



CONNECT AND PROTECT

Food and Beverage brochure

Hygienic design wall mounted enclosures and accessories


nVent

HOFFMAN



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nVent HOFFMAN's range of hygienic design wall mounted enclosures is designed for customers in food & beverage and pharmaceutical industries, as well as operations in other sanitary environments requiring high cleanliness. The fundamental reason for choosing hygienic design is the prevention of product contamination, since the manufacturer is responsible for product liability.

To contribute to a safe manufacturing environment for these industries, a vital aspect is to clean and sanitize the plant and equipment, for products to be free of hazards such as microbiological, chemical, foreign particles and cross-contamination. Equipment with poor hygienic design is difficult to clean. By cleaning and sanitizing, nutrients for bacteria are removed and bacteria are killed if present. Hygienic design makes carrying out these jobs easier and more efficient.

nVent HOFFMAN is company member of EHEDG, whose principal goal is the promotion of safe food by improving hygienic engineering and design in all aspects of food manufacture.



The main principles of HD are the selection of appropriate materials and the easy cleanability of enclosures, avoiding areas or dead spaces where liquid or solid residues could accumulate. The ideal material is smooth, non-porous, non-absorbent, free of cracks and crevices, abrasion resistant, non-toxic, non-tainting, corrosion resistant, inert to the product, non-reactive to detergents and disinfectants, durable and maintenance free. As a general principle, stainless steel is the preferred surface for hygienic installations. Silicone is used for the gaskets; this material is suitable for a wide range of temperatures, does not absorb water, and silicones are also highly resistant to chemicals.

Strict hygienic standards are critical to ensure that products are safe for human consumption and free from contaminants such as bacteria, viruses, parasites and moulds, as well as chemical residues from any cleaning.

"After the recognition of germs as causative agent of diseases, the significance of hygiene developed rapidly and is now considered as the cornerstone of safe food production."

Handbook of hygiene control in the food industry, H.L.M. Lelieveld.

The new range complies with the strict health and safety requirements in the food & beverage and pharmaceutical industries. The range allows for proper, fast and easy cleaning, even with high pressure and temperature water.

The hygienic design wall mounted range, called HDW, comprises enclosures with a high protection degree and smooth surfaces without any gaps. The enclosures have self-drainable smooth-finished surfaces, a sloped roof leaning 30° with a 30 mm overhang, special HD locks, and concealed door hinges. Each enclosure body and door are made in AISI 304 stainless steel.

Proper sealing is secured by an all-round removable blue silicone gasket, which is resistant to aggressive cleaning products. A set of specific HD accessories is available, including cable glands, wall mounting brackets and levelling feet. The HDW range is certified for ingress protection IP 66/69 which makes it possible to use high pressure and temperature water for cleaning.

The HD features at a glance:

- Complies with hygiene standards EN 1672-2 and ISO 14159, directive on machinery 2006/42/EU, and hygienic design guideline EHEDG 13;
- IP66 and IP69 ingress protection certified according to IEC60529, IP according to ISO20653, for high temperature and water cleaning;
- IK08 impact resistance rating according IEC 62262;
- 30° sloped roof allows liquids to self-drain;
- One-piece silicone gasket provides a continuous seal between enclosure and door;
- Blue FDA approved silicone to clearly distinguish foodstuffs;
- Special locks for self-draining;
- Concealed door hinges inside enclosure avoid accumulation spots;
- 30 mm overhang;
- 8° slope on door sides ensures door is also self-draining.



The nVent HOFFMAN HDW range is designed and constructed with special materials for highly sanitary operation and ease of thorough cleaning.

Material:

Body: 1.5 mm. Door: 2 mm. AISI 304L pre-grained stainless steel.
Mounting plate: 2 mm galvanized steel.

Body:

Folded and seam welded. The top of the body is equipped with a sloping roof at an angle of 30 degrees towards the front, ending with a 30 mm overhang to avoid any draining liquids from dripping onto the gasket and the door.

