Product overview
HERMETIC-Pumpen GmbH
## Contents

### Hermetically Sealed Centrifugal Pumps

- Canned motor pumps intended for use in potentially explosive atmospheres  
  - single-stage design  
  - multistage design  
  - submersible pump design

- Canned motor pumps intended for use outside potentially explosive atmospheres
  - single-stage design
  - multistage design
  - self-priming design

- Magnetically coupled pumps
  - single-stage design
  - multistage design

### Vacuum Pumps and Systems

- Liquid ring vacuum pumps
  - design with mechanical seal
  - design with magnetic coupling
  - design with canned motor

- Package Unit

### Positive Displacement Pumps

- Gear pumps
- Internal gear pumps
- Rotary lobe pumps

### Monitoring Equipment

- Monitoring equipment
  - Level monitoring
  - Temperature monitoring
  - Rotor position monitoring
  - Rotation monitoring
Schematic diagram of canned motor pumps

**Single-stage canned motor pump**
- Impeller
- Discharge nozzle
- Rotor
- Stator
- Motor casing (secondary containment)
- Suction nozzle
- Slide bearing
- Rotor lining (primary containment)

**Multistage canned motor pump**
- Impellers
- Discharge nozzle
- Rotor
- Stator
- Motor casing (secondary containment)
- Suction nozzle
- Slide bearing
- Rotor lining (primary containment)
Type HCN

- Normal-suction design
- Dimensions and performance curves in accordance with EN 22858; ISO 2858
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) \( \text{\&} \) II 2 G Ex de IIC T3 to T6

<table>
<thead>
<tr>
<th>Parameter</th>
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<tr>
<td>Capacity</td>
<td>max. 300 m³/h</td>
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<tr>
<td>Head</td>
<td>max. 150 m</td>
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<tr>
<td>Rotating speed</td>
<td>2900 to 3500 rpm</td>
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<tr>
<td>Operating temperature</td>
<td>–120 °C to +120 °C</td>
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<tr>
<td>Viscosity</td>
<td>max. 300 mm²/s</td>
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<tr>
<td>Pressure rating</td>
<td>PN 16</td>
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</table>

Type HCNF

- Normal-suction design
- Liquefied gas design
- Dimensions and performance curves in accordance with EN 22858; ISO 2858
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) \( \text{\&} \) II 2 G Ex de IIC T3 to T6

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<tbody>
<tr>
<td>Capacity</td>
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<tr>
<td>Head</td>
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<td>Viscosity</td>
<td>max. 300 mm²/s</td>
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<td>Pressure rating</td>
<td>PN 16</td>
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</table>

Type HCNF

- Normal-suction design
- Liquefied gas design with external by-pass
- Dimensions and performance curves in accordance with EN 22858; ISO 2858
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) \( \text{\&} \) II 2 G Ex de IIC T3 to T6

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<td>Viscosity</td>
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<tr>
<td>Pressure rating</td>
<td>PN 16</td>
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### Type CN

- Normal-suction design
- Dimensions and performance curves in accordance with EN 22858; ISO 2858
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) II 2 G Ex de IIC T1 to T6 (*)

<table>
<thead>
<tr>
<th>Capacity:</th>
<th>max. 1600 m³/h</th>
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</thead>
<tbody>
<tr>
<td>Head:</td>
<td>max. 220 m</td>
</tr>
<tr>
<td>Rotating speed:</td>
<td>1450 to 3500 rpm</td>
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<tr>
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<td>−120 °C to +120 °C</td>
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<td>Viscosity:</td>
<td>max. 300 mm²/s</td>
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<tr>
<td>Pressure ratings:</td>
<td>PN 16 and PN 25</td>
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</tbody>
</table>

### Type CNF

- Normal-suction design
- Liquefied gas design
- Dimensions and performance curves in accordance with EN 22858; ISO 2858
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) II 2 G Ex de IIC T1 to T6 (*)

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<tr>
<td>Pressure ratings:</td>
<td>PN 16 and PN 25</td>
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</table>

### Type CNKp

- Normal-suction design
- High-temperature design with plate heat exchanger
- Dimensions and performance curves in accordance with EN 22858; ISO 2858
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) II 2 G Ex de IIC T1 to T6 (*)

