⚠ 选用阀门时的注意事项 CAUTIONS FOR VALVE SELECTION

本产品目录中所介绍的各种阀门，因阀门本身使用的原材料及构造的不同其使用方法和特性也各不相同。请仔细参照以下的内容说明后再进行正确的选择。

关于阀门的使用说明

目录中有关阀门的说明，均根据各自使用流体的种类、压力、温度范围等因素而拟定的。所以，当选择阀门时，一定要先确认各自的[使用说明]以及[可使用范围]后才使用。如果是因为不按照该阀门的使用说明范围内的规定而擅自使用时所发再生的事故，本公司将概不负责。

阀门材料的特性

使用铸铁、可塑性铁以及铸钢制阀门时，如果长时间直接接触水或温水就会生锈。因此，在进行管道布置时，不应该使用易锈的材料，而应该使用不锈钢阀门或耐腐蚀性的蝶阀。

蝶阀及球阀的软橡胶垫的压力和温度特性一般都比阀体材料的压力温度特性低。

由于本身材质条件的限制，所以安装在蝶阀及球阀的软橡胶垫可以承受的流体也是有所限制。请确定使用流体后再选择适当的阀门。

阀门构造的主要特性

1. 闸阀

- 适用于需要「全开」或「全闭」时使用，如果在「半开」时使用，有可能会损害阀座。
- 具有保持一定的流路面积，阀体流量变化小的特点，全开时压力损失极小。
- 在全闭状态下其密封性能极佳。

2. 截止阀

- 可用于全开、全闭以及半开，适用于调节流量。
- 即使在全开启的状态下，由于阀体的设计会对流体产生阻力。所以相比于闸阀下，压头损失会较多。
- 在连接管道时，需要限定水流方向。水流方向必须与阀身上箭头所示方向一致。

2. 止回阀

- 流体的上、下流压差异致阀瓣的开闭，有阻止逆流的功能，因此不需从外部操作。
- 在连接管道时，需要限定水流方向。水流方向必须与阀身上箭头所示方向一致。

4. 蝶阀

- 具有90度的开闭构造，操作方便。“全开”、“全闭”及“半开”时均能使用，适用于调节流量。
- 结构短，配管面积小，施工方便。
- 由于使用了胶带作阀垫，因此使用流体的种类、温度受到限定。

Valves introduced in this catalog are made of different designs and materials, and thus their specifications and characterisitics are not always identical. Careful attention must be paid to the following notes to appropriately select the valve you need:

Valve Specitications

Field application of valves must be limited by specifications such as the maximum allowable service pressure and temperature, and the kind of line fluid to be handled. Carefully compare each of the indicated valve specifications with your intended service condition, before valve selection. Failure to do so could result in property damage and/or personal injury, for which KITZ Corporation shall not be liable.

Valve Materials

1. Valves made of grey iron, ductile iron or carbon steel casting will become rusty after prolonged contact to cold or hot water. KITZ stainless steel valves or rubber lined butterfly valves are recommended for water pipelines where rust must be prevented.
2. Pressure-temperature ratings of soft sealing materials such as rubber or PTFE seats employed for butterfly or ball valves are often lower than those of metallic valve shell materials.
3. The kind of line fluid to be handled by soft sealing materials is severely restricted due to limited prosperities of soft sealing material employed for butterfly or ball valves.

Valve Design Characteristics

1. Gate Valves:
- Designed either for full release or complete block of line fluid. Throttling service with the valve partially open may cause damage to valve seating areas.
- Full bore design provides the same cross sectional area through the valve opening for undisturbed fluid flow. A fully open valve features ultimately minimized pressure drop for high flow efficiency of the pipeline.
- Fully closed valves show excellent sealing performance.

2. Globe Valves:
- Designed for full release, complete block or partial release (throttling service) of line fluid.
- Even a fully open valve is subject to high fluid resistance and resultant pressure drop is inevitable. Its flow efficiency is lower than that of a gate valve.
- The fluid flow is uni-directional and valve installation must be made according to the arrow mark provided on the valve exterior.

3. Check Valves:
- For prevention of reverse fluid flow, the disc is designed to open or shut off, without external valve operating force, depending on the difference in the upstream and downstream pressures (differential pressure).
- The fluid flow is uni-directional and valve installation must be correctly made according to the arrow mark provided on the valve exeterior.

4. Butterfly Valves:
- Designed for full release, complete block or partial release (throttling service) of line fluid, by means of 90 ° stem rotation. Ldeal for efficient flow control.
- Face-to-face dimensions are shorter than those of other valves, with the advantages of small installation space requirement and ease of installation.
- Employment of rubber seats results in lower pressure-temperature ratings and limited choice of the line fluid to be handled.