Door:

Corner formed in one piece with a sloping angle of 8° on all sides. Surface mounted with 120° opening. Concealed hinges with captive pin. Can be mounted to give left or right hand opening (machining is not required).

Internal hinge:

The door hinge has been especially designed to fit concealed inside the enclosure once the door is closed, avoiding dirt deposits that would accumulate if it were outside, thus making the enclosure easy to clean.

Gasket:

Sealing is ensured by an all-round one piece removable blue silicone gasket. The silicone is FDA 21 CFR 177.2600 compliant.

Lock:

HD lock made of stainless steel AISI 316L with blue silicone gasket, the lock conforms with norm DIN EN 1672-2:2009.

Mounting plate:

Fixed onto M8 studs welded on the rear of the enclosure. All sides from 800 mm and above are strengthened by folded edges. The mounting plate is marked vertically at 10 mm intervals for easy horizontal positioning of equipment.

Cable access:

No gland openings as standard to avoid hygiene risks.

Protection:

Corresponds with IP 66/69 | TYPE 4X, 12, 13 | IK08.

Approvals:

CE

Finish:

400 pre-grained stainless steel, polished to Ra < 0.8µm.

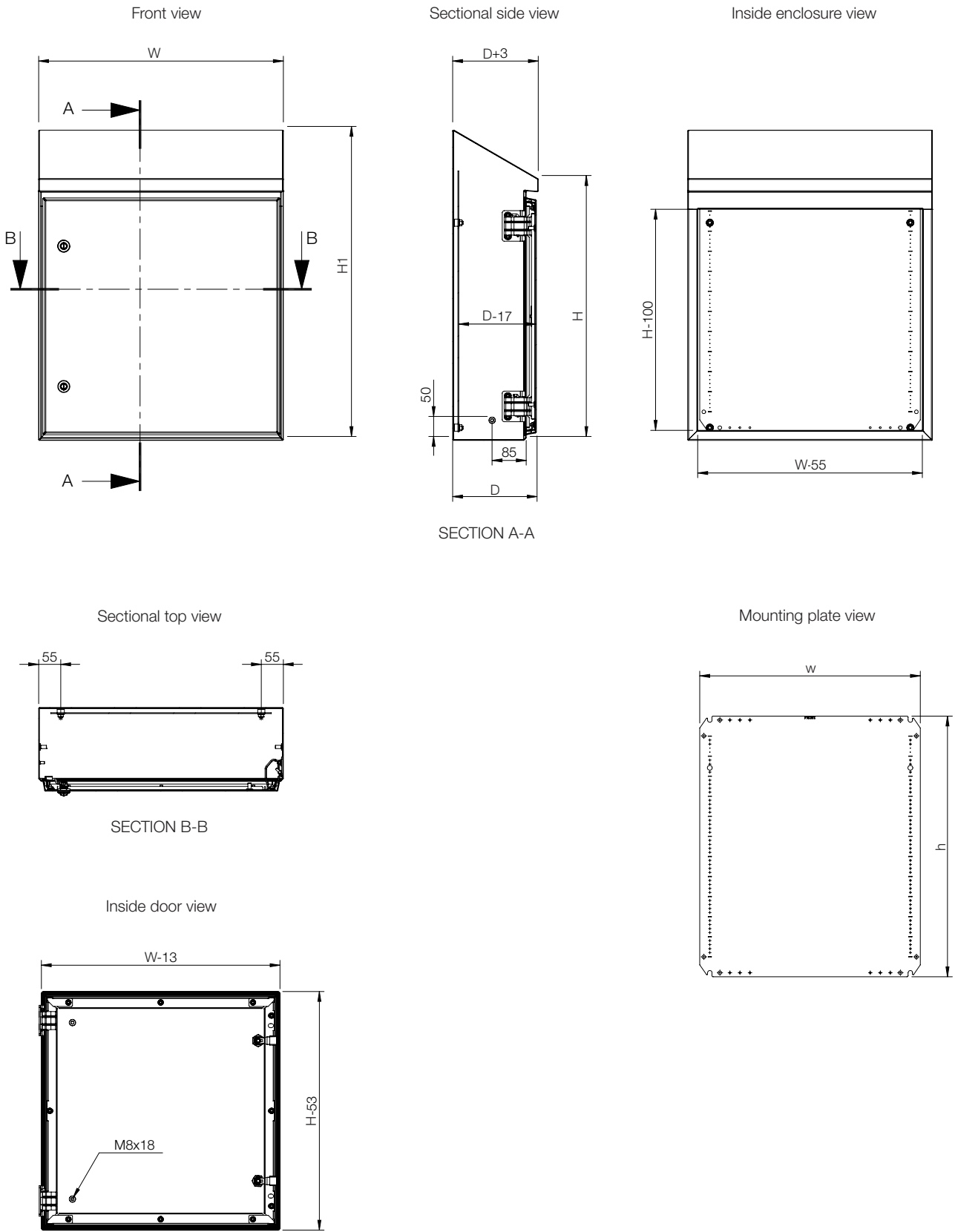
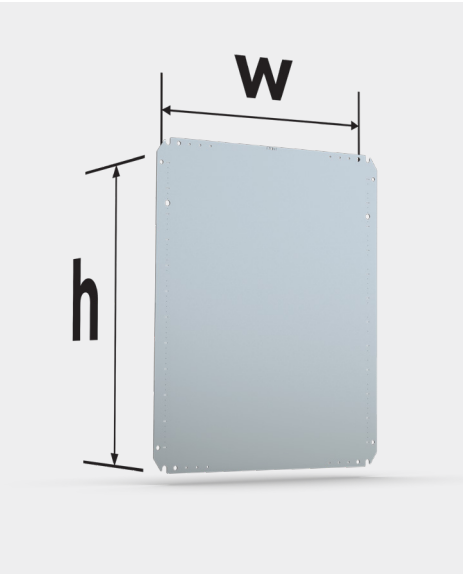
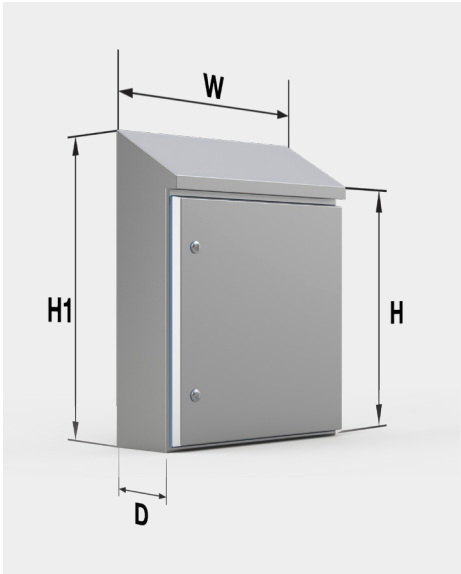
Delivery:

Enclosure with door, mounting plate, metallic key and mounting accessories.



Ordering information

H	H1	W	D	h	w	Item no.
350	442	220	155	350	160	HDW0442215
430	552	390	210	430	330	HDW0553921
430	553	810	210	430	750	HDW0558121
430	605	610	300	430	550	HDW0606130
550	672	510	210	550	450	HDW0675121
650	772	390	210	650	330	HDW0773921
650	772	610	210	650	550	HDW0776121
650	825	810	300	650	750	HDW0828130
1050	1225	810	300	1050	750	HDW1228130
1250	1425	810	300	1250	750	HDW1428130



Cable glands HD, CGHD

To place cables inside the HDW enclosures special cable glands must be used, which are designed to meet strict hygiene demands. The use of standard cable glands increases the hygiene risk due to the presence of external threads, dead spaces and gaps. Consequently, always use hygiene conform cable glands on the HD enclosure.

