

# AGRAMKOW



PLIS  
FACTORY

## INNOVATIVE SOLUTIONS

For refrigeration, air condition & heat pump manufacturers



Established  
1977



Employees  
200

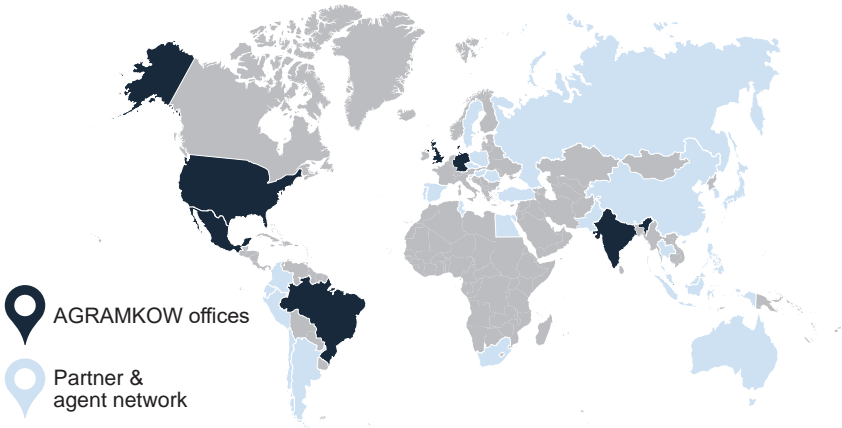


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# AGRAMKOW AT A GLANCE

AGRAMKOW is the world-leading solution provider of sustainable solutions for manufacturers within refrigeration, air-conditioning and heat pumps.

We design, manufacture, install, service and advise our global customers on solutions, which ensure our customers improved efficiency, productivity, and quality in their manufacturing process towards sustainability.



## Office locations

USA  
Mexico  
Brazil

Denmark  
Germany  
UK

India  
Singapore

We also have an extensive partner and agent network located around the globe



# LEADING IN PRODUCTION **EFFICIENCY**

Our main focus are your needs, to personalize our services and solutions to meet your particular requirements. With over 40 years of experience and based on deep analysis of processes, needs and goals of our customers, AGRAMKOW has laid the foundation for innovative, intelligent, and sustainable solutions.

Let us help you take your business to the next level with solutions that have a proven track record around the globe and can lead to great improvements in business performance and efficiency.

# ONE-STOP-SHOP FOR END-OF-LINE SOLUTIONS READY FOR INDUSTRY 4.0

From individual charging, evacuation, and testing stations to a complete production line information system, we pave your way to data-driven production resulting in continuous quality and productivity improvements and better informed decision-making.



Leak  
detection



Evacuation &  
repair



Refrigerant  
charging



Refrigerant  
supply



Safety  
solutions



Performance  
testing



Production line  
management



Service &  
support



# LEAK DETECTION

If you want to succeed in an increasingly competitive market, you need to get serious about improving your process quality, boost your productivity and enhance your reputation. We all know that any leaks that pass inspection undetected will undoubtedly kick back later in the form of product returns or complaints. Both will have a big impact on warranty costs and can even worsen your brand image.

With leak detection solutions by AGRAMKOW, you can detect leaks early in the process and dramatically reduce the need for performing numerous repairs on defective products or worse, take them back when they have been delivered to dissatisfied customers.

For a complete leak detection experience, you can combine your solution with PLIS Factory and get an overview of all underlying problems behind the leaks. Because what is better than identifying leaks – preventing them!



HRM-6  
Helium recovery



PROTRACE  
Flow and leak testing



Satellite  
Split operation

## PROTRACE

Flow and leak testing, all-in-one solution

PROTRACE allows you to perform different pressure tests and conduct tracer gas filling, using different media for both flow test and leak testing with just one test instrument.

The PROTRACE has 2 vacuum system options, programmable channels and multiple media options so it can be easily configured completely to your needs. It is flexible and complies with various installation requirements, the connecting hoses are adaptable to both sides of the station and the pressure-recovery process can be divided by means of the satellite option.

By combining the PROTRACE solution with HRM-6, you can achieve high leak detection quality and overall production efficiency. The HRM-6 provides fast, easy, and efficient way to recover helium and is designed to recover pressures up to six bars.



# EVACUATION

Refrigeration systems are designed to run without moisture and non-condensable gases. Any traces of non-condensable gases can reduce the cooling efficiency, prevent the refrigerator/ air-condition unit to work properly, and what is worse, it can cause premature failure. That could have negative affect on your brand quality.

