

POWTEK



CONCRETE ROLLER VIBRATORS

Dual Roller Vibrator

The dual roller pneumatic vibrator is ideal for applications that require both high frequency and high force. Its light weight (15-55 lbs) allows ease of use and flexibility.

How it Works

Air pressure activates the vane (multi-slotted) on one or two rollers (one within the other), creating multiple vibrations on each orbit. This produces a powerful force at a high frequency.



PERFORMANCE DATA

MODEL	ROLLER	UNBALANCE	FREQUENCY			Working Force Output *			No Load**	AIR CONSUMPTION		
			30 PSI	60 PSI	90 PSI	30 PSI	60 PSI	90 PSI		30 PSI	60 PSI	90 PSI
	Type	lbs-inch	vpm	vpm	vpm	lbs	lbs	lbs	lbs	cfm	cfm	cfm
CR 700 / DR 700	single	0.10	8000	11000	13000	280	530	750	1300	34	56	64
CR 1600 / DR 1600	single	0.25	7500	10000	12000	620	1100	1600	2200	37	58	66
CR 4400 / DR 4400	single	0.6	6000	9000	11000	960	2100	3200	4400	39	60	68
CR 5500 / DR 5500	double	1.6	5000	7000	9000	1700	3500	5700	9000	30	49	58
CR 6500 / DR 6500	double	3.3	3500	5000	7000	1800	3700	7100	13000	32	44	52
CR 7800 / DR 7800	double	6.0	2000	3000	5500	1600	4200	8100	10000	35	46	51
QCR 5500	single	2.5	3000	5000	7000	1000	2800	5400	7000	32	43	56

* The force output shown is the **real working force** of a vibrator applied to a form.

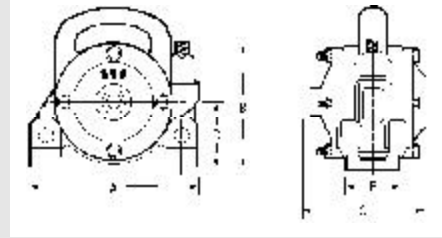
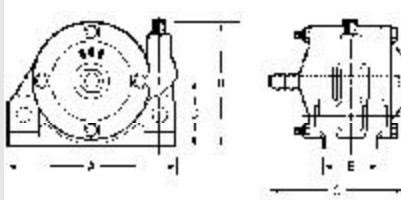
** The Max theoretical force at **no load** is nearly twice the working force and it is used for comparison only.

Example: the CR 5500 has a **max working force** of 5700 lbs at 90 Psi but a **no load force** of 9000 lbs. If used with no load (if not attached to a structure) the vibrator would self destruct.

Features

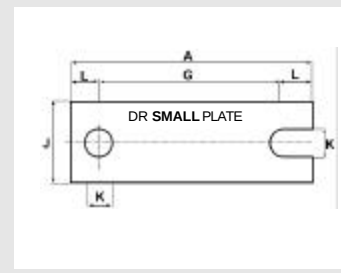
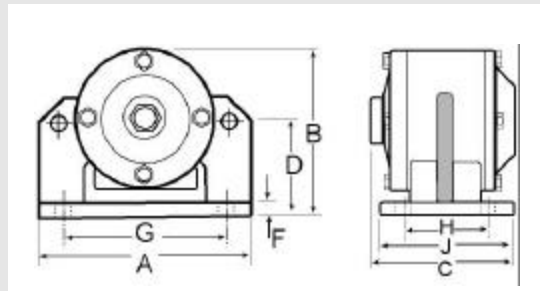
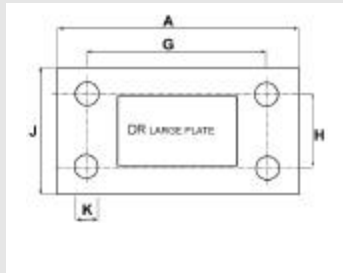
- The POWTEK CR Series is the original heavy-duty vibrator specified and used by precast producers.
- No bearings, seals or O-rings.
- Maximum 3 moving parts (vane, roller-vane, inner & outer roller) simple long wearing vibrator require little maintenance.
- Shaft, roller and endplates hardened and ground to assure high performance and reduced wear.
- Once the vane is replaced when worn and internal parts cleaned-up, the vibrator becomes like new.
- Frequency ranges between 3000 and 13000 vpm depending on type of vibrator and air pressure applied.
- It produces a powerful output force ranging from 300 lbs up to 8000 lbs.
- 3 Models and 6 Sizes
 - CR, DR and QCR models
 - 700, 1600, 4400, 5500, 6500 & 7800 sizes
- It can be low noise with the QCR model.

