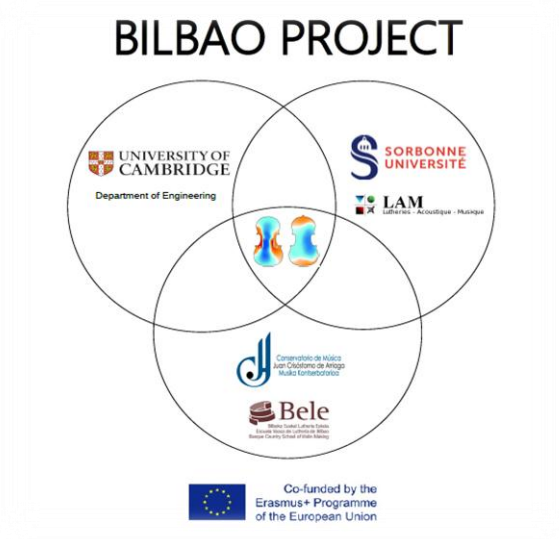
The backs and the tops, Which combinations?



We have only combined Pliant, Medium and Resistant tops with Pliant, Medium and Resistant backs. We did not do all the combinations, only those with one or two medium plates. We repited the central violin to have a control unit.

Same wood ribs with 1.0-1.1mm thickness.

Very simmilar fingerboards chosen from more than 100 blancks.

Same wood soundposts. Same wood bridges, selcted from 50 blancks. Cut and adjusted paying attention to impedance (mass times rocking motion frequency). Same fittings.

KAPLAN AMO strings, generously donated by D´Addario.

	Resistant Top F Medium Back C Violin 4 (test 1)	
Medium Top D Pliant Back A Violin 13 (test 5)	Medium Top C B Medium Back E D Violins 11 and 5 (test 4 and 2)	Medium Top A Resistant Back F Violin 1 (test 6)
	Pliant Top E Medium Back B Violin 9 (test 3)	

Spruce density from 360 to 390 kg/m3. Maple density from 555 to 575 kg/m3

The “characteristic impedance” we have calculated for the tops and backs comes from a formula by Evan Davis:

$$Z_{evans} \cong \frac{4 \times M}{1000} \sqrt{\frac{2}{13} \times (\#2^2 + \#5^2)} \cong 0.001569 \times M \times \sqrt{(\#2^2 + \#5^2)}$$

Where M is the mass of the plates in grams and #2 y #5 are the frequencies of the 2nd and 5th modes of resonance of the free plates.

The value of $\mathbf{Z_{EVANS}}$ number is what we have considered to graduate the thickness of the plates and make them similar.

	TOP				BACK			
	Top plate nº	Average thicknesses	Weight	Z_{EVANS}	Back plate nº	Average thicknesses Uper – C - lower	Weight	Z_{EVANS}
Pliant	E	2.2 mm	58,5	**30,72**	A	2.0 – 4.3 – 2.0	87,2	**47,77**
Medium	A	2.6 mm	65,45	**39,44**	B	2.7 – 4.5 – 2.7	100,2	**60,08**
Medium	B	2.6 mm	66,3	**38,98**	C	2.7 – 4.5 – 2.7	100,3	**59,70**
Medium	C	2.6 mm	65,8	**38,60**	D	2.7 – 4.5 – 2.7	99,55	**60,06**
Medium	D	2.6 mm	65,8	**39,32**	E	2.9 – 4.5 – 2.9	99,6	**60,03**
Resistant	F	3.3 mm	72,7	**48,15**	F	3.4 – 5.0 – 3.4	115,3	**75,32**