

Pharmaceutical

# Conveying, Collection, Containment

- total dust control for pharmaceutical suites



# Total Dust Control

- for a safe, pure and effective environment

Nilfisk conveying, collection and containment solutions are effective to control powders, debris, and potent compounds that threaten product purity and employee health during every step of drug production—from milling to packaging.

Our critical cleaning systems meet contamination control challenges and increase compliance with OSHA and FDA practices:

- » Combustible Dust National Emphasis Program (NEP)
- » Current Good Manufacturing Practices (cGMPs)
- » ISO 14644 Standards for Cleanroom Classification

## Expert Support

We support you with a highly-trained direct sales team. Dedicated to solving your pharmaceutical manufacturing challenges, our team analyzes your processes and recommends the best vacuums and features for your particular application.

Locate your sales rep at:

[www.NilfiskIndustrialVacuums.com/FindARep.aspx](http://www.NilfiskIndustrialVacuums.com/FindARep.aspx).

Learn more about Pharmaceutical Vacuum Solutions:

[www.PharmaceuticalVacuum.com](http://www.PharmaceuticalVacuum.com)

Visit the Nilfisk Industrial Vacuums site:

[www.NilfiskIndustrialVacuums.com](http://www.NilfiskIndustrialVacuums.com)

Watch how-to videos and customer case stories:

[www.youtube.com/NilfiskVacuums](http://www.youtube.com/NilfiskVacuums)

Call customer and technical support:

**1-800-NILFISK**



*"We selected Nilfisk's reliable vacuum cleaners for our facility because of their proven HEPA filtration system. It's capable of collecting large amounts of powder without any leaks or breakthrough - assuring us that the materials work with are retained in the vacuum, and not released into the atmosphere."*

