

Combustible Dust

Safely Collect Combustible Dust

- Certified Explosion-Proof and NFPA-Compliant Vacuums



**Air Separation
Technologies Inc.**
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Safe Collection of Combustible Dust

- for a compliant and efficient environment

The threat of an explosion in your facility is very real. That is why OSHA recommends, and sometimes requires, manufacturers to use properly-equipped industrial vacuums as part of a regular plant maintenance program to collect hazardous dust.

Nilfisk offers a full line of industrial vacuum cleaners to meet NFPA 652 housekeeping requirements for collecting combustible dust in Class I, Group D and Class II and non-classified environments.

Expert Support

We support you with a highly-trained direct sales team. Dedicated to solving your combustible dust 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/find-a-sales-rep/

Learn more about Explosion-Proof Vacuums:

www.explosionproof-vacuum.com

Vist the Nilfisk Industrial Vacuums site:

www.NilfiskIndustrialVacuums.com

Watch how-to videos and customer case stories:

www.youtube.com/NilfiskVacuums

Call customer and technical support:

1-800-NILFISK



Dedicated engineering department



Dedicated sales team



Worldwide technical assistance

Nilfisk Solutions

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LEGEND

Available Features

Accessory Kit



HEPA Filter



ULPA Filter



Stainless Steel Construction Standard



Meets NFPA 652 Safe Housekeeping Requirements*



Approvals

ATEX Certified



CSA Certified



ETL Listed



UL Listed



*Some modifications may be required. The NFPA does not endorse or approve specific products. The NFPA has laid out product design recommendations in Standard 652, which Nilfisk interprets in order to design compliant vacuums.

Get to Know NFPA & OSHA Standards

- select compliant, safe equipment for housekeeping

Steps to Safely Collect Combustible Dust in Any Environment

Step 1: Understand Your Facility and Your Responsibilities

It is ultimately your and your company's responsibility to select safe equipment. You can be held accountable by multiple authorities having jurisdiction (AHJ), including your insurance company, local officials and OSHA.

Step 2: Get to Know the Regulations, Standards and Recommendations

Stay up-to-date on the current state of NFPA and OSHA regulations, standards and recommendations so you make informed decisions.

Step 3: Select the Safest Industrial Vacuum for Your Application

Select equipment that will help you become safe, and stay safe—meeting all requirements set forth by your facility, AHJ, insurance company, NFPA, OSHA and, most importantly, your users.

NFPA 652: Must-Know Facts

- Applies to **all facilities and operations** that manufacture, process, blend, convey, repackage, generate, or handle combustible dusts or combustible particulate solid (1.3.2)
- **Dust tests are REQUIRED.** They must be documented and made available to your authority having jurisdiction.
- **Dust Hazard Analysis is REQUIRED** if your dust is a Kst value above 0.
- The above must be complete **by SEPTEMBER 2018.**
- Vacuuming is the preferred method of cleaning.
- Blow-down is only permitted when other methods have already been used.
- **Housekeeping procedures** MUST be documented.
- Vacuum cleaners must meet the requirements laid out in Section 8.4.2.2.1.

OSHA recommendations for decreasing risk of combustible dust fires and explosions:

1 Utilize properly-equipped vacuums for source capture and as portable suction device to prevent fugitive dust from accumulating

2 Make housekeeping as easy and ergonomic as possible by using lightweight, adjustable tools, flexible hoses and overhead cleaning accessories

3 Keep dust levels below 1/32" by cleaning with an industrial vacuum cleaner that meets the requirements for explosion hazard locations and/or materials

4 Inspect all equipment (especially older) for possible ignition sources and for needed deflagration venting upgrades

Class II, Division 2 Design Requirements

- carefully adapted to meet or exceed requirements

NFPA 652 requires all facilities handling combustible dust, even in NON-Classified environments, to use vacuum cleaners that meet very specific design requirements - as laid out in Section 8.4.2.2.

