

# Rittal – The System.

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## ► Hygienic Design



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# The whole is more than the sum of its parts.

The same is true of “Rittal – The System.” With this in mind, we have bundled our innovative enclosure, power distribution, climate control and IT infrastructure products together into a single system platform. Complemented by our extensive range of software tools and global service, we create unique added value for all industrial applications: Production plant, test equipment, facility management and data centres. In accordance with our simple principle, “Faster – better – worldwide”, we are able to combine innovative products and efficient service to optimum effect.

**Faster** – with our “Rittal – The System.” range of modular solutions, which guarantees fast planning, assembly, conversion and commissioning with its system compatibility.

**Better** – by being quick to translate market trends into products. In this way, our innovative strength helps you to secure competitive advantages.

**Worldwide** – thanks to global networking across 150 locations. Rittal has over 60 subsidiaries, more than 250 service partners and over 1,000 service engineers worldwide. For more than 50 years, we have been on hand to offer advice, assistance and product solutions.

# Hygiene standards for high productivity and reliability

“Rittal – The System.” stands for cleverly thought-out system solutions for hygienic production in the food industry. Particularly in open processes, where the resistance of the seal to detergents and disinfectants is crucial, it is vital for production plant to be equipped with optimised enclosures, terminal boxes and command panels.



## The Rittal Hygienic Design for food safety is based on:

### European standards and directives

- EN 1672-2:2005 Food machinery/ General design principles/Part 2: Hygiene requirements
- EN ISO 14 159 2004 Safety of machinery – Hygiene requirements for the design of machinery
- EN 16 001 Energy management to improve energy efficiency
- Machinery directive 2006/42/EC binding
- Document 13 EHEDG guideline on the hygienic design of apparatus for open processes, prepared in collaboration with 3-A and NSF International

### EU regulations

- 852/2004 on the hygiene of foodstuffs
- 853/2004 specific hygiene rules for food of animal origin
- 854/2004 specific rules for the organisation of official controls on products of animal origin intended for human consumption
- 1935/2004 on materials and articles intended to come into contact with food

Decide for yourself what is important.

### Rittal Hygienic Design boosts operational hygiene

- Reduces the use of C&D agents
- Optimises cleaning results
- Ensures higher productivity
- Minimises risks
- Increases energy efficiency (CO<sub>2</sub> footprint)

All the products in the Hygienic Design range are cULus-listed, with the exception of cable glands

