



***piva*****Sis**

**PLANT ENGINEERING**

## Reference Sectors we work with:

### Hygienic Industries:

- Food Industry
  - Biscuit Industry
  - Spice Industry
  - Pulse Industry
  - Honey Industry
  - Crisps Industry
  - Tea Industry
  - Chocolate Industry
  - Meat Industry
  - Food Additive Industry
  - Food Supplement Industry
  - Halvah and Jam Industry
  - Beverage Industry
  - Coffee Industry
  - Canned Industry
  - Dried nuts and Fruit Industry
  - Pasta Industry
  - Sesame Industry
  - Dairy Products Industry
  - Sweeteners Industry
  - Salt Industry
  - Flour Industry
  - Oil Industry
- Pharma Industry
  - Products Pharmaceutical Industry
  - Veterinary Drugs Industry
- Cosmetic Industry
  - Cleaning Products Industry
  - Personal Care Products Industry
- Agriculture Industry
- Provender Industry

### Non-Hygienic Industries:

- Wood Industry
- Brake Lining Industry
- White Goods Industry
- Paint Industry
  - Ink Industry
  - Polyester Industry
  - Textile Paints Industry
  - Powder Paint Industry
- Glass Industry
- Environmental Industry
- Cement Industry
- Energy Industry
  - Battery Industry
- Recycling Industry
- Fertilizer Industry
- Structure Industry
- Civil Industry
- Rubber Industry
- Chemical Industry
  - Leather Chemicals Industry
  - Mineral Oil Industry
  - Textile Chemicals Industry
  - Structure Chemicals Industry
  - Glue Industry
  - Agricultural Pesticide Industry
- Logistic Industry
- Mine Industry
  - Iron, Steel Industry
- Machine Industry
- Metal Industry
- Plastic Industry
- Refractory Industry
- Ceramic Industry
- Textile Industry
- Insulation Industry

## ABOUT US



**pivaSiS Engineering** was founded in 2012 by Baha SALGIN. Our founder, Baha SALGIN, graduated from YTU with a degree in Mechanical Engineer in 2000 and completed his MBA at ITU in 2003. Baha SALGIN has been specializing in the transfer of bulk powder materials within factories (especially air power (pneumatic) mass transfer), mixing, dosing, stocking and their automatic operation in synchronization as a whole facility since 2003.

The **pivaCON** Vacuum Conveyor, the first and locomotive product of **pivaSiS Engineering**, enables the transfer of bulk powder materials from one point to another within the factory in a closed circuit (without dusting and polluting the environment). Today, the **pivaCON** Vacuum Conveyor operates smoothly in many countries of the world. **pivaCON** is proud of being the choice of its customers due to its design advantages compared to rival companies claiming to be the leader in the vacuum conveyor market in the world. The first **pivaCON** Vacuum Conveyors produced in 2015 and continue to operate without any problems.

After the successful production of **pivaCON** Vacuum Conveyor, the production of **pivaDENSE** Dense Phase Pneumatic Transfer System, **pivaMIX** Dry Mixers, **pivaFILL** Filling and Discharging Units, **pivaDOSE** Dosing Units, **pivaSIFT** Sieve Units, **pivaSILO** Silo Units, **pivaFLEX** Flexible Connections, **pivaPLANT** Industrial Plants **pivaFAS** Industrial Automation Solutions and **pivaBOT** Industrial Robots is carried out entirely within pivaSiS Engineering.

**pivaSiS Engineering**, serves most industries in Turkey and in many countries of the world, where bulk powder materials are used or produced. They enjoy benefiting from the references of the world's leading companies, both domestic and international. The biggest thing that excites us is; Our current customer portfolio prefers us over and over again and recommends us to other potential customers because they like our professional products and professional service.

Today was a goal for us and we have a lot of work to bring here. We have more goals for the future and we will continue to learn organizationally to help that future, and we will apply it to the company that develops the latest technology in the industry, which will be developed for the project with a win-win consciousness.

