



## 广州达意隆包装机械股份有限公司 Tech-Long Packaging Machinery Ltd

如欲了解更多达意隆产品，欢迎访问我们的网站

For more detailed information on Tech-Long products, please visit our website at:

[www.tech-long.com](http://www.tech-long.com).

本资料的内容会因产品更新而变化，欲了解详情，请与我们的销售人员联系。本资料虽然经过多次校对，以求准确，但仅供参考使用。一切以实物及产品铭牌和说明书为准。

Tech-Long keeps working on further development of our products. Thus, for the latest information, please contact our sales representatives. Although information in this brochure has been updated many times for accuracy, we recommend it is used for reference purpose only. Please take the practical machines, nameplate, and operation specification as standard.

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# TECH-LONG

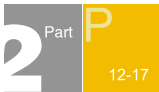


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步入21世纪，全球经济突飞猛进，随着生活水平日渐提高，优良品质、营养健康的生活理念迅速崛起，国内外各知名企业纷纷投身饮食市场这片新蓝海。面对这一行业契机，达意隆迅速与各大企业结成合作伙伴关系，力求给广大客户带来全新的技术和全方位的服务体验。

效率、卫生以及各式各样的异型瓶向来是日化、油脂、调味品等领域重点攻关的难题之一，依托于传统饮料行业中积累的优势，达意隆能够准确把握客户的多样化需求，提供先进的设备、优质服务以及面向未来的全面解决方案。

损耗低、智能化、卫生级别高、安全性能高、更换快捷、方便一向是达意隆机械设备所推崇的。凭借着与宝洁共同研发经验，达意隆开发出高粘度液态灌装设备；得益于与海天、欣和、东古的紧密合作，达意隆推出了全新酱油灌装设备，在保证效率的基础上提高卫生可靠性。

日化、油脂、调味品行业作为达意隆重点延伸领域，目前，这方面的设备不仅享誉国内，更是远销美国、日本等地。

The global economy has been growing rapidly since the beginning of the 21st century. In the course of the steady improvement in people's living standards, the concepts of life quality, nutrition and health have won appeal overnight. This has attracted well-known enterprises at home and abroad to compete for the food and beverage industry. Tech-Long has succeeded in grasping this valuable opportunity to form partnership with a number of large enterprises, in the hope of bringing the brand new technologies and a wide range of services to its broad customer base. Faced with the difficulties that daily chemicals, oil and fat, and seasoning industries have long been trying to overcome, like efficiency, hygiene and unique shape bottles, Tech-Long has come up with new solutions. It takes advantage of years experiences in the beverage industry for better understanding of the diverse market demands, and provides state-of-art equipments, premium services, and forward-looking comprehensive solutions accordingly.

Tech-Long Machinery attaches great importance to low loss, intelligence, high hygiene grade, safety, quick replacement and convenience of its products. Resorting to the experience of joint research and development with Proctor & Gamble (P&G), Tech-Long has developed high viscosity filling equipments. It has also benefited from its close cooperation with Haday, Shinho, Donggu and launched the new type of soy sauce filling equipments. These new products are reliable in sanitary conditions and fully guaranteed of efficiency. After setting daily chemicals, oil and fat, seasoning industries as key areas for further expansion, Tech-Long has not only become a famous producer of these equipments in the home market, but also exported to other countries like the US and Japan.





## 日化产品 *Daily Chemicals*



### 异型瓶 Unique Shape Bottles



方便快捷 Convenient and Efficient



多元化 Diversification



客户：宝洁、蓝月亮 .....

Clients include P&G, and Blue Moon, etc.

