CONTAINMENT VALVE SYSTEM
CONTAINMENT VALVE SYSTEM - TKS

Accomplishment of highest demands
High-potency substances in research, development and production require highly effective safety precaution for humans, the environment and products. Glatt presents the Containment Valve System TKS with two identical static seals. In combination with custom-made docking systems Glatt offers various solutions for handling solids by maintaining minimum emission limit values. Our ambition is the implementation of technically and economically optimized solutions for our customers, their product developments and production. With many world-wide proven and patented solutions and closed collaboration with users our Containment Valve System emphasises these efforts.

The technical principle and detailed design of the Containment Valve System TKS not only meet the requirements for transferring solids with an Occupational Exposure Limit (OEL) < 0.1 µg/m³, it likewise simplifies installation, cleaning and maintenance.

APCPPE-Certificate for the Glatt series Containment Valve System TKS in standard execution and with particle suction

<table>
<thead>
<tr>
<th>Glatt TKS in automatic execution &lt; 0,1 µg/m³</th>
<th>Glatt TKS in manual execution down to 0,1µg/m³</th>
<th>Glatt TKS easy &lt; 1 µg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>OEL</td>
<td>OEB</td>
<td>µg/m³</td>
</tr>
<tr>
<td>10</td>
<td>4</td>
<td>0,1</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

OEL - Occupational Exposure Limit OEB - Occupational Exposure Band

The above-stated performances depend on application.
Design and function

The Glatt Containment Valve System TKS is unique on the market, as it works without a split shaft. This patented design (EP 0910541 US 6.076.836) achieves essential advantages in performance and handling of the system. The valve bodies and valve discs with their circumferential EPDM-seals are interchangeable while maintaining the same containment level thanks to our precise manufacturing process.

Operating principle of Glatt series Containment Valve System TKS

- Positioning the IBC
- Docking the passive valve half onto the active valve half guided by locking pins
- Locking both valve halves by rotating the locking pins
- Opening the valve
- Product transfer from one closed system to the other
- Closing the valve after product transfer
- Unlocking and undocking both valve halves

Highlights

» single-side mounted, single piece valve shaft
» guaranteed error-free function & assembly without tools
» WIP/CIP-able
» cGMP-compliant design

Design of Containment Valve System TKS in automatic execution and with particle suction

suction for maximum protection

identical valve discs and seals

perfectly fitting lock system

active valve half

glott

passive valve half

glott

Glatt. Integrated Process Solutions.
Product Range

<table>
<thead>
<tr>
<th></th>
<th>Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100</td>
</tr>
<tr>
<td>TKS in automatic execution</td>
<td>●</td>
</tr>
<tr>
<td>TKS in manual execution</td>
<td>●</td>
</tr>
<tr>
<td>TKS easy</td>
<td>●</td>
</tr>
<tr>
<td>Particle suction</td>
<td>●</td>
</tr>
<tr>
<td>Accessories</td>
<td>valve opener, silicone cap, protection cap, cap for blending transfer bin, transfer bag, sample taker, WIP Top, WIP Drain, WIP Hood</td>
</tr>
</tbody>
</table>

TKS WITH PEEK-BODY

Light and easy

For TKS 100 and 150 in manual execution the valve bodies can be made of the light material PEEK. The enormous reduction of weight allows easy one person only handling for small product quantities. Therefore additional transfer stations are becoming obsolete.

PEEK (polyetheretherketone) features higher mechanical strength, stiffness and temperature resistance compared with conventional plastic materials.
**Combinations**

<table>
<thead>
<tr>
<th></th>
<th>Active valve half</th>
<th>manual execution</th>
<th>manual execution with PEEK-body</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive valve half</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Passive valve half with PEEK-body</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

**Connections**

The passive valve half can be attached to the container by Tri-Clamp or QuickLock. The exact position of the passive valve half to the connecting flange is assured in both versions with a centering pin. The advantage of the QuickLock-connection is a simple and fast handling.

**Docking systems**

To compensate tolerances during the docking procedure, Glatt provides different docking systems. Our active and passive docking systems ensure a wide tolerance compensation in 3 axes. Glatt active docking systems provide smooth, reliable and fast mechanical motions. They are best suitable for weighing applications, too.

---

**PARTICLE SUCTION**

**Continuously safe**

Our TKS-suction ensures optimal protection of operators, the environment and products by significant reduction of surface contamination. It guarantees a continuous performance during frequent docking cycles without having to clean the valve system in between. All active valve halves are prepared for mounting the suction ring without modification, so on-site installations later on are possible at any time.
INSPECTION & MAINTENANCE IN A TWINKLING OF AN EYE

Nothing is simpler

Glatt provides an unique concept for inspection and main-
tenance for the Containment Valve System.

To inspect the few seals it is enough to disassemble the valve
disc in 3 easy steps. The assembly and disassembly works
intuitive and without any tools. It is designed for an on-site
task executed by a single person only.

1. Easy loosening and removal of the
valve disc drive via quick release.
2. Turning the valve disc by 180
degrees.

Disassembly of the valve disc of TKS in automatic execution

WIP/CIP

Economic and clean

To clean product-contacting surfaces and seals of the active
valve halves Glatt provides the adapter types WIP Top and
WIP Drain with integrated cleaning nozzles. Thereby the
adapters can be integrated into a frame to accomodate
handling supports.

For automatic cleaning of product-contacting surfaces of
containers and drums with passive valve halves Glatt offers
matching valve openers for integration in container washing
machines and washing places.

Prewashing reduces cleaning inspection efforts distinctly.
Therefore Glatt offers economically sensible solutions like
mobile washing lances or prewashing places. The final
washing takes place in conventional container washing
machines.
**INSTALLATION EXAMPLES**

**TKS EASY**

*Flexible Total Containment*

The TKS easy is ideal for direct product transfer systems for powders and granules under containment conditions. With our TKS easy system small product quantities delivered in disposable plastic bags, PE-bottles or small stainless steel containers are easily combinable itself or with closed process equipment. Therefore docking systems are not necessary, a single Tri-Clamp connection is enough.

The identical valve halves made of PEEK are interchangeable. For easy handling a simple locking ring with or without particle suction is used to lock the valve halves.

An additional cleaning station is not required, an universal adapter can be attached directly as WIP Top or WIP Drain.