



We provide superior filtration solutions
to improve the quality of life

Freudenberg Filtration Technologies South Africa
Profile of experience
2012

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- Filter system refurbishments & retrofits

Freudenberg
Filtration Technologies

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Freudenberg Worldwide

- Part of a large multinational of German origin – Freudenberg & Co.
- Global presence – 33,000 associates in 52 countries
- T/O of € 6 Billion in 2011



Freudenberg Filtration Technologies

Discover The World of Freudenberg Filtration Technologies



Industrial Air Filtration



- Contamination Control
- Turbomachinery
- Automotive Surface Treatment
- Emission Control / Dust Control

Liquid Filtration



- Coolant & Lubricants: cooltexx
- Oil & Fuel: pluratexx
- Pool & Spa: hydrotexx
- Membrane Support: novatexx

Human Protection

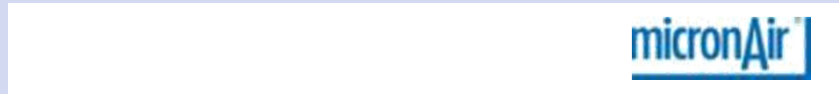


- Media for respiratory masks
- Media for room air cleaners
- Vacuum cleaner filters
- Custom applications

System Solutions & Services



- Viledon® filterCair
- Air Quality Control
- Viledon® eee.Sy
- Filtration Testing Centre
- Viledon® academy



Automotive



- Cabin air filters
- Engine intake air filters

Office



- Filters for laser printers, fax & copy machines

Residential VitalAir



- Filters for air conditioning

Gas Filtration PURAFIL



- Chemical Media
- Equipment
- Laboratory & Technical Services
- Instrumentation

Freudenberg Filtration Technologies South Africa (FFT SA)

Branches

- Head office in Johannesburg
- Branches in Cape Town, Durban and Mpumalanga.
- Representation in Namibia, Madagascar, Botswana and Zambia.
- Active in South Africa for 25 years

Experience

- Combined experience of 70 years in Engineering dept.
- Full design department using Solid Edge & 3 D Modelling.

R & D

- Full support of FFT Germany, test facilities / test rigs, laboratory and application engineering.
- Our Global network puts us at the forefront of Filtration technology.
- Extensive R &D



Setup of Engineering Department at FFT SA

Engineering/Design

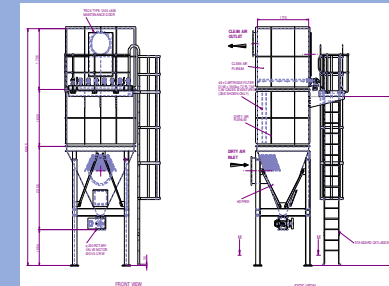
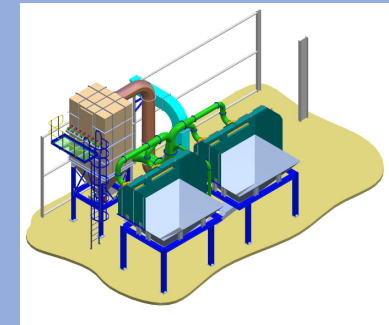
- Layout an design of units
- Costing
- Preparing of quotations
- Follow-ups

Drawing Office

- Preparation of GA drawings for costing and sales purposes
- Detailed manufacturing drawings after receipt of order

Project Management

- Expedition
- Erection, Installation
- Commissioning
- Turn-Key



Freudenberg Filtration Technologies - ISO & BBEEE

ISO

- ISO 9001 certified (DQS)
- ISO 18001 certified (DQS)
- Eurovent certified

BBEEE

- Level 5



Summary portfolio of products and services

Emission Control

- Screens, Hoppers, Crushers, Conveyor belt transfer points and smelter fume extraction.

