

KASTAS SEALING TECHNOLOGIES

ZOOM

MARCH 2018

K17X

K17X High Performance
Piston Seal

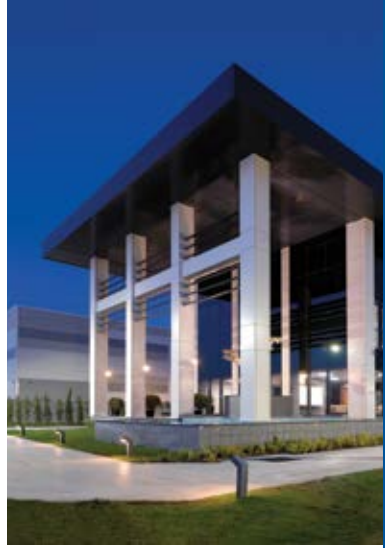


 **seal-Link**

Shortcut To
Sealing Elements

**Kastas Opens
New HQ And
Production
Facilities**





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- PTC ASIA
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This offers certain incentives and requires the establishment of a semi-independent unit within the organization designated exclusively for R&D and innovation. This accreditation will certainly motivate us to focus our future investments on R&D.

In March 2018, Kastas initiated another challenging project. Parallel to our growth and organizational expansion, this year, we will be implementing SAP. German-based SAP partner Itelligence GmbH is in charge of the implementation that is planned to last until the end of the year. As a top ERP globally, SAP integration will boost efficiency and traceability in our processes by providing a full integration of more than 15 departments.

Our B2B portal seal-link.com is also proving popular among our customers in Europe, who can now benefit from many new functions and features. We are now offering 24/7 access to our wide product range through seal-link. This month, we launched seal-link Italy with the target of combining all seal-link advantages with local support for the Italian market. We are confident that this will help Kastas to increase market share and product availability in Italy.

At Kastas, all investments are planned and implemented with the goal of providing better products and better service for our customers. In a world that is constantly adapting to technological advances, Kastas is also taking all the necessary steps to respond to the newest trends and technologies to create a sustainable growth for the future. We are analyzing demands of our customers and implementing new products and services accordingly.

I hope that you will enjoy reading this issue of our magazine.

Sincerely,

Haydar Atilgan
Chairman of the Board

Dear Business Partners,

2017 was a very successful year for Kastas, as we achieved all our strategic targets and enjoyed 30% growth. Moreover, we completed the work on our new production facility and headquarters building, which is an important milestone in our company's history. With "Being the first choice sealing technology partner of industries worldwide" as our vision, we are setting new targets for the future and are already planning many new investments. Our aim is to increase efficiency, produce higher quality products, and invest in innovative sealing technologies.

Kastas' continuous growth in the last decade is motivating us to improve our production processes to enhance efficiency, productivity and sustainability. To this end, we are improving our processes and workflows, as well as expanding our capacity with new plastic injection molding machines, presses, automatic visual control devices and a new compounding line.

As the first highlight of 2018, Kastas is now accredited as R&D Center by the Ministry of Science, Industry and Technology of Turkey. This is not only an amazing achievement but also a great responsibility, as R&D Centers are controlled, audited and accredited by governmental organizations in order to encourage R&D and innovation.

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K17X High Performance Piston Seal



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- HNBR Solutions for Low Temperature Applications
- Low Friction Pneumatic Solutions



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Kastas invests in Automatic Visual Inspection



ZOOM,
Kastas Sealing
Technologies A.S.
March 2018

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KASTAS SEALING TECHNOLOGIES OPENS NEW HQ AND PRODUCTION FACILITIES

Kastas Sealing Technologies, one of the leading manufacturers of sealing elements worldwide, officially opened its new headquarters and production facilities in Izmir, Turkey. The ceremony was attended by more than 600 Kastas business partners.

The new plant, which has been the most significant investment in the company's history, will serve as a production base, with sufficient capacity for meeting the future growth targets of our organization. The new complex is now one of the most modern sealing elements production facilities globally, while also providing a new home for Kastas, thus signifying company's ambitious strategies for the future.

The new building covers a 55,000 m2 area, allowing all Kastas production units to be finally consolidated under one roof. The new premises include a new production area with modern infrastructure, while allowing ample space for future capacity increases and new strategic investments.



The investment of around 15 million euros is aligned with the company's ambitious growth target

The new warehouse, occupying 4,200 m² area, is equipped with Fully Automated Warehouse System—the latest technology for efficient logistic operations.

