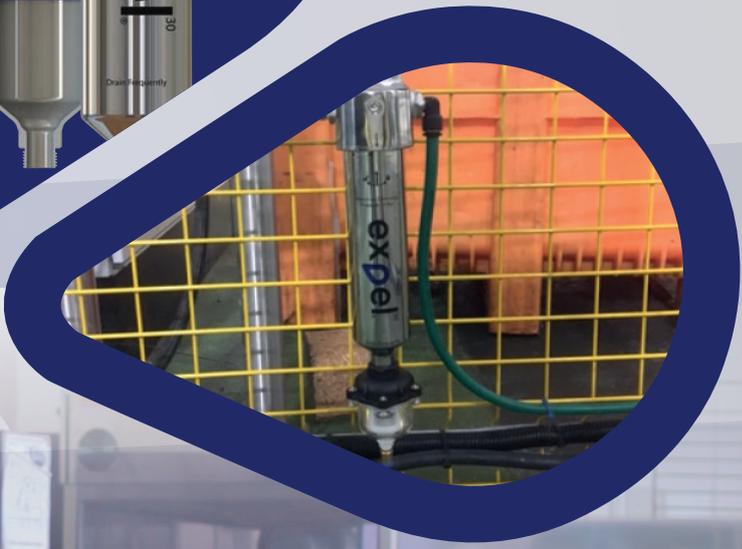




*"We finally have no water going to the guillotine. This is an excellent product."*  
**Chris Kosolowski, Bar Line Production Manager, Nutrition Group Plc.**



# FOOD INDUSTRY

# originalAVC

Part number 2904-003-AA



## Food Manufacturing/Processing

### Expel for the Food Industry

Compressed air is a key utility supporting the food packaging, manufacturing and processing industries across the world. Compressed air has a wide range of applications across the food industry for instance bakeries use compressed air for blow off applications. Other segments use compressed air to clean containers before filling the containers with food, or to sort, shape and/or cut food products. No matter what the compressed air application in this industry is, it is essential that the air is free of contaminants to ensure the protection of the food products processed in each facility.

The U.K. Code of Practice for Food-Grade Air (which is adopted in most countries) helps define three types of compressed air systems and air purification specifications required for each. The Code defines three specific types of compressed air systems in the food industry; systems with direct contact with food, non-contact high-risk, and non-contact low-risk.

By working alongside many food processors and manufactures we have identified many problems from this industry caused by liquid and solid particulate contaminates in compressed air lines across all three types of compressed air systems and have created a solution to eliminate this problem for companies, making them much more efficient and competitive.

### This solution is EXPEL...

## How can Expel Help the Food Industry

At Original AVG our dedicated team have created EXPEL, a solution that addresses the problems that the food industry has been having with their compressed air lines.

Original AVG have designed and manufactured the EXPEL filter. This easy to fit filter continuously removes ALL liquids from compressed air systems, as well as solids down to 1 micron and the internals of the filter **NEVER** need changing. **The result is no more pneumatic equipment failure or downtime because of wet and dirty air.**

Expel offers a bespoke approach to compressed air filtration. It is the only compressed air filter that can separate liquids and solid contaminants from a compressed air line with **zero maintenance**. We are aware that during routine inspections our customers may want to inspect Expel, so we have designed Expel so it can easily be **dismantled, cleaned and reassembled**. Additionally, we have designed Expel with the concern for wastage in mind. Our Expel filter **requires no replacement filter elements** and has been manufactured so it is **built to last** and is **corrosion resistant** to keep ongoing **costs and wastage to a minimum**.

## Try Expel

- We are offering a **FREE demonstration** of the Expel compressed air filter so you can learn about how Expel works
- **Try before you buy:** We are so confident that you will be pleased with the performance of our Expel filter that we offer you the opportunity to Try Before You Buy. If you're not 100% satisfied with Expel you are under no obligation to buy and can simply return your Expel unit back to us at Original AVG
- **FREE on-site survey,** one of our Sales Representatives will come to your site free of charge to show you where the most effective places to install Expel on your site/s.

## Case Study: Nutrition Group Plc

**Nutrition Group Plc is a global supplier to the dietary** supplements market. Manufacturing a range of vitamins, minerals and supplements, supplying the VMS, Sports Nutrition, Animal and Beauty sectors, the Group's large client portfolio includes major high street retailers, blue chip pharmaceutical organisations and many other leading brands. Over the years the Group has grown to become a renowned and trusted British manufacturer on an international scale.

After installing a brand new pneumatically operated guillotine machine to cut the energy bars being produced, traditional compressed air filters were purchased and installed to protect the £20,000 piece of equipment. However, these traditional filters were like all other filters on the market and made from perishable and saturable inner materials that become less and less effective at removing liquids and solid particulates as they are used.

Soon enough the inevitable happened, and compressed air contaminates (water and particles) were passing through the filters and causing incredibly expensive damages to the guillotine. In particular, the cylinder on top of the machine that presses the energy bars with positive air was rapidly becoming marked by wet and dirty air. Considering the notable investment in this new piece of equipment, it was imperative that Nutrition Group Plc took action and installed a solution that would truly protect their expensive equipment from damaging liquids and solid particulates.



## The solution is EXPEL...

EXPEL is a bespoke approach to compressed air filtration, a solution that utilises science and engineering to protect equipment and one where its performance does not drop over time and never needs maintaining.

After hearing about the exciting money saving and equipment protecting qualities Expel can offer, **Bar Line Production Manager Chris Kosolowski** was quick to take action and decided to install Expel. Mr Kosolowski was truly relieved and impressed with Expel, reporting back to us that they...

*"...finally have no water going down to guillotine. It is an excellent product".*

We are so glad that Expel was able to help Nutrition Group Plc, **now we want to help you too!** At Original AVG we have modernised compressed air filtration by creating a filter that eliminates the need for replacement parts, does not have any ongoing running costs and can truly save you money by reducing production downtime costs and equipment part replacements.

**Install a solution that really works, install Expel.**



## Case Study: Avara Foods

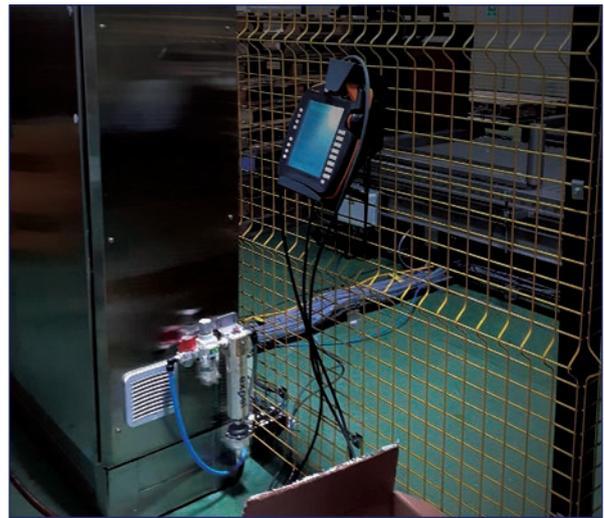
**Avara are one of the UK's leading food businesses**, supplying poultry to some of the biggest supermarkets and restaurants in the country. Our Sales Team visited Avara's Telford branch in Shropshire to give a demonstration of how the Expel unit works to the engineering team, who were very impressed with the capability of Expel and requested trial units to be installed with immediate effect.