Evacuation solutions by AGRAMKOW are designed for safe operation and high evacuation capacity so you can perform the evacuation process successfully. Choose from a variety of evacuation solutions for different applications, e.g. evacuation kit for mounting in a conveyor system, kit for integrators or complete evacuation station for stationary installation.

# REPAIR

Whenever a refrigeration system is opened for repair, it is essential to make a proper evacuation and remove all refrigerants, non-condensable gases and other contaminates. What is more important is to do it safely. Our PROVAC-EX is the cornerstone in the repair area and allows you to safely evacuate all flammable refrigerants before the product is repaired.



PROVAC



CVC nano



PROVAC-KIT

## PROVAC

Save valuable production time

The PROVAC evacuation station secures the possibility for optimizing the vacuum process in order to save valuable production time using a microprocessor controlled vacuum controller which ensures an automatic pass/fail indication together with connectivity to PLIS Factory for improved traceability.

The process sequence consists of several process steps and can be individually configured as required. For each step, a vacuum level or time can be programmed and it is also possible to select a pressure rise test to check for rough leaks.

While the evacuation process is running, relevant data is shown on the display for easy process monitoring.



PROVAC-EX

## PROVAC-EX

Safe and efficient evacuation of flammable refrigerants during reparation

The PROVAC-EX is built to discharge refrigerants during a repair process of refrigerant circuits that have already been charged with flammable refrigerants, classified as A3.

It is equipped with two hoses that can be used both at the same time or to discharge two different refrigerants without the risk of leakage or intermix between the two separate hoses. While in operation, the PROVAC-EX only unlocks the required hose/s, resulting in minimal errors and enables safe handling for the operator.

# REFRIGERANT CHARGING

One of the challenges manufacturers face today is to maximize efficiency and improve their productivity to achieve the best, optimal results.

With charging solution by AGRAMKOW, it is easy to maximize your productivity with accurate, high speed charging solutions. To meet the demand of the industry, we have extensive portfolio and offer solutions from small to high volume manufacturing both solutions for flammable and non-flammable refrigerants.

As part of our ambition to reduce environmental impact, we focus on developing energy efficient solutions but still maintain the highest level of safety. The products are robust and based on standard modules that enable easy maintenance to minimize downtime.



## NO-ZONE CHARGING SOLUTION

A revolution in flammable charging

The perfect fit for manufacturers that want to transform quickly, safely, and easily to flammable refrigerants. The No-Zone Charging Solution can be easily installed and has been developed to significantly reduce the total cost of your charging setup with minimal requirements for changes in your existing layout.

It consists of standard modules offering flexible configurations, making the maintenance simple and efficient. Compared to traditional charging solutions for flammable refrigerants, the No-Zone Solution is designed to reduce the energy consumption of your charging area of up to 90%.

Refrigerants: A2L mildly flammable, A3 flammable  
Industry: Moderate speed production lines



## PROSONO ULTRASONIC WELDER

Reliable, high-quality welding

The PROSONO ultrasonic welding system utilizes advanced ultrasonic friction welding technology to create a secure, leak-proof seal on refrigerant tubes.

The process is monitored and supervised for targeted material softness and is completed under one second.

Precisely controlled energy consumption ensures long service life of the welding tools. The ECO Function reduces electricity and compressed air consumption by automatically shutting down the flow of cooling air during idle periods.

Designed for production environments where precision, uptime, and reliability are critical, PROSONO ensures every weld meets the highest standards. Ideal for use with flammable refrigerants, such as Isobutane (R600a) and Propane (R290).



## PROMAX

Improve productivity

From the most basic charging functions to the highest speed and performance, PROMAX sets a new standard for uptime and quality. It offers unique flexibility thanks to the movable MPC2 controller which can be placed wherever it suits you best. It is even possible to deploy multiple controllers for one charging station to maximize your productivity.

Refrigerants: flammable and non-flammable  
Industry: High speed production lines



## SARAMAX

Economical and safe charging technology

SARAMAX is an all-in-one charging station for flammable and non-flammable refrigerants. SARAMAX houses advanced technologies that put a break on potential speed losses. And it all happens with the speed of the modular, dual-action charging cylinder that works as a both pump and a charging cylinder.

