Nihot Recycling Technology was established in 1945 and started their business by producing air ducts for small wood furnaces. Today Nihot is a proven market leader in the supply of solid waste air separation technologies, systems and components, using controlled air. Nihot’s air technologies reflect a superior reliability, offering the highest waste separation efficiency. From consulting, developing, designing and manufacturing to delivery, installation, commissioning and operator training, it’s all in-house expertise.

Since no two customers and installations are the same, we design all of our systems uniquely to the individual needs of our customers.

Why Nihot
- Nihot has more than 65 years experience and is a recognized player in its field
- Expertise and knowledge: a global supplier and market leader in air technologies to separate waste
- Systems and components of a proven quality (see our references), to be utilized for virtually all kinds of solid waste
- Highest degree of separation (up to 99%)
- A full scale test center in our factory to experiment and test with different materials from customers
- 100% made in Holland
- Global presence (>90% export)
- >500 operational references world wide
- The Nihot systems operate at the lowest cost per ton

**Unique Characteristics & Advantages**
Each type of product or system has its own unique advantages and characteristics, such as the Windshifter’s proven operational efficiency and the Drum Separator’s high capacity and reliability. Those proven benefits result in:
- Minimum maintenance
- Maximum availability
- Fast Return on Investment
- Low operating costs
- High reliability
- High flexibility
- Dust free operation

Air Technologies
Separate waste by air
Nihot offers high-efficient systems for the Environmental and Recycling Industry to separate waste by using controlled air technology. Our systems are utilized for a wide range of applications.

Products and systems
- Windshifters
- Drum Separators
- Drum Separators Compact Series
- Dust Suppression
- Rotary Air Separators
- Film Vacuum System

Think Global, act local
Since its beginning Nihot has always been very active on international markets. This has outgrown to a current situation where we are exporting more than 90% of our total business. From the United States of America to Australia and almost every country in between we have numerous of Nihot installations in full operation. The reason of this success is the flexibility of the Nihot equipment combined with the highest quality standards. Next to that we are very familiar with the local demands and circumstances. Not in the least because of our many local partners in every corner of the world.

Stibbe Management
In 2007 Nihot Recycling Technology became member of the Environmental division of Stibbe Management. Stibbe Management is a Dutch industrial holding with companies active in the divisions Pharma & Fine chemicals, Food & Dairy and Environment.

Would you like to know how Nihot can be of benefit to you? Please visit our website for more information or contact us or one of our partners. The Nihot team is ready to assist you!

Airconomy®
By using the superior Nihot Air technologies we provide our customers the best economy. This is what we call: **Airconomy®**
The Nihot Windshifters are characterized by their great flexibility:

- Different (mechanical) settings are installed for exact and precise controlling of the air flow and thus the separation efficiency
- Instead of a Combi Separator, a Rotary Air Separator can be installed when smaller capacities of light weight fractions are applicable
- Flexible footprint; the Combi Separator or Rotary Air Separator can be placed anywhere within the installation
- When the capacity allows it, two Windshifter can be connected to one Combi Separator or Rotary Air Separator

The Windshifter is a combination of a recirculation fan, a separation unit (the actual Windshifter) and a Combi Separator or Rotary Air Separator. Typically a Windshifter is mounted on a conveyor belt and is uniquely designed to it. But also other configurations are possible i.e. on star/disc screens and vibrating feeders.

Controlled air is a perfect medium in waste separation processes. It is versatile, offers higher flexibility then mechanical separation technologies and it guarantees a high separation efficiency. By using air, materials can be separated based on differences in specific density and shape.

Negative pressure: the ultimate separation!

Nihot has developed three different kinds of Windshifters for different applications. All of the Nihot Windshifters are separating by means of negative pressure, suction! This gives the highest precision of separation. A positive side effect is a dust free operation.
WS-S: Diagonal Windshifter

The typical characteristic of a diagonal Windshifter (WS-S) is the use of a blow nozzle. About 60% of the aspirated air is returned back into the system. This allows for a smaller dust filter. But more over it helps to control the separation efficiency since we can fully adjust the blown air separately from the aspirated air.

