

Rittal – The System.

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Technical System Catalogue

Hygienic Design



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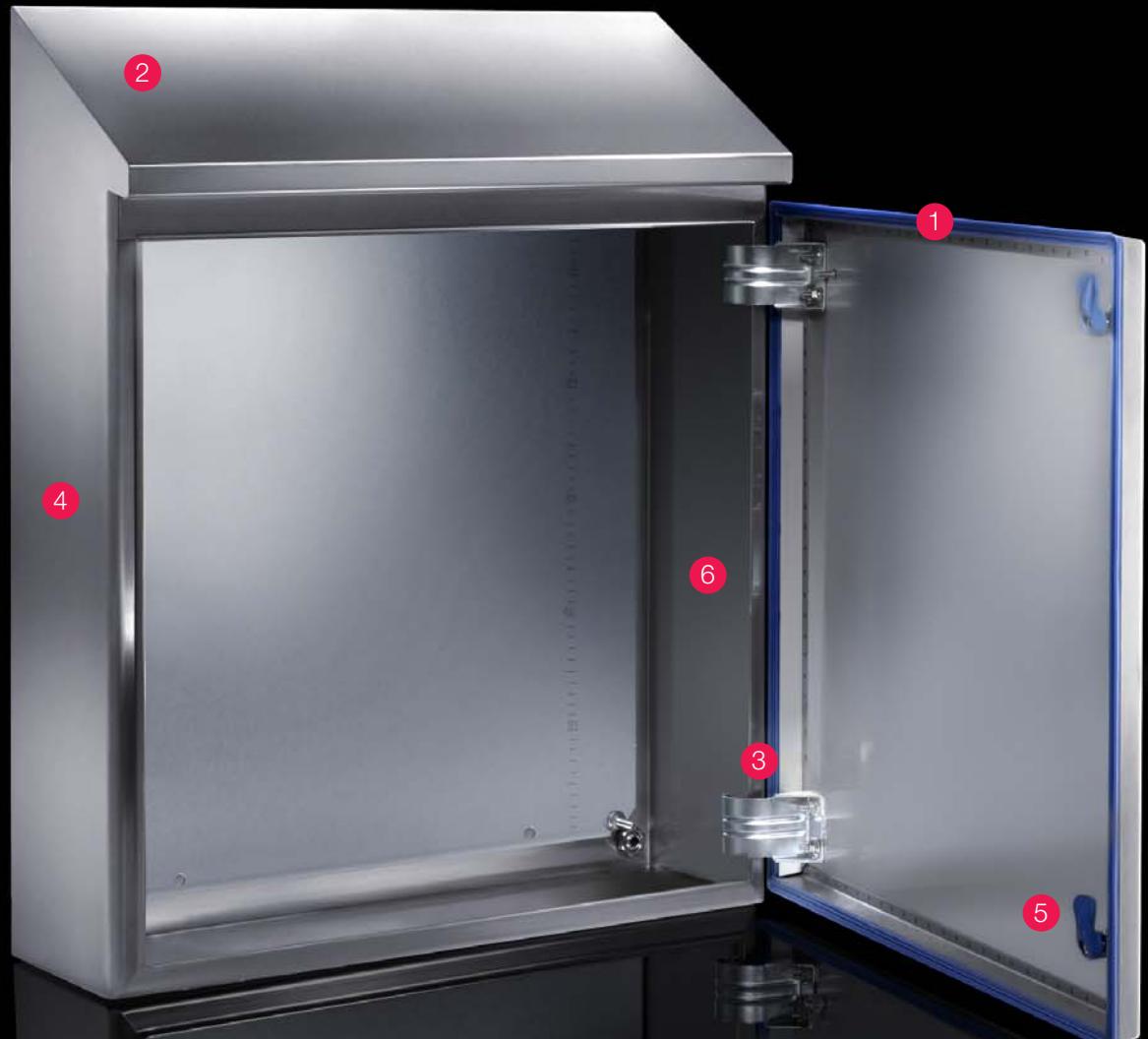
SOFTWARE & SERVICES

