

Cavity status; recent KEK activities

(1) no cavity test in this one month, because of summer shutdown.

(2) Local grinding, then 100 μ m EP and anneal for MHI-010 cavity

local grinding for cell #1(5 locations), cell #9(2 location).

cell #1 equator 24, 304, 315, 323, 354deg,

cell #9 equator 59, 65deg

After 100 μ m EP,

New defects appear for cell #1 (3 new locations), cell #4 (1 location).

cell #1 equator 324, 341, 356deg,

cell #4 equator 123deg

3rd VT will be Sep. 1 & 2, 2010(next week),

This cavity will go to JLab on October, as a S0 cavity exchange.

(3) Local grinding of FNAL cavities was finished; TB9RI026 and AES001

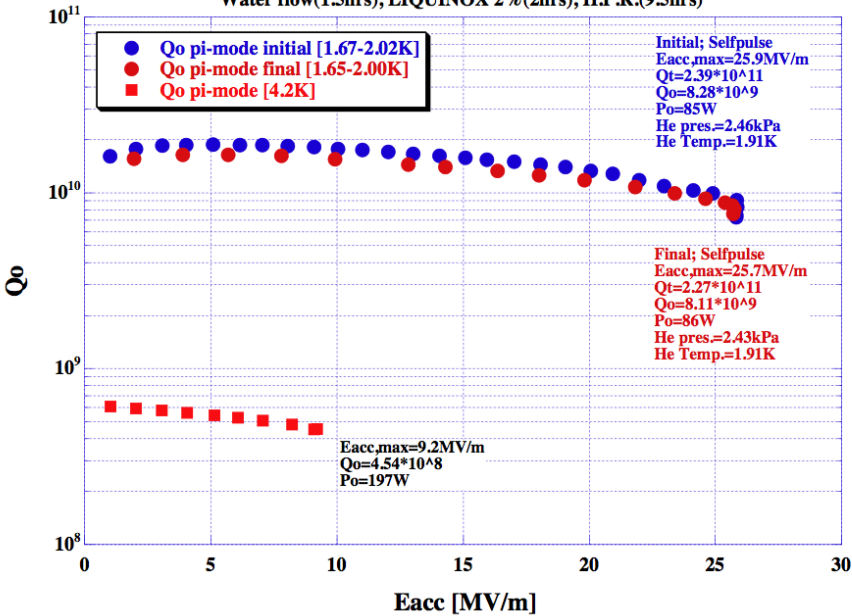
TB9RI026 : #8-#9 Iris 107deg. pit.

AES001 : cell #3 equator 169deg. twin bump.

MHI-010

2nd VT (June, 17)

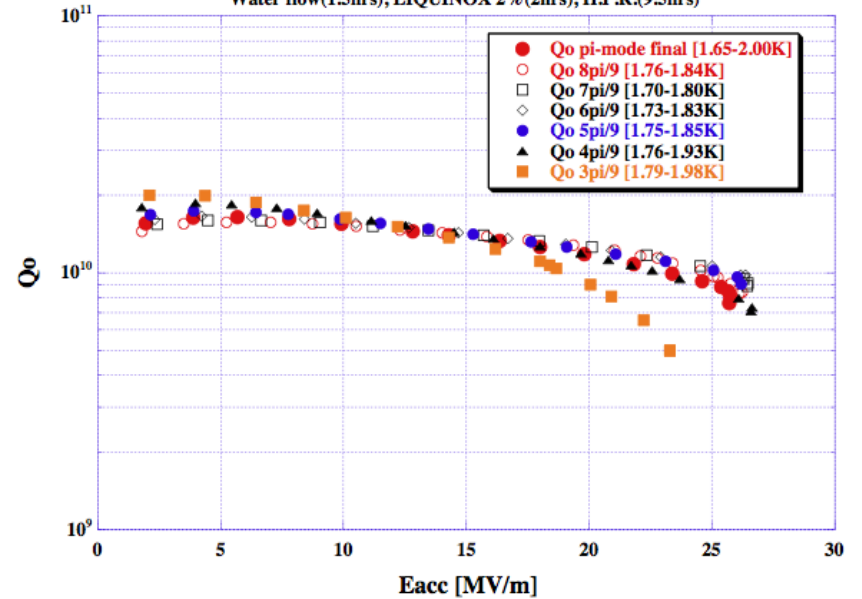
STF Baseline Cavity #10 2nd. Vertical Test 06/17/2010
Low Current Density EP-II(20 μ m) with N2 gas,
Water flow(1.5hrs), LIQUINOX 2%(2hrs), H.P.R.(9.5hrs)