Process WS-S
The input material is transported by conveyor (1) to the Windshifter separation unit (2) where the heavy materials are separated from the lighter materials. The heavy materials fall down (3) against the air flow. The lighter materials are aspirated by controlled air through a material duct (4) into a Combi Separator (5). In the Combi Separator the aspirated air expands by which the light materials drop down into a rotary valve (6). The rotary valve seals the Combi Separator and discharges the material pressureless (7).

The expanded air in the Combi Separator is returned (8) to the recirculation fan (9). From the fan the air is partially directed (10) to a (optional) dust filter (20). Approximately 60% of the returned air is blown back into the system through a blow nozzle (10).

Hint: as an alternative to a Combi Separator (5) we offer a complete range of Rotary Air Separators for lightweight capacities up to 3 t/h.
WS-V: Vertical Windshifter

Is an ideal solution for removing light fractions from liberated and densified input materials. The WS-V is normally used in combination with a Rotary Air Separator for smaller fraction sizes and capacities.

Process WS-V
The input material is transported by conveyor (1) to the Windshifter separation unit (2) where the heavy materials are separated from the lighter materials. The heavy materials fall down (3) against the air flow. The lighter materials are aspirated by controlled air through a material duct (4) into a Combi Separator (5). In the Combi Separator the aspirated air expands by which the light materials drop down into a rotary valve (6). The rotary valve seals of the Combi Separator and discharges the material pressureless (7).

The expanded air in the Combi Separator is transported (8) to the recirculation fan (9). From the fan all the returned air is directed (10) to an (optional) dust filter (20).

Hint: as an alternative to a Combi Separator (5) we offer a complete range of Rotary Air Separators for light weight capacities up to 3 t/h.

Drawing below shows 2 x WS-V with 1 x fan and 1 x Combi-Separator.

Discover more Airconomy® at www.youtube.com/nihotrecycling
WS-Z: Zig Zag Windshifter

When the density of the heavy and the light fraction is very close and the fraction size is not exceeding 50 mm, a Zig Zag Windshifter proves to be a good solution.

**Process WS-Z**

The input material is transported by conveyor (1) to the Windshifter separation unit with adjustable cascades (2) where the heavy materials are separated from the lighter materials. The heavy materials fall down (3) against the air flow. The lighter materials are aspirated by controlled air through a material duct (4) into a Rotary Air Separator (5). In the Rotary Air Separator the aspirated air passes through a perforated grid. The light materials drop down into a rotary valve (6). The rotary valve seals of the Rotary Air Separator and discharges the material pressureless (7).

The air that passed through the grid is transported (8) to the recirculation fan (9). From the fan all the returned air is directed (10) to a (optional) dust filter (10).

Hint: as an alternative to a Rotary Air Separator (5) we offer a complete range of Combi Separators for light weight capacities up to 7 t/h.

Discover more Airconomy® on www.youtube.com/nihotrecycling
Combination
The Drum Separator is a combination of a recirculation fan, a separation unit with a rotating drum and an attached expansion chamber. All Drum Separators are standard equipped with a (frequency controlled) input conveyor and an integrated light weight discharge conveyor (assembled underneath the expansion chamber).

Characteristics
Besides the superior separation efficiency, the Nihot Drum Separators are well known for their ability of handling large volumes of light weight materials. The robust construction and idiot proof functionality guarantee a long lasting and trouble free operation. With the highest availability and the minimum of down time for service and maintenance.

Negative = Positive
Like the Nihot Windshifters, also all Drum Separators are separating waste by means of negative pressure; suction! This gives the highest precision of separation. A second positive effect of operation on negative pressure, is a dust free operation.

Innovation
Due to the changed composition of waste over the years, the percentage of light weight material in waste streams has increased substantially. To be able to process the high volumes of light weight materials, Nihot has developed an innovative air separation technology to separate waste streams into two or three fractions, Drum Separators. The Nihot Drum Separators are designed to process up to 35 t/h of light weight fraction with a single unit. The handled input can easily go up to 50 t/h or more, depending on the nature of the input waste.

Flexibility
The Nihot Drum Separators are characterized by their great flexibility.

