



財團法人全國認證基金會
Taiwan Accreditation Foundation

認證證書

(證書編號：L2402-260811)

茲證明

中興電工機械股份有限公司

中興電工機械股份有限公司重電事業處供電產
品測試實驗室

桃園市龜山區文德路 25 號

為本會認證之實驗室

認證依據：ISO/IEC 17025：2017；CNS 17025：2018

認證編號：2402

初次認證日期：一百年八月十五日

認證有效期間：一百一十五年八月十五日至一百一十八年八月十四
日止

認證範圍：測試領域，如續頁

董事長

陳怡鈴



掃描確認真偽

中華民國一一五年八月十一日

認證編號：2402

實驗室主管：戴元中

■ 31.01 電力設備

避雷器 (LA)

E006

1.商頻洩漏電流試驗

2.部分放電試驗

3.無線電波干擾試驗

1.IEC 60099-4 (2014)

2.IEEE Std C62.11 (2012)

144 kV Max., 10 kA Max.

報告簽署人: 江佳竑; 陳宗耀; 黃榕琿; 戴元中

■ 31.03 電力設備

比壓器 (PT)

E006

1.構造檢查

2.感應過電壓試驗 (匝間過電壓試驗)

3.商頻耐電壓試驗 (試驗電壓 10 kV Max.)

4.極性試驗

5.誤差試驗

6.部分放電試驗

7.無線電波干擾試驗

1.CNS 11437 (90 年版)

2.IEEE Std C57.13 (2016)

3.IEC 61869-1 (2007)

4.IEC 61869-3 (2011)

5.勞動部壓力容器安全檢查構造標準

6.ASME BPVC VIII division1 UG-99 (2015)

1 Ø

一次標稱電壓 161/ $\sqrt{3}$ kV Max.

二次標稱電壓 115 V Max.

準確度等級 $\geq 0.2\%$

頻率 60 Hz

負擔 400 VA Max.

報告簽署人: 江佳竑; 陳宗耀; 黃榕琿; 戴元中

E006 外殼抗壓力試驗 (第二種壓力容器水壓檢查)

1.勞動部壓力容器安全檢查構造標準

2.ASME BPVC VIII division1 UG-99 (2015)

3.IEC 61869-1 (2007)

1 Ø/3 Ø

一次側電壓 161 kV/ $\sqrt{3}$ Max.

二次側電壓 115 V Max.



400 VA Max.

準確等級 $\geq 0.2\%$, 60 Hz

報告簽署人: 陳宗耀; 蔡明勳; 戴元中

■ 31.04 電力設備

比流器 (CT)

E006

1. 構造檢查
 2. 感應過電壓試驗 (匝間過電壓試驗)
 3. 商頻耐電壓試驗
 4. 極性試驗
 5. 誤差試驗
 6. 部分放電試驗
 7. 激磁曲線特性試驗
 8. 溫升試驗
 9. 二次繞組開路試驗
 1. CNS 11437 (90 年版)
 2. IEEE Std C57.13 (2016)
 3. IEC 61869-1 (2007)
 4. IEC 61869-2 (2012)
- 適用電壓等級 345 kV Max.
一次額定電流 6000 A Max.
二次額定電流 1 A, 5 A
準確度等級 $\geq 0.2\%$
頻率 60 Hz
負擔 200 VA Max. (5 A)
負擔 50 VA Max. (1 A)

報告簽署人: 江佳竑; 陳宗耀; 黃榕堃; 戴元中

E006 短時間電流試驗

1. IEEE Std C57.13 (2016)
 2. IEC 61869-1 (2007)
 3. IEC 61869-2 (2012)
 4. CNS 11437 (90 年版)
- 對稱電流: 12000 A rms/3 s Max., 60 Hz

報告簽署人: 江佳竑; 黃榕堃; 戴元中

■ 31.06 電力設備

氣體絕緣開關設備 (GIS)

E006 保護等級驗證

1. IEC 60529 (2013)
 2. IEEE Std C37.100.1 (2007)
 3. IEC 62271-1 (2007, ed1.0)
 4. IEC 62271-200 (2003, ed1.0)
 5. IEC 62271-1 (2017)
 6. IEC 62271-200 (2011, ed2.0)
- IP4X/IP3X

報告簽署人: 陳柏榕; 蔡明勳; 戴元中



E006 外殼抗壓力試驗 (第二種壓力容器水壓檢查)

- 1.IEEE Std C37.09 (2018)
 - 2.IEEE Std C37.122 (2010)
 - 3.IEC 62271-201 (2014)
 - 4.IEC 62271-203 (2003, ed1.0)
 - 5.勞動部壓力容器安全檢查構造標準
 - 6.ASME BPVC VIII division1 UG-99 (2015)
 - 7.IEC 62271-1 (2007, ed1.0)
 - 8.IEC 62271-200 (2003, ed1.0)
 - 9.IEC 62271-203 (2011, ed2.0)
 - 10.IEC 62271-1 (2017)
 - 11.IEC 62271-200 (2011, ed2.0)
- 345 kV Max.
63 kA Max.
8000 A Max.