25.7MV/m
Q=8.11E9

heated by #1cell equator pits

STF Baseline Cavity #10 2nd. Vertical Test 06/17/2010
Low Current Density EP-II(20 μ m) with N2 gas,
Water flow(1.5hrs), LIQUINOX 2%(2hrs), H.P.R.(9.5hrs)

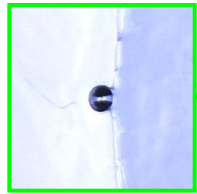


	Cell 1&9[MV/m]	Cell 2&8[MV/m]	Cell 3&7[MV/m]	Cell 4&6[MV/m]	Cell 5[MV/m]	Comment
π Initial	25.9	25.9	25.9	25.9	25.9	Quench/selfpulse : Heat@1cell 340-0deg. equator Qo=8.28E9, Po=85W, X-ray 864 μ Sv/h
Final	25.7	25.7	25.7	25.7	25.7	Quench/selfpulse: Heat@1cell Qo=8.11E9, Po=86W X-ray 1.27 mSv/h
8 π /9	26.2	23.3	17.3	9.69	0	Quench/selfpulse: Heat@1cell 330-0deg. equator Qo=8.41E9, Po=42W X-ray 499 μ Sv/h
7 π /9	26.5	14.0	5.3	20.4	28.3	Quench/selfpulse: Heat@1cell Qo=9.11E9, Po=43W X-ray 255 μ Sv/h
6 π /9	26.3	0	26.3	26.3	0	Quench/selfpulse: Heat@1cell Qo=9.79E9, Po=46W X-ray 90 μ Sv/h
5 π /9	26.2	17.8	30.9	5.2	33.3	Quench/selfpulse: Heat@1cell Qo=9.05E9, Po=62W X-ray 30 μ Sv/h
4 π /9	26.6	34.8	15.2	38.6	0	Quench/selfpulse: Heat@1cell Qo=7.32E9, Po=110W X-ray 15 μ Sv/h
3 π /9	23.3	46.6	23.3	23.3	46.6	Power Limit: No heating point Qo=4.95E9, Po=207W X-ray 24 μ Sv/h
Eacc,max	26.6	>46.6	>30.9	>38.6	>46.6	

Comparison between T-mapping and Optical-inspection after 2nd V.T.

4~9π/9 @26~27MV/m

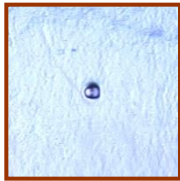
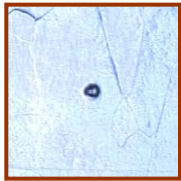
353°(400μm x 30μm)



24°(300μm x 30μm)

Cell#1側beampipe
268°(150μm x 12μm)

