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**Installation, Operation and Maintenance
PTFE/Metal Seat 3-way Ball Valve**

VERSION: V 1.0

ISSUING DATE: 2015/03/06



NO.6-1, QINGNIAN ROAD, YANGMEI DISTRICT, TAOYUAN CITY 326 , TAIWAN

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JBT-C/JBT-CM
PTFE/Metal Seat 3-way Ball Valve
Installion, operation and maintain manual

Contents

Overview-----	2
Notes prior to Use-----	3
Warning Banners	
Safety Notification	
Product Transportation/Storage/Maintenance-----	4
Notes for Preparation of Installation -----	6
Notes prior to Operation-----	7
Routine Maintenance and Troubleshooting-----	9
1/2"~1" JBT-CF/JBT-FM Structure Diagram, Procedure of Disassembling and Assemblage-----	10
1 1/2"~4" JBT-C/JBT-CM Structure Diagram, Procedure of Disassembling and Assemblage-----	12
5"~8" JBT-C/JBT-CM Structure Diagram, Procedure of Disassembling and Assemblage-----	14



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Overview

JBT-C/JBT-CM is a Trunnion Type PTFE/Metal Seat 3-way Ball Valve of JDV. Features of the product comprise:

1. The mounting flange always follow ISO 5211 standard design and the screw hole of the mounting bracket could be perfectly match with most actuators in the worldwide.
2. The Anti-static device can prevent producing static due to friction with fluid flow and then can avoid the valve explosion or fire.
3. Valve stem anti-fly device: 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. 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.
4. JBT-C/JBT-CM series is a trunnion mouted ball design with a two piece trunnion bearing which can provide self lubricating to ensure long life and low valve torque.
5. Spring-loaded seat maintain close contact with the ball ensuring tight sealing. This also results in low operating torques.
6. Repair easily: The side cap can disassemble speedy and reduce the step of changing interior parts and then easy to repair.



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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.



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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:

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.



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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.

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:



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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.



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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 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.



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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.
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.



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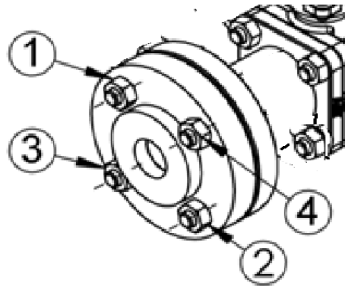
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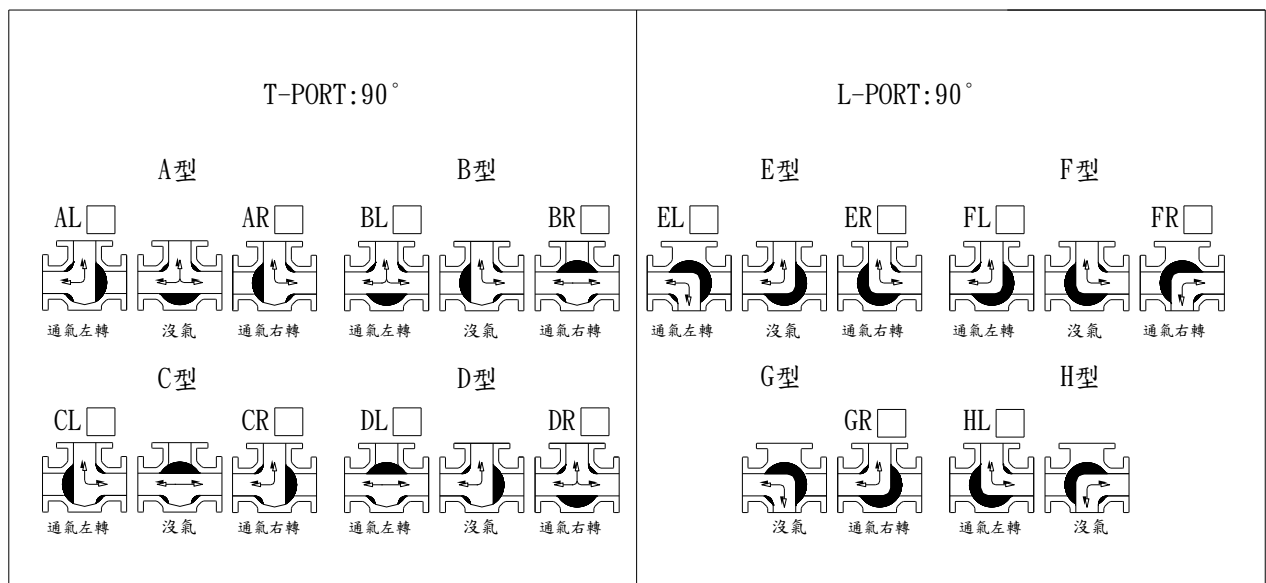
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圖一 (Figure 1)

3-Way Valve Fluid Direction



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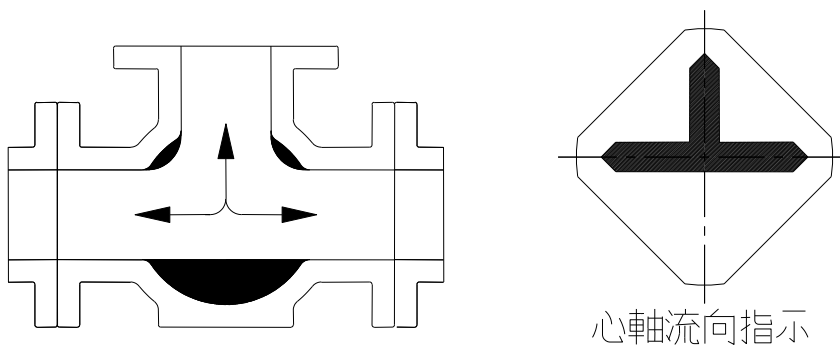


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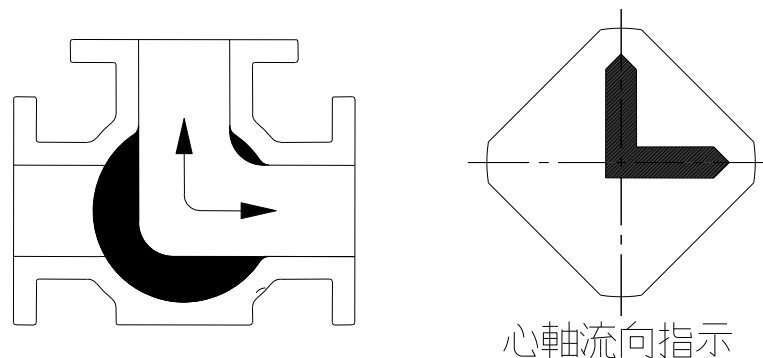
Notes prior to Operation

The arrow is on the flat top of the body of the 3-way ball valve to indicate the flow direction. The arrow is on the position indicator of the gearbox/actuator to indicate the flow direction. Please refer to the Figure 2 below. (Figure 2)

