introducing

PHILIPS USFA BV

PHILIPS

PHILIPS

PHILIPS USFA B.V.

Foreword

I am pleased to present this brief introduction to Philips Usfa B.V.

Philips Usfa B.V. is a subsidiary of the Philips Concern. It is also a legally independent company. This relationship has enabled us to create the ideal conditions for innovative technology — an independent team of creative specialists with access to the most advanced technical and industrial research in the world.

One of our fundamental strengths is our product philosophy. Basically we have a systems approach, which enables us to participate as partners in integrated systems design on the basis of our expertise in electronics, physics, chemistry and mechanics and our extensive hardware and software knowhow. We also attach great importance to quality — of products and of people — and to our knowledge of the market.

We are a high-technology company with a strategy based on thinking ten years ahead. We are also a compact company — we know one another and we work as a team, motivated by our belief that we are making a contribution to the defence of the free world.

This brochure is a short summary of our capabilities. We shall be pleased to provide more detailed information on request.

W. J. Heringa
Managing Director

Introduction

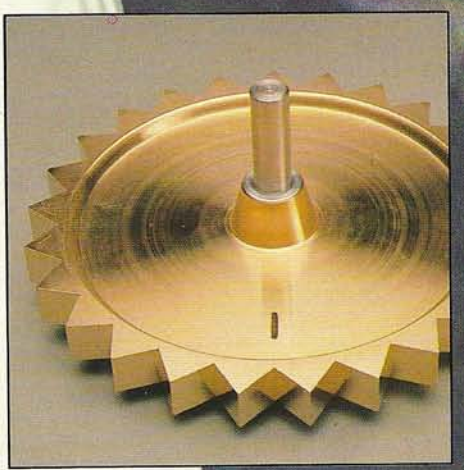
Philips Usfa's origins date back to 1949 when a team of Philips specialists was formed to develop electronic equipment for the Netherlands armed forces. Today the company is one of Europe's leading suppliers of electro-optical and electronic defence products.

Philips Usfa products are in service with defence forces of the NATO alliance and other nations throughout the world. They include equipment and systems developed to meet specific project requirements, together with a wide range of advanced equipment and OEM components which are available "off the shelf".

Philips Usfa B.V. is a high-technology company which sets high standards for its products and its people. Supported by the research and industrial expertise of the world-wide Philips organisation, it is a company equipped to meet the most stringent demands with a combination of innovative skills and unique resources.

Series-produced night observation sights

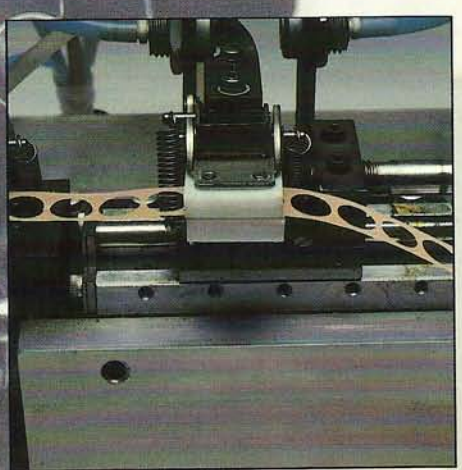
Cryogenic coolers under test



Thermal imaging detector array

Star rotor of thermal imaging camera

CAD terminal



Production of regenerators for cryogenic coolers

Philips Usfa B.V.

Philips Usfa B.V. is a legally independent subsidiary of the Philips Concern. The company is a member of the Defence and Control Systems group, one of the professional Main Industry Groups within the Philips organisation.

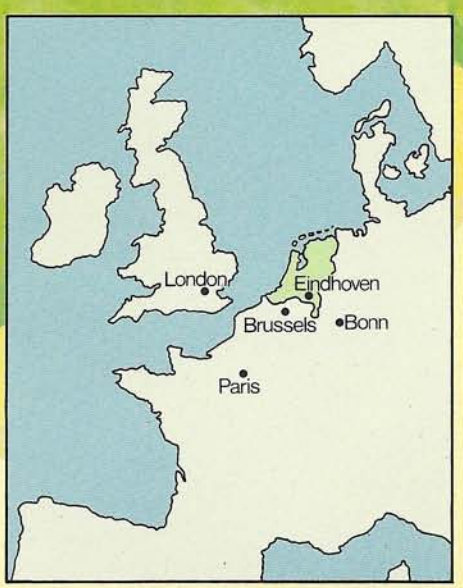
Philips Usfa's product range includes:

- Passive night vision equipment
- Thermal imaging systems
- Secure communications equipment
- Proximity fuzes
- OEM components
  - closed-cycle cryogenic coolers
  - special energy-storage devices
- Licensed products.

The Philips "light tower" in Eindhoven city centre

The company's head offices, laboratories and factory are located in a modern complex in the city of Eindhoven.

Eindhoven is situated in the south of the Netherlands within easy reach of Brussels, London, Paris and Bonn. The city has direct airline services from its own airport to several West European centres and is readily accessible from any part of the world via the international airports of Amsterdam, Brussels and Düsseldorf.

