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DIMAK DIREN MACHINERY R&D

Having great contributions to the national economy by virtue of the long-standing background that dates back half a century and the knowledge possessed, Dimes Food Industry and Trade Company engaged with numerous research and development activities in the past and performed solemn studies as regards both the food processing operations and food processing machinery.

In line with the developments experienced in the economics of both our country and the world, Dimes Gıda established and carried into effect DIMAK Diren Machinery R&D Company in order to carry on the business in such manner capable of responding to the needs of all companies both in our country and in the countries located in the geography in a more institutional and more competitive environment by virtue of the studies carried out within its structure.

DIMAK Diren Machinery R&D is incorporated in İzmir Kemalpaşa Organized Industry Zone. It is a R&D company incorporated as regards research and development of the products related with the fruit juice and dairy products, food processing machinery and the machinery and equipment required by this sector.

Currently active in the field of "Food Processing Operations", "Food Processing Auxiliary Equipment", "Food Production Machinery", "Warehousing and Warehouse Management Systems", and "Logistic Operation Machinery and Equipment", Diren Machinery R&D implements very authentic projects intended for the Food Industry, which did not attract attention until this day, through its expert staff.

ACTIVITY FIELDS AND APPLIED SAMPLE PROJECTS

WAREHOUSING AND WAREHOUSE MANAGEMENT SYSTEMS

In the modern world, offering the product to the consumer with the most competitive prices also presents great significance as well as the competency to produce that product with high quality. Therefore, conveying the produced products to the consumer in the most serial manner and by keeping the product in the circulation as minimum without experiencing any reduction by waste, if possible, plays an effective role in reduction of the costs.

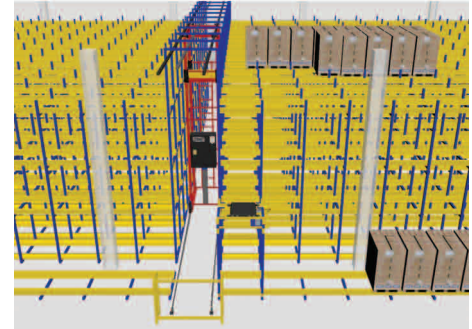
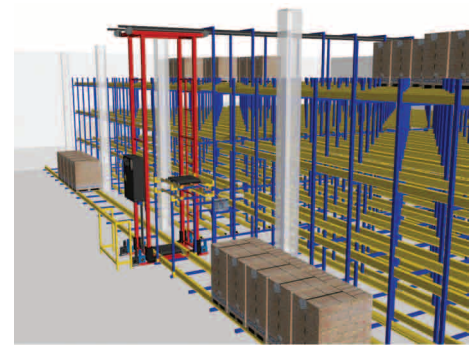
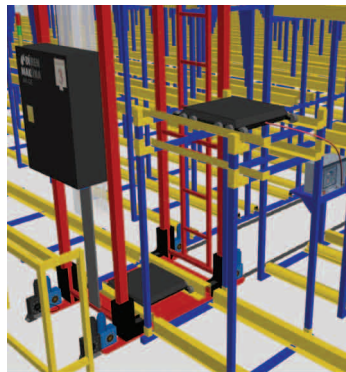
At this point, the warehousing methods and the product management systems implemented at the warehouses come into prominence. From this point forth;

- Stockpiling the produced products at the warehouse areas with most suitable methods
- Circulation of products within the warehouse areas
- Management of the warehouse stocks by employing information technologies; and
- Ensuring most effective circulation of the products within the warehouse by employing a certain discipline for this process and control of the same falls inside the field of interest of Dimak-Diren Machinery R&D. Dimak Diren Machinery R&D works on development of the machinery and necessary software within this context.

Exemplary Project 1:

Automatic Robotic Loading/Stockpiling / Unloading Systems :

- Computer controlled, robotic loading and unloading systems
- Warehouse optimization
- Accurate and precise stock control
- Low workmanship cost
- Instant reporting opportunity



For detailed info please see page 6

Exemplary Project 2:

Warehouse Management Software

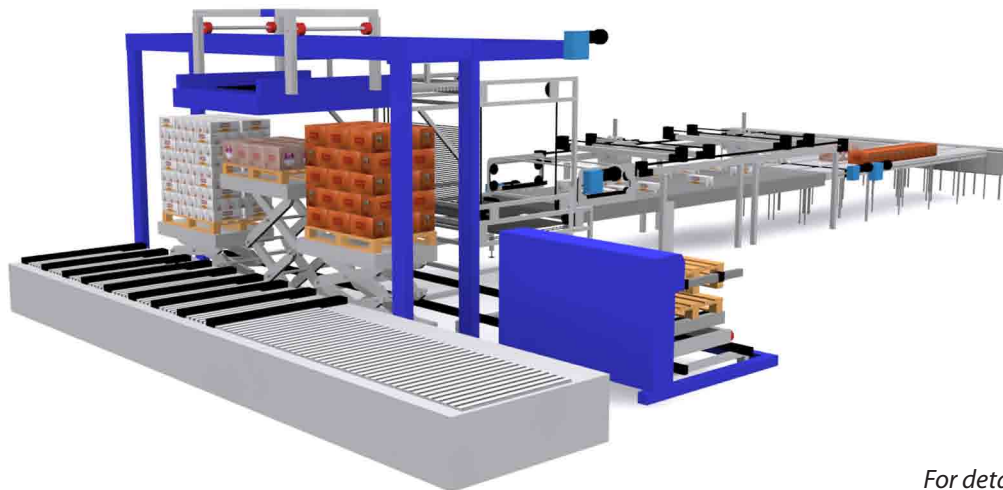
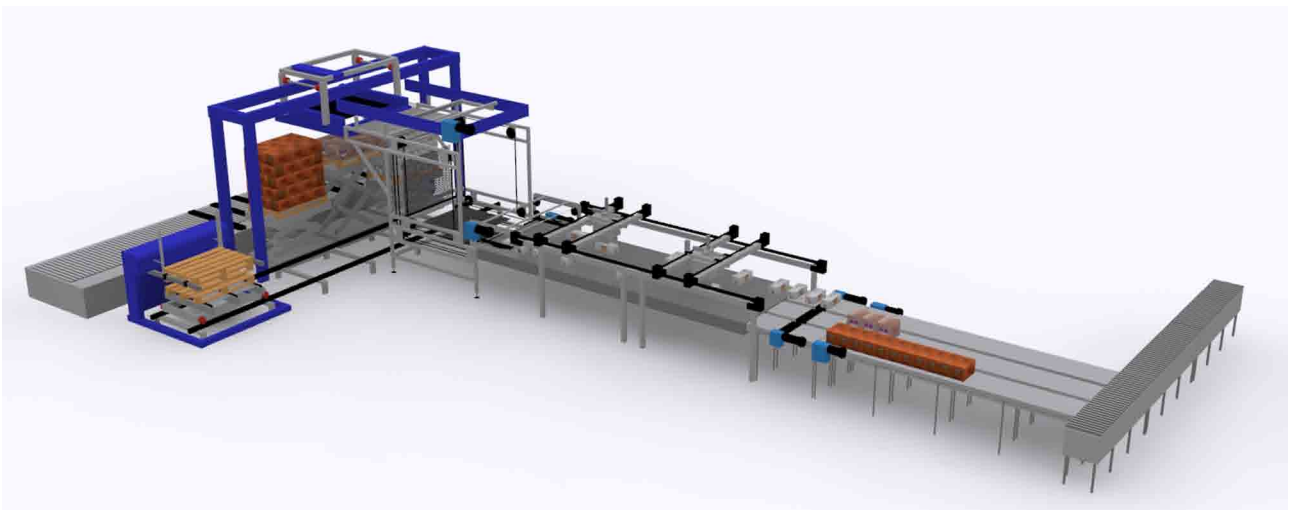
- Warehouse optimization
- Retrospective traceability of the stocks
- Ability to integrate software such as LOGO Unity, Netsis, SAP, etc.

For detailed info please see page 7

Exemplary Project 3:

Modular Smart Palletizer

- Ability to palletize 3 separate products with different type and format individually on a single machine
- Flexible and modular structure
- Full automation
- 75% reduction in the labor force



For detailed info please see pages 8-9

‘ FOOD PRODUCTION MACHINERY:

In line with the technological advancements, the Food Machinery Manufacturing Industry intended for production of the foodstuff made significant progress not only in the world but also in our country. Turkey managed to become a manufacturer sought in all foreign countries by establish its quality in numerous fields of this challenging market and increased its market share significantly.

Despite all these positive developments, as some foodstuff on the market in our country are peculiar products of our country, the foreign manufacturers didn't show interest in production of the manufacturing machinery intended for production of such foodstuff. Some food industry machinery is still not in production in our country as the domestic foodstuff producers have no interest in such machinery due to various reasons.

Dimak-Diren Machinery R&D places significant importance to production and development of Food Industry machinery not manufactured in our country.

