



JDV CONTROL VALVES CO., LTD.

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**Installation, Operation and Maintenance
3-PC Floating Type Threaded /
Welded Metal Seat Ball Valve**

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JBF-SM

3-PC Floating Type Threaded /Welded Metal Seat Ball Valve Instructions for Installation, Operation and Maintenance

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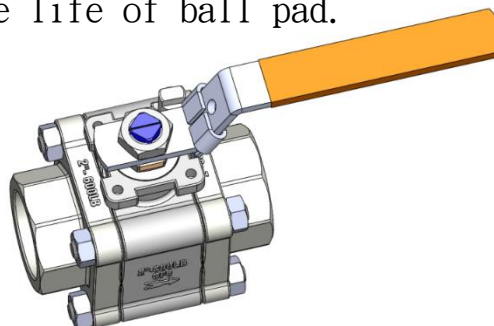
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Overview:

JBF-SM is a 3-PC Floating Type Threaded /Welded Metal Seat Ball Valve of JDV. Features of the product comprise:

1. Anti-static device: Static is generated by valve ball due to friction with fluid flow, and the static cannot be conducted to exterior of the body. With the design of anti-static device, static may be conducted to the exterior of the valve rapidly without explosion or fire event due to spark generated by static.
2. Valve stem anti-fly device: Old stem is installed in valve from outside. As there is pressure in the valve, and screw is loosened exceptionally, the stem would fly out due to the pressure from the valve and result in industrial accident. The new stem anti-fly design has the stem penetrates from the interior of the valve without flying out due to blocking of the valve.
3. Bi-directional sealing seat: The upstream and downstream end have leakproof seal design, can play a fluid backflow prevention effect, use INCONEL X-750 shrapnel can reach from the seat tightly sealed.
4. Padlock design: The orientation of the ball valve may be locked to on or off position as a safety design to avoid hazard because of careless opening or closing.
5. Balanced pressure relief hole: The ball top is designed with pressure relief hole to balance the pressure in the inner chamber of the valve, and prolong the life of ball pad.



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Notes prior to Use:

1. Read the instructions for installation, operation, maintenance carefully before operating the product.
2. Identify the warning banners and descriptions mentioned in this document.
3. Do not use in excess of the design pressure of the valve case.
4. Do not use in case of over temperature valve designs.
5. Please put the instructions for installation, operation, maintenance in an easy access site in order for query in use.

Warning Banners:

Banner	Description
	This indicates a dangerous situation. Slight or moderate injury might be resulted if it is not averted.
	Death or severe injury might be resulted if such potential dangerous situation is not averted.

Safety Notification:



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Design engineers or product users identify basic product specifications and check the compliance of valve and installation equipment in order to guarantee safe use.

Prior to installation of valve, the compliance of operating conditions (temperature, pressure, fluid characteristics, ambient conditions, installation gauges etc.) with the service conditions set for valve has to be checked and identified.

	Warning: Do not get beyond the limitation indicated by valve specification or technical parameters, or otherwise, death or severe injury might be resulted.
	Warning: Valve may be used indoors or outdoors. If it is exposed to atmospheric environment, erosion of valve has to be cared, or otherwise, slight or moderate injury might be resulted.

Product Transportation/Storage/Maintenance

	Warning: 1. In moving or transportation, suitable tools have to be selected for correct equipments and accessories (sling, fastener, hook and so forth) in terms of size with consideration of individual weights of details in the package and the complete total weight. 2. Ball valve lifting and handling should be operated by qualified operators. Inappropriate lifting would result in deformation or dropping of valve to damage the valve.
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	3. Do not lift the valve using the suspending point or bracket arranged on cylinder to prevent from danger. 4. Do not use the handle of the manual valve to take or lift ball valve. In such a way, the handle of the manual valve would fractured or depart from the valve, such that damage or human injury might be resulted.
--	--

※The product has to be packed well to avoid unnecessary damage when transportation to and storage in warehouse. Particularly, the following precautionary measures have to be cared:

Transportation

1. The openings on two sides of the ball valve have to be protected well using appropriate sealing cover in order to guarantee clean interior of the valve and prevent foreign objects from entry.
2. The packaging has to guarantee safe transportation to storage site. As arrival to the storage site, please identify that the covering material or packing paper or wooden case keeps in a complete status.

Storage & Maintenance

Preserving of Packed Ball Valve

1. Protect the pack adequately to prevent the pack from damage.
2. There should be warning banners for packs to guarantee that the moving of product would not result in unnecessary damage, such as suspending center of gravity
3. Flange surface and channel opening have to be protected on the surfaces of two sides of the ball valve using adequate sealing patch



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or cover to guarantee clean interior in the valve and prevent foreign objects from entry.

4. If the used material of the valve is prone to rust, the flange surface and the channel opening have to be coated with antirust oil in order for preventing rust spots from appearing.

5. The storage site has to keep clean and dry.

6. Do not let the product to be exposed to wind/rain or to be sunned.

7. Please check preserving status regularly if the product is to be stored for a period of time.

Preserving of non-packed/unpacked ball valve

1. Please guarantee appropriate protection of the product in order to prevent it from damage.

2. In treating large valve, the product has to be fixed safely and stably.

Suitable tools (bracket, hook, fastener, cable) should be used in transportation. In moving, balance has to be kept in order to prevent product from damage due to dropping or shaking in transportation process.

