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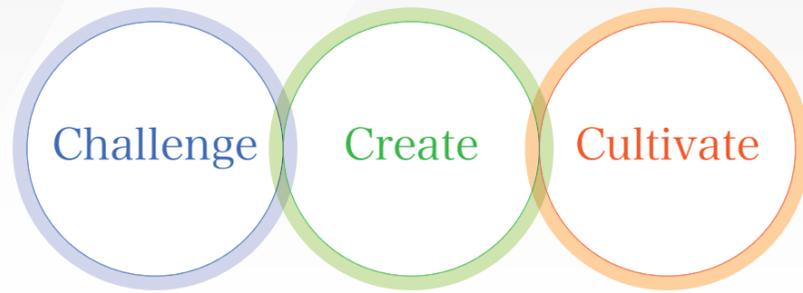
## Corporate Philosophy

We keep challenging to create new values and aiming to ecological manufacturing for the Earth.



## Corporate Identity

TAHARA's 3C



Even in our normal life, there are many bottles that is created by Tahara's extrusion blow molding machine, such as shampoo and detergent for daily items, mayonnaise and dressing for food product, and mascara and sunscreen for cosmetic product. In other industries would be medical, stationery, automotive parts, and industrial parts. Tahara will create "added-value" on above products and will continue to develop ecological blow molding machine with saving electric power and material consumption.



## History of Tahara's Blow Molding Machine

2014

Developed 2nd Generation All Electric Blow Molding Machine



1987

Launch of Hydraulic Blow Molding Machine (TL series)



1994

Developed the first All Electric Blow Molding Machine in the world



1961

Launch of Hydraulic Blow Molding Machine (TBMA series)



1971

Launch of Hydraulic Blow Molding Machine (TP series)

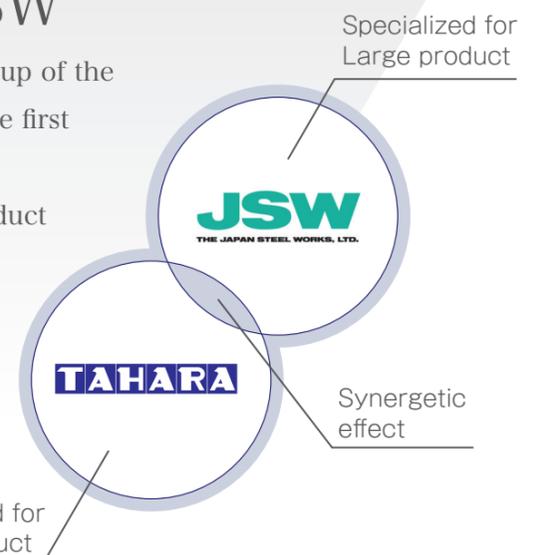


1951

Foundation

## Relationship with JSW

Since 2006, TAHARA has joined in the group of the Japan Steel Works, LTD. (JSW) listed on the first section of the Tokyo Stock Exchange. Since JSW is experienced in large-size product and Tahara is experienced in small-size product, we engage in both development and creation of new technology of Blow Molding Machine.

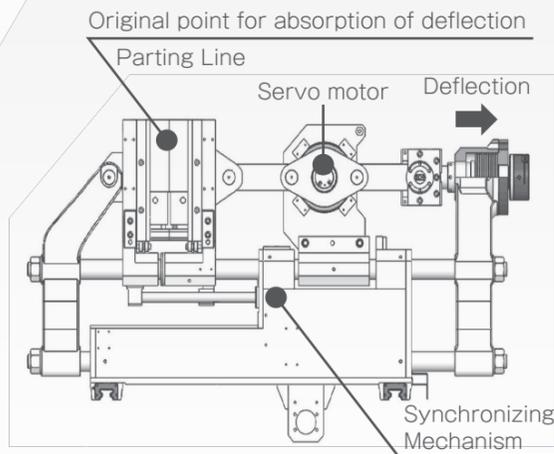


# Our Patent Technologies

Tahara has over 80 patents since we started making Blow Molding Machine. Below 2 technologies are one of our innovative inventions to improve fully electric mechanism.

## The Prevention Mechanism of the Mold Parting Line

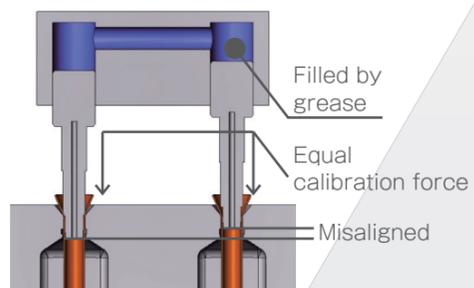
By installing the synchronization mechanism on the front platen and the rear platen, it keeps the parting line discrepancy below 50  $\mu\text{m}$ . While it dramatically increases the neck part's finishing precision, it extends the life time of calibration tools.



