

외주 세정 In house Cleaning에 의한 비용 절감 (도입 보고서)

外部洗浄内製化によるコストダウン

Part of CVD ,PVD, DIFF, Dry Etch

작성 : SONY Semiconductor
번역 : SkpChem

세정 평가 용어 설명

1.EQC (Electrical Quality Control): This may refer to a process or set of measures to ensure the electrical quality of semiconductor components.

반도체 부품의 전기적 품질을 보장하기 위한 프로세스 또는 일련의 조치를 의미할 수 있습니다.

2.WDQC (Wafer Defect Quality Control): This could involve methods and standards for identifying and controlling defects in semiconductor wafers during the manufacturing process. 제조 공정 중 반도체 웨이퍼의 결함을 식별하고 제어하기 위한 방법과 표준이 포함될 수 있습니다.

EQC는 최종 제품의 품질을 통제하는 데 사용되고, WDQC는 웨이퍼 수준에서 디펙트를 감지하고 관리하는 데 중점을 둡니다. 이러한 용어들은 반도체 산업에서 품질 보증 및 생산 프로세스 개선을 위한 중요한 요소들 중 일부입니다.

3. TXRF (Total Reflection X-ray Fluorescence) is a technique used for quantitative or qualitative analysis of liquid, powder, and suspension samples deposited on a polished sample carrier

TXRF는 연마된 시료 캐리어에 증착된 액체, 분말 및 현탁액 시료의 정량적 또는 정성적 분석에 사용되는 기술입니다

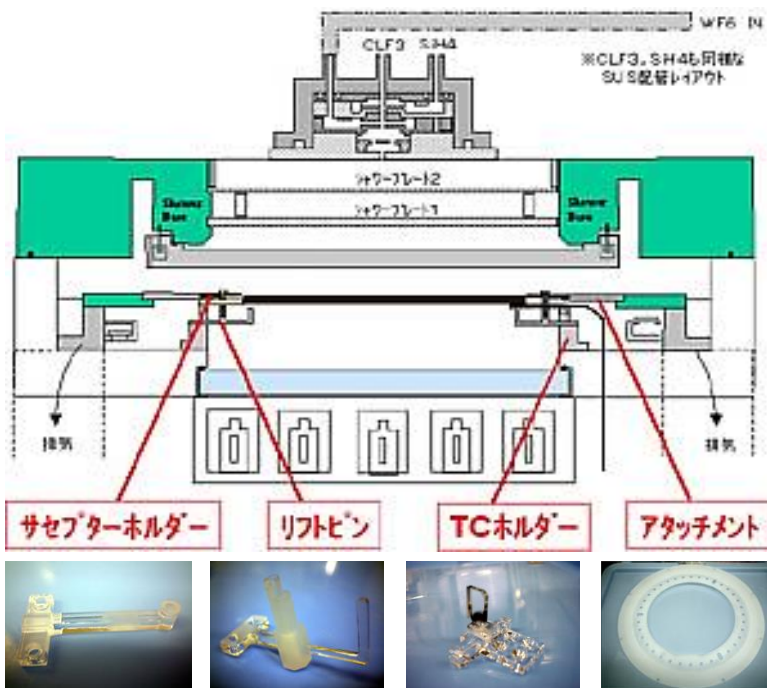
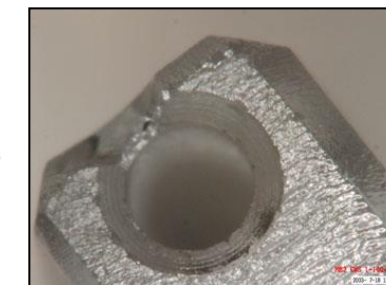
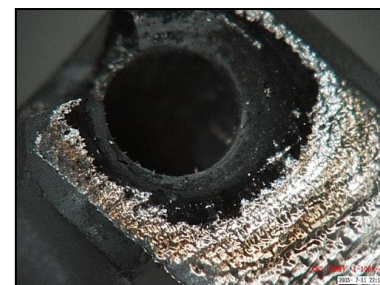
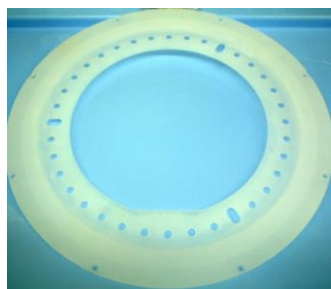
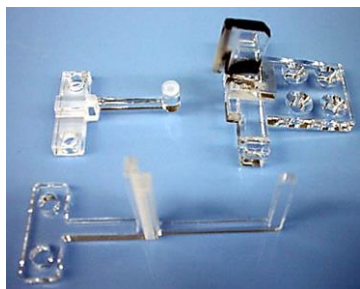
TXRF는 Total Reflection X-ray Fluorescence의 약자로, 전체 반사 X선 형광분석을 나타냅니다. 이는 반도체 산업 및 다양한 과학 및 기술 분야에서 사용되는 분석 기술 중 하나입니다. TXRF는 표면의 매우 얇은 층에서 발생하는 X선 형광을 측정하여 시료 내의 원소의 양과 분포를 분석합니다. 특히 반도체 산업에서는 반도체 소자의 제조 및 품질 통제를 위해 TXRF가 널리 사용됩니다. 이 기술은 미량의 원소도 정밀하게 감지할 수 있어, 반도체 생산 과정에서 원소의 농도나 오염을 신속하게 분석하는 데에 효과적입니다

CVD MB2

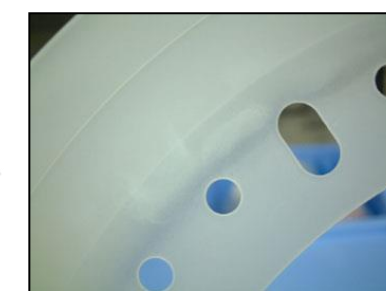
GP : CVD Parts Name : MB 2 CWS TC Holder

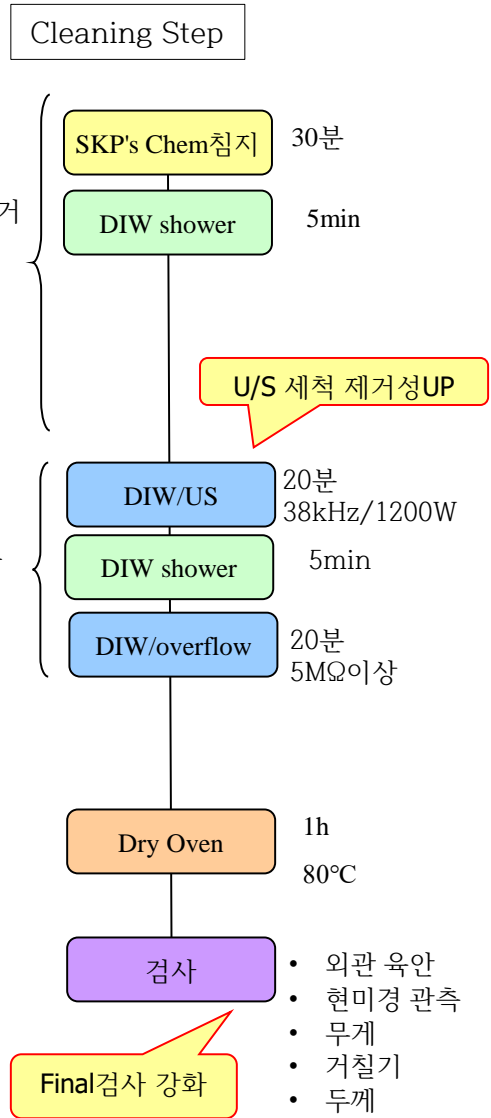
Depo' Material : Si, SiF, WFx Material : 石英 (SiO2)

Machine ID : CWS-01



Parts removal completed. Looks like a hole edge The black thing is It's not a product residue By the reflection of light Things.





세정평가 parts List

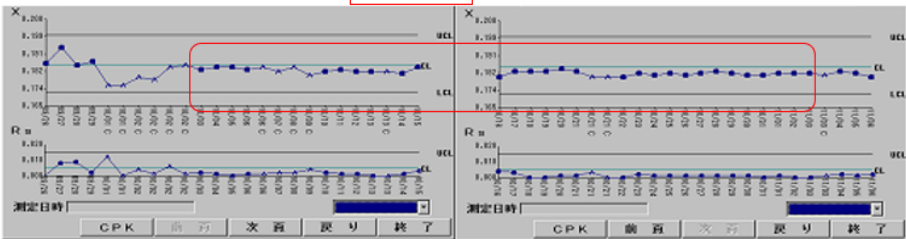
部品	母材	基礎評価					初期流動			
		WDQC	EQC	WDQC加速	EQC加速	TXRF	期間	WDQC	EQC	製品確認
インレットアダプター	SUS	○	○	-	-	○	1ヶ月	毎バッチ確認	通常	-
排気角管										
水冷トラップ										
アタッチメント										
サセフホルダー										
TCホルダー	石英	○	○	○	-	○	1ヶ月	2回/週 (通常の2倍)	2回/週 (通常の2倍)	-
リフトピン										
EPDポート										
CMポート	石英	○	○	-	-	Allianseで代表	1ヶ月	1回/2日 (通常)	1回/1250日 (通常)	-
GDP 1穴	石英	○	○	○	○	○	1ヶ月	1回/2日 (通常の3倍)	1回/500枚 (通常の1.6倍)	-
GDP 5穴										
GDP 多穴										
クォーツチューブ*	石英	○	○	○	○	○	1ヶ月	1回/日 (通常の2倍)	1回/500枚 (通常の2倍)	-
クォーツチューブ*	石英	○	○	○	○	○	1ヶ月	1回/日 (通常の2倍)	1回/250枚 (通常の2倍)	-
インシュレータ-A	石英	○	○	○	○	○	1ヶ月	1回/6hRF (通常の2倍)	1回/6hRF (通常の2倍)	先頭0Lot ・PQC ・1PC(ContactR) ・2PC(Post)

CVD MB2

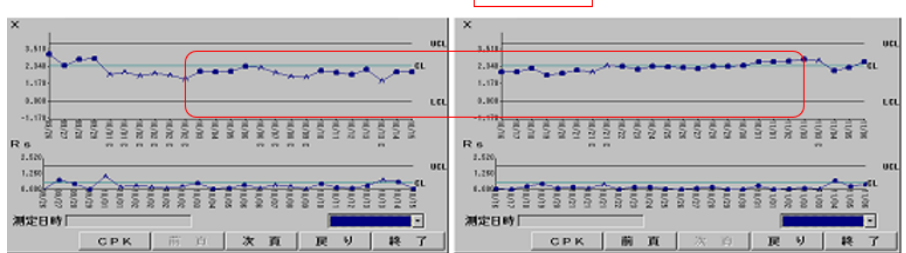
1. WDQC 2s×3시간
2. EQC 각1시간

項目	内容	結果	管理値	判定
WDQC	1-1枚目 Total	0	31個以下	○
	1-1枚目 1um up	0	10個以下	○
	1-2枚目 Total	0	31個以下	○
	1-2枚目 1um up	0	10個以下	○
	2-1枚目 Total	10	31個以下	○
	2-1枚目 1um up	0	10個以下	○
	2-2枚目 Total	1	31個以下	○
	2-2枚目 1um up	0	10個以下	○
	3-1枚目 Total	1	31個以下	○
	3-1枚目 1um up	0	10個以下	○
	3-2枚目 Total	3	31個以下	○
	3-2枚目 1um up	0	10個以下	○
EQC	シート抵抗	0.175	0.172~0.2	○
	シート抵抗均一性	1.967	3.9[%]以下	○
	膜厚	636.9	568~647[nm]	○
	膜ストレス	1.225	1.090~1.580	○

EQC (Sheet Resistance) 평가기간



EQC (Sheet Resistance Uniformity) 평가기간



3.오염(TXRF)

SPEC	Ave의Ave	5*E10
	Max의Ave	1*E11

Fe, Ni
마운팅 나사(Hastelloy) 요인

Ref. 02R

測定枚数: 3s 含有量[*E10]

	Cr	Mn	Fe	Ni	Cu	Zn
Ave의Ave	ND	ND	0.39	0.46	ND	ND
MAX의Ave	ND	ND	0.74	0.90	ND	ND

평가데이터

測定枚数: 3s 含有量[*E10]

	Cr	Mn	Fe	Ni	Cu	Zn
Ave의Ave	ND	ND	0.04	1.71	ND	ND
MAX의Ave	ND	ND	0.20	2.54	ND	ND
判定	합	합	합	합	합	합

シート抵抗

平均 (X Bar)	0.1759667	データ数 (n)	30	標準偏差 (S)	0.004407934
Y	0.1754		30		0.004553135

メモ: 分散の検定はαリスク=0.05で判断した
平均の差は、→の結果を使用する事

検定	自由度	総分散	母標準偏差	検定統計量 (t)	おおよめ	P(2Tail)
t	58	0.0044811	0.00115702	0.4033347	→	0.6881851
ウエルチ	58			0.4033347		0.688185

