Vibrating Conveyors
Vibrating Feeders

Goessling USA, Inc.
Conveyors and Connecting Systems
Vibrating conveyors transport materials using directional micro-vibrations based on the micro-propulsion principle. They are used in many ways for feeding and metering tasks to transport bulk material and parts, particularly under abrasive, dusty conditions.

The directional sinusoidal vibrations of the vibration generator cause the same sinusoidal motion in the vibratory conveyor trough. The direction of these vibrations is ascending between 20 and 40 degrees to the horizontal basic line.

The components of force produced by the vibration generator must of course be present along the same total length of the conveyor to ensure that identical vibrational amplitude and conveying speed exists at all points of the conveyor trough.

With the exception of the vibration generator, vibratory conveyors have no moving parts and are largely maintenance free. They are fixed to the supporting construction by means of elastic anti-vibration springs.

The vibration generators work as electrical unbalance motors on 3-phase current (electrodynamic drive) or as electro-magnetic vibrators on phase shifted 1-phase AC. The frequency of vibration is usually 60 Hz (50 Hz). Unbalance drives usually operate at a fixed, constant amplitude (unbalance force). Modern unbalance drives can however be "controlled" using a frequency converter, i.e. the amplitude can be varied infinitely. Electro-magnetic drives on the other hand are fully controllable, i.e. the vibration force energy component is continuously variable by phase shifting (half wave rectification with phase control using thyristors).

**Bulk Material**
- Ore, sinter, coal, sand, gravel, stone chippings,
- crushed stones, building rubbles
- Granulates, other granular materials, wood chips
- Steel mass production parts, e.g. nails, screws,
- blanks, nuts, forgings, castings,
- punched and stamped parts

**Feeding processes**
- Loading crushers, smelting furnaces,
- heat treatment kilns (hardening process)
- Feeding induction heating plants
- Metering in gravel mixing plants
  (discharging hoppers and silos)

**Other uses**
- Cooling red hot forged parts
- Conveying hot clinker
- Fluidisation treatment filtrate
- Fluidisation bed incineration,
- Sorting contaminated wastes as part of the recycling process (used plastics, used oil filters etc.)
- Transporting and sorting shredded material for recycling
- Covered transport of animal remains for processing etc.

**Area of application:**
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- crushed stones, building rubbles
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- Steel mass production parts, e.g. nails, screws,
- blanks, nuts, forgings, castings,
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- Fooditems
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- heat treatment kilns (hardening process)
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  (discharging hoppers and silos)
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- Fluidisation treatment filtrate
- Fluidisation bed incineration,
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- Transporting and sorting shredded material for recycling
- Covered transport of animal remains for processing etc.
Vibrating conveyors are often used in conjunction with:

- Lifting/tipping units
- Flat sorting belt conveyors
  (sorting and manual inspection)
- Drainage troughs
- Cutting devices for moulded plastic parts
- Steep inclined conveyors
  (volumetric feeding)
- Vibration bowls
  (to thread rolling machines
  or similar)
- Loading (pressure relieved
  hopper charging) etc.

Vibrating magnetic feeder
with flat belt conveyor for
sorting purpose

Charging vibratory conveyor

Heavy duty hopper feeder
(electrodynamic drive)

Movable vibrating feeding unit
with attached hopper

Vibrating sorting conveyor as part
of the recycling process (plastic wastes)
with electrodynamic drive
We supply:

**All types of loading/unloading vibratory conveyors**

with rectangular or trapezoidal conveying trough, in standard sizes or in large special designs with abrasion resistant vulcolan (polyurethan) or vulcanised rubber trough liner. Conveyors made entirely of stainless steel are also available (304, 316). All types can be supplied with either twin unbalance or electro-magnetic drives for vibration isolated suspension or installation (electrodynamic or electromagnetic).

For special purposes vibrating conveyors can be supplied with heat resistant liner on air scoops with expansion compensation or with a flanged heat resistant outlet spout. In addition, dust-proof covers can be provided including round or oval intake and output ports.

All conveyor troughs are designed and constructed to withstand the effects of vibration. Vibration tube conveyors with twin unbalance or electro-magnetic drives can be supplied for special purposes.

**We can deliver any size of vibrating conveyors from the smallest, most compact discharge conveyor through to the heaviest crusher loader and up to movable smelting furnace charging vibrating units.**

Our standard series conveyors can be seen on this and the adjacent page along with tables of dimensions.
We supply electro-magnetically driven small vibrating feeders for fine metering tasks to fill and meter small parts during:
- the weighing and packaging process
- orientation sorter for mass production metal parts
- isolation of individual parts
- counting and weighing of small parts of different shapes and sizes.

Amount of vibration and conveying speed can in these cases be continuously varied (infinetely adjustable) by remote control or by integration into measurement and control circuits.
Vibrating hopper feeder

We supply special interim storage electromagnetic vibratory conveyors with high sided troughs to increase the supply capacity (hopper feeders).

These feeders meter their contents to feed subsequent machines with predefined amounts.

They serve as interim storage of small mass produced parts and thus contribute to production process automation.

The inner surface of the trough is generally lined with an oil and grease resistant vulcanised rubber coating (to combat noise and abrasion).

These vibrating hopper feeders are controlled by fill level sensors which measure the remaining amounts at the subsequent machines and automatically top these up (usually with a time delay).

Hopper feeders can be used to replenish by weight control, e.g. for feeding hardening furnaces.

Electric weight measurement cells continuously check the weight remaining in the hopper feeder trough and thus control the weight of material to be supplied (weight metering).

The storage capacity of the various sized feeders lies between 3 to 250 gallons – 0,5 to 30 cb ft – 10 to 1000 l.
Vibrating hopper feeder

Our vibrating hopper feeders accept the hopper load to relieve the subsequent steep inclined conveyors and linkage units of the feeding load. Level feeders, which also fulfill an orientation sorting function, are sensitive to overloading because the mass produced parts do not have sufficient space in the flights or within the belt space volume between the flights and are subject to pressure or jamming.

Vibrating hopper feeders are often installed after lifting and dumping units because such units only feed crude amounts of materials. Thus the lifting and dumping units can discharge only with crude amounts while the vibrating hopper feeders take over the task of feeding at a constant rate.

Filling and weighing devices in particular are served by such installations. Such combinations also find a variety of uses in galvanising, finishing and processing plants.
VIBRATING CONVEYING
please ask for the specialists!