

ZENITH

**INTEGRATED VACUUM AND EXHAUST
MANAGEMENT SOLUTIONS**



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INNOVATIVE PRODUCTS

GLOBAL STRENGTH

LOCAL SUPPORT

VACUUM EXPERTISE

ZENITH - Integrated Vacuum and Exhaust Management

The Zenith range offers an advanced portfolio of systems providing fully-integrated vacuum and exhaust management solutions for all of your semiconductor processes applications. Zenith systems are unique in offering:

- *Process-centric vacuum and exhaust management*
- *Complete integration of components*
- *Support of each function with a powerful, integrated control interface*

Edwards is a technology leader, providing robust, reliable, process-specific vacuum and exhaust management systems to the silicon semiconductor, compound semiconductor and flat panel display industries, all supported by a truly global service and support infrastructure.





ZENITH

真空ポンプと排ガス処理装置（除害装置）の統合システム

Zenithは真空ポンプと排ガス処理装置（除害装置）を一つの筐体に統合してご提供する先進的なシステムです。当社の豊富なコンポーネント群の中から、プロセス毎に最適な真空ポンプと排ガス処理装置（除害装置）を組み合わせ、全ての半導体プロセスに最先端のソリューションをご提供いたします。

- プロセスに最適な真空・排ガス処理管理が可能
- 排ガス処理管理に必要なコンポーネント全てを一つの筐体に統合
- 各構成コンポーネントは一つのコントローラで制御可能

ZENITH

整合式真空排気管理解決案

Zenith 系列產品提供一個先進的整合系統，針對所有半導體製程提供完整的真空與尾氣處理解決方案。Zenith 系統具備以下獨特功能：

- 以製程為主的真空系統與尾氣處理
- 完善的系統整合
- 具備強大的整合式控制介面，支援各項功能

ZENITH

真空与处理集成管理解决方案

Zenith系列是先进的系统化组合产品，为所有半导体加工应用提供完全集成的真空与排气管理解决方案。Zenith系统具有以下独特之处：

- 以工艺为中心的真空与排气管理
- 完整集成各种部件
- 具备强大的集成式控制界面，支持各项功能

ZENITH

진공 및 폐가스 처리 통합 솔루션

Zenith는 진공펌프와 스크러버 일체형 시스템으로 반도체 공정에서의 진공 및 폐가스 처리의 완벽한 통합 솔루션을 제공합니다.

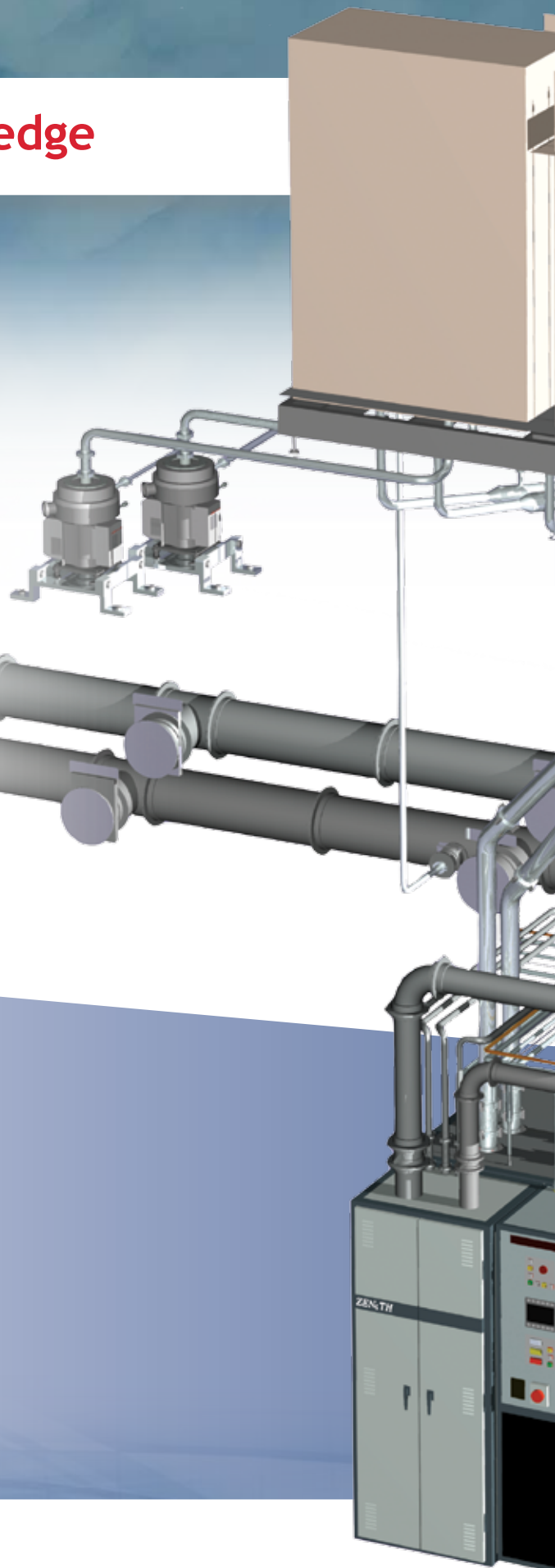
- 공정 중심의 진공 펌프와 스크러버 시스템
- 각 구성품의 완벽한 조합
- 강력한 통합형 제어 인터페이스 기능 지원

