

# The Finnish ABB Companies

## Review 2000



Brain Power.



# The Finnish ABB Companies, January 1, 2000

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#### ABB Industry Group

President Mikko Niinivaara\*

#### ABB Motors Oy

President Jorma Koivusipilä

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### Building Technologies

#### ABB Service Group

President Kalevi Hasi\*

#### ABB Installaatiot Group

President Jukka Rinnevaara\*

#### ABB Control Oy

President Rainer Smått

#### ABB Fläkt Oy

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#### Finance and Business Control

Senior Vice President Erkki Luhta\*

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Vice President Pentti Nuutinen\*

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President Lauri Ruotsalainen\*

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President Gunnar Hindsberg\*

### Special Services

#### ABB Corporate Research Oy

President Juhani Pylkkänen\*

#### ABB Tools Oy

Managing Director Ari Niemi

#### ABB Current Oy

President Gunnar Hindsberg\*

### Research and Development

Senior Vice President Juhani Pylkkänen\*

### Marketing

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## The Finnish ABB Companies; Key figures (MEUR)

	1999	1998 *)	1998	1997	1996	1995	Change 1998-99
Orders received	1 369	1 275	1 336	1 310	1 291	1 260	7 %
Domestic	708	597	647	587	654	647	19 %
Exports	662	678	689	723	637	613	-2 %
Total revenues	1 334	1 370	1 441	1 228	1 314	1 201	-3 %
Income before taxes	192	196	201	219	162	147	-2 %
Return on equity (%)	22	26	26	33	28	30	
Order backlog, December 31	503	454	491	603	497	621	11 %
Personnel, December 31	9 563	9 402	9 625	9 200	9 175	8 975	2 %
Capital expenditure, new decisions	59	46	47	49	40	39	28 %
Research and development	106	91	95	90	84	74	15 %
Competence development	14	13	13	13	13	12	8 %

\*) The figures are based on the New ABB business structure. Thus the 1998 figures exclude the power generation business transferred to the new joint venture ABB ALSTOM POWER N.V. In Finland, ABB Power Oy and ABB Ecopipe Oy were transferred to the new company.

## ABB Process Master as a development tool

### THE NEW ABB



**ABB Oy's Board of Directors: from right**  
**Krister Ahlström, Deputy Chairman, Helsinki;**  
**Georg Ehrnrooth, Kauniainen; Christoffer Taxell, Turku; Jörgen Centerman, Chairman, Zürich; Matti Ilmari, Helsinki and Martti Palmén, Secretary, Helsinki.**

The key activities in the Finnish ABB companies during 1999 focused on launching extensive development aimed at enhancing process management. We want to continue to be successful in the new millennium also.

While ABB seeks global benefits in its business operations, it also strives for greater efficiency locally. The ABB Process Master programme was launched precisely for this purpose.

We believe that concentrating on core processes aimed at creating lasting value for our present and future customers is our primary task and the basis for our future success.

Consequently, it is vital that we are quick to respond to our customers' changing needs and that we swiftly adapt and target our operations when new opportunities present themselves.

The Finnish ABB companies received seven per cent more orders from their customers in 1999 compared to the preceding year. The area showing most growth was maintenance services in the factories, facilities and properties of our customers. The Group's profitability remained good even though deliveries slightly declined.

We foresee an upswing in demand in our market sectors during the first year of the new millennium, generated by increased new investment around the world. The strong commitment of the Finnish ABB companies to research and development ensures we are capable of providing the expertise to meet rising demand in the global marketplace.

Finnish knowhow in IT and telecoms applications is highly advanced. The Finnish ABB companies already form a hotbed for software development. The innovative smart features that our customers have come to expect of our systems are a natural stepping stone to our future growth.

Matti Ilmari  
President and CEO

## Towards knowledge and service based businesses

The most important business segment of the new ABB is Automation. In 1999, 50 per cent of orders received by the Finnish ABB companies were in Automation segment. The most vigorous growth in orders during 1999 was in services, especially in maintenance business which grew by 45 per cent.

In 1999, ABB jointly established a company for power generation with ALSTOM and sold its nuclear power business to the UK based company BNFL. ABB is aiming to boost the business operations that are based more on knowledge or are service-oriented by focusing on automation, services and on-site maintenance. The profitability of the Finnish ABB companies remained good despite a slight decline in revenues. All Group companies made a profit in 1999.

### Local and global customers

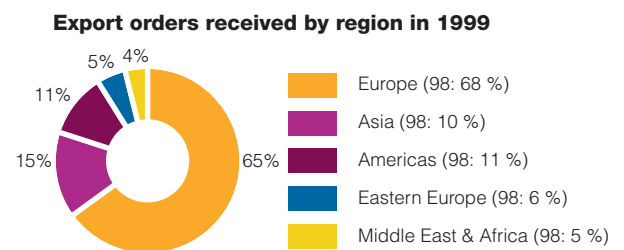
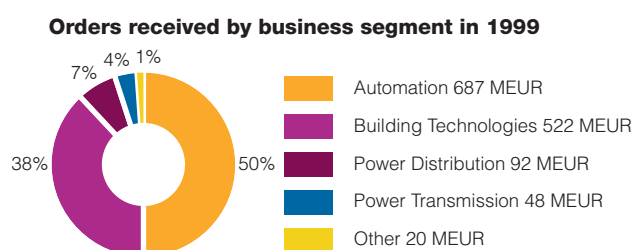
ABB is the leading developer and supplier of electrotechnical products and systems in Finland. Over half the orders received by the Finnish ABB companies in 1999 came from domestic customers. Highly successful maintenance and services boosted the amount of domestic orders.

Exports are a very important factor in the product and systems expertise of the Finnish ABB companies. Exports have increased by a factor of two during the 1990s. Most of the customers for the products manufactured by our factories are international. In 1999 exports by the Finnish ABB companies amounted to EUR 662 million. Orders were received from a total of 108 countries.

