



Outdoor Cooling

Air Handler

STULZ IeCE™

Indirect Evaporative Cooling Equipment



The Mission Critical Cooling Experts



The Cooling Experts

As a world leader in mission critical cooling solutions for over 40 years, STULZ knows data centers and is committed to providing their customers with the right solution, customized to their specific requirements. In addition to their extensive experience with indoor mounted solutions, STULZ has over 20 years of experience building outdoor air handlers for mission critical applications.

As the proven data center cooling experts, the STULZ team is uniquely qualified to provide the most reliable and energy efficient cooling solutions.



Globally Close to You

Today, many companies are active on a global scale. They need a reliable, capable partner who can support them in all markets.

The STULZ Group, headquartered in Hamburg, Germany, has 16 international daughter companies, and employs over 5,000 people worldwide. In another 120 countries, STULZ has carefully selected sales and service partners, providing worldwide solutions and services to their customers.

STULZ Air Technology Systems, Inc. is the manufacturing facility for North America.

Growth & Efficiency

The explosion of digital content, which has driven much of the growth in the modern world economy, has resulted in greater demand for data centers across the globe. This expansion has resulted in data centers becoming an ever-increasing consumer of electricity, with IT cooling being a major contributor. In the US alone, data centers consumed an estimated 91 billion kilowatt-hours of electricity in 2013 and are expected to grow significantly in the next decade. Increasing energy prices, and shifting regulatory landscapes have industry professionals seeking out innovative ways to incorporate highly efficient cooling equipment into their space.

These conditions are what drive STULZ's team of precision cooling experts to create highly efficient solutions using the newest technological advancements.

- STULZ has the most complete product line in the industry, with solutions for indoor and outdoor applications, ranging in capacity from 1 to over 200 tons
- STULZ fully tests all products
- STULZ is ISO-9001 Quality Registered
- STULZ's commitment to efficiency extends to their US manufacturing facility's 950 kW solar panel array

