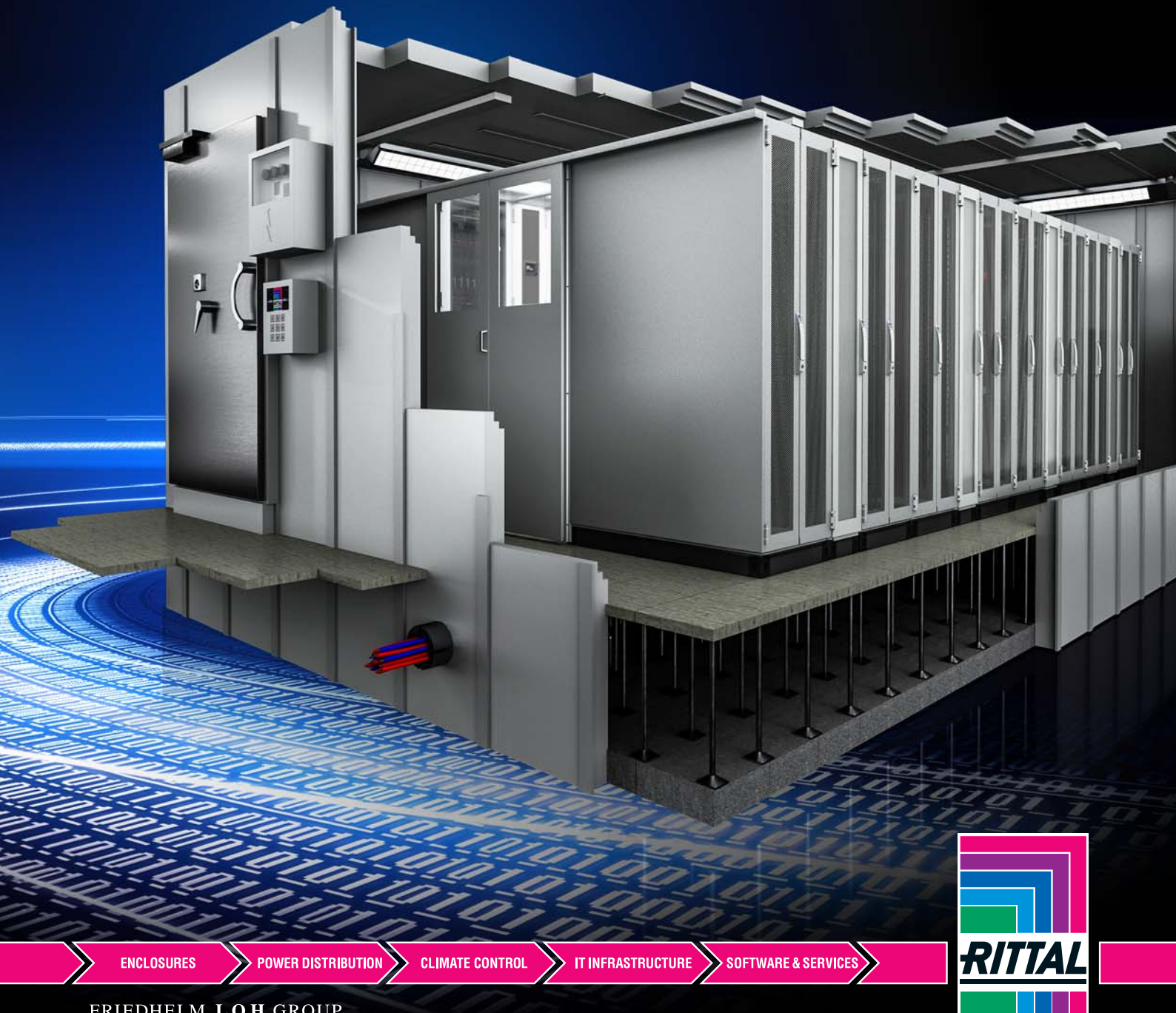


# Rittal – The System.

Faster – better – everywhere.

## ► Security rooms – Effective protection for IT



ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

IT INFRASTRUCTURE

SOFTWARE & SERVICES



FRIEDHELM LOH GROUP

# Rittal – The System.

Faster – better – everywhere.