The new HQ building unifies all administrative, sales, marketing and technical departments, while offering modern office space conducive to a good working atmosphere, with the goal of enhancing creativity and productivity. Moreover, the Kastas staff can enjoy indoor and outdoor recreational spaces, while benefitting from modern IT structure and various meeting and conferencing facilities.

These achievements are aptly surmized by Haydar ATILGAN, Chairman and CEO, who stated: "Parallel to continuous growth that has not abated for decades, several years ago, we took the strategic decision to invest in a new modern building to accommodate our administration and production units. Our investment plan did not include additional space for new machines and offices only, but also focused on modernizing the entire infrastructure, building technology and equipment, thus ensuring that these key elements would comply with the Kastas strategic targets, namely sustained growth, along with enhanced quality, efficiency, and productivity."

Kastas is currently one of the leading producers of sealing elements worldwide.

While remaining a family-owned company, and embodying those traditional values when it comes to teamtent of all staff, partners and clients, Kastas is increasing its market share in various countries and business segments. With more than 500 employees working in 7 locations, Kastas had invested in European Logistic Center in Hamburg, Germany in 2014. "Our new facilities will be our home for the next several decades while we realize our strategic targets and our new vision established in 2017," said Bircan ATILGAN, Vice Chairman and International Marketing Manager. "Being the first-choice sealing technology partner of industries worldwide, our growth strategy consists of many development areas and action plans. Nonetheless, it stands on four main pillars—innovative products and services, sustainable quality, brand and corporate development."

Kastas has already realized important equipment investments at the new plant, which include new compounding line, automatic mixing unit, new R&D test center, and a wide range of compression molding and injection molding machines, which have increased the production capacity by 30%, thus substantially enhancing production process efficiency. With the additional investments planned for 2018, some of which have already been realized, Kastas is bound to further increase its production capabilities, as well as capacity, as envisioned in its growth strategy.





seal-Link ITALIA is now online!



B2B portal of Kastas Sealing Technologies is now online in Italy with a dedicated website.

Half a year after seal-link.com was launched, with functionalities supporting shipments to Europe, North America and Australia, a dedicated portal site for Italian market is now online.

In cooperation with STS Sealing Technical Solutions Srl, Kastas' main distributor in Italy, seal-link Italy will serve Italian market with Italian language option and local support. Customers will continue using their existing conditions, discount and payment terms, with deliveries from Kastas Europe and invoicing from STS.



SALES MANAGEMENT 4.0

Sales Management 4.0 Training Program, which was planned to improve the sales activities of our growing and developing organization and the teams that carry out these activities and to reflect our current potential accurately to business results, has been completed.

The program focused on various modules where many concepts in basic and advanced levels were studied, from



customer interaction to performance management.

The training has been carried out in total of 4 modules including needs analysis workshop, persuasion techniques, determination of sales actions and performance management, in order to achieve both individual and corporate development with a content that covers many dimensions and processes of sales.

Training was conducted by Sinera Consulting - Sales Development Solutions, that is specialized in sales and provides both training and consultancy services for major companies in Turkey.

As a company that targets to create a culture of continuous improvement that would lead to successful business results, areas of improvement are determined by performance management system. In line with these areas area of improvement, an annual corporate training plan is created for both individual and corporate scale.

DRINKING WATER DIRECTIVE UPDATE

The ESA is a member of the European Drinking Water (EDW) who are a group of industry associations who have agreed to act together to assist in the finalization of the test procedures for materials and products used with potable water. Late 2015, a project was suggested under the guidance of DG Enterprises called "European Acceptance Scheme (EAS)", which was hoped to replace all the national regulatory schemes to ensure all products used with drinking water comply with the requirements of Article 10 (Quality assurance of treatment, equipment and materials) of the Drinking Water Directive (DWD).

At the meantime, there was a new group - the Expert Group - Construction Products Drinking Water (EG-CPDW) was looking at a similar project.

So ESA was looking to see if we could use our technical expertise to help facilitate a standard that combines the best of all the national standards, and that could be considered for adoption as a European standard and started to run the project.

The EDW have issued a draft response for comment from its members to the initial documents issued by DG, on the withdrawal of Article 10, with a view to it being replaced in the new DWD.

The ESA has replied and asked for the inclusion of assemblies and for the addition of "a mix of aramid and mineral fibers, with fillers and binders" to be added to cover AF sheet cut gaskets commonly used on water services. This request has been taken on board and these two items are now in the responses.

