



CMCL Co., Ltd.
25, Jubuk-ro 235beon-gil, Yangji-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do,
Republic of Korea
Tel: +82-31-322-2923 Fax: +82-50-8090-2923 www.cmcl.co.kr



Test Report

1. Applicant

Name : Kun Hung Electric Co., Ltd.
Address : 183, Hancheon-ro, Dongdaemun-gu, Seoul, 02534 Rep. of Korea
Date of receipt : 2024. 12. 06



2. Test sample

Product : Safety Lock Type Key Switch
Model No. : KSKG-51S-LCLR
Manufacturer /Address : Kun Hung Electric Co., Ltd. /
183, Hancheon-ro, Dongdaemun-gu, Seoul, 02534 Rep. of Korea

3. Date of test : 2024. 12. 17 ~ 2025. 01.17

4. Test standard (method) used : IEC 60068-2-6: 2008, IEC 60068-2-27: 2008
: IEC 60529:1989+A1:1999+A2: 2013
Requested test standard by applicant (Section * 5.2)

5. Test result : Refer to the test result

6. Test location : ☒ Permanent testing Lab ☐ On Site Testing
: (Address : 25, Jubuk-ro 235beon-gil, Yangji-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do, Republic of Korea)

- The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
- Please call us, if you need to verify the test report.
- * mark indicates that the test result is out of accredited scope.
- ◇ mark indicates that the test result is the result of the commissioned testing agency.

Affirmation	Tested by: Dagyeong, Hwang (signature)	Technical manager: Wonhyeon, Choi (signature)
-------------	---	--

2025. 02. 03

CMCL Co., Ltd.



The above testing certificate is the accredited test result by Korea Laboratory Accreditation Scheme, which signed the ILAC-MRA.





CMCL Co., Ltd.
 25, Jubuk-ro 235beon-gil, Yangji-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do,
 Republic of Korea
 Tel: +82-31-322-2923 Fax: +82-50-8090-2923 www.cmcl.co.kr



Table of contents

1. Test report history	3
2. Test sample	3
3. Test Location	3
4. Peripheral equipment	3
5. Test method and result	4
5.1. Degrees of protection provided by enclosures (IP Code)	4
* 5.2. Withstanding voltage test	10
5.3. Shock	12
5.4. Vibration (sinusoidal)	18
6. Product Photo	22
6.1. Product appearance	22
6.2. Drawing	24





1. Test report history

Date	Issue history	Use of report
2025. 02. 03	Test report issued	Submit institution

This test report only can be changed and modified by CMCL Co., Ltd. and issue date shall be recorded.

2. Test sample

Item	Description
Product	Safety Lock Type Key Switch
Model No.	KSKG-51S-LCLR
Sample quantity	2 EA
Specification	Input: AC 250 V, 3 A

3. Test Location

Item	Address
<input checked="" type="checkbox"/> Permanent Testing Lab	25, Jubuk-ro 235beon-gil, Yangji-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do, Republic of Korea
<input type="checkbox"/> On Site Testing	-

4. Peripheral equipment

Test equipment	Model no.	Manufacturer	Serial no.	The due date of next calibration
Digital Counter	JDM11-6H	YHKJ	241104-01	-





5. Test method and result

5.1. Degrees of protection provided by enclosures (IP Code)

5.1.1. Test equipment

Test equipment	Model no.	Manufacturer	Serial no.	The due date of next calibration
Measuring Tape	5.5 m	KOMELON	215247	2026.02.23
Stop Watch	HS-3	CASIO	604Q26R	2026.02.28
Flow Meter	M-25	LZT	22-B0747	2025.09.19
IPX5/6/7 Waterproof Test Device	BND-IPX567AS-1200L	BONAD	BND20230803	-
IP X6 Nozzle	BND-IPX6P	BONAD	BND20220803-21	-
IP 4X, 5X, 6X Probe	BND-CF	BONAD	BND20220512-16	2025.07.10
FORCE MEASUREMENT	DS2-50N	OPTECH	304573	2025.02.23
DUST TESTING APPARATUS	JFMS-004	JFM Technology	YCA23003	-
DUST TESTING APPARATUS (Dry gas meter)	G4L	Dae seong	233422001376	2025.06.21
DUST TESTING APPARATUS (Pressure gauge)	PSCH-0.05BAIG	Sensys	X4IL18	2025.05.15

5.1.2. Testing Environment

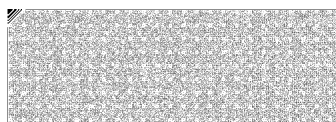
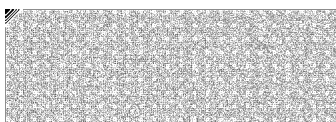
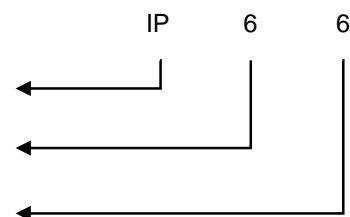
- Temperature : (22.0 ± 2.0) °C, Humidity : (31.0 ± 3.0) % R.H., Air Pressure : $(1\,006.0 \pm 5.0)$ hPa

5.1.3. Arrangement of the IP Code

Code letters (International Protection)

First characteristic numeral (numerals 0 to 6, or letter X)

Second characteristic numeral (numerals 0 to 9, or letter X)





- Degrees of protection against access to hazardous parts indicated by the first characteristic numeral

First characteristic numeral	Degree of protection	Remark
6	Protected against access to hazardous parts with a wire The access probe of 1,0 mm \varnothing shall not penetrate The test wire of 1,0 mm \varnothing shall not penetrate and adequate clearance shall be kept Test force : 1 N \pm 10 %	(Test conditions, see 5.1.6)

- Degrees of protection against solid foreign objects indicated by the first characteristic numeral

First characteristic numeral	Degree of protection	Remark
6	Dust-tight No ingress of dust The enclosure shall be deemed category 1, whether reductions in pressure below the atmospheric pressure are present or not. Product content volume : 907.5 cm ³ \rightarrow 0.91 L Target suction volume (80 times product volume) : 72.8 L Suction volume (maximum product volume 60 times / h) : 54.6 LPH \rightarrow 0.91 LPM Actual suction volume : 0.01 L Suction pressure (maximum 2 kPa) : 1.73 kPa Test time (maximum 8 h) : 8 h	(Test conditions, see 5.1.6)

- Degrees of protection against water indicated by the second characteristic numeral

Second characteristic numeral	Degree of protection	Remark
6	Protected against powerful water jets Water projected in powerful jets against the enclosure from any direction shall have no harmful effects Water flow rate: 100 L/min \pm 5 % distance 2.5 m to 3 m: 3 m Duration of test: 1 min/m ² at least 3 min: 3 min	(Test conditions, see 5.1.6)