有意とはいえない

F検定 α=0.05	自由度(Max.S) 29	自由度(Min.S) 29	検定統計量(Fo) 1.066966398	P(2Tail)値 0.862636517	標準偏差 等しい
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ウエルチの検定はF検定分散が等しくない判定された場合に使う。

均一性

平均 (X Bar)	2.2172333	データ数 (n)	30	標準偏差 (S)	0.334389266
Y	2.3302		30		0.306843035

メモ: 分散の検定はαリスク=0.05で判断した
平均の差は、→の結果を使用する事

検定	自由度	総分散	母標準偏差	検定統計量 (t)	おおよめ	P(2Tail)
t	58	0.3209014	0.08285639	1.36340315	→	0.17802452
ウエルチ	58			1.36340315		0.178025

有意とはいえない

F検定 α=0.05	自由度(Max.S) 29	自由度(Min.S) 29	検定統計量(Fo) 1.187463208	P(2Tail)値 0.646673668	標準偏差 等しい
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ウエルチの検定はF検定分散が等しくない判定された場合に使う。

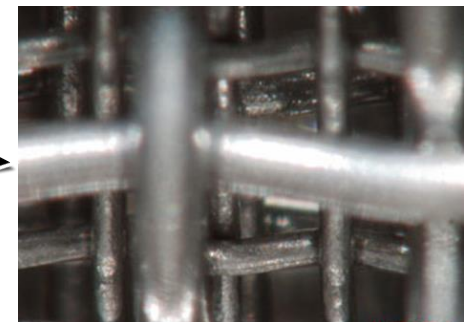
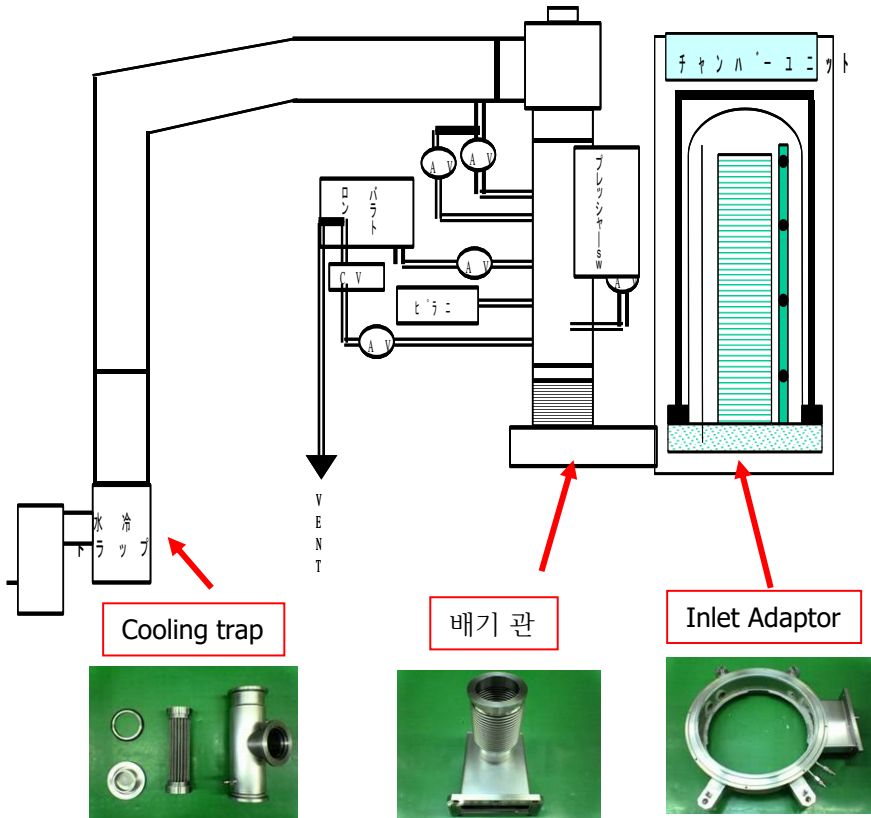
GP : DIFFPartsName : DJ833 Water-cool Traps

Depo' Material : SiO2 Material : SUS

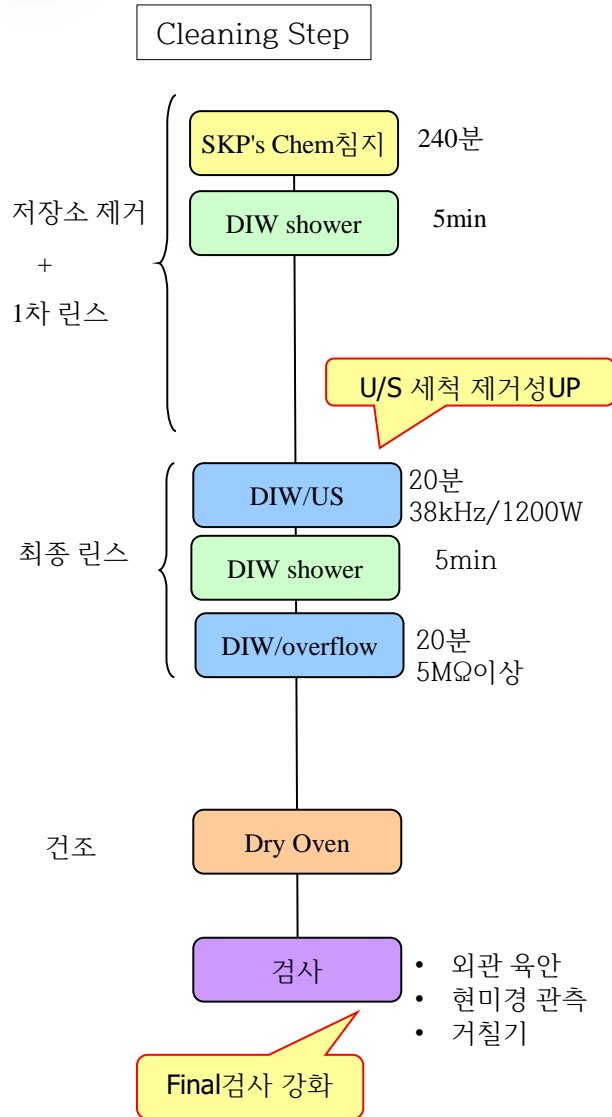
기능 및 역할

- 입구 어댑터...외부 튜브를 잡고 챔버를 형성
 - 배기각관...흡입구 어댑터의 배기 배관
 - 수냉 트랩...DEPO물건 보충
- 재질:SUS DEPO:SiO2,C

수냉 트랩



메쉬 안쪽까지 완전히DEPO(SiO2,C)를 제거할 수 있다. 전혀 Damage 없음



- 오염 평가(TX-RF)
 - 참조...3장(Top,Cnt,Btm)×1회
 - 1) 설치 후... 3장(Top,Cnt,Btm)×1회 총 6장
- WDQC
 - 2) 설치 후, 통상WDQC실시 (top,센터,Bottom 각1매)
- EQC(Layer thicknessAve, 균일성)
 - 3) 설치 후, 통상EQC확인 (top,센터,Bottom 각1매)

1. WDQC 2s×3시간
2. EQC 각1시간

項目	内容	結果	管理値	判定
WDQC	TOP TOTAL	6	50個以下	OK
	CNT TOTAL	1	50個以下	OK
	BTM TOTAL	7	50個以下	OK
EQC	TOP 膜厚Ave	299.4	290.94~309.06nm	OK
	CNT 膜厚Ave	299.6	290.99~309.01nm	OK
	BTM 膜厚Ave	296.5	292.72~307.28nm	OK
	面間均一性	0.52	0~2.14%	OK

3. 오염(TXRF)

Ref.-04 測定枚数:3s 含有量[atoms/cm2 *E10]

	Ca	Ti	Cr	Mn	Fe	Ni	Cu	Zn
Ave의Ave	ND	ND	ND	ND	0.13	ND	ND	ND
MAX의Ave	ND	ND	ND	ND	0.43	ND	ND	ND

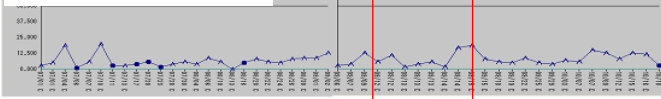
평가 데이터

	Ca	Ti	Cr	Mn	Fe	Ni	Cu	Zn
Ave의Ave	ND	ND	ND	ND	0.11	ND	ND	ND
MAX의Ave	ND	ND	ND	ND	0.54	ND	ND	ND
判定	합	합	합	합	합	합	합	합

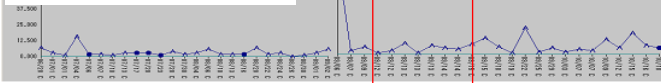
- 동일Lot를 사용했습니다.Ref하지만 검출.
- 면내의 모든 포인트에서의 검출은 아니다.⇒wafer 요인들에 의한 불 균일

평가 기간

TOP 0.2umUP



CNT 0.2umUP



BTM 0.2umUP



WDQC TOP檢定

Mann-W hitney U檢定:
 サンプル数: N1=9, N2=8
 統計量 (U)=30.5
 棄却率 (p)= (605+1) / (1000+1) =0.6054
 z近似=0.47, 棄却率 (p)=**0.6373**

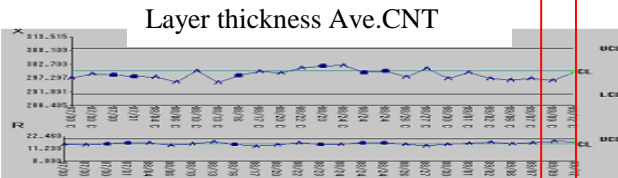
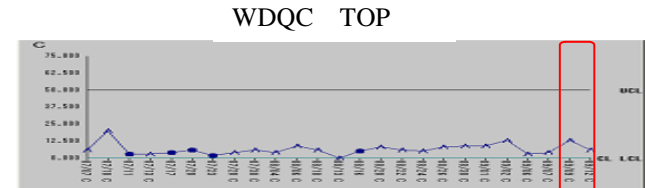
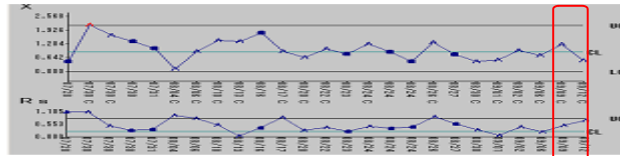
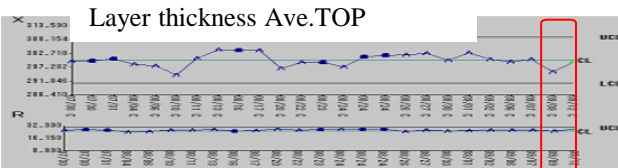
WDQC CNT檢定

Mann-W hitney U檢定:
 サンプル数: N1=9, N2=8
 統計量 (U)=26
 棄却率 (p)= (349+1) / (1000+1) =0.3497
 z近似=0.90, 棄却率 (p)=**0.3657**

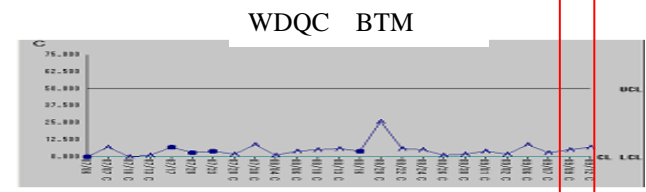
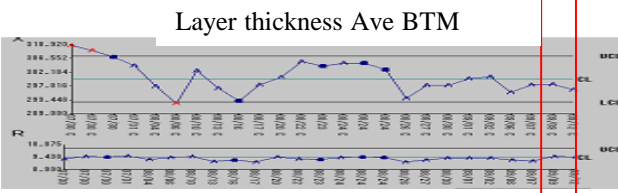
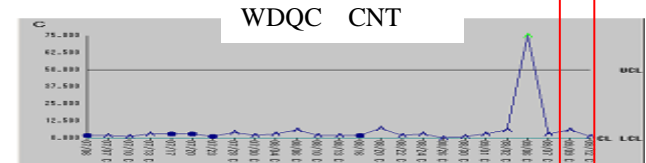
WDQC BTM檢定

Mann-W hitney U檢定:
 サンプル数: N1=9, N2=8
 統計量 (U)=31
 棄却率 (p)= (638+1) / (1000+1) =0.6384
 z近似=0.43, 棄却率 (p)=**0.6707**

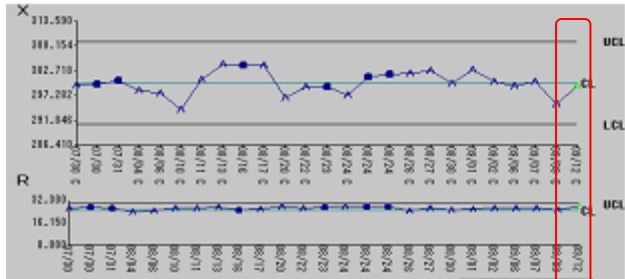
면간 균일성



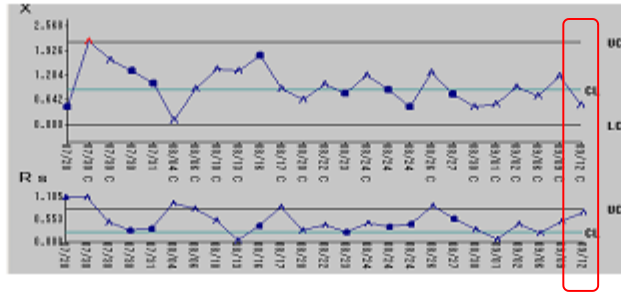
스펙 내에 있으며, Ref.(현행 세정품)와 비교해도 차이가 없고 문제 없음.