Until today, the activities for production of yogurt, which is peculiar only to the Turks, are always performed with traditional methods at the dairies without requiring any automation and without meeting the hygienic conditions. As the Food Machinery Manufacturing Industry established in the foreign countries is not acquainted with this product, they didn't engage with any serious attempts to manufacture any machinery for this product. The first machinery developed by Dimak-Diren Machinery R&D as intended for yogurt production is the "Yogurt Milk Filling Machine" and the company will continue its studies for development of different machinery related with production of dairy products.

Another machine coming under Dimak Diren Machinery R&D Company's field of interest is the "Aseptic Fruit Juice Pasteurizer" and the development studies are currently in progress for enabling production of this machinery for various capacities which require advanced technology after the first machinery produced for Dimes Gıda.

Exemplary Project 1:

Yogurt Milk Filling Machine

- Excellent accuracy for weight in grams
- Ease of on-site cleaning without dismantling
- Ability to generate end-of-production reports

For detailed info please see pages 10-11

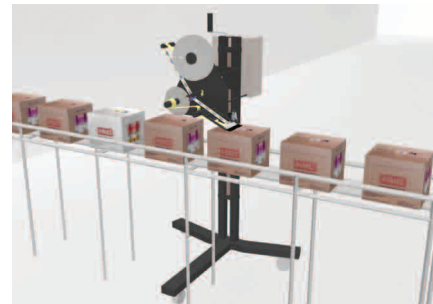


Exemplary Project 2:

Label Applicator

- All-purpose accurate and smart labeling,
- Step motor driven modern and user-friendly control system with PLC control and touch screen,
- Ability to generate reports after production

For detailed info please see pages 12-13



“ FOOD PROCESS AUXILIARY EQUIPMENT

There are 2 distinct stages in production of the foodstuff. The first stage includes preparation of the foodstuff while the second stage includes packaging of the produced foodstuff. The principal machinery employed in production of the foodstuff as well as the applications which support such machinery and require tailored solutions conforming to the operation or the product characteristics fall under the field of interest of Dimak-Diren Machinery R&D.

Such equipment not only guarantees the production quality of the Foodstuff, but also improves the production efficiency.

Automatic washing systems (CIP), dosing systems that require addition of additives to the product and transportation solutions that require transfer of special products or substances are included amongst the Exemplary Projects.

“ LOGISTIC OPERATION MACHINERY AND EQUIPMENT

The rapid developments and changes experienced in the modern world necessitates operation of the transportation, interim storage and shipment forms and methods required for communicating the product to the consumer, which we briefly refer as logistics, in more efficient manner and with low costs in addition to the production centers.

Dimak Diren Machinery R&D is also interested in these fields and maintains its studies for development of machinery and software intended for functioning of the entire logistics process aiming this purpose in a more effective manner with low costs.

Exemplary Project :

Multipurpose Tanker Capable of Shipping Liquid and Solid Load

- Ability to transport dry cargo when the tanks are in up position,
- Ability to transport liquid cargo when the tanks are down position,
- Advantage to avoid vacant operation of the vehicle during transportation.



For detailed info please see pages 14-15

-EXEMPLARY PROJECT 1-**AUTOMATIC ROBOTIC LOADING / STOCKPILING /
UNLOADING SYSTEMS**

Automatic robotic loading/stockpiling and unloading systems enable its users a fault-free, reliable, fully controlled operation with low workmanship costs during product stockpiling, product control and loading operations and further enable maximum use of warehouse spaces.

ADVANTAGES:

1. Increasing the storage area capacity
2. Reduction in the construction cost for the newly constructed warehouses
3. Significant decrease at the workmanship costs for the warehouse loading and unloading operations
4. Decrease at the loading-unloading operation durations
5. Reducing the risk of errors at the loading, unloading and shipment operations
6. Ability to trace circulation of the products inside the warehouse instantly and ability to keep the instant records for the operation processes
7. Warehouse Optimization and Shifting
8. Accurate and definite provision of stock control





TECHNICAL FEATURES:

- Shelf system that provides more secure hygienic environment by employing closed box profiles designed particularly for the needs of the Food Industry
- Servo motor driven, PLC controlled and wireless command system
- Computer software developed by Dimak-Diren Machinery R&D capable of responding to any and all needs
- Ability to check all warehouse activities with a single operator and from remote points,
- Ability to integrate the entire stock management to the user information systems upon request,
- Ability to generate instant reports,
- The knurl, robot and shelves constituting the mechanical part apart from the aforementioned shared basic features will be designed and manufactured with specifications capable of meeting all demands of the customer according to the available warehouse conditions and the pallet weight and dimensions of the customer.

-EXEMPLARY PROJECT 2-

WAREHOUSE MANAGEMENT SOFTWARE

In the modern world where time represents the greatest cost, rapid advancements at the technology paved the way for developing different solutions also for warehouse management systems. Ability to ensure perpetuation and online monitoring for placement of the stocks to the shelves with mechanization as well as their accurate traceability becomes more of an issue.