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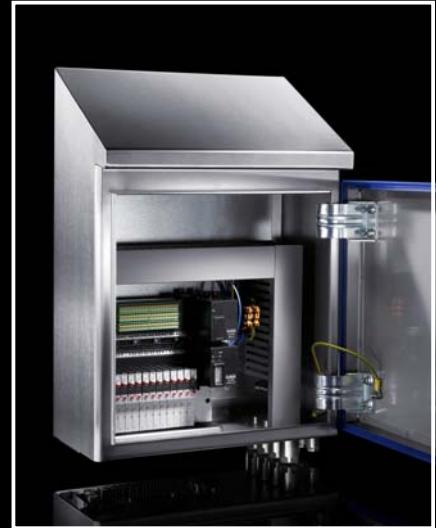


Hygienic Design – Compact enclosures/terminal boxes

Terminal boxes and compact enclosures in Hygienic Design are key elements in the design of open processes in the food industry and clean rooms due to their ease of cleaning.



- 1** Silicone seal:
Highly resistant to aggressive media; easily replaced
- 2** Inclined roof:
Prevents pooling of liquids, and ensures that surfaces are readily visible
- 3** Slot-free design:
No hollow spaces between the enclosure and door
- 4** Fine brushed surface finish makes it easier to clean:
Fully sealed enclosures with a uniform 400 grain size brushed finish
for a uniform surface roughness of $< 8 \mu\text{m}$
- 5** Easy-to-clean lock system:
Tailored to the requirements of the food industry
- 6** Interior fit-out:
 - Attachment points for fitting interior installation rails, for individual installation in the depth with HD compact enclosures
 - HD terminal boxes can accommodate support rails and KL mounting plates, thanks to the flexible 6.25 mm pitch pattern of installation holes



Hygienic Design

Internationally recognised approvals and certifications

The Rittal Hygienic Design is based on European standards and directives, as well as EU Regulations on food safety.

Rittal system solutions for hygienic production in the food industry are tested by:

- Berufsgenossenschaft für Nahrungsmittel und Gaststätten (German Employer's Liability Insurance Association for the Food and Catering Industry, BGN)
- Fachausschuss Nahrungs- und Genussmittel (Technical Committee for Food and Consumables)

A range of hygiene standards including DIN EN 1672-2-2009-07 are met.

The cULus listed approval applies to terminal boxes and compact enclosures.

All current approvals and certifications can be found on the Rittal website.

The DGUV test certificates are valid for following products:

- NV 16201 terminal boxes HD
- NV 13091 compact enclosures HD



CAD data

Rittal's RiCAD-3D online CAD component library is your one-stop source of engineering, climate control, IT and power solutions for a wide variety of enclosures and applications. With professional data for every CAD system, the efficiency of your system design is increased and assembly times are reduced.

