

# ARCHIVED REPORT

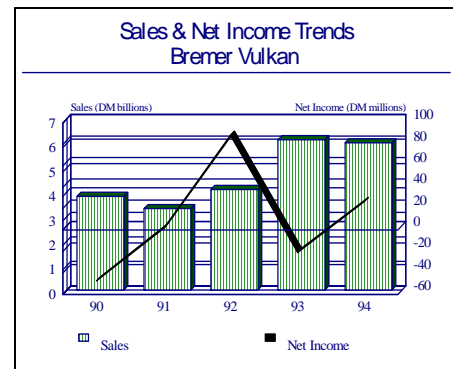
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## Bremer Vulkan Verbund AG - Archived 10/99

### Outlook

- In August 1997, Bremen Vulkan was definitely closed down, after more than 100 years in the trade
- In February 1996, Bremer Vulkan filed for bankruptcy
- The company sold STN Atlas to a group composed of Rheinmetall, Badenwerk and British Aerospace in late 1996



### Headquarters

Bremer Vulkan Verbund AG  
Domshof 18-20  
28195 Bremen, Germany  
Telephone: (49 421) 33 37 0

Bremer Vulkan AG is one of Germany's oldest and largest shipbuilding concerns. Bremer Vulkan AG has performed as prime contractor on the Type 122 frigate, the most sophisticated surface combatant program of the *Marine* (Federal German Navy), and today is the leading German merchant-shipbuilding operation.

Bremer Vulkan AG significantly augmented its total maritime systems capability with the acquisition of STN Systemtechnik Nord GmbH, as well as with the acquisition of MSG Marine-und Sondertechnik GmbH and DMT Marinetechnik GmbH. STN Systemtechnik Nord retains the marine and RPV activities of the former Marine-und Sondertechnik division of MBB, and the firm is managing the Type MJ 332 mine-warfare vessel development, a follow-on program to the

successful Type SM 343 mine-warfare vessels. In a further consolidation, Bremer Vulkan AG has taken control of Krupp Atlas Elektronik GmbH. Krupp Atlas Elektronik GmbH supplies the DSQS-11M hull-mounted sonar for the Type MJ 332 *Frankenthal* class.

In June 1994, Bremer Vulkan finalized the merger of its defense electronics subsidiaries STN and Atlas Elektronik. The new company is called STN Atlas Elektronik and forms the basis of Bremer Vulkan's Electronics and Systems Technology division. STN Atlas was subsequently sold in 1996.

In February 1996, Bremer Vulkan entered into bankruptcy with losses of more the DM1 billion and several of its divisions insolvent.

In August 1997, Bremen Vulkan shut its doors, after more than 100 years in business.

### Structure and Personnel

**Supervisory Board** (as of 1995)

Johann Schäffler  
Chairman

Frank Teichmüller  
 Deputy Chairman  
 Dieter H. Berghöfer  
 Wolfgang Dettermann  
 Claus Grobecker  
 Bernd E. Hirsch  
 Helmut Huckstorf  
 Hans Koschnick  
 Wolfgang Menzel  
 Erik Merks  
 Klaus Müller-Gebel  
 Hans-Jürgen Nölle  
 Klaus Rosche  
 Nikolas Schmidt  
 Karl-Heinz Schönberger  
 Manfred Schröder  
 Joachim Theye  
 Bernd W. Voss

Manfred Wegner  
 Louis Graf von Zech

#### Management Board

Friedrich Hennemann  
 Chairman  
 Wolfgang G. Biedermann  
 Hans E.W. Hoffmann  
 Hans Schnüttgen  
 Günter Smidt  
 Karl Friedrich Triebold  
 Rüdiger Zinken

#### General Managers

Hans Werner Busch  
 Erwin Diesler  
 Hans-Peter Küster  
 Thomas Münzer

## Product Area

Prior to bankruptcy Bremer Vulkan conducted its operations through four primary divisions: Shipbuilding, Electronics and Systems Technology, Engineering and Machine Tools, and Financial Holdings. These operations are managed as follows.

