CE

EC Declaration of Conformity

according to EC Machinery Directive 2006/42/EC

We, **IL KWANG METAL FORMING CO., LTD.**
14beon-gil, Namdong-gu, Incheon, 21689, Republic of Korea
declare under our sole responsibility that the product

Product	:	**PU/PIR AND MINERAL WOOL SANDWICH PANEL LINE**
Type Designation(s)	:	**LIMINATING MACHINE - DOUBLE BELT**
Serial No	:	**K-N2024-TR002-04**
Year of Manufacture	:	**2025**

to which this declaration relates is in conformity with the following standard(s) or other normative document(s) ;

EN ISO12100 (2010)	Safety of machinery - General principles for design - Risk assessment and risk reduction
EN60204-1 (2018)	Safety of machinery - Electrical equipment of machines Part 1 : General requirements

following the provisions of Directive(s);

2006/42/EC	Directive on the approximation of the laws of Member States relating to machinery (OJ L157 Jun, 9, 2006)
2014/35/EU	Directive on the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage (OJ L 96, 29 March 2014)

Incheon, Korea / 25.01.2025 SUK-BONG, YOON, President

(Place and date of issue) (name and signature or equivalent making of authorized person)

Kiwa Korea Ltd.
411, SJ Technoville, 278, Beotkkot-ro, Geumcheon-gu, Seoul, Korea
Tel. +82 2 3397 0101 / Fax. +82 2 3397 0105 / www.kiwa.kr

Report No. CA25MD007 DATE: 2025-01-08

TEST REPORT
According to
EN 60204-1:2018 & ISO 3740:2000
ON "PU/PIR AND MINERAL WOOL SANDWICH PANEL LINE"

Product Item :	PU/PIR AND MINERAL WOOL SANDWICH PANEL LINE
Type designation :	LIMINATING MACHINE - DOUBLE BELT
Company name :	IL KWANG METAL FORMING CO., LTD.
(Address)	116, Hogupo-ro 14beon-gil, Namdong-gu, Incheon, 21689, Republic of Korea
Receipt No. :	CAP-QI24-355 rev.2
Receipt date :	2025-01-02
Check Result :	Pass
Other Aspect/Remark :	None

Tested by

/ Jan. 2nd. 2025
Jung-Hyuk Choi / Project Engineer

Reviewed by

/ Jan. 8th. 2025
Myung-Lyul Lee / Project Reviewer

<Description of Machine>

Name plate

Product	PU/PIR AND MINERAL WOOL SANDWICH PANEL LINE		CE
Model	LIMINATING MACHINE - DOUBLE BELT		
Serial Number	IK-N2024-TR002-04		
Facility Voltage	3ph x 400V x 50Hz	Main Circuit Breaker	200A
Hydraulics	-		
Pneumatic	5bar, 0.5L/min		
Demension	4,773㎜ x 40,980㎜ x 4,645㎜(W x L x H)		
Manufacturer	IL KWANG METAL FORMING CO., LTD		
Address	116, Hogupo-ro 14beon-gil, Namdong-gu, Incheon, 21689, Republic of Korea		

System construction :
Main body, Electrical panel, etc.

Description of hazards presented by product :
The electrical hazard of main electrical system.
The entanglement hazard by moving part.

Description of method adopted to eliminate hazards in this product :
The fixed guards are provided for the hazardous area.
Safe instruction is provided to the manual.

Facility connections (Electrical, Air, etc.) :
Electrical : 3Ph, 400V, 50Hz, 200A (Main MCCB)

Applicable standard in the product :
Annex I in 2006/42/EC, EN ISO 12100, EN 60204-1

Remark :
None

Test Item		
	■ 1. Verification of the continuity of the protective bonding circuit	□ 2. Fault loop impedance verification and suitability of the associated over current protective device
	■ 3. Insulation resistance tests	■ 4. Voltage tests
	■ 5. Protection against residual voltages	■ 6. Functional tests
	■ 7. Sound emision test	□
	□	□
	□	□
	□	□
	□	□
	□	□
	□	□
	□	□
	□	□

Note: ■ Applied Test Item

□ Not Applied Test Item

[List of Measuring Equipments]