T-type 3-way ball valve



L-type 3-way ball valve



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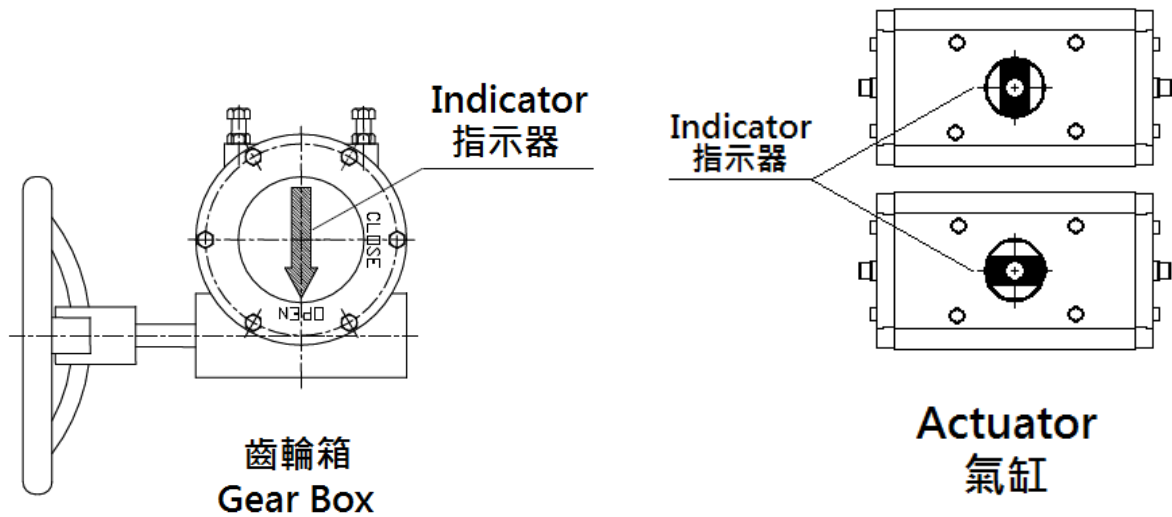


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PS. In manual operation, over and inadequate operation would cause damage (for example to break the handle, to hurt the operator, or to deform the stop or stem.) and maybe result in leakage. Lock (option) can prevent unauthorized users to operate the gearbox.

Gearbox/Actuator



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Maintenance and Troubleshooting

Routine Maintenance

* Maintain routine maintenance and check to guarantee good operability.

Maintenance of gland filler

As the upper seal (stem) appears leakage, please fasten gland bolts uniformly until leakage stops.

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

JIS 10K/ANSI 150LB /PN16

Size	Joint Bolt Size	Torque: N.m	Gland Bolt Size	Torque: N.m
1/2"	M8	20	M8	8
3/4"	M8	20	M8	8
1"	M10	40	M8	10
1-1/2"	M12	52	M10	15
2"	M12	52	M10	15
2-1/2"	M12	52	M10	18
3"	M12	52	M10	22
4"	M12	52	M12	22
6"	M16	120	M12	25

(Table 1)



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JIS 20K/ANSI 300LB /PN40

Size	Joint Bolt Size	Torque: N.m	Gland Bolt Size	Torque: N.m
1/2"	M8	20	M8	8
3/4"	M8	20	M8	8
1"	M10	40	M8	10
1-1/2"	M12	70	M10	15
2"	M12	70	M10	15
2-1/2"	M14	80	M10	18
3"	M16	160	M10	22
4"	M16	160	M12	22
6"	M20	240	M12	25

(Table 2)

2. Trouble Shooting

Area	Description	Solution
inside	The seats are leaking.	(1) Disassemble the valve and check if there is any damage on the contact surface of ball and seats. (2) If ball and seats are ok replace seat ring seal. (3) If parts are damaged, replace seat ring seal, damaged ball or seats. (4) It is recommended that gasket must be replaced with a new one every time the valve is disassembled.
outside	Stem Leakage	(1) Tighten gland nut. (2) If step 1 does not stop leakage, disassemble the valve to replace gland packing.
	Body Gasket Leakage	(1) Tighten body bolts & nuts. (2) If step 1 does not stop leakage, disassemble the valve to replace gland packing.



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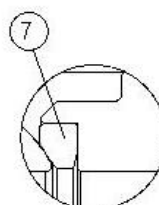
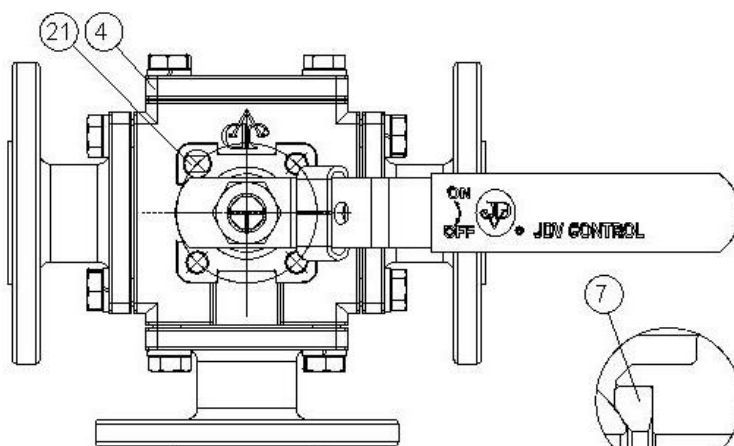
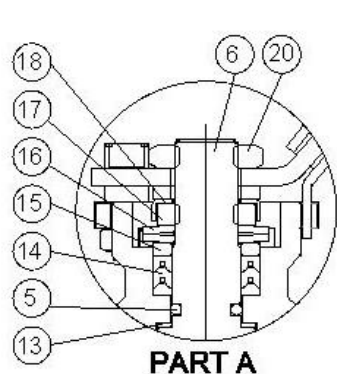
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Structure/disassemble/assemble

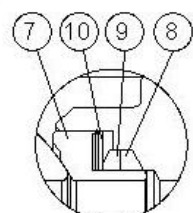
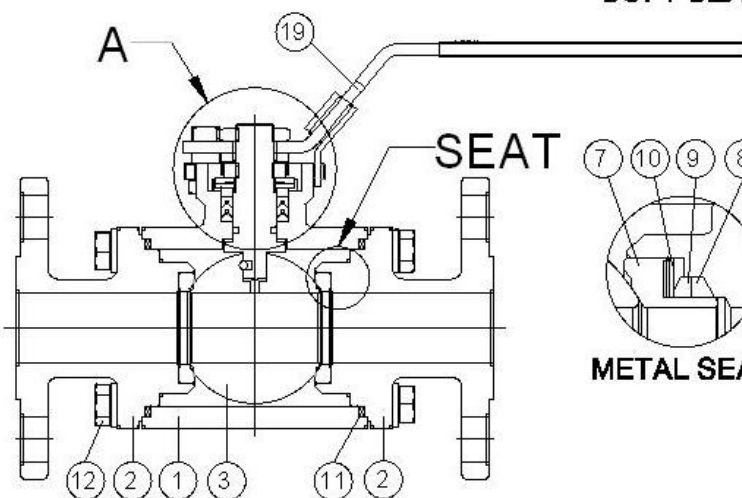
1/2"~1" JBT-CF/JBT-FM

● structure



SOFT SEAT

NO	PART NAME		Qty	
1	BODY			
2	CAP			
3	SOFT METAL	BALL	★★	1
4	SIDE COVER			
5	O-RING		★	1
6	SOFT METAL	STEM		
7	SOFT METAL	SEAT	★ ★★	4 4
8		SEAT RING SEAL	★	4
9	METAL	SEAT RING RETAINER		
10		SPRING		
11	BODY GASKET		★	4
12	BOLT & NUT			
13	THRUST WASHER		★	1
14	GLAND PACKING		★	1
15	RING			
16	BEVEL WASHER			
17	NUT			
18	PACKING LOCK WASHER			
19	HANDLE			
20	HANDLE NUT			
21	STOPPER			
NOTE : ★ RECOMMENDED REPAIR KIT				
★★ OPTIONAL REPAIR KIT				



METAL SEAT



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Reassemble

1. Turn HANDLE (19) in fully “closed” position or fully “open” position.
2. Remove PACKING LOCK WASHER (18), NUT (17), BEVEL WASHER (16) and RING (15) .
3. Loose BOLT & NUT (12) of the side cap, and remove CAP (2) / SIDE COVER(4). (In case of necessity, knock the side cap with a soft hammer to remove the parts of the side cap.)
4. Remove SEAT (7), SEAT RING SEAL (8), SEAT RING RETAINER (9), and SPRING (10) orderly.
5. Remove BALL (3), and slide push STEM (6) toward the inside of BODY (1), separate STEM (6) form GLAND PAKCING (14), remove STEM (6).
6. Remove THRUST WASHER(13) and GLAND PACKING(14) of the stem hole of the body.