Machine intake filters

- Compressors, turbines & generators

Ventilation

- Pressurization, re-circulation & air scrubbing

Air scrubbing

- From poisonous & corrosive gases
- Control odours
- As emergency scrubbers

Replacement filters & spares

Complete turnkey solutions (Design to commissioning)

Filter system maintenance & services.

Filter system refurbishments & retrofits



A brief Introduction to our technology

You can categorize the technology application in the following ways:

- Protection of equipment on a plant
 - Area surrounding the machinery / equipment
- Protection of workers and environment
- Part of the process including product reclamation

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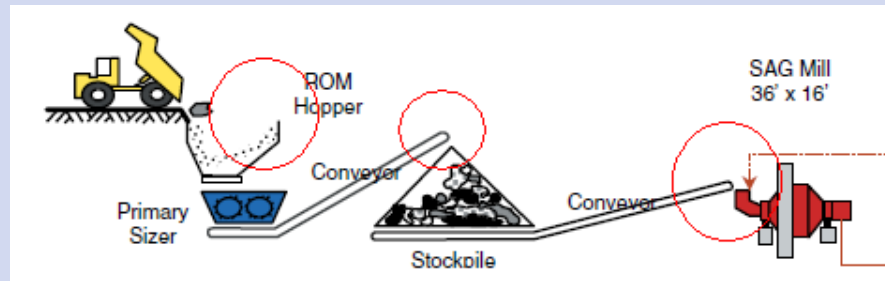
Emission Control

Applications

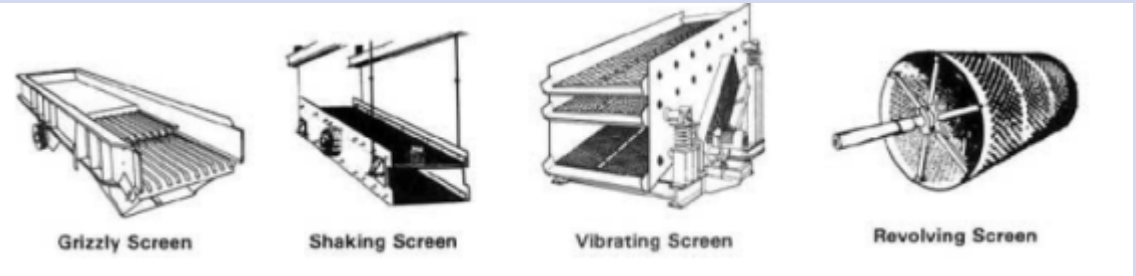
- Material Handling
 - Conveyor belt transfer points
 - Screens
 - Crushers
 - Hoppers

Industries

- Open cast mining / process plants
- Paper Mills
- Chemical Industry
- Iron & steel industry
- Coal fired power stations
- General Industry
 - Foundries, welding bays, grinding benches, wood working factories etc.



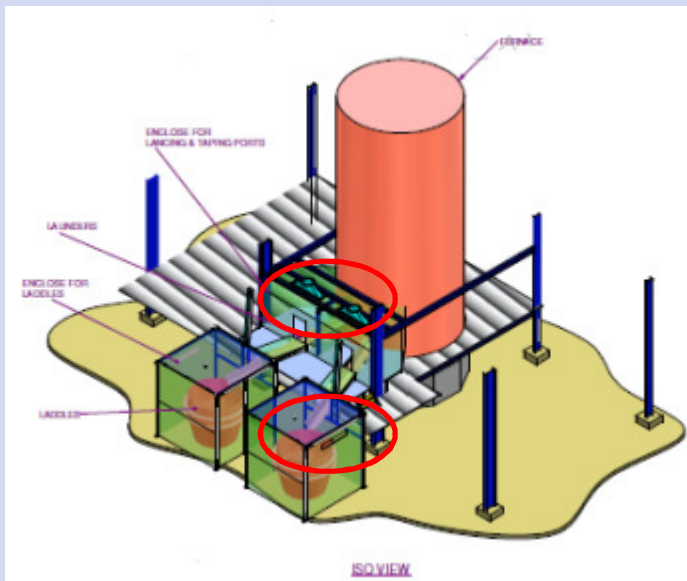
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Emission Control