### Increased need for software knowledge

ABB is a technology company. Its success is underpinned by in-depth knowledge, competence management and continuous development. ABB's investment in R&D in Finland has ranked as the second largest in the country. Resources devoted to R&D have increased by a factor of three during the 1990s. In 1999 the Finnish ABB companies invested EUR 106 million in R&D, representing 8 per cent of annual revenues and a rise of 15 per cent on the previous year.

Data processing and telecommunications technologies are increasingly deployed in development activities while applications-specific software design is on the increase. At the end of 1999, some 300 people in the Finnish ABB companies were actively developing software for equipment and systems. In addition to this, almost as much software design was outsourced.



### Presence in Finland and throughout the world

ABB serves customers through 54 locations in Finland and in over 100 countries around the world.

At the end of 1999, the Finnish ABB companies employed a total of 9,563 people. In terms of local employees, ABB is one of the largest industrial companies in Finland, while ABB in Finland ranks as the fourth largest employer of all ABB countries. ABB generates substantial employment in the Vaasa, Helsinki and Turku areas of Finland in particular.

The value of products and services bought from subcontractors and component manufacturers amounted to EUR 779 million, which corresponds to 10,000 man-years. ABB's contribution to government and municipality income was EUR 189 million.

### Commitment to expertise

Success as a global corporation in competitive markets demands resourceful performance and correct focus of investments. The Finnish ABB companies invested a total of EUR 14 million in 1999 towards enhancing personnel expertise and knowledge. More efficiency was achieved in the continual assessment of the quality of our activities and processes against *European Quality Award (EQA)* criteria.

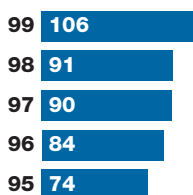
A particular focus of attention was clarifying key operating processes and enhancing process expertise. The wide-ranging *ABB Process Master* programme was launched in all the Finnish ABB companies. The objective of the programme is to streamline the core business processes in each company and enhance their efficiency.

### Implementing sustainable development

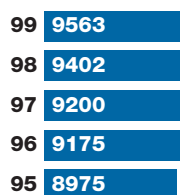
As a major player in the electrotechnical sector, ABB is strongly committed to applying the principles of sustainable development and to developing technical solutions that reduce environmental impact.

By the end of the year 1999, the Finnish ABB companies had compiled life cycle analyses for 44 products in accordance with the Environmental Priority Strategies (EPS). The first environmental product declarations were completed. In 2000, the Finnish ABB companies aim to publish environmental product declarations for each of their main products and product groups.

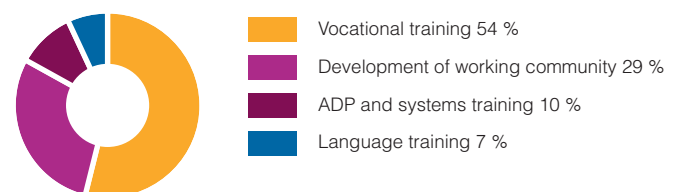
Investments in R&D (MEUR)



Personnel



Investments in competence development in 1999  
Total 14 MEUR



## Demand for systems is growing

### ABB Industry Group

Revenues:	470 MEUR
Export orders:	302 MEUR
Personnel (31.12.):	1,970
Profitability:	Good



ABB's second-largest paper mill project was completed in the autumn of 1999. Seen here, Jiangsu Gold East Paper Co's paper mill in Dagang.

There was distinct growth in orders received by units supplying industrial systems. Demand for large electric motors and power electronics declined and this slackening in demand was met with more investment in measures to boost productivity and enhance cost efficiency.

Harmonised processes and procedures were developed for worldwide adoption in the different units. Production units focused on developing the order-delivery process with the aim of providing better customer service and improving their competitiveness.

ABB Corporate Research Oy set up a new R&D unit called VSD Research (*Variable Speed Drives*) in Helsinki. It is situated in the same location as ABB Industry Oy's Drives Group. VSD Research focuses on research into electric drives and power electronics and supports the global development and business growth of ABB's electric drives.

ABB Industry Oy addresses environmental issues in the design, manufacture and use of its products. The first environmental product declarations compiled for the products of the Finnish ABB companies were for the ACS 400 frequency converter. The environmental product declarations assist our customers in conducting life cycle analyses and in comparing the environmental friendliness of products.

### Comprehensive service for Finnish customers

The opportunities for the Product Sales Finland division to serve its customers were enhanced by the inclusion of Eltag Bailey Process Automation products and experts in its portfolio. The new unit is responsible for the sales and servicing of products for instrumentation, analysis measurement, weighing and force measurement in Finland.

ABB Motors Oy's domestic sales were merged with the Product Sales division on 1st January 2000. This will further enhance the scope of customer service while opening up opportunities for more integrated solutions for electric drives and motors.

### Further growth in demand for systems

The extremely large delivery of two paper machines to China that started in 1998 was completed in the autumn. The value of ABB's contract was hundreds of millions of Finnish marks, over half of which was derived from equipment and services delivered from Finland by the Systems Group.

The largest single new export contract, worth over FIM 150 million, was a project for the full electrification and automation of Visy Industries Pty's new paper mill in Australia. The Systems Group also landed a contract, worth well over FIM 100 million, for supplying the electrification

and paper machine drive for the paper machine delivered by Valmet to Cartiere Burgo S.p.a. in Italy. This will be one of the world's largest LWC paper lines and is due to be commissioned at the end of 2001.

The Systems Group will also supply extensive systems, equipment and services for Sunila Oy's drying machine as a turnkey project. ABB's total delivery will include installation and full financing of the project.

### Online sales of small frequency converters started

The Drives Group focuses on low-voltage AC drives, which represent by far the largest and fastest-growing sector for electric drives.

As electronic products become cheaper it is becoming economically viable to provide increasingly smaller motors with frequency converters. This is fuelling rapid growth in the market for small frequency converters, which is reflected in the growth in Comp-AC sales.