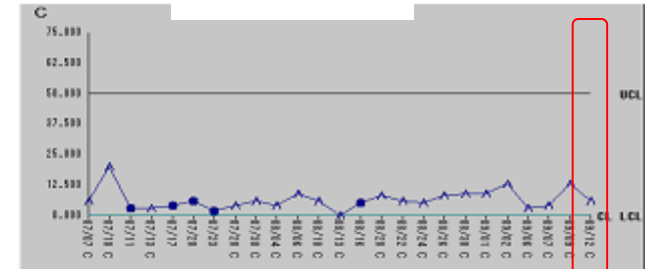
Layer thickness Ave.TOP



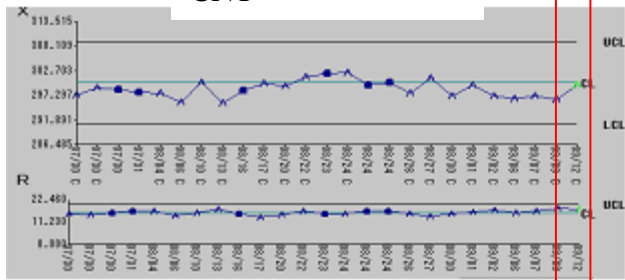
면간 균일성



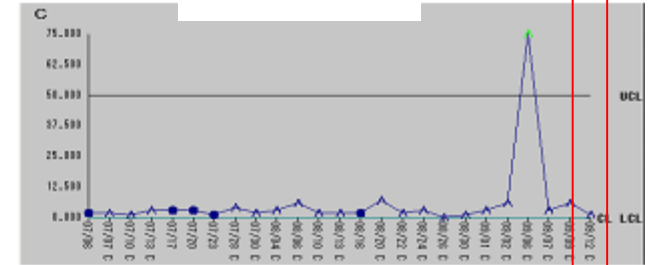
WDQC TOP



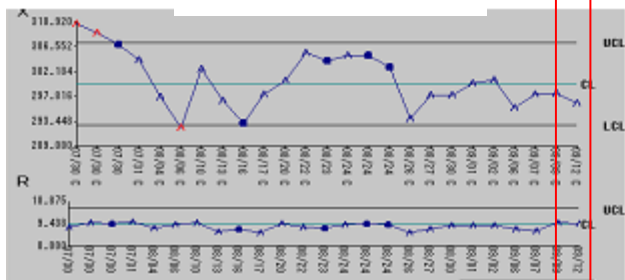
Layer thickness Ave. CNT



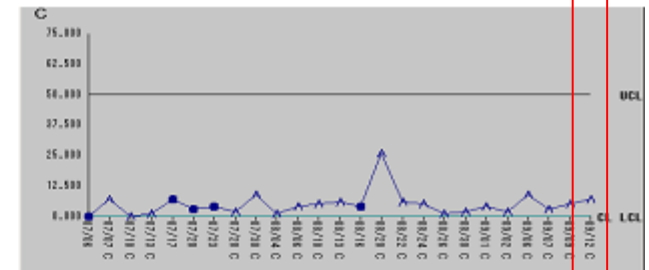
WDQC CNT



Layer thickness Ave. BTM



WDQC BTM



스펙 내에 있으며, Ref.(현행 세정품)와 비교해도 차이가 없고 문제 없음.

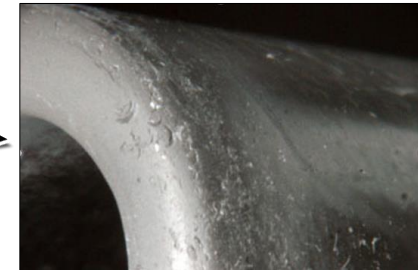
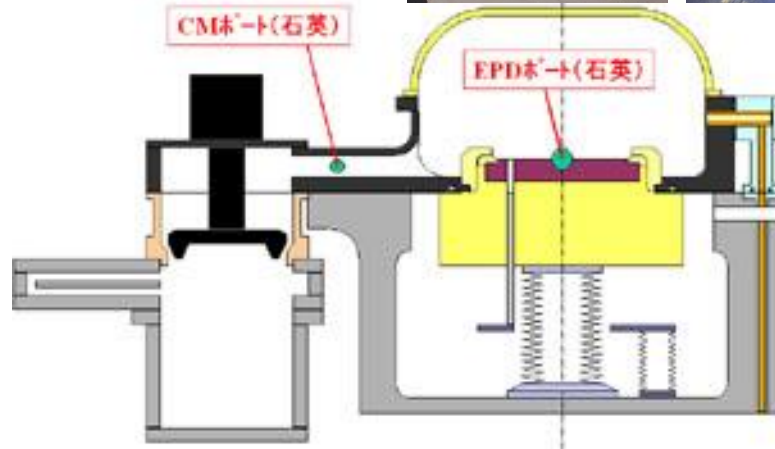
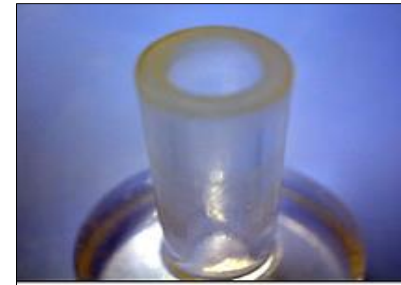
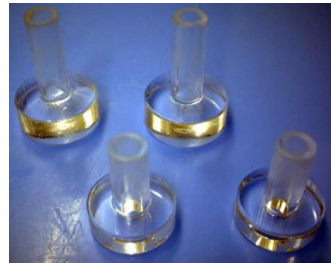
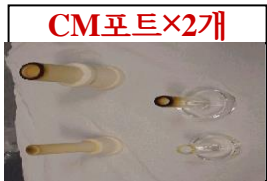
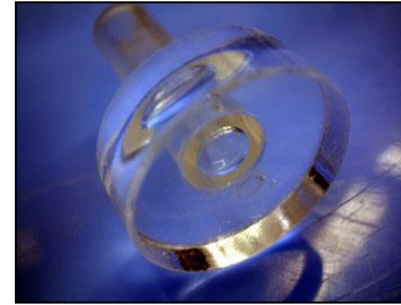
GP : DRY Parts Name : Centura:DPS EPD · CM Port

Depo' Material : C,O,F

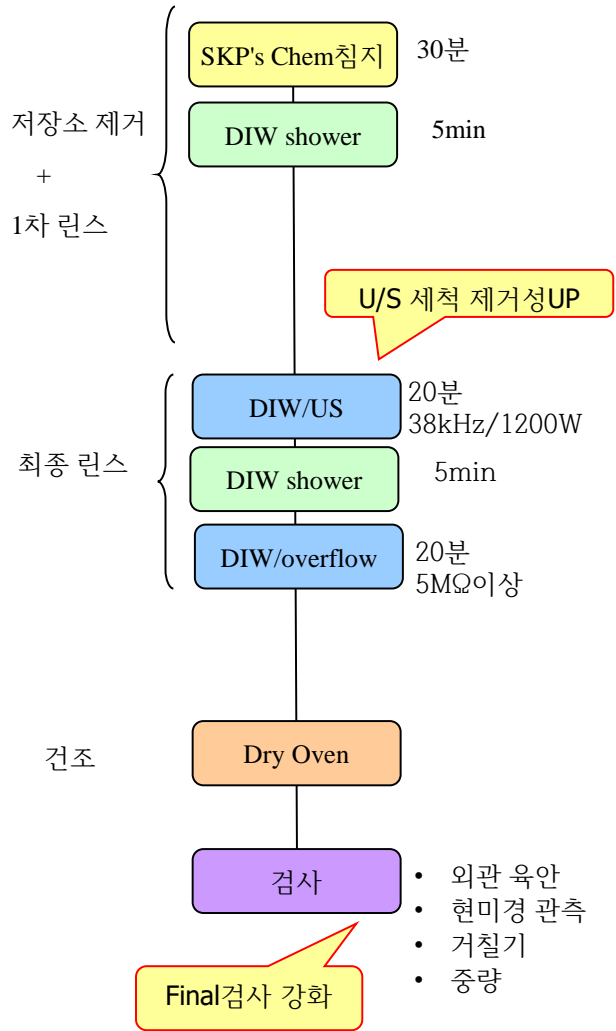
Material : SiO₂

Machine ID :

·EPD Port : EPD를 Monitor하기 위한 포트를 석영으로 Sealing.
Upper chamber의 process 측 양 측면에 포트가 있음.
재질 : 석영 DEPO:Cl, Al, C



Cleaning Step



1.EQC Et Rate / Unif. 1시간
2.WDQC 1시간

項目	内容	結果	管理値	判定
WDQC	CH-A DUST Total	2	30 μ	○
	CH-A DUST >1.0 μ m	1	10 μ	○
EQC	CH-A AL E/R	634.4	530~680nm / m ² in	○
	CH-A AL UNF.	4.11	0~8%	○
	CH-A SELECT.(AL/PR)	2.48	1.8~3.0	○

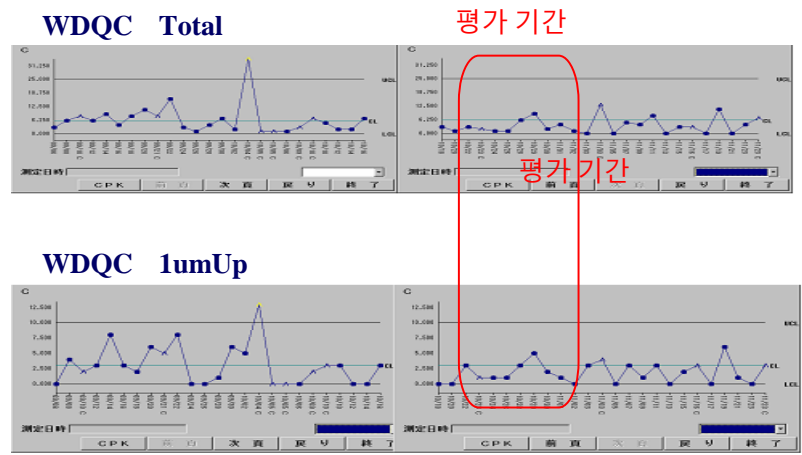
3.오염(TXRF)
Alliance결과

Ref. 測定枚数: 3s 含有量[atoms/cm² *E10]

	Ca	Ti	Cr	Mn	Fe	Ni	Cu	Zn
Ave의Ave	ND	ND	0.23	ND	2.30	ND	ND	ND
MAX의Ave	ND	ND	0.72	ND	2.91	ND	ND	ND

평가데이터 測定枚数: 3s 含有量[atoms/cm² *E10]

	Ca	Ti	Cr	Mn	Fe	Ni	Cu	Zn
Ave의Ave	ND	ND	0.39	ND	1.16	ND	ND	ND
MAX의Ave	ND	ND	0.69	ND	1.99	ND	ND	ND
判定	합	합	합	합	합	합	합	합