• Various (mechanical) settings are installed for exact and precise controlling of the air flow and thus the separation efficiency
• The Light Weight discharge Conveyor can be adapted in different lengths and angles. Ideal when a certain height needs to be reached
• The Light Weight discharge Conveyor can be adapted in different widths. Ideal for direct feeding of an optical sorter or evenly dosing a secondary shredder
• Drum Separators are modular built, but each unit is uniquely designed and constructed to fit within the layout of each individual customer
• Available from 1 t/h up to 35 t/h of light weight fraction with a single machine
SDS: Single Drum Separator

Single Drum Separators separate waste into two fractions; heavy and light.

Process SDS
The input material is transported by a frequency controlled input conveyor (1) into the Drum separation unit (2). Here the separation takes place. The heavy materials will fall down (3) before the rotating splitter drum and against the air flow. The light materials are aspirated and conveyed over splitter drum into the expansion chamber (4). Inside the expansion chamber the air expands by which the light materials drop onto the Light Weight Conveyor belt (5) and are discharged outside the expansion chamber. The expanded air inside the expansion chamber is returned (6) to the recirculation fan (7). From the fan the air is partially directed (10) to an optional dust filter (30). Approximately 70% of the returned air is blown back into the Drum separation unit (8). The purpose of blowing air back into the system is to support the separation and to reduce the filter size.

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**SDS + WS-S: Single Drum Separator with Windshifter**

Single Drum Separators with an integrated Windshifter at the end of the Light Weight discharge conveyor separate waste into three fractions; heavy, mid-heavy and light.

**Process SDS + WS-S**

The input material is transported by a frequency controlled input conveyor (1) into the Drum separation unit (2). Here the first separation takes place. The heavy materials fall down (3) before the rotating splitter drum and against the air flow. The mid-heavy and light materials are aspirated and conveyed over splitter drum into the expansion chamber (4). Inside the expansion chamber the air expands by which the light and mid-heavy materials drop onto the Light Weight Conveyor belt (5) and are discharged outside the expansion chamber. The expanded air inside the expansion chamber is returned (6) to the recirculation fan (7). From the fan the air is partially directed (10) to an optional dust filter (30). Approximately 70% of the returned air is blown back (8) into the Drum separation unit. The purpose of blowing air back into the system is to support the separation and to reduce the filter size.

The mid-heavy and light materials from the Single Drum Separator are transported into the Windshifter separation unit (42), where the mid-heavy materials are separated from the light materials. The mid-heavy materials fall down (43) against the air flow. The light materials are aspirated by controlled air through a material duct (44) into a Combi Separator (45). In the Combi Separator the aspirated air expands by which the light materials drop down into a rotary valve (46). The rotary valve seals of the Combi Separator and discharges the material pressureless (47).

The expanded air in the Combi Separator is returned (48) to the second recirculation fan (49). From the fan the air is partially directed (51) to an optional dust filter (30). Approximately 60% of the returned air is blown back into the system through a blow nozzle (50).

[Diagram of the process]

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SDS-C: Single Drum Separator Compact
(Semi Mobile)

The Nihot Single Drum Separator Compact is a turnkey plug & play system including electrical cabinet, heavy fraction discharge conveyor and dust filter. The whole system is mounted on a skid frame with extendable support legs. The SDS-C is an ideal solution for separating waste with a maximum fraction size up to 250 mm and a capacity up to 8 t/h of light weight material.

Process SDS 650-C and SDS 650-XL
The input material is transported by a frequency controlled input conveyor (1) into the Drum separation unit (2). Here the separation takes place. The heavy materials will fall down on the heavy fraction discharge conveyor (3) before the rotating splitter drum and against the air flow. The light materials are aspirated and conveyed over splitter drum into the expansion chamber (4). Inside the expansion chamber the air expands by which the light materials drop onto the Light Weight Conveyor belt (5) and are discharged outside. The expanded air inside the expansion chamber is returned (6) to the recirculation fan (7). From the fan the air is partially directed (10) to an integrated dust filter (30). Approximately 70% of the returned air is blown back into the Drum separation unit (8). The purpose of blowing air back into the system is to support the separation and to reduce the filter size. The whole unit is mounted on a skid with extendable support legs (20) and is equipped with an integrated electrical cabinet (31).
DDS: Double Drum Separator

When a three-way separation is desired or a volume separation is required, the Nihot Double Drum Separator is a good solution. The input material is separated into a heavy, mid-heavy and light fraction due to an installed second rotating splitter drum and second fan with blow nozzle.

