

# FLASH

## INTERCONNECTION

Stronger together

**ARGO**  
**HYTOS**  
A Voith Company

April 2023  
Issue 26

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4

### AFTERMARKET BUSINESS

Broad product portfolio,  
readily available

8

### CLEAN & LEAN WORK

Global cLEAN-campaign  
sets new standards

20

### NEW VENTILATING FILTER VFT-2500

Flexible,  
intelligent and  
safe

**OTHER TOPICS:** THE AH-EFFECT • HYDRAULIC VALVES FOR HAZARDOUS AREAS •  
INTERCONNECTION AT ARGO-HYTOS • ZATOR ENTITY IN POLAND • EMPLOYEE  
INTERVIEW: SIGRID ACKERMANN • AIR SEPARATION AIREX FOR HYDRAULIC FILTERS

# CONTENT

02	Editorial	08	cLEAN Initiative	17	EX Valves
03	The AH-Effect	10	High-tech on the Field	18	Air Separation AirEX
04	Aftermarket Business	12	Future Prospects	20	New Ventilating Filter
06	Engagement for Children	15	75 Years ARGO-HYTOS	21	Interconnection
07	Employee Interview	16	Screw-in Cartridge Valve	22	Zator Entity in Poland

# EDITORIAL

**What will the world of hydraulics look like in the future? Our new issue of the FLASH customer magazine is investigating this question.**

Everyone is talking about saving energy – including us. More efficiency and a lower CO<sub>2</sub>-Footprint are among the major topics in the hydraulics industry. Decentralized systems and electrification as well as smart engineering make our systems fit for the future.

## INTEGRATION ...

... is present in our entity in Zator where the Fluid Management and Condition Monitoring productions were brought together under one roof. Poland has a future as a center for the development and manufacturing of sensors dedicated to monitoring hydraulics.

## CLEAR STANDARDS ...

... are represented through our company-wide cLEAN campaign. Because a clean and structured workspace as well as an efficient and lean production are success factors for forward-looking companies like ARGO-HYTOS.

## FUTURE-ORIENTED ...

... is becoming part of the Voith Group. They stand by our side as a financially strong partner.

**We are well-positioned for the future. And that future begins – today.**

Yours sincerely,  
Erich Hofer  
CEO / CFO



## IMPRINT | FLASH MAGAZINE NO. 26

Publisher ARGO-HYTOS Group AG, Neuhofstrasse 1, 6340 Baar, Switzerland, Phone: +41 (0)41 747 24 47, info.ch@argo-hytos.com.  
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# THE AH-EFFECT

**ARGO-HYTOS solutions and strategies are often complex and technically demanding. The two fictional ARGO-HYTOS experts Anna & Harry explain the basics in a striking and easy-to-understand way in the new animated explanatory video series.**

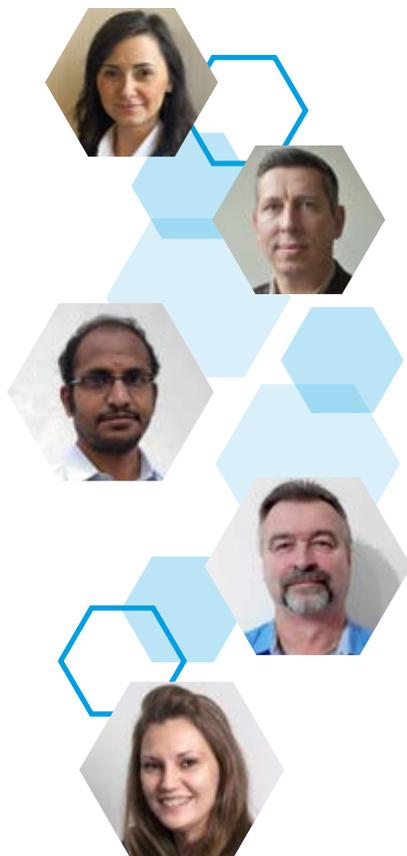


**ENGINEERING,  
EASY TO  
UNDERSTAND**

Anna & Harry are the heroes of the new ARGO-HYTOS explanatory videos.

Why is clean hydraulic oil so important? Why does continuous oil monitoring save a lot of time and money? What value-added does ARGO-HYTOS create for end-users? Customers and ARGO-HYTOS employees pose these and many other questions on more than one occasion.

Curious minds can find the answers in the social media channels of ARGO-HYTOS: Concise and illustrated explanatory videos of "The AH-Effect" series underline the technical interrelationships. Moreover, the videos capture the following key message: ARGO-HYTOS and its employees think out-of-the-box and offer solutions that closely adhere to the demands of customers while going the extra mile at the same time. Thus, questions can be addressed in a constructive and effective manner by tackling challenges in close collaboration with customers to achieve the desired goals – both of the customer and ARGO-HYTOS. The protagonists of this narrative are Anna & Harry – whose initials do not coincidentally align with the ones of the company.



# #BETHESOLUTION

**As an established global player, ARGO-HYTOS has a worldwide network of skilled employees. The #BeTheSolution #BeARGOHTOS campaign captures how each of them contributes to bringing solutions to life.**

"When was the moment you knew that it was the right decision to become part of the ARGO-HYTOS family?" Employees from various professional sectors answer this and more questions on the ARGO-HYTOS website as well as social media to present their everyday work. Readers and social media users can find out about what a typical work day in a specific professional field looks like, how teams collaborate to find new solutions and what employees like the most about ARGO-HYTOS.

"With this campaign, we want to strengthen the team spirit in the company, put a face to our expertise and engage in employer branding that is both interesting and a must-have in a modern workplace," explains Léonie Kirchgeorg from the Group Marketing team at ARGO HYTOS. "It's imperative that employees know what's going on in different departments for things to run smoothly and to achieve a good performance."



Head to the explanatory videos & the ARGO-HYTOS LinkedIn account



Head to the #BeTheSolution videos

# YOUR FIRST **NEXT** CHOICE!

The new ARGO-HYTOS Aftermarket is picking up speed: the company is tapping into new sales potential in a challenging market with an interdisciplinary team, a growing portfolio of hydraulic replacement filters as well as a comprehensive service and logistics initiative.



