

Table of contents

Basic signs and symbols	5
Chapter 1 Optimization of selection nozzle	7
1.1. Introduction	7
1.2. Selection of nozzle parameters	11
1.2.1. Selection methods	11
1.2.2. Selecting nozzle parameters by means of mathematical optimization methods	12
1.2.3. Selection of nozzle parameters with reference to the shape and structure of fuel stream	13
1.2.4. Selection of nozzle parameters including limitations in injection pressure increase	15
Chapter 2 Testing pintle nozzles	18
2.1. Pintle nozzle parameters	18
2.2. Selection of pintle nozzle parameters	21
2.3. Engine testing of pintle nozzles	29
2.4. Test results analysis	30
Chapter 3 Testing orifice nozzles	36
3.1. Orifice nozzle parameters	36
3.2. Selection of orifice nozzle parameters	41
3.3. Engine testing of orifice nozzles	43
3.4. Test results analysis	44
Chapter 4 Optimization of nozzle parameters	48
4.1. Optimization of pintle nozzle parameters	48
4.2. Optimization of hole nozzle parameters	84
4.2.1. Selection of measurement results for analysis	84
4.2.2. Evaluation criteria	85
4.2.3. Constraint	87
4.2.4. Task solution	88
4.2.5. Conclusions	89

Chapter 5 Optimization by the method of a multi-criteria analysis 91

5.1. The nature of the multi-criteria analysis method
applied to interpret test results 91

5.2. Object of analysis..... 93

5.3. A four-criteria analysis of the emission of toxic compounds 94

5.4. Conclusions 95

Summary 97

References 99