Fume extraction

- Smelters
- Furnaces
 - Open
 - Enclosed



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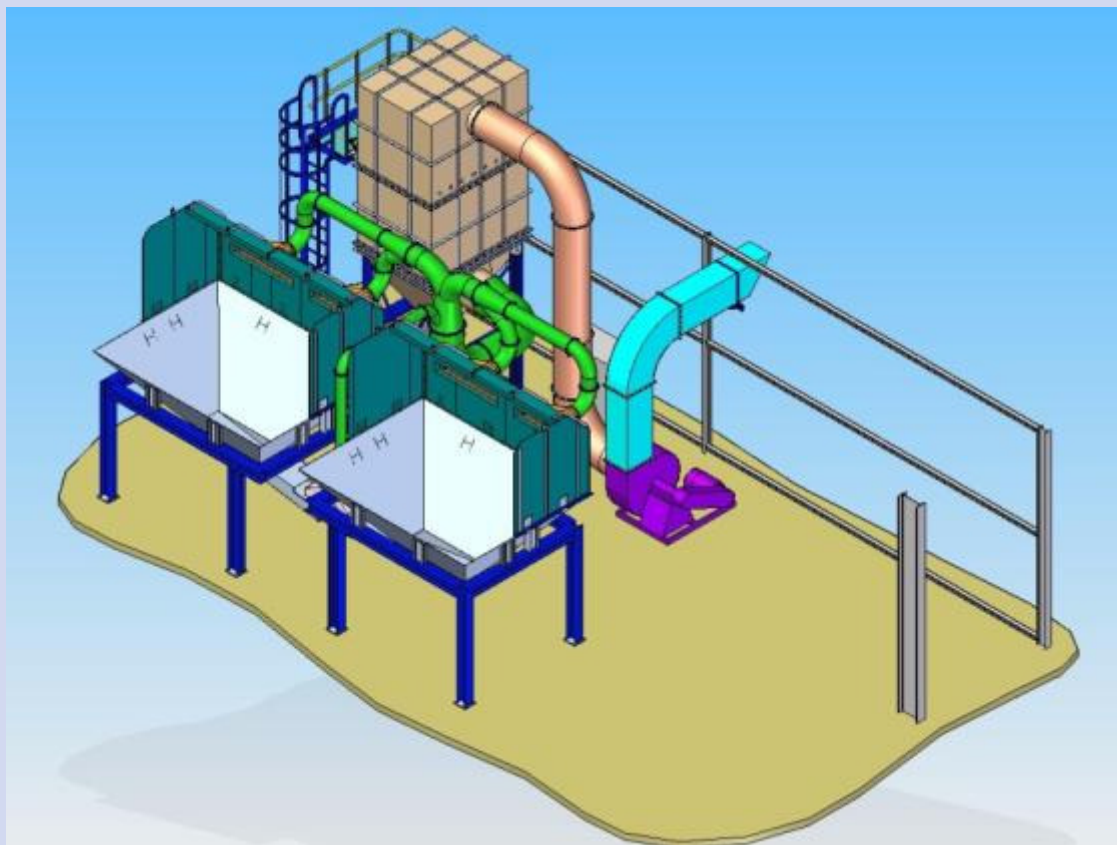


Emission Control

Smelter Example



Emission Control



OPERATING AND MAINTENANCE MANUAL REVERSE PULSE JETFILTER UNIT – RPJ720

- Cartridge filters units and filter bag houses
- Spares for Aftermarket include:
 - Cartridges
 - Bags
 - Valves
 - Timers
 - Cages



Project - Copper Dust Extraction unit (Fabrication Phase)



Project - Copper Dust Extraction unit (Installation Phase)

Reference photo's



Copper Dust Extraction unit (With Insulation)

