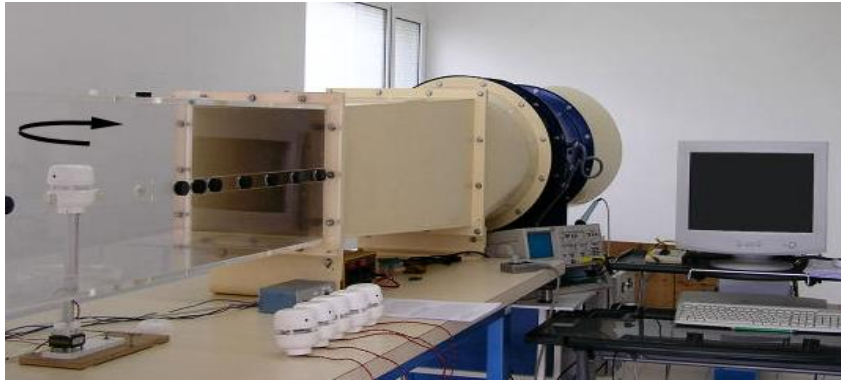


**Test bench**



On the picture, wind tunnel test of the CV3F model. Same process for the CV7 model.

The CV7 sensor is placed in the wind tunnel on a rotating bracket which rotates by 9 degrees steps. This is computer controlled.

The sensor is aligned in the wind direction and set at 0 degrees. 40 mesure points are logged with both angle and speed.

Each CV7 sensor is wind tunnel and temperature tested.

Figure 1 shows the wind speed settings (y) to the wind tunnel fan's motor speed (x).

$$y=1.4682x-1.7154$$

The factory setting of the CV7 is done for a 19 knots wind speed .

Figure 1 shows the the verification points for 4,15, 19 and 35 knots.

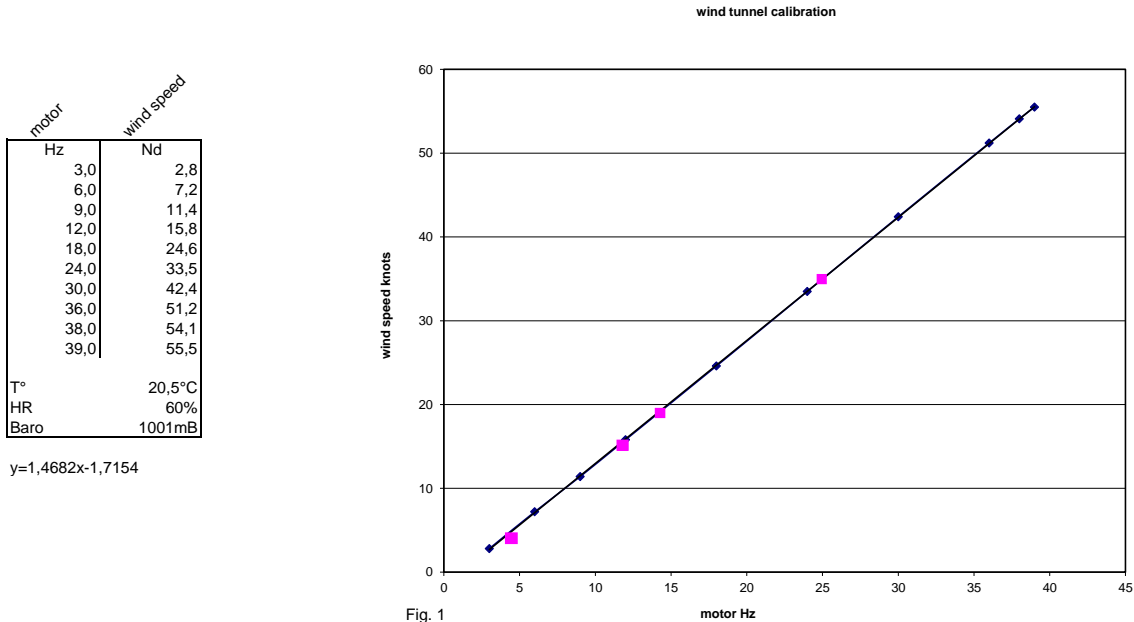


Fig. 1

Calibration of DELTALAB wind tunnel:  
Measures made in our premises with "Ecole Centrale de Nantes" technical means on july 3rd 2007  
Verified 6 july 2012