ENCLOSURES

POWER DISTRIBUTION

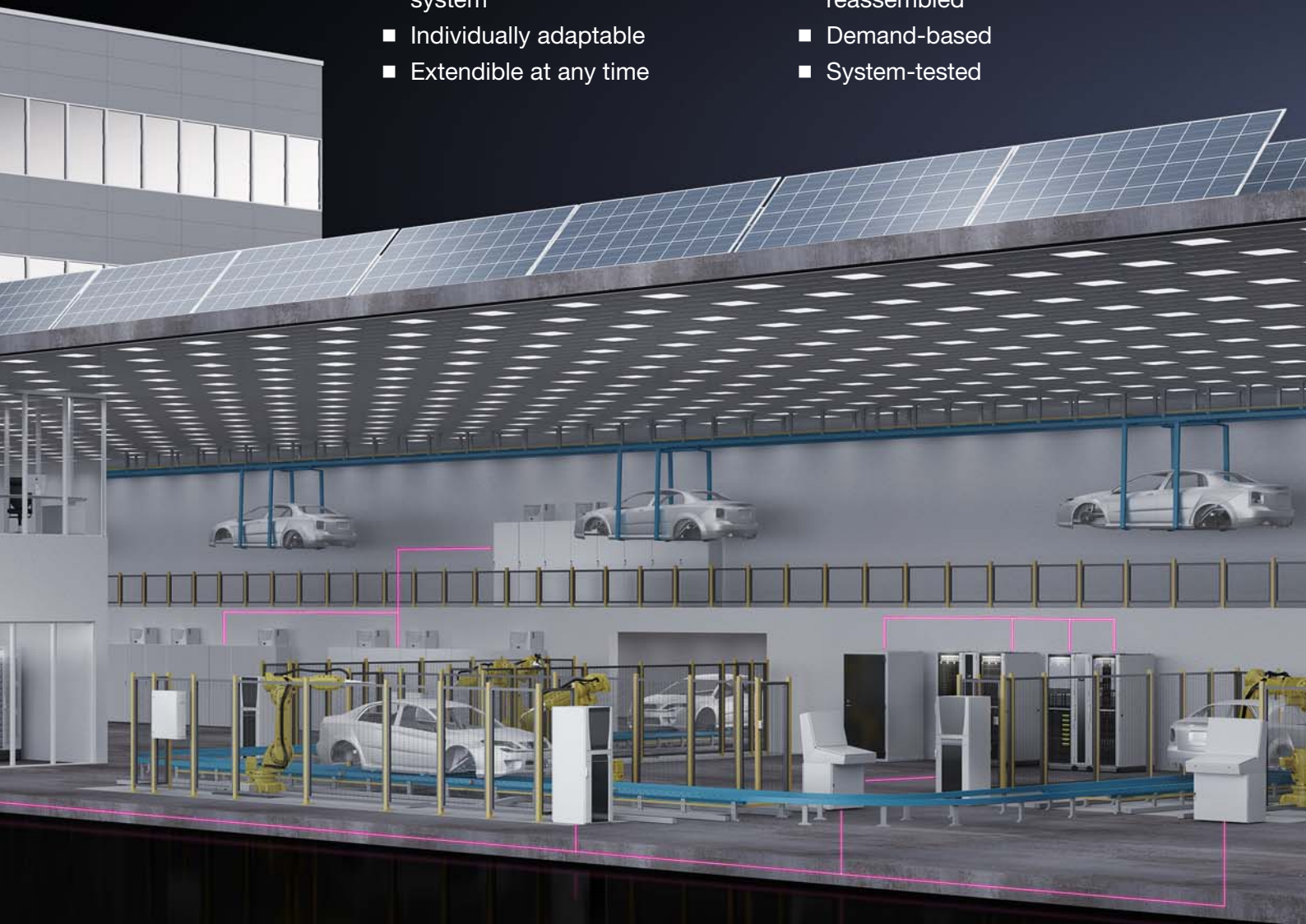
CLIMATE CONTROL

# Integrated security optimisation

A failure in the IT system, the backbone of many processes within the company, can cause untold damage. For this reason, protection from digital threats is always a priority. But is that enough to guarantee uninterrupted business operations? The answer is an unequivocal “no”.

IT security begins with protection from physical threats, which could destroy the entire IT infrastructure, and threaten a company’s very existence, especially in the Industry 4.0 era. With all processes so closely interconnected, not only could the administration be under threat; the entire production system is at risk of failure. Security rooms from Rittal significantly enhance IT security and guarantee maximum protection for your investment, from basic protection to high availability.

- Modular room-within-a-room system
- Individually adaptable
- Extendible at any time
- May be dismantled and reassembled
- Demand-based
- System-tested



IT INFRASTRUCTURE

SOFTWARE & SERVICES



# Security rooms and IT infrastructures

A perfect IT environment provides the optimum basis for perfect business. Rittal designs, builds and optimises data centres on your behalf, making an effective and efficient contribution to your corporate success.

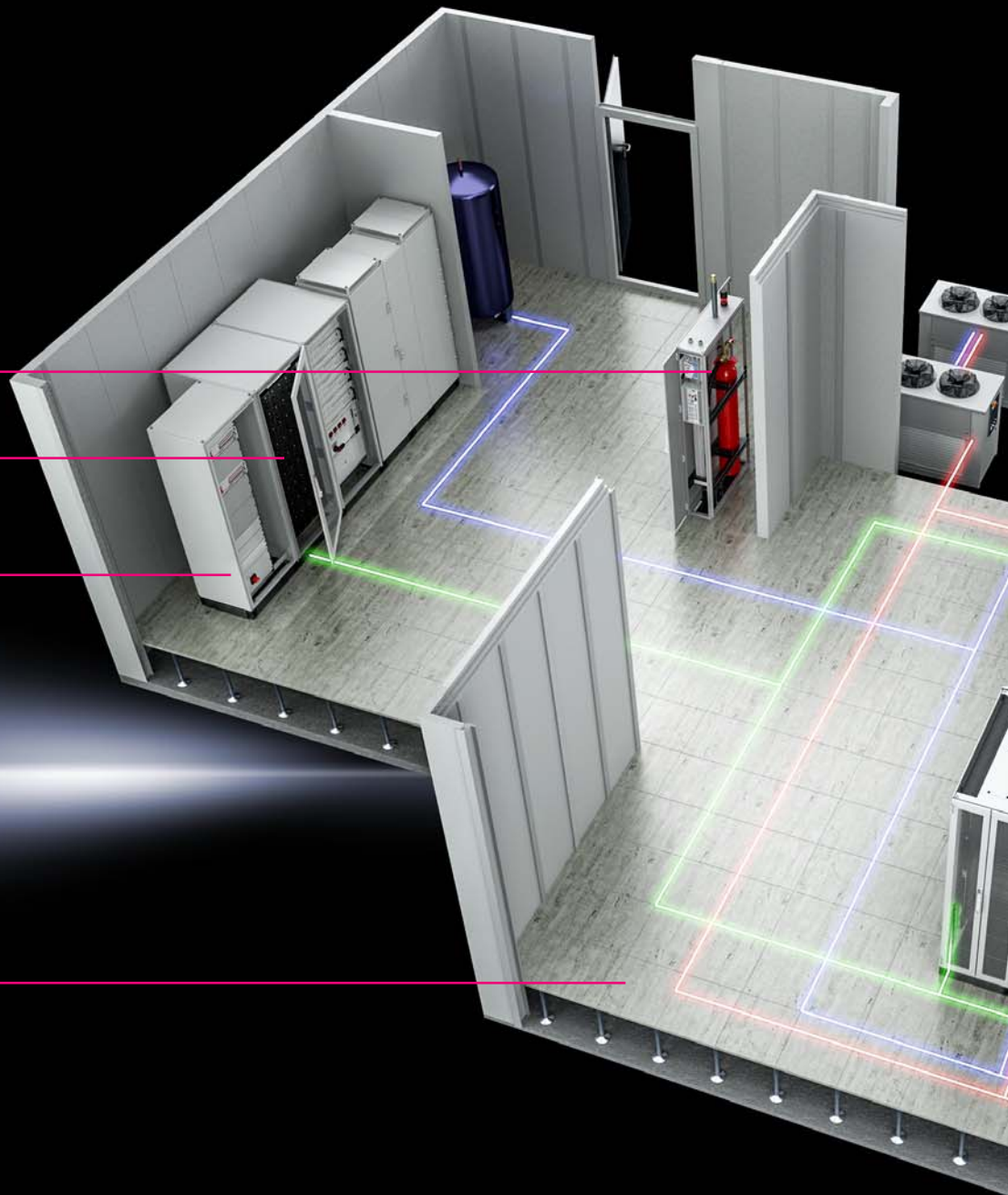
We will advise you, agree the details, and develop perfect-fit solutions, down to the smallest detail.