Certification applies to the entire machine (not just components) and confirms the machines meet requirements for:

- UL 1017 (Continuous-Duty models)
- ISA 12.12.01
- CSA C22.2 No. 25
- CSA C22.2 No. 213
- CSA C22.2 No. 243

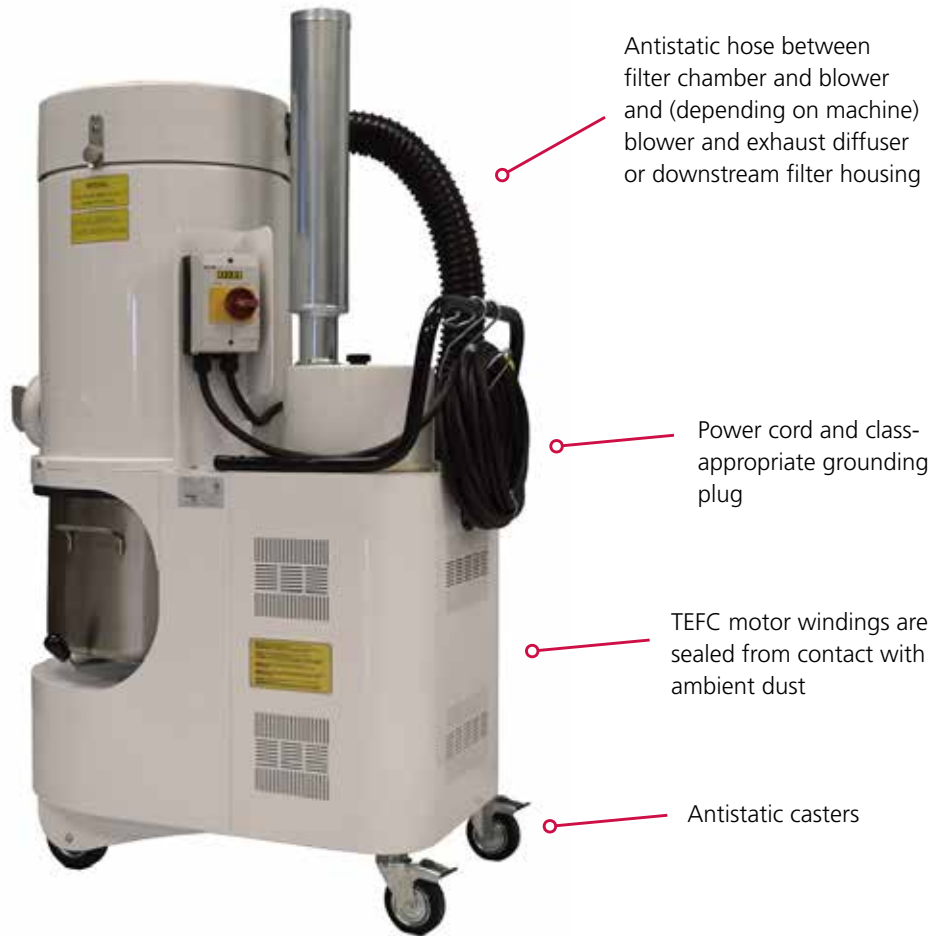
Marked with



For Class II Div 2, Group F, G T4A

Additional features:

- When necessary, motor starter relocation and isolation from heat sources
- Bonding and grounding between assemblies to ensure additional path to ground
- Accessories and options approved as part of NRTL certification; high visibility labels for easy user identification



Enclosures meeting requirements of certification



Antistatic main filter and optional HEPA are bonded to the chassis



Stainless steel collection bin and low-sparking inlet and deflector

Nilfisk VHW Series

The VHW Series portable vacuums make daily cleaning in production areas and process manufacturing fast and hassle-free. Conical cartridge filters on VHW321 and larger models provide more surface area, extend filter life and resist clogging.



