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## 精彩生活,分享爱

### **Brilliant lives, shared love**

泰戈尔曾说: "当我们爱着这个世界,才生活在这个世界。"

是的,我们都生活在一个充满爱,充满希望的世界。生活因爱而更加绚丽,世界因爱更加生动。

但在绚丽和生动以外,还有一些弱势群体在贫困中挣扎,在无助中期盼。

对此,2012年开始,在张崇明先生的号召带领下,达意隆携手社会各界爱心人士,发起了系列爱心助学活动。几年间,这支队伍走过了广东罗定、湖北丹江、广东韶关、湖南永州、贵州绥阳、湖南湘西、贵州松桃等多个地区,已向十余所贫困小学伸出了援助之手。

助学、助困、助危……一路走过,带来的是感谢,传递的是爱心。

我们相信,一份关怀,将会洒下爱的阳光;一颗爱的种子,将会绽放一朵爱的花蕾。

爱在心里,爱,在每一个角落!

Tagore once said: Only when we love this world, we live in this world.

Yes, we all live in the world that full of love and hope. Because of love, our lives are getting more and more brilliant, and the world is getting more and more vivid.

But except for the brilliance and lifelikeness, some vulnerable groups are still struggling in the poor and expecting in the helplessness.

So since 2012, under the leadership of Chongming Zhang, Tech-Long had held a series of loving students activities with charitable people in every area of the society. And during the several years, Tech-Long had aided more than 10 poor primary schools in lots of areas, such as Luoding and Shaoguan in Guangdong Province, Danjiang in Hubei Province, Yongzhou and Xiangxi in Hunan Province, and Suiyang in Guizhou Province.

With the aid of the students, difficulties and dangers, Tech-Long is passing our love and care for the ones in need, so we are always together with the gratitude.

We all believe that the poor children will bathe in the sunshine of love because of our care, and the seed of our love will also blossom the flower of love.

Love, exists not only in our hearts, but also in every corner of the world.





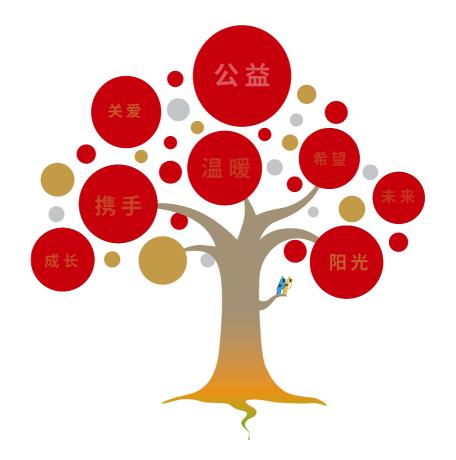
# SUPPORT THE SCHOOLING, CREATE THE DREAM

The enterprise's social responsibility is so heavy, so to be a responsible enterprise citizen is Tech-Long's strategic choice and value orientation. For years, Tech-long has been committing to the developments of social charity utility unswervingly, and explaining the connatation of enterprise citizen with action in silence.

In the year of 2014, Tech-Long founded the charitable foundation, so as to lead more people to pay attention to the public welfare and charity, as well as the education in the poor areas. If everyone can make some contribution to the public welfare, it will be the inexhaustible power which drive the society to progress.

企业社会责任沉甸甸,做负责任的企业公民,是达 意隆的战略选择,更是达意隆的价值取向。多年 来,达意隆始终坚定不移地致力于社会公益事业的 发展,默默地以行动诠释了企业公民的内涵。

2014年,达意隆发起成立了达意隆慈善基金会。以引导更多的人关注公益、慈善,关注贫困地区的教育事业,为公益增添一份力量,使其成为社会进步的不竭动力。



#### 助学·筑梦

#### SUPPORT THE SCHOOLING, CREATE THE DREAM

#### 一滴水能映出太阳的光辉 一份爱足以体现人间的温暖

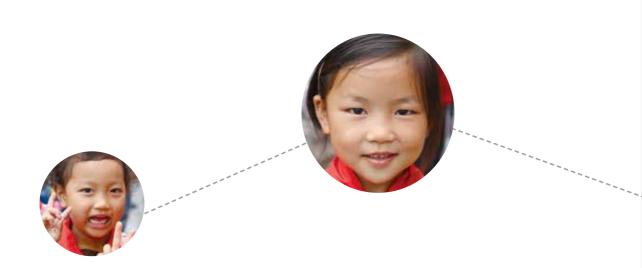
A drop of water can reflect the brilliance of the sunshine

And a little love and care can reflect the warmth of the world

2015年9月9日,一场帮扶贫困地区的公益活动 走进了湘西。在达意隆慈善基金会的的爱心号召 下,深圳源广洁、广州巨航、上海依澳、宁波嘉 德、广州华桓物流、东莞朗信等多家爱心企业与 达意隆共同组成一支爱心助学行动小组,为湖南 省湘西州如腊村如腊小学、机司村机司小学、贵 州四龙山小学的同学们送来了生活学习用品、学 习书籍等爱心物资。

On September 9th,2015, the charitable activity that supporting the poor areas is held in Xiangxi.

Under the call of Tech-Long charity foundation,
Tech-Long formed a loving and caring team
together with many enterprises, such as Yuan
Guang Jie in Shenzhen, Ju Hang in Guangzhou,
Yi Ao in Shanghai, Jiade in Ningbo, Hua Huan
Logistics in Guangzhou and Longsun in Dongguan,
to supply the students in Rula primary school of
Rula village, Xiangxi state, Hunan Province, Jisi
primary school in Jisi village, Silongshan primary
school in Guizhou province with some articles for
daily use and learning as well as books.





### 情暖校园 WARM THE CAMPUS

#### 湘西州花垣县吉卫镇如腊村如腊小学



#### Rula primary school in Rula village of Jiwei town, Huayuan county, Xiangxi state



## WARM THE CAMPUS

#### 湘西州花垣县吉卫镇如腊村如腊小学





# WARM THE CAMPUS

#### 湘西州花垣县吉卫镇如腊村如腊小学



#### Rula primary school in Rula village of Jiwei town, Huayuan county, Xiangxi state



## 情暖校园 WARM THE CAMPUS

#### 湘西州花垣县吉卫镇机司村机司小学



#### Jisi primary school in Jisi village of Jiwei town, Huayuan county, Xiangxi state



### 情暖校园 WARM THE CAMPUS

#### 湘西州花垣县吉卫镇机司村机司小学



#### Jisi primary school in Jisi village of Jiwei town, Huayuan county, Xiangxi state



### 情暖校园 WARM THE CAMPUS

#### 贵州省松桃苗族自治县盘石镇四龙山小学



崭新的课桌,清脆的电铃,课堂,将成为最愉悦的时光



赠送给孩子们的学习用具,愿他们:好好学习,天天向上!



送给老师们的生活用品,时值教师节,对最敬爱的老师们道一声:你们辛苦了!

## Silongshan primary school in Panshi town, Songtaomiaozu autonomous county, Guizhou Province



# WARM THE CAMPUS

#### 贵州省松桃苗族自治县盘石镇四龙山小学



## Silongshan primary school in Panshi town, Songtaomiaozu autonomous county, Guizhou Province



# WARM THE CAMPUS

#### 贵州省松桃苗族自治县盘石镇四龙山小学



## Silongshan primary school in Panshi town, Songtaomiaozu autonomous county, Guizhou Province



#### 感动:成就大爱

敬爱的镇政府,中心小学,尊敬的达意隆公司,怀恩慈善协会的叔叔阿姨们,

您们好! 今天,是我们机司小学全体师生十分高兴的日子。广州达意隆公司为我们学校捐建饮水设施,捐赠学习用具等物品。让我们偏远山区的孩子也享受到较好生活环境和学习条件。你们关心贫困地教育,无私奉献,爱心助学,大爱无边的精神,我们永远记在心里。今后我们一定要努力学习,长太以后也要为社会贡献一份力量,最后祝领导们身体健康,工作顺利。祝达意隆公司生意兴隆,财源广进,万事顺意,感谢怀恩慈善协会的叔叔阿姨们对社会的付出,您们辛苦了!

#### 谢谢太家!

#### 各位叔叔阿姨:

你们好! 秋高气爽,稻谷飘香。今天,叔叔阿姨们从远方带来那么多礼物送给我们,我们真的无比高兴。我代表全校同学对叔叔阿姨说声谢谢,谢谢你们对我们那么关怀,这真是无私奉献,大爱无边。谢谢大家!

#### 各位叔叔阿姨:

你们好!我叫麻利辉,是如腊小学三年级的学生。今天,我和全校的同学们都非常高兴,又非常激动,因为今天叔叔阿姨们来到我们学校,带来了很多礼物送给我们,有新课桌椅,有新衣服,有新书包,有新文具盒新书籍。我们全校学生非常感谢叔叔阿姨们。



#### **Movements**

Respected town government, central primary school, Tech-Long packaging machinery Co., Ltd and all the kind people from Huaien Charity Association:

Today will certainly be our happiest day ever. Tech-Long had donated many articles for us, like water drinking equipments, stationery and so on. In this way, even though we are in the remote areas, we can still enjoy the good living and learning condition. We will keep in mind forever that your care for the education in the poor areas, your selfless contribution and loving care for the study. We will study harder and harder from now on, and will contribute to the society when we grow up. Last but not least, we wish that all of you from Tech-Long can have a healthy body and be successful in your work. And we also wish that Tech-Long will get more and more famous in the future. We are rather appreciated of people from Huaien Charity Association's contribution to the society! In a word, Thank you for all you contribution, we are extremely grateful for you!

Best Regards

#### Dear uncles and aunts:

How are you! When the season autumn is coming, we are expecting for the harvest. Today, uncles and aunts from Tech-Long brought us lots of presents, what really makes us joyful. On behalf of all the students in our school, I want to show my appreciation for all your kindness. Thank you for caring for us so deeply, which is really selfless contribution and endless love of you.

Best Regards

#### Dear uncles and aunts:

How are you? My name is Lihui Ma, a grade 3 student from Rula primary school. Today my classmates and I are so happy and excited because many uncles and aunts are coming to our school and giving us lots of presents, including new chairs and desks, new cloths, new bags, new stationery cases and new books. We are really so much grateful for your kindness.

Best regards



WARM THE CAMPUS

#### 印记2012

发起: "每一个梦想都应该飞翔" 助学活动

捐助学校:罗定大榄与青竹两所小学















捐助前: 经久未修的校舍、窗户、课桌

#### RECORD 2012

Tech-long organized the Caring Student Activity, whose subject is Every Dream should be Flying.

School: Dalan Primary School and Qingzhu Primary School in Luo Ding.



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WARM THE CAMPUS

#### 印 记2013

发起"心系教育情暖青塘"爱心活动

捐助学校: 湖北丹江青塘小学













捐助前: 破旧的小木床, 斑驳简陋的办公桌椅

#### RECORD 2013

School: Danjiang Qingtang Primary School
Tech-Long organized the Caring Student Activity, whose subject was Caring the Education, Warming Qingtang.



捐助后: 耐用的双层铁架床, 崭新的课桌

WARM THE CAMPUS

#### 印记 2014

发起"爱心浇灌育花开"助学活动

捐助学校: 韶关市长市小学、宁远县荒塘完全小学













捐助前:破旧的木床,快腐烂的办公桌椅

#### RECORD 2014

Tech-Long organized the Caring Student Activity, whose subject was Present Love to the Flower of our Motherland, Assist the Students in Shaoguan.

School: Changshi Primary School in Shaoguan District, Wanquan Primary School in Yuanxian District,















捐助后: 耐用的双层铁架床, 宽敞明朗的教室

WARM THE CAMPUS

#### 印记 2015

发起"用爱播种希望"爱心助学活动 捐助学校:贵州绥阳温泉镇清泉中学







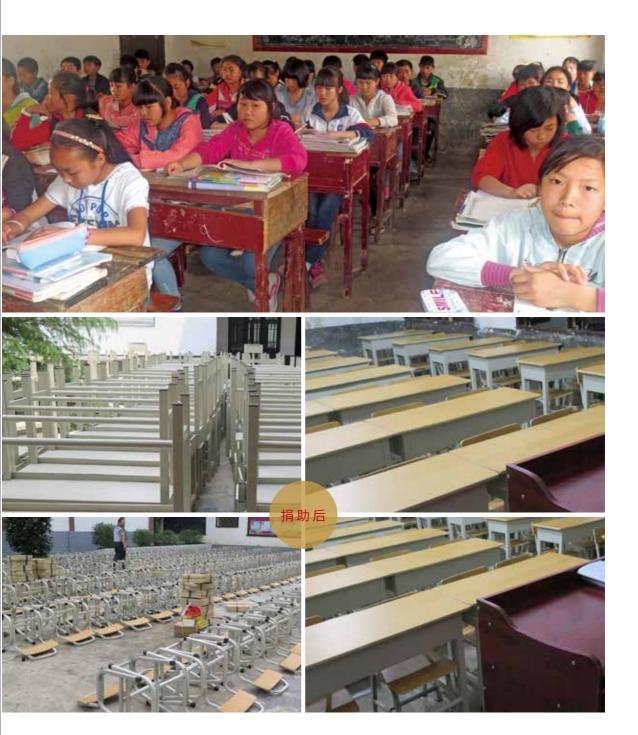






#### RECORD 2015

School: Qingquan Middle School in Wenquan Town. Suiyang District, Guizhou City Tech-Long organized the Caring Student Activity, whose subject was Sow Hope with our Love.





# SPECIAL特殊报导 REPORT







春去秋来,几多时,

回眸,是暖阳煦风下的动魄时光; 凝望,是岁月长河里拼搏的灿烂日子。 跨越与再创——在这里一起演绎, 不朽与神奇——在这里一起创作,

历变春暖,新时代已经到来, 我们将笃定沉稳,从容慢行,心无旁骛去浇灌企业价值之花, 沉淀,

好比那以柔克刚的太极,缓缓之中凝聚无尽的力量,好比那清石直滴岩石,滴滴之中破阻历显出闪闪金光;

我们坚信,

没有什么力量能够阻挡我们奋然前行创造未来的脚步,就像没有人能阻挡春天的脚步。

我们断言,

躬身实践,此刻的沉淀不过是为了下一场的顺势而为, 展望未来,将是又一场浩荡磅礴的宏图新篇。

The spring went by and the autumn has already come; how time flies;

Looking back, what we sensed is the dynamic time with the warm sun and mild wind;

staring, what we appreciated is the sunny days during the long-year struggles.

Leap forward and recreation are deduced here, Immortality and magic are created here,

Through changes of seasons, the new age has come;

We will be certainly composed and go slow calmly to irrigate the flower of the enterprise value with no distractions;

We will precipitate;

Just like Tai Chi which can conquer the unyielding with the yielding, we will accumulate endless power slowly;

Just like the clear water drops straight on the rock, we will show our glitter in breaking through the resistance;

We firmly believe that,

No force can stop our energetic footsteps to create the future,

Just like no one can stop the footsteps of spring.

We assert that.

Attending to practice personally and the precipitation at the moment will make us go with the flow next,

Looking forward to the future, what we witness will be another majestic new chapter of the grand prospect.



# Looking to FUTURE the Exploration of NEW INDUSTRY AGE

放眼未来新工业时代的探索

#### 经济新常态与智能制造

在经济、信息高速发展的今天,现实世界与虚拟世界日益紧密,信息技术与制造产业的深度融合正在引发一场影响深远的产业变革。新一轮工业革命悄然而至,全球经济进入了工业4.0时代的开端。工业4.0,目标在于建立一个高度灵活的个性化和数字化产品与服务的生产模式,它意味着在产品生命周期内整个价值创造链的组织和控制迈上新台阶。作为"工业4.0"两大主题之一,"智能生产"成为制造业不可逆转的发展趋势。工业自动化技术得到空前发展,应用范围几乎扩展到人类活动的一切领域。

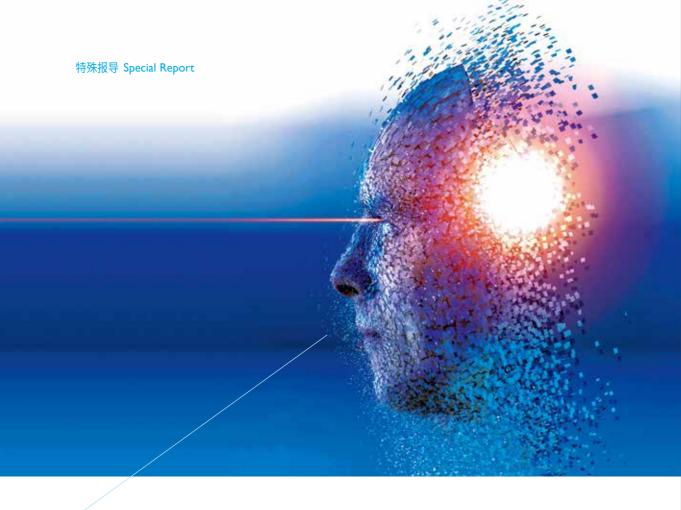
未来,制造行业工厂将融通自动化系统,成为一个高效节能、绿色环保、环境舒适的人性化工厂!

#### 感知产业脉搏,

#### 做智能化工厂的探索与实践者

早在2009年,达意隆就敏锐感知到产业态势,并做出战略布局,摸索在智能制造的道路上。与ABB、KUKA、西门子、施耐德等知名企业的紧密合作,铺开了达意隆进入工业机器人领域的道路,而后,达意隆成功自主研发、生产了可承载1kg,3kg,6kg,10kg的并联机器人。几年间,通过强大的服务体系,在工厂智能化、装备智能化、产品智能化、服务智能化和管理智能化方面取得了多项突破,并以自身实践为基础,融合先进的技术和经验,为客户实现高效率、高柔性工业生产提供专业卓越的技术支持和服务,为客户"量身智造"最佳的机器人自动化解决方案。





#### 审时度势,开启自动化新时代

而今,随着新一轮工业革命的全面爆发,达意隆再次把握时机,加速向自动化方向转变。2013年,达意隆开始产业化,成功为宝洁、伊利、海天等名企提供自动化解决方案。2014年,正式成立工业自动化事业部,把工业自动化解决方案拓展到其他领域,并取得显著成效,积累了丰富的自动化应用经验。至2015年,达意隆以强大的技术创新,成功为海信、美泰、华为、顺丰等多家企业提供自动化改造方案,在攻进自动化的道路上大获全胜!

今天,工业自动化生产已跃然上升为达意隆的战略 主业。未来,这将成为达意隆一个非常强劲的增长 点,达意隆也必将开启一个高端制造应用新时代!

## New normal of the economy and intelligent manufacturing

With the high speed development of economy and information at present, the real world and virtual world are increasingly interconnected with each other and the in-depth integration of the information technology and manufacturing industry is causing another round of industrial revolution with profound impacts. Since a new round of industrial revolution has come quietly, the world economy has gone into the beginning of the "Industry 4.0" which aims to build a mode of production of highly flexible personalization and digital products and services and means that the organization and the control of the entire value creation chain in the product life cycle have come to a new level. As one of the two themes of "Industry 4.0", "intelligent production" has become an irreversible trend

of the development of manufacturing industry. Industrial automation technology has also been an unprecedented development and it can be applied to almost all areas of human activity.

In the future, manufacturing factories will accommodate the automation system and become highly efficient, energy saving, green and environmentally-friendly and comfortable humanized factories!

#### Perceive the pulse of the industry and become explorers and practitioners of intelligent factories

As early as 2009, Tech-Long sensitively perceived the changing industrial situation, made a strategic layout, and embarked on a road of intelligent manufacturing. Partnering with such well-known enterprises as ABB, KUKA, Siemens, Schneider and so on, Tech-Long made preparation for entering the field of industrial robots. And then, with its independent research and development Tech-Long successfully produced parallel robots which can hold a weight of 1 kg, 3 kgs, 6 kgs and 10 kgs. Over the years, Tech-Long has made a number of breakthroughs in intelligent factories, intelligent equipment, intelligent products, intelligent services and intelligent management. And on the basis of its own practice, Tech-Long integrated the advanced technology and experience to provide excellent professional technical support and services for customers to achieve high efficiency and high flexible industrial production and the best robot automation solutions of "customer-tailored" for its customers

### Consider the situation and open up the new era of automation

Today, with the widespread outbreak of the industrial revolution of a new round, Tech-Long seized the opportunity once again and accelerated the shift in the direction of automation. In 2013. Tech-Long began its industrialization and successfully provided automation solutions to such companies as P&G, Yili, and Haitian and so on. In 2014, Tech-Long formally established its industrial automation department and expanded its industrial automation solutions to other areas, which achieved remarkable results and accumulated its rich experience in automation application. To 2015, with its powerful technology innovation, Tech-Long successfully provided the automation retrofit scheme to such companies as Hisense, Mattel, Huawei, SF express and so on and gained a complete victory on the road to automation!

Today, industrial automation production has become the strategic business of Tech-Long. In the future, it will be a very strong growth point for Tech-Long and Tech-Long will open a new era of high-end manufacturing application!



## 四年准备 一朝发力 达意隆进军美国市场

#### 达意隆携机亮相2015美国NPE展会



日前,倍受瞩目的2015美国国际塑料展会(NPE 2015)在弗罗里达奥兰多会展中心成功举办。作为中国高端液态包装机械领导者,达意隆携带了最新产品闪耀登场NPE 2015。

近年,广州达意隆包装机械股份有限公司已经跃升 国产饮料包装设备的龙头企业,占据15%的市场份额。现在,公司正进军美国这一全球最大的包装市场,希望把成功复制到美国。在NPE 2015上,公司高管们接受了《塑料新闻》的采访并就达意隆将全力进军美国市场做出发言,接受采访的包括达意 隆董事长张颂明先生,达意隆美国公司CEO Keith Boss和董事总经理Johnson Zhang,他们表示,力争未来五年在美洲占领10-15%的市场份额。

此次展会上,达意隆首推其最新产品——G5旋转式拉伸吹瓶机。设备单腔产出最高可达每小时2400瓶,机器范围包括6-32腔,同时能耗减少10-15%,高压空气回收率则提高至55%。 这台高性能机器用伺服电机取代了气动伸缩杆;集成夹钳系统可更快地从模具中取出瓶;还添加了新的可编程逻辑控制器,采用了15英寸的触摸屏用户界面。

# CHINESE PACKAGING EQUIPMENT MAKER TECH-LONG SWEEPS INTO US MARKET

**NPE 2015** 



通过一个集成吹风装置,减少死区送风量和总体送风量。六个阀门分别用于预吹塑、二次吹塑、主吹塑、第一次循环、第二次循环和排气。该机无需使用低压压缩空气。预成型瓶胚可自动送入吹瓶机。同时,达意隆还现场演示了一台广州一道注塑机械有限公司生产的PET预成型瓶胚注塑机,达意隆持有该公司44.9%的股份。

张颂明先生在1999年成立了达意隆。通过短短16年,他将公司发展成为国内的行业领军企业。多年来,达意隆主导起草了多项国家行业标准,在中国

市场,有70-80%的本土品牌吹塑机都是达意隆生产的。同时,达意隆还成功地开拓了国际市场。据不完全统计,已有2300多生产线在80个国家投入使用。并与宝洁、联合利华和百事可乐等国际巨头都有合作。

张颂明先生说: "我们为宝洁在全球的工厂供应灌装生产线,不仅是宝洁的中国工厂,还包括宝洁美国总部(辛辛那提)、法国、捷克和俄罗斯以及世界其他地方的工厂。"



Johnson Zhang于2011年12月在加州设立了达意隆公司的美洲总部,他表示,这四年来达意隆做好充分准备,现在是时候发力,加速开拓美国市场。

张颂明先生补充说: "我们的计划是,先建立坚实的服务和支持体系,然后全面启动销售。"

除了加州总部外,达意隆还计划在年底前在美国东岸新设一座分点。目前常住亚特兰大的Boss表示,新分点已经选好了地址,新址将占地25000平方英尺,提供塑机、备件和服务,将配备注塑、吹塑和包装设备。

近几年,达意隆美国分公司在美洲已售出了25台吹塑机,其中9台在美国市场。而NPE现场演示的G5塑机也在展后交付至得州的一家客户。

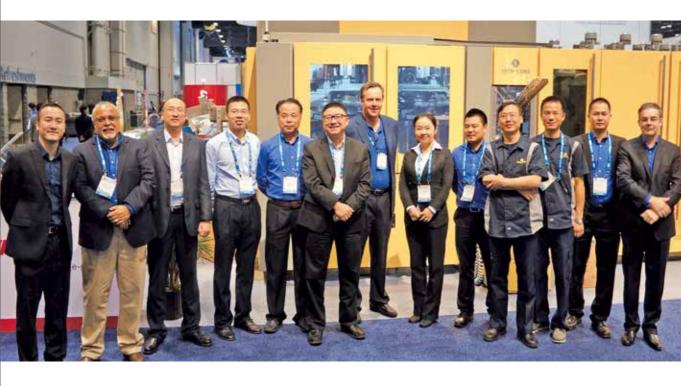
Johnson Zhang说:"我们不太担心销售问题。我们更重视市场对我们的技术和品牌的认知度。我们希望保证客户最大的满意。"

张颂明先生说:"我们在向市场发出信号,我们要 扎根于此,我们有长期发展规划。我们希望得到美 洲客户的忠诚和信任。"这一信任基于其技术。他 补充说:"我们相信,我们的技术不亚于甚至优于 全球任何的吹塑机生产商。事实上,技术始终是达 意隆最重视的首要重点。"达意隆把年销售额的 5-7%投入研发,目前持有70多项专利。"我希望美 国市场看到我们自主开发的技术是一流的,我们不 只是以价格取胜,"张颂明先生表达到。

他补充说,达意隆的塑机设计简洁,方便维护。随着宝洁等大客户在全球范围使用达意隆设备,"我们的产品在过去十年里已经证明了自己的实力。"

Johnson Zhang说,聘请行业资深人士Boss加盟是 达意隆全球扩张不可或缺的一部分。

在加入达意隆之前,Boss担任西得乐公司北美总部的副总裁和总经理。并在赫斯基公司的亚洲、欧洲和美国业务先后工作了二十多年,在这段时间里该



公司的销售额增加了20倍以上。Boss先生表示,之 所以加入达意隆,是因为看到了之前他加入赫斯基 时看到的同样巨大的增长潜力。他说:达意隆已经 完全做好了在美洲扩张的准备!