### 高粘度灌装设备

#### High Viscosity Filling Equipments

灌装、旋盖（压盖）二合一一体机；

Two-in-one filling and capping (crowning) equipments;

灌装、旋盖（压盖）分体机；

Split type filling and capping (crowning) equipments;

### 设备型号

#### Equipment Models

TFC4215.80、TFC1206.80、TFC1606.80、TFC4016.56、TF12.80、TC06.80、TFC4016.64等；

TFC4215.80、TFC1206.80、TFC1606.80、TFC4016.56、TF12.80、TC06.80、TFC4016.64 etc.;



## 设备参数 Equipment Parameters

- 灌装阀头数：12头-42头；

Number of filling valves heads : 12-42heads;

- 灌装形式：电磁流量计式定量灌装（效率更高，精度更高）

Filling method: electromagnetic flowmeter type quantitative filling (more efficient and precise)

- 灌装阀：无菌气动隔膜灌装阀（更卫生可靠）

Filling valves: sterile pneumatic diaphragm filling valves (more hygienical and reliable)

- 灌装偏差：正负0.5%-0.2%（极限偏差）

Filling deviation:  $\pm 0.5\%-0.2\%$  (limit deviation)

- 防泡沫：灌装阀内多层紊流滤网结构

Foamless: multi-layers turbulence and strainer structure of filling valves

- 灌装阀控制：每个灌装阀单独控制，灌装量单独调整

Control for filling valves: separate control for each filling valve, and separate adjustment of for filling volume

- 物料介质：最高物料粘度20000CPS

Medium materials: the maximal viscosity of the materials is 20000CPS

- 旋（压）盖头数：6头-16头

Number. of capping heads: 6-16

- 旋盖压盖形式：气动机械手抓盖，磁离合或者伺服驱动旋盖/压盖（具有方向识别功能）

Capping or crowning methods: gripping caps by pneumatic manipulators, magnetic clutch or servo-driven capping/crowning (with the function of direction identification)

- 智能自检功能：不合格产品在线剔除

Function of smart self-testing function: on-line selection for disqualified products

- 自动CIP系统：全自动CIP系统，简化操作；灌装机无料缸设计，CIP清洗时间更短，产品损耗更少

Automatic CIP system: CIP system that is completely automatic and easy to operate; the design of no-material equipments reduces the time of CIP cleaning and products loss.

达意隆凭借多年与宝洁共同研发经验，开发出适合高粘度特性的流量式和称重式灌装技术，有效解决了灌装过程中的消泡、滴漏、挂丝、灌装精度偏差大的问题，并进一步提高了灌装效率，令所有对高粘度灌装有需求的企业多了一个更有保障的设备选择。

Depending on its experience of collaborative research and development with P&G, Tech-Long has developed flow and gravity filling technology for high viscosity products filling. They are satisfactory solutions to many problems arising in the course of filling, such as defoaming, leaking, filament forming, and large deviation from filling precision. This new technique has significantly improved the filling efficiency, giving a better choice for many enterprises engaged in high viscosity filling with assured quality.



## 定量灌装(流量计式) Quantitative Filling (Flowmeter type)

定量灌装设备为我司完全独立自主开发新产品，主要针对于高粘度的液体灌装，同时也可用于其他高精度要求的液体产品（包括酒类、饮料、酱油等）。

此设备的研发填补了高端用户一直对进口设备的依赖，从而大大地降低了投资成本等前期投入，而后期的配件及售后服务费用更是优于国外品牌。

此设备的开发成功，为公司拓展了新的领域，带来了更多的潜在新客户。至今为止，宝洁公司已订购了二十多台此类设备，其生产线在世界各地使用。蓝月亮公司自2009年开始不断采购达意隆此类设备，并给予充分肯定。

The quantitative filling equipment is an independently developed new product of our company. It is applicable for both high viscosity liquids and other liquid products filling that required high precision (i.e. alcoholic drinks, beverages and soy sauce).

Development of this equipment saves the high-end clients from reliance on imported equipments, resulting in significant reduction of capitalized cost and other initial investment, and even more for component costs and after-sale expenses, especially compared with foreign equipments.

The successful development of this equipment has opened new horizons for Tech-Long and introduced more potential customers. Up till today, P&G Co. has ordered over 20 equipments of this type, and put into use related production lines throughout the world. Blue Moon Co. has continuously purchased from Tech-Long these equipments since 2009, and expressed their full recognition of Tech-Long products.