The Telford branch is a huge site with approximately 2000 employees and with a vast majority of its components requiring clean and dry compressed air. The engineering and maintenance teams reported that if there is a 0.01% loss of production or equipment downtime caused by contaminants in compressed air it results in an approximated £7,000 loss for the site; therefore even a small amount of downtime for Avara foods leads to big financial consequences.

Additionally, Avara had very recently refurbished and made a considerable investment in brand new pneumatic equipment for this factory so were incredibly interested in a solution that could save production downtime and help preserve their very expensive equipment. Although the site were operating dryers and had traditional filters on the airline, liquids were still passing through to the packaging areas and to the 'pick and place' robots causing seals and valves to fail, costing Avara £900 to replace each time.



Expel offered Avara an excellent precautionary measure to protecting expensive robotic equipment. The team were also pleasantly surprised that Expel offered an inexpensive but highly effective solution to removing the problem of liquids and solid particulates in compressed air lines; making Expel a suitable solution for a site of any size or budget.



Avara were ecstatic with the results of Expel, providing piece of mind that they were provided with a revolutionary approach to filtration that **requires no replacement filter elements** and is **not associated with any ongoing maintenance costs**. In response to the huge saving potential that Expel has for the Avara branch they contacted our Sales Team ordering a further 9 Expel units to install as point of use protection for pneumatic equipment across the site.

**So if you are experiencing problems associated with liquids and solid contaminants in your compressed air system or want to maximise your equipment protection, install Expel!**

## System 1: Problems and Solutions for Direct Contact Applications

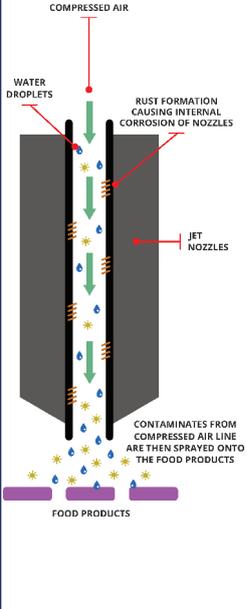
“**Contact**” is defined in the U.K. Code of Practice for Food-Grade Air as, “the process where compressed air is used as a part of the production and processing including packaging and transportation of safe food production.”

Another way of defining this is simply if compressed air comes into direct contact with food products. If this is the case, the end user must know that the compressed air must be purified to the “Contact” purity-level as defined in the Code.

If the purity of compressed air is compromised by liquids and solid contaminates then the problems listed on the table below can occur:

	Problem	Cause	Cost	Solution
	Direct contact <b>blow-off applications</b> like blowing off water after washing a product prior to packaging or to blow off excess ingredients from products prior to entering another process can <b>contaminate food products with harmful bacteria</b> if compressed air is not prepared properly.	This problem occurs when liquids and other solid particulates enter compressed air lines. Moisture encourages the growth of bacteria and when this bacteria comes into contact with food it contaminates it, making it unsuitable to sell and generates wastage.	This can be an expensive problem especially if you have a high production rate. Batches of food and packaging will have to be discarded of. Additionally, the cost of production downtime will be created until the problem has been rectified and equipment sanitised.	The solution is to eliminate water and all other liquids and solid particulates from compressed air lines before they enter your pneumatic equipment.  By installing <b>Expel</b> at point of use means that this problem will be eradicated. This will enable you to save money, make your site more efficient and reduce your wastage.
	<b>Dispensing, pick and place, palletising, sorting and order picking robots</b> have a large variety of direct contact applications across the food industry e.g. they are used for pouring liquids, dispensing food items to be counted and sorted, or filling up containers.  The robots can create food wastage, experience frequent and expensive part replacement, faulty operation, and production downtime.	Liquids are extremely damaging to components in robotics (like valves and seals for instance), causing instant part failure and replacement.  Furthermore, because some robots are in direct contact with food products, if the compressed air being used is not free of liquid and solid contaminates, it means the food product will not be fit for consumption and will need disposing of.	Part replacement and emergency call out costs incurred from this problem can vary from robot to robot and component to component but they are generally very expensive to rectify and huge savings can be made by eliminating this issue.  Costs from these problems are also generated by the production downtime and the food wastage created.	There is no need to waste any more money, time or resources caused by liquids and solid particles disrupting operation of robots because <b>Expel removes the source of the problem and safeguards your expensive equipment.</b>  Furthermore, Expel can be used in collaboration with other equipment to achieve food grade quality air.  Take a look at the Avara Foods case study on page 2!

