



**2024
PRODUCT
INTRODUCTION**

Portable Velocity Meter

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CONTENTS

CONTENTS..... 1

I. Product Overview 3

II. Main Technical Parameters 3

III. Structural Features and Working Principles 4

IV. Installation 6

Company Profile

Weifang AOBO Instrument Technology Development Co., Ltd., founded in 2002, with registration capital of 10 million RMB, is a "High-Tech" and "Double-Software Certification" enterprise specialized in "flow measurement and intelligent measurement & control" industry, integrating R&D, production, sales and service.

The company has a core R&D team for computer software and technology, automatic intelligent control, HVAC engineering design and flow measurement. It has the ability to provide customers with specific solutions and complete sets of products according to their different needs, based on years of practical experience. Especially in the heating industry, by the customer's recognition, has a high reputation in the industry.

The products are mainly used in the measurement and control of "steam, liquid, gas, sewage and tap water"; and especially suitable for energy monitoring and energy-saving control in many industries, such as thermal power plants, thermal companies, residential heating, petroleum, chemical industry, papermaking, food, coating, printing & dyeing and HVAC.

Since its foundation, based on self-developed and leading technology, reliable quality, high-quality service and good reputation, our company has been warmly accepted by customers, and become a designated supplier for many central enterprises and listed companies.

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All of the catalogue and company information can be found at:

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I. Product Overview

ABDT-1206A propeller-type velocity meter is a versatile, general-purpose instrument commonly used for flow velocity measurements in hydrologic studies. It is suitable for measuring average flow velocity at predetermined points in rivers, lakes, reservoirs, and canals, as well as for pipeline and scientific experiment



ABDT-1206A propeller-type velocity meter is commonly utilized in a variety of applications, including hydrologic research, water resource surveys, irrigation management, and river runoff experiments. It is also suitable for monitoring water velocity and water flow in industries such as hydro-power, environmental protection, mining, transportation, geology, research institutes, municipal administration, and more.

II. Main Technical Parameters

- 1) Rotary diameter of rotary propeller: $\Phi 70\text{mm}$
- 2) Hydraulic thread pitch for propeller: 120mm (theoretical value)
- 3) Starting velocity V_0 : 0.05 m/s
- 4) Critical velocity V_k : about 0.13 m/s
- (The actual verification value shall prevail. According to statistical analysis, V_k is much smaller than the above value.)
- 5) Velocity measurement range: 0.06 m/s ~ 8 m/s
- 6) Output signal: on-off signal of magnetic excitation switch contact
- 7) Signal number/rotor revolution number: 2/1 (2 signals per revolution)
- 8) Switch contact capacity: DC $U \leq 24\text{V}$

$$I \leq 120\text{mA}$$

- 9) Contact work times: 1×10^7
- 10) Full line relative mean square deviation m : $|m| \leq 1.5\%$ (used when $V \geq V_k$)

11) Relative error $\delta : |\Delta| \leq 5\%$ (for $V < V_k$)

12) Working water environment: water temperature $0^\circ\text{C} \sim +40^\circ\text{C}$

Water depth: $0.1\text{m} \sim 30\text{m}$

Suspended Sediment Concentration $\leq 20\text{kg/m}^3$

13) Storage environment: Temperature: $25^\circ\text{C} \sim +55^\circ\text{C}$

Humidity $\leq 90\%$

III. Structural Features and Working Principles

ABDT-1206A propeller-type velocity meter consists of a rotary paddle, rotating parts, support, tail parts (or fixed rod screws), trunk Reed parts, and more (See Fig.1).

