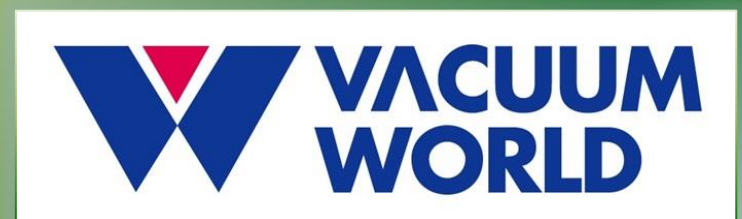


COMPANY PROFILE



Index

1. Company Overview

- ◆ **Profile**
- ◆ **Organization**

2. Business

- ◆ **Business Area**

3. Technology

- ◆ **Overhaul Status**
- ◆ **Quality Control**

4. Summary

Profile

We have been producing vacuum valves, vacuum valve components, Mechanical seals, o-rings and various parts for semiconductor equipment In Korea since 1998.

Additionally, the Vacuum World, Young Chun Engineering, has been developing Repair technologies and sealing parts for applicable high efficient vacuum conditions and other various conditions as needed for the equipment, including electronic controllers for the last 15years.

Our clients, SK Hynix Semiconductor, Samsung Electronics, LG Display, DB Hitek, On Semiconductor and other companies, recognize the capabilities and reliabilities Of Vacuum World's products and technologies.

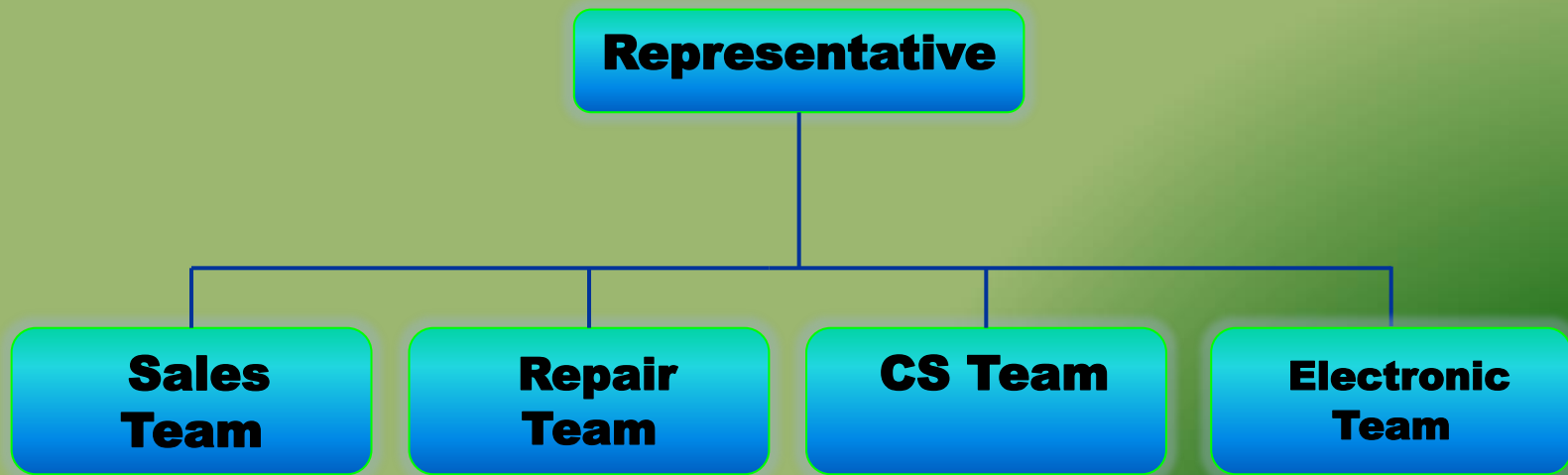
We look forward to partnering with a repair or refurbishment company, Which has been providing semiconductor vacuum equipment parts, Electronic controllers and repair services for their clients.