No	Instrument	Manfucturer	MODEL	Calibration Date	Remark
1	MultiServicerXD	METREL	MI-3325	2024. 10. 23	
2	Sound Level meter	TES	1350A	2024. 10. 23	
3					
4					
5					

■ 1. Verification of the continuity of the protective bonding circuit:

Test Method: (According to clause 18.2.2)

Resistance of each protective bonding circuit to be measured –

- with a current between at least 0,2 A and approximately 10 A: 10 A
derived from an electrically separated supply source (e.g. SELV, see 413.1 of IEC 60364-4-41) having a max. no-load voltage of 24 V a.c. or d.c)

- between the PE terminal (see 5.2 and Figure 3) and relevant points that are part of each protective bonding circuit

Test Goal:

Where the machine is supplied to site whole and the cable of the protective bonding circuit does not exceed the minimum length given in the Table 10 (or in the documentation of the respective protective device), it is only necessary to perform this test 1 which can be done before the machine is transported.

The measured voltage between the PE terminal and the points of test is not to exceed the values given below:

PE Conductor Size (mm2)	*Max. Voltage Drop(V)*
1.0	*3.3*
1.5	*2.6*
2.5	*1.9*
4.0	*1.4*
> 6.0	*1.0*

Test Results:

No	Test Points	Conductor Size (mm^2)	Limits (V)	Measured Values (V)
1	Between PE & Socket	> 6.0	1.0	0.3
2	Between PE & Inverter 89	> 6.0	1.0	0.2
3	Between PE & Inverter 90	> 6.0	1.0	0.2
4	Between PE & Inverter 91	> 6.0	1.0	0.1
5	Between PE & Inverter 92	> 6.0	1.0	0.1
6	Between PE & Inverter 93	> 6.0	1.0	0.3
7	Between PE & Inverter 94	> 6.0	1.0	0.2
8	Between PE & Inverter 95	> 6.0	1.0	0.2
9	Between PE & Inverter 96	> 6.0	1.0	0.2
10	Between PE & Inverter 97	> 6.0	1.0	0.1
11	Between PE & Inverter 98	> 6.0	1.0	0.1
12	Between PE & Inverter 99	> 6.0	1.0	0.2
13	Between PE & Inverter 100	> 6.0	1.0	0.2
14	Between PE & Transformer	> 6.0	1.0	0.2
15	Between PE & Power line filter 1	> 6.0	1.0	0.1
16	Between PE & Power line filter 2	> 6.0	1.0	0.1

Test Results: Pass

Test Equipment:	MultiServicerXD	Calibration Date:	2024.12.23
Test Engineer:	Jung-Hyuk, Choi	Test Date:	2025.01.02

■ 2. Fault loop impedance verification and suitability of the associated overcurrent protective device. : Not applicable

Test Method: (According to clause 18.2.2 and Annex 4)

NOTE	A fault loop impedance measurement can be carried out for circuits where the conditions of protection by automatic disconnection requires a current Ia up to about 1 kA (I_a is the current causing the automatic operation of the disconnecting device within the time specified in Annex A).

Measurement of the fault loop impedance shall be performed using measuring equipment that complies with IEC 61557-3. The information about the accuracy of the measuring results, and the procedures to be followed given in the documentation of the measuring equipment shall be considered.

Measurement shall be performed when the machine is connected to a supply having the same frequency as the nominal frequency of the supply at the intended installation.

NOTE	Figure A.1 illustrates a typical arrangement for measuring the fault loop impedance on a machine. If it is not practicable for the motor to be connected during the test, the two phase conductors not used in the test can be opened, for example, by removing fuses.

Test Goal:

The characteristics of overcurrent protective devices and the circuit impedances shall be such that, if a fault of negligible impedance occurs anywhere in the electrical equipment between a phase conductor and a protective conductor or exposed conductive part, automatic disconnection of the supply will occur within the specified time (i.e. ≤ 5 s or ≤ values in accordance with Table A.1).