Recently, the high-profile 2015 international plastic exhibition (NPE) was held successfully in Orlando Convention center, Florida of USA. As China's leading manufacturer of the high-end liquid packaging machinery, Tech-Long carried its latest products to NPE 2015.

In recent years, Guangzhou Tech-Long Packaging Machinery Co., Ltd. has become a leading manufacturing enterprise for domestic beverage packaging equipment, occupying 15% of the market. Up to date, Tech-Long is preparing to enter USA which is the largest packaging market in the world and intends to bring its success to

USA. On the NPE 2015, executives of Tech-Long were interviewed by the Plastic News and made a speech on its entry into the US market. Leaders interviewed included Mr. Zhang Songming, chairman of the board of Tech-Long, Mr. Keith Boss, CEO of Tech-Long USA, and Mr. Johnson Zhang, director and general manager of Tech-Long USA. They said that they would do their utmost to made Tech-Long occupy 10-15% of the US market in the next five years.

On NPE 2015, Tech-Long exhibited its latest products—the G5 rotary stretch blower. The output for the single cavity can be up to 2400 bottles per hour; the machine includes 6 to 32 cavities; its energy consumption is reduced by 10-15%, but the high pressure air recovery rate can be up to 55%. This high performance machine utilized servo motor to replace the pneumatic stretch rod; the integrated clamp



system can take bottles out of the mould more quickly; a new programmable logic controller has been added in the machine which is equipped with the 15-inch touch screen user interface. Through an integrated blowing device, the air sending volume and overall air sending volume are reduced. Six step blowing process are used for pre-blow-molding, second time blowmolding, major blow molding, the first cycle, the second cycle and venting. This machine does not use the low pressure compressed air. Embryos of pre-form bottles can be sent automatically into blower machine. At the same time, Tech-Long also demonstrated a PET pre-form bottle embryo and injection molding machine produced by Guangzhou Unique Injection Molding Machinery Co., Ltd. Tech-Long holds 44.9% stake of this company.

Tech-Long was founded by Mr Zhang Songming in 1999. After only 16 years, he has developed Tech-Long into a domestic industrial leader. Over the years, Tech-Long has taken the lead to draft several national industrial standards, and 70-80% of domestic brands of blowing and molding machines in the Chinese market are produced by Tech-Long. At the same time, Tech-Long has successfully developed the international market. According to incomplete statistics, 2300 production lines produced by Tech-Long were put into use in 80 countries. Tech-Long conducted cooperation with such international giants as P&G, Unilever and Pepsi.

"We supply filling lines to P&G's global locations, not just China, but also U.S. head office in Cincinnati, France, Czech Republic and Russia, and elsewhere," Zhang Songming said.

Tech-Long's ongoing push in the U.S. market is built on the foundation of four years of preparation, said Johnson Zhang, who set up the Commerce, Calif.-based American in December 2011.

"We wanted to build a solid service and support system before pushing for sales," added Zhang Songming.

In addition to the California headquarter, Tech-Long USA also plans to open a facility on the East Coast before the end of the year. Boss, who is currently based in Atlanta, said the company has already picked the location but is not ready to announce. "It will be a 25,000-square-foot facility with machines, spare parts and service," he said. "We'll have injection molding, blowing and packaging equipment."

In recent years, Tech-Long headquarters in USA has sold 25 sets of blower in America, 9 of them were sold for the American market. The G5 blower demonstrated on NPE 2015 was sold and delivered to one customer in Texas.

Johnson Zhang said: "we don't worry about sales. We pay more attention to the market recognition of our technology and brand. We want to ensure the greatest satisfaction from customers."

Mr. Zhang Songming said: "we are sending a signal to the market, we will take root in this, and we have a long-term development plan. We want to win the loyalty and trust of American customers." The trust is based on our technology. He added: "we believe that our technology is as brilliant as or even better than that of any

blower manufacturers around the world. In fact, technology is always the most important priority for Tech-Long." Tech-Long puts 5-7% of its annual sales in research and development, and now holds more than 70 patents. "I hope that the US market can find our self-developed technology the first-class, we win customers not only out of the price." Mr Zhang Songming stated.

He added, the molding machine of Tech-Long is simple in design and easy for maintenance. The fact that our giant customers like P&G using our equipment around the world has indicated, "our products has proved their strength in the past decade."

Johnson Zhang said, inviting industry veteran Mr. Boss to join is an integral part of Tech-Long's global expansion.

Before joining Tech-Long, Mr. Boss was vice President and general manager of Sidel North American headquarters. And he worked in HUSKY offices in Asia, Europe and the United States for more than 20 years. During this time, sales of HUSKY increased more than 20 times. Mr. Boss said, he sees the same huge growth potential in Tech-Long as in HUSKY before he joined Tech-Long. He said, "Tech-Long is ready to expand in America!"



#### ■ 相关链接:

#### MR.KEITH BOSS 出任达意隆美国分公司CEO

日前,广州达意隆包装机械股份有限公司宣布已聘 请新的总裁负责拓展加拿大、美国、墨西哥以及南 美国家的液态饮料市场及在美洲区域新的投资计 划。

达意隆公司董事长张颂明先生荣幸地宣布MR.KEITH BOSS 先生成为达意隆美洲区总裁。

BOSS先生在其过去25年中一直在包装行业任高级管理职位,曾长期担任HUSKY注塑系统和西得乐公司的总裁职务。BOSS先生将跟达意隆现任总经理张胜先生(2012年6月张胜先生成立了达意隆美洲分公司)一起合作工作。

作为目前国际知名的世界液态包装行业领先的设备 供应商,成立于1998年的达意隆公司以其无与伦比 的性价比与灵活多样的技术为客户提供全面的包装 解决方案。

KEITH BOSS 说,"能够加入达意隆公司我感到非常激动,我对能够加入这个充满活力的世界级的公司并帮助他们在美洲区域发展壮大充满期望",他接着说"达意隆公司对美洲市场有一个非常长期的计划和构想:他们将给市场及客户一个非常明确的承诺,他们将提供最好的产品和服务给客户并对公司所在地的经济和发展做出自己的的贡献"。

#### Nelevant links:

## Mr. KEITH BOSS works as CEO of Tech-Long American branch

Recently, Guangzhou Tech-Long Packaging
Machinery Co., Ltd. announced that it had hired
a new CEO who is responsible for its liquid
beverage market development in Canada, the
United States, Mexico and South American
countries and new investment plans in the region
of the America.

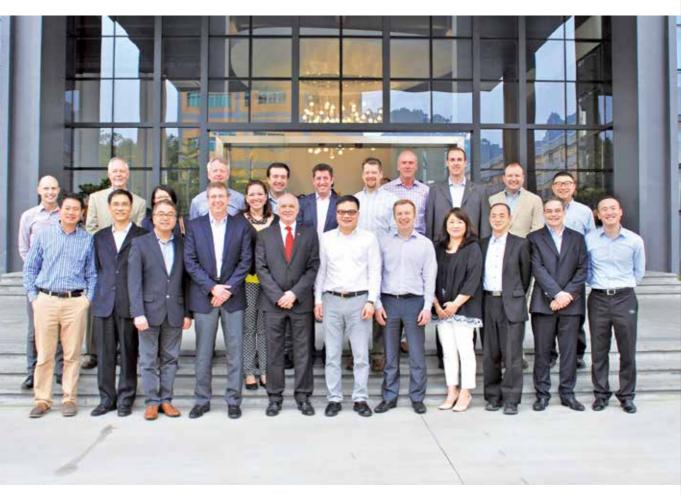
Mr. Zhang Songming, chairman of the board Tech-Long, was pleased to announce the appointment of Mr. KEITH BOSS as President of Tech-Long America.

Mr. BOSS has dominated senior management positions of the packaging industry in the past 25 years; he worked as the president of HUSKY injection molding systems and Sidel for a long time. Mr. BOSS will partner with Mr. Zhang Sheng (who founded Tech-Long America branch in June 2012), the current general manager of Tech-Long USA.

Founded in 1999 and as the leading supplier of liquid packaging equipment in the world,
Tech-Long provides clients with comprehensive packaging solutions with unparalleled performance and flexible technology.

KEITH BOSS said, "I'm very excited to join Tech-Long. I am full of expectations to join this vibrant world-class company and help it to develop in the America", he continued to say, "Tech-Long has very long term plans and ideas for the American market: Tech-Long will give a very clear commitment to the market and customers, it will provide the best products and services to the customers and make its own contribution to the development of local economy".

## 可口可乐全球供应链团队一行 **荏临达意隆参观考察**



可口可乐全球供应链团队一行考察达意隆工厂 Coca-Cola's Global Supply Chain Team Visited Tech-Long

# COCA-COLA'S GLOBAL SUPPLY CHAIN TEAM VISITED TECH-LONG

2015年3月23日,可口可乐(全球)供应链副总裁率团队专程赶赴达意隆参观考察。在达意隆高层领导的陪同下,代表团一行参观了达意隆多个生产车间以及华新达生产基地,并重点了解了达意隆最新高速吹瓶机与68000BPH高产量水线设备。

考察过程中,代表团成员对达意隆最新技术创新给予了很高的评价,充分肯定了达意隆具备全球供应商的卓越能力。同时,对达意隆在企业管理规范化、标准化,厂容厂貌,员工风貌等方面的成就也予以高度肯定。

此次代表团的来访,对促进双方交流合作有重要的 意义,二者必将持续深化战略合作伙伴关系,共同 在未来的商业领域开拓新的天地。 On March 23, 2015, Vice President of Coca-Cola (global) led its supply chain team to visit Tech-Long. Accompanied by senior leaders of Tech-Long, the delegation visited multiple production line workshop of Tech-Long and Huaxinda production base, and specially got to know Tech-Long's latest high-speed bottle blowers and 68000 BPH high production line.

During the inspection, the members of the delegation gave a high evaluation of Tech-Long's latest technological innovation, fully affirmed Tech-Long's superiority as a global supplier. At the same time, they also highly affirmed enterprise management normalization, standardization, factory environment as well as employees' styles and features of Tech-Long.

The delegation's visit is significant in promoting exchanges and cooperation between Tech-Long and Coca-Cola; these two companies will continue to deepen their strategic partnership and open up new world together in the future.

### 多措并举 撬动大市场

天津宝隆宝洁代工项目一期取得卓著成果 二期项目即将启动



近日,天津宝隆包装技术开发有限公司为宝洁集团代工的一期项目顺利交付并投入生产,成果卓越。 自2014年成立,天津宝隆作为达意隆在日化行业 第一个全资子公司,以代加工液体洗涤剂为主营业 务,自筹建之初就备受关注。仅仅5个月时间的现场 施工,第一验收就达到了用户的使用要求和标准, 且所提供方案均为低成本解决方案。 目前该项目已运行4个多月,现场运行状况良好,各项KPI指标均达到宝洁集团的考核要求。宝洁集团高层领导也对天津宝隆的代工项目的成果表示高度认可,并由此加快了二期制造及后续项目的步伐。

与宝洁集团代工项目的深度拓展,进一步坚实了达 意隆在代工市场的稳步发展。未来,达意隆将乘势 而上,发起代工模式向全球市场进军的冲锋!

# MANY MEASURES ARE TAKEN SIMULTANEOUSLY TO TAP THE BIG MARKET

P&G's 1st Phase of the OEM Project by Baolong of Tianjin is Fruitful and 2nd Phase is about to Start



Recently, P&G's 1st phase of the OEM project by Baolong Packaging Technology Development Co., Ltd. of Tianjin was smoothly delivered and put into production, with outstanding achievements.

Founded in 2014 and as Tech-Long's first wholly owned subsidiary in daily use chemical industry, Tianjin Baolong Packaging Technology Development Co., Ltd. focuses on the OEM project of processing liquid detergent. It attracted the public's attention from Tech-Long's preparation to establish it. After only five months of field construction, the 1st acceptance of this project meets the user's requirements and standards, and solutions provided by it are the low cost ones.

The project has been running for more than four months, and its field operation is in good condition, with KPI indicators meeting P&G's assessment requirements. Top leaders of P&G also highly affirmed achievements made by the OEM project of Tianjin Baolong, which sped up the second phase of the manufacturing and the construction of subsequent projects.

The in-depth development of P&G's OEM project by Tianjin Baolong of Tech-Long further enhanced Tech-Long's steady development in the OEM market. In future, Tech-Long will ride on the momentum and thrust for the global OEM market!

Text: David Huang

### 行业翘楚担大任 达意隆牵头定国标



2014年12月11日,由全国食品包装机械标准化委员会主办,达意隆承办的全自动吹瓶灌装旋盖一体机通用技术要求工作组(SAC/TC494/WG6)、含气灌装压盖设备通用技术要求工作组(SAC/TC494/WG5)及回转式全自动粘流体灌装封盖机通用技术要求工作组(SAC/TC494/WG7)成立大会暨第一次工作会议在广州科学城隆重召开,全国食品包装机械标准化技术委员会陈润洁秘书长、省、市、区质量技术监督局领导、工作组成员、行业代表、专家、各饮料生产商代表和供应商代表出席了此次大会。

会上,全国食品包装机械标准化技术委员会陈润洁 秘书长对本次活动表达了高度的赞许,她希望"越 来越多像达意隆公司这样的优质企业能够在制定国家标准的工作中起到表率作用"。随后,广州市质量技术监督局袁辉文副局长对萝岗区企业在标准工作推进中的积极举措做出了肯定,对达意隆近年来在标准制定方面的成效表示赞许。广州市萝岗区质量技术监督局局长张敏在接下来的讲话中希望区内更多企业以达意隆为榜样,重视知识产权等无形资产,积极进行技术创新,并加大对技术创新成果进行保护和维权的力度。按照议程,全国食品包装机械标准化技术委员会陈润洁秘书长、省市区质量技术监督局领导共同为含气灌装压盖设备通用技术要求工作组、全自动吹瓶灌装旋盖一体机通用技术要求工作组及回转式全自动粘流体灌装封盖机通用技术要求工作组及回转式全自动粘流体灌装封盖机通用技术要求工作组及回转式全自动粘流体灌装封盖机通用技术要求工作组的成立进行了隆重揭牌。

# UNDERTAKE IMPORTANT TASKS —TECH-LONG, AS AN INDUSTRIAL LEADER, LED THE GROUP TO FORMULATE NATIONAL STANDARDS



成立大会后,工作组成员分别在11、12日两天进行了三个国家标准的第一次会议,就标准内容广泛征求制造商、用户、专家和供应商的意见,对设备的术语和定义、产品分类和型号编制方法、要求、试验方法、检验规则及标志、包装、运输、贮存等进行广泛探讨,并形成标准的征求意见稿。

国标研讨结束后,全国食品包装机械标准化技术委员会将在行业中广泛征求意见,最终使意见稿形成标准报批稿,上报国家标委会审批,预计一年后发布实施。本次研讨的三个国家标准为行业设置了准入门槛,将有效引导液态包装行业向智能化、柔性化等方向发展。

On December 11, 2014, an inaugural meeting of the universal technical requirements working group for full automatic blowing, filling and capping machine (SAC/TC494 / WG6), the universal technical requirements working group for CSD filling and capping equipment (SAC/TC494 / WG5) and the universal technical requirements working group for rotary full-automatic viscous fluid filling and capping machine (SAC/TC494 / WG7) and the first work meeting was held in Guangzhou by Techlong, which was sponsored by the National Food Packaging Machinery Standardization Committee. Miss Chen Runjie, secretary-

general of the National Food Packaging
Machinery Standardization Committee, leaders
and personnel from the Bureau of Quality and
Technical Supervision at the provincial, city and
district level as well as industrial representatives,
experts, representatives of the beverage
manufacturers and suppliers attended the
conference.

At the Conference, Miss Chen Runjie, secretarygeneral of the National Food Packaging Machinery Standardization Committee, expressed high praise of this conference, and stated that "more and more enterprises are expected to play a leading role in formulating national standards like Tech-Long". Subsequently, Mr. Yuan Huiwen, deputy director from the quality and technical supervision bureau for Guangzhou sang high praise of the work done by enterprises of Luogang district in actively promoting related industrial standards and of the progress made by Tech-Long in terms of standards in recent years. Miss Zhang Min, director of the quality and technical supervision bureau for Luogang District expressed her wish that more companies are expected to follow the example of Tech-Long, attach great importance to the intangible assets such as intellectual property rights, actively innovate technology, and made greater efforts to protect technology innovation and safeguard related legal rights. According to the agenda, Miss Chen Runjie, secretary-general of the National Food Packaging Machinery Standardization Committee, and leaders from

the Bureau of Quality and Technical Supervision at the provincial, city and district level grandly inaugurated the establishment of the universal technical requirements working group for gas filling and capping equipment and the universal technical requirements working group for rotary full-automatic viscous fluid filling and capping machine

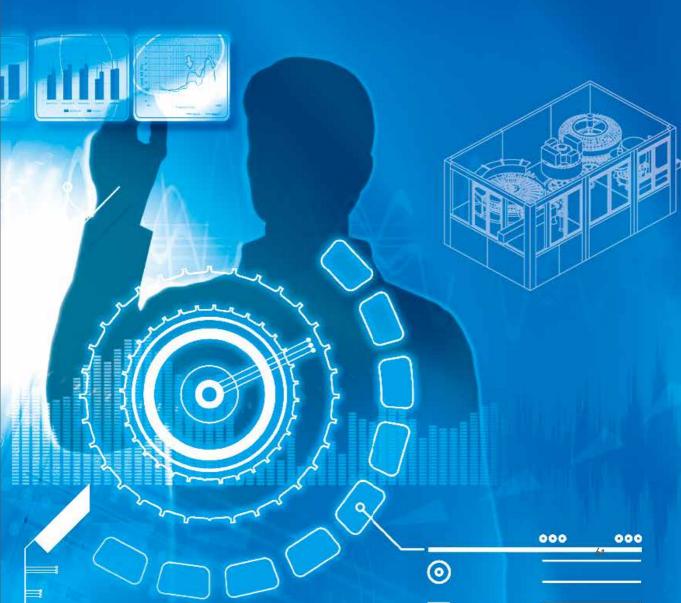
After the founding conference, members of the working group held the first meeting for three national standards on 11 and 12 of December. Opinions of the manufacturers, users, experts and suppliers for the content of standards were widely solicited, and terms and definitions of equipment, product classification and methods of type designation, requirements, testing methods, inspection rules as well as marks, packaging, transport and storage were extensively discussed. The exposure draft of the standard was formed.

After the discussion for national standards, the National Food Packaging Machinery
Standardization Committee will solicit opinions in the industry, make the standard draft, and submit to state standard committee for approval. The standards are expected to be promulgated a year later. The three national standards discussed at the conference set up requirements for market access for the packaging industry and will effectively guide the liquid packaging industry for their intelligent and flexible development.

Text: Ruili Deng

# 以创新 引未来 USHER IN THE FUTURE WITH INNOVATION

达意隆新品迭出 引领创新风潮
TECH-LONG PRODUCES A SERIES OF NEW PRODUCTS,
LEADING THE INNOVATION TIDE



公司,只有创新与营销两项基本职能。

-彼得.德鲁克

A COMPANY ONLY HAS TWO BASIC FUNCTIONS OF INNOVATION AND MARKETING.

—Peter Drucker

创新是企业发展的不竭动力。多年来,忠于对质量、服务和创新的承诺,达意隆始终在技术创新上不遗余力,填补了大片中国包装机械行业在同类国际市场中的技术空白。近年,在技术研发方面再次取得优异成绩,一举研发出多项新技术新品。

Innovation is the inexhaustible driving force of enterprises' development. Over the years, Tech-Long has been committed to quality, service and innovation, spared no effort on technology innovation, and filled the technical blank of the packaging machinery industry in the international market. In recent years, Tech-Long has once again made impressive progress in technology research and development and developed a number of new technology and new products.

#### 引领行业潮流,成功研制中温灌装机

2015年,广州达意隆包装机械股份有限公司成功推出新型中温灌装机,并即将应用于生产。

新型中温灌装机是达意隆新一代的灌装设备,在 茶、果汁及功能性饮料类型产品中,中温高速灌装 技术在未来市场有着非常广阔的前景。该产品的成 功研发进一步丰富达意隆产品结构,是继推出无菌 冷灌装设备后的又一里程碑。

与传统热灌装相比,中温灌装的优势主要体现在以下几个方面:

- 1. 由于灌装温度的降低,瓶子的耐热要求不像热灌 装那么高,因此有效降低了瓶子克重,节省了包 材成本;
  - 2. 中温灌装线的能耗更小,有效实现节能降耗的环保理念,降低运营成本。
  - 3. 因产品灌装温度的下降,产品营养成分损失小,口感更好。
  - 4. 相对于无菌冷灌装,中温灌装具有品控风险小, 投资及维护成本低的优势,同时对生产操作人员 要求也比较低。



### LED THE INDUSTRIAL TREND AND SUCCESSFULLY DEVELOPED WARM FILLING MACHINE

In 2015, Guangzhou Tech-Long Packaging Machinery Co., Ltd. successfully launched its warm filling machine, which will be used in production.

New warm filling machine is a new generation of filling equipment of Tech-Long, which can be widely used in the production of tea, juice and functional beverage. The successful research and development of this product further enriched the structure of Tech-Long's products and was another milestone after Tech-Long produced aseptic cold filling equipment.

Compared with the traditional hot filling, the advantages of warm filling are as follows:

1. Since the pouring temperature is reduced, the heat-resistant requirement of bottles is not as high as that of hot filled bottles, which effectively

reduced the weight of bottles and saved the packaging cost;

- 2. The energy consumption of warm filling machine is less, which effectively realized the environmental protection concept to save energy and reduce running cost;
- 3. Since the filling temperature of products has dropped, nutrient loss of products became smaller and products taste better.
- 4. Compared with the aseptic filling, warm filling machine can reduce the risk of product quality as well as investment and maintenance costs. The requirement for production operation personnel is lowered

#### 成功推出新一代高速吹瓶机

2014年,达意隆最新一代吹瓶设备——CPX20高速节能吹瓶机项目调试完成,并成功运行生产。该设备单模产量2250瓶/小时,具有创新的设计理念和高速稳定的吹瓶性能。在吹瓶效率和降低能量消耗方面有更卓越表现。

#### 设备简介:

应用范围:水、饮料、牛奶及制品、食用油、食

品、医药、化妆品、洗涤剂瓶。 单模产能: 2250~2400BPH。

#### 机械设计特点:

- 1. 噪音从92dB下降到83dB;
- 2. 加温炉节约瓶胚加温用电10~15%;
- 3. 气路系统省去低压用气,节约高压气40-55%;
- 4. 伺服拉伸和机械封口;
- 5. 采用底模与开合模联动;



### SUCCESSFUL LAUNCH OF NEW GENERATION HIGH-SPEED BLOWER

In 2014, the commissioning of Tech-Long's latest generation of blower—CPX20 high-speed energy-saving blower was completed and successfully put into use. The single cavity output of this equipment is 2250 bottles per hour, which bears the innovative design concept and the high-speed and stable performance of blower. The machine excels in bottle blowing efficiency and reducing energy consumption.

#### Introduction:

Application scope: bottles for water, beverage, milk and milk products, edible oil, food, medicine, cosmetics, detergent.

Output of the single cavity: 2250 ~ 2400 BPH.

