Progress Report

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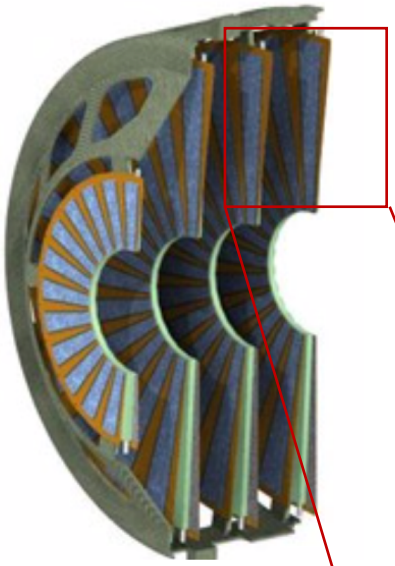
RIKEN/RBRC

Procurement Schedules

Item	Status	Delivery to RIKEN	Final Destination
2nd Batch Staves	Ready for delivery	Mid - End of March	BNL, Taiwan (+2Weeks)
Source Test Fixture (1)	Fabrication	End of March	BNL(+ 2Weeks)
Interception Board	Fabrication	Mid April – End of April	BNL, Taiwan(+2Weeks), NWU
Source Test Fixture (2)	Fabrication	4/21 – Mid May	NWU
10~20 Bus Extender Preproduction	Fabrication	End of May	
3rd Batch Staves	Parts Procurements	End of May?	
Conversion Cables Preproduction for Column-B,D	Under investigation	+ 3~4 months	
3rd Batch HDIs?	Waiting for Yamashita's Investigation		

