ShipCEMS
Utility Requirement Specifications

NA-E-SPC-009 / Rev. 04

Revision status

Revision	Date	Prepared	Checked	Approved
Rev. 01	17.10.2013	EBA	CTO	TESA
Rev. 02	18.10.2013	EBA	CTO	TESA
Rev. 03	05.06.2014	EBA	ISO	TESA
Rev. 04	05.01.2017	ALI	PJE	TESA

Document history

Revision	Reason for issue
Rev. 01	First issue.
Rev. 02	Specification for air compressor outlet pressure added.
Rev. 03	Specification for air compressor outlet pressure modified.
Rev. 04	Updated logo, output air quality values and back purge added to air capacity.

Important

Before using the equipment, read all instructions thoroughly and follow all precautions and warnings contained within this document. Improper use may cause personal injury and/or damage to the equipment, and may void the warranty. Vimex AS disclaims any responsibility for damage or injury caused by improper installation, use or maintenance of the equipment.

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Purpose

The purpose of this document is to provide the customer with Norsk Analyse's requirements for utilities on-board the vessel.

Utility requirement specifications for are divided as follows:

- Specifications for standard units comprised by the ShipCEMS delivery Vimex PN: 501010 (ShipCEMS – Calibration Gas)
- Specifications for air compressor providing instrument air to ShipCEMS

Caution *Air quality according to ISO 8573-1:2010 Quality Class 1.3.1*

Specifications, ShipCEMS units

Item	Specifications
Sample probe counter flange	Dimensions DIN DN65, PN 6 Material SS316L (or client specific)
Power supply	230 VAC, 2-phase, 50/60 Hz (or customer specific)
Signal interfaces	4-20 mA analogue outputs Digital alarm outputs Modbus – Option* Profibus – Option*
Calibration gas (span)	40 ppm SO_2 8 mol % CO_2 Rest Nitrogen N_2

Specifications, ancillary air compressor

Item	Specifications
Ambient operational temperature and relative humidity	Maximum +40 °C / 70 % RH (for normal operating conditions) Maximum +55 °C / 80 % RH (for design operating conditions)
Output air capacity (operational air flow), 1-stack application. With back purge installed:	Minimum 10 Nl/min @ atmospheric pressure (> 0.6 Nm^3/hour) Minimum 15 Nl/min @ atmospheric pressure (> 0.9 Nm^3/hour)
Output air capacity (operational air flow), 2-stack application With back purge installed:	Minimum 20 Nl/min @ atmospheric pressure (> 1.2 Nm^3/hour) Minimum 30 Nl/min @ atmospheric pressure (> 1.8 Nm^3/hour)
Output air capacity (operational air flow), 3-stack application	Minimum 30 Nl/min @ atmospheric pressure (> 1.8 Nm^3/hour) Minimum 45 Nl/min @ atmospheric pressure (> 2.7 Nm^3/hour)
Output air capacity (operational air flow), 4-stack application	Minimum 40 Nl/min @ atmospheric pressure (> 2.4 Nm^3/hour) Minimum 60 Nl/min @ atmospheric pressure (> 3.6 Nm^3/hour)
Output air quality (operational air flow)	Lower than +3 °C dew point @ 8 barg minimum outlet pressure (lower than -17 °C dew point @ atmospheric pressure) **According to ISO 8573-1:2010 Quality Class 1.3.1:** Solid particles (1-5 micron) ≤ 10 Vapour pressure dew point (atm.) ≤ -20°C Total oil (aerosol liquid and vapour): 0.01 mg/m^3
Air outlet pressure range	5 to 7 barg
Continuous operation time (online time) before need for maintenance stop	Better than 5000 hours (> 6 months)
Power supply	380-400 VAC 3-phase, 50Hz 420-440 VAC 3-phase, 50Hz/60Hz 450-480 VAC 3-phase, 60Hz

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