The ESA has also asked that sealing devices should be considered for a separate cluster in the testing regime. We will see what happens here. The EDW supports whole-heartedly the concept of one single harmonized test procedure to be used throughout Europe.

Again, the EDW has responded to the various missives from DG. The ESA has endorsed the EDW reply, which raises concerns over CPR, and suggests it should not be used in relation to the DWD. However, a Metals group meeting held on 4th October in Brussels and has ruled that the DWD cannot be used to generate a single European wide test for materials and assemblies in contact with drinking water. This is because it contravenes Article 193, which allows member states to add their own more stringent requirements to any European test. This group has therefore suggested that CPR is the only route to follow. This clearly is directly opposite to EDW members views and causes a serious issue for the progress on a single test.

The ESA is currently reviewing the 4 member states test details to try to bring some sensible suggestions to the table on creating one single test that might satisfy all member states.



KASTAS R&D MANAGER OZAN DEVLEN INDICATED THAT "THE GERMAN ENVIRONMENTAL AGENCY HAVE RELEASED A NEW POSITION PAPER ON THE REVISION OF THE DRINKING WATER DIRECTIVE. ACCORDING TO THEIR POSITION PAPER THEIR VIEWS ARE IN LINE WITH EDW POSITION, "FROM THE PERSPECTIVE OF THE FEDERAL MINISTRY OF HEALTH AND THE GERMAN ENVIRONMENT AGENCY, THE GOAL SHOULD BE TO HAVE THE FULLEST HARMONIZATION POSSIBLE, ONE THAT WOULD COVER ALL PRODUCTS IN CONTACT WITH DRINKING WATER."



NEXT STEP IN DIGITAL TRANSFORMATION...

As a part of Kastas' digital transformation, and in line with our future vision, we are decided to continue investments in technology and improvements in our ERP. ERP (Enterprise Resource Planning) platforms which were evolved from simple MRP systems, are now the enterprise's backbone by integrating all processes in one platform.

As of December 2017, Kastas chose SAP S4/HANA as its new ERP platform and the implementation started in February 2018 and will last one year. It is presently planned to activate the system on January 1st, 2019.

SAP is one of the most prominent vendors of ERP software and related enterprise applications. The company's ERP system enables its customers to run their business processes—including accounting, sales,

Our goal is to implement a system that would offer a strong and reliable platform which will simplify all our core processes, fully integrate our financial, supply-chain and production operations, enhance efficiency and traceability and offer detailed real-time reporting.

production, human resources and finance—in an integrated environment.

This high degree of integration ensures that information flows from one SAP component to another without the need for redundant data input and helps enforce financial, process and legal controls. It also facilitates effective use of resources, including manpower, machines and production capacities.

According to its 2016 corporate fact sheet, SAP serves more than 335,000 customers in 190 countries. It is estimated that 75% of all global business transactions come in contact with an SAP system.

SAP was ranked the third-largest software and programming company on the Forbes 2016 list of "The World's Biggest Public Companies."

For these reasons, SAP was an ideal choice of Kastas.

Parallel to the SAP integration, we will be investing in real-time production data management and SAP BusinessObjectives, the BI platform.

*innovative
grooved ring design*

*optimized
sealing edge*

XT200

eXTrusion resistant rod seal

XT200 is an extrusion resistant rod seal that designed and developed for challenging applications.

- **eXTrusion Resistance**
- **Low Leakage**
- **Long Service Life**

- *increased
extrusion resistance*
- *innovative
undercut profile*



► We were at CTT Moscow 2017

We participated at CTT 2017—the leading construction event in Russia, the CIS and Eastern Europe—offering an extensive range of innovative and technologically advanced construction equipment, machinery and technologies.

As one of the key exhibitors of this prestigious event, we displayed our reliable and innovative sealing solutions for Earth-Moving Machines, Concrete Pumps, Cranes, Tippers and Breakers, as well as repair-kits and a diverse range of earth-moving equipment.

► We were at HPKON 2017

Vision of the sealing sector was the main topic at VIII.HPKON, held in Izmir, Turkey, between 22nd and 25th November 2017.

As one of the founders of this international congress that is held every three years, we were privileged to share our R&D and technical engineering innovations and experiences with the participants.