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<tr>
<td>Operating temperature:</td>
<td>max. +400 °C</td>
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<tr>
<td>Viscosity:</td>
<td>max. 300 mm²/s</td>
</tr>
<tr>
<td>Pressure ratings:</td>
<td>PN 16 and PN 25</td>
</tr>
</tbody>
</table>

(*) Based on the requirements of the non-electrical explosion protection, the gas groups are classified as follows:
Thickness of coating > 200 µm – gas group IIB
Thickness of coating ≤ 200 µm – gas group IIC
**Type CNKr**

- Normal-suction design
- High-temperature design with tubular cooler
- Dimensions and performance curves in accordance with EN 22858; ISO 2858
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) II 2 G Ex de IIC T1 to T3 (*)

<table>
<thead>
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<tr>
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<td>Viscosity</td>
<td>max. 300 mm²/s</td>
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<tr>
<td>Pressure ratings</td>
<td>PN 16 and PN 25</td>
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</tbody>
</table>

**Type CN and CNF**

- Normal-suction design
- High-temperature design without external cooler
- Dimensions and performance curves in accordance with EN 22858; ISO 2858
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) II 2 G Ex de IIC T1 to T3 (*)

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<tr>
<td>Operating temp.</td>
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<td>Viscosity</td>
<td>max. 300 mm²/s</td>
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<tr>
<td>Pressure ratings</td>
<td>PN 16 and PN 25</td>
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</tbody>
</table>
**Type CNH, CNFH and CNKH**

- Normal-suction design
- Design for high system pressures
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) @ II 2 G Ex de IIC T1 to T6(*)

  | Capacity: | max. 1600 m³/h |
  | Head:     | max. 220 m     |
  | Rotating speed: | 1450 to 3500 rpm |
  | Operating temperature: | −120 °C to +360 °C |
  | Viscosity: | max. 300 mm²/s |
  | Pressure ratings: | up to PN 1200 |

**Type CNV and CNFV**

- Normal-suction design
- Design for pressure gases / liquefied gases
- In vertical installation
- Dimensions and performance curves in accordance with EN 22858; ISO 2858
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) @ II 2 G Ex de IIC T1 to T6(*)

  | Capacity: | max. 1600 m³/h |
  | Head:     | max. 220 m     |
  | Rotating speed: | 1450 to 3500 rpm |
  | Operating temperature: | −120 °C to +120 °C |
  | Viscosity: | max. 300 mm²/s |
  | Pressure ratings: | PN 16 and PN 25 |

(*) Based on the requirements of the non-electrical explosion protection, the gas groups are classified as follows:

- Thickness of coating > 200 µm – gas group IIB
- Thickness of coating ≤ 200 µm – gas group IIC
Type CNP acc. to API 685

- Normal-suction design
- Single suction
- Centerline-mounted
- Process design
- Completely designed according to the API 685
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) II 2 G Ex de IIC T1 to T6 (*)

Capacity: max. 1200 m³/h
Head: max. 240 m
Rotating speed: 1450 to 3500 rpm
Operating temperature: –120 °C to +360 °C
Viscosity: max. 300 mm²/s
Pressure rating: PN 50

Type CNPF acc. to API 685

- Normal-suction design
- Liquefied gas design
- Single suction
- Centerline-mounted
- Process design
- Completely designed according to the API 685
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) II 2 G Ex de IIC T1 to T6 (*)

Capacity: max. 1200 m³/h
Head: max. 240 m
Rotating speed: 1450 to 3500 rpm
Operating temperature: –120 °C to +360 °C
Viscosity: max. 300 mm²/s
Pressure rating: PN 50

Type CNPKf acc. to API 685

- Normal-suction design
- High-temperature design with tubular cooler
- Single suction
- Centerline-mounted
- Process design
- Completely designed according to the API 685
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) II 2 G Ex de IIC T1 to T6 (*)

Capacity: max. 1200 m³/h
Head: max. 240 m
Rotating speed: 1450 to 3500 rpm
Operating temperature: –120 °C to +425 °C
Viscosity: max. 300 mm²/s
Pressure rating: PN 50
Type CAM

- Normal-suction design
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) 2 G Ex de IIC T1 to T6 (*)

- Capacity: max. 350 m³/h
- Head: max. 1100 m
- Rotating speed: 2900 to 3500 rpm
- Operating temperature: –120 °C to +100 °C
- Viscosity: max. 300 mm²/s
- Pressure ratings: PN 16 to PN 100