IT-compatible fire alarm and extinguisher systems, early fire detection

Uninterruptible power supply

Modular power distribution and back-up

High-availability IT security rooms



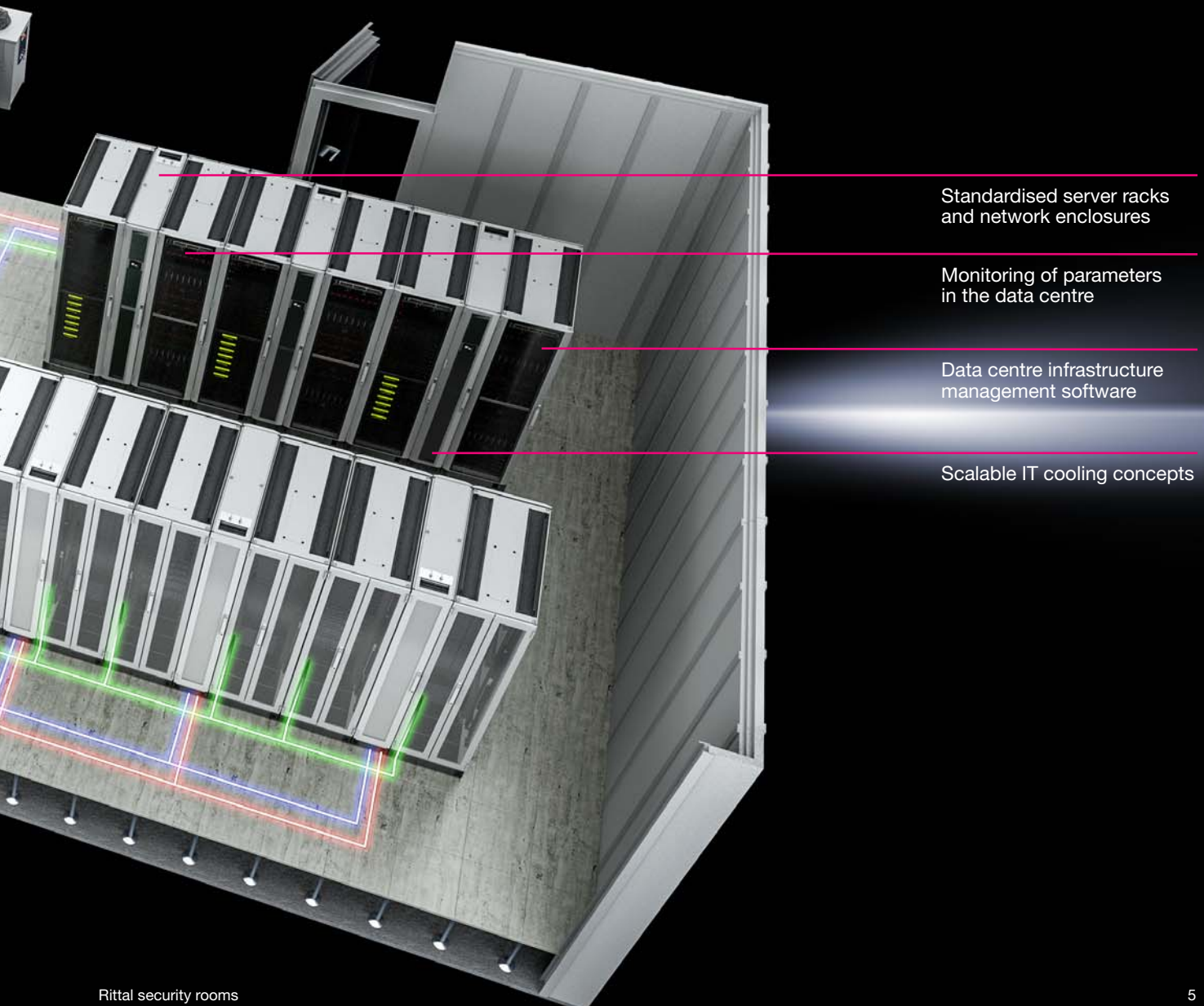
## Rittal as a full-range supplier

Benefit from the wealth of opportunities afforded by a full-range supplier. From the initial draft, through to the implementation phase and after-sales service, with Rittal you only deal with one point of contact. This ensures maximum clarity and structure for your data centre project.

All participants and all components are precisely coordinated with one another, and every detail contributes to the overall system performance.

## Gains at every level

- **Flexible:** Modular layout for optimum adaptation to the location
- **Investment security:** Location-independent, may be dismantled and reassembled elsewhere
- **Efficient:** "Pay as you grow" or expansion on demand, without having to invest for the future now
- **Demand-based:** As secure as you need, rather than as secure as possible. Solutions ranging from basic protection to high-MTBF
- **Proven:** Tested protection from physical threats, confirmed by accredited test institutes
- **System-tested:** The security of the entire room system, rather than its individual components, has been tested.
- **Expert advice:** Requirement analysis, simulation and calculations, efficiency analysis
- **Implementation:** Implemented under the supervision of an experienced project engineer, "all from a single source"
- **Support:** Maintenance, repair, spare parts, service, regular inspections as required by law, modernisation



# Identify potential threats quickly

Imagine a complete system failure: the screens go dark, production comes to a halt ...

This could be the outcome of various threats to the IT environment.

These threats are many and diverse:

Fire, water, smoke, dust, unauthorised access, and last but not least, data theft and industrial espionage.



## Fire

- Destruction by flames
- Heat damage
- Threat from extinguisher water
- Impairment from excessive relative humidity



## Gases

- Cold smoke
- Hot smoke
- Destruction of circuit boards



## Water

- Defective water and wastewater installations
- Flooding
- Extinguishing water damage



## Dust

- Dust drawn in from the ambient air by the active components in the data centre



## EMC

- Influence of the IT equipment by electromagnetic irradiation
- Compromising electromagnetic radiation from the IT components



## Unauthorised access

- Access to the data centre by unauthorised individuals
- Manipulation and misuse of sensitive data

# Create efficient solutions

The solutions are as diverse as the threats themselves.

Rittal security rooms are tested and certified by accredited test institutes. Protection from the various threats has been verified and documented in test reports/certificates.



## Fire protection

Performance of various type and system tests, from basic protection through to high-MTBF

## Smoke protection

Testing for both cold smoke and hot smoke resistance  
DIN EN 1634-3 defines the required protection level.

## Protection from dust and hosed water resistance

A verified protection category of IP 56 is available for Basic Protection rooms GSR and GSR Plus, as well as the High-Availability room HVR, tested to IEC 60529.

- IP 5x: Protected against dust in harmful quantities
- IP x6: Protected against powerful water jets

## EMC protection

Targeted measures in the security rooms achieve verified shielding attenuation levels of up to 60 dB in the frequency range from 30 MHz to 3 GHz, for enhanced EMC protection at a reasonable cost.

