

SIEMENS

**Siemens – worldwide supplier
of complete transmitter stations**



Siemens transmitters –



communication medium for the world

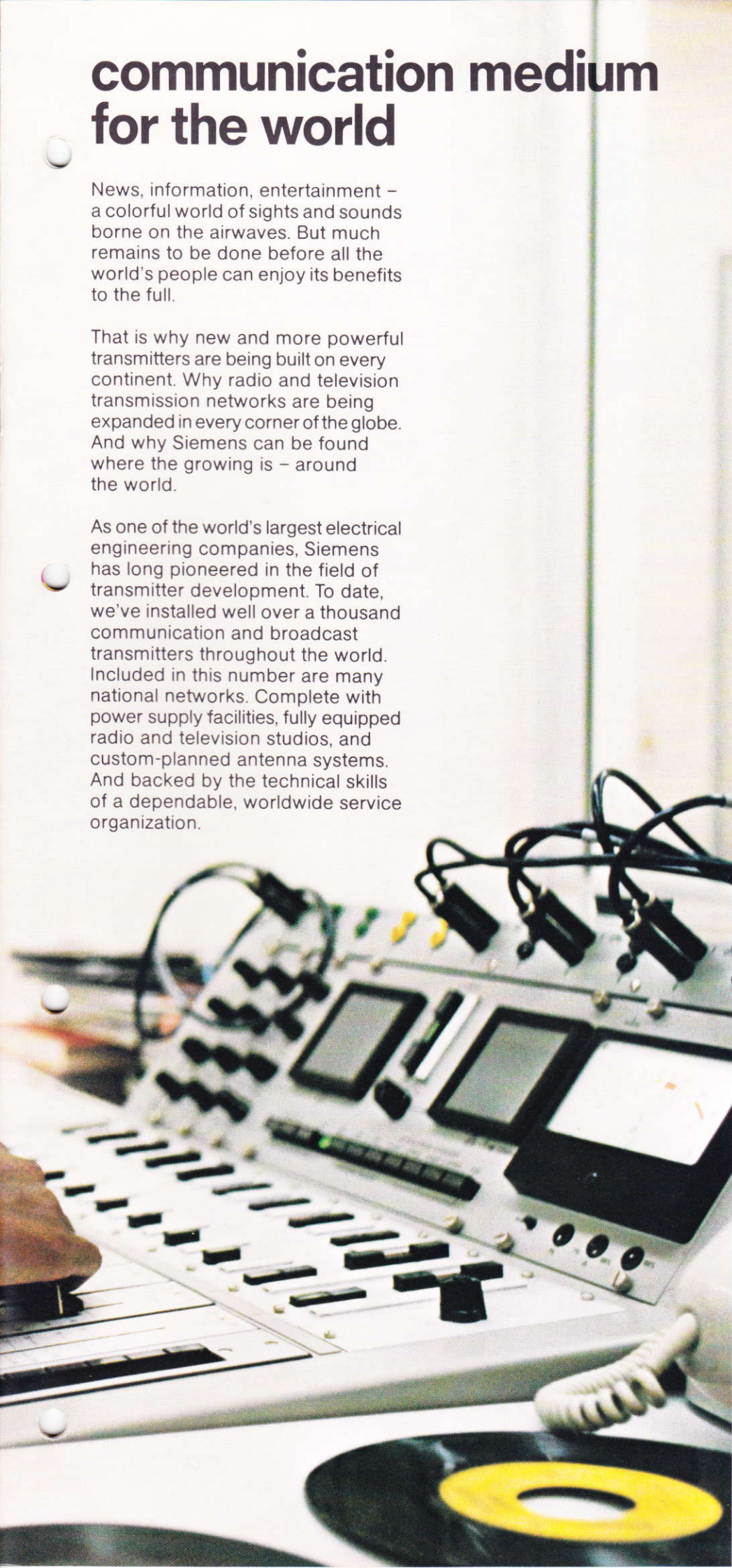
News, information, entertainment – a colorful world of sights and sounds borne on the airwaves. But much remains to be done before all the world's people can enjoy its benefits to the full.

That is why new and more powerful transmitters are being built on every continent. Why radio and television transmission networks are being expanded in every corner of the globe. And why Siemens can be found where the growing is – around the world.

As one of the world's largest electrical engineering companies, Siemens has long pioneered in the field of transmitter development. To date, we've installed well over a thousand communication and broadcast transmitters throughout the world. Included in this number are many national networks. Complete with power supply facilities, fully equipped radio and television studios, and custom-planned antenna systems. And backed by the technical skills of a dependable, worldwide service organization.