Paul Kim, Corporate Staff Industrial Hygienist  
**Janssen Pharmaceuticals**



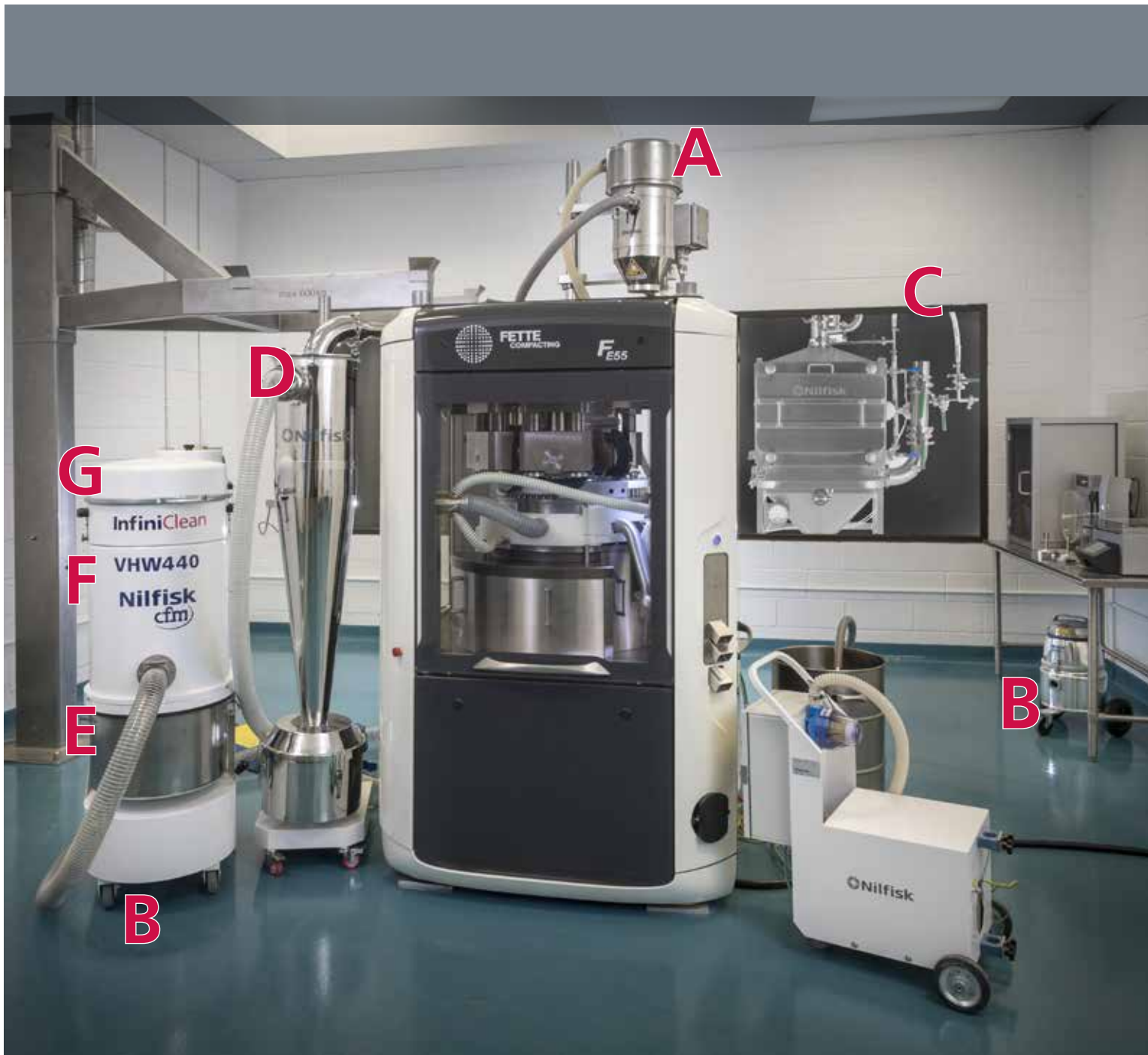
Dedicated  
engineering  
department



Dedicated  
sales team



Worldwide  
technical  
assistance



## Nilfisk Solutions

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# Powder Conveying Without Segregation

- transfer powders and granules efficiently

Pneumatic conveyors move powder and granules from sacks, big bags or other containers to the required location in selected quantities and within the desired time. The Nilfisk product conveying process takes place in perfect hygienic conditions, respecting both the environment and the operator's health.

**HYGIENE:** Avoid dust dispersion and product contamination. The conveyed material is kept in an isolated environment from pick up to the release point. Product only comes into contact with materials such as AISI 316 or AISI 304 stainless steel.

**PRODUCT QUALITY:** Move pharmaceutical mixtures while still preserving their integrity and keeping the percentages of single components intact. *(Validated by a study made in collaboration with the University of Parma.)*

**PRODUCTIVITY:** Increase the automation and health and safety of your personnel by eliminating the task of manually scooping powder into process machines. Conveying can reduce load times by more than 50%.

**FLEXIBILITY:** Nilfisk conveyors are perfectly integrated in the production process and are available in electric and pneumatic models with capacities ranging from 2 to 11 liters and conveyance of materials from 100 kg/h to 1300 kg/h.



3VT Pneumatic Powder Conveyor



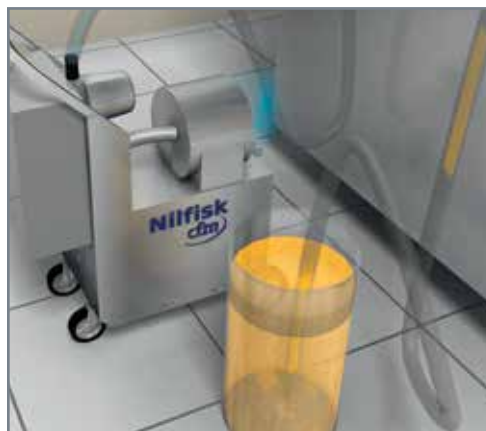
PCC12HP Compressed Air Conveyor



PCC00HP Compressed Air Conveyor



Powders are conveyed in selected quantities and within desired time.



Conveyed materials are kept in isolated environment from picking to release point



Nilfisk conveyors are designed to be highly flexible, both in layout and performance ranges

# Capsule Transfer Without Dispersion

- capsule conveying without risk of contamination



The 9505 stainless steel pneumatic conveyor is designed for the transfer of empty 00-5 sized capsules. Capsules are emptied into a collection container and dispensed at an adjustable rate into a capsule-filling machine. This unique conveyor uses air power to push the capsules through rigid sanitary piping into a hopper above the capsule-filling machine without damaging the capsules. The Nilfisk product conveying process takes place in perfect hygienic conditions, respecting both the environment and the operator's health.

**HYGIENE:** The conveyed material is kept in an isolated environment from picking to the release point. Treated product only comes into contact with materials such as AISI 316L stainless steel.

**USER FRIENDLY:** Two portholes on the top of the machine allow the operator to check the level of capsules in the container while the machine is running. It is also available with acoustic and visual level sensors that indicate minimum and maximum capsule levels.

**PRODUCTIVITY:** Increase the automation and health and safety of your personnel by eliminating the task of manually filling capsules into process machines.



