equipments, Vadodara, Gujarat using different tested and certified flameproof equipment and flameproof cable glands. The unused cable entries should be properly closed using FLP/WP stopping plugs. The assembled equipment as mentioned in the drawing may be used in the Gas Group IIC atmosphere. However, CIMFR do not vouch for the quality of the system in any other respect.

*"This institute reserves the right to review, amend or withdraw this Project Report at any time, if considered necessary in the interest of safety."*

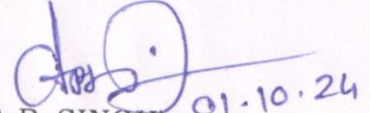
9. CONCLUSIONS: Based upon the examination and assessment of assembly of Flameproof Air Conditioner, Model No. FLP AC 5 using Ex electrical equipment and mechanical parts of verifications of the submitted documents the above Flameproof Air Conditioner, Model No. FLP AC 5 under reference is suitable for use in Gas Group IIC, EPL Gb temperature class T6 at 40°C ambient.

Reported by



(A. KUMAR)  
Technical Officer  
Project Leader

Checked and Approved by

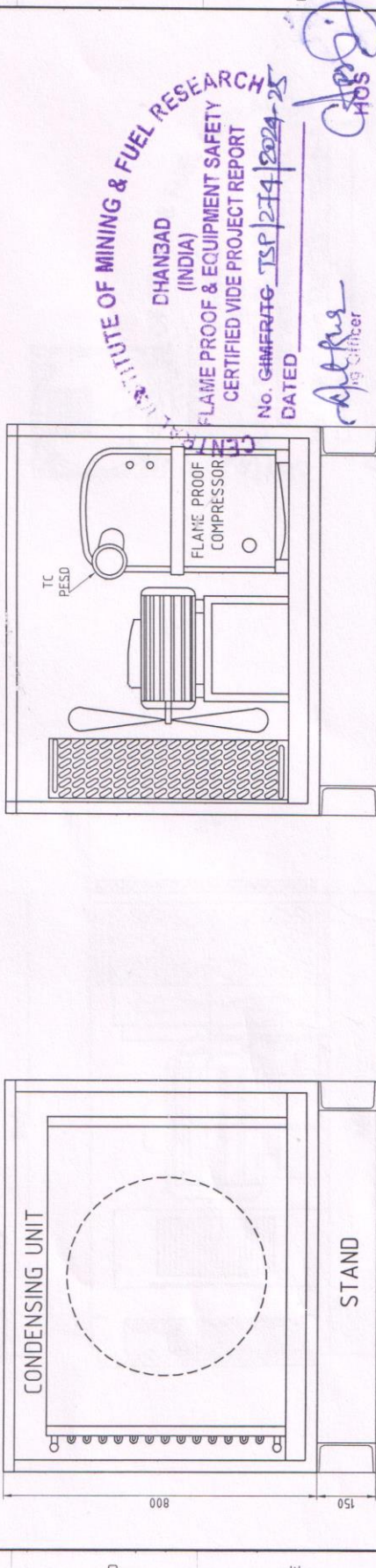
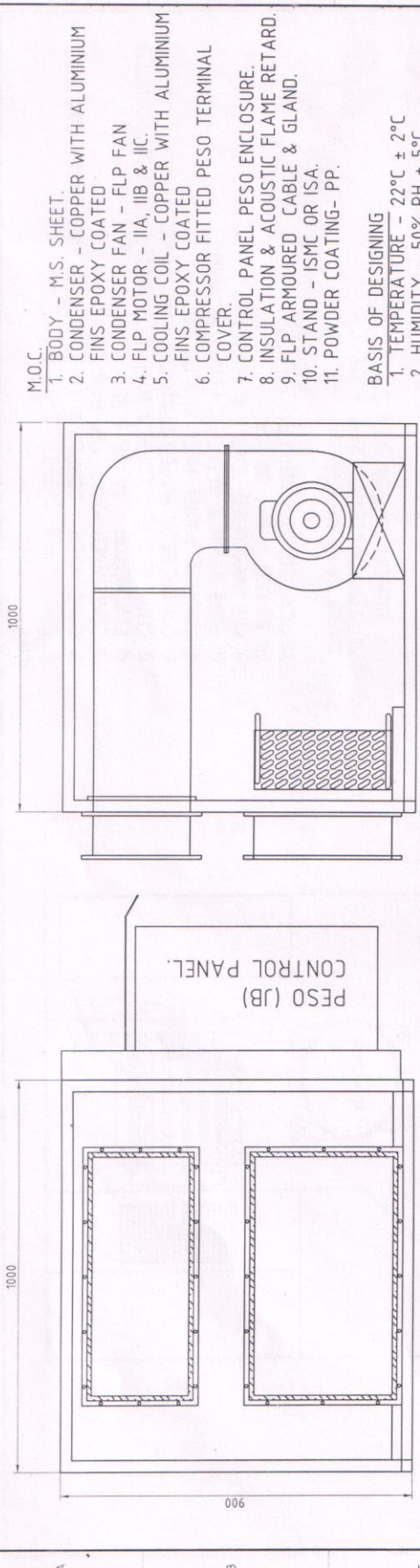


