

## Niro VIBRO FLUIDIZER® – Sanitary Design



- Meets sanitary 3-A standards
- Fully welded stainless steel bed
- Equipped with retractable cleaning in place nozzles
- Low noise vibrator arrangement



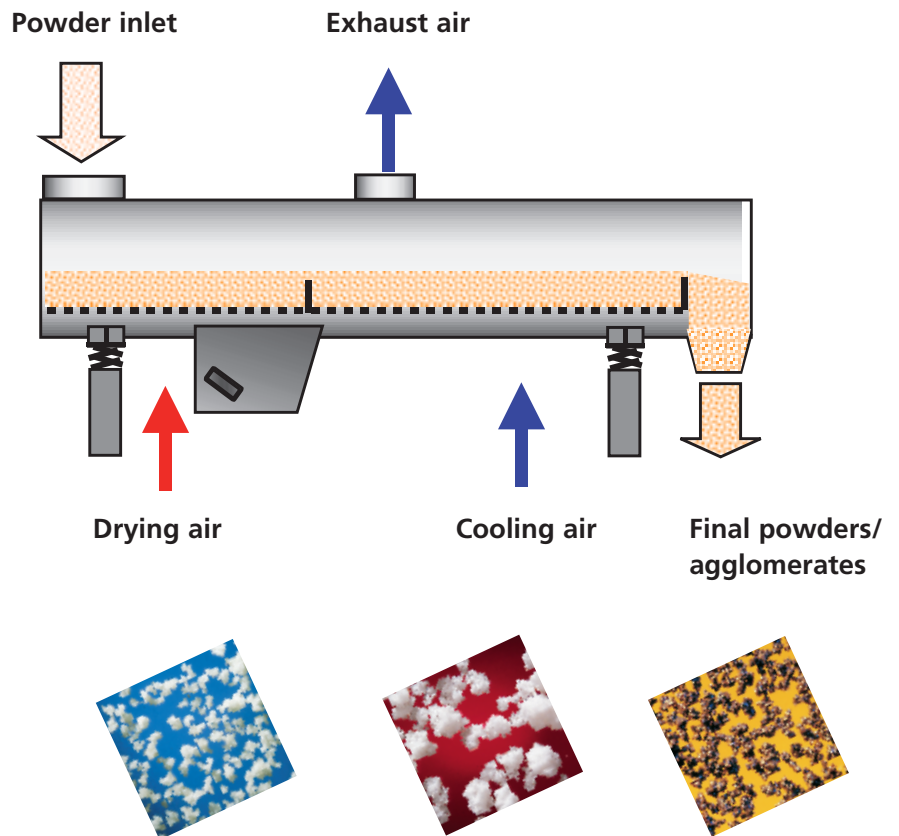
## The VIBRO-FLUIDIZER®

The Niro VIBRO-FLUIDIZER® is a vibrating fluid bed of the plug flow type.

A powder layer is vibrated on an air distributor plate. The effect of this vibration combined with the upward and forward directed flow of air through the plate creates ideal processing conditions and powder transport. The unit operates with a shallow powder layer of less than 200 mm. This gives a much more lenient powder treatment, since powder residence times are shorter than in non-vibrating fluid beds which operate at much deeper powder layers.

The VIBRO-FLUIDIZER® is successfully used on all types of powders, agglomerates, and granulates, especially those which fluidize poorly due to a broad particle size distribution or highly irregular particle shape, or require relatively low fluidization velocities to prevent attrition.

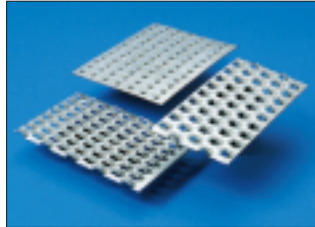
The VIBRO-FLUIDIZER® can be operated as a separate drying or cooling unit. It is often associated with a spray drying system to produce agglomerated instant powder or act as a powder conditioning plant for special coating operations.



# Design Features



Internal view



## Air Distributor Plates

Even and stable distribution of the fluidising air is a prerequisite of sustained operation. Niro has developed its own patented distributor plates to obtain optimum fluidization and powder movement during operation and to prevent powder penetration through the plate on plant shutdown.



### 1 BUBBLE PLATE™

The BUBBLE PLATE™ is the latest development by Niro in food grade fluid bed technology. It is non-sifting, i.e. does not allow heat sensitive products to fall through the plate perforations. The plate controls powder movement by means of the airflow. It has no surface imperfections and has been accepted by USDA.



### 2 T-Profile Welding

The stiffening T-profiles, used internally where the plates are welded on to the VIBRO-FLUIDIZER® wall housing and externally around the housing, comply with the radii requirements of the 3A standards.



### 3 Plate Stiffening

The fully welded air distributor plate of 2 mm is supported underneath with stiffening profiles of special design according to sanitary requirements.



### 4 Supporting Profiles

The VIBRO-FLUIDIZER® is constructed by means of supporting profiles that allow for inspection to ensure fully sanitary operation.

The VIBRO-FLUIDIZER® has an air distributor plate welded directly to the fluid bed housing. The air distributor plate design is selected according to the product application, but all plates feature special directional perforations that secure lenient powder handling, ability to handle fat containing powders, and achieve a self-emptying characteristic.

Another important design feature is the absence of any cavities in the structure. There is no possibility of product penetration through cracks etc. into areas, which cannot be cleaned and inspected. This is very important in complying with a truly sanitary design.

The VIBRO-FLUIDIZER® is equipped with cleaning-in-place nozzles. For products rated as combustible, fire extinguishing systems can be installed. Rotary valves used on the VIBRO-FLUIDIZER® either at the product inlet or outlet are available in standard, sanitary or explosion-proof models.

## Design Standards and Plant Sizes

### VIBRO-FLUIDIZER® Types: VF-F and VF-C

VF size, m <sup>2</sup>	*Width, mm	*Length, mm	Weight, kg
1	496	2020	600
1,25	496	2520	650
1,6	540	2965	725
2	610	3280	780
2,5	670	3730	850
3,15	670	4700	1200
4	995	4020	1375
5	995	5030	1500
6,3	1250	5040	1725
8	1320	6065	2000
10	1320	7580	2300
12,5	1590	7870	2900
16	1590	10070	3350
20	1970	10150	4900
25	1970	12700	5600
31,5	2200	14320	7300

\*) Air distributor plate



### Standard Design and Sizes

The VIBRO-FLUIDIZER® series has been designed to meet the needs of the new millennium, where hygienic operation is paramount.

It complies with American 3A and other national sanitary standards.

- Easy to clean and inspect
- Cavity-free, solid profile structure – no inaccessible dead product space
- Fully welded construction – no rivets or glued parts
- No hollow spaces

### Design Variations

The VIBRO-FLUIDIZER® can be supplied with built-in atomizer nozzles for rewetting powders to an agglomerated or granulated form. Subsequent drying or cooling takes place in the fluid bed.

A special 'tiltable' version, where the upper part of the process chamber can be opened for exchange of air distributor plate and/or separate cleaning.

Non-vibrating designs are available for special applications.