We hope to experience the pride of working with you and the happiness of succeeding together!

## INDEX

<u>Product</u>	<u>Page</u>	<u>Product</u>	<u>Page</u>
<b>pivaCON</b> Vacuum Conveyors _____	2	<b>pivaFLEX</b> Flexible Connections _____	8
<b>pivaFiLL</b> Filling and Discharging Units _____	4	<b>pivaSiFT</b> Sieve Units _____	9
<b>pivaMiX</b> Dry Mixers _____	6	<b>pivaBOT</b> Industrial Robots _____	10
<b>pivaDOSE</b> Dosing Units _____	7	<b>pivaFAS</b> Industrial Automation _____	11
<b>pivaSiLO</b> Silo Units _____	8	<b>pivaPLANT</b> Industrial Plants _____	12

# **pivaCON** Vacuum Conveyors



**pivaCON** Vacuum Conveyor is the first and only in the world in many respects in the vacuum conveyor market with its technology infrastructure. These are briefly; Remote Receiver Technology, Stainless Filter application, continuous status control, self-check-up, predictive maintenance warning, periodic maintenance time warning. You can get detailed information about these issues from us and our website.

With **pivaCON** Vacuum Conveyors, 'toxic or carcinogenic materials', 'corrosive materials', 'fragile materials', 'homogenized mixtures', 'flammable, explosive and flammable materials', 'materials sensitive to moisture in the air', 'oxygen sensitive materials', 'single point to multipoint', 'multipoint to single point' and 'multipoint to multipoint' can be transferred.

**pivaCON** Vacuum Conveyors are the vacuum conveyors produced by **pivaSIS** Engineering, which has the highest benefit in the world market compared to its engineering quality, design details, quality of materials used, ease of use and after-sales spare parts and service superiorities.

Thanks to its modular structure, it can be disassembled easily and in a short time without using any hand tools. After being cleaned easily, it can be easily collected and made operational in a short time without using any hand tools.

In the design of **pivaCON** Vacuum Conveyors; low failure and user-friendly serviceability criteria are taken into consideration.



# **pivaCON** Vacuum Conveyors

**Capacity Chart**

Series	Sub Model	Maximum Transfer Capacity by Distance* (kg/h)	
	Top Model	For 5m	For 30m
150	150.001K	200	30
	150.002K	400	60
250	250.004K	800	130
	250.012K	2.400	400
350	350.016K	3.200	530
	350.040K	8.000	1.330
500	500.048K	9.600	1.600
	500.080K	16.000	2.660
650	650.088K	17.600	2.930
	650.144K	28.800	4.800

**pivaCON** Vacuum Conveyors can offer solutions from 30 kg/hour capacity to 28.8 tons/hour capacity with their standard models. We can also offer solutions for capacity demands beyond this. The distances in the table are given as an example. It is also possible to transmit over longer distances. The data in the adjacent table is for the Crystal Sugar sample. Capacities vary for materials with different fluidity and bulk densities.

\*Laboratory condition data for Crystal Sugar.

**pivaCON** Vacuum Conveyors are manufactured from stainless steel and are produced in models that comply with food norms (hygienic) or not. In hygienic models, filters, gaskets and polished surfaces suitable for food are used.

**Genre Chart**

Genre	Sectors Used in
H - <u>Hygienic</u>	Food, Food Additive, Products Pharmaceutical, Veterinary Drugs Industry, Cleaning, Cosmetic, Agriculture, etc.
N - <u>Non-Hygienic</u>	Chemical, Plastic, Rubber, Paint, Ceramic, Environment, Energy, Structure, Metal, Insulation, Lining, Fertilizer, Cement, Glass etc.