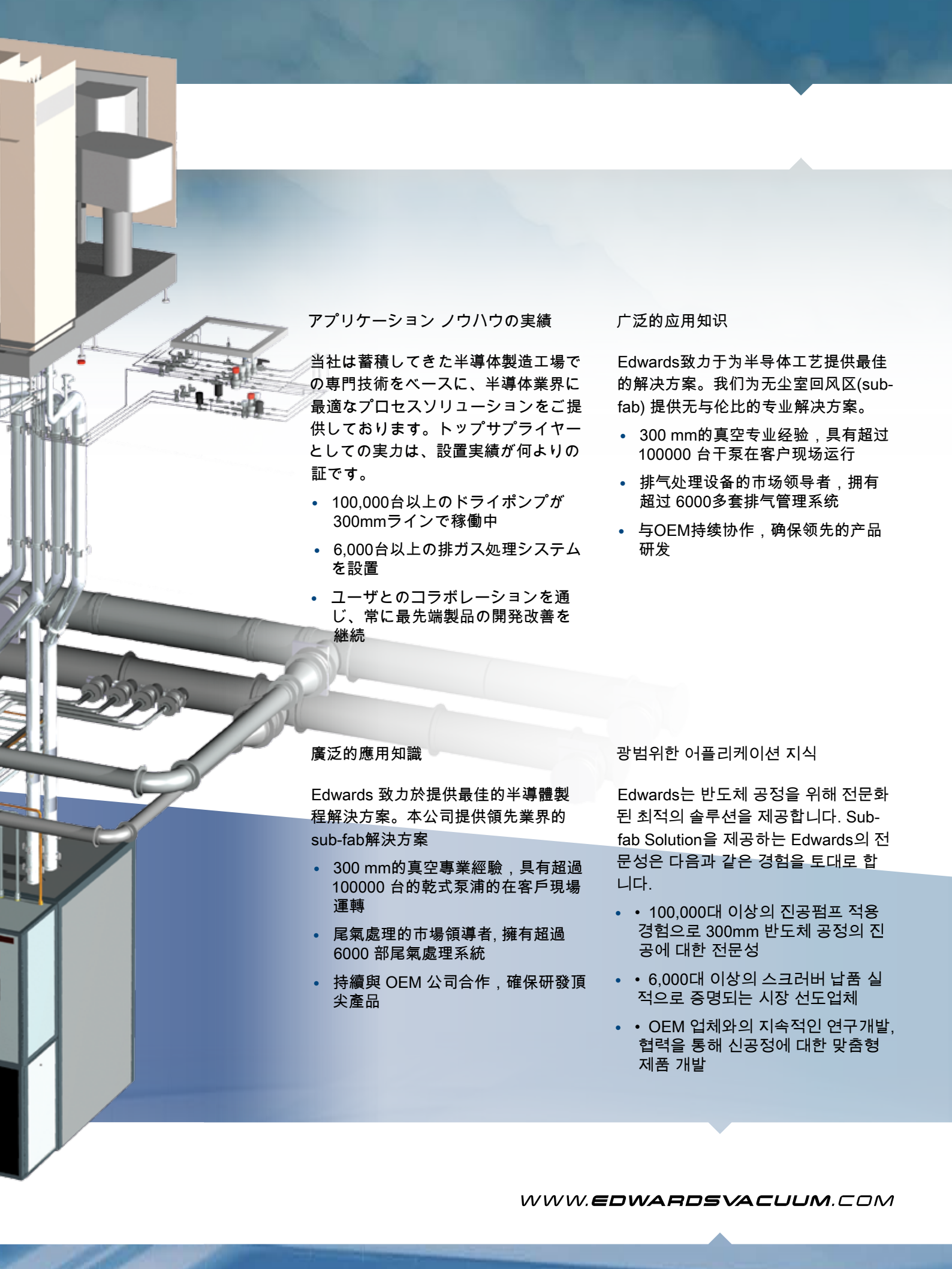
Extensive Applications Knowledge

Edwards is dedicated to providing the optimum solutions for semiconductor processes. Our expertise in sub-fab solutions is unrivalled.

- Exhaust management expertise for 300 mm, with over 100,000 dry pumps in operation
- Market leader with more than 6,000 exhaust management system installations
- On-going collaboration with OEMs ensuring leading-edge product development

Our global applications expertise ensures that each system provides the optimum hardware and software, best vacuum and exhaust management practices, suitable ancillary equipment, culminating in the ideal installation with most reliable operation.





アプリケーション ノウハウの実績

当社は蓄積してきた半導体製造工場での専門技術をベースに、半導体業界に最適なプロセスソリューションをご提供しております。トップサプライヤーとしての実力は、設置実績が何よりの証です。

- 100,000台以上のドライポンプが300mmラインで稼働中
- 6,000台以上の排ガス処理システムを設置
- ユーザとのコラボレーションを通じ、常に最先端製品の開発改善を継続

廣泛的應用知識

Edwards 致力於提供最佳的半導體製程解決方案。本公司提供領先業界的 sub-fab 解決方案

- 300 mm 的真空專業經驗，具有超過 100000 台的乾式泵浦的在客戶現場運轉
- 尾氣處理的市場領導者，擁有超過 6000 部尾氣處理系統
- 持續與 OEM 公司合作，確保研發頂尖產品

廣泛的应用知识

Edwards 致力于为半导体工艺提供最佳的解决方案。我们为无尘室回风区(sub-fab) 提供无与伦比的专业解决方案。

- 300 mm 的真空专业经验，具有超过 100000 台干泵在客户现场运行
- 排气处理设备的市场领导者，拥有超过 6000 多套排气管理系统
- 与 OEM 持续协作，确保领先的产品研发

광범위한 어플리케이션 지식