**System 1** continued

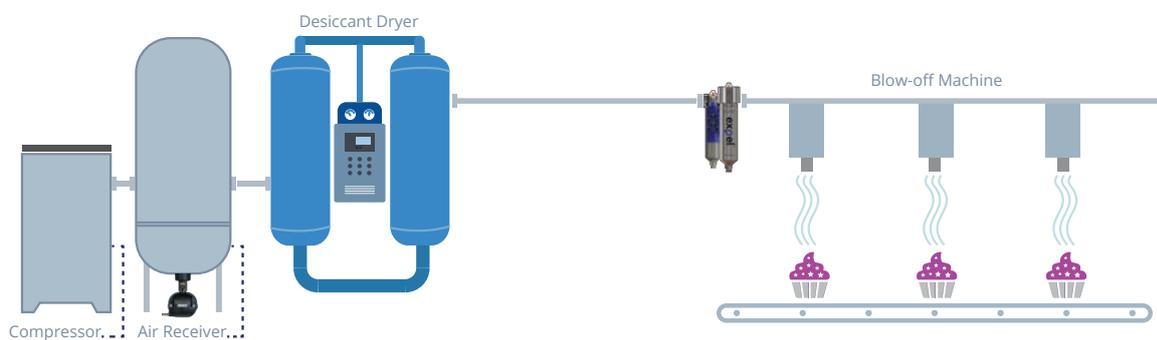
	<b>Problem</b>	<b>Cause</b>	<b>Cost</b>	<b>Solution</b>
 <p>The diagram illustrates a vertical pipe system. At the top, 'COMPRESSED AIR' is shown entering. 'WATER DROPLETS' are shown falling from the top. 'JET NOZZLES' are located along the pipe. 'RUST FORMATION CAUSING INTERNAL CORROSION OF NOZZLES' is shown as a red layer on the pipe walls. At the bottom, 'CONTAMINATES FROM COMPRESSED AIR LINE ARE THEN SPRAYED ONTO THE FOOD PRODUCTS' is shown as a spray of particles hitting 'FOOD PRODUCTS'.</p>	<p><b>Jet nozzles</b> on equipment like fruit and vegetable peelers for instance use compressed air to peel the food. These nozzles can <b>contaminate food</b> with bacteria and toxins making them unsellable.</p> <p>Additionally, the nozzles can <b>rust and corrode</b> internally if air is poorly prepared.</p>	<p>If there are liquids like water in compressed air lines it enhances the opportunity for bacteria and microorganism growth. Moisture may reside in the piping system where compressed air comes into contact with food products. Microorganisms and fungus can grow inside the piping system and then are blown onto food products making them unsafe to consume.</p>	<p>Costs are incurred from equipment and production downtime spent sterilising and/or replacing jet nozzles. The cost of food wastage and replacing the spoiled food is also generated through this problem.</p>	<p>Expel removes ALL liquids and solid particles down to 1 micron from compressed air systems. By removing the liquids it can help prevent the growth of harmful bacteria. Removing water eliminates rust and reduces the need to replace nozzles because of damage.</p> <p>Expel can therefore contribute greatly to achieving food grade air quality.</p>
 <p>The photograph shows a close-up of an air knife assembly. It consists of a cylindrical metal housing with a fan-like structure inside, mounted on a metal frame. A yellow sponge is being processed by the air knife.</p>	<p>Damaged <b>air knives</b> causing faulty operation, excessive wear and a health and safety risk if not dealt with.</p>	<p>Damp and dirty air can cause excessive wear to air knives, causing them to rust and corrode internally. This can cause contamination of the products air knives come into contact with, making them unsafe to operate with food products.</p>	<p>This results in product wastage, production downtime and part replacement costs if air knives become damaged by liquids and solid contaminants.</p>	<p>Expel ensures that liquids and solid particulates are continually removed from compressed air lines so air knives cannot get damaged by damp, dirty air.</p> <p>Additionally, Expel will act as an important safeguard to protect food products from harmful contaminants like liquids and solid particulates.</p>
 <p>The photograph shows a pneumatic conveyor system. It features a vertical metal pipe with various fittings and a control valve. The system is used for transporting food products through different manufacturing stages.</p>	<p>Faulty operation of <b>pneumatic conveyors</b>. This leads to disruption on the production line as food products cannot be transported to the different manufacturing stages.</p>	<p>Liquid and solid particle contaminants are a major cause of this problem.</p>	<p>This issue results in production downtime costs and on most occasions part replacement expenses.</p>	<p>Expel stops faulty operation of pneumatic conveyors by removing liquids and solid particulates at point of use.</p>

## Install Guidelines System 1

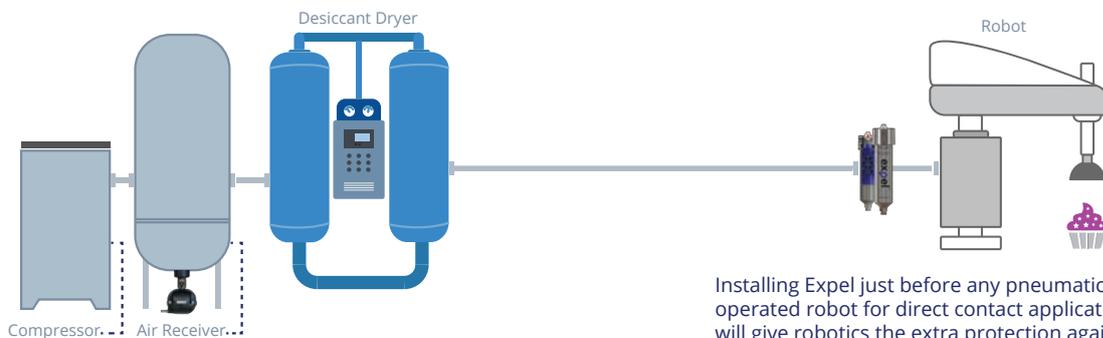
Expel is **an excellent way of adding extra protection to your pneumatic equipment**. Expel should be used in collaboration with other equipment, for example, desiccant dryers and activated carbon filters to achieve food grade air.

A number of our customers have reported that even with expensive air treatment methods like desiccant dryers Expel is still vital to their manufacturing process. Prior to installing Expel, even with traditional filters in place, if a desiccant dryer was to fail or allow water carry over they had no other efficient means of protecting the crucial equipment and product as the traditional filters in place were not able to remove the volume of liquid water.

By following the guidelines below you can see where to install Expel to treat these problems.



Expel safeguards and adds extra protection against liquids and solid particulates for blow off machines in direct contact applications.



Installing Expel just before any pneumatically operated robot for direct contact application will give robotics the extra protection against all liquids and solid particulates they require.

*\* Please note: The guidelines below are general guidelines and the factors like the size of the site, amount of compressed air usage and temperature fluctuations all affect how many Expels and the location of where the Expel/s need to be installed. It is for these reasons that we always recommend that our pneumatic experts visit you so they are able to advise you accordingly and ensure maximum protection.*

## System 2: Problems and Solutions for Non-Contact High-Risk Application

**“Non-Contact”** is defined in the U.K. Code of Practice for Food-Grade Air as, “the process where compressed air is exhausted into the local atmosphere of the food preparation, production, processing, packaging or storage.” Within this section we have a High-Risk and Low-Risk distinction.

A Non-Contact High-Risk situation may be where compressed air is used in a blow-moulding process to create a package – and then product is introduced into the package later in the day. Many food processors have their own in-house production lines to create their own packaging. Without proper air treatment, it is possible that oil, moisture, and particulates (notably bacteria) could be present on the packaging and contaminate the food.