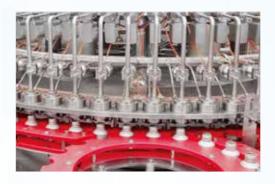
#### Mechanical features:

- 1. Measured Machine Noise 83db
- 2. Energy consumption of the oven reducedby 10-15%
- 3. High pressure air consumption reduced by 40-55%, no low pressure air needed
- 4. Servo motor driven stretch rods and mechanical seal improving machine speed
- 5. Improved mold synchronization resulting in better machine stability

#### 成功研发铝瓶灌装生产技术

铝瓶由于质轻、可再封口、且高端大气,深受饮料 企业的喜爱,在饮料包装行业的应用中,潜在市场 巨大。

然而,在中国,热灌装铝瓶技术几乎处于空白状态。2014年,广州达意隆与日本大和合作,成功开发了36000BPH的流量计定量铝瓶热灌装生产整线,可生产中、酸性各类饮品,并成功投入生产,运行至今效果良好、深受客户好评。



铝瓶材料非常轻、稍微碰撞就会受伤,在生产过程中,需要进行良好的保护,达意隆在铝瓶生产线上采用了柔性托瓶护瓶装置及无压力输送设计,很好的保护了瓶子。此外,利用独创的流量计热灌装技术、热灌装加氮技术及铝瓶的旋盖密封技术,很好的满足了灌装精度的要求,解决了热灌装加氮的技术难题,达到铝瓶的旋盖密封性能。该设备不受内容物限制,可灌装:啤酒、鸡尾酒、牛奶、果汁饮料、运动饮料、保健饮料、咖啡、水等。

目前,该设备技术已拥有2项发明专利、2项实用新型专利、1项外观专利;同时还有有3项发明专利在申请中。它的研发成功,填补了该领域中国市场的空白,随着铝瓶在饮料包装市场中的良好前景,该设备也必将受到市场追捧。

# SUCCESSFUL DESIGN AND APPLICATION OF VOLUMETRIC HOT FILLING TECHNOLOGY FOR ALUMINUM BOTTLE

Aluminum bottle is popular with beverage enterprises and has huge potential market in packaging industry, which is light, be sealed second time and has high-end appearance

In China, aluminum hot filling technology was almost absent. In 2014, at the demand of customers, Guangzhou Tech-Long Packaging Machinery Co., Ltd. successfully developed the volumetric hot filling machine for aluminum bottle of 36000 BPH and successfully put it into production, which could produce neutral or acid beverage, and obtained the high praise of customers.

Aluminum bottles are very light, and any small collision will hurt them. Therefore, they must be well protected in the production, Tech-long adopted flexible bottle supporter and no-pressure conveyor to protect bottles. The innovative technologies, such as volumetric hot filling, nitrogen injection and capping, realized high degree of filling precision and sealing function, and resolved issues on nitrogen injection. So this machine could be used for various products, such as bear, cocktail, milk, juice, sports drink, functional drink, coffee, water, etc.

At present, this machine owns two innovation patents, two application new patents, one appearance patent, as well as three innovation patents under applying. The success of this machine fills the gap in Chinese market. As the brilliant future of aluminum bottles in packaging market, this machine should be loved by the market.

#### 高速多功能流量计定量灌装设备技术升级 满足市场多样需求

随着饮料市场产品品种日益丰富, "一机多用"灌装技术越来越受到客户青睐。2014年,达意隆成功研发出第一台多功能流量计定量灌装机,能同时满足水、热饮料、含气饮料等企业对高质量灌装机的需求。该技术市场前景广阔,达意隆的成功研发应用再一次在市场发展中抢占先机。

与传统灌装机相比,多功能流量计灌装机的优势主要体现以下几个方面:

- 1. 能同时满足三大主流灌装方式——水、热、含气 灌装,实现"一机多用";
- 机器用作含气灌装时,灌装温度能提高至10-15℃,节约企业成本;
- 3. 灌装阀与托瓶提升装置做成一个部件,减少误差,提高灌装精度;
- 4. 新设计自动假杯装置便于操作,免去人工装卸,节省时间成本。



#### UPGRADE THE HIGH-SPEED MULTI-FUNCTION VOLUMETRIC FILLING EQUIPMENT TO MEET THE DIVERSE NEEDS OF MARKET

As the varieties of beverage become increasingly rich in the market, "multi-use of one filling machine" is more and more favored by customers. In 2014, Tech-Long successfully developed the first multi-function volumetric filling machine which can satisfy the high quality filling requirement of water, hot drinks, and CO2-contented beverage from enterprises. This technology can be widely used in the market, and Tech-Long's successful development of this machine once again tapped the market potential.

Compared with the traditional filling machine, the multi-function volumetric filling machine has the following advantages:

- 1. It can satisfy the three mainstream filling requirement at the same time—water, hot filling , CO2-contented filling, which realized "multifunction use";
- 2. When it is used as a gas filling machine, the filling temperature can be increased by 10 to 15 °C, which saved the cost for the enterprise;
- The filling valve and bottle lifting device can be one part, errors can be reduced and the filling accuracy can be improved;
- 4. The new design of automatic fake bottle is easy to operate, which can omit the manual loading and unloading, save time and reduce cost.

#### 达意隆推出新型非标自动化设备, 塑料小相框自动化组装线成功问世

日前,广州达意隆工业自动化事业部成功研发出国内 第一套小相框全自动组装线,并即将投入生产。

该产线自动对接两台客户端注塑机,帮助客户实现全自动剪浇口、相框阴阳模的精确组装、PS片和说明书的自动上料等工艺环节,相框组装完毕后自动对接枕式包装机。整线集成了达意隆自主研发的JQR-03型并联机器人来实现PS片、说明书以及相框支座的高速、精确组装和搬运;同时集成了一台ABB6轴机器人来实现相框阴阳模的精确装配,装配精度可达0.2mm.同时,达意隆设计了自动压合机构、高精度二次定位机构、PS片分离料仓等非标结构,确保了整线的可靠性。

该线投产后,可同时组装4个相框,帮助客户节省 6-8名作业人员,产线效率提升约30%。

小相框自动化组装线的特点如下:

- 1. 集成并联机器人、6轴机器人配合实现精确搬运, 装配;
- 2. 高度自动化、智能化, 友好用户界面, 操作简单;
- 3. 各工序集中一起,节省空间,减少操作人员、提升 了作业效率;
- 4. 各命令执行单元具有行程保护和急停连锁保护功能;
- 5. 主控制电脑具备故障记录储存,产生的故障可存储,便于维修保养。

# Tech-Long's new non-standard automation equipment—plastic small frame automatic assembly line was successfully launched

Recently, Guangzhou Tech-Long Industrial Automation Division has successfully developed the first set of small frame automatic assembly line in China, which will be put into production.

This production line automatically docks two injection molding machines of clients, helps them to realize automatic cut pouring gate, precise assembly of the frame's vin-yang die, PS plate and the automatic feeding process of the instruction. After the frame is assembled and automatically docked to the pillow-type packing machine. The production line integrates JQR-03 type parallel robot which is independently researched and developed by Tech-Long to realize the high speed, precise assembly and handling of PS frame, the instructions, and the frame support; meanwhile, this line integrates a ABB6-axis robot to realize the precise assembly of the frame's yin-yang die, and assembly precision can reach 0.2 mm. At the same time. Tech-Long has developed such non-standard machines as the automatic pressing machine, high precision secondary positioning agencies, PS separation bin and others to ensure the reliability of the whole line.



After this line is put into the production, it can assemble four frames simultaneously, help to save 6-8 workers, and enhance the production efficiency by 30%.

The characteristics of small frame automatic assembly line are as follows:

- 1. It integrated the parallel robot and the 6-axis robot to achieve precise handling and assembly;
- 2. It is highly automated, intelligent, having users-friendly interface, easy to operate;
- 3. The different processes are concentrated,

space and operational workers are saved, and the working efficiency is improved;

- 4. Each command execution unit has the function of travel limit and sudden stop chain protection;
- 5. The main control computer can store fault records, and maintenance can be conducted in line with the fault.

## 智慧工厂开放平台WG1 第二次工作组会议在达意隆召开

2014年12月24日,由中国科技自动化联盟组织的智慧工厂开放平台WG1第二次工作组会议在达意隆召开举行。"WG1"即包装机械智能机电一体化模块。由中国科技自动化联盟在智慧工厂开放平台工作组启动会议上宣布成立。

此次会议由北京易能立方科技有限公司董事总经理王健主持。达意隆工业自动化事业部总监、包装事业部总监以及多位工程师、倍福公司代表、高威科公司代表、和耕公司代表、广州数控公司代表、广州华南计算技术研究所代表等工作组成员参加了本次会议。"WG1"即S88标准,本次会议就S88标准中一些ISA88规范及术语、STATE MACHINE、Machine operation Mode、Pack Tag等项目进行了学习和讨论。并确定以广州达意隆包装机械股份有限公司纸包机设备为例试实施S88标准。

本次会议的召开,将有效推动中国科技自动化联盟 接下来的相关工作,未来,科技自动化联盟将团结 更多的自动化厂商、技术协会和个人专家,促进科 技创新和自动化、制造业的融合,推动中国企业和 研究机构的技术创新和产业转型。

#### 关于智慧工厂

2012年8月由中国科技自动化联盟首次提出了建设 "中国智慧工厂"的愿景,并结合国内制造业各行 业各企业发展水平差异大的现状,提出了"中国智 慧工厂1.0"的发展路线图,希望能够面向最近的3~5年,帮助企业从自身的能力和愿景出发,描绘出一个实现自我跨越的现实路径。

针对智慧工厂,联盟给出了新的定义。"智慧工厂(Smart Factory)"是以现代管理理念和先进制造技术为基础,以数据、信息和知识为核心的,更灵活、更高效、更安全、更环保、更和谐和可持续的新一代制造业范式。

#### 关于中国科技自动化联盟

中国科技自动化联盟是以科技创新和先进制造业与自动化相结合为主题的、由自动化企业和相关组织自发组成的行业联盟。联盟的愿景是成为中国一流的科技与自动化合作创新平台,成为具有国际影响力的专业组织。联盟宗旨是以先进的自动化技术,推动科技创新和先进制造业的发展,促进科技创新和先进制造业与自动化技术的交叉融合和共同进步,形成科技自动化全行业产业生态链,协助推动中国企业和研究机构的技术创新和产业转型。联盟单位主要包含有:德国倍福自动化有限公司、北京易能立方科技有限公司、宜科(天津)电子有限公司、上海高威科电气技术有限公司、广州达意隆包装机械有限公司等。

# Intelligent Factory Open Platform WG1 the 2nd Working Group Meeting Held in Tech-Long

On December 24, 2014, intelligent factory open platform WG1 the 2nd working group meeting organized by Science and Technology of China Automation Alliance was held in Tech-Long. "WG1" means packaging machinery intelligent mechatronics module. Science and Technology of China Automation Alliance announced its establishment in the starting meeting.

This meeting was hosted by Wang Jian, managing director of Beijing E-cube Technology Co., Ltd. Directors of Tech-Long's industrial automation division, directors of packaging division and a number of engineers, representatives of Beckhoff, GO-WELL, Hegeng, GSK, Guangzhou South China institute of computing technology and the like attended the meeting. "WG1" means the S88 standard. During the meeting some specification and terms of ISA88, STATE MACHINE, the MACHINE operation Mode, Pack Tag of S88 are studied and discussed. And the case packer of Guangzhou Tech-Long Packaging Machinery Co., Ltd. is designated to implement S88 standard.

The convening of this meeting will effectively

promote related work of Science and Technology of China Automation Alliance. In the future, Science and Technology of China Automation Alliance will unite more automation manufacturers, technology association and individual experts to promote scientific and technological innovation and automation, manufacturing integration so as to boost technological innovation of Chinese enterprises and research institutions and industry transformation.

#### **About intelligent factory:**

In August 2012, the vision of "Chinese intelligent factory" was put forward by Science and Technology of China Automation Alliance. In line with the large difference in the various domestic manufacturing enterprises, Science and Technology of China Automation Alliance proposed the development of the roadmap for "Chinese intelligent factory 1.0", which intends to help enterprises to find a realistic approach to realize self leap-up with their own ability and vision within 3 ~ 5 years.

In view of intelligent factory, alliance, Science

and Technology of China Automation Alliance gives a new definition. "Smart factory" is based on modern management concept and advanced manufacturing technology; data, information and knowledge are its core; it is a new generation manufacturing paradigm which is more flexible and more efficient, safer, more environmentally friendly, more harmonious and sustainable.

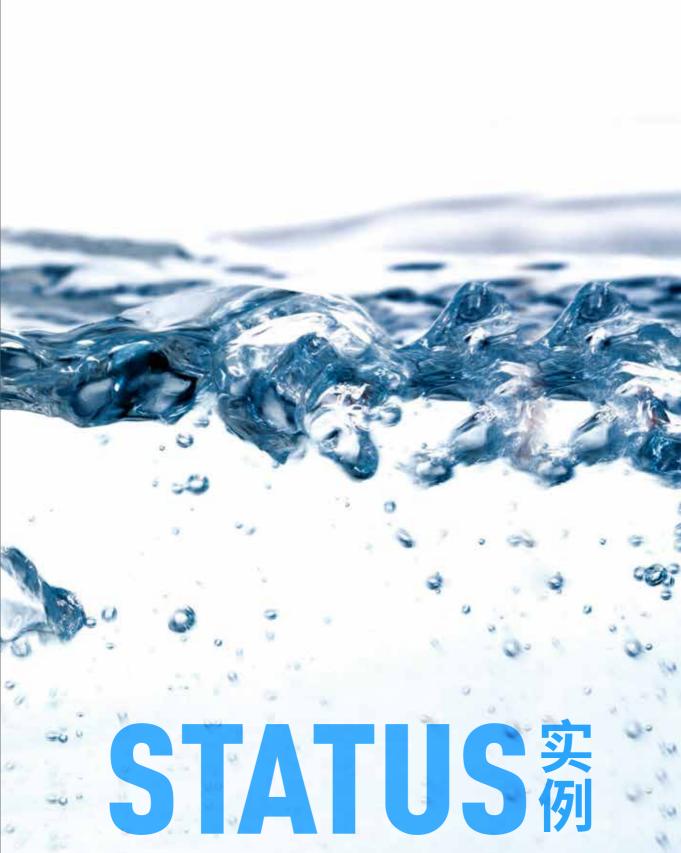
## About Science and Technology of China Automation Alliance:

Science and Technology of China Automation
Alliance works for scientific and technological
innovation and integration of advanced
manufacturing with automation. It is an
alliance composed of automatic enterprises
and related organizations spontaneously. The
vision of Science and Technology of China
Automation Alliance is to become China's
first-class cooperative innovative platform of
technology and automation and the professional
organization with international influence. It
aims to promote scientific and technological

innovation as well as integration and codevelopment of technological innovation and advanced manufacturing industry with advanced automatic technology so as to form technology automation industry ecosystem and help to promote technological innovation and industrial transformation of these enterprises and research institutions. Allied units mainly include: Beckhoff Automation Co., Ltd., Beijing E-cube Technology Co., Ltd., Xuanke (Tianjin) Electronics Co., Ltd., Shanghai GO-WELL Electrical Technology Co., Ltd., Guangzhou Tech-Long Packaging Machinery Co., Ltd.



# PRODUC<sup>®</sup> RUNNING



## 恒大粮油情牵达意隆 发力粮油市场

自然天成安心原味源自大兴安岭生态区的绿色馈赠



WEST OF

一定的2個中心。 10回2個中心

**《新华的**》,《新兴》,特别,《新兴》

# TECH-LONG TAPS THE GRAIN AND OIL MARKET BY COOPERATING WITH EVERGRANDE GRAIN AND OIL

## **Natural and Green**

- Gifts from the Great Khingan Eco-regio





大约一万年前,大兴安岭一带就有先民沿嫩江两岸居住,他们靠天吃饭,在渔猎与游牧的生活中安静、本能地生活着。在那里,肥沃的黑土地上成长起来的作物,经过充分的阳光照射和纯净活水的滋润之后,茁壮、饱满,成就了一番米饭清香软糯,菜油滴滴香浓的美味。

一百多年过去,人们依然守护着这片黑土地,坚持着老祖宗的天然农耕,播种、施肥、灌溉、收获。 这是大自然的馈赠,也是祖辈们一代代传承下来的 生活。

2014年, 秉承"民生为本、产业报国"的理念,

恒大集团斥巨资打造重大民生工程。经过为期一年多的专项调查及考究,最终选定大兴安岭生态圈为生产基地。8月27日,恒大粮油亮相亚冠,"恒大粮油"、"放心粮、放心油"等字样首次出现在广州恒大足球队球服的正面,在全场近5万名球迷以及数十亿电视观众的关注下,恒大集团正式进军粮油行业!

### 好谋而成 把握契机彰显品牌实力

秉承"要做就做最好"的一贯理念,恒大粮油不仅对产品原料要求极高,在产品生产设备的选购环节也极为谨慎,对设备供应商有着极为严格苛刻的要求;要成为其战略伙伴意味着企业的自身实力、设备质量、团队沟通、售后服务等诸多方面皆要表现优越,能达到甚至超越国际知名品牌的水准!2014年8月份,达意隆销售团队开始取得与恒大粮油的接触。经过多番交流,9月初,恒大粮油集团考察团受邀参观于达意隆。达意隆就此把握住契机,充分展示并凭借技术、品质和品牌上的种种优势,一举赢得"芳心"。终于,在9月下旬,达意隆迎来了第一轮收获,成功与恒大粮油集团签下四条油灌整线:其中,三条为玻璃瓶线,一条PET瓶线。

### 卓越技术,实力轻松应对难题

以卓越与可靠的技术特性,满足客户的诸多需求是 达意隆一贯的坚持。项目洽谈中,恒大集团对设备 提出了极高的要求,在技术交流过程中更是提出了 很多新的观点:如:玻璃瓶空瓶检测、灌装机内100 级净化、空瓶负离子清洗、灌装后瓶内注液氮和贴 标后标签是否合格检测等。同时,客户提出了行业内前所未有的高产量要求,分别为16000BPH玻璃圆瓶线与23000BPH的玻璃方瓶线、4000BPH的5L PET瓶线。

面对这一局面,达意隆项目小组立刻全力投入,凭借多年来在液态产品包装行业的丰富经验与强大的设计研发力,大胆设计出新的灌装技术——质量流量计灌装,相较于传统称重计量灌装,质量流量计技术灌装精度高,更换瓶型快捷,同时具备免维护的优势。该灌装技术获得恒大粮油的高度认可,并成功采用!

与恒大粮油的成功合作,不仅仅是技术上的考验, 更是达意隆又一次与客户实现共赢的印记。相信, 恒大粮油将在前进的道路上越走越宽,双方的合作 也将越来越紧密。 About ten thousand years ago, ancestors inhabited on both sides of Nen River in the area of great Khingan. They led a life by fishing and hunting. Their nomadic life was quiet and instinctive. There, on the fertile soil grow up the crops, after the full shining of sunlight and the moist of pure and fresh water, these crops grow healthy and full; after being harvested, they become some kind of scent soft rice and fragrant and delicious canola oil.

More than one hundred years have passed, people still guard this piece of land and continue farming as their ancestors did, planting, fertilizing, irrigating and harvesting. This is the gift of nature and also a life passed down by their grandparents for generations.





In 2014, adhering to the concept of "putting people's livelihood first and serving the country with industries", Evergrande Group spent a large sum of money building a major project of people's livelihood. After more than a year of special investigation and fastidious, Evergrande Group finally selected great Khingan ecosystem as a production base. On August 27, Evergrande Grain and Oil debuted AFC Champions League, and words of "Evergrande Grain and Oil", and "trustworthy grain and oil" first appeared on uniforms of Gangzhou Evergrande football team. Nearly 50000 fans on the spot and billions of TV viewers watch the propaganda, and Evergrande Group formally entered the grain and oil industry!

## Good preparation and grasping the opportunity to highlight brand strength

Adhering to the constant concept of "doing the best", Evergrande Grain and Oil has extremely high requirement not only for raw materials of products, but also for the selection and purchase of production equipment and equipment suppliers; To become the strategic partner of Evergrande Grain and Oil means that Tech-Long itself must have superior performance in actual strength, equipment quality, team communication, after-sales service and so on, and the technology of Tech-Long must reach the level of international famous brands and beyond. In August 2014, the sales team of Tech-Long started to make contact with the Evergrande Grain and Oil. After several round of talks, in early September of 2014, a delegation of Evergrande was invited to visit Tech-Long. Tech-long seized an opportunity to fully display its advantages of technology, quality and brand, and finally won the "heart" Evergrande Grain and Oil. Finally, in the late September, Tech-Long ushered in the first round harvest and successfully inked the contract to sell four high-speed glass bottle oil filling lines to Evergrande Grain and Oil, including 3 glass bottle lines and 1 PET bottle line.

## Excellent technology and strength to easily deal with problems

Tech-Long is committed to providing customers with excellent and reliable technology and meeting their needs. During the negotiation, Evergrande Group put forward high requirement on the equipment quality and many new ideas in technical communication, e.g. detection of empty glass bottles, 100 grade purification within the filling machine, anion cleaning of empty bottles, inspection whether the injection liquid nitrogen after filling and labeling are qualified or not, etc. At the same time, customers put forward unprecedented high production requirement in the packaging industry, which is 16000 BPH round glass bottle line, 23000 BPH square glass bottle line and 4000 BPH PET bottle line with the volume of 5L

In the face of this situation, the project team Tech-Long immediately went into the work, with years of rich experience in the liquid packaging design and strong research and development strength, they developed a new filling technology—mass flow-meter filling. Compared with the traditional weighing machine, the mass flow-meter filling technology has high precision, can change the



The filling technology won high recognition of Evergrande Grain and Oil who finally purchased the machines!

Tech-Long's successful cooperation with Evergrande Grain and Oil not only tested Tech-Long's technology, but also gave Tech-Long a change to realize win-win with its customers. It is believed that Evergrande Grain and Oil will have a smooth development ahead and the partnership between them will be closer.







美国维益集团,世界上最大的植脂奶油及冷冻甜点生产企业,美国家族企业100强,全球年销售额超30亿美元。身为植脂奶油的发明者和冷冻食品行业的引导者,早在1998年,维益集团就在中国苏州投资设立了国内第一个以制药标准建造的植脂奶油工厂,多年来,高品质的产品、不断创新的技术和多元化服务理念使其在中国迅速发展,目前在亚洲、中国植脂奶油行业市场占有率居首位。

2012年,为了扩展中国市场,维益集团投资设立了维益烘焙产品(天津)有限公司。基于其产品强大的市场占有率,高速、稳定的生产是必然追求。维益计划:在生产线后段装箱环节融入机器人设备,以提高生产效率。

立项之初,天津维益曾尝试使用两套台湾品牌设备,使用效果均不理想。对此,维益不得不重新选择其他合作伙伴,并在设备供应商的选择上更为严苛、谨慎。

2013年12月,维益开始与达意隆接触,在深入的技术沟通交流后,天津维益受邀前往达意隆参观,此番实地考察,让维益更加充分肯定了达意隆先进的生产技术以及综合实力,并当即决定与达意隆建立合作关系。

本次项目签订包含两条屋顶盒自动装箱机产线,采 用达意隆自主研发的并联机器人,从灌装机出来的 屋顶盒,采用倒包机构放倒后输送,并联机器人抓



手上的吸盘每次吸取4盒放入纸箱,每箱放3层。装满一箱后,输箱输送带快速的将满箱输出,同时将空箱输送到并联机器人抓放的位置,完成循环的抓放。在效率上,每台装箱机产量稳定达成客户所期望的120盒/分钟,不仅减轻员工工作强度,还大大提升了装箱效率。目前,该项目已投产运行一年,设备状况良好,完全满足客户生产需求!

结缘维益,是双方竭诚协作的聚首!也开启了双方深入合作的源头, 据最新消息,按 照生产规划,维益有望在其新的生产规划中再添置达意隆机器人自动化产线,期待双 方的下一次共赢握手! Rich Group of USA is the world's largest non-diary cream and frozen dessert production enterprises and top 100 family businesses, with the global annual sales of over \$3 billion.

As the inventor of the cream and the leader of frozen food industry, as early as 1998, Rich Group has invested in Suzhou to set up the first domestic non-dairy cream factory in line with pharmaceutical standards. For many years, because of its high quality products, innovative technology and diversified service concept, Rich Group developed rapidly in China, and now it dominates the first place in the non-diary cream market of Asia and China.

In 2012, in order to expand Chinese market, Rich Group invested and set up Rich Bakery Products (Tianjin) Co., Ltd. Due to its impressive market share, Rich Group pursues high speed and stable production. Rich planed to introduce the robot to package at the end of the production line in order to improve its production efficiency.

In the beginning, Rich Bakery Products (Tianjin)
Co., Ltd. attempted to use two sets of equipment
from Taiwan, but the effect is not ideal.
Consequently, Rich Bakery Products (Tianjin)
Co., Ltd. has to choose other partners and it has
stricter requirement on the choice of equipment
suppliers.

In December 2013, Rich Bakery Products (Tianjin) Co., Ltd. began to contact Tech-Long.

After an in-depth technical communication, Rich Bakery Products (Tianjin) Co., Ltd. was invited to visit Tech-Long. The subsequent on-the-spot investigation made Rich Bakery Products (Tianjin) Co., Ltd. deeply impressed by the advanced production technology and comprehensive strength of Tech-Long, and immediately it decided to establish cooperation with Tech-Long.

The contract signed this time contains two roof box of automatic packing machine production lines, which adopted the parallel robot independent researched and developed by Tech-Long. After the roof box comes out from the filling machine, the ladle mechanism is used to put down the roof box and to delivers it; the sucker on the gripper of the parallel robot sucks four boxes into a carton for each time, and each box has 3 layers of boxes. After one box is filled, the conveyor belt fast deliver the full box and deliver another empty box in the place that the sucker on the gripper of the parallel robot can suck, finishing a complete cycle. On the efficiency, the stable output of each packing machine is 120 boxes per minute, which meets customers' expectation. This technology not only reduced the work intensity, but also greatly improved the packing efficiency. At present, the technology has been put into production for one year, and related equipment is in good condition, which fully meets the demand of customers for production!