5.球阀

- 可以作90度的开闭，操作方便。适合于全开或全闭时使用。注意：在半开状态下使用，有可能损伤阀座。
- 流通性好，可将流路和管道口径合二为一。
- 由于使用了PTFE密封胶垫，使流体的种类和温度受到一定的限制。

5. Ball Valves:

- Designed for either full release or complete block of line fluid. Using a valve in the intermediate position (partially open could result in damage of PTFE ball seats. 90 ° stem rotation for easy operation.
- A full bore ball valve features ultimately minimized pressure drop for high flow efficiency of the pipeline.
- Employment of PTFE seats results in lower pressire-temperature rating and limited choice of the line fluid to be handled.

⚠ 使用阀门时的一般注意事项 GENERAL PRECAUTIONS FOR HANDLING VALVES

搬运，保管时应注意

① 移动产品或搬运到施工工地时，应保持原来的包装，不能随便拆卸或改装。

② 不要乱扔、硬拉商品，避免从高处落下或翻倒碰撞。

③ 在配置管道开始前，不要拧掉安在阀门顶端开口处的防尘盖。

④ 本商品应放置室内保管，注意保持室内干燥、通风和清洁。

⑤ 万一在不得已的情况下放在室外时，必须用防水布等遮盖，防止雨水、灰尘以及阳光的直接照射。

Storage and Handling of Valves

1. When leaving KITZ factories, all KITZ valves are protected for safe transportation and storage by means of packaging, boxing, crating or other appropriate measures. Keep your valves in their original protected condition during transit.
2. Handle valves with care for prevention of damage or malfunction. Actions that cause physical impact to the valves must be avoided.
3. Don't remove the end protectors (blind covers) from valve openings, until you are ready to mount the valves on pipes.
4. Store valves in a clean, corrosion-free and well ventilated indoor environment.
5. When outdoor storage is inevitable, protect valves from exposure to dust, rainfall or direct sunlight, using water-proof covers or other appropriate measures.

管道施工时应注意

① 在安装阀门之前，应清扫连接管道内的灰尘、砂土以及焊接时喷漏的焊渣。

② 安装时，截止阀、止回阀和过滤器的方向均有一定的规定。应确认阀体上所示的流向 (箭头方向)，安装时流体的流向应与箭头所示方向一致。

③ 为防止搬运时阀瓣受损，应在止回阀的包装箱内放入填塞物。安装管道时务心取出填塞物。

Valve Mounting in General

1. Before piping, be sure to remove all foreign residues such as dust, sand and welding spatters from valve bores.
2. Globe valves, check valves and strainers are designed for uni-directional fluid flow or pressurization. Valve mounting should be correctly done according to the flow direction in dicated by the arrow mark provided on the valve exterior.
3. Prior to shipment, check valves are internally filled with stuffing material for prevention of disc damage in transit. Be sure to remove all stuffing material before valve mounting.

丝扣阀

① 使用丝扣阀时，必须按该阀门所规定的丝扣规格安装。

② 为防止阀门主体变形，注意不要将阀门的丝扣拧得过紧。

③ 为防止泄漏现象的发生，连接时应在管道一侧的丝扣部位粘贴密封胶带。

④ 安装阀门时，应拧紧管道一侧阀门的丝扣。如在相反方向使用螺丝钳作业，有可能使阀门主体发生变形、损伤及泄漏现象。

⑤ 使用双体形球阀时，不要在阀体和阀盖松懈的方向 (逆时针方向) 用力，否则会造成阀盖部位泄漏现象。

Mounting Threaded End Valves

1. Pipes to joint must be threaded in conformance to the thread specification of valves to mount.
2. Don't overtighten threaded connection between a valve and a pipe to prevent deformation of valve shell.
3. Before threading, apply some plastic tape outside the threads of the pipe to ensure leak-free connection between the valve and the pipes.
4. Thread the valve end into the pipes using a wrench as illustrated here. Applying a wrench to the wrong side of the valve shell may cause deformation or damage of the valve shell, and consequent fluid leakage or valve malfunction.
5. In case of split body ball valves, a wrench should not be used in the counterclockwise direction. This may unintentionally loosen the body-cap joint of the valve and cause fluid leakage.

法兰形阀

① 在进行安装阀门管道施工时，应正确调节管道的中心部位。安装垫圈后，应按照图纸的顺序慢慢地拧紧对角线上的螺栓，并要注意用力均匀。

Mounting Flanged End Valves

1. Accurately align bolt holes of the valve flange with those of the pipe flange, insert the gasket and tighten the flange bolts gradually, evenly and alternately on the tangential line, according to the sequence illustrated here. Avoid any imbalance on flange bolt tightening.

② 由于法兰阀的垫圈及垫座的做工精密，搬运和安装时应注意不要损伤。

③ 在安装阀门管道施工时，应注意防止手或手指夹入阀门与导管凸缘之间。

2. During valve mounting, don't scratch or damage the surface of the valve flange gasket face,which is precision machined for leak-free perormance.
3. Danger! Be careful not to put your fingers between the valve and the pipe flange during valve mounting.

