



# MARINE INDUSTRY

*Shipping - Yards - Offshore*

**Nederman Norclean Line for efficient suction and cleaning processes**

# Shipping

## **Engine room - deck cleaning - tank stripping**



### **Engine room**

The Norclean Line products are successfully used in engine rooms on board all type of vessels. The compressed air powered vacuum units extract anything passing the suction hose; oil, mud, scale, rags, etc. The units are Ex-approved and therefore safe to use in hazardous explosion risk areas. The very high suction power allows extraordinary lifting heights and long suction lengths.

A large number of fitted suction tools enable efficient access to areas difficult to reach, corners, engine parts and hulls. During engine overhaul the units can successfully be used for crankshaft case emptying and cleaning of cylinder heads and pistons. Emptying and cleaning



sumps under separators and pumps can be done with the false air gulper and scraper tools.

Also in the Norclean Line a range of electric or compressed air powered central suction systems is offered. Such systems simplify the engine room cleaning process as only the suction hose and suction tools need to be moved. Waste and spill can be automatically collected in separate tanks or in bags. The vacuum units and tools are handy and can be used for efficient regular cleaning operations.



### **Deck cleaning**

The Norclean Line products are designed and built for efficient collection of flammable and non-flammable liquids, dust and granules. They are mobile and can easily be moved around onboard ferries and dry cargo carriers.

The wide range of suction tools enable different types of cleaning and material collection operations efficient, simple and quick. Spills of liquids and mud are efficiently removed from gullies and deck drains, cleaning of car deck areas, cargo hull bottoms and beams.

Special scraper tools are used for scale and rust removal in repair and painting operations.



### **Some norclean customers**

Jo Tankers AS, Norway - Broström Ship Management AB, Sweden - IUM Shipmanagement AS, Norway