Technical Specifications

Description	Unit	VHW201	VHW211	VHW311	VHW321
Collection Type	-	Dry	Dry	Dry	Dry
Type of Power	-	3-Phase	3-Phase	3-Phase	3-Phase
Voltage @ 60 Hz	V	220 / 460 / 575	220 / 460 / 575	220 / 460 / 575	220 / 460 / 575
Power @ 60 Hz	HP (W)	0.67 (500)	1.27 (950)	2.75 (2050)	2.75 (2050)
Waterlift, max.	in. (mm) H ₂ O	60 (1524)	64 (1626)	88 (2235)	88 (2235)
Airflow, blower max.	CFM (L/min)	58 (1642)	102 (2888)	150 (4248)	150 (4248)
Current, max.	amps	2.5 / 1.4 / 1.0	4.1 / 2.2 / 1.8	8.8 / 4.4 / 2.95	8.8 / 4.4 / 2.95
Container Capacity	gallons (L)	1.7 (6.5)	1.7 (6.5)	6.6 (25)	6.6 (25)
Dimensions (L x W x H)	in. (mm)	41.1 x 19.1 x 16.9 (1045 x 485 x 430)	41.1 x 19.1 x 16.9 (1045 x 485 x 430)	50.2 x 28.1 x 18.3 (1275 x 715 x 465)	63.0 x 28.9 x 16.0 (1600 x 735 x 400)
Sound Pressure Level	dB(A)	56	59	64	64

Available Features	-				
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Approvals	-				
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Technical Specifications

Description	Unit	VHW420	VHW421	VHW440	VHW441
Collection Type	-	Dry	Dry	Dry	Dry
Type of Power	-	3-Phase	3-Phase	3-Phase	3-Phase
Voltage @ 60 Hz	V	220 / 460 / 575	220 / 460 / 575	220/460/575	220/460/575
Power @ 60 Hz	HP (W)	3.42 (2550)	3.42 (2550)	6.17 (4600)	6.17 (4600)
Waterlift, max.	in. (mm) H ₂ O	76 (1930)	76 (1930)	104 (2651)	104 (2651)
Airflow, blower max.	CFM (L/min)	222 (6286)	222 (6286)	294 (8333)	294 (8333)
Current, max.	amps	10.7 / 5.6 / 4.3	10.7 / 5.6 / 4.3	16.0 / 8.0 / 7.1	16.0 / 8.0 / 7.1
Container Capacity	gallons (L)	12.2 (46)	12.2 (46)	12.2 (46)	12.2 (46)
Dimensions (L x W x H)	in. (mm)	58.0 x 37.8 x 22.5 (1475 x 960 x 570)	71.6 x 35.8 x 22.6 (1820 x 910 x 575)	58.0 x 37.8 x 22.5 (1475 x 960 x 570)	71.6 x 35.8 x 22.6 (1820 x 910 x 575)
Sound Pressure Level	dB(A)	66	68	70	70

Available Features	-				
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Approvals	-				
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Certified Class II, Division 2

Nilfisk CTS26, T48 and T63









The CTS26, T48 and T63 three-phase, continuous-duty vacuum cleaners are equipped with motors from 2,600 up to 6,300 W, to fit a variety of air power and suction needs within heavy industrial applications. Daily cleaning in production areas and process manufacturing is fast and hassle-free with user-friendly features including manual filter shaker, manometer, rear swiveling wheels with locking casters and stainless steel collection container with release lever. Specifications below feature 50-liter CTS26 and 100-liter T48 and T63 models.

Nilfisk VHS110

The VHS110 is CSA-certified for use in Class II, Division 2, Groups F & G environments and ensures compliance with NFPA 652 housekeeping recommendations for the safe collection of combustible dust. Featuring a brushless motor, PullClean filter cleaning technology, and HEPA filtration, the VHS110 offers the highest performance and safety for long product life and flexible, easy use—from overhead cleaning to confined areas around equipment.