5.1.4. Test photo

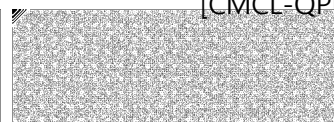
[The First characteristic numeral]



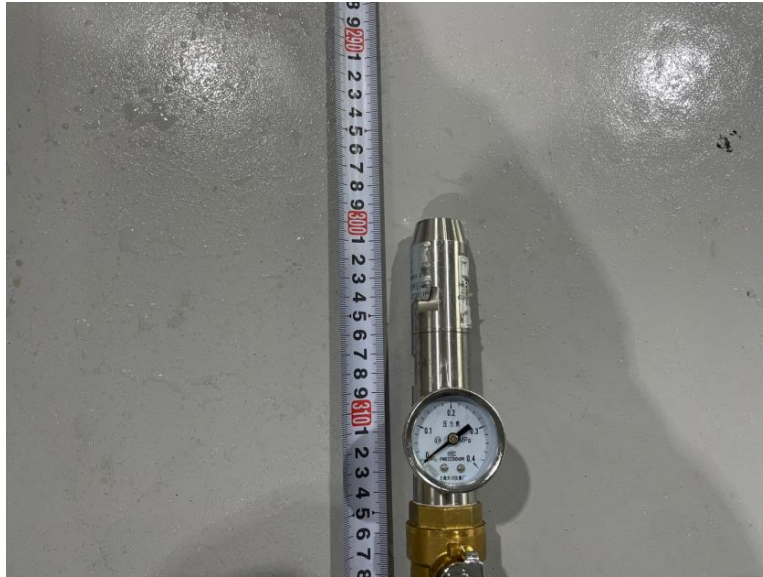
[Degrees of protection against access to hazardous parts indicated by the first characteristic numeral]



[Degrees of protection against solid foreign objects indicated by the first characteristic numeral]

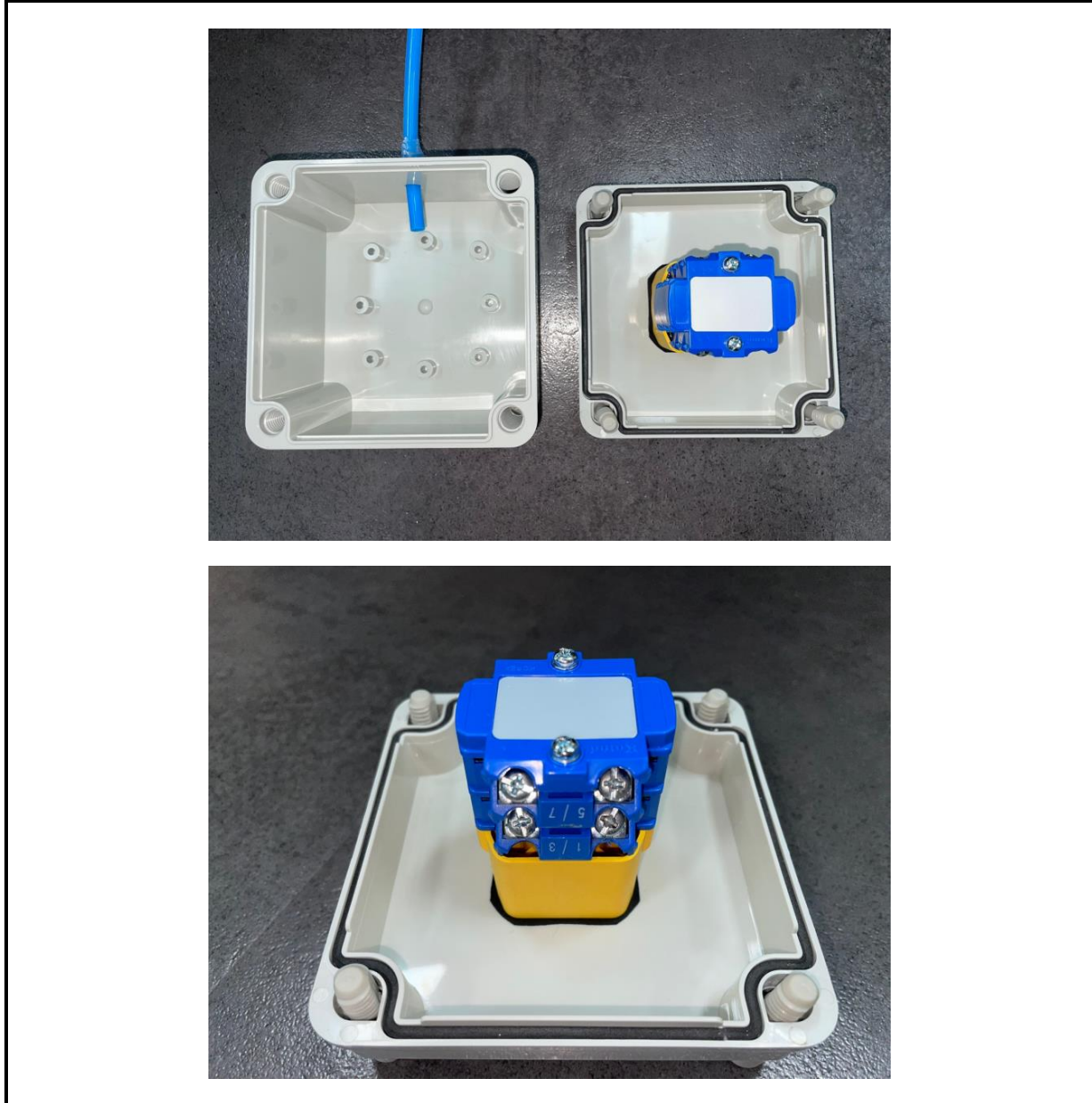


[The Second characteristic numeral]



5.1.5. Internal photo after the test

[The First characteristic numeral]



[The Second characteristic numeral]

**5.1.6. Test result**

IP code	Part	Result
IP 6X	Access	There is no intrusion of the probe.
	Dust	No ingress of dust.
IP X6	Water	There is no water intrusion.



