Market launch
“Hygienicgland”

HSK-INOX-HD

+HYGIENIC DESIGN

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Which regulations / standards are important?
How can HD be fulfilled?
Which applications / industries need HD?
Why shall customer buy HD products?
What is HD (hygienic design) - definition?

Hygienic Design includes all formal principles to avoid constructive weaknesses which will support hygienic risks. Cleanability of the materials, the surface characteristic and constructive elements are the core point of “hygienic design”. Determinations with each kind of contamination / dirt have to be avoided or is not allowed to stay permanently respectively it has to be removed easily.

Which regulations / standards are important?
How can HD be fulfilled?
Which applications / industries need HD?
Why shall customer buy HD products?
What is HD (hygienic design) - definition?

Which regulations / standards are important?

  - 2006/42/EG EC machinery directive / declaration of conformity
  - DIN EN 1672-2 [] Part 2: Hygiene requirements
  - DIN EN ISO 14159 [] Hygiene requirements for the design of machinery
  - GS-NV Proofed safety-food and packaging 2+6

- EHEDG European Hygienic Engineering and Design Group
- FDA Food and Drug Administration (U.S.)

How can HD be fulfilled?

Which applications / industries need HD?

Why shall customer buy HD products?
Hygienic design, areas and regulations

What is HD (hygienic design) - definition?
Which regulations / standards are important?

How can HD be fulfilled?

- Penetration / entry of foreign substances into the construction (housing) have to be avoided (tightness)
- Contamination of the product have to be avoided
- Devices, equipment, [] and rooms have to be cleaned easily and cheaply
- Resistance against chemical cleaning compounds
- Extreme durable materials

Which applications / industries need HD?
Why shall customer buy HD products?
Hygienic design, areas and regulations

What is HD (hygienic design) - definition?
Which regulations / standards are important?
How can HD be fulfilled?

Which applications / industries need HD?
- Food industry, beverage industry
- Pharmaceutical industry
- Chemical industry
- Clean room facilities (limited versatility->gas emission)
- Other / all industries which need easy and fast cleaning

Why shall customer buy HD products?
Hygienic design, areas and regulations

What is HD (hygienic design) - definition?
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Why shall customer buy HD products?
What is HD (hygienic design) - definition?
Which regulations / standards are important?
How can HD be fulfilled?
Which applications / industries need HD?
How big is this market?

**Why shall customer buy HD products?**
- Securing a sustainable and efficient production
- Reduction of Total Cost of Ownership
  (faster cleaning and longer production times, reduced use of cleaning and chemicals)
- Fulfill regulation and requirements
- Safety reasons
  (non-toxic materials, no food contamination, no dirt areas and contaminations)
Gland designed and suitable for hygienic areas
Combination of our approved HSK Hummel safety gland with a hygienic design (HD) shell.

Developed for areas in which it is important to clean easy and fast and where it is important to avoid the deposition of dirt and bacteria

- Available from M12 up to M25
- EMC integrated
- For low pressure cleaning
- Usable in splash zone (definition EHEDG)
HSK-INOX-HD – technical details

Sizes / Clamping range:

<table>
<thead>
<tr>
<th>Thread</th>
<th>Clamping range</th>
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</tr>
</thead>
<tbody>
<tr>
<td>M12x1.5</td>
<td>3.5mm - 6.5mm</td>
<td>M20x1.5</td>
<td>10mm - 14mm</td>
</tr>
<tr>
<td>M16x1.5</td>
<td>5mm - 10mm</td>
<td>M25x1.5</td>
<td>13mm - 18mm</td>
</tr>
</tbody>
</table>

Temperature range:
- 40° C up to + 120° C  (standard version)
- 35° C up to + 150° C  (on request)

Material:
Enclosure: INOX AISI 316L / EN 1.4404
Sealings: Silicone (outer)
Buna N (inner)
HSK-INOX-HD – technical details

- silicone sealing (steady)
- HD enclosure/shell AISI 316L (rounded surfaces (surface roughness <0.8µm))
- HSK EMC clamping insert/sealing (with high strain relief)
- EMC O-ring
- silicone sealing (steady)
- no exposed threads
- HSK-capnut
- intermediate piece
- cable twist protection
- HSK-O-ring
- no dirt deposits
- 8/24/2014
- Hummel AG
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HSK-INOX-HD - technical details

**Tests:**
- Density IP66 and IP68 2bar
- EHEDG & FDA compliant materials
- Riboflavin (cleaning) test performed and passed
- Resistance tests against cleaning compounds in process (Ecolab)
  (Diversay and Finktec possible)
Areas of application
Food industry for example meat goods
Beverage industry for example milk and juice
Products / devices for cleaning and disinfection purpose
Pharmaceutical and chemical industries

Control and junction boxes, housings, engines, servo motors, rotary encoder, gears and gear boxes for example in the following constructions / devices for:
- extraction
- defrosting
- baking
- illumination
- disinfection
- batching
- sterilization
- packaging and many more

In general suitable for all areas and if hygienic design is required than also usable in the splash zone
# HSK-INOX-HD – advantages / benefits

## Hygienic Design (HD) enclosure

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Advantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Enclosure made of stainless steel 1.4404/AISI 316L and sealings made of silicone</td>
<td>- High resistance against chemicals/ cleaning compounds</td>
</tr>
<tr>
<td>- Rounded surfaces (no edges/corners)</td>
<td>- Avoids the determination of dirt and bacteria</td>
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<tr>
<td>- Surface roughness &lt; 0.8μm</td>
<td>- Easy and fast cleaning</td>
</tr>
<tr>
<td>- No exposed threads</td>
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<tr>
<td>- Diaphragm seal</td>
<td>- Reducing of cable neck downs</td>
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<tr>
<td></td>
<td>- No cable twisting during assembly</td>
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</tbody>
</table>

## Complete gland HSK-INOX-HD

<table>
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<th>Characteristics</th>
<th>Advantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUMMEL clamping finger cable gland with wide clamping range</td>
<td>- Fast and easy assembly</td>
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<td></td>
<td>- No special tools necessary</td>
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<td></td>
<td>- High strain relief across entire clamping range</td>
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<tr>
<td>Integrated cable twist-protect-function</td>
<td>- Avoids cable twisting during assembly</td>
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<tr>
<td>EMV finish</td>
<td>- The cable shielding can be fast and easily 360° connected</td>
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<tr>
<td>Halogen- und Phosphor free</td>
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Future prospects

**HSK-INOX-HD-RG - description:**
Hygienic design gland for high pressure cleaning process and high temperatures
Designed and certified according to EHEDG standard

- will be developed in M12x1,5 up to M32x1,5
- IP68 10bar, IP69K high pressure cleaning version
- EHEDG certification in process, FDA conform materials
- high temperature version (-40°C up to 180°C)
- non EMC version
- different sealing per size

**Already available in size M25x1,5**
Future prospects

**HSK-INOX-HD-RG**

- Silicone sealing *steady*
- HD enclosure/shell AISI 316L
  - Rounded surfaces
  - (surface roughness <0.8µm)

- IP69K
- IP68 10bar

- No exposed threads
- No dirt deposits
- Only two materials
- High temperature

**EHEDG**
- Certificate type: Type EL Class I
  - In progress

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