



An Analysis of the Status Quo and Trend of Chinese Fastener Industry

中国汽车紧固件产业链的现况与趋势分析

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Preface



Fasteners are a kind of mechanical part commonly used. After experiencing a rapid growth, the Chinese fastener industry has become the world's largest producer of fasteners. According to the statistics of China General Machine Components Industry Association (CMCA), Chinese fastener production in 2012 was 6.6 million tons, with sales of RMB65 billion and the total export of 2.493 million tons (2.464 million tons of which were steel products). The association also expected that the fastener production in 2013 would increase to 7.2 million to 7.5 million tons.

According to the statistics, fasteners in China are mainly applied in the fields of automobiles, electronics, construction, and maintenance. Among them, the automobile industry is the largest user which accounts for 23.2% of total sales of fasteners; both maintenance and construction industries are the second largest user which accounts for about 20% of total sales of fasteners; the electronics industry ranks the third, taking up about 16.6% of total sales of fasteners.

Automobile fasteners include engine connecting rods for ensuring the safety of the power transmission, cylinder heads and flywheels, gearbox bolts, brakes, steering mechanism main drives, wheel bolts, bolts for fixing hinges and other numerous parts. Due to their small sizes, variety, and functions as small parts supporting the main components, fasteners look inconspicuous. Although fasteners accounted for only a small portion of the output value of the automobile industry, they are very important as they bring very high added values to the key components and automobiles.

In a rough calculation, fasteners take up about 40% of the total number of basic components used in a car. A light vehicle or sedan has about 4,000 pieces of fasteners on average, which weigh about 50 kg; while a mid-size or heavy truck uses 7,500 pieces of fasteners on average, which weigh about 90 kg. Fasteners account for only 2.5% to 3% of the cost of the entire car, but the loss due to the damage caused by fasteners may be accidental destruction of the whole car, which may even result in the loss of human lives. Therefore, the importance of automotive fasteners can be perceived. This article will analyze the status quo and prospects of Chinese automotive supply chain.

一、前言

紧固件是应用极为广泛的一类机械零件，中国紧固件行业历经高速的成长阶段，现已成为世界最大的紧固件生产国。根据中国机械通用零部件工业协会紧固件分会统计，2012年中国紧固件产量为660万吨，销售额为650亿元人民币，出口总量为249.38万吨，其中钢制品246.40万吨。该协会紧固件分会还预计2013年紧固件产量将提高到720~750万吨。

据统计，紧固件在中国主要应用于汽车、电子、建筑和维修等工业需求。其中，汽车工业是最大的用户，需求量约占紧固件总销量的23.2%；维修工业和建筑工业占第2位，约占紧固件总销量的20%；电子工业居第三位，约占紧固件总销量的16.6%。

汽车用紧固件包括：保证动力传递安全的发动机连杆、缸盖飞轮、变速箱螺栓、制动器、主传动转向机构、轮毂螺栓、门铰链固定用螺栓等众多零部件。由于体积小、种类多，且为主机配套的小零件，表面上并不起眼。尽管紧固件产值占汽车工业总产值的比例也不算很高，但实际上它带给关键构件和汽车的附加值与重要性是很高的。

粗略计算，一辆汽车上的紧固件约占整个基础零部件总数的40%。一辆轻型车或轿车平均使用紧固件4,000件，约重50公斤；而一辆中卡或重卡平均使用紧固件7,500件，约重90公斤。虽然紧固件仅占整车成本的2.5~3%，但由于紧固件损坏造成的损失可能是全车意外毁损，甚至危及人命，因此汽车紧固件的重要性可想而知。本文针对中国的汽车紧固件产业链发展现状与未来前景进行分析。

Automotive Fasteners Categorization and Performance



There are a wide variety of automotive fasteners, which can be roughly divided into four categories: standard fasteners, other standard mechanical components, other non-standard mechanical components, and non-standard fasteners. The fasteners required by car manufacturing are mostly standard fasteners and the market is in a state of oversupply. However, as special products specifically for anti-loosening, easy installation, high assembly efficiency, and increasing safety of cars require new or special techniques and equipment, such as automatic gluing, automatic assembly or washer assembly or continuous supply, they are still unable to be fully produced by local Chinese manufacturers.