Refrigerants: flammable and non-flammable  
Industry: Moderate speed production lines



## EMAC

Non-flammable charging, all-in-one solution

The compact and flexible EMAC is the perfect match for mid-sized to high volume manufacturers in the refrigeration and air conditioning industry and has been designed for maximum accuracy and to improve your productivity. The EMAC comes in three models, each model with different charging speed, varying from 40 g/sec up to 150 g/sec. The pump module has Programmable Density Level (PDL) which secures high charging accuracy with refrigerant blends.

Refrigerants: non-flammable  
Industry: High speed production lines



## SARATRONIC

Low cost solution for refrigerant charging

High performance, low maintenance evacuation and charging stations equipped and priced for small and medium sized refrigeration and air conditioning manufacturers. SARATRONIC comes with everything you need to improve productivity of your evacuation and charging operations. It is also well-suited for applications like heat pumps, liquid coolers and vending machines.

Refrigerants: non-flammable  
Industry: Moderate speed production lines



## EMAC-CO<sub>2</sub>

Charging made simple

Based on the robust design of EMAC, the EMAC CO<sub>2</sub> combines state of the art technology with high quality components to ensure a reliable and accurate charging process. The EMAC CO<sub>2</sub> charges CO<sub>2</sub> in a gaseous phase removing the need for external cooling and insulated supply lines. In fact, the EMAC CO<sub>2</sub> will function within specification from 10°C to 50°C without any special requirements.

Refrigerants: R744



## REFRIGERANT **SUPPLY**

For enhanced charging performance, you need a stable and reliable refrigerant supply pump to ensure efficiency and safety during your charging process.

Supply solutions by AGRAMKOW are easy to integrate into your current production line, require minimum setup time and easy maintenance access results in minimum downtime. Thanks to modular configuration, the supply solutions are scalable to meet your current needs and can easily be expanded to meet future challenges.



## Supply solutions

Scalable solution for flammable and non-flammable applications

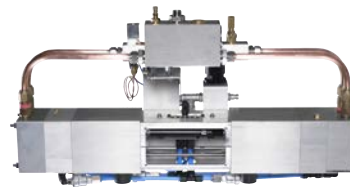
Enjoy the benefits of high performance, modular supply pump that is designed to meet your needs today and in the future. Depending on your requirements, you can choose a full-feature supply pump with state-of-the-art controller functionality or select a basic supply pump that you can upgrade anytime as your needs evolve.

The RSS-400 is easy to use and maintain so you can enjoy all the features that the supply pump has to offer, including:

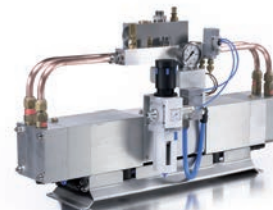
- Positive displacement design prevents downtime
- Equipped with a refrigerant cooled circuit for increased capacity
- Electronically controlled with a display and keypad where parameters can be entered or changed and for monitoring pump status
- Inlet supported with pneumatic operated valve that closes automatically when the pump is not in use to prevent accidental discharge of refrigerants
- Equipped with castor wheels as standard so it can be placed almost everywhere



