

昆旺精密工業股份有限公司

VIGORCONN PRECISION INDUSTRY CO., LTD

SPECIFICATION OF APPROVAL

PART NAME : LINEAR VIBRATION MOTOR

PART N O : L1040P03T01-35C

CUSTOMER NAME : _____

CUSTOMER PART NO : _____

ESTABLISH DATE : 2025.06.04

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修改記錄

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SPECIFICATION OF PRODUCTS

1. Operating scope / 適用範圍

This specification apply to linear vibrator model L1040P03T01-35C

本規格書適用於 L1040P03T01-35C 線性振動器。

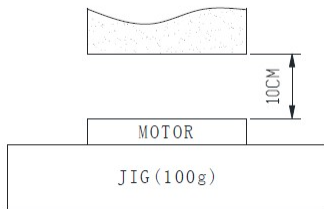
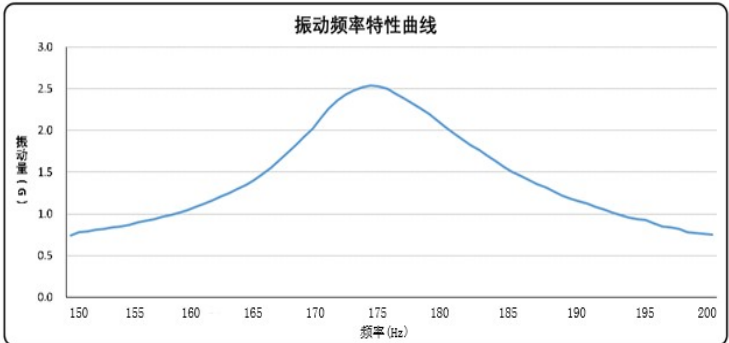
2. Environmental requirements / 環境要求

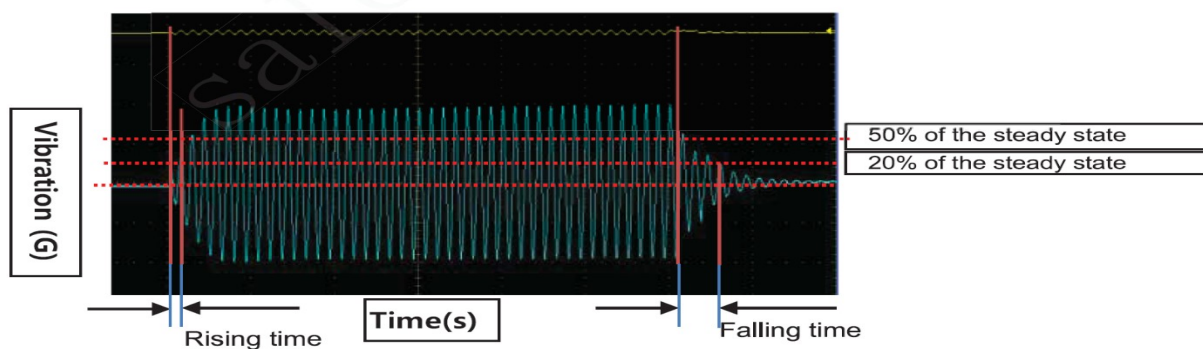
No.	Items / 項目	Conditions / 條件
2-1	測試環境 Measuring environment	溫度 Temperature : $25\pm 2^{\circ}\text{C}$ 濕度 Humidity : $65\pm 2\% \text{RH}$
2-2	使用環境 Operating Environmental	溫度 Temperature : $-10^{\circ}\text{C} \sim +60^{\circ}\text{C}$ 濕度 Humidity : $10\% \text{RH} \sim 85\% \text{RH}$ 無水氣凝結 Condensation without water vapor
2-3	儲存環境 Storage Environmental	溫度 Temperature : $-30^{\circ}\text{C} \sim +70^{\circ}\text{C}$ 濕度 Humidity : $10\% \text{RH} \sim 85\% \text{RH}$ 無水氣凝結 Condensation without water vapor

標準測試條件為：溫度 25°C ，濕度 65%。如無疑義，也可在溫度 $5-35^{\circ}\text{C}$ ，濕度 45-85%RH 條件下測試。
Standard test conditions are: temperature 25°C , humidity 65%. If there is no doubt, it can also be tested under the condition of temperature $5-35^{\circ}\text{C}$ humidity 45-85%RH.

