Technical Specification No.

M-01-556

For the supply of
Air Conditioning System
Locomotive Types:
EURO4000&JT42B/CW

Israel part number _____ :

Manufacture part number _____ :

Model :new

Rolling stock type: EURO4000&JT42B/CW

Date	Function	Name	Signed	Version
11.11.2025	Writer / Editor	Yaniv Shabtai		00
11.11.2025	Direct manager	Haitham Salameh		00
11.11.2025	Manager approve	Shay Malka		00

1. Introduction

The purpose of this document is to provide detailed technical specifications for the purchase of air conditioners for a locomotive cab, this Technical Specification is intended to ensure that the purchased air conditioners meet the required standards of quality, performance and safety, and to provide maximum comfort to drivers in different climate conditions.

2. General information

2.1. **Electrical Operating:**

In accordance with EN 50155 Chapter 5.1.1.2.

2.1.1. Power Supply:

- 45-211 Vac, 27-127 Hz, 3Ph, 35 A
- 72 Vdc, 70 A

2.1.2. Power Supply Plug Required:

In accordance with EN 50343, includes male and female connectors.

Note: The electrical connection in model 2 on the JT42B/CW Locomotive is not the same as model 2.1 on the Euro 4000 locomotive.

2.1.3. Control Power Supply: 74VDC

2.2. **Operating Temperature Range:**

-5°C to 49°C outdoor ambient temperature.

2.3. **Relative Humidity Range:** 10-95%.

2.4. **Air Conditioning Cooling Capacity:**

At least 30,000 BTU/hour (8.8 kW) at 35°C ambient and 70% relative humidity.

- In cases where the cooling capacity varies across the entire voltage and frequency range, it should be mentioned and displayed as a graph or as specific operating points.

2.5. **Cab Air Flow:**

Not less than 1,000 CFM at 20 mm H2O.

2.6. **Maximum Outer Dimensions:**

1328 x 1025 x 456 mm (± 10mm) (LxWxH). Refer to Appendix 4.1 for details.

2.7. **Maximum Roof Opening Dimensions:**

1182 x 877 mm (± 10mm). Refer to Appendix 4.1 for details.

2.8. **Cab Air Inlet/Outlet Dimensions:**
See Appendix4.2.

2.9. **Mounting Locations:**
Refer to Appendix 4.1.

2.10. **Refrigerant Types:**
R407c, R410a, R1234yf, R134a, their equivalents, or other refrigerants compliant with the EU F-Gas Regulation (Regulation (EU) No. 573/2024)-preferred.

- If using R407c, R410a, R1234yf, R134a, **or** their equivalents, the unit must, without significant modifications, be compatible with at least one alternative refrigerant included in the EU F-Gas regulation to ensure future compliance.

3. Specific requirements

3.1. **Air Conditioning System Lifespan**

- Designed for a minimum lifespan of 10 years.
- Spare parts available to purchase for at least 10 years.

3.2. **Features and Components**

3.2.1. Safety and Protection:

In addition to EN 14813-1 standard, section 10.6 the following are required:

- High and low refrigerant pressure protection.
- Anti-freeze thermostat.
- Overcurrent protection.
- Liquid accumulator for refrigerant return.
- The compressor shuts down at 10°C or below ambient temperature- preferred.

3.2.2. Durability:

- All parts in the air conditioning system shall comply with **C3 (Medium)** environmental conditions as defined by **ISO 12944**, suitable for urban and industrial areas with moderate pollution or low salinity.
- All metallic components be coated with zinc according to ASTM B633, with a minimum thickness of 12 µm (Fe/Zn 12 classification), to enhance durability and ensure long-term resistance to corrosion in C3 environments- preferred.
- Corrosion-resistant condenser heat exchange.
- Brushless motors.

- Capable of operating in all weather conditions, including heavy rain.

3.2.3. Human- Interface:

- No sharp corners.
- Sight glass visible from the top or bottom, preferably inside the cabin.
- Easy access to service valves without opening large covers- preferred.

3.2.4. Drain Specifications

- The unit should have two types of drains: one for the condensate from the AC system and another for rainwater drainage.
- No water splashing from the evaporator under any working conditions.

3.3. **Critical Limitations:**

The design must account for the critical limitations outlined in Appendix 4.2.

3.4. **Noise Intensity Limits**

Unit's maximum noise intensity-62 dB.

3.5. **Modes of Operation:**

- A minimum of two-air speed evaporator's blower modes according to EN 14813-1 standard, section 8.3 and additional speed modes are preferred.
- Ventilation mode.

3.6. **Temperature Control:**

Ability to select temperature targets via a thermostat or other way.

3.7. **Operating Panel:**

- Mounted on the driver's console, ensuring it is easily accessible and comfortable for operation.
- Panel dimensions: According to appendix 4.3.