## Burglar resistance

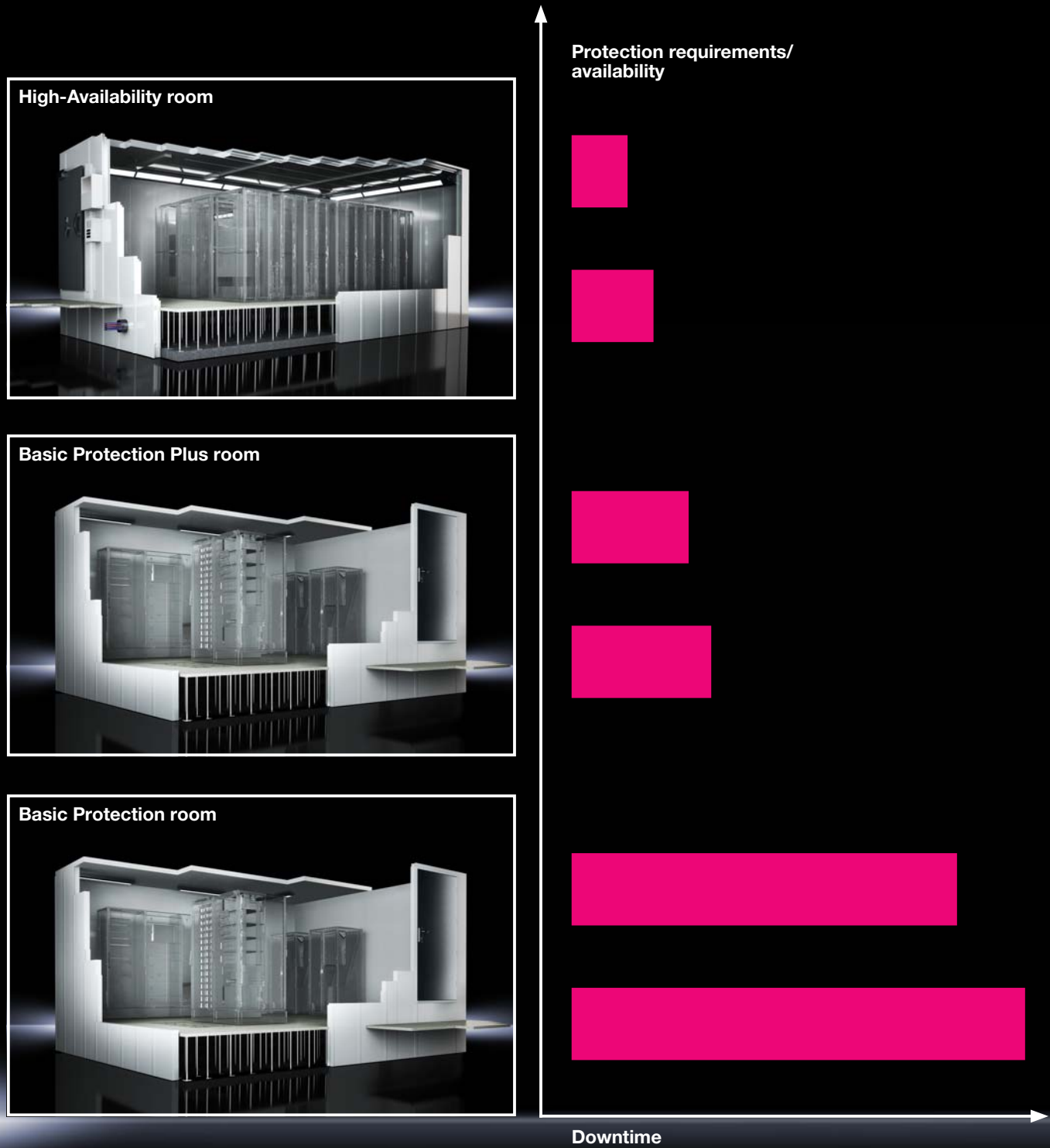
Varying resistance classes have been tested for the different room systems (resistance class RC2–RC4).

- Tool attack analogous to DIN EN 1630/2011-09

# Clearly defined availability

Availability is the main parameter for assessing IT and data centres. Every percentage point after the decimal point means several hours less downtime per annum. This translates into hard cash.

A concept for protection from physical threats is therefore in every company's business interest.





Once the required IT availability has been defined, those responsible qualify and quantify the risk of damage for demand-based, cost-efficient planning of the required protection measures.

### TIER classification

Data centres are classified in TIER classes according to availability and redundancy.

|                                    | TIER I                     | TIER II                   | TIER III                 | TIER IV                 |
|------------------------------------|----------------------------|---------------------------|--------------------------|-------------------------|
| Monitoring period                  | 1 year                     | 2 years                   | 5 years                  | 5 years                 |
| Restricted operation (maintenance) | 2 downtimes over 12 hours  | 3 downtimes over 12 hours | 0                        | 0                       |
| Downtime                           | 1.2 downtimes over 4 hours | 2 downtimes over 4 hours  | 2 downtimes over 4 hours | 1 downtime over 4 hours |
|                                    | ↓                          | ↓                         | ↓                        | ↓                       |
| Annual IT downtime                 | 28.8 hrs                   | 22.0 hrs                  | 1.6 hrs                  | 0.8 hrs                 |
| Availability                       | <b>99.671%</b>             | <b>99.749%</b>            | <b>99.982%</b>           | <b>99.991%</b>          |

# Comprehensive quality guarantees

The definitions of Basic Protection, Basic Protection Plus and High-Availability security rooms are largely determined by their fire protection equipment. High-Availability rooms from Rittal are certified to ECB-S and satisfy EN 1047-2 without restriction, while the Basic Protection rooms satisfy DIN EN 1363.




## ECB-S certification offers the following benefits:

- System-tested room
- Maximum quality protection thanks to:
  - Independent quality monitoring of the production plant
  - Registration of every High-Availability room built
  - Inspections during room construction
- Compliance with European standards
- Improved rating situation
- Transparency for banks and insurance companies

# Requirement-based security

As secure as you need, rather than as secure as possible.  
Solutions ranging from basic protection to high-availability


Temperature increase  
**max. 50 K** 

Relative humidity  
**max. 85%** 



## Fire protection for High-Availability

- Testing of the entire security room to EN 1047-2.
- Flame impingement over 60 minutes
- Max. temperature increase 50 K
- Max. relative humidity 85%
- Post-heating period 24 hours; even during this period, the limits must not be exceeded
- Impact test

Temperature increase  
in the first 30 minutes  
**max. 50 K** 

Relative humidity  
in the first 30 minutes  
**max. 85%** 

## Fire protection for Basic Protection Plus

- Testing of security room components to EN 1363
- Testing of critical connections:  
Security room components including critical connections such as wall/ceiling, wall/frame, wall/cable entry with flame impingement over 90 minutes
- Max. temperature increase 50 K in the first 30 minutes
- Max. relative humidity 85% in the first 30 minutes
- Max. temperature increase 140 K, in places 180 K after 30 minutes

Temperature increase  
**max. 180 K** 

Relative humidity  
**Not considered**

## Fire protection for Basic Protection

- Testing of security room components to EN 1363
- Testing of critical connections:  
Security room components including critical connections such as wall/ceiling, wall/frame, wall/cable entry with flame impingement over 90 minutes
- Max. temperature increase 140 K, in places 180 K
- Humidity is not considered



Temperature increase  
**max. 180 K** 

Relative humidity  
**Not considered**

## Conventional fire protection Not recommended for IT applications

- In the event of fire, high levels of humidity will escape through concrete walls (water vapour)
- Risk of fire and smoke spreading in the vicinity of the connection points
- No testing of the system
- Testing of components to EN 1363/EI 90
- Flame impingement over 90 minutes
- Max. temperature increase 140 K, in places 180 K
- Humidity is not considered

# Basic Protection room and Basic Protection Plus room (GSR)



## Standard protection from:



### Your benefits with GSR, GSR Plus and HVR

- System-tested protection
- Multi-functional risk coverage
- Dust- and noise-reduced installation
- Dismantling and reassembly plus extendibility = investment security
- Adaptation of the different room systems

#### With HVR only:



- System-tested high-availability protection
- ECB-S certification
- Independent quality monitoring

### High security requirements

The Basic Protection room provides a system-tested solution for protecting infrastructure components such as extinguisher systems, uninterruptible power supplies and cooling. The Basic Protection Plus room also offers solid basic protection for IT in addition to protection of infrastructure components.