Chinese automotive high-strength bolts have four performance grades, namely grades 8.8, 9.8, 10.9, and 12.9. The high strength bolts (above grade 8.8) are made to withstand greater loads and have to sustain a complex stress state, so they are mostly made of medium-to-high carbon steel alloy, and have to go through the tempering process (tempering at a high temperature after quenching) to ensure sufficient strength and the yield ratio. Strength levels of automotive bolts and the steel types mainly used are shown in Table 1.

Common materials for automotive fasteners include titanium alloy, steel, copper, aluminum, nylon and other metals and non-metals, among which steel can be divided into following four categories based on its product features: (1) Non-heat-treated type: mainly low carbon steel finished products with levels from 3.6 to 5.8; (2) Tempered type: mainly medium carbon steel, low alloy steel, alloy steel series of finished products with levels from 8.8 to 12.9; (3) Surface hardening type: mainly ML18Mn, ML22Mn, ML20Cr self-tapping screws, self-drilling screws and other products requiring surface carburizing; (4) Non-tempered steel type: Non-tempered steel for fasteners is mainly the cold-wrought hardened steel, with its name being often preceded by letters "LF". Finished products are mainly high-strength fasteners with grades of 8.8 and 10.9.

Table 1. Strength Levels and Steels Used for Automotive Bolts
表1 汽车螺栓的强度级别和使用钢种

Strength Level 强度级别	Type of Steel Used 使用钢种	Parts Applied 代表的使用部位
6.8	low-carbon steel 低碳钢	general parts 一般部位
7T-8.8	carbon steel, boron steel 碳钢、含硼钢	general parts 一般部位
10.9	alloy steel, boron steel 合金钢、含硼钢	chassis 底盘
12.9	alloy steel 合金钢	engines 发动机
14.9	special alloy steel 特殊合金钢	engines 发动机
16T	wire drawing eutectoid steel 拔丝加工共析钢	connecting rods 连杆

二、汽车紧固件分类及使用性能

汽车紧固件品种繁多,大致可分标准紧固件、其他标准机械元件、其他非标准机械元件和非标准紧固件四大类。汽车制造所需紧固件产品以标准紧固件居多,市场呈现供过于求的状态,但其特殊品,如防松、方便安装、提高装配效率、提高整车安全等产品,由于需要全新的或特殊的技术与装备,如自动涂胶、自动组合或装配垫圈、连续式供货等,尚不能完全实现国产化。

中国汽车高强度螺栓共有四个性能等级,即8.8、9.8、10.9和12.9级,高强度(8.8级以上)螺栓因需要承受较大的载荷,且受力状态复杂,因此这类螺栓多采用中碳或中碳合金钢制造,并经过调质处理(淬火后再经高温回火)以保证产品具有足够的强度和屈强比。汽车用螺栓的强度级别和主要使用钢种如表1所示。

汽车紧固件常用材料有钛合金、钢、铜、铝、尼龙和其他金属、非金属等,其中汽车紧固件用钢按照产品特点可分为以下四类:(1)非热处理型:主要是低碳钢系列,加工的成品等级是3.6~5.8级;(2)调质型:主要是中碳钢、低合金钢、合金钢系列,加工成品等级是8.8~12.9级;(3)表面硬化型:以ML18Mn、ML22Mn、ML20Cr为代表,主要加工的成品为自攻螺钉、自攻自钻螺钉和其他要求表面渗碳型的产品;(4)非调质钢:也称为合金非调质钢。紧固件用非调质钢主要是冷作硬化型非调质钢,牌号前常冠以字母“LF”,加工的成品等级主要是8.8级和10.9级的高强度紧固件。

紧固件作为主机与零部件的连接件,随主机一起在各种恶劣的服役环境中接受考验,应用于高温高压、低温、振动、腐蚀、重载、交变应力、抗剪切抗扭转等各种场合。因紧固件的失效和损坏引发事故或灾难的概率非常高,故对于制造紧固件的材料要求非常高。对于制造汽车紧固件的冷锻钢线材而言,在紧固件成形之后,还需经过热处理和表面处理以达到较好的淬透性、回火稳定性和良好的综合力学性能。紧固件在服役期间需要承受各种应力,为保持构件稳定,还要求紧固件具有足够的冲击韧性、较低的缺口敏感性、良好的抗蠕变性能以及耐蚀、耐寒和良好的抗延迟破坏性。