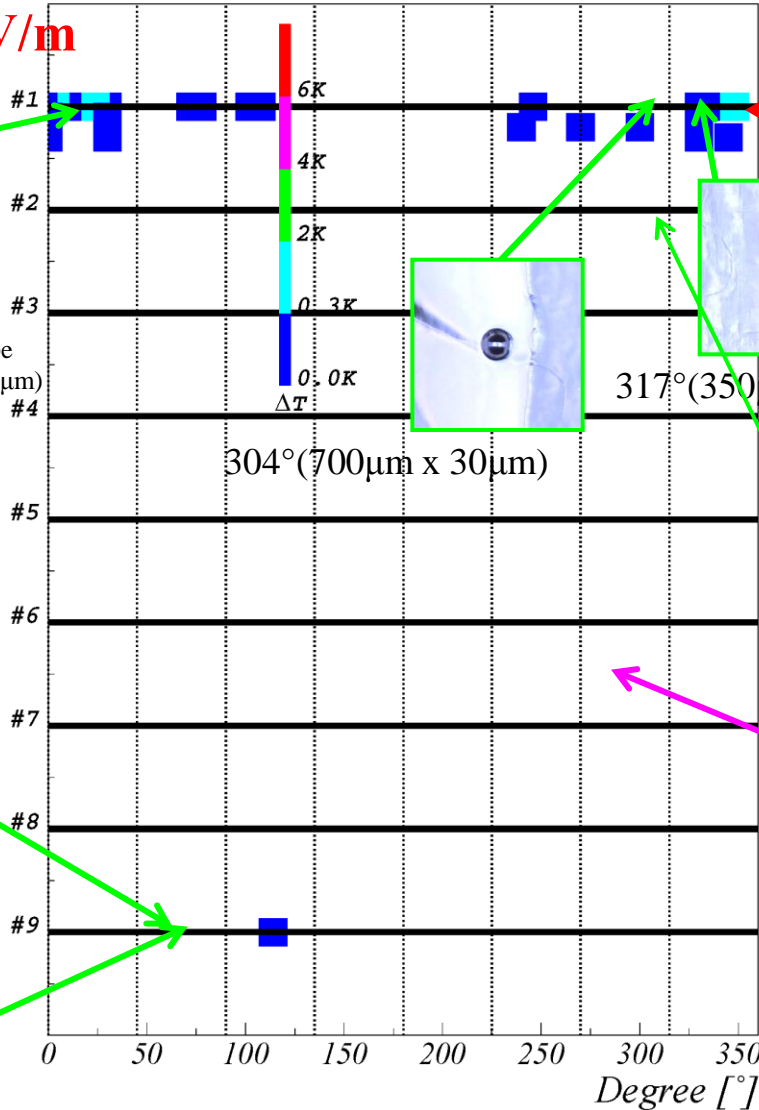
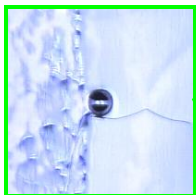
Cell#9側beampipe
114°(200μm x 20μm)



59°(200μm x 25μm)

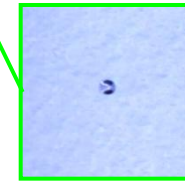


65°(300μm x 30μm)



発熱箇所を中心付近にあるやつ
(場所によって凸凹の向きが
変わる)

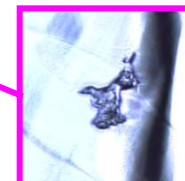
317°(350μm x 30μm)



311°(200μm x 10μm)

283°(300μm x 45μm)

初登場！！
Cell#6-#7間のアイリス



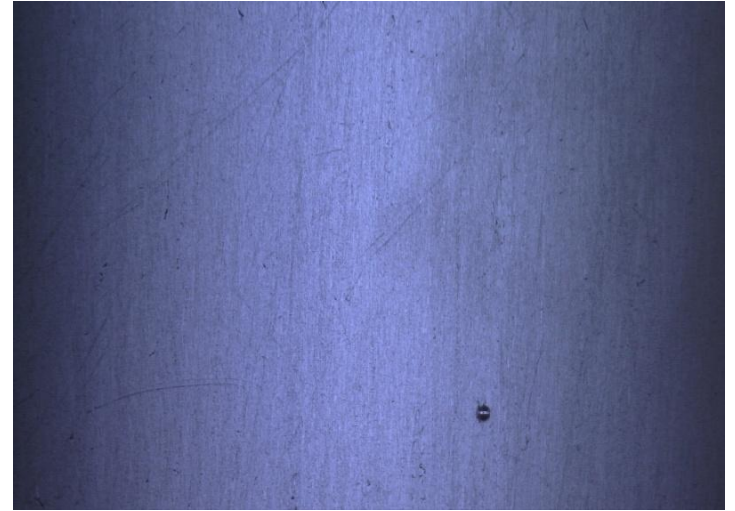
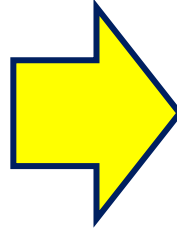
比較的大きなサイズのdefect
のみを抜粋してある。

