Declaration on the environmental compatibility for EMC, climate and mechanical load

RE 30117-U/10.11 1/4
Replaces: 02.05

Type **VT-VRPA1-50-1X/, VT-VRPA1-51-1X/, VT-VRPA1-52-1X/, VT-VRPA1-400-1X/V0**

Analog amplifiers

Product types

- VT-VRPA1-50-1X/, VT-VRPA1-51-1X/, VT-VRPA1-52-1X/ according to data sheet 30117
- VT-VRPA1-400-1X/V0 according to data sheet 30217

Description of the product family

The analog amplifiers of types VT-VRPA1-50 to VT-VRPA1-52, component series 1X, serve the control of pilot operated proportional flow control valves (throttle valves) with electric position feedback of types FE (size 16 and size 25, component series 2X) and FES (size 25 to size 63, component series 2X and 3X).
The amplifier type VT-VRPA1-400, component series 1X, serves the flow adjustment of an axial piston variable displacement pump A10VSO with electric flow controller FE.

The products specified above comply with the following standards:

1. EMC (electromagnetic compatibility)

EN 50082-2:1996	VDE 0839 part 82-2		Interference resistance
EN 61000-4-2:1995 IEC 1000-4-2	VDE 0847-4-2	ESD (electrostatic discharge)	Air discharge: Severity level 4 / evaluation criterion A Contact discharge: Severity level 4 / evaluation criterion A
EN 61000-4-4:1995 IEC 1000-4-4	VDE 0847-4-4	BURST (transient interference)	Supply voltage: Severity level 3 / evaluation criterion A Data line: Severity level 4 / evaluation criterion A
EN 61000-4-5:1995	VDE 0847-4-5	SURGE (surge voltages)	Supply voltage: Severity level 1 / evaluation criterion A
EN 61000-4-6:1996 IEC 1000-4-6	VDE 0847-4-6	HF fields, conducted disturbance variables	Severity level 1 / evaluation criterion A

In case of appropriate installation into a control cabinet and wiring according to data sheet, the set-up (amplifier card and control cabinet) corresponds to the prerequisites for compliance with the requiremenits of EMC standards EN 50081-1 and EN 50082-2. The necessary control cabinet design depends on the size of the external interference and in case of strongest load (radiation) may require special HF measures.

2. Climate

EN 60068-2	IEC 68-2		Environmental audit
EN 60068-2-1:1994		Cold test	2 cycles –5 °C Duration 2 hours
EN 60068-2-2:1993		Dry heating test	2 cycles +55 °C Duration 2 hours
EN 60068-2-1:1994 EN 60068-2-2:1993		Storage temperature	–25 °C, duration 16 hours +85 °C, duration 16 hours
	IEC 68-2-14:1986	Temperature change	2 cycles –5 °C to +55 °C Duration 3 hours each at min. / max. temperature
	IEC 68-2-30:1985	Humid heat, cyclic	Variant 2 +25 °C to +40 °C 93 % to 97 % relative humidity 2 cycles 24 hours each

3. Mechanical load

EN 60068-2	IEC 68-2 DIN 40046		**Vibration test** in three axes that are positioned vertically to each other
EN 60068-2-6:1994		Sine test	10 cycles, 5 to 500 to 5 Hz with logarithmic frequency changing speed of 1 octave/min. 5 to 57 Hz, amplitude 0.3 mm (p-p) 57 to 500 Hz, amplitude 2 g 10 to 15 min. duration at resonance frequency
	IEC 68-2-36:1973 DIN 40046-24:1977	Random test	20 to 500 Hz, amplitude 0.01 g^2 / Hz (2.2 g RMS), test time 30 min per axis
EN 60068-2-27:1993		Shock test	Half sine 15 g / 11 ms, 3 x in positive / 3 x in negative direction per axis, a total of 18 single shocks