1. Shipbuilding
  - 1.1 Merchant Shipbuilding
  - 1.2 Naval Shipbuilding
  - 1.3 Repairs and Conversion
2. Electronics and Systems Technology
  - 2.1 Naval Technology
  - 2.2 Systems Technology
  - 2.3 Simulation Technology
  - 2.4 Ship's Systems
3. Engineering and Machine Tools
  - 3.1 Diesel Engine Construction
  - 3.2 Machine Tools
  - 3.3 Port Handling Technology
  - 3.4 Environmental Technology and Water Treatment
  - 3.5 Mechanical Engineering Components
4. Financial Holdings
  - 4.1 Shipping Companies
  - 4.2 Trading Companies
  - 4.3 Software-Beteiligungen
  - 4.4 Other Companies

Bremer Vulkan's primary defense-oriented operations are detailed below.

**Shipbuilding.** The shipbuilding operation concentrates on the construction of merchant ships, luxury liners, and

warships. Bremer Vulkan's military ship construction is handled by subsidiary Bremer Vulkan Marineschiffbau GmbH. This company's products include patrol, supply, and coastal defense ships. The unit also offers frigate, corvette, helicopter carrier and logistic-support vessel programs. Bremer Vulkan Marineschiffbau GmbH is prime contractor on the Type 122 frigate, the most sophisticated surface combatant program of the Federal German Navy.

**Electronics and Systems Technology.** This segment was composed primarily of STN Atlas Elektronik and its operations. The focus of STN Atlas Elektronik's activities includes systems management and integration. Systems management for marine systems, including integration, development, and manufacture of underwater drones and marine simulators, is a key area of activity for the firm. STN is also active in development and manufacture of systems and equipment for vessel, offshore and sea technology with concentration in automation, drive technology and energy systems. Furthermore, this unit produces communications, control and navigation equipment, underwater technology, unmanned air vehicles, airport electronic systems and engine test stands, logistic support and problem-solving activities for air transport and display systems, and maintenance and repair of systems and equipment of the previously mentioned business areas. *This segment was sold in 1996.*

## Facilities

The company's primary defense-related facilities are detailed as follows.

STN Atlas Elektronik GmbH, Sebaldsbrücker Heerstrasse 235, 28305 Bremen. Telephone (49) 421 4570.

STN Atlas Elektronik GmbH, Hünefeldstrasse 1-5, 28199 Bremen.

STN Atlas Elektronik GmbH, Behringstrasse 120, 22763 Hamburg.

Bremer Vulkan Marineschiffbau GmbH, Lindenstrasse 110, 28755 Bremen. Telephone (49 421) 668 0.

## Corporate Overview

Bremer Vulkan segmented its businesses into four major sectors: Shipbuilding, Electronics and Systems Technology, Engineering and Machine Tools, and Financial Holdings. Within these categories and for 1994 (the last year results were available), Shipbuilding accounted for 44 percent of the company's sales; Electronics and Systems Technology business generated 31 percent; the Engineering and Machine Tools businesses contributed 14 percent; and the company's Financial Holdings accounted for 11 percent of the firm's sales.

### New Products and Services

**Orca.** In July 1996, STN Atlas began marketing its mini submarine known as Orca. The miniature submersible craft is intended for delivery of divers and other underwater operations. The unit is not fitted with weapons but is suited to special forces and low-intensity operations.

**DM2A4 Torpedo.** This is a wire-guided dual-purpose torpedo for deployment on surface ships or submarines. The DM2A4 torpedo is designed for deployment on board the German Type 212 submarines and will provide both ASW and ASuW capability. The torpedo is also likely to equip German torpedo fast attack craft (FAC-T) and be supplied to the export market. No production has started; only pre-prototype concept evaluation torpedoes have been produced.

