

為安全而萊，因品質而生
Here for safety. Born for quality.

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無人搬運車 (AGV) 解決方案 AGV Solutions

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隨著「德國工業 4.0」戰略的發佈，工廠內搬運作業逐漸也邁向無人操作方式，其中無人搬運車 Auto Guided Vehicle (AGV) 將得以廣泛應用，同時其安全性也變得更加重要。

“CE” 標誌是一種安全驗證標誌，被視為製造商打開並進入歐洲市場的護照。凡是貼有“CE” 標誌的產品方可在歐盟各成員國內銷售，無須符合每個成員國的要求，因此實現了商品在歐盟成員國範圍內的自由流通。

同樣，無人搬運車 (AGV) 進入歐盟市場，必須合法地取得 CE 驗證標誌的使用資格，這也就意味著無人搬運車 (AGV) 產品必須符合相關歐盟指令的要求。

Following Germany's announcement of the Industry 4.0 strategy, in-plant handling will gradually evolve towards unmanned operation. Auto guided vehicles (AGVs) will be widely applied, and their safety will be extremely important.

The "CE" mark is a security certification label regarded as a passport for manufacturers to enter into and penetrate the European market. Any product bearing the "CE" mark can be sold in every EU country without the need to meet the requirements of every EU member, thus enabling the free circulation of products from one member country to another.

By the same token, an AGV must be legally qualified to bear the CE certification mark before entering the EU market. This also means that AGV products must satisfy the requirements set forth by the relevant EU directives.

測試指令和標準

Testing directives and standards

指令包括

THE DIRECTIVES INCLUDE

- 機械安全性 (MD 機械指令 2006/42/EC)
Machinery safety (2006/42/EC Machinery Directive (MD))
- 電氣安全性 (LVD 低電壓指令 2014/35/EU)
Electric safety (2014/35/EU Low Voltage Directive (LVD))
- 電磁相容性 (EMC 電磁相容指令 指令 2014/30/EU)
Electromagnetic compatibility (2014/30/EU Electromagnetic Compatibility Directive (EMC))
- 無線電和通訊設備的合格性 (RED 無線電設備指令 2014/53/EU)
Conformity of radio and communication equipment (2014/53/EU Radio Equipment Directive (RED))

標準包括

THE STANDARDS INCLUDE

- EN ISO 12100 風險評估與風險降低
Safety of machinery - General principles for design – Risk assessment and risk reduction
- EN ISO 3691-4 工業貨車的安全性
Safety of industrial trucks. Driverless trucks and their systems
- EN 1175-1 工業搬運車電氣安全
Safety of industrial trucks. Electrical requirements. General requirements for battery powered trucks
- EN 12895 工業貨車的電磁相容性
Industrial trucks. Electromagnetic compatibility
- EN 301489-1 無線設備測試
Electromagnetic compatibility (EMC) standard for radio equipment and services
- EN 300328 無線設備測試
Electromagnetic compatibility and Radio spectrum Matters (ERM)
- EN 301893 無線設備測試
5 GHz RLAN; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU
- EN 61000-6-4 工業環境中的抗擾度
Electromagnetic compatibility (EMC). Testing and measurement techniques. Immunity to conducted disturbances induced by radio-frequency fields
- EN 61000-6-2 工業環境中的發射標準
Electromagnetic compatibility (EMC). Generic standards. Immunity standard for industrial environments



我們的服務

Our services

產品檢測

PRODUCT TESTING

對下述產品進行安全相關功能檢測出具試驗報告：
Perform safety-related functional testing on the following products and issue test reports:

- 無人搬運車
Auto Guided Vehicle (AGV)
- 自主移動式機器人
Autonomous Mobile Robot (AMR)
- 無人搬運車結合機械手臂
AGV integrated with robot
- 無人搬運車充電設備系統
AGV Charging System
- 鋰電池
Lithium battery
- 伺服電機馬達
Servo motors
- 控制器
Controllers
- 感測器
Sensors
- 系統整合
Integrated systems
- 相關零件
Other components

產品驗證

PRODUCT CERTIFICATION

無人搬運車 Auto Guided Vehicle (AGV) 與相關系統相關的產品驗證服務：

- Product certification services related to auto guided vehicles (AGV) and relevant systems
- CE 機械指令驗證
CE certification for machinery directive
 - CE 低電壓指令驗證
CE certification for low voltage directive
 - CE 電磁相容 EMC 驗證
CE certification for electromagnetic compatibility directive
 - CE 無線電設備指令驗證
CE certification for radio equipment directive
 - 功能安全管理系統審核
Review of functional safety management systems
 - 安全完整性等級 (SIL) 或性能完整性 (PL) 判定
Judgment of safety integrity level (SIL) or performance level (PL)
 - ATEX/IECEX 防爆驗證
Anti-explosion certification up to ATEX/IECEX
 - 其他相關測試及驗證
Other related test and certification services

機械和電氣安全工程師培訓

MECHANICAL AND ELECTRICAL SAFETY ENGINEER TRAINING

基礎培訓、內部培訓、安全工程師個人資格培訓

BASIC TRAINING, IN-HOUSE TRAINING, SAFETY ENGINEER QUALIFICATION PROGRAMME

培訓內容：

Training Content:

- 歐盟 CE 指令介紹
Introduction of EU's CE directives
- 機械潛在危險源辨識與風險評估 EN ISO 12100
Identification and risk assessment of potential machinery hazards in accordance with EN ISO 12100
- 無人搬運車機械安全標準介紹 EN ISO 3691-4
Introduction of machinery safety standard EN ISO 3691-4 for AGV
- 無人搬運車電氣安全標準介紹 EN 1175-1
Introduction of electrical safety standard EN 1175-1 for AGV
- 機器人和系統安全標準 ISO 10218-1/-2 介紹
Introduction of safety standards ISO 10218-1/-2 for robot and robot system
- 工業機械安全相關控制系統的設計介紹 EN ISO 13849-1/-2
Introduction of the standard EN ISO 13849-1/-2 relating to design of relevant safety control systems for industrial machinery