**Source and Conveying Phase Chart**

Vacuum Source	Power Supply	Pneumatic Conveying Phase
VP - Venturi Vacuum Pump	Compressor's Compressed Air (6 bars)	Dilute Phase or Dense Phase
VB - Vakum Blower	Electric (380V)	Only Dilute Phase
SF - Suction Fan	Electric (220V)	Extremely Dilute Phase
NP - No Pump	-	-

**pivaCON** Vacuum Conveyors can carry out the smooth transportation of fragile materials and homogenized mixtures with the dense phase pneumatic transfer method thanks to the 'Vacuum Venturi Pump'. 'Vacuum Blower' is used for more economical transportation.

**pivaCON** Vacuum Conveyors can be produced in ATEX Zone 1/21 class on the outside and ATEX Zone 0/20 class on the inside.

# **pivaFiLL** Discharging Units



**pivaFiLL** Bigbag Discharging Units are units that discharge bulk material from bigbags in bigbags weighing between 200 kg and 1.2 tons. There are units with different configurations (bigbag bottom damping activation, bigbag sidewall boxing activation, spring natural elevation activation, crane lift activation etc.) for the discharge of materials with different fluidity from the bigbag.

It is possible to discharge the bigbag from the bottom discharge chute to the bunker gravmetrically or directly by vacuum with the bottom nozzle. It is also possible to discharge the big bag from the upper chute with the suction nozzle.

**pivaFiLL** Bigbag Discharging Units also offer dosing option with weighing integration as an option.

**pivaFiLL** Big Bag Discharging Units provide ergonomic and sanitary discharge of industrial bags between 5 kg and 25 kg by the operator. During the discharge of the bag, the suction fan system prevents the dust that will occur from advancing to the operator's side. At the end of the process, the dust accumulated in the filter is discharged to the bunker, so that no dust material is wasted.



# **pivaFiLL** Filling Units



**pivaFiLL** Big Bag Filling Units are available in Net and Gross versions with different filling speed performances. In cases where the height is suitable, 25 kg bags are filled at the level of approximately 4 tons/hour with its Net weighing and double filling nozzle version. In addition to many engineering designs, digital loadcells are used in the system for precision weighing.

The hygienic version of the unit has a food-compliant design. Vacuum and nitrogen injection can be applied into the bag in the filling of oxygen sensitive products..

The unit is operated with a single operator. Our company continues its R&D studies for the operator-free version.

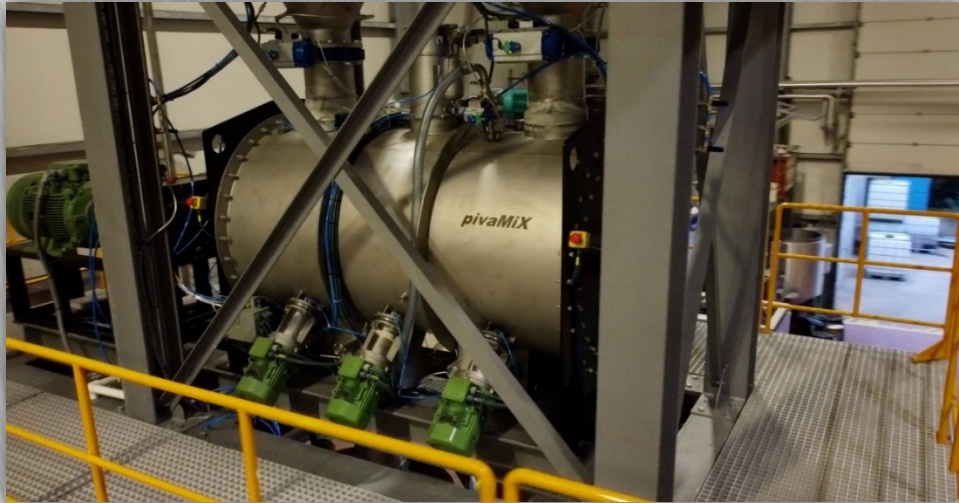
**pivaFiLL** Bigbag Filling Units allow materials weighing up to 1,500 kg to be filled into bigbags. It is possible to make precise dosing with the weighing integration of the unit and the correctly selected pivaDOSE dosing equipment on the upper elevation..

