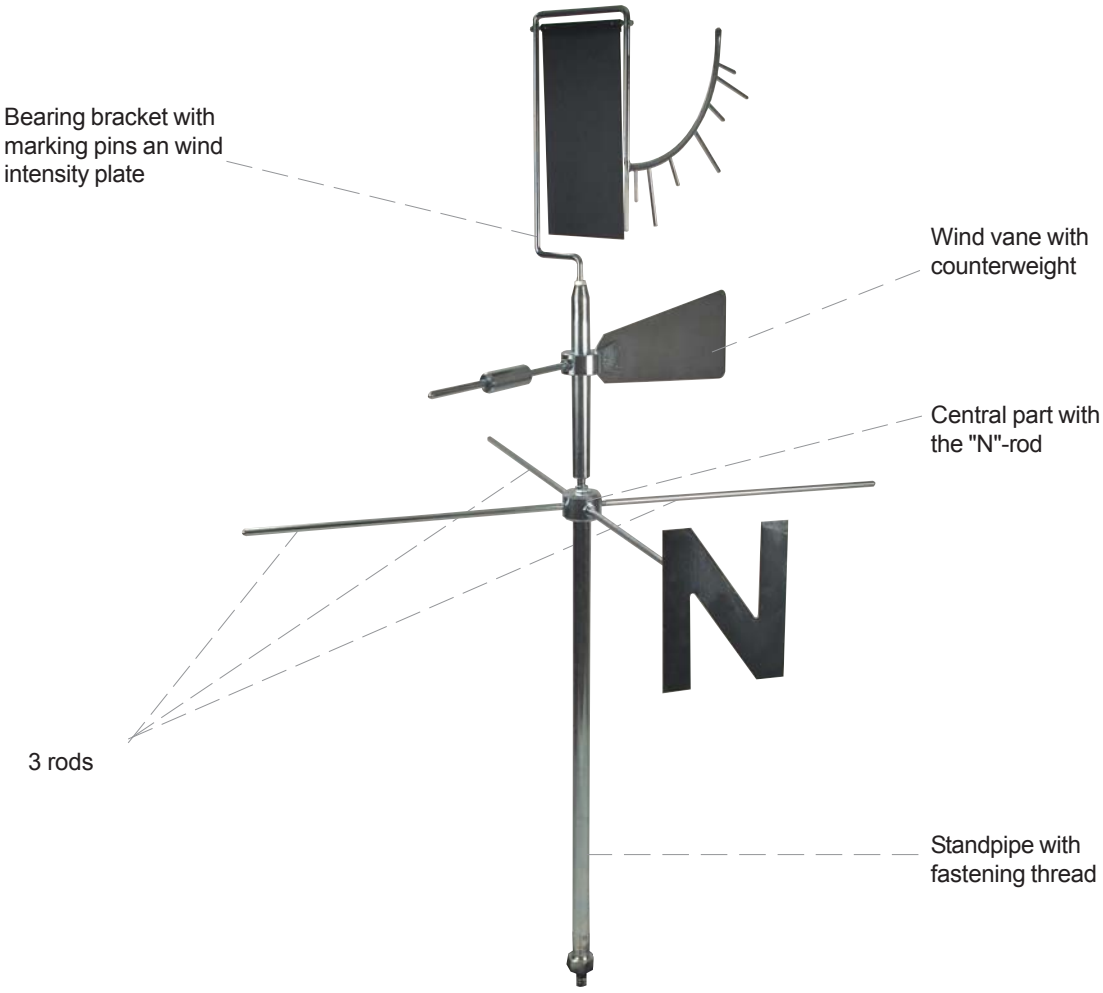

Description

The wedge-shaped wind vane (1450) with wind intensity plate according to Wild is the simflest instrument for the determination of wind direction and wind velocity respectively wind intensity.

The measuring element for the wind direction is a wind vane. The measuring element for the wind velocity is a pressure plate called wind intensity plate according to Wild.

The wind vane rotates around a vertical axle in the horizontal plane. The wind vane consists of two wind fins and a counterweight which counterbalances the rotating system.

Under the influence of the wind pressure the wind vane adjusts in such a way that its counterweight points into the respective wind direction. The relatively high sensitivity of response of the wind vane at simultaneously sufficient large damping is obtained by means of the wedge-shaped arrangement of the fins.

As wind intensity plate serves a rectangular, firmly suspended piece of steel plate which can freely swing around its superior horizontally lying narrow side. Since the bearing bracket of the wind intensity plate is rigidly connected to the wind vane and the longitudinal axle of the wind vane and the center of rotation of the wind intensity plate cross each other at a right angle, the wind intensity plate will always be opposed to the wind with its entire surface by means of the wind vane and the plate is raised more or less in accordance with the prevailing wind velocity.