We had the opportunity to meet our visitors at our stand and were proud to introduce our latest products and services. We conveyed our innovative solutions on Sealing Technologies through presentations, training and workshops given by our R&D and Application Division managers.

As Kastas CEO Haydar Atilgan noted, "HPKON is not just a platform that brings together hydraulic and pneumatic sectors. HPKON is a platform where OEMs and their users share all the technical processes they faced, examples of good practice and areas that need improvement. As they engage in brainstorming sessions, they have the opportunity to develop processes and design new methods."



► We were at PTC ASIA 2017

PTC, the leading industrial exhibition for fluid power in Asia, was held in Shanghai between October 31st and November 3rd 2017.

We attended this exhibition as a key exhibitor and a global supplier of sealing technologies. In keeping with its outstanding reputation, PTC Asia was a great event. In particular, it allowed us to meet our valued customers from the Asia-Pacific region as well as introduce our company and product range to new potential customers and users.

Kastas has been an active participant in the Asian market for more than 15 years. Although we are already supplying our seals to many well-known manufacturers, our goal is to expand our distribution network to increase our local representation.

The highlight of this year was XT200 eXTrusion Resistant Rod Seal, which is the brand new Kastas product that was launched in the beginning of this year, but was introduced to the Asian market for the first time at PTC. Additionally, our visitors were highly interested in industry-specific sealing solutions, new materials and product designs that are developed specifically for various applications.



WE WERE AT HANNOVER MESSE 2017

We have focused to introduce all developments and innovations at Kastas to our customers, while presenting them our new logo.



As a key exhibitor, we were at Hannover Messe 2017, the world's leading trade fair for industrial technology. This year over 225.000 visitors from all around the world visited the fair from motion, drive and automation technologies as well as fluid power technology.

Kastas took an integral part in Messe, with the largest and most innovative stand we have realized to date. 2017 is a year that Kastas reached important milestones, developed its product range with new designs, engineered new materials and new services.

We have focused to introduce all developments and innovations at Kastas to our customers, while presenting them our new logo.

During the Messe, we have hosted more than 400 visitors at our stand, from 45 countries worldwide. We had chance to discuss potential business opportunities and new projects with our current customers.


Moreover, we are very pleased with the great interest of the new potential contacts we had.

XT200 Extrusion Resistant Rod Seal and the new B2B portal Seal-Link.com were the main focus of our stand, while the new facilities, new materials and compounds and new pneumatic range were all got positive feedback from customers.





2018 EVENT CALENDAR

Event	Date	Place	Hall/Stand
 WIN EURASIA	15 - 18 March 2018	Istanbul, Turkey	Hall 5 Stand B-100
 MECSPE	22 - 24 March 2018	Parma, Italy	Pad 5 Stand F05
 KONMAK 2018	10 - 13 May 2018	Konya, Turkey	Hall 3 Stand 338-A
 CTT part of  Guma network	05 - 08 June 2018	Moscow, Russia	Hall 13 Stand 425
 PTC MDA ASIA	06 - 09 November 2018	Shanghai, China	Hall E6 Stand A2



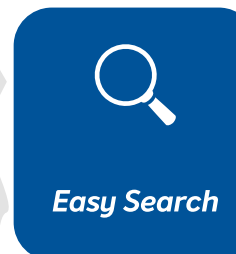
**Hall 5
Stand B-100**
15 - 18 March 2018
Istanbul



**Pad 5
Stand F05**
22 - 24 March 2018
Parma, Italy

seal-Link

Shortcut to Sealing Elements



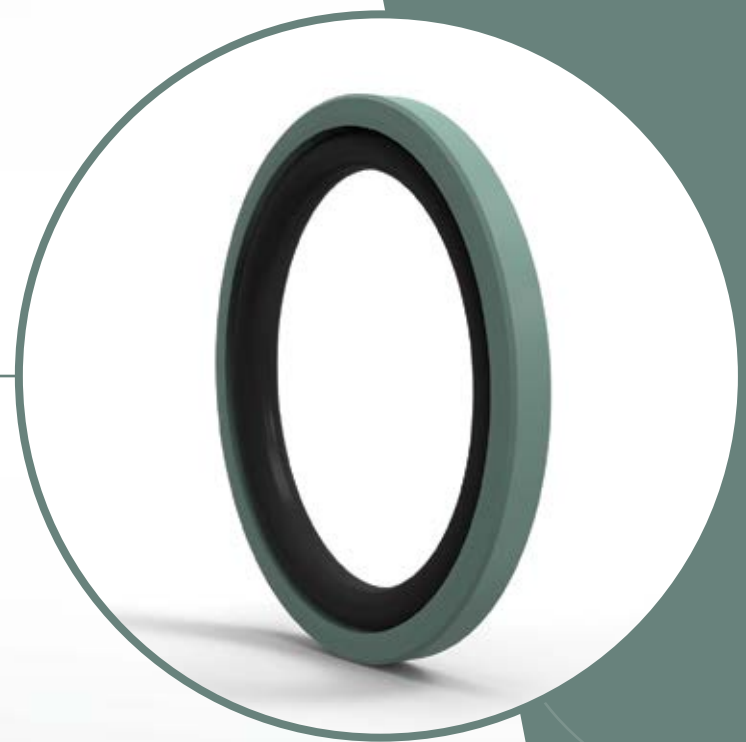
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K17X