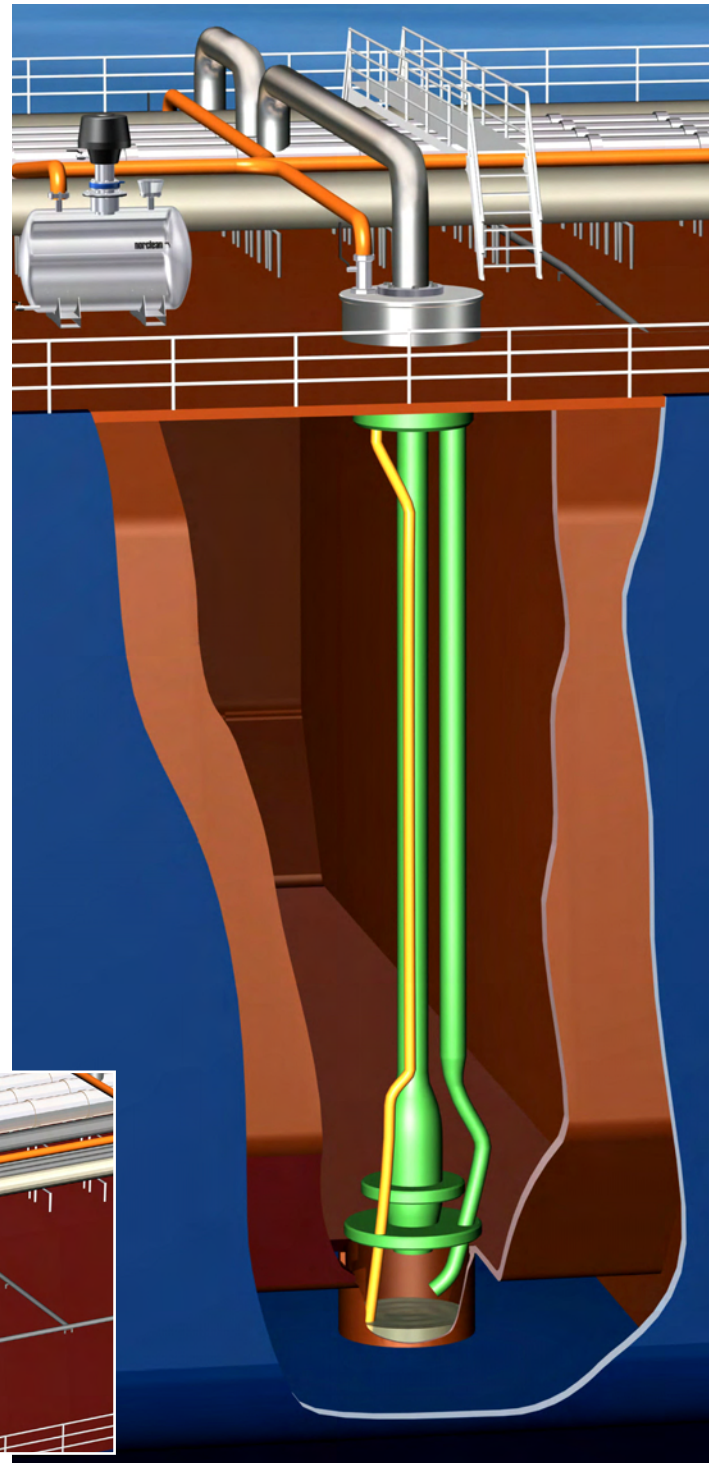
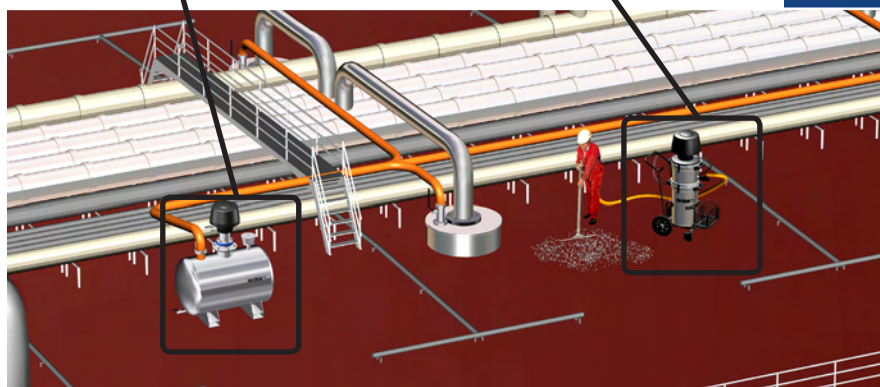
Nederman is a world-leading manufacturer of vacuum power products. Its Norclean Line of compressed-air powered ejector vacuum cleaners is designed for collection of virtually anything that can flow through a hose, whether it is liquid, dust or granules.

The Norclean Line products are successfully used in industrial plants, shipping industry and on offshore installations all over the globe. The life span of these ejectors is up to three times longer than equivalent electric vacuum systems.

## Tank stripping unit

The Norclean Line Ex-approved vacuum units are used on board hundreds of oil tankers and product carriers for tank stripping operations. The heavy duty compressed air powered units can collect flammable liquids over long lifting heights and horizontal lengths. Special care has been taken to eliminate explosion hazards, and the units are Ex-certified by well known testing and approval organisations. All parts of the various models are made of antistatic / conductive materials.

Nederman Norclean supply small flexible and easily portable units, as well as stationary central installations for cleaning of cargo tanks. The units are located on deck and extract vertically from the sumps in the tank bottom, either through special installed stainless pipes installed by the cargo pump manufacturer, or through special conductive suction hoses and suction tools supplied with the vacuum units. The collected residues can be pumped or flushed into slop tanks or other reservoirs.



Some norclean customer

Sperre Industri AS, Norway + more than 50 ship owning companies worldwide

# Yards

## **Workshops - Machine cleaning - Grit recovery**



### **Workshops**

The handy and powerful Norclean Line vacuum units simplify collection and cleaning operations in the machine and blacksmith workshops, foundries as well as in the hull building halls. The various Norclean Line models remove oil and water, scale, rust and sand; oil from lathes, cooling agents from lathes and milling machines in replacement operations, chips from production machinery. Expensive metal chips can be discharged from cooling agents and recovered in special containers for recycling.

Powerful central suction systems can be installed for efficient suction of smoke and gases from lathes and

other production machinery, for machine and general shop cleaning.