Comp-AC is a new procedure that allows the customer to select the desired product characteristics and receive the required services. Comp-AC sales on the Internet started in Great Britain and Germany in the spring of 1999. By early 2000, Comp-AC Internet sales covered over twenty countries including Finland.

ABB's leading position as a supplier of high-output electric drives was maintained throughout 1999.



Online sales of small frequency converters started on the website at <http://www.comp-ac.com/fi>



The changeover to water-based paints will reduce VOC emissions in the manufacture of induction motors by some 80 per cent.

### **Conserving the environment at customer sites and in production processes**

There has been brisk growth in the market for wind power in Finland over the last few years. The most recent inroad into regional markets are the large contracts to supply windmill generators to Bonus Energy A/S in Denmark that were landed by the Machines Group. The first generators manufactured in serial production were delivered to the customer in the spring of 1999.

The electrical machine factory switched to using water-based paints in the manufacture of all its induction motors. This is forecast to reduce VOC (volatile organic compounds) emissions of the production of induction motors by 80 per cent. The next stage is to switch to the use of water-based paints in the manufacture of synchronous motors.

The main strategic target of the Machines Group is to be *The Preferred Partner* - ie, the customer's partner of choice. This strategy was defined and communicated to personnel in an entirely new way. The underlying aim is to establish a common understanding of the Group's objectives and a clear view of what the chosen direction means to each individual in his or her own work.

### **Continued success for the Azipod® electrical propulsion system**

The ABB Marine Group received big orders from the Meyer Werft shipyard in Germany for Azipod® propulsion systems. The Azipod® propulsion will be delivered for the luxury cruise vessels to be built for the Malaysian Star Cruise shipping company. The contracts were extended options for similar deliveries to the same shipyard earlier.

Kvaerner Masa-Yards Oy ordered the Azipod® propulsion systems for the third Eagle class cruise vessel to be built at its shipyard in Turku. The company also ordered the Azipod® propulsion systems for *Carnival Pride*. The cruise vessel will be built for Carnival Cruise Lines at Kvaerner Masa-Yard's Helsinki shipyard.



Kvaerner Masa-Yards Oy ordered Azipod® electrical ship propulsion systems for the third Eagle class cruise liner to be built at its new shipyard in Turku.



**ABB Motors Oy**

Revenues:	125 MEUR
Export orders:	104 MEUR
Personnel (31.12.):	674
Profitability:	Good



## Effective drive power for industry

ABB Motors Oy's R&D in 1999 focused on developing a new product series of motors for hazardous environments. New permanent magnet technology will also soon be applied in a permanent magnet motor to replace the squirrel-cage motor in slow drives, and the gearing it requires, while boosting the efficiency ratio.

CEMEP (*the European Committee of Manufacturers of Electrical Machines and Power Electronics*) and the European Union have jointly agreed on an efficiency classification for low-voltage squirrel cage motors. The aim is to reduce energy consumption, carbon dioxide emissions and industrial costs. The motors manufactured by ABB Motors meet the requirements of the highest EFF1 class.

In 1999 ABB Motors started systematic customer training to assist customers in selecting the best motor for their applications. The training sessions have also proved to be an excellent way of boosting the expertise of our own personnel, which enhances customer cooperation. ABB Motors has also focused on consolidating and enhancing the skills and expertise of its personnel.

A new Scandinavian logistics centre will improve customer service. Customers in Finland can now receive service for the entire range of low-voltage motors within 24 hours. The integration of motor sales in Finland with ABB Industry Oy's Product Sales also makes customer service a more focused process.

Large export orders were received from Abu Dhabi, Venezuela, Italy and Australia. A new regional market for windpower generators was opened in Japan.



The new Scandinavian logistics centre will enable ABB Motors to provide its customers with a wider product range, immediately available from stock.



ABB Motors Oy's Product Development Manager Jouni Ikäheimo (on left) received first prize in IEA's Hi-Motors project competition in London in February 1999. The competition gave awards to the world's best squirrel-cage motors in terms of their efficiency ratio.

## The customer sets development criteria



Effective product and system support is the cornerstone for good customer relationships.

ABB Substation Automation Oy is part of ABB's global Automation segment. Focusing on substation automation products and project engineering, ABB Substation Automation Oy holds a strong position in ABB's business in protection, monitoring and control equipment and systems. The company is responsible for developing, manufacturing and marketing protection relays, monitoring, control and automation devices and systems, including software, for the medium voltage network.

Substation products are concentrated in two lead centres. The Vaasa centre in Finland has worldwide responsibility for power distribution products while the Västerås centre in Sweden is responsible for protection and control systems for transmission networks.

ABB Substation Automation Oy has worked vigorously to develop its operations, and the company now tops the Finnish ABB league for delivery promptness. In 1999, the company also was the best of the Finnish ABB companies in the cross-assessment according to the criteria of the European Quality Award.

### **Remote control system entered the millennium uneventfully**

A record number of MicroSCADA remote control systems were sold in 1999. The product update for Y2K compliance was launched well in time for the new millennium and leap year 2000 and the rollover into 2001 will be handled without any problems..

Kainuun Sähkö Oyj acquired a new MicroSCADA remote control system because its old systems were not Y2K compliant. The new system is provided with all necessary interfaces to other systems at both the control centre and the substations. A prominent feature of the system is that it can be operated via the Internet. An Internet interface is now available as a standard feature of the MicroSCADA system.

**ABB Substation Automation Oy**

Revenues:	62 MEUR
Export orders:	50 MEUR
Personnel (31.12.):	365
Profitability:	Good

**Brisk growth in Internet services**

Investment in customer support and training reached high levels as we aim to enhance the service we provide. A reorganisation of our customer service process will further boost the efficiency of customer support in 2000.

The use of Internet is on the increase. ABB Substation Automation Oy's website includes links to news, manuals and products. The web pages also provide information about opportunities for customers to receive training on our systems and equipment. Customers can enrol for courses on-line.

Customers can also download simulators or fully updated manuals on relay products directly from the company's website.