3. Performance and Characteristics / 性能和特性

No.	Items / 項目	Specifications / 標準
3-1	外觀 Appearance	圓柱形
3-2	外形尺寸 Overall dimension	$\Phi 10 * 4.0$
3-3	額定電壓 Rated voltage	2.5 V AC Sine wave
3-4	使用電壓範圍 Operating voltage	0.1-2.8 V AC
3-5	啟動電壓 Starting voltage	1.0 V Max
3-6	輸入頻率 Input frequency	$175\pm 10\text{Hz}$
3-7	振動方向 Direction of vibration	垂直方向 Z axis

3-8	額定電流 Rated current	100mA Max
3-9	電阻 Coil resistance	13±10%Ω
3-10	振動量 Acceleration	2.5 G Min
3-11	上升時間 Rising time	50Ms Max (從 0 上升到正常振感的 50% Form 0 to 50% Normal acceleration)
3-12	下降時間 Falling time	80Ms 最大 (從正常振感 100%下降到 20% Form 100% to 20% Normal acceleration)
3-13	機械噪音 Mechanicalnoise	最大為 50dB (A) /額定電壓及負荷下測試，背景噪音不超過 30dB (A) 50dB (A) (Max) / At rated voltage and rated load back ground noise : 30dB (A) (Max) 
3-14	Frequency response characteristics 頻率特性曲線	



4. Reliability test / 可靠性試驗

No.	Items / 項目	Test condition / 測試條件
4-1	壽命試驗 Life test	試驗電壓 / Test voltage : 2.5V AC 試驗條件 / Test conditions : on 2s off 1s 試驗循環 / Test Cycle : 1,000,000 cycles
4-2	低溫存儲試驗 Low temperature storage test	溫度 / Temperature : $-40\pm 2^{\circ}\text{C}$ 時間 / Time : 96H
4-3	高溫存儲試驗 High temperature storage test	溫度 / Temperature : $80\pm 2^{\circ}\text{C}$ 時間 / Time : 96H
4-4	濕度存儲試驗 Humidity storage test	溫度 / Temperature : $65\pm 2^{\circ}\text{C}$ 濕度 / Humidity : 90-95% RH 時間 / Time : 96H
4-5	溫度衝擊試驗 Temperature shock test	測試模式 / Test mode : 高溫 85°C , 保持 1 小時, 低溫 -40°C , 保持 1 小時, 高、低溫 轉換時間不超過 5 分鐘, 此為一個週期 1 hour at 85°C , 1 hour at -40°C , as one cycle, temperature conversion time: <5min 循環次數 / Number of cycles : 15 cycles
4-6	跌落測試 Drop test	馬達放置在約 100G 的夾具中, 然後將夾具自由跌落到大理石上。 The motor is placed in a clamp of about 100g, and then the clamp falls freely onto the marble. 高度 / Height : 1.5 m 方向 / Direction : $\pm X$ 、 $\pm Y$ 、 $\pm Z$ 測試次數 / Number of the test : each 2 time

5. Standard after reliable test / 可靠性試驗判定標準

No.	Standard / 標準
5-1	加速度 / Acceleration : 不超出初始值的 $\pm 30\%$ / Initial value $\pm 30\%$ 額定電流 / Rated current : 110mA Max. 噪音 / Noise : 無雜音 No Noise.
5-2	外觀、結構無異常 There should be no abnormalities to appearance and structure
說明 / Explain : 試驗完成後，需在常溫條件中放置 2 小時後，再測試性能是否滿足要求 After the tests, it is necessary to place them at room temperature for 2 hours before testing whether the performance meets the requirements	

6. Package requirements / 包裝要求

6.1 產品採用吸塑盒方式包裝，每個吸塑盒裝 100 個馬達

The products are packed in blister boxes, and each blister box contains 100pcs motors.