Edwards는 반도체 공정을 위해 전문화된 최적의 솔루션을 제공합니다. Sub-fab Solution을 제공하는 Edwards의 전문성은 다음과 같은 경험을 토대로 합니다.

- 100,000대 이상의 진공펌프 적용 경험으로 300mm 반도체 공정의 진공에 대한 전문성
- 6,000대 이상의 스크러버 납품 실적으로 증명되는 시장 선도업체
- OEM 업체와의 지속적인 연구개발, 협력을 통해 신공정에 대한 맞춤형 제품 개발

Zenith CVD and Epitaxy

The Zenith CVD provides the most reliable vacuum pumps for the CVD and epitaxial harsh-duty environments, integrated with exhaust management capable of handling pyrophorics, flammables and high flows of corrosive gases.

The Zenith CVD incorporates the latest generation of dry pumps:

- *iGX range - Suitable for high-flow and dynamic range applications with minimum utility usage*
- *iH/iXH range - Proven reliability for the harsh duty range of applications*
- *iF Dry pumps - Provide excellent Hydrogen pumping performance for epitaxy processes*

...and the highest proven abatement performance from the Inward Fired Combustor Range:

- *Atlas™ TCS (Thermal Conditioning System) for most CVD processes with remote plasma NF_3 cleans*
- *Atlas™ TPU (Thermal Processing Unit) for CVD processes where PFC or ClF_3 abatement is required*
- *Atlas™ Kronis for the latest low-k CVD processes*
- *Helios for Epitaxy and other high-flow hydrogen applications*
- *Alternative electrical oxidation technologies, such as HOx or Mistral, provide non-fuel abatement solutions*