Description	Pack qty.	Item No.
M12 x 1.5	5	CGHD12
M16 x 1.5	5	CGHD16
M20 x 1.5	5	CGHD20
M25 x 1.5	5	CGHD25



Wall mounting brackets HD, AWHD

The AWHD050/300 wall mounting brackets are made according to hygienic design requirements EN 1672-2:2009. The body is made of AISI 304 stainless steel. The material of blue silicone washers is FDA 21 CFR 177.2600 compliant.

Wall mounting brackets permit the HDW enclosure to be mounted on a vertical wall and provide a space between the wall and the enclosure to facilitate cleaning. They come with special blue silicone sealing washers to guarantee the IP rating and maintain the hygienic design. They have a round cross-section, and are self-draining. Wall mounting brackets are available in two sizes AWHD050 (having 50 mm length) or AWHD300 (having 300 mm length).

Description	Pack qty.	Item No.
Wall separation: 50 mm	1	AWHD050
Wall separation: 300 mm	1	AWHD300



Levelling feet HD, LFHD

The HDW enclosures can also be mounted on the floor by using hygienic design levelling feet.

The HD levelling foot is certified according to the 3A hygienic standard: “88-00” and certified according to the EHEDG hygienic standard TYPE EL - CLASS 1.

The HD levelling foot admits slopes up to 10° of floors and equipment. The HD levelling foot is marked with the 3A and EHEDG logo.

Description	Pack qty.	Item No.
Levelling feet HD	4	LFHD04



Protective Fan Cover HD, ECHD

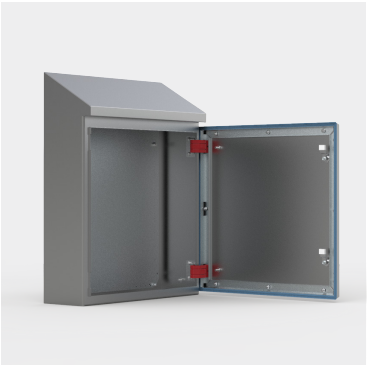
Designed for the food & beverage industry with special materials for harsh sanitary operations, this cover helps protect filter fans in wash down environments against water ingress. With the shroud fitted in place, EF filter fans increase in rating from IP 54 to IP 56. The cover can be easily removed for maintenance operations and gasket replacement, and also can be opened to a 35° angle for easy filter cleaning. The sloped-top cover prevents liquids and other debris from pooling. Folded and seam welded. (Machining is required).

Description	Pack qty.	Item No.
Protective cover HD, 230x150x57	1	ECHD10
Protective cover HD, 260x176x57	1	ECHD20
Protective cover HD, 330x233x57	1	ECHD22
Protective cover HD, 390x282x95	1	ECHD30
Protective cover HD, 480x350x110	1	ECHD50
Protective cover HD, 480x350x160	1	ECHD70

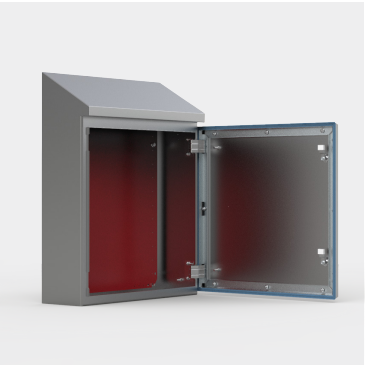




- 30 Degree sloped roof**
- Self draining
 - Easy to hose clean
 - Integrated 30 mm overhang



- Smart hinge design**
- Completely hidden inside enclosure when closed
 - Reversible - to swap door for left hand open without machining



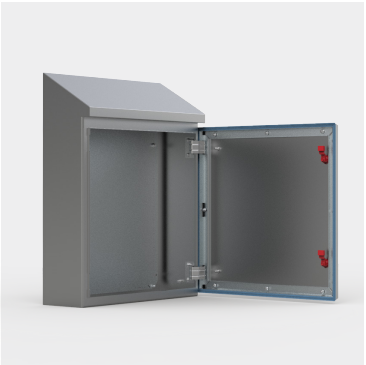
- Mounting plate**
- Supplied with the enclosure
 - Galvanised steel 2 mm thick