(A.P. SINGH) 01.10.24  
Prin. Scientist & HOS

Dated: 1<sup>st</sup> October, 2024

Flameproof & Equipment Safety  
CSIR-Central Institute of Mining & Fuel Research  
(Barwa Road, Dhanbad – 826015, JHARKHAND (INDIA))  
Phone : +91-326-2296019 (Direct) EPBX: 2296027/028  
Fax : + 91-326-2296025/2296019 Website: www.cimfr.nic.in

1 2 3 4 5 6 7 8



FRONT VIEW

SIDE VIEW

**M.O.C.**

1. BODY - M.S. SHEET.
2. CONDENSER - COPPER WITH ALUMINIUM FINS EPOXY COATED
3. CONDENSER FAN - FLP FAN
4. FLP MOTOR - IIA, IIB & IIC.
5. COOLING COIL - COPPER WITH ALUMINIUM FINS EPOXY COATED
6. COMPRESSOR FITTED PESO TERMINAL COVER.
7. CONTROL PANEL PESO ENCLOSURE.
8. INSULATION & ACOUSTIC FLAME RETARD.
9. FLP ARMoured CABLE & GLAND.
10. STAND - ISMC OR ISA.
11. POWDER COATING- PP.

**BASIS OF DESIGNING**

1. TEMPERATURE -  $22^{\circ}\text{C} \pm 2^{\circ}\text{C}$
2. HUMIDITY -  $50\% \text{ RH} \pm 5^{\circ}\text{C}$ .

**INSTITUTE OF MINING & FUEL RESEARCH**  
**DHANBAD**  
**(INDIA)**  
**FLAME PROOF & EQUIPMENT SAFETY**  
**CERTIFIED VIDE PROJECT REPORT**  
**No. GIMFR/FG-TSP/274/2024-25**  
**DATED**

  
 Engineer

  
 HOS

NOTE:-  
 1. Flameproof Exd. IIC as per IS / IEC 60079-0-2017.

TITLE : GENERAL ASSEMBLY OF AIR CONDITIONER UNIT -IIC (FLP AC 5)		DRG. NO.	
MATERIAL: PESO CERTIFIED.		ACE-080824-A1	
19/08/24		CHK	REV.
		SCALE	NTS
		VD	00
		LOBO	01
		01	01
		00	00
		TOT SHEET SHEET NO. COON	



