ISO 14291:2012-07 (E)

Vacuum gauges - Definitions and specifications for quadrupole mass spectrometers

Contents

Page

Foreword iv

Introduction v

1 Scope 1

2 Terms and definitions 1
2.1 Definitions of components 1
2.2 Definitions of physical parameters 5

3 Symbols and abbreviated terms 8

4 Principle of QMS 9

5 Specifications for a QMS to be provided by manufacturers 9
5.1 Mass range 9
5.2 Type of ion source 9
5.3 Type of ion detector 9
5.4 Mass resolution 10
5.5 Mass number stability 10
5.6 Sensitivity 10
5.7 Linear response range 10
5.8 Minimum detectable partial pressure 10
5.9 Minimum detectable concentration 10
5.10 Maximum operational pressure 10
5.11 Scanning parameter 10
5.12 Signal output 11
5.13 Potentials 11
5.14 Detector specifications 11
5.15 Set point 11
5.16 Maximum bake-out temperature 11
5.17 Nominal operating conditions 11
5.18 Warm-up time 11
5.19 Filament material 11
5.20 Electron emission current 11
5.21 Filament exchange 11
5.22 Detector exchange 11
5.23 Fitting to chamber 12
5.24 Mounting orientation 12
5.25 Dimensions 12
5.26 Internal volume 12
5.27 Mass of sensor head and electronic unit 12
5.28 Input power of electronic unit 12
5.29 Cable 12
5.30 Software 12
5.31 Interface 12
5.32 Storage and transportation condition 12

6 Optional specifications for QMS to be provided by manufacturers 13
6.1 Mass resolution 13
6.2 Fragmentation or cracking pattern 13
6.3 Temperature coefficient of sensitivity 13

6.4 QMS sensor cleaning 13
6.5 Degassing 13
6.6 Degassing power 13
6.7 Photographs 13
6.8 Inspection record 13
6.9 Outgassing rate 13

Bibliography 14