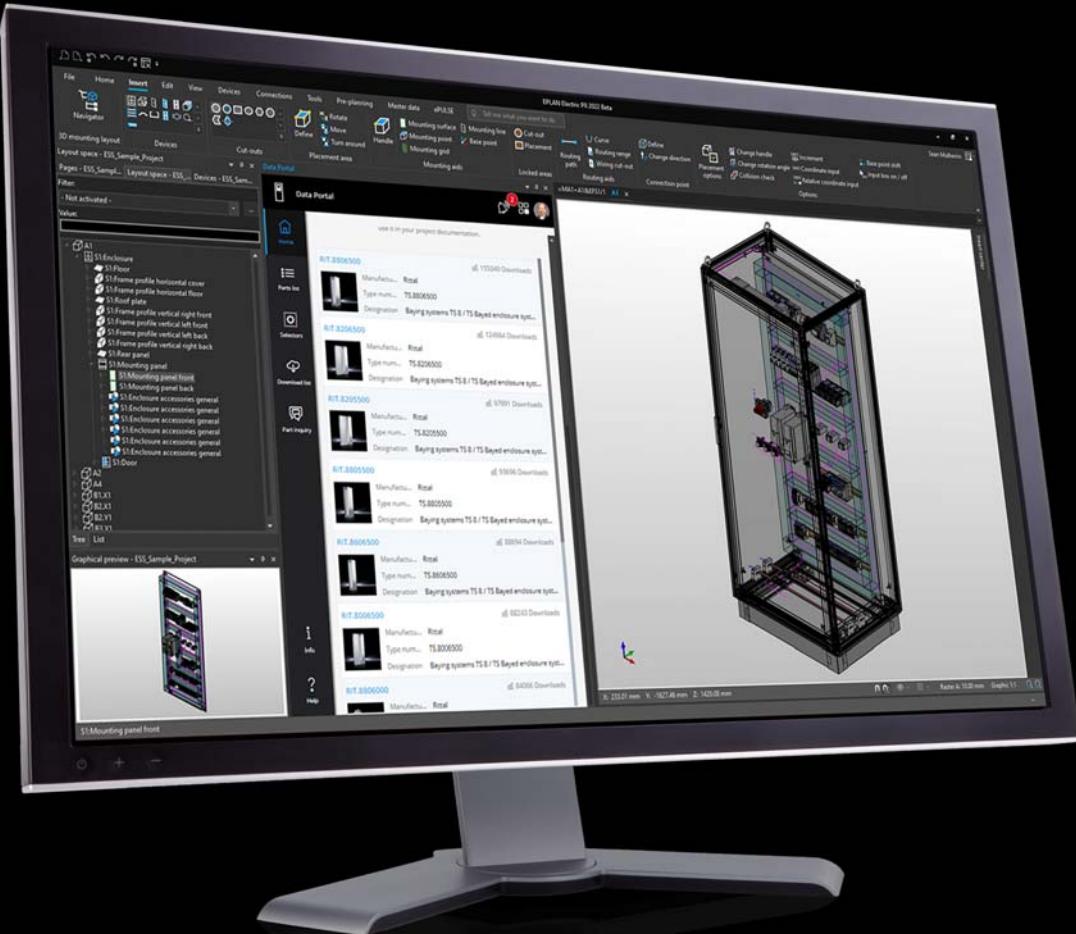
- CAD data is also available as an app for use on the move and on the Rittal website
- Data can be requested via e-mail
- Choose from over 70 CAD formats
- Direct link to the relevant page in the latest Rittal Catalogue for an "all-in-one" solution
- Optimum planning confidence thanks to accurate, validated drawings
- Saves time by dispensing with the need for lengthy remodelling

The Eplan Data Portal gives you access to all the component data you need for integration into the Eplan Engineering Platform.

- Macro files with comprehensive component information, such as commercial data, 2D data, 3D models, drill hole patterns, connection macros and accessory selection aids from the Eplan Data Portal



Hygienic Design



RiPanel

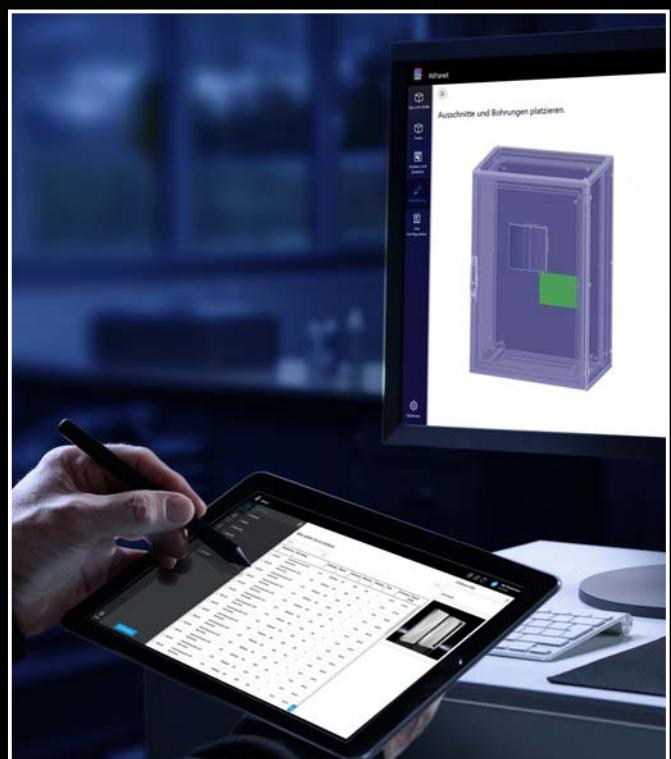
Your cutting-edge tool for individual enclosure system configuration

Key functions at a glance:

- User-friendly interface
- Plausibility-checked selection of accessories
- Customised cut-outs and import of CAD data
- Automatic generation of technical data

Your benefits:

- Save time with configuration and ordering
- Avoid errors with the selection of accessories
- Parts list for improved planning
- Faster processes



Compact enclosures and terminal boxes HD

Optimum surface protection

All enclosures, covers and doors are made of stainless steel 1.4301 (AISI 304).

