

KAGRA Cryogenics status

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Domestic f2f

2013.10.09 ICRR

<SAS type-A真空容器>
製作中。岩盤への固定、
クライオスタットとの連結等
検討中(真空+低温)

<クライオスタット>
#1, #2, #4 宮川町倉庫
#3 追加冷却試験後輸送10/26-27

<φ1000, φ800真空ダクト>
製作中(真空+低温)

<クライオスタット内部>
構造物、配置、支持、制御、等
検討中(低温懸架+鏡+補助光
+防振+真空)
—>詳細は別報

<冷凍機ユニット>
10台 宮川町倉庫
性能試験ほぼ完了
東芝、柏から4台を10/26に輸送
2台は柏で試験待ち

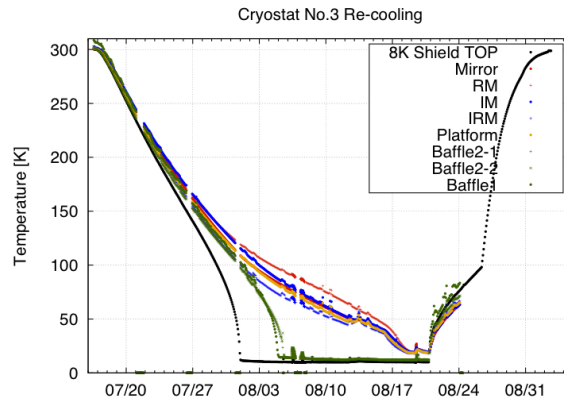
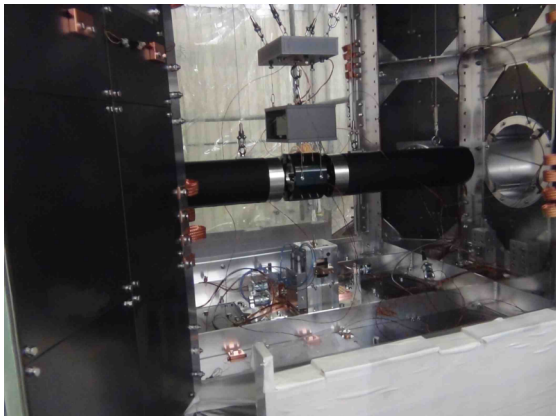
<冷却ダクト/ダクトシールド>
製作中。アルミ厚板のロールと熔接、加工が
進行中。

Cryostats

Cryostat #1, #2, #4 : Move to the Miyakawachou Storage (7/27, 7/28)



Cryostat #3 : Extra cooling test of 1/2 payload with dummy baffles in July and Aug.
Vibration measurement by Roma and ICRR accelerometers.
Waiting for transportation to Miyakawachou Storage.