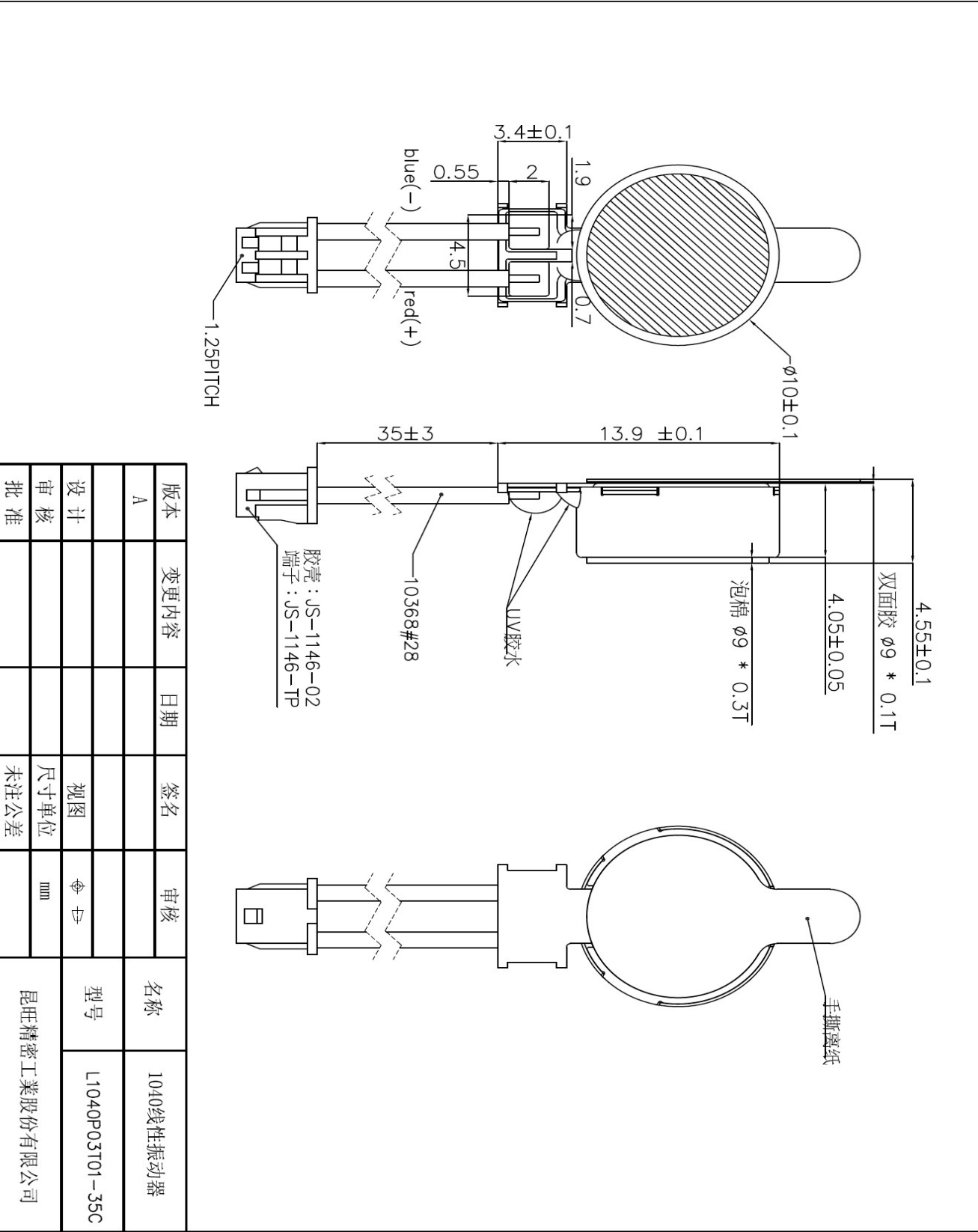
6.2 每 1000 個馬達（10 盒）為一包，用膠帶捆好，並貼上對應的標籤

Every 1000 motors (10 boxes) is a package, which is bound with adhesive tape and pasted with corresponding labels.

6.3 每 6 包產品（6K 個馬達）裝一箱，並按要求貼上對應的標籤

Pack every 6 packages of products (6k motors) into a box and affix corresponding labels as required.

7. Outline drawing / 外形圖



8. Caution for Use / 使用注意事項

8-1 嚴格按照規格書的使用條件，不當的使用電壓及電流會損害馬達性能及壽命，請注意。

Unless it is used in accordance with the specifications, the performance and life may be considerably reduced. Due attention should be paid to the voltage and current ranges for use

8-2 達應適當的操作、儲存和運轉環境中均不可存在腐蝕性氣體。例如：H₂S、SO₂、NO₂、CL₂ 等。另外存儲環境中不可有諸如矽、氰、甲醛水和苯酚等能放射出腐蝕性氣體的物質，在電機的機械構造或裝置中，如果存在腐蝕性氣體，那麼這會引起馬達不運轉。

For proper operation, storage and operating environment must not contain corrosive gases. for example H₂S. SO₂. NO₂. CL₂. etc. in addition storage environment must not have materials that emit corrosive gases especially from silicon, cyanic. Formalin and phenol group. In the mechanism or the set. Existence of corrosive gases may cause no rotation in motor.

8-3 請在 6 個月內使用，請不要在高溫、低溫、高濕環境下存儲。在使用和打開馬達外包裝時請避免水氣凝結。

Make arrangement to limit the storage period to 6 months or less. Please do not store motor in high temperature, low temperature. High humidity environment. Condensation of atmosphere must be avoided in motor usage or opening the packaging of the motor.

8-4 請不要在接近強磁場或有強磁場的儀器設備處保存或工作。

Please do not keep or work at the instruments and equipment close to or with strong magnetic field.

8-5 注意處理馬達的工作環境,避免含鐵質物體被馬達吸住,否則馬達將會產生噪音,性能會降低,從而降低產品的可靠性。

Pay attention to the working environment of the motor, avoid any iron material sucked by the motor, or the motor might cause noise and the performance will be degraded, meanwhile, the reliability might be reduced.

8-6 電機在運輸過程中應小心輕放，避免嚴重碰撞敲擊引起的電機機身和性能受損。

Please lay the motors carefully in transportation to avoid any serious damage to the motor body or its electric function because of collision.

8-7 在滿足本規範的條件下，我司可以改變零件材料、尺寸及形狀來改善品質、性能或生產效率。

Under the conditions of meeting this specification, our company can change the material、size and shape of parts to improve quality、performance or production efficiency.

8-8 如對振動器的性能和（或）壽命有任何爭議，僅基於此規格書作出判斷。

If there is any argument on vibrator performance and/or life, judgment is to be made base on this specification only.