ABB Substation Automation Oy has two forums serving customers. The *MicroSCADA Users' Club* is a local discussion forum for end-users, while the global *Partner's Club* is intended for ABB companies making systems for end-customers.

Both clubs meet once a year. They provide customers and system suppliers with information about new products and an opportunity to exchange experiences.



User and project meetings are a good forum for the exchange of important information.



The Internet is changing both electronic data interchange between organisations and the operational use of the systems. Seen here, our customer using his MicroSCADA-based remote control system over the Internet.

## Quality in expertise and operations



The test tube sample shown here is the first granulated sugar made by ABB Service. The small bags contain samples from the period when a billion kilos of sugar beet were processed.

used in the training. The common target is to develop peak expertise in servicing and maintenance. The main focus of the training is on enhancing servicing knowhow in the forest, metal, electronics and food industries.

An important element of operational quality is systematic and continuous development. The ABB Service companies have made their operating procedures more occupationally safe. SFS Certification has awarded ABB Service OH&S (Occupational Health and Safety) certification in recognition of this – making it the seventh company in Finland to receive OH&S certification. This certificate, as also all the environmental management and quality certificates received in previous years, is valid in all the company's offices and outlets. In 1999 ABB Service also won an internal quality award competition for being the best developer in the Finnish ABB companies.

Wide-ranging preparations were made for the change of the millennium, and ABB Service provided adequate stand-by manning to meet any customer needs. The company was also actively involved in establishing a centralised ABB Call Center for the ABB companies.

### Servicing professionals in demand

Prominent new sites at which the customer outsourced maintenance and other servicing operations to ABB Service were Outokumpu Harjavalta Metals Oy's Harjavalta and Pori units. This restructuring of servicing was an element in networking Outokumpu's

Comprehensive maintenance and servicing calls for specialised services that are provided smoothly and reliably. ABB Service Oy has 11 Centers of Excellence to develop and diversify such special services. They produce new services and products to meet customers' needs and to ensure the ready availability, reliability, safety and economy of production processes.

ABB Service has taken a significant step in training its personnel aimed at increasing multiskills and diversifying expertise by signing a training cooperation agreement with Stora Enso Oyj's subsidiary Fortek Oy and POHTO. A virtual factory is one innovation that will be

## ABB Service Group

Revenues:	181 MEUR
Export orders:	35 MEUR
Personnel (31.12.):	1, 888
Profitability:	Good

services. 225 people were transferred to ABB Service's employment. The networking affects some 400 people in total, leaving some 600 people employed by Outokumpu Harjavalta Metals.

Production and maintenance personnel at Sucros Oy's sugar-beet plants in Salo and Säkylä were transferred to ABB Service at the beginning of 1999. A significant feature of this agreement is that ABB Service is actually producing sugar as well as maintaining the production processes. Sugar production started in mid-September and some 160 million kilos of sugar were produced during the last three months of the year, equivalent to over 30 kilos for each person in Finland. As from the beginning of December, ABB Service handled maintenance and servicing at the Loglift factory, a company in the Partek Group that manufactures cranes for a range of applications, and which is situated adjacent to Sucros' Salo plant.

After four years of successful cooperation, Leaf Oy's contract was extended to include fully-comprehensive servicing and the maintenance of operational status at their confectionery factory in Turku. Servicing of the Raisio Group's three chemical plants at Kaipainen took ABB Service into the new business area of maintenance in the paper chemicals industry.

The production of hospital supplies at Mölnlycke's Mikkeli and Ilomantsi factories set demanding challenges for maintenance owing to the particularly strict hygiene regulations, since most of the end-products are delivered to hospitals. Fenestra Oy, a window and door manufacturer, signed an agreement for maintenance at its Forssa factory in addition to its plant at Kuopio.

*Parts Online*, a new spare parts information and ordering system that makes *Parts SCOT* accessible on the Internet, was developed for e-commerce. The data for over one hundred thousand spare parts is available to customers on the Internet. Customer service, 24-hour service and Parts Online together form the cornerstone of good customer relations by ensuring that customers receive the spare parts they need rapidly and reliably.



Fortek Oy, POHTO and ABB aim at developing peak expertise in service and maintenance by cooperation in training where each step comprises modules focusing on cross-training in specific tasks.



"I can state from experience that our networking solution has been successful. Our profitability is rising", says Asko Parviainen, President of Harjavalta Metals Oy, at the time networking negotiations were under way. Currently, he is the staff director at Outokumpu Oyj.

## More widespread adoption of turnkey building services and lifecycle principles

There was brisk development in building services and real estate business operations both in Finland and internationally. In demanding sites, building services now account for over 40 per cent of construction. Total technical and lifecycle solutions are becoming even more widespread. In Finland, the trend is more vigorous in the greater Helsinki area and other high-growth cities. Wireless IT applications and telecommunications are spreading.

The needs of users over a longer term more frequently guide the design of buildings and properties. Comfort, high productivity and amenities are valued more highly than equipment and systems. Functional, comfortable and flexibly adaptable properties combined with low facility management costs create added value for both their users and owners. ABB Installaatiot's core expertise is in creating the conditions desired by the customer in the most efficient way possible.

### Knowledge-based operations

ABB Installaatiot develops innovative systems that are more advanced and more automated than existing ones. The systems are commissioned in close collaboration with the customer. Modern building services regulate the comfort and convenience of people's working environment while also conserving energy. Data networks are becoming an element that is taken as much for granted in a property as mains electricity.

More frequently LON (Local Operating Network) is managing an entire building. LON can control not only conventional HEPAC and electrical systems but also the condition monitoring, security and reporting systems for facility management. ABB Kiinteistöpalvelut Oy has the capabilities for servicing

and controlling a customer's facilities. Building services and facility management are now converging as facility management becomes ever more technically oriented.

With lifecycle deliveries, costs accruing throughout a certain service period - e.g. from 5 to 10 years - are factored in as well as the initial investment costs. Economy is then sought in the sum total of investment, operating costs and increased working pro-



A Local Operating Network (LON) uses presence detectors to control building engineering functions.