Type CAM

- Normal-suction design
- High-temperature design without external cooling
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) 2 G Ex de IIC T1 to T3 (*)

- Capacity: max. 350 m³/h
- Head: max. 1100 m
- Rotating speed: 2900 to 3500 rpm
- Operating temperature: –100 °C to +360 °C
- Viscosity: max. 300 mm²/s
- Pressure ratings: PN 16 to PN 100

Type CAMT

- Normal-suction design
- With pressure barrel for high system pressures
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) 2 G Ex de IIC T1 to T6 (*)

- Capacity: max. 350 m³/h
- Head: max. 1100 m
- Rotating speed: 2900 to 3500 rpm
- Operating temperature: –120 °C to +100 °C
- Viscosity: max. 300 mm²/s
- Pressure ratings: up to PN 500

(*) Based on the requirements of the non-electrical explosion protection, the gas groups are classified as follows:
- Thickness of coating > 200 µm – gas group IIB
- Thickness of coating ≤ 200 µm – gas group IIC
**Type CAMKr and CAMKrT**

- Normal-suction design
- High-temperature design with tubular cooler
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) II 2 G Ex de IIC T1 to T6(*)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Chemical</th>
<th>Oil &amp; Gas</th>
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<th>Power Generation</th>
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<td>Capacity:</td>
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<td></td>
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<tr>
<td>Head:</td>
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<td>Rotating speed:</td>
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<td>Pressure ratings:</td>
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</table>

**Type CAM-Tandem**

- Normal-suction design
- Tandem design
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) II 2 G Ex de IIC T1 to T6(*)

<table>
<thead>
<tr>
<th>Parameter</th>
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<th>Oil &amp; Gas</th>
<th>Refrigeration</th>
<th>Power Generation</th>
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<tbody>
<tr>
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<td>Pressure ratings:</td>
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</table>

**Type CAMH-Tandem**

- Normal-suction design
- Tandem design
- With pressure barrel for high system pressures
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) II 2 G Ex de IIC T1 to T6(*)

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<tr>
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<th>Oil &amp; Gas</th>
<th>Refrigeration</th>
<th>Power Generation</th>
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<td>Capacity:</td>
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</tr>
<tr>
<td>Head:</td>
<td>max. 1200 m</td>
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<tr>
<td>Rotating speed:</td>
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<td>Operating temperature:</td>
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<td>Pressure ratings:</td>
<td>up to PN 500</td>
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</table>
Type CAMTV

- Normal-suction design
- Design for pressure gases / liquefied gases
- In vertical installation
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) II 2 G Ex de IIC T1 to T6 (*)

Capacity: max. 350 m³/h
Head: max. 1100 m
Rotating speed: 2900 to 3500 rpm
Operating temperature: max. +360 °C
Viscosity: max. 300 mm²/s
Pressure ratings: PN 16 to PN 100

Type CAMTV-Tandem

- Normal-suction design
- Tandem design
- Design for pressure gases / liquefied gases
- In vertical installation
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) II 2 G Ex de IIC T1 to T6 (*)

Capacity: max. 350 m³/h
Head: max. 2300 m
Rotating speed: 2900 to 3500 rpm
Operating temperature: –120 °C to +100 °C
Viscosity: max. 300 mm²/s
Pressure ratings: PN 16 to PN 150

(*) Based on the requirements of the non-electrical explosion protection, the gas groups are classified as follows:
- Thickness of coating > 200 µm – gas group IIB
- Thickness of coating ≤ 200 µm – gas group IIC
**Type TCN**

- Single-stage
- Normal-suction design
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) II 2 G Ex de IIC T1 to T6 (*)

<table>
<thead>
<tr>
<th>Capacity</th>
<th>max. 1600 m³/h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head</td>
<td>max. 150 m</td>
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<tr>
<td>Rotating speed</td>
<td>1450 to 3500 rpm</td>
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<tr>
<td>Operating temp.</td>
<td>max. +250 °C</td>
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<tr>
<td>Viscosity</td>
<td>max. 300 mm²/s</td>
</tr>
<tr>
<td>Pressure ratings</td>
<td>PN 16 to PN 100</td>
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</tbody>
</table>