The following condition fulfils this requirement:

$Z_{s(m)} \leq 2U_o / 3I_a$

$Z_{s(m)}$ *is the impedance of the fault loop comprising the source, the live conductor up to the point of the fault and the protective conductor between the point of the fault and the source, taken into account the increase of the resistance of the conductors with the increase of temperature due to the fault current (see A.4.3);*

I_a *is the current causing the automatic operation of the disconnecting protective device within the specified time;*

U_o *is the nominal a.c. voltage to earth.*

Test Results: Not applicable

No	Terminal of protective bonding circuit	S_{ph} / S_{PE} Cu (mm^2)	U_o (V)	Protective device, Type / I_a (A)	Allowed $Z_{s(m)}$ (Ω)	Measured $Z_{s(m)}$ (Ω)
1		/		/		
2		/		/		
3		/		/		
4		/		/		
5		/		/		

Test Results: **Not applicable**

Test Equipment:		Calibration Date:	
Test Engineer:		Test Date:	

■ 3. Insulation resistance:

Test Method: (According to Clause 18.3)

With the system disconnected from the supply source:

■ *500 V DC between power circuit conductors (L, N) and PE-circuit*

Test Goal:

The insulation resistance in the primary circuit shall be not less than 1 MΩ.

No	Measuring points	Resistance measured (M ohm)	Result
1	Between PE & R1	> 999	Pass
2	Between PE & S1	> 999	Pass
3	Between PE & T1	> 999	Pass
4	Between PE & R2	> 999	Pass
5	Between PE & S2	> 999	Pass
6	Between PE & T2	> 999	Pass

Remark : At the request of the applicant, this equipment was tested without load wiring.

Test Results: Pass

Test Equipment:	MultiServicerXD	Calibration Date:	2024.12.23
Test Engineer:	Jung-Hyuk, Choi	Test Date:	2025.01.02

■ **4. Dielectric strength:**

Test Method: (According to Clause 18.4)

With the system disconnected from the supply source, withstand potentials will be applied between the live parts (tied together) of the primary circuit and the grounding terminal:

■ *1000 VAC for at least 1 second*

□ *1414 VDC for at least 1 second*

Contactors in the primary circuitry should be manually closed and any circuit breakers and switches should be set to their closed positions.

Test Goal:

There should be no indication of a dielectric breakdown.

No	Measuring points (EXCEPT WIRE ACTIVE CIRCUITS PELV)	Result
1	Between PE & R1	0.6 mA, Pass
2	Between PE & S1	0.6 mA, Pass
3	Between PE & T1	0.6 mA, Pass
4	Between PE & R2	1.2 mA, Pass
5	Between PE & S2	1.3 mA, Pass
6	Between PE & T2	1.2 mA, Pass

Remark : At the request of the applicant, this equipment was tested without load wiring.

Test Results: Pass

Test Equipment:	MultiServicerXD	Calibration Date:	2024.12.23
Test Engineer:	Jung-Hyuk, Choi	Test Date:	2025.01.02

■ 5. Input capacitor discharge test:

Test Goal: (According to Clause 18.5)

<Case 1 : Electrical equipment connected to main power supply directly>

Live parts having a residual voltage greater than 60 V after the supply has been disconnected shall be discharged 60 V or less within a time period of 5s after disconnection of the supply voltage.

<Case 2 : Electrical equipment connected to main power supply through plugs or similar device>

Live parts having a residual voltage greater than 60 V after the supply has been disconnected shall be discharged 60 V or less within a time period of 1s after disconnection of the power plug.

No	Measuring points	Connection type to main power (case 1 or 2)	Time reduction tension A ≦ 60V	Result
1	Main Power (PE – R1)	Case 1	Shorter than 5s	Pass
2	Main Power (PE – S1)	Case 1	Shorter than 5s	Pass
3	Main Power (PE – T1)	Case 1	Shorter than 5s	Pass

Test Results: Pass

Test Equipment:	MultiServicerXD	Calibration Date:	2024.12.23
Test Engineer:	Jung-Hyuk, Choi	Test Date:	2025.01.02

■ 6. Functional test:

Test Goal: (According to Clause 18.6)

The functions of electrical equipment shall be tested, particularly those related to safety and safeguarding.