### Plant Expansion/Organization Update

**Shipyard Closed.** In August 1997, it was reported that Bremen Vulkan was definitely closed down, after more than 100 years in the trade. When the word came through that this would be the last shift, staff unfurled black flags and some left their hard hats outside the company's gate. Now 2000 workers lost their jobs. The last ship they had built, a container-vessel, had left the works earlier in the month.

Reuters reported that Danish shipping group A.P. Moeller's Odense Staalskibsvaerft shipbuilding subsidiary is bidding for a shipyard in eastern Germany. Moeller would not name the yard but the German financial newspaper Handelsblatt said the target was Volkswerft Stralsund GmbH, formerly part of the Bremer-Vulkan group.

**Bremer Vulkan Bankrupt.** In February 1996, Bremer Vulkan filed for protection from its creditors, saying it expects losses of more than DM1 billion for 1995 and that several of its divisions were insolvent. According to reports, Bremer Vulkan poured some DM852 million — most of it government shipbuilding subsidies — into loss-making subsidiaries instead of investing in its two east German shipyards as agreed with the government. To make matters worse, the company owes an estimated DM1.4 billion in outstanding bank loans and requires DM2.2 billion for 1996 to pay its bills.

In an effort to save the shipyards, which employ about 23,000, the company has suggested selling off several divisions and retaining its shipbuilding operations as a core business. If this plan goes through, one of the choice operations to go would be STN Atlas Elektronik, one of the profitable divisions of Bremer Vulkan. Despite the problems at Bremer Vulkan, STN remains healthy.

### Mergers/Acquisitions/Divestitures

**STN Atlas Sold.** In November 1996, a team comprised of Rheinmetall, Badenwerk and British Aerospace jointly bought STN Atlas Holding. According to reports, BAe will hold 49 percent of the company while Rheinmetall and Badenwerk will hold the controlling 51 percent. Rheinmetall will manage the operation and concentrate on the Bremen-based artillery and army ammunition equipment operations, while BAe will focus on the naval equipment sector. STN Atlas was acquired by the group for DM550 million. STN Atlas

posted 1995 sales of DM1.45 billion and a pretax profit of DM32 million.

**Société ECA Share Acquired.** During the course of 1994, STN Atlas Elektronik acquired a majority interest in Société ECA, Paris. The company is an international leader in the field of maritime mine-destroying drones. Details of the acquisition were not announced.

**Merger of STN and Atlas Finalized.** In June 1994, Bremer Vulkan finalized the merger of its defense electronics subsidiaries STN and Atlas Elektronik. Following a year of internal negotiations, the merger was completed on June 23 and is considered retroactive to January 1, 1994. As a result of the merger, there is a single lead firm operating four business groups. These groups are: Marine Technology & Naval Systems; Land, Air, Logistics & New Products; Simulation; and Ship Equipment. Overall, the merger will combine STN's activities in torpedoes, mine warfare and systems integration with Atlas Elektronik's sonar, minehunting, C2, and combat systems integration activities. The new company is called STN Atlas Elektronik.

The merging of Atlas and STN is basically a reorganization on the part of Bremer Vulkan. Bremer is grouping together complementary businesses for better operating efficiency. Since STN and Atlas already had close working ties, the combination of the two into STN Atlas Elektronik should serve to make the organization more competitive and cost-effective.

**Bremer Vulkan Acquires Atlas Elektronik GmbH.** In mid-1991, Bremer Vulkan AG gained control of Krupp Atlas Elektronik GmbH. Bremer Vulkan forged a deal with Krupp Holding AG in which Bremer Vulkan will assume a 74.9-percent stake in Krupp Atlas Elektronik GmbH. In return, Krupp Holding is to receive a DM350 million shareholding in Bremer Vulkan, while retaining the outstanding 25.1 percent of Atlas Elektronik. This arrangement will be reviewed by Krupp Holding in 1994, at which time it will decide to either retain the 25.1 percent in Atlas Elektronik, or to sell it to Bremer Vulkan.