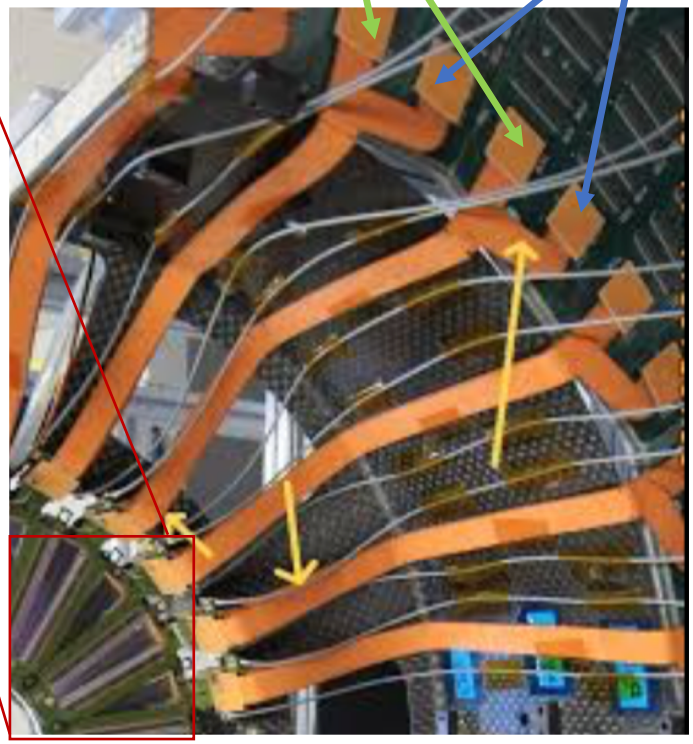
Column-B,D Conversion Cables

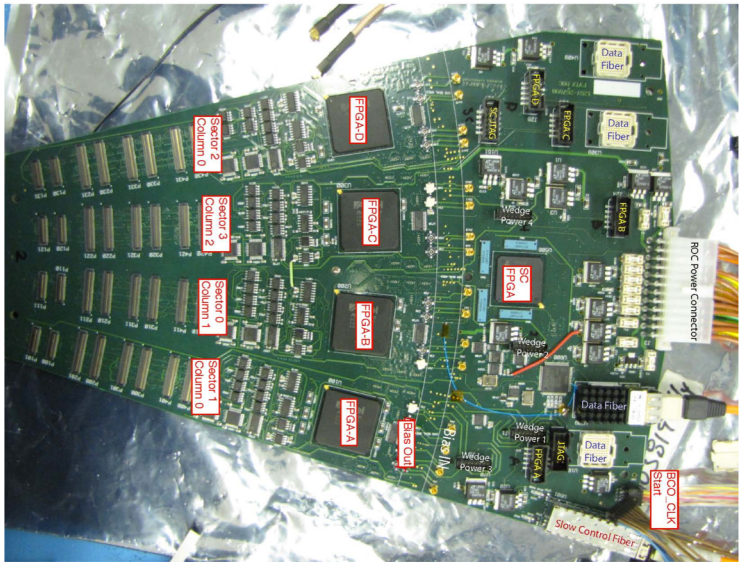


PHENIX-FVTX

Silicon facing downstream

Silicon facing upstream

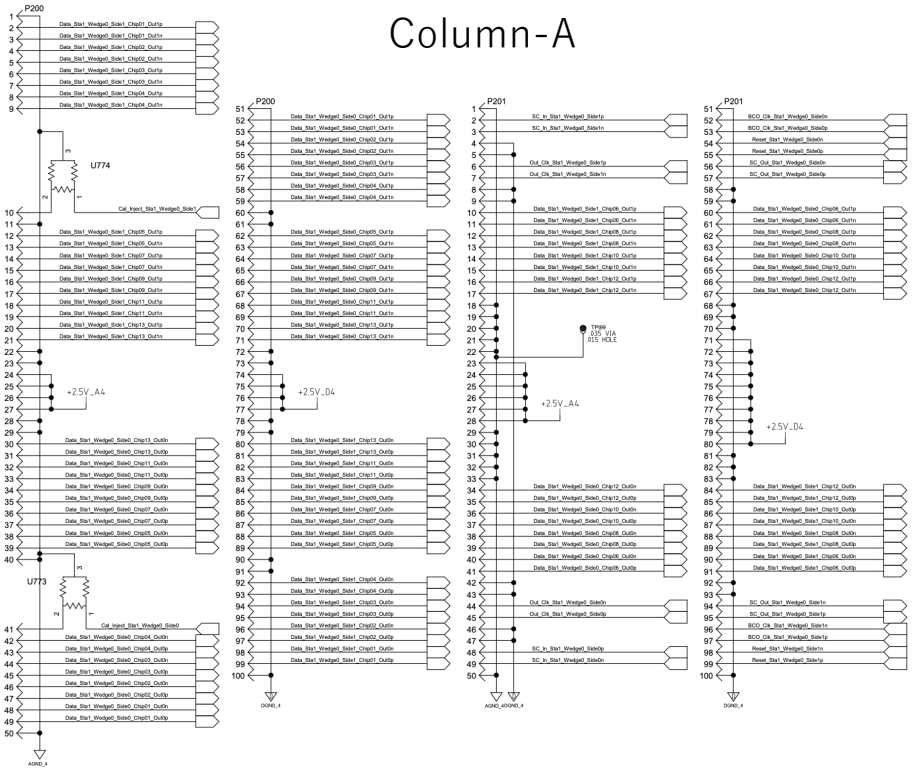




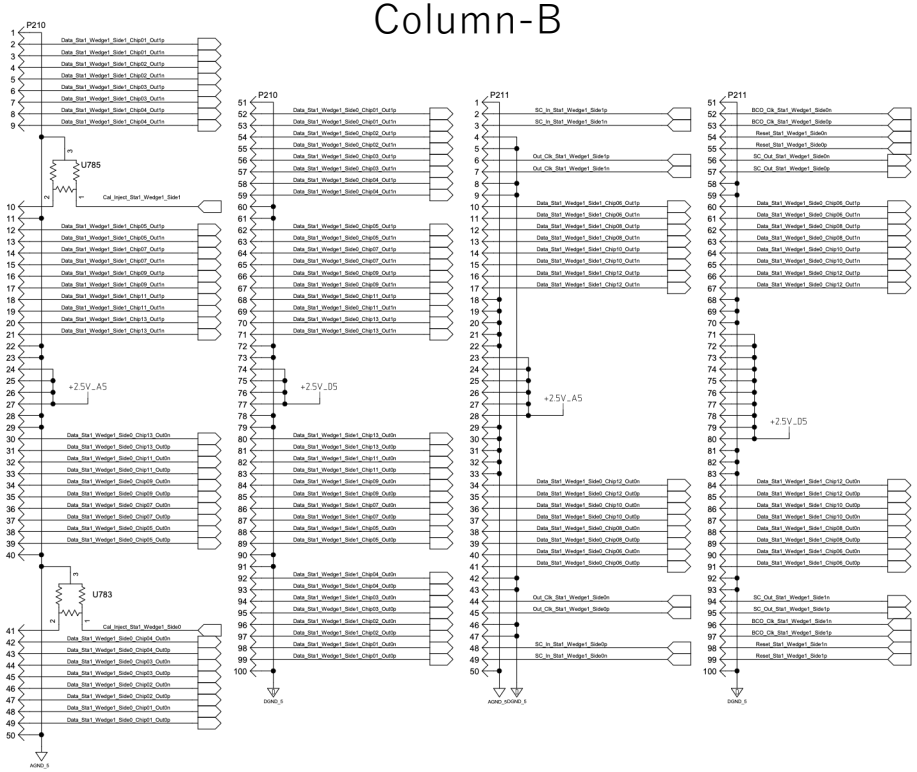
The pin assignments can be different between column-A,C and B,D. They are to be identical for INTT.