DIMENSIONS



CR MODELS

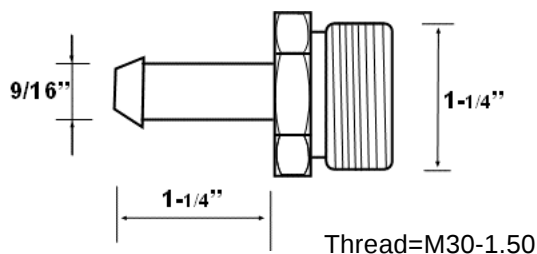
MODEL	A	B	C	D	E	Bracket	Weight (lbs)
CR 700	7	5.5	6.75	2.75	3.75	M-17	15
CR 1600	7	5.5	6.75	2.75	3.75	M-17	15
CR 4400	7	5.5	6.75	2.75	3.75	M-17	16
CR 5500	9.6	9	7	4.25	3.75	M-23	37
CR 6500	9.6	9	7	4.25	3.75	M-23	40
CR 7800	9.6	9	7	4.25	3.75	M-23	38



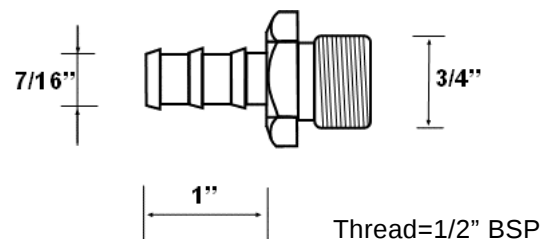
DR MODELS

MODEL	A	B	C	D	F	G	H	J	K	L	Plate	Weight (lbs)
DR 700	8.66"	5"	6.5"	2.6"	0.75"	7"	-	2.36"	0.71"	0.83"	small	15
DR 1600	8.66"	5"	6.5"	2.6"	0.75"	7"	-	2.36"	0.71"	0.83"	small	16
DR 4400	8.66"	5"	6.5"	2.6"	0.75"	7"	-	2.36"	0.71"	0.83"	small	17
DR 5500	10.75"	7.37"	6.50"	4.20"	0.75"	7.62"	3.75"	5.37"	0.69"	1.19"	large	45
DR 6500	10.75"	7.37"	6.50"	4.20"	0.75"	7.62"	3.75"	5.37"	0.69"	1.19"	large	48
DR 7800	10.75"	7.37"	6.50"	4.20"	0.75"	7.62"	3.75"	5.37"	0.69"	1.19"	large	52

