



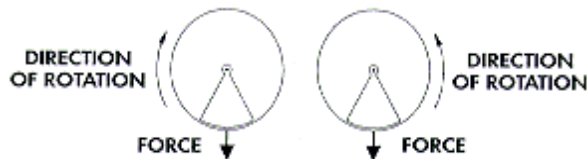
# CLEVELAND VIBRATOR ELECTRO-MECHANICAL HEAVY-DUTY FEEDERS

CVC Model EMF Mechanical Feeders utilize the forces set up by two synchronized counter-rotating, heavy-duty vibrator motors, as shown below. At two points in each complete revolution, the centrifugal forces of each vibrator coincide, resulting in a linear force. See figures 1 and 3 below. At positions shown in Figures 2 and 4, the forces are opposed and cancel out each other. Mounting the vibrators to a rigid pan or trough structure that is properly supported on isolation

mounts results in straight line, push-pull, linear motion. The fact that the motors are synchronized and in balance with one another eliminates the isolation problems normally associated with simple brute force, single eccentric drive systems. Motors with 900, 1200, 1800 and 3600 RPMs are offered for various continuous duty applications. All motors are rated for continuous duty maximum force settings.

## Principle of Operation

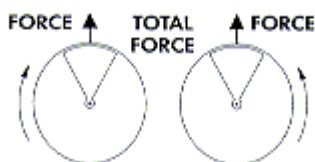
Twin motor vibrator drives arranged for counter-rotation, provide a linear vibratory action, which conveys the product across the screening surface. Standard motors are 1800 RPM. 1200 and 900 RPM drives will be provided as required. All motors are TENV design.



**Figure 1** - Both eccentrics in down position. Resultant force is downward.



**Figure 2** - both eccentrics outward and opposed, 180° apart. Resultant force is due to cancellation effect.



**Figure 3** - Both eccentrics in up position. Resultant force is upward.

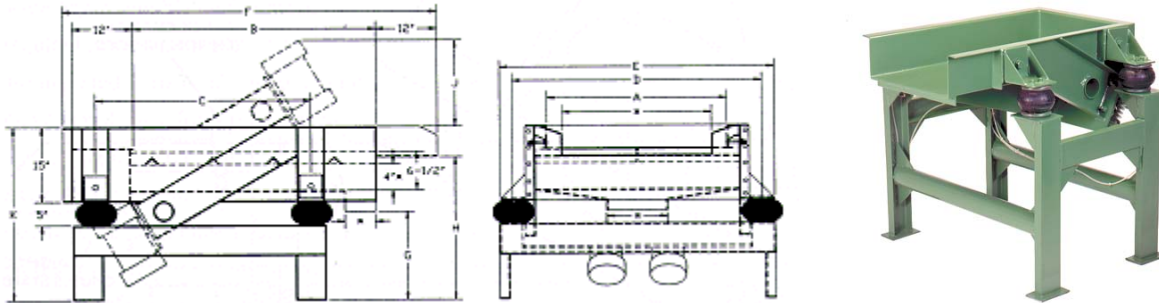


**Figure 4** - Both eccentrics inward and opposed, 180° apart. Resultant force is zero due to cancellation effect.

# CLEVELAND VIBRATOR ELECTRO-MECHANICAL HEAVY-DUTY FEEDERS

## Adjusting the Eccentric Weights

The resultant force output, amplitude and final product conveying speed is readily adjustable on all screeners. Percentage settings are marked on the shaft of each motor. Loosening one bolt on the outer eccentric weight enables the eccentric to be adjusted to the desired percentage of maximum force available. It is imperative that motors be wired for counter-rotation.



