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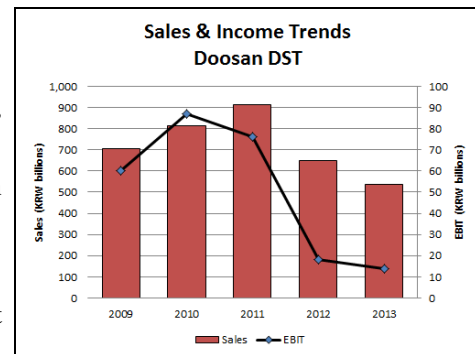
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Doosan DST

Outlook

- Doosan DST's net sales fell 17 percent to KRW538 billion in 2013, from KRW650 billion in 2012
- EBIT was KRW14.2 billion in 2013 compared to KRW17.6 billion in 2012
- Better times may be approaching for the firm
- South Korea's defense budget is rising, having gone up 4.9 percent in 2015



Headquarters

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Doosan DST's origins stretch back to 1937, beginning life as the Chosun Machine Works. In the late 1970s, the Republic of Korea decided to reduce its dependence on weapons from outside sources, particularly the United States.

One of its first efforts toward achieving this goal was the design and production of a new infantry combat vehicle. This effort was greatly aided by the fact that several firms in the nation were involved in the maintenance or upgrade of combat and other vehicles of the United States Army. The prime contractor selected for development and production of the new vehicle was Daewoo Heavy Industries, then involved in the modernization of U.S. Army M113A1 armored personnel carriers to the A2 configuration.

Established in 1967, the Daewoo group emerged as an industrial giant in South Korea, producing everything from warships to televisions. However, in 2000, the Daewoo group collapsed due to the impact of the Asian financial crisis and a corporate accounting scandal.

A reorganization followed, and the Daewoo group was divided into three companies: Daewoo International Corporation, Daewoo Engineering & Construction Company Ltd, and Daewoo Corporation. As part of the plan, Daewoo's Heavy Industries operation was split into two independent entities: Daewoo Shipbuilding & Marine Engineering and Daewoo Heavy Industries & Machinery.

In April 2005, Daewoo Heavy Industries & Machinery was renamed Doosan Infracore Co Ltd following its acquisition by the Doosan Group.

In December 2008, the Defense Products Division was spun off from Doosan Infracore and made into a wholly owned subsidiary, Doosan Defense Systems & Technology. Doosan DST has about 650 employees.

Structure and Personnel

Hang Seok Um
CEO, Doosan DST

Doosan DST

Product Area

Doosan DST, a wholly owned subsidiary of Doosan Infracore, is a manufacturer of armored vehicles and air defense weapons systems. The unit is the prime contractor for the K200 Korean Infantry Fighting Vehicle and K21 infantry fighting vehicle, and is producing a twin 30mm self-propelled anti-aircraft gun system (Bi Ho) as well as a 40mm twin naval gun

mount system (No Bong). The company has also developed the Chun Ma (Pegasus), a self-propelled, short-range surface-to-air missile system. Finally, Doosan DST has been selected as the developer of the launcher and ammunition transport system for the next-generation multi-rocket launcher system, currently in development.

Facilities

Doosan Corporation, Doosan Tower 18-12, 6th St, Ulchi-ro, Chung-gu, Seoul, South Korea. Telephone: + 82 2 3398 0114. This is the headquarters of the Doosan Group, the parent company of Doosan Infracore.

Website: <http://www.doosan.com>

Doosan Infracore Co Ltd, 7-11, Hwasu-Dong, Dong-Gu, Incheon, South Korea. Telephone: + 82 32 760 1114. Doosan Infracore is headquartered in Incheon.

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Corporate Overview

Doosan DST is one of South Korea's key manufacturers of armored vehicles, air defense systems, and various defense system components.

