

# DIN EN 12583:2025-04 (E)

## Gas Infrastructure - Compressor stations - Functional requirements (includes Amendment :2024)

---

<b>Contents</b>		<b>Page</b>
European foreword .....		5
1	Scope .....	7
2	Normative references .....	8
3	Terms and definitions .....	9
4	Safety .....	16
5	Asset management and quality assurance .....	16
6	Environmental constraints .....	17
6.1	General .....	17
6.2	NOx and CO determination .....	17
6.2.1	General .....	17
6.2.2	Periodic measurements .....	17
6.2.3	Continuous Emission Monitoring System (CEMS) .....	17
6.2.4	Predictive Emission Monitoring System (PEMS) .....	17
6.3	Methane emission management .....	18
6.3.1	General .....	18
6.3.2	Design phase .....	18
6.3.3	Construction, commissioning and decommissioning .....	19
6.3.4	Operation and maintenance .....	19
7	Design, construction .....	19
7.1	General requirements for design .....	19
7.1.1	General .....	19
7.1.2	Safety and the environment .....	20
7.2	Location and station lay-out .....	21
7.2.1	Location .....	21
7.2.2	Station lay-out .....	21
7.3	Pipework .....	23
7.3.1	Design considerations .....	23
7.3.2	Gas Valves .....	23
7.3.3	Gas cleaning .....	23
7.3.4	Gas coolers .....	24
7.3.5	Pressure reduction stations .....	24
7.3.6	Recycle line .....	24
7.3.7	Vent systems .....	24
7.3.8	Station isolation system .....	24
7.3.9	Corrosion protection .....	24
7.3.10	Services pipework .....	25
7.3.11	Standard colour code .....	25
7.4	Compressor unit .....	25
7.4.1	General .....	25
7.4.2	Driver .....	25
7.4.3	Compressor .....	26
7.4.4	Unit Control System (UCS) .....	27
7.4.5	Unit auxiliary equipment .....	31
7.4.6	Foundations .....	35

7.4.7	Compressor unit housing .....	35
7.5	Station control and automation .....	36
7.5.1	Station Control System (SCS) .....	36
7.5.2	Station emergency shutdown systems .....	36
7.5.3	Gas detection system .....	37
7.5.4	Fire protection system .....	37
7.5.5	Station valve control and supervision .....	37
7.5.6	Over-pressure protection system .....	37
7.5.7	Over-temperature protection system .....	38
7.6	Electrical installation and power supply .....	38
7.6.1	General .....	38
7.6.2	Electrical power supply .....	38
7.6.3	Electrical installation .....	38
7.6.4	Illumination requirements .....	38
7.7	General requirements for construction .....	39
7.7.1	General .....	39
7.7.2	Execution of work .....	39
7.7.3	Station pipework construction .....	39
8	Testing, commissioning and acceptance .....	39
8.1	General requirements .....	39
8.2	Pre-commissioning .....	39
8.3	Commissioning .....	39
8.4	As built records of the station .....	40
8.5	Handover .....	40
8.6	Responsibility for safety .....	40
9	Operation .....	41
9.1	Introduction and basic requirements .....	41
9.2	Operating organization .....	41
9.3	Instruction procedures .....	41
9.3.1	General .....	41
9.3.2	Instructions for normal situations .....	41
9.3.3	Instructions for failure or emergency situations .....	42
9.3.4	Procedures for specific planned situations .....	42
9.4	Management of operating procedures .....	43
9.5	Training of personnel .....	43
9.6	Safety precautions .....	43
9.6.1	Prevention of gas explosion and fire .....	43
9.6.2	Storage of combustible materials .....	43
9.6.3	Venting .....	44
9.6.4	IT-Security .....	44
10	Maintenance .....	44
10.1	Introduction and basic requirements .....	44
10.2	Maintenance organization .....	44
10.3	Maintenance procedures .....	45
10.3.1	General .....	45
10.3.2	Gas compressor units .....	45
10.3.3	Pipework .....	45
10.4	Management of the maintenance procedures .....	46
10.5	Training of personnel .....	46
10.6	Maintenance tools and equipment .....	46
10.7	Safety .....	46
10.7.1	General .....	46
10.7.2	Safety precautions .....	47
10.7.3	Safety devices .....	47
11	Decommissioning and disposal .....	48
11.1	Decommissioning .....	48
11.2	Disposal .....	48

<b>Annex A (informative) Boundary of a gas compressor station .....</b>	<b>49</b>
<b>Annex B (informative) Parts of a gas compressor unit .....</b>	<b>51</b>
<b>Annex C (informative) Boundary Gas compressor unit -- Driver package .....</b>	<b>52</b>
<b>Annex D (informative) Boundary Gas compressor unit -- Gas compressor .....</b>	<b>53</b>
<b>Annex E (informative) Boundary Gas compressor unit -- Unit control system .....</b>	<b>54</b>
<b>Annex F (informative) Boundary Gas compressor unit -- Auxiliary equipment .....</b>	<b>55</b>
<b>Annex G (normative) Applicable measurement systems for NOx and CO determination .....</b>	<b>56</b>
<b>Annex H (informative) Examples of PEMS and quality insurance applications .....</b>	<b>58</b>
<b>H.1 Predictive Emission Monitoring System (PEMS), a relational model: quality criteria implementation: .....</b>	<b>58</b>
<b>H.1.1 General .....</b>	<b>58</b>
<b>H.1.2 QAL 1, design part .....</b>	<b>58</b>
<b>H.1.3 QAL 2 calibration and functional test (installation) .....</b>	<b>60</b>
<b>H.1.4 QAL 3, drift and precision control in operation .....</b>	<b>60</b>
<b>H.1.5 AST Annual Survey Test .....</b>	<b>60</b>
<b>H.2 An example of a polynomial model for PEMS for gas fired conventional turbines / engines: .....</b>	<b>60</b>
<b>Annex I (informative) Categories of methane emissions .....</b>	<b>62</b>
<b>Bibliography .....</b>	<b>63</b>