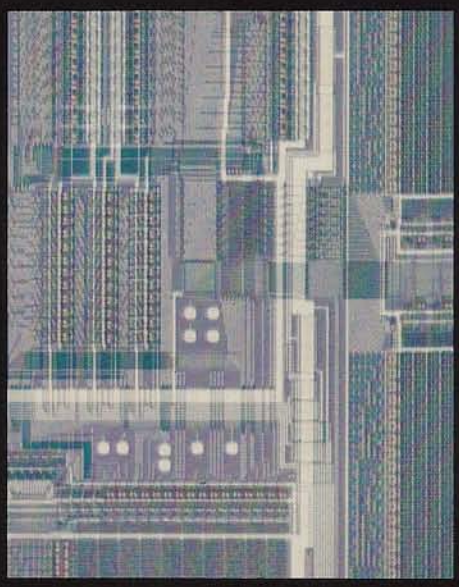


(A) and (B) are conventional photographs showing a Philips office building by day and night respectively. Photograph (C) was made at night with the aid of an image-intensifier night sight, and (D) was taken directly from the video monitor of a Philips Usfa thermal imaging system.

Research and development

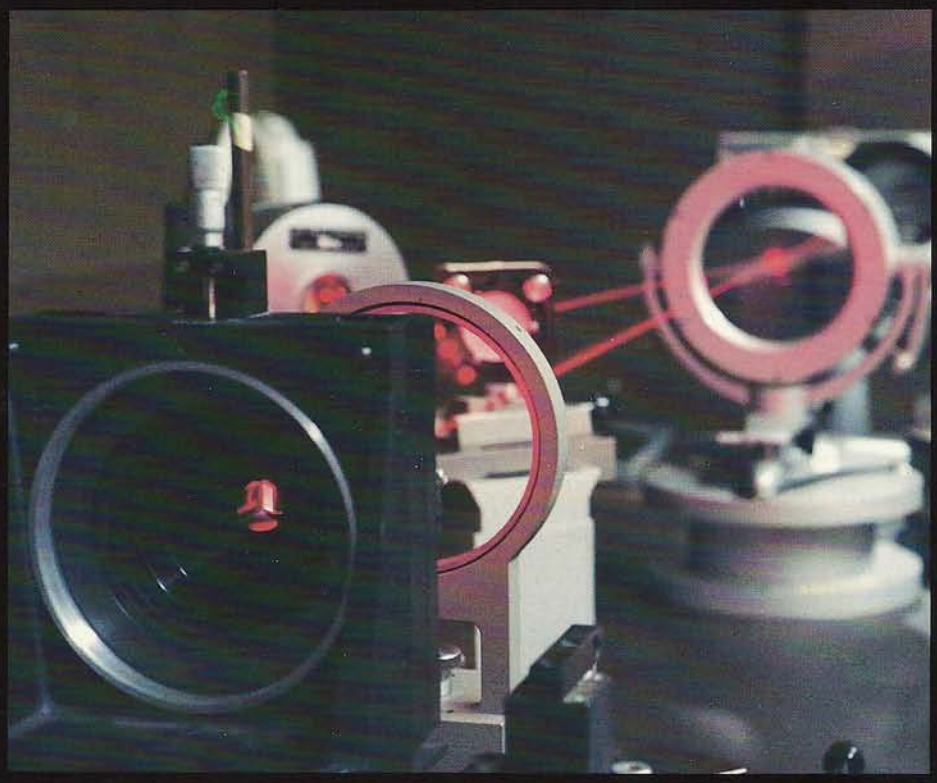
Philips Usfa has always recognised the importance of a strong research and development capability as a means of meeting the ever-increasing demands of defence technology.

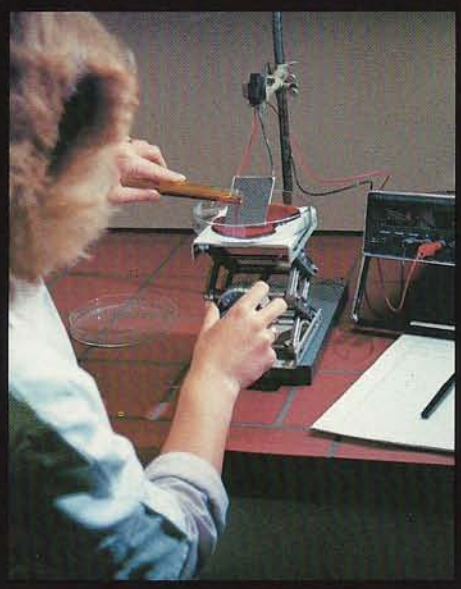
The company's development and engineering team accounts for one third of the total staff. It maintains close working relationships with governmental and industrial research laboratories and has an impressive record in the design and engineering of high-performance equipment of outstanding reliability.

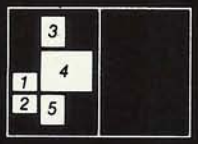


Versatility

A full range of expertise is essential to the successful development of advanced, multidisciplinary systems. Philips Usfa has comprehensive design and engineering capabilities in disciplines as diverse as micro-electronics, cryogenics, precision mechanical engineering and electro-chemistry.