Profile

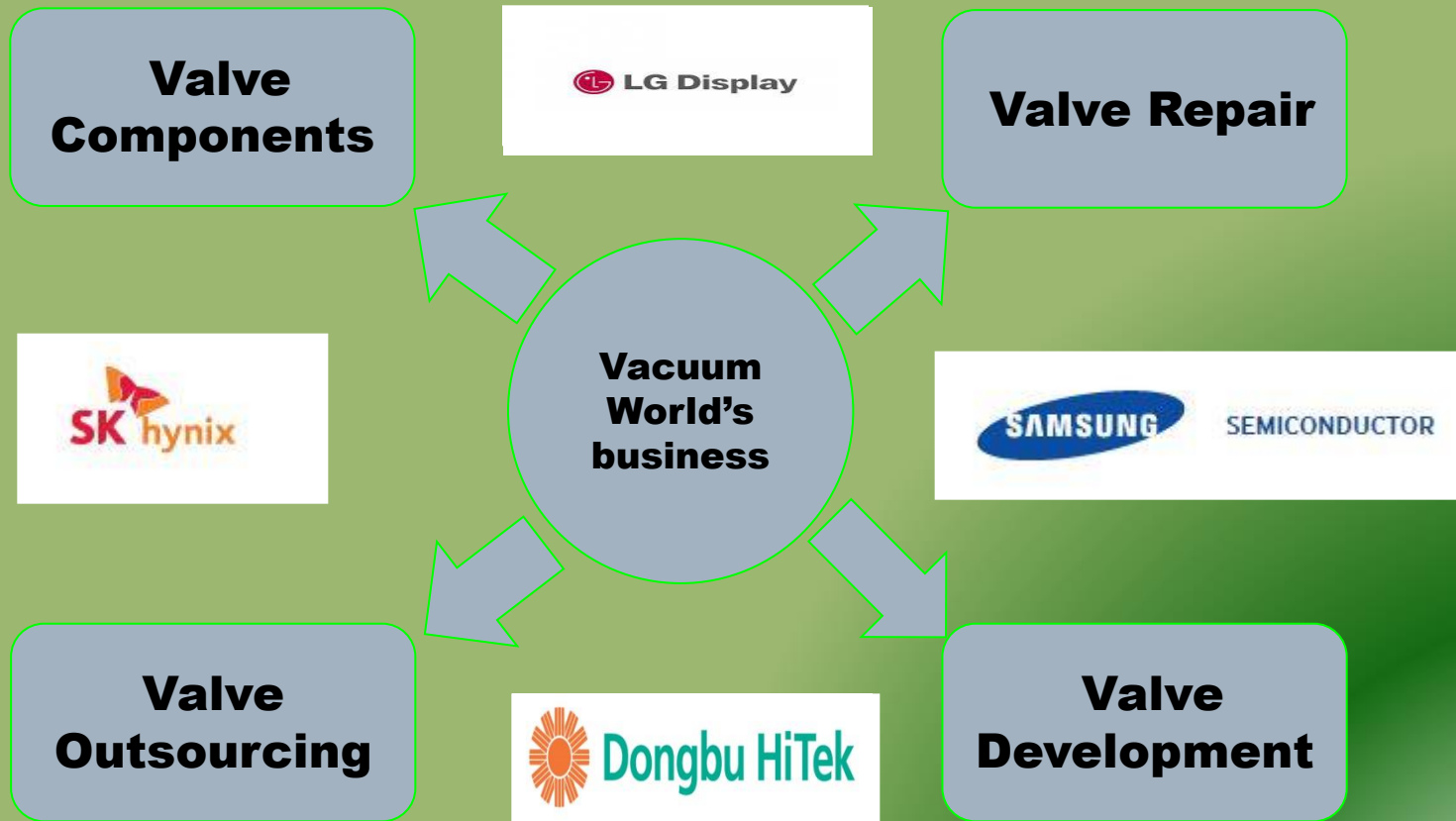
Company Name	VACUUM WORLD
Representative	SUNG OH, HAHM
Year of Establishment	1998.07
Representative Telephone	Tel : 32-327-0061/2
Address	301-1204 Bucheon Techno park, 345 Seokcheon-Ro Bucheon city, Gyeonggi-Do, Korea (14501)
Company form	Corporate
Main Business	Repair the Vacuum Valve Product Vacuum parts and developed Valve

◆ History	
1998. 07	Founded YoungChun Engineering
1998. 09	VAT to sign a contract with Korea agency
1999. 01	Founded REPAIR CENTER
2004. 09	Pre-expand and installation of Clean room
2007. 04	ISO 9001 authentication
2016. 06	Corporate conversion to VACUUMWORLD

