

GENERAL RULES

DID YOU KNOW?
 VIBCO offers VMT hand held vibrators.
 Call 800-633-0032 for more info,
 or visit us at www.vibco.com



I. CHOOSE ELECTRIC OR PNEUMATIC VIBRATORS

In the U.S., the most common vibrators are the pneumatic. They are easy to use, safer, lightweight, portable, simple to repair and cost less than electric.

The smaller, electric 115-volt plug-ins are popular, especially on small forms and on outside jobs where a generator is easier to use than large air compressors and air hoses.

Large 3 phase electric vibrators are primarily used on vibrating tables and large pipe forms where they are permanently mounted on the forms.

II. PORTABLE OR PERMANENTLY MOUNTED, WHICH TO CHOOSE?

The permanently mounted vibrators will last longer "maintenance-wise", transmit vibration better, and release an operator for other duties.

The portable vibrators are very popular – one vibrator can be moved to different positions, used on different forms, and additional female brackets can be mounted in places where additional vibration is required. A host of different types of brackets are available from VIBCO to help with this type of application.

III. WHICH MODEL AND SIZE VIBRATOR TO CHOOSE?

A. First determine how much vibration force is needed for the complete form. Add form weight to concrete weight with the following adjustments. It is important to know what slump concrete is used.

- For concrete with 0" slump or dry concrete, add 200% to the weight of form plus concrete **to get the vibration force needed.**
- For 1" to 2" slump, add 75% to form and concrete weight **to get total force needed.**
- For concrete with a 3" to 5" slump – standard for all over the road delivered concrete trucks – **use vibrator force same as the form plus concrete weight.**

B. Placement of vibrators - Vibration force travels in a 3' to 4' radius from the vibrator on steel forms. It dissipates rapidly thereafter. Place vibrators in a pattern so that vibration forces overlap slightly. The corners are usually very stiff, so place vibrators close to the corners on a 2.5' to 3' radius.

C. Penetration - Vibration force penetrates concrete up to 6" to 8" depending on slump. Concrete is thicker than 8", vibrators (staggered) are needed on both sides of the form.

D. How many vibrators are needed? Make a layout of your form and place vibrators on 6' to 8' centers (vibration travels a 3' to 4' radius). On corners, place vibrators on 5' to 6' center (2.5 to 3' radius). Once you have laid out the vibrator pattern and you know how many you need, divide the numbers of vibrators into the total weight of form and concrete (see paragraph one). The sum is the VIBRATION FORCE needed on the vibrator.

E. Which vibrator to choose? VIBCO has over 300 vibrator models, pneumatic, electric and hydraulic, to choose from. VIBCO has been in business since 1962 (over 40 years), and certain vibrators have proven to be the best solution, best value and require the least maintenance for concrete applications. Below is a list of the most commonly used vibrators:

SMALL TO MEDIUM SIZE FORMS

ELECTRIC	VOLTAGE	PAGES	FORCE OUTPUT
US-450	115V	16 & 17	450 lbs.
US-700	115V	16 & 17	700 lbs.
US-900	115V	16 & 17	900 lbs.
USL-900	115V	6 & 7	1100 lbs.
US-1600	115V	16 & 17	1600 lbs.
USL-1600	115V	6 & 7	1800 lbs.
2PL-900	115V	6 & 7	900 lbs.
2PL-1600	115V	6 & 7	1600 lbs.
PNEUMATIC	PAGE	FORCE OUTPUT	
VS-320HS, V-320HS	14 & 15	600 lbs.	
VS-380HS, V-380HS	14 & 15	725 lbs.	
VS-510HS	14 & 15	900 lbs.	
CCF-2000, CCL-2000, CCW-2000	14 & 15	2000 lbs.	