**AMANCIO COOLING EQUIPMENTS**  
 LUKSHMI VILLAS PALACE ESTATE,  
 GATE -4, VADODARA-390001 (INDIA)

1 2 3 4 5 6 7 8

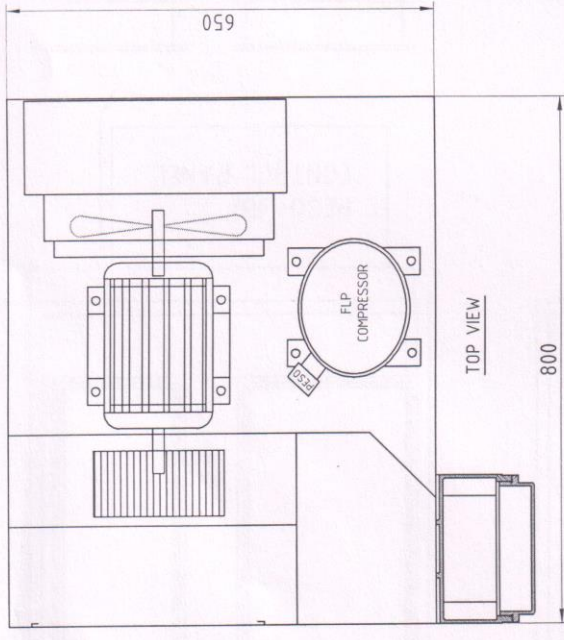
1 2 3 4 5 6 7 8

**M.O.C.**

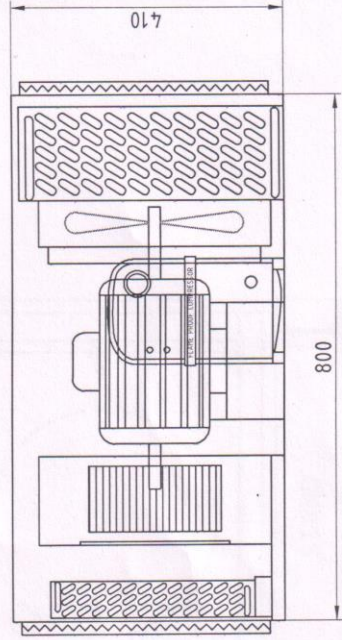
1. BODY - M.S. SHEET.
2. CONDENSER - COPPER WITH ALUMINIUM FINS EPOXY COATED
3. CONDENSER FAN - FLP FAN
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6. COMPRESSOR FITTED PESO TERMINAL COVER.
7. CONTROL PANEL PESO ENCLOSURE.
8. INSULATION & ACOUSTIC FLAME RETARD.
9. FLP ARMoured CABLE & GLAND.
10. STAND - ISMC OR ISA.
11. POWDER COATING- PP.

**BASIS OF DESIGNING**

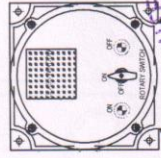
1. TEMPERATURE -  $22^{\circ}\text{C} \pm 2^{\circ}\text{C}$
2. HUMIDITY -  $50\% \text{ RH} \pm 5^{\circ}\text{C}$ .



TOP VIEW



FRONT VIEW



**INSTITUTE OF MINING & FUEL RESEARCH**  
**DHANBAD**  
**(INDIA)**  
**FLAME PROOF & EQUIPMENT SAFETY**  
**CERTIFIED VIDE PROJECT REPORT**  
 No. AMFRITE TSP/274/2017-25  
 DATED \_\_\_\_\_

FLP JUNCTION BOX

NOTE:-  
 1. Flameproof Exd. IIC as per IS / IEC 60079-0-2017.

*Atkins*  
 Project Officer

C									8
B									7
A									6
F									5
									4
									3
									2
									1

DRG. NO.	VD	CHK	SCALE	NTS
ACE-080824-B1	LOB0	REV.	00	00
TOTAL SHEET	SHEET NO.	CONSY	01	01

<b>AMANCIO COOLING EQUIPMENTS</b> LUKSHMI VILLAS PALACE ESTATE, GATE -4, VADODARA-390001 (INDIA)
TITLE : GENERAL ASSEMBLY OF AIR CONDITIONER UNIT-IIC (FLP AC 5) MATERIAL: PESO CERTIFIED.
19/08/24