RS-Controller



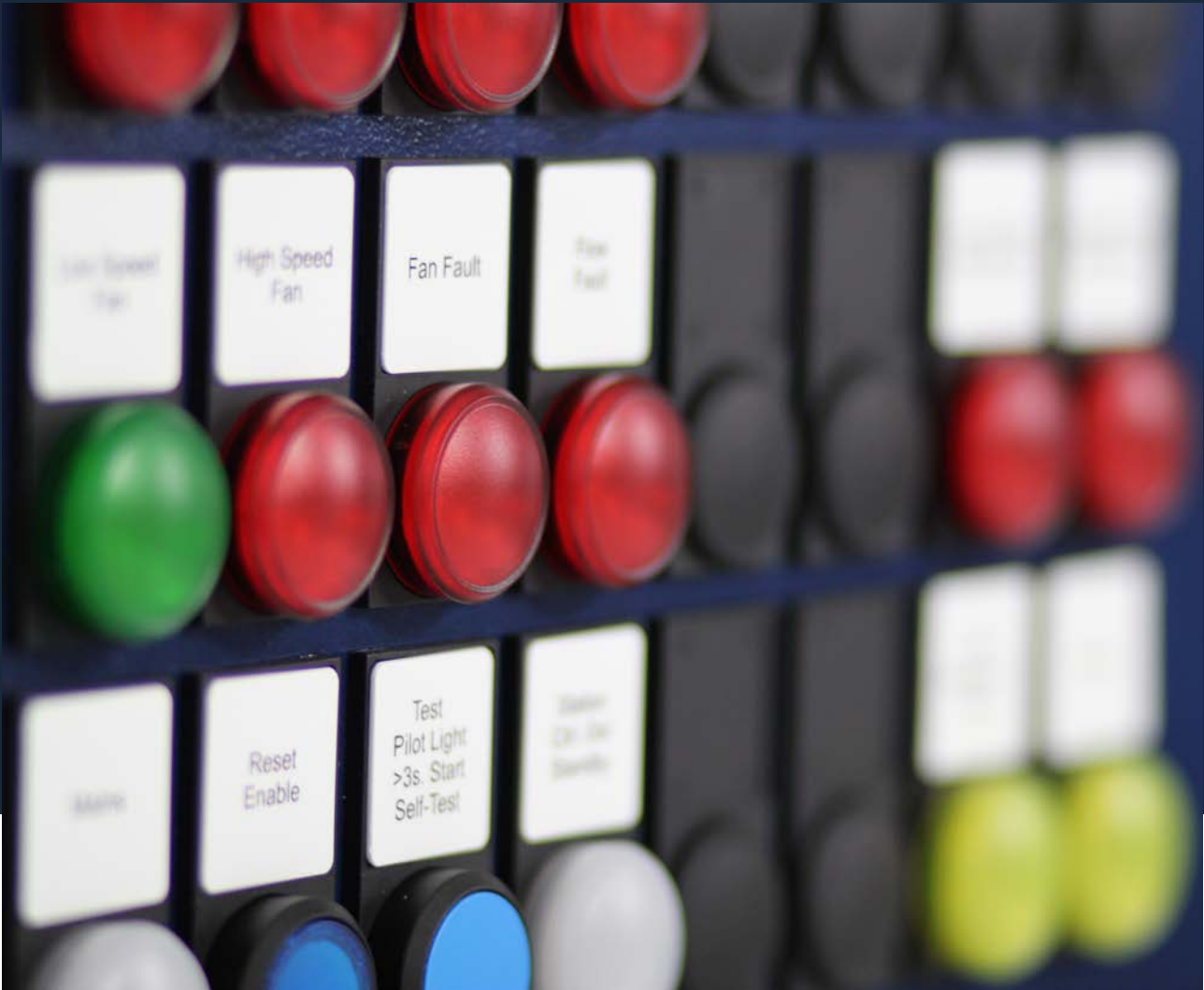
RS-F  
For flammable refrigerants



RS-170  
For non-flammable refrigerants



Cooling unit



# **SAFETY** SYSTEMS & TESTING

Safety should always stand as a top concern for all manufacturers. A safe workspace not only protects workers from injuries, it can also lower cost, reduce absences and turnover, increase productivity and quality. In other words, safety is good for business.

AGRAMKOW understands the risks that come with manufacturing and we have developed safety solutions that assure safe operation while charging with flammable refrigerants. We aim to provide guidelines for management to establish safety concepts and equipment to prevent and detect safety hazards.

AGRAMKOW also provides electrical safety testing solutions that ensure that your products are tested according to standards and are easy and safe to use for the operator.



## SAFE-EN2

Ensure safety in your production area

SAFE-EN2 is an advanced safety supervision system, designed to monitor hazardous EX-zones for potential leakage of flammable refrigerants, including A2, A2L and A3. By utilizing sensors to detect gas leakage, the SAFE-EN controls the ventilation within a designated area to ensure a safe working environment.

This innovative system is capable of automatically adjust the ventilation speed in response to the detection of a refrigerant leakage, effectively mitigating the risk of an unsafe environment. The sensors that are positioned in the EX-zone detect the level of leakage and can automatically trigger alarms based on the gas concentration: yellow alarm and red alarm.



## SAFE-BOX

A new approach to A2L gas monitoring

Designed to ensure safe operation during charging with A2L classified refrigerants and connects to any AGRAMKOW charging station that can charge with flammable refrigerants.

With this cost-efficient, safe solution, there is no need to invest in external ventilation systems such as hoods, fans or other setup that moves air to the outside. The SAFE-BOX is all you need! It includes a fan and sensors that detect any gas leakage. It also ensures that there is sufficient ventilation flow throughout the entire system. The SAFE-BOX even reduces energy loss as it draws air from the production area and releases it back into the production area, reducing the energy loss significantly.