Reference photo's



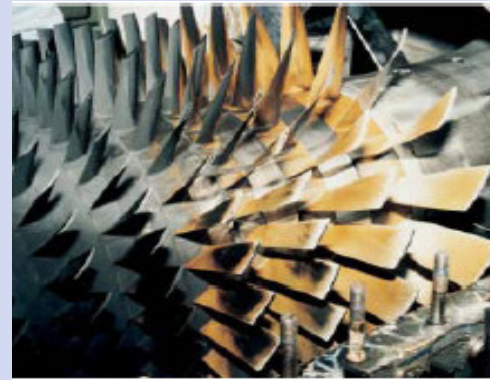
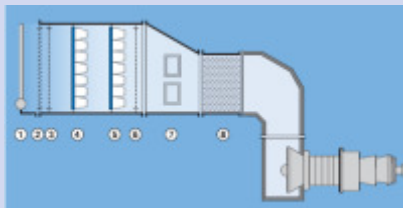
Machine Intake filters

Applications

- Machine Intake filters
 - Compressors
 - Turbines
 - Generators
- Specifically aimed at protecting equipment / machinery

Industries

- All industries
- Specifically air separation plants



Erosion & fouling of compressor blades



Compressor Air intake

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Air separation plant



Generators

Machine Intake filters

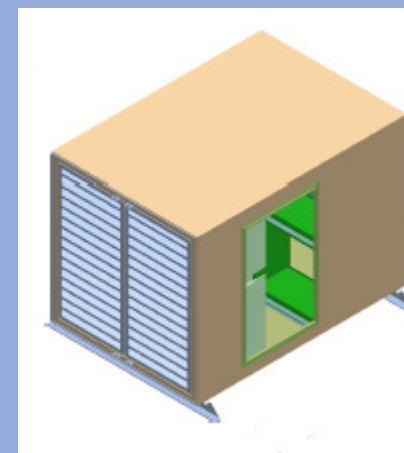
Filter System for Compressor Air Intake

Customer Site Mining Industry Platinum Mine



Application	Compressor Air Intake Filtration
Plant Supply Volume	Total 51,000 m ³ /hr
Dust	Atmospheric Dust
No. of Filters	36
Filters Installed	LP 327 G12 A2309
Filter Area	530 m ²
Air to Cloth Ratio	1.024 m/min
Stable Pressure Loss	1,000 Pa
Cleaning System	Pulse Jet, 6 1 ½ Compressor Solenoid Valves
Customers problem	Compressor blade corrosion, causing damage to the compressor resulting in excessive costs.
Freudenberg's mandate	Design a system with high efficiency filtration and self cleaning.
Benefit and added value to the customer	The system achieved a 99% at 1 um efficiency. Even without chemical filtration, the CO ₂ levels were reduced thereby reducing the corrosive conditions inside the compressor. The filters achieved an operational life of > 4 years.

- Machine intake filter houses
- Spares for Aftermarket include:
 - Filters
 - Due traps
 - Louvers
 - Anti-icing



Ventilation

Ventilation and pressurization is used to:

Expel dust

- Overpressure or positive pressure

Expel dust and extract heat

- Pressurization with heat extraction

Expel dust and cooling

- Pressurization with A/C

Scrub the air from corrosive gasses

- Pressurization with dry scrubbing filters

Re-circulate air

Any combination of these can be used depending on the surroundings and what you are trying to achieve.