## The Equalization Mechanism for the Calibration Force

Even each blow pin's height gets misaligned by up to 2 mm from each other, it automatically adjusts the difference of the calibration force by the automatic correction mechanism.

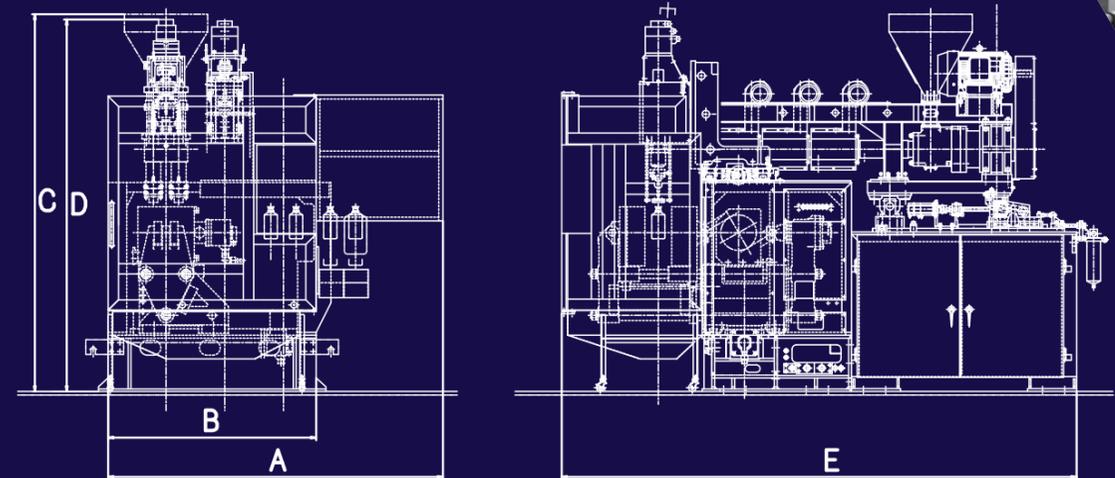
Without spending time on the height adjustment of blow pins, it enables to automatically adjust the calibration force on each blow pin to be equal.



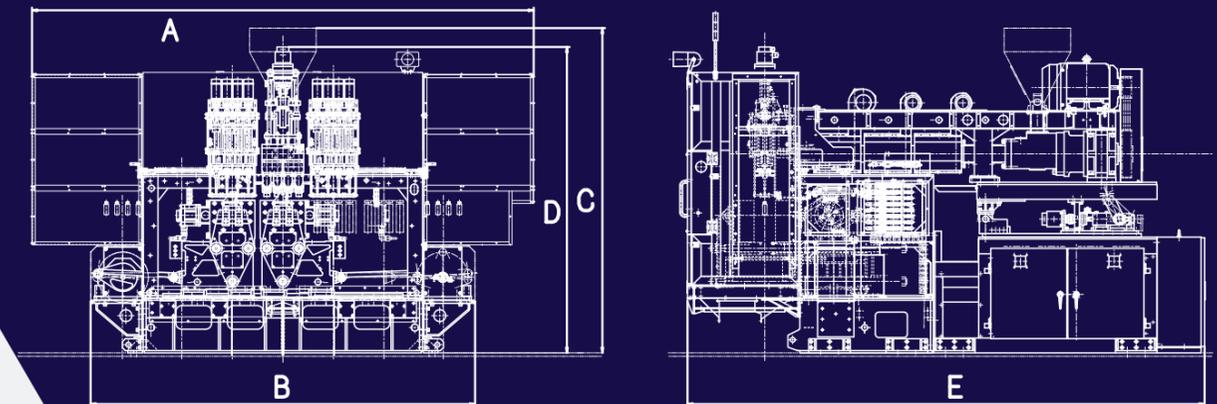
## MSE/MB Series

### MACHINE LAYOUT

#### SINGLE STATION TYPE



#### DOUBLE STATION TYPE



Model	A	B	C	D	E	Take-out st
MSE-3532M	1790	950	2230	2330	2690	400
MSE-4543M	2100	1150	2390	2420	3200	500
MSE-5554M	2350	1400	2690	2510	3465	500
MB-6554M	2350	1400	2625	2630	3715	500
MSE-7064MKZ2	3510	2250	3105	2985	4440	800
MB-8065C	3315	2300	3085	2950	4390	700
MSD-5543M	3730	2530	2525	2520	4210	500
MBD-8054M	4220	3230	3045	2920	4600	500
MSD-8064M	5070	4230	2935	2860	4330	650
MSD-9065DKZ	5150	4400	3320	3670	4980	650

\*Above information will change depending on the design and machine specification

# TAHARA's electric blow molding machine which meets the demands of the world



## Stable Quality

### Reduction of Defect Ratio

The constant operation time and precise reposition accuracy enables stable and high quality molding.