Pin Assignments at ROC

Column-A



Column-B



Looks to me identical, but need confirmation by somebody else.

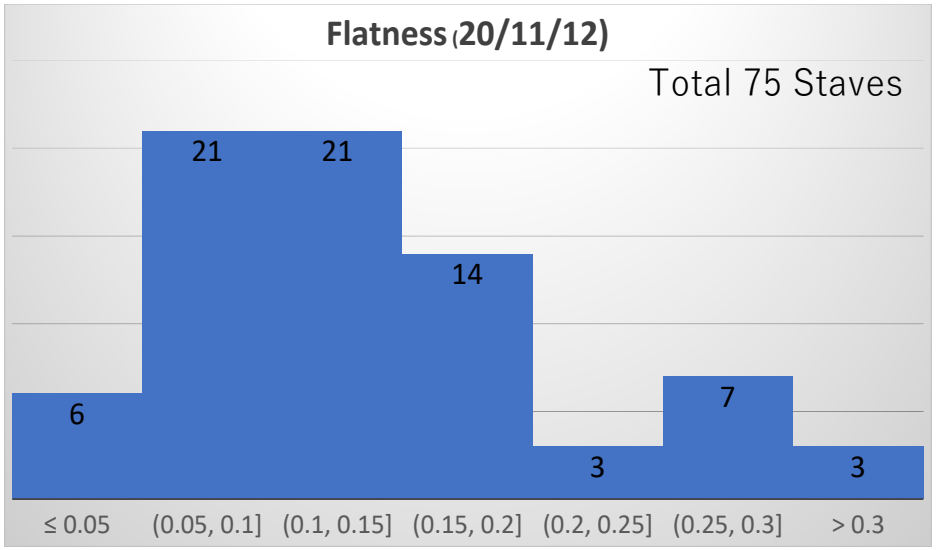
Column-B,D Solution

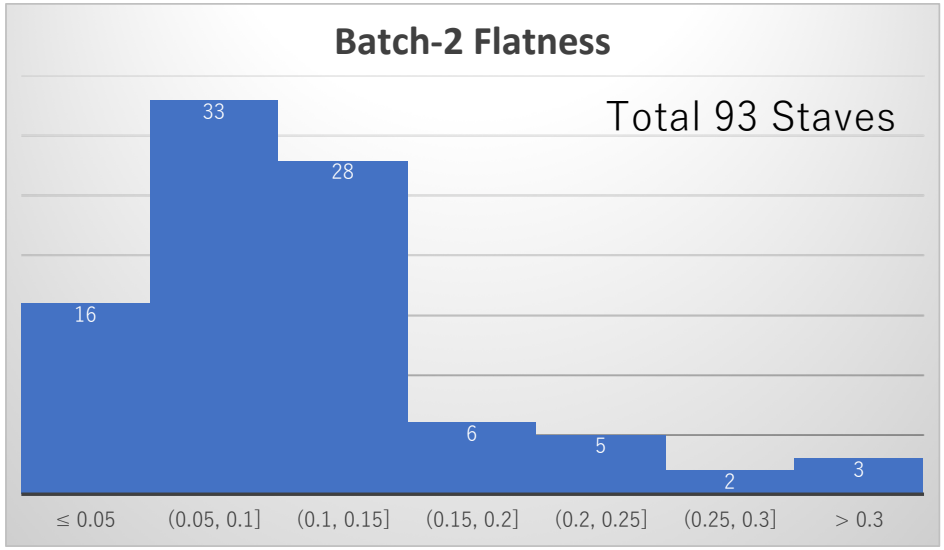
- Solution-1 : If the ROC ports of column-B,D and column-A,C are/(can be made identical by modifying the FPGA code), then no additional customization necessary.
- Solution-2 : If the ROC ports column-B,D and column-A,C cannot be identical, then we need to develop new custom conversion cable for column-B,D.