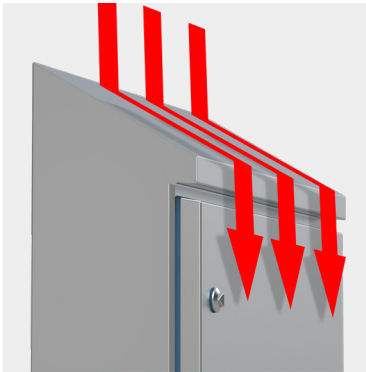
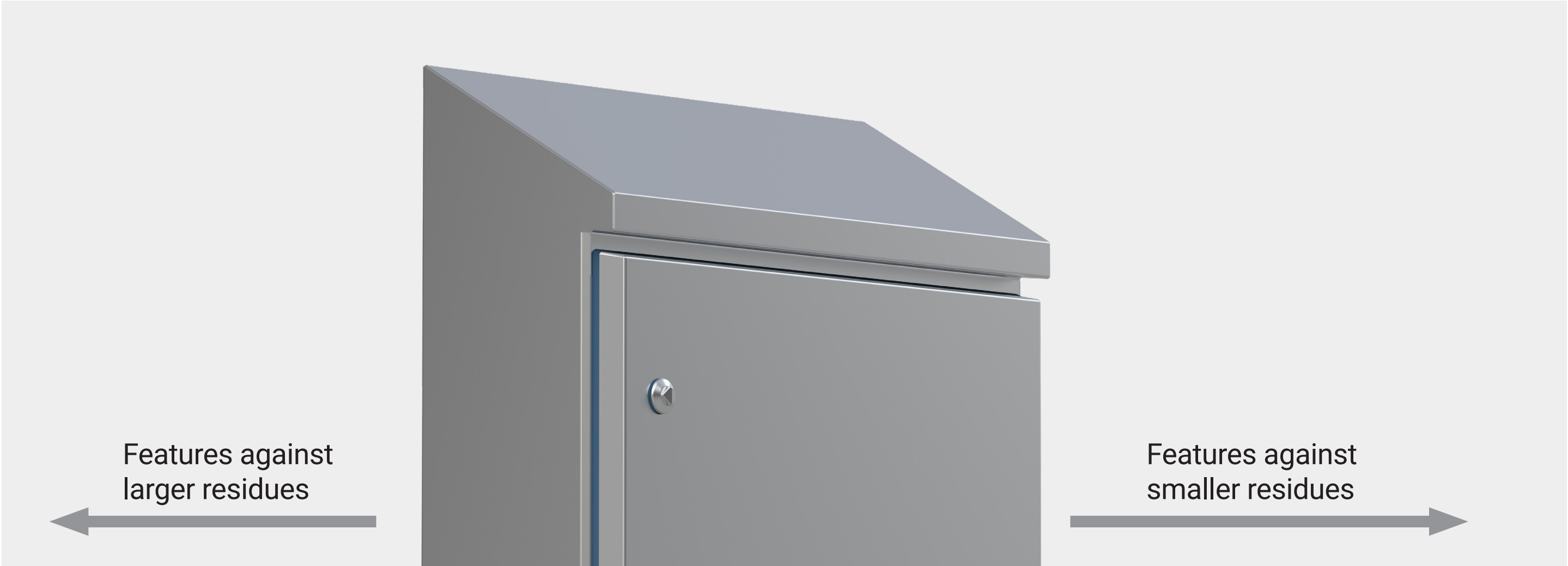
- Multiple earthing studs**
- In the door
 - In the enclosure
 - Simplifies wiring