*Small footprint and multiple configurations*



*Capsules are conveyed at a pre-set speed to prevent damage.*



*Three filtration stages prevent contamination of the environment.*

# Collect & Recover Toxic Dust

- maintain product integrity and equipment performance



**FIXED VACUUMS**



**MOBILE VACUUMS**



**CLEANROOM VACUUMS up to ISO 4 (Class 10)**



**EXPLOSION-PROOF VACUUMS**



**TRIM VACUUMS**



**PORTABLE CENTRAL SYSTEMS**



Nilfisk high performance, critical filtration vacuums help maintain a safe, pure and effective manufacturing process. They are available in fixed or mobile models, cleanroom-compliant designs and certified explosion-proof.

**ASSURE TOP PRODUCT QUALITY:** remove dust from the environment and from the equipment, avoiding product contamination.

**AVOID MACHINERY DOWNTIME:** continuously collecting dust and waste increases productivity and avoids lost time for cleaning the plant and machines.

**SAFE ENVIRONMENT:** multi-stage filtration, upstream and downstream HEPA or ULPA filters, and additional Safe-Pak™ containers maintain a safe, pure environment. CSA-certifications allow for use in classified (hazardous) locations.

**COMPACT & FLEXIBLE DESIGN:** Fixed or mobile, in-suite or customer piping—Nilfisk vacuums can be engineered to meet any user requirement specification (URS).

# Complete Dust Containment

- safely collect highly-potent APIs, up to OEB5 GMP design



BIBO HEPA REPLACEMENT

The HEPA filter is safely removed with the Bag-In/ Bag-Out (BIBO) system. Maintenance personnel never come into contact with contaminated filters while removing them from the unit. They remain protected against any hazardous contaminants retained in the filter unit. The sealed bag containing the filter is then removed and disposed of according to standard protocol.



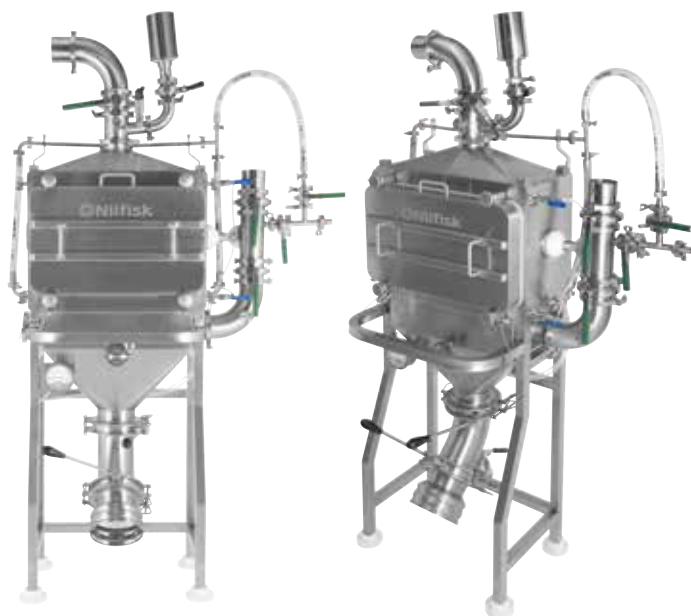
SAFE MATERIAL DISPOSAL

The hopper is emptied by opening the butterfly valve. The material is collected into a plastic bag which is safely sealed, removed and replaced by the operator without ever coming in contact with the contents.



CIP AND WIP

The cyclone unit and filter unit can be washed inside—both by complete flooding and sprayballs—so as to deactivate the dust on inside surfaces. The exhaust air is filtered by HEPA filters, while the washing liquid is safely discharged. The CIP and WIP processes can be validated with fluoresceina tests before installation.



FIXED UNITS



MOBILE UNITS

Cyclone unit - FILTERLESS TECHNOLOGY  
Fully Stainless Steel AISI 316L unit

Separation efficiency > 96%  
(with placebo dust [0,97 kg/dm<sup>3</sup>])

WIP (Wash In Place) and  
CIP (Clean In Place) available.

Container capacity up to 30 L

The material is collected into a  
plastic bag which can be safely  
sealed, removed and replaced.  
The washing liquid, at the end of  
WIP process, is safely discharged  
by opening the dedicated valve  
placed on the back of the unit.

HEPA Filtration  
Filter Area: 10 m<sup>2</sup>

DOP/DEHS ports to detect  
filter elements leaks

WIP (Wash In Place) and CIP  
(Clean In Place) of the first  
absolute filter unit available

First HEPA filtration  
Filter Area: 10 m<sup>2</sup>  
BIBO filter replacement  
system  
The access door serves  
as filter support during  
maintenance operations.

Visual indication shows the  
status of the HEPA filters.  
Optional acoustic/  
visual alarms available  
upon request.

Container capacity 25 L

Nilfisk exclusive dust containment systems for highly potent APIs safely manage toxic dust during solid dose manufacturing processes to protect personnel, the environment and your product.