AIR FITTING FOR CR 5500-A

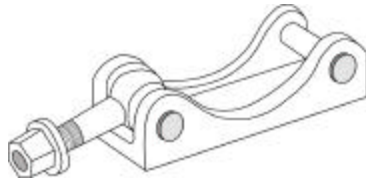


AIR FITTING FOR CR 5500-B



Cradle Lug Bracket

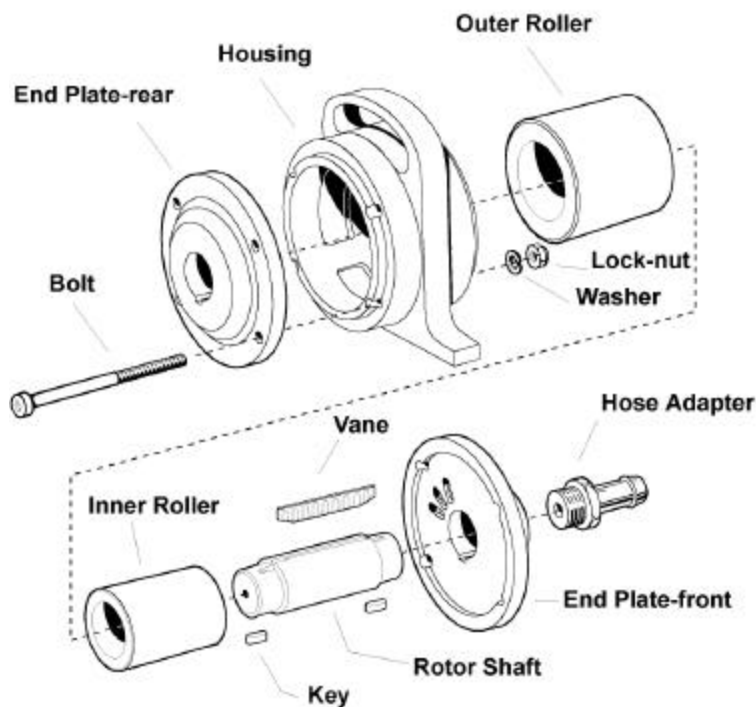
The success of a quick change portable system is fully dependent upon a secure mount.



The POWTEK lug bracket is the highest quality mount available. It features:

- Heavy-duty rugged cast steel construction.
- Heat treated
- Back face precisely machined
- Cradle side precisely ground to match vibrator's housing.

SPARE PART LIST



Why the Model **5500** Roller Vibrator is ideal for concrete applications!

The larger percentage of entrapped air occurs around the fines rather than the large particles. CR-5500 work at a frequency ranging from 7000 to 10000 rpm. This speed is ideal for agitating the fines assuring a more complete film of cementitious paste over the larger aggregates.

Dual Rollers leave larger aggregates relatively undisturbed lessening the chance of segregation. Only the fines of the mix are vibrated. The removal of entrapped air is excellent. Concrete density is increased. Surface finish is considerably improved.

Best vibrational frequencies for particle sizes

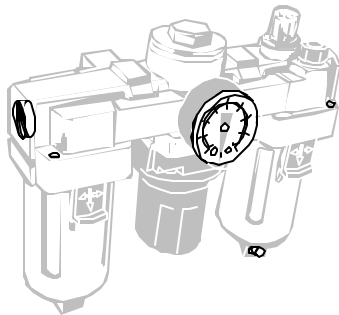
Product type	size (mm)	size (inches)	size (mesh)	frequency (rpm)
FINE SAND	0.08	0.003"	170	10000
COARSE SAND	0.5	0.02"	35	8000
FINE AGGREGATE	2.0	0.08"	10	5500
MEDIUM AGGREGATE	7.0	.25"	-	3000
COARSE AGGREGATE	25	1"	-	1500

Benefits

- **Long life**, virtually no **maintenance**. **No electrical components** to burnout. **Easy to mount, store and move** on job. In precast concrete applications **faster pour** of high-strength products with **higher quality finish**.

Maintenance Installation

- Four vane positions are available. Make sure the vane is set properly for your application. If the vane is set incorrectly for the vibrator might be difficult to start.
- CR series require an initial lubrication at the startup; pour 1-2 ounces of air tool oil or a quality 10W air motor oil into the inlet. Do not use combustion engine motor oil. Set the airline lubricator for 1 or 2 drops of oil per minute. Check for dirt or water at inlet and exhaust. Keep air supply clean and dry with a correctly sized filter, regulator, lubricator at all times.



- Make sure airline size is appropriate to deliver the CFM required by the vibrator. Size long airline hose lengths to make up for normal pressure drop that could affect the vibrator performance.
- To evaluate the estimated performance of a unit, always consider **the operating pressure at the inlet** of the vibrator and not the static pressure at the compressor since these two values could be quite different.