High Performance Piston Seal



Innovative design for enhanced sealing performance

K17X High Performance Piston Seal is the new addition to the Kastar's O-ring energized piston seal range that offers additional advantages compared to the standard K17 Piston Seal in demanding applications.

K17X retains the low friction and low static leakage benefits of the standard design, while its special profile ensures increased extrusion resistance and minimized blow-by risk.

Key Design Features:

- Special flank profile
- Reduced extrusion area
- Minimized blow-by risk
- Low static leakage
- Larger gap clearance

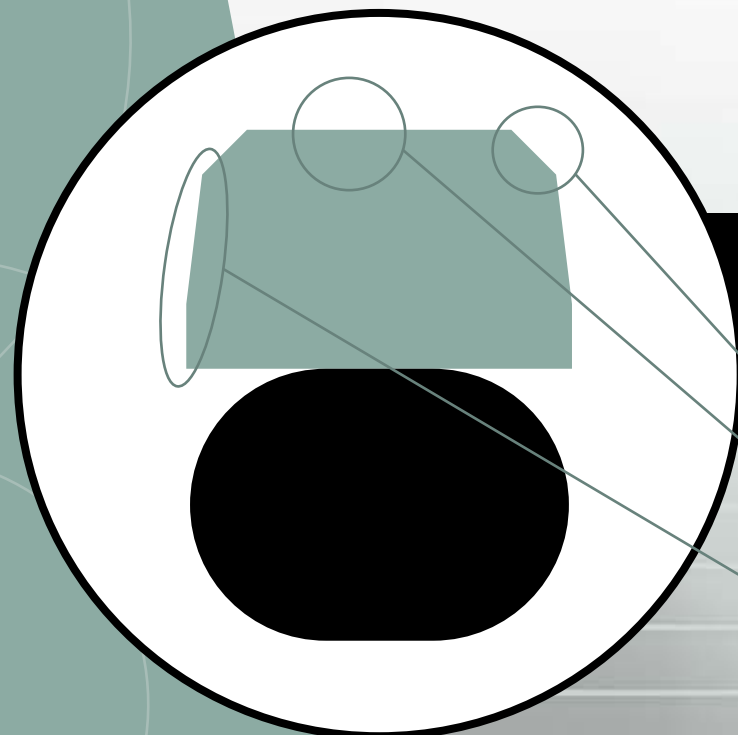
Key Material Features (PT6003):

- Low friction
- Good abrasion resistance
- Superior extrusion resistance
- High compressive strength

Standard K17 is a successful piston seal with good sealing, friction and abrasion behavior, which proved its superior performance in many applications. "However," as explained by Ozan Devlen, R&D Manager of Kastas Sealing Technologies, "customers are demanding increased extrusion resistance from PTFE piston seals in many challenging applications to work safely at higher pressures and larger gap clearances. Another issue in large-diameter double-acting systems is the blow-by. Piston seals are expected to react instantly to pressure shifts in reverse movement. Therefore, we have developed K17X by modifying the current K17 design and adding innovative design features to fulfill customer demands."

K17X has inclined lateral profile flanks that taper the seal profile towards the sealing surface. Additionally,

the chamfers are extended to the seal surface. This special seal profile allows the seal to tilt and move smoothly in the groove by enabling pressurized media to energize the piston seal effectively. This innovative design feature increases system safety by minimizing blow-by risk in double-acting cylinders, while significantly enhancing the extrusion resistance at higher pressures and larger gap clearances.