* 5.2. Withstanding voltage test

5.2.1. Test equipment

Test equipment	Model no.	Manufacturer	Serial no.	The due date of next calibration
AC/DC Withstanding Voltage/Insulation Resistance Tester	TOS9201	KIKUSUI	JL002954	2025.08.19

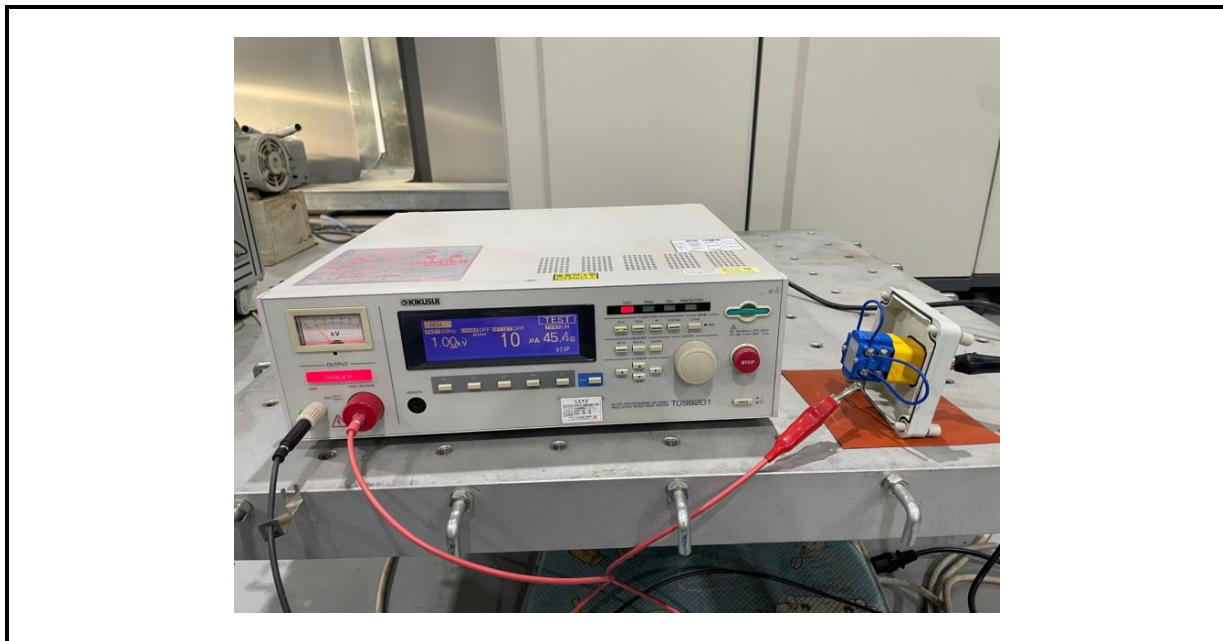
5.2.2. Testing Environment

- Temperature : $(23.8 \pm 2.0) ^\circ\text{C}$, Humidity : $(29.6 \pm 2.0) \% \text{ R.H.}$, Air Pressure : $(1\,008.7 \pm 3.0) \text{ hPa}$

5.2.3. Test condition and Test standard(method)

Authorized location	applied voltage [V a.c]	Authorization time [s]	Test standards
Conductive part and frame	1 000	60	If applied at 1 000 V, 60 Hz for 60 s, there shall be no defects in insulation breakdown or use. (Cut off Current : 100 mA)

5.2.4. Test photo

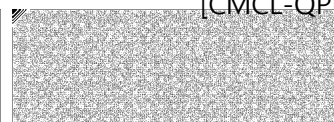


5.2.5. Test data



5.2.6. Test result

Test voltage [V a.c]	Test time [s]	Test result
1 000	60	No abnormality was found





CMCL Co., Ltd.
25, Jubuk-ro 235beon-gil, Yangji-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do,
Republic of Korea
Tel: +82-31-322-2923 Fax: +82-50-8090-2923 www.cmcl.co.kr



5.3. Shock

5.3.1. Test equipment

Test equipment	Model no.	Manufacturer	Serial no.	The due date of next calibration
Vibration Tester	VE-3000	IMV	450297	-
Vibration Transducer	VP-32	IMV	8780U	2025.09.20

5.3.2. Testing Environment

- Temperature : $(21.9 \pm 3.0) ^\circ\text{C}$, Humidity : $(55.6 \pm 7.0) \% \text{ R.H.}$, Air Pressure : $(987.9 \pm 4.0) \text{ hPa}$

5.3.3. Test condition and Test standard(method)

- Test standard: IEC 60068-2-27: 2008
- No count during the test.

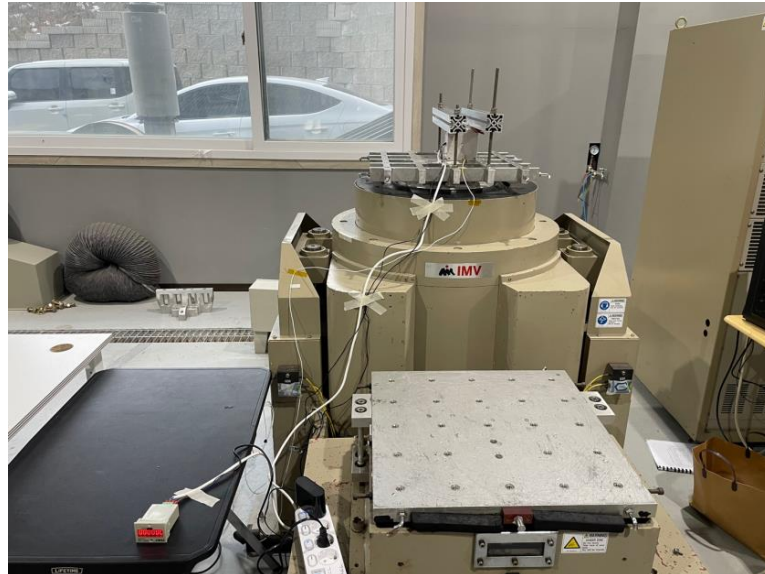
Item	Test Condition
Acceleration (m/s^2 , g)	15 g
Duration (ms)	11 ms
Number of shocks	6 shocks applied in each direction along three mutually perpendicular axes (a total of 36 shocks)
Test type	$\pm X$, $\pm Y$, $\pm Z$ axis
Number of samples	1 EA