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● Assemble

※ After disassemble, we suggest to replace the parts, called repair kit, that may experience wear and tear.

1. Insert GLAND PACKING (14) into the stem hole of BODY(1)
2. Put THRUST WASHER(13) and O-RING (5) on STEM (6), then put them into the stem hole.
3. Put SEAT RING SEAL (8), SEAT RING RETAINER (9), SPRING (10) and SEAT (7) into CAP (2) / SIDE COVER (4) orderly.
4. Install a set of parts (2+10+9+8+7) of CAP (2) on BODY (1), then Screw BOLT & NUT (12) tightly.
5. Insert BALL (3) into BODY (1), install the other two parts (2+10+9+8+7) of CAP (2) and a set of parts (4+10+9+8+7) of SIDE COVER (4) on BODY (1).
6. Put RING (15), BEVEL WASHER (16) and NUT (17) on STEM (6), then Screw NUT (17) tightly to Push GLAND PACKING (14) to prevent STEM (6) leakage.
7. Install PACKING LOCK WASHER (18) on NUT (17).



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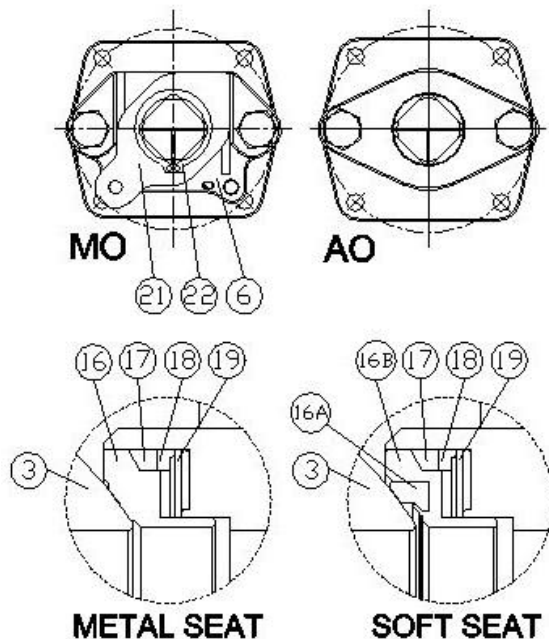
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11/2"~4" JBT-C/JBT-CM

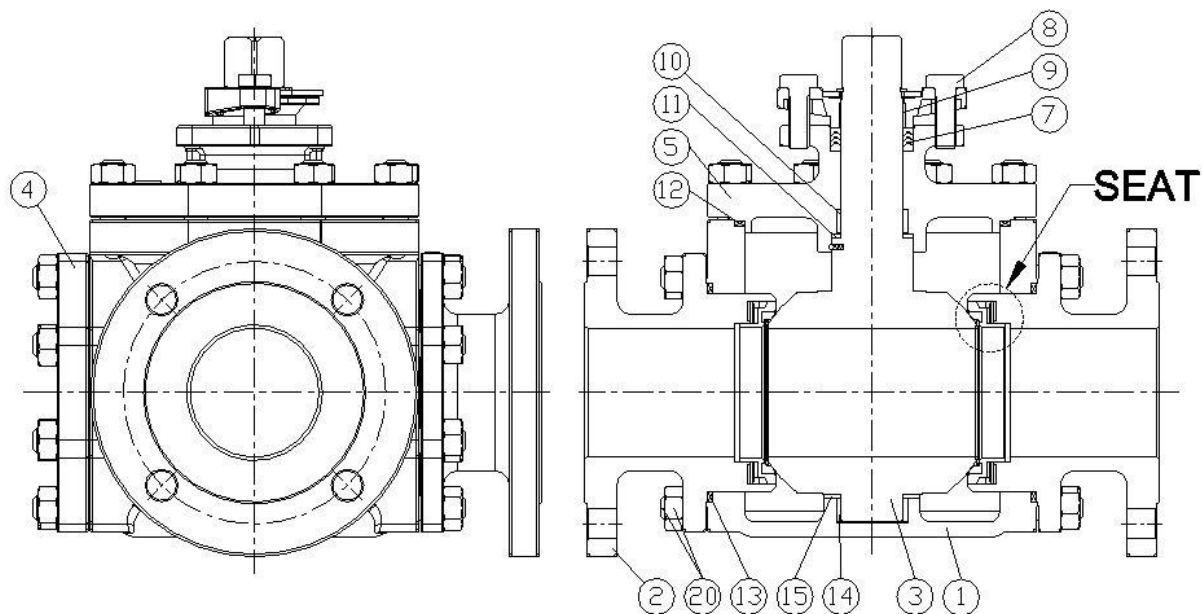
● Structure

ISO 5211 MOUNTING



NO	PART NAME	Qty
1	BODY	
2	CAP	
3	SOFT METAL BALL & STEM	** 1
4	SIDE COVER	
5	TOP COVER	
6	GLAND	
7	GLAND PACKING	* 1
8	GLAND BOLT	
9	GLAND BEARING	* 1
10	STEM BEARING	* 1
11	STEM THRUST WASHER	* 1
12	TOP COVER GASKET	* 1
13	BODY GASKET	* 4
14	TRUNNION BEARING	* 1
15	TRUNNION WASHER	* 1
16	METAL SEAT	** 4
16A	SOFT SEAT	** 4 set
16B	SEAT RING	
17	SEAT RING SEAL	* 4
18	SEAT RING RETAINER	** 4
19	SPRING	
20	BOLT & NUT	
21	TRAVEL STOP (MO)	
22	SNAP CATCH (MO)	
23	HANDLE (MO)	

NOTE : * RECOMMENDED REPAIR KIT
* * OPTIONAL REPAIR KIT



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● Disassemble

1. Turn BALL & STEM (3) in “closed” position or in “open” position completely.
2. Loose BOLT & NUT (12) of the side cap, and remove CAP (2) / SIDE COVER(4), SEAT (16) or SEAT (16A) plus SEAT RING (16B).
(In case of necessity, knock the side cap with a soft hammer to remove the parts of the side cap.)
3. Remove SEAT (16) or SEAT (16A) plus SEAT RING (16B), SEAT RING SEAL (17), SEAT RING RETAINER (18) and SPRING (19).
4. Loose GLAND BOLT (8), and take GLAND BEARING (9) AND GLAND (6) off.
5. After loose BOLT & NUT (20) of TOP COVER (5), remove TOP COVER (5), then take off GLAND PACKING (7), STEM BEARING (10) and STEM THRUST WASHER (11) from the stem hole of TOP COVER (5).
6. Remove BALL & STEM (3), TRUNNION WASHER (15), and TRUNNION BEARING (14) of the stem hole of BODY (1) orderly.
(In order to prevent leakage after install, carefully take out and place BALL & STEM (3) and SEAT (16) or SEAT (16A) plus SEAT RING (16B) to prevent possible damage.)



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● Assemble

※ After disassemble, we suggest to replace the parts, called repair kit, that may experience wear and tear.

1. After install TRUNNION BEARING (14) on BODY (1), then put TRUNNION WASHER (15), BALL & STEM (3) orderly.
2. Install STEM THRUST WASHER (11) and STEM BEARING (10) into TOP COVER (5)
3. Put TOP COVER GASKET on BODY (1), to install all parts (5+10+11) on BODY (1), and then Screw BOLT & NUT (20) tightly.
4. Put SPRING (19), SEAT RING RETAINER (18), SEAT RING SEAL (17), and SEAT (16) or (SEAT (16A) and SEAT RING (16B)) into CAP (2); after put BODY GASKEY (13) on BODY (1), install parts (2, 6 or 16A and 16B) of SIDE COVER (4) on BODY (1), and then screw BOLT & NUT (20) and fix it tightly.
5. Refer to STEP 4 to install SIDE COVER (4).
6. Install GLAND BEARING (9) into GLAND (6).
7. After install GLAND PACKING (7) into TOP COVER (5), put parts (9 and 6) of GLAND (6) into TOP COVER (5) to push GLAND PACKING (7), finally screw GLAND BOLT (8) tightly.