Taking into consideration the aforementioned essential criteria, DIMAK-Diren Machinery R&D enables performance of your incoming and outgoing product operations in the swiftest and most accurate manner taking into consideration the criteria such as stock follow up and location follow up for your products or products of other customers/suppliers.

ADVANTAGES:

1. Optimization of shelf use
2. Warehouse optimization
3. Assure recognition of the location/cell where the stocks are available,
4. Retrospective traceability of the stocks
5. Decrease at the loading-unloading operation durations
6. Ability to trace circulation of the products inside the warehouse instantly and ability to keep the instant records for the operation processes
7. This software is modifiable in compliance with the customer's needs and special conditions without observing the first-in first-out (FIFO) logic and is capable of withdrawing the product from the desired position at the desired time and shipping of the product to the desired location/cell

TECHNICAL FEATURES:

- Ability to integrate software such as LOGO Unity, Netsis, SAP, etc.,
- SQL database (MS SQL),
- Ability to modify all titles by the customer as desired,
- User authentications on the display, report and area basis,
- Ability to transfer all authorized data to the Office environment (transfer to excel and word),
- Ability to trace incoming, outgoing products and stocks over the network by the company executives (additional module),
- Sending all authorized documents via mail and fax,
- Remote access outside the headquarters,
- Ability to use Batch, RF, RFID barcodes.

-EXEMPLARY PROJECT-**MODULAR SMART PALLETIZER
(DİMAPS)**

Computer controlled (PLC controlled) fully automatic “Modular Smart Palletizer (DİMAPS)” developed particularly for food enterprises with 3 distinct types or formats and capable of separating the parcel packages incoming from separate conveyors and pelletize on different pellets is capable of responding to the needs of all food enterprises by virtue of its maintenance-free structure.

ADVANTAGES:

1. The machine identifies parcel packages with various types and sizes incoming from the same line via barcode reading system and pelletize the same on separate pellets, thus the machine is capable of performing the pelletizing operation performed by 3 separate palletizers solitarily by means of a single operator
2. By virtue of its modular structure, it is possible to integrate pellet stretcher to the palletizer with ease.
3. The machine is suitable for use by the medium-scale enterprises by virtue of its maintenance-free simple structure and adequate production capacity
4. 75% reduction in the labor force
5. The machinery is an authentic palletizer developed by Dimak-Diren Machinery R&D and is distinguished from similar machinery by virtue of its kinematic structure and innovative technology
6. The bar-coded pelletized product identification system, which can be integrated to the palletizer upon request and recommended to all users by Dimak-Diren Machinery R&D is capable of recording and tracing all raw material and production data of the product from a single barcode
7. By virtue of this feature, the bar-coded product identification system which can be integrated to the information systems of the user enables the user to monitor products online



TECHNICAL FEATURES:

- Weight of Parcel Packages That Can be Palletized: 15 Kg (maximum),
- Width of Parcel Packages That Can be Palletized: 400 mm (maximum),
- Properties of Parcel Packages That Can be Palletized: PVC shrink or Cardboard Parcel Package with rectangular cross-section,
- Number of Different Parcels Incoming from a Single Conveyor: 3 (the machine is capable of stockpiling 3 types of parcels with different size and weight incoming from the same feeding conveyor to 3 different pallets. Upon special request, it is possible to manufacture machines capable of stockpiling 4 types of parcels to 4 different pallets with 2.200 parcels/hour capacity.
- Packing Capacity: 2200 parcels/hour (The capacity might vary depending on the parcel size at this capacity.)
- Size of Pallet on which the Parcels can be Palletized: Euro-pallet with 800 x 1200 mm and 1.000 X 1.200 mm size
- Parcel Entry Conveyor Code: 800 mm +/- 50 mm
- Full Pallet Exit Code: +/- 600 mm
- Full Pallet Weight: 1.200 kg
- Full Pallet Height: 1.500 mm (maximum)
- Machine Width: 7 m
- Machine Length: 18 m
- Machine Height: 3.5 m