Test Result:

1. Emergency stop devices → OK
2.
3.
4.
5.
6.
7.
8.
9.
10.

Test Results: Pass

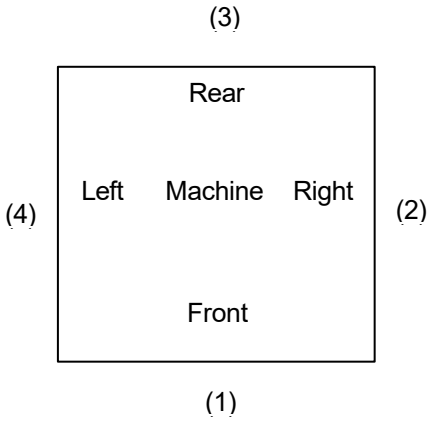
Test Equipment:	N/A	Calibration Date:	N/A
Test Engineer:	Jung-Hyuk, Choi	Test Date:	2025.01.02

■ 7. Sound level measurements : ISO 3740 (refer to the 1.7.4 in Machinery Directive)

Measurements at 4 measuring points

Test Conditions:

- measurement point: at test subject's operator position
- background noise 48.4 dB(A)
- Distance Between Microphone and Machine (m): 1 m
- Distance from floor to Microphone (m): 1.6 m



[Measured data]

Point No	Position	Sound Level dB(A)
1	Front of Machine	54.0
2	Left of Machine	58.1
3	Rear of Machine	56.7
4	Right of Machine	58.5

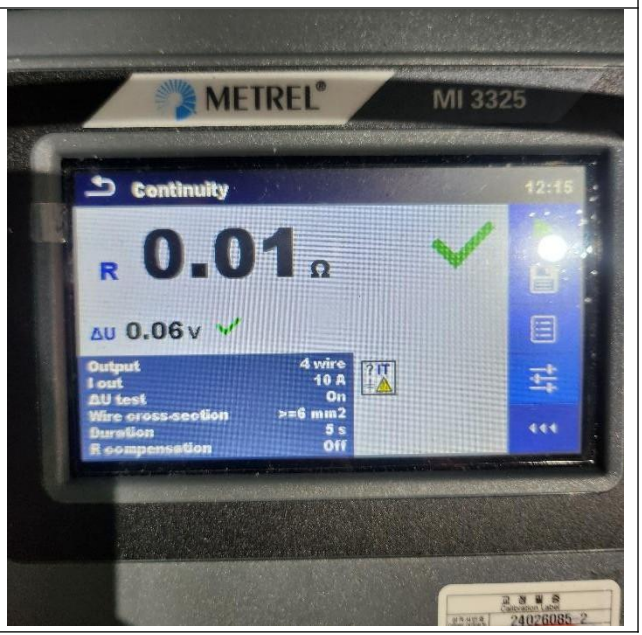
Remark : At the request of the applicant, this equipment was tested without load wiring.

Test Results: Pass

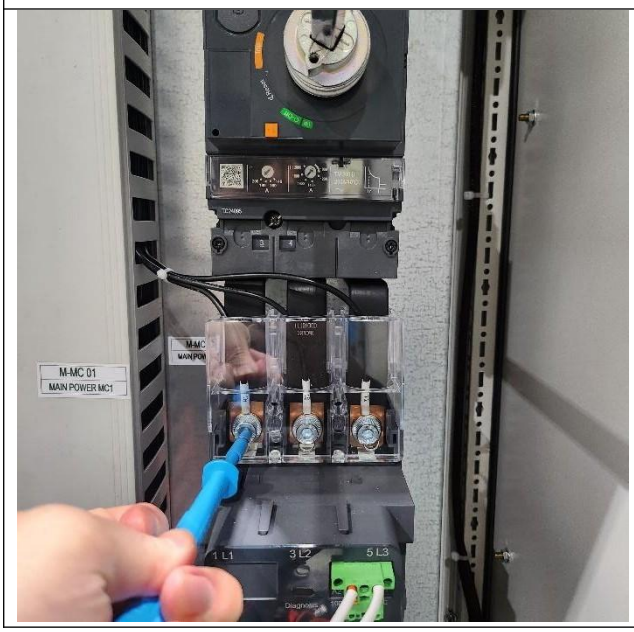
Test Equipment:	Sound Level Meter	Calibration Date:	2024.12.23
Test Engineer:	Jung-Hyuk, Choi	Test Date:	2025.01.02