5.3.4. Check item

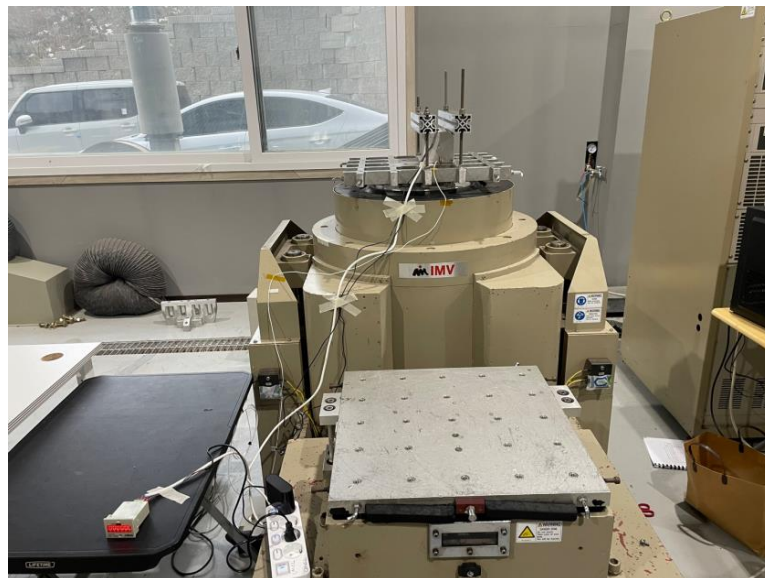
- After the test, appearance and breakdown of parts checked.
- After the test, check performance.
- During the test, check the counter operated.



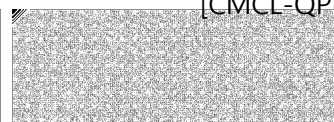
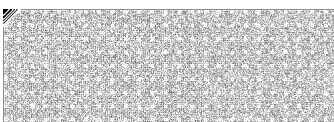
5.3.5. Test photo

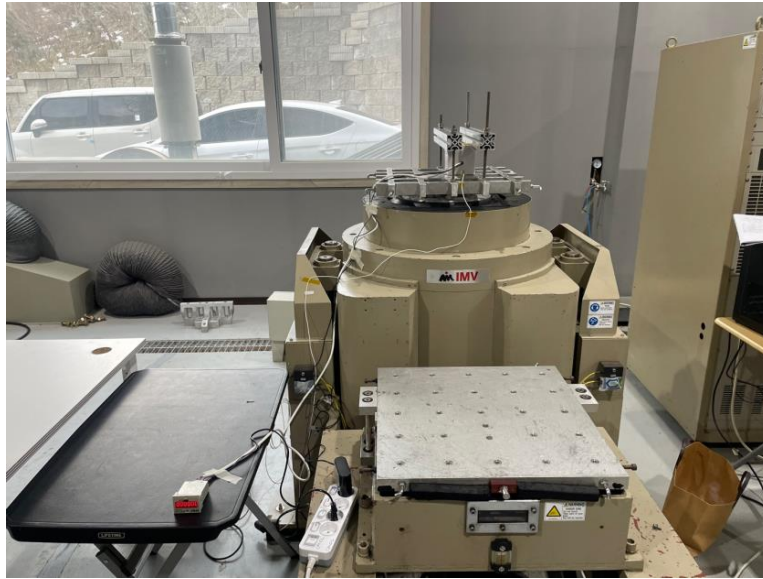


[X axis]



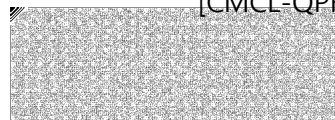
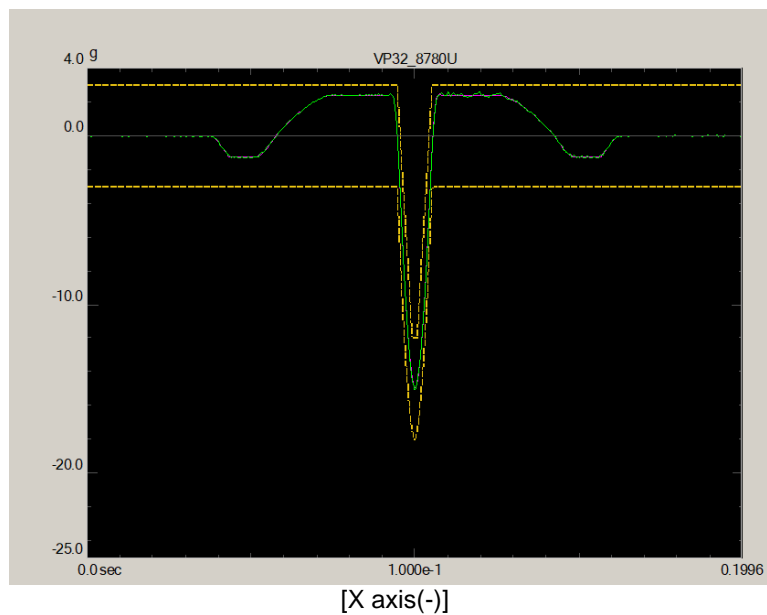
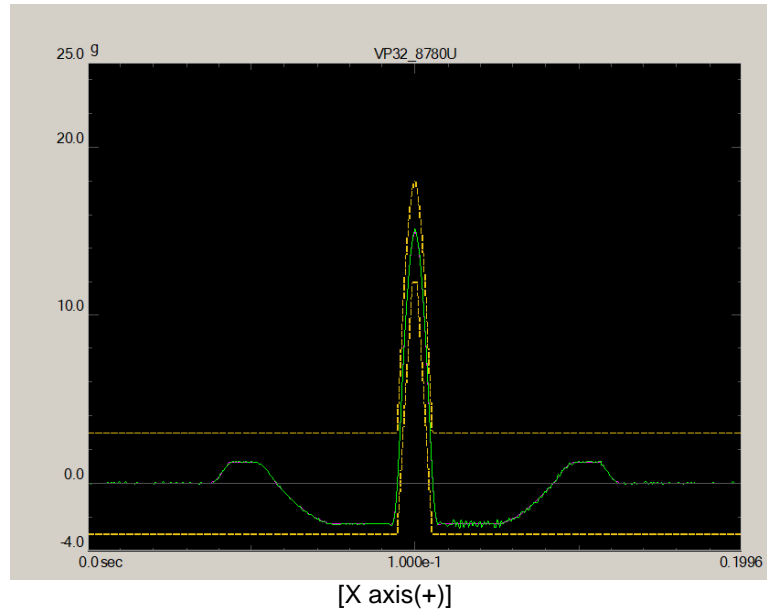
[Y axis]