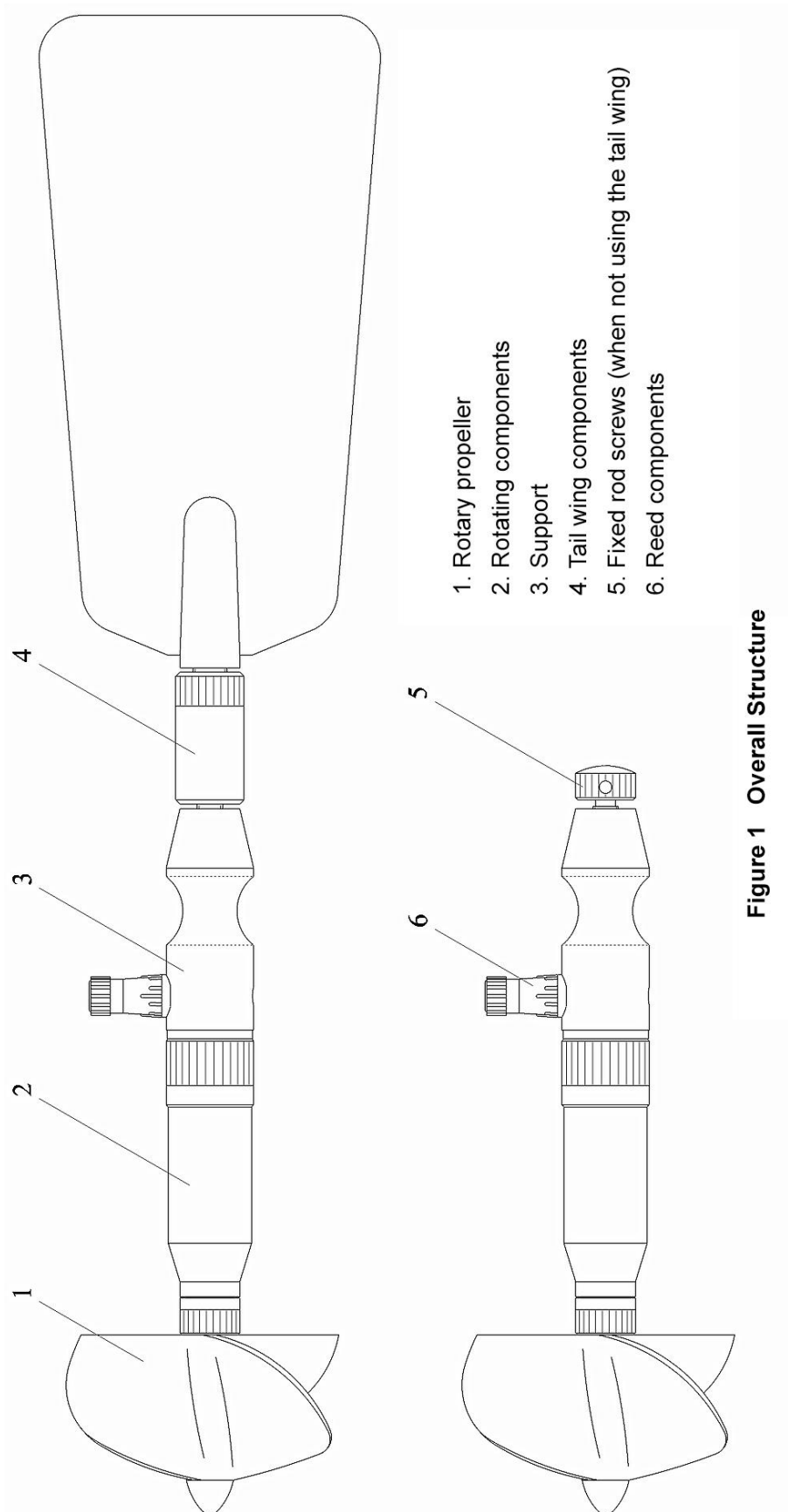
The rotating paddle passively feels the water flow and rotates around a horizontal support shaft due to the force of the water flow. Its diameter is 70mm, and its theoretical hydraulic pitch is 120mm.

The rotating parts (see fig.2), which include a shell, internal rotor system (rotating branch parts, see fig.3), moving sleeve branch parts and pressing cap, etc., are used to generate angular velocity under the force of the rotating paddle. This triggers the dry Reed to produce on-off signals.