wind tunnel speed: 3,9 Hz = 4,0 knots - test temperature: 20°C

Measuring wind speed depending on its direction

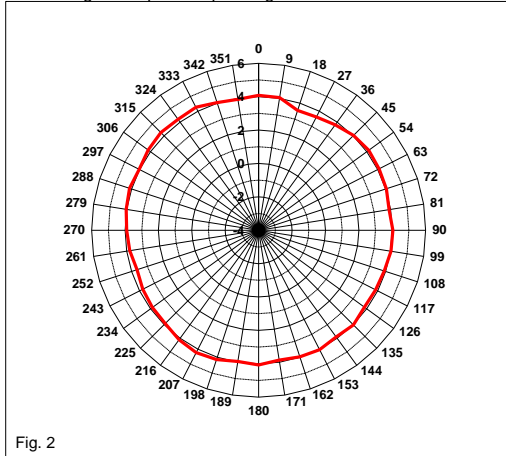


Fig. 2

mean force: 3,98 Nds  
sigma force: 0,16 Nds

angle to direction deviation

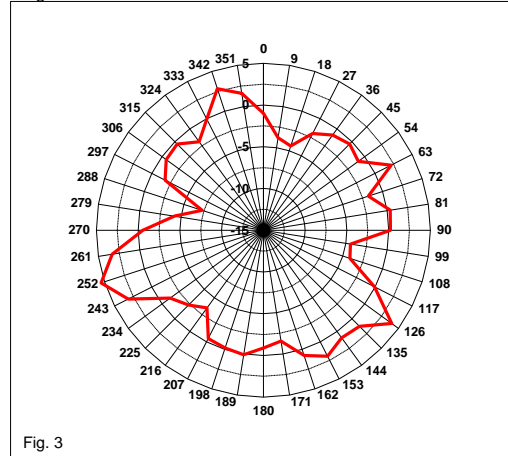


Fig. 3

mean angle deviation: -0,56 °  
sigma angle deviation: 2,54 °

wind tunnel speed: 5.2 Hz = 5.9 knots - test temperature: 20°C

Measuring wind speed depending on its direction

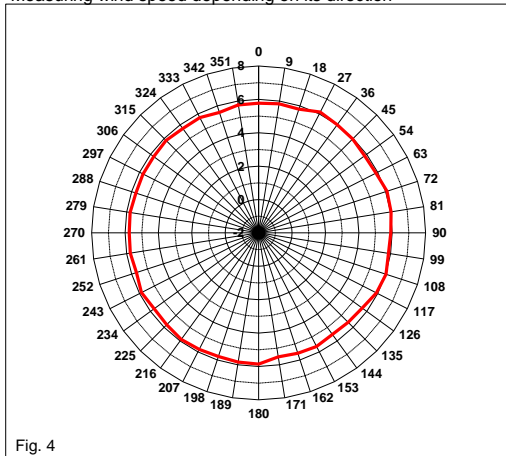


Fig. 4

mean force: 5,80 Nds  
sigma force: 0,14 Nds

angle to direction deviation

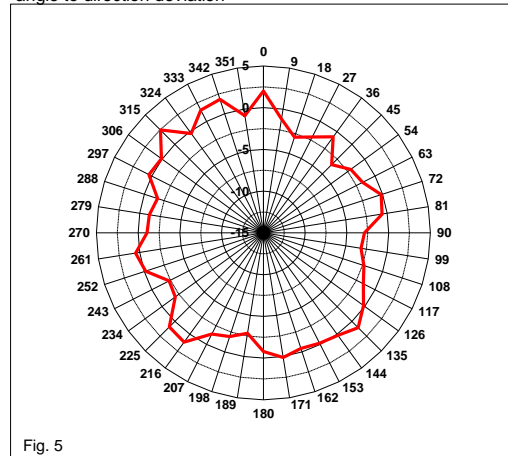