Technical Specifications

Description	Unit	CTS26	T48	T63	VHS110
Collection Type	-	Dry	Dry	Dry	Dry
Type of Power	-	3-Phase	3-Phase	3-Phase	1-phase
Voltage @ 60 Hz	V	220 / 460 / 575	220 / 460 / 575	220 / 460 / 575	120
Power @ 60 Hz	HP (W)	3.42 (2550)	6.43 (4800)	8.45 (6300)	1.34 (1000)
Waterlift, max.	in. (mm) H ₂ O	76 (1930)	141 (3569)	83 (2100)	82.4 (2093)
Airflow, blower max.	CFM (L/min)	222 (6286)	222 (6286)	354 (9769)	103 (2900)
Current, max.	amps	10.7 / 5.6 / 4.3	16.8 / 9.7 / 7.1	23.4 / 12.4 / 9.7	11.5
Container Capacity	gallons (L)	13 (50)	26 (100)	26 (100)	9.8 (37)
Dimensions (L x W x H)	in. (mm)	44.5 x 23.8 x 49.2 (1130 x 605 x 1250)	60.0 x 47.6 x 24.8 (1525 x 1210 x 630)	60.0 x 47.6 x 24.8 (1525 x 1210 x 630)	22.0 x 22.0 x 49.0 (560 x 560 x 1240)
Sound Pressure Level	dB(A)	71	74	74	76
Available Features	-				
Approvals	-				

Hazardous Location, Pneumatic Vacuums

- for use when electricity is unavailable or undesirable

Although there is no North American certifying body for air-operated vacuums, Nilfisk pneumatic vacuums are built to meet the same design standards as ATEX (Ex) hazardous location equipment. The vacuums are designed to meet the requirements for safe use in Class I, Group D, and Class II, Groups E*, F & G environments.



Air-operated modes offer the same level of performance as electric Nilfisk models while maintaining the same features and low noise level.

Nilfisk VHC110 EXP and VHC120 EXP

The VHC110 EXP and VHC120 EXP air-operated, hazardous location vacuums provide the same high suction power you expect with Nilfisk, but using 60% less compressed air. These vacuums include multi-stage filtration with a PullClean filter cleaning system and COAX® compressed air cartridges in addition to grounding cable and clamp. HEPA variants as well as complete stainless steel configurations are available. Variants designed for wet/dry material collection are also available.















Nilfisk VHC200 EXP

The VHC200 EXP stainless steel, pneumatic vacuum is ideal for a variety of general cleaning tasks, as well as heavy-duty applications involving denser debris. This model can be used in continuous-duty applications. Smaller collection capacity is available upon request.

**Additional equipment may be necessary to meet Group E requirements. Nilfisk reserves the right to evaluate on a case-by-case basis.*



Technical Specifications

Description	Unit	VHC110 EXP	VHC120 EXP	VHC200 EXP
Collection Type	-	Dry (Wet Option)	Dry (Wet Option)	Dry (Wet Option)
Air Consumption @ 90 psi	CFM (L/min)	22 (623)	44.5 (1260)	94 (1982)
Waterlift, max.	in. (mm) H ₂ O	130 (3302)	130 (3302)	153 (3875)
Airflow, max.	CFM (L/min)	70 (1982)	119 (3370)	184 (5200)
Air Line Diameter	in. (mm)	0.5 (13)	0.75 (19)	0.75 (19)
Recommended Air Pressure	psi (bar)	101 (7)	101 (7)	90 (6)
Container Capacity	gal. (L)	9.8 (37)	9.8 (37)	26 (100)
Dimensions (L x W x H)	in. x in. x in. (mm x mm x mm)	22.5 x 22 x 49 (572 x 560 x 1245)	22.5 x 22 x 49 (572 x 560 x 1245)	31.5 x 23.6 x 62.6 (800 x 600 x 1590)
Sound Pressure Level	dB(A)	71	72	70
Available Features	-	   	   	  
Approvals	-			

NRTL-Certified Explosion-Proof Vacuums

- for use in classified (hazardous) environments













OSHA and NFPA recommend, and in some cases require, manufacturers with combustible materials to use certified explosion-proof/dust ignition-proof vacuums as part of a regular plant maintenance program.