-EXEMPLARY PROJECT-

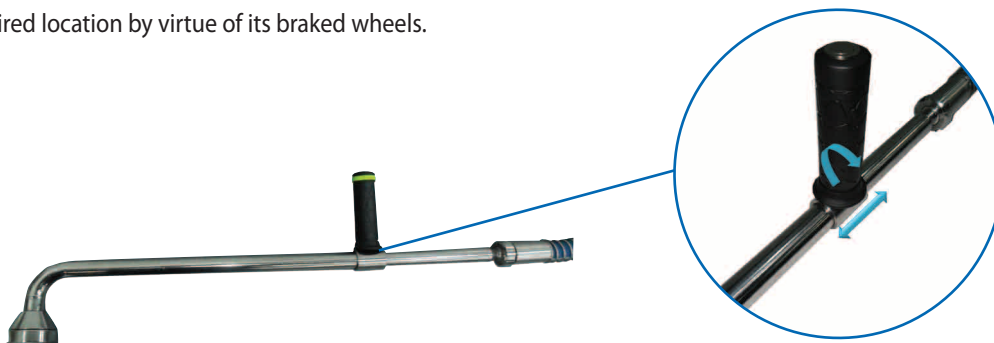
YOGURT MILK FILLING MACHINE

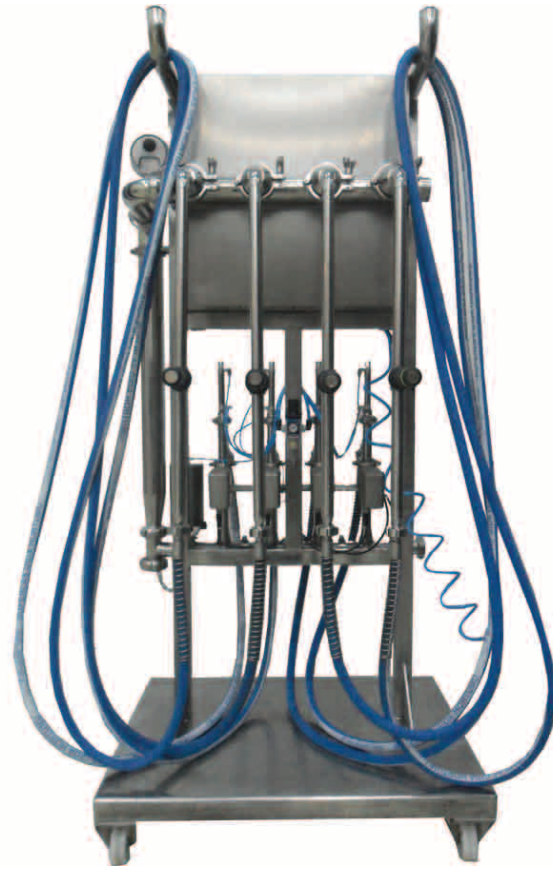
Yogurt Milk Filling Machine developed by Dimak-Diren Machinery R&D enables its users to perform yogurt milk filling operations that meets the modern food safety criteria 100% by virtue of its fault-free, accurate, easy structure meeting all hygienic criteria.

No other filling machines manufactured for this purpose are capable of ensuring the hygienic conditions and food safety. By virtue of this feature, Dimak-Diren Machinery R&D Yogurt Milk Filling Machine holds an entirely different position than the machinery existing for this purpose.

ADVANTAGES:

1. The machine is specifically designed for performing manual filling operations for yogurt milk and other liquids to the containers with accurate weight in grams.
2. DIMAK Diren Machinery R&D Yogurt Milk Filling Machine meeting all hygienic criteria with its stainless body and equipment completely suitable for foodstuff demonstrates high performance as guaranteed by the touch screen control panel, and computer controlled (PLC) command system.
3. By virtue of its magnetic flow meter, the machine enables you to eliminate filling waste with its accurate accuracy for weight in grams.
4. The machine enables its user to perform filling operations by being connected to the line without requiring extra pumps and ballast tank.
5. The machine enables you to experience the comfort of easy and real cleaning by virtue of the CIP-Cleaning in Place system.
6. The machine enables you to experience the difference of easy use by virtue of its user-friendly touch screen control panel.
7. The predefined special menus enable easy change of weight in grams and perform calibration whenever necessary.
8. The machine enables secure and accurate filling operations by virtue of the fully balanced special design which doesn't create any difference in weight in grams between the shelves.
9. The machine is equipped with command system operating wireless with radio frequency (RFID) technique.
10. The machine doesn't cause fatigue at the machine operators and is operator-friendly by means of the light weighted and ergonomic filling guns with no cut-off valve, air hose and electrical connection.
11. The machine is user friendly with its special filling nozzle not allowing froth and drip.
12. The safety system which prevents the operator to perform filling operation under nonconforming conditions greatly facilitates the operation by automatically terminating the filling operation when any product other than the desired product temperature is received.
13. The machine is able to generate reports for the total number of filling operations and the total weight in grams after production.
14. The machine has an elegant appearance; it can be used as mobile unit and it is possible to immobilize the machine at any desired location by virtue of its braked wheels.