## ABB Installaatiot Group

Revenues:	236 MEUR
Export orders:	13 MEUR
Personnel (31.12.):	2,197
Profitability:	Good

ductivity instead of just the cost of the initial investment. At its best, a lifecycle delivery links construction, real estate business, energy solutions and information technology into a long-term chain while also assessing the environmental impact of the construction project.

Prominent applications in 1999 of total technical solutions to provide smart buildings conforming to the requirements of sustainable development include Tellus House in Helsinki, Smart House in Oulu, Sibelius Hall in Lahti and the Merkos supermarket in Hyvinkää.

ABB Installaatiot was also involved in developing and implementing new production processes for its industrial customers - for instance, in Lohja Paperi's Pasi project. Additionally, the company was active in the electronics industry and undertook a number of construction projects for Nokia.

### More advanced expertise

ABB Installaatiot further broadened its expertise in ship electrification and HEPAC services in 1999. The acquisitions of Insinööritoimisto Telesilta Oy in Uusikaupunki and Turun LVI-Palvelu Oy in Turku added to ABB Installaatiot's pool of expertise. The largest delivery for ship electrification was *Voyager of the Seas*, the biggest luxury cruise liner in the world.

Noteworthy international sites included Finland's pavilion at the Expo 2000 World Fair in Hannover, Dirol chewing gum factory in Moscow, meteorological equipment for Laos airport and St. Petersburg's new ice-skating hall.

ABB Elmek Oy, which specialises in technical facility management, was established in Moscow. The work aimed at personnel development has produced good results in the company. A personnel

strategy based on the company's overall strategy enhances the targeting of this work. ABB Installaatiot Oy was nominated best developer of personnel satisfaction amongst the Finnish ABB companies in an internal quality competition in 1999.



*Voyager of the Seas*, the largest luxury cruise liner in the world, was completed at Kvaerner Masa-Yards Oy's Turku shipyard in the autumn of 1999. ABB Shipins Oy supplied most of the electrification.

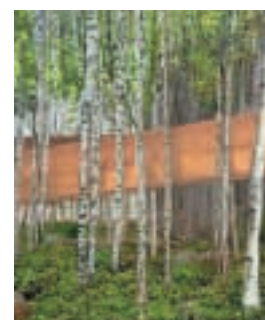


ABB Installaatiot Oy supplied the total technical solution for Finland's pavilion at the Expo 2000 World Fair.

#### ABB Control Oy

Revenues:	88 MEUR
Export orders:	33 MEUR
Personnel (31.12.):	621
Profitability:	Satisfactory

## Creating a competitive edge by developing competencies



The MCS Roadshow that toured Finland in the autumn was a forum for the opinions and questions of Finnish customers on the new MCS enclosure systems.



The new OS switch-fuses are an economic and safe solution for a fused system.



A new generation of the INSUM integrated interface for motor control gear and motor starters was developed, enhancing the overall efficiency and scope of the INSUM system. The Internet and WAP applications now supported by INSUM will make future operation and servicing of motor control gear more effective.

We want to be the fastest and most reliable supplier. Therefore the organisation must be capable of reacting to the changing needs of its customers and their evolution.

Towards this end ABB Control Oy has initiated a wide-ranging personnel development programme called Control Can! to craft skill profiles and development targets for personnel from the company's vision and core competencies. Managers are being trained to lead and support the learning process. The values of the working community are being developed to make ABB Control Oy into a working community that truly supports continuous learning.

In order to sharpen the focus on its core competencies, the company sold the manufacturing operations for sheet metal parts to Incap Electronics Oy in the autumn of 1999.

### Towards enhanced customer service

With the aim of enhancing its customer service, the Low Voltage Products division is also providing the sales staff, product managers and applications engineers of sales companies, as well as the division's own personnel, with 'Switch School' training. The hands-on training addressed the technical features of switchgear, the selection of the correct switchgear, and the applications and relevant standards for switchgear.

ABB Control Oy launched a new generation of switch-fuses in 1999. The new OS switch-fuses offer an economic and safe solution for fused systems. One new feature of the OS switch-fuses is an electronic fuse monitor that can be directly connected to the switch-fuse and that trips the circuit immediately the fuse blows. It can also be used to prevent a motor rotating on only two phases while also preventing overload on the neutral conductor.

Product industrialisation of the OT series of load break switches was finalised. The new series of load break switches meets the requirements of all the main international standards and regulations, and has been awarded the necessary certificates of conformity (including UL, CSA and KEMA) as well as the most common maritime classifications. Despite their small size, the new switches have exceptionally good performance and in fact surpass earlier benchmarks.

### Smart systems capture the market

A new member joined ABB's international switchgear family in 1999 with the launch of the Modular Cabinet System (MCS). The MCS system's range of structural options extends right up to IP66 degree of protection by enclosure and the system incorporates a number of different types of control gear boards to suit specific applications.

The MCS system was developed in collaboration with our customers. The success of this collaboration has been proven by numerous deliveries to buildings, machinery and equipment manufacturers, industry and ships. Manufacture of the system under licence was started first in ABB Control AB, Sweden.



**ABB Fläkt Oy**

Revenues:	88 MEUR
Export orders:	34 MEUR
Personnel (31.12.):	532
Profitability:	Good

## Further strides in the development of air handling



A new fire laboratory was commissioned in Toijala that will help to speed up development of new fire proof products.

For ABB Fläkt Oy, 1999 was a year for implementing and assimilating the investment and reorganisation made during the previous year, and for developing new working procedures.

The company won the best process developer award in an internal quality competition held within the Finnish ABB companies. The award bears testimony to the company's creation of a solid foundation for process management and its promotion of process orientation in all units.

### **New materials, manufacturing technology and distribution channels**

The Fans division continued to develop new materials and manufacturing technologies for industrial and ventilation fans.