## THE AFTERMARKET TEAM:

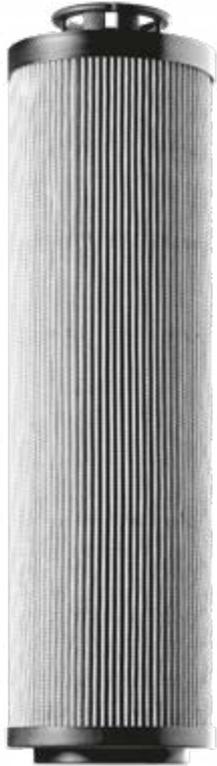
Interdisciplinary  
collaboration in a new  
business segment.

From left to right: Christian Presser, Michele Profumo, Dominique Reinhardt, Christian Langlotz, Marcello Tartaglia

**D**istributors, system integrators, dealers. ARGO-HYTOS has been gradually opening up a new customer base next to its thriving OEM business. "The Aftermarket customer is demanding," explains Michele Profumo, Head of Aftermarket Business. "They want to quickly find the right product for their application – and also have it delivered speedily. This is especially true for high-quality filter elements, which make up the majority of the Aftermarket Business."

The Aftermarket Team has achieved a lot since Michele Profumo's last interview in the 25th issue of our FLASH.

More than 150 different replacement filter types are new to the portfolio. "In total, a list of more than 5,000 product references is available. By the end of 2023, the catalog will grow by another 1,000 references," knows Dominique Reinhardt, Product Engineer Aftermarket at ARGO-HYTOS. "We will continuously expand and optimize the portfolio." Comprehensive activities have also been initiated on the market. "The customer and partner network will be furthermore expanded and developed," predicts Christian Presser, Account Manager Aftermarket DACH at ARGO-HYTOS. "Not only in the DACH region, but also in many European countries, the Middle East and the USA," adds Michele Profumo.



### READILY AVAILABLE – ESSENTIAL FOR THE AFTERMARKET

“The customer can expect a response time of 2 to 48 hours for their filter element inquiries,” assures Christian Langlotz, Aftermarket Team Leader at the ARGO-HYTOS filter element manufacturing plant in Kraichtal-Menzingen, Germany. “Delivery of catalog products takes between 2 and 7 days, and you can expect a lead time of 2 to 16 weeks for new products. Flexible production lines and an extensive central warehouse for Europe ensure availability even for large quantities.”

“A customer portal is already online in Germany where ARGO-HYTOS customers can specifically search for the filters they are looking for, learn about the specifications and availability of the respective product and order immediately,” reports Marcello Tartaglia, Aftermarket Product Manager and Inside Sales at ARGO-HYTOS.

“A quick, direct 1:1 exchange of a filter element is easily possible via the product key. The rollout of the portal to countries outside the DACH-region will be executed soon.”

### FIRST NEXT CHOICE

“No matter which filter element type the customers choose, they always receive a product that is as reliable as it is innovative,” summarizes Michele Profumo. “ARGO-HYTOS looks back on more than 75 years of experience in the development and manufacturing of filtration components and masters the entire process chain. It is no coincidence that numerous manufacturers of mobile off-highway machines have been using our filters as original equipment for many years.”

The ARGO-HYTOS Aftermarket: Your FIRST NEXT CHOICE! This means for the customer: an absolute premium filter element alternative with the best cost-performance ratio on the market and thus longer replacement intervals, better investment protection and lower total cost of ownership. In this way, everyone can benefit from the ARGO-HYTOS know-how. And with this quality, performance as well as the growing product portfolio, the Aftermarket will open up other markets.

### YOUR ADVANTAGES

- One team for all technical and commercial inquiries
- Fast selection and ordering via a customer portal
- Short delivery time for more than 90% of requested products
- Rapid processing of requests for new products
- Use of premium materials with the best cost-performance ratio on the market



Head to  
FLASH  
issue 25

# ARGO-HYTOS SUPPORTS FAMILIES FOR CHILDREN

The ARGO-HYTOS Corporate Social Responsibility (CSR) initiative now also supports a center for people with disabilities in Podanur Junction, close to the city of Coimbatore, Tamil Nadu (South of India).



“The foreign entities are much more than just an extended workbench for us.”

**Anke Kraus and Dr. Dirk Linden**

“You can tell a lot about a society by the way it treats the most vulnerable.” True to the word from the former German President Gustav Heinemann, ARGO-HYTOS is committed to support the Families for Children initiative. The NGO maintains facilities where specially trained educators care for children with physical and mental disabilities. Families for Children even offers vocational training for destitute women and young people who have not been able to obtain a regular degree.

The CSR initiative is currently identifying what is needed at the Families for Children centers and how ARGO-HYTOS can get involved in line with these needs. The CSR initiative first organized a birthday gathering to take action. Members of the CSR committee led by the General



Manager from ARGO-HYTOS India, Shrikant Bairagi, celebrated together with 23 children as well as Dr. Dirk Linden, Head of Group Technology & Production, and Anke Kraus, Head of Group Quality Management at ARGO-HYTOS. 215 individual cakes were distributed to the children and women at the center. The celebrations quickly brought smiles to the children’s faces.

“The foreign entities are much more than just an extended workbench for

us,” emphasize Anke Kraus and Dr. Dirk Linden. “We are constantly checking where and how we can make life a little better within the scope of our possibilities. Our special thanks go to Ms. Kaliselvi, Manager at Families For Children, and her team who actively supported us at our event.”

Last year the CSR initiative supported a school located near the Coimbatore plant in the southern Indian state of Tamil Nadu (as reported in FLASH 25). The building was completely refurbished with funds from the ARGO-HYTOS CSR initiative and equipped with a modern smart TV and audio system. A renovated kitchen and a new water purification system ensure a contemporary standard of hygiene. The expansion of the sponsorship project focusing on another school in Kovilpalayam is already in the planning.





## EMPLOYEE INTERVIEW

Sigrid Ackermann is Head of Legal at the ARGO-HYTOS Group. She advises on legal issues and tasks throughout the company – a position that requires expertise, flexibility and negotiating skills.