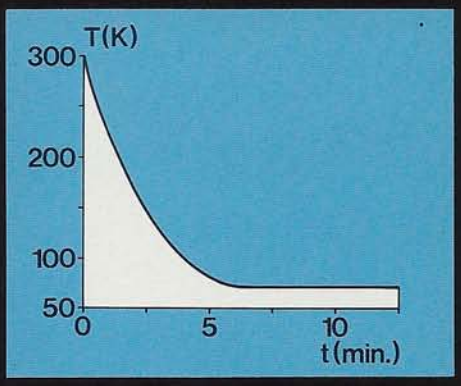


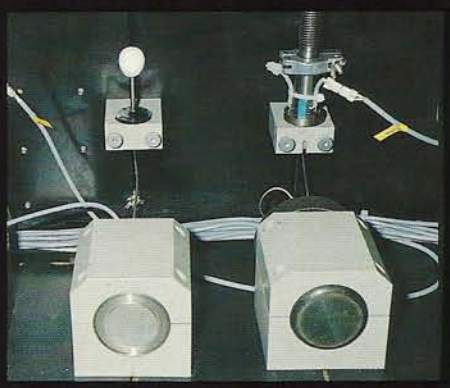


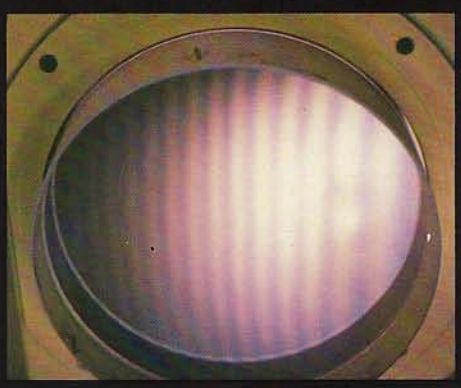
1 Philips Research Laboratories in Eindhoven
2 Development of reserve batteries
3 Advanced - micro - electronics
4 Optical bench for thermal imaging system measurements
5 Electro-chemical research

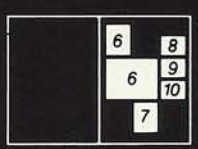
High technology and innovation

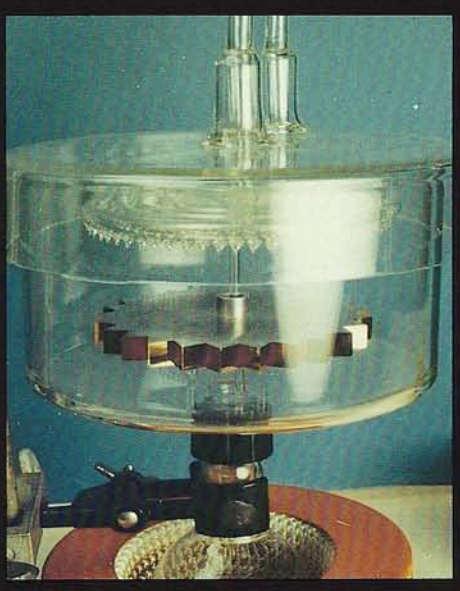
An outstanding example of Philips high technology is the COLATH computer-controlled ultra-precision lathe. Developed by Philips Research Laboratories in collaboration with Philips Usfa and the Philips Centre for Manufacturing Techniques, COLATH is capable of machining glass, germanium and other materials to produce aspheric optical components with the exceptionally high form accuracy required, and with optically smooth surfaces. This unique instrument is used in the manufacture of precision optical components for Philips Usfa thermal imaging systems.