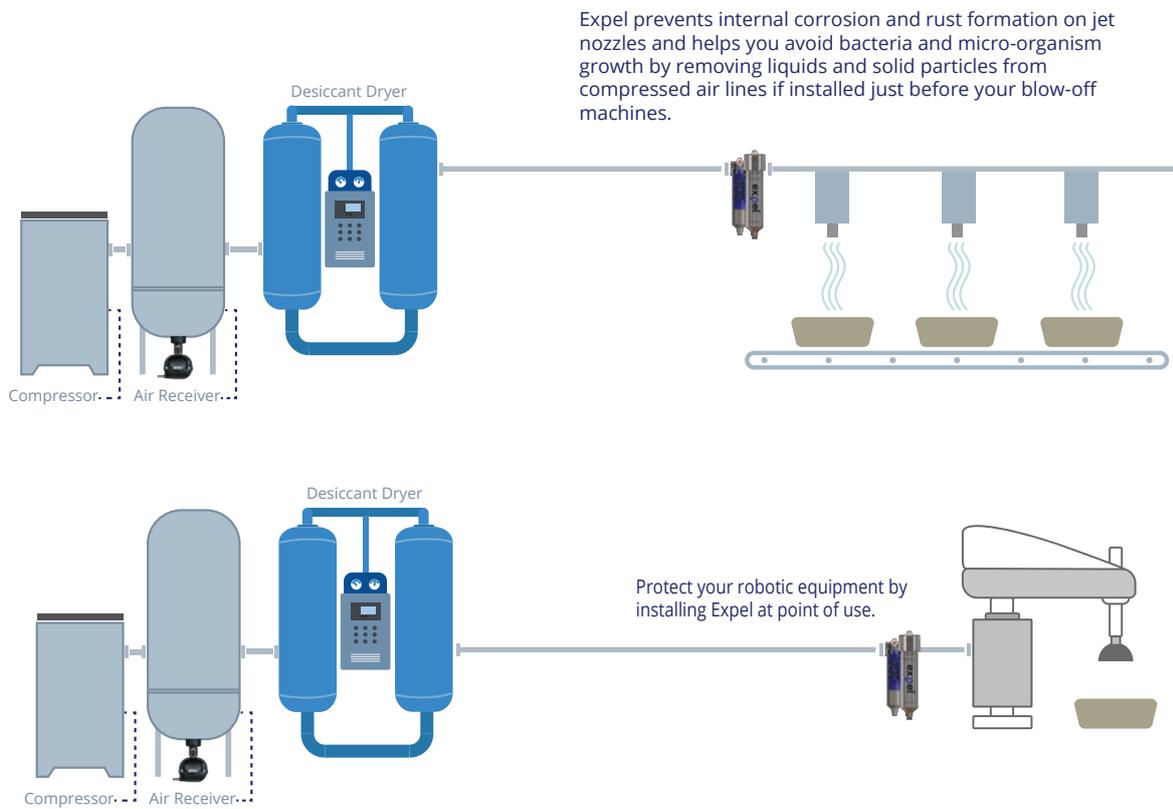
	Problem	Cause	Cost	Solution
	Compressed air operated <b>blow-off products</b> are used to clean containers prior to being filled with product. If compressed air is not clean and dry then the containers can contaminate the food products when they are packaged.	Exposure to any foreign particulates means that <b>germs can contaminate packaging</b> . For instance, liquids such as water encourage bacteria and micro-organism growth, if the packaging of food containers is contaminated by these liquids it means they are unsafe for food products.	This results in wastage of food packaging that will need to be disposed of, as well as the costs incurred rectifying this problem. This means production downtime and part replacement costs.	To stop this problem from happening, you need a solution that removes the source of the problem. <b>Expel removes ALL liquids and solid particles from compressed air lines</b> , making it the perfect tool for the job.
	<b>Dispensing, pick and place, palletising, sorting and order picking robots</b> are also used in food manufacturing for non-contact high-risk application when they are used to handle/prepare packaging that is to be filled with an edible/drinkable product.  When robots are being used for this type of application, robots can still experience damage, downtime and wastage food and packaging.	It is essential that packaging which is meant to contain food products is free of any harmful bacteria or microorganisms because when food comes into contact with the packaging it can contaminate the food. Compressed air must therefore be free of liquids and particulates that can cause these sources of contamination.  The robots themselves can also receive extensive damage from contaminants in compressed air lines. The most damaging being liquids and solid particulates.	Huge amounts of money can be spent on part replacement for various components that become damaged from damp and/or dirty compressed air. Call out costs, machinery downtime and product wastage are also the associated with this problem.	Even though robots in this application are not coming into direct contact with the food product, it is still essential that the highest standards of air quality are maintained. In order to achieve food grade air, it is imperative that compressed air is free of liquids and solid particles. <b>Expel is the most effective filter on the market in achieving liquid and particulate free air.</b>  Robotic equipment is also hugely expensive, you need a piece of equipment that you can trust and will protect your pneumatic equipment to the highest standard. <b>Expel will provide you with the level of protection needed and will stop part replacement caused by wet and dirty air.</b>

## Install Guidelines System 2

For non-contact high-risk compressed air application Expel should be used in the same way as direct contact application because the air needs to be free of ALL contaminants including oil and water vapours, germs, bacteria, etc. Expel is a filter for liquids and solid particles only, so Expel should be used in collaboration with other equipment to achieve food grade air as described on page 6. Expel has proven itself to be an incredibly effective way to add the much needed extra protection of pneumatic equipment against liquids and solid particulates.

A lot of our customers have reported that even with air treatment methods like desiccant dryers and ordinary filters in place they are still having liquids reaching these vital pieces of equipment.

By following the guidelines below you can see where to install Expel to treat these problems.

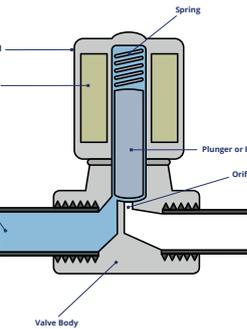


*\* Please note: The guidelines below are general guidelines and the factors like the size of the site, amount of compressed air usage and temperature fluctuations all affect how many Expels and the location of where the Expel/s need to be installed. It is for these reasons that we always recommend that our pneumatic experts visit you so they are able to advise you accordingly and ensure maximum protection.*

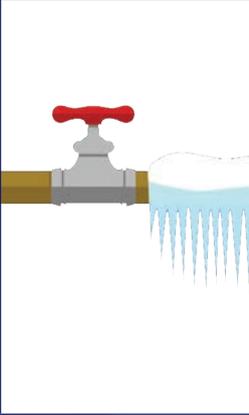
## System 3: Problems and Solutions for Non-Contact Low-Risk Application

Most food manufacturers have significant portions (over 50%) of their compressed air going to “plant air” applications. These “plant air” applications **will have absolutely no contact with food products or food-packaging machinery.**

A good example of compressed air being used in this way is the use of air to power equipment on water treatment plants to produce safe industrial effluent. It is still imperative that the air is free of moisture, oil and solid particles for this application.