Notes for Preparation of Installation

Please follow the following instruction guidelines to guarantee and prolong product life.

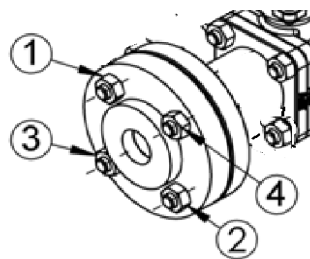
1. Please disassemble the pack (wooden case or pallet) carefully in order to prevent the product and cylinder and other components from damage.



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2. Before installation, remove the seal from flange opening for the air pipeline containing air filter to clean the interior of the ball valve. Make sure the clearance of foreign object inside.
3. Make sure that the mark on the nameplate is compliant with service condition.
4. Make sure that the flow direction on the body meets the direction of equipment pressure.
5. Make sure that all screws and nuts are secured.
6. In valve installation, please use wrench and follow diagonal sequence (Figure 1) to lock screws in order to prevent flange from deformation.



圖一

Notes prior to Operation

Manual Valve:

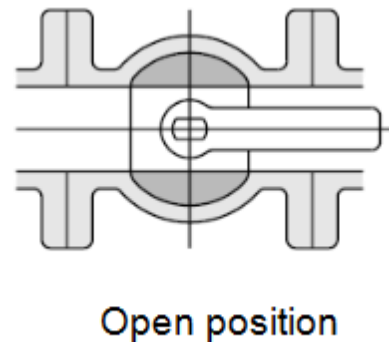
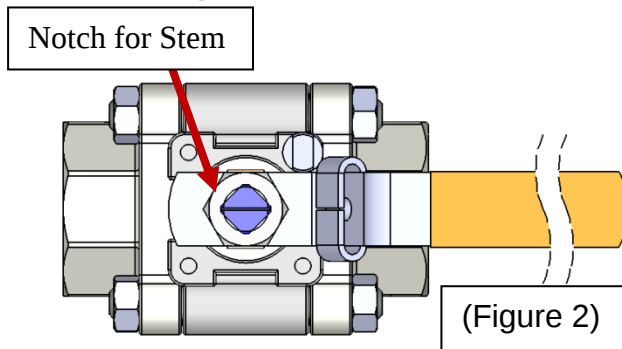
1. In manual operation, over or inadequate operation would damage handle or components, or result in indirect leakage.
2. Please identify that the opened or closed position



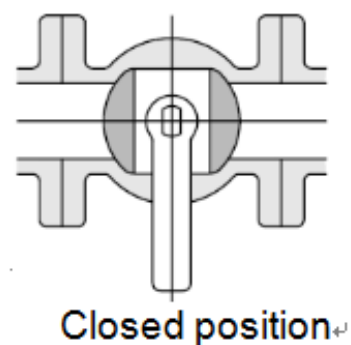
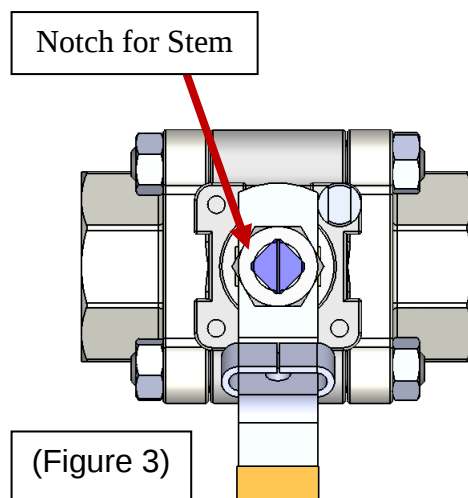
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※Opened position of ball valve – please identify that the notch direction on top of stem on the ball valve is parallel to the direction of the handle and channel, and the ball valve is in opened status. (Figure 2)



※ Closed position of ball valve – please identify that the notch direction on top of stem on the ball valve is vertical to the direction of the handle and channel, and the ball valve is in closed status. (Figure 3)



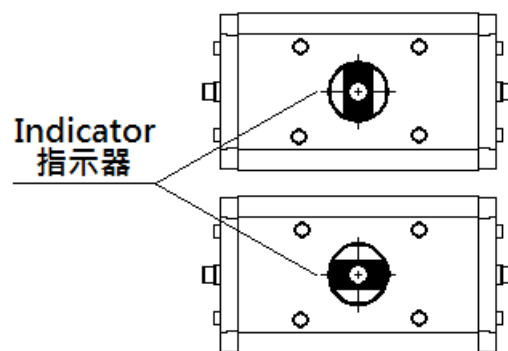
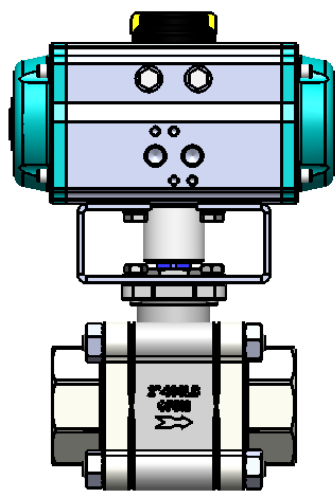


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Pneumatic Ball Valve:

1. Please operate according to the instructions in the user manual of the cylinder manufacturer for the action valve to be opened or closed pneumatically.



Actuator
氣缸



Maintenance and Troubleshooting

Routine Maintenance

* Maintain routine maintenance and check to guarantee good operability.