## Teaming/Competition/Joint Ventures

**Eurodrone.** STN and Matra have formed a cooperative venture called Eurodrone GIE (Groupement d'Interet Economique). The Eurodrone consortium has been established to manage the development of the Brevet reconnaissance drone system. Messerschmitt-Bölkow-Blohm was originally involved in the program, but due to the strictures governing the merger of MBB and DASA, MBB was required to divest itself from all unmanned air vehicle (UAV) development and manufacturing activities. Eurodrone was established in 1989 by Matra and STN Systemtechnik Nord-subsidary MSG Marine- und Sondertechnik GmbH, which STN has since acquired.

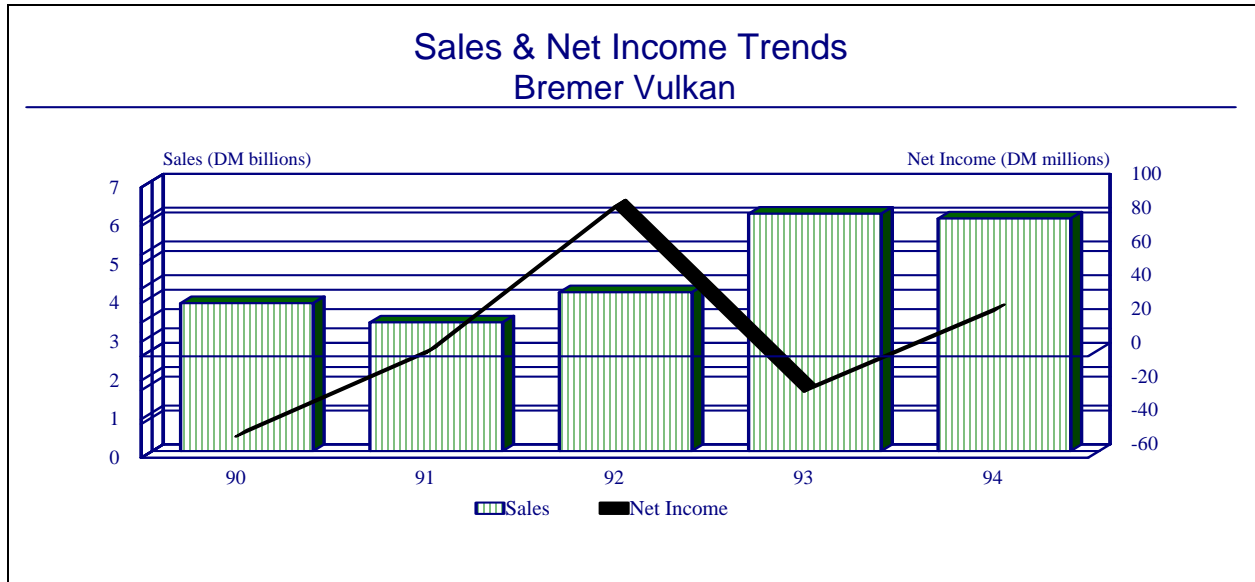
**DUEWAG.** STN is teaming with DUEWAG, a subsidiary of Siemens AG, in a study concerning the introduction of CFC-free air conditioning systems in ICE railway carriages. The study was prepared for the Deutsche Bundesbahn. After the completion of successful installation trials, a laboratory model unit is now in joint development by the two firms.

**Betriebstechnik und angewandte Arbeitswissenschaft (BIBA).** STN and BIBA are developing environmentally compatible leak-testing systems. The systems are designed for the testing of leaks in motors and valves and was nominated by the Chamber of Commerce of Bremen for the first German environment prize awarded in 1993.

## Financial Results/Corporate Statistics

Bremer Vulkan's 1994 sales decreased to DM6.0 billion from a high of DM6.1 billion in 1993. The company posted net income of DM26.7 million 1994 compared to a loss of DM20.9 million in 1993. Latest-year statistics are provided below. US dollar figure translated as a 1994 average at the rate of US\$1=DM1.6228. The company did not provide 1995 results.