As connectors between main bodies and components, fasteners are put to tests in a variety of harsh service conditions, such as high temperature/pressures, low temperature, vibration, corrosion, overloading, alternating stress, anti-shear, anti-torque, and other occasions. The probability of accidents and disasters caused by failure or damage of fasteners is very high, therefore, the standard for fastener materials is very high, too. In terms of the cold forged steel wire for manufacturing automotive fasteners, heat treatment and surface treatment are needed to achieve better quenchability, tempering stability, and good mechanical properties after fasteners are formed. Fasteners during service need to withstand stresses, so they are also required to have sufficient toughness for impact, lower notch sensitivity, good creep/corrosion/freeze resistance, and good destruction delaying properties in order to maintain the stability of components.

Introduction of Major Automotive Fastener Manufacturers



There are nearly 10,000 fastener manufacturing and trading enterprises in China, which are mainly located in the three fastener industrial heartlands near the Yangtze River Delta, Pearl River Delta, and the Bohai Bay, as well as other fastener bases in Jiaxing, Ningbo, Wenzhou, Dongguan, Xingtai (Hebei Province), Yongnian. Zhejiang Province demonstrates the highest concentration of fastener manufacturers.

Among these enterprises, more than 100 of them manufacture automotive fasteners. These companies can be divided into two categories: one is the fastener business of a sizable scale, setting up a dedicated department responsible for manufacturing automotive fasteners; the other are those which only specialize in the production of non-standard automotive fasteners. Because such products have higher added values, there are more than 20 joint ventures involved in the production. With the rapid growth in demand, the manufacturers of the latter type, mainly producing non-standard parts, are showing a fast development in China, making the non-standard parts the most competitive segment in the market.

There are nearly 40 fastener manufacturers supplying car manufacturers in Zhejiang Province, forming an industrial cluster for non-standard automotive fasteners. Car manufacturers can find the best supporting automotive fastener manufacturers nearby as collaboration among the businesses is strong and operational efficiency is high. The development of automotive fasteners industrial cluster has played a significant role in enhancing the supporting capacity and improving the overall competitiveness of Chinese automobile industry.

Famous enterprises with a higher technical level of automotive fasteners production in China include Shanghai (Shang Biao Group) Fasteners, Dongfeng Motor, Fawer Automotive Parts, Zhejiang Mingtai Standard Component, Zhejiang Changhua, China Ruibaio Group, Shanghai Autocraft, Fuzhou Ying Ming, The Factory #7412 of Zhoushan, etc. Some of them are invested by car manufacturers, mainly supplying fasteners to their respective parent automotive companies. For example, Dongfeng Motor was established primarily to provide nearly 4,000 types of automotive fasteners, special parts, springs and fittings to its parent company supplying over 100 car models as a complementary support to each other.

三、汽车紧固件主要生产厂商介绍

中国共有紧固件生产和贸易企业近1万家，初步形成了长江三角洲、珠江三角洲及环渤海湾三大紧固件产业集聚区以及嘉兴、宁波、温州、东莞、河北邢台、永年等若干个紧固件产业基地，其中浙江省是紧固件生产企业最为集中的省份。

在万家企业当中，生产汽车紧固件的企业有100余家，分为两类：一类是具有相当规模的紧固件企业，设置专门的部门负责汽车紧固件的生产制造；另一类则是仅以生产汽车非标准紧固件产品为主的专业企业，由于此类产品附加值较高，合资企业涉足较多，数量超过20家。随着需求的快速增长，以非标准件为生产主力的后者在中国发展迅速，也成为了竞争最为激烈的市场领域。

浙江省有近40家紧固件生产企业为汽车配套生产，形成了以汽车非标准紧固件为基础的产业群，整车企业可以就近择优找到配套的汽车紧固件体系，企业之间协作能力强，运作效率高，汽车紧固件产业群的发展对于增强中国汽车产业的配套能力、提升汽车产业的整体竞争力起到了很大的作用。