**Installation vessel pump**

The direct placing of the submersible pump in the tank is recommended for small container volumes, e.g. for NPSHA improvement in vessel loading/unloading stations.
Type TCAM

- Multistage
- Normal-suction design
- Explosion protection according to EC design test certificate in line with Directive 94/9/EC (ATEX) II 2 G Ex de IIC T1 to T6(*)

Capacity: max. 350 m³/h
Head: max. 1200 m
Rotating speed: 1450 to 3500 rpm
Operating temperature: max. +250 °C
Viscosity: max. 300 mm²/s
Pressure ratings: PN 16 to PN 100

Installation pump with the opportunity to separate the pump from the liquid in the vessel

If it is necessary that the submersible pump with a filled tank is removed and reinstalled during a revision, the installation when the pump is separate from the liquid has proved to be the best optimum solution.

In this system, there is a shut-off valve close to the tank bottom, which can be operated with a gear or with a pressure medium run system. The delivery medium can be pushed back into the tank by inertisation. After closing of the valve and releasing the pressure the submersible pump can be removed or installed without emptying the vessel.

(*) Based on the requirements of the non-electrical explosion protection, the gas groups are classified as follows:
- Thickness of coating > 200 µm – gas group IIB
- Thickness of coating ≤ 200 µm – gas group IIC
**Type CNF**

- Normal-suction design
- Single-state design
- Liquefied gas design
- Dimensions and performance curves in accordance with EN 22858; ISO 2858

Capacity: max. 80 m³/h  
Head: max. 70 m  
Rotating speed: 2800 to 3500 rpm  
Operating temperature: −50 °C to +30 °C  
Viscosity: max. 20 mm²/s  
Pressure ratings: PN 25 and PN 40

**Type CAM**

- Normal-suction design
- Multistage design

Capacity: max. 40 m³/h  
Head: max. 180 m  
Rotating speed: 2800 to 3500 rpm  
Operating temperature: −50 °C to +30 °C  
Viscosity: max. 20 mm²/s  
Pressure ratings: PN 25 and PN 40

**Type CAMR**

- Normal-suction design
- Multistage design

Capacity: max. 12.5 m³/h  
Head: max. 100 m  
Rotating speed: 2800 to 3500 rpm  
Operating temperature: −50 °C to +30 °C  
Viscosity: max. 20 mm²/s  
Pressure ratings: PN 25 and PN 40

**Type HCS**

- Self-priming design
- Multistage design

Capacity: max. 7.35 m³/h  
Head: max. 184 m  
Rotating speed: 1450 rpm  
Operating temperature: −50 °C to +30 °C  
Viscosity: max. 1 mm²/s  
Pressure rating: PN 25
Schematic Diagram of Magnetically Coupled Pumps

**Single-stage magnetically coupled pump**

- Impeller
- Discharge nozzle
- Inner rotor
- Outer rotor
- Drive shaft
- Suction nozzle
- Slide bearing
- Containment shell (safety sleeve)

**Multistage magnetically coupled pump**

- Impellers
- Discharge nozzle
- Inner rotor
- Outer rotor
- Drive shaft
- Suction nozzle
- Slide bearing
- Containment shell (safety sleeve)
Type MCN

- Normal-suction design
- Dimensions and performance curves in accordance with EN 22858; ISO 2858

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>max. 700 m³/h</td>
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<tr>
<td>Head</td>
<td>max. 220 m</td>
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<td>Rotating speed</td>
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<td>Viscosity</td>
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<tr>
<td>Pressure ratings</td>
<td>PN 16 and PN 25</td>
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</tbody>
</table>

Type MCN close-coupled

- Normal-suction design
- Close-coupled design
- Dimensions and performance curves in accordance with EN 22858; ISO 2858

<table>
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<tr>
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<tr>
<td>Pressure ratings</td>
<td>PN 16 and PN 25</td>
</tr>
</tbody>
</table>

Type MCNK

- Normal-suction design
- High-temperature design
- With external cooling
- Dimensions and performance curves in accordance with EN 22858; ISO 2858