The support is for installing and fixing the velocity meter during operation, with an installation aperture of 16mm.

The empennage parts are for directional control when the velocity meter is in use. The clarinet component receives magnetic excitation from the rotor system and provides an external tachometer signal.

When the velocity operates, the rotating paddle is driven by water flow to rotate, which synchronously drives the rotor part of the rotating parts to rotate. This activates the magnetic steel installed on the rotor, triggering the reed to generate on-off signals.

**Figure 1 Overall Structure**

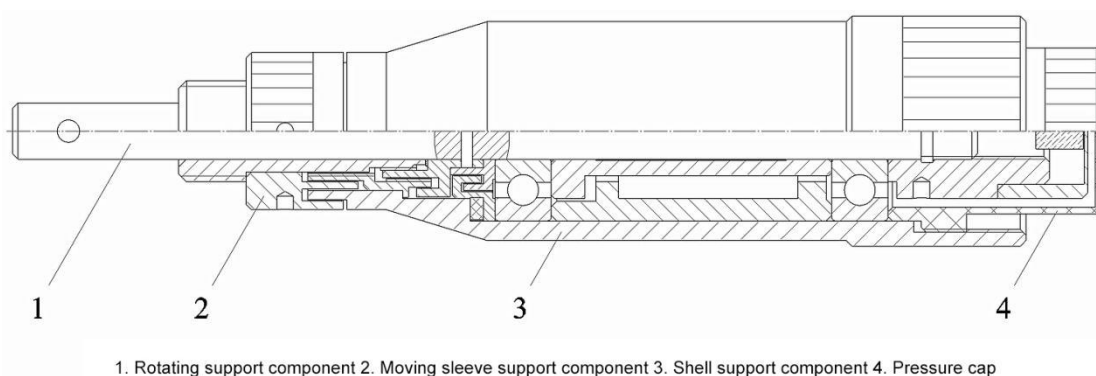


Figure 2 Rotating Components

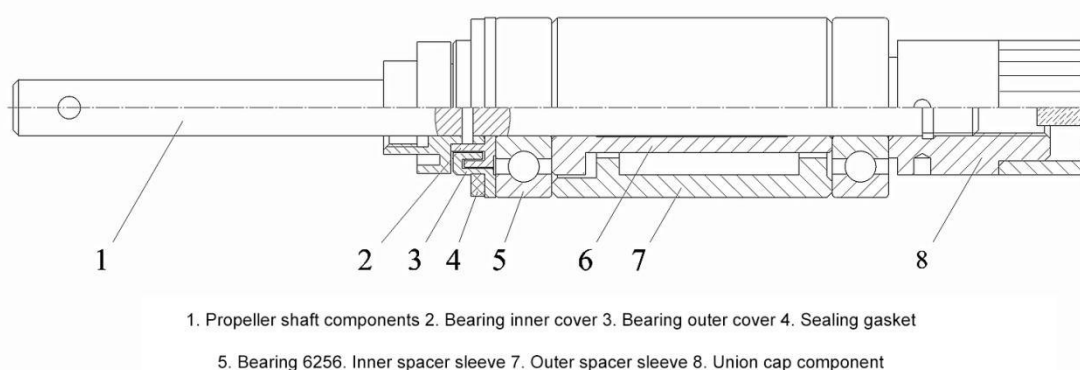


Figure 3 Rotating Branch Components

IV. Installation

(1) Installation of measuring rod

For shallow water flow measurement, CG16-1 type measuring rod (product selection accessories) can be selected for installation (see figure 4). The total length of the measuring rod is 1.6m, and each section is 0.4m; There is a line on the measuring rod every 2cm, and there is a digital mark every 10cm which is used as the mark of the installation position of the depth measurement and the tachometer. There is a pointer (direction mark) above the measuring rod to align the flow direction of the tachometer (the position of the direction mark on the measuring rod should be higher than the water surface to facilitate identification and observation).