Fig. 5

mean angle deviation: -0,74 °  
sigma angle deviation: 1,48 °

wind tunnel speed: 11.4 Hz = 15.0 knots - test temperature: 20°C

Measuring wind speed depending on its direction

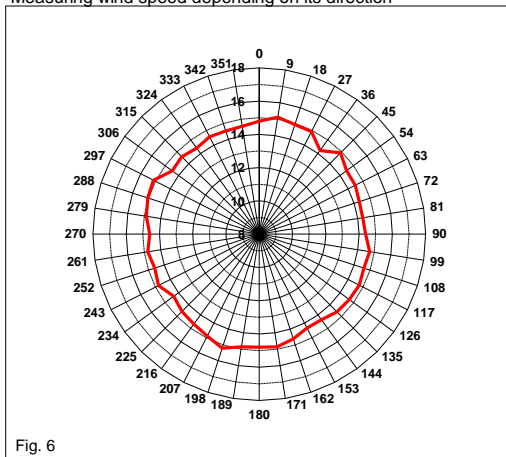


Fig. 6

mean force: 14,67 Nds  
sigma force: 0,24 Nds

angle to direction deviation

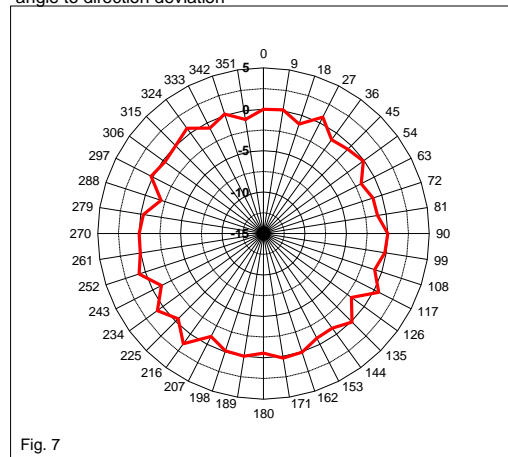
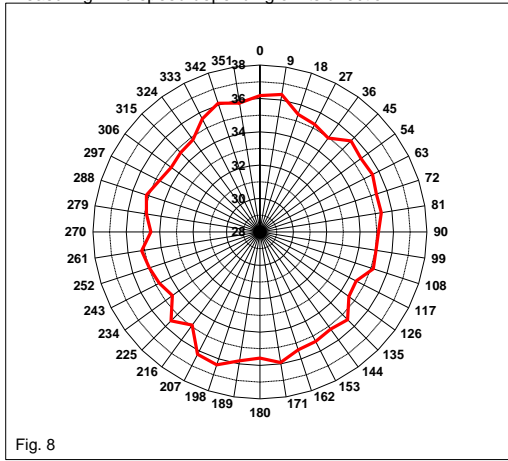


Fig. 7

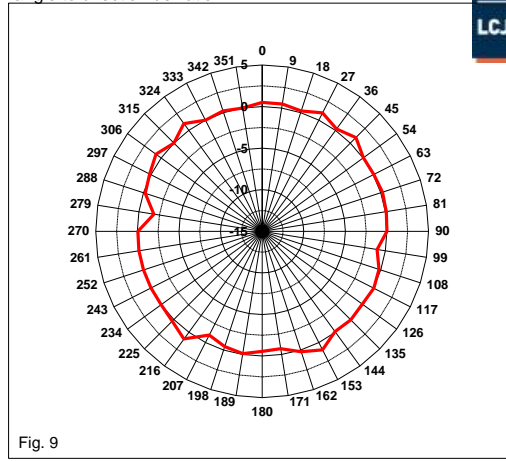
mean angle deviation: -0,33 °  
sigma angle deviation: 0,77 °

wind tunnel speed: 25.0 Hz = 35.0 knots - test temperature: 20°C  
Measuring wind speed depending on its direction