Y. Sakakibara

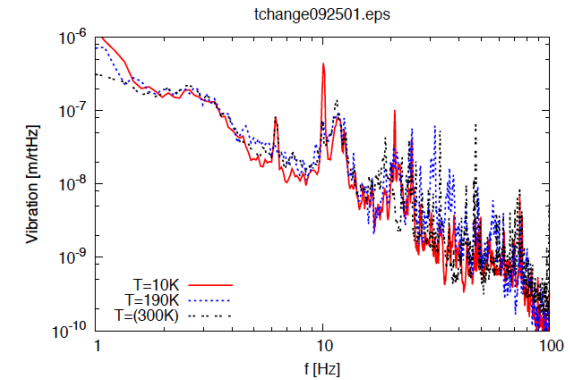


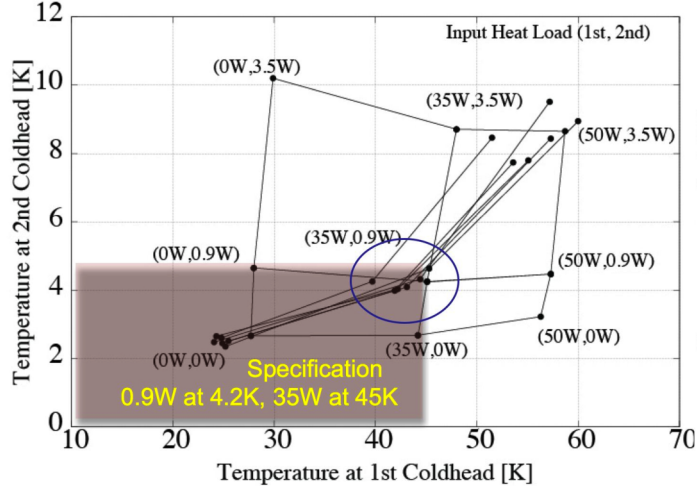
図 5: KAGRA クライオスタットの内部の振動測定結果(水平成分)。PT(冷凍機)はOFF

D. Chen

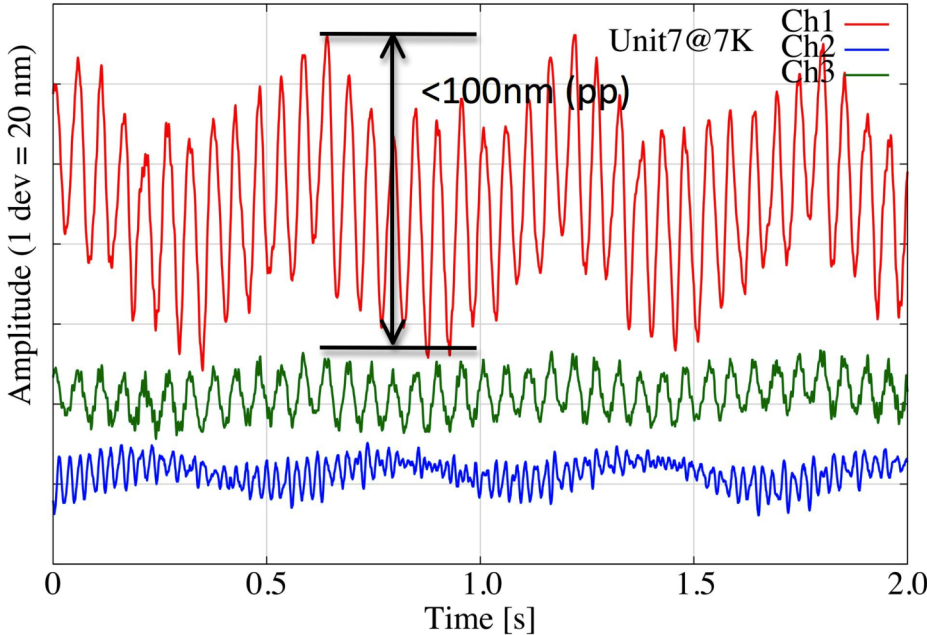
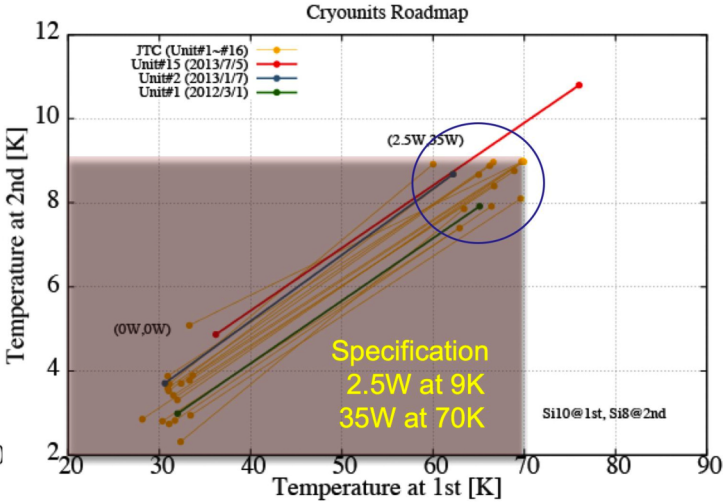
Cryocooler units (2 stages, 4K)