3.8. **Compressor (Pressure Comparison) Delay:**

In case of compressor delay, 3 minutes or less - preferred.

3.9. **Assembly & Disassembly:**

Quick and easy assembly and disassembly of the A/C unit from the cabin.

3.10. **Sealed Assembly:**

Fully sealed to prevent rain ingress.

3.11. **Malfunction Indicators:**

Indicators for identifying and diagnosing A/C malfunctions - preferred.

3.12. **Filter Maintenance:**

- Filter design according to EN 14813-1 standard, section 10.3.
- Assembling, disassembling, cleaning, and replacing without using special tools.
- Easy to clean

3.13. **Accessibility:**

Service and electrical panels accessible/serviced from inside the cabin- preferred.

3.14. **Washability:**

Designed unit for external washing.

3.15. **Maintenance Hour Meter:**

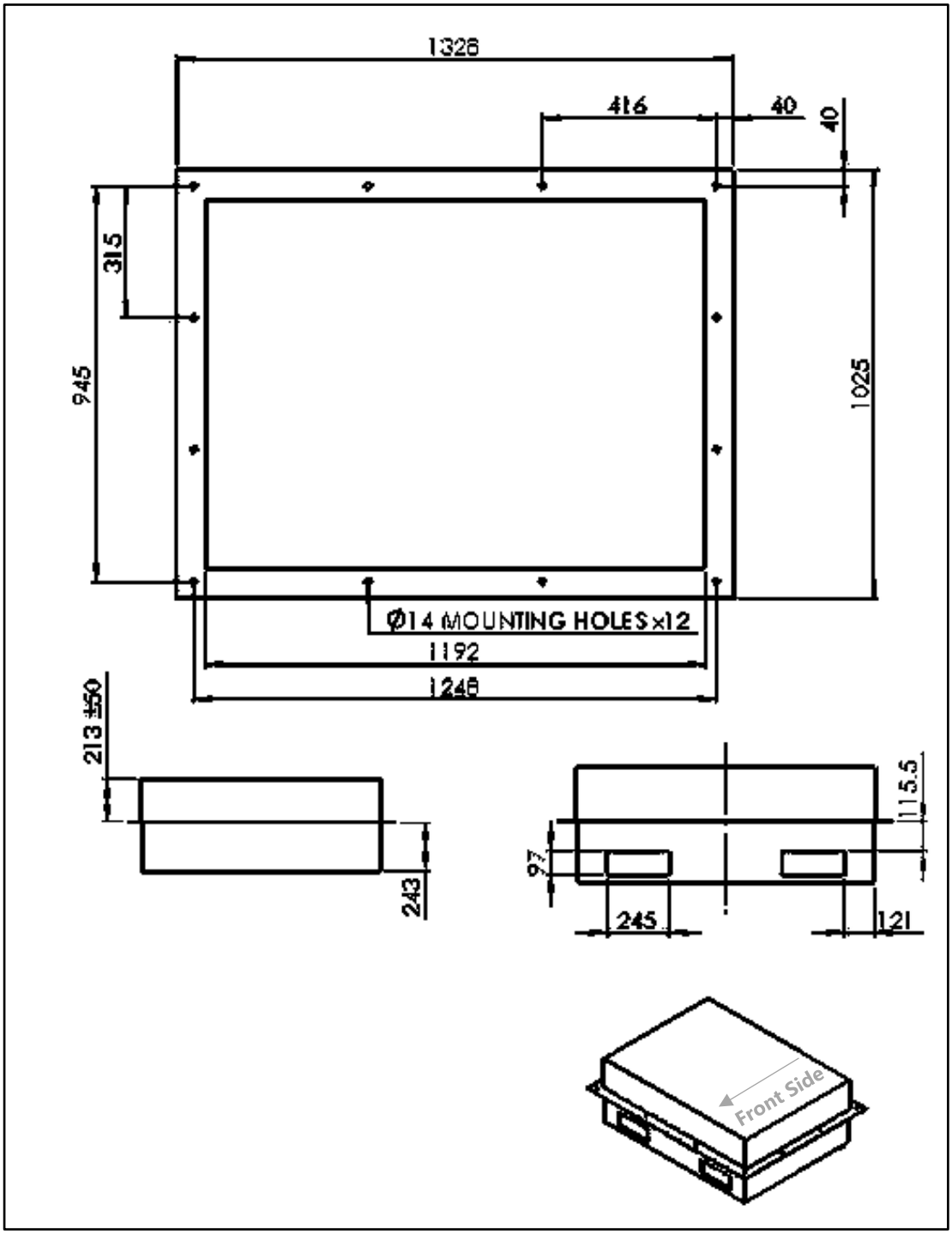
Visible hour meter, readable from inside the locomotive without opening panels- preferred.