2nd Batch Staves

Completed assembly and leak test after the assembly. Waiting for transportation tubes for the delivery.

Flatness Comparison Batch-1 vs Batch-2



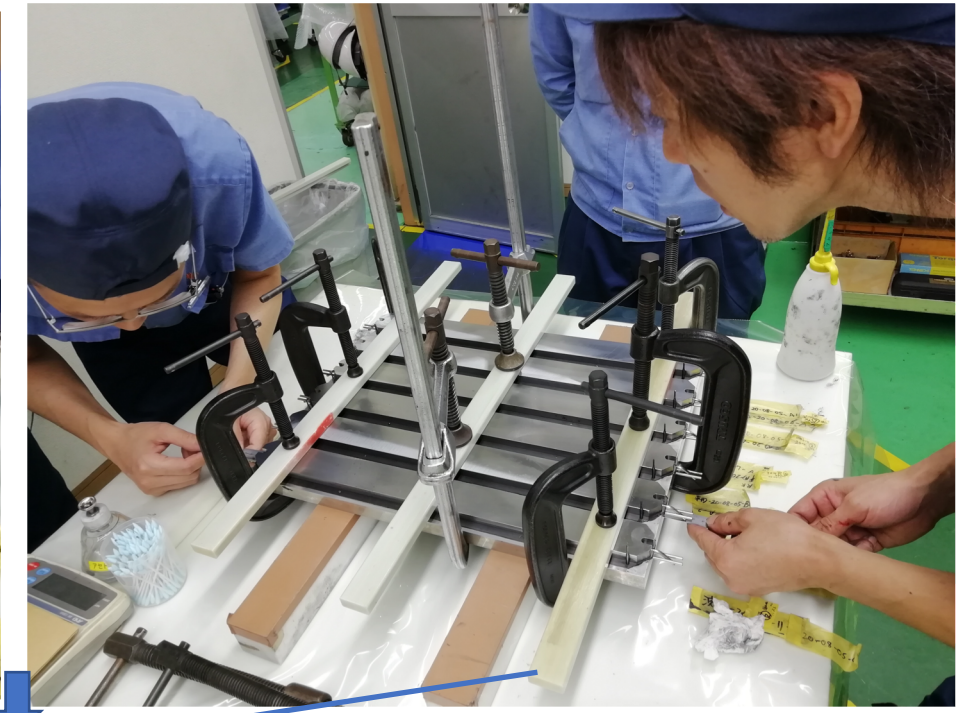


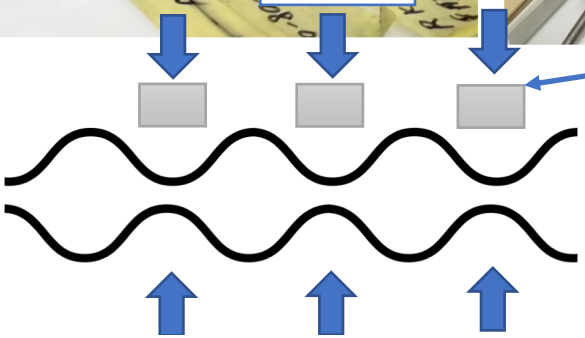
27/75 staves (36%) achieved <100um

49/93 (56%) staves achieved <100um

Certainly the flatness is improved in batch-2 compared to batch-1 stave assembly.

