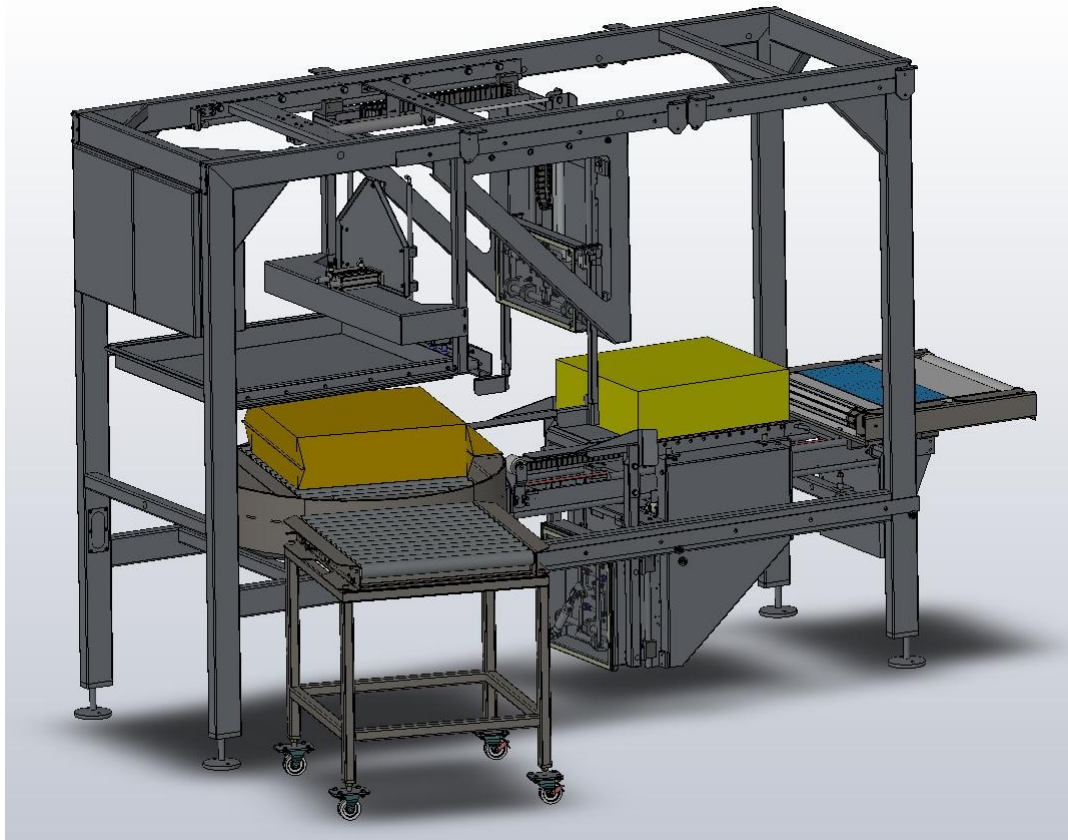


ZYENZ™ – “Shuttle Loader”



Description & Technical Data

1.0 Machine Description

The ZYENZ™ Shuttle Loader Automatic Bag Loading System is a fully automatic loader of lay flat bags for various products. The machine is capable of loading a bag in less than 20 seconds and only remote supervision of the system is required during normal continuous operation.

The ZYENZ™ Shuttle Loader is designed to handle pre-made lay flat bags that are packed ready for insertion into a stainless steel magazine. This magazine can be easily loaded with 100+ bags at any one time without interruption to cheese production. A full tray will enable approximately 1 hours of continuous bag loading.

When necessary a cheese bag can still be manually loaded onto the ZYENZ™ Shuttle Loader bag holding forks and the block manually inserted along the roller conveyor. The ZYENZ™ Shuttle Loader is comprised of modular units that can be readily disconnected and removed for maintenance purposes.

The ZYENZ™ Shuttle Loader is controlled by a dedicated PLC and is easily interlocked with upstream and downstream controls. The PLC is located in the right hand of the two electro-pneumatic control cabinets and is easily accessed from the end of the machine. The status of the machine is constantly monitored with sequence messaging displayed on the operator interface panel located on the dedicated touch screen cabinet on the product in-feed end of the machine. The screen can be rotated via the supporting arm to the desired location on either side of the machine. The PLC detects when a loading problem occurs and appropriate action is taken to either retry or fault out the machine. Faults are displayed to the operator by a red flashing indication lamp located on a pedestal tower on the top of the framework. A corresponding message on the display panel will provide information regarding the fault. A steady green lamp also located on the light tower provides the normal running status indication when the machine is operating without any faults. The Distinct Design Shuttle Loader is constructed from materials that withstand the corrosive environment often found in food production and packing rooms. The design has taken ergonomics, hygiene and safety into consideration in order to provide a machine that is simple to use, easy to clean and maintain. If necessary the ZYENZ™ Shuttle Loader block insertion pusher can be lifted of the shuttle mechanism to provide improved access for cleaning and maintenance. The controlled operation of the ZYENZ™ Shuttle Loader modules ensures machine component longevity and a very high loading reliability. The ZYENZ™ Shuttle Loader satisfies CE safety requirements.