**SAFE ENVIRONMENT:** maintains a dust containment grade of OEB5 (OEL < 1 µg/m<sup>3</sup>) during the production phase and OEB4 (OEL < 10 µg/m<sup>3</sup>) during maintenance.

**PROTECTING USERS:** with a proprietary Bag-in/Bag-out HEPA filter replacement system, the filter is easily removed and safely disposed of according to standard operating procedures. Personnel never come in contact with the contaminated filter.

**FLEXIBLE DESIGN:** fixed or mobile units are available with various features to meet user requirement specifications (URS). Materials of construction, sizes, configurations and operator interface needs can be adjusted to meet URS.

(OEB) Occupational Exposure Banding  
(OEL) Occupational Exposure Limit

# Batch Reconciliation with Pre-Separators

- powder recovery solutions to verify product loss

Powder dispersion and product loss is unavoidable during pharmaceutical manufacturing processes. Nilfisk filtered pre-separators help manufacturing, packaging and quality assurance personnel calculate yield and reconcile loss. Separators also provide safe collection of toxic materials to prevent cross-contamination and operator exposure.

**GMP COMPLIANT:** collect materials within a single manufacturing environment to verify batch loss and prevent cross-contamination.

**MULTI-STAGE FILTRATION:** available with filterless technology and additional HEPA filters and bag options to filter 99.97% of particles down to 0.3 microns.

**MODULAR DESIGN:** units can be placed in the production area or in a mechanical room, depending on system design.

**COLLECTION OPTIONS:** from standard paper bags to complete Bag-In/Bag-Out (BIBO) collection, any range of hazardous dust can be collected, while keeping the operator safe.



# Sealed Collection Containers

- collect, account for, and dispose of ultra-secure materials

Safe-Pak™ collection containers safely collect hazardous, potent compounds and retain them in a disposable HEPA-filtered container. Safe-Pak prevents operator exposure to HPAPIs and provides easier product reconciliation.

**EFFICIENT:** Easily account for the weight of collected potent compounds before disposal. Save time and money by preventing the need to “gown-up” to handle material.

**USER FRIENDLY:** Lower release lever for simple seal, disposal and replacement of container.

**COMPLIANCE:** Meet NFPA guidelines for handling combustible dust when the conductive plastic variant is used with select fully bonded and grounded Nilfisk vacuum models.  
(For use in non-hazardous (non-classified) environments)

**FILTER EFFICIENCY:** The Safe-Pak alone will filter 99.97% of particles down to 0.3 microns.

**CAPACITY:** Capacities range from 1.75 to 4 gallons.

Available with models: VHW 321, VHW 420, VHW 421, IVT 1000CR.



Safe-Pak collection containers offer multiple levels of filtration for operator safety. (Open container for display purposes only.)

# Advanced Graduated Filtration

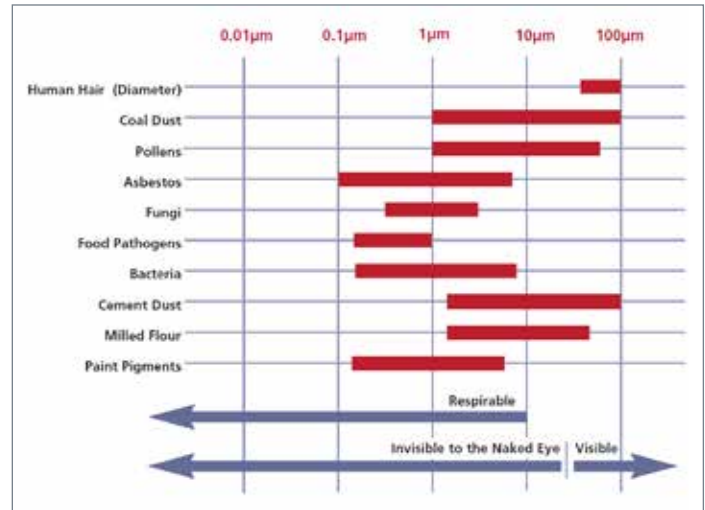
- control fine dust and cross contamination

Efficient filtration is critical to the purity of your environment and the success of collection and containment systems. Dust and debris should remain safely confined within the vacuum, not be exhausted back into the air. Nilfisk offers a complete line of filters designed for the safe, efficient collection of nuisance and hazardous materials.

**MULTI-STAGE FILTRATION:** built into every Nilfisk vacuum, multi-stage filtration is exclusive, graduated filtration technology that traps the largest particles first, protecting the series of progressively finer filters from blockage and improving performance. Filtration stages can include a paper bag, a main filter, a microfilter, and HEPA or ULPA filters.