Organization

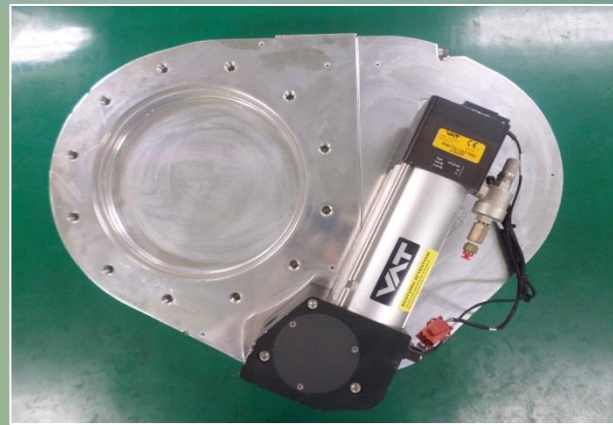
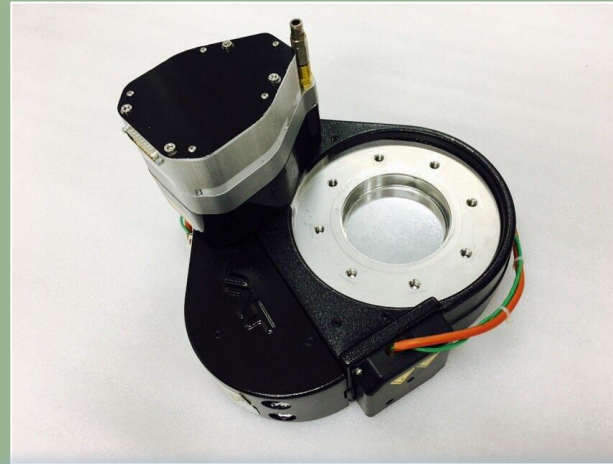


Business Area



Business Area

◆ VALVE REPAIR



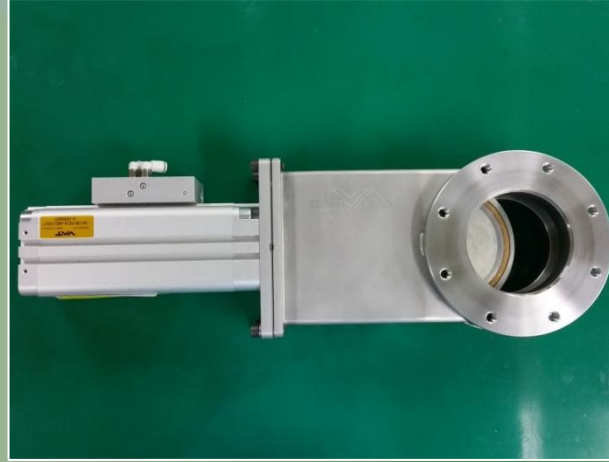
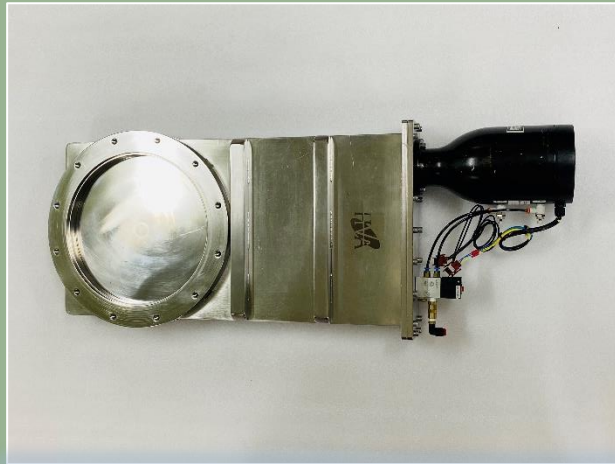
Business Area