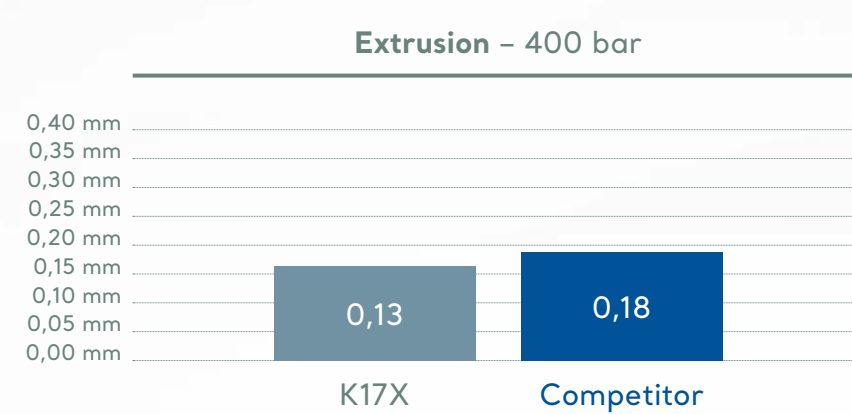


DESIGN FEATURES

- Increased Extrusion Resistance
- Reduced Contact Area
- Special Flank Geometry

K17X proved its superior extrusion and leakage performance under challenging conditions and outperformed several competitor seals.

Its blow-by performance was extensively tested in field-tests to simulate actual working conditions.



*Both seals are tested under 400 bar and Smax = 0,40 mm

FEA Extrusion - 400 bar



New K17X design offers low friction and low static leakage, while ensuring increased extrusion resistance and minimized blow-by risk.



K17X High Performance Piston Seal is recommended for large-diameter cylinders and heavy-duty applications.

- Mobile Cranes
- Boom Lifts
- Concrete Pumps
- Injection Moulding Machines
- Hydraulic Presses



HNBR SOLUTIONS FOR LOW TEMPERATURE APPLICATIONS



In response to the growing customer demand, mobile hydraulics equipment is now designed to operate at lower temperatures. Sealing solutions for Low Temperature Applications are therefore

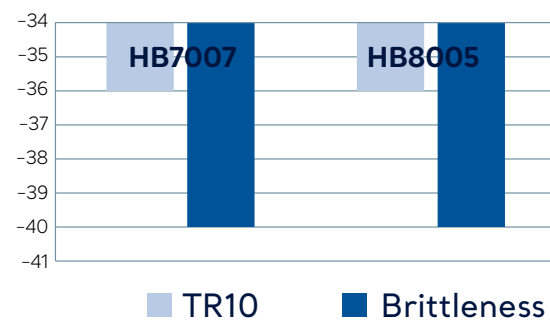


among the priority targets of Kastas R&D, and have been one of our strategic aims for a long time.

As a result of these efforts, the existing low-

temperature compound range of NBR and TPU is now extended by the addition of two HNBR grades, 70 Shore A (HB7007) and 80 Shore A (HB8005). Both HNBR grades were subjected to the TR10 test and their performance at -40 oC has been verified for all static and medium-duty dynamic applications.

TR10 and Brittleness – HNBR



HB7007	70 SHORE A	-40 °C
HB8005	82 SHORE A	-40 °C

LOW FRICTION PNEUMATIC SOLUTIONS

Low Friction, Low Abrasion, Long Service Life.

There is a growing demand for lower friction in many new-generation pneumatic applications.

Friction force plays an important role not only in determining the operating life of sealing elements, but also affects proper functioning of pneumatic cylinders under low pressure conditions.

In response to this requirement, Kastas has developed two designs for low friction pneumatic piston and rod applications.

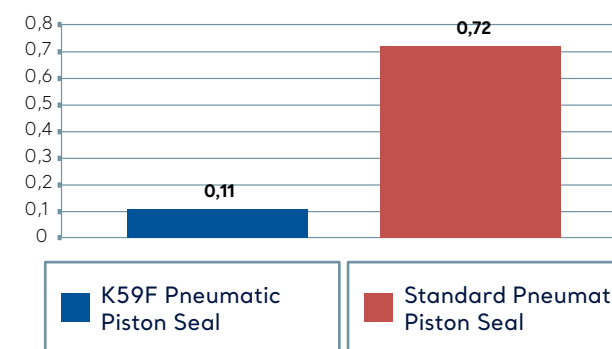


K59F Piston Seal is the low friction version of the standard K59 Piston Seal. The new K59 design is optimized for low friction. It focuses on optimum preload, minimum surface contact and low leakage.