報告簽署人: 康聖龍; 陳宗耀; 蔡明勳; 戴元中

E006 桃園廠測試項目:

- 1.高電壓檢測器試驗
- 2.電壓檢測器試驗
- 3.介質電力因數試驗
- 4.衝擊電壓試驗
- 5.溫升試驗 (6000 A Max.)
- 6.壓力開關動作試驗
- 7.SF₆含水量試驗
- 8.SF₆純度試驗
- 9.無線電波干擾試驗

桃園廠測試方法:

- 1.345 kV 氣體絕緣開關設備技術規範 GIS-1
- 2.161 kV 氣體絕緣開關設備技術規範 GIS-2
- 3.69 kV 氣體絕緣開關設備技術規範 GIS-3
- 4.23 kV 氣體絕緣開關設備技術規範 GIS-4
- 5.IEC 62271-201 (2014)
- 6.IEC 62271-203 (2011)
- 7.IEC 62271-1 (2017)
- 8.IEC 60060-1 (2010)
- 9.IEEE Std C37.122 (2010)
- 10.IEC 60480 (2019)
- 11.IEC 60376 (2018)
- 12.IEC 62271-206 (2011)
- 13.IEEE Std 4 (2013)
- 14.IEC 62271-200 (2003, ed1.0)
- 15.IEC 62271-203 (2011, ed2.0)
- 16.IEC 62271-200 (2011, ed2.0)
- 17.IEC 62271-1 (2007)

桃園廠電壓等級:

- 1 Ø/3 Ø
345 kV Max.
8000 A Max.
63 kA Max.
60 Hz



嘉義廠電壓等級：

3 Ø

161 kV Max.

4000 A Max.

50 kA Max.

60 Hz

嘉義廠測試項目：

1.高電壓檢測器試驗

2.介質電力因數試驗

3.壓力開關動作試驗

4.SF₆含水量試驗

5.SF₆純度試驗

6.無線電波干擾試驗

嘉義廠測試方法：

1.161 kV 氣體絕緣開關設備技術規範 GIS-2

2.69 kV 氣體絕緣開關設備技術規範 GIS-3

3.23 kV 氣體絕緣開關設備技術規範 GIS-4

4.IEC 62271-201 (2014)

5.IEC 62271-203 (2011)

6.IEC 62271-1 (2017)

7.IEC 60060-1 (2010)

8.IEEE Std C37.122 (2010)

9.IEC 60480 (2019)

10.IEC 60376 (2018)

11.IEC 62271-206 (2011)

12.IEEE Std 4 (2013)

13.IEC 62271-200 (2003, ed1.0)

14.IEC 62271-203 (2011, ed2.0)

15.IEC 62271-200 (2011, ed2.0)

16.IEC 62271-1 (2007)

報告簽署人：江佳竝；林瑞賢；康聖龍；陳宗耀；黃榕岑；戴元中

測試場地：1.桃園市龜山區文德路 25 號；2.嘉義縣鹿草鄉馬稠後產業園區一路 22 號

E006 桃園廠/嘉義廠測試項目：

1.構造檢查

2.主回路商頻耐電壓試驗

3.輔助和控制回路的絕緣試驗

4.部分放電測量

5.機械操作試驗

(斷路器、隔離開關、接地開關)

6.動作特性試驗

7.主回路電阻測量(量測)

8.接線正確性的驗證

9.絕緣電阻試驗

10.氣體密封性試驗

桃園廠測試方法：

1.勞動部壓力容器安全檢查構造標準

2.ASME BPVC VIII division1 UG-99 (2015)

3.345 kV 氣體絕緣開關設備技術規範 GIS-1

4.161 kV 氣體絕緣開關設備技術規範 GIS-2

5.69 kV 氣體絕緣開關設備技術規範 GIS-3



6.23 kV 氣體絕緣開關設備技術規範 GIS-4

- 7.IEEE Std C37.09 (2018)
- 8.IEEE Std C37.122 (2010)
- 9.IEC 62271-201 (2014)
- 10.IEC 62271-203 (2003, ed1.0)
- 11.IEC 60060-1 (2010)
- 12.IEC 62271-1 (2017)
- 13.IEC 62271-200 (2003, ed1.0)
- 14.IEC 62271-200 (2011, ed2.0)
- 15.IEC 62271-203 (2011, ed2.0)

桃園廠電壓等級:

- 1 Ø/3 Ø
- 345 kV Max.
- 8000 A Max.
- 63 kA Max.

60 Hz

嘉義廠電壓等級:

- 3 Ø
- 161 kV Max.
- 4000 A Max.
- 50 kA Max.

60 Hz

嘉義廠測試方法:

- 1.161 kV 氣體絕緣開關設備技術規範 GIS-2
- 2.69 kV 氣體絕緣開關設備技術規範 GIS-3
- 3.23 kV 氣體絕緣開關設備技術規範 GIS-4
- 4.IEEE Std C37.09 (2018)
- 5.IEEE Std C37.122 (2010)
- 6.IEC 62271-201 (2014)
- 7.IEC 62271-203 (2003, ed1.0)
- 8.IEC 60060-1 (2010)
- 9.IEC 62271-1 (2017)
- 10.IEC 62271-200 (2003, ed1.0)
- 11.IEC 62271-200 (2011, ed2.0)
- 12.IEC 62271-203 (2011, ed2.0)

報告簽署人: 江佳竝; 林瑞賢; 康聖龍; 陳宗耀; 黃榕岑; 戴元中

測試場地: 1.桃園市龜山區文德路 25 號; 2.嘉義縣鹿草鄉馬稠後產業園區一路 22 號

▼ 31.06 電力設備

氣體絕緣複合式開關設備 (GCS)