3.16. **Hoist Rings:**

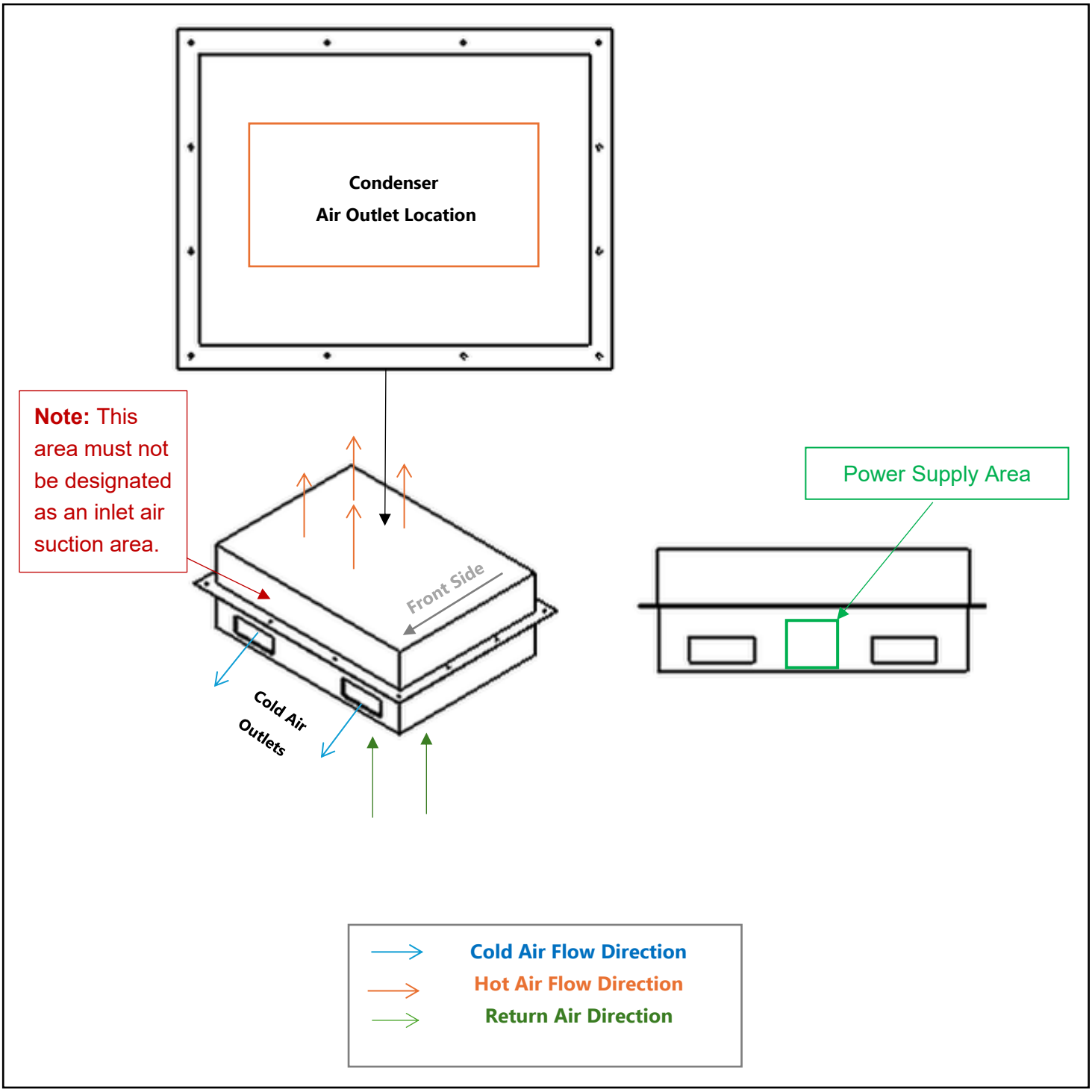
Included hoist rings on the unit, ensuring safe and easy lifting during installation and maintenance.