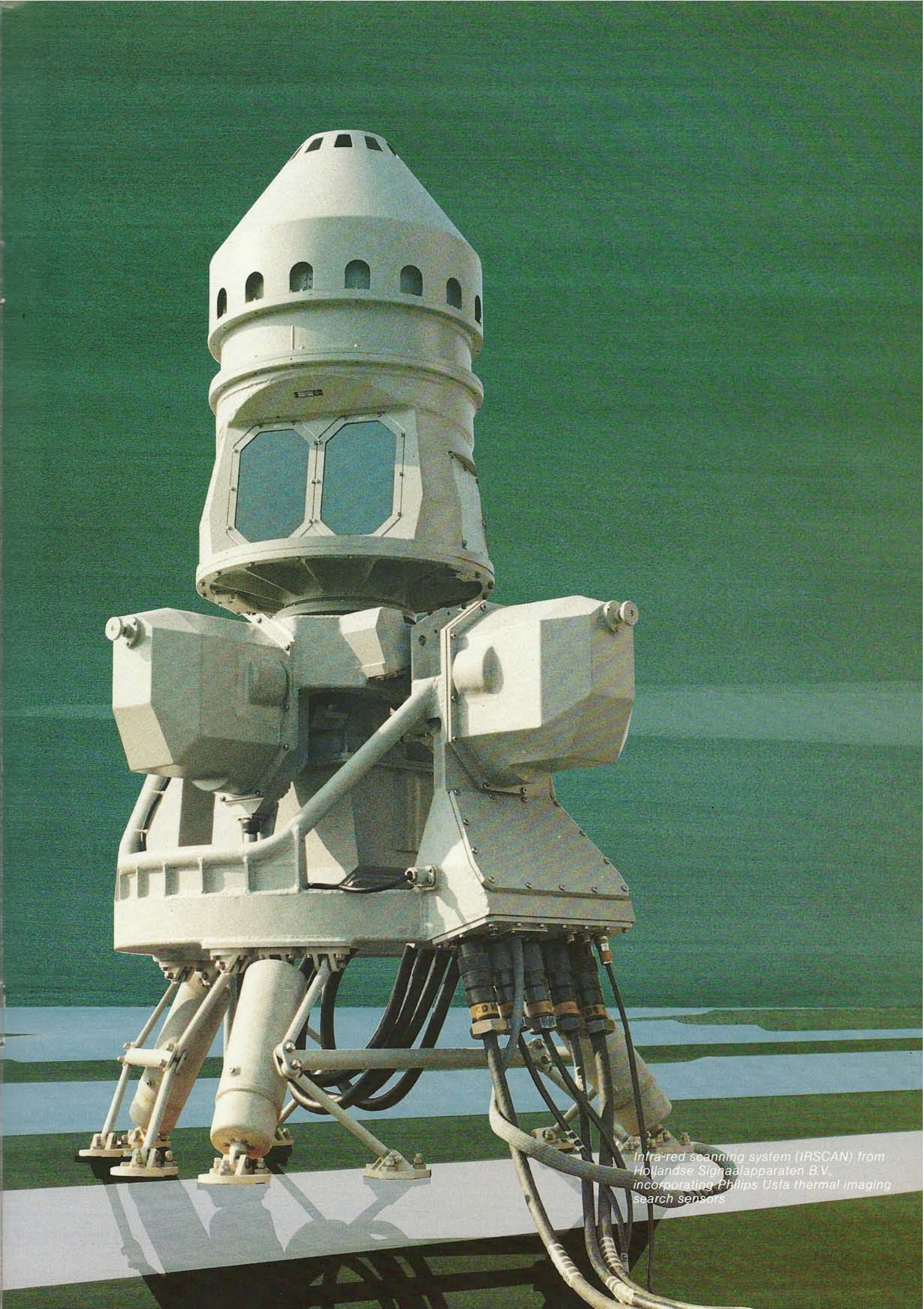
6 COLATH ultra-high-precision lathe
7 Laboratory setup for star rotor development
8 Typical performance curve of cryogenic cooler
9 Stirling-cycle cryogenic coolers under test
10 Measurement of optical surface flatness

Other examples include Philips Usfa's miniature cryogenic cooler, in which mechanical clearances of 10 to 15 µm are maintained over an operating temperature range of more than 200 °C, as well as special-purpose monolithic and hybrid integrated circuits containing up to 50,000 gate equivalents.

Advanced technology

Throughout its history the Philips organisation has compiled an impressive record of technological innovation. Thanks to its formidable combination of research and industrial expertise, Philips is respected throughout the world as an undisputed leader in advanced technology.

To Philips Usfa, therefore, technological advance is a continuous process in which creative research, development expertise and manufacturing knowhow combine to set new standards of sophistication and performance.



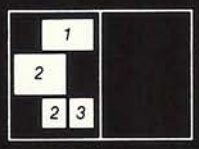
Infra-red scanning system (IRSCAN) from Hollandse Signaalapparaten B.V. incorporating Philips Usfa thermal imaging search sensors

Quality assurance

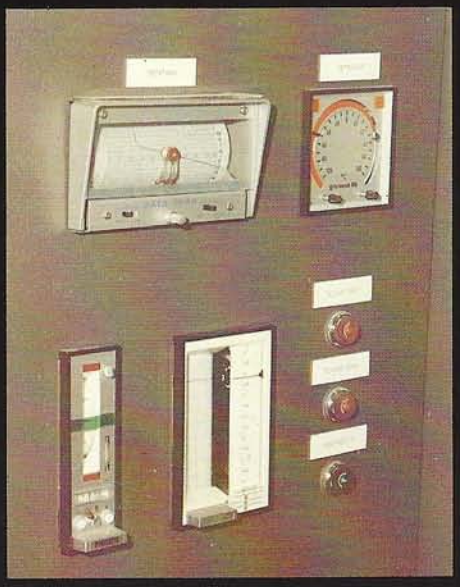
The high quality and reliability of every Philips Usfa product demonstrate the effectiveness of a quality assurance system which covers every aspect of the company's operations.