### **Machine cleaning**

The Norclean Line comprises more vacuum models suitable for material collection (oil, water, sludge, sand, waste, etc.) during new-building and ship repair operations.

The vacuum units can be supplied with a wide range of capacities to meet customer requirements. Tank capacities can be either 67 or 200 litres, or silo systems can be supplied.

Various types of filter systems are available in the Norclean Line and a wide range of suction hoses and suction tools can be supplied to suit the purpose of the operators.

The models simplify the repair work of engines, pumps, generators, etc. Also the cleaning of crankshaft sumps, engine tops, spill sumps, heat exchangers, etc.



### **Some norclean customers**

Aker Stord, Norway - Volgograd Ship Yard, Russia - Novorossisk Ship Repair Yard, Russia - STX Shipping, Korea

All Nederman products are designed with efficiency and quality in mind. When designing the Norclean Line, Nederman combines innovative thinking and the broad experience of its technical staff in order to present a

top-of-the-line range of products to the global marketplace. The Norclean Line module concept is designed to solve any transportation or collection problem, offering either standard units or custom engineered systems.

## Grit recovery

With its Norclean Line Nederman offers a wide range of products to the shot-blasting operators; contractors, ship-owners and yards.

The combined blasting and vacuuming models are equipped with the most efficient blasting pots with high capacity vacuum producers for the continuous recovery of grit. The grit/dust dischargers of the models separate most of the dust from the reusable grit and feed the grit back into the blasting process. The specially designed filter systems take out the fine dust from the exhaust air.



The operators can choose from a large number of electric and compressed-air powered vacuum units, as well as combined blasting and vacuuming models.

High efficiency systems are designed for recovery of large quantities of used and reusable grit, for dust vacuuming before painting operation and combined unit for repair work and small blasting operations.



### Some norclean customer

Daewoo Mangalia, Romania - Aker Langsten AS, Norway - Aker Tulcea Shipyard, Romania - Raduni Shipyard, Poland

# Offshore

## **Drilling mud - Pump room and workshop - Deck cleaning**



### **Drilling mud**

Intrinsically safe Norclean Line equipment is used to provide fast, safe and effective cleaning of tanks, chambers and process equipment in oil production and petrochemical facilities, thereby keeping shut-down periods short in order to save costs. The heavy duty Norclean Line compressed air vacuum systems have high airflow capacity combined with extraordinary high vacuum up to -76 mbar. This optimal suction power combination gives a very high material collection capacity superior to that of any other systems available. The Norclean Line products have been designed to draw mud and sludge over distances up

to 150 metres back to tanks and skips located on deck for faster and more efficient removal.

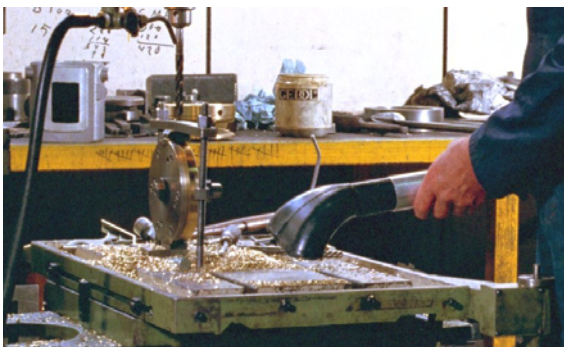
The Norclean Line also includes smaller heavy duty vacuum systems suitable for use in the interior of tanks and in enclosed compartments for smaller jobs. These units have very high vacuum capacity enabling a quick and efficient collection of mud, sludge, sand and other residues.



### **Pump room and workshop cleaning**

Norclean Line vacuum products are designed and built to simplify material

collection operations in pump rooms and workshops. Oil suction from sumps and crankshafts, cleaning liquid removal from overhaul operations and general cleaning jobs are quickly and easy done with these vacuum units.