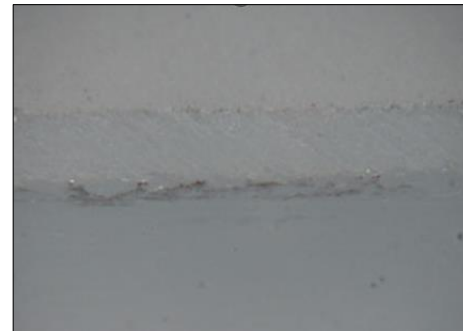
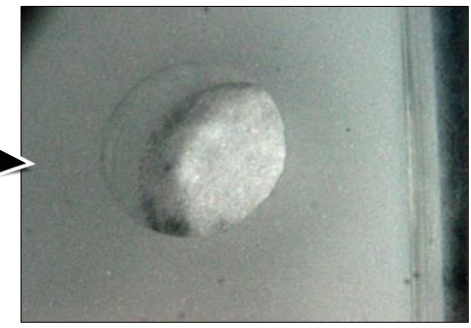
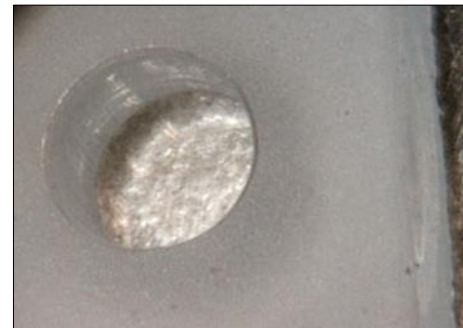
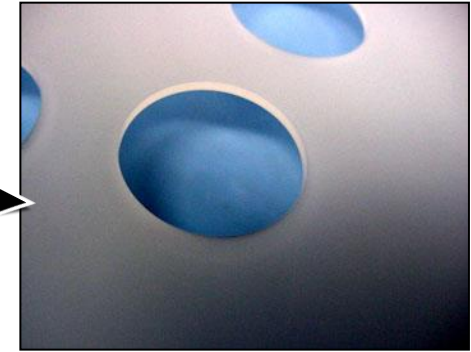
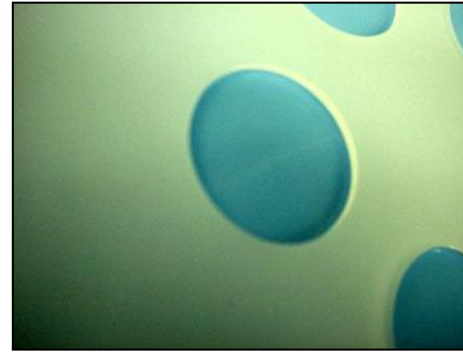
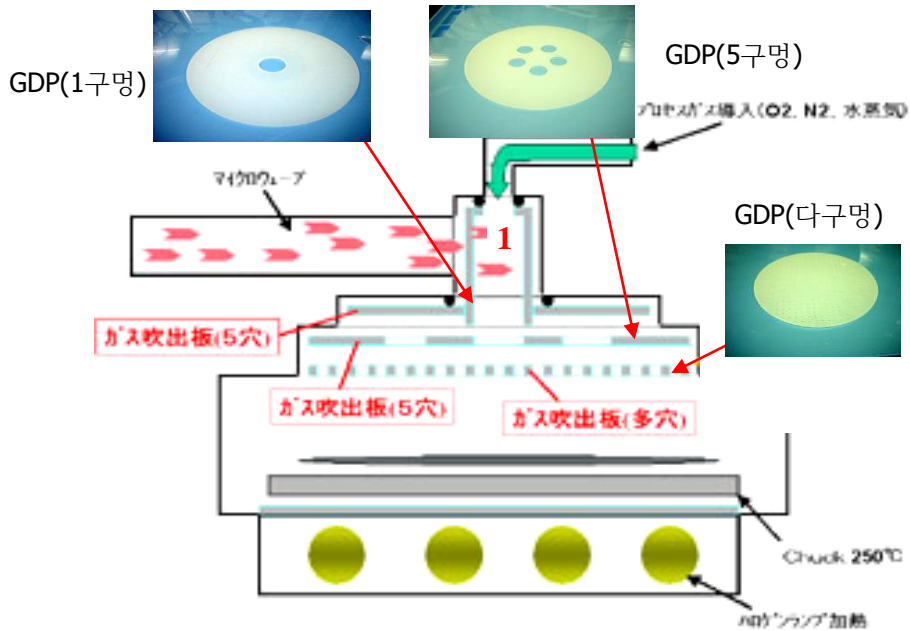
GP:DRY PartsName:Centura DPS 가스噴出し板

Depo'Material:C, O, F, Ti Material:SiO2

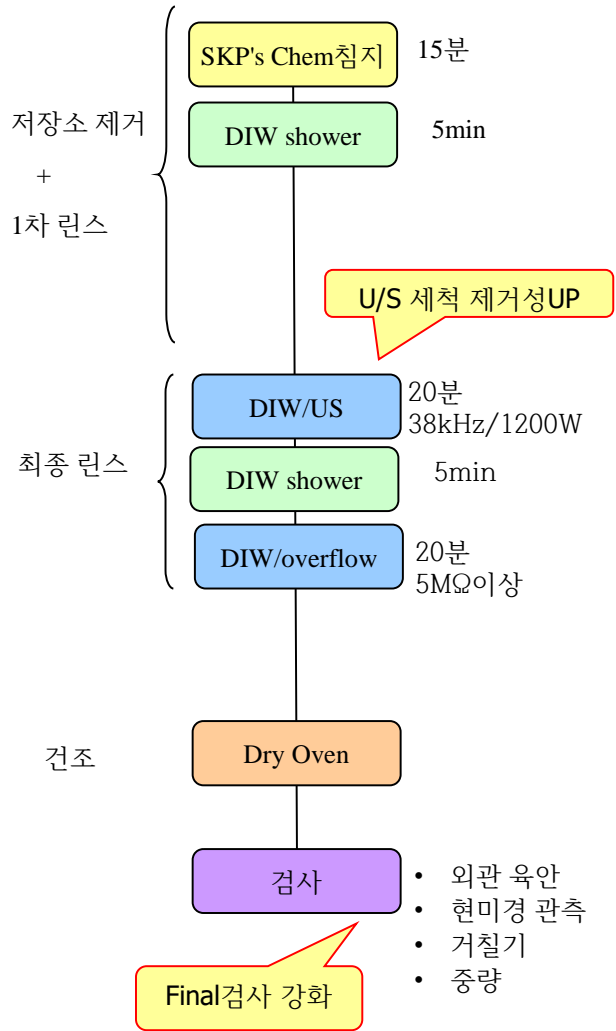
Machine ID:

기능 및 역할

- 석영GDP(1홀/5개 구멍/다공)
 - AI에서 DPS의 애싱 챔버 부품이며 프로세스 가스 챔버 전체에 균일하게 분산시킨다.
- 재질: 석영 DEPO:C, O, F, Ti



Cleaning Step



1.EQC Et Rate / Unif. 1시간
2.WDQC 1시간

평가파트取り付け後 EQC/WDQC

項目	内容	結果	管理値	判定
WDQC	CH-D DUST Total	0	10個	OK
	CH-D DUST > 1.0 μm	0	6個	OK
EQC	CH-D PR Ash Rate	5535.53	3700~5741nm /m in	OK
	CH-D PR Ash UNF.	6.6	0~12%	OK

WDQC

項目	CH-D DUST Total	CH-D DUST > 1.0 μm	判定
WDQC	CH-D DUST Total	CH-D DUST > 1.0 μm	判定
管理値	10個	6個	
SLOT1	1	2	OK
SLOT12	0	0	OK
SLOT24	1	1	OK

EQC

項目	CH-D PR Ash Rate	CH-DS PR Ash UNF.	判定
EQC	CH-D PR Ash Rate	CH-DS PR Ash UNF.	判定
管理値	3700~5741nm /m in	0~12%	
SLOT2	5321.06	7.6	OK
SLOT13	5458.60	7.9	OK
SLOT25	5449.06	9.1	OK

SPEC	AveのAve	5*E10
	MaxのAve	1*E11

3.오염(TXRF)

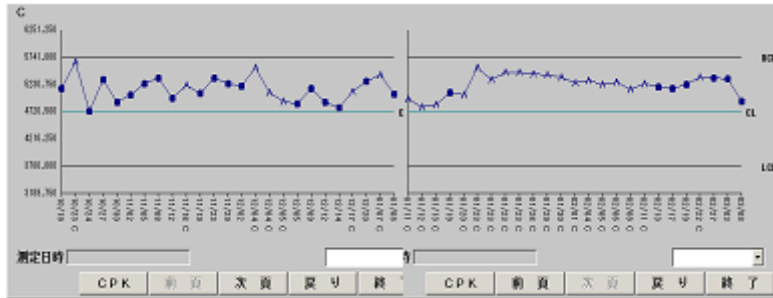
サドセミックパーツ評価時 測定枚数:3s 含有量[*E10 atoms/cm]

	Ca	Ti	Cr	Mn	Fe	N	Cu	Zn
AveのAve	0.00	1.70	0.00	0.00	0.30	0.00	0.00	0.00
MAXのAve	0.00	0.30	0.00	0.00	0.06	0.00	0.00	0.00

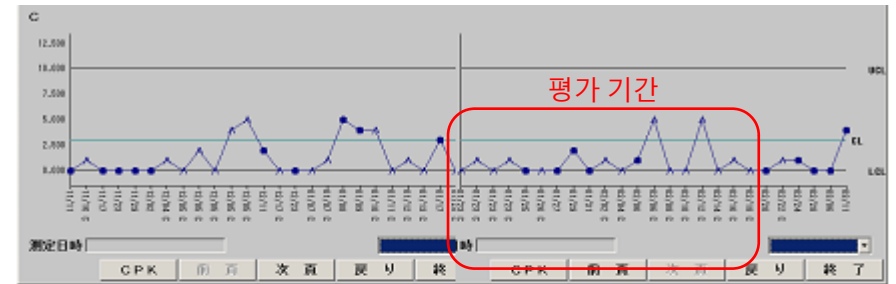
평가데이터 測定枚数:3s 含有量[*E10 atoms/cm]

	Ca	Ti	Cr	Mn	Fe	Ni	Cu	Zn
AveのAve	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00
MAXのAve	0.00	0.00	0.00	0.00	0.74	0.00	0.00	0.00
判定	合	合	合	合	合	合	合	合

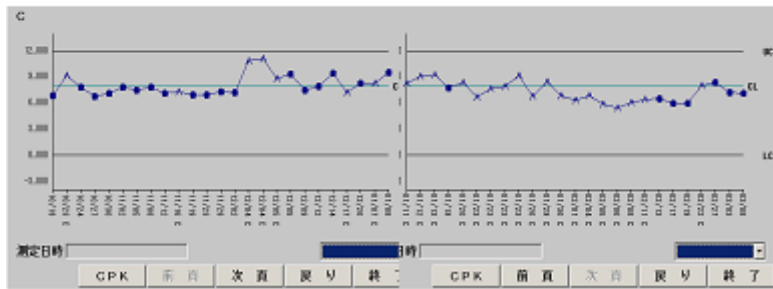
Ash Rate



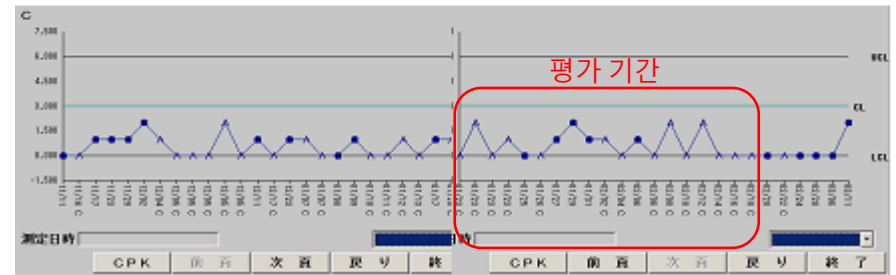
WDQC (Total)



Ash Unif



WDQC (1.0um up)



Centra WxP

GP : DRY PartsName : Centura-Wxp Quarts Tube

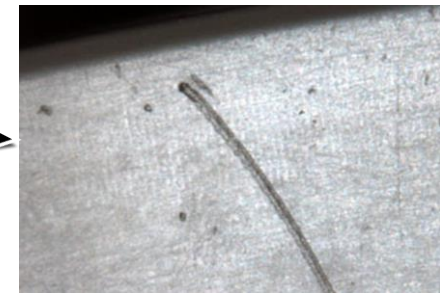
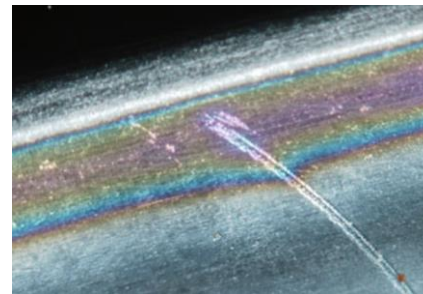
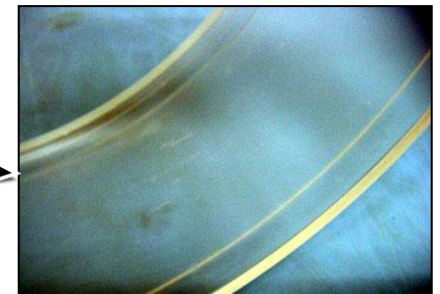
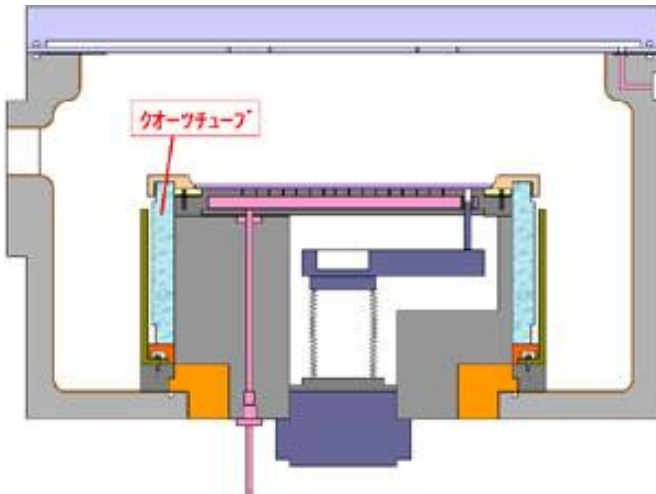
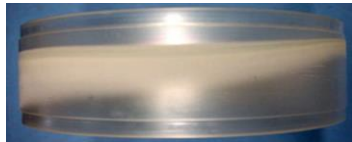
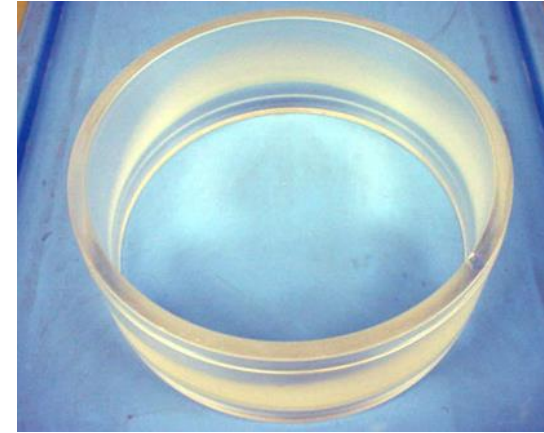
Depo' Material : W,F,Cl,Ti,TiN Material : SiO2