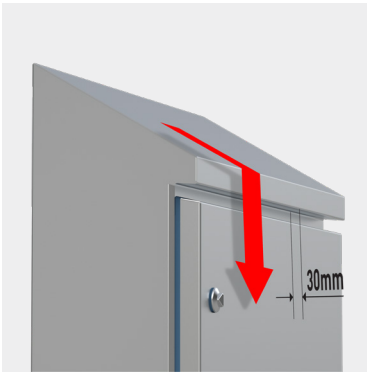
- Blue silicone gasket**
- One piece gasket easy to remove for cleaning or replacement
 - FDA certified for food production areas
 - Blue color makes any contamination easily visible



- Hygienic lock**
- Special hygienic locking system
 - Self-draining design



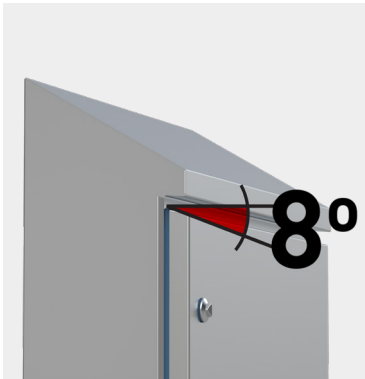
30° sloped roof



30 mm roof overhang



Hygienic lock



8° sloped door edge



Gapless sealing



Surface finish

Advantages and benefits



The features of the HDW range, have among others the following advantages:

- Gasket is removable for periodic maintenance and easily replaceable;
- No pre-drilled mounting holes or gland plates, bacteria cannot accumulate;
- Easy to clean by high temperature and water;
- Optional accessories to adapt enclosure to specific needs;
- Door can be reversed without machining for left-opening;
- Available in eight standard sizes off-the-shelf.

The nVent HOFFMAN HDW range is designed and constructed with carefully selected materials for highly sanitary operation and ease of thorough cleaning. The enclosure range complies with high cleanliness requirements and minimizes hygiene risks with its self-draining, smooth-finished surfaces and gap-free design.

With these new enclosures installed, cleaning time can be reduced, thanks to the silicone sealings and self-drainable surfaces, resulting in time savings for maintenance staff. Component failure and unnecessary downtime are avoided as water and dust are prevented from entering the enclosure, even when cleaning with high pressure and temperature water.

In summary, the new hygienic design wall mounted enclosure range, HDW, brings several benefits in environments where high cleanliness is required:

- Thorough cleaning is fast and easy;
- High pressure and temperature water can be used;
- Hosted equipment and components are well protected from liquids and dust;
- Compliance with hygiene standards;
- Compelling hygienic visual image;
- Increased life expectancy of protected equipment and reduced maintenance costs.



Removing residues

Residues include soils and deposits originating from the ingredients used in the preparation of a product. There are different types: fats, oils, greases, proteins, starches, lime scale, corrosion deposits, algae, and fungi. Each is chemically different and requires different cleaning methods.

After a gross clean, a major phase of a general cleaning procedure is based on the application of water and detergent to remove and carry away soils and deposits.

Soils

A general definition of soil could be that of unwanted matter on the surfaces to be cleaned, being the primary source of this matter the foodstuffs that are processed at the plant. Examples of soils are: proteins, fats, sugars, starches, and salts.

Detergent

A detergent’s function is to remove soils. The ideal detergent to employ depends on the enclosure surface, variation of residues, water hardness, temperature of the cleaning method and safety. No detergent is capable of removing all types of soils, as the solubility of soils is different in water, acid or alkali medium, hence the nature of the soil must be known before selecting the most adequate detergent. Alkaline cleaners are selected for dissolving fat-based or protein-based soils, while acid cleaners are chosen for removal of limestone or other minerals and salts. Surfactants can remove residue by bringing it in suspension in water and making it flushable.

On the use of water

Water plays a key role in the cleaning process, as it carries the detergent or the sanitizer to the surface and carries soils or contamination from the surface. It must be potable and pathogen free. Water hardness is the most relevant chemical property of water affecting the efficiency of the process, as it may affect the properties of the residues on the surfaces, making it more difficult to remove.