ASJ 2013 Sep.
C.Tokoku

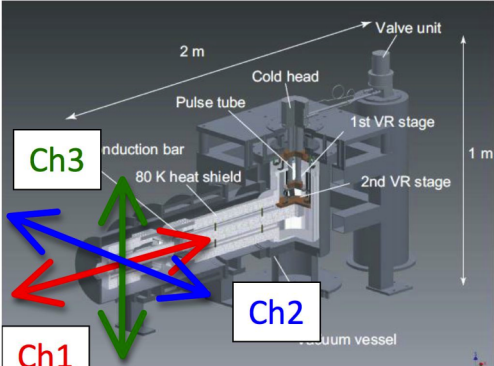
Loadmap of Cryocooler RP082



Loadmap of Cooler Unit



Ch1 : parallel to the cooling bar
Ch2 : perpendicular
Ch3 : vertical



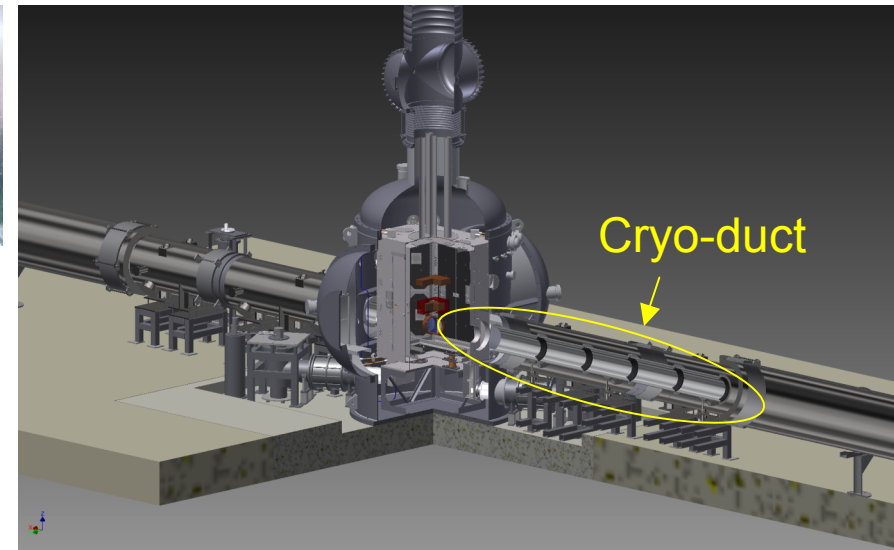
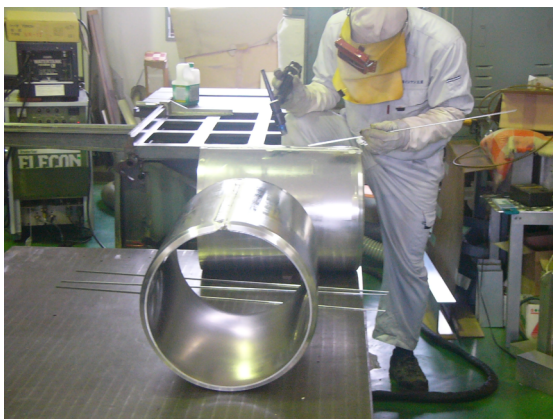
Aluminium pipes for cryo-duct