**HEPA AND ULPA FILTERS:** Each Nilfisk HEPA filter is tested to guarantee a minimum of 99.97% efficiency, capturing dust down to 0.3 microns in size. Nilfisk ULPA filters collect 99.999% of all ultra-fine particles—down to and including 0.12 microns.

**CLEANROOM:** For cleanroom environments, specific models are available that meet standards up to ISO 4 (Class 10).



Particle Sizes

The size of dust particles is measured in millionths of meters, called micrometers or microns (notated  $\mu\text{m}$ ). This chart shows the relative sizes of common particles in order to help determine the most appropriate filter for each application.

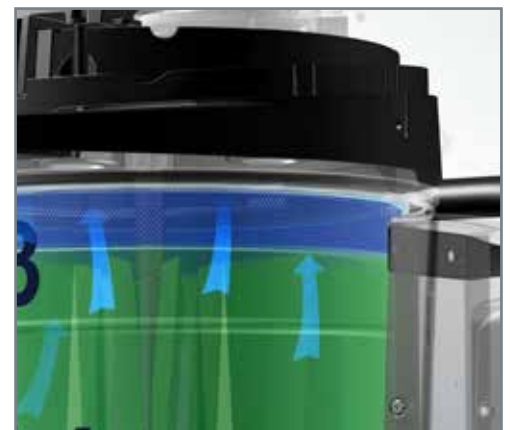
## Multi-Stage Filtration



Along with a dust bag, cyclonic action serves as a first stage of filtration, pushing larger particles to the bottom of the collection container.



Main filters—star or conical designs—act as a second stage of filtration. Most capture 99.1% of particles down to 1.5 microns.



Any remaining fine particles are captured by an upstream HEPA or ULPA filter. Optional downstream exhaust filters are available for nearly contaminant-free exhaust.

# Filter Cleaning Systems

- control fine dust and cross contamination



PullClean filter cleaning system

Clogged filters directly impact vacuum performance and cause costly downtime, so Nilfisk designed various filter cleaning systems to keep your vacuum and processes running effectively.

**PULLCLEAN:** clean the main filter by simply closing the inlet and opening the flap on the front of the filter chamber intermittently while you clean. Ensures longer run times, extended motor life and the best performance for your process.

*Available with models VHW321, VHW421, VHW440 and VHS110 CR.*



**INFINICLEAN:** continuously cleans the filter during unattended, continuous-duty or extremely dusty applications. InfiniClean is a self-contained, automated filter purging system requiring no external compressed air supply, secondary power source or interference by the operator.

*Available with models VHW320 IC, VHW420 IC, VHW440 IC, VHT446 IC.*

## InfiniClean at Work

Exhaust is re-routed through the InfiniClean chamber

Solenoids automatically open and close sequentially to blast air through the filters

The pressure difference reverses air flow through the filter, sending built up dust down into the collection container



Cartridge shields provide high filter cleaning efficiency

Conical-shaped cartridges allow dust to fall off easily

## TECHNICAL SPECIFICATIONS



### Pneumatic Conveyors

| Description                  | Unit                      | 3VT                                        | 9505                                      | PCC00HP                                 | PCC12HP                                 | PCC24HP                                 |
|------------------------------|---------------------------|--------------------------------------------|-------------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
| Type of Power                | -                         | 3-phase *                                  | 3-phase                                   | Compressed Air                          | Compressed Air                          | Compressed Air                          |
| Voltage @ 60 Hz              | V                         | 220 / 460                                  | 220 / 460                                 | -                                       | -                                       | -                                       |
| Power @ 60 Hz                | HP (W)                    | 0.94 (700)                                 | 0.67 (0.50)                               | -                                       | -                                       | -                                       |
| Waterlift, max.              | in. (mm) H <sub>2</sub> O | 291 (7391)                                 | 47.5 (1207)                               | 300 (7620)                              | 300 (7620)                              | 300 (7620)                              |
| Airflow, max.                | CFM (L/min)               | 9.4-14.7 (267-417)                         | 46 (1300)                                 | 27 (764)                                | 54 (1529)                               | 110 (3114)                              |
| Min./Max. Inlet Air Pressure | psi (bar)                 | 60-90 (4-6)                                | -                                         | -                                       | -                                       | -                                       |
| Hopper Capacity              | gallons (L)               | 2.9 (11)                                   | 53 (200)                                  | 0.53 (2)                                | 0.79 (3)                                | 1.8 (7)                                 |
| Dimensions (L x W x H)       | in. (mm)                  | 40.0 x 18.0 x 120.0<br>(1015 x 450 x 3050) | 24.0 x 47.2 x 47.2<br>(610 x 1200 x 1200) | 12.4 x 15.2 x 11.3<br>(315 x 386 x 287) | 17.4 x 19.3 x 26.4<br>(442 x 490 x 671) | 17.4 x 19.3 x 37.2<br>(442 x 490 x 945) |
| Throughput Range             | kg/h                      | 100-500                                    | 50-700**                                  | 100-300                                 | 300-600                                 | 600-1300                                |
| Pump/Motor Size              | KW                        | 0.6                                        | 1.5                                       | H060                                    | H100                                    | H200                                    |