4. Appendices

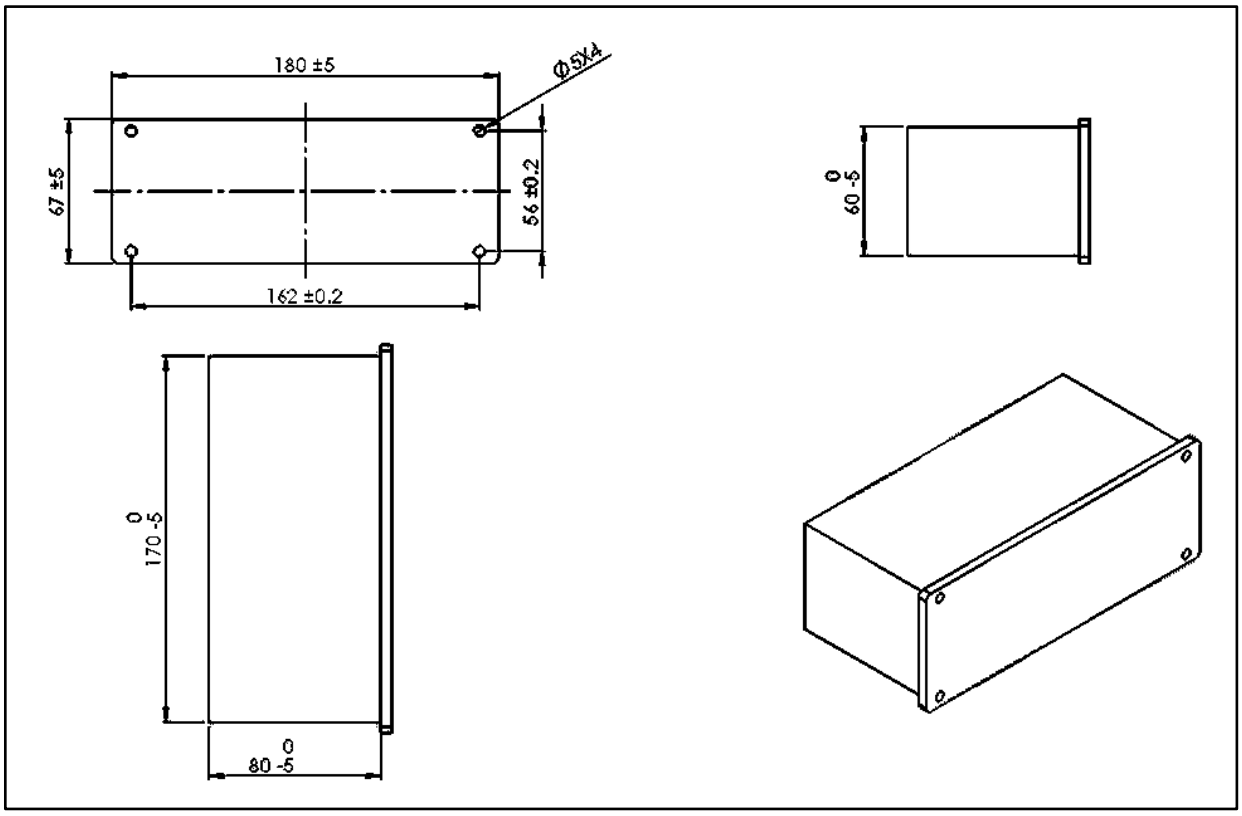
4.1. Dimensions Demand Diagram (mm)



4.2. **Airflow and Critical Demands**



4.3. **Operating Panel Dimensions**



5. Weather conditions in Israel

Maximum work temperature	**50**	
Minimum work temperature	**-10**	
Humidity	**5-95%**	
Height (m)	**80-850**	
Sunshine hours per year	**3000**	
Ultraviolet radiation per year (MJ/m²)	**6**	
Rainfall per year (mm)	**435**	
Humidity	**50**	

6. Documentation

The Supplier must provide the following documentation along with the air conditioning system:

6.1. **Technical Documentation:**

6.1.1. Complete system specifications, including electrical and mechanical drawings.

6.1.2. Installation and assembly instructions.

6.1.3. Wiring diagrams and schematics.

6.2. **Compliance and Certification:**

6.2.1. Certificate of Compliance (COC) confirming adherence to all technical requirements.

6.2.2. Test reports for compliance with ISO 12944 (C3 corrosion protection) and ASTM B633 (zinc coating requirements).

6.2.3. Noise intensity test results proving compliance with 62 dB maximum limit.

6.2.4. Fire safety and refrigerant compliance certificates, including compliance with EN 14813-1, EN 50155, and F-Gas Regulation (EU) No. 573/2024.

6.3. **Maintenance and Spare Parts:**

6.3.1. Spare parts catalogue with clear part numbers and ordering instructions.

6.3.2. Maintenance and troubleshooting manuals.

6.3.3. Warranty documentation specifying the coverage period and conditions.

7. Pilot

7.1. Upon delivery of the air conditioners by the Supplier, the Units shall undergo inspection to ensure compliance with the Technical Specifications outlined in Section 3 and the operational requirements of ISR (the "**Pilot**").

7.2. The Pilot Devices must be delivered to ISR within no later than a period of seven (7) months. The Pilot Program will take place no more than one (1) year, however, the Pilot Program will include at least two (2) months of the summer season (between June and September).

7.3. In the event that issues arise during the Pilot phase related to installation or integration with the Locomotives, the Supplier shall be obligated to update and modify the product to address the identified issues prior to the main delivery. These modifications shall be carried out at no additional cost.