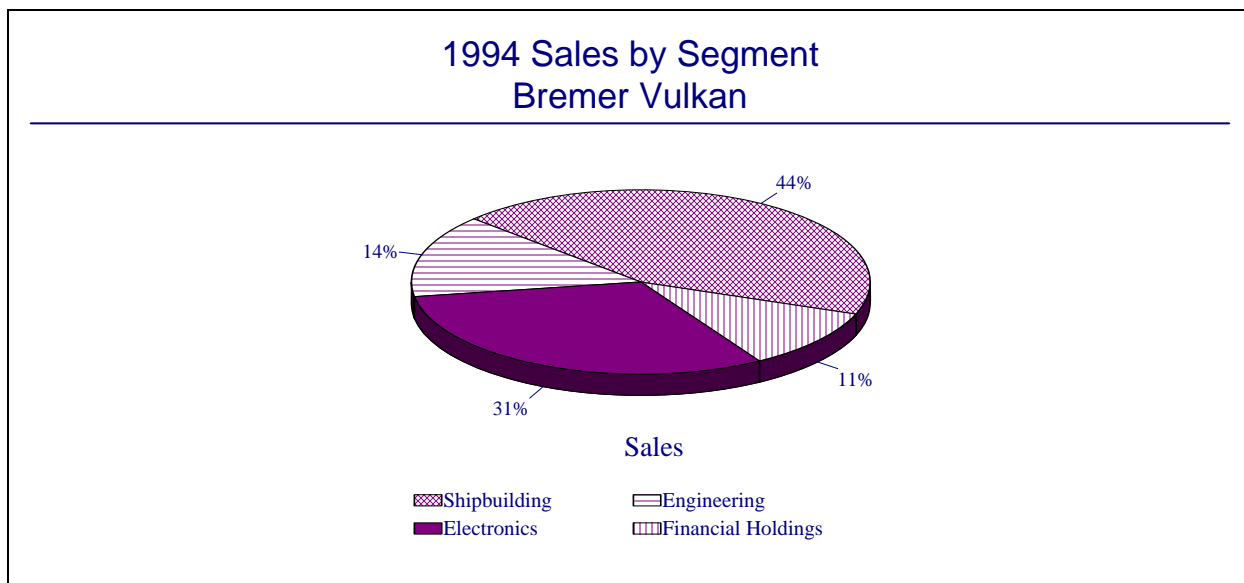
Y/E December 31	1990	1991	1992	1993	1994	1994
(DM millions)						US\$
Net Sales	3826.8	3328.8	4107.8	6141.2	6018.1	3708.5
Net Income	-47.5	1.7	88.6	-20.9	26.7	16.4
R&D Expenditures	-	-	-	-	129.0	79.4



**Industry Segments**

A breakdown of Bremer Vulkan's sales by division for the years 1993 through 1994 is given below. Operating Income figures were not reported.

<b>SALES</b>	<b>1993</b>	<b>1994</b>
(DM millions)		
Shipbuilding	3051.9	2620.4
Engineering and Machine Tools	672.7	869.5
Electronics and Systems Technology	1832.5	1872.6
Financial Holdings	584.1	655.6
<b>TOTAL</b>	<b>6141.2</b>	<b>6018.1</b>



## Strategic Outlook

The worst has come to pass for one of Germany's oldest shipbuilders. In 1997 after more than 100 years in the business Bremer Vulkan closed up shop.

With the company now out of business this report will no longer be updated.

## Prime Award Summary

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Information unavailable.

## Program Activity

Some important aerospace and government programs currently under way at Bremer Vulkan are listed below. The briefs are intended to provide a listing of programs that are of major importance to the company. For detailed information or analysis of specific aerospace and defense programs or equipment, please refer to the appropriate FORECAST INTERNATIONAL binder (for example AIRCRAFT, MILITARY VEHICLES, WARSHIPS, MISSILES, ELECTRONICS, and GAS TURBINES). The following is an outline of the company's business interests:

- Defense Electronics
- ASW
- Sensors
- Systems Integration
- Unmanned Vehicles
- Warships

As the company's major defense-oriented operation, STN Atlas Elektronik is active in the development and manufacture of marine simulators, systems and equipment for vessel, offshore and sea technology with concentration in automation, drive technology and energy systems. Furthermore, the firm produces communications, control and navigation equipment, various underwater technologies, airport electronic systems, logistic support and problem-solving activities for air transport and display systems, and engine test stands. In addition, the firm undertakes maintenance and repair of all systems and equipment in which the firm is involved.