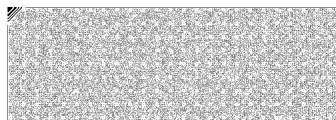
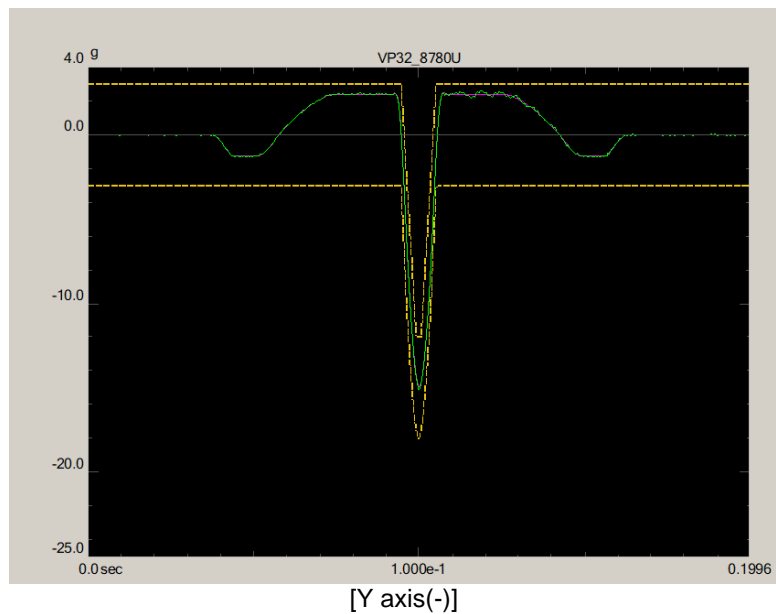
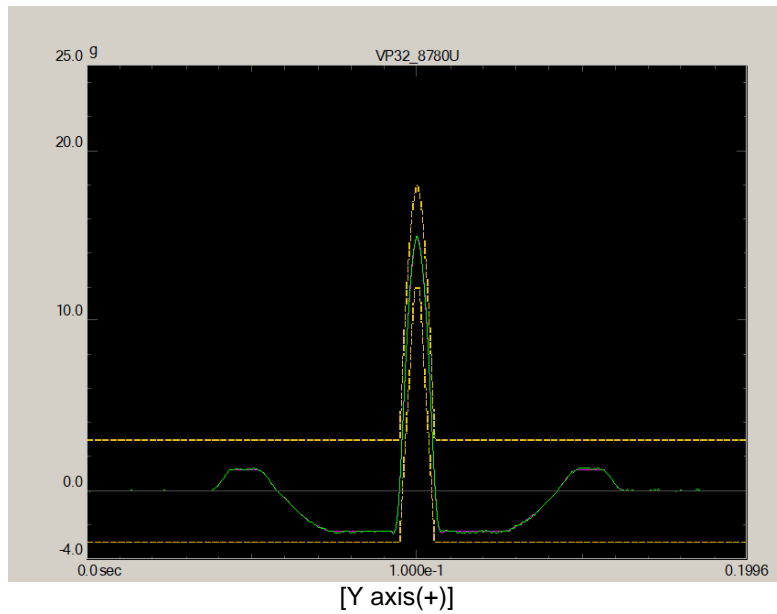
[Z axis]



5.3.6. Test data

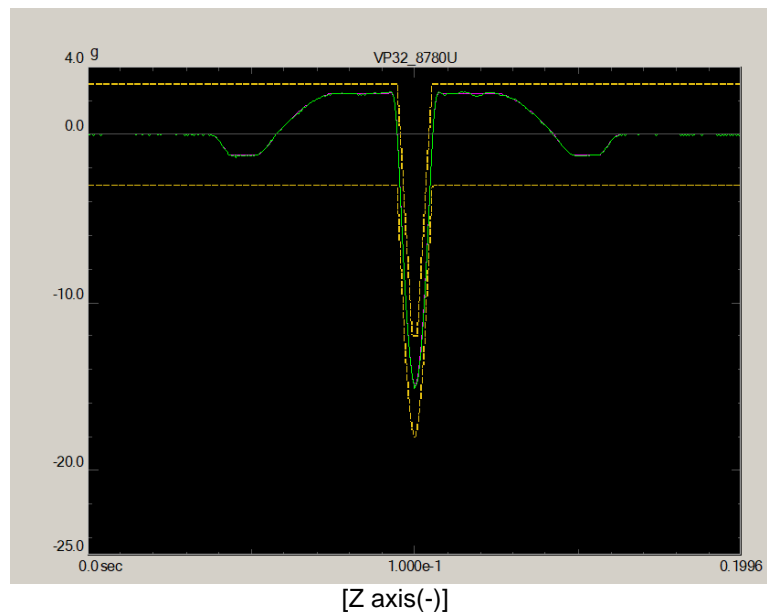
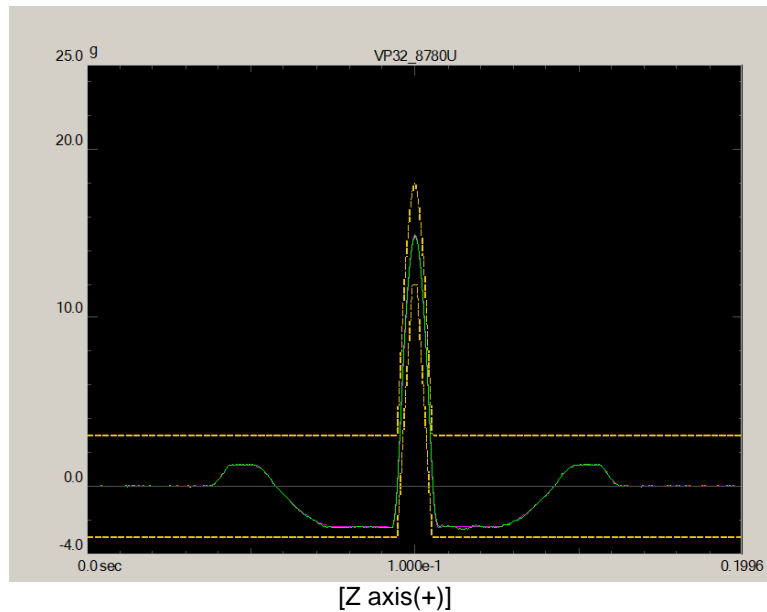


CMCL Co., Ltd.
 25, Jubuk-ro 235beon-gil, Yangji-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do,
 Republic of Korea
 Tel: +82-31-322-2923 Fax: +82-50-8090-2923 www.cmcl.co.kr





CMCL Co., Ltd.
 25, Jubuk-ro 235beon-gil, Yangji-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do,
 Republic of Korea
 Tel: +82-31-322-2923 Fax: +82-50-8090-2923 www.cmcl.co.kr



5.3.7. Test results

Test Item	Test result
1. Visual inspection / Visual examination – Check damage, breakdown.	No abnormality was found
2. Performance check	No abnormality was found





5.4. Vibration (sinusoidal)

5.4.1. Test equipment

Test equipment	Model no.	Manufacturer	Serial no.	The due date of next calibration
Vibration Tester	VE-3000	IMV	450297	-
Vibration Transducer	VP-32	IMV	8780U	2025.09.20