8. Responsibility

8.1. **Product Warranty**: The Supplier shall provide a warranty for the air conditioning units for Locomotives, covering defects in materials and workmanship. The Warranty Period shall be two (2) years from the date of acceptance.

8.2. **Optional Yearly Warranty Period:** The Supplier shall provide 36 additional months, as an Optional Yearly Warranty Period for each Device.

8.3. **Compliance with Specifications**: The Supplier guarantees that the air conditioning units meet the Technical Specifications as outlined in the Tender Document.

8.4. **Liability for Performance:** The Supplier shall ensure that the air conditioning units perform as expected under all specified operating conditions. In case of any performance failure within the Warranty Period, the Supplier shall take immediate corrective action at no additional cost to the client.

8.5. **Replacement and Repair**: In the event of a defect in the air conditioning units that cannot be repaired within a reasonable time frame, the Supplier is obligated to replace the defective unit at no cost to the client.

8.6. **Documentation**: The Supplier shall provide all necessary documentation, including user manuals, maintenance guidelines, and warranty certificates, for the air conditioning units. This documentation must be delivered at the time of installation.

9. Supplier requirements (Quality, Safety, and Environmental Compliance)

9.1. The Supplier must implement **strict quality control procedures** to ensure all units comply with the Specifications in this document.

9.2. The Supplier must adhere to **environmental and safety regulations**, ensuring:

9.2.1. Compliance with **ISO 12944 (C3 level corrosion protection)**.

9.2.2. Use of **zinc coatings according to ASTM B633** to enhance durability.

9.2.3. Compliance with **F-Gas Regulation (EU) No. 573/2024** for environmentally friendly refrigerants.

9.3. The Supplier must provide a **factory acceptance test (FAT) report** demonstrating compliance with performance, durability, and safety requirements.

9.4. **Packing And Storage:**

9.4.1. Recommendations and restrictions for proper parts storage.

9.4.2. All supplied air conditioning units will be wrapped in nylon and packed in wooden crates, which will protect them from sun, wind, dust, or humidity damage, or packed in crates made of other materials that provide equal protection for the same condition and enable long-term storage in covered outdoor structures.

9.4.3. The Supplier shall comply with all International Plant Protection

9.4.4. Convention ("IPPC") regulations on solid wood packaging

9.4.5. Material ("SWPM") as outlined in ISPM-15 and elsewhere.

9.4.6. The crates will be compatible with a forklift and can be stocked to a height of 3 stories at least.

9.5. All supplied air conditioning units must be designed to **withstand the operating conditions of locomotives**, including extreme temperatures, vibrations, and exposure to outdoor elements.

10. Applicable Standards

The standards outlined below are either fully or partially applicable to this document:

10.1. EN 50155 – Railway applications. Electronic equipment used on rolling stock.

10.2. EN 50343 – Railway applications. Rolling stock. Rules for installation of cabling.

10.3. EN 14813-1 – Railway applications. Air conditioning for driving cabs. Comfort parameters and type tests.

10.4. F-Gas Regulation (EU) No. 573/2024 – Regulation on fluorinated greenhouse gases to ensure compliance with environmental standards.
10.5. ISO 12944 – Corrosion protection of steel structures by protective paint systems, including environmental classifications and coating requirements.
10.6. ISO 9001: Quality Management Systems
10.7. ASTM B633 – Standard specification for electrodeposited coatings of zinc on iron and steel, defining zinc coating classifications and minimum thicknesses for corrosion resistance

General Appendence

- **The Sections in the list below must be supplied by the A/C manufacturer in order to comply with ER- 0002 document.**
- **All information must be supplied in the format accepted by "Israel Railways".**

11. Comprehensive List of A/C Parts

The documentation must include a detailed list of all Air Conditioner parts, covering:

11.1. **Air Conditioner Manufacturer Part Numbers (PN):** Include the PN and corresponding part descriptions for each component.
11.2. **Original Manufacturer Details:** Provide the original manufacturer's PN and part names for reference.
11.3. **Main Component Data Sheets:** Include technical data sheets for essential components such as compressors, blowers, and fans.

12. **Full Air Conditioning Technical Data**

The documentation must include the following technical details for the A/C system:

12.1. **Electrical Schematics:** Provide complete electrical diagrams showing wiring, connections, and power distribution for the A/C system.
12.2. **Piping and Instrumentation Diagram:** Include a detailed diagram that outlines the piping layout, system components, and instrumentation used in the Air Conditioner system.
12.3. **Operational Logic:** Document the control logic and operational sequences, detailing how the system operates under various conditions.
12.4. **Main Components Data Sheets:** Provide detailed data sheets for key components, such as the compressor, blower, fans, and any other essential system parts.
12.5. **Laboratory Testing:** Provide all full laboratory tests conducted on the A/C system if any**.**

13. Spare Parts

13.1. **List of Spare Parts:** Full list of all spare parts required for the air conditioning system including electronics.
13.2. **Recommended Quantities:** Specify the recommended spare part quantities to support the Locomotive units.
13.3. **Parts Purchasing Availability:** Spare parts are available to purchase for at least 10 years and the delivery time shall not exceed 6 months from the date of order**.**

In case that spare parts are no longer manufactured, the Supplier shall notify approximately four months in advance and will be required to find alternative parts in a timely manner, ensuring the provision of updated technical documents for the alternatives.