◆ VALVE REPAIR



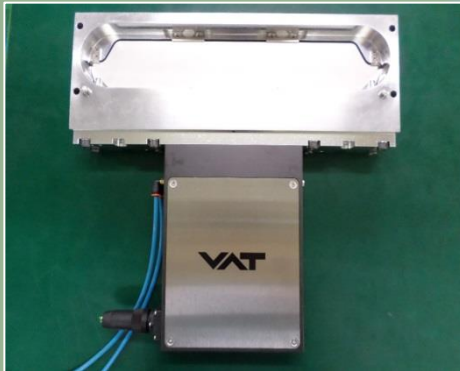
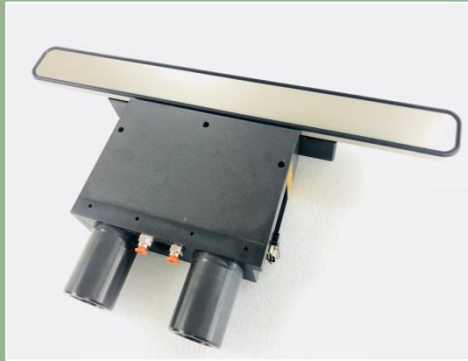
Business Area

◆ VALVE REPAIR



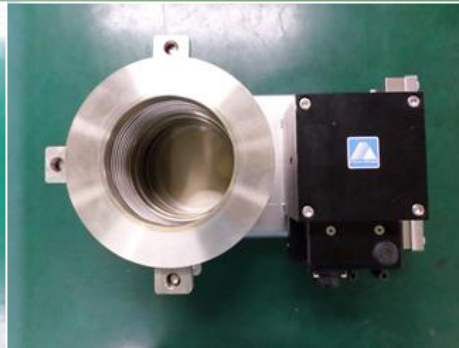
Business Area

◆ VALVE REPAIR



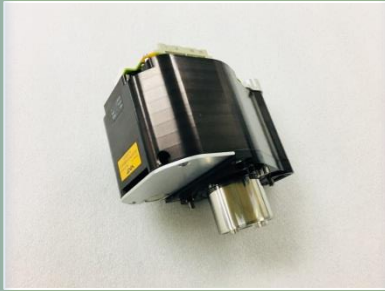
Business Area

◆ VALVE REPAIR



Business Area

◆ VALVE REPAIR



Business Area

◆ CONTROLLER REPAIR



Business Area

◆ DEVELOPMENT FOR VALVE COMPONENTS

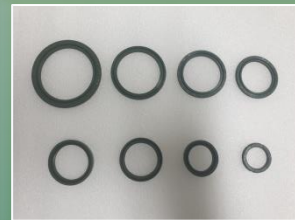
A. Product Step motor

☞ VAT S65/S61, MKS 253B/653B/683B



B. Product Rubber & Piston

☞ VAT S03/S075, Several o-ring



C. Product Gate & Plate

☞ Several VAT Model 's Gate & Plate



Business Area

◆ DEVELOPMENT FOR VALVE COMPONENTS

D. Product Metal Seal & Gasket

☞ VAT S010/S10/S12/S14



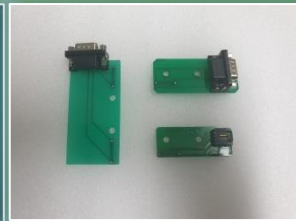
E. Product the Metal processing

☞ VAT S14/S65 ETC



F. Development the Electronic parts

☞ VAT S03/S075/S65



G. Sourcing the Vacuum consumables

☞ Vacuum/Pneumatic/Black Grease



Business Area

◆ VALVE OUTSOURCINGS

A. Possess several used valve's

☞ Stand by Various Valves of VAT/MKS/SMC etc

B. New/used valve outsourcing (Domestic/Foreign)

☞ By Customer's request outsource immediately



Business Area

◆ DEVELOPMENT VALVES

A. Developed Parts land's Valve

☞ Slit V/V (PL3600,S025X) Throttle V/V (B0103)

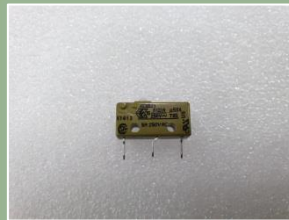
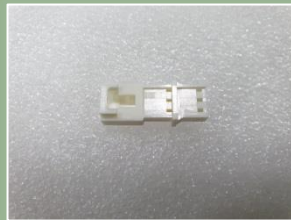
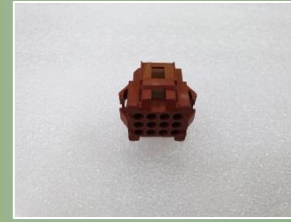
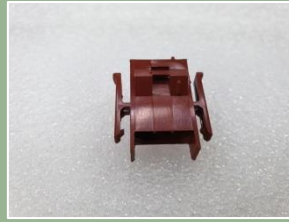
B. Still develop item