### Structure of the Basic Protection room

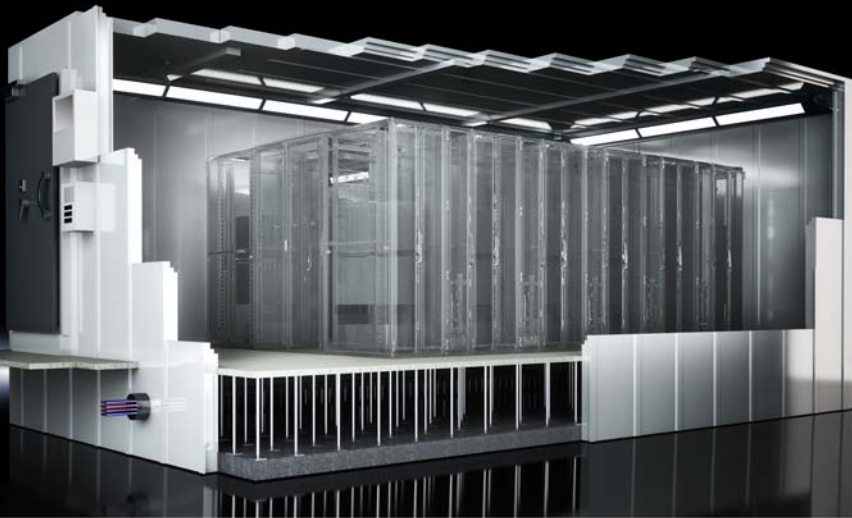
- Element core made from thermally effective insulating material
- Robust, encapsulated sheet steel cassette panels
- Innovative connection system using patented profile technology
- Use of temperature- and humidity-resistant seals

| Criterion                         | Standard  |
|-----------------------------------|---|
| <b>System testing</b>             |  System testing  |
| <b>Fire protection</b>            |  ECB-S certification to EN 1047-2, 50 K temperature increase and 85% rel. humidity for up to 24 hours (post-heating period), Flame impingement time 60 minutes<br>50 K temperature increase and 85% rel. humidity without post-heating period, flame impingement time 30 minutes<br>F 120 to DIN 4102; EI 120 (wall) to EN 1363 (component-tested)<br>F 90 to DIN 4102<br>EI 90 to EN 1363 |
| <b>Corrosive combustion gases</b> | Acrid gas-tightness based on EN 18 095  |
| <b>Falling debris</b>             | Impact test 200 kg from a drop height of 1.5 m with impact energy of 3,000 Nm   |
| <b>Water</b>                      | Protection category IP X6 to IEC 60 529<br>Protection from standing water   |
| <b>Dust</b>                       | Protection category IP 5X to IEC 60 529   |
| <b>Unauthorised access</b>        | Resistance class RC4, tool attack analogous to DIN/EN 1630, door system only<br>Resistance class RC3, tool attack analogous to DIN/EN 1630<br>Resistance class RC2, tool attack analogous to DIN/EN 1630  |
| <b>Explosion</b>                  | Detonation test   |
| <b>EMC</b>                        | Shield attenuation levels of up to 60 dB in the frequency range from 30 MHz to 3 GHz  |

System-tested structures are tested as a complete unit, comprising the cell structure and built-in modules such as doors, cable shields or ventilation units. By contrast, generic component testing only refers to individual parts.

Conventional construction methods refer to room structures made of plasterboard, concrete and other standard construction materials which do not offer sufficient protection for data centre applications. Conventional construction methods are generally unsuitable for use as a fire wall and are only component-tested.

# High-Availability room (HVR)



## Standard protection from:



Fire



Extinguishing water



Corrosive gases



Vandalism



Unauthorised access



Dust



Explosion



Falling debris



Theft/burglary



Mechanical access

### Maximum security

The High-Availability room offers maximum physical protection for data centres and IT system locations. The system was certified by ECB (European Certification Body GmbH) to ECB-S regulations. This certification confirms that the High-Availability room meets the requirements of EN 1047-2 without restriction. Moreover, the construction of the security room is subject to continuous quality monitoring by an independent agent.

### Structure of the High-Availability room

- Complex 4-layer element core made of thermally effective insulation substances
- Robust, encapsulated sheet steel cassette panels
- ECB-S tested, multiple lock, panic release
- Patented connection system
- Fireproof floor elements
- Use of extremely temperature- and humidity-resistant seals

|  | Basic Protection room | Basic Protection Plus room | High-Availability room |
|--|-----------------------|----------------------------|------------------------|
|  | ■                     | ■                          | ■                      |
|  | -                     | -                          | ■                      |
|  | -                     | ■                          | ■                      |
|  | -                     | -                          | ■                      |
|  | ■                     | ■                          | ■                      |
|  | ■                     | ■                          | -                      |
|  | ■                     | ■                          | ■                      |
|  | ■                     | ■                          | ■                      |
|  | -                     | -                          | ■                      |
|  | ■                     | ■                          | ■                      |
|  | -                     | -                          | ■                      |
|  | -                     | □                          | ■                      |
|  | ■                     | ■                          | ■                      |
|  | -                     | -                          | ■                      |
|  | □                     | □                          | □                      |

■ Standard □ Option

# Carefully thought-out solutions in every detail

Investing in the physical security of IT requires long-term concepts for adaptation and energy-efficient operation. In this regard, Rittal provides a tailored solution for every application.

## Side panels

These elements are available in standard widths and scalable in the height.

## System control of the security room

## Corner elements

Predefined panels on a 90 degree angle

## Door systems

Fire-resistant, multi-walled sheet steel door leaf, adapted to suit the room type

## Cable and pipe sealing systems

A range of different variants facilitate the secure entry of cables and pipes into the different room systems



- The different components in the security rooms are custom-coordinated.
- The modular system allows targeted compilation of individual components.
- System testing guarantees reliability for the complete solution.



#### **Roof elements**

Like the side panels, the roof elements are also produced in a standard width and variable lengths.

#### **Supporting structure**

Individually designed for the various room sizes and types

#### **Climate and overpressure control dampers**

To close fire prevention openings, required for pressure relief, cooling or ventilation.

#### **Base systems**

The design of the base is determined by the chosen room type.

# Details that create benefits

The benefit often lies in the detail. In particular, security-relevant interfaces decide whether the concept is viable. That is why we attach particular priority to this aspect.



## Modular

The modular structure of the Basic Protection rooms and the High-Availability room facilitate installation even in hard-to-access locations.



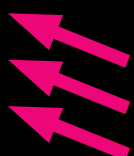
## Flexible

The room elements with a 600 mm width pitch pattern and a variable height pitch pattern may be flexibly adapted to the existing premises and space requirements.



## Extendible

The option of extending the room at a later date or relocating it elsewhere allows you to invest according to your requirements, providing a high level of investment security.







#### Cable entry, soft duct

The soft duct provides the option of inserting cables and pipes into the GSR/GSR Plus.



#### Fire protection valve

The fire protection valve is used for pressure relief of the Basic Protection room. In the case of extinguishing, it is opened for a defined period to allow pressure relief.