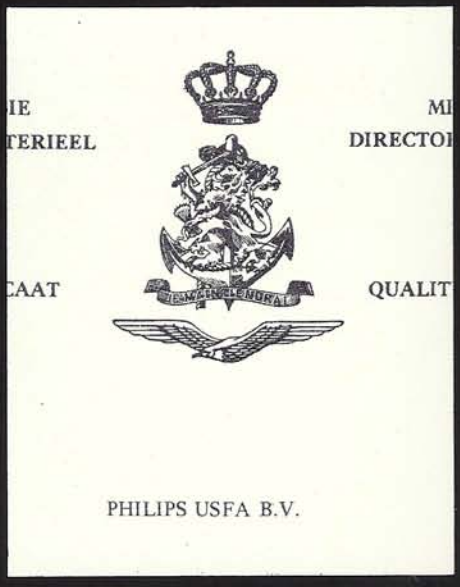
At the heart of the system is a policy which recognises the importance of the individual's pride in a job well done. Every Philips Usfa employee has complete responsibility for maintaining and improving the quality of his contribution, and consequently the overall standards of workmanship are exceptionally high.

These standards are safeguarded by a sensitive quality control network capable of responding instantly to the slightest deviation from specified requirements. Every operation is carried out in accordance with mandatory procedures and monitored by experienced quality control specialists.



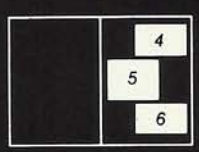
1 Equipment undergoing driving-rain test
2 Low-temperature environmental test cabinet
3 Detail of quality assurance AQAP-1 certificate

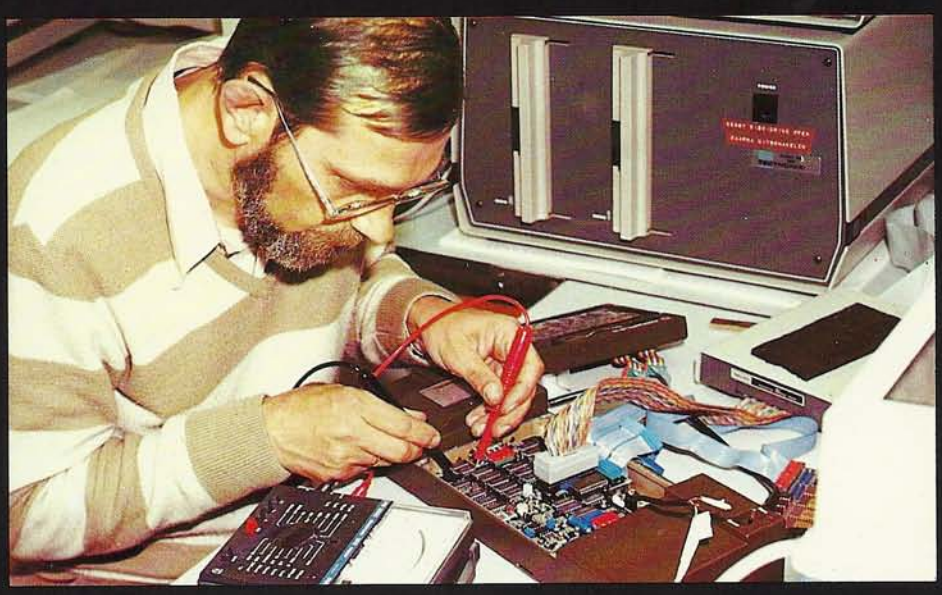




Auditing of the quality assurance system, together with yearly quality-improvement plans, results in breakthroughs in the overall quality approach.

Philips Usfa B.V. meets the NATO AQAP-1 quality assurance standards as specified in STANAG-4108 and is certified accordingly by the Netherlands government. Every aspect of design, development, manufacture and overhaul therefore complies fully with one of today's most stringent quality assurance programmes for military equipment.





4 Drop testing
5 Resolution measurement in dark tunnel
6 Functional testing of secure communications equipment

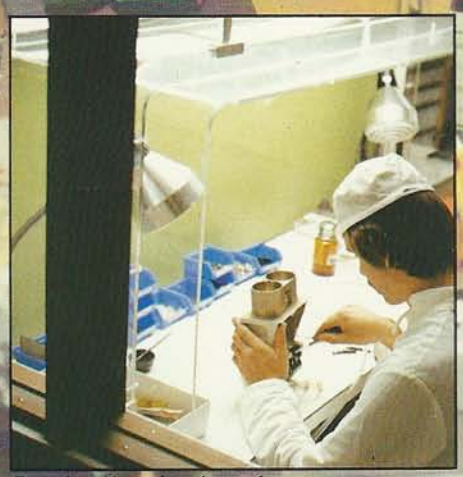
Production

The diversity of Philips Usfa's products demands expertise in every aspect of electronic and electro-optical manufacture.

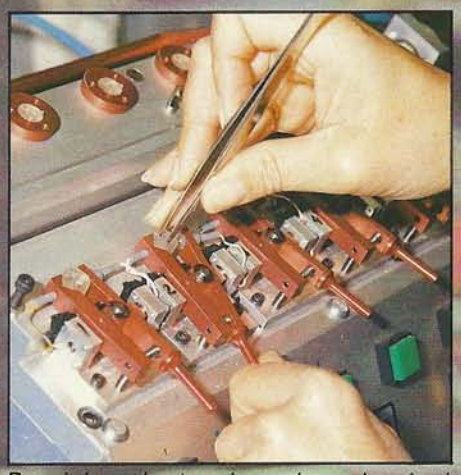
Similarly the highly specialised nature of the company's products calls for specialised manufacturing facilities, many of which are designed and built in-house. These include major items of automated production machinery and computer-aided test (CAT) equipment.