For fastening torque, refer to the torque tables for each specification.

ANSI 600LB / DIN PN100

Size	Joint Bolt Size	Torque Unit :N.m	JBF-SM		JBF-SM-EXTENDED	
			Nut Size	Torque Unit :N.m	Gland Bolt Size	Torque Unit :N.m
1/2"	M8	20	M12	> 5	M8	> 7
3/4"	M8	20	M12	> 5	M8	> 7
1"	M10	40	M14	> 8	M8	> 8
1-1/4"	M12	70	M14	> 8	M8	> 8
1-1/2"	M14	80	M22	> 10	M10	> 16
2"	M14	80	M22	> 10	M10	> 16

(Table 1)

Troubleshooting

Area	Problem Description	Solution
Internal Leaks	Leak at the surface of the ball	1. Please check whether the surface of BALL(3) and SEAT(4) have scratches or any damage. 2. Replace the SEAT GASKET(5) when the surface of ball and valve seat have not scratches or any damage. 3. Replace the BALL(3) or SEAT(4) when the surface of BALL(3) and SEAT(4) have scratches or any damage.



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		4. Disassemble it each time, need to replace the SEAT GASKET(5).
External Leaks	Leak at the mouth of the stem	1. Fastening the NUT(16), please refer to the torque tables 1 for each specification. 2. Replace the GLAND PACKING(12) if leakage can not stanch.
	Leak occurred in the junction surface.	1. Fastening the BOLT & NUT(10), please refer to the torque table 1 for each specification. 2. Disassemble it each time, need to replace the BODY GASKET (8).

PS. Refer to the instruction of the number of the structure.



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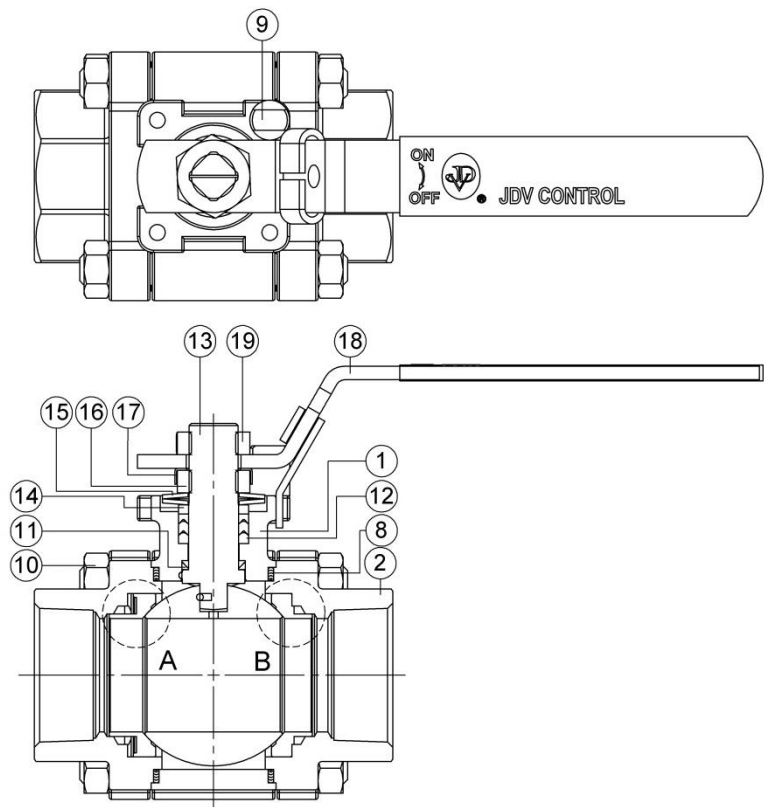
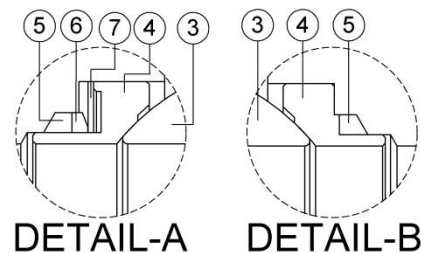
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Structure/disassembly/assembly

1/2"~2" JBF-SM

Structure

NO	
1	BODY
2	CAP
3	BALL
4	SEAT
5	SEATGASKET
6	SEAT RETAINER
7	SEAT SPRING
8	BODY GASKET
9	STOPPER
10	BOLT & NUT
11	THRUST WASHER
12	GLAND PACKING
13	STEM
14	RING
15	BEVEL WASHER
16	NUT
17	PACKING LOCK WASHER
18	HANDLE
19	HANDLE NUT





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● Disassembly

1. Turn BALL (3) to full “closed” position.
2. Remove HANDLE NUT (19), HANDLE(18) and STOPPER(9).
3. Remove PACKING LOCK WASHER (17), loose NUT (16), then take BEVEL WASHER (15) out.
4. Loose BOLT & NUT (10), remove CAP (2) and BODY GASKET (8).
5. After remove CAP (2), take out SEAT (4), SEAT SPRING (7), SEAT RETAINER (6), and SEAT GASKET (5) orderly.
6. Take out BALL (3), after Knock lightly STEM (13) and push it from GLAND PACKING (12), than remove STEM (13), THRUST WASHER (11) AND GLAND PACKING (12).