Functionality

The wind direction is determined by comparing the wind vane position with the direction cross fixed to the stand pipe.

For better orientation, the rod of the direction cross pointing towards north is provided with the letter “N“. The wind velocity is determined by comparing the blade angle of the intensity plate with the eight marking pins which are fixed on a circular arc centrally and radially to the center of rotation.

The following wind intensities respectively wind velocities correspond to the individual marking pins (numbers beginning from the stem):

Marking pin	1	2	3	4	5	6	7	8
Wind intensity acc. to Beaufort	0	2	3	4	5	6	7	9
Wind velocity in m/s	0	2	4	6	8	11	14	20

Pivot bearings have been provided for the wind intensity plate, whereas the hollow axle of the wind vane rests on the hardened point of a vertical steel pivot. Moreover, the hollow axle is led through the collar arranged at the lower end of the axle. The steel pivot is screwed into the standpipe of the instrument which bears also the direction cross. A wood screw thread arranged at the foot of the standpipe serves for the fastening of the complete device. Instruments which are provided with a metal clamp instead of the wood screw thread have to be set up on a tubular piece having 30...30.5 mm outside diameter and at least a length of 110 mm.

Choice of the mounting place

Wind measuring instruments are in general not destined to measure the specific wind conditions of a limited area but those of a large circumference. Furthermore, the measuring results obtained at different points should be comparable.

Therefore, a mounting place should be chosen which is free from obstacles so that the instrument is not in the lee of buildings, trees and the like. Obstacles should be at least 10 times as far from the mounting place as they are tall. Furthermore the wind vane muse exceed them by several meters. It is recommended to set up the instrument in a free, plan terrain on a 10 m high mast which can either be climbed or tilted like a railway-gate. It is recommended to stay the mast by means of wire ropes and to equip it with a lightning conductor.

Putting into operation

The wedge-shaped wind vanes with wind intensity plate according to Wild will be despatched in dismantled state. Here the corresponding components respectively groups are specified:

1. One standpipe with fastening thread or metal clamp
2. Three rods for the direction cross
3. One central part for the rods of the direction cross inclusive rod with the letter „N“
4. One steel pivot with hexagonal nut and bearing point
5. One wind vane
6. One bearing bracket with marking pins and movable intensity plate.

The single parts will be assembled as described hereafter:

First of all the standpipe has to be fastened to the prepared mast (width across flats of hexagonal nut above the wood screw thread 41 mm).

Hereafter the steel pivot provided with the bearing point will be screwed into the internal thread arranged in the standpipe at the head end and secured by tightening the hexagonal nut (width across flats of hexagonal nut 19 mm).

After having screwed the three rods of the direction cross into the corresponding central part, the direction cross with the loosened „N“-rod has to be put onto the standpipe and to be secured in the upper quarter of the standpipe by screwing the „N“-rod firmly in place. The rod marked with „N“ must point towards the north.

For this purpose, an outstanding terrain point lying exactly in the north will be located by means of a compass and in consideration of the declination of the mounting place. Hereafter the direction cross will be turned until the north mark is directed towards this point.

Now the wind vane has to be led approx. in the middle of the hollow axle of the remaining bearing bracket and to be secured by tightening that rod where the counterweight is arranged. Attention should be paid that the wind fins of the wind vane are lying on the same side as the marking pins and that the longitudinal axle of the vane is situated exactly at the right angle to the center of rotation of the intensity plate. The rotating superior part can now be put onto the steel pivot. Hereafter the instrument is ready for use.

Maintenance

The correct operation of the instrument depends largely on the smooth running of the measuring elements.

For this reason the bearings have to be cleaned and to be greased at intervals of 1 to 2 years. Simultaneously the correct adjustment of the direction cross and the fastening of the whole instrument has to be controlled.

Furthermore, attention should always be paid that the standpipe stands vertically, otherwise the measuring results will be falsified due to the fact that the dependency on the position of the rotating system cannot completely be avoided.

Technical data

Id-No.	**00.14500.000 000**
Measuring element	Wind vane and direction rods • Wind intensity table acc. to Wild
Measuring range	Wind direction 0...360° · Wind intensity acc. to Beaufort 0...9 · Wind speed 0...20 m/s
Accuracy	1 Beaufort
Range of application	-60...+70°C no icing
Dimensions	Height 1600 mm · length of the direction rods 1030 mm · steel, galvanized
Weight	Approx. 10 kg

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