**“If a business relationship is good, the contract stays in the filing cabinet.”**

**Sigrid Ackermann**

### MRS. ACKERMANN, WHAT EXACTLY ARE YOUR RESPONSIBILITIES?

As Head of Legal, I am the first point of contact for legal issues within the ARGO-HYTOS Group. My day-to-day work is essentially divided into two areas. On the one hand, I grapple with topics that can be summarized as “corporate housekeeping,” and on the other hand, I provide support when inquiries from our business or management arise. Reviewing and editing contracts or providing clarifications to authorities is part of that. Additionally, when external lawyers come into play, I take on the coordination. For example, during the due diligence process in the run-up to the takeover of the majority shares by the Voith Group, I served as a liaison between the ARGO-HYTOS companies and external lawyers.

### LET'S STAY WITH THE VOITH GROUP FOR A MOMENT: HAVE YOUR TASKS CHANGED AS A RESULT?

Compliance in the sense of consistently observing legal regulations and applying high moral standards in everyday business is a lived principle of the corporate culture at Voith. With our belonging to the Voith Group, these guidelines laid down in the Code of Conduct also apply to us. As part of my responsibilities as Head of Legal, I also ensure that these guidelines are further implemented and anchored in the ARGO-HYTOS Group. Being part of the Voith Group also offers the opportunity to benefit from proven tools in numerous other areas, such as the electronic signing of legal documents.

### CLIMATE CHANGE, SUPPLY CHAIN BOTTLENECKS, SHORTAGE OF SKILLED WORKERS, PANDEMIC: DOES THE PERMANENT CRISIS HAVE AN IMPACT ON YOUR WORK?

The crises also concern me personally – and of course have an impact on our business and my work. We have to

talk to the customers if, for example, we want to increase the contractually agreed prices due to a general increase in raw material prices. Honest communication, flexibility and trust are crucial here. It is important to propose pragmatic solutions despite legal uncertainties.

### WHAT IS THE GREATEST CHALLENGE FOR YOU AS HEAD OF LEGAL?

My goal is to apply legal requirements and framework conditions in such a way that they are suitable for business. Clear formulations are important to me but also an appropriate balance between legal risks and business interests. If a business relationship is good, the contract stays in the filing cabinet. That is the ideal case. But the contract must provide clear and unambiguous answers if problems or questions arise.

### WHAT IS THE BEST THING ABOUT YOUR WORK?

When I can offer a value-added to the business. My internal “clients” can rely on me to provide them with competent and professional advice and support while I take responsibility for assessing the legal risks.

### WHAT IS YOUR FAVORITE PASTIME?

I like to be on foot in nature or cities. And I am a passionate (train) commuter. Podcasts have been my latest discovery. I've become a real fan and especially enjoy listening to them when I am on a walk.

# cLEAN-INITIATIVE: CLEAN & LEAN WORK!

A clean, well-structured workspace and efficient production are key success factors in modern companies. With the company-wide cLEAN campaign, ARGO-HYTOS is setting additional standards in terms of qualification and restructuring.

Comprehensive rules for a clean and structured workplace as well as for effective production processes apply at ARGO-HYTOS already today. The cLEAN initiative will further refine and strengthen these important topics through various communication measures such as flyers and videos. The campaign aims to further increase product quality and make work processes even more sustainable.

## CLEANLINESS IS ESSENTIAL

"Hydraulics come often into action in dirty environments but cleanliness is essential inside a machine. Fluid contamination is the most common cause of premature wear and machine downtime," explains Anke Kraus, Head of Group Quality Management at ARGO-HYTOS. "This makes it all the more important to raise awareness when it comes to cleanliness in the workplace."

Avoiding all kinds of contamination is of highest importance. ARGO-HYTOS has three golden rules for this:

- **Avoid dirt:** This applies to the selection of production equipment and methods as well as to the briefing for and selection of suppliers. Frequent causes of contamination are metal chips brought in with deliveries or abrasion from unsuitable packaging material, which must be avoided.
- **Remove contamination immediately:** The longer contamination persists, the more the foreign matter spreads and the more difficult it is to recapture. Those who react quickly avoid high and time-consuming cleaning costs.
- **Protect components from contamination:** There are a number of aspects to consider here, especially during storage and transport.

"Cleanliness for us is much more than just aesthetics," affirms Anke Kraus. "Avoiding contamination of any kind is a very important pillar of our quality concept. Therefore, every new employee receives special training on this very complex topic, also as part of the cLEAN campaign."

## ORDER INCREASES PRODUCTIVITY

"Only the tools and materials that are really needed at the moment should be at the workspace," explains Dr. Dirk Linden, Head of Group Technology & Production at ARGO-HYTOS. "The area should always be tidy, standardized and well-structured - you have a higher output if you search for less."

The 5S principle applies to the workspace:

- **Sort & select:** Separate the important from the unimportant - only what is currently needed should be in the workspace.
- **Set in order:** Arrange important tools and production equipment in a clear manner and within reach for easy accessibility - and to notice immediately if something is missing.
- **Shine:** Establish and maintain cleanliness - clean systematically and remove contamination immediately.
- **Standardize:** Tidy up according to standardized principles and check conditions according to the set-out plan. This way even a substitute can find their way around immediately.
- **Sustain:** Maintain the achieved conditions and improve them continuously - only the continuous implementation of the guidelines guarantees maximum quality.



### GET RID OF ANY BAGGAGE!

The LEAN principle is at least as important as adhering to the rules of cleanliness. "Production and intralogistics must get rid of everything that wastes time, manpower and production resources," asserts José Kemerer, Head of Group Supply Chain at ARGO-HYTOS. "We produce what the customer wants, needs and pays for – nothing less than that but also not more."

The following disruptive factors must be avoided:

- **Overproduction:** Any part that is produced but not processed further immediately wastes space, money and other resources.
- **Waiting times:** Delays in internal logistics and service operations cause involuntary pauses and lower productivity.
- **Excessive stock and buffer inventories:** Parts that are produced and kept in stock "just in case" are an indication of inadequate planning and must be avoided.
- **Defects:** The later a defect is detected, the higher the processing effort in production. Additionally, it can also lead to a loss of image if a defect is only noticed by the customer and not during production.
- **Superfluous movement:** Every movement on the shopfloor that does not directly serve production is a waste of energy.
- **Unnecessary transport:** Every route taken means additional costs. This makes careful planning in intralogistics all the more important.
- **Additional work and rework:** Every feature or element and every production step that is not explicitly requested by the customer reduces efficiency and increases unit costs - also for the customer. Rework is also relevant, meaning the correction of errors made in previous process steps.