DID YOU KNOW?
 VIBCO offers
 hydraulic
 vibrators
 which are
 used on
 large forms
 (concrete
 pipe, bridge
 columns or
 tall form)
 vibrators
 eliminate gas
 and noise



MEDIUM TO LARGE FORMS

PNEUMATIC		PAGE	DECIBELS	FORCE OUTPUT
CCL-4000, CCF-4000, CCW-4000		6 & 7	78 dB	4000 lbs.
SVRLS, SVRFS, SVRWS-4000		6 & 7	78 dB	4000 lbs.
SVR-4000		6 & 7	82 dB	4000 lbs.
CCF, CCL-5000		14 & 15	78 dB	5000 lbs.
SVRFS, SVRLS-5500		14 & 15	98 dB	5000 lbs.
CCF, CCL-7000		14 & 15	78 dB	7000 lbs.
ELECTRIC	PHASE	PAGE	FORCE OUTPUT	
2P-800	1 & 3 phase	16 & 17	1700 lbs.	
2P-1700	3 phase	16 & 17	2500 lbs.	
2P-2500	3 phase	16 & 17	3500 lbs.	
2P-3500	3 phase	16 & 17	4500 lbs.	
2P-4500	3 phase	16 & 17	5500 lbs.	
2P-5500	3 phase	16 & 17	6800 lbs.	



DID YOU KNOW?

Always follow the manufacturer's instructions for safe operation. Do not use the vibrator for anything other than its intended purpose. Do not use the vibrator for anything other than its intended purpose.

The 115-volt “plug-in” electric models US and USL are popular for small to medium forms when compressed air is not always available or on job sites where generators can be used.

The larger 3 phase models – 2P-800 and up – are used for permanent mounting on concrete pipe forms and vibrating tables.

The pneumatic vibrators are by far the most popular ones, they are low cost, lightweight, easy to mount to any bracketry, and easily repairable by the mechanic on the job site.

The pneumatic turbine lines VS, CCF, CCL and CCW are the most popular for the small to medium size forms, because of their noiseless operation, noise as low as 72dB at high frequency and light weight . They are pre-lubricated for life so no lubrication is necessary.

FOR THE LARGER FORMS

The larger CCF, CCL-4000, -5000, and -7000 are used for larger forms. They are quiet, high force, and no lubrication is required. These units are also excellent for self-consolidating concrete.

The SVR line of high frequency vibrators can produce as high as 15,000 VPM, which is ideal for obtaining a smooth architectural finish. The standard units have frequencies of 8,000 to 12,000 VPM for fast placement and producing strong, void-free finishes.

These units must be continually lubricated to maintain their speed and force output.

F. Vibration procedure and vibration time.

1. Vibration Procedure: Place vibrators to be used in their lowest position. It's a good idea to pre-mark the vibrator position. Do not start vibrators until the concrete reaches them or is no more than 6” above them.

TIP: If internal vibrators are used, do not start the external ones until the internals have stopped or moved to a higher position. The reason for this is, internal vibrators throw air bubbles away from the vibrator head against form side leaving air holes and pockets on the surface. External vibrators throw air bubbles into the mix, up and out, leaving surface against form smooth and blemish free.

2. How long to vibrate? Some experimentation on the customer's part is always necessary because the time you need to vibrate varies depending on concrete slump, additives, stiffness of form, vibrator force, etc.

Do not start the lowest vibrator until the concrete reaches them or is no more than 6” above. The concrete stiffens the form and if vibrated earlier, the vibration might move the form, making it flex, promoting leaks and seepage.

- a. If there is only one vibrator on the side of the form, keep it vibrating until the form is full and no more air bubbles are breaking on the top of the concrete and a glistening surface appears.
- b. If there are multiple vibrators per side, keep the lower vibrator running until the concrete pour reaches the higher vibrator – then stop the lower one, start the higher one and let it vibrate until the pour is complete and no more bubbles break on the surface of the concrete and a glistening surface appears.

G. Helpful hints and corrections after you strip the form (please see page 27 under septic tanks).

H. Additional Tips

1. Metal forms transmit vibration far more effectively than wood forms.
2. Always stiffen up forms to avoid distortion and flutter and for best vibration transmittal to concrete.
3. Rest forms on wood beams or rubber mats to avoid vibration transmittal to floor and surrounding forms, as well as for quiet operation and increased vibration amplitude and uniform compaction.
4. Vibration time depends on height and structure of form. Vibrators should be operated until a flat, glistening surface appears and no more air bubbles burst on the surface.
5. Concrete of proper consistency is not susceptible to over vibration and segregation. If segregating occurs, reduce slump, not vibration time and tighten form joint.

Our experience has been to see “under-vibration” rather than “over-vibration” due to too short vibration time or force, to get a homogenous, air-bubble-free mix.