Notes: When confirming that the direction mark is consistent with the direction of the velocity meter and can be visually aligned with the flow direction, the tail parts may not be

installed.

(2) Installation of suspension rod and suspension cable

When the measuring point is relatively deep, the suspension method is generally used to measure the velocity, and the velocity meter is installed on the suspension rod, suspension cable or lead fish. In this case, whether to install the tail can be determined according to actual needs.

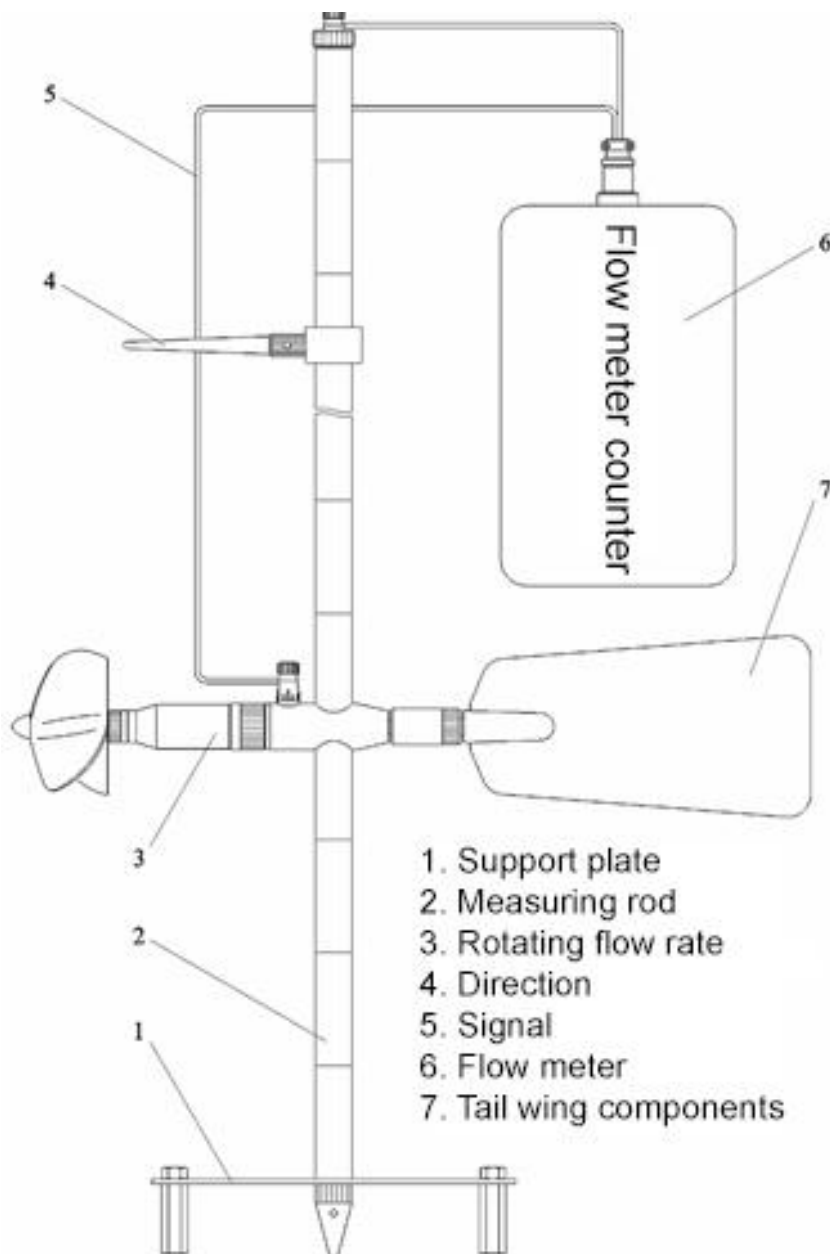


Figure 4 Installation of flow meter on measuring rod

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