E006

- 1.介質電力因數試驗
- 2.衝擊電壓試驗
- 3.溫升試驗 (6000A Max.)
- 4.壓力開關動作試驗
- 5.SF₆ 含水量試驗
- 6.SF₆ 純度試驗
- 7.無線電波干擾試驗
- 1.台電技術規範 GIS-2
- 2.台電技術規範 GCS-1
- 3.IEC 62271-203 (2003, ed1.0)



- 4.IEC 62271-1 (2007, ed1.0)
- 5.IEC 60060-1 (2010)
- 6.IEEE Std C37.122 (2010)
- 7.IEC 60480 (2019)
- 8.IEC 60376 (2018)
- 9.IEEE Std 4 (2013)
- 10.IEC 62271-203 (2011, ed2.0)
- 11.IEC 62271-1 (2017)
- 1 Ø/3 Ø
- 345 kV Max.
- 63 kA Max.
- 6000 A Max.
- 60 Hz

報告簽署人: 江佳竑; 康聖龍; 陳宗耀; 黃榕岑; 戴元中

E006

- 1.構造檢查
- 2.主回路商頻耐電壓試驗
- 3.輔助和控制回路的絕緣試驗
- 4.部分放電測量
- 5.機械操作試驗
(斷路器、隔離開關、接地開關)
- 6.動作特性試驗
- 7.主回路電阻測量 (量測)
- 8.接線正確性的驗證
- 9.絕緣電阻試驗
- 10.氣體密封性試驗
- 1.勞動部壓力容器安全檢查構造標準
- 2.ASME BPVC VIII division1 UG-99 (2015)
- 3.345 kV 氣體絕緣複合式開關設備技術規範 GCS-1
- 4.161 kV 氣體絕緣開關設備技術規範 GIS-2
- 5.IEEE Std C37.09 (2018)
- 6.IEEE Std C37.122 (2010)
- 7.IEC 62271-203 (2003, ed1.0)
- 8.IEC 60060-1 (2010)
- 9.IEC 62271-1 (2007, ed1.0)
- 10.IEC 62271-203 (2011, ed2.0)
- 11.IEC 62271-1 (2017)
- 1 Ø/3 Ø
- 345 kV Max.
- 6000 A Max.
- 63 kA Max.
- 60 Hz

報告簽署人: 江佳竑; 林瑞賢; 康聖龍; 陳宗耀; 黃榕岑; 戴元中

■ 31.06 電力設備

氣體絕緣複合式開關設備 (GCS)

E006 外殼抗壓力試驗 (第二種壓力容器水壓檢查)

- 1.IEEE Std C37.09 (2018)



- 2.IEEE Std C37.122 (2010)
- 3.IEC 62271-203 (2003, ed1.0)
- 4.勞動部壓力容器安全檢查構造標準
- 5.ASME BPVC VIII division1 UG-99 (2015)
- 6.IEC 62271-1 (2007, ed1.0)
- 7.IEC 62271-203 (2011, ed2.0)
- 8.IEC 62271-1 (2017)
- 345 kV Max.
- 63 kA Max.
- 6000 A Max.

報告簽署人: 康聖龍; 陳宗耀; 蔡明勳; 戴元中

■ 31.07 電力設備

氣體斷路器 (GCB)

E006 部分放電測量

- 1.IEC 62271-100 (2003, ed1.1)
- 2.IEC 62271-1 (2007, ed1.0)
- 3.IEC 60060-1 (2010)
- 4.IEC 62271-100 (2017)
- 5.IEC 62271-1 (2017)
- 1 Ø/3 Ø
- 345 kV Max.
- 63 kA Max.
- 6000 A Max.
- 60 Hz

報告簽署人: 江佳竑; 康聖龍; 陳宗耀; 黃榕岑; 戴元中

E006

- 1.介質電力因數試驗
- 2.衝擊電壓試驗
- 3.溫升試驗 (6000 A Max.)
- 4.壓力開關動作試驗
- 5.SF₆ 含水量試驗
- 6.SF₆ 純度試驗
- 7.無線電波干擾試驗
- 1.台電 161 kV 電力斷路器技術規範 BK02
- 2.台電 69 kV 電力斷路器技術規範 BK03
- 3.台電 345 kV 氣體斷路器設備規範 EHV-GIS-1
- 4.IEC 62271-1 (2007, ed1.0)
- 5.IEC 62271-100 (2003, ed1.1)
- 6.IEC 60060-1 (2010)
- 7.IEEE Std C37.09 (2018)
- 8.IEC 60480 (2019)
- 9.IEC 60376 (2018)
- 10.IEEE Std 4 (2013)
- 11.IEC 62271-1 (2017)
- 12.IEC 62271-100 (2017)
- 1 Ø/3 Ø
- 345 kV Max. (AC)