Brushed surface finish, grain size 400, ensures a peak-to-valley height $RA < 0.8 \mu\text{m}$. With folds, internal radii of $r > 3 \text{ mm}$ are maintained.

In its delivered state, the enclosure does not have any openings, thereby effectively averting any hygiene risks. After bespoke machining, openings are only provided where they are actually needed.

- Higher productivity thanks to greater system availability
- Reduced cleaning effort required (faster cleaning, reduced energy demand, reduced use of chemicals)
- Superior product quality and longer durability by reducing the contamination risk, which in turn helps to avoid production losses



Silicone seal

- Gap- and cavity-free transition between the door and the enclosure, thanks to the all-round external silicone seal
- Highly resistant to detergents commonly used in the food and consumables industry
- All non-metallic parts (seals, twist locks) are dyed blue (RAL 5010) to ensure that they are clearly distinguishable from foodstuffs
- Quickly and easily replaced for maintenance purposes
- No external cavity between enclosure and door
- Compliant with FDA Guideline 21 CFR 177.2600
- Suitable for cleaning with hosed water, thanks to a high protection category of IP 69 to DIN 40 050-9



Terminal boxes HD



Sloped enclosure sides

The sloped enclosure sides and all-round, snugly fitting silicone cover seal make the enclosure ideally suited for open processes in the food and beverage industry.

- All-round slopes (enclosure sides: 3°/cover: 10°)
- Allows fluids to drain off rapidly

Interior fit-out

- Mounting hole pitch pattern of 6.25 mm for greater flexibility
- Preassembled installation brackets included with the supply
- Support rails and mounting plates can be fitted directly



Switch housing HD



Your benefits at a glance:



Sloped enclosure sides

Your benefits:

- Optimised for open processes in the food and related industries
- May be fitted in either a horizontal or vertical alignment
- All-round 3° enclosure slope
- Ideal for installing between 1 and 6 switches
- With 22.5 and 30.5 mm cut-out

Save time and money, thanks to:

- Prepared enclosure cut-outs for the direct installation of switches
- Easy to clean thanks to the all-round sloped enclosure sides
- Easy on-site replacement of seals

Compact enclosures HD



Roof with 30° slope

- Readily visible, even with taller installed enclosures
- Effectively deters people from placing objects on the roof, and prevents the accumulation of liquids and loose dirt particles
- Allows fluids to drain off rapidly
- Makes for easier, controllable cleaning when enclosures are attached higher up on the wall



All-round chamfered edge folds with overhang edge

- Protect the upper door sealing gasket from dirt deposits
- The gap from the upper door edge leaves plenty of space for cleaning



Compact enclosures HD

Door, hinges

Hinges that are inside the sealing zone create an exceptionally easy-clean design.

- No risk in terms of germs and cross-contamination
- Hygiene conditions remain consistently high when the door hinge is swapped over

Two locking rods made from stainless steel ensure a secure, airtight closure.



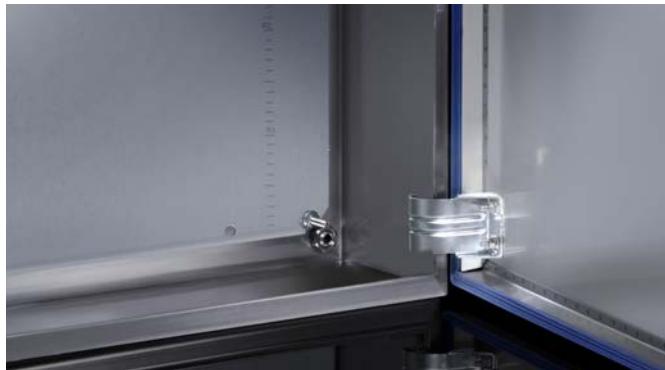
Lock

- Easy-to-clean lock insert
- Meets hygiene criteria with cleaning-friendly minimum radii and guarantees access protection
- External parts made of stainless steel
- Seals between the lock and the enclosure for optimum cleaning



