



## 1. PURPOSE

This document sets out the definitions and limitations of technical liability for OTAM's and its Customer.

## 2. REFERENCES

- 2.1 – Law 8078 of 11/9/1990: CODE OF CONSUMER PROTECTION;
- 2.2 – OTAM'S GUARANTEE AND QUALITY TERM;
- 2.3 – OTAM'S TERMS AND SALES GENERAL CONDITIONS;
- 2.4 – AMCA STANDARD 99/86: "STANDARDS HANDBOOK";
- 2.5 – AMCA STANDARD 201/73: "FANS AND SYSTEMS";
- 2.6 – NORMA AMCA 203/76: "FIELD PERFORMANCE MEASUREMENTS";
- 2.7 – AMCA STANDARD 203/76: "LABORATORY METHODS OF TESTING FANS FOR RATING";
- 2.8 – AMCA STANDARD 300/85: "REVERBERANT ROOM METHOD FOR SOUND TESTING OF FANS";
- 2.9 – STANDARD NBR 8007/83: "BALANCING - TERMINOLOGY";
- 2.10 – 1940.1/86 ISO STANDARD: "MECHANICAL VIBRATION – BALANCE QUALITY REQUIREMENTS OF RIGID ROTORS-PART 1: DETERMINATION OF PERMISSIBLE RESIDUAL UNBALANCE";
- 2.11 – ISO 2041/75 STANDARD: "VIBRATION AND SHOCK-VOCABULARY";
- 2.12 – ASHRAE HANDBOOK: "APPLICATION VOLUME";
- 2.13 – ASHRAE HANDBOOK: "FUNDAMENTALS VOLUME";
- 2.14 – ASHRAE HANDBOOK: "SYSTEM VOLUME";
- 2.15 – ASHRAE HANDBOOK: "EQUIPMENT VOLUME";
- 2.16 – INSTALLATION, OPERATION AND MAINTENANCE OF INDUSTRIAL FANS OTAM

## 3. RESPONSIBILITY FOR TECHNICAL PERFORMANCE

The fans manufactured by OTAM have performance characteristics measured in accordance with AMCA Standard 210. In case of doubts regarding the service performance of fans, when operating in the field, it should be noted that field measurements are prone to errors due to several factors. Thus OTAM considers the the only Performance Test, valid for comparison purposes, is the Laboratory Test according to AMCA Standard 210. If the Customer wishes to measure the performance of the fan in the field, the only way to make these results comparable to those obtained in the laboratory is to comply with AMCA Standard 203. Because OTAM has its own Laboratory, we recommend that testing, accompanied by Inspector and Customer's should be done in the factory, preferably soon after manufacture. The procedure facilitates the subsequent adjustment of the installation and eliminates doubts. The tests, however, are subject to a commercial proposal when they were not mentioned in the original Technical and Commercial Proposal.

OTAM assumes no responsibility for the installation of their fans in a position that is contrary to current practices of engineering, especially with that recommended in AMCA Standard 201 and ASHRAE handbooks.

## 4. RESPONSIBILITY FOR THE VIBRATION LEVELS

The fans are balanced to meet the maximum degree of unbalance G 6.3 of ISO 1940 unless there is some agreement otherwise provided in the Commercial and Technical Proposals.

The fans are designed not to present vibrations due to excitation caused in the following frequencies:

- a) Frequency of operation of fan and motor;
- b) Frequency of the Power Supply;
- c) Frequency aerodynamics of the blades;
- d) Frequency of contact of the ball (or roller) bearings

Other frequencies, such as those generated by turbulence developed due to failures of Installation Design are not considered in the design of fans. Its consequences will therefore be considered as a risk.

## 5. RESPONSIBILITY FOR SOUND LEVELS

Since the sound pressure levels of fans depend on the acoustic environment in which measurements are made, OTAM if desired, only provides to its customers and is responsible for sound power levels measured in accordance with AMCA Standard 300 in Laboratory, because these data is independent of installation conditions.

In case of need for prior knowledge of sound pressure levels, OTAM is limited to supply the values in the Free Field and Direct Sound condition, calculated theoretically.

## 6. RESPONSIBILITY FOR THE MECHANICAL STRENGTH

The fans, parts and accessories, are designed to withstand the static and dynamic efforts due to fatigue, for the performance characteristics specified in the request and in Technical and Commercial Proposals. Other efforts can be considered, if they are previously specified by Customer and described in the Technical and Commercial Proposals.

## 7. DUTIES & RESPONSIBILITIES OF CUSTOMER

7.1. Correctly inform in writing to OTAM, in the inquiry for purchasing, all the data regarding the desirable performance characteristics and construction details, also informing about any possible installation problem.

7.2. Have the technical knowledge needed for a good quality installation that does not harm the fan.

7.3. Have knowledge of the entire content of the technical and commercial proposal presented by OTAM, and especially the references 2.2, 2.3 and 2.16 along with the other references. OTAM considers these premises fulfilled, for any purpose, at the time of the business closure.