

# A labora story

美乐科斯电子

锡根多夫、杰尔、无锡、克雷塔罗

Melecs EWS

Elektronikwerk / Electronic Works  
Siegendorf, Győr, Wuxi, Querétaro



美乐科斯电子(EWS)是奥地利的最大的电子开发和制造服务供应商(E<sup>2</sup>MS), 隶属于美乐科斯集团, 销售额高达2.832亿欧元。美乐科斯能够提供从研发深入、到产品验证直至工业化生产, 全球供应链始终贯串协助的一条龙服务。从最初的产品理念到最终的产品定型 -- 紧密协调的开发闭环, 并始终以客户为导向, 提供经济高效的解决方案。

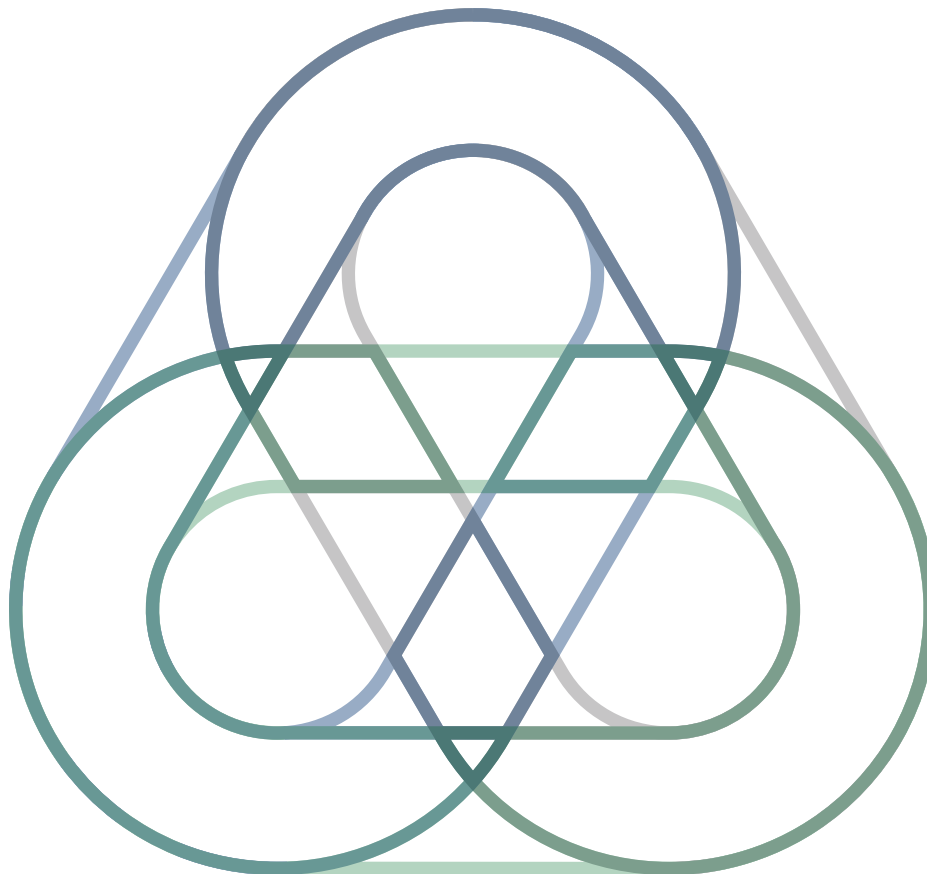
**Electronic Works Siegendorf (Melecs EWS) – with a turnover of 283.2 million euros, which belongs to the Melecs Group, is the largest electronics engineering and manufacturing service provider (E<sup>2</sup>MS) with Austrian roots. Melecs offers everything from one single source: from R&D and Validation to Industrialization and Production through to Logistics. A closed cycle – from the first idea to the finished product – results in economically efficient and customer-oriented solutions.**



