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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 17289-2009

Replacing GB/T 17289-1998

**Liquid hydrocarbons -- Volumetric measurement by turbine
meter systems**

液态烃体积测量 涡轮流量计计量系统

(English Translation)

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Foreword

This standard is equivalent to using ISO 2715. 1981 "liquid hydrocarbon volumetric turbine meter systems." this standard is equivalent translation ISO 2715. 1981.

This standard of ISO 2715. 1981 made the following editorial changes.

--- Remove the ISO international standards foreword;

--- The "this International Standard" be replaced by "of this standard." this standard replacement GB/T 17289-1998 "liquid hydrocarbon volumetric turbine meter systems." this standard 17289-1998 major changes compared to GB/T as follows.

--- The full text of the ISO 6551. 1982 to GB/T 17746-1999;

--- The full text of the GB/T 17288-1998 amended as GB/T 17287-1998;

--- Introduction delete the discussion of positive displacement flowmeter.

Appendix A of this standard is a normative appendix, Appendix B is an informative annex.

The standard proposed by China National Petroleum Corporation.

This standard by the National Standardization Technical Committee of Oil and Gas.

Introduction

Turbine Flowmeter mainly by detecting passage of the fluid average velocity of the rotor constituted. The kinetic energy of the impact surface of the fluid with a radial guide Rotor angle side ribs and partially decomposed into a tangential kinetic energy of the rotor is rotated, the rotation of the rotor is proportional to the flow rate. By mechanical rotation of the rotor, ,, Magnetic or electronic means of optical detection, and recorded in the readout meter. This test must be recorded with a known volume Volume for comparison.

To guide the design of turbine flowmeter liquid hydrocarbons metering devices, installation,

operation and maintenance, development of this standard. Appendix A gives the turbine flow Detailing and characteristics of meter components. Appendix B provides troubleshooting guide.

GB/T 17289-2009/ISO 2715. 1981 Liquid hydrocarbon volume measurement by turbine meter systems

1 Scope

This standard is based on the nature and characteristics of the measured liquid turbine flowmeter, turbine flowmeter selection provides system design, installation, operation Maintenance and general rules.

This standard applies to the petroleum industry, in different contexts, using a variety of turbine flow meters for different types of liquid hydrocarbon flow measurement.

This standard does not apply to the measurement of two-phase fluid.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 17287-1998 statistical control of dynamic measurement of liquid hydrocarbon volumetric metering systems (idtISO 4124.1994) GB/T 17746-1999 Petroleum liquids and gases dynamic measuring electric and (or) electronic pulsed data transmission reliability and security cable Truth degree (idtISO 6551. 1982)

3.1 Metering System Design Principles

3.1.1

The metering system should be suitable for flow, pressure, temperature changes and the type of fluid to be measured. If desired, the protective equipment should be installed to ensure that Metering system to work at design conditions.

3.1.2

If the metering systems installed in hazardous areas shall comply with national or local regulations on the safe use of electrical equipment requirements.

3.1.3

Materials All parts in contact with liquid hydrocarbons, it can not influence the nature of the media, but also from the impact of media.

3.1.4

with measures to ensure the full scale test flow meter in close working conditions.

Select 3.2 turbine flowmeter and auxiliary equipment

3.2.1 Select turbine flowmeter and auxiliary equipment, the manufacturer shall inform the consultation and consider the following.

- a) mounting space measurement system and the corresponding test equipment;
- b) meter connection type and pressure rating;
- c) the measured fluid characteristics, including viscosity, density, vapor pressure, corrosion resistance and lubricity and the like;
- d) measured liquid impurities entrained wear or corrosion of the nature and quantity, including the size and distribution of solid impurities;
- e) flow characteristics, including work flow, maximum flow, minimum flow, liquidity and volatility of continuity;
- f) working pressure range. Run at maximum flow rate through the flow meter and the pressure loss of the auxiliary equipment;
- g) operating temperature range and automatic temperature compensation adaptability;
- h) maintenance methods, costs and spare parts required;
- i) verification of the approach, methods and period;
- j) the flowmeter characteristics including linearity, the maximum allowable pressure loss, frequency and voltage output (see Figure A.2);
- k) indicator and the type of signal preamplifier (see Figure A.3);
- l) and the meter displays the compatibility between the meter readings adjustment method;
- m) display instrument power supply requirements;
- n) requirements for electrical specifications;
- o) the reliability of the electron transport system.

GB/T 17289-2009/ISO 2715. 1981