

## **THE ITB GROUP, LTD.**

39555 Orchard Hill Place \* Suite 225  
Novi, Michigan 48375-5377  
TEL: (248) 380-6310  
FAX: (248) 380-7294

### **NEWS RELEASE**

Contact: Dr. Joel Kopinsky  
E-mail: [jkopinsky@itbgroup.com](mailto:jkopinsky@itbgroup.com)  
Internet: [www.itbgroup.com](http://www.itbgroup.com)  
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### **HIGH ENERGY PRICES AND OEM PRESSURES DRIVE INNOVATION IN AUTOMOTIVE AIR INDUCTION SYSTEMS**

To remain competitive in today's automotive market, the OEMs need to deliver high performance but price competitive vehicles to the consumer. Off course, specific vehicle performance characteristics are defined by the targeted consumer segment. Superior fuel efficiency, low exhaust and evaporative emissions combined with sufficient engine torque and power performance is increasingly offered across different vehicle segments. Air induction systems can be engineered so as to facilitate meeting the fuel consumption, emissions and engine performance targets.

Air induction systems play a number of roles in the performance of a vehicle's engine including both the airflow characteristics and influencing the engine's sound. Some recent developments have included:

- A substantial increase in the use of active manifolds that call for either the manifold air volume to be changed or the air flow velocity characteristics at the end of the runner to be changed. Both these changes depend on the engine speed and other factors. The former system provides engine performance improvements whereas the latter provides improved fuel combustion as a result of better mixing of the fuel and air.
- Improvements in manifold production processes that facilitate the layout and hence, packaging of the manifold runners.

- An improvement in the understanding of the design requirements and material characteristics that has allowed the production of thinner walled manifolds. Exhibits A and B illustrate the current materials and processes used for intake manifolds.

In the future, as cost and performance pressures continue, we will expect to see further process developments. One of these, in production for some time in Japan, is the use of a moving die that allows for more complicated weld joints on the manifold. This provides greater geometric flexibility to intake manifold engineers.

Over the last ten years there have been a number of introductions of advanced air induction modules that may contain the intake manifold, fuel injectors, throttle body, air filter and a host of other components. The introduction of Euro V emission regulations in Europe is driving further efforts to realize symbiotic relationships between different engine systems. For example, in the future we will witness an increased development of joint air and cooling modules that include the charge air and exhaust gas recirculation (EGR) heat exchangers.

OEMs on the other hand, have recently shown a reluctance to rely on suppliers for complete module development. The primary concern being a loss of control over individual component costs. Suppliers continue to pursue incorporating their proprietary know-how into their modules and systems so as to try and increase their profitability. As a result, supplier and OEM objectives are often at odds with each other.

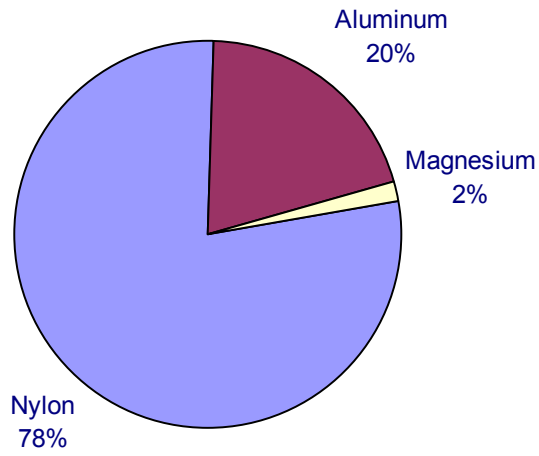
The current intake manifold market is quite fragmented with a wide range of suppliers participating in the production of plastic intake manifolds. An expected consolidation of the market has not occurred and in fact, there are a number of new market entrants. Furthermore, a number of European intake manifold suppliers are currently making investments in China so as to meet the OEMs' global sourcing requirements.

The ITB Group, Ltd. (Novi, Michigan) has completed a comprehensive global analysis of the air induction market. This in-depth, 346 page report considers industry dynamics amongst the air induction system suppliers, the impact of evaporative emissions on induction system designs, engine and air induction design trends, and an in-depth engine-by-engine analysis of intake manifold production processes, materials and suppliers.

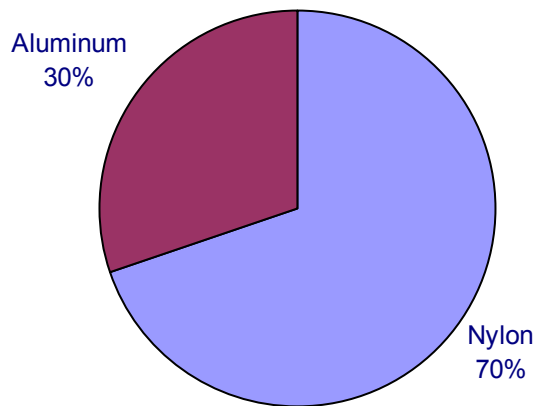
Exhibit A

**Breakdown of Intake Manifold Materials by Percent of Vehicles**

**Europe**



**North America**

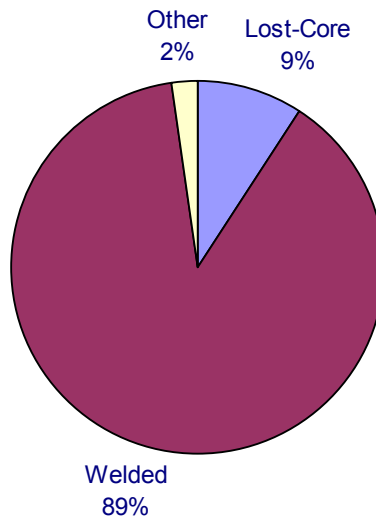


Source: *The ITB Group, Ltd.*

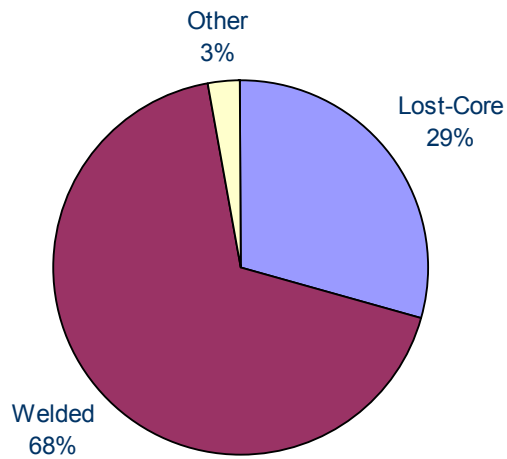
Exhibit B

**Plastic Intake Manifold Production Process by Percent of Vehicles**

**Europe**



**North America**



Source: The ITB Group, Ltd.