PS. In order to prevent leakage after reinstall, carefully take out and place BALL (3) and SEAT (4) to prevent possible damage.

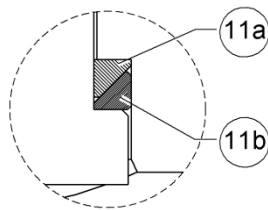


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● Assembly

1. Put THRUST WASHER(11) on STEM(13), than install STEM(13) into BODY(1).



THRUST WASHER(11)

11a:GRAPHITE
11b:METAL(HARD FACE)

註:

2. Insert BALL into BODY (1).
PS. Be careful to assemble, in order to avoid collision and damage the sealing surface.
3. Put SEAT GASKET (5), SEAT RETAINER (6), SPRING (7), SEAT (4) on CAP (2) orderly.
4. Put BODY GASKET (8), CAP (2) on BODY (1), and Screw BOLT& NUT (10) to tighten.
5. After cycle the valve several times to assure smooth operation and check stem packing area to confirm there is no leakage from stem packing, put PACKING LOCK WASHER on NUT (16). Please refer to Table 1.

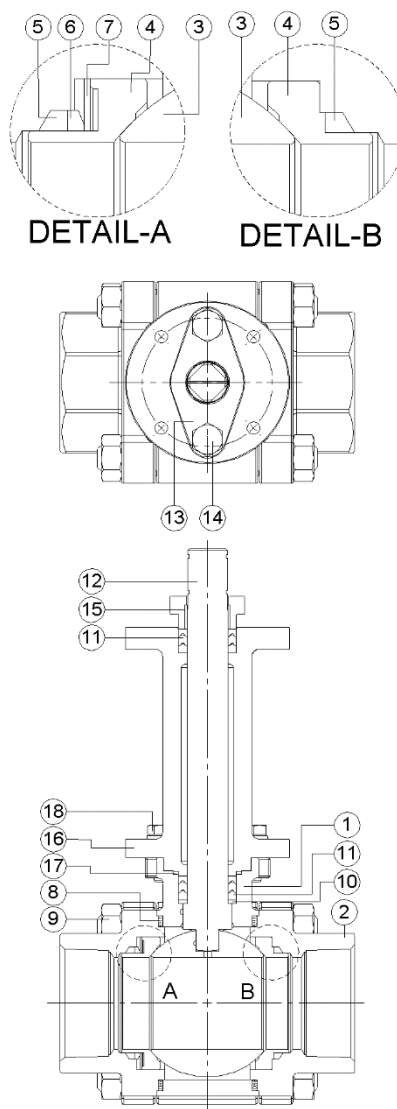


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1/2"~2" JBF-SM-EXTENDED structure

NO	
1	BODY
2	CAP
3	BALL
4	SEAT
5	SEATGASKET
6	SEAT RETAINER
7	SEAT SPRING
8	BODY GASKET
9	BOLT & NUT
10	THRUST WASHER
11	GLAND PACKING
12	STEM
13	GLAND
14	GLAND BOLT
15	GLAND BEARING
16	BONNET
17	BONNET GASKET
18	BONNET BOLT





● Disassembly

1. Turn BALL (3) to close position.
2. Loose GLAND BOLT (14), remove GLAND (13) and GLAND BEARING (15)
3. Loose BOLT & NUT (9) and take out CAP (2) and BODY GASKET (8).
4. After remove CAP (2), take out SEAT (4), SEAT SPRING (7), SEAT RETAINER (6) and SEAT GASKET (5)
5. Take out BALL (3).
6. Loose BONNET BOLT (18), and take BONNET (16) and BONNET GASKET (17) off.
7. Remove STEM (12), THRUST WASHER (10) and GLAND PACKING (11) orderly.

PS. In order to prevent leakage after reinstall, carefully take out and place BALL (3) and SEAT (4) to prevent possible damage.



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● Assembly

1. Put THRUST WASHER (10) on STEM (12), install STEM (12) into BODY (1).
2. Install GLAND PACKING (11), BONNET GASKET (17), BONNET (16) to BODY (1) orderly, and Screw BONNET BOLT (18) to tighten.
3. Put BALL (3) into BODY (1).

PS. Be careful to install to avoid collision and damage the sealing surface.

4. Install SEAT GASKET (5), SEAT RETAINER (6), SEAT SPRING (7), and SEAT (4) into CAP (2) orderly.
5. Install BODY GASKET (8) and CAP (2) to BODY (1), then SCREW BOLT & NUT (9) to tighten.
6. Install GLAND PACKING (11) and GLAND (13) to BONNET (16) orderly, than SCREW GLAND BOLT to tighten.



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進典工業股份有限公司

JDV CONTROL VALVES CO.,LTD.