## 定量灌装(流量计式)效果图

### Quantitative Filling (Flowmeter type) drawing



TFC4016.64A设备效果图  
TFC4016.64A Equipment drawing

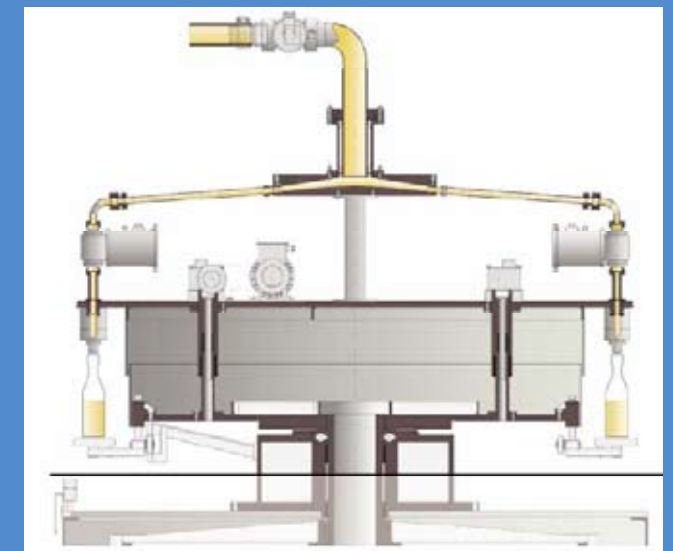


灌装、旋盖（压盖）二合一一体机  
Two-in-one filling and capping  
(crowning) equipments



灌装、旋盖（压盖）分体机  
Split type filling and capping  
(crowning) equipments

定量灌装（流量计式）二维示意  
Two-dimensional Diagram of  
Quantitative Filling (Flowmeter type)





## 设备组成 Equipment Composition

- ◎ 进瓶输送系统 Bottle feeding conveying system
- ◎ 灌装系统 Filling System
- ◎ 拧盖/旋盖系统 Screwing/ Capping System
- ◎ 不合格产品在线剔除系统（可选）  
On-line Rejection system for Disqualified Products (optional)
- ◎ 瓶盖提升、理盖、风力送盖系统  
Cap Lifting, Sorting, and Pneumatic Conveying System
- ◎ 电气控制系统 Electrical Control System

## 定量灌装适用范围 Quantitative Filling Application

- ◎ 纯水（电导率>20 us） pure water (conductivity>20 us)
- ◎ 矿物质水（电导率>5 us） mineral water (conductivity>5 us)
- ◎ 各种饮料（果汁及茶饮料等）  
various beverages (juice and tea drinks etc.)
- ◎ 日化类产品（洗发水洗涤剂等）  
daily chemicals (shampoo and detergent etc.)
- ◎ 油类产品（电导率>5 us） oil products (conductivity>5 us)
- ◎ 其它高粘度物料 other high viscosity materials

## 设备特点 Equipment Characteristics

### 1 适应范围广 Wide Application

适应产品：灌装介质粘度可达20000CPS；

包装容器：能处理55\*45\*100至160\*115\*400的 各类PET/HDPE异形瓶、玻璃瓶；

适应瓶盖：能处理最大Φ100\*100的异形盖

锥面导向灌注嘴：适应宽范围内不同的瓶口形式和口径

压盖/旋盖装置：适应各种异型盖 封口形式

Applicable products: viscosity of filling media can be as high as 20000CPS;

Packing containers: capable for handling various PET/HDPE unique-shape bottles and glass bottle sizes ranging from 55\*45\*100 to 160\*115\*400

Caps applicable: maximal size of Φ100\*100

Taper filling nozzles: applicable to bottlenecks in various shapes and diameters

Crowning/capping devices: applicable to all novel capping or sealing methods

### 2 损耗低 Low loss

流量计控制灌装，精度可达2‰；

无瓶不灌装、不给盖；

管道中央分配结构（无料缸），便于CIP清洗，节省物料损耗；

Flowmeter-controlled filling, with the maximal precision grade of 2‰;

No bottle no filling and cap feeding;

Centralized tubular distribution system (non-material tanks), applicable to CIP cleaning, reduce material damage;

### 3 生产效率高 High Efficiency

产量高：速度可达330 bpm；

易清洗：卫生级管道、高效的无料缸物料输送系统，SIP/CIP清洗速度快；

稳定性：完善的逻辑控制，故障率低，排障速度快；

转线快：配有自动升降系统和快速拆装的链板星轮系统，15-30min可完成生产的转线

High output: the maximal speed is 330 Bpm;

Easy to clean: sanitary tubes, high efficient non-material tank conveying system, rapid SIP/CIP cleaning;

Stability: logics control, low failure rate and fast troubleshooting;

Rapid switch: The automatic lifting system and the disassemble link plate star wheel system can complete the switch of production lines in 15 to 30 minutes.