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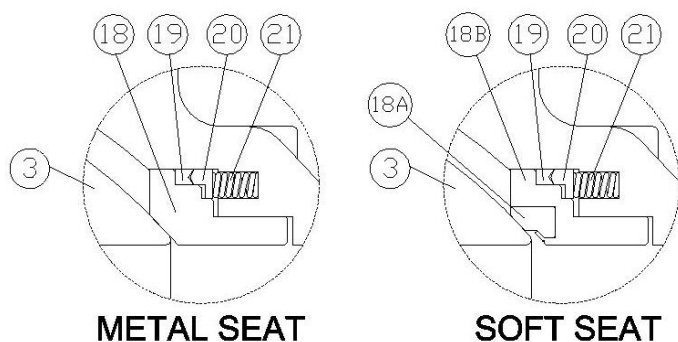


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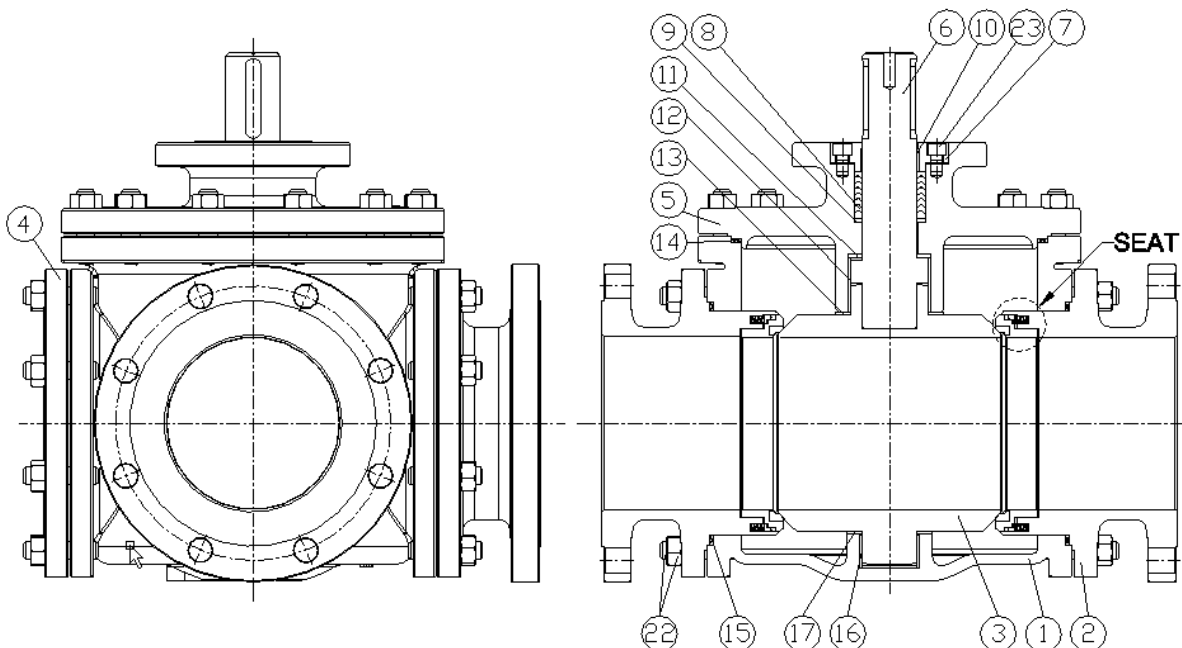
5"~8" JBT-C/JBT-CM

● Structure



NO	PART NAME	Q'ty
1	BODY	
2	CAP	
3	SOFT METAL BALL	★ ★ 1
4	SIDE COVER	
5	TOP COVER	
6	SOFT METAL STEM	★ ★ 1
7	GLAND	
8	GLAND PACKING	★ 1
9	GLAND THRUST WASHER	
10	GLAND BEARING	★ 1
11	STEM THRUST WASHER	★ 1
12	TOP TRUNNION BEARING	★ 1
13	TOP TRUNNION WASHER	★ 1
14	TOP COVER GASKET	★ 1
15	BODY GASKET	★ 4
16	TRUNNION BEARING	★ 1
17	TRUNNION WASHER	★ 1
18	METAL SEAT	★ ★ 4
18A	SOFT SEAT	
18B	SOFT SEAT RING	★ ★ 4 set
19	SEAT RING SEAL	★ 4
20	SEAT RING RETAINER	★ ★ 4
21	SPRING	
22	BOLT & NUT	
23	GLAND BOLT	

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● Disassemble

1. Turn BALL & STEM (3) in “closed” position or in “open” position completely.
2. Loose BOLT & NUT (22) of CAP (2) / SIDE COVER (4), and remove CAP (2) / SIDE COVER(4), SEAT (18) or SEAT (18A) plus SEAT RING (18B).
(In case of necessity, knock CAP (2) with a soft hammer to remove the parts of CAP (2).)
3. Remove SEAT (18) or SEAT (18A) plus SEAT RING (18B), SEAT RING SEAL (19), SEAT RING RETAINER (20), and SPRING (21) orderly.
4. Loose GLAND BOLT (23), and remove GLAND BEARING (10) and GLAND (7)
5. After loose BOLT & NUT (22) of TOP COVER (5), remove TOP COVER (5), then take off GLAND THRUST WASHER (9), GRAND PACKING (8), TOP TRUNNION BEARING (12), and STEM THRUST WASHER (11) from the stem hole of TOP COVER (5).
6. Remove STEM (6), TOP TRUNNION WASHER (13), BALL (3), TRUNNION WASHER (17), and take off TRUNNION BEARING (16) from the stem hole of BODY (1) orderly.

(In order to prevent leakage after install, carefully take out and place BALL & STEM (3) and SEAT (18) or SEAT (18A) plus SEAT RING (18B) to prevent possible damage.)



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● Assemble

※ After disassemble, we suggest to replace the parts, called repair kit, that may experience wear and tear.

1. After install TRUNNION BEARING (16) into BODY (1), put TRUNNION WASHER (17), BALL (3), and TOP TRUNNION WASHER (13) orderly.

2. After install STEM THRUST WASHER (11) and TOP TRUNNION BEARING (12) into TOP COVER (5), insert STEM (6) into the stem hole of TOP COVER (5).

3. After put TOP COVER GASKET (14) into BODY (1), install all parts (5+6+11+12) of TOP COVER (5) on BODY (1), and then screw BOLT & NUT (22) tightly.

PS. When install BALL (3) and STEM (6), pay attention to ensure that the flow channel of ball is correct with respect to the flow direction arrow marked on valve.

4. Put SPRING (21), SEAT RING RETAINER (20), SEAT RING SEAL (19) and and SEAT (18) or SEAT (18A) plus SEAT RING (18B) into SIDE COVER (2) orderly; after put BODY GASKET (15) into BODY (1), put all parts (2, 18 or 18A+18B, 19, 20, 21) of SIDE COVER (2) into BODY (1), and then screw BOLT & NUT (22) and fix it tightly.

5. Refer to STEP 4 to install SIDE COVER (4).

6. Put GLAND BEARING (10) into GLAND (7).

7. After install GLAND THRUST WASHER (9), GRAND PACKING (8) into TOP COVER (5), put parts (10+7) of GLAND (7) on TOP COVER (5) to push GRAND PACKING (8), finally screw GLAND BOLT (23) and fix it tightly.



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進典工業股份有限公司

JDV CONTROL VALVES CO.,LTD.