Precast and Prestressed Industry

External vibration is a more efficient way to achieve quality work.

Less human error

Human error is minimized in placement and consolidation. The amount of concrete which can be consolidated with most internal vibrators is limited by

- 1) the age and performance of the equipment,
- 2) the experience and diligence of the operator
- 3) the response of the concrete (particularly in the critical area between strand or reinforcing and form).

With external vibration, there is little limitation on frequency and force and almost no dependence on operator skill since only one man is required for opening and closing an air valve.

Smaller Crews – Less Equipment

Casting crews can be greatly cut with the corresponding reduction of rakes, shovels, and internal vibrators (as many as four fewer men on an average crew).

Shorter Pouring Time

- Pour time is reduced dramatically. consolidation is faster and the speed of casting is limited only by plant's ability to deliver concrete to the form. This means rapid turnover of forms and optimum utilization of men and equipment.

Improved Concrete Quality

Multi-directional total wave-energy transmitted through the form wall ensures:

- A superior distribution of the mix
 - Mass evacuation of entrapped air
 - Faster consolidation
 - Improved strength and quality.

Better Product Finish

Surface marks caused by internal vibrators are eliminated; costs of rubbing and patching the product are minimized. Finishing costs and possible product rejection costs are significantly reduced.

Less Maintenance

The casting of high-grade structural concrete with 1"- 3" slumps demands continuous heavy service of internal vibrators, while only intermittent operation of external vibrators is required to do the same job – much less costly maintenance and fewer delays in production.

Permanent Vibration System

With the rapid advance of automation in the precast/prestressed concrete industry, most producers casting long line forms have chosen permanent mount installation. Some of the advantages of a permanent system are:

- Two or more men who would normally be moving vibrators, can be eliminated from the crew.
- Vibrator life is extended considerably since each will run approximately 1-1/2 minutes per day, or 30 minutes per month. This is opposed to a portable vibrator which can run over 100 times longer per month.
- Since each vibrator is permanently connected to an air manifold near the form, there is no danger of grit, dirt, or other contaminants entering the air line. In a portable system, air hoses could be dragged on the ground.
- **A permanent external vibrator installation allows extremely fast pouring.** The form will accept the concrete as fast as it can be delivered. In fact, most forms using external vibration can be poured faster than with a machine.
- The life of the forms is extended since total vibration force is divided among a large number of less powerful and more gentle vibrators.

Applications

Popular models	Applications
CR 5500 <i>9000 RPM</i> Smooth concrete finish	Wet Cast - Smooth concrete finish, Tunnel forms, Concrete panels, Inverted T and Double T, Screeds
CR 6500 <i>6000 RPM</i>	Concrete I-Beams, Veneer stone
CR 7800 <i>3000 RPM</i> High Amplitude	Dry Cast - Large round concrete pipes, Large square pipes, Large utility vaults, Coal mining hoppers, Railcar unloading, Railroad concrete ties
CR 4400 Small force	Small thickness panels, small precast parts, small concrete pipes



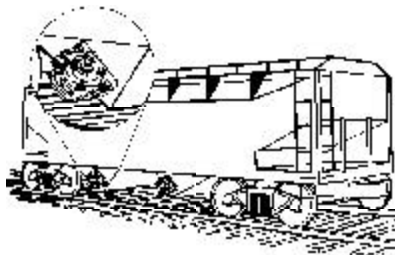
Concrete Screed



Small Utility Vault



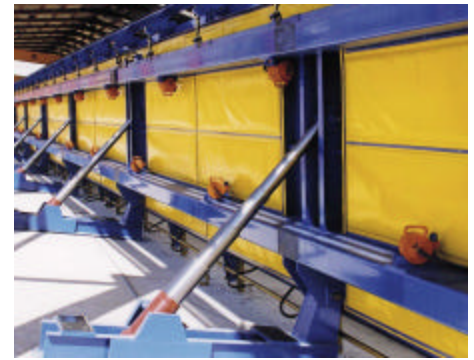
High speed railroad structural column



Railcar Unloading

- CR vibrators excel where the same unit is to be used in different positions of the job side instead of multiple vibrators.
- In railcar unloading the same vibrator can be moved from railcar to railcar.

