• **HDC** Cooling solutions

• **ARCTIC** Server Racks

• **CUBO** Air Containment Systems

• **CDU** Intelligent Power Management

• **SECURITY** Access Control & Remote Monitoring
ARCTIC Racks

ASP Server
- High Compatibility
- High Stability
- Easy installation
- Maximum Passive airflow

NET Cabling
- High density cabling
- Storage systems for fiber
- Easy Installation
- Maximum cable access

ISP Colocate
- High Security
- Isolated compartments
- Independent cable raceways
- Maximum 19” available space
OPTIMIZED SPACE:

- Extra U in Vertical Position
- Maximum interior space profit
FUTURE PROOF
- Expansion frames of 100mm
- 5 Years Warranted compatibility with Previous versions & New Products

SECURITY
- 4 points Locking system
- Electronic access control
CABLE MANAGEMENT

- Cable access from Top & Bottom
- Cable management for Cooper
- Storage overlength plate for fiber
PASSIVE COOLING

• 81.5% Perforated steel
• Up to 97% of 19” Area with Perforated steel

AIRFLOW MANAGEMENT

• Dedicated Range to prevent undesired Airflows inside rack
COMPATIBILITY

• Height: 24U 42U 47U
• Width: 600mm 800mm
• Depth: 600mm 800mm 1000mm 1200mm
• With extension frames: +100mm +200mm

STABILITY

• Up to 1000Kgs static Load
• Reinforcement brackets Up to 1500Kgs static Load
• Fixed shelves 50Kg 100Kg
• Telescopic shelves 50Kg 125Kg
• Anchorage kits
• Retractable stabilizers

TIME SAVING

• Quick Fit Accessories
• Sliding system for 19” Panel Mounts
• Pre-configured cabinet delivery from Factory under request
AIRFLOW MANAGEMENT Accessories

Hinged Side Covers with lock
- Only for 800mm wide racks, with or without doors
- They cover side gap between rack frame & equipment
- Incorporate brush for cable management to equipment
- Elegant image of equipped rack by hiding all side wiring

Blanking Panels
- Quick fit blanking Panels in 1U & 3U
- Special Design to Minimize airflow between them
- They can be installed in any 19” cabinet
Zero Airflow Panel Mounts:
• Designed to close all the perimeter around equipment
• Keep Zero airflow in any position inside the cabinet
• 6 Positions of 1U in front of 800mm wide cabinets
• Available in 600 & 800mm Width and 42U & 47U Height

Isolating bar
• It Cover the space between panel mounts and side panels.
• It Cover the space between cabinet frame and datacenter floor.
• Can be used in any installed rack.
CUBO Air Containment Systems

Modular Solution to Increase Energy efficiency by Physical isolation of Hot & Cold Corridors.

- Stable Inlet air for operation of the equipments
- Allows **Higher** Operating **room Temperature**
- Direct action on Hot spots (aisle Cooling)
- Available in **42U & 47U** Height
- Width Of corridors **1000mm  1200mm  1400mm**
- **Customized solutions** with different vendors Material or special sizes **Under Request**

* cold containment

* hot containment
CUBO Air Containment Systems

Cubo® Active hot containment

Aisle containment system combined with aisle air-conditioning units.

SAIFOR recommends the use of hot aisle containment solutions for various reasons:

1. By concentration of hot air, cool units are kept in the best operating zone.
2. The cold air expelled into the cold aisles can be used to reduce the overall temperature of the room.
3. The room itself acts as a "cold-air containment aisle".
4. More uniform distribution of cold air according to the hot spots in the room.
5. Possibility of higher temperature in the cold aisles so that chillers can work at higher temperatures.
6. Room temperature remains neutral with adjacent rooms.
8. Emergency Mode of Cool units extract the hot air to the room.
**CUBO** Air Containment Systems

*Cubo® Active Cold containment*

Aisle containment system with aisle air-conditioning units.

In this case, the Cool Units take the cold air to the contained aisle, and expel the hot air to the room.

**When the heat of the equipment is dissipated in the room, the ΔT is lowered**, making necessary to work with higher supply temperatures so as to achieve the best working conditions for the cooling units.

SAIFOR recommends implementing this when hot aisle containment systems cannot be installed

**Example 1**: Data Centers with traditional cooling prepared for Medium Density, which need to apply High-Density solutions.