ZENITH CVD およびエピタキシ

Zenith CVDは、CVDおよびエピタキシプロセスの過酷な環境に最適な真空ポンプ・排ガス処理装置（除害装置）を搭載したシステムです。これらのプロセスで排気される自然発火性、可燃性、大流量の腐食性ガス等を優れた能力で排気、除害処理します。

プロセス毎に最適な仕様を提供している最新世代ドライポンプ+内部燃焼式コンバスタ技術を採用した排ガス処理装置（除害装置）、この2つの技術の組合せで、当社は半導体業界の排ガス管理を強力にサポートしております。

ZENITH CVD 與磊晶

Zenith CVD 可在 CVD 與磊晶的嚴格環境中，提供最可靠的真空泵浦，同時整合尾氣處理系統處理自燃物、易燃物及高流量的腐蝕性氣體。

Zenith CVD 結合了最新一代的乾式泵浦：

... 以及經過廣泛證實的Inward Fired Combustor（內燃式無焰燃燒）技術：

ZENITH CVD 与 外延

Zenith CVD 可在CVD和外延苛刻的环境下提供最可靠的真空泵，同时集成能够处理自燃、易燃以及腐蚀性气体的排气管管理装置。

Zenith CVD 结合了最新一代的干泵：

...以及经过广泛证实的Inward Fired Combustor（内燃式无焰燃烧）技术

ZENITH CVD와 EPITAXY

Zenith CVD 시스템은 화염성, 자연 발화성 가스 및 다량의 부식성 가스를 완벽하게 처리하는 스크러버 시스템과 함께 Harsh공정인 CVD와 Epitaxy 공정에 적합한 신뢰도 높은 진공펌프를 일체형으로 제공합니다.

Zenith CVD는 최신형의 진공펌프를 탑재하고 있습니다.

또한 처리 효율이 높은 내부연소방식의 스크러버를 탑재하고 있습니다.

Zenith Etch

The Zenith Etch provides enhanced pumping performance with the latest generation GX dry pumps, combined with one of the abatement technologies below for effective treatment of toxic, corrosive and PFC gases from etch exhausts.

- The Microwave Plasma System is the lowest energy consumption abatement solution for etch processes.*
- The Inline 250 uses hot bed reactor technology to chemically convert the toxic by-products from metal etch into safe solids.*





Zenith エッチ

Zenith エッチは、最新世代のGXドライポンプとエッチングプロセスに最適な排ガス処理装置（除害装置）を統合したシステムです。プロセスから排気される有害性、腐食性ガス、およびPFCガス等を効果的に除害処理します。

ZENITH ETCH

Zenith Etch 以最新一代的高效能GX乾式泵浦，結合下列尾氣處理技術，有效處理 Etch 所排出的有毒性氣體、腐蝕性氣體以及 PFC 氣體。

ZENITH ETCH

Zenith Etch以最新一代的GX干泵增强真空泵的表现，结合下列废气处理技术之一，有效处理蚀刻工艺中排放的有毒、腐蚀性及PFC气体。

ZENITH ETCH

Zenith Etch는 펌핑 성능이 더욱 향상된 최신형 iGX 드라이펌프와, Etch 공정으로부터 배기 되는 독성, 부식성, 그리고 지구온난화 가스인 PFC 가스를 효과적으로 처리하는 폐가스 처리 기술이 일체형으로 결합된 제품입니다.