TECHNICAL FEATURES:

- Capacity : 4000 kg/hour (use of 4 guns and 1 Kg container)
6000 kg/hour (use of 4 guns and 5 Kg container)
- Power : 220 Volt
- Air Pressure : 4-6 bar
- Tolerance : +/- 3g
- Dimensions : Width: 60 cm; Length: 80 cm; Height: 190 cm
- Material : Completely manufactured from stainless material conforming to the foodstuff.
- Miscellaneous features: Standard production is for 4 or 2 users; and each user is capable of performing simultaneous accurate filling operations with different weights in grams.

-EXEMPLARY PROJECT-

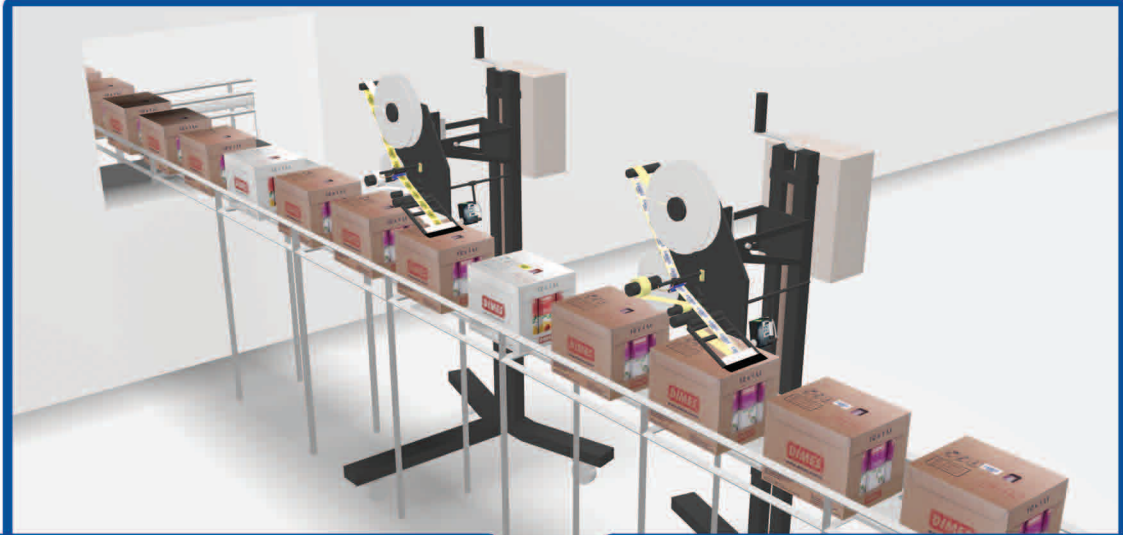
LABEL APPLICATOR

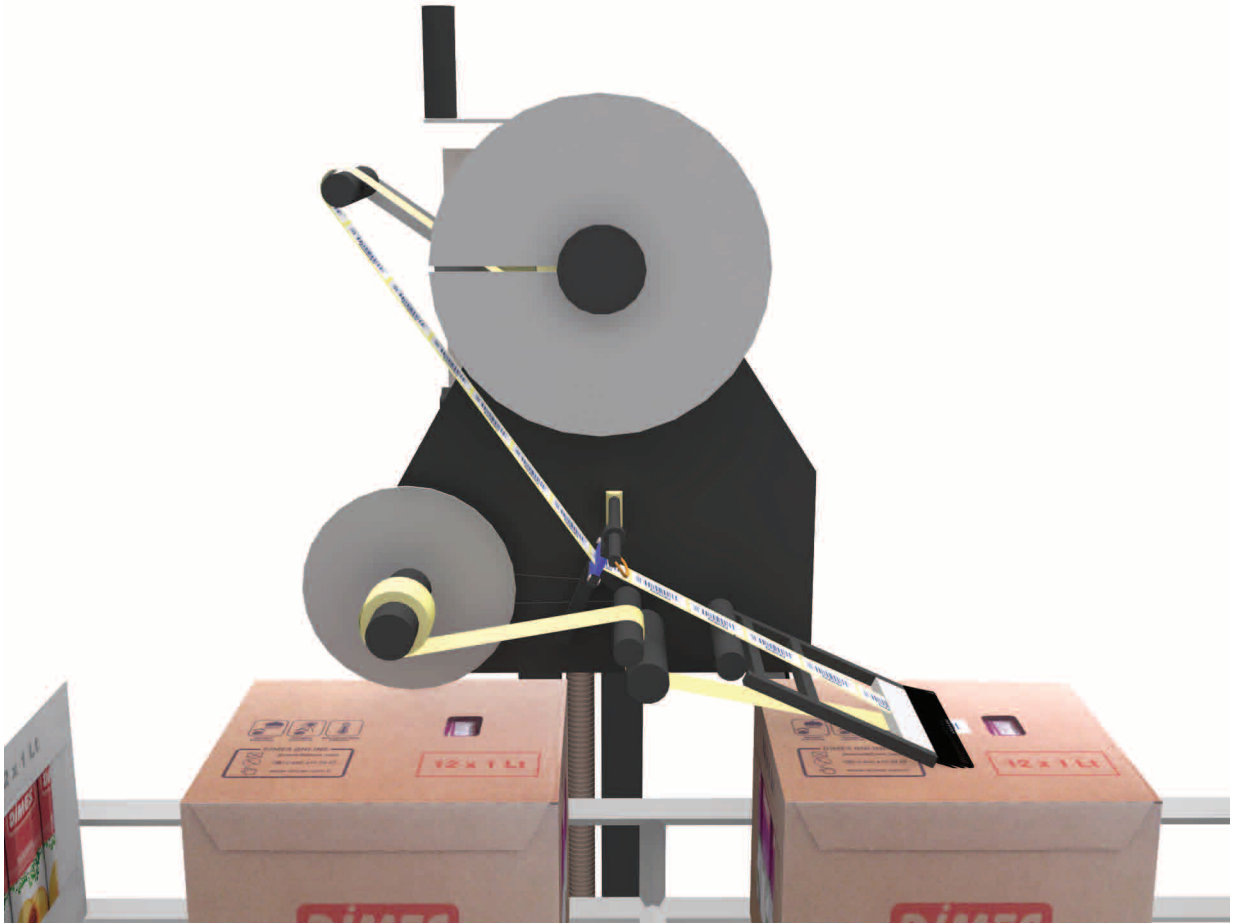
ADVANTAGES:

The Label Applicator developed by Dimak-Diren Machinery R&D enables an accurate and smooth labeling operation by virtue of the drive system with step motor, simple mechanical structure, and PLC controlled touch screen control panel and also enables mobile use opportunity, where the machine can be moved with wheel console.

The machine is designed and manufactured in such manner to employ completely standard and universal elements as an alternate to the compact machinery with foreign origin, which become obsolete after a certain lifespan due to expensive spare parts or insufficient maintenance. By virtue of this feature, the machine is a user-friendly label applicator which can be maintained by the users easily.

The computer (PLC) software developed by Dimak-Diren Machinery R&D enables meeting of all kinds of needs and reporting and it is also possible to install all kinds of additional applications to the software as required by the user.





TECHNICAL FEATURES:

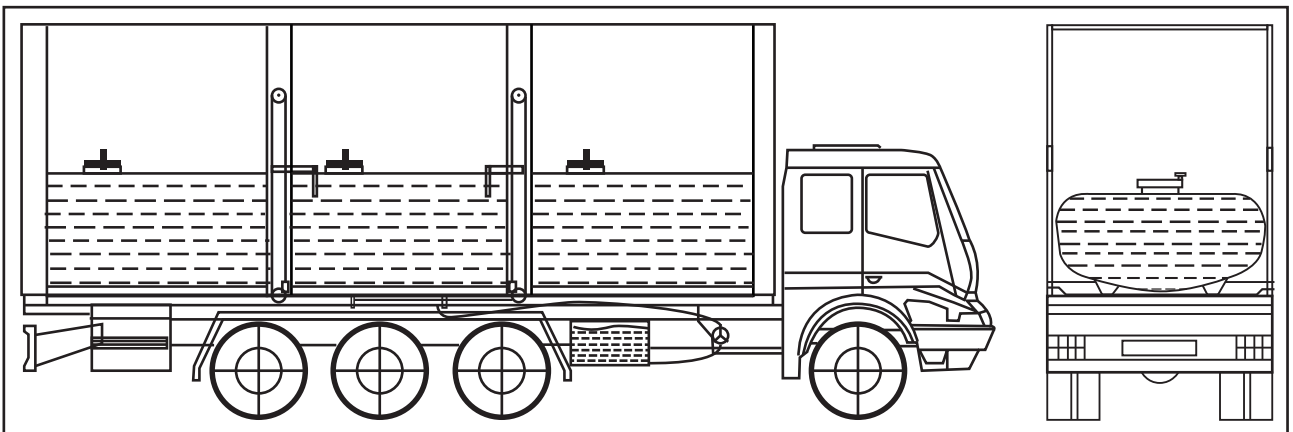
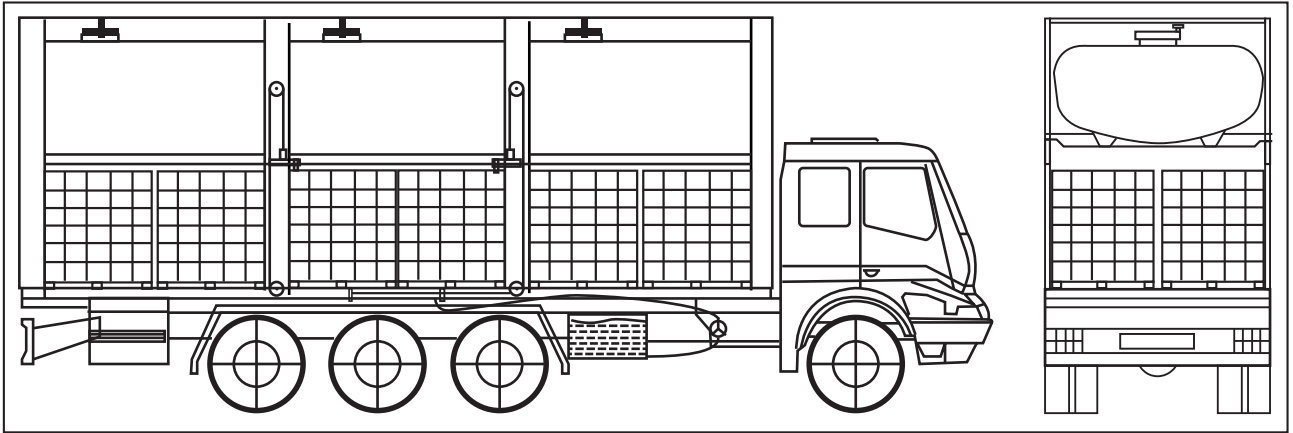
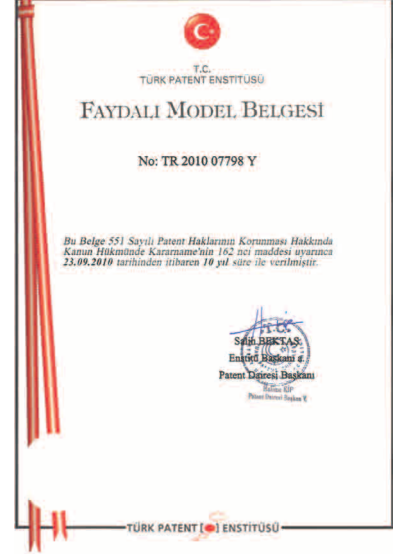
- Labeling capacity: depending on the label width:
12.000 label/hour
- Label printing speed: varies in the range of 10-1000 milliseconds.
- Required product conveyor code: 650-900 mm
(with standard machine console)
- Electric supply: 220 VAC 50 Hz single phase
- Machine width: 108 cm
- Machine height: 177 cm
- Machine depth: 115 cm
- Machine weight: 46 kg



-EXEMPLARY PROJECT-

MULTIPURPOSE TANKER CAPABLE OF TRANSPORTING LIQUID AND DRY LOAD

This tanker is developed for enabling the tankers capable of transporting only liquid cargo to carry dry load; and its authentic design meeting all demands is registered by Turkish Patent Institute with Petty Patent Certificate.