Some norclean customers

Statoil ASA, Norway: Statfjord A Platform - Åsgård A Production Ship - Gullfaks A Platform - Huldra Platform

In the Norclean Line a large number of standard vacuum systems are available, including a range of Ex-approved units. If a suitable standard vacuum model cannot be found within the Norclean Line, the Nederman experienced staff can quickly design special

models to solve difficult vacuuming problems, either in mild steel or stainless steel versions. All units are designed to operate safely under the toughest environmental conditions and in hazardous areas.

## Deck cleaning

The Ex-approved Norclean Line vacuum systems are used for a broad range of operations on board drilling and production platforms.

They extract oil and liquid overflows, they remove grit in blasting and painting operations, they suck scale at welding jobs, as well as being used for general cleaning of deck areas.

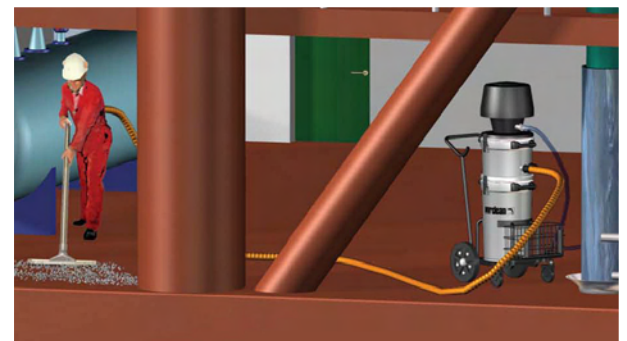
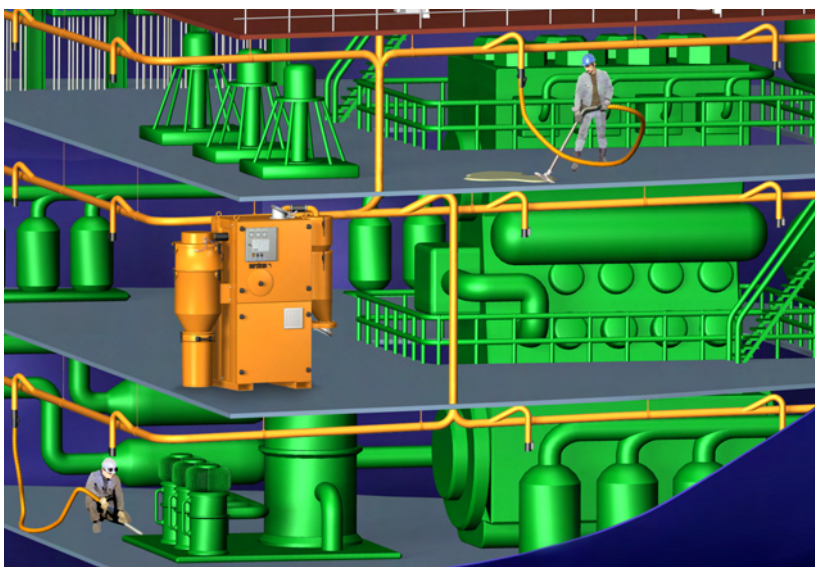
Versatile vacuum systems are solving most of the suction and material collection jobs on the platforms.



## Central suction systems

Standard and special designed central suction systems are parts of the Norclean Line. Such systems have successfully been installed in engine rooms and workshops solving most cleaning and material collecting problems.

Compressed air powered and electric powered systems can be supplied. A wide range of preseparator and filter systems are available to solve specific customer problems.



# ATEX models



**explosion safe models, ATEX approved from Veritas / Nemko**



## Ab140Ex - Ejector cleaner syst. 50

This heavy duty stainless steel vacuum unit is excellent for suction of hazardous and flammable liquids. It can transport material over long vertical and horizontal lengths.

Suitable for various cleaning and liquid pick-up operations in industry, and for stripping of cargo tanks and deep well sumps in ships. It can be connected to tank stripping pumps equipped with stripping pipe. Equipped with 1½" Cam lock couplings for suction inlet and product discharge connections for safe emptying process. Parts in direct contact with collected liquids are made from stainless steel. All parts are antistatic and conductive to avoid static electricity loading. Suitable for suction of oil, water and other liquid products.

ATEX approval; EX II 2 GD c IIC 60°C (T6), from Det Norske Veritas, DNV.