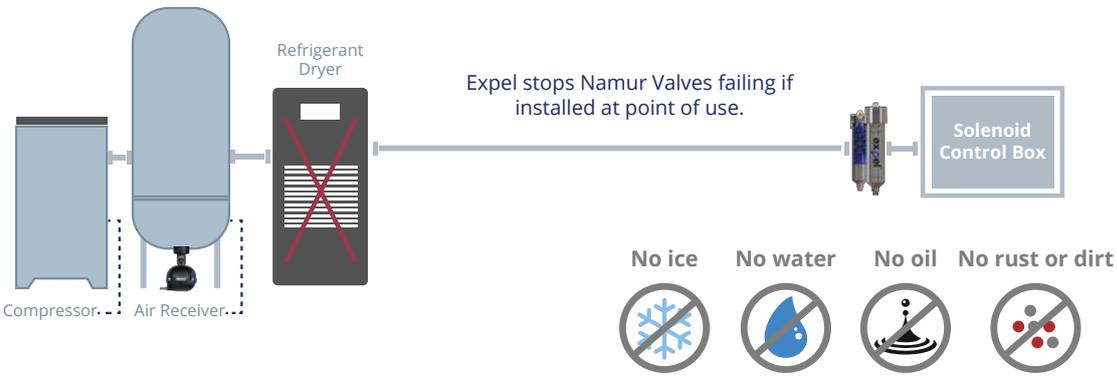
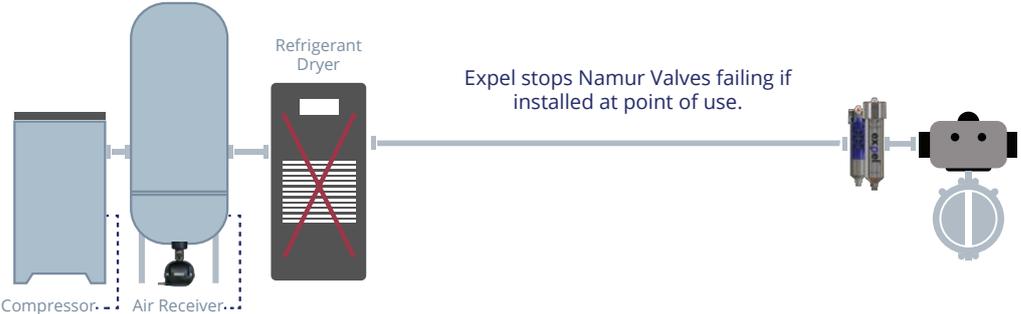
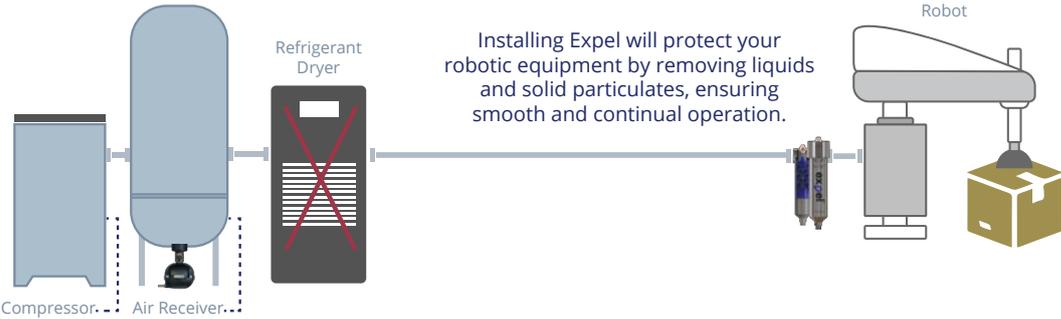
	Problem	Cause	Cost	Solution
	<p><b>Dispensing, pick and place, palletising, sorting and order picking robots</b> are also used in food manufacturing for non-contact low-risk application.</p> <p>Although some sites are operating compressed air dryers, it has not completely solved the problem of liquids in compressed air lines and are having to replace damaged components causing equipment downtime.</p>	<p>Robotic equipment is extremely sensitive to any liquids, dirt or dust that can enter through compressed air lines. These contaminants are the cause of huge and costly problems.</p>	<p>This is the cause of huge expense on a lot of sites due to the production downtime, call out and part replacement costs.</p>	<p>Expel stops the expensive part replacement costs and equipment downtime caused by damp and dirty air. Traditional filters are made of saturable internal elements that become less effective with every single use. This is simply unacceptable considering the ongoing costs they are generating. <b>Safeguard your equipment with a proper solution by installing Expel.</b></p>
	<p><b>Failing solenoid valves</b> can lead to serious consequences. For example, if a solenoid in a water treatment plant were to fail because of poor compressed air preparation, this would result in the <b>effluent being discharged outside the parameters which the law</b> in most countries across the world <b>allows.</b></p>	<p>Trapped moisture causes corrosion inside the actuator and solenoid bodies and can hydraulically lock the piston at part-stroke and stop the valve from turning.</p>	<p>If this problem is not solved and effluent is being discharged without the correct treatment then this would result in heavy fines by the local authority who monitor the discharge from all effluent treatment plants.</p> <p>Additionally, further costs of part replacement and production downtime are generated from failing solenoid valves.</p>	<p>Expel stops solenoid valves failing because of water and other particulates contaminating compressed air lines down to 1 micron. This will ensure the smooth operation of solenoids, <b>eliminating the risk of violating waste regulations and Local Authority byelaws.</b></p>

**System 3** *continued*

	<b>Problem</b>	<b>Cause</b>	<b>Cost</b>	<b>Solution</b>
	Damaged Namur valves will not energise actuators causing butterfly valves to fail.	Moisture and solid particulates have a very damaging impact on the electrical components of the Namur, this causes faulty operation.	This causes equipment downtime and part replacement costs.	Expel removes liquids and particulate contaminants in one filter, therefore replacing up to three traditional filters with one unit ensuring the butterfly valves are protected.
	Pitting and rusting on cylinders. These will frequently need replacing, which is an avoidable expenditure.	Water leads to the formation of rust particles, resulting in rapid wearing of cylinders.	This generates the expense of a rapid equipment turnover which can be considerably reduced. Additionally, downtime costs are created when this problem occurs.	Expel protects pistons and cylinders by continuously removing any water. As well as protecting your equipment, Expel can help contribute to a company's reputation of producing minimal wastage where possible and save you money.
	Ice in compressed airlines causing damage to the internal parts of machinery. This can result in faulty operation of controls and costly repairs.  The addition of antifreeze lube oil only makes the corrosion worse.	If water and other liquids in compressed air lines are not removed before entering pneumatic equipment, in cold winter months this water can freeze, causing ice blockages.	Ice in compressed air lines can not only drastically reduce the lifecycle of your equipment resulting in inevitable equipment replacement costs and downtime but also creates more work when processes have to be repeated because of equipment failure.	As Expel removes 99.999% of liquid water, it continuously ensures there will not be enough water in the air lines to freeze and cause damage. Additionally, Expel has been manufactured from Stainless Steel making the filter itself highly robust and corrosion resistant.
	Compressed air contaminates eroding seals on ancillary equipment such as solenoid valves, pneumatically actuated ball valves, butterfly valves, actuators, cylinders.	Oil carry over from compressors can combine with dust and dirt in compressed air lines to create a grinding mix which causes this problem to occur.	Money has to be spent on further equipment replacement costs and the downtime associated with the aftermath of this problem.	Expel removes 99.999% of liquid water, oil mix and particulates to 1 micron. Installing Expel reduces both your wastage and costs whilst protecting your equipment to a superior standard.