### CHALLENGING AND FOSTERING EMPLOYEES

"The most important success factor in our company are our employees," conclude the three ARGO-HYTOS experts. "Putting their qualifications and talents to good use and promoting them in a targeted manner is one of the main objectives of our HR policy. Rules and specifications are essential, but the personal responsibility of each individual is even more important - in their personal workspace and beyond."



# HIGH-TECH ON THE FIELD

The efficient and needs-based application of liquid crop protection agents and fertilizers is one of the key factors for securing sustainable agriculture. ARGO-HYTOS has been working with the world's leading manufacturers of field sprayers for decades. We develop functional components, intelligent subsystems and innovative system solutions in close cooperation with customers.



FILTRATION



STEERING



SUSPENSION SYSTEM





HYDRAULIC TANK



FAN DRIVE



(AUTOMATIC) BOOM CONTROL



BRAKE RELEASE DEVICE

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# FUTURE PROSPECTS

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“We create a strong value-added for customers through intelligent system solutions.”

Erich Hofer



# EFFICIENCY AND INTEGRATION

The key technologies for a successful future are becoming increasingly apparent, especially in the hydraulics industry: if you want to be a strong competitor on the market, you need to save resources and interconnect technologies.

FROM ERICH HOFER, DR. MARCUS FISCHER AND STEFAN SCHINDLER

"I'd put my money on the sun and solar energy. What a source of power! I hope we don't have to wait until oil and coal run out before we tackle that." The need for energy transition was already recognized by the U.S. inventor and electrical engineer Thomas Alva Edison, born in 1847. We have known for a long time that saving energy and sustainability would become decisive cost and success factors. Skyrocketing energy prices and the relentless presence of climate change have made it clear to us once again how important it is to utilize resources effectively, also in the hydraulics industry.



"Electrification and decentralization are essential success factors."

**Stefan Schindler**

From left to right: Stefan Schindler, Erich Hofer, Dr. Marcus Fischer



## ENERGY EFFICIENCY AND DECENTRALIZATION

The ARGO-HYTOS Group recognized these trends early on. We analyze continuously the main causes for energy loss in hydraulics:

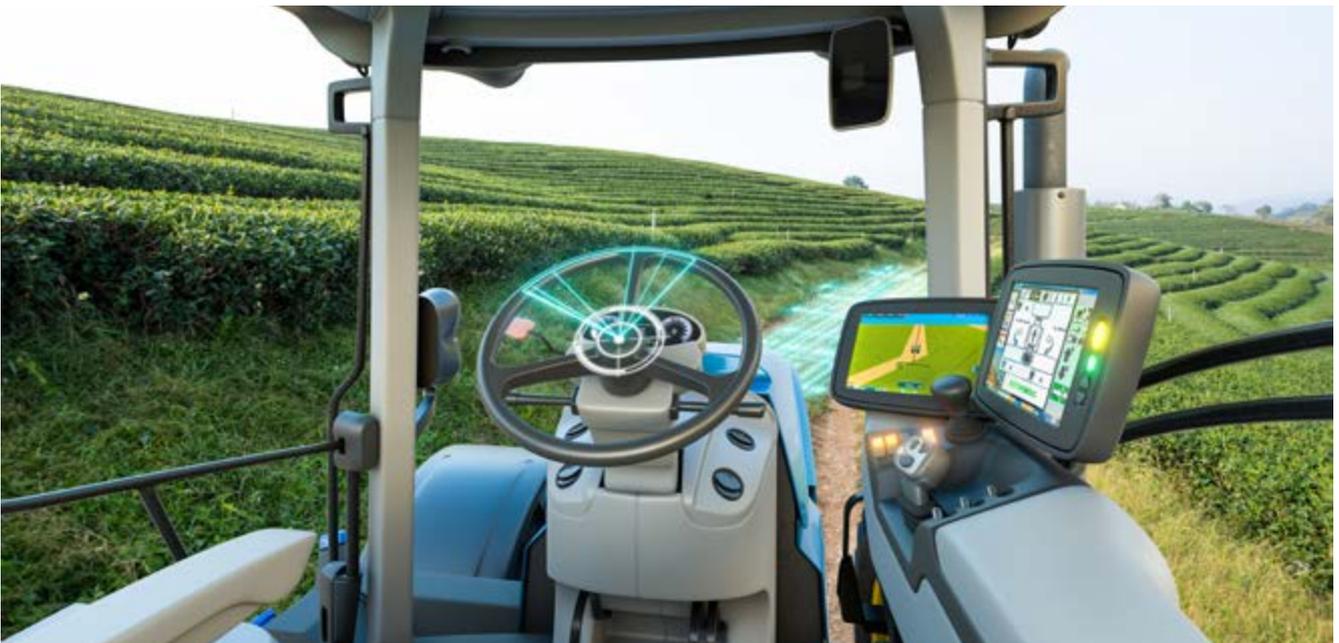
- Losses during energy conversion in pumps, motors and cylinders
- Losses in pipes, hoses and control blocks (HIC)
- Losses in valves and through inefficient control architecture
- Requirements of auxiliary units, for example, control and feed circuits or filtration

In addition to the continuous energy consumption optimization of all systems, decentralization is an important strategy to increase efficiency. The power here is distributed electrically instead of hydraulically using valve technology and a complex piping system; decentralized motor-pump units close to the actuators generate and distribute the hydraulic energy. The units can be optimally designed for a specific drive task. Losses due to pumps running idle and energy losses in lines and additional valves are avoided as far as possible. In this process, the control intelligence is often shifted from the central unit to the periphery. The local control of the decentralized unit takes over control processes as well as monitoring processes while the central control merely supplies the next position of the drive as a control command. This reduces the complexity of the systems and simplifies commissioning.