三通閥軟密封/金屬密封球閥 安裝、操作和維護手冊

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JBT-C/JBT-CM

三通閥軟密封/金屬密封球閥

安裝及操作維修手冊

目錄

概述	2
使用前須知	3
警告標語 安全告知	
產品運送/保存/維護	4
安裝準備須知	6
操作前須知	7
日常維護與問題排除	9
1/2"~1" JBT-C/JBT-CM 結構圖, 拆卸/組裝程序	10
1 1/2"~4" JBT-C/JBT-CM 結構圖, 拆卸/組裝程序	12
5"~8" JBT-C/JBT-CM 結構圖, 拆卸/組裝程序	14



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概述

JBT-C/JBT-CM 為進典公司-固定軸式三通(特弗龍/金屬)密封球閥, 產品特點包含:

1. 球閥平台符合ISO 5211規範, 閥門安裝連接架的固定螺絲孔位通用於各類驅動器的連接組裝。
2. 防靜電裝置: 避免閥球因流體流動摩擦產生靜電、火花, 而導致爆炸火災事件發生。
3. 防中軸飛出裝置: 中軸設計是為由閥體內部穿出, 因受上蓋阻擋。當閥體內部有壓力且迫緊螺絲異常鬆脫時, 可避免中軸受閥體內部壓力因素而飛出, 導致工安事件發生。
4. 閥球為固定軸式, 採用自潤軸襯設計, 讓操作扭矩輕且增長其使用壽命。
5. 運作順暢: 球墊閥座有彈簧/彈片負載設計, 能達到密封性佳、低扭矩的效果。
6. 容易維修: 側蓋可快速拆卸, 簡化更換內部零件步驟, 進而易於維修。



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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。
2. 請確認此份文件所提及之警告標誌及說明。
3. 請不要在超過閥門設計壓力的情況下使用。
4. 請不要在超過閥門設計溫度的情況下使用。
5. 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：

Warning Banners:

標示 Banner	說明 Description
	危險的情況，如果不能避免，可能導致輕微或中度損傷。 This indicates a dangerous situation. Slight or moderate injury might be resulted if it is not averted.
	如果不避免，潛在的危險情況，可能導致死亡或嚴重傷害。 Death or severe injury might be resulted if such potential dangerous situation is not averted.



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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

如果不能避免，可能導致死亡或嚴重傷害

Do not get beyond the limitation indicated by valve specification or technical parameters, or otherwise, death or severe injury might be resulted.



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。

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.



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產品運送/保存/維護須知

Product Transportation/Storage/Maintenance



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。

※ 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。



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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. 為避免法蘭凸緣表面受損,必須使用適當的密封貼片或封蓋保護凸緣表面與流道口。
4. 閥體材質若為易鏽件須於法蘭表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。



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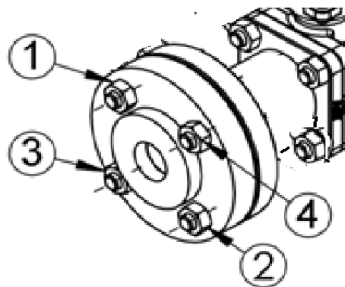
保存未包裝/已拆裝球閥

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. 當處理大尺寸閥門時，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，將法蘭口的密封件移除，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。(三通閥流體方向圖)
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



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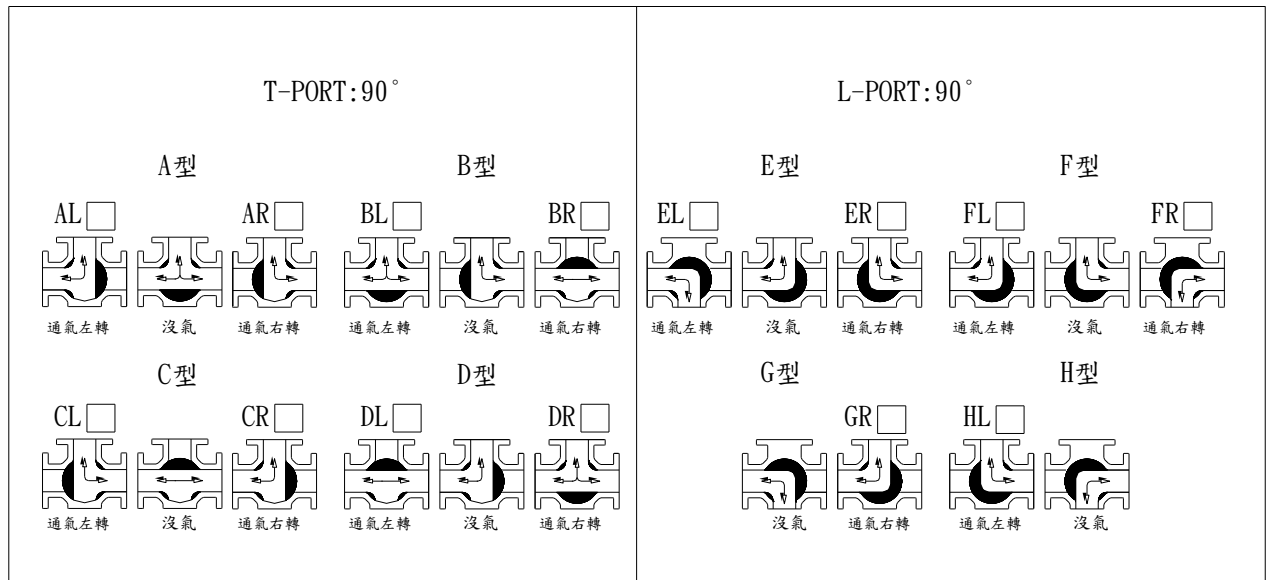
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三通閥流體方向圖



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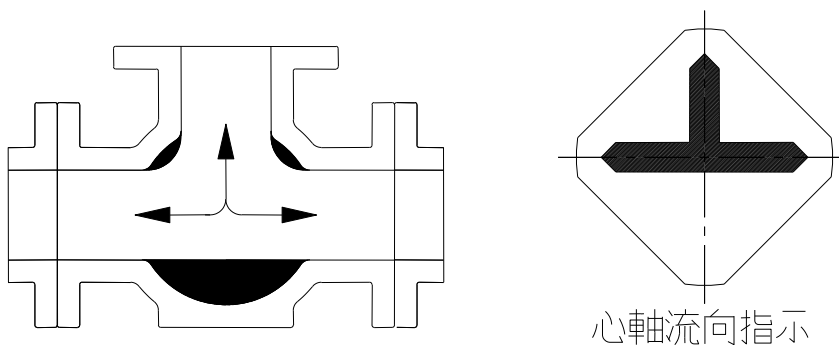


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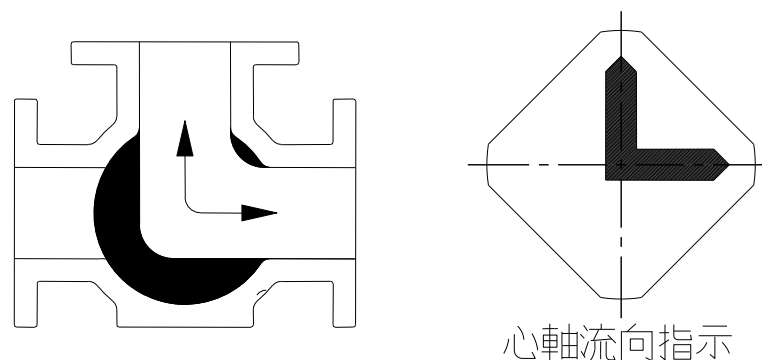
操作前須知

三通閥的球閥流道口位置, 指示位置標示於頂部平面上。齒輪箱/氣缸開啟的旋轉方向閥, 指示位置標示於箭頭指示器上。(請看下圖)(圖二)(Figure 2)

