

# DIN EN 1012-2:2011-12 (E)

## Compressors and vacuum pumps - Safety requirements - Part 2: Vacuum pumps

---

Contents		Page
Foreword .....		4
!Introduction" .....		4
1 Scope .....		5
2 Normative references .....		5
3 Definitions .....		6
4 List of Hazards Specific to Vacuum Pumps .....		8
4.1 Mechanical Hazards .....		8
4.2 Electrical Hazards .....		9
4.3 Thermal hazards .....		10
4.4 Hazards generated by noise .....		10
4.5 Hazards generated by radiation .....		10
4.6 Hazards generated by material and substances processed, used or exhausted by vacuum pumps .....		10
4.7 Hazards generated by neglecting ergonomic principles in design .....		11
4.8 Hazards caused by failure of energy supply, breaking down of parts or other functional disorders .....		11
4.9 Hazards caused by missing or incorrectly positioned safety related measures and means .....		11
5 Safety requirements and measures .....		11
5.1 Mechanical safety .....		12
5.2 Electrical Safety .....		13
5.3 Thermal Safety .....		14
5.4 Noise .....		15
5.5 Radiation .....		15
5.6 Materials and substances processed, used or exhausted by vacuum pumps .....		15
5.7 Ergonomic principles in machine design .....		16
5.8 Failure of energy supply, breaking down of machinery parts and other functional disorders .....		17
5.9 Safety related measures and means .....		17
5.10 Emergency stops .....		17
6 Marking, signs and warnings .....		18
6.1 Generally applicable .....		18
6.2 Data plate .....		18
6.3 Additional requirements .....		18
6.4 A vacuum pumping system shall be marked with additional information on vacuum systems .....		19
7 Information for use .....		19
7.1 General .....		19
7.2 Transport and Storage .....		20
7.3 Installation .....		20
7.4 Product description .....		21
7.5 Use .....		21
7.6 Maintenance .....		22

<b>8</b>	<b>Verification .....</b>	<b>23</b>
8.1	Noise measurement .....	23
8.2	Pressure test .....	23
8.3	Mechanical stability testing .....	23
8.4	Testing for leak tightness .....	23
8.5	Structure of verification .....	25
<b>Annex A (normative) Labels, signs and warnings .....</b>		<b>26</b>
<b>Annex ZA (informative) !Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/EC" .....</b>		<b>31</b>
<b>Annex ZB (informative) !Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC" .....</b>		<b>32</b>