Before the bigbag filling, the bigbag inflation process is applied to inflate the empty bigbag in terms of the volumetric efficiency of the filling. This process is done with specially filtered air for food applications, and nitrogen for oxygen sensitive or combustible materials.

Optional vibration floor application is made in order for the filled material to be well placed in the bigbag.



## **pivaMiX** Dry Mixers



**pivaMiX** Dry Mixers are generally of horizontal type and standard sizes range from a 200 liter laboratory scale pilot version to a 3,000 liter size and are scalable. Horizontal type mixers are of two types, 'Plow Type Turbo Mixer' and 'Ribbon Type Mixer'. Ribbon type mixers are used for mixing fragile materials such as nuts. Time saving is achieved by using a plow type turbo mixer with performance superiority for vertical mixes.

**pivaMiX** Dry Mixers have long-lasting double-bearing and air-reinforced double-sealed shaft bearings. Compared to soft-seal mixers, the maintenance interval is very large.

**pivaSiS**, carries out continuous R&D studies for dry mix mixers with the highest discharge and cleaning performance.

**pivaMiX** Dry Mixers are equipped with maximum occupational safety measures. In order for the mixer cover to be opened, the operator must stop the mixer and ask permission from the system to unlock the safety lock. The system is electronically designed to never actuate when the lid is open.

With **pivaMiX** Dry Mixers; In addition to homogenization processes, pellet dispersal, drying, heat-receiving and/or heat-giving reaction processes can also be performed.



# **pivaDOSE** Dosing Units



Mass capacity and weighing sensitivity are in opposite poles in dosing applications. Advanced mechanical systems, high-resolution weighing electronics, advanced interference-free speed control units and dosing-specific software are used to apply high-mass dosage with high precision.

In addition to many designs applied for the precision of dosing, a digital load cell (loadcell) is used for weighing.

**pivaDOSE** Dosing Units are equipment that allow bulk powder materials to enter the process in the required amount and dose.

Dosing units according to the type of application;

- Loss in Weight Dosing Units
- Gain in Weight Dosing Units

According to the sensitivity of the application Dosing Units;

- Dosing with Screw Conveyor,
- Dosing with Rotary Valve (Cell Wheel)
- Dosing with vibratory feeder
- Dosing with Vacuum Conveyor
- Dosing with Valve

**pivaDOSE** has the **pivaDOSE-L** product range for dosing liquids.

Dosing process for multiple types of solid and/or liquid materials within the same processes extends to recipe-based automation. **pivaSiS**, has a significant amount of experience in recipe-based automation.



## **pivaSiLO** Storage Units



**pivaSiLO**, are stocking structures in which bulk powder materials are stored in accordance with their characteristics, the necessary precautions are applied during the stocking period, and the necessary methods (discharge activator, fluidization, vibration, hammering, etc.) are applied for easy discharge of difficult bulk materials. Depending on the size of the stocking, the nature of the measures taken also changes. The measures taken in the outer field silos and the inner field silos are also different from each other. The measures taken for fragile materials, foodstuffs, oxygen sensitive materials, moisture sensitive materials, pressure sensitive materials and materials with special conditions such as these are different from each other.

## **pivaFLEX** Flexible Connections

**pivaFLEX**, enables flexible connection in the industry when transferring solids, liquids or gases between equipment in a closed system. It makes the vibrations of the equipments feel to each other at a minimum level. It is especially preferred in hygienic applications.

**pivaFLEX**, is the indispensable connection solution for weighing and dosing applications. It is generally used for gravimetric transfers, but it is also used for horizontal and/or pneumatic transfers.



# *pivaSiFT* Sieve Units



*pivaSiFT* Sieve units are in circular form in standard model and are driven by vibratory motors that are evenly distributed around and mounted at an adjustable angle. The magnitude, direction and frequency of the vibration can be fully adjusted and thus the screening process can be adapted to the material.

*pivaSiFT*, Vacuum type model, can be used in-line in vacuum conveyor lines.