**Process DDS**

The input material is transported by a frequency controlled input conveyor (1) into the first Drum separation unit (2). Here the first separation takes place. The heavy materials will fall down (3) before the first rotating splitter drum and against the air flow of the first blow nozzle (5). The mid-heavy and light materials are aspirated and conveyed over the first splitter drum. The mid-heavy materials drop (7) before the second splitter drum (6) and against the air flow of the second blow nozzle (11). The light materials are aspirated into the expansion chamber (4). Inside the expansion chamber the air expands by which the light materials drop onto the Light Weight Conveyor belt (8) and are discharged outside of the expansion chamber.

The expanded air inside the expansion chamber is returned (9) to both recirculation fans (10 + 13). From the first recirculation fan (10) the air is partially directed (12) to an optional dust filter (30). Approximately 70% of the returned air is blown back into the first Drum separation unit (5). The purpose of blowing air back into the system is to support the separation and to reduce the filter size.
For all Nihot installations we offer a full range of dust filters in compliance with ATEX and CE regulations. The filters can be supplied in both positive as well as negative pressure variants. The Nihot filters are characterized by their ability to cope with small particles like film, foils and paper that are not removed before entering the dust filter.

All filters are versatile, maintenance free, highly reliable and have low energy consumption.

We offer a full range of dust filters from 2,000 m³/h up to more than 200,000 m³/h of air. As well in discontinuous cleaned as in continuous cleaned variants.

**Mechanical discontinuous cleaning**
The most economical and effective dust filtering is achieved with the Nihot mechanical cleaned dust filters. This type of filter starts cleaning (automatically) while the installation has been shut down. During approximately 10-15 minutes the filter sleeves are shaken by means of a vibrating frame (electrical motor) mounted inside the top section of the dust filter. The vibrating cycle is releasing the dust from the filter sleeves and the collected dust drops down and is collected or conveyed outside the filter housing.

**Compressed air continuous cleaning**
Whenever a continuous process is applicable, Nihot offers a complete range of compressed air continuous cleaned dust filters. In this case the dust is released from the filter sleeves by a pulse injection of compressed air into each filter sleeve. This pulse injection generates sudden expansion of the filter sleeves and causes the collected dust to release from the sleeves. The released dust falls down and is being collected or conveyed outside the filter housing. The pulse injections take place in adjustable time intervals or depending on pressure loss. This is done while the filtering process is in operation and allows for a 24/7 operation.

**Dust collection and discharge**
For all filters the collection and discharge can be done continuously or discontinuously. The following methods are available:
- Containers, to be discharged manually
- Bags, to be discharged manually
- Chain conveyor, automatic discharge from one side of the dust filter
- Rotary Valve, automatic discharge from the bottom of the dust filter
- Screw conveyor, automatic discharged dust will be transported to wherever needed.

**Discover more Airconomy® on [www.youtube.com/nihotrecycling](http://www.youtube.com/nihotrecycling)**
A dust suppression system is essential to comply with local and international Health & Safety and Environmental regulations with regard to dust emissions. Next to these obligations, it provides a safe and sound working environment for all personnel which will lead to a higher productivity and efficiency.

Nihot delivers turnkey dust suppression systems for waste sorting and recycling facilities. This includes design, engineering, manufacturing and installation of all dust hoods and covers, ducting, fans, filters, compressors, air dryers and complete electrical cabinets.

Manual film extraction
In sorting cabins where manual sorting takes place, Nihot offers a series of very flexible and effective extra collection points. At specific points above the sorting belt, Nihot can install one or more plastic film extraction points. One operator now has 2 possibilities for removing manually sorted waste: two sorting bins left and right and one suction point in front of him.

Closed loop system
The Nihot Film Vacuum System is a combination of one or more suction points above a sorting belt, a recirculation fan and a material separator. The film from one or more collecting points is conveyed pneumatically to one material separator. Here the air and film are separated. The film is dropped pressure less into a baler, press container, bay or onto a conveyor. The aspirated air is re-circulated by the fan and led back to the opening of the suction point (concentric ducting). By this we have created a closed loop air system.