2.0 Modular Machine Components

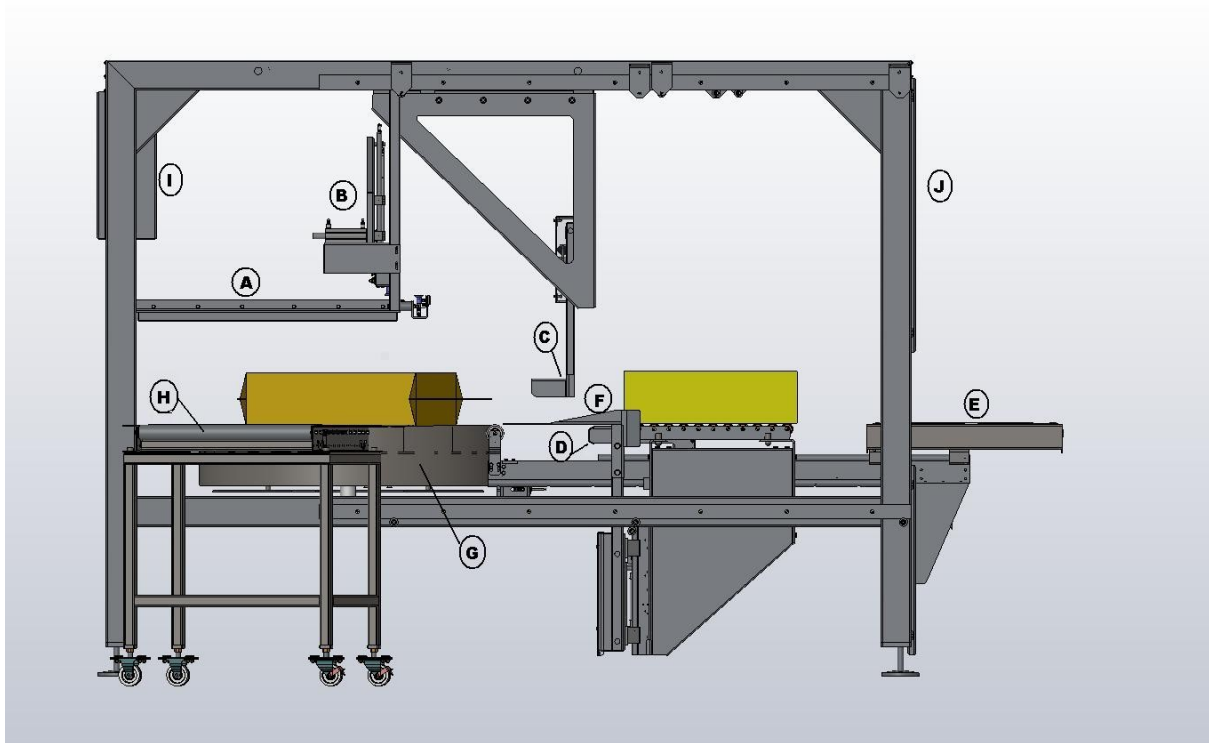
The main modular components and fixed components of the Shuttle Loader machine are as listed below.

- a) Bag Magazine
- b) Bag Pick Module
- c) Hands Module
- d) Pusher Module
- e) In-feed Conveyor Module
- f) Foot Shuttle Module
- g) Product Rotation Conveyor
- h) Back Out Conveyor
- i) Automation & Pneumatic Cabinets
- j) HMI Operator Display

3.0 Machine Operation

Magazine (A) is loaded with bags with the sealed end facing the outside of the magazine. Note steps a & b are concurrent with steps 1 to 6

- Step 1 : The Pick Module (b) lowers into the magazine (a) and picks up the top bag utilising suction cups.
- Step 2 : The bag is then raised vertically above the edge of the magazine.
- Step 3 : The bag is moved forward over the static suction cups and then the pick mechanism lowers the bag down and over the lower static cups.
- Step 4 : Vacuum is applied to both sides of the bag mouth and then the pick mechanism raises vertically opening the mouth of the bag ready to be presented to the "Hands" (c)
- Step 5 : The Hands (c) module advances to the open bag and then moves horizontally outwards to hold the full mouth of the bag & retracts to the drop down position. Suction is removed from