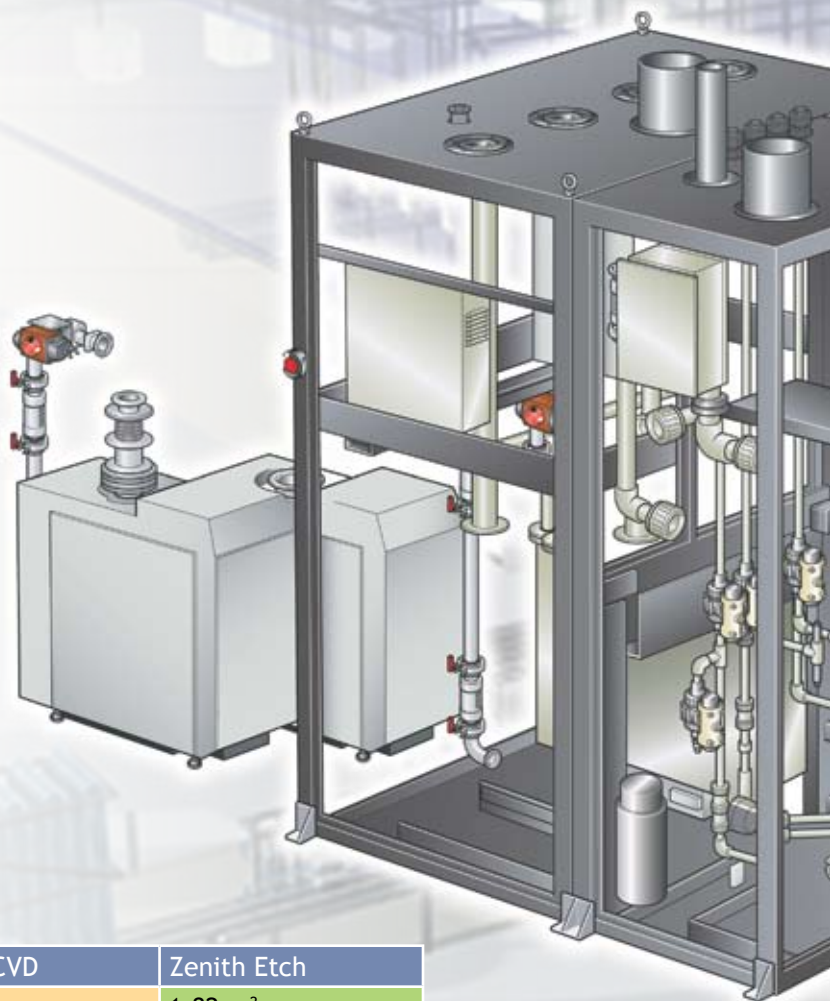
Greater Than The Sum Of The Parts

The Zenith range is an application-specific solution, integrating components to produce a system with attributes above and beyond the function of the individual parts.

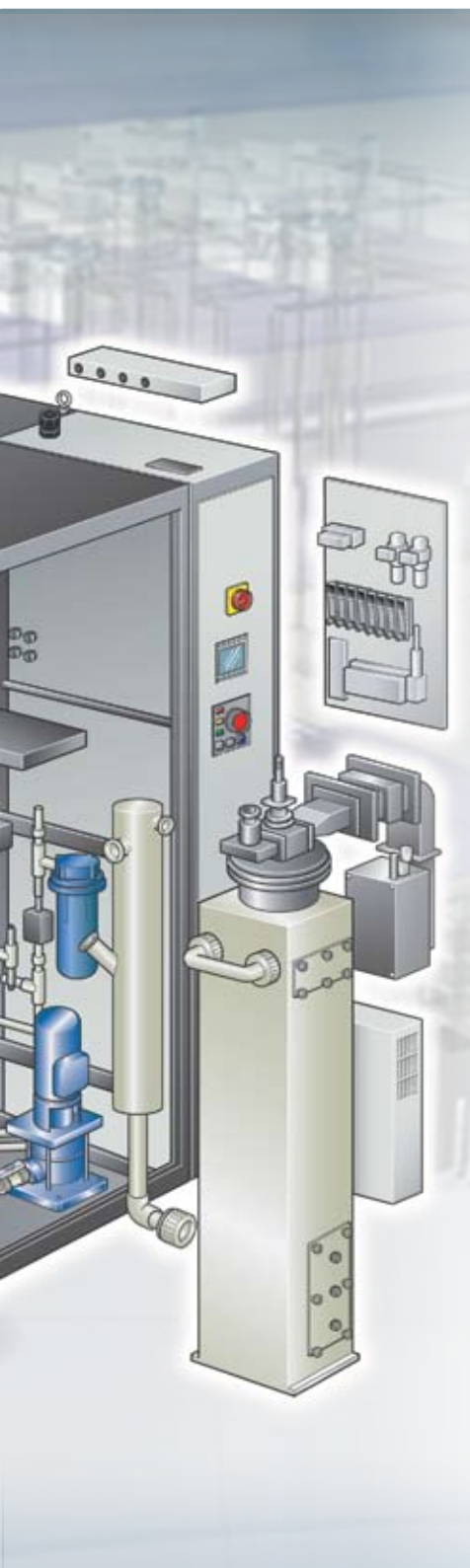
- *Designed for efficient use of space, saving up to 70%*
- *Full internal distribution, regulation and monitoring of services reducing utility hook-ups by over 60% while ensuring smooth and reliable operation*