Advantages
- Closed loop system
- Unique concentric ducting
- No surrounding air is extracted
- Ergonomic quality picking
- Applicable for multiple suction points
- Single discharge to any preferred destination
- Handling of various materials (film, aluminum cans, PET bottles, paper/cardboard) etc.
- Does not influence the air condition (heat or cold) inside a cabin
- No (forced) outside air needed
- Can be easily fitted into new or existing cabins
- Maintenance free

A reference video can be found on our website.
Seeing is believing
We understand very well that customers would like to see for themselves what Nihot air separating technologies can achieve on separating different waste qualities. For that reason we always like to welcome our customers to be present while testing. In our factory in Amsterdam we have a full range of testing equipment including:
- Windshifter Diagonal (WS-S)
- Windshifter Vertical (WS-V)
- Windshifter Zig-Zag (WS-Z)
- Single Drum Separator (SDS)
- Single Drum Separator Compact (SDS-C)
- Single Drum Separator with Windshifter Diagonal (3-way separation)
- Rotary Air Separator
- Combi separator
- Cyclone
- Film Vacuum System

Results
We can test your sample material on one individual machine or by a combination of machines. After testing a full test report including photographs and separation results is provided.

Testing on site
In case you would like to test at your own site and/or for a longer period, we have one of our Compact Single Drum Separators available as a test unit.

Versatile
Nihot Windshifters and Drum separators are installed in numerous applications and industries for different purposes.

Protection of secondary shredders and pelletizers; by removing inert materials and foreign particles from waste. This results in less wear and down time of the secondary shredders/pelletizers and thus lower operational costs and a higher availability.

Optical sorters; by removing film and foils (LDPE) from waste streams before entering an optical sorter, the separation efficiency and throughput capacity of the optical sorter are increased substantially.

Ballistic separators; Nihot is installed on the 2D and 3D fraction from a ballistic separator. This is to remove plastic film and foil (LDPE) to enable an optimized further process.

Manual sorting; removing leftover light materials before processed and sorted waste enters a manual sorting line. This secures an optimized quality control.

RDF feeding; before injecting RDF (-30 mm) into the energy process, Nihot Single Drum Separators are installed to remove any leftover hard particles which give a high wear inside the injectors.

Biomass/Wood; removing stones, bricks, glass etc from a biomass fraction the subsequent energy process is protected and secured with a higher availability.

Volume dividing or homogenizing; whenever a waste stream needs to be divided into multiple flows for optimizing further processes.

Recycling / cleaning / upgrading of the following:
- Municipal Solid Waste (MSW)
- Commercial & Industrial waste (C&I)
- Construction and Demolition waste (C&D) → separate hardcore, wood and RDF
- Solid Recovered Fuel (SRF)
- Compost → separate foils/film and stones/brick from compost
- Glass → removing foil and fibers
- Bottom Ash → extract combustible fraction
- WEEE / cable / metal recycling → removing plastics, cardboard, wood etc.
- DSD / packaging waste / single stream → removing plastic film and foil
- PET recycling → removing plastic film from PET bottles

Next to recycling and waste management processes, Nihot equipment is also used in recovering raw materials from (industrial) production processes.
Services

Nihot systems and components are realized on turnkey basis or under EPC (Engineering, Procurement, Construction). Our services start with the initial design and continue after delivery and start-up. This ensures a long-term functionality, availability and warranty of our air separation equipment.

We offer the following services:

- Sales & Design consultancy
- Engineering in 2D and 3D
- Mechanical and electrical installation
- Project management
- Training and operational assistance
- In-house and on-site testing
- Service and maintenance assistance
- Modifications and retrofit

Quality

Quality is when the customer comes back, not the product.

One of the reasons Nihot systems are regarded as high quality products lies in the fact that all settings and adjustments are mechanical. In the event repair, service or maintenance is needed, this can be easily realized by local staff.

All main components, like gear motors and bearings, are supplied by global premium brand suppliers and can be obtained anywhere in the world.

Good for you, bad for Nihot

The design and construction of Nihot systems have proven to be ‘idiot proof’ and long lasting. The number and value of spare and wear parts to any of the Nihot systems is negligible, even after many years of operation. Next to that, we have a proven track record with numerous installations in all parts of the world and in all kinds of climate conditions, on inside and outside applications.

In the event there is a need for technical assistance, Nihot or one of its partners can be of service to you in shortest possible response time.

Service & Quality