#### 4 卫生级别高 High Hygiene Grade

非接触式灌装：瓶口与灌装物料无接触，确保产品质量品质安全可靠  
中央分配系统，减少物料滞留  
卫生级隔膜灌装阀，无卫生死角  
灌装完毕无回流，确保卫生可靠；  
全自动CIP清洗系统

Non-contact filling: no contact of filling materials, guarantee of safe and reliable quality of products

Centralized distribution system: reduction of material residuals

Sanitary-level diaphragm filling valves: free of sanitary problems

No backflow after filling, reliable and healthy.

Fully automatic CIP cleaning system

#### 5 智能控制 Intelligent Control

能再线精确检测、控制每个灌装头旋盖头工作状态

自动检测识别，不合格产品在线剔除；

生产智能稳定性：故障灌装阀、加盖头自动屏蔽而不影响继续生产

整机全面监控：保护设备、确保生产稳定进行

Accurate on-line testing, control for each filling head and capping head

Automatic testing and identification, on-line rejection for disqualified products

Stable production intelligence: automatic shielding for filling valves faults and capping heads without stop production.

Overall machine control: protect equipments for stable production

#### 6 维护简易，安全性高 Easy to Maintain, High Safety

设备组成简洁，操作维修简易

智能化控制协助故障排除

安全性高，通过CE认证

Simple structure, easy to operate and maintain

Intelligent control to assist with troubleshooting.

High safety with CE compliant



## 调味产品 Seasoning Products





国内客户：海天、东古、美味鲜、欣和、富氏等调味品生产企业

Domestic clients: Haday, Donggu, Meiweixian, Shinho, Fortune and other seasoning producers

出口 **美国、日本** 等

Exported to countries like the **US** and **Japan**



24000BPH四合一微负压灌装机

24000BPH light vacuum rinse-fill-roll-on-cap monobloc

### 调味品 Seasoning Products

酱油（日式酱油、生抽、老抽）、醋（白醋、陈醋、果醋）  
(蚝油: 150ml-3.8L; 酱油: 200ml-10.5L)

Soy sauce (Japanese-style, light, dark), vinegar (white, mature, fruit)  
(Oyster sauce: 150ml-3.8L; soy sauce: 200ml-10.5L)

酱料：辣椒酱、番茄酱等  
sauce: Chilli sauce and tomato ketchup

量身定做特殊产品的生产线：如腐乳类

Customized production line for special products, such as preserved bean curds

酱油灌装设备采用**单缸结构、高精度(负压)等压灌装原理**，有效解决了传统多缸酱油设备灌装过程冒泡、滴漏、灌装液位精度偏差大的问题，并更大地提高灌装效率，**80头灌装产量高达24000瓶/小时**。本设备主要针对酱油的灌装，同时也适用于其他产品（包括非含气酒类、食用油、甜醋、白醋等），应用广泛。

Soy sauce filling equipments, with single cylinder structure and high precision (negative pressure) pressurized filling, have effectively solved the problems with traditional multiple-cylinder soy sauce filling equipments, including effervescence, leakage and large deviation from the precision grade of filling liquid levels. Moreover, these innovations have greatly improved the filling efficiency, and increased the filling productivity of 80 heads to 24,000 bottles per hour. In addition to application to soy sauce filling, these equipments are widely used for other products (including non-aerated alcoholic drinks, edible oil, sweet vinegar, and white vinegar).