Mounting plate

- Enclosure body equipped with sheet steel mounting plate (zinc-plated)
- Simple one-person assembly even with free-standing enclosures, by screwing a combination bolt and lock nut into position



Compact enclosures HD, two-door

Two-door variant

The design, materials and user benefits are identical to the single-door variant.

Only applies to the two-door compact enclosure HD:

- Secure locking with just two locks with the built-in locking rod for maximum hygiene and simple handling
- Removable centre bar enables user-friendly, time-saving assembly of the mounting plate



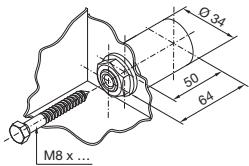
Accessories

Wall spacer bracket HD

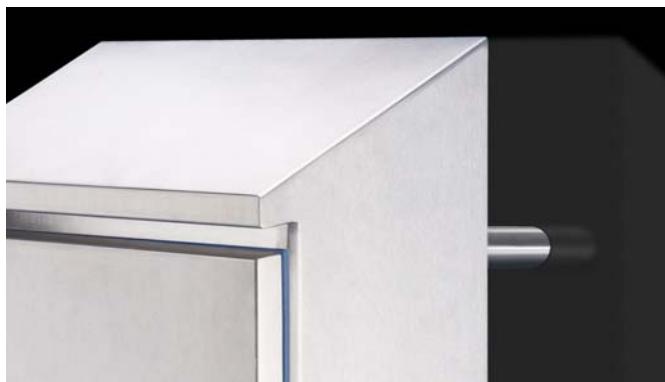
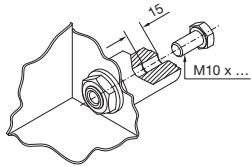
- For ease of cleaning between the enclosure and the wall
- Can be attached from the inside or outside as required
- Hygienic connection to the enclosure and wall

Mounting alternatives:

Attachment from inside



Attachment from outside



Levelling feet HD

- No external thread
- Levelling range between 122 and 175 mm
- Flexible base plate compensates for floor inclines up to an angle of 10°
- Versions with or without base mounting
- Minimises cleaning time due to fully covered, permanently sealed threads



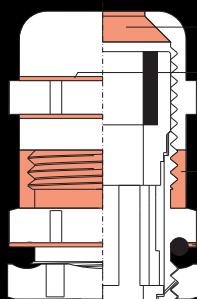
Accessories



Cable gland HD

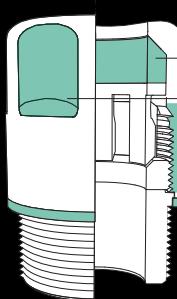
- Hygienic design to prevent deposits of harmful micro-organisms
- Easier, cheaper cleaning compared with conventional cable glands
- High protection category up to IP 69

Why use hygienic cable glands?



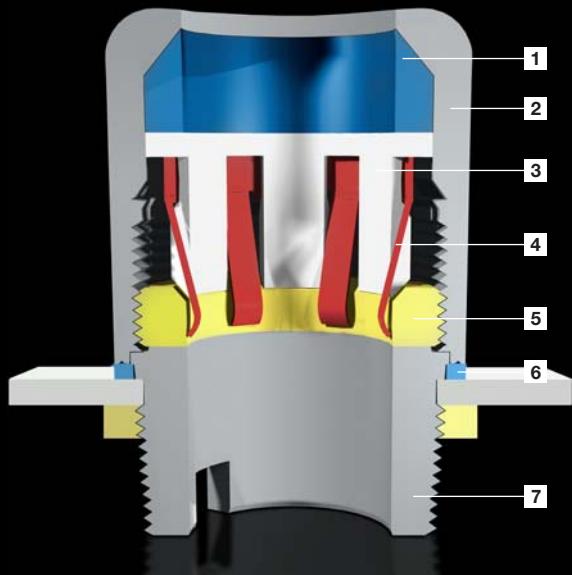
Critical points with conventional solutions