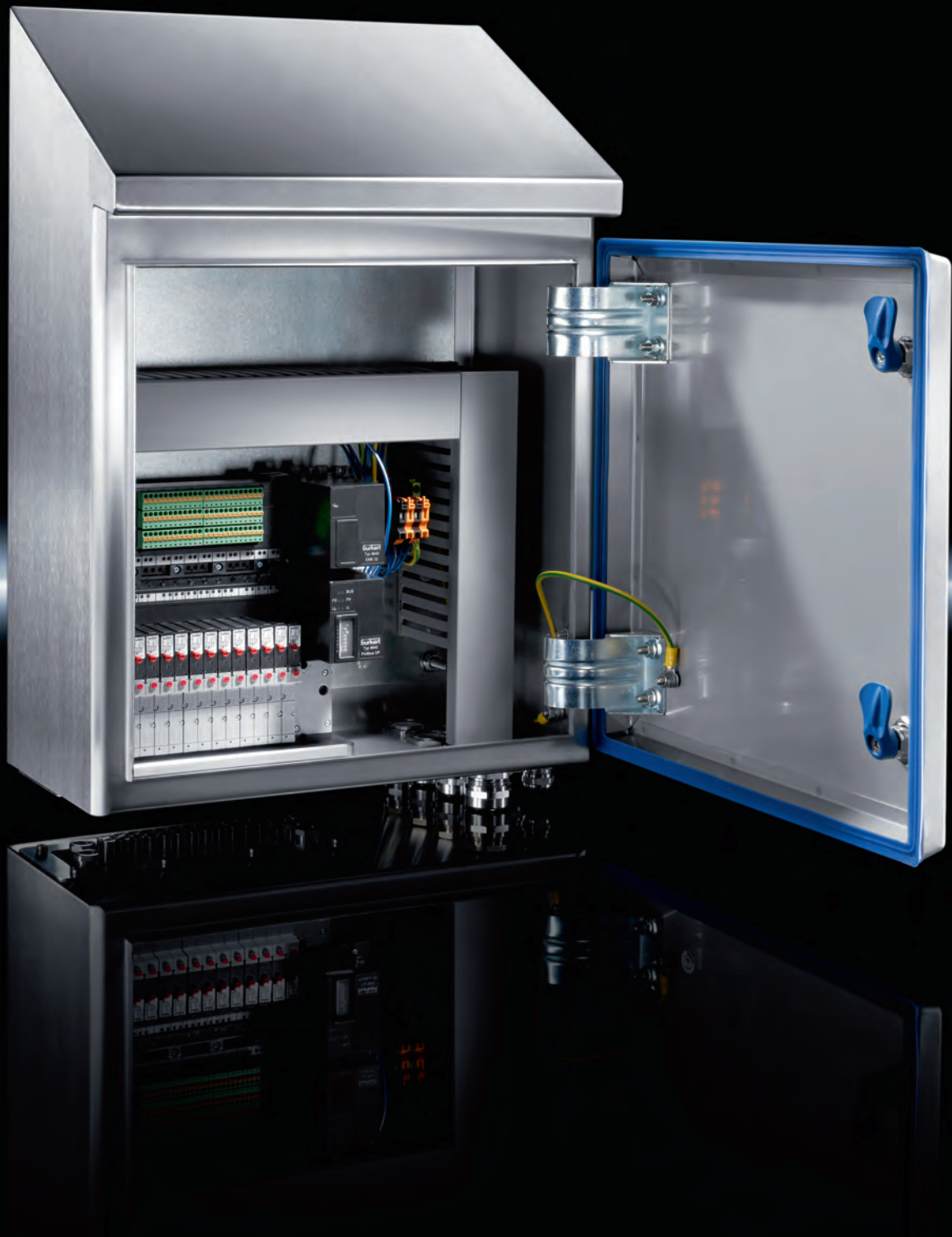




# Extra cleanliness guaranteed!

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

Compatible accessories such as wall spacer brackets and HD-compatible cable glands complete the range. If you have specific requirements, "Rittal – The System." is sure to have the right solution.



### Silicone seal

- All-round external, joint-free silicone seal
- Easy to replace
- Guides and fixes the lid to the quick-release fasteners
- All-round tilt
  - Enclosure: 3°
  - Lid: 10°

### Interior installation

- Hole pitch of 6.25 mm for greater flexibility
- KL support rails and mounting plates can be fitted directly

### Hinges and seal

- Hinges that are inside the sealing zone create an exceptionally easy-clean design on the outside
- The durable all-round, external silicone seal effectively prevents all gaps
- Installed sealing frames are easily replaced
- No external cavity between enclosure and door
- Seal dyed blue to clearly distinguish it from foodstuffs