TECHNICAL FEATURES:

- Capability of transporting dry load with 30 m³ capacity when the tanks are in up position,
- Capability of transporting liquid cargo with 3 tanks each having 6200 lt. capacity when the tanks are in down position,
- By virtue of the foldable cover at the rear side, the tank valves are only apparent when the tanks are at down position. In this manner liquid filling operations are prevented at the up position and a secure travel opportunity is offered to the user without allowing displacement of the center of gravity of the truck during shipment.
- The tanks of the vehicles intended for transporting liquid foodstuff are manufactured from stainless metal sheets with quality as required by the foodstuff to be shipped and in case it is necessary to have insulation when frozen products are to be shipped; the tanks are manufactured with double wall and polyurethane insulation.
- Our existing exemplary application project is developed for heavy commercial vehicles with useful chassis length more than 8.300 mm and production of multipurpose tanker with refrigeration properties capable of shipping frozen liquid and solid loads are available in our manufacturing program for vehicles with different capacities.
- Some vehicle models suitable for manufacture type and their Maximum Load Bearing Capacities are as follows;

Name of the Model	Maximum Load Bearing Capacity
MAN TGS 41.400 8x4 BB	16556 kg
BMC PRO 940 8x2	17733 kg
MERCEDES 3240 C	16953 kg
FORD CARGO 3232C HR ADR E5 8x2	16535 kg



Dimak Diren Makina Ar-Ge

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