**Example 2**: Data Centres installed in buildings that are not well thermally isolated, and which must sustain very low external temperatures throughout the year. The hot air from the equipment helps to maintain a higher temperature in the room, thus reducing the consumption of the room air conditioners.
CUBO Air Containment Systems

Cubo® Passive Cold containment

Aisle containment system to optimise facilities with a traditional Downfloor cooling system.

Cold aisle containment in data centres that work with a floor air-conditioning system increase their efficiency through containment of the cold-air aisles.

1. By closing off the cold aisles and thus preventing the mixture of hot and cold air, more constant and stable temperatures are achieved in the upper parts of the racks.

2. These improvements, in conjunction with the optimisation and control of the air flows, enable the room's operating temperature to be increased with the resulting energy saving.
CUBO: Air Containment System

Sliding doors
- Key lock access
- PIN code access
- Synchronized open/close
- Security Glass
- Security opening system from Inside
CUBO: Air Containment System

**Bottom covers:**
- Perfect isolation for hot & cold corridors
- Improved aesthetics
- Can be installed in both corridor sides

**Ceiling system:**
- Secure Quick fit system from inside
- Easy removal of tiles for maintenance & cleaning
- Integrated cable management for corridors
CUBO: Air Containment System

Modular Roof system:
- Fire retardant
- Raised Roof allowing installation of sensors, lighting, smoke detectors, fire extinguisher sprinklers, etc.
- Central cable tray as option
**CUBO: Roof Cabling System**

- Modular Cable duct system
- No Need For Raised Floor
- Better & Quicker access to Cables compared with down floor systems
- Compatible with other market Solutions
- Unified Aesthetics
- Embellishment covers for front and sides
- Communication between rows of cabinets
- Quick Ordering
CUBO: Roof Cabling System

**Cable duct support.** Raised in Height allows better entrance radius of cables to the cabinets, and the possibility to adjust the cable ducts in any depth of the cabinet.

**Transversal cable raceways** are foreseen to cross the cables from row to row of the cabinets, connecting with the Central cable tray.

**Longitudinal cable raceways** are made under a modular system with multiple fixing slots for cables. They have direct connection to top cable entries from SAIFOR racks and allow the connection to the Transversal cable raceways. They incorporate cable dividers.

**Cable dividers** allows a better adjustment for management inside the cable raceways.
SACS Saifor Advanced Cooling Solutions
SACS is the SAIFOR cooling solutions range for Data Processing Centers, providing bespoke solutions for High and Medium Density facilities.

The products include precise, high performance air/water heat exchangers, air-flow control systems, and other solutions to optimize cooling in existing facilities.

The constant progress of the new technologies has led to increasingly compact and powerful equipment, which means a direct increase in energy consumption for actual operation and to provide the facility with adequate cooling.

The main problem lies in the fact that nearly half of all energy consumption in data centers is used for cooling, which is in many cases partially wasted due to inefficient design, planning, installation, or maintenance.

SAIFOR, as an industrial specialist providing state-of-the-art solutions for the infrastructure of data centers, offers its SACS range, an advanced range of solutions that respond to the following issues:
SACS Saifor Advanced Cooling Solutions

KEY POINTS IN SACS PRODUCTS

- INCREASING COOLING EFFICIENCY
- REDUCING ENERGY CONSUMPTION AND CO2 EMISSIONS
- OPTIMISING COOLING EFFICIENCY IN EXISTING FACILITIES
- SCALABILITY
- MONITORING AND SAFETY
- ECONOMIC SAVING
- REDUCED TOTAL COST OF OWNERSHIP (TCO)
INCREASING COOLING EFFICIENCY
Application of new solutions for data center design which, in combination with air containment systems, enable the service temperature of the data centers to be increased.

REDUCING ENERGY CONSUMPTION AND CO2 EMISSIONS
More efficient designs combined with the use of cooling solutions with variable operating functionality, which self-regulate their working state in real time according to the specific needs of the time.

OPTIMISING COOLING EFFICIENCY IN EXISTING FACILITIES
Solutions that are easy to apply in pre-installed SAIFOR racks, especially recommended for Low and Medium Density solutions.

SCALABILITY
Modular solutions can be implemented in the future, thus making it possible to grow and invest, according to the needs of the time.
SACS Saifor Advanced Cooling Solutions

MONITORING AND SAFETY
Specific products for the supervision and management of the physical cooling infrastructure. These enable operability and preventive maintenance of the facility to be monitored.

