

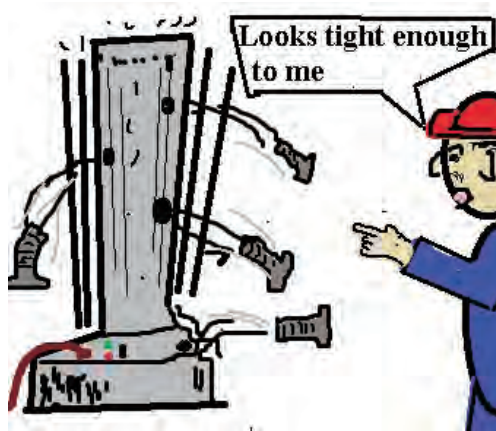


Collared washer.
Allows for plastic thermal expansion while tightly holding joint.

Clipping holds parts and allows for some movement

As the illustration shows, the forces are through the steel components of the joint and little or no loading is upon the plastic part. However, the joint should be designed to allow a small amount of “squeeze” on the plastic to prevent rattles.

As it happens, most plastic components are not structural in their design. That is, they are not required to hold things tightly against the forces of nature and rough service. Generally, they cover up, add a touch of beauty and/or hide the rough edges of a product. The forces that impact these cosmetic designs are much less severe than those of critical joints. This allows for the use of non-threaded fastening systems.



Many plastic joints are held in place with plastic fasteners and with clips. These fasteners allow movement (see illustration for a clip design) when used with slots, can be assembled to base substrates without difficulty when installing parts “blind” (clip on backside, slotted sheet metal allows operator assembly quickly). Besides clips many plastic components are held together with various metallic and non-metallic devices such as u-nuts, retainers, etc. These parts allow for creep and the various plastic loosening properties. They do require some measure of anti-rattle protection. This is accomplished through the use of foams, rubbery sound deadening materials, mastics and caulks. Any vibration that is generated should be efficiently silenced. One major car company has targeted squeaks and rattles as among its top five customer complaints.

Vibration loosening exists and will continue to be a part of every attachment consideration. It can be silenced, although temporarily, through design and careful engineering. Fastener engineering and good design can reduce the occurrence of vibrational problems through proper installation torques, using the proper fasteners for the application, and an awareness of contributing conditions to the product’s service. ■

The Current ASEAN Fastener Trade Statistics



by Shervin Shahidi Hamedani

Since its foundation, ASEAN has grown from an underdeveloped region into one of the most active drivers of today’s global economy. The Association’s ten member countries are a major focus of international investment as Southeast Asia’s success story continues, resulting in the launch of the ASEAN Economic Community (AEC) at the end of 2015.

Accordingly, the region has observed remarkable economic growth over many years and has advanced as a global manufacturing power. Manufacturing activity is increasing with the near elimination of tariffs between Indonesia, Malaysia, the Philippines, Singapore and Thailand as a main incentive for long term investment in the region which allows related industries to develop and support each other.

As a result, there is a growing development of trade flows in this region for both extra- and intra-regional trade. Trade within Indonesia, Singapore and Thailand in particular, is growing while other markets are fast rising. Notably, development of intra-ASEAN trade has overtaken the growth of world trade in the past four years. This significant improvement shows the benefits of a more connected, more harmonised and more consistent ASEAN, which would have the world’s third largest population and one of the world’s largest economies, if it were a single country.

Now the question is: How could all of these advancements impact on fastener market and its trade statistics in this region? The answer is clear. The fastener market in ASEAN

is expected to face significant growth by considering the increasing usage in various end-use industries such as automotive, aerospace, machinery and electronics. Particularly, the ASEAN Economic Community (AEC) will provide great opportunities for all the members to become much larger manufacturing hubs in various industries.