The fate with Rich is sincerely collaboration between the two sides together! Also opened up the source of in-depth cooperation, according to the latest news, according to the production planning, Rich is expecting to acquire Techlong robotic automation production line, looking forward to the next to shake hands and win-win!

Text: Panshi He/ Hongmei Luo



### ■ 相关链接:

#### 并联机器人装箱机相对于人工装箱的优点

1.装箱定位准确,机器人每次将屋顶盒深入纸箱,确保屋顶盒放到准确的位置,防止屋顶盒下放的高度过高,损坏屋顶盒。

2.劳动强度大,人工装箱时,需要几个人轮换工作,而用并联机器人可连续长时间工作。

### Relevant links:

Advantages of the parallel robot packing machine over artificial packaging

- 1. The positioning during packaging is accurate; the robot puts the roof box into the carton and ensures that the roof box is put at the accurate location, which prevents the risk of putting the roof box down too high and damaging the roof box.
- 2. While adopting the artificial packing, the intensity of labor is strong, and more workers are needed; however, the parallel robot can work continuously for a long time.

## 洞悉需求 以优势特性赢得广阔商机

哥伦比亚市场再创佳绩



# UNDERSTAND THE REQUIREMENT AND USE ADVANTAGES TO WIN MORE BUSINESSES

**OUTSTANDING ACHIEVEMENTS IN COLOMBIA MARKET** 





JANNA食品是哥伦比亚一家区域性的饮料生产企业,创建于2011年3月份,品牌旗下产品品类丰富,主要有含气饮料、热灌装芦荟饮料、纯净水等。其生产的芦荟果汁饮料,由于原材料源自于自营芦荟种植农场,注重对天然、绿色、健康的追求,同时口感新鲜独特,使产品独具魅力,也使JANNA食品获得了芦荟质量认证企业,并获得"哥伦比亚创新性企业"称号。

2014年,"JANNA"公司计划扩大生产规模,开始在全球寻觅优秀供应商。通过在行业内多方了解后与达意隆取得联系,并于7月09日首次踏上对达意隆的考察之路。初次考察,"JANNA"公司参观了达意隆美国分公司ULTRA PURE工厂,并对达意隆吹灌旋设备赞赏有加,当即确定了购买吹灌旋设备的

决心。然而,一台机器能否长期使用,开始于采购环节,由此,客户对供应设备的考验极为谨慎、挑剔。多次洽谈,深入了解,终于促成双方在2015年03月签订合作意向。

### 直面客户需求,以优势赢信赖

据悉,双方本次合作主要涉及一条含气和水的生产线。洽谈之初,客户对达意隆设备知晓不多,出于对中国设备的顾虑,客户要求达意隆以欧洲设备标准为参照来制造生产。对此,达意隆项目负责团队始终细心解答,消除客户顾虑。当同时了解到多数欧洲设备供应商并不具备整线设备生产能力,而达意隆却有着丰富的工程总包管理经验,并已为全球超过40家企业完成了500多个大型交钥匙工程项目时,客户对中国设备便刮目相看。通过一轮又一轮



达意隆项目负责人与客户亲密合影 Group Photo With JANNA

的考察评估,JANNA了解到,达意隆设备不仅在技术、质量上可以媲美进口设备,在价格、项目经验以及售后服务等环节上更有优势。多方位的认证、评估更加清晰了达意隆在客户心目中的印象,这些综合优势彷如一支强心剂,扫除了客户种种顾虑。

### 加强增值服务,制胜有道

"JANNA"工厂现有两条生产线,所用瓶子均为外部采购,且瓶型设计还需额外产生费用,在了解到其现有的生产线生产状况和物流供应情况后,达意隆主动提出为客户设计新的瓶型。基于多年的整线设备供应经验,达意隆熟知整线生产的每一个关键点,并拥有专业的瓶型设计团队,能为客户设计生产最合适生产线设备的瓶型。同时,客户现有生产线自动化程度不高,设备的操作和维护工作相对简

单,为了全面提升客户技术人员的实操能力与设备管理能力,降低设备管理成本,达意隆将从生产、工艺、程序、服务等多方面结合,对客户端设备操作人员进行模拟培训,全面提升增值服务。

此次与"JANNA"公司的合作,在哥伦比亚市场上是一次极大的成功,为达意隆南美洲市场的进一步 开拓又打下了坚实的基础;相信在双方的紧密合作下,该项目一定会取得完满的成功,期待双方在未来共同发展,共创辉煌!



JANNA is a regional beverage producing enterprise in Colombia, which was founded in March of 2011. JANNA produces a large series of products, mainly including carbonated soft drinks, hot filling aloe beverage, purified water, etc. The raw material in producing aloe vera juice drinks by JANNA is derived from proprietary aloe plant farm which pays attention to the natural, green, healthy pursuit and good and unique taste. All this entitled JANNA to be identified as good aloe vera quality enterprise and be awarded "innovative enterprise in Columbia".

In 2014, "JANNA" planed to expand production scale and started to look for good supplier in the world. After getting the recommendation from different channels, JANNA contacted Tech-Long and on July 9, leaders of JANNA came to visit Tech-Long. After the investigation, leaders of JANNA visited ULTRA PURE plant and highly affirmed the blower-filler-capper produced by

Tech-Long. Leaders of JANNA immediately determined to purchase the blower-filler-capper. The procurement procedure is critical to the long-term use of the machine, so customers are cautious about the supply of equipment. After several rounds of negotiation, JANNA got a deeper understanding of Tech-Long and finally signed the purchase contract in March 2015.

## Face up to customers' needs and use advantages to win trust

It is reported that the cooperation between Tech-Long and JANNA mainly relates to a CO2 and water production line. At the beginning of the negotiation, the customer of JANNA did not know about Tech-Long, out of concern for Chinese equipment, JANNA requested Tech-Long to manufacture equipment in line with the European standard. To this, the responsible team of Tech-Long patiently and carefully answered their questions and eliminated their concerns.

After learning that most European equipment suppliers do not have the whole line equipment production capacity as Tech-Long does, that Tech-Long is experienced in total package management experience and that Tech-Long has finished more than 500 large-scale turnkey projects for 40 enterprises, JANNA looked at Tech-Long with new eyes. After rounds of assessment and review, JANNA got to know that technology and quality of Tech-Long's products as good as that of imported products, but Tech-Long's products have more advantages in prices, project experience and after-sales service. All-round certification and assessment made JANNA get a clearer image of Tech-Long; and the comprehensive advantages of Tech-Long are like a cardiotonic, which removed customers' concerns

## Strengthen the value-added services to win the techniques

"JANNA" currently has two production lines.
All the bottles used in its production need to be purchased from other companies, and it has to pay extra cost for the design of bottle types.
After knowing the basic situation of JANNA's current production line and logistics, Techlong proposed to design a new bottle type for JANNA. On the basis of years experience in the whole line equipment supply, Tech-Long knows each key point in the whole production line and

has the professional design team for bottle types, consequently, it is able to design the most appropriate bottle type for the production line. At the same time, the degree of automation for existing production line of JANNA is not high and equipment operation and maintenance are relatively simple. In order to comprehensively improve technical personnel's ability and their equipment management ability, reduce the cost of equipment management, Tech-Long conducted the simulated training of personnel operating system from production, processing, procedure and service, which improved Tech-Long's value-added services.

Tech-Long's cooperation with "JANNA" was a great success in the Colombian market, which has laid a solid foundation for Tech-Long to further go into South American market; it is believed that under the close cooperation of both sides, the project will be a complete success. Tech-Long looks forward to the common development of both sides to create a brilliant future!

#### Text by Nicholas Song

## 软服务锻造硬实力

### 达意隆助力马来西亚CONTINENTAL RESOURCE SDN BHD客户



马来西亚,简称大马(马来语: Malaysia)。这 里地属热带雨林气候,全年高温多雨,油棕生长茂 盛;有着悠久的种植历史。

Continental Resource是马来西亚的主要的食用油代加工工厂之一,致力于为客户提供零散和快捷的订单加工,快速成产和灵活更换是其多年来取得客户信任的关键。2012年,由于新项目需求,Continental Resource需购买一条新的食用油整线设备。凭借良好的品牌形象,达意隆成功进入其设备供应商选择行列。通过初步沟通,Continental Resource了解到,达意隆具备突出的整线设备供应能力,且与益海等国际大型品牌保持着良好的合作关系。于是,二者快速达成合作意向并签订合约。

### 卓越技术见证品牌实力

2013年6月,双方正式签订合同,按照合同内容,项目将于2014年5月验收投产。基于达意隆优良的设备品质与多年来积累的项目经验,项目过程十分顺利,从设计到生产,时间安排十分紧凑有效,至2014年3月,达意隆团队前至Continental Resource工厂开始了安装调试工作,项目一次性通过验收!所用时间比原计划缩短了两个月之多。对此,Continental Resource客户对达意隆实力给与了高度称赞。

### 金牌服务尽显增值优势

按惯例,项目验收后同期,达意隆团队将对客户工厂的操作和技术人员进行指导培训,使之最快速投入到生产阶段。然而,由于Continental Resource公司的订单调整,项目需推迟生产。客户端操作人员的实地培训工作不得不延期,这无疑对达意隆项目服务小组的工作日程产生了影响。同年8月,在没有任何预示的情况下,达意隆被告知项目需要紧急正式生产,面对这一情况,达意隆始终以"最快速解决问题,为客户创造更大价值"为己任,即刻派出工程师,前往指导,协助客户顺利完成首批订单!

## SOFT SERVICES FORGE HARD POWER

TECH-LONG ASSISTS CONTINENTAL RESOURCE IN MALAYSIA

而后,为确保设备能长期稳定高效生产,2015年初,达意隆项目服务小组再次前往客户现场,对设备进行检修。同时,根据客户现场操作人员当时的操作能力,再次进行针对性加强培训,让操作人员更加熟练、正确地操作设备。

铿锵前进 行路致远

与Continental Resource的合作,是达意隆在马来西亚粮油市场提交的第一份骄人成绩。2014年12月,达意隆再次成功获得马来西亚市场又一粮油灌装整线项目。达意隆深知,服务就像一面旗帜,唯有坚持"为你而转"的企业理念,关注产品质量,更关注客户的实际应用感受和帮助客户提升生产效率,为其创造最大利润,才能将达意隆品牌传响这片大地,行路致远,达意隆翘楚市场,指日可待!



Malaysia has a tropical rainforest climate. All the year round, it is hot and rainy; it is rich in luxuriant oil palm; Malaysia has a long history in cultivating oil palm.

Continental Resource is one of the main cooking oil processing factories in Malaysia, which is committed to providing customers with scattered and quick order processing, and its fast and flexible production is the key to obtain customers' trust over the years. In 2012, due to the demand of new projects, Continental needed to purchase a whole line of cooking oil packaging equipment. Because of its good brand image, Tech-Long successfully came into its selection of equipment suppliers. Through the preliminary communication, Continental got to know that Tech-Long has outstanding ability in the whole line equipment supply and has good maintained good cooperative relations with such international big brands as Yihai Group. So, Continental quickly reached cooperation intention and signed the contract with Tech-Long.



## Excellent technology witnesses the brand strength

In 2013, Continental Resource and Tech-Long officially signed a contract. According to the content of the contract, the project will be accepted and put into operation in May 2014. Due to the excellent quality of equipment and project experience accumulated over the years, the project processed smoothly. From the design to the production, time arrangement is very compact and effective. By March 2014, the responsible team of Tech-Long went to Continental Resource factory for the installation and debugging work, and the project passed the acceptance instantly! Compared to the time in the original plan, the project time has been reduced by more than two months. To this, Continental Resource gave high praise of Tech-Long.

### Gold medal services all show valueadded advantages

Traditionally, during the same period of the project acceptance, the responsible team of Tech-Long will conduct training for the operating

and technical personnel, which can ensure the most rapid production. However, due to the order adjustment of Continental Resource that Tech-Long's project had to be postponed. Therefore, the field training work for operator was delayed, which undoubtedly influenced the work schedule of the project team of Tech-Long. In August of the same year, without any indication, Tech-Long was informed that its project must be finished as quickly as possible for the urgent production. In the face of this situation, Tech-Long has always put "solving problems as quickly as possible and creating value as much as possible for customers" first; it immediately dispatched engineers to guide and assist customers to complete their first order smoothly!

And then, to ensure long-term, stable and efficient production of the equipment, at the beginning of 2015, the project team of Tech-Long once again went to serve customers on the spot, and maintained the equipment. To improve the operating ability of operators at that time, Tech-Long once again trained them so as to make operators more skilled in operating equipment correctly.

## Move forward determinedly and achieve more

Tech-Long's cooperation with Continental Resource bore Tech-Long the first impressive fruit in the grain and oil market in Malaysia. In 2014, Tech-Long again sold a grain and oil filling whole line in Malaysian market. Tech-Long knows well that service is like a flag, only by adhering to the enterprise concept of "runs for you", paying attention to product quality and to the customer feelings in the practical application, helping customers to improve their production efficiency, and creating the maximum profits for them can Tech-long make its brand known across the earth and achieve more in the market!

Text by: Cherry Lu

## 携手前行 共同跨越

达意隆牵手纳爱斯打造国内首条高速洗洁精生产线

## WALKING HAND IN HAND AND LEAP-UP TOGETHER

Tech-Long Partnered with Nice Group to Build the first High-Speed Detergent Production line in China





### 行业困局阻碍发展

在洗洁精生产的初级阶段,人工理瓶、人工贴标、直线灌装机、搓盖机等设备组合搭配的生产线是中国市场日化洗洁精行业的主要生产方式,这种方式的生产线速度一般在60-100瓶每分钟。随着市场需求的扩大,生产企业多采用增加生产线的方式来提高产量,在发展之初,这种生产线的投入为企业的发展带来了积极作用。然而,同时伴随的还有厂房面积扩大、人员增加、能耗增加等问题,生产效益并未得到真正意义提升。近年来,随着技术的发展与人力资源的衰减,这种生产线的弊端也日益明显。是继续扩建厂房、投资复制低速生产线?还是突破瓶颈打造高速生产线?如何抉择,如何突破,一直困惑着整个行业。

### 纳爱斯激流勇进,率先抉择

纳爱斯集团,全球洗涤行业前八强企业。总部位于浙江省丽水市,集团共有员工20000余人。在湖南益阳、四川成都、河北正定、吉林四平、新疆乌鲁木齐设有五大驻外生产基地。集团自1994年以来一直是中国洗涤用品行业的龙头企业,拥有纳爱斯、雕牌、超能、西丽、100年润发等品牌。各基地都在扩大生产规模,面对迫切的市场需求,纳爱斯集团沉受困扰又急于突破。达意隆敏锐的发现客户迫切的需求,适时而动。凭借多年来在饮料生产线发展的需求,适时而动。凭借多年来在饮料生产线发展的丰富经验,达意隆具备了提高单条线产能的超强技术能力,经过多次研讨及方案验证,双方签订百合作协议,并决定打造一条全新旋转灌装旋盖的高速生产线。新的生产线将以产能提升、厂房利用有效、减少人力投入、降低能耗等为技术追求点,大大提升企业效益。

### 达意隆集中力量,连克难关

异形瓶定位贴标、高速理盖旋盖机、高速输送时 的溅液问题是洗洁精高速化需要突破的三大"瓶 颈"。达意隆集中贴标、灌装、输送事业部技术力 量对各"瓶颈"的关键问题针对性的分析和改进。 原贴标机的贴标轮凸轮伸缩机构震动大,稳定性 差。结合达意隆吹瓶机开合模凸轮五代优化设计积 累的成熟经验,重新优化凸轮结构及曲线;同时对 位置检测及电气配置进行升级。改进后贴标机速度 提升30%,噪音降低了3分贝,并且贴标的精度也有 显著的提高。与国际市场上同等产能的贴标机(凸 轮式)相比,改进后的PHR9全伺服驱动定位贴标机 在操作维护简单, 瓶型转换时更方便。与汇拓公司 联合开发的12头SP-12高速旋盖机,要求汇拓公司在 材料配置、设计、制造、工艺、装配、安装调试、 验收各方面均按照达意隆最严格的标准, 在整机性 能及操作方面都有质的提升;经过统一后的技术参 数配置,为整线对接及效率方面打好基础。灌装机 与旋盖机之间通过联动的方式,变频起停的方式避 免瓶子之间碰撞溅液。针对日化、润滑油等行业在 上瓶时需要大量操作人员,工业自动化开发的蜘蛛 手ZLP系列全自动理瓶机。该设备智能视觉检测, 自动判别瓶子方位,自动整理;自动化程度和效率 高, 品种切换时无需更换瓶型件等特点提高了整线 的生产效率。

2015年7月20号,达意隆顺利交付涵盖理瓶、输送、异形贴标、灌装、理盖旋盖、装箱的8000瓶/小时高速线。国内的日化行业的自动化生产水平又迈上了一个新的台阶。在纳爱斯开辟了日化行业的新天地,达意隆也创造了新的辉煌。



## Nice Group's problems hinder its development

In the primary stage of detergent production, the production line of manual bottle arranging, manual labeling, linear filling machine and cap twisting machine's combination is the main production mode of Chinese daily detergent industry. Generally speaking, the production line speed of this mode is 60-100 bottles per minute. As the enlarging of the market demand, production enterprises mainly enhance the production by increasing the production lines. In the beginning of the development, the investment of the production lines brought the positive effect to enterprise's development. However, the problems like the plant areas expansion, staffs and power consumption's increase and so on are along with the development, so that the production efficiency cannot be truely improved.

Over the years, as the technological development and human resources'decline, the disadvantages will be more and more obvious. Should we keep on enlarging the plant areas and invest the low speed production lines, or should we build the high speed production lines instead? How to choose and how to break through will confuse the whole industry all the time.

## Nice Group surges ahead with good choice

Nice Group is among the Top Eight cleaning industry enterprises around the world. Its headquarters is located in lishui city, Zhejiang province, with a total of more than 20 000 employees. It has five major branch production bases in Yiyang city of Hunan province, Chengdu of Sichuan province, Zhengding of Hebei province, Siping of Jinlin province and Urumgi of Xinjiang.



Since its establishment in 1994, Nice Group has been the leading enterprise of cleaning products industry in China, and it has the brands of Cnnice, Diao, Supra, Xili and Centaine. Each production base of Nice is expanding the production scale to meet the increasing market demand. Nice Group is deeply troubled by its problems and eagers to break through. Tech-Long keenly realized the urgent demand of Nice Group and took the action timely. Relying on the abundant experience in the development of beverage production lines over the years, Tech-Long owns the superior technological ability of improving single line capacity. After lots of researching and project validation, they signed the cooperation agreement and decided to build a new high speed production line of rotary filling and capping machine. Capacity improvement, efficient

workshop usage, human input reduction, power consumption reduction and other advantages will be treated as the technological pursuit of the new production line, in this way, the enterprise's profitability will be largely increased.

### Focus on ability, break barrier

To speed up the production of detergent needs to overcome three bottlenecks of positioning and labeling for special-shaped bottles, high-speed cap sorting and capping and liquid splashing of high speed transmission. Tech-Long integrated the technical force of labeling, filling, conveyor departments to analyze and improve the key problems of these "bottlenecks". The cam in the labeling wheel of the original labeling machine

vibrated widely and had poor stability. Combining with the mature experience in the design of the open-close mould cam of the bottle blowing machine for 5th generation, Tech-Long optimized the structure of the cam and its curve; at the same time, Tech-Long upgraded the position detection and electrical configuration of the machine. After the improvement, the speed of the labeling machine increased by 30%, the noise was reduced by 3 db, and accuracy for the labeling was improved significantly. Compared with the capacity of the labeling machine (cam) in the international market, the improved PHR9 all servo labeling machine is simple in operation and maintenance and guick in changing bottle types. Tech-Long jointly developed 12 heads SP-12 highspeed capping machine with Huituo, and Huituo is required to produce the machine in accordance with the strictest standards of Tech-Long in material allocation, design, manufacturing, technology, assembly, installation, debugging, and acceptance; consequently, the performance of whole machine was improved. And unification of technical parameters of configuration provided a basis for docking and efficiency of the whole line. The filling machine and the capping machine are in a linkage, and splashing caused by the collision between bottles can be avoided by the frequency conversion start-stop. Considering a large number of operators are needed to load bottles in the daily use chemical industry and the lubricating oil industry, Tech-Long developed the full-automatic bottle unscrambler of ZLP-series spider hand with full-automation technology. This machine has the intelligent visual inspection

system, which can automatically identify the location of bottles and arrange them; it has a high degree of automation and efficiency. What's more, there is no need to replace the bottle-type part while changing the type of bottles. Therefore, the efficiency production of the whole line has been enhanced

In July 20, 2015, Tech-Long successfully delivered a high-speed of 8000 BPH production line which has the function of bottle unscrambling, conveying, labeling for special-shaped bottles, filling, and capping, and packing. With the use of this line, the automatic production level of daily use chemical industry in China went up to a new step. When Nice Group opens a new field for the daily use chemical industry, Tech-Long also creates the new glory.

#### Text by: Mingyong Zheng



## 强强联合 创造更多可能

达意隆助力格力集团成功将机器人系统 应用于压缩机包装



### 机器换人 大势所趋

长期以来,空调压缩机的生产始终面临着几大难题:

其一:空调压缩机轻则10KG,重则达到50KG,工人需要从1米高的生产线上将压缩机抱起,准确放入每个包装孔位中,每小时400个,重载高速,工人的劳动强度非常大;

其二: 因工艺需求,设备需烤漆处理,烤漆过后的

设备不可避免的携带了油漆气味,导致作业环境隐藏健康危害;

其三: 烤漆过后的设备温度较高,企业常以延长输送段来加长冷却时间,然而,这种解决方法直接造成占地面积、能耗的增加,人力物力成本大大增高。

随着"用工荒"、"高成本"等问题的日益严峻, 空调压缩机自动化生产需求显得更为迫切。

## STRONG COMBINATION MORE POSSIBILITY

## Tech-Long helps GREE successfully apply Robot system to compressor packaging

### 关爱员工为本,助推行业发展, 格力顺势而为

格力集团,中国知名电器品牌,总部位于广东珠海。 多年来,在空调市场风起云涌、竞相厮杀、概念炒 作、口水大战层出不穷的环境下,格力的市场表现 像一个闭目打坐的武林高手,在高层次的竞争中, 风雨无阻,一路凯歌。

2013年,为了解决空调压缩机生产的几大难题,格力集团计划引入全新的自动化集成系统,实现压缩机自动码垛打包。这样既能降低人力使用,降低操作人员的劳动强度,减少简单重复的作业量,同时还能避免工作环境带给员工的健康危害。此外,生产效率及产能也能得到迅速的提升,成本投入大大减少,行业难题将一举而破!

### 突破技术难题,达意隆协同格力共谋发展

多年来,达意隆通过服务终端客户和集成商,积累 了丰富的应用基础经验。凭借精密技术和经久的工 程经验,可以智能方式打造自动化系统。在了解到 格力集团的想法后,达意隆主动取得与格力空调的 接触,经过多番沟通了解,双方确定了合作关系并 初步探讨出空调压缩机的包装自动化解决方案。 空压机自动化生产存在诸多困难, 其特殊性表现为:

- 1. 要求多种产品和多种包材自动化码垛,夹具需要对包括压缩机、木托盘、纸垫以及与各压缩机匹配的泡沫板等多种物料进行作业。
- 2. 各机型码垛格式不同,相邻产品放置间距各不相同,不同机型放置角度也各不相同。
- 3. 压缩机产品类型多,多达22种机型,各机型的压缩机外径大小、高度、分液器角度方向、重量、码垛格式都不相同,相同机型又分为多种压缩机类别,它们又存在分液器安装板、分液器离压缩机中心间距不同。
- 4. 最关键的技术难点:要求码垛定位精度高(要求定位精度达到±1mm),定位难。压缩机各机型与该机型匹配的泡沫板最大间隙只有1mm,然而各工装板有加工误差,各机型放置在匹配的工装板上间隙大、且各不相同,各包材又有加工误差,这些因素都导致定位精度很难控制。

面对重重困难,达意隆针对项目的每个细节、每个环节进行了反复的探讨,通过十余次的内部专项会议的集中攻关,全体项目人员的加班加点,以及格力的大力支持,最终将项目所有潜在风险和技术难题成功攻克,并于2014年9月得到了格力验收团队的首肯。



### 机会与挑战并存

然而,困难再一次来临,因客户方需求,项目合同厂址需要变更,这一改变引发了项目多项关键因素发生根本性改变,包括产品型号、包装方式及成品垛流向等。同时,格力空调要求,设备安装调试期间,不能影响其工厂原有设备正常生产!这将导致达意隆工程人员无法全面铺开安装调试工作,工程安装的难度和效率再次加大。

面临新的挑战,达意隆集中公司技术力量,及时解决难题,2015年7月,该项目成功通过格力验收,全线高效稳定运行。

### 展望未来,顺"市"而动

在这个智能制造时代,改变生产方式,开创自动化时代是达意隆的重要战略。格力空调压缩机自动码垛打包项目是达意隆成功应用自动化的典型案例,是达意隆不断追求技术创新,开拓新行业的成功典范。该项目的成功验收,彰显了达意隆在非标包装自动化领域的优秀研发平台和技术实力,为后续更多的工业自动化项目的开发和实施提供了相当宝贵的经验。

## It's the trade that Robot replace Human

For a long time, the production of air-condition compressor has several major problems:

First, the weight of air-condition compressor is from 10KG to 50KG, workers have to catch the compressor from 1-meter high production line, then rightly put into every packaging position. The working intension is very huge with high load and speed of 400 set per hour.