*pivaSiFT*, can be integrated into the *pivaFiLL* Bag Discharge Unit to operate as a single unit.

*pivaSiFT* Sieve units are basically used for 2 purposes;

- Controlling the raw materials before production to prevent the presence of foreign matter or undesired large masses such as lumps from entering the production,
- It is used to control the particle size of the produced bulk material during or at the end of production and/or to separate it into different classes according to particle sizes.

It is also possible to integrate magnetic catcher magnets within the same unit.



# *piva***BOT** Industrial Robots



The robot population is increasing day by day in the industry.

We are happy and proud to produce robots that will carry our country's production capabilities forward independently.

It requires very little maintenance thanks to its strong mechanical structure and long-term R&D studies.

Although there is no limit to the usage areas of our robots, some of the more preferred sectors for today are as follows; It will help you in many areas such as Automotive, Medical, Electronics, Arc welding, Laser applications, assembly, placing on the conveyor, picking up from the conveyor, material pallet automation, feeding parts to the CNC machine, working in challenging conditions.

Our *piva***BOT** robots are robots that you can use with confidence in many areas of the industry. Scara is produced as 4 axes, 5 axes and 6 axes and with a lifting capacity from 1kg to 50kg. The arm span can be between 75cm and 2m.

The software of our robots is user-friendly and quite easy. With the teaching mode, it can be programmed without knowing the programming. Its electronic system enables easy remote service over the internet. In this way, downtime is minimal.



# **pivaFAS** Industrial Automation



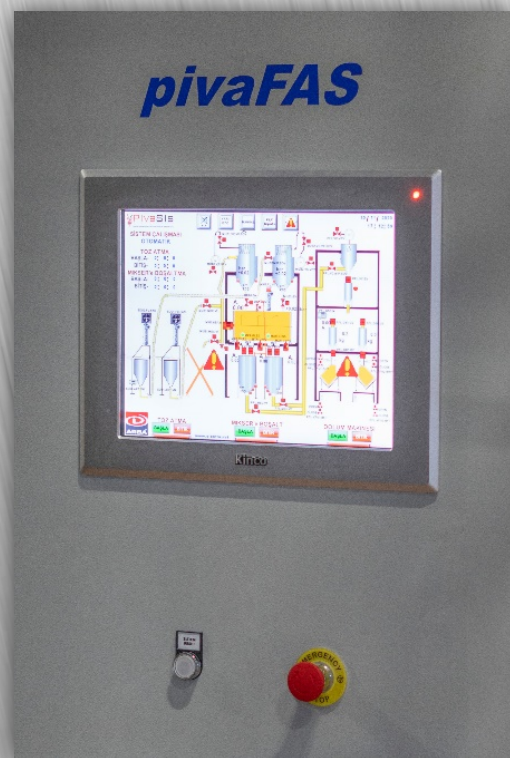
**pivaFAS**, Industrial Automation system, is the electronic and software part that enables the mechanical part of the plant project to work as designed. Hardware projecting is done on fully licensed electrical projecting software. The software to run on this hardware is also produced with fully licensed software.

While designing **pivaFAS** systems and panels, all factors including signaling and interference possibilities in the field are considered as a neural network.

Distributed I/O architecture is used when necessary.

The PLC, Operator Panel and Frequency Converters used are primarily selected according to customer preference. If the customer is neutral in this regard, popular and leading brands in the market are used.

Anti-interference filters are used in all our panels to prevent analog signals from being affected by interference.



Our **pivaFAS** switchboards have a 'Remote Connection Module' integration for fast and economical serviceability. Thus, in case of any software new regulation or intervention need, intervention can be made over the internet.