## 设备参数

- 灌装头数：16头 ~ 112头
- 灌装能力：5000 ~ 36000BPH ( 500ml瓶 )
- 适用瓶型：PET瓶、玻璃瓶
- 瓶高：150 ~ 320 ( mm )
- 瓶径：φ 40 ~ φ 108 ( mm )
- 灌装温度：18℃ ~ 70℃
- 灌装方式：微负压灌装、流量计
- 液位精度：±2mm

## Equipment Parameters

- No. of filling heads: 16 ~ 112
- filling capacity: 5000 ~ 36000BPH (500ml/bottle)
- applicable bottle types: PET, glass
- bottle height: 150 ~ 320 (mm)
- bottle diameter: 150 ~ 320 (mm)
- filling temperature: 18℃ ~ 70℃
- filling methods: micro negative pressure, flowmeter
- precision grade of liquid level: ±2mm



## 创新点

- 磁控式偏心回气管灌装阀
- 底板整体屋脊式洁净平台结构
- 微负压酱油灌装结构
- 新型取盖定中压盖机构
- 环形物料缸结构

## Innovations

- magnetic control type eccentric muffler filling valves
- clean platform structure with integrated weir style base plate
- micro negative pressure type soy sauce filling structure
- novel cap picking, centering and crowning structure
- loop style material tank structure



## 卓越的酱油灌装技术 Excellent Soy Sauce Filling Technologies

- 先进的灌装技术，灌装流速较传统技术提高35%，液位精度 $\leq \pm 2\text{mm}$
- 同样产能的灌装设备，采用最新高速灌装阀技术，可以节约20%~30%的灌装头数，它的意义在于能够提供一个经济、高速、节能的方案，能够给客户节约10~15%的成本，同时也减少了质量关键控制点
- 同时每个灌装阀均配备CIP清洗杯，可以对灌装阀进行彻底的CIP循环清洗；阀体结构的创新性设计，使得日常保养和维护的过程更加简单快捷
- 稳定的真空负压系统，PID真空度控制，每个灌装阀真空回流管有开关控制。确保真空稳定带来灌装液位精度一致性高，对产品质量带来保障
- Advanced filling technology, filling flow rate increase by 35% compared with traditional technologies, the precision grade of liquid levels  $\leq \pm 2\text{mm}$
- The latest high-speed filling valve technology can reduce the number of filling heads by 20%-30% with the same filling equipments. It is a valuable solution as it is more economic, faster, and more energy-conserving. It can also save cost by 10 ~ 15%, and reduce quality control points
- Each filling valve is equipped with a CIP cleaning cup, enabling complete and cycled CIP cleaning. The innovative design of the valve structure simplifies and accelerates daily care and maintenance
- Stable vacuum negative pressure system, vacuum grade for PID control, vacuum reflux tube for each filling valve with switch control, ensure high filling liquid levels accuracy and product quality



## 达意隆解决方案 Tech-Long Solutions

- 灌装阀模块化，提高了灌装阀整体的光洁度（精度）；优化密封性能；从而提供灌装阀的控制精度，新增真空回流管开关确保料缸洁净，真空室真空度稳定
  - 先进的流体供料工艺，入料前排泡；灌装供料PID稳流控制隔膜阀
  - 无泡工艺确保条件：供料稳定，无冲击；真空度稳定；灌装阀针对酱油做分流减压工艺
  - 定量灌装满足大容量，高精度要求
- 
- Modularity of filling valves has improved overall smooth finish (precision) for filling valves; optimizing sealing performance; thus enhance the precision in filling valve control; adding the switch to the vacuum reflux tube to ensure cleanness of the material tank; stable state of vacuum in the vacuum chamber
  - Advanced process of fluid material supply, defoaming before material feed, diaphragm valves performing PID control over steady flow of feeds
  - Conditions for foamless process: stable material feeding and shock free; stable vacuum grade; filling valves diverting the soy sauce stream to reduce pressure
  - Quantitative method meeting the requirements for high-volume and high-accuracy filling



## 油脂类产品 *Oil and Fat Products*





## 应用范围 Scope of Application



## 设备组成 Equipment Composition

- 进出瓶输送系统
- 灌装系统（称重定量灌装）
- 压盖系统
- 灌装管路系统
- 瓶盖提升、理盖、送盖系统
- 电气控制系统
- Bottle infeeding and discharging conveying system
- Filling system (weighting and quantitative filling)
- Capping system
- Filling pipes system
- Cap Lifting, Sorting, and Conveying System
- Electrical Control System