Every component of the Zenith is carefully chosen to ensure suitability and compatibility with the process and its by-products.

- *Correct choice of vacuum pump supplied with facilities hook-up and compatible vacuum components*
- *Factory leak checked exhaust pipework, supplied with a full coverage temperature management system and compatible hardware as required*
- *High-efficiency abatement systems designed to treat process gases and by-products from each application*



	Core Products	Zenith CVD	Zenith Etch
Footprint	4.45 m ²	2.47 m ²	1.82 m ²
Reduction		44%	56%
Service footprint	7.26 m ²	2.79 m ²	2.66 m ²
Reduction		62%	63%
Utility and Hook-up	50	19	14
Reduction		62%	72%



統合システムの大きな利点

Zenith統合システムは、真空ポンプ+排ガス処理装置(除害装置)を単に1つにまとめただけではありません。個別設置した場合に比べると、はるかに大きな利点があります。

- スペースの有効利用 - 最大70%の省スペース化が可能
- 高信頼性の運転性能はそのまま維持し、コンポーネント間の接続、ユーティリティ接続を60%以上削減

比結合所有元件的功能更強大

Zenith 系列是專為各製程應用所設計的解決方案，整合了各項元件後的系統，功能遠超越單一元件的特色。

- 專為有效利用空間所設計，可節省高達 70% 的空間
- 完善的內部配置、規範與監控，可減少 60% 以上的管路配置，並確保運作順暢可靠

集成功能大于部件之和

Zenith系列是专为特殊用途设计的解决方案。整合各个部件后，系统功能更胜每一部件单独运行。

- 专为有效利用空间而设计，可节省高达70%的空间
- 完善的内部分配，调节和监控，可减少60%以上的配管，同时确保了平稳可靠的运行

부품 통합에 의한 상승효과

Zenith는 여러가지 부분품들의 통합 시스템으로 각 부품들의 개별적 조합 기능 이상의 특화된 응용 솔루션을 제공합니다.

- 효율적 공간활용이 가능하도록 설계 (진공펌프와 스크러버의 개별적인 설치나 구성에 비해 공간을 최대 70%까지 절감)
- 완벽하게 설계된 내부 유틸리티 및 모니터링 시스템의 신뢰도 높은 구현으로, 유틸리티 구성을 60% 이상 절감하여 경제성이 높습니다.

Network and Control Advantages

Each Zenith system puts control of the entire system at your fingertips. Designed as an integral part of the overall solution, the innovative control interface empowers you to realize the full potential of the combined equipment.


Edwards vacuum and abatement systems share a common platform for control strategies, ensuring compatibility and synergy between components, giving the following advantages:

- *Removed risk of conflicts and loss of functionality between disparate equipment, and the resultant down time*
- *Improved interfacing saves on power and utility costs*
- *Wafer survival strategies increase wafer yield*

Zenith systems are equipped with a Graphical User Interface (GUI) providing:

- *Multi-level control and analysis with clear information on system status*
- *Intuitive, user-friendly controls*
- *Detailed information on individual components*
- *Built-in data-logging and total facilities integration*





タッチパネルに触れだけのコンポーネント制御

Zenith システムには、GUI (グラフィカル ユーザ インターフェイス) 機能を搭載したタッチパネルが設置されています。システム全体の状態をグラフィック表示し、画面の指示に従ってタッチするだけで、各コンポーネントのパラメータを監視管理することができます。