## FROM A COMPONENT SUPPLIER TO A SYSTEM SOLUTION PROVIDER

The decentralized approach also brings new opportunities for suppliers like ARGO-HYTOS: OEMs are increasingly demanding ready-configured electrohydraulic systems with local intelligence in contrast to the past where individual components and hydraulic subsystems were requested. These electrohydraulic systems can be easily integrated into the customer's products with no need to reinvent the wheel.

This allows also smaller manufacturers to partake in the market and launch, for example, commercial vehicles for agriculture or road construction without immense development effort. A good example brings an articulated dump truck with hydro-pneumatic suspension. It was possible to significantly reduce development time and effort by working together with ARGO-HYTOS application experts and using ready-made modules from the modular hydro-pneumatic suspension system. The design of cylinder sizes, pre-charging of the diaphragm accumulators or pipe diameters was carried out by ARGO-HYTOS based on machine data such as weight, loading conditions and speed. The software was configured and uploaded to the controller based on the proposed layout, and the control blocks and other accessories were selected. An initial functional test was carried out at the load test rig at ARGO-HYTOS. Before the system was even installed in the machine, all basic settings and functionalities had been tested and checked. Consequently, implementation was quick and easy.



Autonomous tractors in the cornfield: smart agriculture also requires innovative hydraulic concepts.



## SYNERGY WITH ELECTRONICS

The hydraulics industry is experiencing an exponential demand for electronics and sensor technology. For example, sprayers require spray nozzles that adapt according to application where the amount of crop protection liquid or fertilizer needs to be adjusted to avoid overuse and to protect the environment.

Hydraulic systems are increasingly monitoring themselves with modern sensory and intelligent evaluation software and electronics, which saves a lot of effort and resources. In the past, frequent fluid laboratory analyses and regular filter and fluid change intervals were a precautionary necessity. Nowadays, particle counters continuously provide very precise data on the degree of contamination of a hydraulic fluid. This means that change intervals can be tailored to requirements and maintenance can be triggered automatically via cloud platforms when really necessary.



“New concepts with a local-for-local focus pave the future for logistics and are continuously reducing our carbon footprint.”

**Dr. Marcus Fischer**

### 75 YEARS ARGO-HYTOS

ARGO-HYTOS celebrated its 75th anniversary on the 7th of July. Since its [founding in 1947](#), the company has grown into a worldwide provider of smart system solutions for fluid & motion control and filtration technology and has gained a reputation as an innovation leader especially in the mobile hydraulics. “We want to follow this path in the next 75 years,” emphasizes Erich Hofer, CEO / CFO. “ARGO-HYTOS is continuously evolving into a system solution provider. The needs of customers as well as our environment will continue to build the basis of our decisions in the future.”

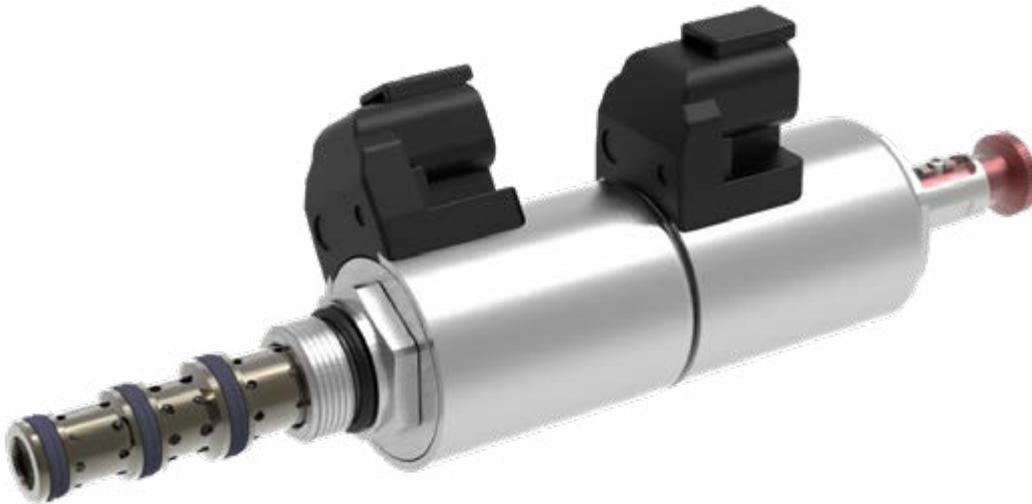
## DECENTRALIZED LOGISTICS

Not just in the field of engineering are the trends pointing to decentralization but also in production and logistics. For a long time, it was not uncommon for the necessary components to be produced at one location and then shipped to the customer sites. Although this strategy allowed for higher volumes to be produced, it was also accompanied with risks due to disruptions in the supply chains while also causing increased transport costs. Reasonable and reliable transport costs are becoming more and more a challenge due to ever higher energy prices and political developments. Therefore, ARGO-HYTOS attaches great importance to a local-for-local approach where production takes place at the customer's site whenever possible. Similarly, supplier parts are manufactured in the immediate vicinity of the production site and are thus readily available – with a strong focus on sustainability. This enables us to reduce inefficient logistics expenses and CO<sub>2</sub> emissions sustainably. Shorter supply chains allow us to respond more quickly to changing requirements, which leads to higher flexibility.

## EMBARKING ON THE FUTURE TOGETHER

The future of the hydraulics industry is as complex as the technology itself. And the recent past has shown that nothing is more difficult than predicting the future. But one thing is for sure: it will be digital, integrative, energy-saving and, above all, sustainable. It is important for us to act responsibly in our daily work and reduce our CO<sub>2</sub> footprint. The best example of this approach is our company-wide cLEAN campaign with which we are continuing to set the highest standards in terms of qualification and a streamlined production as well as administration.

But no matter where the journey takes us, the ARGO-HYTOS Group is well positioned – thanks to its pioneering technologies and innovations, user-oriented system solutions and smart applications. This successful development is based on a flexible, motivated and high-performance team. The takeover of the Voith Group underpins this path. The globally active, broadly positioned technology group stands by ARGO-HYTOS as a new, financially strong partner. The family-run group provides the basis for synergies, further growth and sustainable value creation – in a business environment that is becoming increasingly challenging, not least due to dynamic political developments and their economic impact.