14. Installation and Maintenance Training

- The Supplier is required to provide a two-day (8 hour each), in-person Training session at Israel Railways' Haifa facility for approximately ten participants, **official Supplier certification for training/qualification is required.**

- The Training shall include:

14.1. **Assembly Instructions:** Step-by-step Training on assembling the A/C system.

14.2. **ATP (Detailed Acceptance Test) Procedures.**

14.3. **Preventive Maintenance:** Guidelines for preventive maintenance procedures, if required.

14.4. **Troubleshooting Guide:** A comprehensive manual for diagnosing and resolving air conditioning malfunctions, utilizing both manual techniques and computer software. The Supplier is responsible for installing and updating the necessary software to ensure effective troubleshooting.

14.5. **Repainting Instructions:** Training on repainting procedures.

14.6. **Packing And Storage:**

14.6.1. Recommendations and restrictions for proper parts storage.

14.6.2. All supplied air conditioning units will be wrapped in nylon and packed in wooden crates, which will protect them from sun, wind, dust, or humidity damage, or packed in crates made of other materials that provide equal protection for the same condition and enable long-term storage in covered outdoor structures.

14.6.3. The Supplier shall comply with all International Plant Protection Convention ("IPPC") regulations on solid wood packaging Material ("SWPM") as outlined in ISPM-15 and elsewhere.

14.6.4. The crates will be compatible with a forklift and can be stocked to a height of 3 stories at least.

14.7. **Warranty Information:** 2 years of warranty and detailed terms and conditions of the manufacturer's warranty.

14.8. **Warranty Service Response and Resolution**: In case of malfunctions under warranty. A response and answers will be provided within 48 hours from the time of inquiry. Warranty-related issue resolution will be completed within 4 months.

14.9.**Additional Instructions:** Any other relevant guidance to ensure optimal operation and maintenance.

15. Operational Manual

Include a comprehensive written manual detailing the operation of the air conditioning system. This manual should cover:

15.1. **System Operation:** Instructions for the proper use of the A/C system.

15.2. **Safety:** Guidelines for safe handling and operation of the system.

16. **All information will be provided on 2 digital copies.**

17. Scoring and evaluation

\	Section	Title	Description	Score 1-5	Supplier Score	Notes
1	2.1.1	**Power Supply**	• 45-211 Vac, 27-127 Hz, 3Ph, 35 A • 72 Vdc, 70 A	MUST		*Conversion and adjustments will be possible.
2	2.1.2	**Power Supply Plug Required**	In accordance with EN 50343, includes male and female connectors.	MUST		
3	2.1.3	**Control Power Supply**	74VDC	MUST		*Conversion and adjustments will be possible.
4	2.2	**Operating Temperature Range**	-5°C to 49°C outdoor ambient temperature.	5		For every 3°C under 49°C, the max score will be dedused by a point. An operating temperature under 34°C is unedmisible. For exemple - an HVAC with operating temperature of 41°C will get a score of 2.
5	2.3	**Relative Humidity Range**	10-95%.	5		For every 2% under 95%, the max score will be dedused by a point. An relative humidity under 85% is unedmisible. For exemple - an HVAC with relative humidity of 92% will get a score of 3.
6	2.4	**Air Conditioning Cooling Capacity:**	At least 30,000 BTU/hour (8.8 kW) at 35°C ambient and 70% relative humidity. • In cases where the cooling capacity varies across the entire voltage and frequency range, it should be mentioned and displayed as a graph or as specific operating points.	5		For every 1,000 BTU/h below 30,000 BTU/h (measured at 35°C ambient and 70% relative humidity), the maximum score will be reduced by one point. A cooling capacity below 26,000 BTU/h is inadmissible. For example – an HVAC with a cooling capacity of 27,400 BTU/h will receive a score of 3.
7	2.5	**Cab Air Flow:**	Not less than 1,000 CFM at 20 mm H2O.	5		For air flow less then 1000 CFM, the resived score will be 0.

