ISO 6358-3:2014-10 (E)

Pneumatic fluid power - Determination of flow-rate characteristics of components using compressible flui ds - Part 3: Method for calculating steady-state flow-rate characteristics of systems

Contents

Page

Foreword iv

Introduction v

1 Scope 1

2 Normative references 1

3 Terms and definitions 1

4 Symbols and units 1

5 Calculation hypotheses 2
5.1 General 2
5.2 Relationships among component flow-rate characteristics 3
5.3 Flow-rate characteristics 3

6 Organization of calculations for systems of components connected in series 6
6.1 General 6
6.2 Given parameters 7
6.3 Calculation principle 7
6.4 Calculation of the cracking pressure pc (step 1) 7
6.5 Calculation of an initial value for their sonic conductance if some components are pipes, tubes or hoses defined by their friction factor (optional step 2) 7
6.6 Determination of the sonic conductance C (step 3) 8
6.7 Determining the critical back-pressure ratio b and subsonic index m (step 4) 10
6.8 Calculation of pressure dependence coefficient Kp (optional step 5) 11

7 Organization of calculations for systems of components connected in parallel 12
7.1 General 12
7.2 Given parameters 12
7.3 Calculation principle 12
7.4 Determination of flow characteristics of pipes, tubes or hoses for the given inlet pressure (step 0) 13
7.5 Determination of the sonic conductance C (step 1) 13
7.6 Determination of the cracking pressure pc (step 2) 13
7.7 Determination of the critical back-pressure ratio b and subsonic index m (step 3) 13

Annex A (informative) Example calculation for a system of components connected in series 15

Annex B (informative) Example calculation for an air blow circuit whose components are connected in parallel 25

Annex C (informative) Flow charts of calculation procedures 32

Annex D (informative) Additional information concerning components whose flow rate characteristics are not expressed in accordance with the ISO 6358 series 41

Annex E (informative) Visualization of calculation results 53

Bibliography 59