Siemens transmitters in 50 countries

<u>Europe</u>	<u>Asia</u>
Austria	Abu Dhabi
Bulgaria	Afghanistan
Denmark	India
Germany	Indonesia
Great Britain	Iran
Italy	Korea
Luxembourg	Lebanon
Norway	Oman
Poland	Pakistan
Portugal	Philippines
Spain	Saudi Arabia
Sweden	Sri Lanka
Switzerland	Taiwan
Yugoslavia	Turkey
	Vietnam
	Yemen
<u>Africa</u>	
Algeria	
Congo	
Dahomey	
Egypt	
Ghana	
Guinea	
Libya	
Morocco	
Nigeria	
South Africa	
Sudan	
Tunisia	
Zaire	
	<u>Australia</u>
	<u>Latin America</u>
	Argentina
	Brazil
	Chile
	Columbia
	Cuba
	Mexico



Studios to antennas – a comprehensive product line

Siemens is a leader in virtually every field of electrical engineering. Our products and projects run the gamut from components to computers, telephones to all-electronic telephone exchanges, small-size motors to nuclear power stations, time switches to plant automation, fire alarms to railway signal boxes. As for transmitter construction, we've been in the business since 1920.

Radio and television transmitter stations are intricate complexes whose many parts – transmitter, antenna, power supply, and switching equipment as well as the telemetry, remote supervision, and supervisory control systems so indispensable to a major facility of this type – must interface smoothly and efficiently, without fault.

A key task in the planning and construction of transmitter stations is the selection and positioning of antennas. This entails pinpointing the optimal transmission site, and deciding on a directional or omnidirectional antenna. In order to provide an optimum antenna system a complete study must be made of the propagation conditions.

A multitude of special cables is needed to interconnect the component parts of a transmitter station. These range from power cables for the power supply system to RF power feeders for supplying energy to the antenna. Often, programs can be transmitted from studio to antenna more economically by radio link. Here, too, Siemens has the required systems.

Every program broadcast from a transmitter must first be produced in a studio. Studio production equipment is as varied as the programs produced. It includes everything from the microphones and tape-recorders of the radio studio to the cameras, microphones, effect lighting, audio and video recording and cutting equipment, and mixing desks of a fully equipped television studio. And not to be forgotten are the systems "behind the screens" – the telephones, teleprinters, clock and signaling installations, and fire prevention equipment.

Our Product Line

Transmitter systems

Broadcasting transmitters for medium & shortwave ranges.
Television transmitters for Bands III, IV/V and VI (12 GHz)

Antenna systems

Omnidirectional and directional antennas, antenna matching circuits, power dividers, transformation networks, aircraft warning lights, ground systems, open-wire feeder lines and coaxial cables.

Studio engineering and links

Studio equipment, program transmission equipment, program and voice links between studio and transmitter.

Power supply

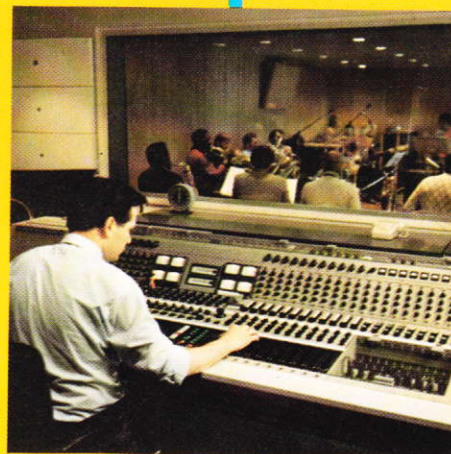
Diesel generators for continuous or stand-by operation, automatic switching systems, high- and low-voltage distribution, transformers.

Mobile equipment

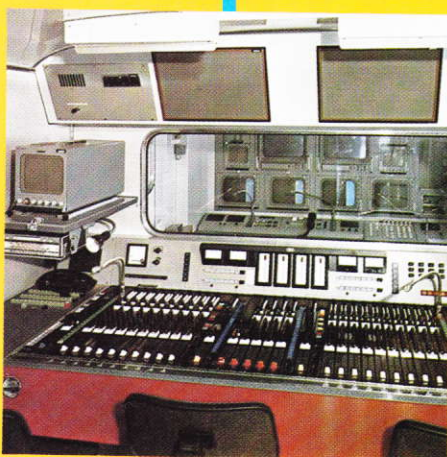
Transmitters up to 10kW, antenna masts, diesel generators, studios.

Auxiliary equipment

Control desks, supervisory equipment for transmitter input and output, test equipment for VF and RF systems, cooling equipment, distilling equipment, telephone and clock installations, teleprinters, signaling systems.



