

ISO 22435:2024-03 (E)

Gas cylinders - Cylinder valves with integrated pressure regulators - Specification and type testing

Contents		Page
Foreword		v
Introduction		vii
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	Symbols and descriptions	5
5	Design requirements and considerations	6
5.1	General	6
5.2	Description	7
5.3	Materials	7
5.4	Pressure and flow indicating devices	7
5.4.1	General	7
5.4.2	Flowmeters	7
5.4.3	Pressure indicators and flow gauges	8
5.5	Outlet connection	8
5.6	Outlet pressure for acetylene	8
5.7	Flow control valve (flow controller)	8
5.8	Pressure adjusting device	8
5.9	Filtration	8
5.10	Endurance of the VIPR pressure regulating system	9
5.11	Flow and pressure performance for a VIPR with a pressure outlet	9
5.11.1	Flow performance and characteristics	9
5.11.2	Coefficient of pressure increase upon closure R	9
5.11.3	Irregularity coefficient i	9
5.12	Flow performance for a VIPR with a flow metering device	9
5.13	Pressure relief valve	9
5.14	Leakage	10
5.15	Mechanical strength	10
5.16	Pressure resistance	10
5.17	Resilience to ignition	10
5.18	Design requirements for manufacture	11
5.19	Resistance to vibration	11
5.20	Resistance to shock	11
5.21	Over torque of the pressure adjusting device	11
6	Type testing	11
6.1	General	11
6.2	Documentation	12
6.3	Test samples	12
6.4	Test report	13
6.5	Test temperatures	13
6.6	Test gas	13
6.6.1	Gas quality	13
6.6.2	Reference conditions	13
6.6.3	Leak tightness tests	13
6.6.4	Endurance of a VIPR pressure regulating system	13
6.7	Test schedule	13

6.8	Mechanical strength test of the low-pressure chamber.....	15
6.9	Pressure resistance test of the low-pressure chamber.....	15
6.10	Mechanical strength test of flowmeters.....	15
6.11	Overpressure and leak tightness test for pressure indicators and flow gauges.....	15
6.12	Flow and pressure performance test for a VIPR with a pressure outlet.....	15
6.12.1	General.....	15
6.12.2	Standard discharge, Q_1 , nominal outlet pressure, p_2 , and maximum discharge Q_{\max} test.....	15
6.12.3	Flow characteristic test.....	16
6.12.4	Coefficient of pressure increase upon closure R test.....	18
6.12.5	Irregularity coefficient i test.....	18
6.13	Accuracy and flow stability of a VIPR with a flow metering device test.....	21
6.14	Pressure relief valve test.....	21
6.15	Operating and loosening torques test.....	21
6.16	Endurance of the VIPR pressure regulating system.....	21
6.17	Leak tightness test.....	22
6.17.1	Number of samples.....	22
6.17.2	Internal leakage across the regulating valve seat.....	22
6.17.3	External leakage.....	22
6.18	Visual examination.....	23
7	Marking	23
8	Instructions	23
Annex A	(informative) Vibration test	25
Annex B	(informative) Shock test	26
Annex C	(informative) Over torque test for the pressure adjusting device	27
Annex D	(informative) Promoted ignition test	28
Bibliography	29