The automotive industry is one of the best examples among industries. Thailand has been the automotive manufacturing hub for the Asia Pacific region, but now this country is developing into a global hub. Thailand accounts for 55% of ASEAN members' vehicle production, with around 2.5 million units per year. Indonesia produced an estimated 1.1 million vehicles in 2015, though it is pursuing to reach an output of 2.6 million by 2020. Malaysia currently produces around 500,000 a year. Additionally, there is substantial potential in the Philippines and Vietnam. Currently, each of these countries has low unit assembly operations measured with around 50,000 vehicles a year, but both are aggressively planning to expand production to serve their local markets, which will increase as incomes rise.

Another lucrative market for industrial fasteners is the aerospace industry. The development of this industry is a priority for ASEAN countries, mainly for Singapore, Malaysia, Indonesia and Thailand. These countries are reaching beyond their established maintenance, repair and overhaul (MRO) services to become suppliers of aircraft, engines and equipment. They are also developing advanced aerospace assembly and manufacturing operations as well as research and development (R&D) activities. Interestingly for the fastener market, this is leading to them to move up the value chain, taking on increasingly more complex work.

Economic growth and rapid industrialization in Malaysia, Vietnam, and Thailand is projected to drive investments for construction which consequently is expected to boost the industrial fastener market. Besides, the region's cross-border trade flows in fastener and other markets are set to speed up and expand as ASEAN Economic Community (AEC) is successfully implemented.

ASEAN exports and imports of fasteners have been increased amongst most of the members in 2016 compared to 2015. The following charts illustrate the quantity and value of the imports and exports in ASEAN fastener market. It is notable that all the figures bellow are extracted from trade statistics for international business development for ASEAN region and when fasteners are referred to in this section, this concerns all the codes in the Harmonised System (HS) in chapter 7318 (screws, bolts, nuts, coach screws, etc.) under the chapter 73 (articles of iron or steel).

ASEAN fasteners exports increased slightly by almost USD 8 million from 2015 to 2016. The total value of fastener exports in ASEAN was USD 1,491,237,000 in 2015 and increased to USD 1,498,077,000 in 2016. Consequently, the import value has decreased about USD 15 million in that same period from USD 2,766,489,000 to USD 2,751,496,000. It could be concluded that the local fastener manufacturers were not only more productive to supply the market demand in their countries but also operated effectively to export their productions to other markets. Vietnam is one of the good examples of this improvement.

Thailand is the largest exporter of fasteners in ASEAN, followed by Vietnam, Malaysia and Singapore. The export value in 2016 from Thailand reached almost USD 472 million which made up 31% of ASEAN total fastener exports value in 2016.

Since the exact figures of Vietnam's exports quantity are not available, this country has been excluded from the top chart.