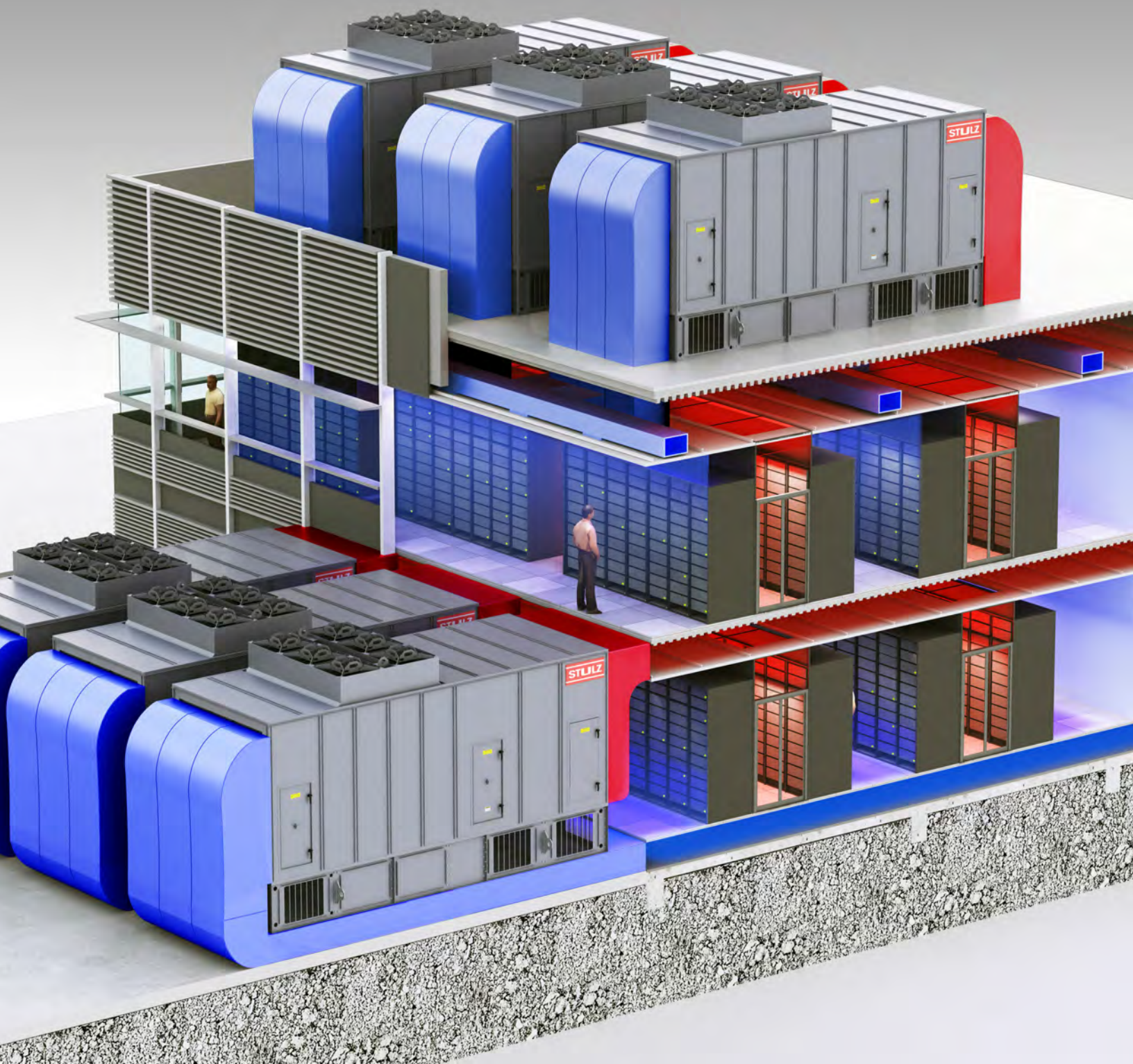
The Indirect Evaporative Solution

STULZ Indirect Evaporative Cooling Equipment (IeCE) embodies the STULZ commitment to efficiency. It is an indirect evaporative cooling solution, designed to remove heat by exploiting the evaporation of water.

With an air-to-air heat exchanger STULZ IeCE is able to meet the needs of modern IT cooling without introducing the contaminants from outside air, all while achieving potential savings of up to 75% over traditional mechanical cooling methods.



- Provides tremendous energy savings vs standard Direct Expansion (DX) or Chilled Water (CW) only
- Designed specifically for the demands of mission critical data centers
- Utilizes trusted data center specific control and interface with BMS
- Options for DX and CW trim cooling or 100% back-up cooling
- Durable construction



STULZ IeCE is designed to maximize the energy efficiency in containment applications.

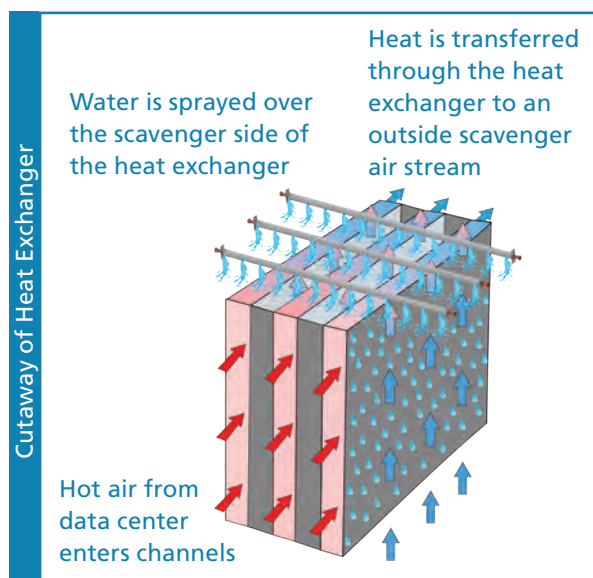
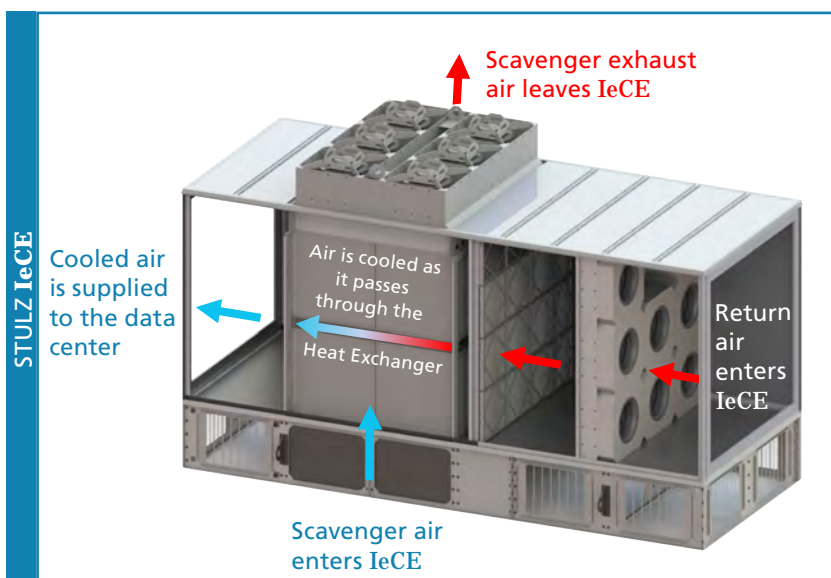
A variety of installation configurations can meet almost any facility layout.