63 kA Max.
6000 A Max.
60 Hz

報告簽署人: 江佳竑; 林瑞賢; 康聖龍; 陳宗耀; 黃榕堦; 戴元中

E006

- 1.構造檢查
- 2.主回路商頻耐電壓
- 3.輔助和控制回路的絕緣試驗
- 4.機械開閉及特性試驗
- 5.主回路電阻測量(量測)
- 6.接線正確性的驗證
- 7.絕緣電阻試驗
- 8.氣體密封性試驗
- 1.勞動部壓力容器安全檢查構造標準
- 2.ASME BPVC VIII division1 UG-99 (2015)
- 3.台電 69 kV 電力斷路器技術規範 BK03
- 4.台電 161 kV 電力斷路器技術規範 BK02
- 5.台電 345 kV 氣體斷路器設備規範 EHV-GIS-1
- 6.IEEE Std C37.09 (2018)
- 7.IEC 62271-100 (2003, ed1.1)
- 8.IEC 60060-1 (2010)
- 9.IEC 62271-1 (2007, ed1.0)
- 10.IEC 62271-1 (2017)
- 11.IEC 62271-100 (2017)
- 1 Ø/3 Ø
- 345 kV Max. (AC)
- 6000 A Max.
- 63 kA Max.
- 60 Hz

報告簽署人: 江佳竑; 康聖龍; 陳宗耀; 黃榕堦; 戴元中

■ 31.07 電力設備

氣體斷路器 (GCB)

E006 外殼抗壓力試驗 (第二種壓力容器水壓檢查)

- 1.IEEE Std C37.09 (2018)
- 2.IEC 62271-100 (2003, ed1.1)
- 3.勞動部壓力容器安全檢查構造標準
- 4.ASME BPVC VIII division1 UG-99 (2015)
- 5.IEC 62271-1 (2007, ed1.0)
- 6.IEC 62271-100 (2017)
- 7.IEC 62271-1 (2017)
- 345 kV Max.
- 63 kA Max.
- 6000 A Max.

報告簽署人: 康聖龍; 陳宗耀; 蔡明勳; 戴元中



■ 31.99 電力設備

架空線路開關

E007 短時間電流試驗

台灣電力公司材料標準 Y210

對稱電流: 12000 A rms/1 s Max.

報告簽署人: 黃榕堉; 戴元中

■ 31.99 電力設備

電力設備用容器或箱體

E007 保護等級驗證

1.IEC 60529 (2013)

2.IEEE Std C37.100.1 (2007)

IP4X/IP3X/IPX5

報告簽署人: 陳柏榕; 蔡明勳; 戴元中

E007 外殼抗壓力試驗 (第二種壓力容器水壓檢查)

1.IEEE Std C37.09 (2018)

2.IEEE Std C37.122 (2010)

3.IEC 62271-203 (2003, ed1.0)

4.IEC 62271-201 (2014)

5.IEC 61869-1 (2007)

6.勞動部壓力容器安全檢查構造標準

7.ASME BPVC VIII division1 UG-99 (2015)

8.IEC 62271-200 (2003, ed1.0)

9.IEC 62271-203 (2011, ed2.0)

10.IEC 62271-200 (2011, ed2.0)

Min.: 0.5 kgf/cm²·G (0.05 MPa)

Max.: 50 kgf/cm²·G (5.0 MPa)

報告簽署人: 康聖龍; 陳宗耀; 蔡明勳; 戴元中

(以下空白)





財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

(Certificate No : L2402-260811)

This is to certify that

Chung-Hsin Electric & Machinery Mfg. Corp.
Chung-Hsin Electric & Machinery Mfg. Corp. Power Equipment Products
Division High Voltage Circuit Breakers and Switchgear Equipment Testing
Laboratory

NO.25, Wende Rd., Guishan Dist., Taoyuan City 333, Taiwan, R.O.C

is accredited in respect of laboratory

Accreditation Criteria : ISO/IEC 17025:2017 ; CNS 17025:2018

Accreditation Number : 2402

Originally Accredited : August 15, 2011

Effective Period : August 15, 2026 to August 14, 2029

Accredited Scope : Testing Field, see described in the Appendix



Scan to verify

Yi-Ling Chen

Yi-Ling Chen
President, Taiwan Accreditation Foundation
August 11, 2026

Accreditation Number : 2402

Laboratory Head : TAI, Yuan-Chung

■ 31. 01 Electrical power equipment

Lightning arrester

E006

- 1.Reference voltage measurement
 - 2.Partial discharge measurement
 - 3.Radio interference voltage (RIV) test
 - 1.IEC 60099-4 (2014)
 - 2.IEEE Std C62.11 (2012)
- 144 kV Max., 10 kA Max.

Approval Signatory: CHIANG, Chia-Hung; CHEN, Chung-Yao; HUANG, Yong-Cen; TAI, Yuan-Chung

■ 31. 03 Electrical power equipment

Inductive voltage transformer (Potential transformer)

E006

- 1.Design and visual checks
 - 2.Induced voltage test (Inter-turn overvoltage test)
 - 3.Power-frequency withstand voltage test (test Voltage 10 kV Max.)
 - 4.Polarity test
 - 5.Accuracy test
 - 6.Partial discharge measurement
 - 7.Radio interference voltage (RIV) test
 - 1.CNS 11437 (2001)
 - 2.IEEE Std C57.13 (2016)
 - 3.IEC 61869-1 (2007)
 - 4.IEC 61869-3 (2011)
- 5.Pressure vessel safety inspection standards of construction of Ministry of Labor Affairs Executive Yuan.
- 6.ASME BPVC VIII division1 UG-99 (2015)
- 1 Ø
- Primary Voltage 161 kV/ $\sqrt{3}$ Max.
- Secondary Voltage 115 V Max.
- Accuracy Class ≥ 0.2 %
- 60 Hz
- 400 VA Max.