#### Climate and overpressure control dampers

The climate control damper is used if the security room is cooled/ climate controlled from the outside. It is usually open, and is closed in the event of a fire.

The overpressure control damper is usually closed. In the case of extinguishing, it is opened for a defined period to allow pressure relief.



#### Cable entry, hard duct

The hard duct provides the option of inserting cables and pipes into the Basic Protection Plus and High-Availability rooms.



#### Supporting structure

The supporting structure for security rooms is dimensioned and planned depending on the room size.



#### Security door

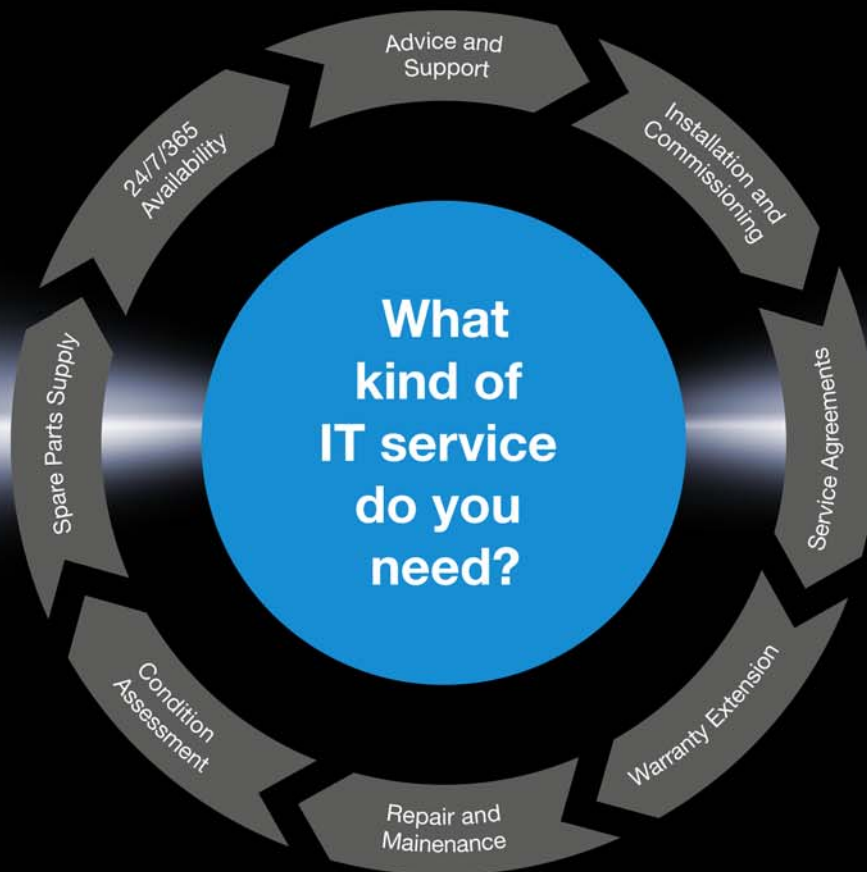
The door is tested in the overall system of the High-Availability room. It can be opened from the inside at any time with a panic release. Various different access control systems may be used.

# Perfect service for “Rittal – The System.”

Tailored solutions for your individual requirements – all from one partner.

That is “Rittal – The System.” Our entire expertise is combined into a single system package, in a synthesis of products, engineering tools and services. This system package is rounded off by Rittal International Service. The name says it all, because our services are indeed available to customers worldwide.

A total of 58 subsidiaries, more than 150 service partners and over 1,000 service technicians guarantee regional proximity and fast response times. Predictable costs are the outcome of individual maintenance contracts. An international presence alongside regional proximity, ultimate service quality coupled with a transparent budget – that is our international service.

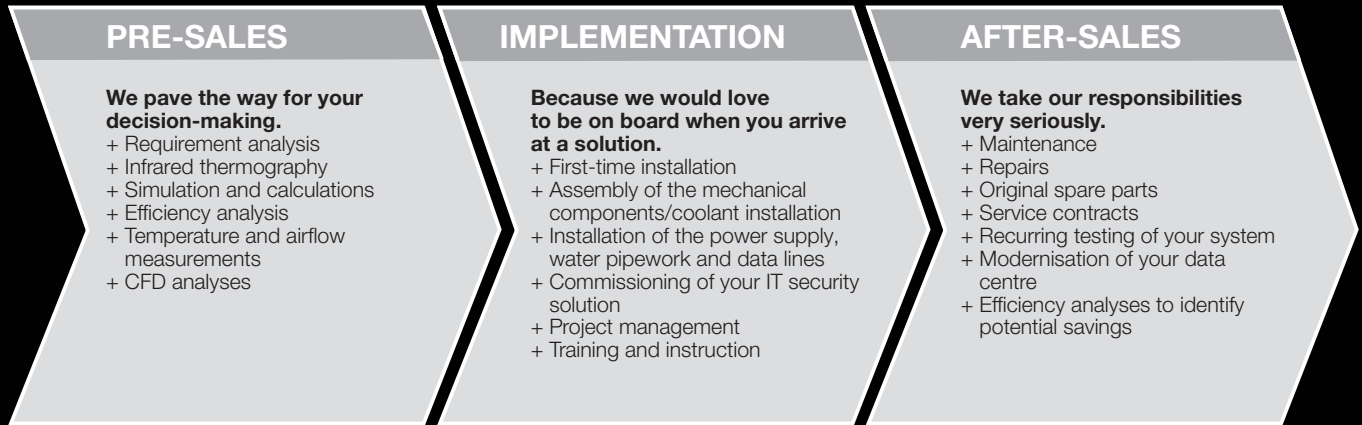


## Our IT service package for you!

- **Always at your side, whenever you need us!**  
With our on-site technicians
- **Contactable around the clock!**  
24 hours/day, 365 days/year
- **Plannable costs with our five-year service contracts**  
No additional costs for spare parts, fault clearance, technician travel etc.
- **Original spare parts are stocked at our Global Distribution Centre in Haiger (central Hesse)**  
All call-off orders placed by midday will arrive the following day (applies to Germany).
- **Installation and commissioning of your IT solution!**  
Reliable, secure assembly of all components
- **Understand how it works!**  
We will be happy to provide individual training in your IT solution.