### Quick-release fastener

- Captive
- With external seal
- Hexagon shape for perfect cleanliness

### Lock and lock insert

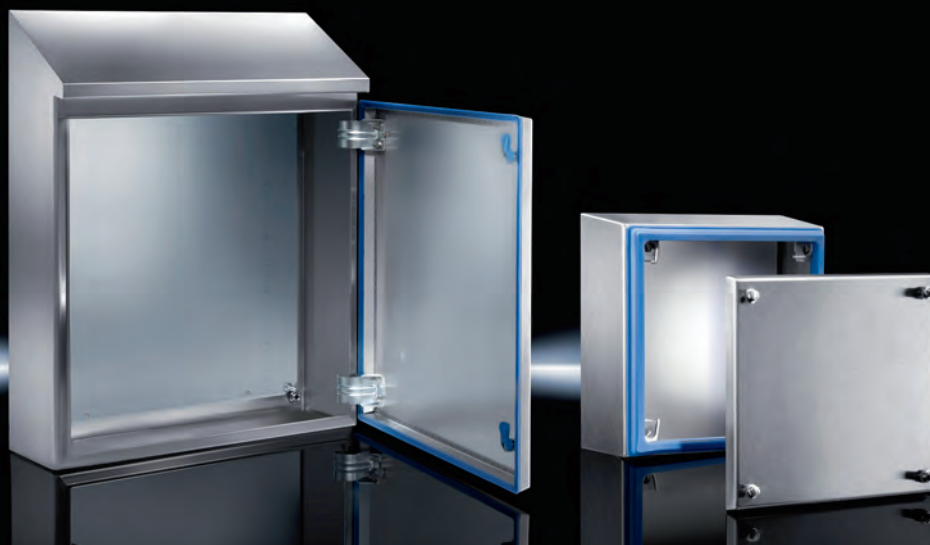
- External parts made of stainless steel
- Material and shape allow easy and reliable cleaning

### Roof angled forwards by 30°

- Prevents objects from being deposited on it
- Is easily inspected
- Allows fluids to drain off rapidly



# Hygienic Design terminal boxes/compact enclosures



## Material:

- Enclosure and cover/door: Stainless steel 1.4301 (AISI 304)
- Quick-release fasteners/lock inserts: Stainless steel
- Seal: Silicone, compliant with FDA Guideline 21 CFR 177.2600
- Mounting plate: Sheet steel (HD compact enclosures only)

## Surface finish:

- Enclosure and cover/door: Brushed, grain 400,  $R_a < 0.8 \mu\text{m}$
- Mounting plate: Zinc-plated
- Seal: Blue, dyed (RAL 5010)

## Protection category to IEC 60 529

- IP 66

## Protection category IP to DIN 40 050-9

- IP 69K

## Protection category NEMA

- NEMA 13
- NEMA 4x
- NEMA 3R (HD terminal boxes only)

## Supply includes:

- Enclosure of all-round solid construction
- Cover/door
- Mounting bracket (pre-assembled, HD terminal boxes only)
- Mounting plate (HD compact enclosures only)

## Technical details:

Available on the Internet

## Terminal boxes HD

Width	Front mm	Packs of	150	150	200	300	400	400
	Rear mm		172	177	227	327	427	427
Height	Front mm		150	150	200	200	200	300
	Rear mm		172	177	227	227	227	327
Depth mm			80	120	120	120	120	120
Model No.		1	1670.600	1671.600	1672.600	1674.600	1675.600	1676.600
<b>Accessories</b>								
Wall spacer bracket HD		1	4000.100	4000.100	4000.100	4000.100	4000.100	4000.100
Mounting plate		1	1560.700	1560.700	1562.700	1563.700	1564.700	1568.700
Support rail TS 35/7.5		10	2314.000	2314.000	2315.000	2316.000	2317.000	2317.000
Cable gland HD			see page 15					

## Compact enclosures HD, single-door

Width mm		Packs of	220	390	390	510	610	610	810	810
Height	Front mm		350	430	650	550	430	650	1050	1250
	Rear mm		437	549	769	669	601	769	1221	1421
Depth mm			155	210	210	210	300	210	300	300
Mounting plate width mm			162	334	334	449	549	549	739	740
Mounting plate height mm			275	355	570	470	355	570	955	1155
Model No.		1	1302.600	1306.600	1308.600	1307.600	1320.600	1310.600	1316.600	1317.600
<b>Accessories</b>										
Wall spacer bracket HD		1	4000.100	4000.100	4000.100	4000.100	4000.100	4000.100	4000.100	4000.100
Rails for interior installation			see Cat. 33, page 179							
Cable gland HD			see page 15							
T handles with/without lock cylinder			on request							



### Levelling feet HD

#### Benefits:

- Minimises cleaning time thanks to fully covered, permanently sealed threads
- Compensation of floor inclines up to an angle of 10° thanks to flexible base plate
- Baying can even be achieved on sloping floors, thanks to a large levelling range of 55 mm

#### Load capacity:

- Max. 5000 N static per levelling foot

#### Material:

- Stainless steel 1.4301 (AISI 304)

#### Supply includes:

- Assembly parts and seals.