代表中国较高水准的汽车紧固件企业有：上海上标汽车紧固件有限公司、东风汽车紧固件有限公司、富奥汽车零部件有限公司标准件分公司、浙江明泰标准件有限公司、浙江长华汽车零部件有限公司、上海东风汽车专用件有限公司、上海宜众汽车紧固件有限公司、温州瑞标集团有限公司、浙江里安瑞强标准件有限公司、上海奥达科股份有限公司、福州颖明标准件有限公司和浙江舟山市7412工厂等。其中部分是由汽车生产企业投资的，主要专供相应汽车企业的紧固件。以东风汽车紧固件有限公司为例，它依托东风汽车有限公司成立，主要为东风系列一百余种车型提供各类汽车用紧固件、专用件、弹簧、管接件等近四千种品项，与东风汽车有限公司互为支撑，相辅相成。

除了中国国内的企业，一些合资或独资的企业在中国汽车紧固件市场也占有一席之地，这类企业在大部分关键汽车非标准紧固件市场中具有强大的资金和技术优势，在中国建立了多家汽车紧固件技术中心和研发机构。中国国有和民营的汽车紧固件企业则凭借成本优势占据了部分发动机非标准紧固件和大部分标准件市场，并通过仿照国外产品，积极消化吸收国外先进技术，具有了面向中国

In addition to enterprises in domestic China, other joint ventures or wholly-owned enterprises also have their presence in Chinese automotive fastener market, all of which have strong backup of capital and technology in most non-standard automotive fastener markets of China and have established many automotive fastener technology and R&D centers. Chinese state-owned and private automotive fastener enterprises have captured part of the market of non-standard fasteners for engines and most of the standard parts by virtue of their cost advantages. They have acquired the ability to meet the domestic market needs by remodeling foreign products and actively absorbing advanced technologies from overseas. However, for the development of non-standard fasteners of engines requiring a high technical level, a major breakthrough is still needed.

Automotive Fastener Materials Supply Status



Steel used in the manufacturing of automotive fasteners should have excellent strength and ductility. It should have an excellent overall performance as expected after cold forging and heat treatment. In addition, it has a great variety, relatively low price, and higher price/performance ratio compared to other materials, this is the reason that cold forged wire is the main material for automotive fastener production.

According to the statistics, more than 80% of fasteners used in passenger cars are of high-strength including grades 10.9 and higher (50% of which are made of alloy steel). Fasteners are mainly made of low-carbon steel and stainless steel wire. High-strength fasteners account for more than one-third of the fasteners used in a medium and heavy-duty truck.

In contrast, fasteners made in China are mainly ordinary ones with the grade below 8.8, which account for 45-50% of the total production. Apparently the capacity is excessive. However, a considerable portion of some key fasteners, such as automotive engine bolts for connecting rods, flywheel bolts, important wheel bolts and suspension bolts still rely on imports. Take the foreign brands of passenger cars for example, though they are assembled in China, however, more than 70% of fasteners used in the vehicles are imported. The reason for this is partially due to the intellectual property rights owned by foreign companies as well as the unstable quality of Chinese fasteners and wire for manufacturing these fasteners still being concerned.

The production of cold forged wire in China began in 1990s. There are more than 40 major producers including Baosteel, Ma Steel, Sha Gang Group and Xingtai Iron & Steel, but the current products cannot meet the needs for high-grade fasteners. In recent years, Chinese steel enterprises have developed SWRM6, SWRCH6A, SWRM8, SWRM10, SWRCH8A, SWRCH10A, ML20, ASTM1018, ASTM1022, ML35, SWRCH32K, SCM435, SWRCH35K and SCM440 cold forged steel for fasteners, making some breakthroughs in cold forged fastener wire technology. However, in the high-end cold forged wire featuring high purity, high performance, and high quality, Chinese manufacturers still face difficulties in meeting the domestic needs of automotive fastener production.