## 设备参数：

- 灌装容量：200ml-10.5L
- 灌装速度：4000-15000BPH ( $\leq 1$  L)  
1600-6000BPH ( $\leq 5$  L); 2000BPH (10.5 L)
- 灌装阀：每个灌装阀均通过独立气缸控制，实现快速-慢速灌装分段控制；真空回吸装置，无滴漏
- 封盖方式：压盖、旋盖均可实现，采用即抓即放机械式封盖或伺服控制封盖
- 瓶型件：进出瓶星轮，瓶口夹等无工具快速更换
- 灌装精度：极限偏差： $\pm 2-3g$  标准偏差： $1.5\sigma$

## Equipment Parameters:

- Filling capacity: 200ml-10.5L
- Filling speed: 4000-15000BPH ( $\leq 1$  L)  
1600-6000BPH ( $\leq 5$  L); 2000BPH (10.5 L)
- Filling valves: Each filling valve is controlled by independent cylinders, realizing segmented high-and low-speed control; vacuum resorption devices without leakage
- Cap closing method: applicability for both crowning and capping, mechanical instant sealing or servo-controlled sealing
- Bottle components: rapid replacement without tools, such as star wheels for bottle infeed and outfeed, and bottleneck clamps
- Filling precision: limit deviation:  $\pm 2-3g$  standard deviation:  $1.5\sigma$





## 设备特点 Equipment Characteristics

1

### 适应范围广 Wide application

适应产品：适应于几乎所有液体产品包装

包装容器：能处理最大6000ML瓶

适应瓶盖：能处理最大Φ100\*100的异形盖

Applicable products: nearly for all liquid products

Packing containers: the maximal volume is 6000ML

Applicable caps: unique caps with maximal size ofΦ100\*100

2

### 损耗低 Low loss

称重定量灌装，双速(快速慢速)灌装控制，灌装偏差小于正负2克

无瓶不灌装、不给盖

料缸尾料灌装控制，最大可能的降低产品损耗

Weighting and quantitative filling, dual-speed (high and low) filling control, filling deviation: < ±2g;

No bottles, no filling and caps feeding.

Filling control for remaining material in tank; minimization for product loss.

3

### 生产效率高 High Efficiency

产量高：速度可达5L容量130bpm ( 40吨每小时 )

易清洗：全自动回流（清洗）系统，操作简单

稳定性：完善的逻辑控制,故障率低，排障速度快

转线快：配自动升降系统和快速拆装的链板星轮系统，15–30min可完成生产转线

High output: the maximal speed for 5L bottles is 130 Bpm (40 tons/hour);

Easy to clean: full-automatic reflux (cleaning) system, easy to operate;

Stable: Logical control, low failure rate and fast troubleshooting.

Rapid switch: The automatic lifting system and the quick-attach-detach link plate star wheel system can complete the switch of production lines in 15 to 30 minutes.

4

### 卫生级别高 High Sanitary grade

非接触式灌装：瓶口与灌装物料无接触，确保产品质量品质安全可靠

卫生级气动灌装阀，气动部分与产品流通部分完全隔离

灌装完毕后辅助回吸装置，确保100%无滴漏

Non-contact filling: no contact with filling materials, guarantee safe and reliable quality of products

Sanitary-level pneumatic filling valves: separate pneumatic section from product circulation

With post-filling resorption devices, 100% guarantee of non leakage

5

### 智能控制 Intelligent Control

实时反馈每瓶实际灌装重量，用于下次灌装重量自我调整,保证最高灌装精度

整机全面监控，详细报警提示，辅助快速排除故障，确保生产稳定进行

Real-time feedback of the actual weight of materials filled in each bottle, and automatically adjusted for the next filling, ensure maximal filling precision.

Comprehensive control: detailed warning hints, assist with fast troubleshooting to ensure stable production.

6

### 维护简易，安全性高 Easy to Maintain, High Level of Safety

设备组成简洁，操作维修简易

智能化控制协助故障排除

安全性高，通过CE认证

Simplified composition, easy to operate and maintain

Intelligent control to assists with troubleshooting

High safety, CE compliant



达意隆为您提供液态产品包装全面解决方案

Tech-Long provides comprehensive solutions of liquid products packaging