New Products and Services

Bi Ho Hybrid. In May 2010, Doosan DST was selected to develop this system, which is aimed at strengthening the anti-aircraft defense capabilities of mechanized units. In 2013, Doosan DST unveiled its Bi Ho Hybrid, which combines the existing Bi Ho self-propelled anti-aircraft gun with the Shingung man-portable anti-aircraft missile.

Black Fox Order Completed. In May 2013, Doosan DST completed production of the 6x6 armored combat vehicle Black Fox for the Indonesian Army. The 6x6 carries a crew of three, weighs 18 tons, and has a maximum ground speed of about 95 kmph and a speed of nearly 8 kmph in water. Armaments include a 90mm gun and a 7.62mm machine gun. The Indonesians named the vehicle the Tarantula. The order was initially placed in 2009.

K21 to Indonesia. In November 2010, Doosan DST scored its first export order for the K21 – a 22-vehicle, \$70 million contract with the Indonesian Army. Daewoo International brokered the deal on behalf of Doosan DST in negotiations with the Indonesian

Ministry of Defense. The vehicles were to be produced and delivered over a three-year period.

Plant Expansion/Organization Update

No major plant expansions or organizational changes have been reported concerning Doosan DST in the past two years.

Mergers/Acquisitions/Divestitures

Doosan Sells KAI Stake and Doosan DST. In June 2009, the Doosan Group sold three affiliates, including Doosan DST, and stakes in Korea Aerospace Industries (KAI) for KRW780 billion (\$623 million). In a complex deal, Doosan Corp and its financial investors established a number of special-purpose companies to take over the stakes. Doosan Corp holds a 51 percent stake in two special-purpose companies, Doosan Investment Portfolio (DIP) Holdings and Odin Holdings; these companies also include Mirae Asset PEF and IMM Private Equity as financial investors. Doosan DST falls under the auspices of DIP Holdings.

A plan to sell off Doosan DST may be on hold due to lower financial results brought on by reduced government spending.

Defense Unit Spun Off. In November 2008, Doosan Infracore spun off its defense business into a new

Doosan DST

corporation, Doosan DST. The wholly owned subsidiary began operations in January 2009 with 650 employees.

Korea Aerospace Industries Launched. On October 1, 1999, following months of delays, Daewoo Heavy Industries, Samsung Aerospace, and Hyundai Space & Aircraft pooled their aerospace operations into a new, independent company, Korea Aerospace Industries Ltd. The three firms hold equal shares in KAI, having each contributed KRW289.2 billion in assets to the company.

The merger sought to bring the Korean aerospace industry in line with the current trend of consolidation,

and any overlap among the three has been eliminated. The goal was to build KAI into a total integrator for the development and production of aircraft systems through the merger of three leading aerospace companies. A fourth company, Korean Air, is expected to join the group later. *(For more details, please see the separate report on Korean Air in this supplement.)*

