

Experience with Tolerances of delivered be chambers

Chamber	Year delivered	Estimated Mech Tol.	Achieved
ATLAS VI (HCVC1I_041-MN000001)	2012	1.95 mm	0.1 (0.2) mm*
CMS (HCVC5C_028-MN000001)	2014	1.15 mm	0.9 (1.0) mm
LHCb (HCVC8B_149-MN000001)	2012	1.5 mm	0.35 (0.45) mm
CMS (old)	2006	-	0.55 (?) mm

*Tolerance was based on installation condition in the experiment

Tolerances in “achieved” include ovalisation (in brackets), which was measured at around 0.1 mm in all cases.

In all cases the achieved tolerances have been better than the estimates

Experience with Tolerances of delivered be chambers - ATLAS



MEASUREMENT RESULTS

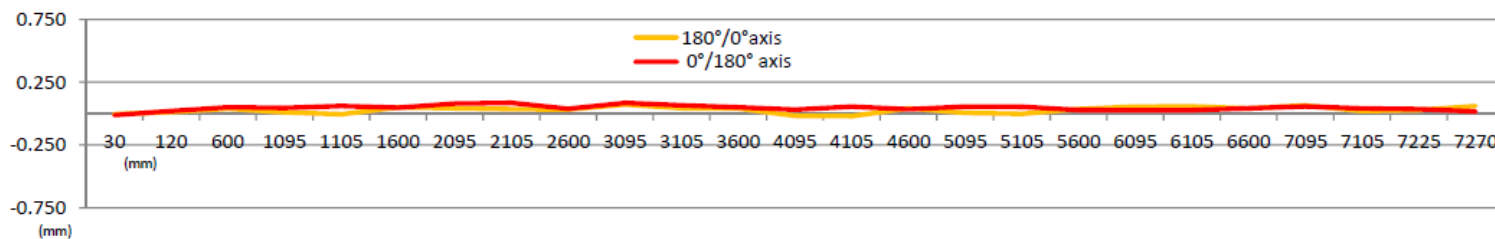


0°/180° axis

measurement position N°	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Z position	-0.013	0.021	0.051	0.044	0.060	0.047	0.079	0.085	0.038	0.085	0.066	0.050	0.031	0.055	0.035	0.055	0.053	0.028	0.026	0.027	0.041	0.057	0.040	0.035	0.017
X position	30	120	600	1095	1105	1600	2095	2105	2600	3095	3105	3600	4095	4105	4600	5095	5105	5600	6095	6105	6600	7095	7105	7225	7270

180°/0° axis

Measurement position N°	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Z position	-0.005	0.012	0.038	0.010	-0.005	0.049	0.042	0.035	0.032	0.072	0.043	0.040	-0.018	-0.020	0.043	0.006	-0.002	0.037	0.055	0.056	0.040	0.065	0.020	0.027	0.060
X position	30	120	600	1095	1105	1600	2095	2105	2600	3095	3105	3600	4095	4105	4600	5095	5105	5600	6095	6105	6600	7095	7105	7225	7270



—	⊙	Ø1.5	B-C	0.158
—	—	Ø0.15/500		0.060

3.12.2012

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Experience with Tolerances of delivered be chambers - CMS