三片浮動式牙口/焊口金屬球閥

安裝、操作和維護手冊

版本:V 1.0

發行日期:2015/07/24

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JBF-SM

三片浮動式牙口/焊口金屬球閥

安裝操作維修手冊

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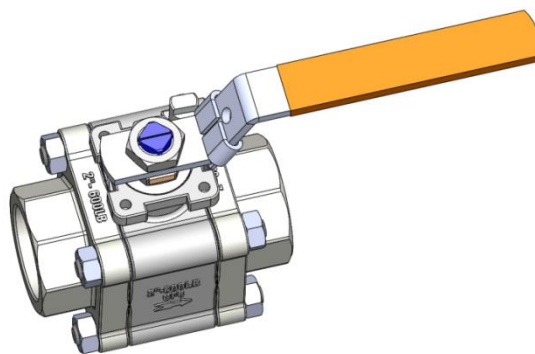
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概述：

JBF-SM 為進典公司-三片浮動式(牙口/焊口)金屬密封球閥, 產品特點包含:

1. 防靜電裝置：閥球因流體流動摩擦產生靜電，無法將靜電傳導至閥體外部。
經 由防靜電裝置之設計，可迅速將靜電傳導至閥體外部，避免因靜電產生火花，而導致爆炸火災事件發生。
2. 防中軸飛出裝置：舊式中軸為由外部裝入閥體，當閥體內部有壓力，且螺絲異常鬆脫時，中軸會因閥體內部壓力而飛出，導致工安事件發生。新式防中軸飛出設計，為由閥體內部穿出，因受閥體阻擋所以不會飛出。
3. 雙向密封閥座：上、下游端皆有防漏密封設計, 可發揮流體防逆流效果, 使用 INCONEL X-750 彈片可使閥座達到自緊密封。
4. 掛鎖設計：可將球閥方向鎖定在開或關的位置，避免其他人不小心打開或關閉造成危險的安全性設計。
5. 平衡式泄壓孔：球頂端採用泄壓孔設計，閥體內腔壓力及管內壓力，因泄壓孔使壓力可以雙向流動自動產生平衡，避免內腔壓力及管內壓力壓迫球墊，延長球墊壽命。





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使用前須知：

1. 操作產品前請仔細閱讀安裝操作維修手冊。
請確認此份文件所提及之警告標誌及說明。
2. 請不要在超過閥門設計壓力的情況下使用。
3. 請不要在超過閥門設計溫度的情況下使用。
4. 請將安裝操作維修手冊放置於隨手可取之場所, 便利查詢使用。

警告標語：

標示	說明
	危險的情況，如果不能避免，可能導致輕微或中度損傷。
	如果不避免，潛在的危險情況，可能導致死亡或嚴重傷害。



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安全性告知:

由設計工程師或產品使用之負責人員做基礎的產品規格確認，並檢查閥門和安裝設備之符合性，已確保使用的安全。

在安裝閥門前，須確認檢查操作條件（溫度、壓力、流體特性、環境條件、安裝儀錶等）是否符合閥門設定的使用工況。



警告:

請不要超出閥門規格或技術參數表所示之之限值
如果不避免，可能導致死亡或嚴重傷害



警告:

閥門可用於室內或室外。如在暴露大氣環境中使用，因注意閥門之腐蝕，如果不能避免，可能導致輕微或中度損傷。



產品運送/保存/維護須知

	警告： 1. 移動或搬運時，正確的設備和配件（吊索、緊固物、掛鉤等等）必須按尺寸選擇合適的工具，要考慮包裝明細的個別重量和全部的總重量。 2. 吊升和處理球閥，必須由符合操作資格的人操作。不適當的吊升會造成閥的變形或掉落而使閥損毀。 3. 不要使用氣缸上設置之吊點或托架吊升閥，以免發生危險。 4. 請勿將手動閥之把手做為拿取或吊升球閥用，會使手動閥之把手折斷或與閥斷開分離，可能導致毀壞或人員傷害。
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※產品應適當包裝好，以避免運送和存放於倉庫造成不必要損壞，尤其請特別注意下列預防措施：

運送

1. 球閥兩側端面口必須使用適當的密封蓋保護好，以確保閥門內部清潔及防止異物進入。
2. 包裝的型式必須確保能安全運送到存放地點，抵達存放地點時請確認包覆材料或包裝紙或木箱保持完整狀態。

保存及維護

保存已包裝之球閥

1. 將包裝加以適當保護，以避免包裝之損壞。
2. 對於包裝應要有警語標示，已確保產品移動時造成不必要之損壞。如：吊掛重心。
3. 為避免閥蓋（螺紋/焊接）端表面受損，必須使用適當的密封貼片或封蓋保護（螺紋/焊接）連接端面與流道口。



4. 閥體材質若為易鏽件須於(螺紋/焊接)連接端面與流道口塗上防鏽油，實施防護避免鏽斑產生。
5. 存放場所需保持乾淨及乾燥。
6. 請不要將產品暴露於風/雨中或直接日晒。
7. 如果產品存放一段時間，請定期檢查產品保存狀況。

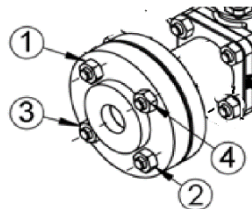
保存未包裝/已拆裝球閥

1. 處理已拆裝球閥，確保產品做適當保護，以避免產品之損壞。
2. 閥門運送，應把產品安全穩固的固定好，使用適當的工具（托架、掛鉤、緊固物、繩索）搬運，移動時要保持平衡以避免搬運的過程中掉落或晃動，造成產品損壞。

安裝準備須知

請依照遵守以下的操作指南，以確保及延長產品壽命。

1. 請小心拆卸包裝(木箱或棧板..)，避免造成產品及氣缸或其他零配件的損壞。
2. 安裝前，將閥蓋(螺紋/焊接)端面的密封件移除，使用含有空氣過濾器之空氣管線清理球閥的內部。確保無異物在內。
3. 確認銘板上的標示適用於使用工況。
4. 請確認閥體上的流向符合設備壓力的方向。
5. 確認閥門所有螺絲及螺帽於鎖緊狀態。
6. 安裝閥門，請使用板手並遵循對角順序(圖一)鎖附螺絲，以避免法蘭變形。