Welding and machining Suzuno Giken, Tsukuba



Surface after roll

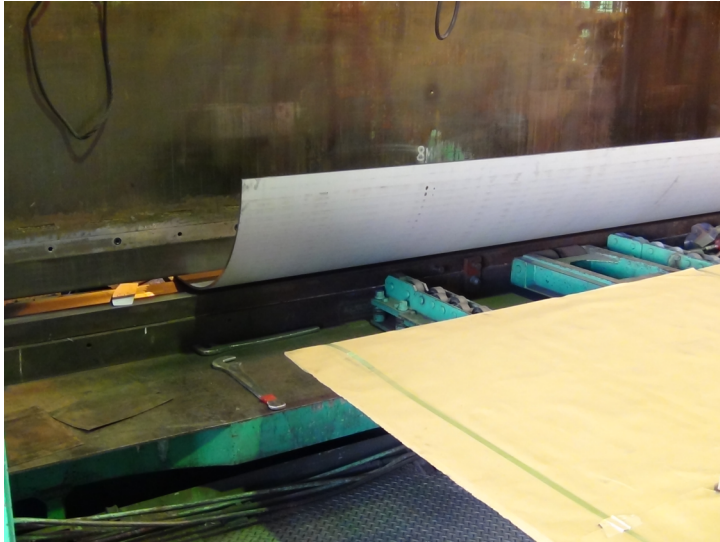
Al 1070
 $\phi 400$ t20



t20 plate -> roll -> weld and machining(SUZUNO, t20->t15)
-> ECB(NICHIZO SEIMITU) -> Solblack(ASAHI PRECISION)
-> Assembling (JECC TORISHA)