Carbon fibre technology has been applied to the manufacture of industrial fan impellers for a number of years now. The strength and lightness of carbon fibre make it an ideal material for impellers. New composite products were launched in late 1999 and the first commercial deliveries were made before the year's end.

Ventilation fans are manufactured at the Turku plant, in one of the world's most highly automated factories. The robotised production line was further enhanced in 1999 by the addition of a punching and laser cutting unit that makes the manufacture of fan parts more precise, more efficient and more economic. Staff at the Ventilation Fan unit moved into state-of-art office premises in the Turku area, which allow wider scope for process-oriented working.

Division Lapinleimu is seeking growth in new product areas. A fire laboratory for developing and testing the fire safety of products was commissioned in Toijala in the autumn. The market for fire proof products is mainly concentrated in the Nordic countries as well as in continental and Eastern Europe. The division opened up another significant new product area with the *Miniduct* ducting system for ships and the ABB Group centralised the marketing, R&D and manufacture of Miniduct in this division. A new production line for *Veloduct* parts came on stream in Turku during 1999.

The Sales and Air Handling Units division sells air handling units, ventilation fans, air terminal devices and ducting products in Finland. The division captured a new industrial market by collaborating with ABB Azipod Oy to start industrial production of new cooling units for the Azipod® ship propulsion system. The first cooling units were delivered at the beginning of the year 2000.


## Customer service enhanced all round



ABB Transmit was Wärtsilä NSD's electrification partner in supplying turnkey electrification and a substation to the Seychelles islands to provide a more environmentally-friendly power supply to meet rising electricity demand

The experts of ABB Transmit Oy aim to offer customers the accumulated added value derived from ABB's wide-ranging knowhow in the form of product knowledge, systems expertise and total solutions. Financing, consultation and relationship management are integrated in our operation in addition to the best technical solutions where the personnel safety, operation security and environmental aspects are considered.

### Substations to north and south

In 1999 Kraftnät Åland Ab started construction of a new 80 MW HVAC cable link between Sweden and Finland, for which ABB Transmit Oy is supplying two new 110 kV substations and modernising one substation. Our partners in the project are ABB Distribution AB and ABB Installaatiot Oy. Ålands Elandelslag is building a 16-kilometre overhead line for the new cable link and NK Cables is supplying a 60-kilometre submarine cable.

Wärtsilä NSD Finland Oy, the world's leading supplier of diesel power plants, ordered turnkey electrification for a power plant and a substation in the exotic Seychelles islands in the Indian Ocean. The aim of this project is to ensure adequate power supply to meet the growing demands of tourism and fishing industries in a more environmentally-friendly way by replacing a number of obsolete power plants with one diesel power plant using the latest technology. ABB Transmit also supplied turnkey electrification to projects in the Honduras and Nicaragua as Wärtsilä NSD's partner for electrification.

The Transmission and Distribution Projects division will increasingly focus on developing total solutions for power distribution and on new energy sources such as wind power. Standardised electrification packages are being crafted for turnkey projects in power distribution and wind power projects, and expertise in these fields is being fostered.

### Manufacture of distribution transformers in specialised factories

Customer service and production efficiency in distribution transformers is being enhanced in the ABB Group by concentrating production and product development in specialised factories capable of manufacturing larger production series.

ABB Transmit Oy's distribution transformer factory in Vaasa will focus on the manufacture of higher-capacity distribution transformers, small power transformers and special transformers for frequency converter drives and railway networks.



The subsea distribution transformer is specially developed for the oil production industry. It can be installed at depths of up to one kilometre.

The cable innovations – that became well known through the Powerformer high-voltage generator – were in 1999 also deployed in the manufacture of distribution transformers. The first high-voltage cable transformer was made in Sweden, while the Vaasa distribution

## ABB Transmit Oy

Revenues:	164 MEUR
Export orders:	85 MEUR
Personnel (31.12.):	870
Profitability:	Good

transformer factory completed a research and development project that will be realized in the manufacture and marketing of transformers of cable construction for railway electrification.

The first converter transformers for the oil production industry that are intended for subsea installation at depths of up to one thousand metres were delivered to an American oil company and installed in their production system off the African coast line. The next objective for product development is to integrate frequency converters and subsea transformers.

### Customer satisfaction through prompt action

A 400 MVA power transformer of the new *Fingrid 2000* type was delivered to the Toivila substation in Jämsä at the end of the summer. The new transformer will reduce losses in the network while enhancing the reliability of regional supply.

Fingrid Oyj, which is responsible for maintaining and operating the national grid in Finland, collaborated closely in the design of the new model. The company ordered a similar transformer for delivery to Forssa in the autumn of 2000.

The Power Transformers division's vision of the future is based on achieving customer satisfaction through prompt action. The unit's overall process, from tender to delivery, is being enhanced to meet this aim.

### New markets for distribution network solutions

A new generation of *UniSwitch* medium-voltage equipment was launched onto the market at the beginning of 1999. Product development for the new equipment focused on operating safety and economy, making it highly suitable for distribution substations in public buildings, shopping centres, metro stations and airports. Manufacture of UniSwitch equipment under licence began in China.



The new generation of UniSwitch equipment is operationally safe and also economical.

The remote controlled SF<sub>6</sub> gas insulated switch-disconnector *Sectos* was assessed as the technically most interesting disconnector solution in the Middle East. New orders were received from Israel and Saudi Arabia.

Deliveries of ship equipment continued and were underpinned by standardised solutions jointly developed with customers and ABB Marine. Equipment delivered for ships in 1999 included equipment for the *Costa Atlantica* luxury cruise liner of the Italian Costa Crociere shipping line. Peak electricity output of the generators is 70 MVA.



Fingrid Oyj actively participated in the design of the new FINGRID 2000 power transformer.

## Financial expertise the spearhead

### Financial services

Balance sheet total: 594 MEUR	
Personnel (31.12.):	20



The servicing agreement between Outokumpu Harjavalta Metals Oy and ABB Service Oy also included a factoring arrangement for financing the spare-parts inventory.