国内市场的配套能力，但在高技术含量的发动机非标准紧固件产品的开发方面还有待突破。

四、汽车紧固件原材料供应情况

用于制造汽车紧固件的钢材应具有优良的强度和塑性，经冷锻或热处理后可获得预期的优良综合性能且资源丰富、价格相对较低，与其他材料相比具有更高的性价比，因此生产汽车紧固件的钢材主要采用冷锻线材。

据统计，乘用车使用的紧固件超过80%是高强度紧固件，其中10.9级及以上的(使用合金钢线材的部分)占50%，紧固件的原料主要采用低碳钢线材和不锈钢线材。一辆中卡或重卡使用的紧固件，其中高强度紧固件也达到三分之一以上。

反观中国生产的紧固件主要以8.8级以下普通低档紧固件为主，占到总量的45~50%，产能明显过剩，但一些关键紧固件产品，如汽车上发动机连杆螺栓、飞轮螺栓、车轮螺栓、悬挂螺栓等重要紧固件，目前还有相当一部分依靠进口。以乘用车为例，引进的高档知名品牌汽车虽在国内生产线上装配，但车上的紧固件有70%以上是进口的，造成这种情况的原因一方面是由于产品的智慧财产权归属外方，另一方面则是由于中国的紧固件产品和制造这些紧固件的线材在品质稳定性方面确实存在问题。

中国的冷锻线材生产始于20世纪90年代，生产企业主要有宝钢、马钢、沙钢、邢钢等40余家，但目前生产的产品还不能满足高档紧固件的生产需要。近几年中国钢铁企业先后开发了SWRM6、SWRCH6A、SWRM8、SWRM10、SWRCH8A、SWRCH10A、ML20、ASTM1018、ASTM1022、ML35、SWRCH32K、SCM435、SWRCH35K和SCM440等紧固件冷锻用钢，在紧固件用冷锻线材的技术方面取得了一定的突破，但在高纯净度、高性能、高品质的高端冷锻线材方面还难以满足国内汽车紧固件企业生产的需要。

目前，宝钢在中国国内轿车、商用车发动机等特种高强度紧固件用钢市场占有率较高，已成为一汽、东风、上汽等汽车企业特殊标准件用钢的指定供应商。中国国内汽车标准件用材主要以宝钢生产的材料为主。而10.9级和12.9级发动机用紧固件进口材料主要来自于日本神户制钢、新日本制铁、韩国浦项等钢厂。这些进口材料具有淬透性好、纯净度高、装配稳定等优点，不过成本偏高，比国内材料要高出15~20%。

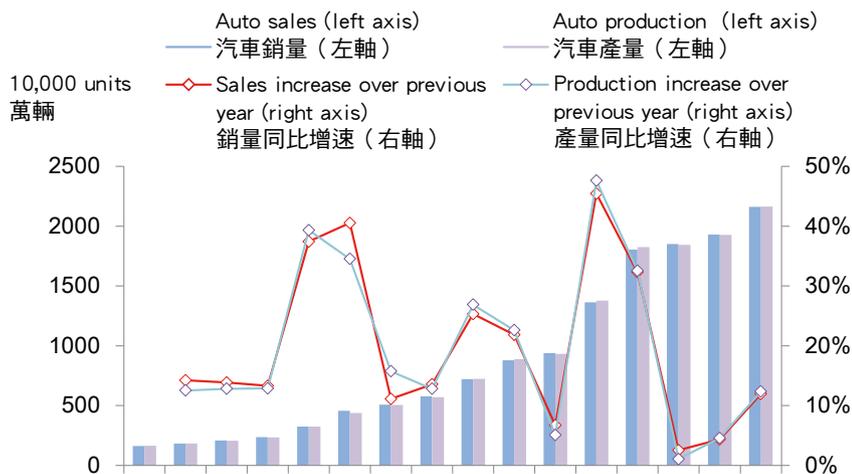
Currently, Baosteel claims a higher market share in steel for high-strength special fasteners used in car and commercial vehicle engines in China and has become the designated supplier of steel for special standard parts for FAW, Dongfeng, SAIC, etc. Materials for standard automotive fasteners in China come mainly from Baosteel and the materials for levels 10.9 and 12.9 engine fasteners are imported mainly from Japanese Kobe Steel, Nippon Steel, South Korean POSCO, etc. These imported materials have good quenchability, high purity and stable assembly, but the costs are 15-20% higher than those of domestic materials.