- When used in prestressed concrete the higher frequency creates a smoother surface finish.
- In coal bunkers in power stations where high force and high amplitude are required due to the difficulty of the product.



Tilt Table



Tunnel Form



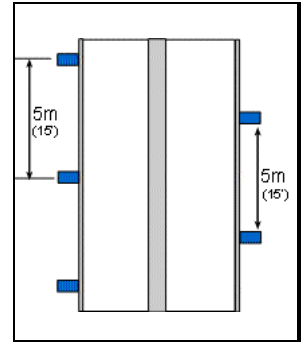
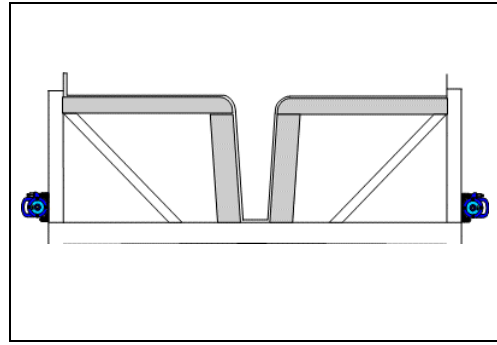
Mold for Manufactured Stone



Concrete Pipe

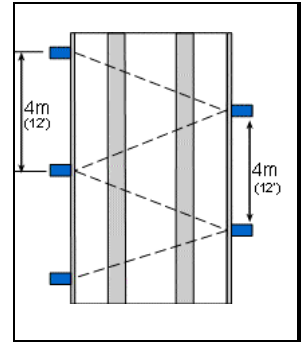
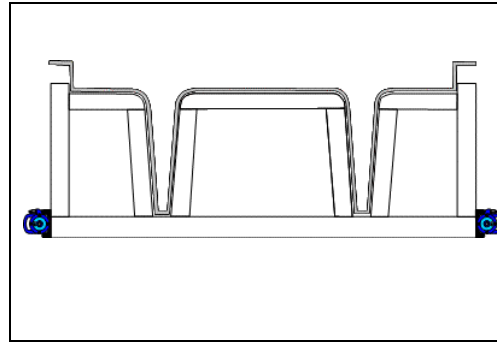
SINGLE T

- Use CR 5500 placed at the edges of the form.
- Mount weld-on lug bracket directly to the side.
- Space vibrators 15' (5 meters) from each other.
- Place at the opposite side on a Z sequence.



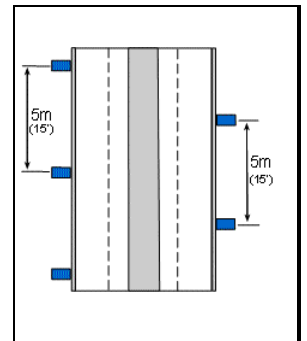
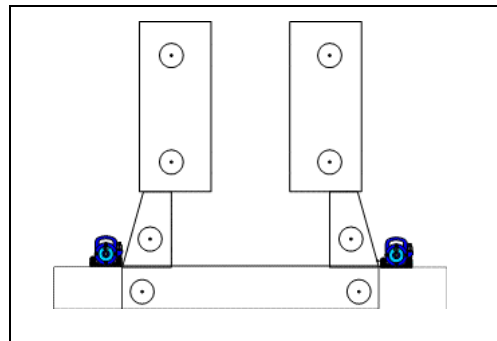
DOUBLE T

- Use CR 5500
- Weld lug brackets to the form's edges
- Line them up at a distance of 12' (4meters)