The Group's financial expertise is concentrated in financial services units that focus on providing the Group's industrial companies with sales support and services. The Finnish units and their sister companies in over 20 countries form a network for the interchange of information and experience between different countries that enables the deployment of global financial solutions.

ABB Credit Oy specialises in leasing arrangements both in Finland and abroad. The company is one of the leading providers of leasing finance in Finland. ABB Credit financed Sunila Oy's new pulp dryer that will be built in Sunila. An important new finance product is a long-term leasing of an office building. The agreement was signed with JSP Facilities Oy, a subsidiary of Jyväskylä Science Park.

ABB Structured Finance acts both as financial adviser and lender for infrastructure and industrial projects of ABB' customers. Competitive financing solutions offered by Structured Finance are based on exceptional access to a wide range financing sources and expertise of the global team of over 170 people.

ABB Treasury Center serves as the internal bank for ABB companies. Treasury Center offers services for hedging currency risks, provides competitively-priced financing and ensures the Group's liquidity. Treasury Center also manages the global netting system for the Group's internal transactions and the Group's bank guarantees.

ABB Financial Consulting offers consultancy services concerning various financial matters to corporate clients outside the Group.

## Leasing to outside companies on the increase

### ABB Current Oy

Revenues:	28 MEUR
Balance sheet total: 146 MEUR	
Personnel (31.12.):	3
Profitability:	Adequate

The occupancy rate for properties owned by the company is high. The vacancy rate is below the market average. At the end of 1999, some 15 per cent of rental income was derived from companies outside the Group, a substantial proportion of which are subcontractors to ABB companies.

ABB Current Oy has centralised its procurement of electricity for the properties it owns and for tenant companies in the properties. Net sales of electricity in 1999 amounted to FIM 20 million.

Cash flow generated by divestments during the year totalled FIM 36 million. The divestments comprised five different properties and shareholdings in real estate holding companies. The largest of these was the site with 7,000 sqm building rights at Pitäjänmäki that was sold to Nokia.

## Turnkey systems and manufacturing services

### ABB Tools Oy

Revenues:	21 MEUR
Export orders:	1 MEUR
Personnel (31.12.):	242
Profitability:	Satisfactory

ABB Tools Oy's manufacturing services generate two-thirds of the company's revenues. The company supplies product packages that integrate several different technologies and manufactures systems that incorporate our partners' know-how.

ABB Tools Oy will continue to focus on demanding machining processes, press tools and its technology, surface treatment and the manufacture of insulated windings. In line with this policy, the company sold its extrusion operations for plastic parts and moulds in 1999.

## Development underpins growth-oriented strategy

ABB Corporate Research Oy collaborates with the global R&D network of the ABB Group to focus on developing new product and manufacturing technologies and on enhancing business processes and the quality of business operations in those areas that best support ABB's growth-oriented strategy.

In 1999, major steps forward were achieved in applying wireless communication technology to sensors and detectors in electrical distribution networks and in developing configuration tools for system products. Innovations in the power supply for electronics and a breakthrough in memory shape metals will open up new opportunities in the years to come.

The Manufacturing Technology R&D programme was launched in January. The programme rapidly achieved significant results by targeting advanced manufacturing technology on products, applying fast modelling and prototype manufacturing techniques, and developing production and logistics systems on two continents.

A radical concept for motors combines new manufacturing technology and product design to achieve substantial savings in production costs and a dramatic reduction in throughput times. Collaboration with the Massachusetts Institute of Technology (MIT) has produced good results in the development of production processes and new, next-generation manufacturing concepts.

A range of development tools for enhancing the quality of business processes and business operations, such as *Productivity Doctor*, *ABC2000* and *ABB Process Master*, were developed. More resources were allocated to knowledge management and skills development in different areas of expertise. An in-depth study of knowledge management was conducted with the Finnish ABB companies resulting in a new management model and a book entitled "*Building Future Competitiveness*".

The *IdeaCare* and *InnovationCare* processes for promoting and fostering innovation were introduced. *IdeaCare* makes the depiction and subsequent assessment of an idea quicker and easier. *InnovationCare* then briskly shepherds promising ideas into the patenting process.

Experimental research was conducted in extensive type testing of medium-voltage equipment and testing of the new *Boosterformer*, a new negative boosting cable transformer. New testing methods were developed and successfully implemented for temperature-rise tests on transformers using back-to-back circuit connections.

In September, ABB Corporate Research Oy established an international advanced research unit in Helsinki, VSD Research. The unit focuses on research into variable speed drives, power electronics and control technology, as well as on technology assessment and technology transfer.

### ABB Corporate Research Oy

Revenues:	9 MEUR
Export orders:	4 MEUR
Personnel (31.12.):	89



The customers and representatives from ABB Transmit Oy watch the special testing arrangements for the new cable-construction negative boosting transformer in Power Technologies' laboratory with keen interest.

# Consolidated Financial Statements

## ABB Oy Group Consolidated income statement 1999 (1.000 eur)

	New ABB Composition		Group
	Group 1999	Group 1998 *)	Group 1998
<b>REVENUES</b>	<b>1 333 731</b>	<b>1 370 202</b>	<b>1 440 587</b>
Material expenses (incl. change in material inventories)	-565 278	-591 127	-635 774
Personnel expenses	-372 772	-359 349	-370 125
Other expenses	-179 849	-179 911	-189 186
Change in work in progress and finished goods	-33 814	-24 135	-24 260
Depreciation of fixed assets	-35 755	-36 733	-37 466
Unusual Items	39 604	10 729	10 729
<b>OPERATING EARNINGS AFTER DEPRECIATION</b>	<b>185 867</b>	<b>189 676</b>	<b>194 505</b>
Financial income	22 417	26 961	27 035
Financial expense	-16 366	-20 828	-20 420
<b>INCOME BEFORE TAXES</b>	<b>191 918</b>	<b>195 810</b>	<b>201 120</b>
Current Income taxes	-32 777	-33 880	-33 959
Deferred taxes	-25 542	-16 039	-17 448
<b>NET INCOME BEFORE MINORITY INTERESTS</b>	<b>133 599</b>	<b>145 891</b>	<b>149 712</b>
Minority interest	-359	-196	-196
<b>NET INCOME</b>	<b>133 240</b>	<b>145 695</b>	<b>149 516</b>

\*) The figures are based on the New ABB business structure. Thus the 1998 figures exclude the power generation business transferred to the new joint venture ABB ALSTOM POWER N.V. In Finland, ABB Power Oy and ABB Ecopipe Oy were transferred to the new company.

