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

GB/T 25753.3-2011

**Vacuum technology -- Roots vacuum pump -- Measurement of
performance characteristics -- Part 3: Measurement of overflow
valve differential pressure**

真空技术 罗茨真空泵性能测量方法 第3部分：溢流阀压差的测量

(English Translation)

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Foreword

GB/T 25753 "Roots vacuum pumps - Measurement of performance art" is divided into three parts.

- Part 1. The maximum allowable differential pressure measurement;
- Part 2. Zero flow compression ratio measurement;
- Part 3. Measurement of differential pressure relief valve.

This is Part 3 GB/T 25753 of.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This part is proposed by China Machinery Industry Federation.

This part of the National Vacuum Technology Standardization Technical Committee (SAC/TC18) centralized.

This section is responsible for drafting. Zhejiang Vacuum Equipment Group Co., Ltd.

Participated in the drafting of this section. Chengdu South-ray machines Limited, Shenyang Institute of Scientific Instrument Development Center Co., Ltd., Shandong Zibo Vacuum Equipment Co., Ltd., Shanghai Huifeng Petrochemical Co., Ltd., Taizhou Global Vacuum Equipment Manufacturing Co., Ltd., Shenyang Vacuum Technology Institute the study.

Introduction

With the development of basic industries and design innovation, design and performance Roots pump structure have made considerable Progress early Roots vacuum pumps must

rely on pre-pump operation, and now the development of a direct atmospheric discharge run-cooled Roots vacuum pumps and wet, the other a single series Roots vacuum pump has become the single-stage, two-stage, multi-stage, rotor profile also Futaba become the double leaf, clover, leafy.

Existing Roots vacuum pump performance measure contains only a single-stage double-lobe Roots pump, other types not covered by the basic, and not to regulate the pressure relief valve on the measurement method, in order to effectively improve the Roots vacuum pump performance measurement standards compatibility and applicability, the actual inspection Experimental measurements provide the necessary operating instructions, from home and abroad in a wide range of relevant indicators, benchmarks, based on the actual situation, the development of the "vacuum technology Roots vacuum pumps - Measurement of performance art" standard, to form a single sequence, and is divided into three parts. It will be based on the future status of technological development into Line the necessary changes and expansion.

Roots vacuum pumps - Measurement of performance art Part 3. Measurement of differential pressure relief valve

1 Scope

GB/T 25753 provisions of this part of the measurement methods Roots vacuum relief valve differential pressure.

GB/T 25753 apply to this part of the pumping speed of 30L/s ~ 20000L/s Roots vacuum pump (hereinafter referred to as the pump). This section does not Roots vacuum pump is suitable for the performance of extreme pressure and pumping speed measurements.

2 Terms and definitions

The following terms and definitions apply to this document.

Pressure relief valve overflowvalvedifferentialpressure Roots vacuum pump pressure relief valve is the difference between pre-stage pressure relief valve inlet pressure when carried off Movement.

Test cover testdome

Special vacuum vessel having a predetermined precise shape and dimensions, through which the gas to be measured into the pump, a pressure measuring means mounted thereon.

3.1 Test cap

As shown in Figure 1, the shape of a cylinder. The axial dimension of the cover is $1.5D$, D is the inner diameter of the housing. Test gas inlet is located in the axis of the cover on the connection flange and the distance is D , arranged in the intake port should be such that the gas from the direction away from the pump into the test port cover. Measuring the inlet pressure Gauge distance $0.5D$ connecting flange at its axis is perpendicular to the axis of the cover. Testing should cover the axis perpendicular to the pump inlet flange plane.

In addition to the intake line, the connecting line between the flange and the test covers the inner wall of the test should not wear a cap.

VD test cover volume should be at least one compression cycle pump swept five times the volume of the VP. In the pump inlet should be connected to a reducer fittings, its length should not exceed $0.5D$ (see Figure 1). Different specifications of the pump for test cover given in Table 1.

Table 1 Test parameters cover

VP/L VD/LD/mm

0 0.26 1.3 100

160 1.1 5.4 0.26 ~

1.1 ~ 4.2 21250

4.2 ~ 1784400

17 to 65 325 630

65 - 26013001000

260 to 106,053,001,600 1060 - 4060203002500