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>max. 700 m³/h</td>
</tr>
<tr>
<td>Head</td>
<td>max. 220 m</td>
</tr>
<tr>
<td>Rotating speed</td>
<td>1450 to 3500 rpm</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>max. +360 °C</td>
</tr>
<tr>
<td>Viscosity</td>
<td>max. 100 mm²/s</td>
</tr>
<tr>
<td>Pressure ratings</td>
<td>PN 16 and PN 25</td>
</tr>
</tbody>
</table>
### Type MCAM

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Oil &amp; Gas</th>
<th>Refrigeration</th>
<th>Power Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>■ Normal-suction design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capacity:</td>
<td>max. 45 m³/h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head:</td>
<td>max. 270 m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rotating speed:</td>
<td>2900 to 3500 rpm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature:</td>
<td>max. +220 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viscosity:</td>
<td>max. 100 mm²/s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure ratings:</td>
<td>PN 16 and PN 25</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Diagram of Type MCAM](image)

### Type MCAM close-coupled

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Oil &amp; Gas</th>
<th>Refrigeration</th>
<th>Power Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>■ Normal-suction design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>■ Close-coupled design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capacity:</td>
<td>max. 45 m³/h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head:</td>
<td>max. 270 m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rotating speed:</td>
<td>2900 to 3500 rpm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature:</td>
<td>max. +140 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viscosity:</td>
<td>max. 100 mm²/s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure ratings:</td>
<td>PN 16 and PN 25</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Diagram of Type MCAM close-coupled](image)
**Type LVPG**

- Double suction design
- Shaft seal by mechanical seal
- Suction capacity: max. 3000 m³/h
- Suction pressure: min. 33 mbar (abs)
- Rotating speed: 600 to 1800 rpm
- Operating temperature: –20 °C to +100 °C
- Pressure rating: PN 10

**Type LVPS**

- Single suction design
- Shaft seal by mechanical seal
- Suction capacity: max. 250 m³/h
- Suction pressure: min. 33 mbar (abs)
- Rotating speed: 1500 to 1800 rpm
- Operating temperature: –20 °C to +100 °C
- Pressure rating: PN 10

**Type LVPL**

- Single suction design
- Shaft seal by mechanical seal
- Suction capacity: max. 450 m³/h
- Suction pressure: min. 33 mbar (abs)
- Rotating speed: 1500 to 1800 rpm
- Operating temperature: –20 °C to +100 °C
- Pressure rating: PN 10
**Type LVPM**

- Double suction design
- Shaft seal by magnetic coupling
- Design test certificate for use in zone 0 (inside), equipment group 1, available

<table>
<thead>
<tr>
<th>Suction capacity</th>
<th>max. 3000 m³/h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suction pressure</td>
<td>min. 33 mbar (abs)</td>
</tr>
<tr>
<td>Rotating speed</td>
<td>600 to 1800 rpm</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>−20 °C to +100 °C</td>
</tr>
<tr>
<td>Pressure rating</td>
<td>PN 10</td>
</tr>
</tbody>
</table>

**Type LVPMML**

- Single suction design
- Shaft seal by magnetic coupling
- Design test certificate for use in zone 0 (inside), equipment group 1, available

<table>
<thead>
<tr>
<th>Suction capacity</th>
<th>max. 450 m³/h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suction pressure</td>
<td>min. 33 mbar (abs)</td>
</tr>
<tr>
<td>Rotating speed</td>
<td>1500 to 1800 rpm</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>−20 °C to +100 °C</td>
</tr>
<tr>
<td>Pressure rating</td>
<td>PN 10</td>
</tr>
</tbody>
</table>

**Type LVPMB**

- Single suction design
- Shaft seal by magnetic coupling
- Design test certificate for use in zone 0 (inside), equipment group 1, available

<table>
<thead>
<tr>
<th>Suction capacity</th>
<th>max. 450 m³/h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suction pressure</td>
<td>min. 33 mbar (abs)</td>
</tr>
<tr>
<td>Rotating speed</td>
<td>1500 to 3500 rpm</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>−20 °C to +100 °C</td>
</tr>
<tr>
<td>Pressure rating</td>
<td>PN 10</td>
</tr>
</tbody>
</table>
Type LVPH

- Double suction design
- Shaft seal by canned motor
- Design test certificate for use in zone 0 (inside), equipment group 1, available

Suction capacity: max. 1800 m³/h
Suction pressure: min. 33 mbar (abs)
Rotating speed: 1000 to 1800 rpm
Operating temperature: −20 °C to +100 °C
Pressure rating: PN 10