T 型三通閥



L 型三通閥



PS. 手動操作時, 過度的旋轉會造成手桿斷裂、弄傷操作者、或是造成檔片及心軸變



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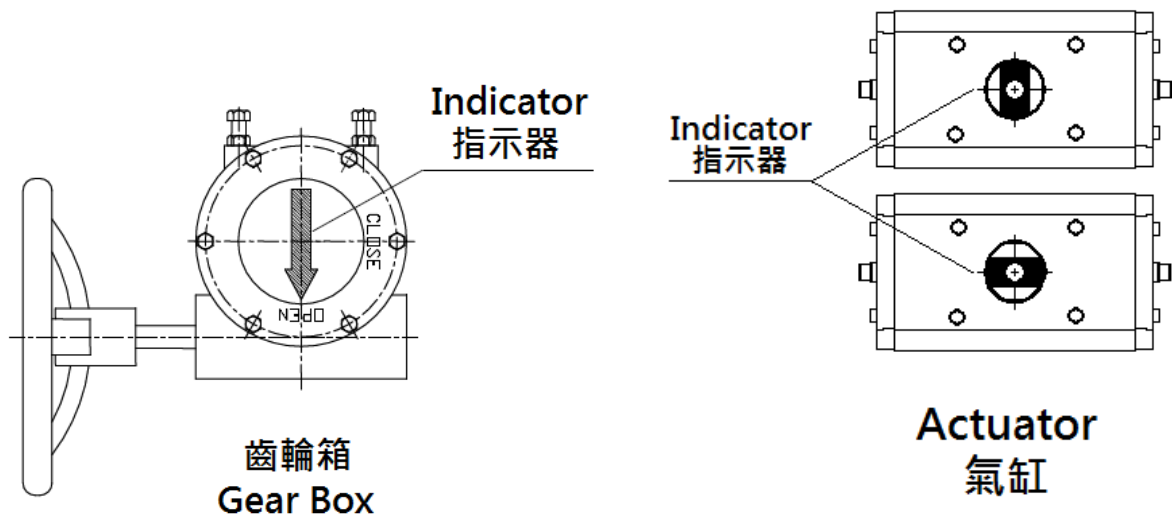
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形，這樣可能導致球閥發生洩漏。帶鎖裝置(可自由選擇)的可以防止未經授權使用的人操作。

齒輪箱/氣缸



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維護與問題排除

1. 日常維護

※ 維持例行性維護及檢查，以確保良好操作性。

壓蓋填料維護

上密封(閥軸)有洩漏的現象,請均勻地鎖緊壓蓋螺絲直至止洩為止。

鎖緊扭力請參照以下各規格之扭力表。

JIS 10K/ANSI 150LB /PN16

閥門尺寸 Size	結合面螺絲 Joint Bolt 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	M8	8
3/4"	M8	20	M8	8
1"	M10	40	M8	10
1-1/2"	M12	52	M10	15
2"	M12	52	M10	15
2-1/2"	M12	52	M10	18
3"	M12	52	M10	22
4"	M12	52	M12	22
6"	M16	120	M12	25

(表一)



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JIS 20K/ANSI 300LB /PN40

閥門尺寸 Size	結合面螺絲 Joint Bolt 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	M8	8
3/4"	M8	20	M8	8
1"	M10	40	M8	10
1-1/2"	M12	70	M10	15
2"	M12	70	M10	15
2-1/2"	M14	80	M10	18
3"	M16	160	M10	22
4"	M16	160	M12	22
6"	M20	240	M12	25

(表二)

2. 洩漏問題排除

區域	問題敘述	解決方案
內部	球墊洩漏	(1)請拆卸閥門, 確認閥球與球墊的表面皆處面是否有損傷。 (2)如果無損傷, 請更換止洩壓環迫緊。 (3)如果有, 請更換止洩壓環迫緊、損傷的閥球或球墊。 (4)閥門拆卸後, 建議更換結合面之密封墊片。
外部	中軸洩漏	(1)鎖緊牛楠螺絲。 (2)如果無法止漏, 請更換新中口迫緊。
	閥體、閥蓋結合面洩漏	(1)鎖緊結合面螺絲、螺母。 (2)如果無法止漏, 請更換結合面之密封墊片。



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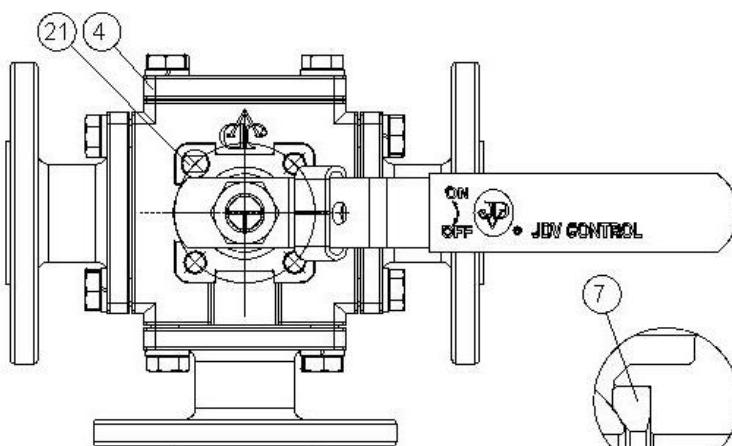
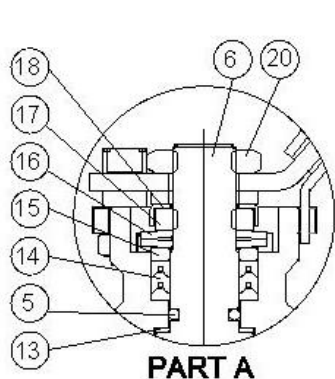
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產品結構/拆卸/組裝

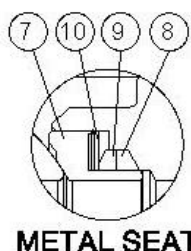
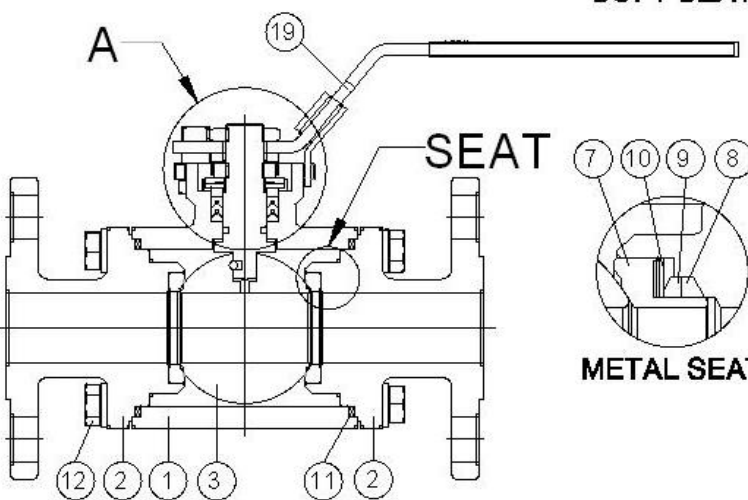
1/2"~1" JCF/JCFM

● 產品結構圖



SOFT SEAT

NO	PART NAME		Qty	
1	BODY			
2	CAP			
3	SOFT METAL	BALL	★★	1
4	SIDE COVER			
5	O-RING		★	1
6	SOFT METAL	STEM		
7	SOFT METAL	SEAT	★	4
			★★	4
8		SEAT RING SEAL	★	4
9	METAL	SEAT RING RETAINER		
10		SPRING		
11	BODY GASKET		★	4
12	BOLT & NUT			
13	THRUST WASHER		★	1
14	GLAND PACKING		★	1
15	RING			
16	BEVEL WASHER			
17	NUT			
18	PACKING LOCK WASHER			
18	HANDLE			
20	HANDLE NUT			
21	STOPPER			
NOTE : ★ RECOMMENDED REPAIR KIT				
★★ OPTIONAL REPAIR KIT				