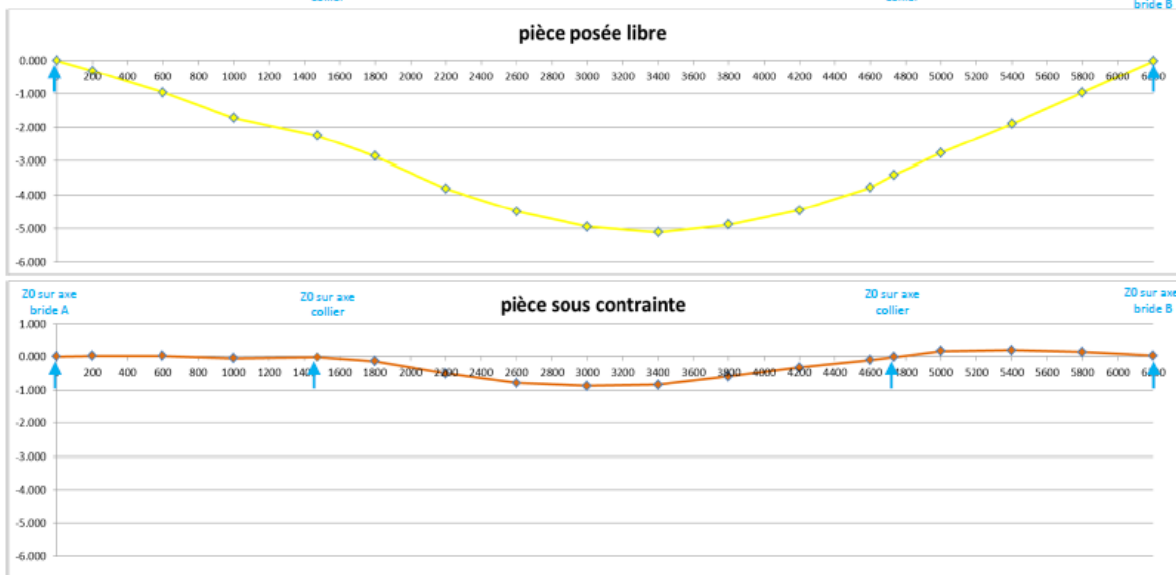
RESULTATS DE MESURE



— Ø0.2/500 Ⓞ Ø1.5 A-B

EDMS: 1343284 CMS CENTRAL BEAM PIPE OD 45 ASSEMBLY AL-BE
 Job.: J3015981 LHCVCSC_0028 IND.8

distance / face bride A	1	4	6	8	11	14	16	18	20	22	24	26	28	29	30	34	36	40	
	0	200	600	1000	1475	1800	2200	2600	3000	3400	3800	4200	4600	4735	5000	5400	5800	6200	
	bride A				collier 1									collier 2				bride B	
pièce posée libre	position axe	0.000	-0.311	-0.956	-1.716	-2.247	-2.857	-3.812	-4.481	-4.942	-5.101	-4.876	-4.446	-3.777	-3.397	-2.761	-1.891	-0.956	-0.016
	Z0 sur axe																		Z0 sur axe
	bride A																		bride B
pièce sous contrainte	position axe	0.000	0.015	0.019	-0.056	-0.016	-0.141	-0.506	-0.791	-0.881	-0.841	-0.591	-0.331	-0.106	-0.016	0.154	0.179	0.134	0.024
	Z0 sur axe																		Z0 sur axe
	bride A					collier								collier					bride B



29.04.2014

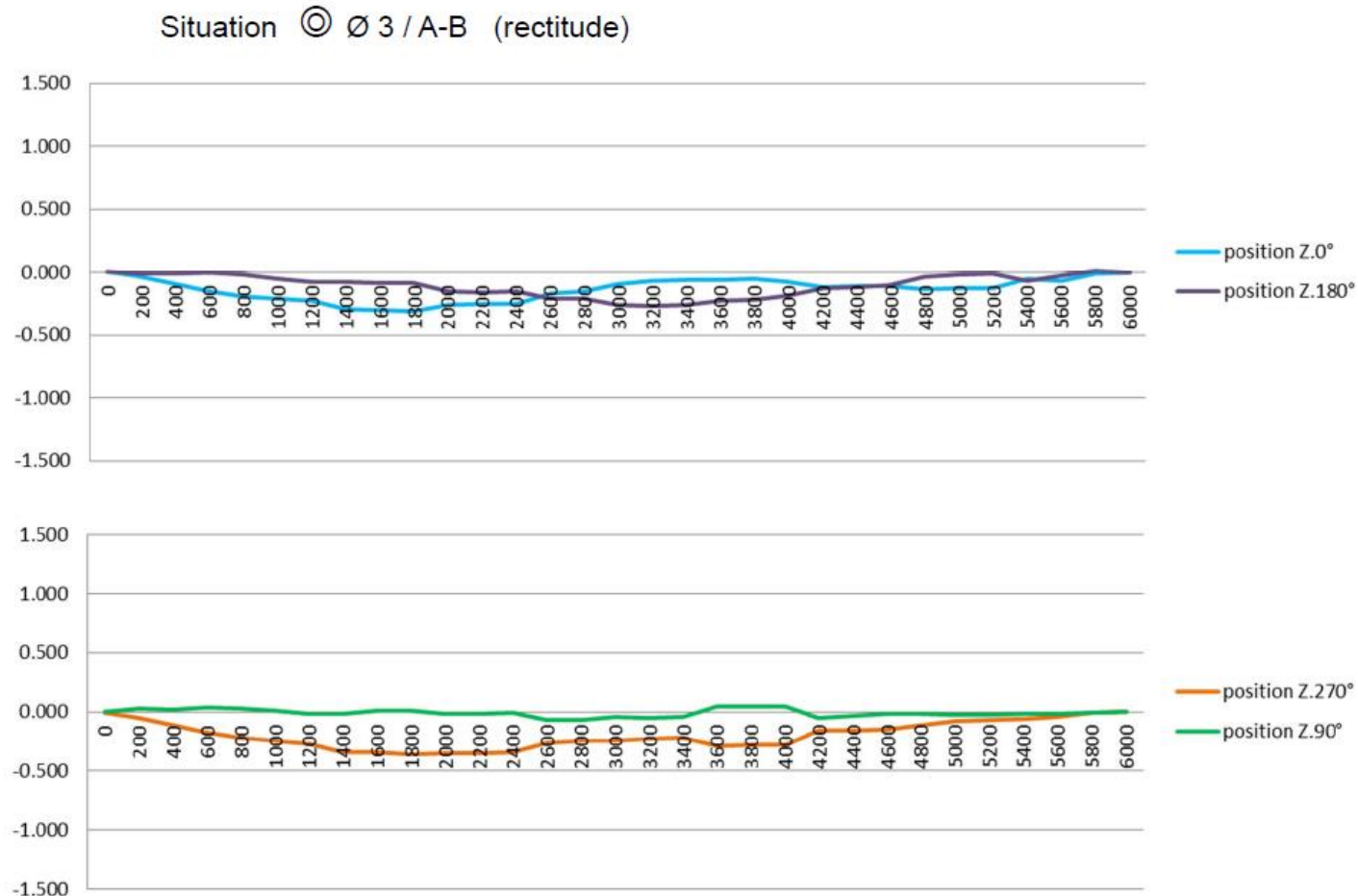
RIGAUD Jean-Philippe – CMSCENTRAL BEAM PIPE OD45 ASSEMBLY-
 EDMS.1343284

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RESULTATS DE MESURE



26.01.2012

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Experience with Tolerances of delivered be chambers – CMS (old)