Review the following standards for recommendations regarding your environment and application:

- National Electric Code (NEC) Article 500
- Canadian Electric Code (CEC) Section 18
- OSHA Combustible Dust National Emphasis Program
- National Fire Protection Association (NFPA)
 - » NFPA 652 - Fundamentals of Combustible Dust
 - » NFPA 61 - Agricultural & Food Processing
 - » NFPA 484 - Combustible Metals
 - » NFPA 654 - Other Industries (Plastics, Pharma)
 - » NFPA 655 - Sulfur



Technical Specifications

Description	Unit	VHS110EXP	VHS110EXPW
Collection Type	-	Dry	Wet
Type of Power	-	1-Phase	1-Phase
Voltage @ 60 Hz	V	120	120
Power @ 60 Hz	HP (W)	1.61 (1200)	1.61 (1200)
Waterlift, controlled	in. (mm) H ₂ O	65 (1654)	65 (1654)
Airflow, blower max.	CFM (L/min)	106 (3681)	106 (3681)
Current, max.	amps	10	10
Container Capacity	gallons (L)	9.8 (37)	9.8 (37)
Dimensions (L x W x H)	in. (mm)	22 x 30 x 50 (559 x 762 x 1270)	22 x 30 x 50
Sound Pressure Level	dB(A)	76	76
Available Features	-	    	    
Approvals	-		

Nilfisk's line of explosion-proof/dust ignition-proof vacuums are certified for use in hazardous environments, including Class I, Group D and Class II, Division 1 and 2, Groups E*, F, and G locations.

Nilfisk VHS110EXP — Certified Class I & Class II

The VHS110EXP vacuum line is CSA-certified for use in Class I, Group D and Class II, Groups E*, F & G environments. It features a brushless motor, PullClean filter cleaning technology and downstream HEPA filtration. Variants designed for wet/dry material collection are also available.












Nilfisk VHT437EXP and VHT456EXP — Certified Class I, Group D & Class II, Groups F & G

The VHT437EXP and VHT456EXP are certified explosion-proof/dust ignition-proof vacuum cleaners with exceptional performance for continuous-duty needs in hazardous environments. They are ideal for use in process-integrated and central system applications. The VHT437EXP and VHT456EXP meet the requirements for use in Class I, Group D, and Class II, Groups E*, F & G environments. Smaller collection capacity is available upon request.

**Additional equipment may be necessary to meet Group E requirements. Nilfisk reserves the right to evaluate on a case-by-case basis.*



Technical Specifications

Description	Unit	VHT437EXP	VHT456EXP
Collection Type	-	Dry (Wet Option)	Dry (Wet Option)
Type of Power	-	3-phase	3-phase
Voltage @ 60 Hz	V	220 / 460 / 575	460 / 575
Power @ 60 Hz	HP (W)	5 (3700)	7.5 (5600)
Waterlift, controlled	in. (mm) H ₂ O	85 (2159)	72 (1820)
Airflow, blower max.	CFM (L/min)	218 (6167)	367 (10384)
Current, max.	amps	11.2 / 5.6 / 4.5	9.5 / 7.6
Container Capacity	gallons (L)	26 (100)	26 (100)
Dimensions (L x W x H)	in. (mm)	50.8 x 23.6 x 60.6 (1290 x 600 x 1540)	50.8 x 23.6 x 60.6 (1290 x 600 x 1540)
Sound Pressure Level	dB(A)	72	77
Available Features	-	    	   
Approvals	-		

Safely Collect Group E Metal Dust

- for explosion-proof/dust-ignition proof vacuums

Nilfisk immersion separators comply with NFPA 484 for the safe collection of explosive metal dusts and built to the same high standards associated with the Nilfisk explosion-proof/dust ignition proof vacuum line. Collect and render inert Group E metal dusts, such as aluminum, magnesium and other commercial alloys, in an inert fluid bath.*

INTEGRATED IMMERSION SEPARATOR

All-in-one design is easy to use and saves space in your work area, sold with or available as retrofit to the following Nilfisk models:

- **VHS110EXP** (electric-powered, CSA-certified for use in Group E environments)
- **VHT437EXP or VHT456EXP** (electric-powered, CSA-certified for use in Group E environments)
- **VHC110EXP or VHC120EXP** (pneumatic-powered, suitable for use in Group E environments)
- **VHC200EXP** (pneumatic-powered, suitable for use in Group E environments)