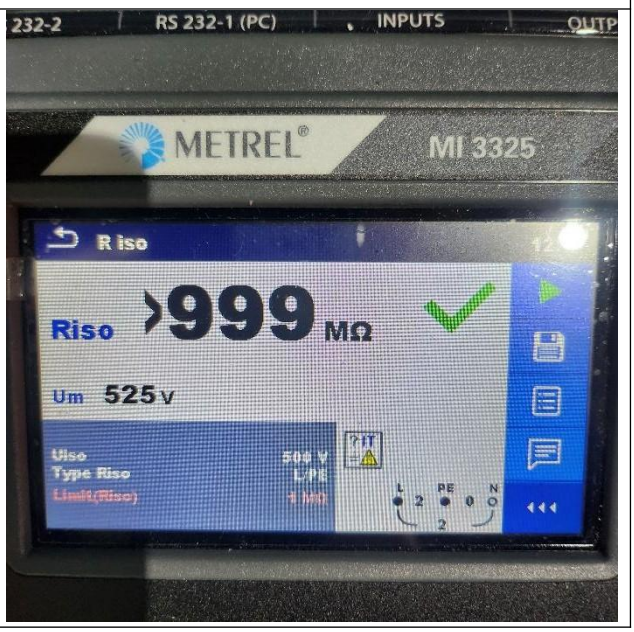
Photo for Testing

1. Verification of the continuity of the protective bonding circuit

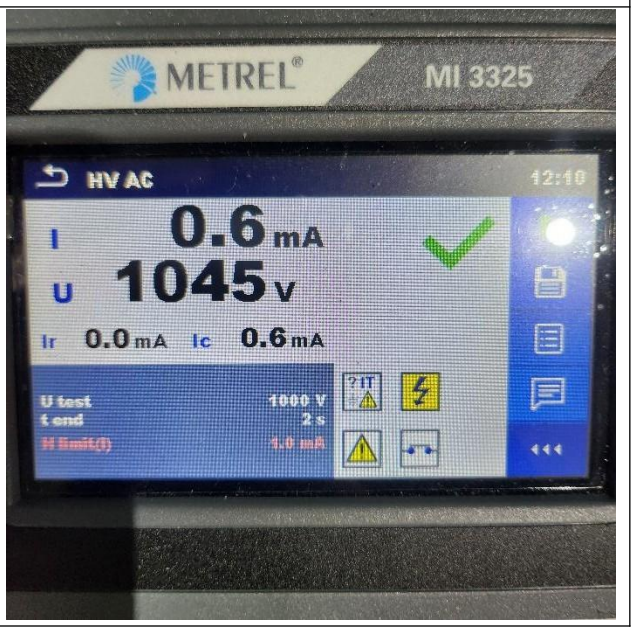


2. Insulation resistance

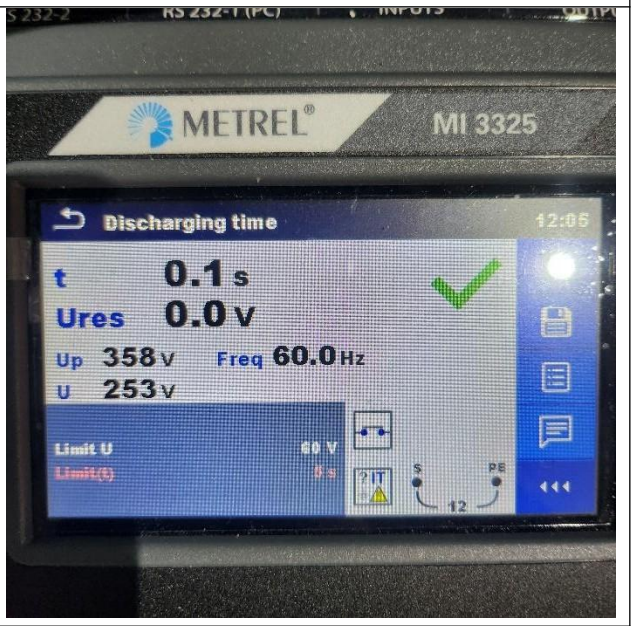




3. Dielectric strength



4. Input capacitor discharge



5. Functional Test

6. Sound Level Measurement

- End of Protocol -