In addition to benefiting from an improved design, the K59F is produced using a new generation of thermoplastic polyurethane, PU8502, specifically developed for pneumatic applications by the Kastas R&D material science division.

PU8502 development was motivated by the increased expectations for high performance in pneumatic systems and applications. It has higher hydrolysis and abrasion resistance, as well as lower compression set, compared to standard polyurethane materials. It also provides long service life and, with its much higher Vicat* softening value (153 oC) compared to standard TPU materials

Minimum Working Pressure (bar)

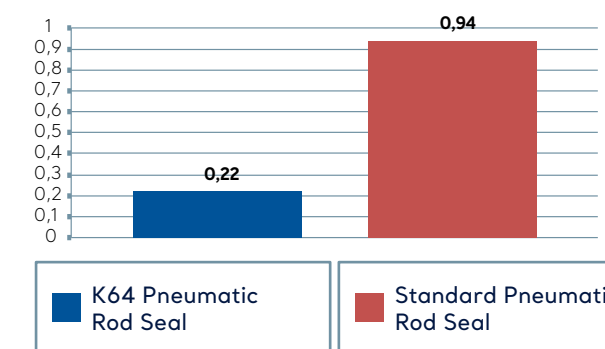


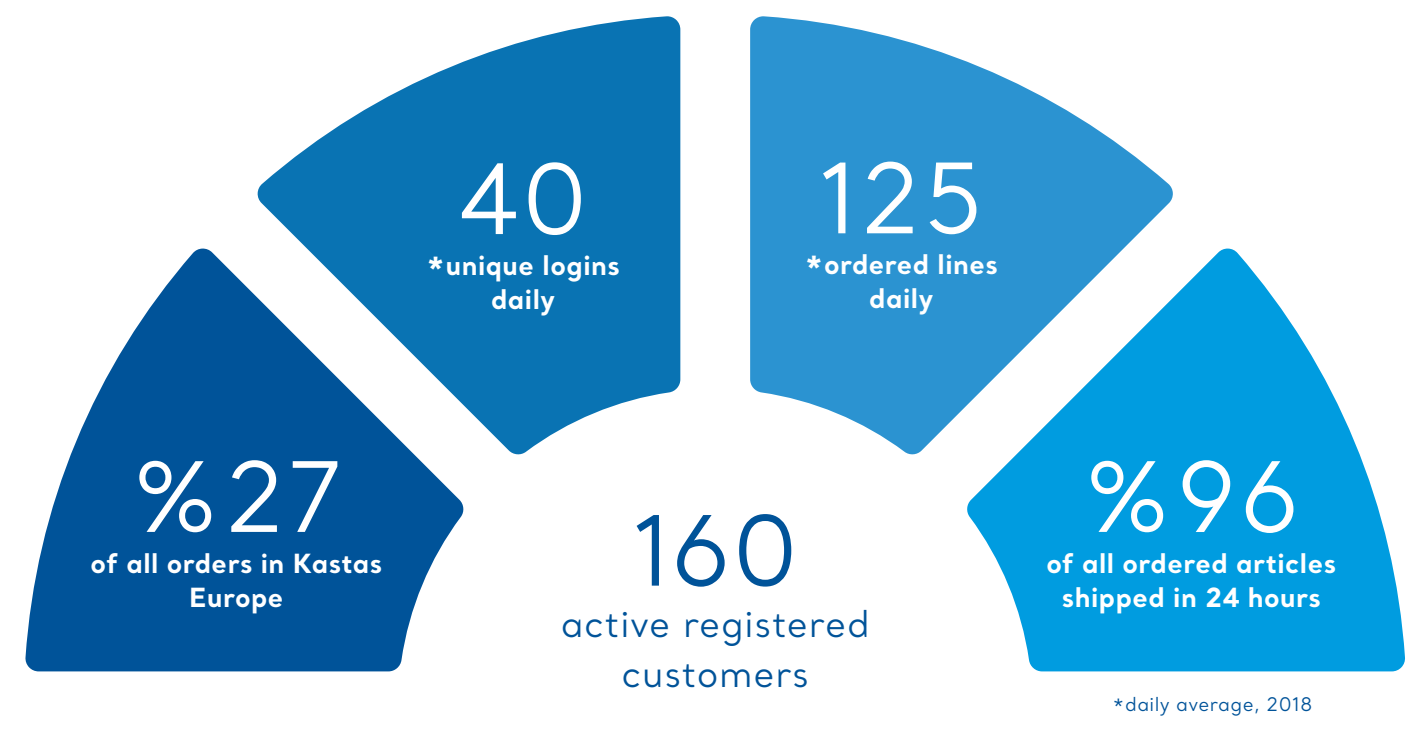
(84 oC), it exhibits high performance at high temperatures.