5.4.2. Testing Environment

- Temperature : $(25.9 \pm 1.0) ^\circ\text{C}$, Humidity : $(28.8 \pm 3.0) \% \text{ R.H.}$, Air Pressure : $(1\,006.9 \pm 4.0) \text{ hPa}$

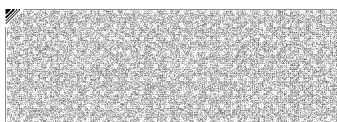
5.4.3. Test condition and Test standard(method)

- Test standard: IEC 60068-2-27
- No count during the test

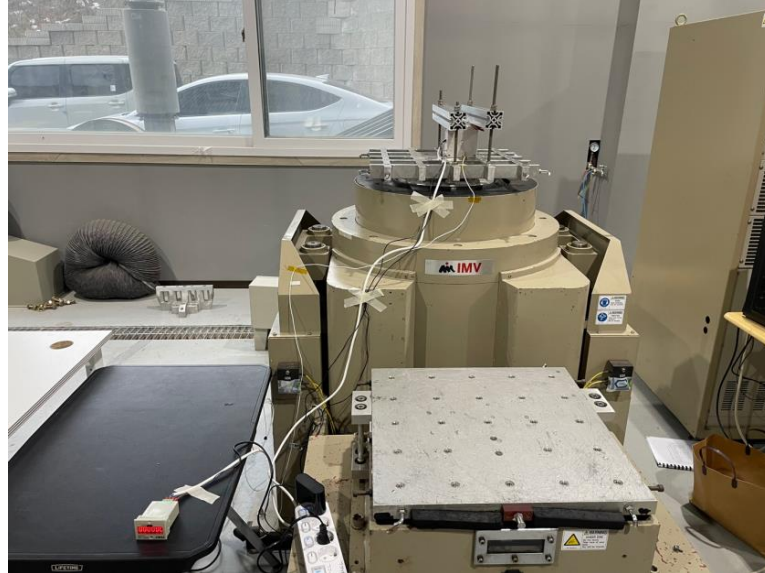
Item	Test Condition
Frequency	(10 ~ 55) Hz
Displacement(p-p)	0.5 mm
Sweep rate	5 min per single-sweep
Test time	30 min per axis
Test type	X, Y, Z axis
Number of samples	1 EA

5.4.4. Check item

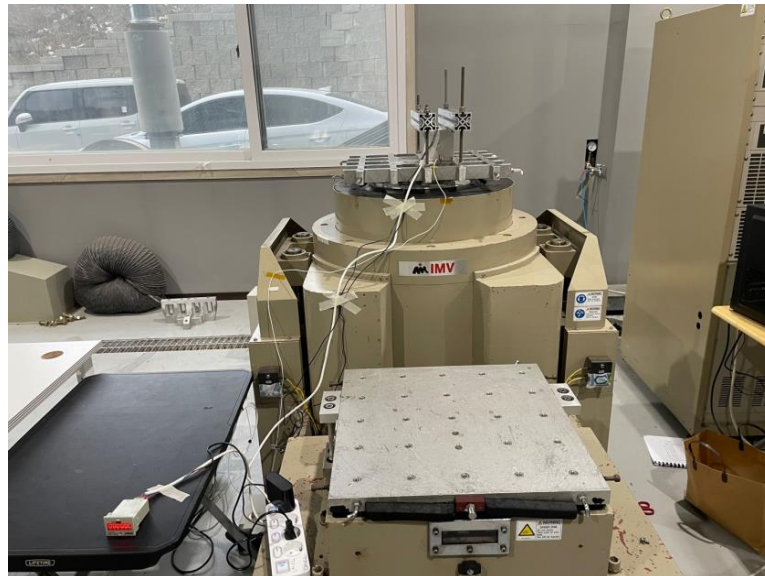
- After the test, appearance and breakdown of parts checked.
- After the test, check performance.
- During the test, check the counter operated.



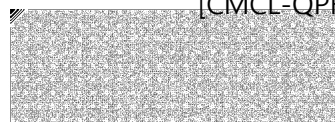
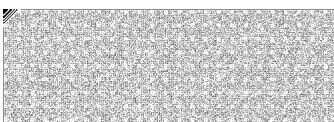
5.4.5. Test photo

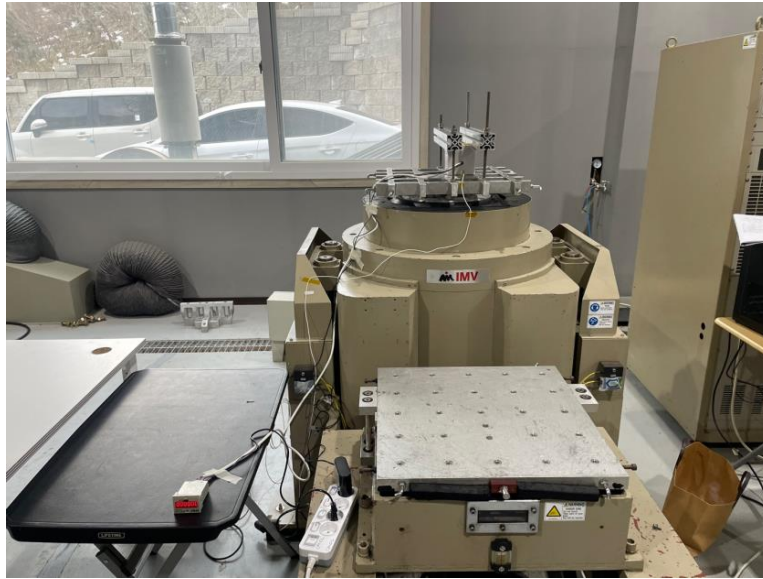


[X axis]

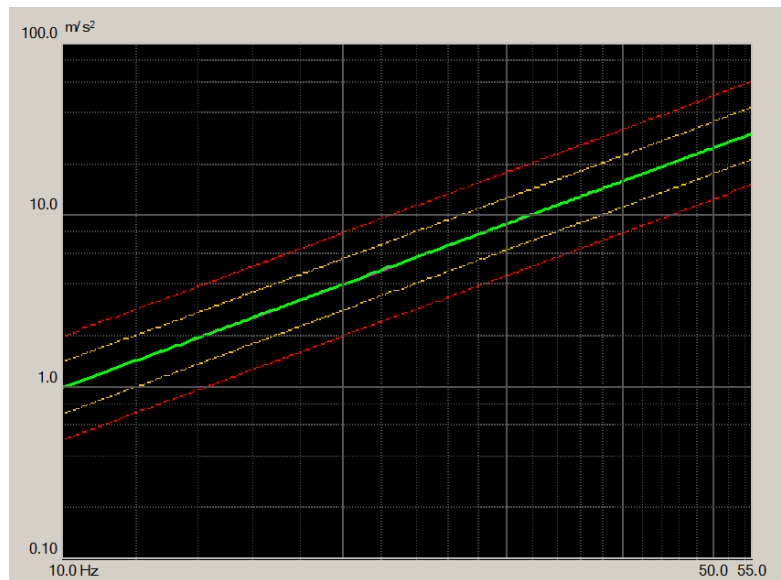


[Y axis]