example

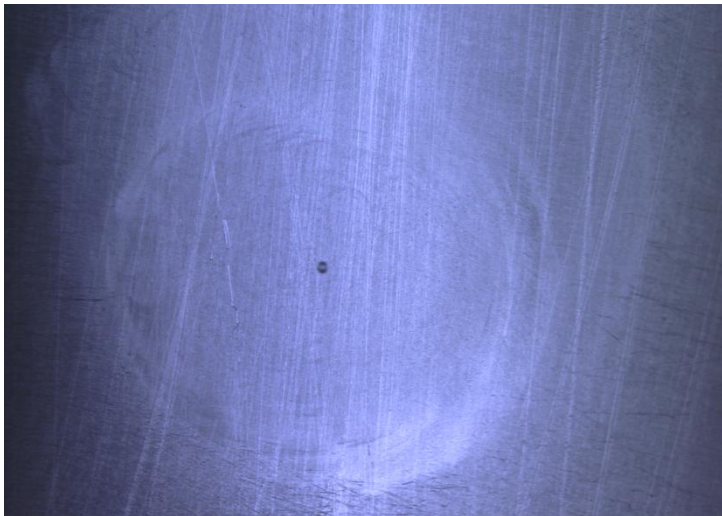
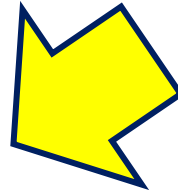
evolution of grinding @Cell #1

after 2nd V.T. 304°(700μm x 30μm)

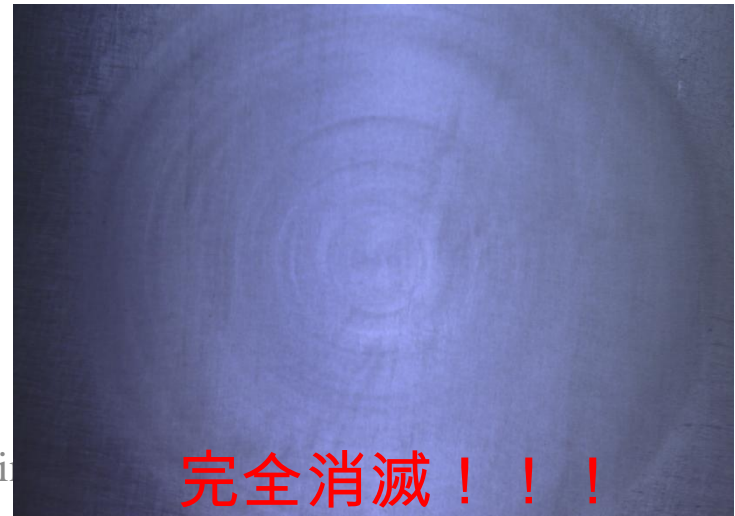
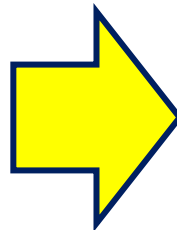
grinding by hand