## We support you at every phase of the product lifecycle

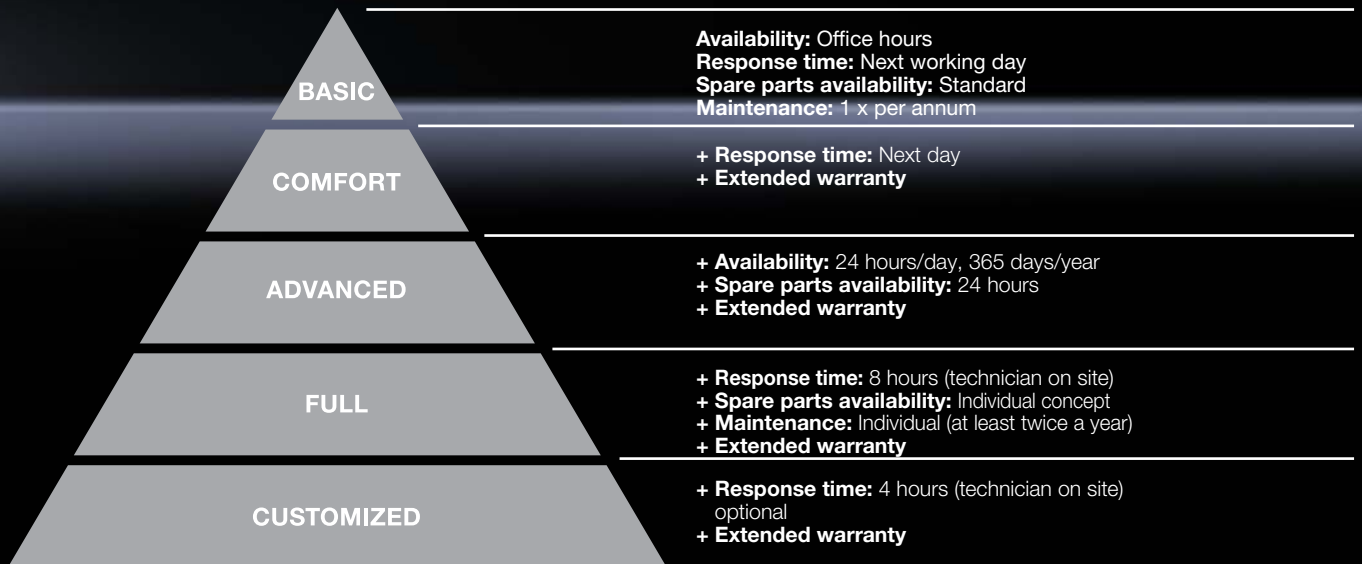
Consistent support for your IT infrastructure with our customised IT service solutions.



## Flexible service contracts

The right solution to match your requirements

Features of our Rittal service packages at a glance:



### The benefits for you:

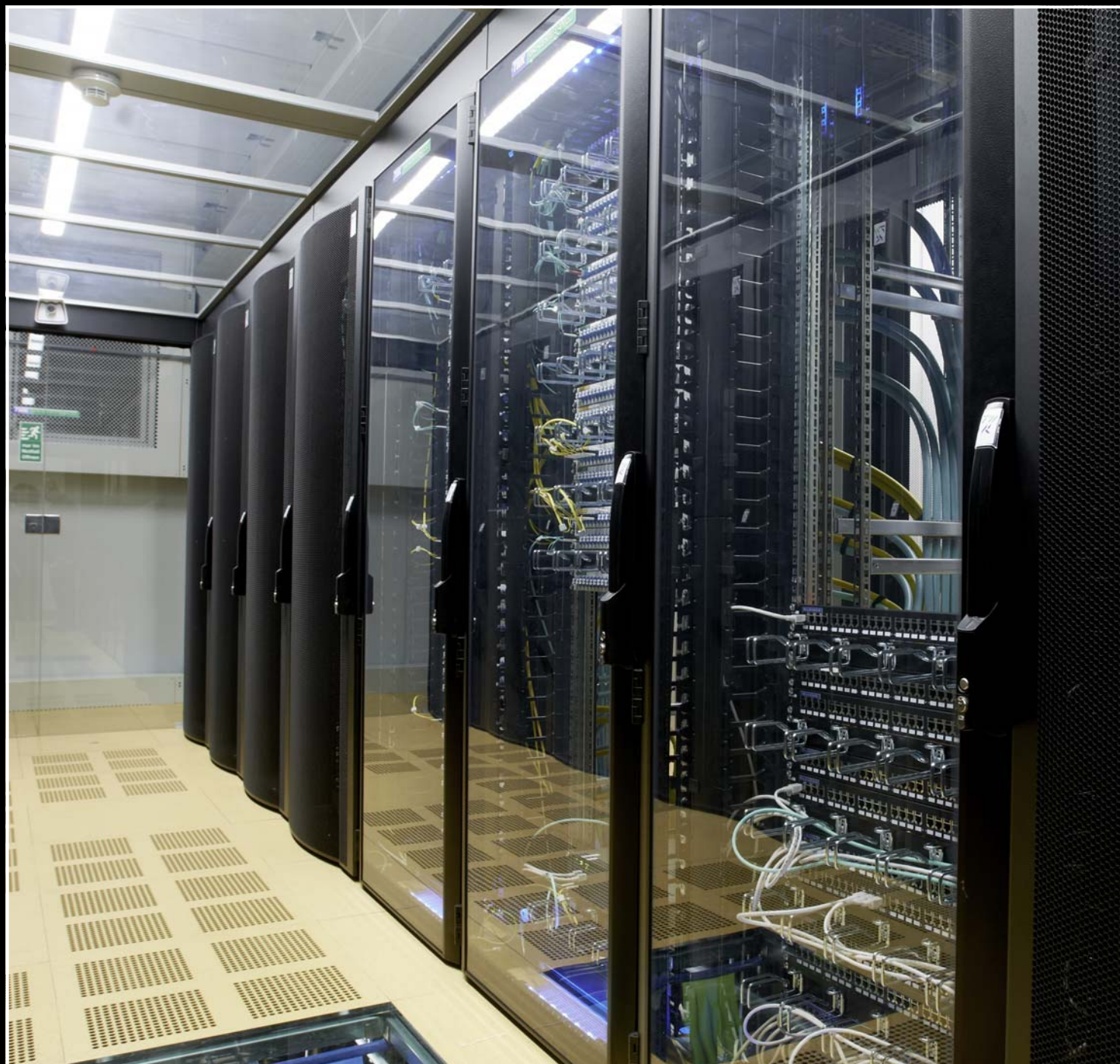
- Short response times thanks to local technicians
- Preserve the value of your systems
- Extended warranty up to 5 years
- Spare parts held in stock
- Transparent, plannable costs

### 5 years

Manufacturer's warranty in conjunction with a signed service agreement



# A modern data centre for Kaiserslautern



Kaiserslautern has emerged as an important IT location, with the Pfalz region acquiring the nickname “Silicon Woods”, being home to numerous innovative companies. These companies now have the option of outsourcing their IT infrastructure to the Demando GmbH data centre. Alongside its own applications, the company now also hosts IT applications for other local authority establishments in two separate data centres.



View of the data centre's cold aisle



Security door of the ECB-S-certified High-Availability room

### The requirement:

#### A new data centre – in just six months

As the two existing data centres were fast approaching their power supply and climate control limits, a new building was needed. In order to meet clients' growing demands and comply with new legislation, the brief was to build a new data centre – in just six months. Not a problem for Rittal.

### The solution:

#### High energy efficiency

As well as security and high-availability, the Rittal concept also focused on high levels of energy efficiency. With a power usage effectiveness (PuE) of less than 1.3, the data centre boasts one of the best ratings in Europe compared with other data centres. This saves between 30,000 and 40,000 Euros per annum in operating costs.