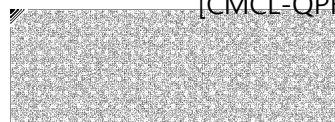


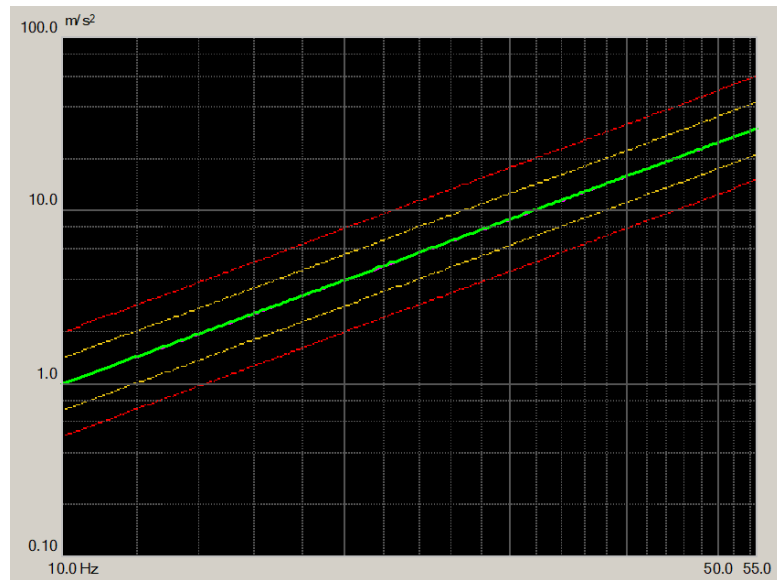


[Z axis]

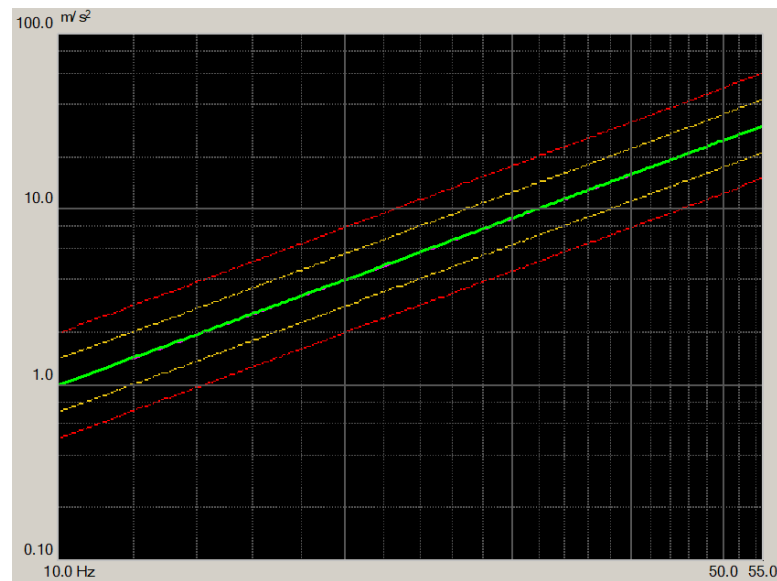
5.4.6. Test data

[X axis]





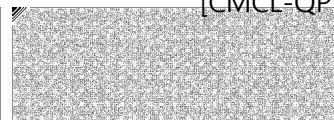
[Y axis]



[Z axis]

5.4.7. Test results

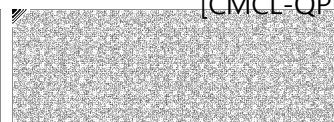
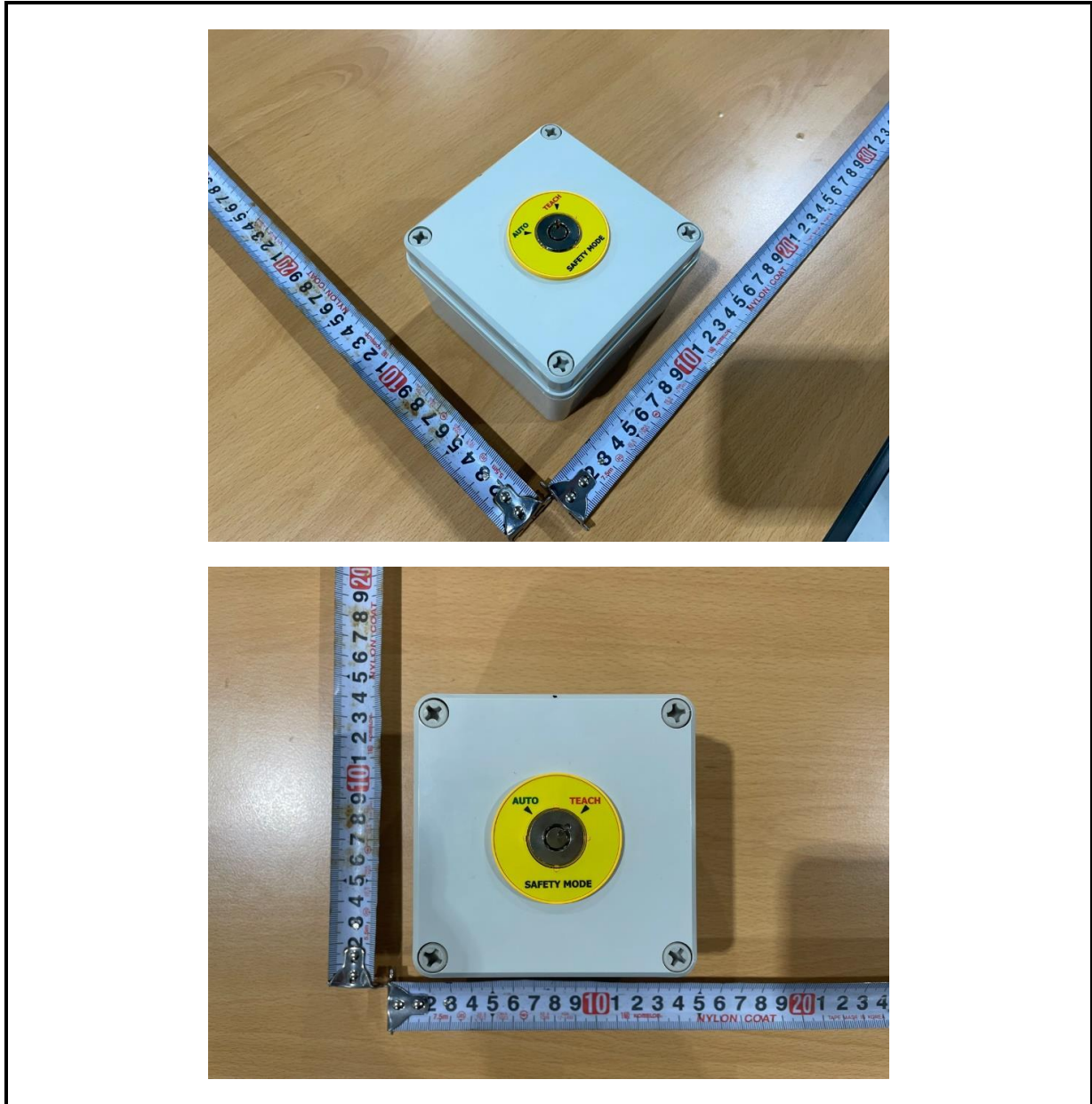
Test Item	Test result
1. Visual inspection / Visual examination – Check damage, breakdown.	No abnormality was found
2. Performance check	No abnormality was found