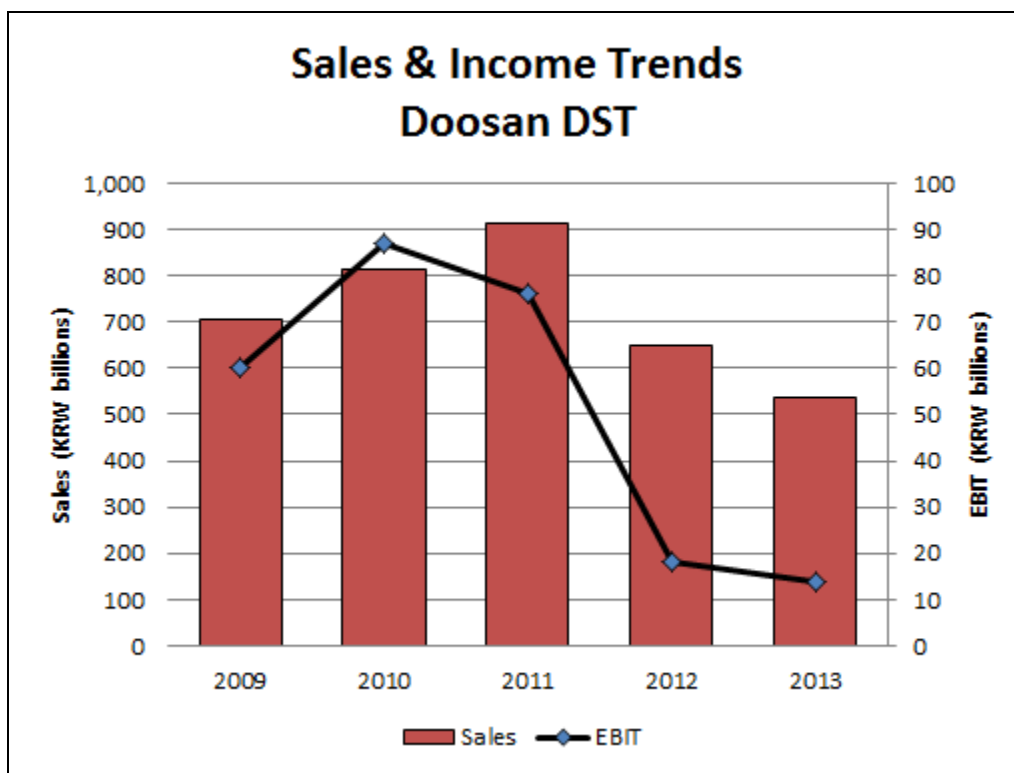
Teaming/Competition/Joint Ventures

No major defense-oriented teamings or joint ventures have been announced by Doosan DST in the past two years.

Financial Results/Corporate Statistics

No official financial reports have been published for Doosan DST. The following data are culled from Doosan's annual fact book and news reports. Doosan DST's net sales fell 17 percent to KRW538 billion in 2013, from KRW650 billion in 2012. Earnings before interest and taxes (EBIT) was KRW14.2 billion in 2013 compared to KRW17.6 billion in 2012. U.S. dollar figures translated as of December 31, 2013, at the rate of USD1 = KRW1,063.26.

Y/E December 31	2009	2010	2011	2012	2013	2013
(KRW millions)						USD
Net Sales	706,000	815,000	911,000	650,000	538,000	506
EBIT	60,000	87,000	76,000	17,600	14,200	13



Doosan DST

Strategic Outlook

Focused on military vehicles and ordnance systems, Doosan DST has suffered from the worldwide slowdown in government spending.

The company had hoped to file an initial public offering. However, as of mid-2015 this plan may be off the table for the time being. The IPO would raise capital to fund the expansion of the company as it ramps up production of armored vehicles for the ROK Army over the next decade.

The IPO's postponement was believed to be due to the continuation of disappointing financial results. Company officials are expecting to hold on to the unit until conditions for a sale improve.

Better times may be approaching for the firm. South Korea's defense budget is rising, having gone up 4.9 percent in 2015. The ministry had sought a 5.1 to 5.2

percent increase, the larger figure enabling it to hedge against fluctuations of the won on the international currency markets. The FY15 defense budget earmarks KRW26.4 trillion (\$23.7 billion, or 71 percent) for force maintenance while allocating KRW11.1 trillion (\$10 billion) for force improvement. The increase in force improvement funding should help Doosan out of its current downward trend.

Despite the current doldrums, Doosan DST's focus as a niche manufacturer of military vehicles should serve it well, especially with the near-constant saber rattling of its northern neighbor. The Republic of Korea is keen to greatly reduce its dependence on outside (particularly U.S.) sources of military hardware, and the company has proved to be a success in that regard. With tensions on the peninsula at an all-time high, national defense will remain a priority.