圖一

操作前須知



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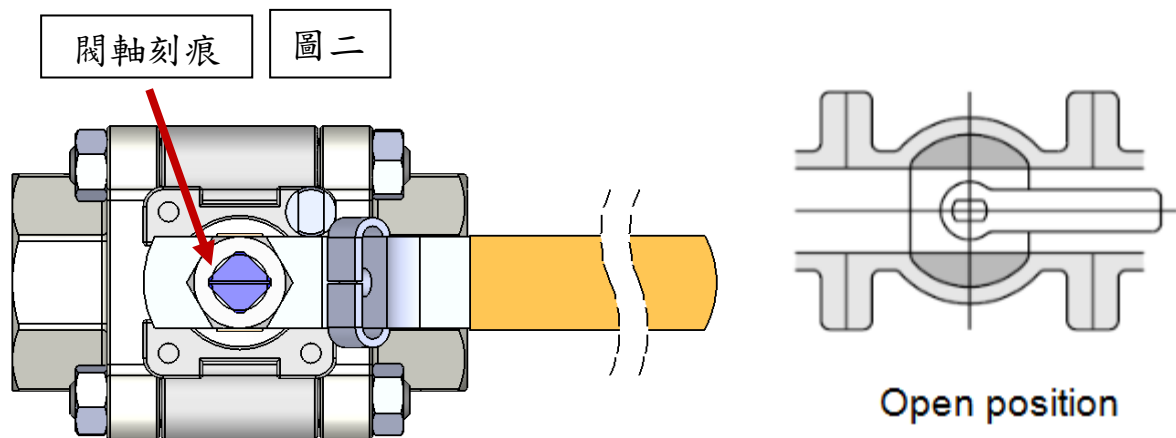
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手動閥門：

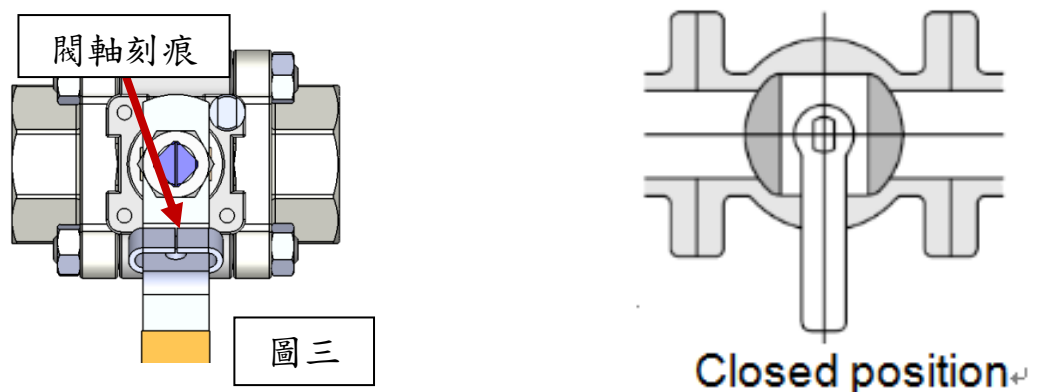
1. 手動操作時，過度及不適當操作會造成把手或零組件之損壞或間接造成洩漏發生。

2. 請確認球閥開啟或關閉位置。

※球閥開啟位置-請確認球閥上之閥軸頂部刻痕方向及把手與管道一致，球閥為開的狀態。(圖二)



※球閥關閉位置-請確認球閥上之閥軸頂部刻痕方向及把手與管道成垂直球閥為關的狀態。(圖三)



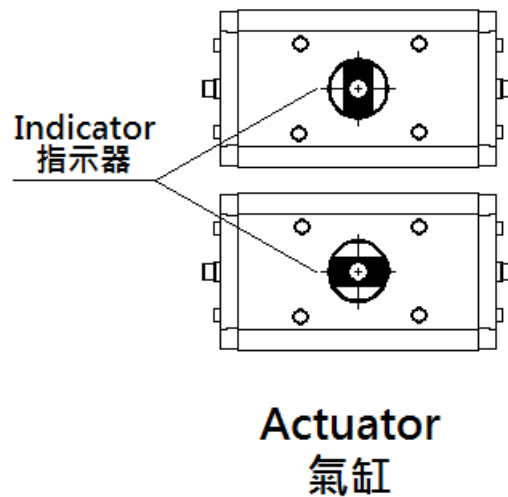
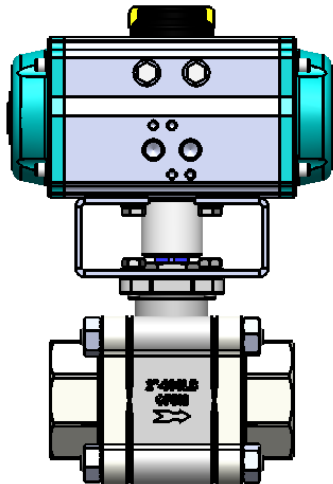