## Ab950Ex - Ejector cleaner

This heavy duty stainless steel vacuum unit is designed for fixed installation on board tankers and product carriers where an efficient cargo tank stripping is required after the tank cleaning. The unit is connected to a main suction pipe with branch lines attached to the cargo pump stripping pipes into the tanks. The collected residue is temporarily stored in the tank of the unit before being pumped or flushed into the slop tank of the vessel.

ATEX approval; EX II 2 GD c IIC, from Det Norske Veritas, DNV.



## Ab105Ex - Ejector cleaner syst. 50

Air powered ejector system, with light suction equipment for cleaning floors, walls, beam constructions, and the like. Capacity superior to most of the portable electrical vacuums in the market. The versatile cleaner can be used in industries and institutions. Can be equipped with absolute/HEPA filters for suction of hazardous dust and granules. Can easily be adapted for liquid suction.

ATEX approval; EX II 2 GD c IIC 60°C (T6), from Nemko.



## Ab216Ex - Ejector cleaner syst. 50

Single container system with absolute/HEPA filter for collection of very fine dust and granulated material. The filter cleaning process is simple and extremely efficient. The compressed air powered ejector system create high vacuum and airflow for excellent material collection and transport.

ATEX approval; EX II 2 GD c IIC 60°C (T6), from Nemko.



DNV

Established in 1864, DNV is an independent foundation with the objective of safeguarding life, property and the environment, and is a leading international provider of services for managing risk.

NEMKO

Established in 1933, NEMKO is an institution for mandatory safety testing and national approval of electrical equipment.

### **Ab221Ex - Ejector cleaner syst. 50**

This norclean Ex-approved vacuum model is a very powerful unit especially developed for collection and recovery of flammable and explosive dust. Suitable for use in areas in the most industrial plants where flammable gases and dusts can be present, thereby causing risk hazards to people and equipment. All parts in the unit are conductive or antistatic to avoid static electricity loading. ATEX approval; EX II 2 GD c IIC 60°C (T6), from Nemko.



### **Ab426Ex - Ejector cleaner syst. 50**

Dual container system, designed for removal of industrial waste. This powerful suction unit comes equipped with a silo and filter container for the removal of industrial waste materials. Special swivelling, locking wheels are sized to increase mobility, and make the handling of heavy loads simple. The silo is designed to allow the material collected to be discharged over gratings or chutes for the central collection of materials. The unit can be equipped with an adjustable counterweight valve and sack holder for discharge into sacks.

The model include slots for handling by forklift.

ATEX approval; EX II 2 GD c IIB 60°C (T6), from Nemko.



### **Ab500Ex - Ejector cleaner syst. 200**

Single container system, designed for the collection of coarse particles, such as chips and granules as well as liquids and mud. The high vacuum allows transportation of material over long distance. The container can collect and hold a large volume of material before emptying operation is necessary, it can be supplied with bottom drain valve for quick and simple discharge of liquids.

ATEX approval; EX II 2 GD c IIB 60°C (T6), from Nemko.



### **Ab510Ex - Ejector cleaner syst. 200**

This norclean Ex-approved vacuum model is a very powerful unit especially developed for collection and recovery of large quantities of flammable and explosive chips and granules as well as liquids and mud. Suitable for use in areas in most industrial plants where flammable gases and dusts can be present, thereby causing hazard risk to persons and installations. All parts in the unit are conductive or antistatic to avoid static electricity loading.

ATEX approval; EX II 2 GD c IIB 60°C (T6), from Nemko.



All norclean models above are also available in an non ATEX version

# Reels, filters & vacuum units

**Nederman standard products - suitable for marine use**

## Cable reel 793



Approved cable reel for high power rating. Series 793 is a new self-retracting cable reel from Nederman, designed for heavy-duty use in all types of industrial environments. Available in 1-phase and 3-phase versions. Components are made of high impact resistant composite materials and galvanised steel. Designed for easy replacement of spring and cable. Even and smooth uncoiling and recoiling of cable.

