Whitepaper

Conformal Coating of Printed Circuit Boards (PCB's)

In harsh environments the lifetime of electronic equipment is reduced due to the corrosiveness of the atmospheric environment. To increase the lifetime of the PCB's, they can be conformal coated according to IEC 61721-3-3. There are not many US standards available on the levels of conformal coating so we comply with the more difficult IEC standards from the European Union.

Danfoss offers coated PCB's according to IEC61721-3-3. Our standard PCB construction complies with class 3C2 as standard and class 3C3 as an option.

- Class 3C1: Applies to rural and urban areas with low industrial activities and moderate traffic. Be aware of that salt mist may be present in sheltered locations of coastal areas
- Class 3C2: Applies to locations with normal levels of contaminants, experienced in urban areas with industrial activities scattered over the whole area, or with heavy traffic.
- Class 3C3: Applies to locations in the immediate neighborhood of industrial sources with chemical emissions.

The corrosive levels are listed below:

Environment Parameter	Units	Class				
		3C1	3C2		3C3	
			Mean value	Max value	Mean value	Max value
Sea salt	ppm	None	Salt mist		Salt mist	
Sulphur dioxide	ppm	0.1	0.3	1.0	5.0	10.0
Hydrogen Sulphide	ppm	0.01	0.1	0.5	3.0	10.0
Chlorine	ppm	0.01	0.1	0.3	0.3	1.0
Hydrogen Chloride	ppm	0.01	0.1	0.5	1.0	5.0
Hydrogen Fluoride	ppm	0.003	0.01	0.03	0.1	2.0
Ammonia	ppm	0.3	1.0	3.0	10.0	35.0
Ozone	ppm	0.01	0.05	0.1	0.1	0.3
Nitrogen Oxides	ppm	0.1	0.5	1.0	3.0	9.0

Danfoss VLT Drives offers as standard on every Printed Circuit Board the 3C2 standard and, for a small adder, we can upgrade the coating to comply with the 3C3 standard.

To tell if your existing Drive has this rating, check the Ordering Number on the drives sticker and look next to the "G". If the next letter is an "X", then you have the standard coating, if the letter is a "C", then you have the optional 3C3 coating.