Program Activity

Business Interests. Some important aerospace and government programs currently underway at Doosan DST are listed below. The briefs are intended to provide a listing of programs that are of major importance to the company. For detailed information on or analysis of specific aerospace and defense programs or equipment, please refer to the appropriate Forecast International service (for example, *Civil Aircraft, Military Aircraft, Military Vehicles, Warships, Missiles, Electronic Systems, and Aviation Gas Turbines*). The following are the company's business interests:

- Military and Industrial Vehicles
- Weapons Systems and Ammunition
- Precision Machinery
- Construction Equipment

Military Vehicle Programs

Chun Ma

This is a surface-to-air missile and launcher system developed by Samsung and Daewoo. Also known as Pegasus, the indigenous system has been under development for at least five years, with six prototypes already constructed. The system is based on Thales' Crotale missile system, which is currently in service with the South Korean military.

Korean Infantry Fighting Vehicle

The KIFV, which has the industrial number K200, bears a close resemblance to the Armored Infantry Fighting Vehicle from the old FMC Corporation; in fact, it is

based on that design. However, the KIFV as serially produced by Doosan DST is greatly improved in a number of areas. The serial production run of the K200-series KIFV for the ROK Army was reportedly completed in 2006. Although the exact ROK Army procurement objective for the K200-series KIFV remains classified, research suggests it was slightly less than 2,300 vehicles. The ROK Army began fielding the next-generation K21 in 2008. In December 2009, Doosan DST signed a Phase 2 contract worth \$665 million with the Defense Acquisition Program Administration of Korea for the supply of K21 infantry combat armored vehicles. Development of the vehicle, also called the K300 Korea Next Infantry Fighting Vehicle (KNIFV), began in late 1999. The company began mass production of the vehicle in 2009, and it began being deployed to field military units in late November. The Army's near-term procurement objective for the K21 series stands at approximately 500 units by the end of 2015, but the service maintains long-term ambitions to acquire significant additional quantities via follow-on orders over the next 10 years. Although the K21/K300 series of vehicles has yet to secure any export contracts, Doosan DST is actively marketing the design on the international market and maintains high expectations for its export potential.

Ordnance Programs

Bi Ho

This is a tracked, self-propelled 30mm anti-aircraft artillery system based on the Korean Infantry Fighting

Doosan DST

Vehicle chassis. This vehicle was developed and is serially produced by Doosan DST. The Bi Ho is a major component of the overall plans of the Republic of Korea to modernize its armed forces. The ROK Ministry of National Defense and the prime contractor have released little detailed information concerning the K30 Bi Ho program, but our research indicates the ROK Army held an initial procurement objective of 150 units. Initial deliveries occurred in 1999; Doosan DST reportedly completed this production run in 2010. Doosan DST is aggressively promoting the Bi Ho on the international market. Malaysia and an unidentified South American nation have reportedly been the only potential customers to express any interest, albeit without any serious commitments from either to date.

Kooryong Multiple Launch Rocket System

As part of its continuing effort to reduce its dependence on the United States and other nations for military hardware, the Republic of Korea decided to develop an indigenous multiple launch rocket system. Doosan DST started development of the Kooryong in 1979, with the first production examples delivered in 1986. The first "improved" rockets were delivered by Doosan DST in 1989.

M61 Vulcan

The M61 series Vulcan air defense systems are currently operating within NATO and in the Republic of Korea, the United States, and several other countries. The 42 operational batteries contain either 12 guns of the towed version or eight self-propelled variants. The U.S. Army plans to transfer its M163/M167s to the Reserves once a follow-on system is procured and in inventory. Doosan DST is a licensed manufacturer of the Vulcan. Korean inventory of the Towed Vulcan is 638 systems. Korea will more than likely follow the United States' lead by retrofitting the Product Improved Vulcan Air Defense System. Doosan DST, as the licensed manufacturer, will act as the prime contractor for all future Vulcan retrofit and modernization programs.

RAM Components

In January 2003, Doosan DST succeeded in localizing production of Rolling Airframe Missile (RAM) launch pads for the first time in the nation's history. The missile launching pad is made of a high-tech cast aluminum, which was developed using expertise and technology possessed only by a few advanced countries such as the United States. The company said the new launch pads are scheduled to be installed on the KDX-2, a next-generation Korean-made destroyer. There were also plans to sell the pads to Raytheon of the U.S.

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