Outdoor mounted cooling equipment eliminates air handler maintenance inside the white space.

Energy Saving Design

STULZ **IeCE** is designed to provide efficient and continuous temperature control 24 hours a day, 365 days a year. **IeCE** systems are intended as centralized cooling solutions that are located outside the conditioned space, freeing up valuable floor space and facilitating free cooling options such as indirect evaporative cooling.

Indirect evaporative cooling takes advantage of the cooling potential from outside air without introducing contaminants or humidity into the data center. A plate heat exchanger isolates supply air from outside air, while the evaporation of water is used for cooling.



STULZ **E²** Controller

STULZ **E²** is the standard microprocessor controller across all STULZ product platforms, providing precision monitoring and control of your mission critical environment.

Supervisory control capability is an available option to synchronize a group of air handlers serving a common space.



Optional Control Panel with Touchscreen

Designed specifically for precision control of mission critical environments

Multiple I/O capabilities for all major components to optimize control for energy savings

Supports Universal BMS interface for remote monitoring (address readable) and remote control (address writable)

Capable of networking controllers in a workgroup (pLAN) to work as one (no BMS required)

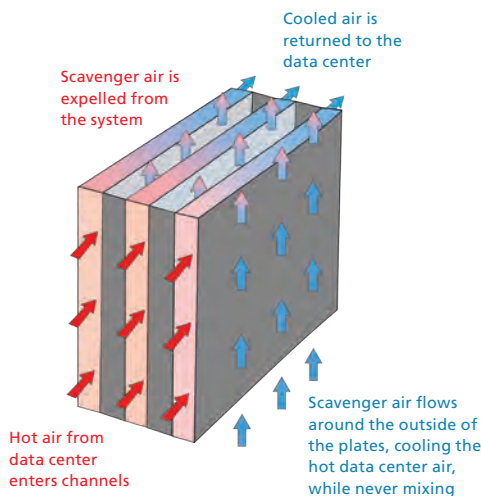
Pre-engineered controls for economizers and evaporative cooling

Energy Efficient Modes of Operation

Dry Mode

During the cold season, ambient (scavenger) air is capable of cooling the data center air without assistance from the evaporative system.

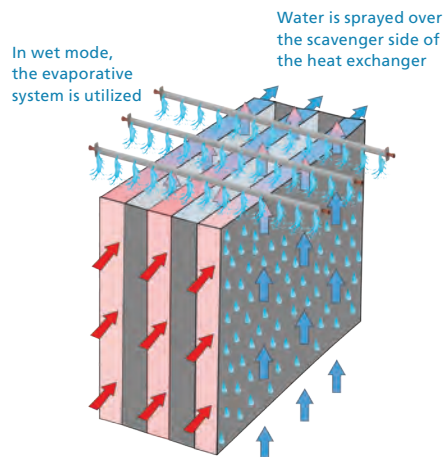
Even when the ambient temperature is moderately warm to cold, scavenger air can be used exclusively to cool the data center air. Dry Mode can most likely be used every night, even in the middle of summer.



Wet Mode

During the warm season the evaporative system is utilized.