### Cleanroom

| Description            | Unit                      | GM 80CR                                 | IVT 1000CR                              | IVT 1000CR Safe-Pak                     | VT 60CR                                 | VHS110 CR                          |
|------------------------|---------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|------------------------------------|
| Collection Type        | -                         | Dry                                     | Dry                                     | Dry                                     | Wet/Dry                                 | Wet/Dry                            |
| Type of Power          | -                         | 1-phase                                 | 1-phase                                 | 1-phase                                 | 1-phase                                 | 1-phase                            |
| Voltage @ 60 Hz        | V                         | 115 / 220                               | 110-120                                 | 110-120                                 | 120                                     | 120                                |
| Power @ 60 Hz          | HP (W)                    | 1.48 (1100)                             | 1.48 (1100)                             | 1.48 (1100)                             | 1.34 (1000)                             | 1.34 (1000)                        |
| Waterlift, max.        | in. (mm) H <sub>2</sub> O | 84 (2134)                               | 78.7 (1999)                             | 79.5 (2019)                             | 80.4 (2042)                             | 88.4 (2235)                        |
| Airflow, max.          | CFM (L/min)               | 80 (2265)                               | 76.2 (2158)                             | 72 (2039)                               | 70 (1982)                               | 95 (2700)                          |
| Current, max.          | amps                      | 10 / 5                                  | 10                                      | 10                                      | 8.3                                     | 7.5                                |
| Container Capacity     | gallons (L)               | 3.24 (12.3)                             | 3.25 (12.3)                             | 1.72 (6.5)                              | 15 (56.8)                               | 9.8 (37)                           |
| Dimensions (L x W x H) | in. (mm)                  | 14.0 x 12.0 x 16.0<br>(356 x 305 x 406) | 11.8 x 11.8 x 24.8<br>(300 x 300 x 630) | 11.8 x 11.8 x 27.6<br>(300 x 300 x 701) | 24.0 x 21.5 x 37.5<br>(610 x 546 x 953) | 22 x 22 x 49<br>(570 x 560 x 1240) |
| Sound Pressure Level   | dB(A)                     | 61                                      | 61 dB(A)                                | 61                                      | 75                                      | 73                                 |



### Fixed & Mobile Vacuums

| Description            | Unit                      | VHW210                                  | VHW211                                  | VHW311                                  | VHW321                                   | VHW421                                   | VHW440                                   |
|------------------------|---------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------------|------------------------------------------|
| Collection Type        | -                         | Dry                                     | Dry                                     | Dry                                     | Dry                                      | Dry                                      | Dry                                      |
| Type of Power          | -                         | 3-phase *                               | 3-phase *                               | 3-phase *                               | 3-phase *                                | 3-phase                                  | 3-phase                                  |
| Voltage @ 60 Hz        | V                         | 220 / 460 / 575                         | 220 / 460 / 575                         | 220 / 460 / 575                         | 220 / 460 / 575                          | 220 / 460 / 575                          | 220 / 460 / 575                          |
| Power @ 60 Hz          | HP (W)                    | 1.27 (950)                              | 1.27 (950)                              | 2.75 (2050)<br>[2.35 (1750) @ 575]      | 2.75 (2050)<br>[2.35 (1750) @ 575]       | 3.42 (2550)                              | 6.17 (4600)                              |
| Waterlift, controlled  | in. (mm) H <sub>2</sub> O | 64 (1626)                               | 64 (1626)                               | 88 (2235)                               | 88 (2235)                                | 76 (1930)                                | 104 (2651)                               |
| Airflow, blower max.   | CFM (L/min)               | 102 (2888)                              | 102 (2888)                              | 150 (4248)                              | 150 (4248)                               | 222 (6286)                               | 294 (8333)                               |
| Current, max.          | amps                      | 4.5 / 2.3 / 1.95                        | 4.5 / 2.3 / 1.95                        | 8.8 / 4.4 / 2.95                        | 8.8 / 4.4 / 2.95                         | 11.4 / 6.0 / 4.55                        | 15.6 / 9 / 7.6                           |
| Container Capacity     | gallons (L)               | 1.7 (6.5)                               | 1.7 (6.5)                               | 6.6 (25)                                | 6.6 (25)                                 | 12.6 (48)                                | 12.6 (48)                                |
| Dimensions (L x W x H) | in. (mm)                  | 25.2 x 13.0 x 18.7<br>(640 x 330 x 475) | 18.0 x 16.9 x 32.3<br>(420 x 430 x 820) | 28.0 x 16.5 x 35.6<br>(710 x 420 x 905) | 28.9 x 17.3 x 46.1<br>(735 x 440 x 1170) | 38.1 x 21.2 x 54.8<br>(968 x 538 x 1392) | 38.1 x 21.2 x 54.8<br>(968 x 538 x 1392) |
| Sound Pressure Level   | dB(A)                     | 62                                      | 59                                      | 64                                      | 64                                       | 68                                       | 70                                       |