使用时的注意事项

① 在保管、搬运阀门时，由于密封部件所承受的压力降低，会导致螺丝、螺母的松懈。为了避免由此所产生泄漏现象，使用前务必紧固每个螺丝。

② 使用蒸气等高温流体时，由于密封部件所承受的压力降低，拧紧的螺丝受热也会发生松懈，产生泄漏现象，因此应立即紧固松懈的螺丝。

③ 禁止在加压状态下进行紧固作业，否则会损坏密封部件。应待管道内的压力恢复原状态后再进行紧固作业。

④ 如图所示，需要紧固的部位，应使其保持一定的水平状态下，均匀用力加固，否则会损坏密封部件，或使手柄开关处的转矩变大。

⑤ 在进行管道施工时，如发生冻结、喷水时，应及时采取有效的对策和措施。

⑥ 管道施工完毕后，应将管道线路上的阀门全部打开，并清除残留的污物。

Valve Operation

1. In storage or transit of valves, stress relaxation of gland packing material may reduce the tightening load of gland bolts or nuts, and subsequently cause fluid leakage through the packing chamber. Prior to your first valve operation, retighten gland bolts or nuts firmly.
2. High temperature line fluid such as steam may also cause stress relaxation of gland packing material. Be sure to retighten gland bolts or nuts whenever leakage is detected from the gland area.
3. Retighten gland bolts or nuts only after the line pressure has been reduced to the atmospheric level. Gland retightening under higher pressure may damage packing rings and cause fluid leakage.
4. Gland bolts must be retightened evenly without imbalance as illustrated here, so that the gland flange or follower is positioned parallel to the valve shell. Imbalance in this work may damage packing rings and increase valve operational torque.
5. Wherever a freeze or water-hammer is forecast, appropriate measures should be taken for protection such as providing insulation or using a counter-weight respectively. Contact KITZ Corporation for technical advice in details.
6. After valve mounting is completed, fully opened the valves and flush the interior to remove all dust and other foreign objects which would disturb fluid flow.

拆卸、安装时注意事项

① 从卸管道中卸阀门时，应等压力回到大气压后再将管道内的流体放出。尤其是使用危险流体的管道线路 (毒性，引火性，气化性流体等) 更要注意流体的特性，采取安全对策。

② 进行拆卸后的安装时，应更换同类型并且是全新的密封部件填料、橡胶以及阀座，并确认各个衔接部位是否受到损伤。

Valve Disassembly and Reassembly

1. Drain all internal residues from all valves and pipes, and reduce the line pressure to the atmospheric level, before dismantling valves. Safety measures must be taken in advance where the pipeline handles toxic, inflammable, highly volatile or other hazardous fluid.
2. After valve disassembly, replace all soft sealing materales such as gland packing rings, gaskets, seats, O rings, etc. With new KITZ' standard spare parts, and check if sliding parts such as valve stems are free from scratch or other damage.

防止阀芯内的异常升压

在下列条件下使用时，截止阀和球形阀会发生异常升压现象。这是由于阀体阀芯内的流体温度上升所导致，有可能损伤垫圈及密封部件、阀座。

导致发生异常升压的条件

①流体为液体时。

②当流体的温度或者周围的温度上升至30℃以上，而在这段期间又不能进行阀门的开闭时。

③阀门全闭时的压力差为1.0MPa(10 bar)以下时。

此时，如果阀门全闭时的流体加压方向为同一方向，可以在上流部位的垫圈处开一沟槽，在阀门或者球部处设置开孔部位。这样可以平均上部位及阀体阀芯的压力，防止异常升压的发生。但是，在进行设置孔部位等的工作时，应接受本公司的技术咨询和指导。

Prevention of Excessive Cavity Pressure Rise

Some line fluid is usually left trapped inside the body cavity of a gate of ball valve, The fluid residue can expand under the influence of high temperature. An abnormal increase of such a cavity pressure may sometimes damage seats, balls, packing rings, gaskets and other valve components.

When valves are subject to the following conditions at the same time, you always have a risk of such an excessive rise in cavity pressure:

1. The valve handles liquid.
2. The ambient or line temperature rises by 30℃ or more, while the valve has not been operated at all.
3. The differential pressure for a fully closed valve is 1.0MPa (10bar) or lower.

An excessive rise in cavity pressure can be prevented by the addition of appropriate measures such as a drilled ball or disc, specially grooved ball seats, employment of a pressure relief valve as a by-pass valve, etc. For detailed information, contact KITZ Corporation.

Memo

注 意 事 项

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For any specific application, users are kindly requested to contact KITZ Corporation for technical advice, or to carry out their own study and evaluation for proving suitability of these products to such an application. Failure to follow this request could result in property damage and/or personal injury, for which we shall not be liable.

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