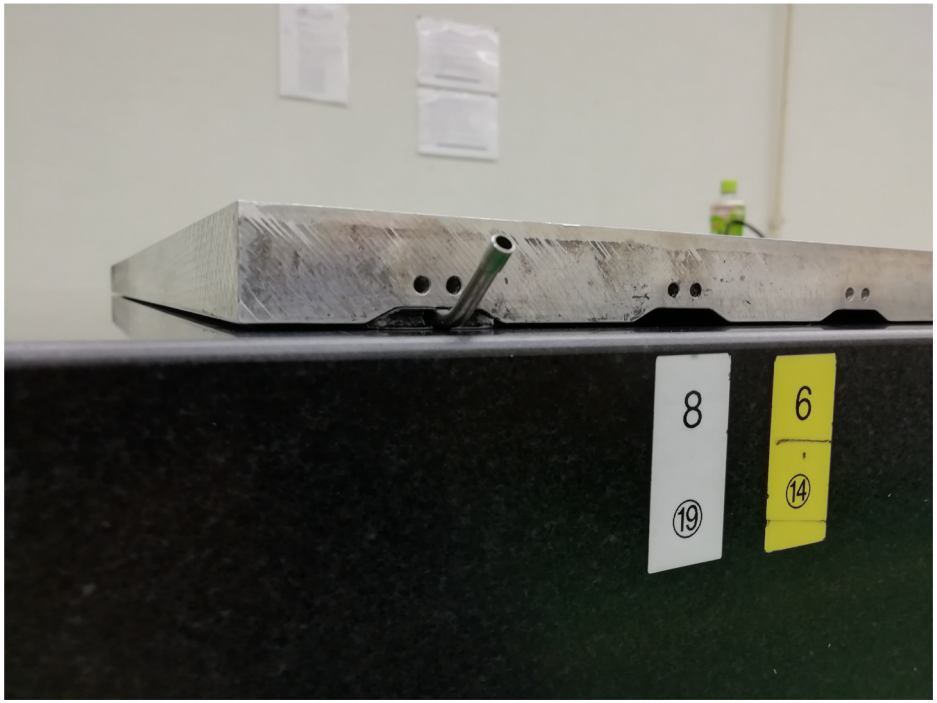
Glue Curing Setup in the Assembly

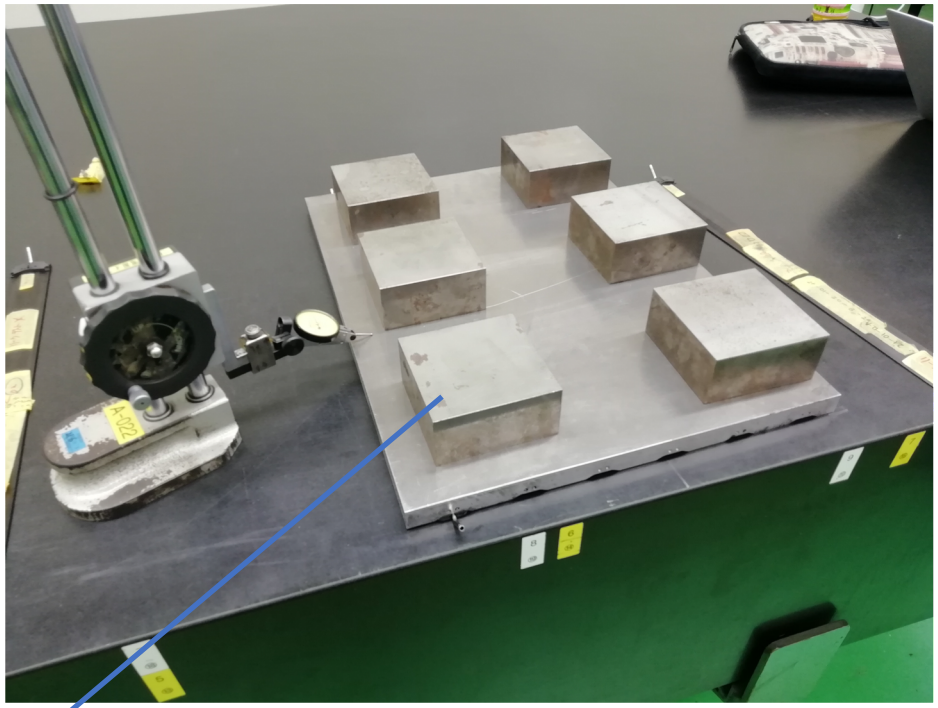


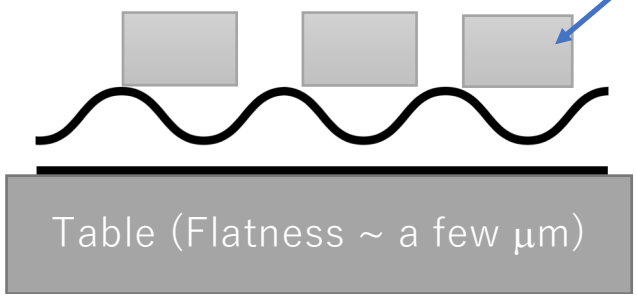


Was introducing local waving structure in the longitudinal direction.

Glue Curing Setup in the Assembly







Avoid local force by the clamp. Forcing flatness to the CFRP flat plane.