Thread	Levelling range mm	Base mount	Packs of	Model No.
M12	120 – 175	without	4	<b>4000.200</b>
		with	4	<b>4000.210</b>



### Wall spacer bracket HD

#### Benefits:

- Creates space for cleaning behind the enclosure
- Shorter assembly times by eliminating the need for an all-round seal
- Greater hygiene safety by avoiding an uncontrollable dead space or gap between the enclosure and wall

#### Functional principle:

- Mounting on the wall optionally from the enclosure interior via a through-hole (max. M8) or from the rear via an integral M10 thread

#### Material:

- Stainless steel 1.4301 (AISI 304)

#### Supply includes:

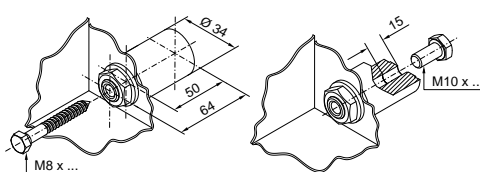
- Assembly parts and seals

Wall distance mm	Packs of	Model No.
50	1	<b>4000.100</b>
150	1 pair	on request

#### Mounting alternatives:

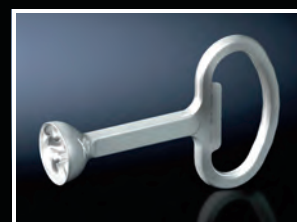
Attachment from inside

Attachment from outside



### Enclosure key HD

Packs of	Model No.
1	<b>2549.600</b>



### Bit HD

for universal key SZ 2549.500

see Cat. 33, page 612

Packs of	Model No.
1	<b>2549.510</b>



### Cam lock HD

Hygienic Design variant for easy, safe cleaning

#### Applications:

- Compact enclosures AE stainless steel (except 1017.XXX and 1019.XXX)
- May be integrated into customised applications, e.g. covers of machine panels

#### Material:

- Stainless steel 1.4404 (AISI 316L)

Packs of	Model No.
1	<b>2304.010</b>



#### Accessories:

- Enclosure key HD, see page 9



# System partner for the food industry

Create the optimum conditions for successful audits by IFS 6 and trading firms with the Rittal System for Hygienic Design. The baying system and production data enclosures can be integrated perfectly into your production clean rooms. Thanks to the endless possibilities for baying, even complex control systems for open processes are no longer a problem.



## Seal

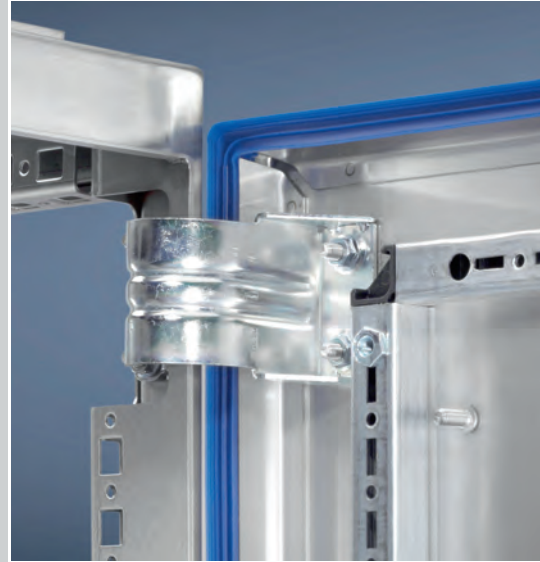
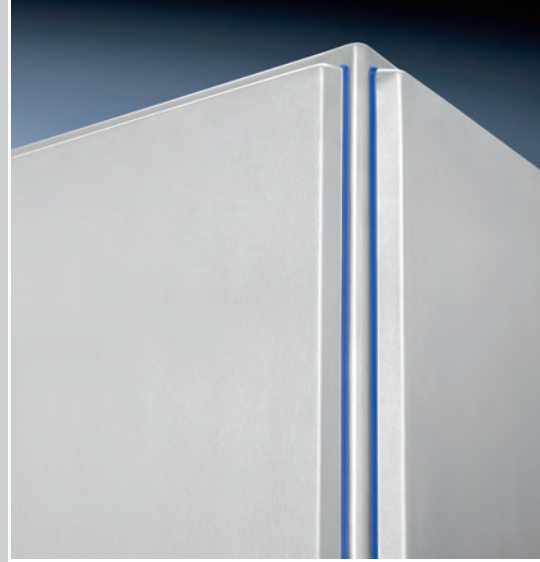
- Silicone profile seal between door, side panels and enclosure
- Joint-free, all-round external seal – simple to replace
- Seal dyed blue to clearly distinguish it from foodstuffs
- Silicone seal for the angled roof and baying frame comprising self-adhesive, jointed profile lengths and rectangular profiles