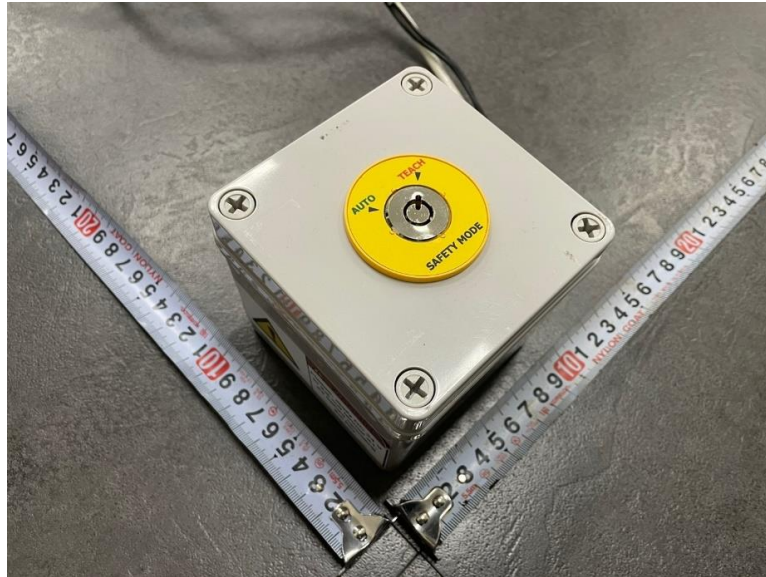
6. Product Photo

6.1. Product appearance

[IP, Withstanding voltage test]



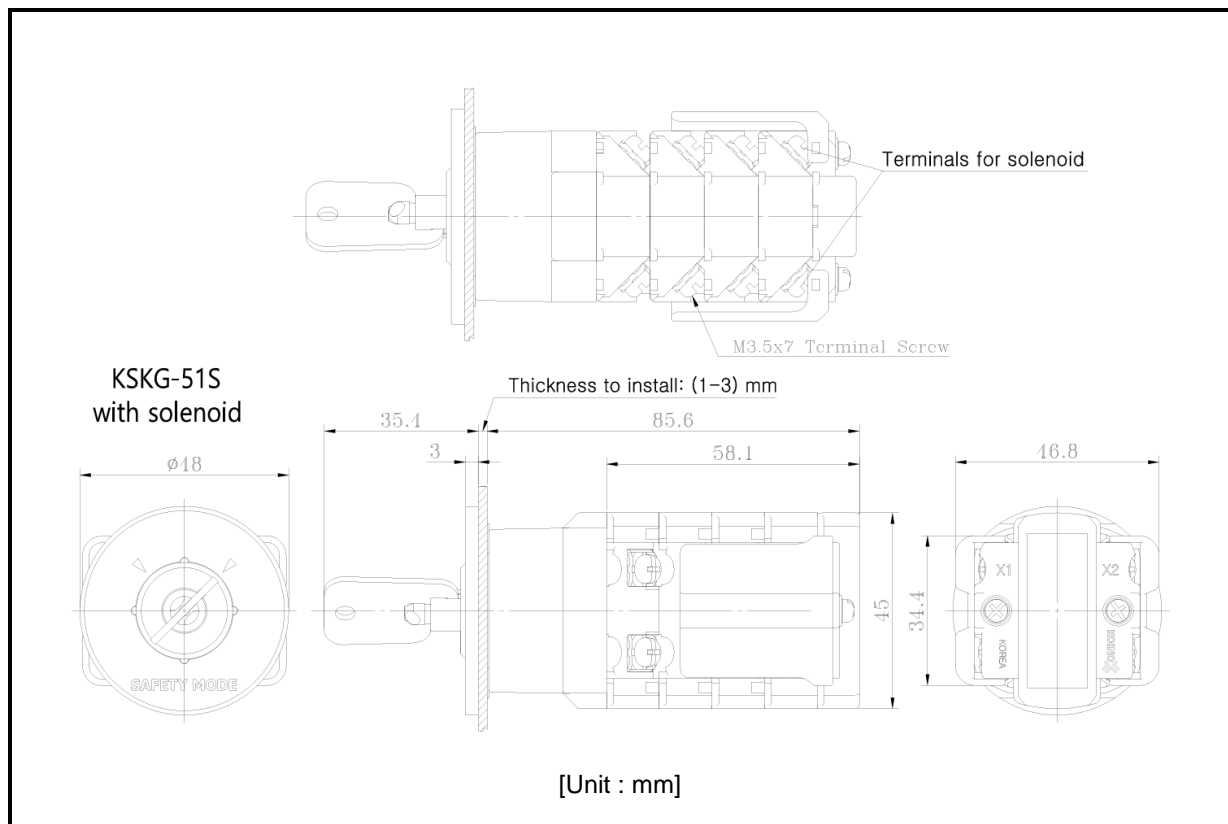
[Shock, Vibration]



[Operating Photo]



6.2. Drawing



- END -