METAL SEAT



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● 拆卸程序

1. 旋轉閥門至全開 or 全關的位置。
2. 取下防鬆墊片⑱；鬆開迫緊螺母⑰；卸下盤型彈簧⑯及中口壓環⑮。
3. 鬆開側蓋/封蓋結合面螺絲⑫，並且卸下整組側蓋②/封蓋④。
(拆卸側蓋必要時，可以膠槌輕敲側蓋，以利於卸下側蓋零組件)。
4. 依序取出球墊⑦、止洩壓環迫緊⑧、止洩壓環⑨及彈片⑩。
5. 移開實心球③，將心軸⑥向本體①內部輕輕推擠，使心軸與中口迫緊分離後，取出心軸⑥。
6. 取出本體中軸內孔的小薄片⑬及中口迫緊⑭。

● 組裝程序

※ 拆卸/維修後，我們建議重新更換易損耗之零配件(維修包)

1. 將中口迫緊⑭組裝至本體①中軸孔內。
2. 心軸⑥套上小薄片⑬及 O-RING⑤後，組裝至本體①中軸孔內。
3. 將止洩壓環迫緊⑧、止洩壓環⑨、彈片⑩及球墊⑦依序放入側蓋②/封蓋④中。
4. 將一組側蓋零組件(②+⑩+⑨+⑧+⑦)組裝至本體①，用結合面螺絲⑫鎖緊固定。
5. 實心球③放置在本體①閥腔內，將另兩組側蓋零組件(②+⑩+⑨+⑧+⑦)及一組封蓋零組件(④+⑩+⑨+⑧+⑦)皆組裝至本體上。
6. 心軸⑥套上中口壓環⑮、盤型彈簧⑯及迫緊螺母⑰；將迫緊螺母⑰鎖緊，壓迫中口迫緊⑭，以達到中口止漏效果。
7. 防鬆墊片⑱安裝固定於迫緊螺母⑰上即可。





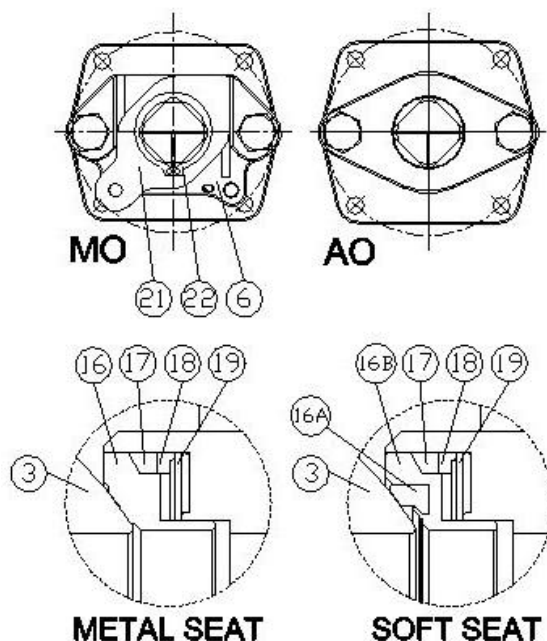
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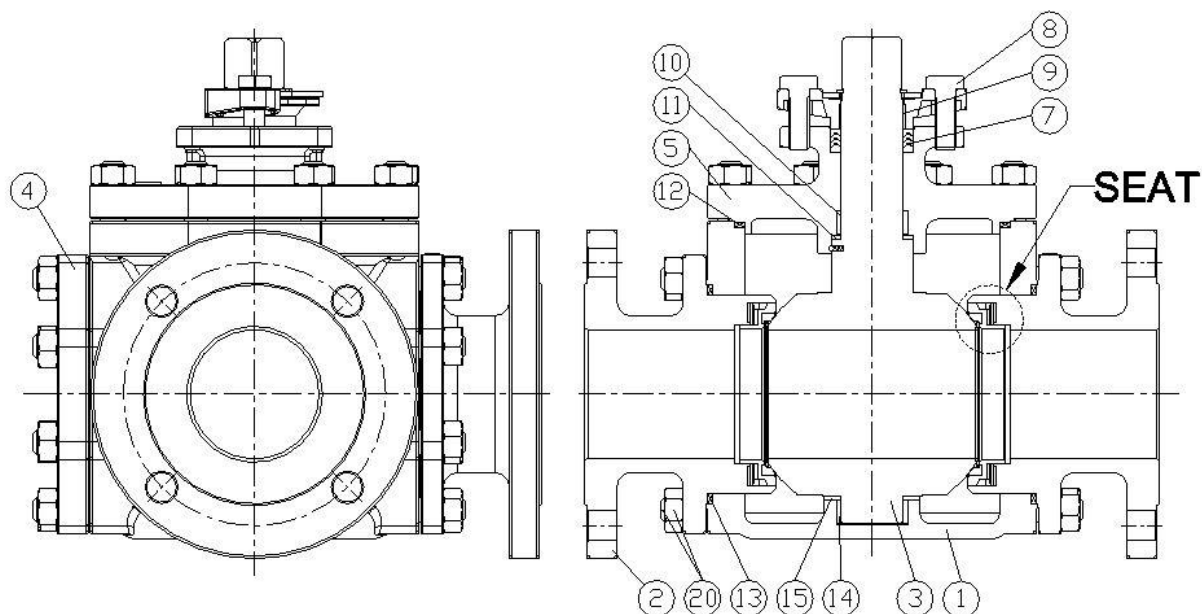
11/2"~4" JBT-C/JBT-CM

● 產品結構圖

ISO 5211 MOUNTING



NO	PART NAME	Qty
1	BODY	
2	CAP	
3	SOFT METAL BALL & STEM	** 1
4	SIDE COVER	
5	TOP COVER	
6	GLAND	
7	GLAND PACKING	* 1
8	GLAND BOLT	
9	GLAND BEARING	* 1
10	STEM BEARING	* 1
11	STEM THRUST WASHER	* 1
12	TOP COVER GASKET	* 1
13	BODY GASKET	* 4
14	TRUNNION BEARING	* 1
15	TRUNNION WASHER	* 1
16	METAL SEAT	** 4
16A	SOFT SEAT	** 4 set
16B	SEAT RING	** 4
17	SEAT RING SEAL	* 4
18	SEAT RING RETAINER	** 4
19	SPRING	
20	BOLT & NUT	
21	TRAVEL STOP (MO)	
22	SNAP CATCH (MO)	
23	HANDLE (MO)	
NOTE : * RECOMMENDED REPAIR KIT		
** OPTIONAL REPAIR KIT		



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● 拆卸程序

1. 旋轉閥門至全關 or 全開的位置。
2. 鬆開側蓋/封蓋結合面螺絲⑳，並且卸下整組側蓋㉑/封蓋㉒及球墊座組㉓or (16A+16B)。
(拆卸側蓋必要時，可以膠槌輕敲側蓋，以利於卸下側蓋零組件)
3. 依序取出球墊座組㉓or (16A+16B)、止洩壓環迫緊㉔、止洩壓環㉕及彈片㉖。
4. 鬆開牛楠螺絲㉗，並且取下牛楠襯套㉘與牛楠㉙。
5. 鬆開上蓋結合面螺絲㉚後卸下上蓋㉛，並將上蓋中軸孔中的中口迫緊㉜、軸襯套㉝及心軸襯板㉞取出。
6. 依序取實心球㉟、球軸襯板㊱及本體軸孔內的球軸襯套㊲即可。
(請妥善放置實心球㉟及球墊座組㉓or (16A+16B)，避免受到損傷造成組裝後發生洩漏問題)



● 組裝程序

※ 拆卸/維修後, 我們建議重新更換易損耗之零配件(維修包)

1. 將球軸襯套⑭組裝至本體①後, 依序放入球軸襯板⑮、實心球③.
2. 心軸襯板⑪、軸襯套⑩組裝至上蓋⑤內.
3. 上蓋大薄片⑫放入本體①後, 將整組上蓋零組件(⑤+⑩+⑪)與本體安裝組合, 並將結合面螺絲⑳鎖緊固定.
4. 將彈片⑲、止洩壓環⑱、止洩壓環迫緊⑰、及球墊座組⑯or (16A+16B)依序組裝至側蓋②內; 側蓋大薄片⑬放入本體①後, 將整組側蓋零組件(②、⑯ or (16A+16B)、⑰、⑱、⑲)與本體①組合安裝, 並將結合面螺絲⑳鎖緊固定.
5. 封蓋組裝方式: 請參照步驟 4.
6. 將牛楠襯套⑨組裝至牛楠⑥內
7. 將中口迫緊⑦組裝至上蓋⑤內後, 再以牛楠零件組(⑨+⑥)與上蓋組合安裝, 壓迫中口迫緊⑦, 最後將牛楠螺絲⑧鎖緊即可.