網路與控制優勢

每台Zenith都有一個觸摸式顯示幕控制系統。這項創新的控制介面是整套解決方案的要件之一，可發揮整合系統的最大效能。

Edwards 真空與尾氣處理系統共用控制平台的策略，確保元件之間的相容性與協調性，並提供以下優點：

网络与控制优势

每个 Zenith 都有一个触摸式显示屏控制整个系统。创新的控制界面是整个解决方案重要的一部分，可发挥集成系统的全部潜力。

Edwards 真空和排气管管理系统共享通用的控制战略平台，确保了部件之间的兼容性和协同作用，并提供以下优点：

네트워크와 제어의 이점

모든 Zenith 시스템은 간단한 터치만으로 조작이 가능하도록 구성되어 있습니다. 일체화된 통합 솔루션으로 설계된 혁신적인 제어 인터페이스는 결합된 장비의 잠재적인 기능까지도 완벽하게 구현되도록 합니다.

Edwards의 진공 / 스크러버 시스템은 공용 제어 플랫폼을 공유하여 구성품들의 호환성과 시너지 효과를 수반하며, 다음과 같은 장점을 제공합니다.

Risk Minimization

Integration ensures internal compatibility and control of all system components, with risk management as an integral benefit.

- Zenith systems are assessed as a single-system for safety, legislation and standards compliance
- Zenith systems are fully-certified to the most stringent industry standards and local governmental requirements

The Zenith range is the first and only integrated vacuum and abatement system portfolio certified by a Nationally Recognized Testing Laboratory to the SEMI® Environmental Health and Safety standard of SEMI S2-0703, including:

- SEMI S8-0701 (Ergonomics Engineering)
- SEMI S14-0200 (Fire Risk Assessment and Mitigation)



Other Legislation (as applicable):

CE Legislation and Standards

2006/42/EC Machine Directive

2006/95/EC Low Voltage Directive

Potential Explosive Atmosphere Directive

94/9/EC - ATEX

Electrical Safety Laboratory Measurement EN61010-1

EMC Emissions/Immunity EN6132

2004/108/EC Electromagnetic Compatibility Directive

Electrical Equipment for Laboratory Use UL61010A-1

Electrical Standard for Industrial Machinery NFPA79 2002





SEMI S2 安全基準をクリアした安全設計

構成コンポーネントの一括管理（監視と制御）が可能なZenithシステムは、リスク管理に最大の力を発揮します。

- Zenithは単一システムとして、安全基準の審査を受けます。
- 最も厳しい業界安全基準、ならびに各国の安全規制に準拠した製品です。

風險最小化

元件整合可確保所有系統元件之間的相容性及全面控制，同時更具備風險管理的優點。

- Zenith 系統經過評估，是符合安全性、法規與標準的單一系統。
- Zenith 系統係經最嚴格的業界標準認可，符合當地政府規定。

风险最小化

集成确保了所有系统部件的兼容性及全面控制，同时更具风险管理的优点。

- Zenith 系统经过评估，是符合安全性、法规与标准的单一系统。
- Zenith 系统依据最严格的行业标准和本地政府的规定进行全面的认证。

리스크 최소화

통합화로 모든 시스템 구성 요소의 내부 호환성 및 제어를 보장하며, 위험요소 관리 효과를 얻을 수 있습니다.

- Zenith 시스템은 안전성, 법적 기준 및 표준 인증상 단일 시스템으로 평가됩니다.
- Zenith 시스템은 각 국가의 엄격한 법령과 산업 표준 지침에 따른 인증을 취득하였습니다.

Edwards – the company you have known and trusted for nearly 100 years - continues to deliver innovative vacuum pumps and related systems. We strive to lower your cost of ownership, increase your productivity and enhance your final product quality. Edwards products are based on a solid foundation of manufacturing excellence, field-proven technologies and are supported by a renowned global services network.

Edwards stands behind each product with exceptional integrity and strength, supporting our customers beyond standard expectations. Edwards is essential to your process.

PRODUCTS:

- Dry Vacuum Pumps
- Oil-sealed Vacuum Pumps
- Turbomolecular Pumps
- Exhaust Management
- Integrated Vacuum and Abatement
- Liquid Abatement
- Chillers
- Coating Systems
- Vacuum System Components

SERVICES:

- Equipment Service and Repair
- Product Exchange
- Refurbished Equipment
- Field and On-site Services
- Remote e-Diagnostics
- Product Training

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