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Ventilation

Applications

Protection of equipment from dust and corrosive gases

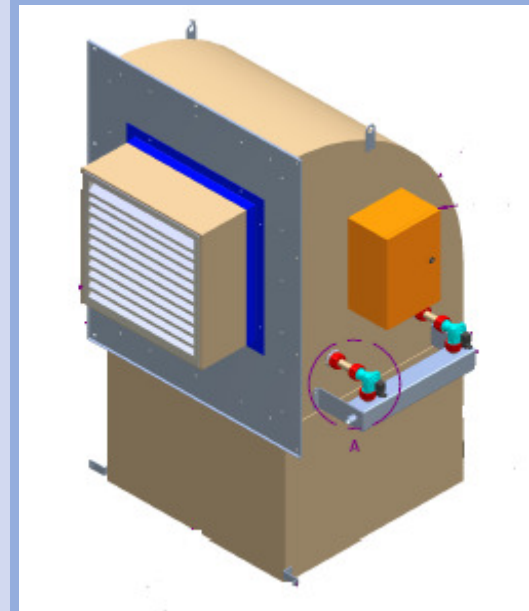
- Substations
- Rack rooms, control rooms.
 - Protection of switchgear, PLC's from dust and or corrosive gases.
- Generator & compressor rooms
- Laboratories

Industries

- All Industries
- Prevalent on:
 - Smelters, Mines
 - Power stations (Coal fired)
 - Pulp and paper plants etc.

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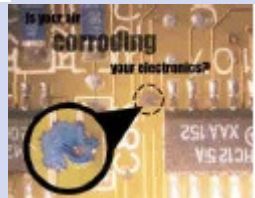
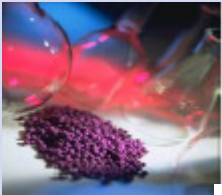
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Air scrubbing

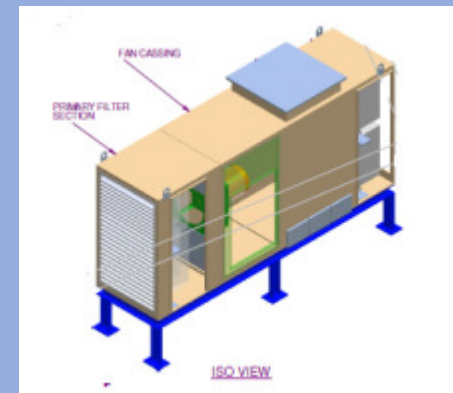
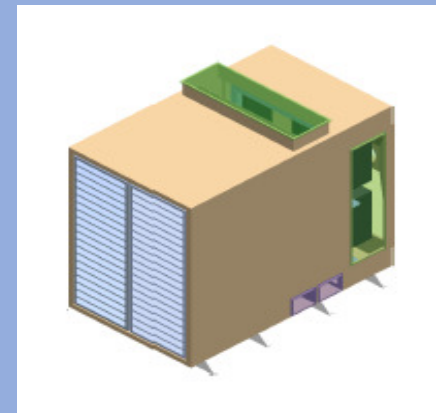
Air scrubbing or gas phase filtration is used:

- To scrub the air from poisonous & corrosive gasses
- To control odours
- As emergency scrubbers



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Air scrubbing

Applications

Air scrubbing: Plants where there are excessive poisonous or corrosive gasses - to protect humans and or equipment in substations, control & rack rooms.

- Equipment such as:
 - Switchgear and Programmable Logic controllers (PLC's) in controls rooms
 - Rack rooms
 - Server rooms
- Crane cabin over a furnace
- Compressor air intakes

Odour control: Typically to control the noxious odour from sewerage plants i.e on the rim of the treatment tanks & to protect electronic equipment from corrosion. Also eg. Spice factory

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Dry scrubbing media



Air scrubbing

Emergency scrubbers: In the case of leakage of poisonous gas i.e on a water treatment plant (chlorine, sulphur dioxide & ammonia)

Industries

- Pharmaceutical companies - chemical mixing & labs.
- Museums and archives
- Server rooms
- Pulp and Paper Mills
- Smelters
- Water treatment plants
- Sewerage works
- Petrochemical refineries

- Spares for Aftermarket include:
 - Filters
 - Due traps
 - Louvers
 - Anti-icing
- Replacement media



Filter system maintenance & services

Provision of '*Clean Air*' (Filtacair®)

- We ensure effective and efficient running of a filter system for continuous reliability.
- Supply of spares for Filter bag, cartridge units, gas phase (air scrubbing) units & ventilation units.
- Replacement of spares.
- System clean out
- Air readings, change out cycles and reports
- Filter disposal



Filter system refurbishment & retrofits

Filter systems refurbished to “good as new” standards:

- We fit new parts where necessary.
- We advise on design, operating improvements.
- Re-coat if and where necessary.
- Conversion of a bag filter unit to a cartridge filter unit.
- Move and install.
- Commission unit.