☞ Pendulum Valve, Actuator Controller(Endemic)



Business Area

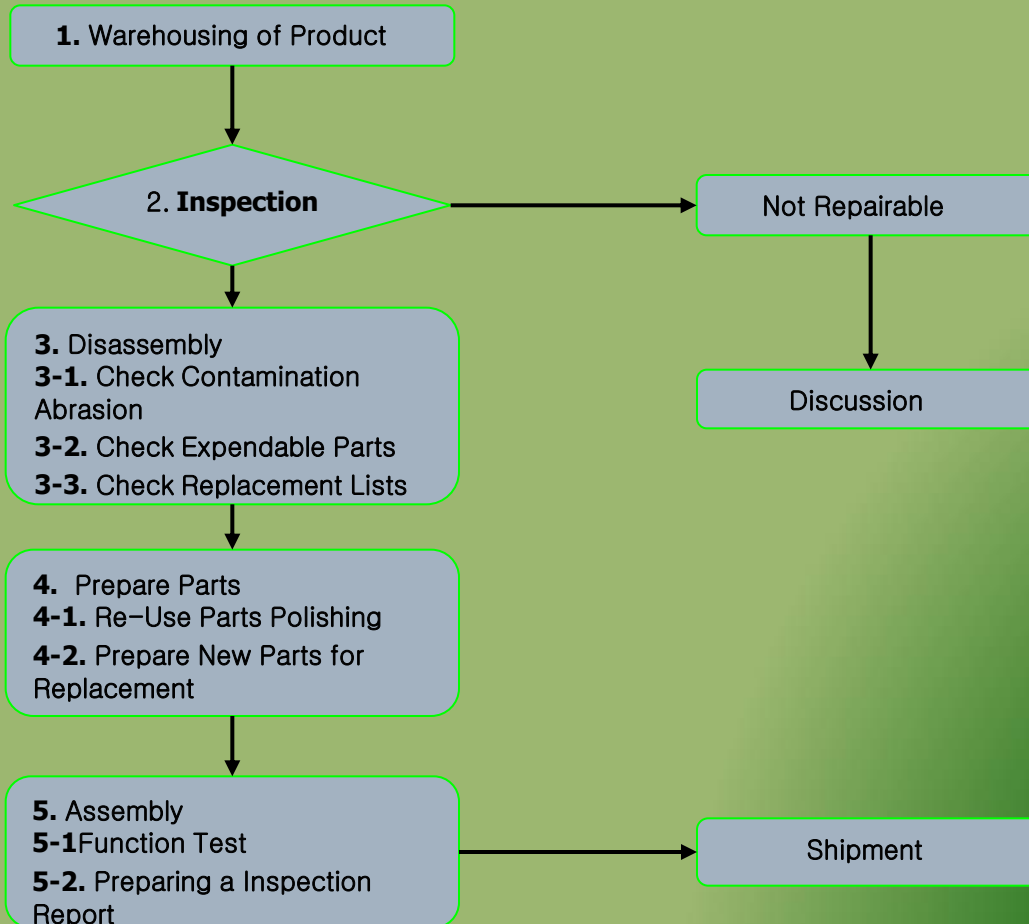
◆ Electronic components sourcing



A solution for related electronic components in a valve such as Cable Connector/Micro switch to the valves.

Technology

◆ Overhaul Status



- 1. Warehousing of Product**
 - Identify Product`s Status
 - Identify the Problem and Cause of the Valve
 - Identify Equipment Sequences and Usage Conditions

- 2. Inspection**
 - Identify the same problem before the warehousing
 - Countermeasures
 - Business bounds consulta

- 3. Disassembly**
 - Check Contamination Abrasion
 - Check Expandable Parts
 - Check Replacement Lists

- 4. Prepare Parts**
 - Re- Use Parts, Parts Cleaning
 - Prepare New Parts for replacement