Development of Downstream Automotive Industry



As the largest user of fasteners, China has experienced the rapid growth for over 10 years since 1990s. Its growth slowed down slightly after 2011, but still maintained a steady upward trend. The annual car production and sales volume in 2012 reached 19,271,800 and 19,306,400 units, an increase of 4.63% and 4.33% respectively compared to the same time of the previous year, which also marked the first time for both automobile production and sales to surpass 19 million units and its world no. 1 honor for 4 consecutive years (see Figure 1). Chinese automobile industry showed recovering growth in 2013 and the entire annual sale was expected to hit the 20 million mark. With China becoming the world's largest country for automobile sales and production, Chinese automotive fastener industry has been benefited from good market prospects.

Figure 1. Chinese Automobiles Production and Sales Changes During 1998-2013
图1 1998-2013年中国汽车产销量变化量情况



Source: National Bureau of Statistics of China
资料来源：中国国家统计局

According to Xu Changming (Director of Information Resources of State Information Center), China is fully capable of reaching the same car ownership level per thousand people as in Japan and Europe, given its rich resources and population density. Based on the result, the total population of 1.5 billion should have owned 900 million units in theory. For a conservative estimation that even the ownership level of China is only half of that of other mature automotive markets, namely 450 million, it also will drive a huge demand for automotive fasteners in the automotive aftermarket.

In the "Report on Governmental Work for 2012", it states that Chinese automotive industry will focus on controlling the increase of units, pushing for restructuring, working on energy saving and promoting upgrade, indicating that the future development of the automotive industry will move toward

五、下游汽车产业的发展

作为紧固件最大的需求用户，20世纪90年代以来，中国汽车工业经过十余年的高速增长之后，2011年以来汽车产业增速略有放缓，不过仍维持了稳步增长的态势。2012年全年汽车产销量分别达到1927.18万辆和1930.64万辆，同比分别增长4.63%和4.33%，这是中国汽车产销量首次突破1,900万辆，并连续四年蝉联世界第一(如图1所示)。2013年中国汽车行业出现恢复性增长，全年产销量有望首次突破2,000万辆大关。随着中国成为全球最大的汽车产销大国，中国汽车紧固件的需求也受益于此，具有良好的市场发展前景。

国家资讯中心资讯资源部主任徐长明表示：按照中国资源的禀赋条件、人口密度等测算，中国完全有能力达到日本和欧洲千人保有量的水准。据此计算，15亿人口总的汽车拥有量理论上估计就会达到9亿辆。保守估计，以达到成熟汽车市场一半的水准，即4.5亿辆来说，也将带动巨大的汽车紧固件在汽车售后维修市场的需求。

《2012年政府工作报告》提到未来中国汽车行业要控增量、推重组、重节能促升级，表明未来汽车行业将朝着提高产业集中度、推动兼并重组、促进产业结构升级和加快新能源汽车发展的方向发展。目前，中国现有包括上汽、一汽、东风、长安、北汽、奇瑞、吉利、力帆、比亚迪等在内的整车企业超过150家，比亚迪、奇瑞、青年、吉利、长城、长丰、江淮等中国自主品牌汽车公司的出现和发展推动了中国紧固件企业的发展与壮大。「十二五」期间，中国汽车整车行业的发展远远领先于汽车紧固件行业，今后一段时间将是汽车紧固件行业的高速发展期，是扩大紧固件生产的大好机会。

六、小结

对汽车行业来讲，在中国国家收入倍增的民生计划和扩大内需的经济政策作用下，未来汽车刚性需求还将持续。2013年1~11月，中国共生产汽车1,998.92万辆，全年有望生产2,180万辆，其中乘用车和商用车分别为1,780万辆和400万辆左右，据此测算，对于紧固件的年需求量将达12.5亿件以上，用钢量约125

becoming a highly concentrated industry, boosting mergers and acquisitions, enhancing industrial upgrade, and speeding up the development of cars using new energies. At present, China has more than 150 whole-vehicle companies including SAIC, FAW, Dongfeng, Chang'an, BAIC, Chery, Geely, Lifan and BYD while the emergence and development of the local auto brands such as BYD, Chery, Young Man, Geely, Great Wall, Changfeng and JAC have reinforced the development and growth of Chinese fastener industry. During the "12th Five-Year" economic plan, the development of Chinese whole-vehicle industry is far ahead of the automotive fastener industry. Next will be the time of rapid development for other automotive fastener industries and it is a great opportunity to expand the production of fasteners.