machine grinding



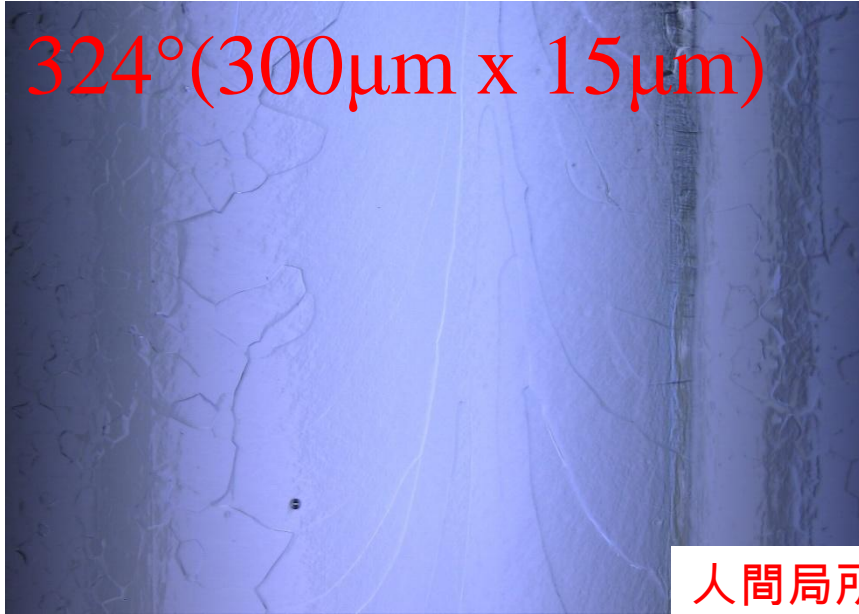
finish



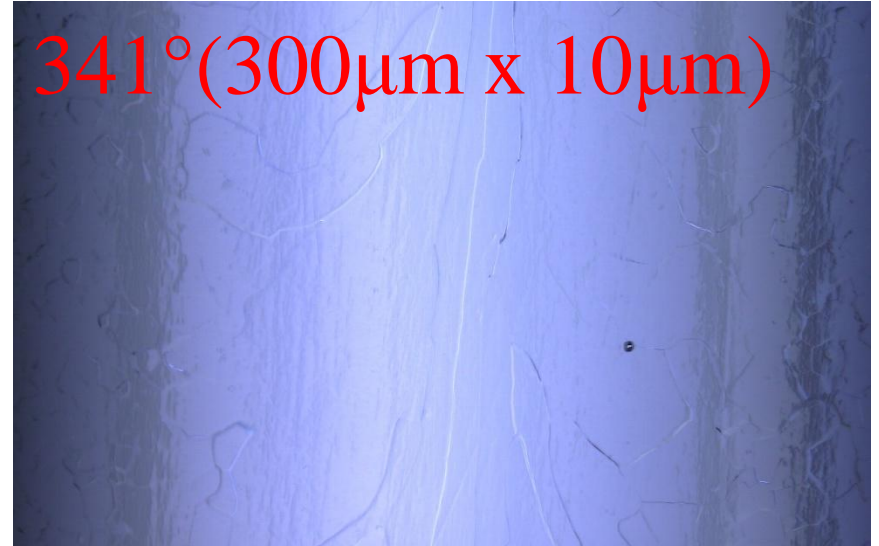
完全消滅!!!

New defects @Cell #1 after local grind & 100 μ m EP

324°(300 μ m x 15 μ m)

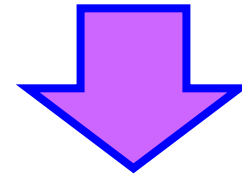
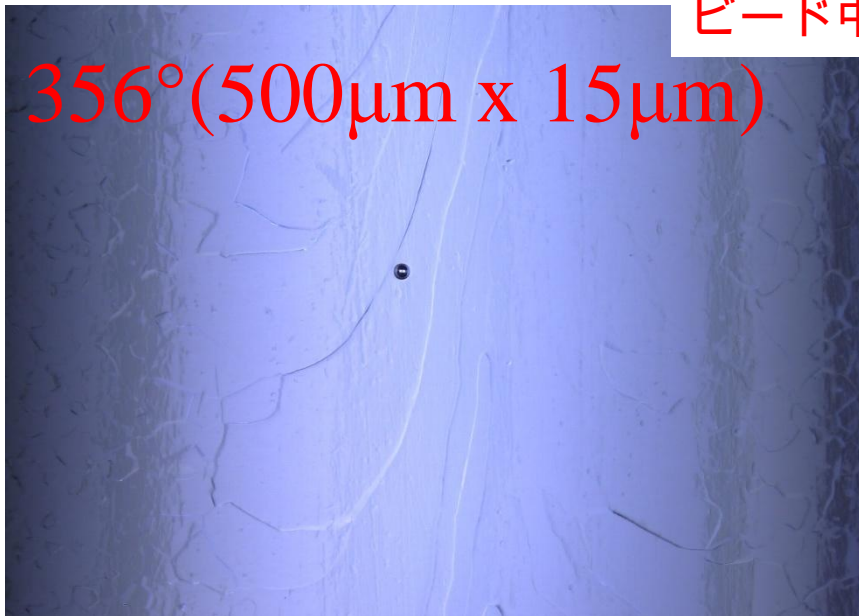


341°(300 μ m x 10 μ m)



人間局所研磨を施した所から現われた新たなdefect。
これまでと異なり、ビード端ではなく、
ビード中央付近にあるのが特徴である。

356°(500 μ m x 15 μ m)