Improved Flatness Performance

Tube #	art	P(1) [kPa]	Stop	P(2) [kPa]	Δt [h:m]	Serial [h]	ΔP [kPa]	ΔP [kPa/h]	FoM [h/kPa]	End Cap 001/002	1	2	3	4	4	5	5	6 位置度A	6 位置度B	6 位置度C	6 位置度D	7 位置度E	7 位置度F	7 位置度G	7 位置度H	8 Flatness	9 エンドキャップ平行度	10 パイプ平行度	10 パイプ平行度	11	11
								-0.64			497	248.5	38	234	234	2	2	0.05(M)	0.05(M)	0.05(M)	0.05(M)	0.35(M)	0.35(M)	0.35(M)	0.35(M)	0.126	0.126	1.01	1.01	246	246
1					0:00	0.00	0.00	#DIV/0!	#DIV/0!																						
2	2/18 14:45	-9.62	2021/2/19 1:45	-7.10	11:00	11.00	-2.52	-0.23	0.05	001	496.960	248.482	38.05	234.015	233.99	2.009	1.997	0	0.03	0.007	0.036	0	0.03	0.028	0.012	0.046	0.116	0.607	0.614	245.967	245.94
3					0:00	0.00	0.00	#DIV/0!	#DIV/0!																	0.224					
4					0:00	0.00	0.00	#DIV/0!	#DIV/0!																	0.237					
5					0:00	0.00	0.00	#DIV/0!	#DIV/0!																	0.337					
6					0:00	0.00	0.00	#DIV/0!	#DIV/0!																	0.314					
7	/3/5 16:40	-10.67	2021/3/6 3:40	-8.30	11:00	11.00	-2.37	-0.22	0.07	002	496.881	248.476	38	234.004	233.99	2.004	2.012	0	0.047	0.024	0.045	0	0.065	0.02	0.016	0.148	0.128	0.164	0.179	235.99	235.949
8					0:00	0.00	0.00	#DIV/0!	#DIV/0!																	0.185					
9	2/25 18:35	-10.88	2021/2/26 5:35	-8.23	11:00	11.00	-2.65	-0.24	0.06	002	496.982	248.451	38.02	234.007	233.99	2.006	2.006	0	0.035	0.014	0.029	0	0.037	0.03	0.008	0.12	0.113	0.112	0.221	245.976	245.967
10					0:00	0.00	0.00	#DIV/0!	#DIV/0!																	0.313					
11	/3/2 14:10	-10.65	2021/3/3 1:10	-9.03	11:00	11.00	-1.62	-0.15	0.14	002	496.978	248.516	38.01	234.015	234.012	1.991	1.994	0	0.06	0.014	0.01	0	0.042	0.032	0.006	0.066	0.158	0.252	0.258	245.978	245.996
12					0:00	0.00	0.00	#DIV/0!	#DIV/0!																	0.285					
13					0:00	0.00	0.00	#DIV/0!	#DIV/0!																	0.175					
14	/3/1 12:00	-10.74	2021/3/1 23:00	-6.20	11:00	11.00	-4.54	-0.41	0.04	002	497.105	248.504	38.04	233.99	233.994	2.007	2.009	0	0.01	0.002	0.006	0	0.028	0.026	0.01	0.12	0.147	0.023	0.117	245.984	246.005
15					0:00	0.00	0.00	#DIV/0!	#DIV/0!																	0.231					
16	/3/4 11:15	-12.17	2021/3/4 22:15	-9.15	11:00	11.00	-3.02	-0.27	0.05	001	497.014	248.454	38.01	233.984	233.993	2.003	2.005	0	0.039	0.016	0.013	0	0.038	0.032	0.006	0.101	0.158	0.511	0.195	245.97	245.973
17	/3/5 16:40	-10.95	2021/3/6 3:40	-9.92	11:00	11.00	-1.03	-0.09	0.26	002(平面度NG)	496.873	248.361	37.99	234.002	233.992	2.011	2.007	0	0.049	0.01	0.03	0	0.026	0.038	0.003	0.17	0.113	0.122	0.501	236.027	235.999
18	/3/4 11:15	-12.54	2021/3/4 22:15	-8.74	11:00	11.00	-3.80	-0.35	0.05	002	496.969	248.469	38.01	234.013	233.991	1.986	1.988	0	0.05	0.094	0.052	0	0.035	0.033	0.003	0.128	0.13	0.111	0.326	235.982	235.957
19	2/18 14:45	-10.49	2021/2/19 1:45	-8.17	11:00	11.00	-2.32	-0.21	0.07	002	497.004	248.447	38.01	234.005	234.015	1.989	1.991	0	0.014	0.015	0.025	0	0.042	0.034	0.003	0.069	0.229	0.276	0.363	245.995	245.888