# intro 介绍

## 电子智造

美乐科斯的电子零件广泛用于多家优质国际汽车制造商（ECUs和LED应用领域）以及欧洲家用电器市场龙头企业的产品中。公司不仅为汽车、汽车车灯照明以及大型白色家电领域制造商提供个性化定制产品。美乐科斯还为工业控制领域（包含设备组装）开发和生产电子组件，并提供最佳解决方案，如电梯控制装置或节能供暖系统。美乐科斯的销售额90%来自奥地利以外的市场。公司在奥地利锡根多夫以及匈牙利杰尔拥有高自动化的生产线，可满足中等或大批量印刷电路板组件和电子装置的生产要求。应全球业务拓展需要，中国无锡工厂自2016年已顺利投产，墨西哥克雷塔罗的工厂也于2018年开始运营。同时，2018年美乐科斯在美国密歇根州奥本山设立销售代表处，正式进军北美市场。



## Electronic Works

Electronic components of Melecs can be found in cars of international premium manufacturers (ECUs and LED applications) as well as in household appliances of the European market leader. In addition to custom-tailored products for the automotive and lighting industry and for white goods manufacturers, Melecs develops and produces electronic assemblies and integrated solutions, including equipment assembly for the industrial sector, such as escalator controls or energy-efficient heating systems. Over 90 percent of the sales of Melecs are achieved from customers outside of Austria. At the highly automated electronics production lines in Siegendorf/Austria and Győr/Hungary, medium to large numbers of Printed Circuit Board Assemblies and electronic devices are produced. For our global customers we produce in our facilities in Wuxi/China and since 2018 in Querétaro/Mexico. Furthermore, the market entry into North America started in 2018 with the opening of a sales and engineering office in Auburn Hills/Michigan.

# A scientific universe

科技探索

High-End  
Technology  
高端技术





## 研究与开发 Research & Development

### 奥地利维也纳 Vienna, Austria

美乐科斯的研发部门专注为客户定制经济高效的设计方案, 并与生产团队紧密合作实现产品工业化。美乐科斯尤其致力于为客户量身定制创新型解决方案。例如, 汽车动力传动系统的四轮驱动ECU (电子控制装置) 领域, 汽车DLP技术以及车灯LED照明技术。美乐科斯在这些领域的创新性解决方案拥有良好的成本优势。在概念设计过程中, 电气、机械和热模拟应用令美乐科斯的客户印象深刻。整个开发过程涵盖硬件开发、设计、PCB布局、软件/硬件开发、产品环境验证以及测试工程的方方面面, 包括样品试产测试等。美乐科斯制定并执行必要的安全管理系统, 确保公司控制装置的开发过程严格符合ASIL安全标准。研发过程还包括零部件管理和采购, 从而确保新产品快速决策以及项目执行的灵活性。同时, 美乐科斯研发的特定技术知识还获得了多项专利。

The Melecs development department designs and implements cost-effective and customized solutions, that are industrialized in close collaboration with the production team. Melecs relies on innovative solutions tailored specifically to its customers. For example, in the areas of all-wheel drive ECUs (Electronic Control Units) in the powertrain, DLP technology and LED lighting in vehicles: In all of these areas, significant cost advantages have been achieved through innovative solutions. The use of electrical, mechanical and thermal simulations during the concept phase is another feature that is appreciated by the customers of Melecs. The development process encompasses all of the aspects of hardware development, design, PCB layout, software/firmware development and environmental certification as well as test engineering, including pre-production prototype testing. A safety and requirement management system allows Melecs to develop controllers according to the strict ASIL safety criteria. Parts management and purchasing activities are also included in the development process. This results in short decision paths for new products and flexibility in ongoing projects. Numerous patents attest to the specific know-how of the Melecs developers.



研究与开发

Melecs EWS

公司与技术学院和大学院校展开深入合作, 不断获得新思路、新想法并为公司培养新员工。

Intensive cooperations with technical colleges and universities guarantee fresh ideas and well-qualified next-generation employees.





技术方案

Robust  
Products  
健可靠的产品

A  
technical  
formula



# 系统集成, 测试和验证 System Integration, Testing and Validation

匈牙利杰尔  
Győr/HU

奥地利维也纳  
Vienna/AUT



800升 环境试验箱 Climatic cabinets 800L

美乐科斯杰尔工厂有自己的测试实验室, 能在产品研发、产品验证以及批量生产阶段进行快速可靠的产品测试。产品测试直接融合在产品开发过程中。企业内部实验室为产品研发提供高度灵活性, 能够尽可能缩短测试和验证时间。

The testing laboratory at the Győr location enables Melecs EWS to quickly and reliably test products in product development and mass production. The test activities are directly integrated into the product development process. Our own testing laboratory offers a high degree of flexibility and thus the possibility of implementing environmental tests of any kind as quickly as possible.