これ以上削っても同様の事が再び起こると
想像されるためもう局所研磨は行わず、
このまま3回目の縦測定に臨むことにする。

結果も前回と変わらないものと思われる。

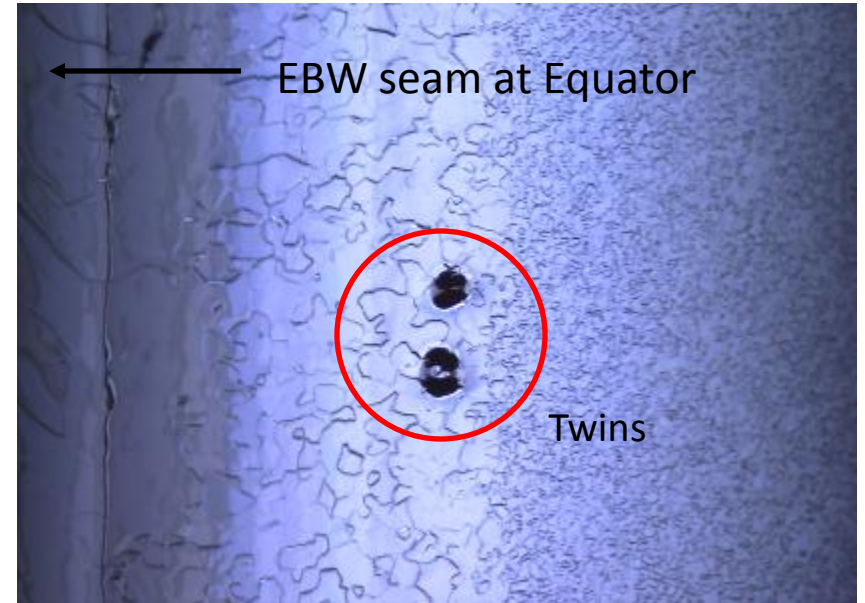
FNAL cavities

TB9RI 026: 8-9 iris, $t = 107$ deg. Pit-type
19.6MV/m field emission

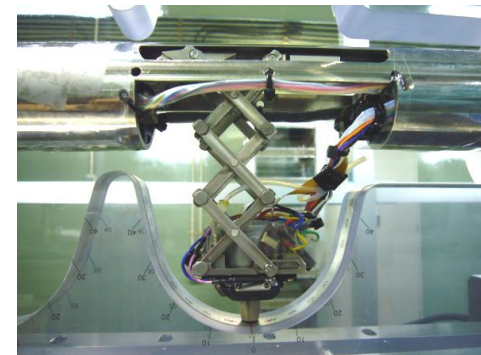


To 9-cell equator →

AES-001: 3-cell equator, $t = 169$ deg. Bump type
21.8MV/m quench



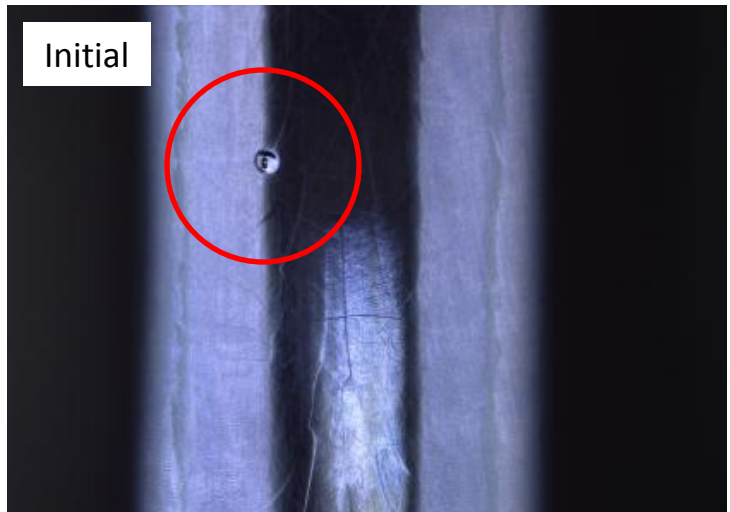
Grinder #3 used for Iris grinding.