## EST-200

Cost-efficient electrical safety testing

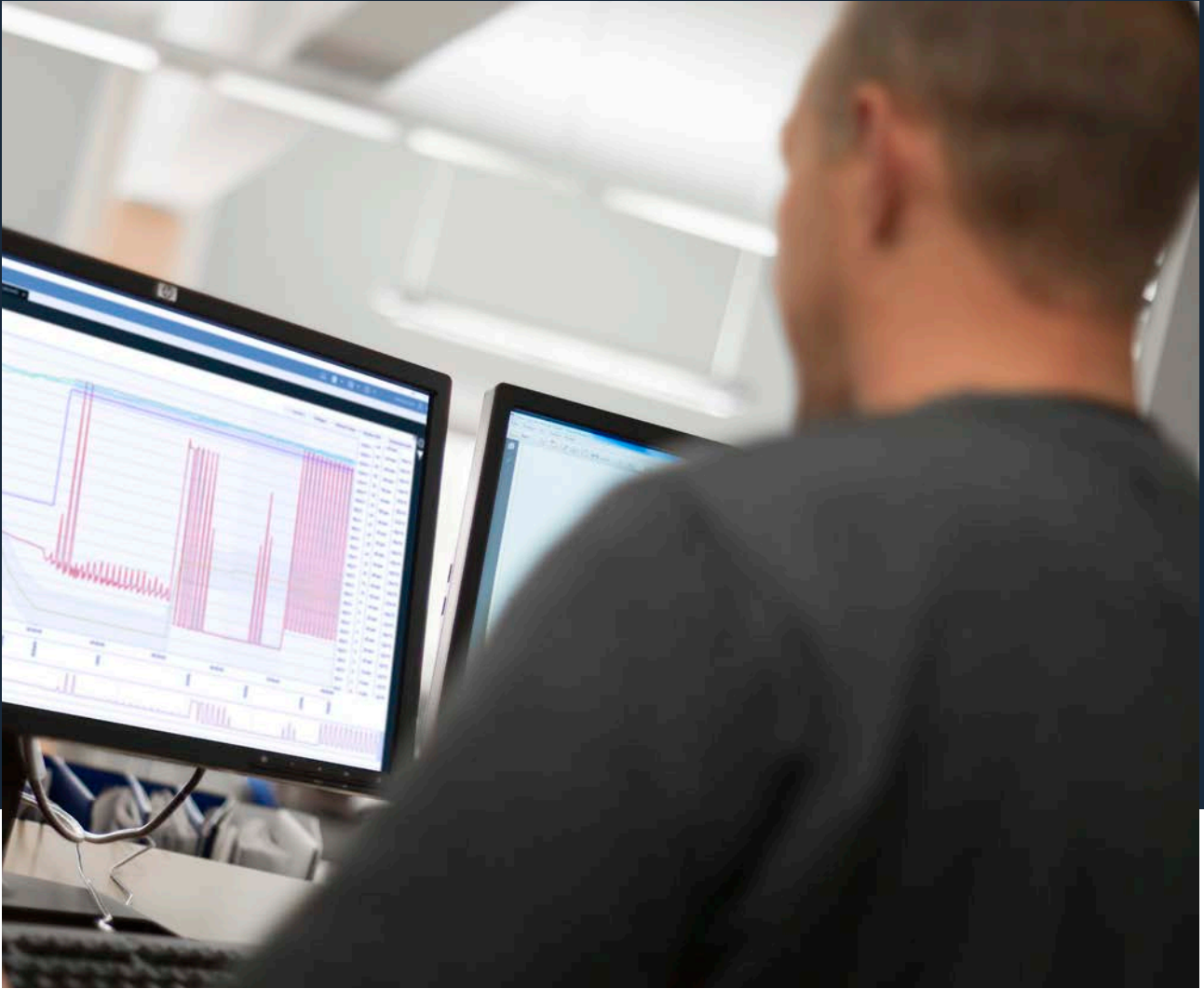
The EST-200 electrical safety tester is user-friendly and delivers reliable test results for earth test, flash test (hipot test), DC Hi-Pot test and insulation test. It also offers selectable ARC detection from 1 to 40 levels to identify potential product quality failures



## KT1886R & KT1886S

AC/DC testing for demanding applications

The KT1886-R and KT1886-S puts together all of the important tests in a single device. They are user friendly and the simple and clear instructions on the touchscreen allow for intuitive and effective handling.



# PERFORMANCE TESTING

Performance testing is an essential part of developing a quality product. It's one of the last steps before the final product is sent out to the end user, the step that determines if the product works as expected and the step that detects the errors that went undetected through the production.