Second, the device has to be painted with design requirement. There must be paint smell after this operation, which harms health of workers.

Third, the device temperature is very high after painting, in order to prolong the cooling time, enterprise normally extends length of conveyor, while which increase human and material cost with large plant room and energy consumption.

As the issues of worker shortage, high cost get more and more serious, it's obvious that automatic production of air-condition compressor is needed.

## Caring employee, driving trade development, GREE goes with the flow

GREE Group, a famous Chinese electric appliance brand, is located in Zhuhai, Guangdong province. Over the years, in the environment of changed air conditioner market, stinging competition, concept speculation and slobber war, GREE, as a kung fu warrior sitting with eyes closed ,gains a lot of triumph no matter trials and hardships in these battles.

In 2013, in order to resolve these problems in air-condition compressor, GREE Group planed to introduce a new set of automatic integrated system, realizing the automatic packaging for compressors, which could reduce manpower and working intension, decrease simple repeated work, meanwhile, avoid health harm because of the bad working environment. Furthermore, producing efficiency and output also could be promptly increased with low cost, the trade issue would be totally settled.

## Breaking technical issues, Tech-Long helps GREE with common development

For years, Tech-Long accumulated plenty of applying experience by servicing end user and integration supplier. With precious technologies and engineering experience, Tech-Long could make automatic system. with robots. Knowing about GREE thought, Tech-Long initiatively contacted with people from GREE air conditioner, after several times of communication, both parties confirmed the cooperation and figured out the automatic packaging proposal for air-condition compressors.

There are lots of problem in compressor automatic production, the particularity of these problems are as follows

1. The automatic pallatizer should be applied to

- variety of product and packing materials, the gripper could work on different materials, such as compressor, wooden tray, case pad and foam plate for compressor.
- 2. There are different pallatizing types, the depositing place between products is different, the depositing angles are various.
- 3. There are many types of compressor, nearly 22 types with different dimension, height, liquid distributor angle direction, weight, and pallatizing type, even the compressor are the same type but different sort, so the base plates of liquid distributor are different, and the distances between liquid distributor and compressor center are different
- 4. The key technical point is hard positioning with high precious pallatizing position(the position precision should be ±1mm). The maximum spacing between compressor and foam plate is 1mm, while there should be process error for each packaging plate, so the spacing will be large or different, and process error for other packaging materials, all these cause the position hard to be controlled.

Even facing a lot of difficulties, Tech-Long discussed every detail repeatedly, hold tens of special meeting, with the hard work of all team members and GREE support, all potential risks and technical issues were resolved, finally Tech-Long device was confirmed by GREE acceptance team in September, 2014.



### Opportunities stay with challenges

However, the problem happened again. Because of the change of customer requirement and installing site, many key factors had to be changed completely, including product model, packaging type, and pallatized production direction. Meanwhile, GREE pointed out the production could not be affected during device installation period, which restricted Tech-Long engineers working on installation and commissioning, the working efficiency was affected.

Facing the new challenge, Tech-Long resolved the issue in time making use of all technical power, GREE accepted the whole project in July, 2015, and the whole line runs stably with high efficiency.

## Look forward future, develop with trend

In the times of manufacturing with robot, changing produce method and creating automatic period are Tech-Long's important strategy. Automatic pallatizer for GREE air conditioner is the typical case for Tech-Long applying robotization, which shows Tech-long keep innovating and creating new field. The acceptance of this project indicates Tech-Long excellent research base and technical skill in non-standard packaging robotization field, and offers precious experience for development and execution of future robotization project.



郑州凌达压缩机有限公司 ZHENGZHOU LANDA COMPRESSOR CO\_LTD

凌达

## 感谢信

致广州达意隆包装机械股份有限公司:

贵司与我司合作的压缩机自动下料打包项目,自去年 10 月底设备到场,在贵司人员的大力支持与协助下于今年 7 月初全部调试完毕投入进行试运行。在项目开展期间,为了尽量减少对我司生产的影响,同时保证项目能够顺利开展进行,贵司罗锋、李富来、雷丰顺、李德军等工程师经常在吃饭时间加班加点进行设备安装调试工作,而且经常加班到晚上八点以后,正是在贵司以上人员的辛勤工作下项目才得以最终顺利完成,目前设备稳定高效运行。

在这里对贵司人员的敬业奉献精神表示十分敬佩,对贵司给予我司的大力支持 与协助表示十分感谢。另外项目开展过程中也得到贵司邓检宝和郭铉等工程师的大 力指导和协助,这里也一并表示感谢!

顺祝商祺!







龙海盛记食品工业有限公司,主要生产各种基础的 头和调味品,是我国最早获得美国PDA注册签品的 出口企业之一,并于2001年、2002年分别获得的 国食品行业重点企业称号与HACCP质量管理体系认证。公司总部位于港岛西环,在香港新界、大陆汕头、广州等地也有多家罐头加工厂。

早在20世纪80-90年代,公司前身以蘑菇罐头为主打产品,品牌知名度媲美于现时的海天调味品。随着市场环境的变化,产品种类日渐丰富,并远销美国、欧洲、日本、加拿大等国。旗下生产的番茄酱、泰式甜辣酱、是拉差辣椒酱等产品尤其受到市场青睐,产品铺遍各大Seven-Eleven便利店。

#### 信任源自口碑

多年来, 达意隆与亨氏、美国汇丰食品、益海粮油 等多家全球知名企业保持着长期稳定的良好合作,

本次项目为双方的首次合作,双方都充满期待。达意隆凭借自己的综合实力为龙海盛记提供优质的设备与服务,力求达到一种双赢的局面。我们似乎看到了双方未来的美好合作,期待彼此下一次握手!



Longhai Shingkee Food Industrial Co., Ltd. mainly produces all kinds of canned fruits and vegetables as well as spices. It is one of the earliest export enterprises which obtained the FDA registration of USA. And in 2001 and 2002, it was awarded with the key enterprise of Chinese food industry and HACCP quality management system certification respectively. Its headquarter is located in the west side of Hong Kong island, and it has several canneries in the New Territories, Shantou and Guangzhou.

As early as in the 1980s and 1990s, the predecessor of they company gave priority to the production of canned mushroom, and its brand recognition was the same as that of Haitian at present. As the change of market environment, the variety of its products is enriched, and its products are exported to USA, Europe, Japan, Canada and other countries. Tomato sauce, Thai

sweet chili sauce, chili sauce and other products produced by Longhai Shingkee are favored by the market, and related products can be found in each Seven-Fleven store

#### Trust comes from good reputation

Over the years, Tech-Long has been maintaining a good long-term stable cooperation with Heinz, Huy Fong Foods, Yihai Grain and Oil and other world famous enterprises; it has long been renowned in the food packaging machinery industry. Mr Zheng Houyi, chairman of Longhai Shingkee Food Industrial Co., Ltd. also has known Tech-Long already and praised it a lot. In 2014, with the vigorous development of the company's business, Longhai Shingkee ushered in a new round of capacity expansion plans, and Tech-Long becamev its preferred equipment suppliers. In November, through further contact

with Tech-Long, customers further affirmed the comprehensive strength of Tech-Long as well as the outstanding performance of its entire line of equipment supplies. From the initial talks to the determination of technical solutions, project progressed smoothly. The tomato paste filling machine signed in this project is only the high-speed rotary viscosity filling machine which can be found in China at present, its speed is up to 8000 BPH (500 ml). It is said that the project work is carried out in an orderly way and installation and debugging are scheduled to be carried out in June 2015.

This is the first project for Tech-Long to cooperate with Longhai Shingkee, and both sides are full of expectation. Tech-Long uses its own comprehensive strength to provide qualified equipment and services for Longhai Shingkee and wants to achieve a win-win situation. We seem to see our happy future cooperation and we are looking forward to our next handshake!



#### ■ 相关链接

#### 正压灌装机介绍

该设备技术先进,设有多处卡瓶、缺瓶、过载等保护报警装置,性能可靠,工艺流程科学,食品卫生条件满足食品卫生国家标准,生产自动化程度高,操作简便;用于酱类、食用油、鱼露、蚝油等物料的兼容灌装,适用范围广,是各类调味品生产厂家首选的理想灌装设备。

#### 灌装工艺

物料由中间罐泵上灌装机顶部的物料缸,通过管道进入各个灌装阀中,阀打开后流入瓶子,灌装物料至预定液位后通过阀自身的回流通道回流至位于灌装机中部的回流罐中;没有瓶子时,阀不打开,物料即直接由阀的回流通道回流至物料罐,与新供物料一起再由物料泵泵至物料罐进行灌装。灌装完成后,在特定区域对灌装阀口进行抽气处理,有效防止灌装阀滴漏。此灌装机为微加压灌装,灌装压力等于物料泵泵料压力。

#### 功能特点

#### 1、回流量少

灌装回流量过大会导致灌装效率降低;物料泵的功率要求也会很大,能耗增加,而且物料缸、回流罐都要设计得很大,机器整体都要加大设计,外观上、成本上都没好处。

区别于传统的灌装工艺,正压灌装设备在灌装物料缸中特别设计了一个物料分料盘,可以根据灌装需要设定下料区域,大致控制了物料的灌装流量。

#### 2、无瓶不灌装,灌装少滴漏

这是减少浪费、保证灌装环境洁净卫生的关键。使用正压灌装的食用油、辣椒酱等物料,由于其特殊

的物理性质,外泄时,不容易冲洗干净,往往粘在机器上,污染环境;同时,如果灌装时滴漏严重,滴漏的物料可能会滴到瓶子外壁或瓶口上,对后续的封盖、贴标等工序造成影响。环境卫生,细菌减少,是对产品质量的基本保护,所以对于正压灌装,无瓶不灌装,灌装无滴漏显得更加重要。

正压灌装机在没有瓶子时,灌装阀不会打开,有瓶时才灌装,灌装完成后阀即关闭,因此滴料量极少;当灌装流动性好的物料如蒸鱼汁时,在进出瓶星轮之间设置有接液阀盘,方便接住粘在阀口上可能滴下来的极少的物料,从而保证了环境的卫生。

# 3、自动进行CIP清洗,保证对灌装机的管道、物料缸的清洗干净。

#### 4、保证操作的方便、高效。

包括CIP时、换瓶型时所花费的时间和人工,以及工人的劳动强度等。

#### Relevant links

# THE INTRODUCTION OF POSITIVE PRESSURE FILLING

This filling machine applies advanced technology, it equips with different alarming and protection devices, such as bottle jam, bottle absence, overloading... The performance is reliable, the process is much proper, the automation level is high, the operation is simple and food grade standard meet national standard. This kind of filler can be used to fill soy sauce, edible oil, fish gravy, oyster sauce etc. The extensive application of this kind of filler is what the best choice for ingredient factories.

#### **Filling Process**

Products are pumped up from intermediate tanks to filling ball of the filler. There are pipes at the bottom of the filling ball; the products will go to filling valves through these pipes. When filling valve opens, products will fill up bottles. When the filling level reaches, the rest products will return to recycle tank of filler through reflux pipes, which will mix with the erw products and pump up again to filling hott. When filling process is completed, the arm of speniar area of filling valves will be exhausted to prevent the dripping. This kind of filler applies micro positive tiling; technology. The filling pressure is earn with pressure of product pump.

#### **Features**

#### 1 Less reflux

The large reflux will reduce the editionary of the filler. What's worse, it will add cost both on equipment and energy consumption if the reflux is large, the product pump need more power. It will add the energy cost. Also the filling ball and reflux tank need to be designed much larger, which will make machine larger. It is not compactable and good-looking.

Compared with traditional filling process, positive pressure filling machines are equipped with a product distributing plate which can control the quantity of product feeding to bottles as well as to control the reflux of products.



#### 2 No bottle, no filling; Less dripping

The function of no bottle no filling and less dripping is the key factor to reduce waste and ensure the hygienic filling condition. The products, applying positive filling, such as edible oil, chili sauce etc., due to its features, are very hard to clean when they are stick on machine. Meanwhile, if there is dripping during the filling, the product drop may appear on the bottle body or bottle neck, which will affect the capping and labeling process. The hygienic filling condition and fewer bacteria are guarantee of products quality. So no bottle no filling and no dripping during the filling technology are very important in positive filling machine.

When there is no bottle under the filling valves in positive filling machine, the filling valve will not open. It opens only bottle under it and once filling completed the filling valve will close. So there is almost no douping. When filling the products with good leadidity such as fish-steaming sauce, there is a tray between infeeding star wheel to be unabladge starwheel, which will carry the little dripping of the products, so the filling condition will be hygienic.

3 Auto CIP, clean the pipes and filling ball of filler

#### 4 Simple operation and high efficiency

Less labor and and working hour for bottle change over and CIP.

Text by: Reizlaw Luo

## 达意隆携新机亮相 2015 CHINAPLAS 展会效果精彩出众



日前,倍受瞩目的2015 CHINAPLAS国际橡塑展展会在广州琶洲会展中心成功举办。来自40个国家及地区的3,200多家参展商参与此盛会,无论是展览面积,还是参展商数目,均为历届之冠。在为期4天的展会活动中,各参展商展示出他们最新的产品及解决方案,方案主题主要有机械及仪器专区、化工及原材料专区、中国出口商品专区;应用行业覆盖LED照明、包装、电子信息及电器、化工及原材料、机械制造业、建筑、模具、汽车、日化品、食品饮料、橡塑制品/加工、医疗等多个行业。

今届展会成绩亮丽,无论展商及观众口碑甚佳,观众总人数更达128,264。而各个同期活动亦深受观众

欢迎,证明主办方掌握市场脉搏,"创新、自动化及环保科技"仍会是行业关注点。

#### 新产品,勇为人气王

作为中国高端液态包装机械领导者,达意隆携带了多个产品闪耀登场CHINAPLAS 2015,分别在9.1馆R21展位与11.1馆J21展位。展会期间,整个达意隆展台现场人头攒动,往来参观者络绎不绝,达意隆领军者的品牌光芒也闪耀绽放。其中,9.1馆R21展位上,达意隆展出的最新吹瓶设备——五代吹瓶机吸引了众多嘉宾的关注;该设备是达意隆最新一代产品,具有创新的设计理念和高速稳定的吹瓶性能,在吹瓶效率和降低能量消耗方面更有卓越表

# TECH-LONG CARRIED ITS NEW MACHINES TO ATTEND CHINAPLAS 2015, AND THE EXHIBITION EFFECT IS OUTSTANDING



现。现场,通过工作人员的耐心讲解及现场真实丰富的运行展示,该设备获得了全球各地的赞赏的声音,参观者也因此深深感受到达意降魅力。

#### 彰显实力, 现场举行签约仪式

精心筹备,重磅出击,精彩的亮相使得达意隆成为闪耀之星。展会期间,达意隆分别携手马来西亚Able Perfect Sdn. Bhd.公司与泰国PAN SIAM SONIC CO.,LTD公司举行现场签约仪式。其中,与Able Perfect Sdn. Bhd.公司的合作项目为一条食用油整线生产设备。该设备生产线中所用灌装机是达意隆首台质量流量计设备。采用流量计定量灌装,高精

度,免维护,兼容性广。同时,全新的灌装阀设 计,最大限度地减少了喷溅和滴漏现象。

对达意隆而言,本次展会所体现的高端技术与超强实力只是冰山一角。忠于对质量、服务和创新的承诺,达意隆将始终秉承"为你而转"的企业理念,围绕"百年民族品牌"的梦想,聚焦客户需求,通过切实可行的产品方案、卓越高端的产品技术、完善快捷的产品项目服务,为更多客户带来更大价值。

领先,从未止步;未来,续攀高峰。



Recently, high-profile CHINAPLAS 2015 was successfully held in Pazhou Convention Center of Guangzhou. More than 3200 exhibitors from 40 countries and regions participated in this event. The exhibition area and the number of exhibitors both broke the record. During the four-day exhibition activities, all exhibitors displayed their latest products and solutions, and solution themes are mainly machinery and instruments zone, chemical industry and raw material zone, and Chinese export commodities zone; industries of applications cover LED lighting industry, packaging, electronic information and electrical appliances, chemical and raw materials, machinery manufacturing, construction, mould,

automobile, daily use chemical products, food and beverage, rubber and plastic products/ processing, medical and other industries.

The effect of this exhibition was effective; both exhibitors and spectators sang high praise of this event. A total of 128 264 spectators came to the site. The concurrent activities were very popular with the audience, which indicated that the organizers mastered the market pulse. "Innovation, automation and environmental-friendly technology" will still be the concern of the industry.

# The growing popularity of Tech-Long's new products

As China's leading manufacturer of the high-end liquid packaging machinery, Tech-Long carried a number of latest products to CHINAPLAS 2015, and its R21 booth is in Hall 9.1 R21 and J21 booth is in Hall 11.1. During the exhibition, people crowded Tech-Long's booth and formed an endless stream. Tech-Long's glow as an industrial leader was manifested. At the R21 booth in Hall 9, Tech-Long displayed the latest blow molding machine—5th generations of blow molding machine, which attracted the attention of many quests; this equipment is the latest products of Tech-Long. It has the innovative design concept and high-speed and stable bottle blowing performance as well as excellence in bottle blowing efficiency and reducing energy consumption. On the site, through the patient explanation and real and rich field operation show by the staff, the device won the praise from all over the world and visitors are deeply impressed by Tech-Long.

# Reveal the strength and hole the signing ceremony on the spot

Tech-Long's careful preparation, heave-weighted thrust and wonderful appearance made it a shining star on CHINAPLAS 2015. During the exhibition, Tech-Long held a signing ceremony with Able Perfect Sdn. Bhd. of Malaysia and SIAM SONIC CO., Ltd. of Thailand respectively at the scene. Tech-Long's cooperation with Able Perfect Sdn. Bhd. was a cooking oil whole line



of production equipment. The filling machine used in the production line is the first mass flow-meter equipment developed by Tech-Long. The flow-meter quantitative filling packaging is highly precise, free of maintenance and widely compatible. Meanwhile, a new filling valve design minimized splashing and dripping.

For Tech-Long, the high-end technology and super strength embodied in this exhibition is just the tip of the iceberg. Being loyal to the commitment to quality, service and innovation, Tech-Long will always adhere to the enterprise idea of "turn for you", center around the dream of "time-honored brand", focus on customer needs and bring more value for customers with practical solutions, excellent and high-end technology, perfect and fast services.

Tech-Long has been always doing ahead, never ceased its pace; in the future, it will continue to make breakthroughs.

# 岁月砺金 扬帆远航

达意隆十五周年庆典隆重召开







# A TRIUMPH IN YEARS OF EXPLORATION

To Celebrate 15th Anniversary of Tech-Long

















2014年12月13日,达意隆十五周年庆典隆重召开。 千余位海内外客商、长期合作的供应商以及优秀员 工代表出席了以"为你而转,因你精彩"为主题的 庆典,并共同回顾、分享、见证了达意隆十五年的 喜悦、荣耀与辉煌。十五年前的昨天,是达意隆梦 想的开始,经过了十五年的实践,今天达意隆依然 砥砺奋进,勇往直前!

当天,应邀参加庆典活动的行业领导、专家、客户等嘉宾齐聚一堂,参观达意隆总部,与达意隆进行一场"亲密的接触"。随后,大家在新落成的六期厂房进行了座谈与交流,宾客对达意隆十五年来的稳健发展给予了赞许,肯定了达意隆目前的软硬件实力,并进一步证实与肯定了达意隆在行业的龙头地位。

暮色朦胧,华灯初上,达意隆设宴广州香格里拉酒店。宾朋满座,欢声笑语,整个珠江宴会厅内洋溢着融融暖意和喜庆气氛。动听的歌声、曼妙的舞

姿、绚丽的舞台为嘉宾献上了一场精彩纷呈的视听 盛宴。一出出精彩的表演赢得了在座宾客一阵阵掌 声和欢呼声,把现场气氛不断推向高潮。

达意隆十五周年庆典在一片欢声笑语中圆满落幕,但达意隆前进的脚步不会丝毫止息,达意隆奋进拼搏的精神不会停歇,达意隆定会在前行道路上将再接再厉,继续披荆斩棘,领航前行,再创辉煌!

On December 13, 2014, Tech-Long went into its 15th year since it established. Thousands of people, domestic and oversea customers, long-term cooperated suppliers and representatives of excellent staffs, took part in the anniversary celebration whose theme was "Runs for you, Applauds for you", during which we reviewed the 15 years 'history, shared our happy hours and witnessed our glorious moments. It was today, 15 years' before, Tech-Long started to seek its



dream; it is today, Tech-Long is still striving for its dream even lots of achievement has been recorded.

At that day, all the visitors, leaders in beverage industry, senior experts, customers etc., were invited to visit the headquarters of Tech-Long, which was called "An Intimate Contact with Tech-Long". The final stop was the 6th period plant. They had a rest in the new lobby of 6th period plant and talked together. All the guests highly praised the 15 years' steady progress of Tech-Long and were convinced by Tech-Long's current soft and hard strength. Once again, it showed the leading position of Tech-Long in beverage packaging industry.

In the glimmering twilight, when the evening lights were lit, the banquet of 15th anniversary

started at Guangzhou Shangri-La. Guests fill up the seats of Pearl River hall and the whole hall was in atmosphere of happy and warm. The attractive singing, graceful dance and ornate stage constituted a visual and audio feast for all the audience. That excellent performance won the floods of applause and cheers of guests, which brought the atmosphere into upsurge.

The curtain of 15th anniversary celebration gradually closed in a happy and cheerful atmosphere. However, the onward steps of Tech-Long will never stop, and the spirit of never yielding will never stop! In the next years, Tech-Long will continue fighting, keep the leading position and creates more glorious achievements.

#### 达意隆机器人介绍

### 机器人应用加速拓展 让工厂变得更聪明

# ROBOTS APPLICATION RANGE EXPAND RAPIDLY, INTELLECTUALIZING PLANTS

#### **TECH-LONG ROBOTS INTRODUCTION**

据IFR(国际工业机器人联合会)预测,工业机器 人在包装行业的用量将超过汽车行业;达意隆是全 亚洲最大的包装设备制造商之一,也是国内包装行 业机器人用量最大的机器人集成商。几年间,秉承 "为你而转"的理念,通过服务终端客户和集成 商,积累了丰富的应用基础经验,成功实现了从集 成应用全球一流欧洲机器人的集成商,到研发、制 造自主品牌工业机器人的机器人制造商的转型。

#### 一、并联型机器人JQR系列(自主品牌)

- 1. 性能达到国际一流水平,打破国外品牌的市场垄断(标准作业循环次数达到180次/分钟,大幅提升作业效率)
- 2. 拥有全球最完整的并联机器人机型系列
- 3. 高精度传输带跟踪技术

- 4. 机器人与视觉系统的无缝集成
- 5. 第四轴伺服驱动技术,提升旋转精度
- 6. 主要应用: 分拣、包装、次品剔除、平衡产线产
- 能、机床上下料和装配等环节

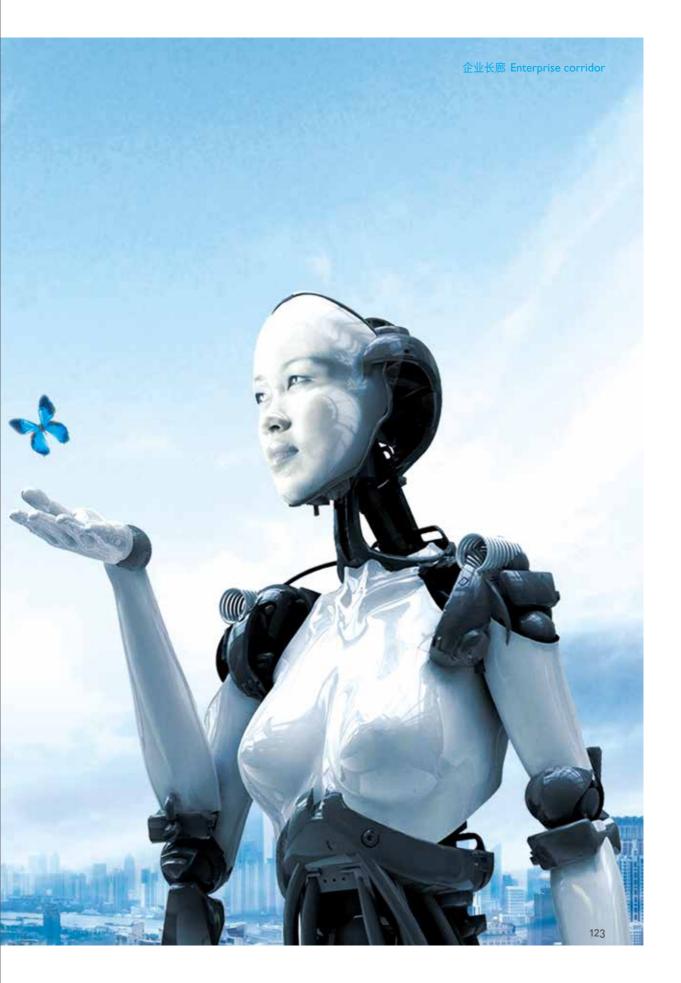
#### 二、非标自动化集成

十五年非标系统集成经验保证,集机器人、非标设备、视觉、标识系统及控制系统一体,帮助客户实现自动化柔性生产,作业流程可控,提升设备及产品的可靠性,以及提高客户投资回报率,为客户助建"智慧工厂"。

#### 适用范围:

- 1. 分拣、上下料
- 2. 装盒、装箱、码垛
- 3. 物料搬运







并联型机器人JQR系列



- 5. 标识、视觉、检测
- 6. 物流自动化
- 7. 服务业自动化

#### 三、3D视觉机器人智能分拣

- 1. 使用3D结构光技术实现堆叠物料的精确空间定位
- 2. 构建3D点云处理定位零件
- 3. 高精度、高柔性、高可靠性,操作简易

#### 四、AGV移动小车

- 1. 采用万向轮, 车体可实现任意角度移动
- 2. 采用独立动力系统, 锂电池续航能力达8小时以上
- 3. 车体自重50kg,额定载荷20kg
- 4. 小车长宽高: 700\*690\*280mm
- 5. 最高速度:可达2m/秒
- 6. 具备红外壁障功能
- 7. Wifi实时通讯变更路径
- 8. 噪音小于60分贝
- 9. 电压: 48V

#### 五、双臂机器人(与瑞士合作)

- 1. 仿人形双臂机器人, 共有12个自由度
- 2. 研发导入3D视觉技术,真正意义的智能机器人
- 3. 双臂机器人可实现真正意义的"人机共事",即 人和机器人无间合作
- 4. 主要应有领域: 装配、服务等



AGV移动小车

According to the estimate of IFR (International Federation of Robotics), the application of robots in packaging industry will surpass its scale in automobile industry. Tech-Long, as the largest beverage packaging machine manufacturer, is the largest robots user in beverage industry. Under the principle of "Runs for you", Tech-Long accumulated rich experience in robot application through providing service for end user and integrated suppliers. Right now Tech-Long has changed into a manufacturer of robots with its own research and manufacturing center from an integrated user of European robotic equipment.