Machine ID :

기능 및 역할

- Quartz tube : Cathode 와 external cylinder (Al)의 arcking 방지를 위한 절연에 사용

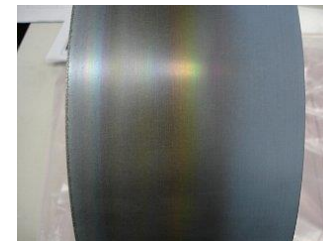
재질: 석영 DEPO:W,F,Cl,Ti,TiN



Cylinder Cover (Aluminum anodizing parts)

Depo material : Ti , TiN

- Inner wheel 17.68 μm
- Outer wheel is 29.48 μm
- Temperature: 85°C / 20°C



Gas Ring

- DRY Alliance

母材 : Al+アルマイト / Depo : HBr, Cl2

表面 49 . 5 μm
裏面 50 . 1 μm

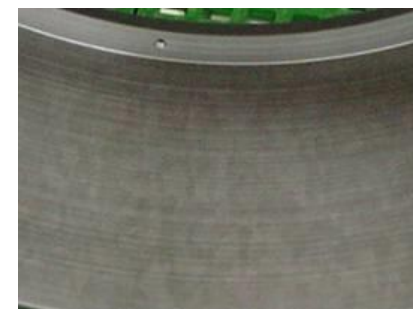
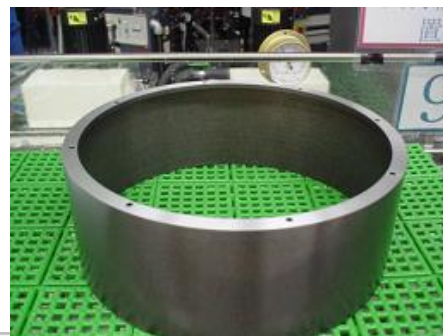
DRY Centura-WXP

母材 : Al+アルマイト / Depo : W,F,Cl,Ti,TiN

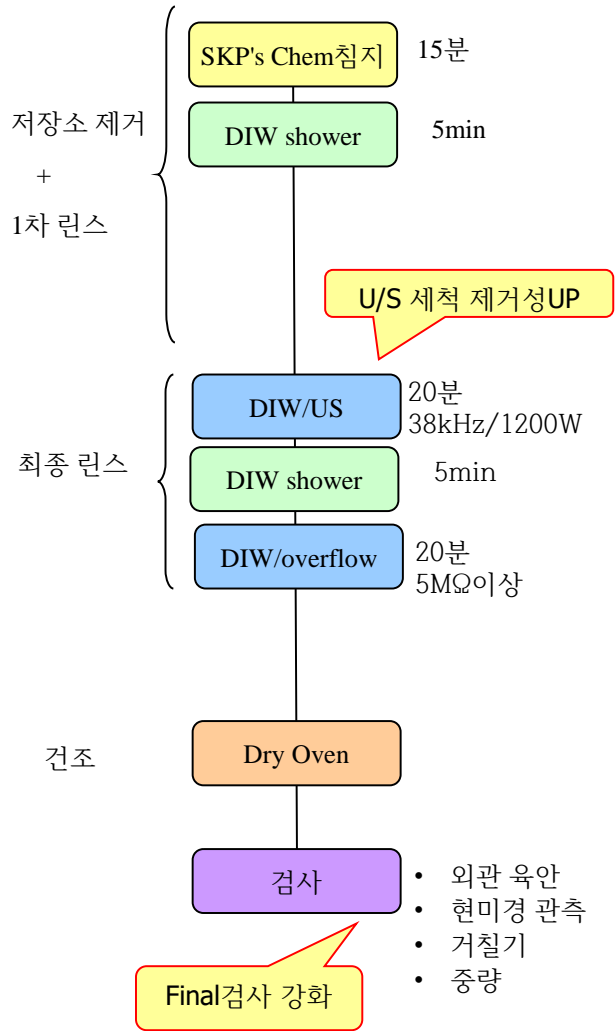


Cylinder Cover (anodized AL) new one

- アルマイト片厚実測値Ave
Inner wheel 35.0 μm
The outer wheel is 44.7 μm
- Temperature: 85°C / 20°C



Cleaning Step



1.EQC EtRate / Unif. 1회+Lot 3장
2.WDQC 1시간+Lot 3장

基礎評価 評価パーツ取り付け後)

項目	内容	結果	管理値
WDQC	CH-B DUST Total	2	20個
	CH-B DUST>1.0μm	1	9個
EQC	CH-B W Etch Rate	805.12	772.5~852.5 [nm/m in]
	CH-B W Unif	2.696	0~4[%]

【LOT内バラツキ確認】
取り付け後)

WDQC	CH-B DUST Total	CH-B DUST>1.0μm
管理値	20個	9個
SLOT-1	6	2
SLOT-12	5	0
SLOT-24	0	평가기간

EQC	CH-B W Etch Rate	Ch-B W Unif
管理値	772.5~852.5 [nm/m in]	0~4[%]
SLOT-2	808.015	2.949
SLOT-13	811.952	3.317
SLOT-25	821.028	3.386

3.오염(TXRF)

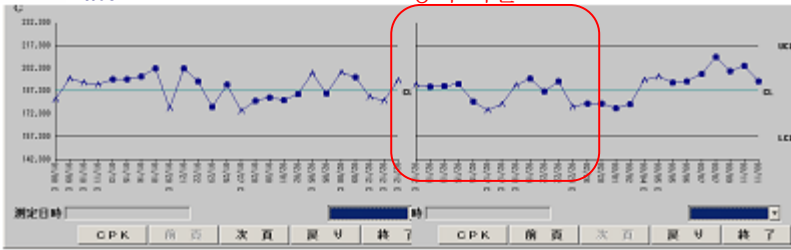
測定枚数: 3s 含有量[atoms/cm2 *E10]
Ref.

	Ca	Ti	Cr	Mn	Fe	Ni	Cu	Zn
W-Ch AVEのAVE	ND	2446.5	ND	ND	0.464	ND	ND	ND
W-Ch MAXのAVE	ND	2764.5	ND	ND	1.225	ND	ND	ND

測定枚数: 3s 含有量[atoms/cm2 *E10]

	Ca	Ti	Cr	Mn	Fe	Ni	Cu	Zn
AveのAve	ND	65.58	ND	ND	ND	0.13	0.00	0.00
MAXのAve	ND	72.17	ND	ND	ND	0.63	0.00	0.00
判定	합	합	합	합	합	합	합	합

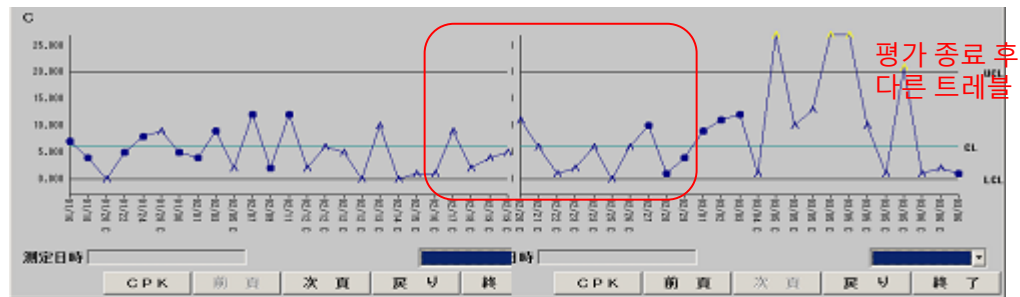
ET Rate



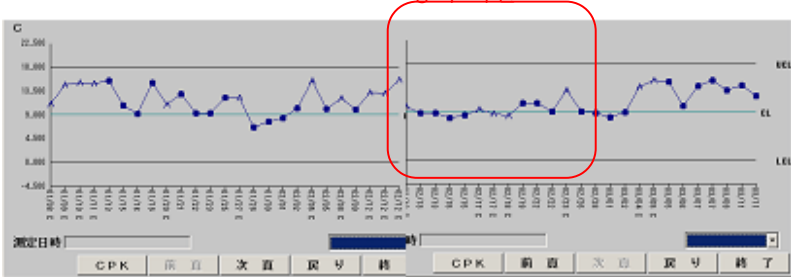
WDQC (TIN-Ch Total)

WDQC (TIN-Ch 1.0um up)

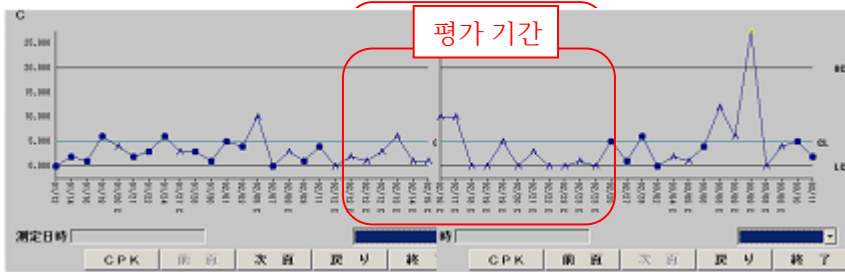
WDQC (W-Ch Total)



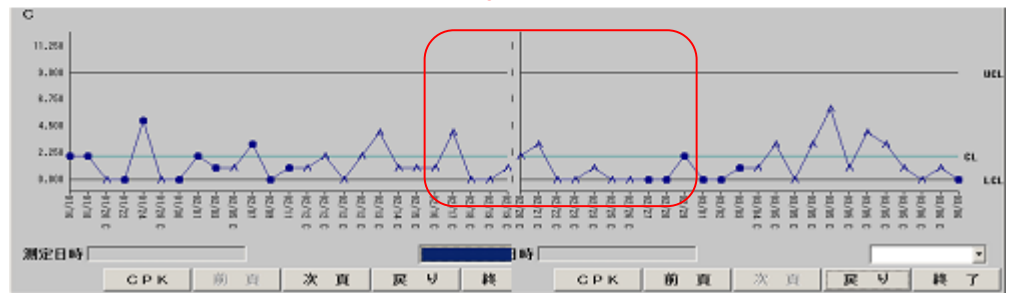
Unif



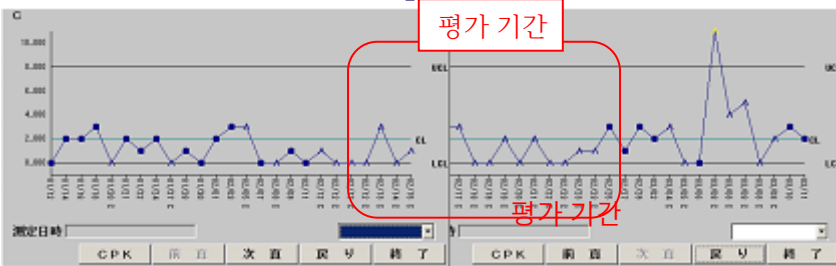
WDQC (TIN-Ch Total)



EQC (W-Ch 1.0um up)

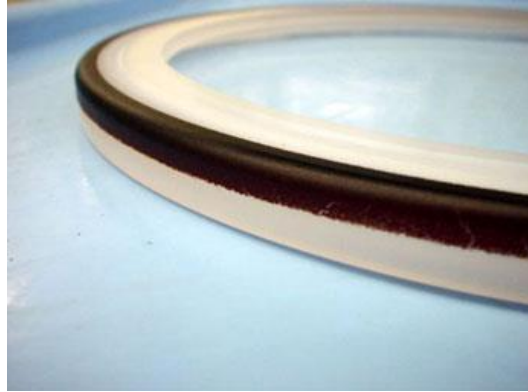


WDQC (TIN-Ch 1.0um up)

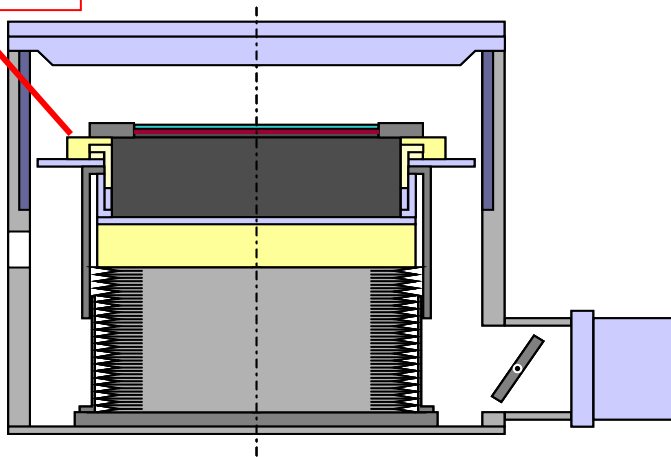


기능 및 역할

- Insulator A : Al부품 및 포커스 링(Si)과 절연
재질: 석영 DEPO : Si,C,F



Insulator A



Unity DRM

- 1.EQC EtRate / Unif. 1장
- 2.WDQC 1장
- 3.Lot내 편차 EQC/WDQC 3장

【基礎評価】

基礎評価 評価パーツ取り付け後)

項目	内容	結果	管理値	判定
WDQC	DUST Total	2	26個	OK
	DUST > 1.0 μm	1	12個	OK
EQC	1MC P-TEOS Etch Rate	516.051	510~545 [nm /m in]	OK
	1MC P-TEOS Unif	3.04	0~7 [%]	OK

【LOT内バラツキ確認】

取り付け後)

WDQC	DUST Total	DUST > 1.0 μm	判定
管理値	26個	12個	
SLOT-1	1	0	OK
SLOT-12	1	0	OK
SLOT-24	2	0	OK

EQC	1MC P-TEOS Etch Rate	1MC P-TEOS Unif	判定
管理値	510~545 [nm /m in]	0~7 [%]	
SLOT-2	516.014	3.13	OK
SLOT-13	519.358	3.05	OK
SLOT-25	517.405	3.06	OK

4.오염(TXRF)

Ref.