- 5. Assembly**
 - FUNCTION TEST
 - Write a Test Report

- 6. Shipment**
 - Manage the Report History

Technology

◆ Quality Control

■ Quality control under the same condition as good condition Valve products

■ Before and after state data are arranged and submitted to customers

VACUUM WORLD REPAIR REPORT		담당	팀장	총괄
REPAIR NO#	마음실 / 영업담당			
반출처 / 담당	Repair Type	Normal □	Warranty □	
PART/SERIAL NO.				
납품 여력	유고 일자			
유용 내역	S16 DN250 VALVE OVERHAUL			
정검 & 결투 내역 [/]	Trouble causal analysis & Parts Check			
	Result			
	• Moving/Open/Close Test	<input type="checkbox"/> 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A		
	• Body / Bonnet Scratch & Damaged	<input type="checkbox"/> 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A		
	• Body / Bonnet Contamination	<input type="checkbox"/> 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A		
	• Seal Kit Vacuum (Leak)	<input type="checkbox"/> 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A		
	• Gate Plate / Locking Ring Damaged & Contamination	<input type="checkbox"/> 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A		
	• Piston Compl Situation & Contamination	<input type="checkbox"/> 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A		
	• Spring Situation & Contamination	<input type="checkbox"/> 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A		
	• Bolt Tap Situation	<input type="checkbox"/> 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A		
	백이사항			
교체 내역 [/]	Change Parts			
	-AS-112() x 16ea □ + AS-274() x 1ea □ + AS-275() x 1ea □			
	-AS-277() x 2ea □ + AS-278() x 1ea □ + AS-329() x 1ea □			
	Locking Ring x 1ea □ Gate Plate x 1ea □			
최종 검사 [/]	주요 내용			
	Result			
	• Cleaning Check	<input type="checkbox"/> 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A		
	• AS-112 FKM과 FFKM 위치별 사용 Check	<input type="checkbox"/> 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A		
	• Grease 병도별 사용 Check	<input type="checkbox"/> 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A		
	• Bolt Fixing Check	<input type="checkbox"/> 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A		
• Bolt Tap Check	<input type="checkbox"/> 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A			
• Leak Test (Leakage Rate :)	<input type="checkbox"/> 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A			
• Functional Test (by Controller, 50 Times)	<input type="checkbox"/> 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A			

VACUUM WORLD EXAMINATION TEST		작성	검토	승인
관리번호	H3096	담당자		
고객명	SK hynix / M11 김보라 님	품명	Pendulum Valve	
반입일	2018. 05. 10	Maker/Model	16246-PA52	
출고일	2018. 05. 21	Serial Number		
반출사유	장기사용에 의한 Overhaul 요청 건			
구분	주요 내용		결과	비고
	• 내부 오염		NG	
	• Seal 경화 및 오염		NG	
	• Valve body scratch 다수		NG	
	• Valve bonnet scratch 다수		NG	
중상 (Situation)	• Plate & Sealing Ring 외관 상태		NG	
	• 반입품의 부품 양질 없이 보존이 잘 되어있나?		■ 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A	
	• 내/외관 오염 상태는 어떠한가?		□ 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A	
	• Spring의 변형은 발생되지 않았는가?		□ 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A	
	• Bolt 체결부 (Tap) 상태는 어떠한가?		■ 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A	
입고검사 (Visual)	• Seal의 상태는 어떠한가?		□ 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A	
Changed Parts				
1. Feedthrough Seal (Kalrez)		Checked	OK	
2. Actuator Seal (Kalrez)			OK	
3. Piston compl Seal (FKM)			OK	
4. Seal kit			OK	
구분	주요 내용		결과	
	• CLEANING check		■ 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A	
	• Bolt Tap check		■ 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A	
	• Spring check		■ 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A	
	• Piston compl check		■ 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A	
최종 검사 (Final Test)	• Functional Test (by our Controller, 50 Times)		■ 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A	
	• Feedthrough Air leak		■ 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A	
	• Leak detection < 1x 10 ⁻⁸		■ 양호 <input type="checkbox"/> 불량 <input type="checkbox"/> N/A	
특이사항				