## Door

- Hinges that are inside the sealing zone create an exceptionally easy-clean design on the outside
- Two locking rods, external parts in stainless steel, for secure and sealed closing
- Easy-to-clean lock insert – can be exchanged for a T-handle upon request

## Construction

- Integrated, non-detachable rear panel guarantees reliable hygiene and sealing in an area which is difficult to monitor
- Side panels screw-fastened from the inside
- Door and enclosure with all-round internal system punching for installation of accessories
- Door hinged on the right, may be swapped to the left
- Solid base
- Mounting plate from TS 8 baying system
- Rounded edge folds on the door and side panels as a significant contribution to easy cleaning
- Open top for mounting of angled roof
- A special angled roof can be manufactured upon request for combinations of two 600 or 800 mm wide enclosures





# Hygienic Design system enclosure



## Material:

- Stainless steel 1.4301 (AISI 304) Enclosure: 1.5 mm Door: 2.0 mm
- Lock inserts: Stainless steel
- Seal: Silicone, compliant with FDA Guideline 21 CFR 177.2600
- Mounting plate: Sheet steel

## Surface finish:

- Brushed, grain 400,  $R_A < 0.8 \mu\text{m}$
- Mounting plate: Zinc-plated
- Seal: Blue, dyed (RAL 5010)

## Protection category to IEC 60 529

- IP 66

## Protection category IP to DIN 40 050-9

- IP 59 K

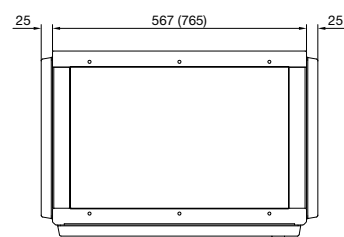
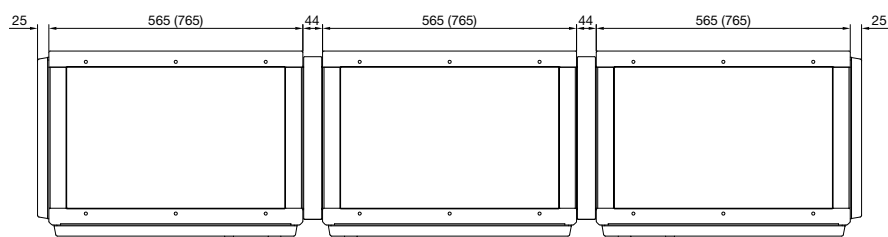
## Supply includes:

- Enclosure, closed at rear and bottom, open at top and sides
- Door
- Mounting plate