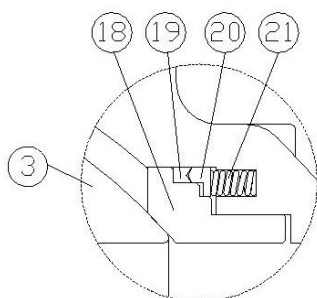


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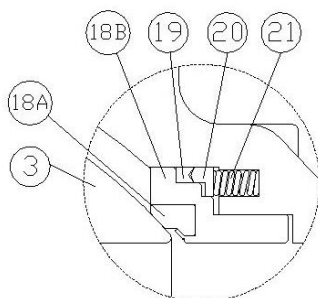
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5"~8" JBT-C/JBT-CM

● 產品結構圖



METAL SEAT



SOFT SEAT

NO	PART NAME	Q'ty	
1	BODY		
2	CAP		
3	SOFT METAL BALL	★★	1
4	SIDE COVER		
5	TOP COVER		
6	SOFT METAL STEM	★★	1
7	GLAND		
8	GLAND PACKING	★	1
9	GLAND THRUST WASHER		
10	GLAND BEARING	★	1
11	STEM THRUST WASHER	★	1
12	TOP TRUNNION BEARING	★	1
13	TOP TRUNNION WASHER	★	1
14	TOP COVER GASKET	★	1
15	BODY GASKET	★	4
16	TRUNNION BEARING	★	1
17	TRUNNION WASHER	★	1
18	METAL SEAT	★★	4
18A	SOFT SEAT	★★	4 set
18B	SEAT RING		
19	SEAT RING SEAL	★	4
20	SEAT RING RETAINER	★★	4
21	SPRING		
22	BOLT & NUT		
23	GLAND BOLT		
NOTE : ★ RECOMMENDED REPAIR KIT			
★★ OPTIONAL REPAIR KIT			



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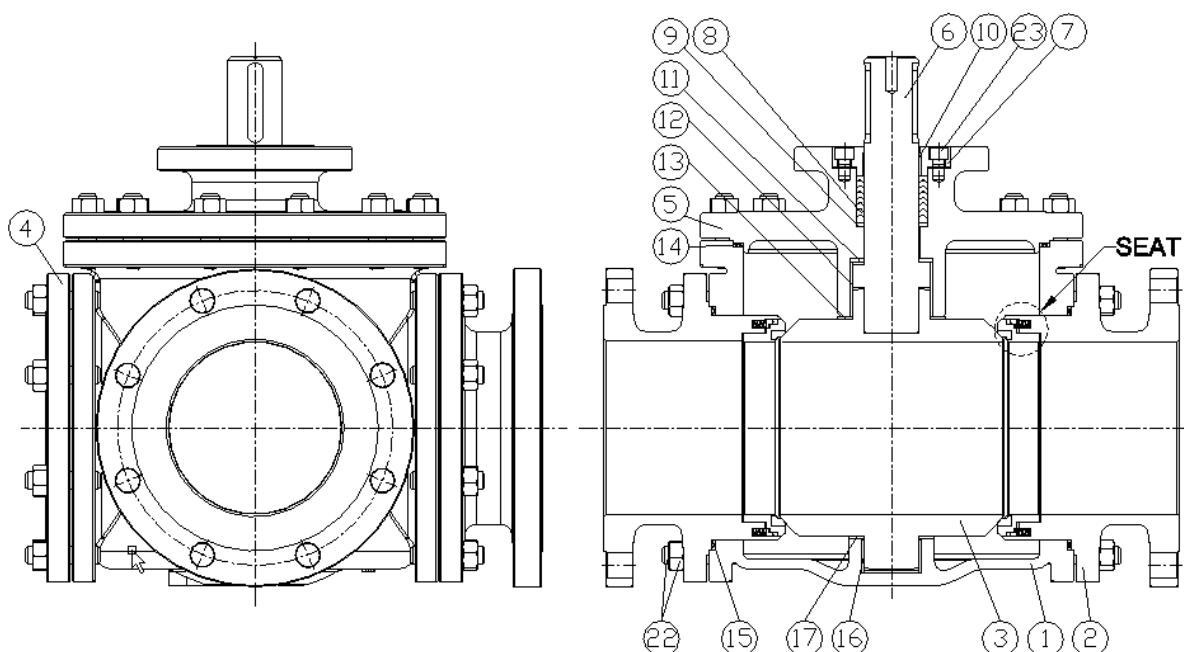
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● 拆卸程序

1. 旋轉閥門至全關 or 全開的位置。
 2. 鬆開側蓋/封蓋結合面螺絲(22), 並且卸下整組側蓋(2)/封蓋(4)及球墊座組(18)or (18A+18B).
(拆卸側蓋必要時, 可以膠槌輕敲側蓋, 以利於卸下側蓋零組件)
 3. 依序取出球墊座組(18)or (18A+18B)、止洩壓環迫緊(19)、止洩壓環(20)及彈簧(21).
 4. 鬆開牛楠螺絲(23), 並且取下牛楠襯套(10)與牛楠(7).
 5. 鬆開上蓋結合面螺絲(22)後卸下上蓋(5), 並將上蓋中軸孔中的中口墊圈(9)、中口迫緊(8)、軸襯套(12)及心軸襯板(11)取出。
 6. 依序取出心軸(6)、上球軸襯板(13)、實心球(3)、下球軸襯板(17)及本體軸孔內的球軸襯套(16)即可。
- (請妥善放置實心球(3)及球墊座組(18)or (18A+18B), 避免受到損傷造成組裝後發生洩漏問題)



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● 組裝程序

※ 拆卸/維修後, 我們建議重新更換易損耗之零配件(維修包)

1. 將球軸襯套(16)組裝至本體(1)後, 依序放入下球軸襯板(17)、實心球(3)、上球軸襯板(13).

2. 心軸襯板(11)、軸襯套(12)組裝至上蓋(5)內後, 心軸(6)組裝至上蓋(5)中軸孔內.

3. 上蓋大薄片(14)放入本體(1)後, 將整組上蓋零組件((5)+(6)+(11)+(12))與本體安裝組合, 並將結合面螺絲(22)鎖緊固定.

注意: 實心球(3)與心軸(6)組裝時, 須確保實心球流道口與心軸流向指示標誌需一致.

4. 將彈簧(21)、止洩壓環(20)、止洩壓環迫緊(19)及球墊座組(18)or (18A+18B)依序組裝至側蓋(2)內; 側蓋大薄片(15)放入本體(1)後, 將整組側蓋零組件((2)、(18)or (18A+18B)、(19)、(20)、(21))與本體組合安裝, 並將結合面螺絲(22)鎖緊固定.

5. 封蓋組裝方式: 請參照步驟 4.

6. 將牛楠襯套(10)組裝至牛楠(7)內

7. 將中口墊圈(9)、中口迫緊(8)組裝至上蓋(5)內後, 再以牛楠零件組((10)+(7))與上蓋組合安裝, 壓迫中口迫緊(8), 最後將牛楠螺絲(23)鎖緊固定.