EMC测量屏蔽室 EMC measuring chamber

维也纳研发中心拥有自己的EMC测量屏蔽室, 在产品开发过程中能够快速获得结果且极具研究意义。此外, 验证和系统测试工程师可以按照客户特定的测试程序进行测试, 在某些特殊情况下, 也可以在现场测试。

The shielded EMC measuring chamber at the development site in Vienna enables fast and representative measurement results during the product development process. Furthermore, the validation and system test engineers work out customer specific test procedures and in some cases also implement them on site.

High/low  
temperature  
conditioning

Mechanical  
shock test

Immersion test

Vibration test

Stone  
chip  
test +

Temperature  
— cycling —

Salt spray test

Water protection test

Humidity  
test

Thermal shock test

EMC test  
(in Vienna)

H i g h  
p r e s s u r e  
w a t e r   t e s t

# 实例 Fakten

## 公司地点 Sites

### 电子工厂分布

奥地利/锡根多夫

匈牙利/杰尔

中国/无锡

墨西哥/克雷塔罗

Electronics production locations:

Austria/Siegenderf

Hungary/Györ

China/Wuxi

Mexico/Querétaro

### 销售代表处：

奥地利/兰精

美国/密歇根州奥本山

Sales and engineering offices:

Austria/Lenzing

USA/Auburn Hills, Michigan

### 研发中心：

奥地利/维也纳

R&D electronics development:

Austria/Vienna

员工约1500人

Approx. 1500 Employees

## 生产制造技术 Manufacturing technologies

识别码镭射 Laser Identification

钢网印刷 Screen Printing

表面热传导材料印刷 TIM (Thermal Interface Medium) Printing

点胶机 Jet Dispensing

SPI 锡膏印刷检测 SPI

3D 锡膏印刷检测 3D Solder Paste Inspection

SMT 表面贴装技术 SMT

回流焊 Reflow Soldering

AOI 自动光学检测 AOI (Automatic Optical Inspection)

X-射线 X-Ray

计算机断层扫描 CT (Computer Tomography)

轴向/径向/特殊的自动化插件技术

Axial/Radial/Odd Form THT Automated Insertion

自动插件 Pin Insertion

手动锁螺丝 Manual Screwing

全自动锁螺丝 Full automated Screwing

波峰焊 Wave Soldering

选择性波峰焊 Selective Soldering

热压焊接 Hot Bar Soldering

选择性涂覆 Selective Coating

浸润式涂覆 Dip Coating

压接工艺 Pressing

灌胶工艺 Potting

机器人自动化组装 Robot Automated Assembly

协同机器人 Cobot (Collaborating Robot)

分板 Depaneling

PCBA铣板 Milling

老化测试 Run In

烧录 Programming

在线测试 IC-Test

边界扫描测试 Boundary Scan

光学及触感测量系统 Optical and Tactile Measuring System

在线功能测试 Inline Function Test

HF-测试 HF-Test

## 客户摘要 Clients/Extract

### 汽车电子控制产品事业部：

#### Automotive Control Systems:

Borg Warner PTS

Schaeffler

Bühler Motor

AAM

GKN Driveline

Magna Powertrain

AMK

Myunghwa

Hanon

JLR

SEG

SHW

ZF

### 工业控制产品事业部：

#### Industrial:

Frauscher

Fröling

Knapp

maxon motors

Schindler

Siemens

TGW

Wittur

### 汽车照明&传感器应用产品事业部：

#### Automotive Lighting & Sensors:

Alfmeier

Hella

SMR

Swoboda

odelo

ZKW

### 家用电器产品事业部：

#### Home Appliance Systems:

BSH

PAS

GE Appliances

Mabe

## 资质证书

### Certificates

#### ISO 9001-2015

(锡根多夫, 杰尔, 无锡, 克雷塔罗)  
(Siegenderf, Györ, Wuxi, Querétaro)

#### ISO 16949-2016

(锡根多夫, 杰尔, 无锡, 克雷塔罗)  
(Siegenderf, Györ, Wuxi, Querétaro)

#### ISO 14001-2015

(锡根多夫, 杰尔, 克雷塔罗)  
(Siegenderf, Györ, Querétaro)

#### AS9100D

(克雷塔罗)  
(Querétaro)



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