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For any further questions or technical support please don't hesitate to contact **Original AVG** on **+44 345 50 50 222** or email **info@originalavg.com**

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FREQUENTLY ASKED QUESTIONS

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WHAT IS EXPEL, AND WHAT DOES IT DO?

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WHAT MAKES EXPEL DIFFERENT TO ANY OTHER COMPRESSED AIR FILTER?

The EXPEL is the worlds first compressed air filter capable of removing such a high level of liquids and solid particulates that can be taken apart, cleaned and reassembled. Typically, you would require at least 3 conventional compressed air filters to achieve the same air quality as 1 EXPEL unit.

DOES THE EXPEL UNIT REQUIRE MAINTENANCE?

EXPEL requires no mains power or consumables. It is virtually maintenance free apart from requiring frequent draining on manual models. We recommend fitting an auto-drain to remove the necessity for frequent manual draining. We supply a range of autodrains to suit your requirements so please get in contact if you are unsure on what type of drain you may require.

WHAT SIZE IS THE UNIT?

As a guide, the physical size of the EXPEL 30 which is most commonly seen in workshop applications is 293mm High x 80mm Diameter.

WHAT GRADE OF MATERIAL IS EXPEL MANUFACTURED FROM?

The external body and head of the EXPEL unit are manufactured from Grade 304 stainless steel. The internal filter element is made from ABS polymer material.

ABOUT EXPEL

HOW DOES EXPEL COMPARE TO OTHER CONVENTIONAL WATER SEPARATORS ON THE MARKET?

Conventional filters tend to remove water using the cyclonic method rather than the patented multi directional vanes and clarification chambers inside the EXPEL. These vanes and chambers force the coalescence of all water into tiny droplets which are then removed by the filter allowing a 99.9999% removal rate of the water, and emulsion fluids (oil & water mix)

Cyclonic separators experience notable drops in performance when the air velocity is irregular, and are problematic with stop/start air flow unlike EXPEL, which reaches optimum performance within a fraction of a second.

I ALREADY HAVE EXISTING COMPRESSED AIR FILTERS INSTALLED, BUT STILL SEE WATER. WILL THE EXPEL HELP?

Yes, the EXPEL is designed to remove water, emulsion fluids (oil/water mix) and particles down to 1 micron. Conventional filter/regulators commonly perform at around 20 to 50 micron, much less than the EXPEL.

The EXPEL has significantly better water removal performance than traditional filter/regulators. Most common conventional compressed air water separators achieve less than 92% efficiency compared with the EXPEL's 99.9999%.

WHY ARE YOU CONFIDENT THAT EXPEL IS MORE EFFICIENT THAT COMPETITOR PRODUCTS?

Conventional water separators rely on both a consistent flow and velocity to work efficiently. Due to the unique, patented technology within the EXPEL, it will perform to it's maximum efficiency regardless of the flow rates, and even under pulsed stop/start conditions.

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WHAT CLASS OF AIR QUALITY DOES EXPEL PROVIDE?

EXPEL is designed and tested in accordance with the strict criteria of ISO12500, which is the validated performance criteria specifically outlined for compressed air filters.

Previously, ISO8573 was the defined standard for compressed air quality, however this related to the air quality of the system in its entirety, and was not component specific. ISO12500 is the further refined ISO test, which is component specific.

EXPEL complies with

- ISO12500-1:2009 (Oil Aerosols)
- ISO12500-3:2009 (Particulates)
- ISO12500-4:2009 (Water)

DOES EXPEL REMOVE PARTICULATES AND LIQUID WATER / OIL?

Yes, the EXPEL is designed and tested in accordance with ISO12500, and will remove 99.999% of all solid particulates down to 1 micron in size along with all liquids and emulsion fluids (oil / water mix.)

WHAT IS THE PRESSURE DROP ACROSS THE FILTER?

The maximum pressure drop across the EXPEL 30 is 0.1 bar (1.45 PSI). Unlike conventional filters, the EXPEL does not retain the particulates it removes, so the pressure drop does not increase over time, saving energy costs and improving overall system performance.

WHAT SIZE EXPEL DO I NEED?

Typically, the most common EXPEL filter for automotive and workshop applications is the EXPEL 30. This units handles a compressed air flow from 5-30 CFM (140-850 L/Min). Most tools and compressed air equipment will state on a label what compressed air usage they require. They will also state an operating pressure in Bar or PSI. The EXPEL units are designed for use in applications up to 15 bar (217 PSI)

IS EXPEL A WATER SEPARATOR, OR AN AIR DRYER?