8	2.6	**Maximum Outer Dimensions**	1328 x 1025 x 456 mm (± 10mm) (LxWxH). Refer to Appendix 4.1 for details.	MUST		*Adjustment will be possible
9	2.7	**Maximum Roof Opening Dimensions**	1182 x 877 mm (± 10mm). Refer to Appendix 4.1 for details.	MUST		*Adjustment will be possible
10	2.8	**Cab Air Inlet/Outlet Dimensions**	Refer to appendix 4.2	MUST		*Adjustment will be possible
11	2.9	**Mounting Locations**	Refer to appendix 4.1	MUST		
12	2.1	**Refrigerant Types**	R407c, R410a, R1234yf, R134a, their equivalents, **or** other refrigerants compliant with the EU F-Gas Regulation (Regulation (EU) No. 573/2024)-preferred. - If using R407c, R410a, R1234yf, R134a, or their equivalents, the unit must, without significant modifications, be compatible with at least one alternative refrigerant included in the EU F-Gas regulation to ensure future compliance.	MUST		
13	3.1	**Air Conditioning System Lifespan**	Designed for a minimum lifespan of 15 years.	4		For every year below 15 years of expected system lifespan, the maximum score (4) will be reduced by one point. A lifespan below 12 years is inadmissible. For example – an HVAC system with a declared lifespan of 13 years will receive a score of 2.
			Spare parts available to purchase for at least 15 years.	5		For every 2 years below 15 years of spare parts availability, the maximum score will be reduced by one point. Availability below 7 years is inadmissible. For example – a system with spare parts available for 11 years will receive a score of 3.
14	3.2.1	**Safety and Protection**	High and low refrigerant pressure protection.	MUST		
			Anti-freeze thermostat.	MUST		
			Overcurrent protection.	MUST		
			Liquid accumulator for refrigerant return.	MUST		

			The compressor shuts down at 10°C or below ambient temperature- preferred	3		For every 2°C above 5°C in the compressor shutdown threshold, the maximum score (3) will be reduced by one point. A shutdown temperature above 10°C or lack of such a mechanism will receive a score of 0. For example – a system with compressor shutdown at 8°C will receive a score of 1.
15	3.2.2	**Durability**	The air conditioning system shall comply with C3 (Medium) environmental conditions as defined by ISO 12944, suitable for urban and industrial areas with moderate pollution or low salinity	5		Failure to comply with this section will resive a score of 0.
			Metal parts protected against rust.	5		Failure to comply with this section will resive a score of 0.
			Corrosion-resistant condenser heat exchange.	5		Failure to comply with this section will resive a score of 0.
			Brushless motors.	5		Failure to comply with this section will resive a score of 0.
			Hardware, rust protected.	5		Failure to comply with this section will resive a score of 0.
			Capable of operating in all weather conditions, including heavy rain.	MUST		
			All metallic components be coated with zinc according to ASTM B633, with a minimum thickness of 12 µm (Fe/Zn 12 classification), to enhance durability and ensure long-term resistance to corrosion in C3 environments- preferred.	4		Failure to comply with this section will resive a score of 0.
16	3.2.3	**Human- Interface**	No sharp corners.	3		Failure to comply with this section will resive a score of 0.
			Sight glass visible from the top or bottom, preferably inside the cabin.	4		Failure to comply with this section will resive a score of 0.
			Easy access to service valves without opening large covers- preferred.	3		Failure to comply with this section will resive a score of 0.

17	3.2.4	**Drain Specifications**	The unit should have two types of drains: one for the condensate from the AC system and another for rainwater drainage.	2		Failure to comply with this section will resive a score of 0.
			No water splashing from the evaporator under any working conditions.	MUST		
18	3.3	**Critical Limitations**	The design must account for the critical limitations outlined in Appendix 4.2.	MUST		
19	3.4	**Noise Intensity Limits**	Unit's maximum noise intensity-62 dB.	4		For every 2 dB above 62 dB in maximum noise intensity, the maximum score (4) will be reduced by one point. A noise level above 70 dB is inadmissible. For example – a system with a noise level of 65 dB will receive a score of 2.
20	3.5	**Modes of Operation**	A minimum of two-air speed evaporator's blower modes according to EN 14813-1 standard, section 8.3 and additional speed modes are preferred.	4		Failure to comply with this section will resive a score of 0.
			Ventilation mode.	3		Failure to comply with this section will resive a score of 0.
21	3.6	**Temperature Control**	Ability to select temperature targets via a thermostat or other way	3		Failure to comply with this section will resive a score of 0.
22	3.7	**Operating Panel**	Mounted on the unit, ensuring it is easily accessible and comfortable for operation	5		Failure to comply with this section will resive a score of 0.
			Refer to appendix 4.3.	5		Failure to comply with this section will resive a score of 0.
23	3.8	**Pressure Comparison Delay**	In case of compressor delay, 3 minutes or less - preferred.	3		For every full minute above 3 minutes in compressor restart delay, the maximum score (3) will be reduced by one point. A delay longer than 5 minutes is inadmissible. For example – a system with a 4.5-minute delay will receive a score of 1.
24	3.9	**Assembly & Disassembly**	Quick and easy assembly and disassembly of the A/C unit from the cabin	4		Failure to comply with this section will resive a score of 0.
25	3.1	**Sealed Assembly**	Fully sealed to prevent rain ingress	MUST		