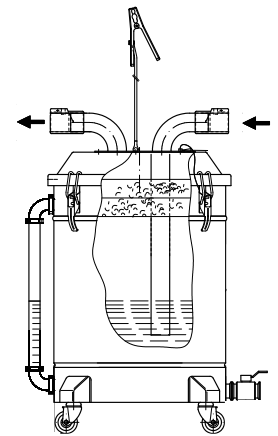
STAND ALONE IMMERSION SEPARATOR

Constructed of low-sparking 304 stainless steel; offered for use with the following Nilfisk models:

- **VHC200 EXP** (pneumatic-powered, suitable for use in Group E environments)



Integrated Immersion Separator



Stand-Alone Immersion Separator

Technical Specifications

Description	Unit	Stand-Alone Immersion Separator	Integrated Immersion Separator (400mm)	Integrated Immersion Separator (460mm)
Separator Inlet Diameter	mm	50	50	70
Capacity	gallons (L)	2 (7.6) dust; 11 (41.6) fluid	1 (4) dust; 4 (15) fluid	1.58 (6) dust; 6.6 (25) fluid
Dimensions (Dia x H)	in. x in. (mm x mm)	18.1 x 33.9 (459.7 x 861.1)	16.5 x 14.4 (420 x 365)	18.1 x 27 (459.7 x 685.8)
Weight, separator only	lb. (kg)	47 (21)	16.5 (7.5)	51.5 (23.4)

Specifications and details are subject to change without prior notice.

Collection of commercial alloys is subject to individual approval by our application engineer. The fluid in the separator is not supplied by Nilfisk, Inc., Industrial Vacuum Division and should not be reactive to the metals/materials being collected. *A light mineral oil is recommended.

Explosion-Proof/Dust Ignition-Proof Accessories


Antistatic Hose & Cuffs	Description	Fitment Diameter (mm)	Bend Radius	Temp. Rating °F	Part #	Notes
	40mm Conductive ($\leq 10^4$ ohms) Polyurethane Hose (per meter)	40	3.48 in.	-22 / 195; intermittent to 260	7-24115	Spring steel wire with carbon-impregnated polyurethane coating; 10^4 ohms resistance; Max. order length: 15 meters.
	40mm Antistatic Hose Cuff				40000212	Use with 7-24115 hose
	50mm Conductive ($\leq 10^4$ ohms) Polyurethane Hose (per meter)	50	4.68 in.	-22 / 195; intermittent to 260	7-24116	Spring steel wire with carbon-impregnated polyurethane coating; 10^4 ohms resistance; Max. order length: 15 meters.
	50mm Antistatic Hose Cuff				7-20309F	Use with 7-24116 hose

Photo Ref.	Finishing Tools and Brushes for Hazardous Locations	Fitment Diameter (mm)	Principal Width (in.)	Construction Type		Part #	Notes
				Aluminum	Stainless Steel		
A	Wheeled Floor Nozzle	50	16		•	40000223	Includes (2) silicone squeegees, wheel adjuster screw, & (1) internal flange
B	Conductive Rubber Cone	40	-			40000214	Black nitrile rubber; oilproof
		50				40000221	
C	Conductive Rubber Nozzle	50	4.72			7-21080	Black nitrile rubber; oilproof; toothed profile
D	Crevice Nozzle	40	-			40000213	(1) external flange; 20" -length
		50				40000220	
E	Aluminum Crevice Nozzle	38	-	•		01768900	11" -length
F	Aluminum Dust Brush	38	3			01719401	With conductive bristles
		50				M50058	
		38				M50038	
		50				M50042	
G	EXP Pipe Brush	38	8			M50039	With black bristles
		50				M50043	
		38				M50040	
		50				M50044	
H	EXP Wall Brush	38	12			M50041	-
		50				M50045	



*Only the most typical accessories are represented. Contact us for additional diameters, materials and more.

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 nilfiskindustrialvacuums.com.



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