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氣動球閥：

1. 氣動開關動作閥門，請按照氣缸製造商說明書指示操作。



維護與問題排除

日常維護

※ 維持例行性維護及檢查，以確保良好操作性。

閥門鎖緊扭力表

鎖緊扭力請參照以下各規格之扭力表：

閥門尺寸 Size	結合面螺絲 Joint Bolt Size	扭力 Torque 單位:N.m	JBF-SM		JBF-SM-EXTENDED	
			壓蓋螺絲 Nut Size	扭力 Torque 單位:N.m	壓蓋螺絲 Gland Bolt Size	扭力 Torque 單位:N.m
1/2"	M8	20	M12	> 5	M8	> 7
3/4"	M8	20	M12	> 5	M8	> 7
1"	M10	40	M14	> 8	M8	> 8
1-1/4"	M12	70	M14	> 8	M8	> 8
1-1/2"	M14	80	M22	> 10	M10	> 16
2"	M14	80	M22	> 10	M10	> 16

(表一)



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洩漏問題排除

區域	問題敘述	解決方案
內漏	球面洩漏發生	1. 確認球面(3)及閥座面(4)是否有損傷或刮痕 2. 如無損傷，請更換閥座密封填料(5)。 3. 如球(3)或閥座(4)受損，更換受損球(3)或閥座(4)。 4. 每次拆卸時，有必要更換閥座密封填料(5)。
外漏	閥軸中口發生洩漏	1. 鎖緊壓蓋螺絲(16)請參規格扭力參照(表一) 2. 如無法止漏，請更換閥軸填料(12)。
	洩漏發生於結合面處	1. 鎖緊結合面螺絲(10)請參照(表一)。 2. 每次拆卸時，有必要更換球閥密封墊片(8)。

註:請參照產品結構圖編號說明



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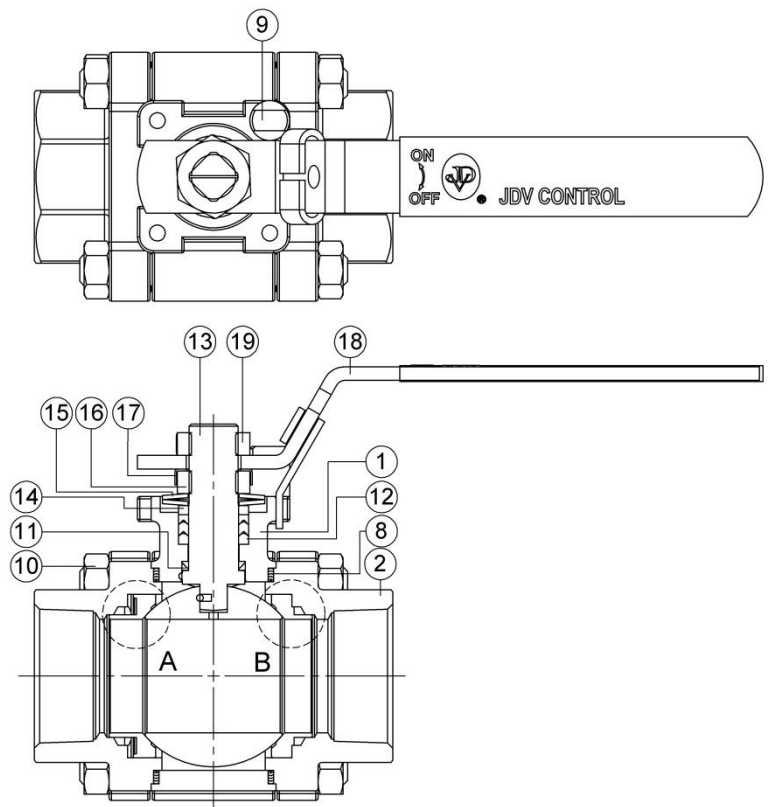
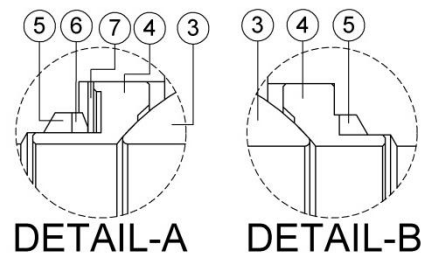
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產品結構/拆卸/組裝

1/2"~2" JBF-SM

產品結構圖

NO	
1	BODY
2	CAP
3	BALL
4	SEAT
5	SEAT GASKET
6	SEAT RETAINER
7	SEAT SPRING
8	BODY GASKET
9	STOPPER
10	BOLT & NUT
11	THRUST WASHER
12	GLAND PACKING
13	STEM
14	RING
15	BEVEL WASHER
16	NUT
17	PACKING LOCK WASHER
18	HANDLE
19	HANDLE NUT





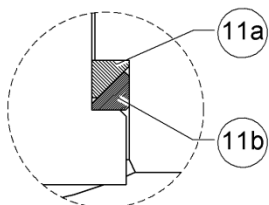
● 拆卸程序

1. 將 BALL(3)旋轉至全關狀態。
2. 取下 HANDLE NUT(19)、HANDLE(18)及 STOPPER(9)。
3. 取下 PACKING LOCK WASHER(17)，鬆開 NUT (16)，即可取出 BEVEL WASHER (15)及 RING(14)。
4. 鬆開 BOLT & NUT(10)，卸下 CAP(2)及 BODY GASKET(8)。
5. 將卸下 CAP(2)後，即可依序取出 SEAT(4)、SEAT SPRING(7)、SEAT RETAINER(6)和 SEAT GASKET(5)。
6. 取出 BALL(3)，將 STEM(13)由外向 BODY(1)內部輕輕敲擊使 STEM(13)脫離 GLAND PACKING(12)後，取出 STEM(13)、THRUST WASHER(11)及 GLAND PACKING(12)即可。