*Specifications subject to change without notice. The data, characteristics, colors and illustrations are merely indicative and therefore not binding.*

\*Single-phase models available; see individual product sheet for more details.

\*\*Capsules per second

## Explosion-Proof Vacuums

| Description            | Unit                      | 118 EXP                                                                                                                                                                  | 118 EXPW                                 | VHT437EXP                                 | VHT456EXP                                 |
|------------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-------------------------------------------|-------------------------------------------|
| Collection Type        | -                         | Dry                                                                                                                                                                      | Wet/Dry                                  | Dry (Wet Option)                          | Dry (Wet Option)                          |
| Type of Power          | -                         | 1-phase                                                                                                                                                                  | 1-phase                                  | 3-phase                                   | 3-phase                                   |
| Voltage @ 60 Hz        | V                         | 120                                                                                                                                                                      | 120                                      | 220 / 460 / 575                           | 460 / 575                                 |
| Power @ 60 Hz          | HP (W)                    | 1.34 (1000)                                                                                                                                                              | 1.34 (1000)                              | 5 (3700)                                  | 7.5 (5600)                                |
| Waterlift, max.        | in. (mm) H <sub>2</sub> O | 69 (1752)                                                                                                                                                                | 69 (1752)                                | 85 (2159)                                 | 72 (1820)                                 |
| Airflow, blower max.   | CFM (L/min)               | 130 (3681)                                                                                                                                                               | 130 (3681)                               | 218 (6167)                                | 367 (10384)                               |
| Current, max.          | amps                      | 10                                                                                                                                                                       | 10                                       | 11.2 / 5.6 / 4.5                          | 9.5 / 7.6                                 |
| Container Capacity     | gallons (L)               | 6.6 (25)                                                                                                                                                                 | 13.2 (25)                                | 26 (100)                                  | 26 (100)                                  |
| Dimensions (L x W x H) | in. (mm)                  | 20.0 x 24.0 x 45.0<br>(508 x 610 x 1143)                                                                                                                                 | 20.0 x 24.0 x 45.0<br>(508 x 610 x 1143) | 50.8 x 23.6 x 60.6<br>(1290 x 600 x 1540) | 50.8 x 23.6 x 60.6<br>(1290 x 600 x 1540) |
| Sound Pressure Level   | dB(A)                     | 78                                                                                                                                                                       | 78                                       | 72                                        | 77                                        |
| Approvals              | -                         | CSA-certified for use in Class I, Group D, and Class II, Groups F & G environments. Group E use requires additional equipment. See Nilfisk sales manager with questions. |                                          |                                           |                                           |



## Heavy Industrial Vacuums for Portable Central Systems

| Description            | Unit                      | 3707/10                                   | 3907/18                                   | 3997                                      |
|------------------------|---------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
| Collection Type        | -                         | Dry (Wet Option)                          | Dry (Wet Option)                          | Dry (Wet Option)                          |
| Type of Power          | -                         | 3-phase                                   | 3-phase                                   | 3-phase                                   |
| Voltage @ 60 Hz        | V                         | 460 / 575                                 | 460 / 575                                 | 460 / 575                                 |
| Power @ 60 Hz          | HP (W)                    | 12 (9000)                                 | 19.4 (14500)                              | 30.8 (23000)                              |
| Waterlift, controlled  | in. (mm) H <sub>2</sub> O | 92.3 (2344)                               | 108 (2743)                                | 176 (4470)                                |
| Airflow, blower max.   | CFM (L/min)               | 518 (14668)                               | 740 (20954)                               | 780 (22087)                               |
| Current, max.          | amps                      | 15.1 / 12.8                               | 29 / 20.4                                 | 42 / 36.8                                 |
| Container Capacity     | gallons (L)               | 46 (175)                                  | 46 (175)                                  | 46 (175)                                  |
| Dimensions (L x W x H) | in. (mm)                  | 63.0 x 31.5 x 71.3<br>(1600 x 800 x 1810) | 63.0 x 31.5 x 71.3<br>(1600 x 800 x 1810) | 78.7 x 35.4 x 84.6<br>(2000 x 900 x 2150) |
| Sound Pressure Level   | dB(A)                     | 78                                        | 78                                        | 79                                        |