Approval Signatory: CHIANG, Chia-Hung; CHEN, Chung-Yao; HUANG, Yong-Cen; TAI, Yuan-Chung

■ 31. 03 Electrical power equipment

Inductive voltage transformers

(Potential transformer)

E006 Pressure tests of enclosures (The second type of pressure vessel water pressure inspection)

- 1.Pressure vessel safety inspection standards of construction of Ministry of Labor Affairs Executive Yuan
 - 2.ASME BPVC VIII division1 UG-99 (2015)
- P2, total 10 pages



3.IEC 61869-1 (2007)

1 Ø/3 Ø

Primary Voltage 161 kV/ $\sqrt{3}$ Max.

Secondary Voltage 115 V Max.

400 VA Max.

Accuracy Class $\geq 0.2\%$, 60 Hz

Approval Signatory: CHEN, Chung-Yao; TSAI, Ming-Hsun; TAI, Yuan-Chung

■ 31. 04 Electrical power equipment

Current transformers

E006

1.Design and visual checks

2.Induced voltage test (Inter-turn overvoltage test)

3.Power-frequency withstand voltage test

4.Polarity test

5.Accuracy test

6.Partial discharge measurement

7.Excitation curves test

8.Temperature-rise test

9.Operation with secondary circuit open test

1.CNS 11437 (2001)

2.IEEE Std C57.13 (2016)

3.IEC 61869-1 (2007)

4.IEC 61869-2 (2012)

Applicable voltage level: 345 kV Max.

Primary Current: 6000 A Max.

Second Current: 1 A, 5 A

Accuracy Class $\geq 0.2\%$

60 Hz

Burden: 200 VA Max. at 5 A

Burden: 50 VA Max. at 1 A

Approval Signatory: CHIANG, Chia-Hung; CHEN, Chung-Yao; HUANG, Yong-Cen; TAI, Yuan-Chung

■ 31. 04 Electrical power equipment

Current transformers

E006 Short-time current tests

1.IEEE Std C57.13 (2016)

2.IEC 61869-1 (2007)

3.IEC 61869-2 (2012)

4.CNS 11437 (2001)

Symmetric

Value 12000 A rms/3 s Max., 60 Hz

Approval Signatory: CHIANG, Chia-Hung; HUANG, Yong-Cen; TAI, Yuan-Chung

■ 31. 06 Electrical power equipment

Gas Insulated Switchgear

E006 Degrees of protection provided by enclosures

1.IEC 60529 (2013)

2.IEEE Std C37.100.1 (2007)

3.IEC 62271-1 (2007, ed1.0)

4.IEC 62271-200 (2003, ed1.0)

5.IEC 62271-1 (2017)

6.IEC 62271-200 (2011, ed2.0)

P3, total 10 pages



IP4X/IP3X

Approval Signatory: CHEN, Po-Jung; TSAI, Ming-Hsun; TAI, Yuan-Chung

■ 31. 06 Electrical power equipment

Gas Insulated Switchgear

E006 Pressure tests of enclosures (The second type of pressure vessel water pressure inspection)

1.IEEE Std C37.09 (2018)

2.IEEE Std C37.122 (2010)

3.IEC 62271-201 (2014)

4.IEC 62271-203 (2003, ed1.0)

5.Pressure vessel safety inspection standards of construction of Ministry of Labor Affairs Executive Yuan

6.ASME BPVC VIII division1 UG-99 (2015)

7.IEC 62271-1 (2007, ed1.0)

8.IEC 62271-200 (2003, ed1.0)

9.IEC 62271-203 (2011, ed2.0)

10.IEC 62271-1 (2017)

11.IEC 62271-200 (2011, ed2.0)

345 kV Max.

63 kA Max.

8000 A Max.

Approval Signatory: KANG, Sheng-Long; CHEN, Chung-Yao; TSAI, Ming-Hsun; TAI, Yuan-Chung

■ 31. 06 Electrical power equipment

Gas Insulated Switchgear (GIS)

E006 Taoyuan Factory Test items:

1.High Voltage Detector test (Threshold values for voltage presence indication)

2.Voltage Detector test (Threshold values for voltage presence indication)

3.Power factor test

4.Impulse test

5.Temperature-rise test (6000 A Max.)

6.Low- and high-pressure interlocking and monitoring device test

7.Moisture in SF₆ test8.SF₆ pure analysis test

9.Radio interference voltage (RIV) test

Taoyuan Factory Test Methods:

1.TECHNICAL SPECIFICATIONS FOR 345 kV GAS INSULATED SWITCHGEAR EQUIPMENT GIS-1

2.TECHNICAL SPECIFICATIONS FOR 161 kV GAS INSULATED SWITCHGEAR EQUIPMENT GIS-2

3.TECHNICAL SPECIFICATIONS FOR 69 kV GAS INSULATED SWITCHGEAR EQUIPMENT GIS-3

4.TECHNICAL SPECIFICATIONS FOR 23 kV GAS INSULATED SWITCHGEAR EQUIPMENT GIS-4

5.IEC 62271-201 (2014)

6.IEC 62271-203 (2011)

7.IEC 62271-1 (2017)

8.IEC 60060-1 (2010)

9.IEEE Std C37.122 (2010)

10.IEC 60480 (2019)