註:請小心取出且妥善放置 BALL(3) & SEAT(4), 避免受到損傷造成組裝後發生洩漏問題。

● 組裝程序

1. STEM(13)套上 THRUST WASHER(11)後，組裝至 BODY(1)中。



THRUST WASHER(11)

11a:GRAPHITE
11b:METAL(HARD FACE)

註:

2. 組裝 BALL(3)至 BODY(1)中。註:請小心組裝，避免碰撞及損傷密封面。
3. 依序將 SEAT GASKET(5)、SEAT RETAINER(6)、SPRING(7)、SEAT(4)組裝至 CAP(2)內。
4. 將 BODY GASKET(8)、CAP(2)組裝至 BODY(1)上，並且用 BOLT & NUT(10)鎖緊。
5. 將 GLAND PACKING(12)、RING(14)、BEVEL WASHER (15)、NUT (16)依序組裝至 BODY(1)上，將 NUT(16)鎖緊。
6. 閥門轉動是否順暢、閥軸止漏後，將PACKING LOCK WASHER(17)安裝固定於 NUT(16)上即可。請參照(表一)(Table 1)。



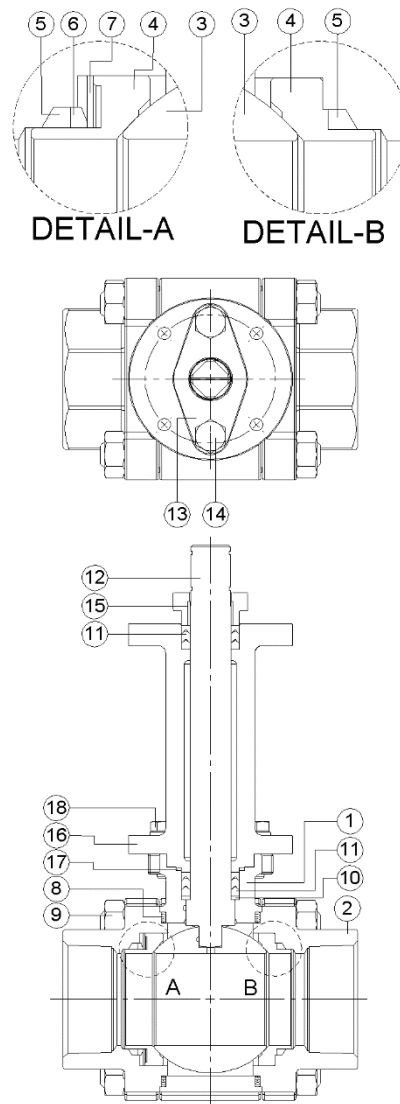
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1/2" ~2" JBF-SM-EXTENDED

產品結構圖

NO	
1	BODY
2	CAP
3	BALL
4	SEAT
5	SEAT GASKET
6	SEAT RETAINER
7	SEAT SPRING
8	BODY GASKET
9	BOLT & NUT
10	THRUST WASHER
11	GLAND PACKING
12	STEM
13	GLAND
14	GLAND BOLT
15	GLAND BEARING
16	BONNET
17	BONNET GASKET
18	BONNET BOLT





● 拆卸程序

1. 將 BALL(3)旋轉至全關狀態。
 2. 鬆開 GLAND BOLT(14), 並且取下 GLAND(13)與 GLAND BEARING(15)。
 3. 鬆開 BOLT & NUT(9)。卸下 CAP(2)及 BODY GASKET(8)。
 4. 將卸下 CAP(2)後, 即可依序取出 SEAT(4)、SEAT SPRING(7)、SEAT RETAINER(6)和 SEAT GASKET(5)。
 5. 取出 BALL(3)。
 6. 鬆開 BONNET BOLT(18), 並且取下 BONNET(16)與 BONNET GASKET(17)。
 7. 再依序取下 STEM(12)、THRUST WASHER(10)及 GLAND PACKING(11)即可。
- 註:請小心取出且妥善放置 BALL(3) & SEAT(4), 避免受到損傷造成組裝後發生洩漏問題。

● 組裝程序

1. STEM(12)套上 THRUST WASHER(10)後, 組裝至 BODY(1)內。
2. 依序將 GLAND PACKING(11)、BONNET GASKET(17)、BONNET(16)組裝至 BODY(1)上, 並且用 BONNET BOLT(18)鎖緊。
3. 組裝 BALL(3)至 BODY(1)中。註:請小心組裝, 避免碰撞及損傷密封面。
4. 依序將 SEAT GASKET(5)、SEAT RETAINER(6)、SEAT SPRING(7)、SEAT(4)組裝至 CAP(2)內。
5. 將 BODY GASKET(8)、CAP(2)組裝至 BODY(1)上, 並且用 BOLT & NUT(9)鎖緊。
6. 將 GLAND PACKING(11)、GLAND (13)依序組裝至 BONNET(16)中, 將 GLAND BOLT(14)鎖緊。請參照(表一)(Table 1)。