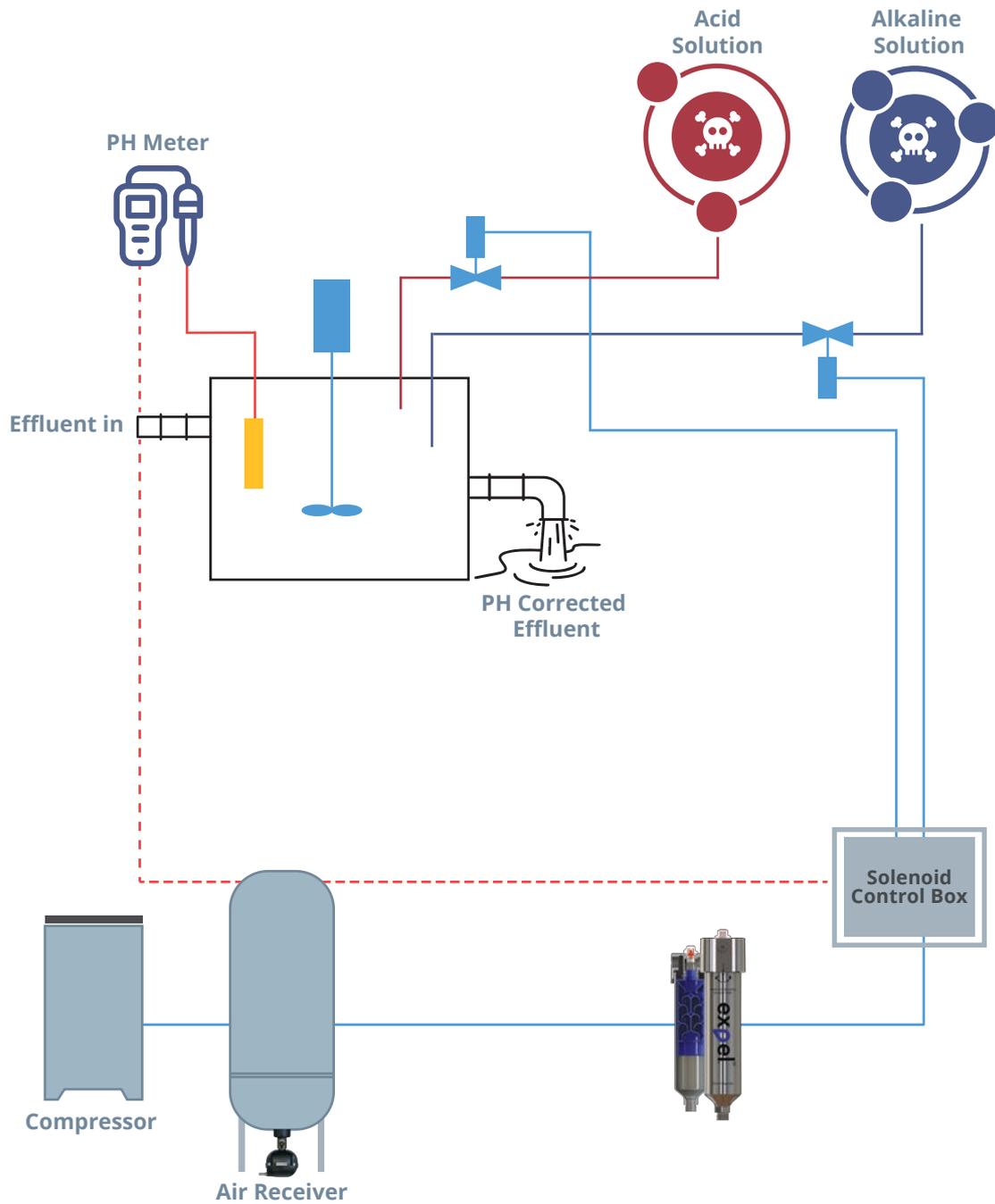
## Install Guidelines System 3

For non-contact low-risk compressed air applications, the air only needs to be free of liquids and solid particulates to ensure pneumatic equipment is protected and production downtime is minimised as much as possible. Therefore, for general plant air that has absolutely no contact with food products, Expel is the answer for your filtration needs as a **maintenance free filter** which **removes all liquid water and particulates** down to 1 micron.



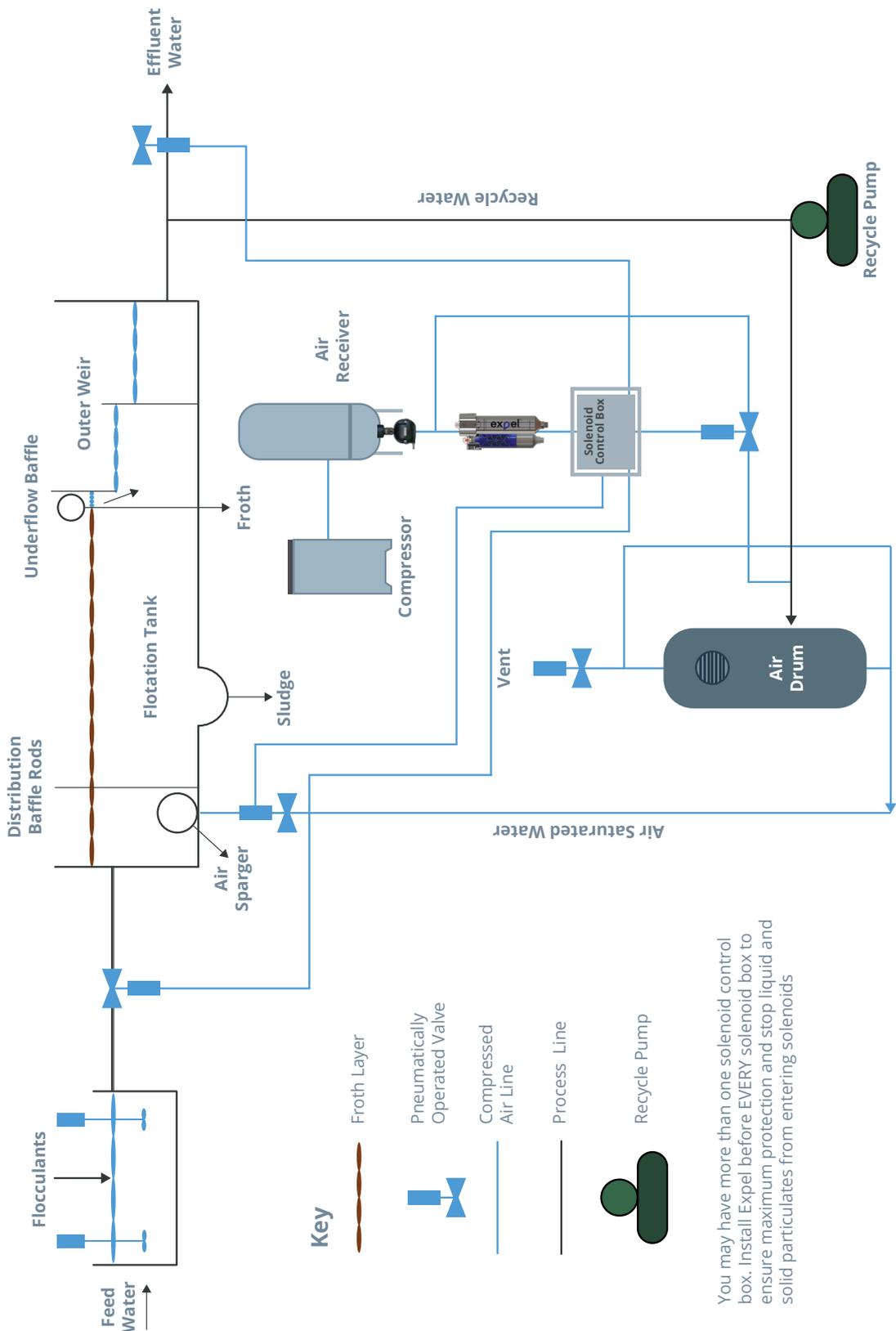
## Installation Guidelines for Water Treatment plant