- ① Cable entry in front of seal
- ② No minimum radii on the hexagon
- ③ External threads
- ④ Gap caused by O-ring on the enclosure surface



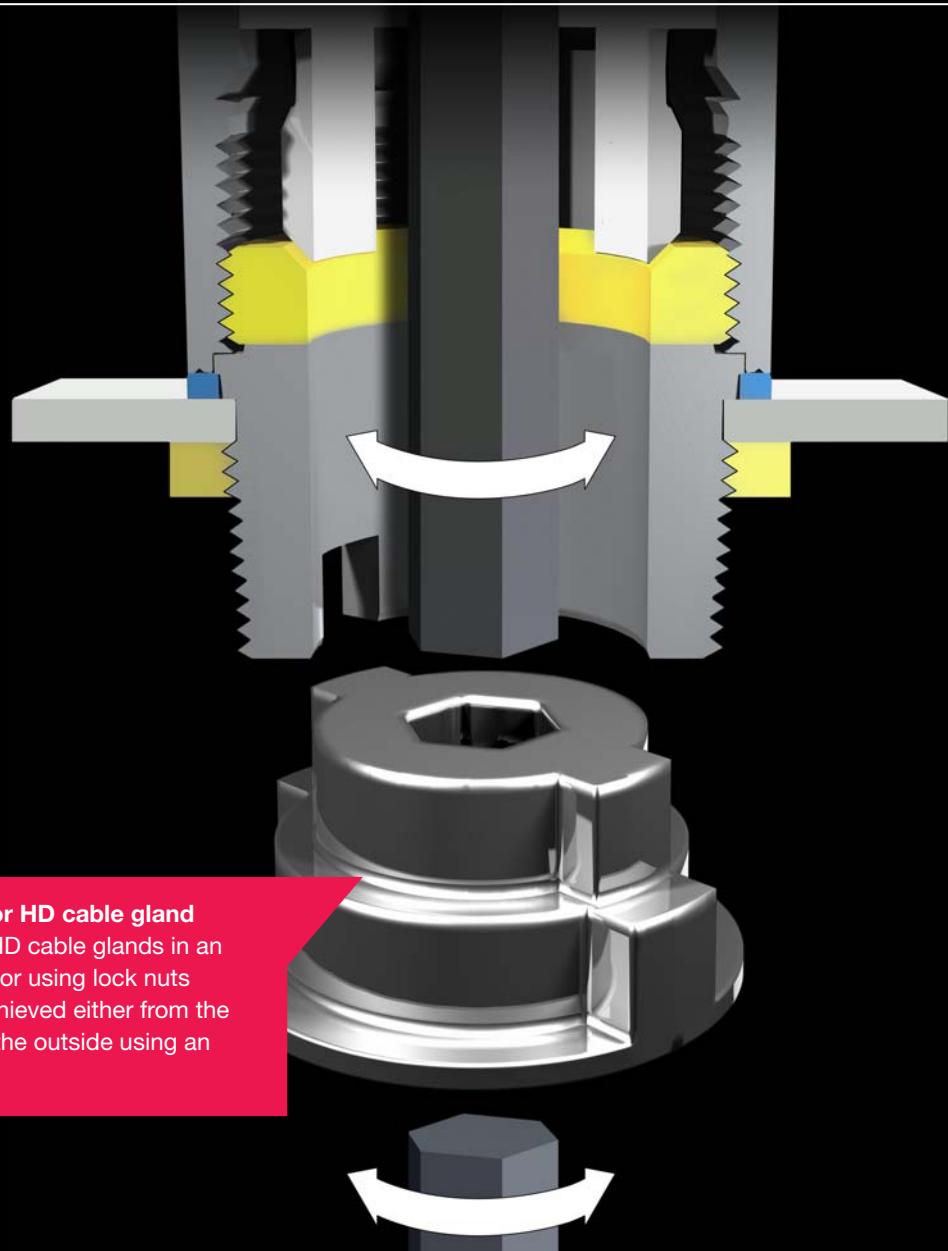
Hygienic design features

- ① Seal directly at the cable entry
- ② Compliance with minimum radii on the hexagon
- ③ No external threads
- ④ Flush termination between the cap nut and the enclosure