EMF SERIES ELECTRO-MECHANICAL FEEDERS								
A	B	C	D	F	G	H	MODEL	NORMAL*
TROUGH	TROUGH	TROUGH	SIDE	O.A.	O.A.	O.A.	VIBRATORY	CAPACITY
WIDTH	LENGTH	DEPTH	DEPTH	WIDTH	LENGTH	HEIGHT	DRIVE	(TONS/HR)
12	36	6	8	28	38	26	6-May	42
	48				50	26	6-May	
	60				62	28	6-Sep	
18	60	6	8	34	62	28	6-Sep	63
	72				74	28	6-Sep	
	84				86	29	13-6	
	96				97	29	13-6	
24	120	6	8	40	122	29	13-6	84
	60				66	29	13-6	
	72				74	29	13-6	
	84				86	31	18-6	
30	96	6	8	46	98	31	18-6	105
	120				122	34	24-6	
	60				66	29	13-6	
	72				74	31	18-6	
36	84	6	8	46	86	31	18-6	105
	96				98	34	24-6	
	120				122	34	24-6	
	60				62	35	18-6	
48	72	8	12	52	74	35	18-6	168
	84				86	38	24-6	
	96				97	38	24-6	
	120				122	41	34-6	
48	60	10	15	64	62	41	24-6	280
	72				74	44	34-6	
	84				86	44	34-6	
	96				96	44	34-6	
	120				122	46	45-6	

**Notes:**

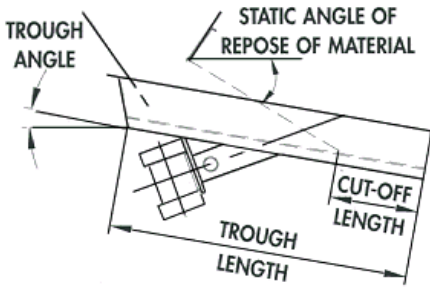
- 1) Capacity is based on feeding 100 lbs. per cubic foot bulk density material, with the unit installed at a 10° down slope. Maximum gate opening or bed in trough at inlet area, not to exceed tray length (B) divided by 3, (i.e. B/3).
- 2) Design parameters for illustration above are based on free flowing sand with a static angle of

repose of approximately 35° and a dynamic angle of repose of 15°. Stationary skirt boards must be provided by others to avoid spillage over the side of the feeder trough.

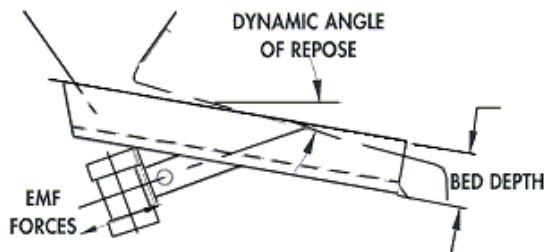
- 3) Hopper should be designed to facilitate good material flow while keeping direct head load on the trough to a minimum.

**Installation**

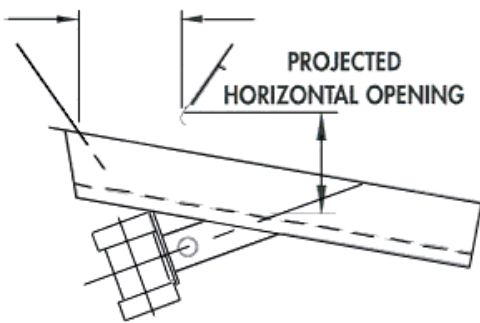
EMF Electro Mechanical Feeders can be arranged for either suspension or base installation. Here are helpful considerations for proper installation and maximum feeding efficiency



**Figure 1 (Feeder at Rest)** – Feeder trough length is determined by the material’s static angle of repose and trough slope. The feeder trough must be of sufficient length to assure complete material shut off when the feeder is at rest.



**Figure 2 (Feeder Operation)** – The dynamic angle of repose is the angle the materials seeks while being vibrated and conveyed.



**Figure 3 (Projected Vertical Opening)** – The projected length and width of the vertical opening should be two to three times greater than the largest particle dimension. Materials with bridging tendencies require sufficient openings to assure good product flow. Caution should be exercised in determining the vertical opening size to avoid excessive bin head load on the trough. The projected horizontal opening is determined by the particle size and bed depth requirements to meet the design feed capacity. The minimum horizontal opening should be approximately two times the largest particle dimension, but not less than the bed depth required.

**THE CLEVELAND VIBRATOR COMPANY**  
2828 CLINTON AVE. CLEVELAND, OH 44113  
800-221-3298