VAT RECTANGULAR INSERT VALVE REPAIR REPORT				
				
REF NO.	R18-201			
MODEL NO.	0300X-CAS4-AB2/2149			
SERIAL NO.	AZ79328			
ENGINEER	S.H LEE			
START DATE	2018-04-16			
FINISH DATE	2018-04-19			
Written by	VACUUM WORLD			
Docu Number	2018/4/19			
Revised date	Page 1/4			
VW-PR03-01				
2. Contents of Working				
A. Overhaul Basic Change Parts (기본 교체 부품)				
No.	Part Name	Change	Yes	No
1.	Seal Kit Vacuum		<input type="checkbox"/>	<input type="checkbox"/>
B. Additional Change Main Parts (추가 교체 부품)		Change	Yes	No
No.	Part Name	Change	Yes	No
1.	Gate Compl		<input type="checkbox"/>	<input type="checkbox"/>
2.	Self Lubricating bearing		<input type="checkbox"/>	<input type="checkbox"/>
3.	Bushing		<input type="checkbox"/>	<input type="checkbox"/>
4.	Dust Cover		<input type="checkbox"/>	<input type="checkbox"/>
5.	Check Valve		<input type="checkbox"/>	<input type="checkbox"/>
6.	Lubricating		<input type="checkbox"/>	<input type="checkbox"/>
7.	Piston		<input type="checkbox"/>	<input type="checkbox"/>
8.	Magnetic Ring		<input type="checkbox"/>	<input type="checkbox"/>
9.	Sensor Board		<input type="checkbox"/>	<input type="checkbox"/>
10.	Damper Ring		<input type="checkbox"/>	<input type="checkbox"/>
11.	Air Ring		<input type="checkbox"/>	<input type="checkbox"/>
Seal 세트 → 신규 교체(AS-210/211)용Seal AS-228@4ea AS-117@8ea (FKM)				
Check Valve 포함 / Self Lubricating bearing 포함 → 신규 교체				
Air Ring 포함 / Self Lubricating bearing 포함 → 신규 교체				
Magnetic Ring 포함 / Damper Ring 포함 → 왕도 교체				
Functional Test OK (by our Controller, 20 times)				
Leak test OK (< 1 × 10 ⁻⁸ atmsec)				
Written by	VACUUM WORLD	Date	2018/4/19	Page 6/4
Docu Number		Revised date		
VW-PR03-01				

503 INSERT VALVE MONOVAT DATA SHEET (Overhaul before/after check)				
1. Trouble causal analysis & Parts Check				
A. Contents of Parts Situation Check (부품 상태 체크 항목)				
No.	Visual Inspection	Result		
1.	Valve Body's Scratch & Damaged	NG <input type="checkbox"/> OK <input type="checkbox"/>		
2.	Seal Kit's Leak & Piston Damaged	<input type="checkbox"/> NG <input type="checkbox"/> OK		
3.	Open/Close Operate Situation	<input type="checkbox"/> NG <input type="checkbox"/> OK		
4.	Gate Compl's Leak & Damaged	<input type="checkbox"/> NG <input type="checkbox"/> OK		
5.	Actuator Body's Scratch & Damaged	<input type="checkbox"/> NG <input type="checkbox"/> OK		
2 페이지				
B. Contents of Test Trouble causal Analysis (test 상황 처리를 위한 분석)				
<input type="checkbox"/> Open/Close Operate Test 양호 / 불량 <input type="checkbox"/> Piston Abrasion Check 양호 / 불량 <input type="checkbox"/> Seal Kit Vacuum Check 양호 / 불량 <input type="checkbox"/> Gate Compl Check 양호 / 불량 <input type="checkbox"/> Check Valve Situation Check 양호 / 불량				
3. Picture of Fall Point & Additional changed parts				
Serial No.	Fall Point (↓)	Fall Point (↓)		
				
입고 상태	입고 상태	내부 오염		
Fall Point (↓)	Fall Point (↓)	Fall Point (↓)		
				
Fall Point (↓)	Fall Point (↓)	Fall Point (↓)		
				
Damper Ring 변형	Check Valve 노후 오염	Magnetic Ring 교체		
Changed Parts (↓)	Sensor Board Test	Leak Test		
				
Sensor Board Check		Leak Test		
Written by	VACUUM WORLD	Date	2018/4/19	Page 6/4
Docu Number		Revised date		
VW-PR03-01				

Summary

- ◆ **The Improvement of Efficiency by Overhaul Experience
And Introduction of Our Company**
 - **Repairable for all valve kind of VAT/MKS/SMC/V-TEX**
 - **Realization of Just in time through rapid response
And quality assurance**
 - **Cost reduction and timely response through
Development of Components.**

Thank you