SD2E-A4/H3 BY  
ARGO-HYTOS

4/3-way screw-in valve  
for 3/4-16 UNF (SAE 08)  
internal thread

# SCREW-IN CARTRIDGE 4/3 DIRECTIONAL VALVE SD2E-A4/H3

Two solenoids, one control system and an outstanding performance: The SD2E-A4/H3 screw-in directional control valve can be installed in any chamber with a 3/4 UNF (SAE 08) internal thread, making it universally suitable.

The screw-in valve clearly stands out on the market, thanks to its performance data: it can reach a flow up to 30 l/min, which is about twice as much as similar valves on the market. The 4/3-way valve can operate up to 350 bar operating pressure on channels 2, 3 and 4, and 250 bar on channel 1 – values that are not achieved by most products on the market. Tested on a proof-of-concept basis, the valve achieves 10 million switching cycles, making it suitable for very demanding applications. The pressure drop at 10 l/min is 3 bar, at 30 l/min 10 - 20 bar, depending on coil type and flow direction.

The compact dimensions of the SD2E-A4/H3 make the valve particularly suitable for mobile machines where installation space is usually limited. The zinc-coated housing has withstood 520 hours in the salt spray test (according to ISO 9227).

## YOUR ADVANTAGES

- High flow rate
- High operating pressure
- Less space required due to compact housing
- Corrosion resistant surface



# HYDRAULIC VALVES FOR HAZARDOUS AREAS

Hydraulic systems must work safely and reliably in potentially explosive areas. ARGO-HYTOS has been offering safe EX valves for more than ten years for mines, chemical or petrochemical plants as well as dust areas prone to explosion.

The valves are designed according to explosion protection class EPL b. This corresponds to a “high” level of protection for the use in particularly hazardous areas where there is a chance of ignition during normal operation or foreseeable faults and malfunctions.

Coil operated explosion proof valves are available on the market in different versions. Each of them consists of an electrical part, the solenoid control coil and a mechanical part, which includes the control system and the hydraulic section.

The basic protection for the solenoid coil is an encapsulation with insulating material (protection class m, EN 60079-18). The terminal strip for the electrical connection of the coil as well as the cable gland are certified according to e (EN 60079-7). Our EX valves are certified for hazardous dust areas prone to explosion according to protection class t (EN 60079-31).

The coils themselves are certified according to the European Directive 2014/34/EU and the internationally applicable IECEx as well as other national standards.

The power rating is related to the maximum surface temperature of the coil, which in turn is divided into classes: valves with a 10 W coil can be used in temperature classes T4 (135 °C), T5 (100 °C) or T6 (85 °C), provided that the power supply, ambient and fluid temperature specifications are not exceeded. The 18 watt variant can only be used in the T4 class due to its higher power dissipation.

The valves can be equipped with a manual emergency control, in case of coil or power failure. The manual override can be controlled up to 25 bar pressure in the control system. A spool operated directional control valve with built-in manual control allows operation at up to 100 bar pressure at the T-port. This does not affect the normal coil control.

## YOUR ADVANTAGES

- Explosion-proof operation
- Certified according to international standards
- Flexible power supply
- Corrosion resistant
- Insensitive to mechanical stress
- Can be utilized under difficult conditions in mines



Head to the  
EX valves  
article

# EFFECTIVE AND COST-EFFICIENT

Innovative AirEX air separation system for hydraulic filters

We frequently encounter return-line filters in hydraulics. On the one hand, this is due to their inexpensive housings, which have to withstand comparatively low pressures. On the other hand, they offer a variety of designs and variants that can be drawn from them. Thus, they are suitable for all filtration tasks in the return flow and leak oil area. Return flow filters are available in the classic version as tank-top or tank-mounted filters and as in-tank filters as well as filters for in-line installation.

## TANK-TOP OR TANK-MOUNTED FILTER

This design stands for maintenance and is environmentally friendly; the tank-mounted filters are usually easily accessible in order to carry out the filter service in just a few steps and with practically no loss of oil. Furthermore, many additional functions can be integrated in the filter head such as tank ventilation, tank level control, a clogging indicator or magnets. This means that users can implement separate interfaces for ventilating filters, for example. At the same time, the risk of leakage and costs in the manufacturing of the hydraulic tank are minimized.

## IN-TANK FILTER

In-tank-mounted filters are found especially in machines with very high return flow rates. These are tank-mounted filters without a head piece, which can be suspended in a customized tank chamber. The chamber then serves as a head piece and as a collector. All the return flows that have to be filtered are directed into this tank chamber and flow into the tank via the built-in filter.

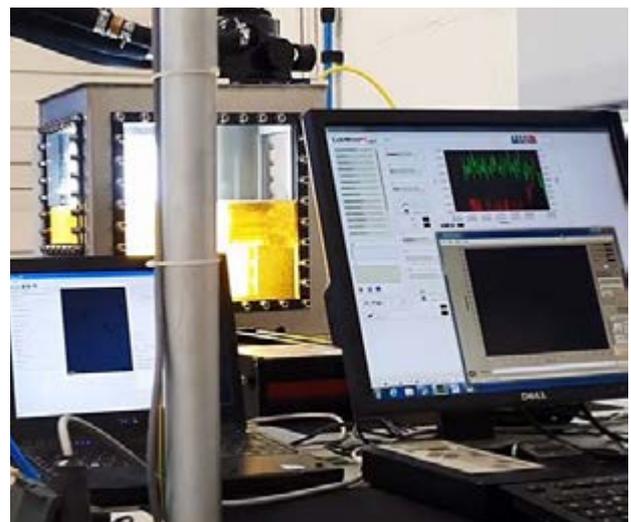
Since very large return filters can be disadvantageous in terms of handling and costs, the in-tank filters that are often installed are designed for only half or one-third of the return volume. Therefore, two or three compact filters are installed, which means a larger purchasing volume

for series and maintenance parts – which in turn minimizes costs. The ease of maintenance and environmental friendliness are comparable to tank-mounted filters. In terms of functional integration, however, minor compromises have to be made.