26	3.11	**Malfunction Indicators**	Indicators for identifying and diagnosing A/C malfunctions - preferred	3		Failure to comply with this section will resive a score of 0.
27	3.12	**Filter Maintenance**	Filter design according to EN 14813-1 standard, section 10.3.	MUST		
			Assembling, disassembling, cleaning, and replacing without using special tools.	4		Failure to comply with this section will resive a score of 0.
			Easy to clean	3		Failure to comply with this section will resive a score of 0.
28	3.13	**Accessibility**	Service and electrical panels accessible/serviced from inside the cabin- preferred	2		Failure to comply with this section will resive a score of 0.
29	3.14	**Washability**	Designed unit for external washing	2		Failure to comply with this section will resive a score of 0.
30	3.15	**Maintenance Hour Meter**	Visible hour meter, readable from inside the locomotive without opening panels- preferred	2		Failure to comply with this section will resive a score of 0.
31	3.16	**Hoist Rings**	Included hoist rings on the unit, ensuring safe and easy lifting during installation and maintenance	5		Failure to comply with this section will resive a score of 0.
32	1.1	**Air Conditioner Manufacturer Part Numbers (PN)**	Include the PN and corresponding part descriptions for each component.	MUST		
33	1.2	**Original Manufacturer Details**	Provide the original manufacturer's PN and part names for reference.	MUST		
34	1.3	**Main Component Data Sheets**	Include technical data sheets for essential components such as compressors, blowers, and fans	MUST		
35	2.1	**Electrical Schematics**	Provide complete electrical diagrams showing wiring, connections, and power distribution for the A/C system	MUST		
36	2.2	**Piping and Instrumentation Diagram**	Include a detailed diagram that outlines the piping layout, system components, and instrumentation used in the Air Conditioner system.	MUST		

37	2.3	**Operational Logic**	Document the control logic and operational sequences, detailing how the system operates under various conditions	MUST		
38	2.4	**Main Components Data Sheets**	Provide detailed data sheets for key components, such as the compressor, blower, fans, and any other essential system parts.	MUST		
39	2.5	**Laboratory Testing**	Provide all full laboratory tests conducted on the A/C system if any.	MUST		
40	3.1	**List of Spare Parts**	Full list of all spare parts required for the air conditioning system including electronics	5		Failure to comply with this section will resive a score of 0.
41	3.2	**Recommended Quantities**	Specify the recommended spare part quantities to support 10 and 50 locomotive units	4		Failure to comply with this section will resive a score of 0.
42	3.3	**Longevity of Availability**	Spare parts are available to purchase for at least 15 years.	5		For every 2 years below 15 years of spare parts availability, the maximum score (5) will be reduced by one point. Availability below 7 years is inadmissible. For example – a system with spare parts available for 11 years will receive a score of 3.
43	4	**Installation and Maintenance Guidance/Manual**	Physical demonstration of assembly, installation and maintenance instructions for **prototype** assemblies	5		Failure to comply with this section will resive a score of 0.
44	4.1	**Assembly Instructions**	Step-by-step guidance on assembling the A/C system.	MUST		
45	4.2	**ATP (Detailed Acceptance Test) Procedures**	-	MUST		
46	4.3	**Preventive Maintenance**	Guidelines for preventive maintenance procedures, if required.	4		Failure to comply with this section will resive a score of 0.
47	4.4	**Troubleshooting Guide**	A guide for diagnosing and resolving Air Conditioning malfunctions.	MUST		
48	4.5	**Repainting Instructions**	Guidance on repainting procedures	MUST		

49	4.6	**Storage Guidelines**	Recommendations and restrictions for proper spare parts storage.	4		Failure to comply with this section will resive a score of 0.
50	4.7	**Warranty Information**	2 years of warranty and detailed terms and conditions of the manufacturer's warranty	5		For every 3 months below 24 months of warranty coverage, the maximum score (5) will be reduced by one point. A warranty period below 12 months is inadmissible. For example – a system with an 18-month warranty will receive a score of 3.
51	4.8	**Additional Instructions**	Any other relevant guidance to ensure optimal operation and maintenance.	-		
52	5.1	**System Operation**	Instructions for the proper use of the A/C system	MUST		
53	5.2	**Safety**	Guidelines for safe handling and operation of the system	MUST		

Requirements marked as MUST are mandatory. However, in specific cases where a technical adaptation is explicitly proposed in the "Notes" column, the proposal may still be considere.

The overoll score will be colculated with the following equesion:Total gained score / Maximum score possible * 30

Maximum possiblle score is 30. proposals bellow 20 total points will not be considered.