Type LVPH

- Single suction design
- Shaft seal by canned motor
- Design test certificate for use in zone 0 (inside), equipment group 1, available

Suction capacity: max. 450 m³/h
Suction pressure: min. 33 mbar (abs)
Rotating speed: 1450 to 3500 rpm
Operating temperature: −20 °C to +100 °C
Pressure rating: PN 10
**Vacuum pump type LVPG 1800**

Liquid ring vacuum pump type LVPG 1800 with mechanical shaft seal, double-flow

- For suction of solvent vapours
- Suction temperature approx. 42 °C
- Pumping capacity 1674 m³/h at 147 mbar
- Compression to 1206 mbar

**Vacuum package unit type ALVPM 800**

Liquid ring vacuum pump type LVPM 800 with magnetic coupling, double-flow

- For suction of a mixture of:
  - air, nitrogen, epichlorohydrin and water vapour
- Suction temperature approx. 20 °C
- Pumping capacity 280 m³/h at 26 mbar
- Compression to 1113 mbar

Special features:
- vacuum package unit with connected gas ejector
Vacuum package unit type ALVPMB 150

Liquid ring vacuum pump type LVPMB 150
with magnetic coupling, close-coupled, single-flow
- For suction of a mixture of:
  - air, nitrogen, epichlorohydrin and water vapour
- Suction temperature approx. 25 °C
- Pumping capacity 81 m³/h at 106 mbar
- Compression to 1113 mbar

Vacuum package unit type ALVPMB 150

Liquid ring vacuum pump type LVPH 1800
with canned motor, double-flow
- For suction of nitrogen
- Suction temperature approx. 40 to 45 °C
- Pumping capacity 1007 m³/h at 30 mbar
- Compression to 1113 to 1120 mbar

Special features:
vacuum package unit with integrated canned motor pump
type CNK and 2 metering pumps
**Type LZ**

- Self-priming
- Shaft seal by stuffing box packing, single or double mechanical seal

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>0.5 to 120 m³/h</td>
</tr>
<tr>
<td>Discharge pressure</td>
<td>max. 10 MPa</td>
</tr>
<tr>
<td>Rotating speed</td>
<td>max. 1450 rpm</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>–20 °C to +250 °C</td>
</tr>
<tr>
<td>Viscosity</td>
<td>0.3 to 5.000.000 mm²/s</td>
</tr>
<tr>
<td>Pressure ratings</td>
<td>PN 25 to PN 100</td>
</tr>
</tbody>
</table>

**Type LZM**

- Self-priming
- Shaft seal by magnetic coupling

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>0.5 to 120 m³/h</td>
</tr>
<tr>
<td>Discharge pressure</td>
<td>max. 10 MPa</td>
</tr>
<tr>
<td>Rotating speed</td>
<td>max. 1450 rpm</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>–20 °C to +250 °C</td>
</tr>
<tr>
<td>Viscosity</td>
<td>0.3 to 6.000 mm²/s</td>
</tr>
<tr>
<td>Pressure ratings</td>
<td>PN 25 to PN 100</td>
</tr>
</tbody>
</table>
**Type HP**

- Self-priming
- Shaft seal by stuffing box packing, single or double mechanical seal

Capacity: 1 to 60 m³/h  
Discharge pressure: max. 1.2 MPa  
Rotating speed: max. 1450 rpm  
Operating temperature: −20 °C to +200 °C  
Viscosity: 1 to 1,000,000 mm²/s  
Pressure rating: PN 16  

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**Type MHP**

- Self-priming
- Shaft seal by magnetic coupling

Capacity: 1 to 60 m³/h  
Discharge pressure: max. 1.2 MPa  
Rotating speed: max. 1450 rpm  
Operating temperature: −20 °C to +200 °C  
Viscosity: 1 to 5,000 mm²/s  
Pressure rating: PN 16
**Type KRL**

- Self-priming
- Shaft seal by stuffing box packing, single or double mechanical seal

Capacity: 1 to 300 m³/h
Discharge pressure: max. 10 MPa
Rotating speed: max. 1450 rpm
Operating temperature: –20 °C to +280 °C
Viscosity: 1 to 5,000,000 mm²/s
Pressure ratings: PN 16 and PN 25

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**Type KRH**

- Self-priming
- Shaft seal by stuffing box packing, single or double mechanical seal

Capacity: 1 to 300 m³/h
Discharge pressure: max. 10 MPa
Rotating speed: max. 1450 rpm
Operating temperature: –20 °C to +280 °C
Viscosity: 1 to 5,000,000 mm²/s
Pressure ratings: PN 16 and PN 25
Hermetic centrifugal pumps are principally manufactured for use in potentially explosive atmospheres. For this reason the pumps comply with electrical as well as non-electrical explosion protection requirements.