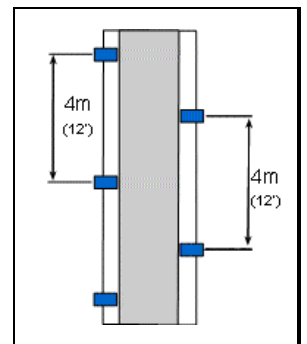
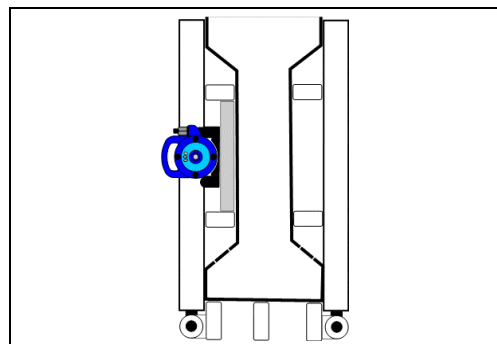
INVERTED T

- Use CR 5500
- Mount weld-on brackets on the bottom of the form
- Place vibrators 7-1/2' (2.5 meters) displaced one another or 15' between each vibrator on each side

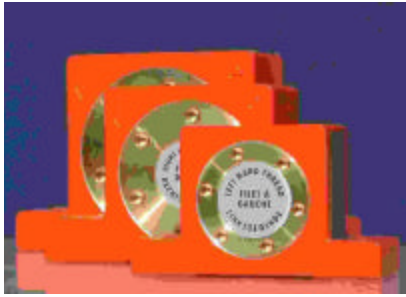


I - BEAM

- Use CR 5500 or CR 6500
- Place brackets and vibrators in a central position between the lower slope and the center of the concrete beam.
- Drill vents in the lower slope to free air bubbles



DAR



In permanent mount systems, the model **DAR** single roller vibrator is an economical choice.

With a force of 500 -1000 lbs and a frequency ranging from 5000 to 20000 vpm this model can produce an **outstanding force** at an optimal frequency for concrete consolidation.

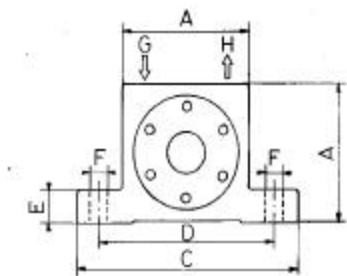
Air consumption however is extremely **low**.

With its **slim shape** it can fit in particularly **tight spots**.

It is often used for small precast parts and for low thickness concrete panels.

Max vibrator temperature can be as high as 300°F

PERFORMANCE DATA									
MODEL	FREQUENCY			CENTRIFUGAL FORCE			AIR CONSUMPTION		
	30 PSI vpm	60 PSI vpm	90 PSI vpm	30 PSI lbs	60 PSI lbs	90 PSI lbs	30 PSI cfm	60 PSI cfm	90 PSI cfm
DAR-2	36000	38000	38000	500	760	920	2.5	5.0	7.0
DAR-3	27000	32000	32000	612	920	1360	3.5	7.0	10.0
DAR-4	18000	22000	25000	530	1030	1500	4.2	9.0	13.0
DAR-5	9500	15000	16000	480	1120	1620	4.6	9.5	14.0
DAR-6	7800	10000	12000	980	1500	2300	6.0	11.0	16.0
DAR-7	8000	9800	11000	1300	2100	2700	6.4	12.0	17.0



DIMENSIONS								
MODEL	A inches	B (width) inches	C inches	D inches	E inches	F inches	H inches	WEIGHT lbs
DAR-2	1.97	1.18	3.38	2.68	0.47	0.27	1/8	0.82
DAR-3	2.56	1.42	4.45	3.54	0.63	0.35	1/4	1.68
DAR-4	3.15	1.57	5.04	4.00	0.63	0.43	1/4	2.80
DAR-5	3.94	2.05	6.30	5.12	0.79	0.51	3/8	5.40
DAR-6	4.72	2.44	7.64	6.00	0.94	0.67	3/8	10.35
DAR-7	4.72	3.03	7.64	6.00	0.94	0.67	3/8	12.55

POWTEK

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