## System enclosure HD, single-door

Width mm	Packs of	400	600	800	Page
Height mm	1	1800	1800	1800	
Depth mm	1	500	500	500	
Model No.	1	4000.485	4000.685	4000.885	
<b>Accessories</b>					
Side panels HD	1 pair	4000.185	4000.185	4000.185	13
Baying frame HD	1	4000.785	4000.785	4000.785	13
Mounting plate infill	1	4000.508	4000.508	4000.508	13
Angled roof 30° HD, open at the sides <sup>1)</sup>	1	4000.545	4000.565	4000.585	13
Baying bracket for angled roof HD <sup>1)</sup>	1	4000.605	4000.605	4000.605	13
Side panels for angled roof HD <sup>1)</sup>	1 pair	4000.505	4000.505	4000.505	13
Interior installation		see mounting and operating instructions			
Cable gland HD		see page 15			
T handles with/without lock cylinder		on request			
Supporting structure HD with levelling		on request			

<sup>1)</sup> Extended delivery times



# Hygienic Design

## Accessories for system enclosure

### Side panels HD

Width 25 mm

**Material:**

- Stainless steel 1.4301 (AISI 304), 2.0 mm

**Supply includes:**

- 1 pair with assembly parts for screw-fastening from the inside.

For enclosures H x D mm	Packs of	Model No.
1800 x 500	1 pair	<b>4000.185</b>



### Baying frame HD

Width 44 mm

**Material:**

- Stainless steel 1.4301 (AISI 304)

**Supply includes:**

- Assembly parts

For enclosures H x D mm	Packs of	Model No.
1800 x 500	1	<b>4000.785</b>



### Mounting plate infill

Width 106 mm

**Material:**

- Sheet steel, 2 mm

**Surface finish:**

- Zinc-plated

**Supply includes:**

- Assembly parts

For enclosures H mm	Packs of	Model No.
1800	1	<b>4000.508</b>



### Angled roof 30° HD

open at the sides

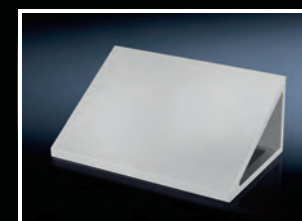
**Material:**

- Stainless steel 1.4301 (AISI 304)

**Supply includes:**

- Assembly parts

W x D mm	Packs of	Model No.
400 x 500	1	<b>4000.545</b>
600 x 500	1	<b>4000.565</b>
800 x 500	1	<b>4000.585</b>



### Baying bracket for angled roof HD

**Material:**

- Stainless steel 1.4301 (AISI 304)

**Supply includes:**

- Assembly parts

D mm	Packs of	Model No.
500	1	<b>4000.605</b>



### Side panels for angled roof HD

**Material:**

- Stainless steel 1.4301 (AISI 304)

**Supply includes:**

- Assembly parts

D mm	Packs of	Model No.
500	1 pair	<b>4000.505</b>



# Hygienic Design production data enclosure



## Material:

- Stainless steel 1.4301 (AISI 304)
- Enclosure: 1.5 mm  
Door: 2.0 mm
- Lock inserts: Stainless steel
- Seal: Silicone, compliant with FDA Guideline 21 CFR 177.2600

## Surface finish:

- Brushed, grain 400,  $R_A < 0.8 \mu\text{m}$
- Seal: Blue, dyed (RAL 5010)

## Protection category to IEC 60 529

- IP 66

## Protection category IP to DIN 40 050-9

- IP 59 K

## Supply includes:

- Closed enclosure, roof angled to the front by  $30^\circ$
- Top door with integrated polycarbonate pane for monitor screen; compartment with screw-fastened mounting plate with holes for VESA 75 and 100 mounts
- Bottom door; compartment with pull-out component shelf
- Surface between top and bottom doors angled to the front by  $3^\circ$  as shelf or for a keyboard

## Production data enclosure HD

<b>Width</b> mm		596
<b>Height</b>	Front mm	1598
	Rear mm	1752
<b>Depth</b> mm		446
<b>Model No.</b>		<b>4000.090</b>
<b>Accessories</b>		
Cable gland HD		see page 15
Levelling feet HD		see page 9
Supporting structure HD with levelling		on request
T handles with/without lock cylinder		on request