測定枚数: 3s

含有量[atoms/cm2 *E10]

	Ca	Ti	Cr	Mn	Fe	Ni	Cu	Zn
AveのAve	ND	ND	ND	ND	2.37	ND	ND	ND
MAXのAve	ND	ND	ND	ND	0.94	ND	ND	ND

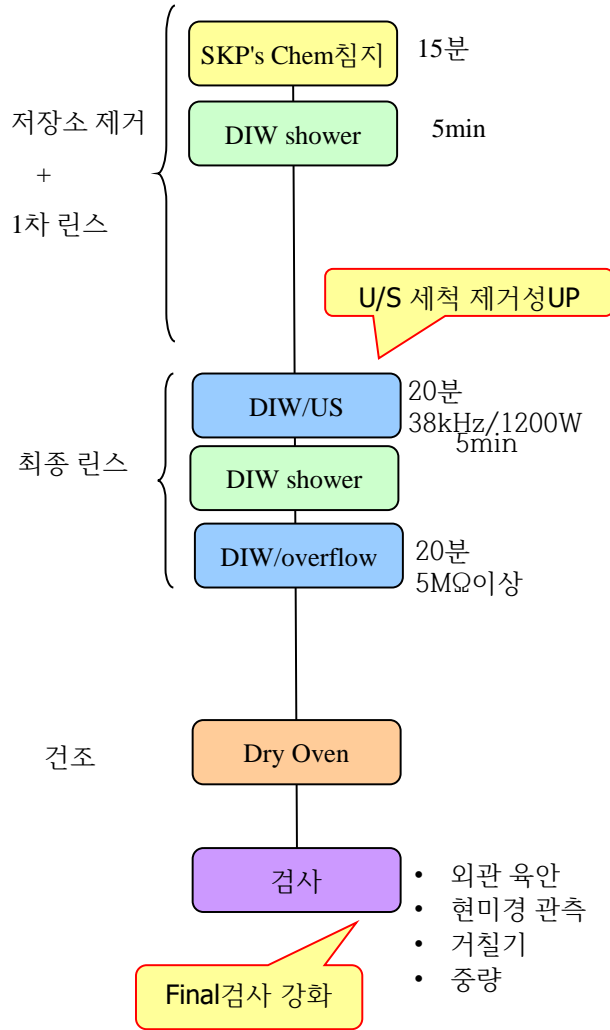
평가데이터

測定枚数: 3s

含有量[atoms/cm2 *E10]

	Ca	Ti	Cr	Mn	Fe	Ni	Cu	Zn
AveのAve	ND	ND	0.39	ND	1.16	ND	ND	ND
MAXのAve	ND	ND	0.69	ND	1.99	ND	ND	ND
判定	합	합	합	합	합	합	합	합

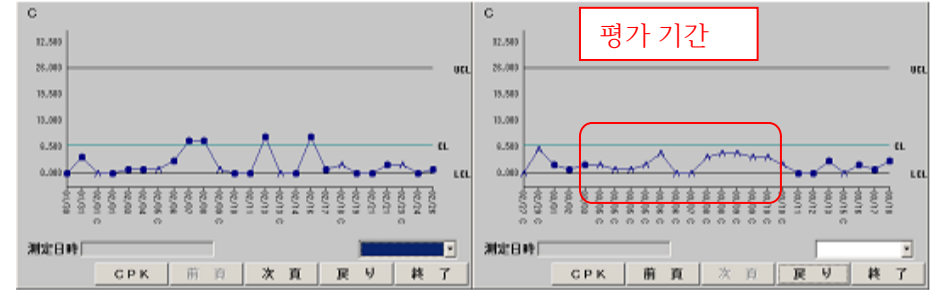
Cleaning Step



EQC (1MC P-TEOS EtRate)

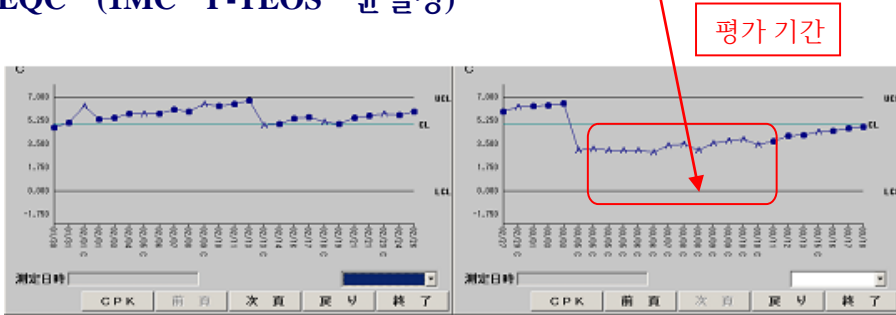


WDQC (Total)

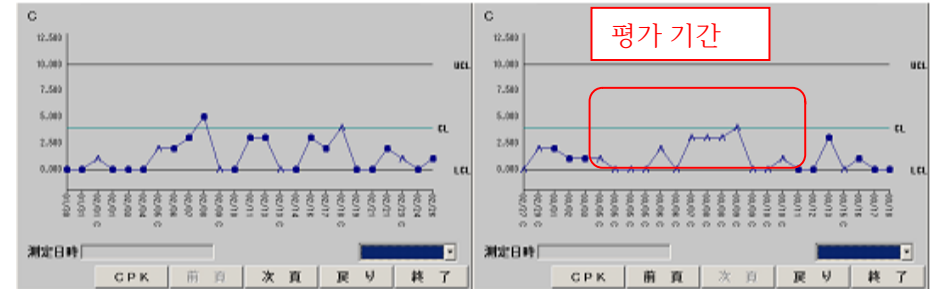


플러 스윙 교환 (정기)도 동시에 실시하고 있으며, 감소 요인은 포커스 링으로 인한 것입니다.

EQC (1MC P-TEOS 균일성)



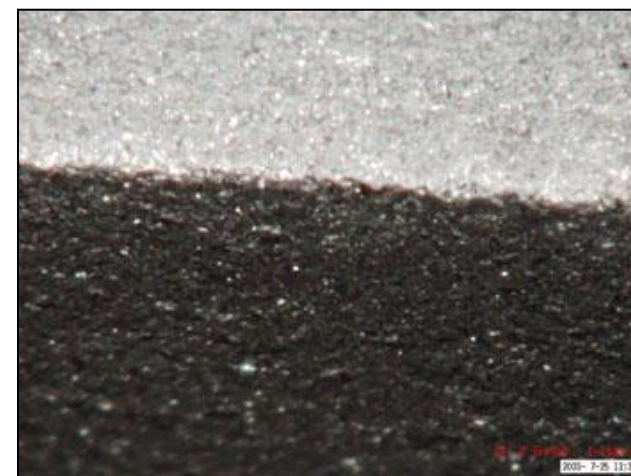
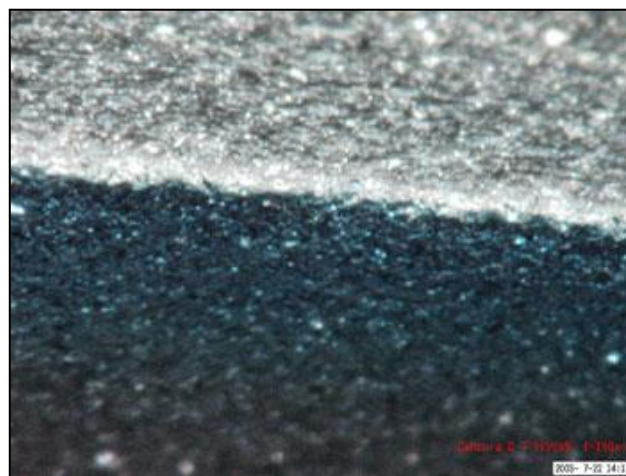
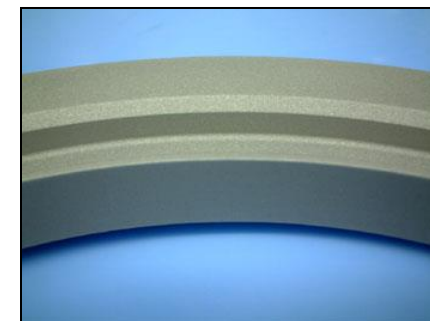
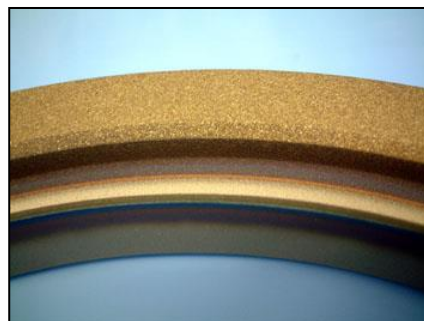
WDQC (1um up)



GP:PVD Parts Name: 8型 Flaten Ring(洗净Ti溶射)

Depo'Material: Ti,TiN Material: SUS+Ti溶射 Machine ID:

Over View

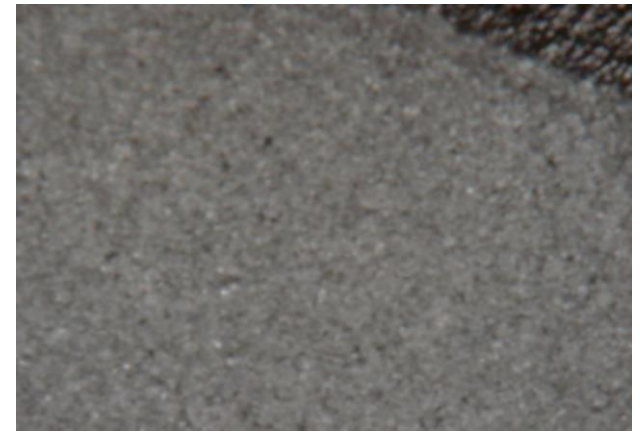
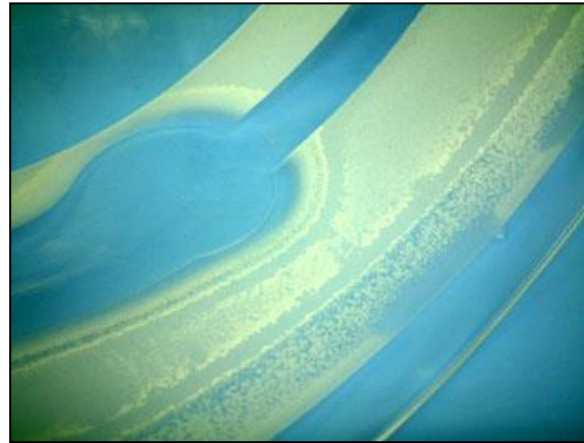
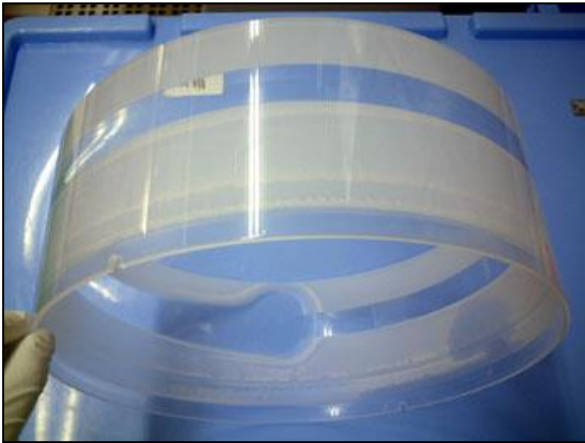
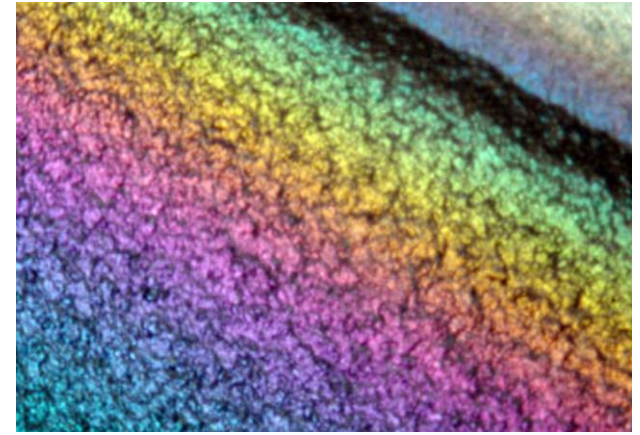
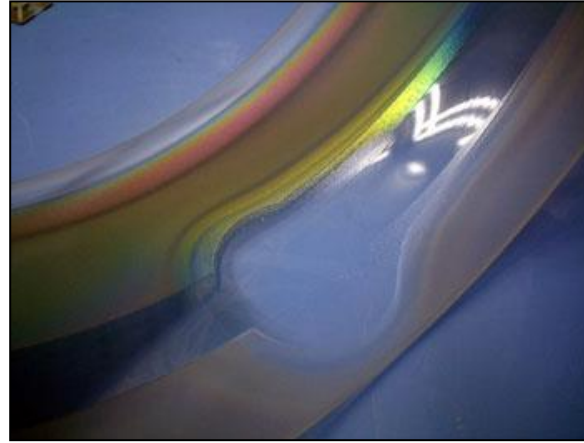
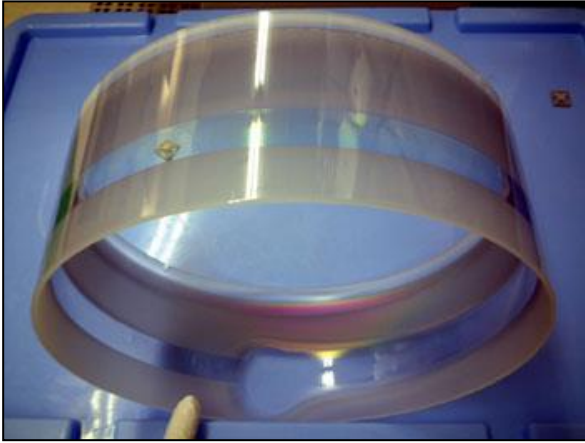