## ABB Oy Group Change in Financial Position 1999 (1.000 eur)

<b>CASH FLOW FROM OPERATING ACTIVITIES</b>		
Income Before Taxes		191 918
Adjustments for depreciation and provisions		27 895
Other adjustments		390
		220 203
Changes in trade receivables		12 789
Changes in other current assets		15 255
Changes in inventories		41 131
Changes in trade payables		10 118
Changes in other current liabilities		-48 808
Income taxes and change in taxes due		-32 269
<b>NET CASH FLOW FROM OPERATING ACTIVITIES</b>		<b>218 419</b>
<b>CASH FLOW RELATED TO INVESTING ACTIVITIES:</b>		
Changes in financing receivables		-85 894
Sales of fixed assets and divestitures		45 705
Capital expenditure for fixed assets and acquisitions		-139 490
<b>NET CASH FLOW RELATED TO INVESTING ACTIVITIES</b>		<b>-179 679</b>
<b>CASH FLOW RELATED TO FINANCING ACTIVITIES</b>		
Changes in short term loans		-115 487
Changes in medium and long term loans		7 234
Dividends and group contributions paid		-89 588
Other items		1 314
<b>NET CASH FLOW RELATED TO FINANCING ACTIVITIES</b>		<b>-196 527</b>
<b>NET CHANGE IN CASH AND CASH EQUIVALENTS</b>		<b>-157 787</b>

# Consolidated Financial Statements

## ABB Oy Group Consolidated Balance Sheet, Dec. 31, 1999 (1.000 eur)

	New ABB Composition		
	Group 31.12.1999	Group 31.12.1998 *)	Group 31.12.1998
<b>ASSETS</b>			
CURRENT ASSETS			
Cash and cash equivalents	190 290	347 442	348 082
Trade receivables	187 438	193 457	200 226
Inventories	130 252	161 519	171 385
Other current assets	76 582	104 982	92 807
<b>TOTAL CURRENT ASSETS</b>	<b>584 562</b>	<b>807 399</b>	<b>812 500</b>
FIXED ASSETS			
Loans granted and financing receivables	306 904	220 763	221 011
Shares and participations	69 657	5 678	5 750
Intangible assets	20 954	14 712	14 750
Construction in progress	3 389	4 352	4 352
Machinery and equipment	101 100	107 329	109 071
Land and buildings	133 022	137 154	137 239
<b>TOTAL FIXED ASSETS</b>	<b>635 026</b>	<b>489 988</b>	<b>492 173</b>
<b>TOTAL ASSETS</b>	<b>1 219 588</b>	<b>1 297 388</b>	<b>1 304 672</b>
<b>LIABILITIES AND EQUITY</b>			
CURRENT LIABILITIES			
Trade payables	81 328	52 506	57 123
Other current liabilities	205 926	218 174	191 583
Short-term loans	76 286	209 051	224 851
<b>TOTAL CURRENT LIABILITIES</b>	<b>363 540</b>	<b>479 731</b>	<b>473 556</b>
Advances from customers	48 931	75 356	89 995
Medium- and long-term loans	11 673	3 462	3 462
Pension liabilities	9 736	6 420	6 651
Deferred taxes	138 424	113 327	111 916
Minority interests	2 119	1 835	1 835
STOCKHOLDERS' EQUITY			
Share capital	168 188	168 188	168 188
Restricted reserves	330 266	292 877	292 877
Retained earnings	13 474	10 497	6 676
Net income	133 237	145 695	149 516
<b>TOTAL STOCKHOLDERS' EQUITY</b>	<b>645 165</b>	<b>617 256</b>	<b>617 256</b>
<b>TOTAL LIABILITIES AND EQUITY</b>	<b>1 219 588</b>	<b>1 297 388</b>	<b>1 304 672</b>

\*) The figures are based on the New ABB business structure. Thus the 1998 figures exclude the power generation business transferred to the new joint venture ABB ALSTOM POWER N.V. In Finland, ABB Power Oy and ABB Ecopipe Oy were transferred to the new company.

ABB is a global technology company serving customers in power transmission and distribution; automation; oil, gas, and petrochemicals; building technologies; and in financial services. Power generation customers are served by the joint venture ABB ALSTOM POWER. The ABB Group employs 165,000 people in more than 100 countries.

## ABB Group Reports

The ABB Group publishes its annual report in English, German and Swedish. The English version is binding. It also issues quarterly financial results in April, July and October. In addition, the Group publishes annually an Environmental Management Report and a Technology Report. These reports can be requested from:

*ABB Oy, Communication Services*

*P.O.Box 85, FIN-00381 Helsinki*

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## Ownership structure

ABB Oy is a fully owned subsidiary of ABB Ltd, Zurich (Switzerland), the holding company of ABB Group. The ABB share is listed on various stock exchanges in Europe.



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Subsidiaries:

### ABB Kiinteistöpalvelut Oy

Service and maintenance of  
building technics

### ABB Shipins Oy

Electrification of ships

### ABB Industry Group

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industrial automation  
and electrification  
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Subsidiary:

### ABB Azipod Oy

### ABB Motors Oy

Low voltage induction motors  
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### ABB Service Group

Full service, spare parts  
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Subsidiary:

### ABB Oulun

### Teollisuuspalvelu Oy

### ABB Substation Automation Oy

Products and systems for  
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