Conclusion



For the automotive industry, with influence of the livelihood programs for doubling the national incomes and the economic policy to expand domestic demand, the rigid automotive demand in the future will continue. From Jan. to Nov. 2013, China produced 19.9892 million units of automobiles and the total production of 2014 is expected to reach 21.8 million units, of which passenger cars and commercial vehicles took up about 17.80 million and 4 million units respectively. It is therefore estimated that the annual demand for fasteners will reach 1.25 billion pieces or more with about 1.25 million tons of steel used monthly, which will bring about a market of a certain scale and stable demand for automotive fastener businesses.

For the automotive fastener industry, the rapid development of automobile industry has also created unprecedented great opportunities for the automotive fasteners manufacturers. The domestic enterprises specializing in automotive fasteners adhere to the existing market, while the private fastener manufacturers with technical strength have also targeted the automotive industry, hoping to become a part of the supply chain for car manufacturers. Due to the increase of complexity in automotive design, emergence of products upgraded and improved by technologies, the requirement for cost reduction and recall of vehicles, higher sales of automotive fasteners are expected. However, automotive fasteners in domestic China are still for supply to the ordinary middle and low-end products, the high-end specialty products are still in a severe shortage while a quality gap exists among the products. There is still large room for improvement.

Chinese high-quality cold forged wire for automotive fasteners is still mostly from imports as the domestic manufacturing is only limited to a small number of steel mills and their growth remains slow. Based on the experience of developed countries, nearly half of the production of 1.5 million tons of wire rods in Europe is used in car manufacturing and about 60% of cold forged wire is used in the automotive industry, Chinese demand for cold forged wire still has room for growth presumably. Currently, the profit of Chinese steel industry is poor. Statistics of China Iron and Steel Association show that during the first 11 months of 2013, the profit margin of the entire steel industry was only 0.48%. For certain qualified steel mills, strengthening the development of high-quality cold forged steel may be one of the opportunities for improving profitability. □

Editor's Note: According to chain Association of Automobile Manufacturers, China sold 2,198 thousand units in the year 2013.

万吨,这将为汽车紧固件企业提供一定规模且稳定的市场需求。

就汽车紧固件行业本身而言,汽车工业的快速发展也使得汽车紧固件专业制造迎来了前所未有的好时机,国内的汽车紧固件专业企业坚持原有的市场,有技术实力的民营紧固件企业也纷纷瞄准汽车工业,希望成为汽车厂供应链中的一员。由于受到汽车设计复杂性的加大、经科技提升和改良的产品的出现、降低成本的要求以及汽车召回等因素影响,汽车紧固件将会出现更高的销量。不过中国国内的汽车用紧固件供应仍以中低档普通产品为主,而高档特殊产品相当匮乏,且品质参差不齐,仍存在较大的提升空间。

作为汽车用紧固件的上游钢铁行业,中国高品质的冷锻线材仍然以进口为主,国内生产厂家仍然局限少数钢厂,而且产量增长速度不快。从发达国家经验来看,欧洲生产的150万吨棒线材有近一半用于汽车制造,约六成的冷锻线材用于汽车行业,中国的冷锻线材需求量推测仍有成长空间。目前,中国的钢铁行业盈利情况欠佳,中国钢铁工业协会统计资料显示,2013年前11个月,钢铁全行业利润率仅为0.48%,对某些具备条件的钢厂来说,加大高品质冷锻钢的开发或许可能是改善盈利的机会点之一。 □

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编按:根据中国汽车工业协会发布,2013年中国汽车销售量为2,198万辆。