- Heavy duty - operates continuously up to 6900 W
- With thermal overload protector for safe operation
- Tested and approved in accordance with IEC 61316

## Hose Reel Series 870 & 876



Ultimate hose reels for twin hose. Series 870 and Series 876 (with the larger hose capacity) are reels designed to handle twin hoses for oxygen/acetylene and oxygen/LPG. This is a hose application where safety cannot be stressed enough.

- Single-layer retraction of the hose
- Open design for safety and easy service
- All steel construction

## Hose Reel Series 884



Hose reel in heavy duty design. Series 884 is a reel with high hose capacity, designed for handling air and various types of fluids in the toughest applications. The reel is easy to install on floors, walls or ceilings. Drum and stand are made of die-cast aluminium.

- Even and smooth uncoiling and recoiling of hose
- Inner mechanism well protected by the ABS plastic cover
- Adjustable outlet arm for minimised friction

## Hose Reel Series 888 & 889



Nederman EX-approved heavy duty hose reels for supply of water and air. The hose reels are made of stainless steel and conductive composite components and the complete constructions are fully earthed. These products are produced and designed in accordance with the ATEX-regulations and are approved for use in explosive areas Zones 1 and 2 with approvals from third party.

- Mechanical components such as spring and ratchet mechanism are well protected inside the drum cavity.
- Delivered with the spring pre-tensioned to suit stated hose capacity.
- Hose outlet is easily dismantled for cleaning



NEDERMAN is the product choice anywhere where airborne particles are a potential health threat. Various techniques using low, mid or high vacuum or combinations with a wide

product range, provide the possibility to always construct a working environment uniquely suited to the customer's requirements and situation.



### Portable Vacuum Units Series P30/P55

The Nederman side channel units are efficient, economical and easy to handle. They are simple to dismantle and clean. The location of the (optional) micro filter before the vacuum pump prevents contamination of the pump. The forward/reverse switch saves time when moving between work sites with different phase sequence. The low noise level makes the models highly suitable for cleaning operations in noise sensitive industrial environments.



### Filterbox

The Nederman Filterbox offers a problem-free, safe solution for dust and fume management. It has been developed to satisfy two important criteria: it must be able to offer a simple and flexible solution to a difficult problem, and it must be reliable with no need for supervision and complicated maintenance. Examples of air pollutants that the Filterbox can separate are welding fumes, metal oxides, talcum powder, pigments, lime and grinding dust.



### FilterCart Original

For safe working environment, a robust filter unit with economic benefits and user-friendly design for removal of weld fume.

The FilterCart™ Original offers a number of functions such as:

- Excellent filtration efficiency
- Long filter lifetime
- High capturing efficiency
- Functional and simple design
- Efficient spotlight
- Low noise level