φ800x1200xt10 SUS Pipe for Duct shields

Noda Factory, NSSP



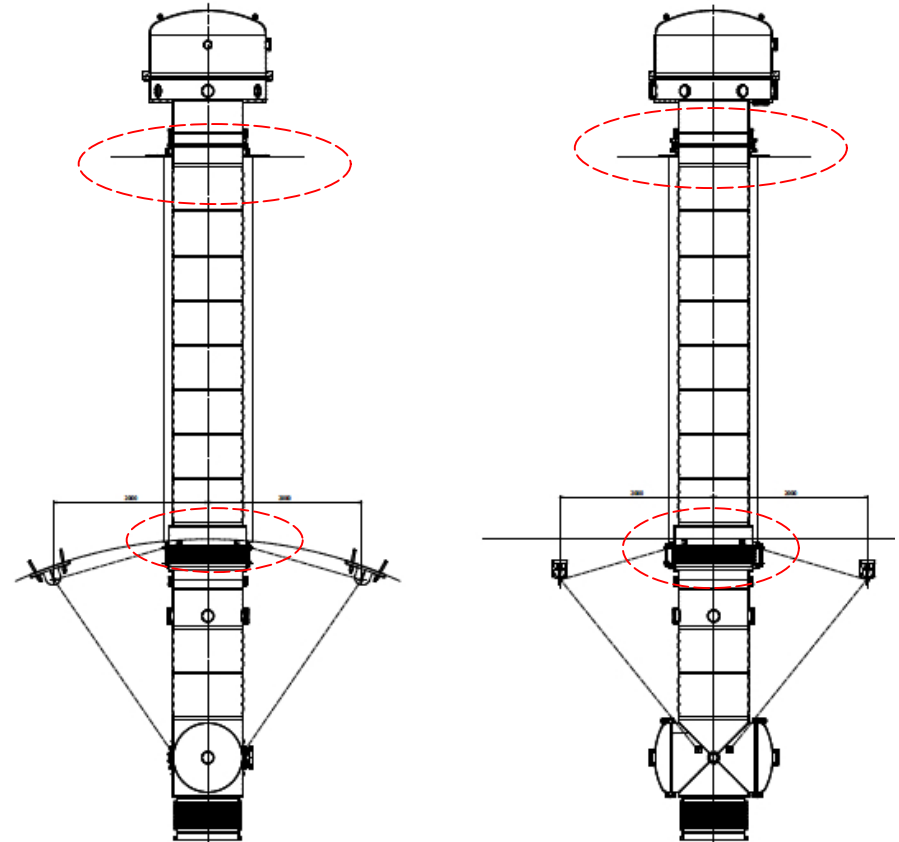
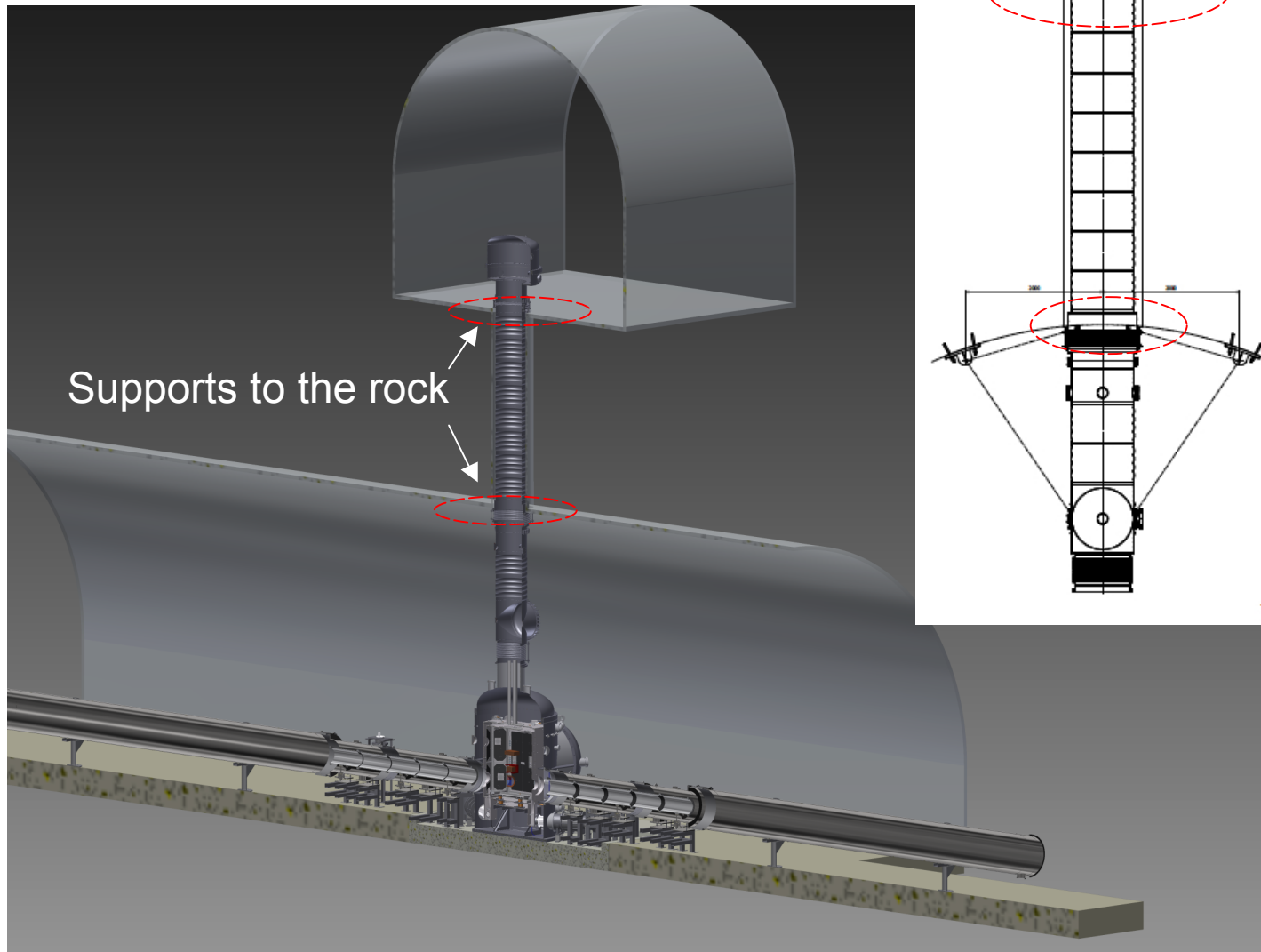
Gradual
press



Shaping



SAS type-A vacuum chamber



Type-A 吊り上げ固定図

- Connection to the cryostat
- Support from frame of clean booth
- Safety of tensional support