## AIR SEPARATION – 2 DESIGNS TO CHOOSE FROM

ARGO-HYTOS has developed a new type of air separation system for return flow filters. Taking into account all working conditions, the AirEX separation reduces the air content in the hydraulic medium by around 40%, independent of volume flow and viscosity.

By using AirEX, it is in many cases possible to reduce the tank volume by around 30% and still improve air separation. This avoids malfunctions caused by air bubbles, damage and thus unplanned repair costs and downtimes.



## AT THE TEST RIG

The clear winner after the air separation comparative test: the AirEX air separation from ARGO-HYTOS.

## EFFICIENCY OF AIR SEPARATION

In the past, the outgassing of air was favored by large-volume tanks and long dwell times since it is usually not possible to completely avoid the introduction of air into the hydraulic medium. Increasingly compact solutions are now reducing the installation space in the machine. Continuously increasing environmental and cost pressures also mean that large quantities of oil in large-volume tanks are no longer appropriate. However, the logical reduction in tank volume and dwell times can lead to problems as air contained in the oil is sucked back in faster than it is outgassed.

ARGO-HYTOS has simulated this in a comparative test on its air separation test rig. 4 return flow filter designs were compared:

- Standard return filter (tank-top mounted)
- Standard return filter with AirEX air separation module
- In-tank return filter AirEX-Light (without guiding tube)
- In-tank return filter AirEX (with guiding tube)

The first two filters are designated TE (Top Entry) since the oil first flows into the filter head. The flow direction of the filter element inside the filters is from the outside to the inside, as is common in most cases.

In the two tank-mounted filter designs, the oil first flows into the filter from below. For this reason, they are referred to as BE (bottom entry). The flow direction is from the inside to the outside, which is advantageous in terms of air separation and further flow guidance in the tank.

In the comparative test, the TE type "Standard return filter with AirEX air separation module" performed best, reducing the air content by 40% compared to the identical filter without AirEX. The two BE types achieved a 15% reduction.

At the end of the test, the filters with AirEX continued to outperform the standard filter with the advantage of the "Standard return filter with AirEX air separation module" becoming even clearer. It was thus possible to clearly demonstrate how quickly and efficiently the different air separation technologies work.

## YOUR ADVANTAGES

- Reduction of the air content in the hydraulic system by up to 40%
- Avoidance of cavitation damage
- Possible reduction of tank volume up to 30%
- Cost and installation space savings
- Reduction of oil change quantity and extension of oil change interval

## WHEN ARE THE BE VARIANTS USEFUL?

Since all types of designs are used successfully in practice and have their justification, the following recommendations can nevertheless be made:

The in-tank return flow filters with or without guiding tube (BE AirEX or BE AirEX-Light) should be used only if air enters the system sporadically and there is no acute air problem (e.g. permanent noise or cavitation). In addition, they are particularly suitable for machines in which the hydraulic tank is positioned at the highest point (i.e. harvesters or beet harvesters). The return line does not have to be routed upward to the tank surface but can be routed directly through the tank bottom or laterally through a tank wall to the filter. This design is also recommended for machines where the operators have to walk on the tank (excavators) since only a flat cover of the filter is visible on the tank.

This filter design consists of only a few components (cover, filter element and eventually a guiding tube), which makes it the most cost-effective return flow filter design, especially for large volume flows.

## WHEN ARE THE TE VARIANTS USEFUL?

The standard tank-top return filter or tank-mounted filter should be supplemented with an AirEX air separator module for machines with regularly occurring air issues. The AirEX air separator module can also be retrofitted for this purpose, provided there is sufficient space to the tank bottom. In this way, the advantages of the proven return filter concept are retained and supplemented by the most effective air separation technology currently available on the market. Depending on the tank design, further potential savings can be achieved by significantly reducing the tank volume.



Head to the comparative test video

# FLEXIBLE AND INTELLIGENT: NEW VENTILATING FILTER SERIES VFT-2500

**A** RGO-HYTOS has expanded its product portfolio for tank ventilation with the newly developed ventilating filter series VFT-2500. The serial production start is January 2023. The products capture innovative and detail solutions with high modularity just like the smaller and existing ARGO-HYTOS series that have proven themselves on the market. Two filter finenesses, numerous connection options and a nominal volume flow of a generous 2,500 l/min enable the use for ventilation of hydraulic reservoirs of sophisticated stationary plants as well as mobile machines with correspondingly large air exchange or large amounts of dirt.

## INTELLIGENT DETAIL SOLUTION

Operators have the option to choose a clogging indicator to specify when the filter element needs to be changed. This optical, manually resettable vacuum indicator guarantees optimum utilization of the filter life.

### PERFORMANCE DATA

Nominal flow:	up to 2,500 l/min
Filter element:	changeable
Filter fineness:	Fine filter - 2 µm(c) or wet air filter - 60 µm (screen)
Connections:	Thread G 1, G 1¼ or 6 hole flange (Ø 73 mm)



## YOUR ADVANTAGES

- High filtration performance
- Cost-effective filter maintenance
- Resistance against unauthorized opening

The flexible installation concept of the service-friendly housings is another noticeable added value for the operator. Depending on the tank interface, the flow-optimized filter housings can be screwed in by means of a threaded connection or flange-mounted directly. A bayonet thread in the cover ensures fast, uncomplicated and convenient filter element replacement. The necessary security is also provided: the filters can be secured with a padlock to prevent unauthorized access.

In addition, numerous design measures prevent water from entering the housing or tank of the system as well as hydraulic fluid from leaking out of the tank.

# STRONGER TOGETHER

A good network saves time and effort, especially for a global player like ARGO-HYTOS. That is why we see every project as an interconnected task – both in terms of technology and organization.

**H**ow to build complex structures from easy and standardized components? Who to ask when you are stuck? Little did our engineers know that when building castles with colorful bricks during childhood, their play would pave the foundation for their career in the Industry 4.0 – even if the professional field of hydraulics is a tad more complicated. We know our technology components – from the individual valve to a complete system solution with controls and sensor technology. We study global market developments and how customers respond to them. We develop new standard products and design customized solutions.