### Expel for pH Correction



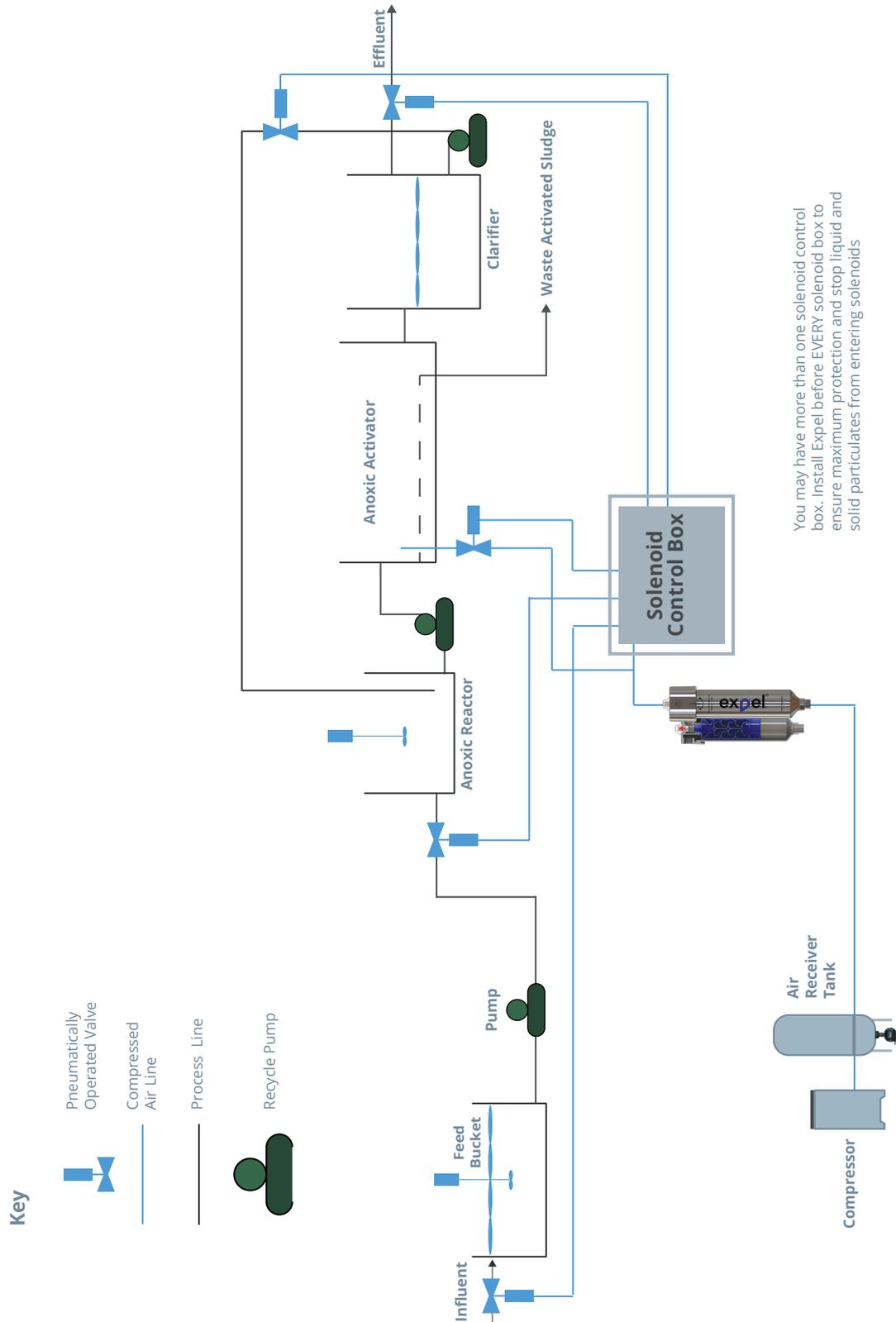
**Expel for Dissolved Air**

**Flotation (DAF) Treatment**



You may have more than one solenoid control box. Install Expel before EVERY solenoid box to ensure maximum protection and stop liquid and solid particulates from entering solenoids

## Expel for Aerobic Reactor System



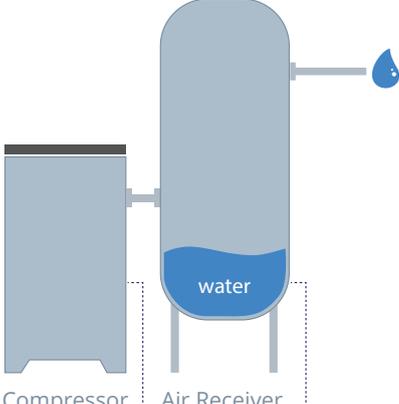
\* Please note: The guidelines below are general guidelines and the factors like the size of the site, amount of compressed air usage and temperature fluctuations all affect how many Expels and the location of where the Expel/s need to be installed. It is for these reasons that we always recommend that our pneumatic experts visit you so they are able to advise you accordingly and ensure maximum protection.

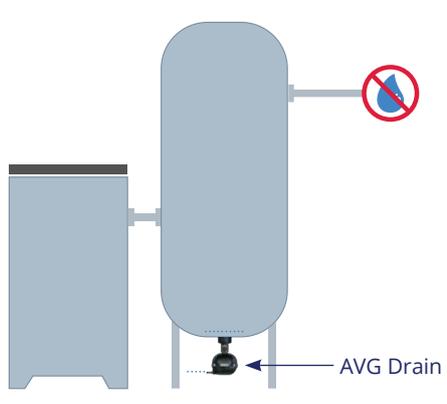
## Why buy Expel? IT REALLY WORKS!

Features	Advantages	Benefits
Reduces equipment downtime	Improves the efficiency of your site, keeping costs low and production time high.	No more equipment downtime due to failed solenoid valves, damaged robotic components, rusting jet nozzles and damaged air knives.
No replacement filter elements are required	An instant way to stop spending money on internal parts of filters and is a good step towards your sustainability goals.	Zero maintenance and always a perfect performance. No more hassle and time spent changing internal elements on filters.
Reduces energy costs	Expel has a smaller pressure drop than traditional filters. When mesh filters collect dirt and water it creates resistance. This increases energy usage to maintain the same flow rate after the point of use, with multiple mesh filters in line causing greater energy usage costs.	Expel always maintains a low-pressure bar drop, meaning you have consistently minimal energy costs.
No more emergency call outs for breakdowns due to water in compressed air lines	Effective placement of Expel reduces call outs, downtime and costs.	Saves your site money as your production time will be higher and your maintenance costs lower.
The performance of Expel does not drop over time	Consistent performance, requiring no maintenance	Ensures smooth running of your site, eliminating problems associated with water and dirt entering compressed air lines and damaging equipment.
Manufactured to ISO 12500 Air Quality	Latest ISO standard specifically for compressed air filtration.	Meets stringent testing standards for the quality and performance of compressed air filters, so you have peace of mind that you have a quality product.

