

# DIN EN ISO 16135:2019-12 (E)

Industrial valves - Ball valves of thermoplastics materials (ISO 16135:2006 + Amd 1:2019) (includes Amendment :2019)

---

## Contents

Page

European Foreword.....	4
<b>[A1]</b> European foreword to Amendment A1 <b>[A1]</b> .....	5
<b>[A1]</b> Annex ZA (informative) Relationship between this European Standard and the essential requirements of Directive 2014/68/EU (Pressure Equipment Directive) aimed to be covered <b>[A1]</b> .....	6
<b>[A1]</b> Foreword to Amendment 1 <b>[A1]</b> .....	7
<b>1</b> Scope.....	8
<b>2</b> Normative references .....	8
<b>3</b> Terms and definitions .....	9
<b>4</b> Requirements .....	11
<b>4.1</b> Design.....	11
<b>4.1.1</b> Valve function.....	11
<b>4.1.2</b> Design characteristics .....	11
<b>4.1.3</b> Types of valve end connection .....	11
<b>4.2</b> Materials.....	12
<b>4.2.1</b> Materials for the shell.....	12
<b>4.2.2</b> Materials for other valve components.....	12
<b>4.3</b> Pressure/temperature rating.....	12
<b>4.4</b> Dimensions.....	14
<b>4.4.1</b> Face-to-face dimensions .....	14
<b>4.4.2</b> Joint dimensions of the valve end connections .....	14
<b>4.5</b> Operation .....	14
<b>4.6</b> Functional characteristics.....	15
<b>4.6.1</b> Design strength.....	15
<b>4.6.2</b> Flow characteristics .....	15
<b>4.6.3</b> Seat and packing/shell leaktightness .....	15
<b>4.6.4</b> Operating torque.....	15
<b>4.6.5</b> Permissible manual forces .....	15
<b>4.6.6</b> Durability .....	15
<b>4.7</b> Manufacture.....	16
<b>4.7.1</b> Control of the manufacture of body and bonnet/cover .....	16
<b>4.7.2</b> Permanent jointing.....	16
<b>4.8</b> Other requirements .....	16
<b>4.8.1</b> Wear.....	16
<b>4.8.2</b> Corrosion resistance or other chemical attack .....	16
<b>4.8.3</b> Operating instructions .....	16
<b>5</b> Test procedures.....	17
<b>5.1</b> Documentation of test results .....	17
<b>5.2</b> Initial type tests .....	17
<b>5.2.1</b> General.....	17
<b>5.2.2</b> Testing of materials.....	17
<b>5.2.3</b> Shell test.....	17

5.2.4	Seat leaktightness test .....	17
5.2.5	Long-term behaviour test of the complete valve.....	17
5.2.6	Durability test.....	17
5.2.7	Operating torque test.....	18
5.2.8	Final test.....	18
6	Declaration of compliance.....	18
7	Designation .....	18
8	Marking and preparation for storage and transportation .....	19
8.1	Marking and documentation .....	19
8.2	Preparation for storage and transportation.....	20
	Annex A (informative) Procurement information.....	21
	Annex B (informative) Type alternatives for multi-way ball valves .....	22
B.1	General .....	22
B.2	Ball valves with three ways (three-way ball valves).....	22
B.2.1	General .....	22
B.2.2	Functional alternatives of three-way ball valves, vertical type with L-bore.....	23
B.2.3	Functional alternatives of three-way ball valves, vertical type with T-bore .....	24
B.2.4	Functional alternatives of three-way ball valves, horizontal type with L-bore .....	24
B.2.5	Functional alternatives of three-way ball valves, horizontal type with T-bore.....	25
B.3	Ball valves with four ways (four-way ball valves) .....	25
B.3.1	General .....	25
B.3.2	Functional alternatives of four-way ball valves with T-bore.....	25
B.3.3	Functional alternatives of four-way ball valves with L-bore .....	26
B.4	Ball valves with other functional alternatives .....	26
	Bibliography .....	27