EXPEL is what we believe to be the most efficient liquid water separator available for compressed air, and is capable of removing 99.9999% of the liquid water and emulsion fluids in your system.

Technically speaking, a dryer reduces the temperature of the air which causes water vapour (water in a gas state) to condense into water droplets which are then removed.

In real-life conditions, this is extremely hard to achieve. Dryers also cannot handle liquid water, and require a water separator upstream to remove this liquid, therefore if water already exists in the system before the dryer it will pass through the dryer.

EXPEL removes ALL liquid water present in the compressed air at the point the EXPEL is located, be this before or after an air dryer.

I ALREADY HAVE A REFRIGERANT DRYER – DO I NEED EXPEL?

Yes. Often refrigerant dryers are perceived as the most cost-effective way to achieve dry compressed air, but they are not without their pitfalls.

A refrigerant dryer is specifically designed to rapidly reduce the temperature of the compressed air, and this rapid reduction causes water vapour (water in a gas state) to condense into liquid water.

To stop this high volume of water travelling through your compressed air system, a coalescing water separator has to be installed after the dryer. These filters are typically around 95% efficient, allowing 5% of the produced water to continue into your compressed air.

Installing an EXPEL at directly after your refrigerant dryer guarantees that 99.9999% of all the water produced is removed, and no water is carried over from the refrigerant dryer into the compressed air lines.

Most commonly it is liquid water that creates problems with pneumatic tools and equipment; from impact wrenches through to tyre changers. Liquid water will displace the oils required to lubricate tools and this can cause detrimental damage causing seal failures, juddering or equipment seizure and in particularly cold weather this water will free and expand fracturing internals and equipment casings.

If an Expel filter is installed at each point of use, or prior to any expensive and important pneumatic equipment you are guaranteeing protection to that item from liquid water, oil carryover and any solid particles as small as 1 micron are removed.

It may be possible to completely remove the refrigerant dryer as the Expels provide sufficient protection to your equipment. As the EXPEL requires no power, consumables or replacement filter elements the cost savings achieved by no longer needing a refrigerant dryer along with its associated service and operating costs would be significant.

If this is a route you wish to follow, or if you are unsure whether this may be a solution for you then why not call one of our specialist technical team on **+44 (0)345 50 50 222** and they will be happy to advise.

IF I INSTALL ONE EXPEL UNIT DIRECTLY AFTER THE COMPRESSOR, WILL THIS SERVICE THE ENTIRE GARAGE / WORKSHOP?

We would advise against this, as the air out of the compressor will be warmer than the ambient air temperature in the workshop. This can cause condensation and water to appear further down the line. We recommend point of use installations, particularly when protection to tyre changers, etc, is required.

WILL THE EXPEL REPLACE MY EXISTING CONVENTIONAL AIR FILTERS?

The EXPEL will replace existing filters that remove water, and particulates down to 1 micron.

I'M EXPERIENCING RUST BUILD UP IN MY TOOLS, WHAT IS THE SOLUTION?

The development of rust within your tools is caused by liquid water entering the tool from the compressed air line. Installing an EXPEL filter at point of use ensures that all the water is removed, preventing the build up of rust and scale and prolonging the service life of your pneumatic tools significantly.

HOW EASY IS EXPEL TO INSTALL?

EXPEL is designed to remove liquid water, and ideally needs to be installed as close to the point of use as possible. Installation is straightforward as there is no mains power requirement, only simple plumbing is required.

WHERE DO I NEED TO POSITION THE EXPEL IN MY COMPRESSED AIR SYSTEM?

The EXPEL 30 is a point of use filter. We recommend installation within 6 metres of point of use. This is to minimise the effects of temperature reduction after the filter, preventing downstream condensation.

WHAT IS POINT OF USE?

Point of Use is the tool or equipment that is using the compressed air. This could be anything from a tyre changer to a pneumatic hand tool.

WHY DO I NEED TO INSTALL EXPEL AT POINT OF USE?

Installing the EXPEL at point of use ensures that all liquids and particulates are eliminated from the compressed air when it reaches your equipment.

WHAT SIZE PIPEWORK DOES THE EXPEL 30 FIT?

The EXPEL 30 is designed to fit either ½" or ¾" pipework. The unit is supplied as standard with a ¾" BSPT thread in the head, and within the box there are flush fitting adaptors to reduce the ¾" BSPT thread to ½" BSPT thread fittings.

