

# ISO 23555-1:2022-01 (E)

## Gas pressure safety and control devices for use in gas transmission, distribution and installations for inlet pressures up to and including 10 MPa - Part 1: General requirements

---

<b>Contents</b>		<b>Page</b>
Foreword .....		vi
Introduction .....		vii
<b>1</b>	<b>Scope .....</b>	<b>1</b>
<b>2</b>	<b>Normative references .....</b>	<b>1</b>
<b>3</b>	<b>Terms, definitions, symbols and abbreviated terms .....</b>	<b>3</b>
3.1	Terms and definitions .....	3
3.1.1	General terms .....	3
3.1.2	Terms related to components .....	5
3.1.3	Terms related to components of functional performance .....	6
3.1.4	Terms related to design and tests .....	8
3.2	Symbols and abbreviated terms .....	9
<b>4</b>	<b>Classification .....</b>	<b>10</b>
4.1	General .....	10
4.2	Temperature classes .....	10
4.3	Strength types .....	11
<b>5</b>	<b>Materials .....</b>	<b>11</b>
5.1	General .....	11
5.2	Requirements .....	11
5.2.1	Requirements for metallic materials .....	11
5.2.2	Requirements for non-metallic materials .....	13
5.3	Validation and test of materials .....	13
5.3.1	Material inspection documents of metallic pressure-containing parts and inner metallic partition walls .....	13
5.3.2	Material inspection documents of threaded sealing plugs, integral process and sensing lines, connectors and metallic fasteners .....	14
5.3.3	Material inspection documents of non-metallic functional parts .....	14
5.3.4	Non-destructive testing for steel bodies .....	14
<b>6</b>	<b>Design .....</b>	<b>14</b>
6.1	General .....	14
6.1.1	Design approach .....	14
6.1.2	Basic requirements .....	15
6.1.3	Hazard identification and residual risks .....	15
6.1.4	End connections .....	15
6.1.5	Flange ratings .....	16
6.1.6	Nominal sizes and face-to-face dimensions .....	16
6.1.7	Sealing of the adjusting device .....	18
6.1.8	Replaceable parts that can be affected by erosion or abrasion .....	18
6.1.9	Integral strength pressure controls .....	18
6.1.10	Differential strength pressure controls .....	18
6.1.11	Metallic flanges .....	18
6.1.12	Minimum values of safety factor .....	19
6.1.13	Springs requirements .....	19

6.2	Strength of metallic body and its inner metallic partition walls .....	19
6.2.1	General .....	19
6.2.2	Requirements .....	19
6.2.3	Design strength verification for metallic body and its inner metallic partition walls .....	20
6.3	Other pressure-containing metallic parts of integral and differential strength controls .....	22
6.3.1	General .....	22
6.3.2	Requirements .....	22
<b>ISO 23555-1:2022(E) ISO 23555-1:2022(E) 6.3.3 Design strength verification for other pressure-</b>		
	<b>containing parts of integral and differential strength controls .....</b>	<b>23</b>
6.4	Strength of parts transmitting actuating forces .....	24
6.4.1	General .....	24
6.4.2	Requirements .....	24
6.4.3	Design strength verification for parts transmitting actuating forces .....	24
6.5	Strength of diaphragms (elastomeric parts) .....	24
6.5.1	General .....	24
6.5.2	Requirements .....	24
6.5.3	Design strength verification for diaphragms (elastomeric parts) .....	24
6.6	Welding .....	25
6.6.1	General .....	25
6.6.2	Requirements .....	25
6.6.3	Non-destructive testing of fabrication welds .....	25
7	Performance and testing requirements .....	27
7.1	General .....	27
7.1.1	Approach to stable production phase .....	27
7.1.2	Test conditions .....	27
7.1.3	Test tolerances .....	27
7.1.4	Overview table .....	28
7.2	Requirements .....	29
7.2.1	Test rig .....	29
7.2.2	Classification of stable production tests .....	32
7.2.3	Dimensional check and visual inspection .....	32
7.2.4	Shell strength .....	32
7.2.5	External/Internal tightness .....	33
7.2.6	Antistatic characteristics .....	33
7.2.7	Sound emission .....	33
7.2.8	Resistance of external surfaces to corrosion .....	34
7.3	Tests .....	34
7.3.1	Materials check at stable production phase .....	34
7.3.2	Dimensional check and visual inspection .....	34
7.3.3	Mounting position .....	35
7.3.4	Shell strength .....	35
7.3.5	External tightness .....	36
7.3.6	Internal tightness .....	37
7.3.7	Antistatic characteristics .....	37
7.3.8	Methods for calculating and measuring the sound pressure level .....	37
7.3.9	Method for testing of resistance of external surfaces to corrosion .....	39
8	Documentation .....	40
8.1	General .....	40
8.2	Documentation related to type test .....	40
8.2.1	Documentation required prior to type test .....	40
8.2.2	Type test report .....	40
8.3	Documentation related to batch surveillance .....	40
8.3.1	Documentation to be available for batch surveillance .....	40
8.3.2	Batch surveillance report .....	41
8.4	Documentation related to the routine tests .....	41
8.4.1	Documentation provided at the request of the customer .....	41
8.4.2	Documentation provided with the control .....	41
9	Marking .....	41

<b>9.1</b>	<b>General</b>	<b>41</b>
<b>9.2</b>	<b>Basic requirements</b>	<b>42</b>
<b>9.3</b>	<b>Markings for the various connections</b>	<b>42</b>
<b>9.4</b>	<b>Marking of integrated safety devices</b>	<b>42</b>
<b>10</b>	<b>Packaging and transportation of finished product</b>	<b>42</b>
<b>ISO 23555-1:2022(E) 10.1 General</b>		
		<b>42</b>
<b>10.2</b>	<b>Requirements</b>	<b>43</b>
<b>10.3</b>	<b>Test</b>	<b>43</b>
<b>Annex A (informative) List of materials</b>		
		<b>44</b>
<b>Annex B (normative) Elastomeric material</b>		
		<b>60</b>
<b>Annex C (normative) Vent limiter</b>		
		<b>62</b>
<b>Annex D (normative) Compliance evaluation</b>		
		<b>66</b>
<b>Annex E (informative) Specific regional requirements in Japan</b>		
		<b>68</b>
<b>Bibliography</b>		
		<b>69</b>