11.IEC 60376 (2018)

12.IEC 62271-206 (2011)

13.IEEE Std 4 (2013)

P4, total 10 pages

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- 14.IEC 62271-200 (2003, ed1.0)
- 15.IEC 62271-203 (2011, ed2.0)
- 16.IEC 62271-200 (2011, ed2.0)
- 17.IEC 62271-1 (2007)

Taoyuan Factory Voltage level:

- 1 Ø/3 Ø
- 345 kV Max.
- 8000 A Max.
- 63 kA Max.
- 60 Hz

Chiayi Factory Voltage level:

- 3 Ø
- 161 kV Max.
- 4000 A Max.
- 50 kA Max.
- 60 Hz

Chiayi Factory Test items:

- 1.High Voltage Detector test (Threshold values for voltage presence indication)
- 2.Power factor test
- 3.Low- and high-pressure interlocking and monitoring device test
- 4.Moisture in SF₆ test
- 5.SF₆ pure analysis test
- 6.Radio interference voltage (RIV) test

Chiayi Factory Test Methods:

- 1.TECHNICAL SPECIFICATIONS FOR 161 kV GAS INSULATED SWITCHGEAR EQUIPMENT GIS-2
- 2.TECHNICAL SPECIFICATIONS FOR 69 kV GAS INSULATED SWITCHGEAR EQUIPMENT GIS-3
- 3.TECHNICAL SPECIFICATIONS FOR 23 kV GAS INSULATED SWITCHGEAR EQUIPMENT GIS-4
- 4.IEC 62271-201 (2014)
- 5.IEC 62271-203 (2011)
- 6.IEC 62271-1 (2017)
- 7.IEC 60060-1 (2010)
- 8.IEEE Std C37.122 (2010)
- 9.IEC 60480 (2019)
- 10.IEC 60376 (2018)
- 11.IEC 62271-206 (2011)
- 12.IEEE Std 4 (2013)
- 13.IEC 62271-200 (2003, ed1.0)
- 14.IEC 62271-203 (2011, ed2.0)
- 15.IEC 62271-200 (2011, ed2.0)
- 16.IEC 62271-1 (2007)

Approval Signatory: CHIANG, Chia-Hung; LIN, Rui-Hsien; KANG, Sheng-Long; CHEN, Chung-Yao; HUANG, Yong-Cen; TAI, Yuan-Chung

Testing Site: 1.NO.25, Wende Rd., Guishan Dist., Taoyuan City 333, Taiwan, R.O.C; 2.No. 22, 1st Road, Machouhou Industrial Area, Lucao Township, Chiayi County 611

E006 Taoyuan/Chiayi Factory Test items:

- 1.Design and visual checks.
- 2.Power-frequency voltage tests on the main circuit
- 3.Tests on auxiliary and control circuits
- 4.Partial discharge measurement
- 5.Mechanical operation tests (Circuit breaker, disconnection switch, earthing switch)
- 6.Timing test
- 7.Measurement of resistance of the main circuit

P5, total 10 pages

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- 8.Tests on auxiliary circuits, equipment and interlocks in the control mechanism
- 9.Insulation resistance test
- 10.Gas tightness tests

Taoyuan Factory Test Methods:

- 1.Pressure vessel safety inspection standards of construction of Ministry of Labor Affairs Executive Yuan.
- 2.ASME BPVC VIII division1 UG-99 (2015)
- 3.TECHNICAL SPECIFICATIONS FOR 345 kV GAS INSULATED SWITCHGEAR EQUIPMENT GIS-1
- 4.TECHNICAL SPECIFICATIONS FOR 161 kV GAS INSULATED SWITCHGEAR EQUIPMENT GIS-2
- 5.TECHNICAL SPECIFICATIONS FOR 69 kV GAS INSULATED SWITCHGEAR EQUIPMENT GIS-3
- 6.TECHNICAL SPECIFICATIONS FOR 23 kV GAS INSULATED SWITCHGEAR EQUIPMENT GIS-4
- 7.IEEE Std C37.09 (2018)
- 8.IEEE Std C37.122 (2010)
- 9.IEC 62271-201 (2014)
- 10.IEC 62271-203 (2003, ed1.0)
- 11.IEC 60060-1 (2010)
- 12.IEC 62271-1 (2007)
- 13.IEC 62271-200 (2003, ed1.0)
- 14.IEC 62271-200 (2011, ed2.0)
- 15.IEC 62271-203 (2011, ed2.0)

Taoyuan Factory Test items:

- 1 Ø/3 Ø
- 345 kV Max.
- 8000 A Max.
- 63 kA Max.
- 60 Hz

Chiayi Factory Voltage level:

- 3 Ø
- 161 kV Max.
- 4000 A Max.
- 50 kA Max.
- 60 Hz

Chiayi Factory Test Methods:

- 1.TECHNICAL SPECIFICATIONS FOR 161 kV GAS INSULATED SWITCHGEAR EQUIPMENT GIS-2
- 2.TECHNICAL SPECIFICATIONS FOR 69 kV GAS INSULATED SWITCHGEAR EQUIPMENT GIS-3
- 3.TECHNICAL SPECIFICATIONS FOR 23 kV GAS INSULATED SWITCHGEAR EQUIPMENT GIS-4
- 4.IEEE Std C37.09 (2018)
- 5.IEEE Std C37.122 (2010)
- 6.IEC 62271-201 (2014)
- 7.IEC 62271-203 (2003, ed1.0)
- 8.IEC 60060-1 (2010)
- 9.IEC 62271-1 (2007)
- 10.IEC 62271-200 (2003, ed1.0)
- 11.IEC 62271-200 (2011, ed2.0)
- 12.IEC 62271-203 (2011, ed2.0)