# Parallel Robot JQR series (Enterprise Owned Brand)

- 1. Machine features reach to the world firstclass, which break the monopoly of foreign brands in the market (Standard cycle time is 180 times per min, which increases the efficiency in a great degree)
- 2. Own the most complete parallel robots series
- 3. Accurate transmission tracing technology
- 4. Seamless integration between robot and visual system

- 5. The fourth shaft servo driving technology, increasing the rotary precise
- 6. Main application: picking, packing, rejecting, balancing production line, materials infeeding and discharge on machine, assembly etc.

#### **Customized Integrated Automation**

15 years customized experience to integrate robot, customized equipment, visual system, coding system and control system to realize the flexibility of automatic production, improve the stability of equipment and increase the return of investment, so as to build up "intellectual plant" for customers.

#### **Application Range**

- 1. Picking, Materials Infeeding and Discharge
- 2. Box Packing, Case Packing, Palletising
- 3. Materials Movement
- 4. Automatic Assembly
- 5. Coding, Visual, Inspection
- 6. Logistics Automation
- 7. Service Automation

#### 3D Visual Robot Picking

- 1. Apply 3D structure light technology to realize the precise position of stacked materials
- 2.Construct 3D cloud treatment to locate parts;
- 3. High precise, high flexibility, high reliability, simple operation;

#### **AGV** automible

1. Apply universal wheels to realize the free moving in any degree;

- 2. Apply independent power system, lithium battery endurance over 8 hours
- 3. Automobile weight is 50kg, rate loading capacity is maximum 20kg.
- 4. Automobile dimensions: 700\*690\*280mm
- 5. Max. Speed is 2m/s
- 7. Have the function of staying away from barrier with infrared ray
- 8. Wifi real time communication to change route
- 9. Noise less than 60dB
- 10. Voltage: 48V

# Double Arm Robot (Cooperated with Swiss Partner)

- 1. Human imitation double arm robot, total 12 free degree
- 2. Apply 3D visual technology to realize the real intelligent robot;
- 3. Realize actual human and robot co-working, that is seamless cooperation between human and robot
- 4. Main application range: assembly, service etc

Text: Panshi He

# 高端技术助力企业服务升级 HIGH-TECH TO UPGRADE



#### 达意降包装事业部循环进瓶测试平台研发成功

#### The Success of Constant Bottle Infeeding Test Platform

近日,为了更好的提升客户服务,以最小的消耗产生更多的效用,达意隆包装事业部针对当前市场瓶型多元化的现状,组织精干技术力量,研发出了循环进瓶测试平台,该平台专门设计了用于模拟客户实际生产现场的环境,初期可提供10分钟的进瓶量(25包/分钟)给后段膜包机、纸包装箱等带有进瓶结构的设备连接使用,以验证产品的效能和稳定性。同时,它还可以作为试验平台,在售前阶段对客户送过来的瓶子进行产品验证及设备适应性参数的收集。

日前,该测试平台已成功应用于客户项目案例中,这一测试平台的开发成功具有多方面优势,在为客户提供设备过程中,达意隆在产品交付前,主动发现并解决潜在问题,以减少客户在安装调试阶段的各项投入,细节之中展现优质客户服务。同时,产品交付前的在厂全方面验证性运行,更好的保障了产品质量以及客户体验。

关注产品质量和技术创新,更关注客户的实际应用 感受和如何帮助客户提升生产效率和创造最大利 润。在行业经济发展的大环境中,达意隆所秉承的 为你而转的理念,将持续拓展和优化服务,助力更 多的企业,为客户创造更大的价值。

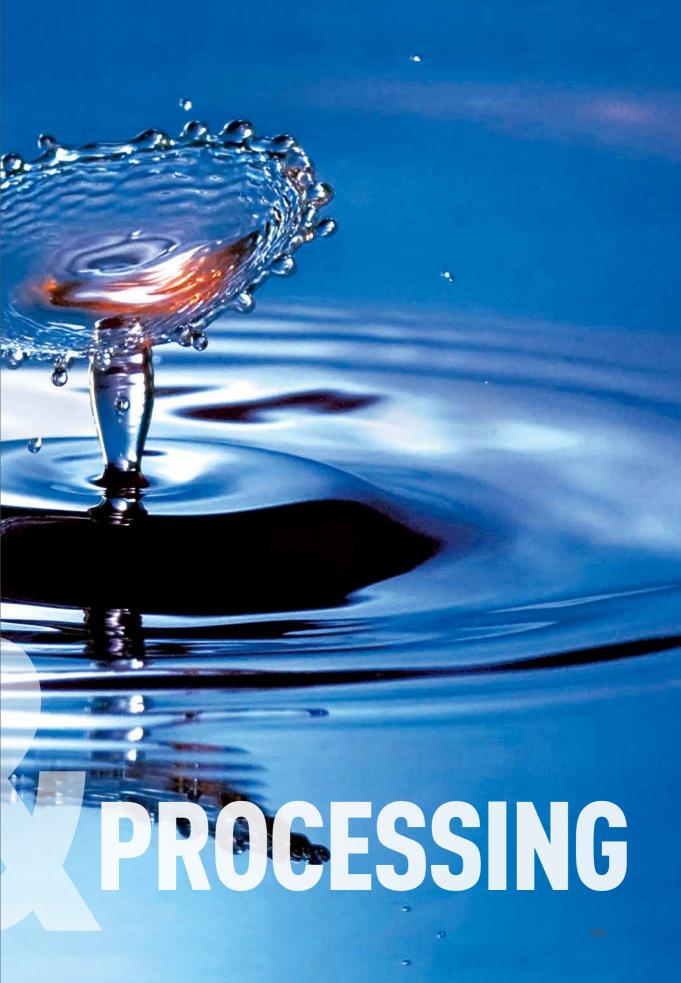
In order to upgrade the service to customer, create maximum efficiency with minimum consumption, Tech-Long packaging department organized its technical team to study multiple

bottle design in the market and developed constant bottle infeeding test platform. In the beginning stage, it will provide bottles to support the machine running about 10 minutes (25 packs per min). It will be used to test shrink wrapper, case packer etc., so as to test its efficiency and stability. Meanwhile, it can be also used in presales to test customer's bottle samples, so as to collect the bottle parameters for machine design.

Now this test platform has been used to some projects. The advantages of it is very obvious, on the one hand, it tests customer's machine in long time, so the problem can be found and solved in Tech-long, which reduced the pressure of installation on customer's plant; on the other hand, it guarantees equipment quality, which will also guarantee the products quality and provide better customer experience.

We focus on products quality and technology innovation, we focus more on customers' experience in using our products and how to create maximum efficiency and profits for them. In our industry, Tech-Long will keep the principle of "Runs for you "and explore and upgrade our service to help more customers and to create more value for customers.







流量计定量铝瓶热灌装设计与应用

# Volumetric Hot Filling Technology Application in Aluminum Bottles



#### 一、研发背景

用铝瓶做为饮料的包装容器具有安全、美观、饮料保质期更长、风味更佳等优点,而且铝瓶可以回收利用,是一种绿色环保的包材;在日本等国家,铝瓶在饮料包装领域应用很广泛,而在我国,这一方面(特别是热灌装铝瓶)几乎处于空白状态。



#### 二、项目价值及应用

日本大和联合浙江乐源,准备在中国推进铝瓶装的饮料。应客户需求,广州达意隆包装股份机械有限公司在与客户充分沟通及去日本实地调研后,开发了36000BPH的流量计定量铝瓶热灌装三合一机,并在浙江乐源成功生产,获得了客户好评。

针对客户的一些特殊要求(如铝瓶非常轻、稍微碰撞就会受伤,需要进行良好的保护;要求几种不同瓶口的瓶型可以实现快换;灌装精度要求高;灌装后需要注氮等),广州达意隆包装股份机械有限公司开发的流量计定量铝瓶热灌装三合一机很好的满足了客户所有的要求。

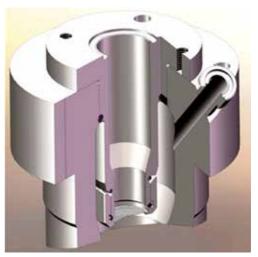
该设备除可用于饮料热灌装外,还可用于水灌装、功能饮料灌装等,一些创新技术同样可以拓展到玻璃瓶灌装,PET瓶灌装等领域。

随着铝瓶在我国饮料包装行业的推广,潜在市场大。

#### 三、技术创新点

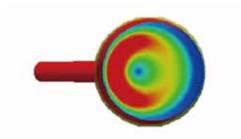
- 1、流量计热灌装技术(均已申请专利保护)
- ■洁净流量计灌装头:





卫生型灌装流道+切向位置的回流接口提高CIP清 洗效果

#### 技术与加工 Technology and Processing



正向液体流动力分布大小不一,清洗不全面



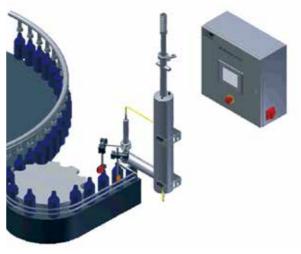
- ■洁净流量计灌装头: 热灌装加氮技术 若要得到内外压力的一致,必须满足以下要求
- (1) 灌装温度的差异3℃
- (2) 灌装量的差异在±3ml顶隙需保持一致
- (3) 加注点所在位置的传送带与灌装机或锁盖机动作需同步
- (4) 从饮料灌装到锁盖封盖传送过程中要求尽可能平滑且无任何液体甩出
- (5) 从液氮加注点所在位置到锁盖封盖点的距离所用时间要求尽可能小
- (6) 输送带需保持水平
- (7) 适用不同瓶型的自动高度升降,升降后保证注氮 位置一致

切向液体流动力分布均匀,清洗全面

#### ■自动清洗假杯

全新气控自动控制假杯,实现热灌装物料温度回流 和CIP自动功能





#### ■洁净流量计灌装头: 进料装置

采用电磁或质量流量设计加气动隔膜阀控制,卫 生、耐用、控制准确、稳定。



#### 2、瓶型件快速更换系统(已申请专利保护)

洗瓶机灌装机高度自动升降+快装的星轮形板系统; 整机瓶型件的更换时间相比以前减少70%。



#### 3、超洁净围框

1、外观新颖漂亮,表面凹凸有致,整个外形看起来 具有立体感,谐调自然。



- 2、围框内所有表面都是竖直或倾斜的,面与面之间 过渡圆滑,这种结构使冲洗变得简单方便,冲洗水 很快排干,防止了表面积水而滋生细菌。
- 3、门窗密闭性好,有利于隔绝外面空气的污染,保证灌装环境的正压和洁净度。
- 4、门采用夹层钢化玻璃,不易刮花,长久不变色,玻璃是夹层的,碎裂后还会粘在一起,不会往下掉落砸伤人体,保证人体安全。

#### 4、全新电气控制系统

- 1)通讯: 所有站点采用以太网-设备层环网技术 (DLR):双向通讯,单点网络故障不 影响系统运行,且自愈恢复时间3ms。
- 2) 分布式I/O: 减少配线、减少故障发生点、维护方便。
- 3) 故障自诊断:实时监测各站点的运行情况,出现故障及时报警,快速发现。
- 4) 自制高度编码器,可以记住灌装、旋盖每种瓶型的工作高度,一键自动升降到设定高度。
- 5) 各种参数以配方形式保存,更换产品快速方便。

#### **Background**

Aluminum bottle, as the container for beverage, compared with other containers, its advantages are to extend the expiry date of beverage and maintain its original flavor in a great degree, as well as safe and good-looking. What is more important, aluminum bottles are reusable, which are environmental packaging materials. Aluminum bottles are very popular in Japan's beverage packaging industry. While few beverage companies apply this kind of bottle in China.

bottle and put into use at Leyuan in Zhejiang province, which obtained the customer's praise.

According to customer's special requirements: such as aluminum bottles are very light and they tend to twist under pressure; as well protecting is necessary during the production of beverage with aluminum bottles; quick change on different neck finish; high filling accuracy; nitrogen dosing after filling..., Tech-Long developed its volumetric rinser-filler-capper monobloc for hot filling with aluminum bottles, which perfect met all the requirements of customer.

This kind of equipment can apply in hot filling products, as well as water, energy drinks. The technology can also apply in glass and PET bottle filling. As the popularizing of the aluminum bottles in China, the market demand is in great potential.



#### **Project Value & Application**

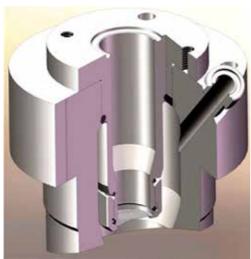
Daiwa from Japan and Leyuan from Zhejiang planned to open the market of beverage with aluminum bottle. In order to realize customers' requirements, Tech-Long, with lots of communication with customer and studying on the bottler plant, developed its 36,000BPH volumetric hot filling machine for aluminum



#### **Technical Innovation**

- Volumetric Hot Filling Technology
   (Applied Patent)
- Sterile volumetric filling valves;

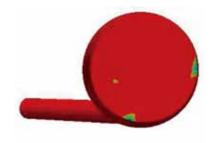




Sterile filling flow passage+ tangential recalculated interface improve the effect of CIP



Liquid normal flow distribute unevenly, clean is not utter



Liquid tangential flow distribute evenly, clean is utter

Auto clean fake cup

Brand new pneumatic control fake cup to reach the function of hot product automatic recirculation and automatic CIP;

■ Hot filling products with nitrogen

To get the counter pressure both inside and outside of the bottle, here are the conditions:

(1) Filing temperature difference is within 3°C

(2)Filling volume difference is +/-3ml, water level need to keep same;

(3) Nitrogen doser synchronizes with filler and



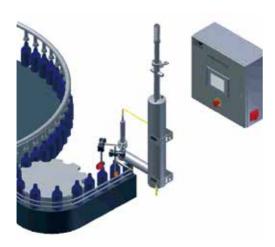
#### capper;

(4) The transmission from filler to capper must be smooth and there is no liquid splashing out;

[5]Minimize the time of products from nitrogen doser to capper

(6)Transmission system must be stable and smooth;

(7)Fit to different height of bottles by automatic adjusting the filler height, the nitrogen doser also synchronizes with filler, capper;



#### Materials feeding device

Apply electrical flow meter or mass flow meter with diaphragm valve to control, hygienic, durable, accurate, stable;

# 2. Quick bottle change over system [Applied Patent]

Filler automatic lift up or down+ quick change star wheels and guide rails system; compared with previous design, it saves 70% of time;





#### 3 Sterile windows and covers

(1)Machine appearance robust and smooth with strong stereo perception;

(2) The base of machine is slantwise and the posts are vertical, which are easy to clean and prevent the breeding of bacteria on surface.

[3] The windows are sealed, which prevent the contaminated air outside and keep the positive pressure inside of the machine.

(4) The doors apply laminated tempered glass, which is durable and safe.

#### 4. Brand new electrical control system

(1)Communication: All the stations apply bothway communication Ethernet and DLR. The error of single station will not affect whole system running and its recovery time is only 3ms.

(2)Distributed I/O: reduce wiring, reduce error points, maintain easily;

(3)Auto diagnosis: Inspect the running status of every terminal in real time. Once error happens, it will alarm:

(4) Developed height encoder, it will remember every bottle size's working height for filling and capping, so as to realize automatic adjust the height of filler and capper;

(5)All the recipes save in HMI, easy to change



### 达意隆成功研制中温高速灌装机

# TECH-LONG DEVELOPED ITS HIGH SPEED WARM FILLING MACHINE



2015年4月,广州达意隆包装机械股份有限公司自主研发的首台中温高速灌装机,在灌装装配车间紧张有序地调试运行。

早在2013年,达意隆根据市场分析及客户项目需求,着手研发中温灌装技术。在与客户充分沟通探讨后,经过反复论证及大量试验,经过两年多时间的努力,成功制作出了达意隆的第一台中温高速灌装机。这台灌装机进一步丰富了达意隆的产品结构,是继推出无菌冷灌装设备后的又一里程碑。

#### 一、主机外观

五合一中温高速灌装机是由两台消毒机、一台洗瓶机、一台灌装机和一台旋盖机组成,辅以空气净化系统、瓶盖提升杀菌系统、无菌气制备系统、SOP清洗系统等其他配套设备。

机架包括封闭式大底板、框架结构,整体数控加工,分离工作区与传动区。倾斜式设计,便于机台水的快速排放。大底板上整体覆盖316L不锈钢作为主要工作平台,保证工作区洁净度;预留底板下部空间,以方便维护、检修。灌装等承重较大的部位,焊接加强架,保证整体强度,满足整机的运行精度要求。







主机内部

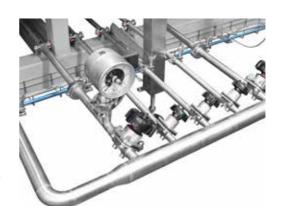
消毒机和洗瓶机由回转装置、进水分水装置、夹瓶翻瓶装置、冲洗装置、接水排水装置等组成。分水盘动座与静座采用无密封件接触的旋转密封,压力由压缩空气柔性施加,可调节压力大小;不锈钢主动夹夹瓶;分水管采用不锈钢管;不锈钢挡水盘;灌装机由回转装置、球形罐、物料分配装置、托瓶升降装置、灌装阀等组成。球形平衡罐,容量满足灌装缓冲要求,底部供物料和CIP介质,带自动的液位、温度控制;机械式托瓶升降,采用双导杆防转结构,滑动部分采用免润滑耐磨工程塑料直线轴承,耐腐蚀,适用于热灌装环境;灌装阀具有排气和回流功能。

旋盖机由支撑回转装置、旋盖臂升降装置、旋盖调速装置、旋盖头、下盖槽及分盖装置等组成。采用即抓即放系统,磁力扭距方式,可根据需要调节扭距、顶压;整体式的轴承座;旋盖臂双轴承支撑;机械凸轮导轨升降。

灌装区采用"顶送侧排"的送风和回风的空气净化方式。10000级空气经过净化送风单元过滤后,进一步将空气的洁净等级提高到100级,并以层流状态不断向灌装区补充新鲜空气;灌装区内空气则经

边角处的回风柱返回送风单元,形成送风—回风环路,从而使灌装区内空气达到规定的洁净度。

瓶盖提升杀菌系统由瓶盖提升机、理盖器和盖杀菌机组成。瓶盖由瓶盖提升机送入理盖器排列好后进入盖杀菌机。用消毒液对瓶盖进行灭菌,再用无菌气吹干后,通过封闭的无菌盖输送导轨送入旋盖机。



无菌水进料阀组



主机回收水箱组



进料阀组及空气过滤阀组

#### 二、流程

吹瓶机吹出PET空瓶,经风道输送后进入五合一机组。二台消毒机将瓶内外消毒后,由星轮输送。在星轮输送的过程中对瓶口进行喷冲消毒,然后再用无菌水冲洗干净,然后再送至冲瓶机由无菌水将残留于瓶子内、外表面的消毒水冲洗干净,冲洗后的瓶子再进入灌装机灌装物料。灌装完成后进入旋盖

机前,用无菌水喷冲清洗瓶螺口残余物料;旋好盖的产品经输送带送出,经瓶外部冲洗装置冲洗瓶身,然后吹干机吹干瓶身,进行在线检测和喷码,剔除不合格的产品,再经倒瓶杀菌,喷淋冷却,压帽,套标、二次包装后送到成品仓库。瓶盖经过瓶盖输送机、理盖机、消毒机、无菌水冲洗、无菌空气吹干后将无菌盖送入旋盖机。

#### 三、主要特点

- 1. 瓶子入口处设有抽风和隔离区,隔离机器内外空气,防止内部刺激性气体外泄和外部空气污染内部环境。
- 2. 传动系统采用德国SEW公司的电机拖动,采用全齿轮传动,星轮主轴与齿轮之间用胀紧套连接,消除加工装配间隙,使整机运行更加平稳。
- 3. 灌装机采用机械阀接触式灌装,瓶水无菌水冲洗以保证瓶口无残留物料。
- 4. 灌装系统具备温度自控功能。可对物料温度进行监测和显示,具有低温、高温自动停机、报警功能。高、低温报警温度可根据实际需要现场设定。
- 5. 灌装机设有CIP清洗杯,可以使灌装阀与物料接触的内、外壁均能进行有效CIP清洗和SIP杀菌。
- 6. 配备设备表面消毒液喷雾杀菌系统,可定时对百级空间进行杀菌。
- 7. 主机工作环境选备无菌隔离系统、无菌维修手套、无菌物品传递装置,方便人员在不破坏主机内部无菌环境的前提下对机内故障进行快速排除。
- 8. 采用触摸屏操作,生产速度、班产量计数、故障 类别、故障发生点等均显示在屏幕上,方便用户操 作。
- 9. 在五合一机上部设置层流罩,以形成无菌层流空间,装有微压差计监测内外压差,有低压报警。层

流回风口设在层流室壁板下部,低于瓶口面,回风为封闭式回风系统,可防止发生内部气体泄漏和外部气体污染内部无菌空间、

10. 瓶盖消毒机与旋盖机之间落盖导轨为密闭结构,并配有消毒液管路及喷头,可定时进行灭菌处理。

11. SOP清洗系统可以对设备表面进行多达七个过程的清洗和设备表面消毒。包括预冲洗、碱性泡沫清洗、无菌水冲洗、酸性泡沫清洗、无菌水冲洗、消毒液杀菌、无菌水冲洗。

12. 设备的设计和制造遵从国家健康和安全等相关标 准,符合欧盟的CE认证,具备安全等级2级的安全回 路;设备所有危险的移动部位都在安全防护围框的 内部;急停按钮安装在操作台最醒目位置,急停开 关按下时将自动切断所有传动电机的动力电源; 围 框内部所有的需要维护的地方都预留足够人员出入 的空间, 危险的位置, 都安装围板等机械防护, 并 作警示标记;每个活动门框都装有安全开关,做到 开门即停机; 所有星轮传动都配置有德国产精密扭 矩限制器, 在机器出现卡瓶等异常情况时, 能及时 使星轮自动脱开机器传动,并通过电气检测停机, 对人员及设备都起到安全保护作用;详细的报警记 录,具备报警历史查询功能;根据报警等级发出不 同的报警声和不同颜色的警示灯光; 所有光电、接 近传感器均使用快插连接, 更换时无需拆线, 快速 连接,方便维护。

13. 物料的过流管路尽可能无死角,所有表面做Ra≤0.8um的镜面抛光处理;整个管路有沥干系统,在最低位置做排放口;所有与产品直接接触部分,能在安装假杯后进行不需要拆卸设备的原位清洗及杀菌处理。

中温灌装技术市场前景广阔,尤其是灌装茶、果汁及功能性饮料类产品的应用。

相比传统热灌装,瓶子的耐热要求低,能有效降低

瓶子克重,节省包材成本。能耗更小,有效实现了 节能降耗,降低运营成本。产品营养成分损失小, 口感也更好。

相比无菌冷灌装,品控风险小,投资及维护成本低的优势,生产操作人员要求也比较低。

In a day of April, 2015, Tech-Long developed its first high speed warm filling machine. When the last step completed, the machine began to run.