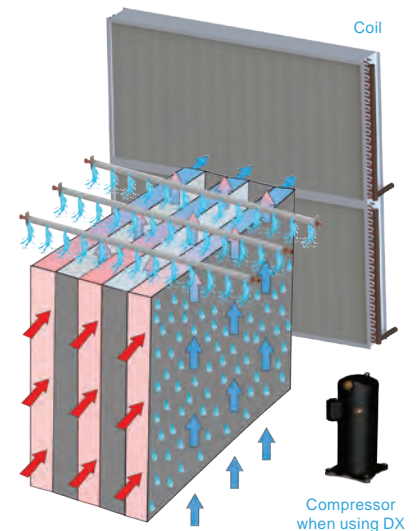
Wet Mode applies when ambient temperature is hot, necessitating the use of evaporative cooling, but relatively dry so evaporative cooling can effectively drop the temperature appropriately.



DX & CW Assist Mode

In extreme weather situations, the Direct Expansion (DX) or Chilled Water (CW) systems are used to supplement the cooling, as needed.

DX/CW Assist Mode applies when ambient temperature and humidity are both high, reducing the effectiveness of evaporative cooling and necessitating the need for "trim" cooling from a DX or CW system.



Achieve up to 75% in Energy Savings!

The STULZ **IeCE** achieves the highest level of realistic energy savings for data center cooling. The unit achieves this by utilizing outside air and a sophisticated evaporative system which transfers heat from the data center air to the scavenger

air through a heat exchanger. With ideal environmental conditions, the STULZ **IeCE** achieves the maximum savings, and a **pPUE of 1.03**.

Evaporative Operation & Heat Exchanger

■ Aluminum Plate Heat Exchanger

- Separates data center air from outside air
- Coated for corrosion resistance
- Excellent heat transfer efficiency compared with plastic or composite pipes
- Lower pressure drop in general which gives lower running cost
- More compact size gives better flexibility
- Fully recyclable & environmentally friendly



■ Recirculating Water System

- Integral pump
- Sump water level detection
- Automatic drain and fill
- Can utilize almost any clean water, including filtered rain water
- Does not require RO or DI

■ Scavenger Fans

- Direct driven, EC variable speed fans are maintenance free and do not require external VFD's for variable speed control
- Regulate air volume for temperature control
- Used as condenser fans with the integral DX cooling option
- Multiple fans provide built in redundancy. In the event of a fan failure the remaining fans continue operation to provide cooling.



High Quality Unit Construction

Cabinet

- Aluminum, double wall cabinet panels provide excellent corrosion resistance
- Air filter frame includes integral gaskets and utilizes mechanical fasteners to ensure a tight filter seal
- Universal filter frame design allows almost any filter up to F8
- Foam insulation
- Hinged access doors

Base

- Galvanized steel standard
- Provides flexibility for various mounting configurations
- Corrosion resistant
- Lift points for shipping and rigging
- Provides path for scavenger air flow
- Cabinet and base ship as a unitized assembly

STULZ IeCE Technical Evaluation Center

The STULZ **IeCE** Technical Evaluation Center, located in Frederick, MD is an interactive testing module in the US manufacturing plant. This facility tests **IeCE** for performance and efficiency, at conditions reflecting various locations.

