



COMPETITION FOR CHINESE FASTENER BRANDS

中国紧固件产业的品牌战役

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Currently, large disparity between China's and world advanced fastener industries still exists. China's overall industrial condition is comparatively inferior to the level of advanced industrialized nations due to its lower industrial efficiency and efficacy, surging energy consumption per unit of output value, huge disparity in consumption per capita, and weak innovation ability. Particularly, China's fastener manufacturing industry is labor-intensive with lower added value of products. In terms of capital-intensive and technology-intensive product manufacturing, China is far behind Korea, Japan and Taiwan.

The status quo in China: Low innovation ability; high-end techniques (such as automotive engine bolting technology) controlled by overseas companies; techniques of high-end products inferior to others; inferior quality of mid and low end products.

The goal of China: To enhance its corporate innovation ability. The core of elevating industrial competitiveness is to speed up and develop Grade 12.9 bolts for automotive engines, high speed rail bolts & fasteners, marine bolts, wind power bolts, etc. Traditional Grade 4 nuts and Grade 4.8 bolts will be removed from the upcoming amendment of GB/T3098.2, GB/T3098.4, and GB/T3098.1 standards. The industry should go for enhanced techniques, effective use of limited resources, low energy consumption & carbon emission, and reduced environmental pollution.

The competitiveness of fasteners made in China has been changed from the low price to brand awareness, and thus innovation-driven transformation is an inevitable outcome. During the period of the "Eleventh Five-Year Plan of China", Chinese techniques of cold forging and forming have been quite mature and showed an unprecedented progress. Such comprehensive techniques improved because the 3 major elements in heading and forging have improved in China. First, more types of cold headed steels as raw materials elevate the quality. Second, various and multi-stroke cold heading toolings are made from new types of steels and matrix steels for longer tooling life; Lastly, the adoption of new cold heading equipment not only decreases disparity with other advanced nations and regions, but also helps China get closer to the advanced level of foreign nations.

In the next 20 years, China's fastener industry will be more characteristic and distinct in service, and its manufacturing process will be more open to create business opportunities. Coupled with more prevalent Internet-based manufacturing, fastener production will be more efficient with better quality. Intelligence, green and lightweight technology in advanced fastener production will play a critical role.

In order to encourage fastener companies to innovate new technology, China General Machine Components Industry Association (CMCA) held the "Innovative technical products activity", which attracted participation of companies and brought a new consciousness to their self-driven innovation. This stimulates them in developing new products, improves the technical level of the machine parts industry, enhances self-innovation, and creates positive effects for structural and economic transformation driven by technical innovation.

现阶段，大陆制造业及紧固件与世界先进水准仍存在较大差距，产业整体状况与工业发达国家的先进水准相比，还存在很多不足。产业的效率和效益较低，单位产值的能耗能居高不下，人均水准更是差距巨大，创新能力薄弱。尤其是紧固件制造以劳动密集型居多，其产品附加值较低，而在资本密集和技术密集的制造产品领域，与韩国、日本、台湾等地的差距则更大。

现状是：自主创新能力低下，技术含量较高的如汽车发动机螺栓技术掌握在外方手中，高端产品技不如人，中低端产品质不如人。

目标是：增强紧固件企业的自主创新能力，加快发展拥有自主智慧财产权的12.9级高端高档次汽车发动机螺栓、动车螺栓、高铁扣件、海洋平台螺栓、风电机组大规格螺栓等成为提升紧固件行业领域竞争力的关键。传统的4级螺母、4.8级螺栓将在今后的GB/T3098.2、GB/T3098.4、GB/T3098.1标准新修订时被取消，通过强化加工工艺，充分发挥有限的资源，节能减排、减少对环境的污染都是紧固件技术进步的方向。

大陆紧固件由靠价格优势竞争走向靠品牌竞争，创新驱动转型发展这是历史的必然。“十一五”期间，大陆冷锻成形工艺趋于成熟，并取得了前所未有的发展。这种综合性工艺所以取得了进步，从技术层面讲，主要是锻锻三大要素在不同程度上得到了发展进步的结果。首先，锻锻用原材料：冷锻钢品种的增多，品质也大大提高；其次，工模具：多品种、多次小冲击的冷锻模具新钢种和基体钢，使工模具寿命大大提高；再次，新型冷锻设备的研发与投入使用，不但缩小了同发达国家、地区的差距，技术基本接近或达到国外先进水平。

未来20年大陆紧固件业发展将更加个性化，更加凸显服务特色，紧固件制造过程更加趋于友好和开源，基于网路的制造将更加活跃和普遍，紧固件制造将成为效率更高和品质更好的经济活动。先进紧固件制造发展进程中的智慧化、绿色化、轻量化技术都将扮演着重要角色。

为了鼓励紧固件企业技术创新，中国机械通用零部件工业协会组织企业开展的“科技创新产品”活动，极大地调动了企业参与活动的积极性，企业的自主创新意识得到空前的释放，大大地促进企业开发新产品的积极性，提升了机械零部件业的制造工艺水准，增强了自主创新能力，创造出系列以技术创新推动产品结构调整和经济转型有效成果。