As early as 2013, according to the analysis of market demand and customer's request, Tech-Long began to develop its own warm filling technology. Through mutual communication with customers and lots of imitation on computer and experiments on site, Tech-Long developed its first high speed warm filling machine, which enriched its product categories. This was another milestone following aseptic filling machine.

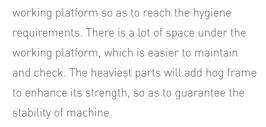
#### **Structure**

Five-in-one warm filling machine is composed of two sterilizers, one rinser, one filler and one capper. The auxiliary equipment is air filtration system, cap elevating and sanitizing system, sterile air preparation system, SOP and other equipment.

The machine structure consists of sealed base, frame structure, large processing parts, isolation area, and transmission area. Slantwise base which is designed to discharge water quickly. There is 316L stainless steel covered on the top



Machine Outlook



Sterilizers and rinser are composed of rotary device, water distribution device, bottle gripping and tipping device. Water distribute applies rotary sealing which has no seals between static part and moving part. The pressure is controlled by air pressure, which is flexible and adjustable. Stainless steel gripper is applied. The water distribution pipes are stainless steel. The water curtain is also stainless steel.

Filler is composed of rotary device, filling ball, product distributor device, bottle guard elevating device, filling valves etc. Ball shape balancing tank, the volume meets up filling buffering requirements. Filling materials and CIP materials are supplied from bottom of the filling ball.



Inside of Machine

There is auto water level control and temperature control in the filling ball. Mechanical bottle guard lifts up and down, which applies double guide rods with anti-rotary structure. The glide parts apply lubricates-free engineering plastic linear bearing, which is corrosion-resistant and suitable in hot filling environment. Filling vales have the function of air exhaust and materials recycle.

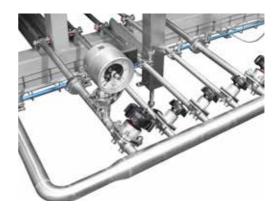
Capper is composed of rotary device, capping arm elevating device, capping heads speed adjustment device, capping heads, cap chute, cap sorter etc. It applies pick and place system, magnetic torque method which can adjust torque and top load. It also applies monolithic bearing seat, double bearing support capping arms and mechanical cam elevating device.

Filling area applies "air blows from top and discharges on the side of machine "air supplying and recycle method. The air filtration system will convert 10000grade air into 100grade and supply air to filling area constantly. The air inside

the filling room will return to air supplying area through air cycle post, which will construct an air supply and air return loop so as to meet the hygiene requirements in filling area.

Cap elevating and sanitizing system is composed of cap elevator, cap sorter, and cap sanitizer.

Caps will send to cap sorter by cap elevator, then goes into cap sanitizer which will be sanitizing by detergent, next dry the caps by sterile air, and finally goes h capper through aseptic cap chute.



sterile water infeeding valves assembly

#### **Process**

PET bottles from blower are sent into five-in-on monobloc by air conveyors. Two sterilizers will sterilize bottle inside and outside, then the star wheel will transmit bottle to next step. During the transmission, the neck will be sterilized and rinsed with sterile water. After that, the bottles will be sent to rinser where the residual detergent inside and outside of bottles will be cleaned. The next, the filler will fill up bottles. Before bottles are sent into capper, there is sterile water to rinse the residual materials on the neck. The packed product will be sent out by conveyors, there is rinsing device to rinse the outside of bottles, there is air dryer to dry the bottles. In the following, bottle will be inspect and coded, the unqualified products will be rejected, and the qualified products will go to titling conveyors, cooling tunnel, press cap machine, sleever, and secondary packing. Caps will be sent to capper through cap elevator, cap sorter, sterilizer, sterile water rinsing and sterile air drying.



water recycle tank of machine

#### Main features

1. There is air exhaust of isolation area at the infeed of bottles, which will isolated the air inside of machine from outside to prevent the leak of penetrating odor and contamination of outside air.



materials infeeding valves assembly and air filtration valves assembly

- 2. It is driven by Sew motor, and all the driving devices are gears. The main shaft of star wheel is connected with gear through tension sleeve, which eliminate the intervals in processing and assembling and the machine running will be smoother and more stable.
- 3. Filling machine applies mechanical contact filling, and sterile water to rinse neck to avoid any residue.
- 4. Filling system is equipped with temperature auto control. Materials temperature can be monitored and indicated. There is function of auto stop or alarming in low temperature and high temperature. While the high temperature and low temperature can be set on site.
- 5. There are CIP cups in filling machine, which will ensure effectively CIP and SIP both inside and outside of filling valve contacting with materials.

- 6. Machine is equipped with spraying sterilizing system which will sterilize in 100grade air space.
- 7. There are aseptic isolation system, aseptic repairing gloves and aseptic objects transmission device on the filling machine, which is easier to clear faults without disturbing the aseptic environment inside of machine.
- 8. All the production data shows on the HMI, such as machine speed, shift productivity, faults category, fault point. It is very easy for operation.
- 9. There is HEPA filter cover on the top of the machine, so as to create an aseptic space and pressure sensor is installed to inspect the pressure change and also set low pressure alarming. The air recycle port is in the lower part of post inside the machine and the port is lower than filling height. The air recycle is sealed, so as to prevent air leak outside or air contaminate inside.
- 10. The guide rails between cap sterilizer and capper is total sealed and there are pipe and nozzles to sterilize.
- 11. SOP system can clean the surface of machine with 7 steps and also sterilize the surface. It includes pre-rinsing, alkali foaming rinsing, sterile water rinsing, acid foaming rinsing, sterile water rinsing, sanitizing, sterile water rinsing.
- 12. The design and manufacturing abides by national regulations of health and safety. Machine meets the requirements of CE certificate and the



safety loop is in Grade Two. All the dangerous moving parts are designed in the safety frame of machine. The E-stop is in the most conspicuous place of operation panel. When E-stop is pushed, all the power of motors will be cut. There is much space in the machine for maintenance access. The dangerous parts are protected by cover and put marks. Every active door is installed safety switch; once the door open, machine will stop immediately. All the star wheel driving systems are equipped with torque limiter. When bottles are jammed, the star wheel will separate from driving system, machine will stop by electrical inspection. This device will protect both operators and machine very well. There are specific alarm records; the operators can search the history alarm. Different alarm grade will have different sound and different lights. All the photo eyes, proximity switches are quick connecting, there is no need wiring when connect them.

13. No dead end design in all the piping system.
All the surface of pipe is polished with Ra
«0.8um. There is drainage system in piping

system; the discharge port is in the lowest point. When CIP fake cups are installed, all the parts contacting with products will be free of dissembling during CIP and sterilization.

There is a huge market for warm filling technology, especially in tea, juice and energy drinks.

Compared with traditional hot filling, it has lower requirement on heat-resistance. It reduces the weight of prefroms, which will save the cost. It has lower energy consumption, which will reduce energy cost. And there is less destructive on nutrition, it will keep the original flavor of products.

Compared with aseptic filling, it has lower risk in quality control, low investment and maintenance cost and it also has lower requirements for operators.

Text: Lishen Zheng



# MARKET









根据Transparency Market Research 发布的市场报告,2013年全球瓶装水市场规模为1,572亿美元,预计2014年至2020年有望实现8.7%的复合增长率,2020年的市场规模将达到2,796亿美元。就瓶装水消费量而言,2014年至2020年的预测期内将以8.3%的复合年增长率稳步增长,2020年将达到4,651亿升。2013年,全球瓶装水消费量为2,679亿升。

美国是全球规模最大的瓶装水市场。2014年,美国瓶装水市场增长显著,据统计,这是史上势头最迅猛的一年,2015年将延续这样的趋势,由此证明瓶装水油潜力成为美国最大的饮料群。虽然碳酸饮料是美国销量最大的饮料,但瓶装水的增长趋势已然一年好过一年。2014年,瓶装水市场增加了7.1%,预测今年将会增长5%~6%,研究机构预测,2016年底,瓶装水销量将彻底超过碳酸饮料。行业人士预计2015年瓶装水的市场占有率不断提高到28.1%~29.3%,同时碳酸饮料的份额下降至33.1%~32.2%。

就产品类型而言,瓶装水可划分为纯净水、苏打

水、风味水和功能水。按销售额计,纯净水是瓶装水市场的主流,2013年的市场份额为64.9%。纯净水占据主要市场份额的关键驱动力是消费者对不含风味和碳酸应用水的普遍接受。苏打水是全球瓶装水市场的第二大类型,2013年占有22.9%的市场份额。风味水和功能水的市场份额较低,2013年分别为7.1%和5.1%。预计2014年到2015年期间,由于风味水产品种类和生产工艺上的创新,风味水将呈现较快的增长速率。同时,消费者喜好的转变将促使部分消费者选择风味水,这也将推动风味水市场的增长。

就区域而言,全球瓶装水市场可划分北美、欧洲、亚太地区和其他地区。就消费额而言,亚太地区已经增长成为全球最大的地区市场,占到2013年全球消费额的33.0%。而且,在可预测的2011年到2020年期间,亚太地区瓶装水的消费额预计将以10.5%的年度复合增长率稳步增长,表现强劲。紧随亚太地区之后,欧洲位列第二大市场,占到2013年总额的28.8%。

#### 国内市场前景看好





中国瓶装水市场的蓬勃发展,与经济增长和环境污染这两个背景因素均密切相关。中国是世界第二大经济体,但也为经济增长的奇迹付出了昂贵的环境代价:空气污染、土地污染、不适宜居住的地区、荒漠化和饮水危机。中国拥有全球6.5%的可再生水资源,这些水资源需要维持全球人口的五分之一。由于经济增长速度高于淡水供应,水资源短缺已经成为中国面临的一个严峻问题。与此同时,消费者健康意识的提高使得过去10年矿化水的消费量急速增长,占据了中国软饮料市场42%的份额。随着中国消费者逐渐认识到饮用水的健康益处,出现了一个显著的、转而青睐瓶装水、特别是矿泉水的消费观念的转变。饮料企业也日渐留意到这种新趋势,纷纷寻找优质、天然的矿泉水资源。

行业研究机构中研普华提供的数据显示,2010年到2013年,中国瓶装水年消费量分别达到3,982万吨、4,587万吨、5,591万吨、6,579万吨,年均增长率约

为20%。行业专家、全球饮料权威调研机构英国佳纳地公司称,中国的瓶装水市场今年将超过美国。《福布斯》周刊报道,世界的水需求正在转向中国。而且,速度较之许多业内人士所预期的更快。根据佳纳地亚的数据,中国人的瓶装水消费速度正在赶超美国人。佳纳地亚预测中国人会在今年年底之前赶超美国人。

佳纳地亚公司透露给媒体的报告显示,在过去7年中,中国在全球瓶装水市场所占的份额翻了一番。 去年,中国和美国之间的差距约为20亿升,但是现在中国预计将领先美国10亿升。但是,按人均计算的景象则大不相同。中国低于全球人均30升瓶装水的消费量。以10多亿人口来计算,中国的人均消费量仅为美国的五分之一,这意味着未来还有很大的增长空间。

#### 未来增长将放缓











中国的知名饮用水品牌大多为本地品牌。中国目前的瓶装水领先品牌是康师傅(顶益国际食品有限公司)、农夫山泉(浙江农夫山泉股份有限公司)、冰露(可口可乐公司)和怡宝(华润有限公司)。中商情报网数据显示:2014年,瓶装水行业销售收入达1,131.55亿元,同比增长11.6%,增速创今年新低,相较去年23.2%的增速更是大幅下滑一倍。2008~2013年期间,中国瓶装水销售量的年均复合增长率为20.5%。预计今后五年内,瓶装水市场的增长将放缓,但仍将保持两位数增长。

由于价格上涨以及消费者对增值产品的需求增高, 预计销售额的增速将略高于销售量的增速。2014 年瓶装水行业资产规模达740.53亿元,同比增长 24.8%,资产负债率54.35%,行业资产负债率继续 呈现上升态势。

2014年,瓶装水行业利润总额首次超过100亿元,同比增长7.59%同样创新低。2014年多个高端饮用水大势进军市场,在高企的营销推广费用下,瓶装水行业利润增速大幅下滑。瓶装水行业近年来在饮料行业中毛利率水平一直高于平均水平,2012~2014年已经连续三年毛利率高于30%,虽然2014年整个饮料行业不太景气,但瓶装水行业还是保持了33.23%的毛利率水平,较饮料行业29.06%的平均水平高出了4个百分点。由于消费者消费能力和饮用高端水需求显著提高,瓶装水行业近年来各大品牌转向高端瓶装水的开发销售,整个瓶装水行业的毛利水平还会继续保持高位。















最近,农夫山泉一口气发布了三款新品:玻璃瓶装高端矿泉水、婴幼儿饮用矿泉水、学生矿泉水,一头扎进了眼下最热的高端水市场。水企间的竞争也有"水源"篇,升级为专攻细分的市场的"功能"篇。

2010年,加多宝集团推出昆仑山矿泉水。开启了各大水企圈地造厂的快速发展阶段。目前中国高端矿泉水的水源地主要集中在长白山、西藏冰川、青海昆仑山玉珠峰、广西巴马、新疆天山等地。

2013年底,以地产、足球为其主要产业的恒大集团跨界推出恒大冰泉,并以"水源"作为其主要卖点,掀起一股高端水市场竞打"水源"牌的风潮。随后,中石化等一批业外资本也相继推出高端水产品,高端水市场的竞争也趋于白热化。

当前,中国消费者对于高端水的认知主要还停留在价格阶段,即高价=高质=高端。2014年夏天,一些高端水品牌打起了价格战,部分品牌甚至低至六折。面对这样的市场现象,消费者不禁要问,高端水究竟"高"在哪,其售价又该如何确定呢?

综合业内专家的观点,高价不等于高端。高端水应该具有三个特点,即稀缺的优质水源,天然均衡的矿物元素比例和含量,以及高附价值。高端水应该来自稀缺的优质水源目前已经成为大众共识,如上所述,高端水的水源地大都集中在原始森林等偏远地区,因此勘探、开采、运输的成本大大增加。

由于目前国家尚未出台高端矿泉水的相关行业标准,因此各企业推出了自己对于"优质"的定义,





市面上"小分子团水","富氧水"等新概念层出不穷。

在高端水领域,依据价格仍有不同梯次。以每500ml价格为例,8元以下的可以称为"次高端水",如景甜、百岁山、恒大等品牌;8元以上的可以称为"高端水",如西藏5100、阿尔山等品牌;

农夫山泉此次推出的玻璃瓶装高端矿泉水预计价格 为35~40元(750ml),价格上已经远超市面上大部 分瓶装水,可以称为"超高端水"。

婴幼儿水,或者母婴儿这个细分品类在欧美等发达 国家已经相对成熟,品牌也较多,国内品牌则是首 次推出,价格也较为亲民,因此是此次新品种最被 经销商看好的一款。

食品饮料行业分析师徐雄俊指出,针对不同人群, 开发细分市场,追击扩大市场份额,是很好的战 略。相信未来各家水企也会迅速跟进,展开竞争。

#### 行业面临的挑战

2014年4月,因为发生了污染,兰州市政府建议该市 三百万居民不要饮用自来水,为此人们蜂拥到商店 购买瓶装水。外表看起来纯净、健康的瓶装水,在 面临污染和缺水时,成为人们可获得的安全又充足 的替代水源。

由于经济增长超过了淡水供应的速度,中国水资源 短缺正变的日益严峻。经济增长还造成了严重的水 污染。研究表明,中国目前只有一半的城市供水达



到国家标准。随着国内用水需求不断增加,人们对 监管部门保证水质的能力产生了质疑。未来,中国 的瓶装水市场不但要应对这一需求的增长,还要应 对水资源短缺。由于缺乏强有力的质量控制,中国 瓶装水产业的存亡成败存在很大的不确定性。

今年,中国有望超过美国成为世界最大的瓶装水市场。自来水的质量问题、不断增强的健康意识、收入水平的提高,以及国际旅游业都推动了需求的增长。迅速增长的销售突显了了解中国瓶装水市场形势的重要性,也强调了市场力量的作用,它既能推动瓶装水市场的增长,也能导致其崩溃。

中国瓶装水市场地方割据色彩浓厚,共有1,500多个地方品牌,其中能够占领全国市场的只有三种。为了满足不断增长的需求,瓶装水企业如雨后春笋般建立起来。而在发展的同时,中国瓶装水市场还存在些问题。

首先是标签信息不完全。 承子中国瓶装水产业的信息非常少。灌装企业的信誉与其产品质量密切相关,人们也因此想当然地认为瓶装水比中国自来水安全。但这一传统观点却因该产业缺乏透明度而遭遇挑战。现有的产品标准并不要求瓶装水企业(在包装上)列击其水源地或发滤方式,逐常也不必向公众披露这一信息。

中国瓶装水产业面临的第二个威胁是监管机制薄弱。中国并不要求瓶装水企业对酸碱性、汞、银化合物含量等多项指标进行检测。在一个70%淡水资源都受到某种程度污染的国家,严格的过滤标准是不可或缺的。但岌岌可危的水质并不是对公众健康的唯一威胁,很多品牌甚至被曝光了仿冒丑闻。据一位瓶装水业内人士说,中国市场上近60%的瓶装(或桶装水)都是冒牌货,许多非法水产把自来水灌进瓶子,在假冒著名品牌出售。

中国瓶装水产业面临的第三个、也是最大的威胁是定价。归根结底,瓶装水的价格不仅仅反映过滤加工的成本及生产带来的社会和环境成本,同时还要让大众买得起。中国本土品牌中低端瓶装水每瓶的售价只有1元,考虑到先进过滤技术的成本以及瓶装水消费带来的环境外部影响(如废弃物增多),合格生产的产品利润空间极其有限,中低端瓶装水的价格可能很快就会上涨。其实,国内瓶装水价格最近已上涨了5~10%,随着质量标准的提高和水资源短缺的加剧,这一势头可能还会持续下去。

转自《国际商情-食品加工及包装》











USA is the largest bottled water market in the world. In 2014, the increase of market share of bottled water was remarkable in USA, it was estimated, it was the rapidest year in the history, while in 2015, this tendency will continue. It is testified that bottled water is potential to be the largest beverage consumption choice. Though carbonated drink occupies the largest market share in USA, the increase tendency of bottled water is better year by year. In 2014, the market share of bottled increased 7.1%, and it is estimated that will be increased by 5%-6% this year. A research institute predicts that the market share of bottled water will finally exceed carbonated drink in the end of 2016. According to senior experts forecast, the market share of bottled water will be 28.1%-29.3%; meanwhile,

the carbonated drink market share will decrease to 33.1%-32.2%.

According to the type of water, bottled water can be categorized into still water, soda water, flavor water and exclusive water. Considering the sales volume, still water is dominant. The market share in 2103 is 64.9%. The main factor is that people generally accept water without flavor and Co2. Soda water is the second largest in the market share, whose share is 22.9% in 2013. However, flavor and exclusive water has a lower market share, which are respective 7.1% and 5.1%. According to estimate, due to product category and process's innovation, flavor water will have a fast increase in market share between 2014 and 2015. At the same time, customers'

preference change will make customers to choose flavor water, which will push the increase of market share.

According to the regions, bottled market can be divided into North America, Europe, Asia-Pacific and other area. Considering the consumption volume, Asia-Pacific area has grown into the largest market in the world; it occupies 33% of total global consumption. And it is predictable that the compound growth rate will be 10.5% from 2011 to 2020, this is a large potential. After Asia-Pacific, Europe is the second largest market, which occupied 28.8% of market share in 2013.

## A good prospect of domestic market

The rapid development of bottled water market of China has been tightly tied with economy growth and environment pollution. China is the second largest economy, but China paid a lot in air pollution, farmland pollution, non-residual area, desertification, and drinking water crisis for its economic miracles. China has 6.5% of recyclable water resource in the world, while it has to maintain the water consumption for one fifth of global population. Since the economy growth rate is higher than drinking water supply,



water shortage is a very serious issue faced by China. Meanwhile, people's sense for health is much strong than ever before, which results in the rapid increase of consumption in spring water that occupies 42% market share. As the consumers more aware the healthy benefits drinking water, there is a remarkable change on water consumption habit. Now people prefer more on bottled water, especial spring water. The bottled water companies discern this tendency; they are flooding into look for best natural spring water resources.

As the figure indication provided by Zero Power, the consumption volume of bottled water in China from 2010 to 2013 is 39.82 million tons, 45.87 million tons, 55.91 million tons, 65.79 million tons, the average growth rate is about 20%. Industry expert, the authorized institute of global beverage, Canadean(UK) says, the market volume of Chinese bottled water will overpass America's in this year. Forbes also reports that water demand is turning to China and the speed is much fast than what predicted by senior experts in this industry. According to the prediction of Canadean, the bottled water consumption of Chinese is exceeding America's and this situation will occur at the end of this year.

From the revealed report by Canadean Company, in the past 7 years, the market share of China in bottled water is doubled in the world market. Last year, the difference between China and USA was only 2 billion liters, but now China will be 1 billion liters than USA. However, if



calculated by personal average, the result will be in big difference. Chinese people's average consumption is 30 liters less than global average level. If we calculate by 1 billion populations, the consumption volume is only one fifth of USA, which means there is huge growth potential.

#### The future growth will be slower

Most of the famous drinking water brands are local ones. The leading brand in bottled water in China is MasterKang(Top Yi International Food Co., Ltd.), Nongfu Springan(Zhejiang Nongfu Spring Co., Ltd.), Icedew (Coca Cola Co., Ltd.), C'estbon (China Resources). According to data from ASKCI website, the sales income of bottled water is 113.155billion yuan in 2014, increasing by 11.6%, which is lowest record in the history and compare with 23.3%, it is a tremendous decrease. From 2008-2013, the sales volume of



Chinese bottled water's compound growth rate is 20.5%. It is estimated in the next five years, the increase rate will be slower, but it will still keep double-digit rates of growth.

Because of the price increase and more critical requirements on products, the growth of sales amount will be higher than the sales volume. The capital scale of bottled water in 2014 will be 74.053billion yuan, increasing by 24.8%. And the asset-liability ratio is 54.35%, the industry assetliability ratio tends to increase.

In 2014, the profit of bottled water industry is 10billion yuan first time, increasing by 7.59% which is lowest record in the history. In 2014, several high-end bottled waters marched into market, the profit of bottled water decreased largely due to the costly promotion cost. The gross profit of bottled water is higher than average level in beverage industry. The gross

profit rate was more than 30% from 2012 to 2014. Though, it is not prosperous for the beverage industry in 2104, the gross profit rate kept at 33.23%, which 4% higher than average level of beverage industry 29.06%. As the increase of consumption capability and demand for high-end brand, many bottlers shift to develop high-end bottled water in recent year, so the gross profit rate will still keep in the high level.

## **High-End Brand Completion Emerging**

Recently, Nongfu Spring launched three new products at one time: glass bottle high-end spring water, infant spring water, student spring water and threw itself in the hottest high-end water market. The competition between bottlers changed from "water resources "into "function of water "in specific market.

In 2010, Jiaduobao Group launched its brand of Kunlun Mountain spring water, which started bottlers 'competition in "enclosure" (buy out the best spring water's opening rights). Currently, the high-end spring water resources are mainly in Changbai Mountain, Glacier in Tibet, Yuzhu Peak of Kunlun Mountain in Qinghai, Bama County in Guangxi, Tianshan in Xinjiang etc.

At the end of 2013, Hengda Group, mainly in soccer and real estate, transferred its boundary, started its business in bottled water and launched its bottled water brand "Hengda Ice Spring".

The water resource is main sales advantage. It brought a tendency in the competition of water

resources. Subsequently, Sino petrol and other foreign invested brand also launched its high-end water brand. The competition of high-end water is becoming fiercely.

Currently, the recognition of customers in China mainly focus on its price, that is high price=good quality=high-end. In the summer of 2014, some high-end bottled water brand carried out feverish price war.

Some brand even gave 50%-60% discount. Facing this phenomenon, customers cannot help asking what the "high" of high-end water is and how to

make its retainer price.

To sum up the viewpoints of industrial experts, high price is not equaled with high-end. There are three features of high-end water: rare best water resource, balanced mineral elements and proper ratio, and high added value. The common recognition for high-end water is from rare best water resources. To conclude, the water resources of high-end are integrated in primitive forest and naraway places, so the cost of exploration, opening, transportation are much higher.







Due to un-coming of high-end spring water industry standard from our government, many bottlers defined its own best quality. The concept water, such as "subset water", "HOEW", emerged endlessly.

In high-end bottled water field, there are different echelons basing on the price difference. For example, 500ml bottled water, the price is under 8 yuan, we called it "sub high-end water", such as "Ganten, Hengda…; the price is over 8yuan, we called it "high-end water", such as 5100, Aershan…; the glass bottle water launched by Nongfu Spring will be sold at 35-40 yuan per

bottle (750ml), its price is far above most of bottled water, we called it "ultra high-end water".

Infant water or so called water for new mother and infant the category for water is recognized in USA and Europe and there are lots of brands. While it is still new in China and price is relative affordable, which is most expected for retainers.