Approval Signatory: CHIANG, Chia-Hung; LIN, Rui-Hsien; KANG, Sheng-Long; CHEN, Chung-Yao; HUANG, Yong-Cen; TAI, Yuan-Chung

Testing Site: 1.NO.25, Wende Rd., Guishan Dist., Taoyuan City 333, Taiwan, R.O.C; 2.No. 22, 1st Road, Machouhou Industrial Area, Lucao Township, Chiayi County 611



■ 31. 06 Electrical power equipment

Gas Insulated Combined Switchgear

E006

- 1.Power factor test
- 2.Impulse test
- 3.Temperature-rise test (6000A Max.)
- 4.Low- and high-pressure interlocking and monitoring device test
- 5.Moisture in SF₆ test
- 6.SF₆ pure analysis test
- 7.Radio interference voltage (RIV) test

1.TECHNICAL SPECIFICATIONS FOR 161kV GAS INSULATED SWITCHGEAR EQUIPMENT GIS-2

2.TECHNICAL SPECIFICATIONS FOR 345 kV GAS INSULATED COMBINED SWITCHGEAR GCS-1

3.IEC 62271-203 (2003, ed1.0)

4.IEC 62271-1 (2007, ed1.0)

5.IEC 60060-1 (2010)

6.IEEE Std C37.122 (2010)

7.IEC 60480 (2019)

8.IEC 60376 (2018)

9.IEEE Std 4 (2013)

10.IEC 62271-203 (2011, ed2.0)

11.IEC 62271-1 (2017)

1 Ø/3 Ø

345 kV Max.

63 kA Max.

6000 A Max.

60 Hz

Approval Signatory: CHIANG, Chia-Hung; KANG, Sheng-Long; CHEN, Chung-Yao; HUANG, Yong-Cen; TAI, Yuan-Chung

■ 31. 06 Electrical power equipment

Gas Insulated Combined Switchgear (GCS)

E006

- 1.Design and visual checks
 - 2.Power-frequency voltage tests on the main circuit
 - 3.Tests on auxiliary and control circuits
 - 4.Partial discharge measurement
 - 5.Mechanical operation tests (Circuit breaker, disconnection switch, earthing switch)
 - 6.Timing test
 - 7.Measurement of resistance of the main circuit
 - 8.Tests on auxiliary circuits, equipment and interlocks in the control mechanism
 - 9.Insulation resistance test
 - 10.Gas tightness tests
 - 1.Pressure vessel safety inspection standards of construction of Ministry of Labor Affairs Executive Yuan
 - 2.ASME BPVC VIII division1 UG-99 (2015)
 - 3.TECHNICAL SPECIFICATIONS FOR 345 kV GAS INSULATED COMBINED SWITCHGEAR GCS-1
 - 4.TECHNICAL SPECIFICATIONS FOR 161 kV GAS INSULATED SWITCHGEAR EQUIPMENT GIS-2
 - 5.IEEE Std C37.09 (2018)
 - 6.IEEE Std C37.122 (2010)
 - 7.IEC 62271-203 (2003, ed1.0)
 - 8.IEC 60060-1 (2010)
 - 9.IEC 62271-1 (2007, ed1.0)
- P7, total 10 pages



10.IEC 62271-203 (2011, ed2.0)
11.IEC 62271-1 (2017)
1 Ø/3 Ø
345 kV Max.
6000 A Max.
63 kA Max.
60 Hz

Approval Signatory: CHIANG, Chia-Hung; LIN, Rui-Hsien; KANG, Sheng-Long; CHEN, Chung-Yao; HUANG, Yong-Cen; TAI, Yuan-Chung

■ 31. 06 Electrical power equipment

Gas Insulated Combined Switchgear

E006 Pressure tests of enclosures (The second type of pressure vessel water pressure inspection)

1.IEEE Std C37.09 (2018)
2.IEEE Std C37.122 (2010)
3.IEC 62271-203 (2003, ed1.0)
4.Pressure vessel safety inspection standards of construction of Ministry of Labor Affairs Executive Yuan
5.ASME BPVC VIII division1 UG-99 (2015)
6.IEC 62271-1 (2007, ed1.0)
7.IEC 62271-203 (2011, ed2.0)
8.IEC 62271-1 (2017)
345 kV Max.
63 kA Max.
6000 A Max.

