Cartridge Master
**Stationary Construction Used / 静止型构造的采用**

Even if casing precision deteriorates due to issues such as heating and aging, the construction of the seal is such that the right angle between the seal surface and shaft is retained, and the following performance is maintained. The spring is constructed in a way that it does not come into contact with fluid, and it is designed in a way that makes it difficult for sludge to adhere to it - therefore, compared to conventional mechanical seals the Cartridge Master is effective in prolonging the lifespan of the seal.

This seal is not affected by casing distortion and has excellent pressure resistance. And, as the spring is on the stationary side, it is not affected by centrifugal force, which makes this seal ideal for high-speed rotation.

由于加热及长年使用使设备受到磨损，但是密封端面和轴一直为垂直结构，从而保持了密封元件的稳定性。弹簧不直接接触介质，可防止堵塞。

不受装置主体倾斜影响，具有优越的耐压性。弹簧设置在静环侧，不受离心力影响，适用于高速运转的设备。

**Special Sliding Materials Used / 独特材质的采用**

With the Cartridge Master, to enhance seal performance, the following special sliding materials are used as standard.

**F42 Carbon**

As we at Tanken also are manufacturers of carbon, we have produced this special carbon ourselves. As this special carbon has excellent thermal conductivity and mechanical characteristics (highly strong and hard), it is a sliding material that is superbly lubricative and is blister resistant as well as friction resistant.

**SiC“Z17”**

This is an alpha-type crystalline silicon carbide, with a relative density of 95% or higher as well as being a fine material, which gives it an extremely uniform construction – therefore, as Tanken’s standard sliding material, it makes the most of the superb SiC characteristics.

**SiC“Z18”**

This is silicon carbide formed with fine closed pores on the sliding surface. While SiC“Z18” upholds the excellent SiC characteristics, it also enhances the dry sliding characteristic beyond that of “Z17”, thanks to the benefits of the liquid film formation provided by the closed pores. This sliding material is highly effective at reducing torque and preventing crunching and burnout.

Cartridge Master 产品为了提高密封件性能，采用以下独特材质，实现密封件材质标准化。

【F42 碳】

碳是优质密封件碳素材料，具有优异的导热性和机械特性（高硬度），耐磨、润滑性强的产品，同时可以防止碳表面出现裂纹现象。

【SiC“Z17”】

α 型，相对密度高达 91.5% 的 SiC 碳，构造均匀，能发挥最佳性能的单公司标准密封材料。

【SiC“Z18”】

该材料是一种优化了密封件摩擦性能的 SiC，是通过在熔化过程中形成均匀分布且独立不连通的球形微孔，当摩擦时接触到流体介质时，球形微孔作为流体介质的储存腔体介质能充分起到润滑效果，从而降低摩擦系数和端面摩擦热，和 SiC“Z17” 相比，是一种具有更优良性能的密封材料。
Walking through the era of cartridge-type mechanical seals. Moreover, we at Tanken employ stationary constructions and special seal materials to enhance seal performance further.

**Application Range / 适用范围**

<table>
<thead>
<tr>
<th>Pressure (MPaG)</th>
<th>Circumference speed (m/s)</th>
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<tbody>
<tr>
<td>0.5</td>
<td>5</td>
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<tr>
<td>1.0</td>
<td>10</td>
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<tr>
<td>1.5</td>
<td>15</td>
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<tr>
<td>2.0</td>
<td>20</td>
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</table>

- **SiC x carbon**
- **SiC x porous SiC**

- **Temperature**: -10 to 160°C
- **Circumference speed**: Max 15m/s
Three cartridge options available to ensure your needs are met.

The following options are available with the Cartridge Master. So, please choose the one that suits your needs.

Cartridge Master 具有以下类型和功能，客户可以按照其需要选择。

1. Diaphragm Type / 隔膜式功能

This comes with a protective diaphragm to prevent adhesions to the floating packing section.

为了防止磨擦环粘着，安装保护用隔离离膜.

- **Feature**
  - Ideal as seal for pumps handling chemical conversion fluid (zinc phosphate) or thick sludge, etc.

2. Edge Type / 刀状功能

The sliding material (rotary ring) has been given an edge shape to counter viscous and/or thermosetting pump fluids.

对于易聚合液体，采用刀状密封面密封．

- **Feature**
  - Ideal as seal for polymerizable fluids such as latex or cation coatings.

3. Dual Type / 双重功能

This is a compact stationary dual (using double or tandem) type seal.

为采用静密封设计的双密封，通过流体挡板结合了高于密封环槽内流体压力，同时又具有减压功能的高稳定性密封。

- **Feature**
  - Ideal as a seal for highly combustible substances and toxic substances, etc.
The following options are available with the Cartridge Master. So, please choose the one that suits your needs.

### Configuration

**Table of Dimensions**

<table>
<thead>
<tr>
<th>Shaft diameter</th>
<th>C</th>
<th>Box inner diameter (B)</th>
<th>E</th>
<th>F</th>
<th>L</th>
<th>G</th>
<th>Attachment P.C.D</th>
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</table>

![Diagram of Cartridge Master with dimensions](image-url)
Installation is easy thanks to the cartridge construction. This high-performance mechanical seal can be installed with just four procedures.

**Cartridge Master 的安装非常简易，只需要以下四步骤，就可以实现高性能的机械密封安装。**

**Cartridge Construction makes Installation Easy / 采用Cartridge密封，安装非常简易**

1. **Insert the Cartridge Master into the shaft (or sleeve) and move it to the shaft bearing side, and then assemble casing and impeller components.**
   
   将整套 Cartridge Master 集装式密封装到轴或轴套上，使密封压盖紧贴在密封腔体端面。

2. **Tighten gland bolts and secure cover ⑦ to stuffing box.**
   
   拧紧密封压盖上螺栓，将压盖⑦固定在密封箱上。

3. **Use a hexagon wrench to tighten set screws ⑧ and ⑨. Be sure to check that there is no slackness.**
   
   拧紧六角螺钉⑧⑨，并确认是否有松散。

4. **Use a minus screwdriver to divide the notched section of the preset ring ⑩ and then mount.**

   组装好以后，用一字螺丝刀割断定位环⑩裂缝部分，就可以拆下定位环了。
Conversion from Gland Packing / 将填料密封改造成机械密封

Example of Conversion from Gland Packing to Cartridge Master / 将填料密封改造成机械密封事例

Before

Gland Packing

The above device type is a cooling water pump for air conditioning. Peripheral water splashing from the gland packing section causes white crystallizing. Costs due to leaking water as well as hygiene issues become problems.

After

Cartridge Master

If the seal is converted to a Cartridge Master one, there is no peripheral water splashing, which improves the device environment. Maintenance costs can be cut because there is no leaking water and the seal has a long lifespan.

Pump Servicing / 泵组装作业

Not only do Tanken supply mechanical seals but we also can be contracted to undertake maintenance work. We can service all types of pumps and add extra piping, etc. Also, by wrapping sliding surfaces, we are able to repair mechanical seals.

Maintenance Business

- Pump dismantling and maintenance, and installation of new pumps
- Monitor dismantling and maintenance
- Mechanical seal installation
- Piping extension (add on) work, etc.

Tanken不仅提供机械密封，同时也承担泵的组装工作。我们可以服务各种泵型，并添加额外的管道等。通过包裹滑动表面，我们能够修理机械密封。

维修保养作业

- 泵分解 / 组装（维修保养）、泵（新品）安装
- 发动机分解 / 组装
- 机械密封安装
- 配管增工作
Service Network

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