2014年大陆紧固件行业获得特等奖7项、优秀奖13项，共计20项。见表1。

Table 1. 2014 Grand Prize & Excellence Prize for the Fastener Industry
表1、2014年紧固件行业特等奖优秀奖名单

Prize/奖项	Company/企业名称	创新产品项目名称
Grand Prize 特等奖	Shanghai Huxi High Strength Bolts and Nuts Plant 上海沪西高强度螺栓螺帽厂	抗断裂 10.9 级及大直径高强度螺栓 M42-M220
	Ningbo Anchor Fasteners Industrial Co., Ltd. 宁波安拓实业有限公司	汽车防撞系统用支撑衬套
	Ningbo Tengong Precision Manufacturing Co., Ltd. 宁波腾工精密机械制造有限公司	大尺寸复相材料冷锻塑前处理系统装置
	Ningbo Jinwei Standard Part Co., Ltd. 宁波锦伟紧固件集团有限公司	防震防脱异型螺栓
	Ningbo Zhongjing Electrical Technology Co., Ltd. 宁波中京电气科技有限公司	锌铝合金热扩散表面处理紧固件
	Zhoushan Zhengyuan Standard Parts Co., Ltd. 舟山市正源标准件有限公司	高强度轴力应变监测螺栓
	Zhejiang High Strength Fastener Co., Ltd. 浙江高强度紧固件有限公司	特殊齿垫自锁防松紧固件
Excellence Prize 优秀奖	Shanghai Huxi High Strength Bolts and Nuts Plant 上海沪西高强度螺栓螺帽厂	ZP28A-80-160 大型滚丝机
	Hubei Boshilong Technology Co., Ltd. 湖北博士隆科技有限公司	封闭型拉铆钉一次成型机
	Ningbo Sijin Machinery Co., Ltd. 宁波思进机械股份有限公司	SJBF-205L多工位环保型全自动冷锻机
	The Factory No. 7412 of Zhoushan 舟山市 7412 工厂	锁紧螺栓 N8
	Ningbo Ningli High Strength Fastener Co., Ltd. 宁波宁力高强度紧固件有限公司	塔吊螺栓 M30×385 牙长 100
	Ningbo Anchor Fasteners Industrial Co., Ltd. 宁波安拓实业有限公司	汽车发动机底盘用圆锥套
	Ningbo Jinwei Standard Part Co., Ltd. 宁波锦伟紧固件集团有限公司	风电塔架组件
	Ningbo Jinwei Standard Part Co., Ltd. 宁波锦伟紧固件集团有限公司	大型自动攻丝机
	Zhejiang High Strength Fastener Co., Ltd. 浙江高强度紧固件有限公司	M10-6H-LH 高铁自锁螺母
	Zhejiang Dewite Machinery Co., Ltd. 浙江德威特机械有限公司	全自动红打机 HD08080六角形
	Ningbo Beilun Huashen Screw Factory 宁波北仑华申紧固件有限公司	W 型紧定螺钉
The Factory No. 7412 of Zhoushan 舟山市 7412 工厂	差速器螺栓M12 系列	
Ningbo Sunrise Fasteners Co., Ltd. 宁波日升紧固件有限公司	安全带螺钉	

In 2014, China's fastener industries were awarded 7 grand prizes and 13 excellence prizes. See **Table 1** above.

Fastener quality elevation is not only the key to machine reliability, but also the necessary element for product transformation in China. Grasping advanced fastener manufacturing technology plays a crucial part in increasing the level of the next generation of fasteners. It is a critical mission and time awaits no one.

Fortunately, China's fastener industry is showing signs of change. Innovative transformation is the sole route to victory. China's fastener capacity in 2014 is expected to reach 7 million tons. Advancement will be the main goal, and fastener companies must notice the status quo, keep up with business opportunities, and hold on to technical innovation to foster industrial development. China should continue to go for automotive, new energy, aerospace, and shipbuilding industry, and speed up in product optimization and upgrade. In order to foster a stable and healthy industry, China's fastener industry must make efforts in increasing the technical level and added value of products. □

提高紧固件品质是保证主机可靠性的关键，提高紧固件品质是我国制造业产品结构转型的必要条件。掌握先进的紧固件制造技术，对提升新一代高性能紧固件产品的创新有重大作用。任重道远又时不待人。

所幸我国紧固件企业的处境已初现有所改变的迹象，创新转型才是制胜之道，预计2014年我国紧固件总产量将达到700万吨左右。发展是主旋律，紧固件企业一定要认清形势，增强信心，抓住机遇，坚持技术创新，促进行业可持续发展。继续紧紧依托汽车、新能源、航空航天、造船等重点产业，加速紧固件产品优化和升级，一定要在产品的技术含量附加值上下功夫，促进全行业健康稳健发展。 □