### Electronics Programs

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#### CSU-83/CSU-90

This is a submarine-mounted active/passive sonar system tasked with the detection, localization and tracking of hostile submarines. The CSU-83 sonar is an active/passive sonar for Type 209 and other diesel-

electric attack submarines. STN-Atlas Elektronik is the prime contractor.

#### DSQS 21

This is a hull-mounted active surface sonar tasked with the detection, localization and tracking of hostile submarines. The DSQS-21 was designed as a medium-frequency hull-mounted sonar for surface combatants to allow them to detect, localize and track hostile submarines. The system is in production at STN-Atlas Elektronik.

#### Seaguard

Seaguard is a complete modular naval fire control system including a close-in weapons system, optimized to provide protection against surface-to-surface and air-to-surface guided-missile systems. Seaguard is an integrated shipboard point defense system intended to provide terminal protection against anti-ship missiles but with capabilities verging on those of a full-action information system. It is deployed on Turkish MEKO-200 frigates. STN-Atlas Elektronik has expanded Seaguard Variant 4 into a fully fledged command system designated COSYS-200. This is being promoted worldwide.

### Warship Programs

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#### Type 123 Brandenburg Class

The Type 123 are frigates optimized for Anti-Submarine Warfare (ASW) operations. The Type 123 class frigates are designed to serve as general-purpose surface combatants, with anti-submarine (ASW), anti-surface (ASUW) and anti-air (AAW) warfare capabilities. They will be the replacements for the Hamburg (Type 101A)-class destroyers. In October 1988, Blohm + Voss received a contract for one ship. The Navy announced that three more ships would be ordered, with contracts going to Blohm + Voss, Bremer Vulkan, Howaldtswerke Deutsche Werft and Thyssen-Nordseewerke. The orders for the last three ships were

placed in 1989. Bremer Vulkan is building the F218 *Mecklenburg-Vorpommern*, which is slated for commission in late 1996.

### **Type SM 343 Fast Mine Warfare Vessels**

The Federal Republic of Germany, faced with the difficult task of defending the Baltic and North Sea regions as part of its NATO role, presently possesses the largest NATO mine-warfare force. Despite the size (and recently proven effectiveness) of this fleet, a modernization was recently undertaken. The *Marine* has over 50 minesweepers, minehunters, and minelayers currently in service, most of which are over 20 years old, while almost half are approximately 30 years old. The Type 343 Hamlen class is the first of at least two programs aimed at the replacement of these old (albeit capable) vessels. The Type SM 343 is optimized for minelaying operations, although the vessels have multimission capability. The class also features outstanding command, control, and communications (C3) and air defense capabilities.

### **Type MJ 332 Minehunter**

Orders for the Type MJ 332, the follow-on class to the Type SM 343, were placed in the spring of 1988. The Type SM 332 is designed to be a coastal mine warfare vessel with hunter/sweeper capabilities, and is intended to replace the Type MJ 331 minehunters/sweepers. Additionally capable of Troika control as well as minelaying, these vessels (10 are currently planned) are expected to be supplied to the *Marine* from 1992-99. The order for the 10 Type MJ 332 vessels in 1988 totaled DM1.3 billion, with STN selected once again as the prime contractor. The Type MJ 332 will use the same hull (which is highly shock-resistant and is constructed of a magnetic steel) as the Type SM 343. The 10 hulls are to be constructed by the same firms which participated in the Type SM 343 construction. Lürssenwerft will again construct four hulls, while Krögerwerft and Abeking + Rasmussen will each be responsible for the construction of three. The vessels are to be christened as follows: Frankenthal (commissioned 12/92); Weiden (3/93); Rottweil (7/93); Bad Beveren (12/93); Bad Rappenau (4/94); Grömitz (8/94); Datteln (12/94); Illingen (4/95); Homburg (8/95); and Sulzbach-Rosenberg (12/95).