# *piva*PLANT Industrial Plants

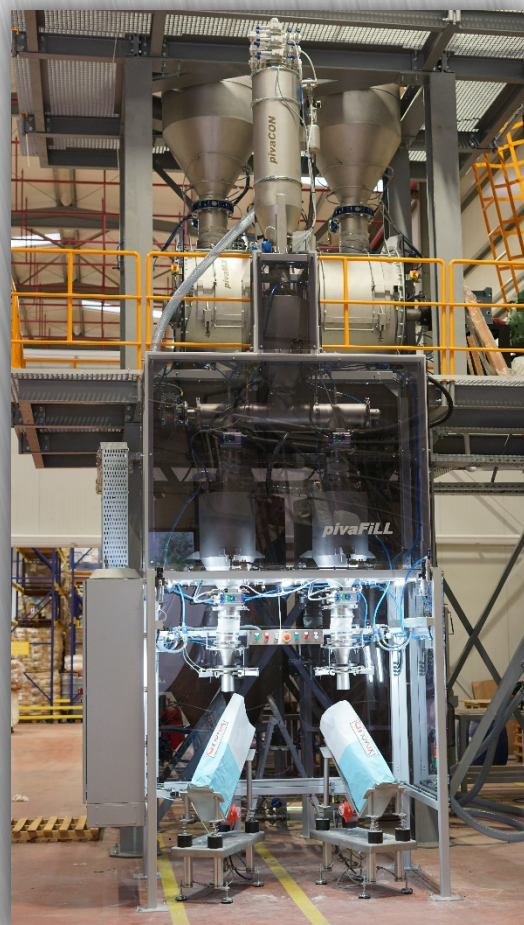


These are the facilities that emerge with the combination and synchronized use of the products that *pivaSis* put forward with serious engineering efforts.

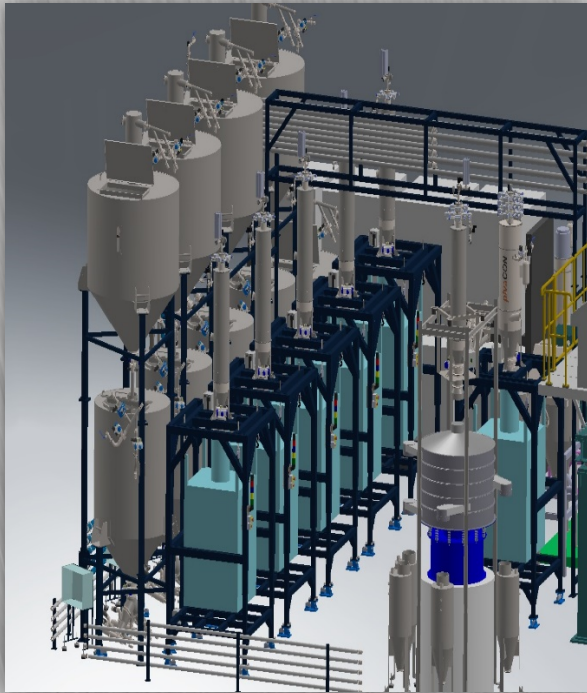
Different combinations are created according to the different needs of each sector. While these combinations sometimes consist of only 2 products, sometimes they are in the form of using the entire product portfolio together.

We create the best possible operator screen interface in software for easy use of the facilities. We configure the system as much as possible so that it works fully automatically and requires minimal operator intervention.

The software level of the facility ranges from the one-button start and stop alternative depending on the complexity of the facility, to the alternative of reporting and commanding to SCADA robotic-integrated recipe-based application and ERP systems.



# *piva*PLANT Industrial Plants



We create all our facility designs on fully licensed 3D object-based facility design programs. Thus, complex piping projects are designed in fine detail, down to the requirements to fit in certain volumes and ceiling heights, to the ways in which the cable is to be run.

Sample plants for *piva*PLANT;

- Chocolate Mixture Preparation Plant
- Bread Dry Mortar Mix Plant
- Rubber Mixer Feeding Plant
- PVC Mixer Feeding Plant
- Feeding System to Extruder
- Continuous Dosing Feeding System to the Grinder
- Production Tank Feeding and Automation System
- Tablet Press Feeding System
- Feeding and Dosing System to Dissolver
- Gelcoat Preparation System
- Coffee Processing Plant
- Tea Processing Plant
- etc.



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