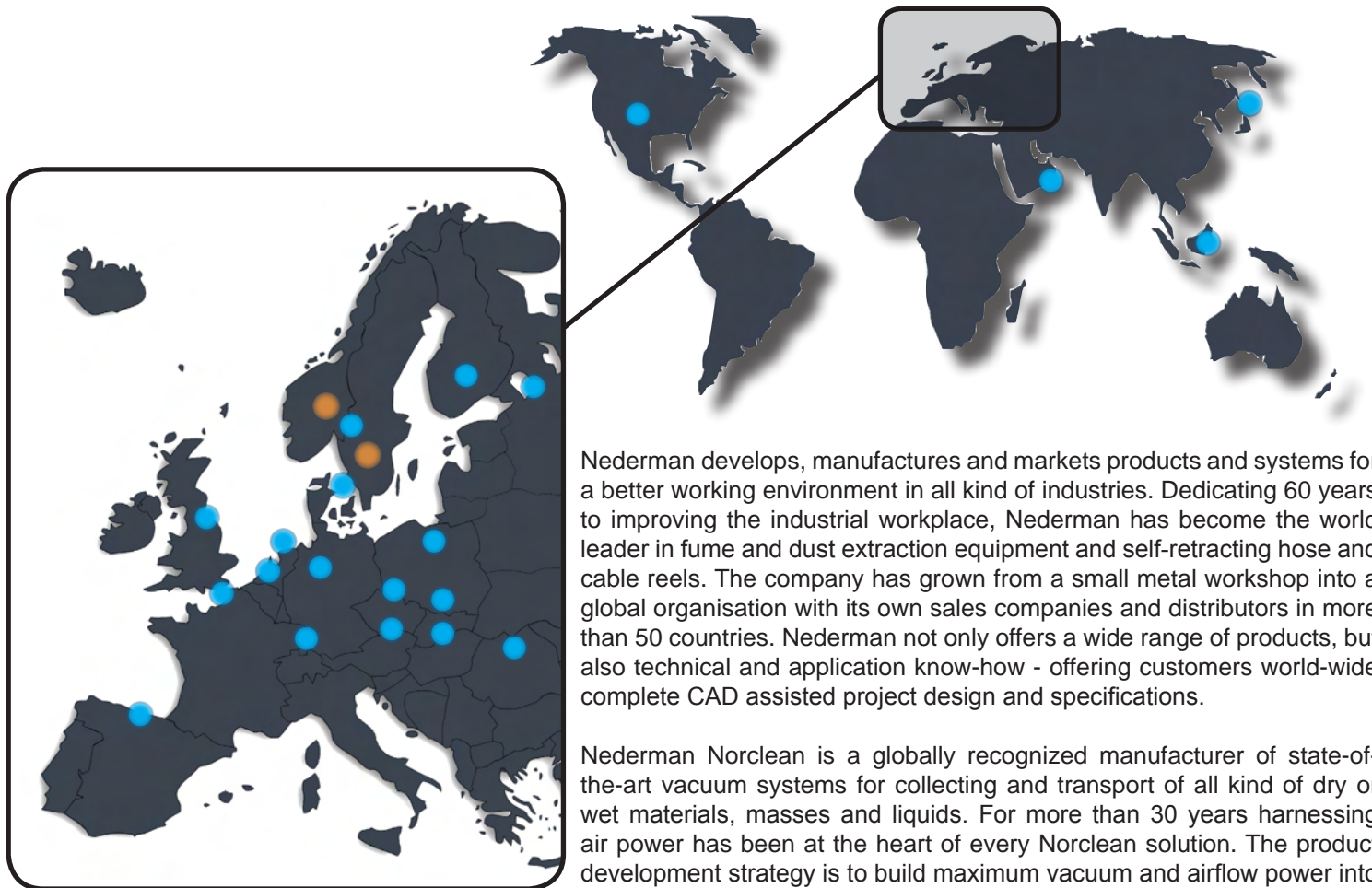


### Fume Eliminator 840/841

The Nederman FE 840/841 is the ideal solution for welding fume extraction where traditional evacuation is not possible. The units are very easy to bring along for service jobs in the field, as well as for welding inside containers or metal tubes where the constraint on the welder normally is high.

# Nederman Norclean as

*- a global company with local presence*



Nederman develops, manufactures and markets products and systems for a better working environment in all kind of industries. Dedicating 60 years to improving the industrial workplace, Nederman has become the world leader in fume and dust extraction equipment and self-retracting hose and cable reels. The company has grown from a small metal workshop into a global organisation with its own sales companies and distributors in more than 50 countries. Nederman not only offers a wide range of products, but also technical and application know-how - offering customers world-wide complete CAD assisted project design and specifications.

Nederman Norclean is a globally recognized manufacturer of state-of-the-art vacuum systems for collecting and transport of all kind of dry or wet materials, masses and liquids. For more than 30 years harnessing air power has been at the heart of every Norclean solution. The product development strategy is to build maximum vacuum and airflow power into high quality designs that present its customers with the best solutions. The

Norclean air powered ejector vacuum systems are superior to most other ejector designs, providing significant benefits in terms of increased effectiveness and lower operating cost.

## Nederman Sales Companies

Austria	France	Portugal
Belgium	Germany	Spain
Canada	Ireland	Sweden
Czech Rep.	Norway	UK
Denmark	Poland	USA

## Norclean Distributors

Austria	Germany	Romania
Belgium	Holland	Russia
Denmark	Hungary	Singapore
Finland	Korea	Slovak Rep.
France	Qatar	Sweden

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