- Cartridge filters units and filter bag houses
- Spares for Aftermarket include:
 - Cartridges
 - Bags
 - Valves
 - Timers
 - Cages



Success Story

Dust Extraction Plant – Chemical plant Secunda

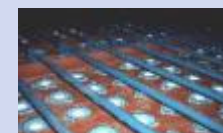
Application	Fertilizer Extraction from Granulation Plant
Plant Exhaust Volume	Total 163,800 m ³ /hr
Dust	Fertilizer Dust
Bulk Density	700 kg/m ³
No. of Filters	786
Filters Installed	LP 145 G15 A5407
Filter Area	4,245 m ²
Air to Cloth Ratio	0.68 m/min
Stable Pressure Loss	1,500 Pa
Cleaning System	Reverse Pulse
Customers problem	Airborne dust inside plant at various points of the material handling system
Freudenberg's mandate	Reduce the dust to a level to <5mg/m ³ at 1 meter from the hoods and maintain a stack emission of <10mg.
Benefit and added value to the customer	Freudenberg Filtration achieved both targets . Plant was commissioned in 2009 and plant is still operating with the first set of filters, thus reducing human exposure to the toxic dust and saving money on filter changeout.



Success Story

Fume Extraction Plant – Foundry Benoni

Application	Fume Extraction from two Electric Arc Furnaces via Roof Canopies
Plant Exhaust Volume	Total 115,200 m ³ /hr at 35° C
Dust	Furnace Dust
Bulk Density	950 kg/m ³
No. of Filters	480
Filters Installed	LP 145 G15 A5407
Filter Area	2595 m ²
Air to Cloth Ratio	0.74 m/min
Stable Pressure Loss	1,000 Pa
Cleaning System	Pulse Jet, 80 x CFC 401 Valves
Customers problem	Excessive fumes from the furnace
Freudenberg's mandate	Capture of free floating fumes
Benefit and added value to the customer	Freudenberg fume extraction system achieved an efficiency of 88% capture of fumes from the furnace. Stack emissions <10mg/m ³ .



Success Story

Filter system for compressor air intake – Gas supplier Western Cape

Application	Compressor Air Intake Filtration
Plant Supply Volume	Total 396,000 m ³ /hr
Dust	Atmospheric Dust/Coastal
1 st Stage Filtration	9 Cells Mist Eliminator
2 nd Stage Filtration	108 Viledon T60 1/1 Pocket Filter
3 rd Stage Filtration	108 Viledon MX98 1/1 Cassette Filter
Initial Pressure Drop	265 Pa
Additional Features	Blow-In Doors, Trash Screen, Permanent Particle Counter (The system was installed with a permanent particle counter measuring levels of particles from 0.3 um to 25 um.)
Customers problem	Ingress of particles into the compressor and the fouling .
Freudenberg's mandate	Primary mandate – to reduce ingress of particles into compressor thus eliminating costly compressor clean outs. Secondary mandate - The customer also required that the new plant be built alongside the current plant in a 24 hour shutdown before the compressor started up.
Benefit and added value to the customer	After the first year the compressor did not need a cleanout thus saving costs on increased down time and labour.