Approval Signatory: KANG, Sheng-Long; CHEN, Chung-Yao; TSAI, Ming-Hsun; TAI, Yuan-Chung

■ 31. 07 Electrical power equipment

Gas Circuit Breaker

E006 Partial discharge measurement

1.IEC 62271-100 (2003, ed1.1)
2.IEC 62271-1 (2007, ed1.0)
3.IEC 60060-1 (2010)
4.IEC 62271-100 (2017)
5.IEC 62271-1 (2017)
1 Ø/3 Ø
345 kV Max.
63 kA Max.
6000 A Max.
60 Hz

Approval Signatory: CHIANG, Chia-Hung; KANG, Sheng-Long; CHEN, Chung-Yao; HUANG, Yong-Cen; TAI, Yuan-Chung

E006

1.Power factor test
2.Impulse test
3.Temperature-rise test (6000 A Max.)
4.Low- and high-pressure interlocking and monitoring device test
5.Moisture in SF₆ test
6.SF₆ pure analysis test
P8, total 10 pages



7. Radio interference voltage (RIV) test

1. TECHNICAL SPECIFICATIONS FOR 161kV POWER CIRCUIT BREAKERS
NO.BK02

2. TECHNICAL SPECIFICATIONS FOR 69kV POWER CIRCUIT BREAKERS
NO.BK03

3. SPECIFICATIONS FOR 345 kV GAS CIRCUIT BREAKERS EQUIPMENTS
NO.EHV-GIS-1

4. IEC 62271-1 (2007, ed1.0)

5. IEC 62271-100 (2003, ed1.1)

6. IEC 60060-1 (2010)

7. IEEE Std C37.09 (2018)

8. IEC 60480 (2019)

9. IEC 60376 (2018)

10. IEEE Std 4 (2013)

11. IEC 62271-1 (2017)

12. IEC 62271-100 (2017)

1 Ø/3 Ø

345 kV Max. (AC)

63 kA Max.

6000 A Max.

60 Hz

Approval Signatory: CHIANG, Chia-Hung; LIN, Rui-Hsien; KANG, Sheng-Long; CHEN, Chung-Yao; HUANG, Yong-Cen; TAI, Yuan-Chung

E006

1. Design and visual checks

2. Power-frequency voltage tests on the main circuit

3. Tests on auxiliary and control circuits

4. Mechanical operation tests

5. Measurement of resistance of the main circuit

6. Tests on auxiliary circuits, equipment and interlocks in the control mechanism

7. Insulation resistance test

8. Gas tightness tests

1. Pressure vessel safety inspection standards of construction of Council of Labor Affairs Executive Yuan.

2. ASME BPVC VIII division1 UG-99 (2015)

3. TECHNICAL SPECIFICATIONS FOR 69 kV POWER CIRCUIT BREAKERS
NO.BK03

4. TECHNICAL SPECIFICATIONS FOR 161 kV POWER CIRCUIT BREAKERS
NO.BK02

5. SPECIFICATIONS FOR 345 kV GAS CIRCUIT BREAKERS EQUIPMENTS
NO.EHV-GIS-1

6. IEEE Std C37.09 (2018)

7. IEC 62271-100 (2003, ed1.1)

8. IEC 60060-1 (2010)

9. IEC 62271-1 (2007, ed1.0)

10. IEC 62271-1 (2017)

11. IEC 62271-100 (2017)

1 Ø/3 Ø

345 kV Max. (AC)

6000 A Max.

63 kA Max.

60 Hz

Approval Signatory: CHIANG, Chia-Hung; KANG, Sheng-Long; CHEN, Chung-Yao;
HUANG, Yong-Cen; TAI, Yuan-Chung

P9, total 10 pages

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E006 Pressure tests of enclosures (The second type of pressure vessel water pressure inspection)

1.IEEE Std C37.09 (2018)

2.IEC 62271-100 (2003, ed1.1)

3.Pressure vessel safety inspection standards of construction of Ministry of Labor Affairs Executive Yuan

4.ASME BPVC VIII division1 UG-99 (2015)

5.IEC 62271-1 (2007, ed1.0)

6.IEC 62271-100 (2017)

7.IEC 62271-1 (2017)

345 kV Max.

63 kA Max.

6000 A Max.

Approval Signatory: KANG, Sheng-Long; CHEN, Chung-Yao; TSAI, Ming-Hsun; TAI, Yuan-Chung

▼ 31. 99 Electrical power equipment

Load Break Switch

E007 Short-time current tests

Taiwan Power Company Material standards Y210

Symmetric Value 12000 A rms/1 s Max.

Approval Signatory: HUANG, Yong-Cen; TAI, Yuan-Chung

▼ 31. 99 Electrical power equipment

Electrical equipment with enclosures or box

E007 Degrees of protection provided by enclosures

1.IEC 60529 (2013)

2.IEEE Std C37.100.1 (2007)

IP4X/IP3X/IPX5

Approval Signatory: CHEN, Po-Jung; TSAI, Ming-Hsun; TAI, Yuan-Chung

E007 Pressure tests of enclosures (The second type of pressure vessel water pressure inspection)

1.IEEE Std C37.09 (2018)

2.IEEE Std C37.122 (2010)

3.IEC 62271-203 (2003, ed1.0)

4.IEC 62271-201 (2014)

5.IEC 61869-1 (2007)

6.Pressure vessel safety inspection standards of construction of Ministry of Labor Affairs Executive Yuan

7.ASME BPVC VIII division1 UG-99 (2015)

8.IEC 62271-200 (2003, ed1.0)

9.IEC 62271-203 (2011, ed2.0)

10.IEC 62271-200 (2011, ed2.0)

Min.: 0.5 kgf/cm²·G (0.05 MPa)

Max.: 50 kgf/cm²·G (5.0 MPa)

Approval Signatory: KANG, Sheng-Long; CHEN, Chung-Yao; TSAI, Ming-Hsun; TAI, Yuan-Chung

(Null below)

P10, total 10 pages

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