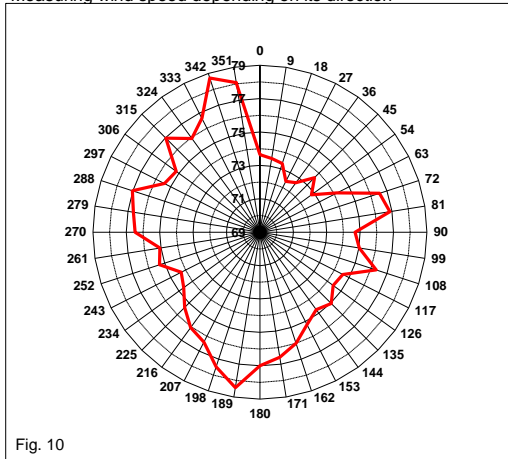
mean force: 35,30 Nds  
sigma force: 0,52 Nds

angle to direction deviation



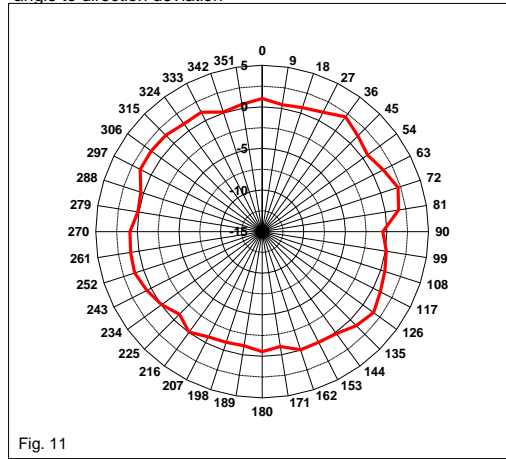
mean angle deviation: 0,05 °  
sigma angle deviation: 0,57 °

wind tunnel speed: 55.2 Hz = 75.0 knots - test temperature: 20°C  
Measuring wind speed depending on its direction



mean force: 75,49 Nds  
sigma force: 1,54 Nds

angle to direction deviation



mean angle deviation: 0,54 °  
sigma angle deviation: 0,85 °

figures 2 to 11 show tests results.  
speed values deviations are below 0.5 Nœud, mean angles deviations are below 1 degree.

**Measures repeatability**

wind tunnel speed: 14.1 Hz = 19.0 knots - test temperature: 20°C

— 26 dec 2011  
— 29 dec 2011  
— 30 dec 2011

Figures 12 and 13 below give indication of measures repeatability.

wind speed to direction

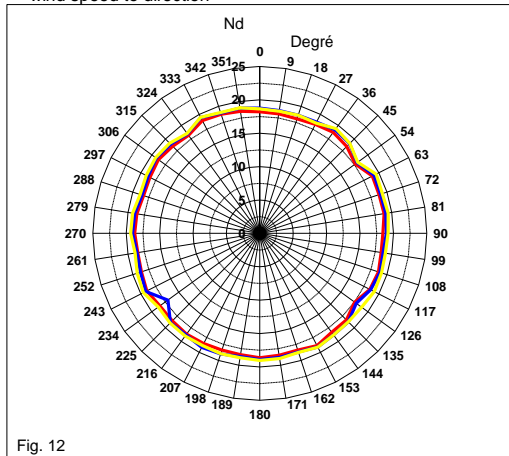


Fig. 12

	Date 1	Date 2	Date 3
mean force:	18,79 Nds	18,49 Nds	19,01 Nds
sigma force:	0,41 Nds	0,30 Nds	0,31 Nds
	2,18%	1,62%	1,63%

angle to direction deviation

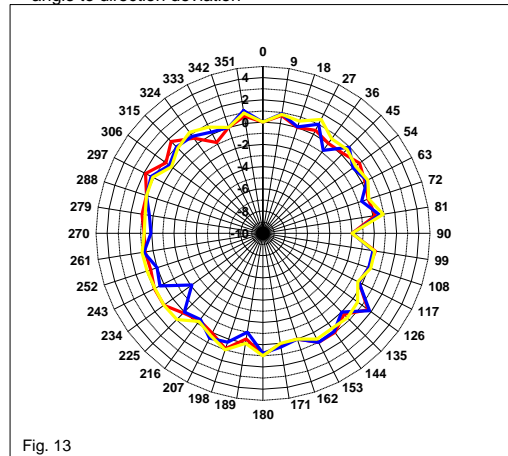


Fig. 13

	Date 1	Date 2	Date 3
mean angle deviation:	0,25 °	0,41 °	0,51 °
sigma angle deviation:	0,78 °	0,69 °	0,59 °