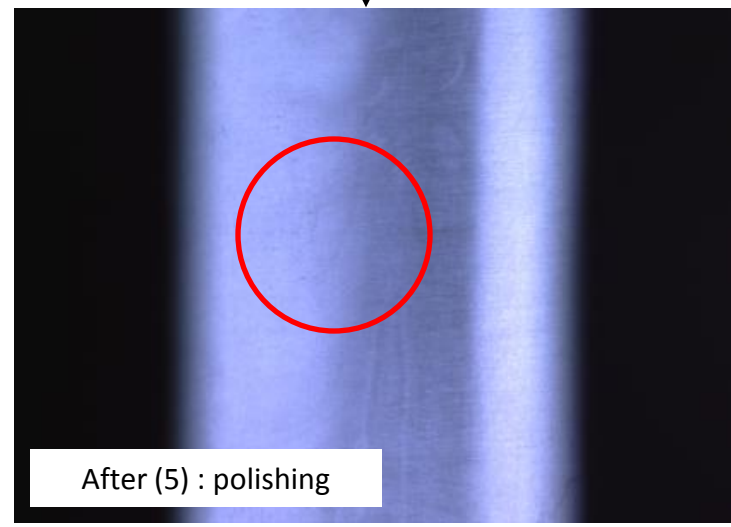
STF

Grinder #1 used for Equator grinding.

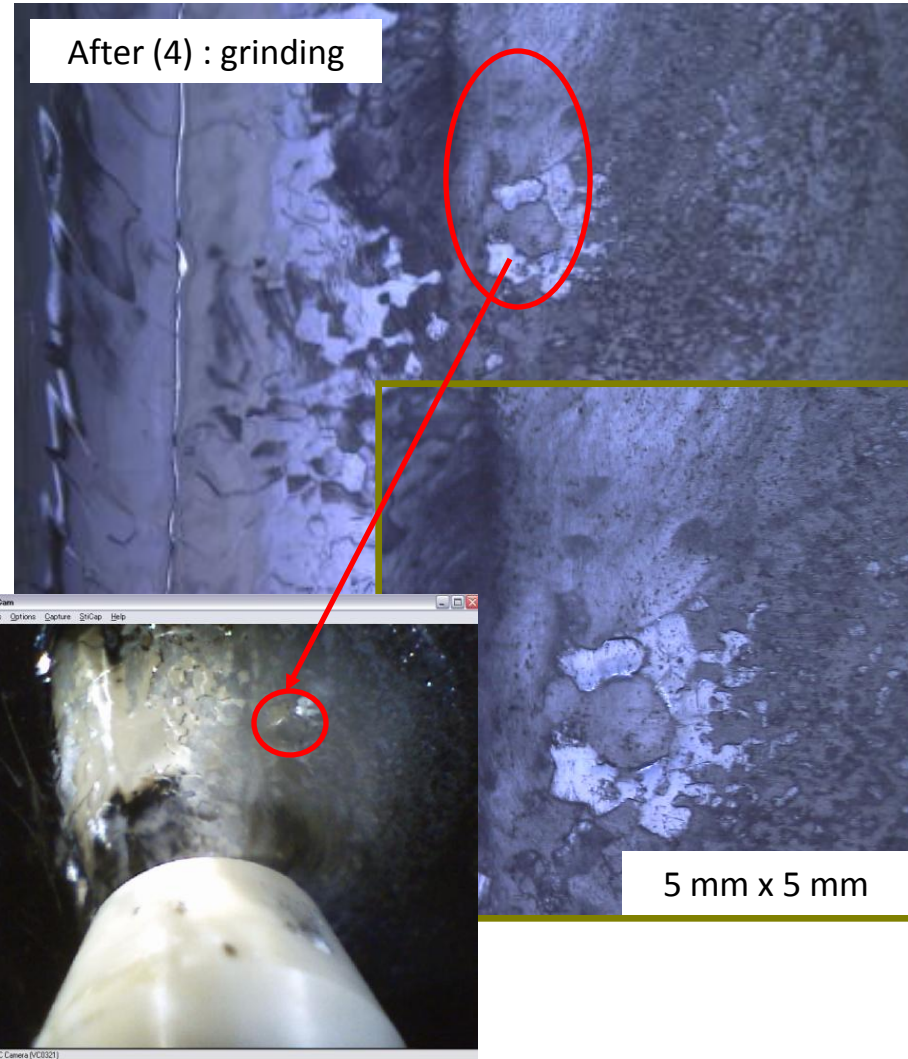
TB9RI 026 : Grinding (1)



To 9-cell equator



AES-001 : Grinding (2)



Two bumps were removed completely.