## Why install Original AVG drains on your air receiver tank?

Draining water manually from the air receiver tank has a number of issues


<p style="text-align: center;"><b>ISSUES</b></p>
<p>Pressure loss if air escapes during manual draining</p>
<p>Human error leads to build up of water that ends up going through airlines and damaging valves and equipment</p>
<p>Takes up more time and is an additional job to have to remember</p>


<p style="text-align: center;"><b>SOLUTIONS</b></p>
<p>Auto drain has zero pressure loss so no air lost during draining</p>
<p>The auto drain will continuously automatically drain any water build up</p>
<p>Installing an auto drain will give you one less job to worry about, you will not have to remember to drain the tank manually, it will be done for you.</p>



## Drains for Food Industry

For every Expel filter we sell, we recommend a selection of our professional AVG drains specifically for your industry.



### **5000-200 - AVG AD Zero Pressure Loss 1 - 200 litres condensate per hour at 16 bar**

- Zero pressure loss
- All-weather resistant, this drain will not crack or break in frost/cold/hot climates.
- No electricity required
- Fit and forget
- Corrosion resistant
- Recommended if Expel is near a wall



### **6100-032 - AVG AD Zero Pressure Loss 2 - 200 litres condensate per hour at 16 bar**

- Ideal for air receiver tanks with limited space underneath for drain
- All-weather resistant, this drain will not crack or break in frost/cold/hot climates.
- A heater can be attached to this drain for particularly cold climates to make it frost proof.
- Zero pressure loss
- No electricity required
- Fit and forget
- Corrosion resistant



### **6100-033 - AVG AD Pro - 1062 litres condensate p/hour at 16 bar**

- Ideal for environments that have very dirty airlines, drain everything including larger particulates
- All-weather resistant, this drain will not crack or break in frost/cold/hot climates.
- A heater can be attached to this drain for particularly cold climates to make it frost proof.
- Test button for routine maintenance.
- Corrosion resistant.
- Ideal for air receiver tanks with limited space underneath for drain
- No electricity required.

## EXPELS for Food Industry



### EXPEL 2 part number 6000-016

- Flow Rate For a 7 bar(g) System: **0.0004-3.4 m<sup>3</sup>/hr** | **0.015-2 cfm** | **0.42-56.6 litres/min**
- Operating Pressure: **1-8 bar(g)** | **15-116 psi(g)**
- Operating Temperature: **0 to +80°C**
- Maximum Recommended Inlet Temperature: **35°C**
- Particulate Removal: **1 micron**
- Inlet/Outlet Connection: **¼" BSPT**
- Drain Connection: **½" (m) BSPT**



### EXPEL 10 part number 6000-000

- Flow Rate For a 7 bar(g) System: **6.8-17 m<sup>3</sup>/hr** | **4-10 cfm** | **113-283 litres/min**
- Operating Pressure: **1-15 bar(g)** | **15-217 psi(g)**
- Operating Temperature: **0 to +80°C**
- Maximum Recommended Inlet Temperature: **35°C**
- Particulate Removal: **1 micron**
- Inlet/Outlet Connection: **¼" BSPT**
- Drain Connection: **½" (m) BSPT**



### EXPEL 30 part number 6000-003

- Flow Rate For a 7 bar(g) System: **8.5-51 m<sup>3</sup>/hr** | **5-30 cfm** | **141-850 litres/min**
- Operating Pressure: **1-15 bar(g)** | **15-217 psi(g)**
- Operating Temperature: **0 to +80°C**
- Maximum Recommended Inlet Temperature: **35°C**
- Particulate Removal: **1 micron**
- Inlet/Outlet Connection: **¾" BSPT (comes with ½" adapters)**
- Drain Connection: **½" (m) BSPT**



### EXPEL 120 part number 6000-007

- Flow Rate For a 7 bar(g) System: **16-204 m<sup>3</sup>/hr** | **10-120 cfm** | **283-3400 litres/min**
- Operating Pressure: **1-15 bar(g)** | **15-217 psi(g)**
- Operating Temperature: **0 to +80°C**
- Maximum Recommended Inlet Temperature: **35°C**
- Particulate Removal: **1 micron**
- Inlet/Outlet Connection: **1" BSPT**
- Drain Connection: **½" (m) BSPT**

## Frequently Asked Questions

### **If I am not having problems with water in my compressed air lines, do I still need Expel?**

**Yes!** Everyone will be switching to this new technology; it is just a case of when you will upgrade. It replaces old filters which need maintaining and require ongoing costs. Additionally, traditional filter performance drops over time but Expel never becomes saturated and there is never a decrease in performance because it does not contain any easily perishable or saturable materials.

### **How do I know that Expel actually works?**

We have manufactured Expel to ISO 12500 - the latest ISO standard for compressed air filtration. Therefore, you can be rest assured that Expel's performance has been extensively tested to ensure it meets an internationally recognised standard.

5 years manufacturers guarantee.

### **Do I still need a refrigerant dryer if I install Expel?**

**This depends** on the compressed air application. For non-contact low risk application, the need for a refrigerant dryer can be eliminated depending on your site's set up.

For non-contact high risk and direct contact applications Expel can act as the perfect complimentary tool to achieve food grade air alongside the use of a desiccant dryer. Many of our customers who operate desiccant dryers have reported that they still have issues caused by liquids in compressed air lines. But, since installing Expel in collaboration with their dryers, the problems have ceased.

### **Do I need to buy anything to go with my Expel unit?**

**No!** Our Expel unit comes with everything you need to install. We do recommend that you purchase one of our professional AVG drains with every Expel purchased, we have created an industry specific drain page.

DO YOU HAVE PROBLEMS WITH WATER, EMULSION FLUIDS  
(OIL MIX) AND PARTICLES IN YOUR COMPRESSED AIR SYSTEM?



**FIT AND FORGET. NO REDUCTION IN PERFORMANCE OVER TIME**

**TRY IT AS WE GUARANTEE IT!**



# World's first cleanable and reusable compressed air filter

Removes 99.9999% liquid condensate, liquid oil (or oil / water emulsion mix) and solid particles down to 1 micron



IMPROVED PERFORMANCE



MONEY SAVING



NO DOWNTIME



EFFECTIVE SOLUTION

EXPEL stops downtime and equipment failure that is caused by air contamination.

Replaces your four conventional filters, removing bulk water, mist water, oil down to 1 micron particulates. All in one filter.

**REQUIRES NO REPLACEMENT FILTER ELEMENTS • NO MAINTENANCE COST • REQUIRES NO MAINS POWER**

In every industry using compressed air, there is a desperate need for clean and dry air. Simply because wet and contaminated compressed air damages crucial pneumatic components, not only causing valuable downtime, but huge expenses that could have been avoided, with a simple yet effective solution... a solution we call EXPEL.



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