PVD 방착판 석영

GP : PVD Parts Name : S T I M 5 · M 6 防着板石英

Depo' Material : SiO2 Material : SiO2 Machine

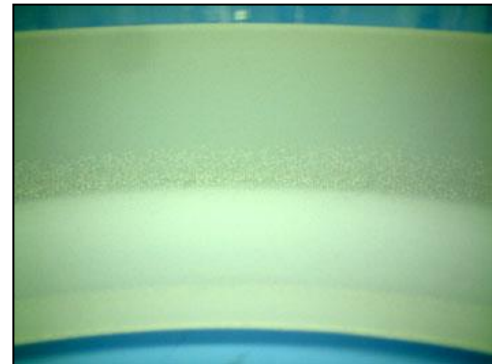
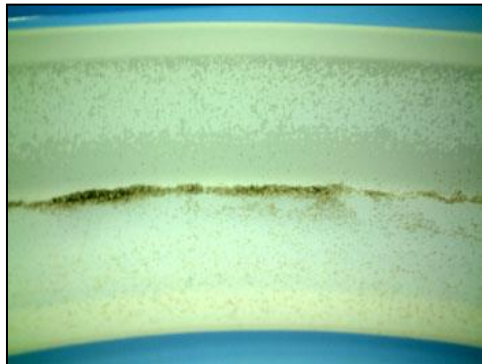
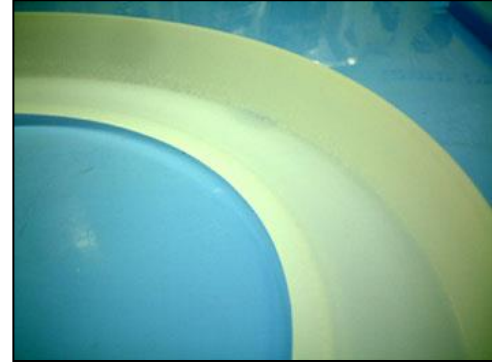
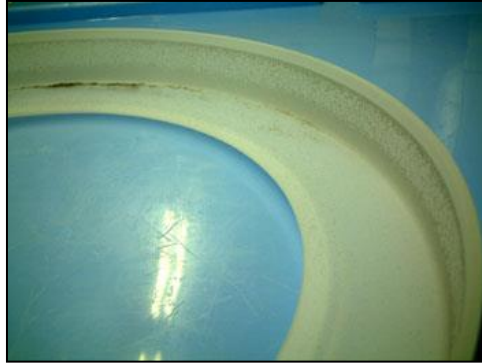
ID :



PVD 방착판 석영

GP : PVD Parts Name : S T I M 5 · M 6 防着板石英 Cover

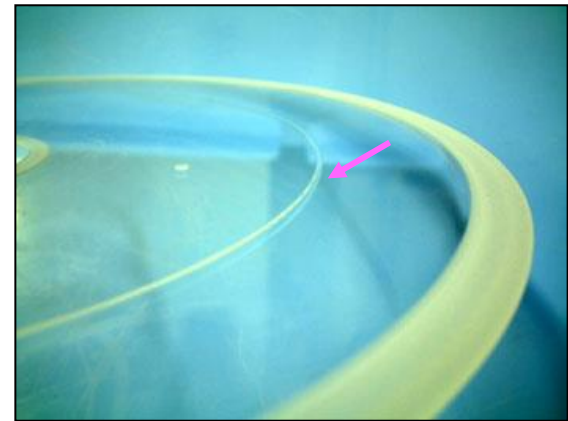
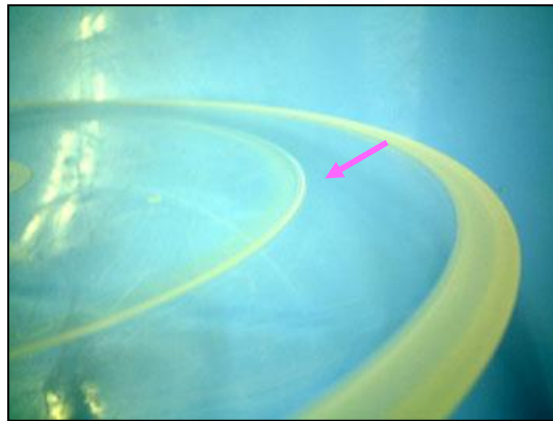
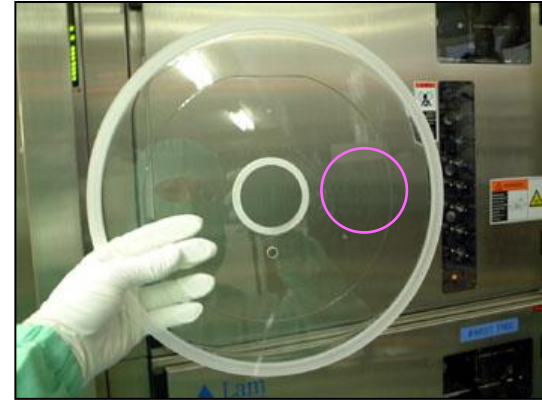
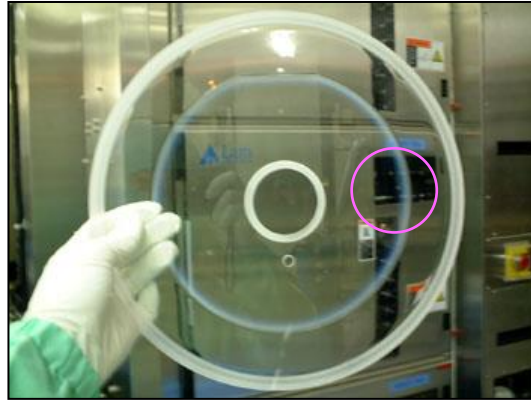
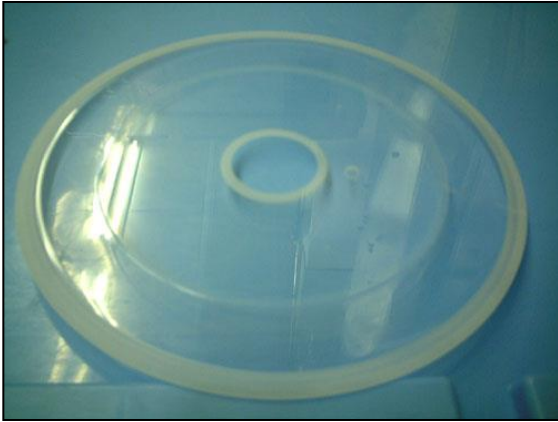
Depo`Material : SiO2 Material : SiO2 Machine ID:



PVD 방착판 석영

GP : PVD Parts Name : S T I M 5 · M 6 石英 Ring

Depo' Material : SiO₂ Material : SiO₂ Machine ID :



Centura

기능 및 역할(Function, Role)

Pedestal Ring: Prevention of adhesion to ESC

material : ceramic DEPO : : W, F, Cl, Ti, TiN

·Focus ring : Make the etching distribution uniform.

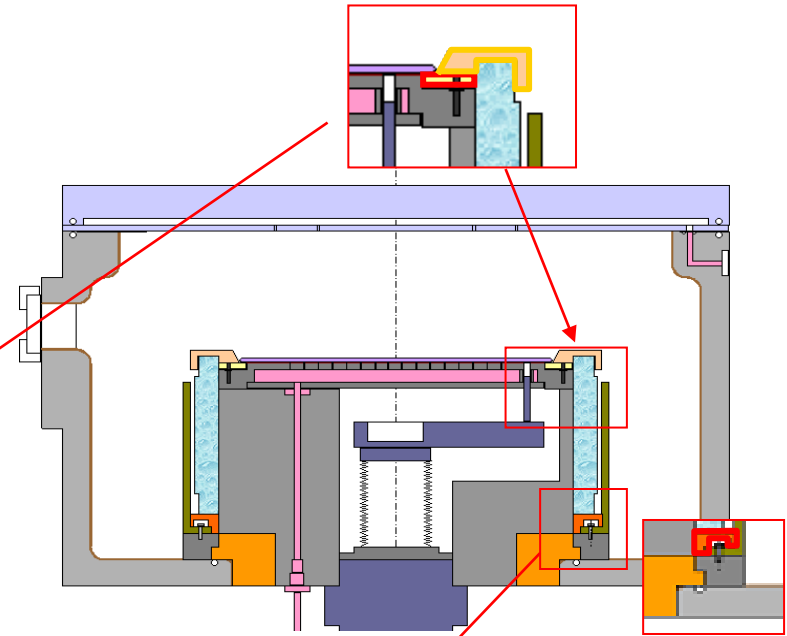
material : ceramic DEPO : : W, F, Cl, Ti, TiN

· Resin ring : ESC/Cylinder Cover, Chamber Block Insulation

material : Resin DEPO : : W, F, Cl, Ti, TiN

·DC Pickup : FOCUS RING POSITIONING PIN

material : : SIC DEPO : : W, F, Cl, Ti, TiN



Pedestal Ring



Focus ring



DCピックアップ
DC pickup

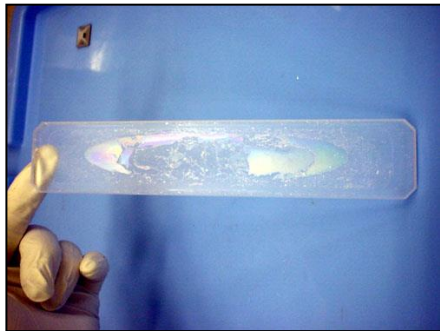
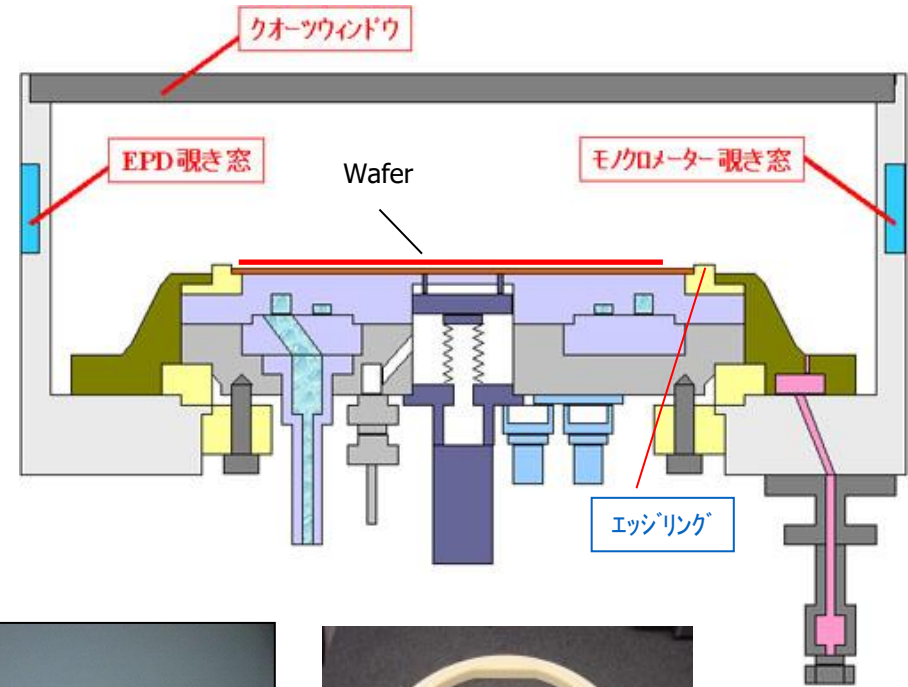