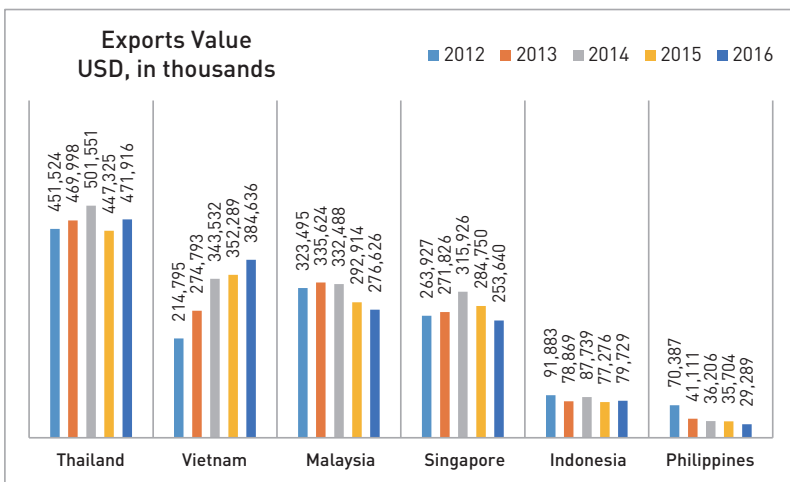


Chart.1

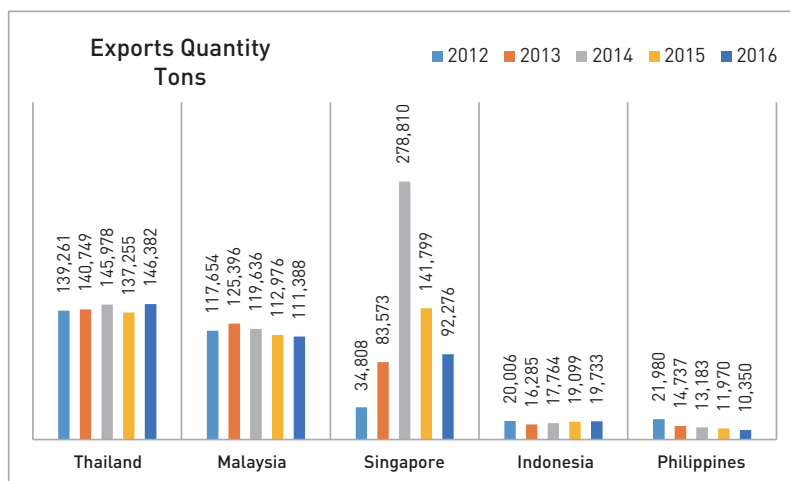
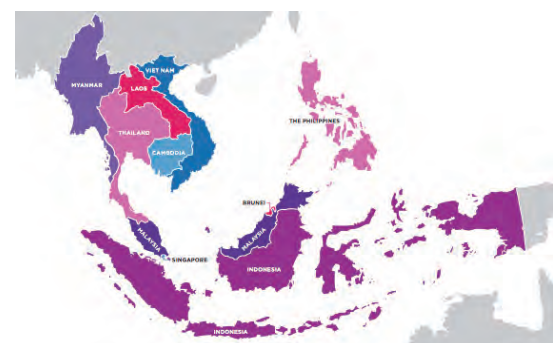


Chart.2



ASEAN's imports of iron and steel fasteners in 2016 reached 666,579,000 tons, corresponding to the value of USD 2,751,496,000. The top five fastener importers in ASEAN, in terms of value, were Thailand, Indonesia, Malaysia, Singapore, and Vietnam.

By investigating the trade figures we would be able to have some estimation about the types of production in each country. For instance, Malaysia registered 111,388 tons of fastener exports in 2016 which was 31% less than the market leader, Thailand, which registered 146,382 tons. On the other hand, Malaysia documented about USD 277 million exports in 2016, which was 70% less than Thailand's exports value in the same period. That is, Thailand, compared to Malaysia, perhaps focused more on specialized, complex, and more expensive fastener production rather than standard or even DIY fasteners.

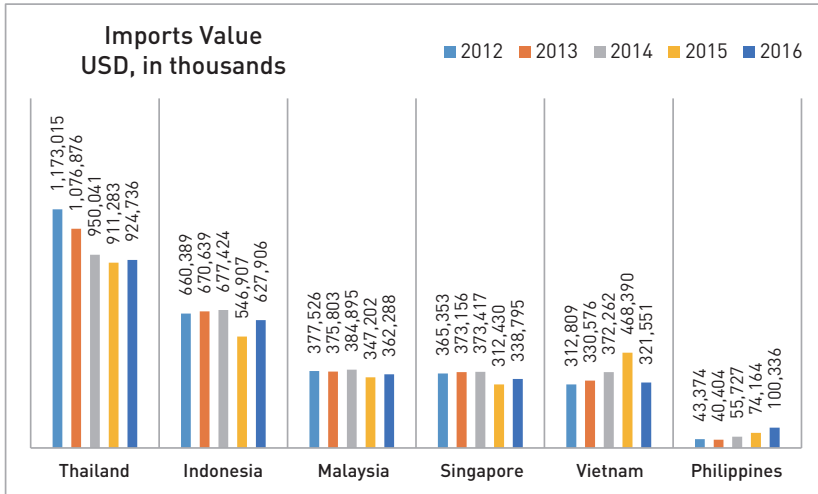


Chart.3

It is notable that in Chart 4, Vietnam has been excluded as the exact figures of its imports quantity are not available.