Fabrication and assembly work is largely carried out in controlled environments such as dust-free or ultra-dry rooms. The work is rigorously inspected at every stage, and comprehensive test facilities are available, including a fully-equipped "dark tunnel" for the calibration and testing of night-vision equipment.

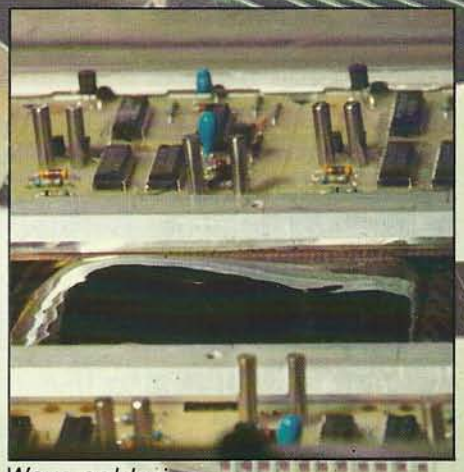
Computerised planning and work scheduling is used throughout the entire production process to provide optimum efficiency, flexibility and speed of response.



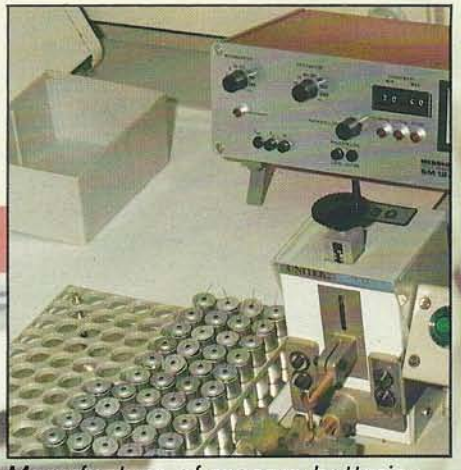
Production in dust-free room



Precision electronic and mechanical assembly



Wave soldering



Manufacture of reserve batteries

Products

Thermal imaging equipment

All objects emit thermal radiation. Thermal imaging equipment detects this radiation and processes the information to form a high-definition image of the scene on a video monitor. It can penetrate fog, smoke and camouflage, and is effective at long and short ranges, in daylight and in total darkness.

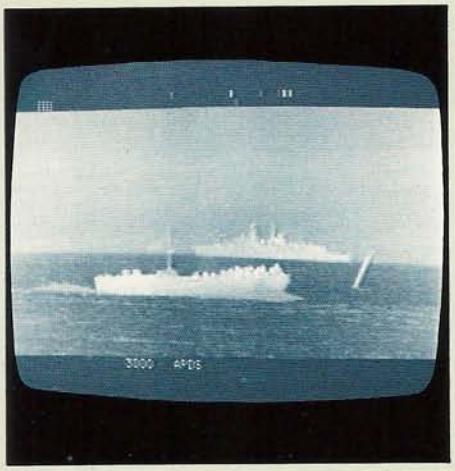
Philips Usfa's current programme includes:

- thermal aiming and observation systems for armoured vehicles
- high-performance thermal cameras for shipborne fire-control systems
- panoramic surveillance sensors.

Thermal image of armoured vehicle

Night observation sight in operation

Individual weapon sight in action



Thermal image of frigate at 2 n.m. (visibility less than 0.5 n.m.)

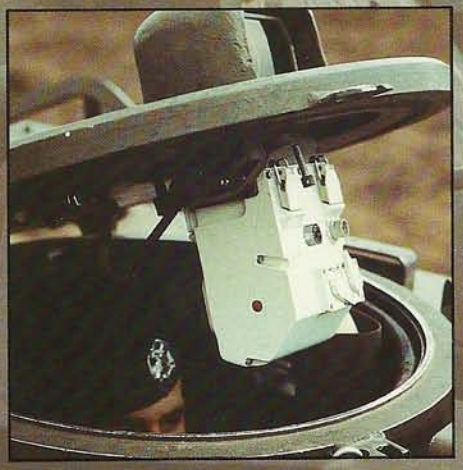
Thermal camera mounted on electro-optical director system

Passive night-vision equipment

Philips Usfa manufactures a complete range of passive night-vision equipment designed for high performance, ease of operation and minimal maintenance.

The range includes:

- individual weapon sights
- hand-held surveillance viewers
- driving periscopes for armoured vehicles
- observation and gunnery periscopes with optional laser rangefinders.



Driver's periscope mounted in armoured vehicle

Typical picture from night sight

Products

Miniature printer for portable secure communications equipment

Secure communications equipment

Philips Usfa's current range of secure communications equipment is the outcome of almost 30 years of experience in this highly specialised field.