### Stable Neck Part Cutting

By lifting up the extruder when cutting the parison, it prevents entangling of the parison when blow pin goes down. Moreover, high repeatability of each motion speed and position contributes greatly to the clear neck part cutting of the bottles.



### Stable Product Weight and Thickness

By the parison length control and constant cycle time control system, it enables to mold products without having uneven of product weight and thickness.



## Ecologically Friendly

### Clean • Low noise

Clean environment is assured because there is no risk of oil leakage. Electric machine is ideal for clean rooms for food, cosmetic, and medical products.



## Productivity & Operability

### Shortened Down Time

The molding conditions can be set and changed without stopping the machine. In addition, the machine can save or reload all molding conditions of each product on the operation panel.



### Faster Cycle Time

Because of AC servo motor driven, it enables to execute smooth operation at the maximum speed. It also drastically reduces dry cycle time for higher productivity.



## Power Consumption & Economical

### Energy Saving

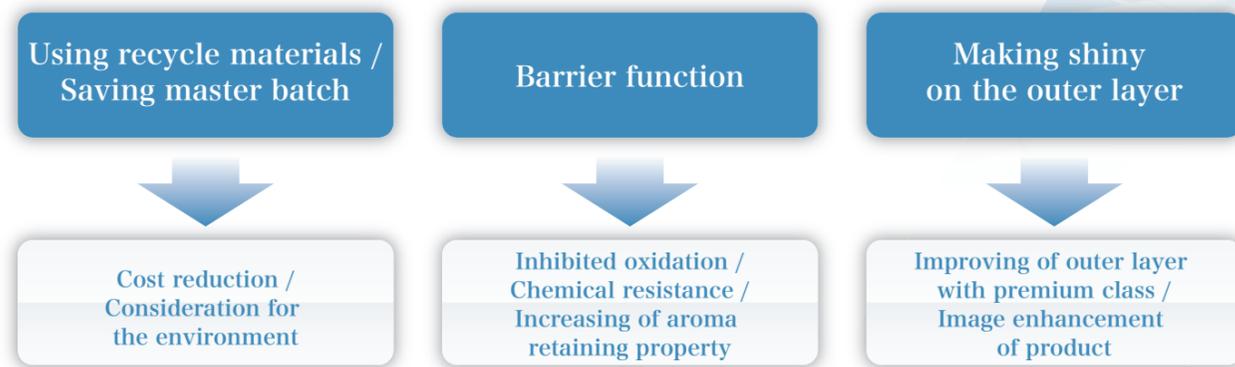
Compared to hydraulic blow molding machine, it reduces 40% to 60% of power consumption.

### Maintenance Free

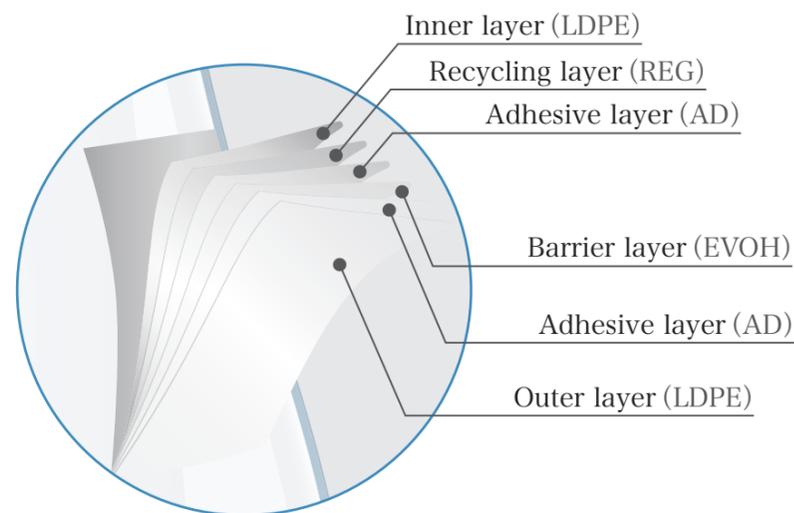
Maintenance cost and time are drastically reduced because there is no need for replacing the hydraulic oil, packing and oil seal.

# Advantage of Co-Extrusion molding

The main advantage of extrusion blow molding is to produce Co-Extrusion products. In order to keep the quality of product, Tahara's Co-Extrusion technologies are used in many bottles such as food products, beverage products, and seasoning products.