INSTALLATION

MY TOOLS REQUIRE A LUBRICATOR, WHERE DO I INSTALL EXPEL IN RELATION TO THIS?

If a tool requires a lubricator, this must be installed AFTER the EXPEL unit. The EXPEL will remove all liquids and oils, so would remove any oil introduced by a lubricator if the EXPEL was installed after this.

HOW OFTEN DO I NEED TO REPLACE THE FILTER ELEMENT?

What makes the EXPEL so unique, is that you NEVER need to replace the filter element. There is nothing that becomes blocked over time like conventional filters.

In exceptionally dirty airlines, you may find that you get a blockage occur within the unit from large particles or pipe scale. To remove this, you can simply dismantle the unit, clean any debris and reassemble with ease.

ARE SPARE PARTS AVAILABLE?

Yes, each component part of the EXPEL is available to buy independently as a spare, however no ongoing replacement parts are necessary. A spare part will only be required if the unit is accidentally damaged.

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DOES EXPEL COST ANYTHING TO OPERATE?

The simple answer is NO. There is no power requirements, and no consumable related costs associated with the EXPEL unit so the only cost involved is for the initial unit purchase.

HOW DOES EXPEL WORK?

The internal Expel filter works by creating an impacting turbulent air path thus coalescing any liquids and solids present in the compressed air line during the first stage of filtration. As part of this initial phase Expel removes 96% of all contamination while during the second stage the internal Unitary Vertical Body (UVB) polishes the compressed air still further thus removing the final 4% before exiting the filter air outlet.

The filter is manufactured from a strong polymer material, so it never needs replacing – ever. Dependent on the contamination of your upstream air maintenance is kept to a minimal but an annual "spring clean" is generally advised. Simply remove the internal filter, give it a wash and replace it. It's that simple.

WHAT IS THE INDICATOR FOR ON THE TOP OF THE EXPEL UNIT?

The indicator on the top of the unit is to provide a visual warning that the unit is under pressure. Once the system is pressurised, the indicator will turn RED. The locking mechanism within the unit will prevent the unit being opened when under pressure also.

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HOW DO I DRAIN THE WATER FROM THE EXPEL UNIT?

The EXPEL unit can be fitted with a tap that you can manually open to drain any of the collected water. As the amount of water being removed can vary as temperature and humidity levels change, the easiest option is to install an automatic drain valve (talk to your distributor for advice on selecting the correct autodrain). This will open itself to drain any water preventing the need for manual intervention to drain the unit.

CAN I INSTALL AN AUTODRAIN ONTO THE EXPEL UNIT?

Yes, the EXPEL has a ½" male BSPT thread at the base of the unit that an automatic drain can be attached too. We offer a range of automatic drains, so if you would like some assistance selecting the correct autodrain for your application, please get in touch and we will happily offer advice.

HOW OFTEN DOES THE EXPEL UNIT REQUIRE DRAINING?

The EXPEL is incredibly efficient at removing water, so you may have a need to drain the unit more frequently than conventional filters.