It includes:

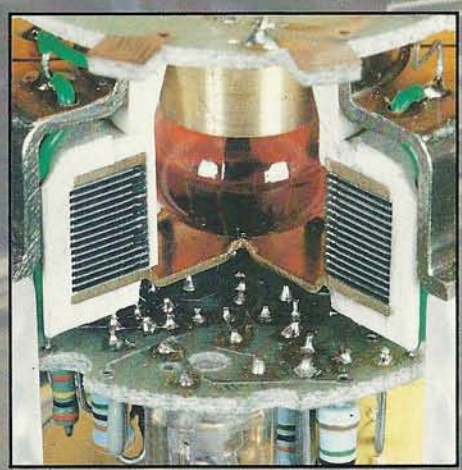
- sophisticated teleprinter terminals
- voice-encryption systems
- bulk encryption equipment
- rugged, portable high-grade terminals.

Secure communications equipment in operation

Proximity fuzes

Philips Usfa designs and manufactures proximity fuzes and associated equipment for use with the new generation of naval armament and field artillery. The range includes advanced devices for use against low-level attacking aircraft and sea-skimming missiles.

Time-setting unit for proximity fuzes



Section through special reserve battery

"Monoblock" cooler

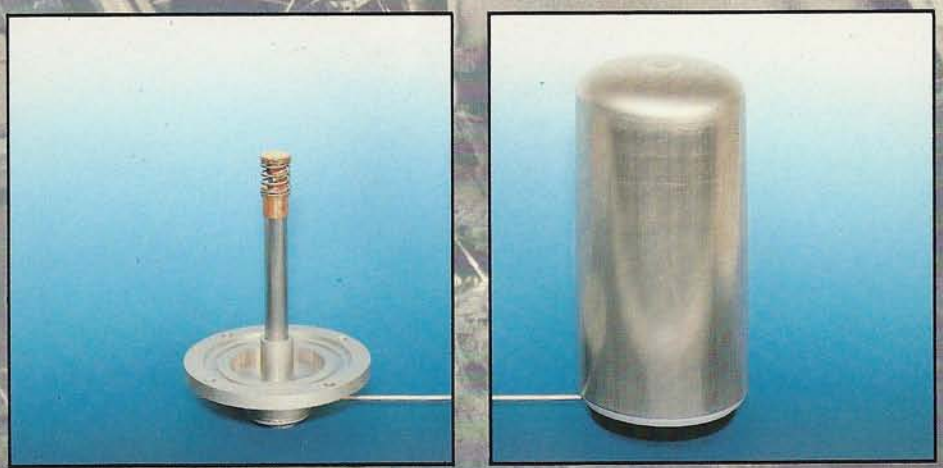
OEM components

The unique Stirling-cycle cryogenic cooler used in Philips Usfa thermal imaging systems is available on an OEM basis. This ultra-reliable unit, which contains no rotating parts, can be supplied in "monoblock" or "split" configuration to match any Dewar/detector.

The company also designs and manufactures special reserve batteries for applications requiring long storage life, instant activation and stable output over wide temperature ranges. These batteries are custom-designed to match the power-supply requirements of specific devices and have a guaranteed storage life of at least ten years.

Licensed products

Philips Usfa also manufactures professional electronic equipment under licence.



