UDC 621.521

Published by the decision of the Editorial Review Board
of the Kazan National Research Technological University

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Raykov A.
Operation and design of claw vacuum pumps : monograph / A. Raykov, S. Salikeev, A. Burmistrov; The Ministry of Education and Science of the Russian Federation, Kazan National Research Technological University. – Kazan : KNRTU Press, 2022. – 168 p.

ISBN 978-5-7882-3161-7

The monograph focuses on the design variations of oil-free vacuum pumps and their pumping characteristics. It describes computational procedures of working processes for volume displacement pumps and the mathematical model of working process for an oil-free claw vacuum pump. The monograph describes the experimental study of pump characteristics and presents indicator and temperature diagrams. The gas flow in the pump inlet and outlet ducts is studied both mathematically and experimentally. The influence of the pump configurations on the pumping characteristics is analyzed.

The monograph is designed for students majoring in Vacuum Engineering for the courses “Rotor machines” and “Dynamic machines”.

The monograph was developed at the Department of Vacuum Engineering.

UDC 621.521

ISBN 978-5-7882-3161-7
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CONTENT

LIST OF REFERENCE AND TERMS **5**

INTRODUCTION **7**

Chapter 1. OIL-FREE VACUUM PUMPS **11**

1.1. ROOTS VACUUM PUMP 15
1.2. CLAW VACUUM PUMP 20
1.3. SCREW VACUUM PUMPS 34
1.4. SCROLL VACUUM PUMPS 38
1.5. SUMMARY 42

Chapter 2. EXPERIMENTAL STUDY OF CVP **44**

2.1. SUBJECT OF RESEARCH DESCRIPTION 44
2.2. GAUGES SELECTION FOR READING INDICATOR DIAGRAMS 47
2.2.1. Strain-gauge method *48*
2.2.2. Piezoelectrical method *51*
2.2.3. Capacitive method *55*
2.2.4. Resonant method *56*
2.2.5. Inductive method *57*
2.3. THE EXPERIMENTAL TEST UNIT DESCRIPTION 62
2.4. TEST OPERATION PROCEDURE 66
2.5. MEASUREMENT DATA PROCESSING 72
2.6. RESULTS AND DISCUSSION 77
2.7. FLOW RATE FACTORS INDICATION FOR CVP INLET AND OUTLET DUCTS 80
2.7.1. Test unit and measuring technique *81*
2.7.2. Data processing *85*

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Chapter 3. MATHEMATICAL SIMULATION OF CVP WORKING PROCESS 96

3.1. STATE-OF-THE-ART ON FUNDAMENTAL AND EXPERIMENTAL RESEARCH OF CVP AND OTHER STRAIGHT-TOOTHED PUMPS 96
3.1.1. Simulation of the working process of non-contact vacuum pumps 99
3.1.2. Gas flow simulation in complexly-shaped channels 101
3.2. FUNDAMENTALS AND BASIC ASSUMPTIONS 105
3.3. MATHEMATICAL MODEL OF CVP WORKING PROCESS 106
3.4. PUMPING SPEED COMPUTATION 108
3.5. THE WORKING CAVITY GEOMETRY 109
3.6. SUCTION AND DISCHARGE PORTS CONSTRUCTION 119
3.7. GEOMETRICS OF THE PUMP UNDER STUDY 121
3.8. DESCRIPTION OF CALCULATION ALGORITHM OF GAS LEAKAGE THROUGH ROTOR MECHANISM CLEARANCES 127
3.8.1. Dependency of channels geometry features vs rotors rotation angle 127
3.8.2. Calculation procedure of leakage via slot channels 133
3.8.3. Leakage integration by gas stream directions 135
3.8.4. Thermal deformations allowance 136

Chapter 4. MATHEMATICAL SIMULATION RESULTS AND ANALYSIS OF GEOMERTICS INLUENCE ON WORKING PROCESS 138

4.1. COMPARING EXPERIMENTAL AND THE CALCULATED DATA 138
4.2. ANALYSIS OF GEOMETRICS INFLUENCE *VS* WORKING PROCESS 143
4.2.1. Clearances of rotor mechanism 143
4.2.2. Discharge port length 145
4.2.3. Rotor tooth thickness 151
4.2.4. Center-to-center spacing and the casing bore radius 153

CONCLUSION 157

BIBLIOGRAPHY 158

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