# Hygienic Design

## Accessories for cable gland

### Cable gland HD

#### Applications:

- Manufacturing and packaging of foodstuffs etc.
- Clean room technology (e.g. pharmaceuticals)
- Biotechnology
- Chemical industry

#### Benefits:

- Smooth, solid exterior surfaces effectively prevent the depositing of harmful micro-organisms
- Much easier, therefore cheaper, cleaning compared with conventional cable glands

#### Material:

- Cap nut: Stainless steel 1.4305 (AISI 303)
- Seal: Compliant with FDA 21 CFR 177.2600

#### Protection category:

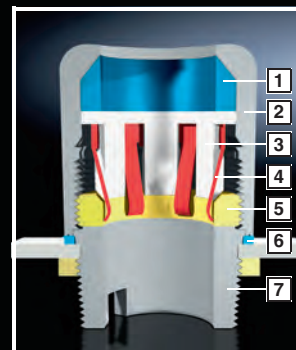
- IP 68 (5 bar, 30 min.) to IEC 60 529
- IP 69K to DIN 40 050-9

#### Standard version

Size	Cable diameter mm	Packs of	Model No.
M12 x 1.5	3 – 6.5	5	<b>2410.000</b>
M16 x 1.5	4.5 – 10	5	<b>2410.010</b>
M20 x 1.5	6 – 12	5	<b>2410.020</b>
M25 x 1.5	11 – 17	5	<b>2410.030</b>

#### EMC version

Size	Cable diameter mm	Packs of	Model No.
M16 x 1.5	5 – 10	5	<b>2410.110</b>
M20 x 1.5	6 – 12	5	<b>2410.120</b>
M25 x 1.5	12 – 17	5	<b>2410.130</b>

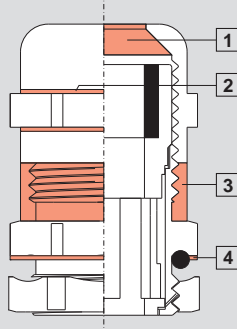


- 1 External cable seal
- 2 Cap nut
- 3 Gripper jaws
- 4 Shield spring (EMC version only)
- 5 Clamping ring
- 6 Enclosure seal
- 7 Base with locator for assembly tool

### Why hygiene-compatible cable glands?

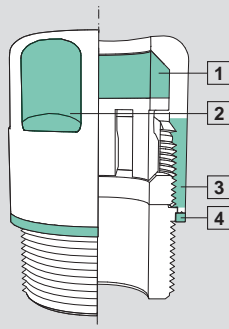
#### Critical points with conventional solutions

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



#### Hygiene-compatible design features

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



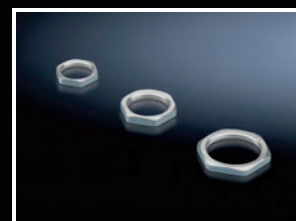
### Stainless steel lock nut

To match HD cable glands

#### Material:

- Stainless steel 1.4305 (AISI 303)

Size	Packs of	Model No.
M12 x 1.5	10	<b>2410.200</b>
M16 x 1.5	10	<b>2410.210</b>
M20 x 1.5	10	<b>2410.220</b>
M25 x 1.5	10	<b>2410.230</b>



### Assembly tool

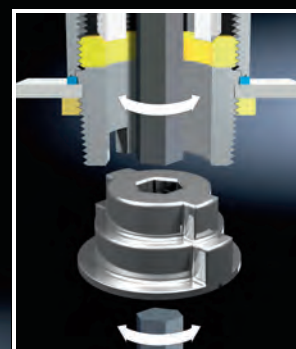
#### for HD cable glands

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.

#### Supply includes:

- 1 set = Adaptor for sizes from M12 – M25.

Packs of	Model No.
1 set	<b>2410.290</b>



# Rittal – The System.

**Faster – better – worldwide.**

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

RITTAL Oy  
Valimotie 35 · PL 134 · 01510 Vantaa  
Phone (09) 413 44 00 · Fax (09) 413 444 10  
E-mail: myynti@rittal.fi · www.rittal.fi

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