#### Extendible and secure

The IT security room in the data centre is ECB-S-certified, and offers capacity for future expansion with its modular design. Moreover, the redundant design of data storage, power supply and Internet connection ensures a high level of security. It is operated and monitored almost entirely remotely. Additionally, the access doors may be opened by each employee individually using a SmartCard and PIN or fingerprint.



“Without Rittal acting as general contractors, it would have been impossible to implement the project within such a short space of time.”

Berthold Willig, Demando GmbH

What is more, this state-of-the-art data centre is powered by 100 percent renewable energy. Rittal was awarded the contract for the project.

# Dynamic company growth

## The requirement:

Dynamic company growth necessitated a move to bigger premises for asset management company Universal-Investment. A new data centre, the most time-critical element of the project, was to be built at its new site in Frankfurt/Main.

The new data centre was planned on one of the office floors, covering some 100 square metres of conventional building. The plan originally intended to award the works contracts separately for each of the data centre components. However, this inevitably led to complex planning and an intensive coordination process.

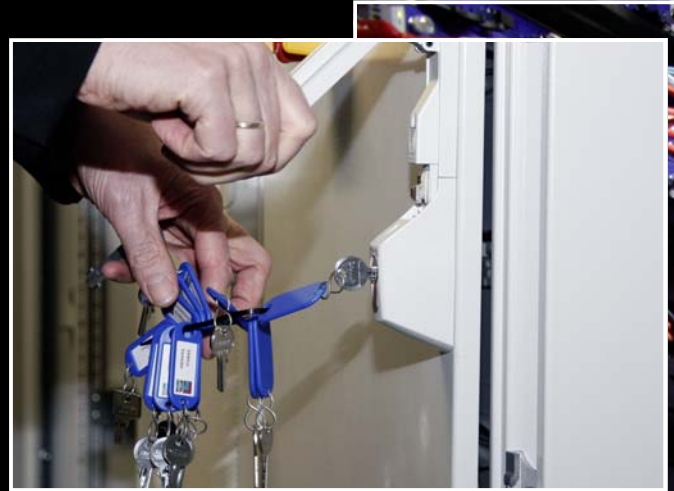
## The solution:

Universal-Investment appointed a team of specialists from Canzler-Ingenieure to carry out the relocation and rebuilding using the RiMatrix S modular data centre from Rittal. This cut down the relocation period by two months.

In RiMatrix S, the customer has a fully pre-assembled data centre including IT racks, cooling, power distribution and monitoring.

The RiMatrix S is being installed on one of the office floors as a room-within-a-room solution.

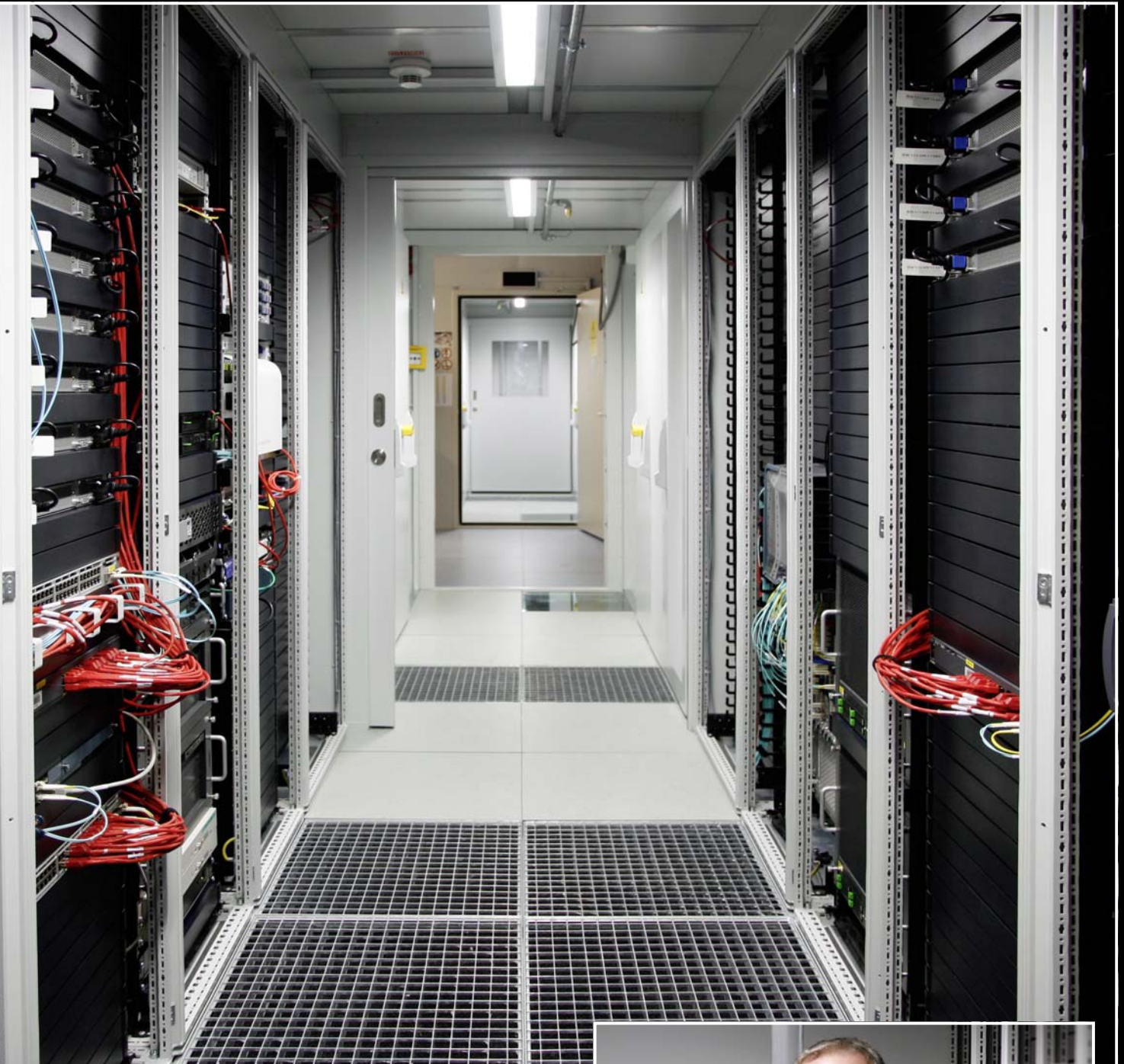
The Basic Protection Plus room provides the outer cover for the data centre, in which the functions of the individual components are coordinated with one another. This protects the IT from physical threats such as fire, smoke, water, dust, and unauthorised access.



Technical zone,  
RiMatrix S Single 6



CMC III monitoring system



“The room-within-a-room solution meant that we were able to make significant savings with use of the existing space, and at the same time speed up the project time.”

Michael Nolte, CEO of planning and consulting company Ganzler Ingenieure



# Rittal – The System.

Faster – better – everywhere.

- Enclosures
- Power Distribution
- Climate Control
- IT Infrastructure
- Software & Services

You can find the contact details of all Rittal companies throughout the world here.



[www.rittal.com/contact](http://www.rittal.com/contact)

ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

IT INFRASTRUCTURE

SOFTWARE & SERVICES



FRIEDHELM LOH GROUP