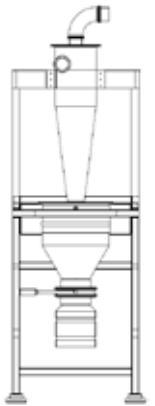
## Trim Vacuums

| Description               | Unit                      | R104                        | R154                        |
|---------------------------|---------------------------|-----------------------------|-----------------------------|
| Collection Type           | -                         | Dry                         | Dry                         |
| Type of Power             | -                         | 3-phase *                   | 3-phase *                   |
| Voltage @ 60 Hz           | V                         | 220 / 460 / 575             | 220 / 460                   |
| Power @ 60 Hz             | HP (W)                    | 1.27 (950)                  | 1.47 (1300)                 |
| Waterlift, controlled     | in. (mm) H <sub>2</sub> O | 64 (1626)                   | 60 (1524)                   |
| Airflow, blower max.      | CFM (L/min)               | 102 (2888)                  | 135 (3823)                  |
| Current, max.             | amps                      | 4.5 / 2.3 / 1.95            | 1.3 / 2.6                   |
| Container Capacity        | gallons (L)               | 30 (114)                    | 30 (114)                    |
| Dimensions (Diameter x H) | in. (mm)                  | 18.1 x 47.2<br>(460 x 1200) | 18.1 x 47.2<br>(460 x 1200) |
| Sound Pressure Level      | dB(A)                     | 68                          | 72                          |



## Cyclone Pre-Separators

| Description                            | Unit              | d220mm                                           | d300mm                                          |
|----------------------------------------|-------------------|--------------------------------------------------|-------------------------------------------------|
| Nominal airflow                        | m <sup>3</sup> /h | 500                                              | 900                                             |
| Filter efficiency (complete unit)      | -                 | 99.995%                                          | 99.995%                                         |
| Efficiency                             | -                 | > 96% w/ placebo dust (0.97 kg/dm <sup>3</sup> ) | > 95% w/ placebo dust (0.6 kg/dm <sup>3</sup> ) |
| Construction Material (separator unit) | -                 | AISI 316L Stainless Steel                        | AISI 316L Stainless Steel                       |
| Inlet diameter                         | mm                | 70                                               | 100                                             |
| Outlet diameter                        | mm                | 70                                               | 100                                             |
| Container Capacity                     | L                 | 30                                               | 30                                              |
| Dimensions (L x W x H)                 | mm                | 629 x 760 x 2180                                 | 630 x 760 x 2690                                |



## Filtered Pre-Separators

| Description                                          | Unit        |          |           |            |            |             |
|------------------------------------------------------|-------------|----------|-----------|------------|------------|-------------|
| Container Capacity                                   | gallons (L) | 2.38 (9) | 6.60 (25) | 10 (37.85) | 25 (94.63) | 66 (249.84) |
| Container Diameter                                   | mm          | 280      | 360       | 360        | 460        | 460         |
| Inlet Diameter                                       | mm          | 40       | 50        | 50         | 70         | 70          |
| Outlet Diameter                                      | mm          | 40       | 50        | 50         | 70         | 50          |
| <b>Available Features</b>                            |             |          |           |            |            |             |
| Bag Filter                                           | -           | •        | •         |            |            | •           |
| Star Filter                                          | -           |          |           | •          | •          |             |
| HEPA Filter (efficiency 99.97%, down to 0.3 microns) | -           | •        | •         |            |            |             |
| Paper Bag Collar                                     |             | •        | •         |            |            |             |
| Painted White Construction                           | -           | •        | •         | •          | •          | •           |
| Stainless Steel Construction                         | -           | •        | •         | •          | •          | •           |

• indicates this feature or construction type is available. Some combinations of features may not be possible.



## Safe Choice Commitment

At Nilfisk Industrial Vacuums we understand that you face many risks each day, just by operating your business. That is why Nilfisk is dedicated to helping you make smart choices to keep your facility and your workers safe. Our team of experts is ready to tackle any cleaning challenge – because in a world full of risk, you have to make safe choices.

We are committed to being that safe choice.  
To learn more visit [www.nilfiskindustrialvacuums.com](http://www.nilfiskindustrialvacuums.com).