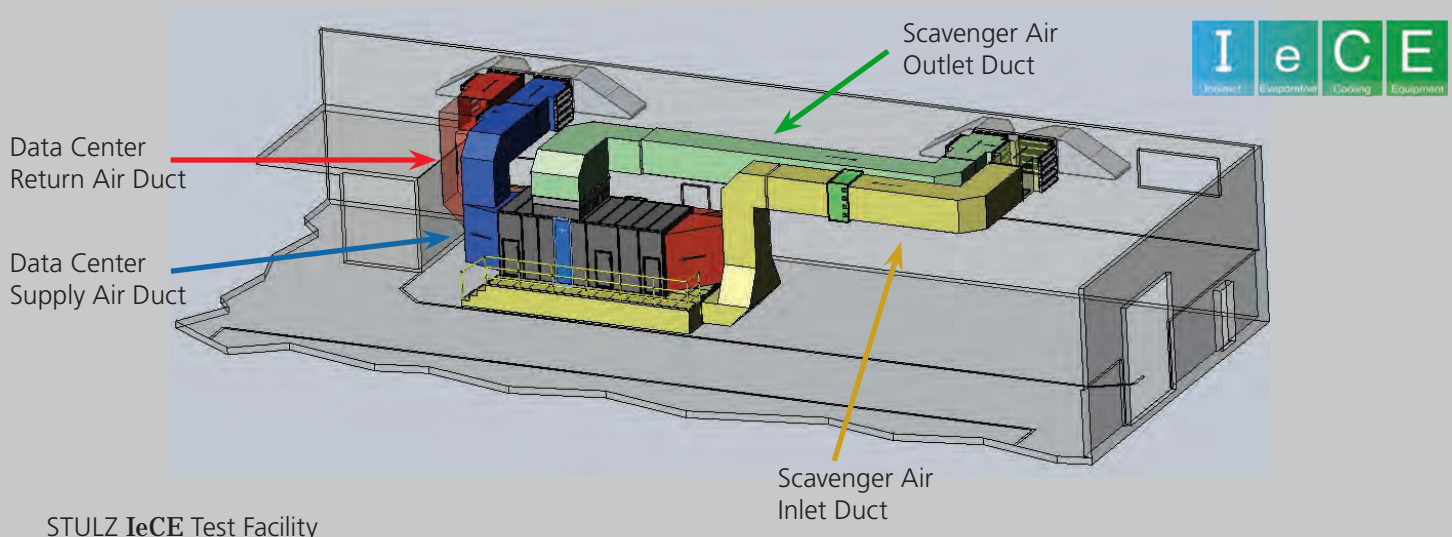
With 3 buildings and 218,000 sq. ft. of manufacturing space, STULZ employs a full sales, engineering, production and product support staff on-site.

STULZ encourages customers to come see the **IeCE** in person at the Maryland facility. This allows them to participate in witness testing, see the production space and talk to data center experts for cooling solution recommendations.



STULZ **IeCE** Test Facility in Frederick, MD USA

Visit www.STULZ-USA.com to schedule your visit!



STULZ **IeCE** Test Facility

Product Support

STULZ Product Support offers comprehensive service solutions to ensure our customers' maximum efficiency and reliability.

■ Deployment Services

Factory Authorized Warranty Inspection/Start-up - Industry leading Two Year Parts Warranty and 90 Day Labor Warranty with a Warranty Inspection/Start-up. Factory authorized technicians ensure that STULZ equipment has been installed per factory guidelines and identify any deficiencies prior to warranty validation.

Basic Product Familiarization - Factory authorized technicians provide a brief equipment overview as part of the Warranty Inspection/Start-up visit.

BMS/Communication Services – Factory authorized technicians ensure that STULZ products are configured and capable of communicating in accordance with customer requirements.

Commissioning Assistance – Factory authorized technicians provide a factory interface to agents during commissioning, functional and integrated testing.

Owner Training – Comprehensive and flexible training programs for end users via onsite, factory or web-based sessions.

■ Planned Service

Preventative Maintenance Contracts – Multiple options for Factory Authorized Preventative Maintenance contracts are available.

■ The STULZ Product Support Network

The STULZ Product Support Network (PSN) is a comprehensive network of factory technicians and certified service partners throughout North America. All technicians and partners are pre-qualified and certified by STULZ.

STULZ Technical Support Hotline (7x24)