Beverage industry analyst, Xiongjun Xu points out, the best strategy is to subdivide market by focusing on different people to expand the market share. In future, bottlers will expect to compete like that.

#### **Challenges**

In April, 2014, Lanzhou government warned citizens not to drink tap water, because it was polluted. Since that, people flooded into shop to buy bottled water. When people face water pollution, clean and healthy bottled water will be substituted safe water resources.

Since the economy growth rate is higher than drinking water supply, water shortage is a very serious issue faced by China. Economy growth caused severe water pollution. Studies have shown, there are only half of cities in China reaching the national water supply standards. As the increase water consumption, people more and more doubt the quality control of inspection departments. In future, Chinese bottled water market not only faces the growth of demand, but also the shortage of water resources. Due to the weak quality of control, the sustainability of Chinese bottled water is still not certain.

This year, China is expected to be the largest bottled water market by overpassing USA. The quality issues of running water, the emphasis of health, the increase of income and international tourism all push the increase of demand. The rapid growth of sales made the understanding of Chinese bottled water market stand out, also emphasized the effect of market, which will push the bottled water market increasing or destroy it.

There are strong local separatist regimes in



Chinese bottled water market, total more than 1500 local brands and only three brands won the national market. In order to meet market demand, bottlers establishing their business seemed in one day. There are still some problems in the developing Chinese bottled water market.

First, the information on label is not complete.

There is little information about bottled water industry in China. The bottled water quality tightens with the responsibility of the bottler.

People would think bottled water were safer than tap water. However, there viewpoint is challenged by the less transparency in this industry. Current



standards will not require bottlers to list its water resources and filtration methods; normally, customer will not know this information.

Second, the oversight mechanism in bottled water industry is very weak. There are no regulations to force bottlers to inspect the volume of acid-base property, mercury, silver compounds etc. This is incredible in a country whose 70% water is polluted in different degree. Critical filtration standards are inevitable. However, the worrying water quality is not the only threat to public health; lots of fake product scandal appears in the reports. According to personnel in this industry, almost 60% of bottled waters are fake ones in the market. Many illegal producers fill tap water as brand waters.

The third, also the largest threat, is the price

policy. In the final analysis, the price of bottled water is not only a reflection of cost in filtration and social works and environmental effect, but also should be affordable by customers. The low-end bottled water in China is only 1 yuan in selling price. Considering the cost of advanced filtration and environmental effect of bottled water consumption (such as increase of castoff), there is a little margin on qualified products. The price of low-end and middle-end bottled water will increase. Actually, the price of domestic bottled water has already increased 5-10%. As the higher requirements on quality and shortage of water resources, this tendency will continue all the time.

全球制造业局势 蓄势待发

## GLOBAL MANUFACTURING SITUATION SAVE STRENGTH TO BLOOM





联合国工业发展组织近日发表全球制造业报告指出,世界制造业增长在今年第一季度继续保持低位。事实上,全球制造业增速放缓已经持续了较长一段时期。去年,国际货币基金组织总裁拉加德对世界经济的表述使用了"新平庸"一词,意指世界经济面临普遍性的"弱复苏、慢增长、低就业、高风险"。

新一轮工业革命方兴未艾,制造业却持续低迷,根本原因在于新、旧增长动力的更替出现了断档。传统增长动力正在减弱,但新的增长点尚未形成。国际金融危机后,国际市场需求大幅萎缩,汽车、化工、钢铁、有色、建材等传统行业的增速大大放缓。虽然生物医药、物联网、新能源、智能机器人等新兴产业正在兴起,但它们占整个制造业的比重仍较小,在规模上尚不足以取代传统增长动力,承担起拉动全球制造业增长的重任。

当前,制造业面临生产组织方式的重大变革。为应

对这一变革,世界主要工业大国纷纷制定了制造业振兴战略,谋求在未来竞争中抢的先机。例如,美国五家行业龙头企业联手组建了"工业互联网联盟",德国提出了"工业4.0",中国发布了《中国制造2025》等。虽然这些振兴战略方向基本一致,但战略重点迥异。美国侧重于发展一个"通用蓝图",使各厂商设备间可以实现数据共享,利用互联网激活传统工业过程,更好地促进物理世界和数字世界的融合;德国的战略重点在于利用信息通信技术和网络空间虚拟系统——信息物理系统相结合的手段,将制造业向智能化转型;中国的战略重点在于强调创新驱动、智能转型、推动从"工业大国"向"工业强国"转变。

新一轮工业革命的逐步推进,将为制造业的增长持续释放新的动力。具体而言,主要通过三种机制发挥作用:一是创新机制。新一轮工业革命必将带来生产技术的重大变革,以及生产方式和生活方式的彻底重构,从而促进产业的新旧交替,形成大量的



投资机会,推动整个制造业增长。而是融合机制。 新一轮工业革命将是产业融合发展的过程,既包括 新兴产业与传统产业的融合,也包括制造业与服务 业的融合,从而促进整个经济系统效率的提升。三 是联动机制。新一轮工业革命将带来企业分工合作 模式的重大变革,物联网和务联网(服务互联网技 术)将渗透到所有的关键领域,企业之间组成一个 紧密、实时、动态的价值网络,从而大大提升企业 分工合作的广度和深度。

未来一段时期,全球制造业增长仍将处于较为疲弱的状态,但随着新一轮工业革命的推进,增速将逐步回升。然而,全球制造业增速的回升将以不平衡的方式实现,那些率先在重大技术领域取得突破、并实现生产组织模式变革的国家,将在未来的全球竞争中占得先机,并实现制造业的高速增长。

转自: 人民日报

Recently, UNIDO published global manufacturing report, which pointed out the growth in manufacturing would still in a low level in the first season of this year. Actually, it has suffered a long time in global manufacturing at a very low growth. Last year, the president of IFM, Raghad described the global economy as "New Mediocre", which means the global economy faced the universal "low recovery, slow growth, low employee rate, high risk".

A new round of industry revolution is in the ascendant, while the manufacturing keeps depressed. The fundamental reason for that is the replacement of old growth pole to new one is not well turning over. The traditional growth pole is becoming weak, while the new one is still on its way. After intentional finance crisis, there is a large shrink on demand. The growth of traditional

industries, vehicles, chemicals, steel, nonferrous metal, construction etc. are slowdown in great degree. Though the new industries, biological medicine, internet, new resources, intelligent robot etc. are rising, they are still a small proportion in the whole manufacturing. Their scale is not enough to replace the traditional growth pole and also cannot take the shoulder of spurring the growth of the whole manufacturing.

Under the current situation, manufacturing is facing the tremendous change on production constructing method. To cater to this change, main industrial powers, one by one, launched

its strategy to promote the manufacturing, so as to stand in advance in future competition. For example, five leading enterprises in USA united to construct "Industrial Internet Constitution", "Industry 4.0" presented by Germany, "Made In China 2025" launched by China etc. Though the main purpose for the strategy is same, there is different way to realize it. For USA, they more emphasize to build up a "General Blueprint", so all the data can be shared by different suppliers, which will stimulate the traditional industry procedures and promote the combination between physical world and digital world. For Germany, they more emphasize to







bring the manufacturing into intelligent through the combination of information system and physical system by using the information and communication technology and virtual system. For China, we more emphasize in driven by innovation and replacing by intelligent equipment so as to change China's position from a large industry power to a strong industrial power.

With the promotion of the new round industrial revolution, the new growth poles of manufacturing will be continuously released. To be specific, there are three mechanisms playing important roles. The first on is innovation mechanism. The new round industry revolution will bring the great change in production technology and the reconstruction of production method and life style, so as to promote the transition from old industry to new one. Then they will bring lots of investment opportunities, which will promote the growth of manufacturing. The second is fusion mechanism. The new round industry revolution will be a process of different industries' fusion. That is the fusion of new industry revolution to traditional industry, also includes the manufacturing and service, which improve the efficiency of the whole economy

system. The third is joint-action mechanism. The new round industry revolution will bring the great change in labor division and cooperation model. Materials network and service network (service internet technology) will permeate into all key fields. The enterprises will combine into a close, real time, dynamic value network, so it will improve the labor division and cooperation of enterprises in depth and scope.

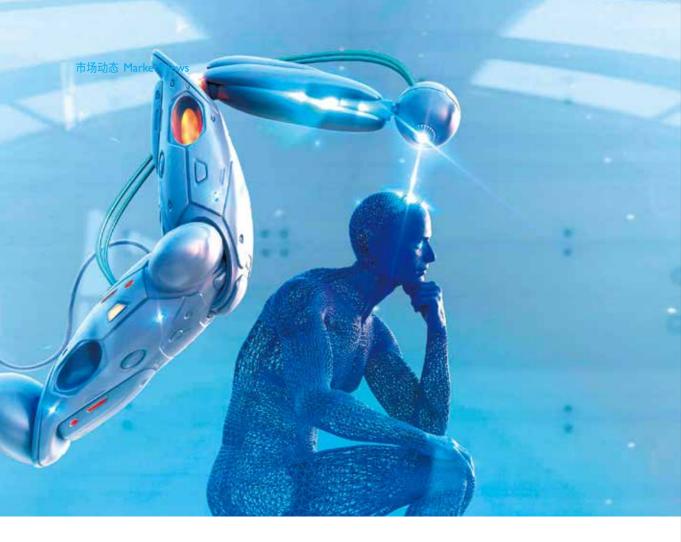
In the future period, global manufacturing will still be in weak and weary status; while as the promotion of the new round industry revolution, the growth poles will progressively recover.

However, this kind of recovery will turn up in a unbalanced way, those who make breakthrough in key technology field and complete the reconstruction of production methods will take the leading position and achieve the fast growth in manufacturing.

Text from: People's Daily







随着机器人在制造业各领域的应用,中国已发展成为全球第一大工业机器人市场。2014年中国国产工业机器人销量近1.7万台,同比增长达到惊人的77%;2015年发展更加迅猛,5月份中国工业机器人产量同比增长1.3倍。

2013年,中国首次成为全球机器人最大消费国,在全球总销量中占比超过五分之一;被视为中国机器人产业发展元年的2014年,中国机器人产量快速增长,开始释放出几年来产业集聚的爆发性能量。今年对中国机器人产业更是意义非凡的一年,《中国制造2025》部署实施制造强国战略,把机器人列为中国制造业亟须强力发展的关键技术。

作为世界工厂的中国,强大的制造业正成为全球各路机器人巨头争相觊觎的市场。国际机器人联合会的最新统计显示,去年在全球工业机器人大军中,

中国工厂里的机器人占了大约四分之一。而到2017年,中国安装的工业机器人数量将居全球之首。

#### 工人数量减半生产规模反增

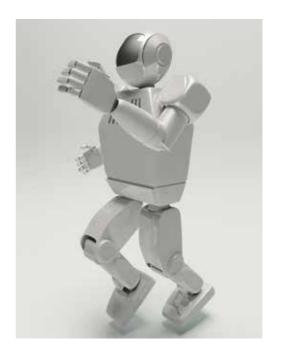
在生产场地没有增加、生产人数不增反降的情况下,国内某电子巨头企业的产品产量由2011年的800万台增长到了去年的1110万台,增长近四成;模组则由2011年的440万台增长到去年的1000万台,增长1.2倍。这些很大程度上都得益于智能化工厂中自动化机器人的应用,以一台电视机的全部生产流程为例,以往要经过60至70名工人的手才能完成全部工序,而如今将近20%的工序已经被机器人所替代,产品的测试、包装、锁螺丝、搬运、撕膜、覆膜、涂胶、贴标、套袋、分拣、并箱、拆垛、码垛等生产过程都已经实现了自动化。根据该企业提供的数据显示,目前他们已经有700台机器人在各生产线上岗,今年底则将达到千台。

不仅仅是电视,你家里使用的空调也可能出自机器人之手。机器人的大量应用使得目前美的空调的工人数量已经减少了近一半。美的方面提供的统计数据显示,2011年美的空调达到500亿元营收规模时,工人数量超过5万;到2014年空调业务总营收接近700亿元时,工人数量则缩减到了2.6万人;而根据规划,到2018年美的空调规模达到1000亿元时,员工数量将进一步减至2万人。

#### 中国已成全球最大工业机器人市场

在中国最重要的家电制造基地广东顺德,不久前,一场"中德工业服务区机器人及智能装备企业供需对接会"在顺德拉开帷幕,来自国内外多家机器人及智能装备的知名企业主动来到这个珠三角制造基地寻找商机。而在同样的地点,之前还有一场国际项目路演大会也吸引到不少应邀前来的欧洲机器人企业。资料显示,目前全球排行前五的机器人行业巨头中已有瑞士ABB、日本安川、德国库卡、日本川崎重工四家通过独资、合资、合作等方式进入顺德。

数据显示,2014年中国机器人销量达到5.6万台,增幅超过了50%,中国在去年已经成为全球最大的工业机器人市场,其中广东机器人市场的规模就大约占到了全国的三分之一。作为世界工厂的中国,强大的制造业正成为全球各路机器人巨头争相觊觎的市场。国际机器人联合会的统计显示,去年在全球工业机器人大军中,中国工厂里的机器人占了大约四分之一。而到2017年,中国安装的工业机器人数量将居全球之首。



#### 机器人代替人短期难降成本

不过,机器人代替工人虽然能够降低成本,但是很多企业在推广中还是会遇到各种各样的阻力。首先,机器人的一次性投入成本较高,代替人工的成本优势很难在一个财年完全体现出来,这对于上市公司而言就会有不小的业绩报表压力。目前很多企业对投入项目都在一定期限内有严格的投入产出规定,如果投入机器人后一定时间内成本反而超过人工,很可能就被一票否决了。因此对于推广机器人是算眼前账还是长远账确实很大程度上取决于企业最高决策者的管理层态度。

很多制造企业也正是因此而不愿推广机器人。有企业高层算账称,"即便按照三年回收成本计算,很





可能三年之后到了收获期的时候又有了新技术,现 在投入的设备又过时了。"

此外, 机器人在运行以及后期维护中也对应用企业 也提出了更高的技术要求。在很多机器人与工人同 室操作的厂房里,围绕机器人的红线是绝对不能越 过的,而且工人必须都遵守更严格的操作规程以防 发生意外被机器人伤害。

#### 机器人与人的矛盾难摆平

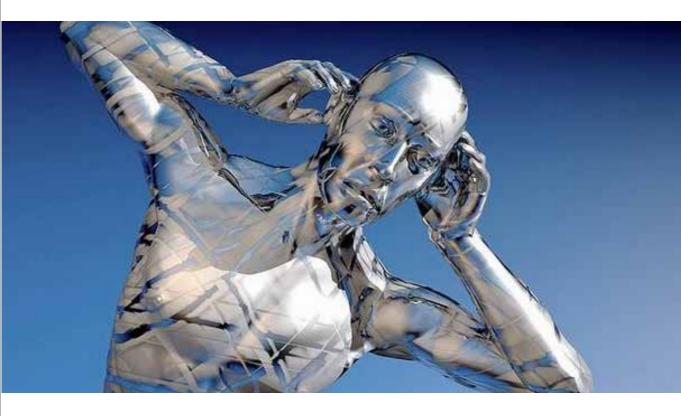
北京青年报记者在采访中了解到,很多企业在推广 机器人替代人工时还会面临一个颇为头疼的现实, 就是尽管知道机器人能够降低成本,但如何妥善遣 散工人也成为企业伤脑筋的问题。"这已经不仅仅 是经济问题,涉及到企业形象、社会影响甚至与政 府的关系!"顺德一位家电企业人士告诉北青报记 者,这其实就是机器人与人的矛盾。

以美的为例,四年间空调制造工人减少2万多人,不 本文来源:中国报告大厅

可能全部转岗其他生产线,相当部分工人肯定是被 裁员。而此间美的陆续出现的工人聚集讨要说法或 向媒体投诉的情形也让企业大伤脑筋。而去年6月海 尔首席执行官张瑞敏出席沃顿商学院全球论坛时的 一番话也曾引起轩然大波。他当时对外透露: 2013 年海尔完成裁员1.6万人,2014年计划再裁员1万 人。

#### 机器人从"制造"到"智造"还需时日

尽管国内很多大型制造型企业已经开始了机器代替 人的变革,不过有行业人士指出,中国制造业中的 机器人从"制造"到"智造"还需时日,而后者才 是真正的自动化生产的标志。"我们现在的机器人 做的还都是重复性的劳动,但未来的智能机器人从 事的应该是复杂、不规律的行为。"国际机器人及 智能装备产业联盟首席执行官罗军预测,未来10 年,人类将基本进入智能制造的时代。"



As the application of robots in different fields, China has developed into the largest market of robots in the world. The total sales amount is 17,000 sets in 2014, increasing by 77%. This situation is much swifter in 2015, in May the productive amount increase 1.3 times comparing with the same month in 2014.

In 2013, China first became the largest consumer for robots, whose total sales amount is over one fifth of global one. 2014 is the first year of robot industry developing in China. At that year, the productive amount of robots increased rapidly, which gave a signal of burst potential in the next few years. This year is a significant year in Chinese robot development. Robots are treated as the key technology which needs to enhance in manufacturing industry of China in the strategy

of Made in China 2025.

China, as the world factory, whose strong manufacturing industry, becomes the huge market coveted by those robots giants. According to IFR's recent statistics, the last year's robots application countries, China occupied its one fourth. While in 2017, the installed robots in China will be No.1 in the world.

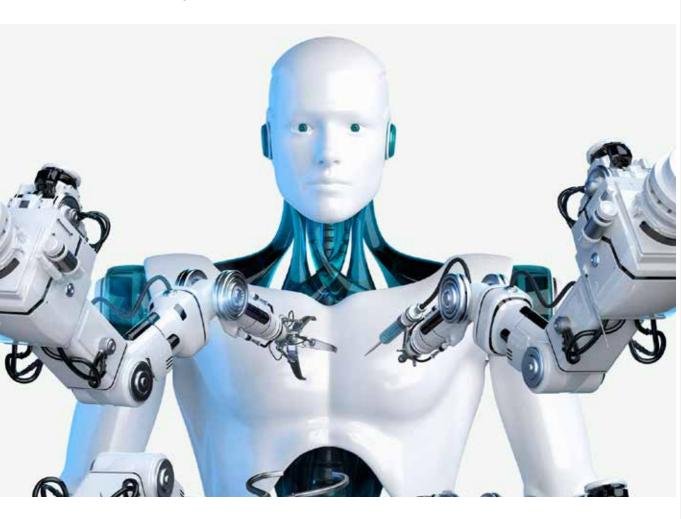
## Labor Reduced but Scales Expanded

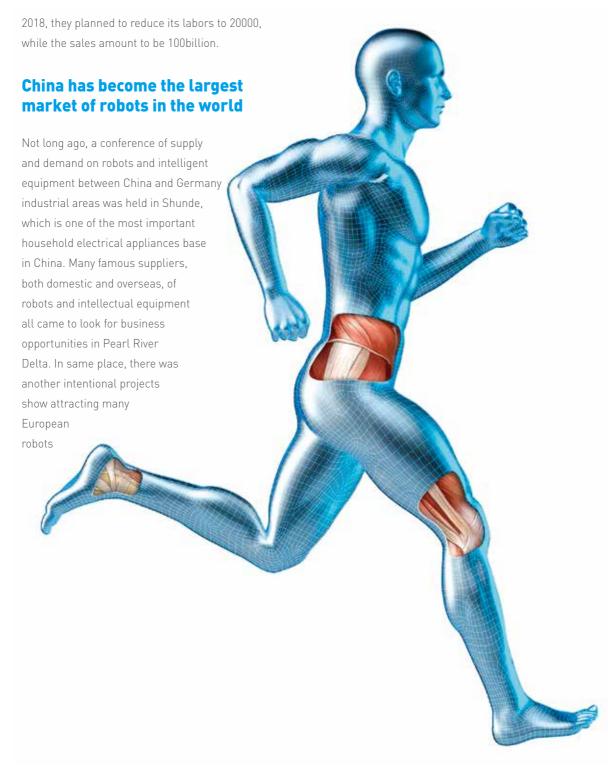
Without plant expanded and labor kept decrease, one electronic company's productivity increased from 8 million sets in 2011 to 11.1 million sets in last year, which was 40% of increase, the

components increased from 4.4million sets in 2011 to 10million in last year, which increased by 1.2 times. This results in the application of robot in automatic plant. Taking the manufacturing TV as an example, there were 60 or 70 labors working in the line to complete all the procedures in the past; while now, 20% of work is replaced by robot. Product test, packing, screwing up, moving, slipping film, sticking film, gluing, labeling, bagging, picking, case organization, dismantling pallet, palletizing etc. all realized automation. According to the data from this

company, there are 700 robots working on the assembly line, and this year this figure will be 1000

Not only TV, maybe the air conditioner at your home is made by robots. The large scale application robots in Meidi benefit it to cut half of its employees. According to the data from Meidi, when its sales amount was 50 billion yuan, the amount of labors were 50000 in 2011; however, when its sales amount was 70billion yuan in 2014, the amount of labors were 26000 in 2014. In







company. According to the statistics, four of Top five robots manufacturers have set up plant in Shunde by independent investment, joint venture investment, cooperation etc.. They are ABB, Yaskawa, Kuka, and Kawasaki.

According to statistics, the total sales amount of robots in China is 56000 sets in 2014, whose growth rate is over 50%. China became the largest robot market in the world last year, while Guangdong occupies its one third. China, as the world factory, whose strong manufacturing industry, becomes the huge market coveted by those robots giants. According to IFR's recent statistics, last year's robots application countries, China occupied its one fourth. While in 2017, the installed robots in China will be No.1 in the world.

#### It is hard to reduce cost in short period with robots replacing labors

Though it will reduce cost through robots to replace labors, there are a lot of barriers in promoting this tendency. First, the one-time investment is very high; the cost advantage cannot show in one fiscal year. There will be a lot pressure for public listed company. Many companies have a strict policy on investment and return, during a time if applied robots, the cost is higher than labor. This proposal would be vetoed. So to apply robots or not is mainly determined by the senior decision group in a company whose vision is for current or for future.

Many manufacturers are unwilling to use robots. There is one senior manager said,"

If we calculated by three years to return

the investment, most probably, there is new technology after three years and the old investment become outdated."

What's more, there are very strict requirements in using or maintaining robots after sales. In a plant with many robots as well as lots of workers, the operator must be trained strictly and operate robots following the rules so as to prevent any accident to hurt somebody, this is the "redline" which cannot be transcended.

### Dispute between human and robots

According to a report from Beijing Youth, many companies will face the headache of terminating the contract with employees properly; even they know the robots will reduce the cost. "It is not an economic issue, but also a great issue on company image, society effect and government relationship. "One personnel in household electronic appliances told the reporter of Beijing Youth. This is so called the dispute between human and robots.

Take the example of Meidi, they planned to reduce 20000 labors in four years. Those labors will not fully transfer into other production lines and most of them will be cut. During this period, there are some employees gathering to appealing the focus on government and society, which is also a headache for Meidi

Last June, the CEO of Haier, Ruimin Zhang gave a lecture in the global forum of Wharton School,

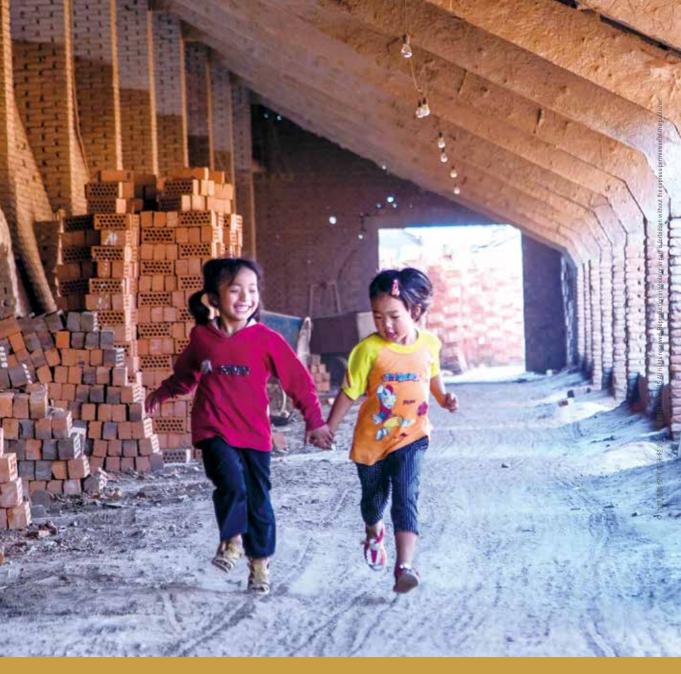


and his speech put the cats into the pigeons. He said, "Haier is going to cut 16000 employees in 2013, and 10000 employee in 2014."

## It's still a long way to get into intelligent manufacturing

Despite many large manufacturing companies started the reform on robots to replace human, some analyst pointed out, It's still a long way to get into intelligent manufacturing. To be intelligent is the real mark of automation. "Our robots only do the repeated work, but future robots can do complicated and indiscipline actions." Jun Luo, CEO of IFR and Intelligent Equipment Industrial Allians, said. The future 10 years, human will go into intelligent manufacturing age.

Text sources: China Baogao



童真(摄影者:洪峰 达意隆营销总部)

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