**Level monitoring**
The pump’s interior and rotor cavity must be always filled with the pumped liquid for reasons of safety. HERMETIC provides suitable level monitoring equipment for each pump complying with the explosion protection requirements acc. to directive 94/9/EC.

Level monitoring can be recommended principally for application cases which do not mandatory comply with explosion protection requirements. Level monitoring prevents the pump from running dry and to be affected by major damages such as by destruction of the slide bearings or by exceeding inadmissible high temperatures caused by missing cooling and lubricating flow. In addition the pump can be prevented from cavitation damages by means of level monitoring equipment which are caused by evaporation of boiling liquids in the suction pipe.

**Temperature monitoring**
Temperature monitoring ensures that the pump is switched off when achieving inadmissible high temperatures. HERMETIC provides suitable temperature monitoring equipment for each pump complying with explosion protection requirements acc. to directive 94/9/EC.

Monitoring of the liquid temperature allows a reliable control to ensure the operation of the pump within the admissible range and to ensure the internal motor cooling of a canned motor pump. For liquids with a pour point that is higher than the ambient temperature, the liquid temperature monitoring can also be used to prevent the starting of the pump as long as the maximum admissible viscosity of the liquid is reached.

In order to protect canned motors against inadmissible high temperatures, the winding is equipped either with PTC thermistors or Pt100 resistance thermometers.

<table>
<thead>
<tr>
<th>potential monitoring equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
</tbody>
</table>

**Rotor position monitoring of canned motor pumps**
Axial thrust balancing is mainly influenced by the operating method of the pump, plant conditions and various physical properties of the pumped liquid. For an early detection of an imminent malfunction it is recommended to install a rotor position monitoring device. This electronic protection equipment monitors the axial shaft position of the rotor during operation in a hermetic and contact-free way. Combined with the level and temperature monitoring an efficient detection of imminent failures is possible.

**Rotation monitoring of canned motor pumps**
The correct rotating direction of hermetic centrifugal pumps with canned motor cannot be checked visually from the outside. Due to a wrong phase sequence in the power line the pump is operated with an incorrect rotating direction without being noticed what might result in considerable damages to the pump.

By default, hermetic centrifugal pumps with canned motor are equipped with an electronic rotation monitor in the form of a phase sequence relay.
Canned motor pump

Magnetically coupled pump
Among others, our products comply with:
- Directive 2006/42/EC (Machinery Directive)
- Explosion protection acc. to Directive 94/9/EC (ATEX); UL; KOSHA; NEPSI; CQST; CSA; Rostechnadzor
- Directive 96/61/EC (IPPC Directive)
- TA-Luft
- RCC-M, Niveau 1, 2, 3

HERMETIC-Pumpen GmbH is certified acc. to:
- ISO 9001:2008
- GOST; GOST "R"
- Directive 94/9/EC
- AD 2000 HP 0; Directive 97/23/EC
- DIN EN ISO 3834-2
- KTA 1401; AVS D 100 / 50; IAEA 50-C-Q
- Certified company acc. to § 19 I WH

Convincing service.

Important features are readiness, mobility, flexibility, availability and reliability. We are anxious to ensure a pump operation at best availability and efficiency to our customers.

**Installation and commissioning**
- service effected on site by own service technicians

**Spare part servicing**
- prompt and longstanding availability
- customized assistance in spare part stockkeeping

**Repair and overhauling**
- professional repairs including test run executed by the parent factory
- or executed by one of our service stations worldwide

**Retrofit**
- retrofit of your centrifugal pumps by installing a canned motor to comply with the requirements of the IPPC Directive

**Maintenance and service agreement**
- concepts individually worked out to increase the availability of your production facilities

**Training and workshops**
- extra qualification of your staff to ensure the course of your manufacture