Call us toll free:
(888) 529-1266

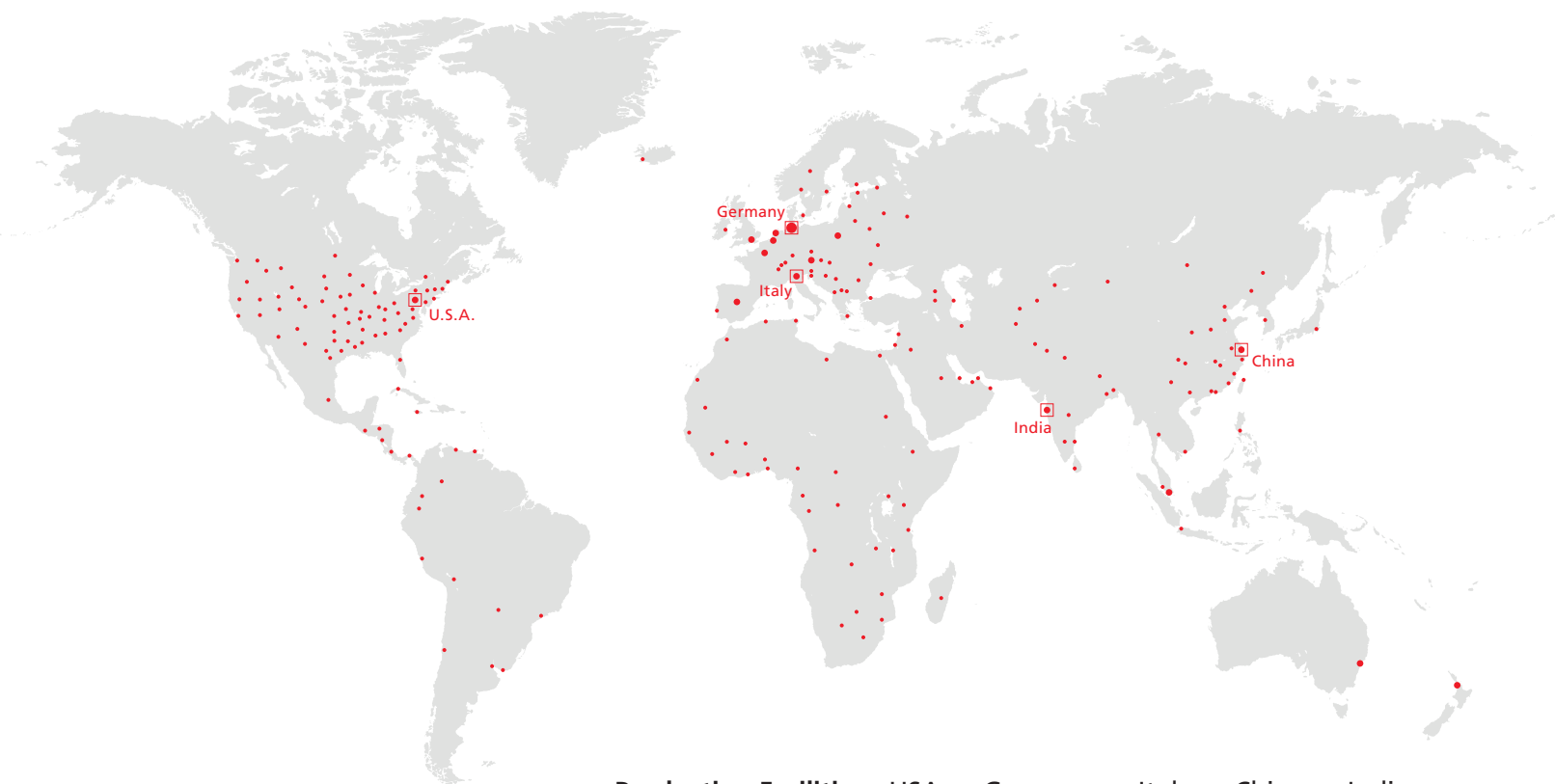
STULZ Field Service Technicians



STULZ Product Support Network



STULZ Global Presence



Production Facilities: USA • Germany • Italy • China • India

globally close to you



STULZ Air Technology Systems, Inc. is a member of the global STULZ family, with two major divisions, seven production plants, and hundreds of sales and service partners around the world.



STULZ Products are Proudly Designed & Manufactured in the USA



ISO-9001 Quality Registered



STULZ Air Technology Systems, Inc.
1572 Tilco Drive, Frederick, Maryland 21704
Phone: 301.620.2033, Fax: 301.662.5487
Service Support Hotline: 888.529.1266
E-mail: info@stulz-ats.com

www.STULZ-USA.com

QC-IeC0097, REV-B © July 2015
Technical data subject to change without notice.

STULZ has taken every precaution to ensure accuracy and completeness in this document. STULZ assumes no responsibility or liability for damages resulting from use of this information or for any errors or omissions. Specifications are subject to change without notice.