



QUALITY MANAGEMENT SYSTEM

QUESTIONNAIRE FOR THE ORDER OF SPARK-PROOF/EXPLOSION PROOF FANS

Mod. 056

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- **FAN TYPE:** Centrifugal Helicoidal/Axial
- **ORDER/OFFER NUMBER:**
- **SPARKPROOF DEFINITION:** Type C according to AMCA According to 94/9/CE Directive "ATEX"
(In this case fill in the questionnaire)

▪ **FAN ZONE DEFINITION**

Atmosphere	Zone and Level of danger during normal service		Category	X	NOTE
Gas, Mixture or Dust Presence	0	Explosive Atmosphere Always Present (Permanent Danger)	1G	*	* Moro S.r.l. does not build 1G and 1D Category fans for zones 0 and 20
	1	Explosive Atmosphere Probable (Potential Danger)	2G		
	2	Explosive Atmosphere Barely Probable (Minimal Danger)	3G		
Dust Presence	20	Explosive Atmosphere Always Present (Permanent Danger)	1D	*	
	21	Explosive Atmosphere Probable (Potential Danger)	2D		
	22	Explosive Atmosphere Barely Probable (Minimal Danger)	3D		

- **DEFINITION OF GAS GROUP** (only for electrical equipment mean to work in zone 1)
IIA (Aliphatic hydrocarbons, ether, diesel oil, cherosene, acetone, liquid gas, etc.)
IIB (Ethylene, sulphuric acid, isoprene, water gas, coke gas, etc.)
IIC (Hydrogen, acetylene, ethyl nitrate, carbon sulphur)
N.B. High protection executions also guarantee those lower. (IIB also covers IIA, IIC covers both). Moro S.r.l. will mark only IIB or IIC in the operation of electric motors.

- **DEMANDED THERMAL CLASS ON THE FAN:** T1 T2 T3
N.B. For gas zones the thermal class of reference for the fan is T3 (+200°/+300°) while for powders zones the maximum temperature that could be developed on the surfaces of the fan during normal service is up to +185°C. In potentially explosive atmospheres the directive bids against using equipments with transmission, but however it admits them with the due precautions in zones 2, 22. **A fan of higher class guarantees always lower ones.**

- **EXPLOSIVE ATMOSPHERE PRESENCE:** (it is very important to enable the design of the appropriate execution)
 Inside the fan Outside the fan Inside and outside the fan

- **TEMPERATURE**
 MAXIMUM IN THE INSTALLATION PLACE °C
 MAXIMUM FOR THE INLET FLUID °C
 OF IGNITION FOR THE INLET FLUID °C

N.B. Directives suggest that the standard use atmosphere should be between 0,8 and 1,1 bar with an increment of aeraulic energy not exceeding these values, while the operating temperature should be between -20°C/+60°C. The temperature can increase during the normal service because of the pressure increment; it is therefore necessary to check the trend in the event of temperatures exceeding +50°C. In the event of environmental and fluid conditions varying from the forecast the user must carry out a further risk assessment and agree the most suitable solution with the constructor. It is however necessary that the temperature on the inlet and interior of the fan remains below +60°C (± 10%) on inlet and inside the fan, also as a result of density or pressure variations inside the fan itself. Regarding the electric motor, the maximum temperature permitted with reference to the electric motor, is +40°C in the operation zone. However, various temperatures developing on the fan surfaces should not exceed 75% of the ignition temperature. As a consequence, the ignition temperature should not be lower than +250°C.

- **MAXIMUM THICKNESS OF DEPOSITED POWDER:** mm

N.B. The thickness should never exceed 5mm. The user should ensure that the external fan surfaces are kept clean and that there is no internal accumulation.

! THE FAN SHOULD BE PROTECTED FROM FOREIGN PARTICLES AND THEREFORE IT IS OBLIGATORY THAT IT IS FITTED WITH INLET AND OUTLET SCREEN PROTECTION;

! MORO S.R.L. DISCLAIMS ALL RESPONSIBILITY FOR ANY DIRECT AND INDIRECT ACCIDENT TO THINGS OR PERSONS CAUSED BY THE ABSENCE OF SUCH ACCIDENT PREVENTION DEVICES;

! TO FACILITATE INSPECTION AND REGULAR CLEANING IT IS NECESSARY THAT ALL FANS BE FITTED WITH AN INSPECTION DOOR;

! IT IS THE RESPONSIBILITY OF THE USER TO ANTICIPATE THE APPROPRIATE PROTECTION NEEDED TO PREVENT THE ACCESS OF POTENTIALLY DAMAGING FOREIGN OBJECTS INTO THE FAN;

! A NEW RISK ASSESSMENT ON THE FAN SHOULD BE CARRIED OUT BY THE USER WITH REFERENCE TO ANY MODIFICATION OR CHANGE MADE TO IT.

Compiled by: **date:** **Company Stamp & Signature**

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