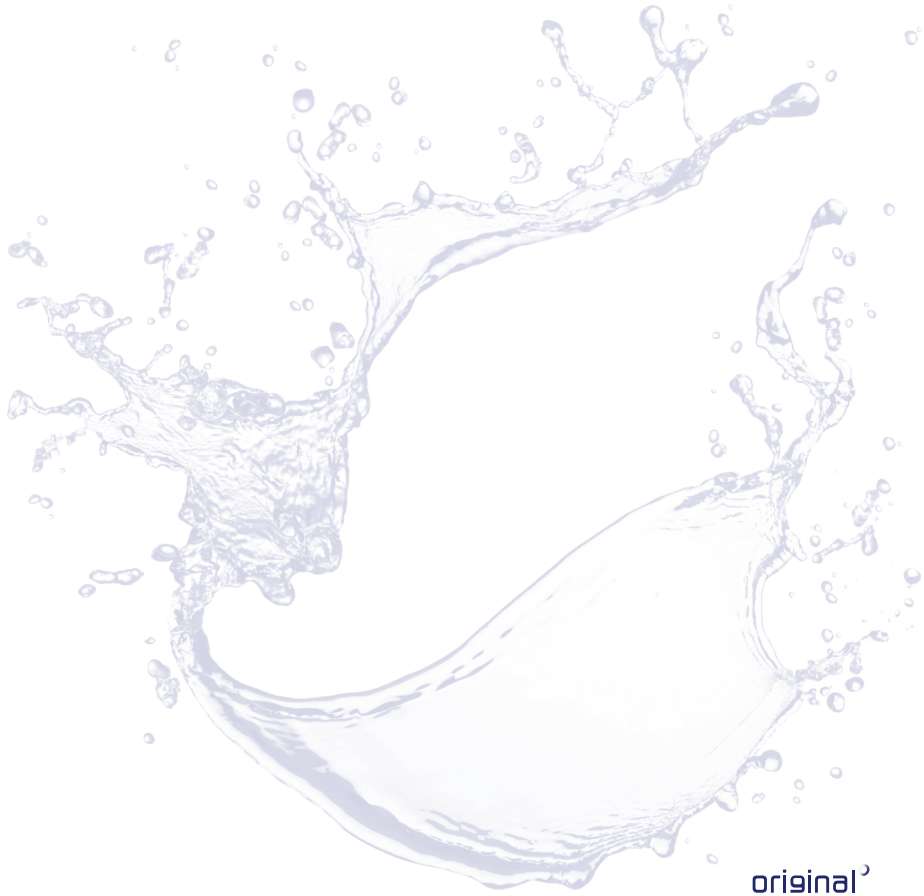
The water removal frequency can change dependent upon the temperature and climate of the environment; therefore we suggest you drain as frequently as you feel necessary starting daily or for the first few days twice per day until you are confident you are draining frequently enough.

DRAINING

WHAT HAPPENS IF I FORGET TO DRAIN THE EXPEL UNIT?

Failure to drain the unit will inevitably result with the EXPEL becoming filled with water and particulate. The first indicator of this is seeing water present in the air after the EXPEL. This is what we refer to as the unit flooding. If this does occur, simply open the drain tap, or clear any debris that may be blocking the autodrain and drain the water from the unit.

For good measure, we would suggest removing the internal filter, cleaning it and replacing it. This is to ensure that no particulate matter becomes entrained within the unit.



DOES THE EXPEL 'CONSUME' COMPRESSED AIR?

The EXPEL does not 'consume' any of the air that a compressor produces. This 'volume' or 'flow' of air passes directly through the Expel unit.

This means that if the air flow is 100L/min entering the EXPEL, it will be 100 L/Min exiting the Expel.

WHAT EFFECT DOES EXPEL HAVE ON COMPRESSED AIR PRESSURE?

The EXPEL causes a marginal reduction in compressed air pressure (0.1 bar maximum). This pressure is lost due to 'resistance' the flowing air faces. This resistance could be from any obstruction, such as a bend in the pipe, or in the case of the EXPEL unit a minor restriction to airflow due to the annulus gap and the internal clarification chambers inside the EXPEL that the pressurised air travels through.

This creates a resistance, which causes a reduction in air pressure. The maximum pressure drop across the EXPEL 30 is 0.1bar (1.45psi).

If the air entering the EXPEL is 7.0 bar, the air leaving the EXPEL would be no less than 6.9 bar.

I HAVE INSTALLED MY EXPEL UNIT AND AM EXPERIENCING A HIGHER THAN STATED PRESSURE DROP. WHY IS THIS?

The maximum pressure drops you should experience from a correctly installed EXPEL unit is 0.1 bar (1.45 psi). If you are experiencing higher pressure drops than this after installing the EXPEL, undertake the following actions to help identify the cause:

1. Is the unit installed in the correct orientation? On the top of the unit are directional flow arrows. These need to be facing away from the compressor, and towards the end of the air line.
2. Is there a blockage within the unit? The unit will need to be disassembled and inspected for a blockage.

I HAVE INSTALLED MY EXPEL UNIT AND AM EXPERIENCING A REDUCTION IN AIR FLOW, WHY IS THIS?

If you are experiencing a reduction in 'flow' this would suggest that some of the produced air is being consumed or lost elsewhere in the system. This is unlikely to be caused by the EXPEL unit itself, but possibly through incorrect installation. We suggest checking to see:

1. Is there an autodrain unit or manual drain tap fixed to the base of the EXPEL? – Air should not be flowing freely out of the base of the Expel unit.
2. Is there air any leaking from the connections in / out of the EXPEL?
3. Is there any air leakage from the base of the EXPEL?
4. Is the drain tap / Autodrain continually leaking air?

If any of these are being experienced, please refer to the installation manual provided within your EXPEL's box.

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