20	2/18 14:45	-10.52	2021/2/19 1:45	-7.78	11:00	11.00	-2.74	-0.25	0.05	001	496.994	248.503	38.02	234.019	234.015	1.984	1.996	0	0.042	0.004	0.067	0	0.043	0.031	0.017	0.102	0.105	0.295	0.026	245.983	245.975
21	2/18 14:45	-9.90	2021/2/19 1:45	-7.20	11:00	11.00	-2.70	-0.25	0.07	002	497.105	248.504	38.01	233.99	233.994	2.007	2.009	0	0.01	0.002	0.006	0	0.028	0.026	0.01	0.12	0.147	0.023	0.117	245.984	246.005
22	2/25 18:35	-11.79	2021/2/26 5:35	-8.23	11:00	11.00	-3.56	-0.32	0.05	002	496.948	248.485	38.01	233.995	233.999	1.992	1.998	0	0.014	0.034	0.044	0	0.045	0.038	0.01	0.131	0.2	0.357	0.363	245.975	245.976
23	2/25 18:35	-11.56	2021/2/26 5:35	-9.05	11:00	11.00	-2.51	-0.23	0.08	002	496.888	248.407	38.03	233.986	233.978	2.002	1.997	0	0.03	0.081	0.058	0	0.034	0.034	0.005	0.139	0.244	0.386	0.666	245.943	245.938
24	/3/1 12:00	-11.73	2021/3/1 23:00	-7.60	11:00	11.00	-4.13	-0.38	0.05	002	496.949	248.47	38.02	234.007	234.005	1.993	1.997	0	0.048	0.011	0.061	0	0.043	0.037	0.002	0.099	0.133	0.118	0.175	245.928	245.977
25	/3/4 11:15	-11.44	2021/3/4 22:15	-7.02	11:00	11.00	-4.42	-0.40	0.06	002(平面度NG)	496.923	248.429	38.01	233.994	233.993	2	2.003	0	0.007	0.024	0.047	0	0.03	0.034	0.006	0.207	0.167	0.229	0.227	236.001	235.951
26	/3/4 11:15	-13.02	2021/3/4 22:15	-9.48	11:00	11.00	-3.54	-0.32	0.05	001	497.068	248.577	38.03	234.01	234.011	1.999	2.005	0	0.014	0.037	0.036	0	0.048	0.044	0.008	0.129	0.079	0.127	0.067	236.079	236.01
27	/3/2 14:10	-11.46	2021/3/3 1:10	-9.39	11:00	11.00	-2.07	-0.19	0.05	002	496.98	248.478	38.00	234.006	233.998	2.01	2.011	0	0.019	0.029	0.03	0	0.023	0.026	0.004	0.082	0.282	0.333	0.097	245.964	246.004
28	/3/3 9:00	-12.18	2021/3/3 20:00	-8.97	11:00	11.00	-3.21	-0.29	0.05	001	496.988	248.527	38.02	234.021	234.009	1.989	1.991	0	0.035	0.008	0.026	0	0.046	0.034	0.006	0.095	0.102	0.224	0.582	245.93	245.93
29	/3/1 12:00	-11.42	2021/3/1 23:00	-7.34	11:00	11.00	-4.08	-0.37	0.07	002	497.123	248.547	38.02	234.012	233.99	2.009	2.01	0	0.045	0.002	0.022	0	0.036	0.033	0.002	0.033	0.135	0.093	0.099	246.007	246.001
30					0:00	0.00	0.00	#DIV/0!	#DIV/0!																						
31	/3/5 16:40	-10.77	2021/3/6 3:40	-8.56	11:00	11.00	-2.21	-0.20	0.11	002	496.901	248.466	38.02	234.001	233.975	2.018	2.017	0	0.048	0.024	0.05	0	0.045	0.033	0.002	0.15	0.066	0.288	0.027	236.007	235.975
32	/3/3 9:00	-13.20	2021/3/3 20:00	-9.53	11:00	11.00	-3.67	-0.33	0.07	001	496.976	248.456	38.01	233.996	233.992	2.007	2.014	0	0.021	0.003	0.036	0	0.023	0.036	0.012	0.057	0.154	0.185	0.259	245.946	245.95
33	/3/2 14:10	-11.23	2021/3/3 1:10	-9.94	11:00	11.00	-1.29	-0.12	0.14	002	497.072	248.552	38.02	234.003	234.016	1.992	1.998	0	0.017	0.032	0.018	0	0.041	0.041	0.006	0.071	0.089	0.058	0.168	245.989	245.997
34	/3/4 11:15	-12.66	2021/3/4 22:15																				0.048	0.027	0.019	0.098	0.094	0.067	0.29	245.942	245.964