### **DM2A3 Seehecht Torpedo**

The Seehecht is a wire-guided anti-submarine and anti-ship torpedo. The DM2A3 torpedo is intended for deployment on Norwegian Ula class and German Type 206A and Type 212 submarines. The DM2A3 torpedo is a progressive development of the earlier DM1 and DM2 torpedoes. The latter were single-purpose weapons, tasked with ASW and ASuW roles, respectively. The DM2A3 torpedo is a dual-purpose

system capable of undertaking both roles. Production is forecast to cease by 1998 when the DM2A4 Seahake is due to enter service. As a result, the DM2A3 will be limited to the status of an interim weapon. However, if serious delays are experienced with the DM2A4 program, additional weapons will be ordered to bridge any resulting capability gap. STN Atlas Elektronik is the prime contractor in this program.

### **SUT Torpedo**

This is a submarine-launched acoustic homing torpedo tasked with the destruction of surface ships and submarines. The SUT heavyweight wire-guided torpedo is a dual-purpose weapon compatible with launch from surface ships, submarines, and shore positions. The SUT torpedo is intended to fulfill export requirements for a dual-purpose heavy torpedo. It is mainly deployed on board Type 209 submarines and is intended to provide an effective means of destroying both surface and underwater targets. Production of this torpedo ended around 1995-96.

### **Unmanned Vehicle Programs**

#### **Brevel**

Eurodrone GIE (Groupement d'Interet Economique), a joint-venture company involving Matra of France and STN Atlas Elektronik, was established in 1989 for the purpose of developing the BREVEL remotely piloted vehicle drone system, to be adopted for the French ALT and German KZO requirements. The BREVEL system can accommodate a variety of differing roles for French and German forces. Of primary importance is the Kleindrohne für Zielortung (KZO, or small drone for target designation) and the French ALT for the reconnaissance/surveillance requirement, the latter of which is currently under review by the French government. The BREVEL can, however, be adapted to accommodate roles such as the Panzer Abwehr Drohne (PAD) and Klein Drohne Heer (KDH), which are anti-armor attack versions of the BREVEL system. The BREVEL (KZO/ALT) received development go-ahead from the Federal Republic of Germany and France, but the program continues to suffer from unease between the partners. France gave its approval for full-scale development in 1992. The tentative in-service date has been pushed back to 1997-1998. The German Air Force's decision to cancel plans to procure a new reconnaissance drone system will not affect the BREVEL program. The reconnaissance version of the BREVEL will be equipped with a Forward Looking InfraRed (FLIR) system, a video camera, and a jam-resistant data link. The FLIR is being developed by a team that includes STN Atlas Elektronik and Carl Zeiss. The air vehicle will transmit real-time data captured by its onboard surveillance equipment. In daytime and at

night, protected from countermeasures, these processed data will help to ensure highly accurate targeting for modern artillery (such as 155 mm towed and self-propelled guns and the LTV 227 mm Multiple Launch Rocket System - MLRS). This variant will also have a playback recorder for deferred in-flight transmissions, allowing data storage in cases where real-time transmissions would not be possible.

### **Penguin**

The Penguin mine identification and disposal vehicle system was developed as a part of the SM 343 program.

Penguin is a second-generation, remotely piloted unmanned vehicle which augments the capabilities of Germany's mine-warfare forces. The system is powered by silver-zinc battery cells, which provide the Penguin with 150 minutes of performance duration at six to eight knots. To accomplish its role of mine detection and identification, the Penguin is equipped with a high-definition STN Atlas Elektronik sonar system. A Penguin system with increased operational endurance and range is under development.

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