Although ASEAN's economy is on target to defeat Japan's economy and be the world's fourth largest 'single market' after the EU, US and China, within ten years, its fastener market is still far behind other significant players in this market. For instance, the EU market as one of the largest markets for fastener imports supplies most of its fastener products from Germany, Taiwan and Italy as the leading suppliers to Europe. Additionally, imports from developing countries are dominated by China and India. After India, Vietnam is in

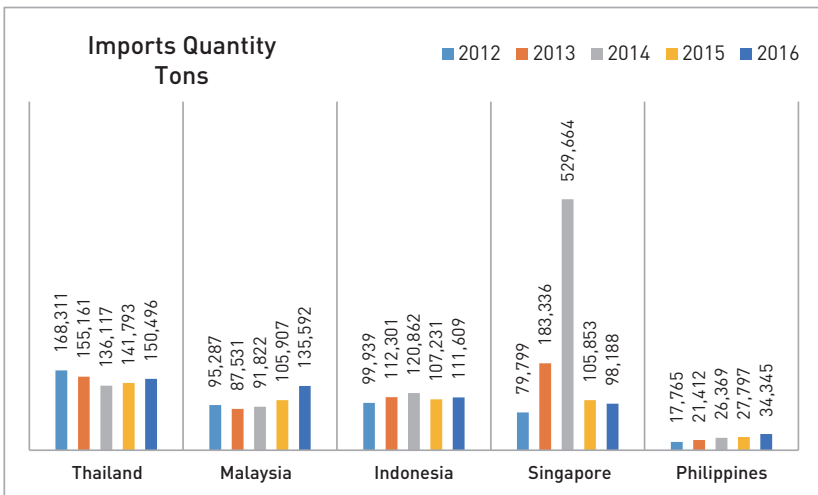
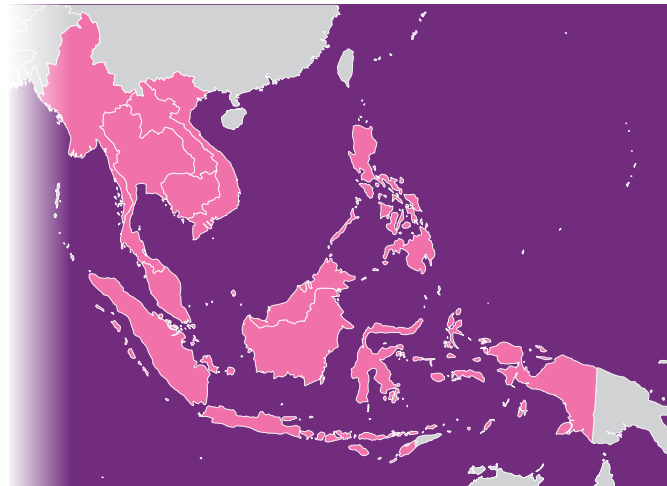


Chart.4



the third position as one of the ASEAN exporters. This country grew the fastest among all developing country suppliers, with about 18% in a year; however, imports from other ASEAN suppliers have decreased from -1% to -25%. As recorded in EU trade statistics in 2015 the export value from Thailand declined by 1%, Malaysia by 10%, Indonesia by 13%, and the Philippines by 25%. That is, ASEAN fastener suppliers must improve their strategies by changing the structure of competition, the conduct of business, and eventually, performance.

Sources:

Investing in ASEAN; ASEAN Publications

ITC Trade Map; Trade Statistics for International Business Development