- ① Seal
- ② Cap nut
- ③ Gripper jaws
- ④ Shield spring (EMC version only)
- ⑤ Clamping ring
- ⑥ Enclosure seal
- ⑦ Base with locator for assembly tool

Accessories



Assembly tool for HD cable gland

- For attaching HD cable glands in an internal thread or using lock nuts
- This can be achieved either from the inside or from the outside using an Allen key



Enclosure key HD/Bit HD

- Consistent styling of the lock insert reduces the risk of contamination
- No place for micro-organisms to hide





Rail for interior installation CX

Rail for interior installation – flexible use of space in compact HD enclosures. Simple mounting on the existing threaded bolts enables optimum use of the HD compact enclosure interior. Depending on the enclosure size, the rail may be flexibly mounted on the side panel or door, for maximum adaptability and efficient integration of additional components.



T handle HD

Open and close enclosures quickly without using tools

- Suitable for use in tough conditions susceptible to corrosion
- Versions with and without lock insert



Accessories

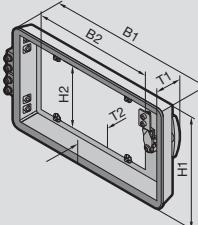
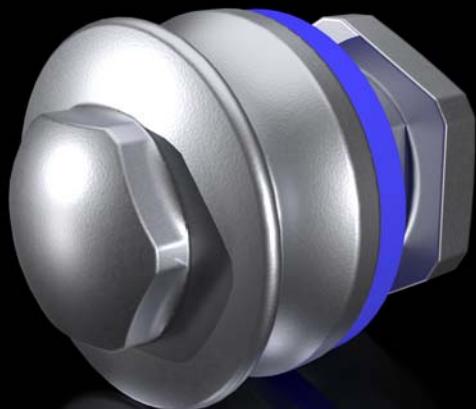
Viewing window HD

Optimum protection of switches and displays available in three sizes.

- Slot-free transition between the viewing window and the frame ensures an optimum seal
- All three variants have a large viewing panel



Model No.	Dimensions mm					
	Width (B1)	Height (H1)	Depth (T1)	Mounting dimensions mm		
				Width (B2)	Height (H2)	Depth (T2)
4000.081	330	190	65	212	90	22
4000.082	470	290	65	352	185	22
4000.083	518	436	65	400	330	22

A technical line drawing of the viewing window showing its dimensions. It is a rectangular frame with a central black panel. The top edge is labeled B1 and B2. The left edge is labeled H1. The right edge is labeled T1. The bottom edge is labeled H2. There are also internal labels T2 and T3 indicating the thickness of the frame and the distance from the inner frame to the outer edge.

Pressure relief stopper

Pressure relief stoppers in stainless steel with integral sealing membrane, especially for enclosures which are exposed to changing temperatures.

Accessories

Active condensation prevention strategy – Rittal Hygienic Design

Maximum protection for sensitive electronics in challenging environments.

Rittal Hygienic Design enclosures unite targeted climate control measures with smart enclosure design to actively prevent condensation.

The result? Reliable protection against humidity, an extended service life, and enhanced operational reliability.

The technical principle behind active condensation prevention

A thermal component is cleverly combined with a pressure relief element. The thermal component regulates the temperature inside the enclosure and selectively lowers the dew point. At the same time, the pressure relief stopper prevents the ingress of humidity due to pressure differences. Together, they create a controlled climate which effectively prevents the formation of condensation, even in highly fluctuating ambient conditions.



Your benefits at a glance:

- Reliable protection from condensation: Active techniques deliver far more reliable protection from condensation than purely passive measures, particularly when faced with sharp and sudden temperature changes or high humidity
- Prevents damage and downtime: By consistently reducing condensation, damage to sensitive electronic components corrosion and associated downtime are effectively prevented
- Extended service life of components: An optimum climate inside the enclosure can significantly extend the service life of built-in components

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