## The image of Co-Extrusion technology

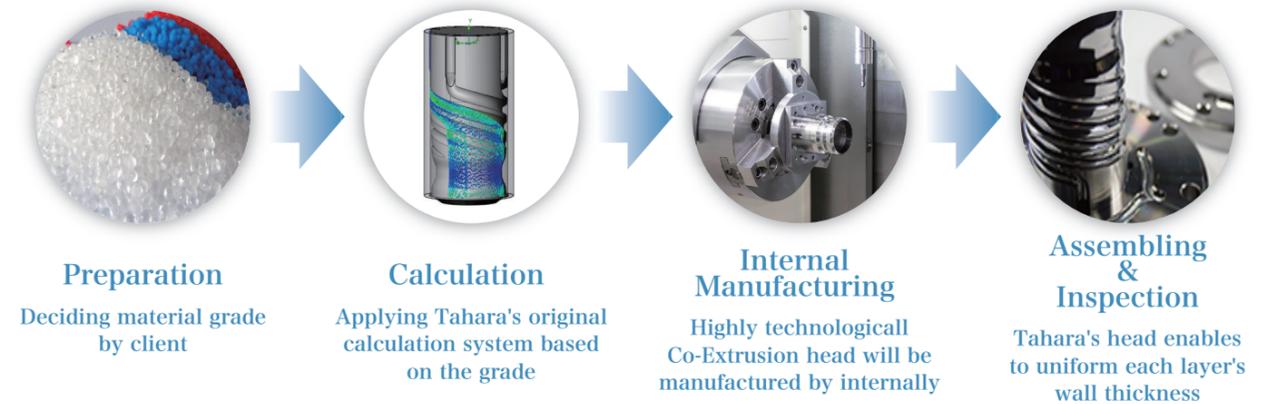


We are making all of units by Tahara's original design, which is including Co-Extrusion head, Parison Controller, and Extruder.



It is not usual for among overseas competitors to design each unit internally. For example, some of the competitors purchase especially Co-Extrusion head that is technologically difficult and put on their machines and sell then to the clients. However, all of units that is on our machine is 100% designed by Tahara.

## Process of making Co-Extrusion Head



## Sample Multilayer Products

Products	No. of Layer	Inner Layer → Outer Layer						Purpose
		Inner Layer	REG	AD	EVOH	AD	Outer Layer	
Mayonnaise	6	LDPE	REG	AD	EVOH	AD	LDPE	Antioxidation, Use of Regrind Materials
Dressing	6	PP	REG	AD	EVOH	AD	PP	Antioxidation, Use of Regrind Materials
Fuel Tank	6	HMWPE	AD	EVOH	AD	REG	HMWPE	Prevention of Volatilization, Reduction of Pigments, Use of Regrind Materials
Mascara	5	PP	AD	EVOH	AD	PP		Permeation Prevention
Agrichemical	5	PA	AD	REG	HDPE			Chemical Resistance, Use of Regrind Materials, Visualization of Remained Contents
Shampoo	4	HDPE	REG	AD	PET-G			Gloss, Use of Regrind Materials
Sunscreen	4	HDPE	REG	AD	EVOH			Gloss, Use of Regrind Materials, Improvement of Printability
Automobile Oil	3	HDPE	REG	HDPE				Reduction of Pigments, Use of Regrind Materials

# Tahara's high functionally bottles



## Do all the common tasks properly

This is one of our most important philosophy that we do all the common tasks property to grow our business.



### Multi-layer High Gloss Bottle

On the outside appearance, the bottle is produced by using high gloss resin such as PET-G or EVOH for the outer layers. By beautifying the appearance, it can appeal luxuriousness and also enhance the products' added-values.



### In-mold Label (IML) Bottle

The label is inserted into the inside of molds; the containers are formed by blowing, also pasting label on its surface. Because bottle and label are rigidly glued, the label does not peel off.



### Small PET Bottle

This is a PET bottle which is made by extrusion blow molding. It is suited for small production which is difficult to produce by other molding methods and for products with the large blow ratio.



### Multi-layer Small Plastic Fuel Tank

6 layer small plastic fuel tanks are used for electric generator, lawnmower, etc. It prevents volatilization of gasoline, and also reduces products weights compared to metal tanks.



### Multi-layer Food Bottle

EVOH is used as barrier layer for preventing oxidation of contents, which leads to longer shelf life. TAHARA's multilayer head can reduce the resin cost by making extremely thin layers of barrier and adhesive layers.



### Industrial Container

This is an industrial container which has excellent chemical resistance and strong durability. TAHARA's machine can produce various sizes of container up to 30 liters.



### View Stripe Bottle

The bottles have stripe shaped window for checking remaining contents inside. TAHARA's original view stripe head can make the line very clear.



### Convolute Section Boots

This is a convolute section boots for automotive. We can provide either extrusion blow molding machine or injection blow molding machine depending on the products.