This step is the last barrier to prevent potentially faulty products from leaving your factory. This is where we offer accurate and reliable performance testing equipment to ensure that your products reach your customers fault free, increasing your customers trust in you with each product leaving your production line.

With AGRAMKOW, you get the most reliable performance testing solution available on the market that has been designed to fit your requirements.

# CPT-XM2 & CPT-XD2

Put your products to the test

The performance test solutions by AGRAMKOW have been designed so you can build your own testing box with a selection of modules, so each box is completely tailored to your specific needs. Later, as your business grows, you can easily add more features and functionalities without having to replace the entire solution. You simply expand and scale the system by adding or changing sensor devices.

The sensor technology enables a unique opportunity to swiftly change test procedures to implement new test requirements. By using PLIS Factory, you can easily set up your own recipes, test parameters and configure the system you need to perform a variety of tests procedures. The sensors can also be moved from one box to another, kept fully calibrated in stock and used with any transducer.

The CPT-XM2 is so versatile that it not only enables you to perform various testing of cooling capacity and efficiency, but also supports testing of mixed product models. You can set up unique recipes for different models easily and by adding the UCM, you can use PLIS Factory to create and manage limits for both external and internal sensors.



CPT-XM2  
For large commercial and industrial products



CPT-XD2  
For domestic and smaller commercial products



Smart sensor



UCM (universal communication module)  
One test environment for your performance testing process



SMARTCAL-2  
Reliable calibration of smart sensors

# DIGITALIZE YOUR PRODUCTION

PLIS Factory is a centralized management system that gives you a complete overview of all the assets on your production line. It delivers accurate and actionable visualization of exactly what is happening at every stage so you can take required actions in order to achieve optimal results.

PLIS allows you to:

- Have full traceability and control with centralized management
- Collect and analyze vast amounts of data
- Determine the root cause of defects, delays, and re-works
- Find unseen opportunities
- Optimize your processes
- Improve quality and performance

Additionally, PLIS transforms thousands of data points into actionable reports, helping you identify operational issues before they become problems. These capabilities can significantly enhance efficiency and drive greater operational results.



PLIS is about more than just collecting data!  
-it's about transforming that data into actionable insights to improve product quality and efficiency in your production.

Explore the benefits of PLIS Factory:

- ERP & MES integration
- Operational efficiency
- Digital user interfaces
- Asset health & machine data
- Quality management
- Traceability
- Data analytics & visualization
- Security & user management



Collect it



Measure it



Understand it



Improve it



24/5

**PLiS**  
FACTORY

# INCREASES THE **RELIABILITY** OF YOUR ASSETS

Good service is key when it comes to ensuring the reliability of your AGRAMKOW equipment. With an AGRAMKOW service agreement, you can feel confident that your equipment is operating at optimal performance, day after day.

You can minimize unplanned repair work, increase asset availability, lower costs, and reduce the risk of equipment failure. What is more, our service staff is located all around the globe with 24/5 availability ensuring that any issues or disruptions can be addressed promptly, reducing downtime and its associated cost.

What to expect when you sign up for a service agreement with AGRAMKOW:



## Maintenance service

To minimize unplanned downtime and eliminate cost caused by a production stop.



## Equipment Inspection

To ensure your solution is regularly surveilled through our specialists.



## Calibration services

Feel confident that your equipment has no deviations and inaccuracies.



## Safety audit services

To prevent operational risks that could potentially cause harm to people and property.



## Training services

To guarantee optimal utilization and maximum return on your investment.



Sustainable, intelligent, cost-efficient solutions  
for end-of-line production



- 1** Operator interface
- 2** Critical Component Verification
- 3** Leak detection
- 4** Evacuation
- 5** Charging
- 6** Refrigerant supply
- 7** Safety testing
- 8** Safety systems
- 9** Reject point
- 10** Performance testing
- 11** AGRAMKOW Service & Support
- 12** Production line management with PLIS Factory

# INCREASE **QUALITY** AND **PRODUCTIVITY**

For more than four decades, AGRAMKOW has been proud to serve manufacturers of refrigerators, freezers, heat pumps, and air-conditioning units all over the world. Based on our vast experience, we provide reliable, high-quality, end-of-line solutions to help you establish a key edge in fiercely competitive markets.

Why wait? Contact us now and let us show you how you can take your production line performance to a whole new level.

## **AGRAMKOW**

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