The new K59F was extensively tested according to the latest ISO pneumatic test standards and its superior performance has been verified through 30 million cycles. According to the test results, at 90 cycle/min speed (approx. 0.6 m/s) and over 8 months, it can maintain continuous movement even under 0.11 bar pressure.

K64 Rod Seal, developed specifically for pneumatic rod applications, is the low friction pneumatic rod-wiper sealing solution recently developed by Kastas. This new K64 version is optimized for low friction, low abrasion and superior wiping effect. It also has a new lip design that ensures optimum contact and low friction and its performance has been verified through extensive tests.

Minimum Working Pressure (bar)





seal-Link

Shortcut to sealing elements

Seal-Link.com, Kastass' digital B2B customer portal, was introduced in May 2017, and has been further enhanced by continuously providing additional features and functions. The portal currently operates through the Kastass Europe GmbH warehouse in Germany and provides a one-stop shop for Kastass customers to search for the products they need, check stock availability, place orders, retrieve product documentation, and track their order history.

As Bircan ATILGAN, International Marketing Manager of Kastass AS, explained, "Seal-link.com was a very important step for Kastass strategy to invest in e-commerce. Our wide product range and stock availability has been one of the main drivers of our successful growth over the last decade. With our new B2B portal, our target is to offer our customers a 24/7 access to our range, by creating a portal with an efficient search feature and real-time stock check.

Moreover, seal-link.com offers flexible and competitive logistics options to customers located in both the EU and North America. Customers can use standard Kastass contracted forwarder with instant pricing or choose to use their own account and forwarder."

Although seal-link.com was introduced in May 2017, its development has continued and has resulted in many additional functions and features that the users can benefit from.

As stated by Bircan ATILGAN, "Immediately after launching seal-link.com online, we started enhancing its basic functions to make our customers' purchasing experience better. In the first phase, portal's product search engine was optimized, order history option

was added, and unlimited delivery address per account feature was activated."

"Currently our team is working on credit card and several other payment options, as an addition to the standard payment by invoice. This payment feature will shorten the registration approval process time to minutes and will allow new customers to have instant access to the portal. Customer-specific price lists and purchasing conditions will be another milestone for seal-link.com. Currently, the platform operates based on specific standard discount rates for the standard range of products. When the new version is operational, customers will be able to see their agreed net prices for the agreed articles, whether standard or customer-specific. Moreover, customers will have access to the exclusive articles from our non-standard range."

Where the mind leads



Kastas Sealing Technologies Europe assures easy access to Kastás products and services.

- Complete Range of Hydraulic and Pneumatic sealing elements
- Express Deliveries all over Europe
- Engineering Services & Project Development

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Kastas invests in Automatic Visual Inspection Equipment



gaskets has resulted in growth in batch sizes and has led to the increasing demand for more effective quality control processes. Kastás continues its investments into modern inspection equipment in order to increase efficiency and product quality.

For many years, Kastás has utilized fully automated visual inspection control machines in seal quality control. Owing to the investment in new devices that started in 2016, the percentage of parts that are controlled in automated visual inspection devices has increased

significantly. Moreover, the new devices are equipped with cameras that are able to control parts with a wider range of colors, opacity and transparency.

These high-capacity inspection devices control eight seals per second on average, flip the parts to check both sides, and automatically send them into specific boxes, designated as Approved, Rejected and Rework. With a daily capacity of 700,000 pcs per machine, automatic visual inspection machines work 24 h with 100% efficiency.

 8 Seals Per Second	 700.000 Seals in 24 H	 15 High Definition Cameras	 40 μ Precision-Defect Control	 ± 0.008 mm Precision-Dimension Control
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**Hall 5
Stand B-100**

15 - 18 March 2018
Istanbul



TECHNOLOGIES FOR INNOVATION - INDUSTRIES 4.0

Pad 5 / Stand F05

22 - 24 March 2018 Parma, Italy



kastassealing



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