Sanitization

A sanitization phase follows the removal of residues. Sanitization refers to the reduction of micro-organisms to levels considered safe from a public health perspective. General types of sanitization include thermal and chemical sanitization.

Thermal sanitization

This involves the use of hot water or steam for a specified temperature and contact time:

- Hot water
- Steam

The primary advantages of hot water sanitization are that it is relatively inexpensive, easy to apply, and readily available, generally effective over a broad range of microorganisms, relatively non-corrosive.

The use of steam as a sanitizing process has limited application. It is generally expensive compared to hot water alternatives and it is difficult to regulate and monitor contact temperature and time. Further, the by-products of steam condensation can complicate cleaning operations.

Chemical sanitization

This involves the use of an approved chemical sanitizer at a specified concentration and contact time. The ideal chemical sanitizer should:

- be approved for food contact surface application;
- have a wide range or scope of activity;
- destroy micro-organisms rapidly;
- be stable under all types of conditions;
- be tolerant of a broad range of environmental conditions;
- be readily solubilized and should have detergent attributes;
- be low in toxicity and corrosivity;
- be inexpensive.

Cleaning information



The most commonly used chemical sanitizer in food processing is chlorine in its various forms. Chlorine has activity at low temperature, is relatively cheap and leaves minimal residues. The main disadvantage is its corrosiveness to metal surfaces and health and safety concerns in confined areas.

Iodine is an antimicrobial agent, which, like chlorine, is found in many forms. When prepared with a solubilizing agent they are termed iodophors. These preparations are generally less affected by water hardness and organic residues.

Another kind of sanitizer is Quaternary Ammonium Compounds (QACs). QACs leave a residual antimicrobial film, which can be advantageous in some applications. Furthermore, QACs are surfactants too, thus they possess some detergency and can remove soil. This property makes QACs more resistant to light soils than other sanitizers.

Examples of typical cleaning and sanitizing agents are given in the following table:

Detergents			Sanitizers
Acidic	Neutral	Alkaline	
Surfactants	Surfactants	Surfactants	Chlorine-based
Nitric acid	Peroxides	Peroxides	Iodine-based
Phosphoric acid	QACs*	QACs*	QACs*
Acetic acid	Phosphates	Hypochlorite	Fatty acids
Solubilizer		Caustic soda	Acid anionic
		Sodium carbonate	Peroxides
			Alcohol preparations

*QACs: Quaternary Ammonium Compounds

Cleaning Methods

The enclosures used in the food industry have to be cleaned matching industry requirements. Depending on the possibility to clean the element assembled or dissembled it can be distinguished between the following methods:

- Mechanical Cleaning
Often referred to as clean-in-place (CIP). Requires no disassembly or partial disassembly. Clean in place is used for the interior clean of pipes, tanks and enclosed process systems.
- Clean-out-of-Place (COP)
Can be partially disassembled and cleaned in specialized COP (for example, the silicone gasket).
- Manual Cleaning
Requires total disassembly for cleaning and inspection.

Cleaning procedure

Reducing the time required for thorough cleaning and optimizing the use of water, energy and chemicals are further benefits from the introduction of hygienic design enclosures. Cleaning frequency must be clearly defined for each process line (i.e., daily, after production runs, or more often if necessary).

The nVent HOFFMAN HDW range is designed and constructed with carefully selected materials for highly sanitary operation and ease of thorough cleaning. The cleaning procedure for surfaces in a food plant is, in general: gross clean, pre-rinse, detergent application, post-rinse, sanitization, and final rinse. The procedure has to be evaluated for adequacy. The chemicals used for cleaning must be compatible with the surface materials of the enclosures.

The HDW enclosures are certified for ingress protection, thus making it possible to use a high-pressure hot water jet. The enclosure can be disinfected using a certified disinfectant agent permitted for use on machinery handling food. The gasket can be cleaned and disinfected independently by removing it from the door edge.

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