アーデルリング
Resin ring

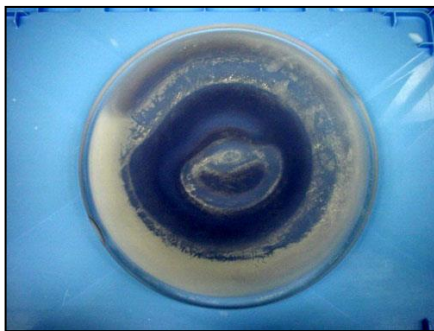
Alliance

기능 및 역할(Function, Role)

- Edge Ring: In-chamber bar A guide for wafer return.
material : ceramic
- The upper part of the window...chamber is sealed.
Material: Quartz
- Monochromator peephole: Seal the ports of the currently unused unit.
Material: Quartz
- EPD peephole... The ports for monitoring EPD are sealed with quartz.
Material: Quartz DEPO: Si, C, F, Br



EPD覗き窓
EPD window



クォーツウインドウ
quartz window



モノクロメーター覗き窓
Monochromator viewing window



エッジリング
edge ring

기능 및 역할(Function, Role)

· GAS NOZZLE Males and females: Introduction of gas to DPS Chambers.

Use 4 pairs per chamber block

material : ceramic DEPO:CL,AL,C

·Capture ring : Inside the DPS Chamber. Waverly. A guide for the time of day.

material : ceramic DEPO:CL,AL,C

·Customer feed block: Gas filter adapter Material: SUS

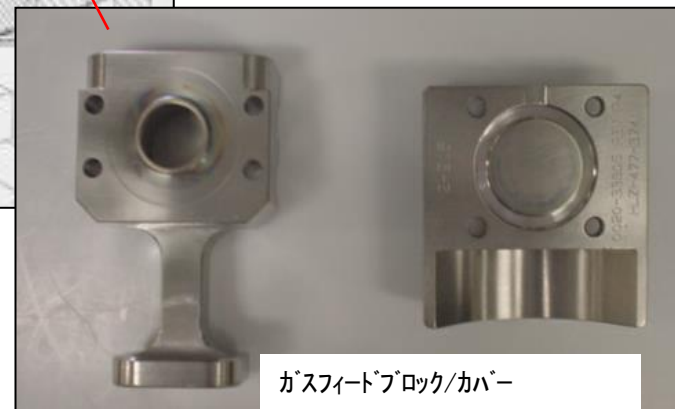
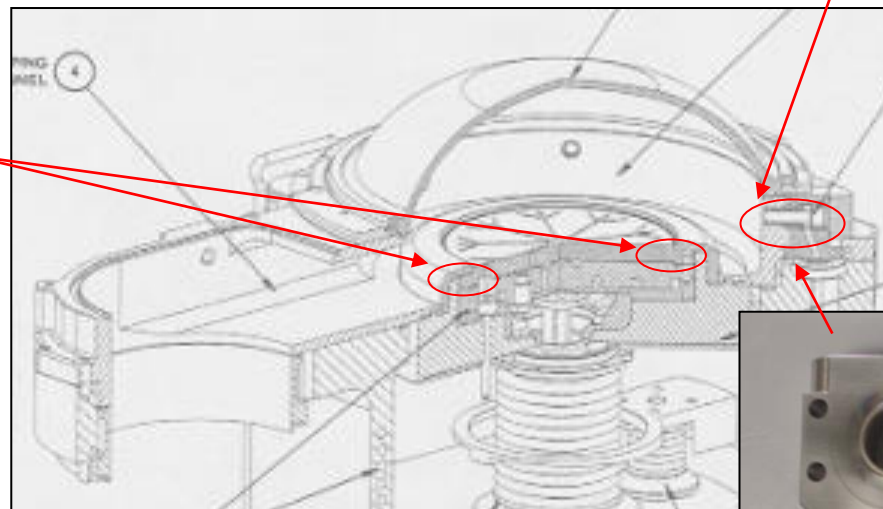


가스피드노즐(오스/메스)

Gas nozzle



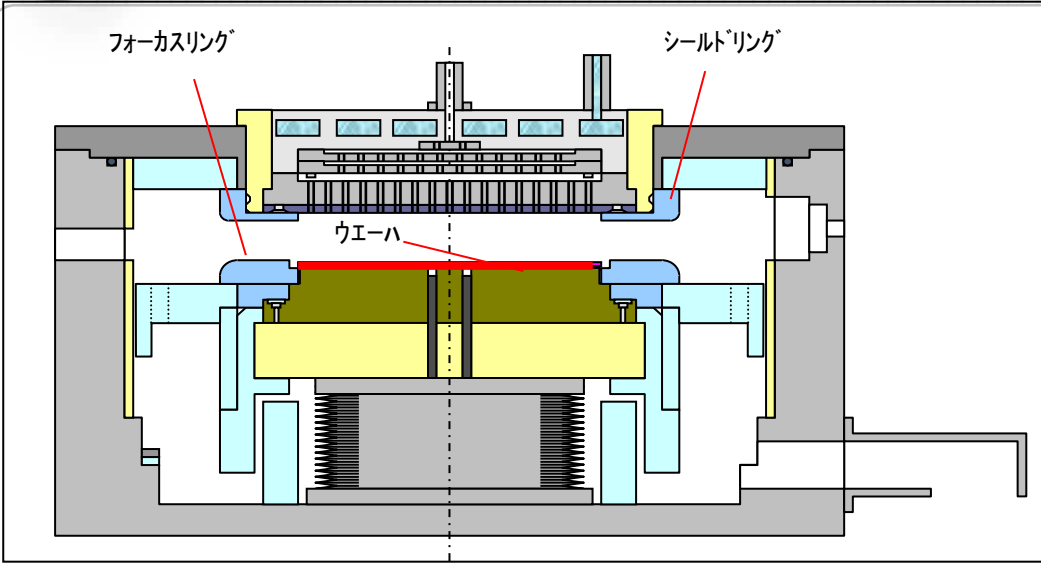
캡처링
Capture ring



가스피드블록/카버

Gas supply block /cover

Unity / Centura PVD

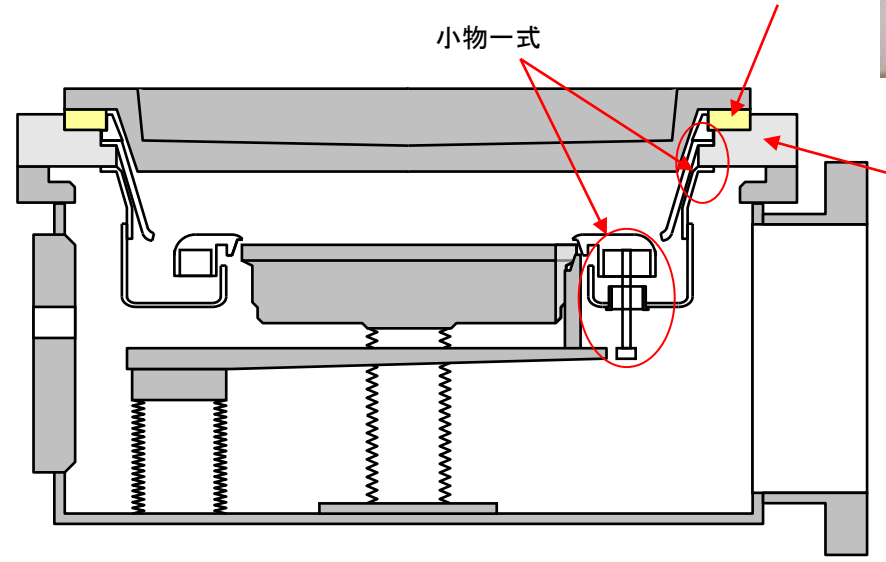


Focus ring

Shield ring



インシュレーター



小物一式

Centura-PVD

- Insulator: Insulates the target from the ground
- Material: SUS DEPO: Al-Cu

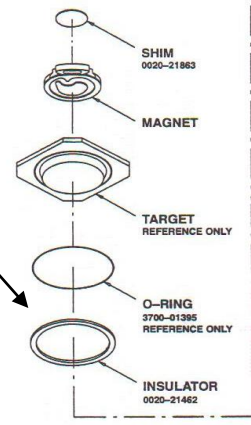
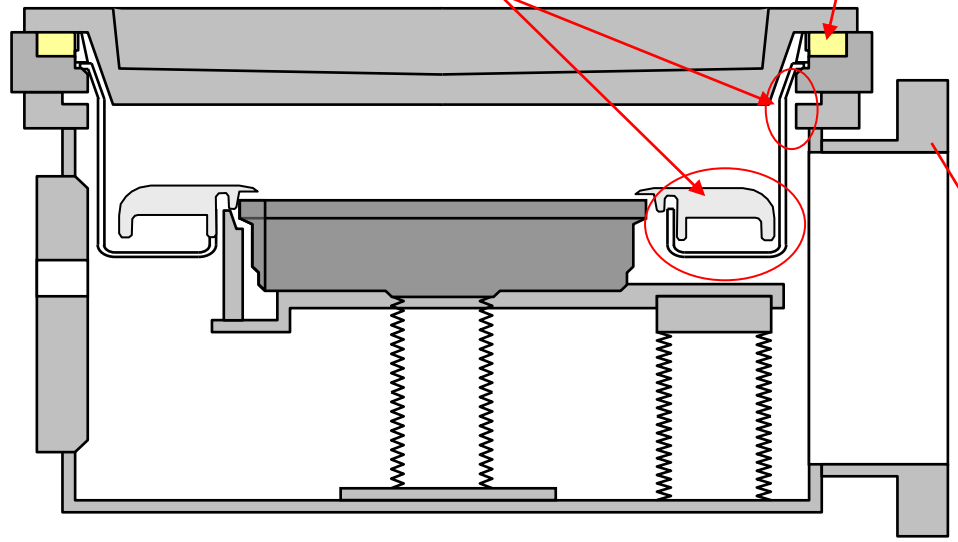
Insulator (Al₂O₃)

インシュレーター

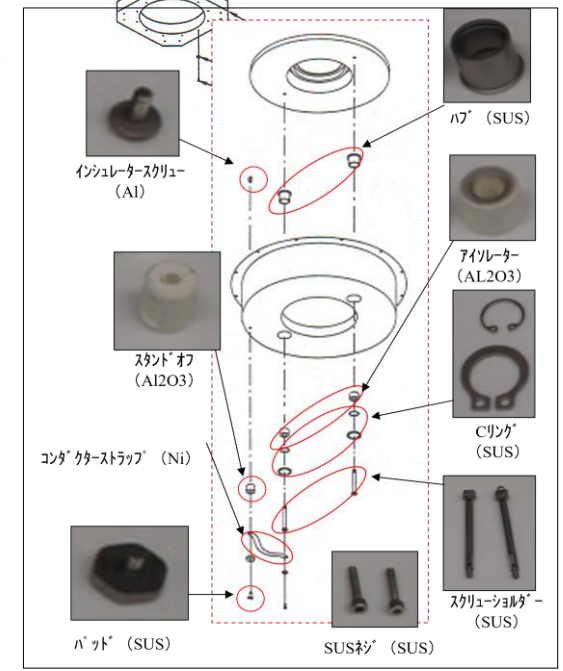
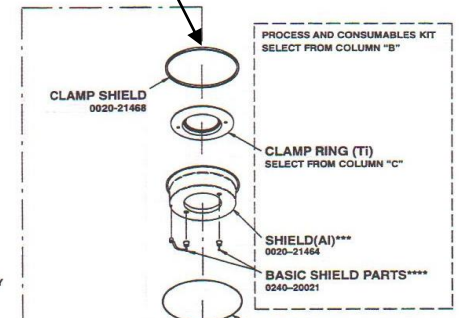


クランプ シールド (AL)

小物一式



ALベース
Aluminum base



CVD N2 Shield

PartsName : N 2 Shield

Material : S U S 3 1 6 L Depo' Material : SiO₂ , B , P

Machine W j - 1 0 0 0

Cleaning step

SKP's Chem 常温(浸漬 3 hr)
シャワー洗浄(5分)
超音波洗浄(20分)
超音波洗浄(20分)
純水洗(20分)
乾燥(80°C / 1 h)