There are still a few guiding principles from the playful universe of colorful bricks that have their validity. For example, it is still a good idea to return to the collective know-how when developing solutions, especially at ARGO-HYTOS whose entities are spread across the globe. This way a project proposal might come into an engineer's inbox in the Pacific Time while the circuit diagram is drawn in the ESZ-Zone and the 3D model is prepared on the other side of the globe – the sun never sets for the Applications Team scattered across the world. Our international industry managers keep an eye on the global demands and have a close exchange with local Applications Teams, which carry out regional adaptations and new developments that adhere to local demands. The root of the success is always the network of people and their competences. This requires a lot of organizational effort, but it is worth it. And our motto is: It is better to communicate worldwide than to reinvent the wheel locally.

Because there are more than enough wheels at ARGO-HYTOS: A large pool of standard components and pre-assembled system parts build the base for function-specific and custom solutions, similar to the colorful bricks from way back then. Here too, experts from different technical domains, regions and departments have to come together. The recipe for success is always the network; usually components from different domains such as sensor, motion control and filter technology have to be combined. Collaboration and

knowledge transfer are a given since the result is a lot more than just a sum of the individual components. This is especially true for the collective intelligence of the engineers: it happens occasionally that a task that looks completely new at first has already been solved or approached similarly in a different entity.

Often there are standard solutions for problems that seem highly specific at first glance. It is not rare that customized systems exist, which can be adapted into new solutions with slight modifications. Many ideas and documented processes are behind the results of our specialists, which are applied to the next tasks and customer requests. This way, comparable projects can be realized more efficiently and speedily.

Even if the signals across the world are currently pointing more in the direction of confrontation, division and separation: We at ARGO-HYTOS will continue to build bridges in the company and encourage open communication to come together – even if we are geographically scattered. Network and information have become as important of a resource in the 21st century as raw materials and energy. Network and information are the resources that are practically without any limitations and readily available – resources that only become more powerful, the more they are used.

# FLUID MANAGEMENT AND CONDITION MONITORING UNDER ONE ROOF

Two important development and production expertise are combined at the ARGO-HYTOS site in Zator, Poland. A convenient location and the proximity to universities are important advantages.



“A job with  
many different  
perspectives.”

Mateusz Krupnik

## ARGO-HYTOS IN ZATOR

Central location near four technical universities and important suppliers.

**A** RGO-HYTOS has been supplying quality products all over the world from its Zator site for almost ten years now. A strong demand and good sales results prompted the move away from the previous Wadowice site to Zator.

With 1,700 square meters, Zator offers sufficient space for production and enables a flexible and fast response to customer needs as well as today's market demands. Hydraulic blocks and systems are shipped as prototypes or in smaller quantities to the ARGO-HYTOS entities in Northern and Eastern Europe. The Polish entity established a network of twelve distributors due to its market presence over the past years. This network covers the most important parts of Poland and enables about

30% of sales. The rest of the business is done directly with OEMs or end customers.

## PRODUCTS FOR FUTURE MARKETS

While the German site concentrates on filtration, Poland has developed into a center for the development and production of sensors for Condition Monitoring in hydraulics. The expert fields of Fluid Management and Condition Monitoring are united under one roof. The attractive product portfolio serves as one of ARGO-HYTOS' most important future market offerings. The impressive growth rates of 30% in each of the years 2020 and 2021 prove this potential.

## INTERNATIONAL

Despite difficulties caused by the crisis such as disruptions to the supply chain, Zator continues to be on course for success in a market characterized by a high pace of innovation. More and more customers are demanding plug-and-play sensor technology while the trend moves toward standardized systems such as iLink, remote software and cloud solutions. Hydraulic service is also developing as a business sector where Zator is excellently equipped.

### ATTRACTIVE AND WELL CONNECTED

The central and convenient location proves to be an important advantage: Zator is close to important highways and the Krakow Airport. The area is known to tourists for its nature and history while also being an attractive place to live. Around 70 people are currently employed at the entity, about a third of whom are engineers.

The proximity to the university cities of Krakow and Katowice has a positive effect on the search for specialists. ARGO-HYTOS provides fluid management equipment free of charge to the teaching institutions, thus actively promoting employer branding in the region. The Zator entity is a very attractive employer for students who have completed their training. A full-time position is on the horizon – with a renowned global player.



Mateusz Krupnik, Designer and Software Engineer at ARGO-HYTOS in Zator, talks about his job and future opportunities.

### HOW DID YOU BECOME PART OF THE ARGO-HYTOS TEAM?

During my studies at AGH University of Science and Technology in Krakow, I completed a summer internship at ARGO-HYTOS in Zator. Since I enjoyed the work a lot and could also develop professionally, I applied for an apprenticeship in the technical department next to my studies. They not only gave me this opportunity but also offered me a permanent position later on.

### WHAT DID YOUR TRAINING LOOK LIKE?

I learned about all departments during my training: from assembly and technical support to the design of simple hydraulic power units and blocks or complex hydraulic power units. This allowed me to gain valuable experiences in hydraulics, mechanics, automation and programming, which I still apply in my current role.

### WHAT ARE YOUR RESPONSIBILITIES AT ARGO-HYTOS?

I work as a Designer and Software Engineer. Currently, I am focusing on a project in the Condition Monitoring field where I am mainly responsible for engineering and product support. For example, we use intelligent sensor technology to monitor the condition of a machine to increase efficiency and minimize costs through optimized machine utilization.

### WHAT MAKES YOUR WORK IN AN INTERNATIONAL COMPANY SPECIAL?

The job is very diverse, exciting and creative as different experiences and backgrounds come together in an international team. Naturally this leads to different and innovative approaches. Additionally, there is the unique opportunity to brush up and improve one's language skills. Overall, ARGO-HYTOS really allows me to develop my professional perspectives in a decisive manner.

# NEW KIDS ON THE JOB

## Next generation hydraulic filters

Our Aftermarket filter elements push boundaries, are tough and fit in a huge range of machines. Attractive prices, short delivery time and top performance make our filters the stars of the show. **ARGO-HYTOS - your FIRST NEXT CHOICE.**

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FIRST NEXT CHOICE