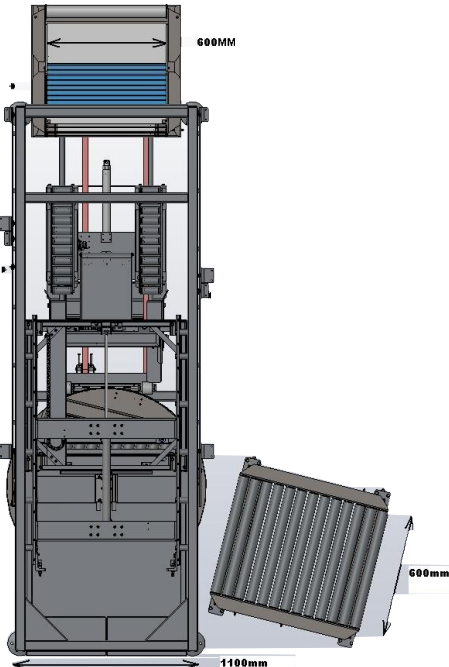
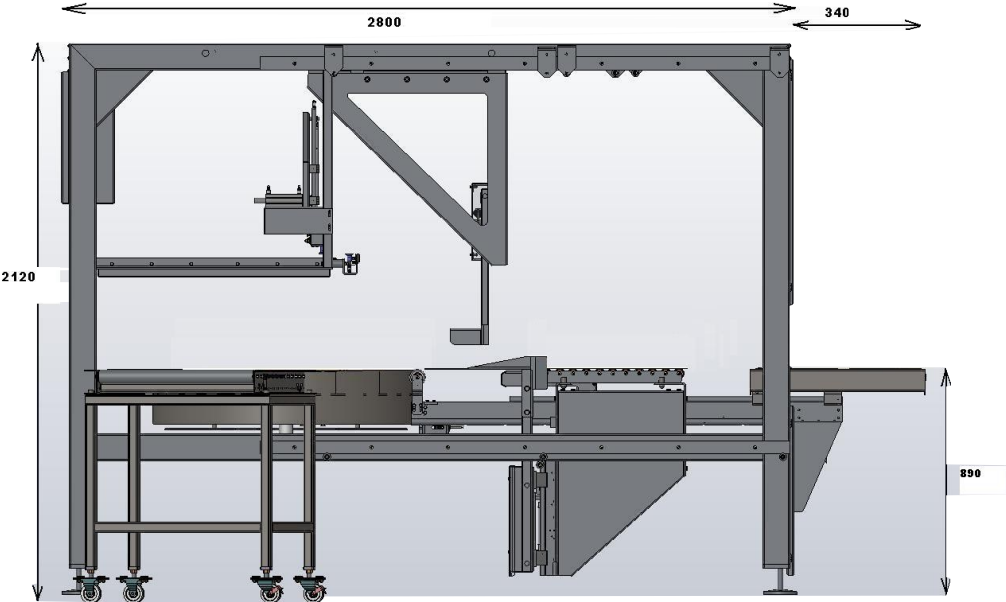


- Step 6 : the vacuum cups. The Hands move in a vertical axis downward to present the bag mouth horizontally in alignment with the Foot (f) module.
- Step : a Foot module (f) and Pusher module (d) retract to the infeed conveyor (e)
- Step : b Block is advanced onto shuttle rollers (f) (infeed part of the foot module.)
- Step 7 : The Foot module (f) advances horizontally into the lower face of the preopened bag. Force is applied to lift the hands module to fully open the bag ready for product insertion.
- Step 8 : Pusher module (d) raises upward behind the product and advances forward pushing the product into the back of the bag.

- Step 9 : Pusher module (d) pushes the block c/w bag fully off the foot plates with the foot plates still inserted in the bag mouth.
- Step 10 : Foot plates (f) raise vertically to the centre line of the bag.
- Step 11 : Foot plates move horizontally outward to form the layflat bag mouth.
- Step 12 : Guide rail mechanism lifts below the layflat to support the fold.
- Step 13 : Product rotation conveyor (g) rotates to the present the product to the Backout conveyor (h).
- Step 14 : Product backs out on to the Backout conveyor (h).
- Step 15 : Product rotation conveyor (g) rotates back to the load position and awaits the next product to be placed on the rotation conveyor.
- Step 16 : Product on the backout and rotation conveyors advances towards the discharge end of the machine towards the downstream vacuum sealer.

4.0

Machine Layout & Dimensions



[Note: Dimensions will vary to suit to different product applications.]

Figure 2 Layout

5.0 Technical Data

5.1 Weight

Weight 1500Kg approx

5.2 Crate Dimensions

Crate (LxWxH) 2200 x 2800 x 1100mm

6.0 Utilities

6.1 Compressed Air

(A i r t y p e	Clean and Dry
	P r e s s u r e	6 bar
	30 mm u p p l y p i p e d i a m e t e r	

90L/cycle (ANR)

o
n
s
u
m
p
t
i
o
n

6.2 Electrical



V
o
l
t
a
g
e

1 Phase,
20 amp,
240Vac,
50Hz
Supply

On Board
Controls
24Vdc,
10A x 3

6.3 Noise Level

N
o
i
s
e
L
e
v
e
l

<70 dB(A)

7.0 Working Characteristics

7.1 Product Dimensions

Length	60kg 585mm, 30kg 292mm, 20kg 195
Width	60kg, 30kg, 20kg 550mm
Height	175mm
Weight	60kg, 30kg, 20kg

7.2 Bag Details

Length	60kg 870mm, 30kg & 20kg 580mm
Width	60kg 743mm, 30kg & 20kg 777mm
Bag Type	Lay Flat Bag with side seals

7.3 Functional Details

Working Speed	Auto = <20 seconds/cycle Hand = as required
No. Of Operators	1 operator supervising production line