



# Encyclopedia

## U

### **Ultrasound**

Sound in the frequency range above the frequency range of human hearing.

### **Unbalance**

- 1) Uneven radial weight distribution in a rotor. The centre of gravity does not line up with the axis of the shaft.
- 2) Also: the effective mass that an unbalance causes.
- 3) The condition that exists in a rotor if, as a result of centrifugal forces, vibration forces or movements are transmitted to its bearings.

### **Unbalance force**

The centrifugal force (with reference to the shaft axis) of one plane of the rotor which results because the unbalance in this plane occurs at a particular speed of rotation.

### **Unbalance forced**

Vibration excitation caused by unbalances. Some unbalance is present in virtually every spinning rotor. The frequency of the stimulated vibrations is the rotational frequency. The intensity of the vibrations depends on the condition of the unbalance. Increased vibrations as a result of unbalance can be reduced by balancing.

### **Unbalance mass**

The mass that one assumes to be present on a particular radius such that the product of this mass and the radial acceleration is equal to the unbalance force.

### **Unbalance moment**

The moment of the centrifugal force of a mass element of the rotor about a reference point on the shaft axis.

### **Unbalance reduction ratio**

Abbreviation: URV

The relationship between the decrease in the unbalance as a result of a single correction to the original unbalance:

$$UVR = \frac{U_1 - U_2}{U_1} = 1 - \frac{U_2}{U_1}$$

where  $U_1$  is the amount of the original unbalance, and  $U_2$  is the amount of remaining unbalance after a correction.

The unbalance reduction relationship is a measure of the quality of the entire unbalance correction. The value should be at a maximum after a carefully executed process. The relationship is customarily shown as a percentage.

### **Unbalance tolerance**

For a rigid rotor, that amount of unbalance in a radial plane that is determined to be the maximum under which the unbalance condition is determined to be acceptable.



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### **Unbalance vector**

A vector whose size is the amount and whose direction is the angle of the unbalance.

### **Uncorrected result**

*See Measurements, uncorrected*

### **Uncoupled mode**

*See Natural frequency, uncoupled*

### **Undamped natural frequency**

*See Natural frequency, undamped*

### **Unipolar**

Identifies an information parameter, that can only assume positive or negative values.

### **Unipolar pulse**

*See Pulse, unipolar (unilateral)*

## **Unipolar signals**

*See Signals, unipolar*

## **UNIX**

An operating system for workstations. It has existed since 1969 and was developed by Bell Laboratories, one of the largest telephone companies in the U.S. In the meantime, UNIX was developed further but the main features of the 1969 version have been retained. UNIX is an operating system suited for general applications and also for multiaccess systems and thus is network-enabled. It is written in the high-level programming language, C.

## **Unsymmetrical rotor**

*See Rotor, unsymmetric*

## **Unwanted signal; undesired signal**

*See Signal, unwanted*

## **Update**

*See Software update*

## **Upgrade**

*See Software upgrade*



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### Upload

Upload. Transfer of data from one computer to another with the aid of a data transfer protocol.

*Note:* In the USA, this process is often also referred to as “unload”.

### User

The User is the user of a computer. There are single-user systems at which only one user can work and multi-user systems at which many users can work simultaneously.