"Split" cooler with cold finger

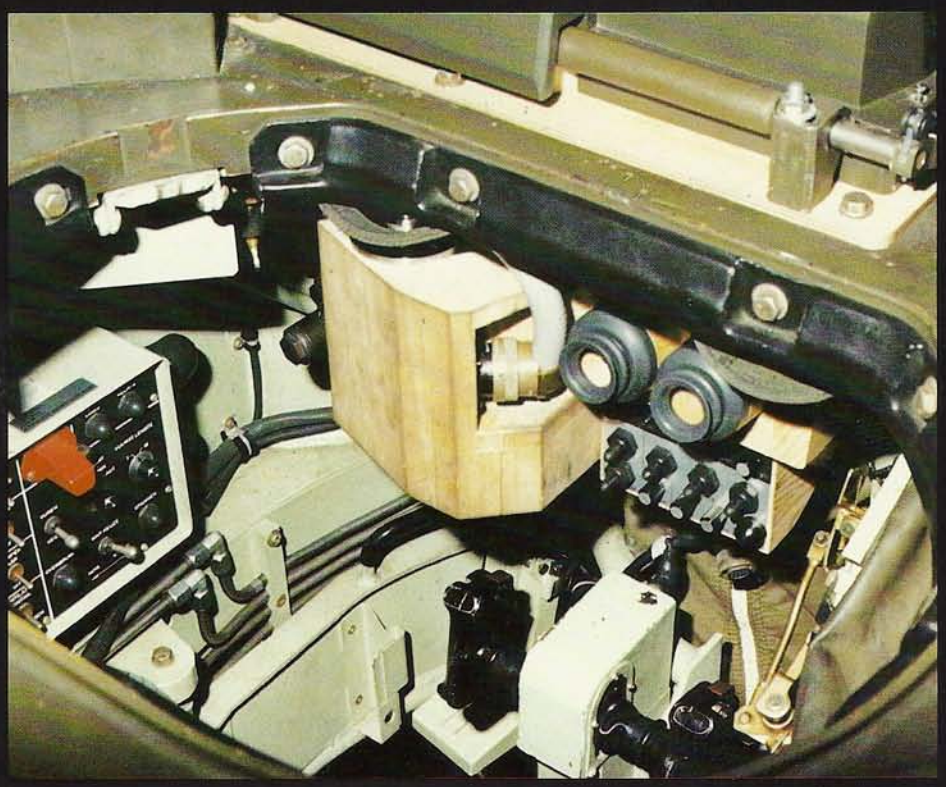
Marketing

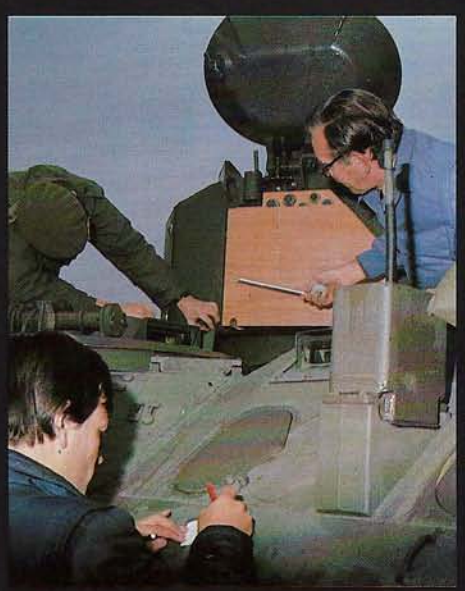
Philips Usfa offers a comprehensive range of services, beginning with the provision of expert assistance during the initial stages of acquisition.

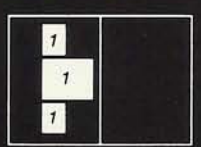
Experienced specialists are available to assist in the analysis of operational and logistic requirements. They will travel to any part of the world to advise on the selection of equipment and will submit specific proposals supported by complete descriptive and technical documentation.

The company also offers installation design services and will provide training courses for operators and maintainers. In addition a fully equipped publications department provides documentary support in the form of training aids, operator handbooks, maintenance manuals and commercial literature.

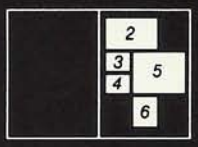
Philips Usfa also operates a specialist overhaul and refurbishing service and holds complete stocks of spares for all its products. Immediate availability of any replacement part is guaranteed throughout the operational life of the equipment.

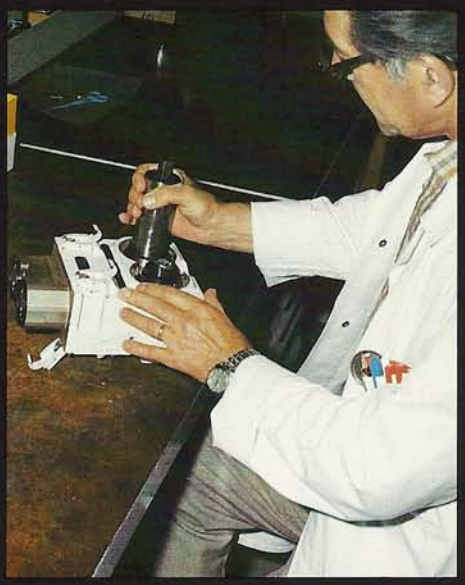






1 Installation design





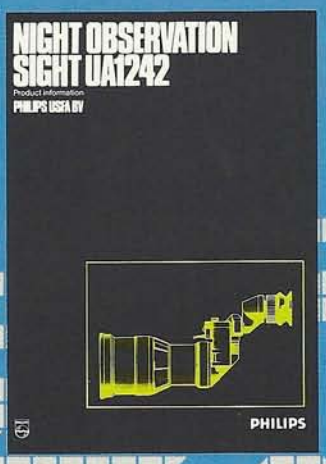
2 Operator and maintainer training
3 Advice and assistance world-wide
4 Complete Stocks of spares
5 Prompt delivery
6 Overhaul and refurbishing service

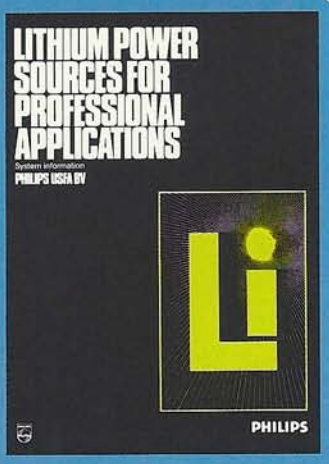
Specific information

Within the space of this brochure it has been possible to give only a brief survey of Philips Usfa's wide range of advanced equipment and systems.

Complete descriptive and technical data for any Philips Usfa product can be obtained through any of Philips' national organisations throughout the world or direct from Philips Usfa in Eindhoven.

You are warmly invited to contact any of the addresses listed on the last page of this brochure.






THERMAL AIMING AND OBSERVATION SYSTEM UA 9090
Product information
PHILIPS USFA BV
PHILIPS
DAY AND NIGHT PERISCOPE SYSTEM UA 9124/UA 9126
Product information
PHILIPS USFA BV
PHILIPS
MINIFLEX
Product information
PHILIPS USFA BV
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