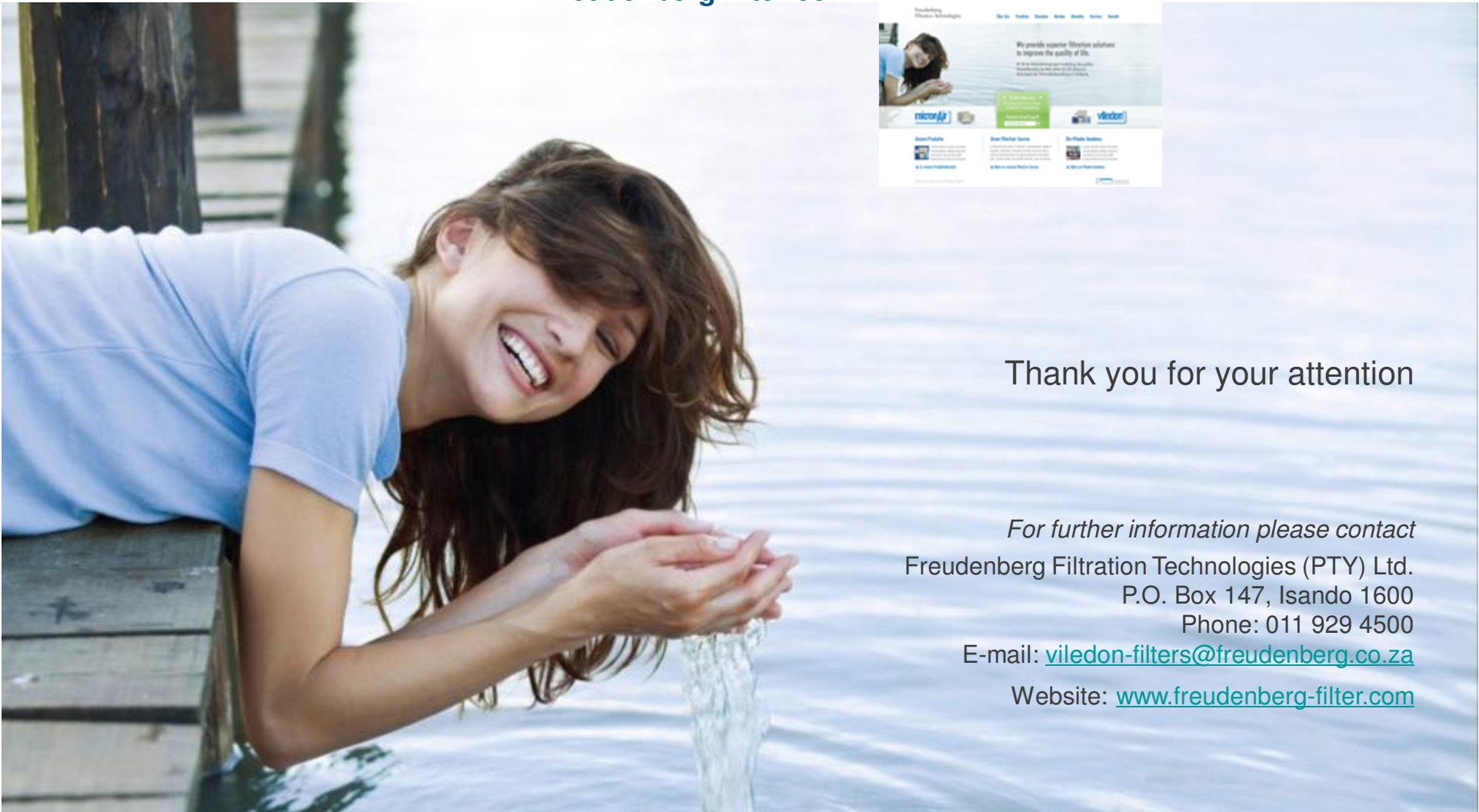
Success Story

Filter system for compressor air intake – Platinum Mine

Application	Compressor Air Intake Filtration
Plant Supply Volume	Total 51,000 m ³ /hr
Dust	Atmospheric Dust
No. of Filters	36
Filters Installed	LP 327 G12 A2309
Filter Area	530 m ²
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about Freudenberg Filtration Technologies at our website
www.freudenberg-filter.com



Thank you for your attention

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