ECONOMIC SAVING
As a result of their initial planning and the savings resulting from the energy consumption, efficient facilities lead to a fast ROI and provide an essential base for future expansion.

REDUCED TOTAL COST OF OWNERSHIP (TCO)
Thanks to its modular design, the Cool Units can be placed next to heat sources to optimize the cooling resources, at the same time offers the required Flexibility & Scalability to grow according to the needs.

On the other hand, the use of electronic variable-speed fans reduces energy consumption during less active periods.
sacs
Saifor Advanced Cooling Solutions

HTRD High thermal Removal door

CADU Cool Air Distribution Unit

HDC High Density Cooling

* KEEPCOOL

MDC Medium density cooling
SACS Saifor Advanced Cooling Solutions

HTRD

CADU

KEEP COOL

HDC

MDC

DATACENTER SOLUTIONS
SACS Saifor Advanced Cooling Solutions

CADU  HTRD  MDC  HDC

AIR  WATER

+ COOL CAPACITY
**CADU: COOL AIR DISTRIBUTION UNIT**

CADU improves Cooling Performance of existing installations where Cold air is entering at Plenum.

- CADU redirects the cold air higher up to the front.
- CADU is fitted to the two bottom units on 19” racks.
- CADU can be installed on other vendor racks.
SACs: air solutions
* Up to 3Kw
**HTRD: HIGH THERMAL REMOVAL DOOR**

**HTRD** is a passive Cooling system that extracts the rear hot air, by means of 3 speed adjustable turbines, out of the rack in three possible ways:

1. Straight into the room
2. Connected to the ceiling, via a duct branch
3. Connected to the room's ventilation ducts.

**Benefits:**
- Direct action on Hot Spots
- Increase the performance of existing Infrastructure
- Low power consumption
- Minimize noise
**HTRD**

*SaCS: air solutions*

* Up to 6Kw
SACS: Chilled water solutions

MDC & HDC: MEDIUM AND HIGH DENSITY COOLING

*HDC Aisle (Up to 36Kw)

*HDC Rack (Up to 31Kw)
SACS: Chilled water solutions

HDC: HIGH DENSITY COOLING

Designed to achieve the highest cooling efficiency for High Density Data Processing Centres.

- Up to 36Kw
- Power consumption below 1000 W
- Free cooling Ready
- Remote management
- Stable, constant and even cooling from bottom to top of the rack
- Positioning of the air-conditioning units next to heat source improves reactivity
- Local performance of the cool Units with variable fan drives reduce power consumption during peak off periods
- Access to vital parts of the product from the front and rear
- No need for raised floor for installation
- Fans placed front (Cold Side)
  - Increase Cooling efficiency
  - Reduces Air Pressure of Fans (longer life)
**HDC:** Intuitive remote management

The new Cool Unit HDC incorporates a more intuitive & efficient controller, optimized for smartphones, ensuring total availability and Remote control.
**SACS: Chilled water solutions**

**HDC Up to 36 Kw**

- **Cooling capacity (kW)**
- **DeltaT (°C)**

- Supply air 25°C
- Supply air 22°C
- Supply air 20°C

**Cooling capacity for the cool unit HDC aisle**

*Water temperature 12°C*
**SACS:** Chilled water solutions

**MDC:** MEDIUM DENSITY COOLING

*Up to 17kW capacity*

**MDC** It is a **Cost-Effective Solution** designed to absorb the heat from the back of the rack, cool and blow it again to the front, where there are the cool air intakes of the different equipment installed.

MDC is fitted with an exterior LCD console, to control the parameters & settings.

- **Up to 17kW capacity**
- Power consumption below 1000 W
- Stable, constant and even cooling from bottom to top of the rack
- Positioning of the air-conditioning units next to heat source improves reactivity
- Local performance of the cool Units with variable fan drives reduce power consumption during peak off periods
- Access to vital parts of the product from the front and rear
- Fans placed front (Cold Side)
SACS: Chilled water solutions

MDC Up to 17 Kw

Water temperature 8 °C

- Tfront=18°C
- Tfront=20°C
- Tfront=22°C

Water flow:
- 0.3 l/s
- 0.5 l/s
- 1 l/s

REAR TEMPERATURE (°C)
SACS: Chilled water solutions

HDC & MDC Aisle

* Up to 36 Kw

* Possibility to create hot or cold corridor with or without redundancy
SACS: Chilled water solutions

HDC Aisle

ADVANTAGES:

1. Medium to High Density Applications
2. Modular & Scalable Application
3. Possibility to create different Density areas in the Corridor / Datacenter
4. Allows Direct Cooling on HD Racks
5. Multiple options for simple redundancy N+1 or N+2 by adding more units
6. Redundancy N+2 can be used for future Scalability, upgrading to N+1 solution
7. Redundancy is made at Corridor level, it benefits Maintenance (stop 1 Unit)
8. Hot or Cold Containment Solutions
SACS: Chilled water solutions

MDC & HDC Rack

HDC Rack Option
(Up to 31Kw)
SACS: Chilled water solutions

HDC RACK ADVANTAGES:

1. High Density Applications
2. Air Circulation outside rack frame
   - Total Depth of Cabinet Available for Equipment
   - Cold Air is Blown to the front of Servers
   - Internal equipment does Not Obstruct air Return
3. Low Noise
4. Efficient cooling independent from room conditions
5. Information at Rack level
6. Can be implemented in places Not designed for High Density applications
7. Ideal for High Density in Reduced Spaces
8. Optimum Solution for small Datacenters
9. Quick Solution to Lack of Cooling in existing DC
**SACS: supervision & monitoring system**

**KEEP-COOL: SUPERVISOR MANAGER**

The Keep-Cool® supervision module offers real-time monitoring and management of the status and functionality of the cooling units.

The correct use of the control unit, combined with an analysis of data obtained over time will enable the settings for the whole facility to be optimized, from the chiller to the cool units, ensuring the data center operate in the most efficient manner according to the real needs of the facility.

**Benefits:**

- Control up to 200 units installed in serials
- SAIFOR software compatible with existing BMS (Building Management Systems).
- Modbus, SNMP, BACnet, Lonworks interfaces.
- Possibility to control multiple units under a single IP
- Plug & Play System
- Alarm management.
**sacs**: supervision & monitoring system

KEEP COOL

* Possibility to monitor up to 200 serial-installation units.
SECURITY: **Access Control**

Monitor & Remote Control for all access systems into the cabinets.

Web browser interface with different user’s levels that allow management and registration of cabinet access.

- Rack Monitoring system
- IP Browser
- Rack Access
  - Different User features
  - Pin code
  - Card Reader
- Scalable
- Modular Solution
- Standalone & Extension Units
- Mechanical Solutions
MONITORING: Remote Supervision

Integration of all access systems into the cabinets.

Web browser interface with different user’s levels that allow management of the cabinet entry.

Can support different inputs like:

- Temperature
- Humidity
- Smoke detection
- Water leakage
- etc.
INTELLIGENT POWER MANAGEMENT

Official distributors for Server Technology products

**power information**
- Input feed voltage (VAC)
- Input feet watts (W)
- System total watts (W)
- System footprint (SqFt / sqM)
- System watts/area (W/SqFt / W/SqM)

**features**
- Easy to use, integral, web based GUI configuration tool.
- “Auto-recovery” with a reboot delay time when conditions return to normal levels.
- Each CDU outlet is assigned the IP address of the connected device for shut down notification.
- Remote shutdown agent for server shut down.
- SNMP trap notifications.
- Load shedding event notifications via SNMP traps or Email alerts.
INTELLIGENT POWER MANAGEMENT

Official distributors for Server Technology products

- Flexible Mounting options
- Branch Circuit Protection
- Input current Monitoring
- Environmental Monitoring
- Expansion module
- IP access, Security & Communications
- Individual Outlet control
- POPS Per Outlet Power Sensing
INTELLIGENT POWER MANAGEMENT

**Basic Power**
Distribution

**Metered PDUs**
Local LED amp meter

**Smart PDUs**
IP Addressable & Serial connection for remote viewing

**Switched PDUs**
IP Addressable & Serial connection for remote access

**Switched PDUs with single outlet metering (POPS)**
IP Addressable & Serial connection for remote access
Sentry Power Manager SPM
Centralized control, monitoring and reporting

**features**
- Secure, web based GUI configuration tool.
- Temperature Support (Celsius/Fahrenheit) and Humidity (%)
- Logs authentications, configuration changes and system events.
- SNMP and email notifications for multiple users of log, event, power, and authorization, configuration messages.
- SYSLOG logging protocol support,
- Automatic Firmware Updates via FTP.
- Strong Password Support and Pre-Login Banner.

**Fail safe Transfer Switch**
Basic to IP Addressable

**48V DC Power**
For Telco Environment