35	2/18 14:45	-10.97	2021/2/19 1:45																				0.055	0.046	0.027	0.087	0.075	0.202	0.362	245.944	245.949
36	/3/1 12:00	-11.78	2021/3/1 23:00																				0.032	0.06	0.046	0.043	0.07	0.48	0.589	246.082	246.099
37																															
38	2/24 20:00	FFF	2021/2/25 7:00	FFF	11:00	11.00	#VALUE!	#VALUE!	#VALUE!	001	496.821	248.393	38.03	234.009	233.995	2.001	2.003	0	0.081	0.018	0.063	0	0.045	0.04	0.008	0.113	0.232	0.162	0.025	245.898	245.857
39	/3/3 9:00	-12.96	2021/3/3 20:00	-9.92	11:00	11.00	-3.04	-0.28	0.07	001	496.96	248.529	38.03	234.009	234.012	1.988	1.996	0	0.017	0.001	0.007	0	0.049	0.037	0.011	0.079	0.24	0.054	0.193	246.004	245.94
40	/3/2 14:10	-11.27	2021/3/3 1:10	-8.59	11:00	11.00	-2.68	-0.24	0.06	001	496.958	248.511	38.02	234.005	234.001	1.991	1.994	0	0.033	0.033	0.041	0	0.044	0.039	0.002	0.14	0.216	0.265	0.458	245.943	245.892
41	/3/2 14:10	-11.27	2021/3/3 1:10	-9.25	11:00	11.00	-2.02	-0.18	0.09	001	496.875	248.399	38.03	233.995	233.996	2.005	2.009	0	0.061	0.002	0.027	0	0.032	0.032	0.011	0.11	0.176	0.118	0.165	245.947	245.902
42	/3/2 14:10	-11.84	2021/3/3 1:10	-10.24	11:00	11.00	-1.60	-0.15	0.15	002	497.031	248.494	38.01	234.008	234.02	1.982	1.986	0	0.027	0.008	0.029	0	0.033	0.032	0.003	0.094	0.144	0.121	0.13	246.011	245.976
43	2/24 20:00	-11.67	2021/2/25 7:00	-8.44	11:00	11.00	-3.23	-0.29	0.07	001(平面度NG)	496.928	248.475	38.03	234.025	233.989	1.993	1.989	0	0.065	0.071	0.077	0	0.024	0.027	0.011	0.197	0.119	0.11	0.313	245.963	245.882
44	2/25 18:35	-11.62	2021/2/26 5:35	-8.75	11:00	11.00	-2.87	-0.26	0.07	002	496.902	248.439	38.03	234.003	233.991	2.007	2.011	0	0.039	0.008	0.05	0	0.036	0.026	0.006	0.083	0.04	0.044	0.403	245.941	245.966
45					0:00	0.00	0.00	#DIV/0!	#DIV/0!	[illegible]	497.031	248.523	38.03	234.01	234.002	1.957	1.956	0	0.019	0.163	0.062	0	0.037	0.032	0.008	0.136	0.118	0.336	0.053	245.847	245.987
46	/3/1 12:00	-11.21	2021/3/1 23:00	-6.27	11:00	11.00	-4.94	-0.45	0.06	002	497.012	248.498	38.01	233.999	233.978	2.036	2.037	0	0.043	0.056	0.057	0	0.04	0.035	0.009	0.03	0.195	0.161	0.336	236	236
47	2/18 14:45	-10.53	2021/2/19 1:45	-8.30	11:00	11.00	-2.23	-0.20	0.07	001	496.852	248.411	38.01	233.981	234.008	1.989	1.991	0	0.087	0.011	0.008	0	0.025	0.026	0.001	0.094	0.08	0.081	0.013	245.911	245.952
48	/3/2 14:10	-11.18	2021/3/3 1:10	-9.32	11:00	11.00	-1.86	-0.17	0.11	002	497.051	248.564	38.02	234.017	234.02	1.983	1.985	0	0.014	0.013	0.033	0	0.036	0.037	0.001	0.111	0.102	0.045	0.224	245.994	246.008

76/82 staves achieved < 100um after the modification

before

After

2nd Batch (edit) | 2nd Batch (original) | Batch-1 vs. Batch-2

Twist Test for Batch-2/Batch-1 Staves

- After investigation together with Asuka crews and Takashi in Asuka co., we concluded the twist test may not be sensitive to find the potential leak at the joint.
- This is because the SUS bend tube is glued to the stave itself.