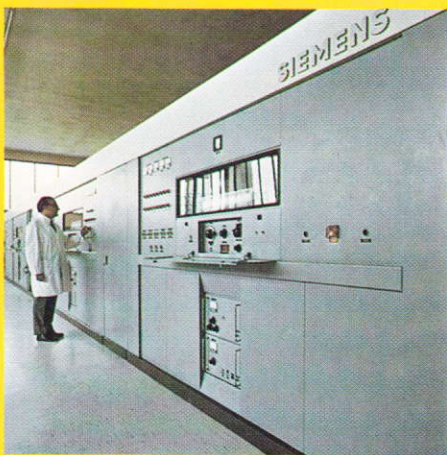
Production of a music program in the broadcasting studio. The sound engineer at the mixing desk controls several microphones to obtain optimum sound quality.



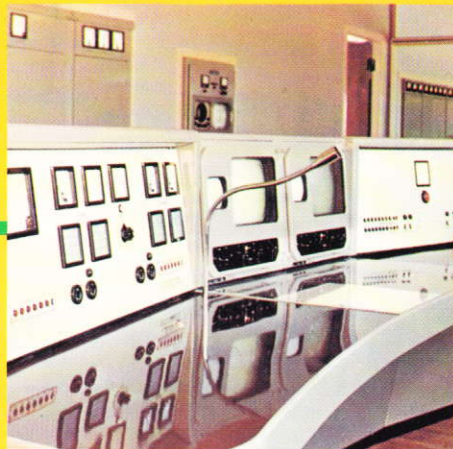
Control desk of a mobile TV station. The control equipment required for transmission "from the scene" is accommodated here in a minimum of space.



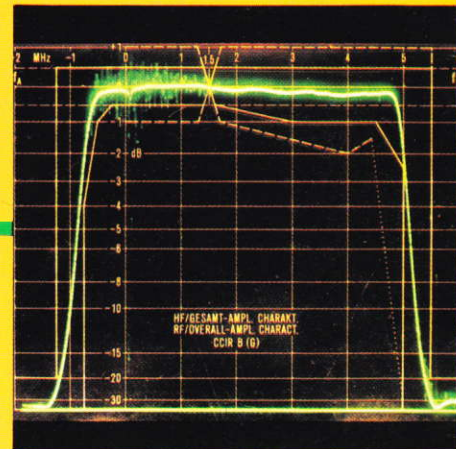
All transmission and power cables are accommodated on drums in the rear of the van, ready for connecting.



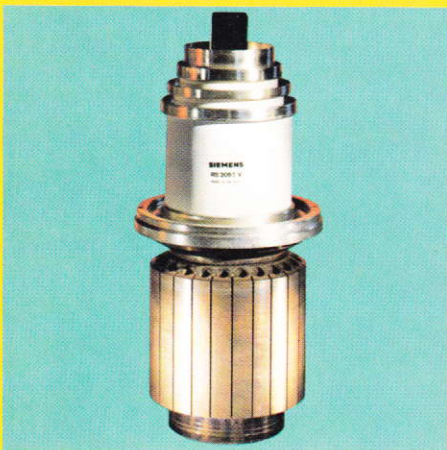
Front view of a 600 kW medium-wave transmitter.



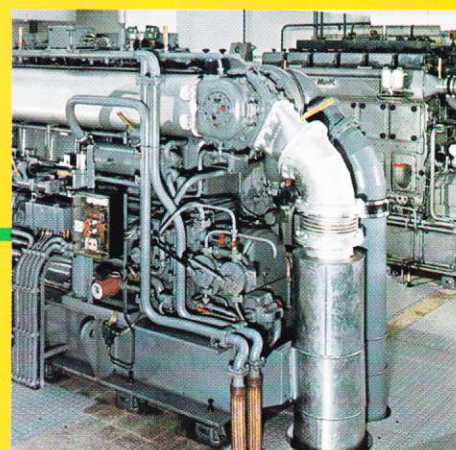
Detail of a TV transmitter control desk. Here, incoming and outgoing audio and video signals are extracted and supervised.



Essential functions are monitored by means of oscilloscope and other high-quality test equipment.



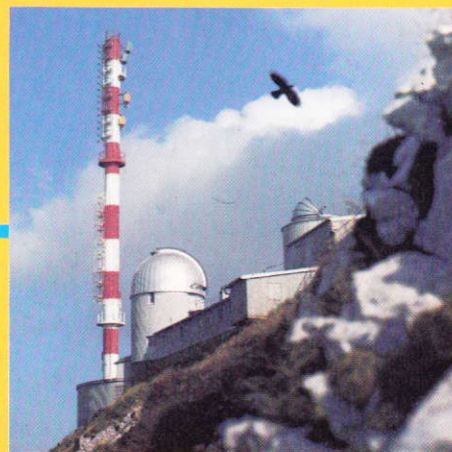
Modern metallized ceramic transmitter tube capable of generating output power of 100 kilowatts at frequencies of up to 130 MHz.



Standby diesel generating set for 1000 kVA, sufficient for the operation of a 300 kW transmitter with all auxiliary systems.



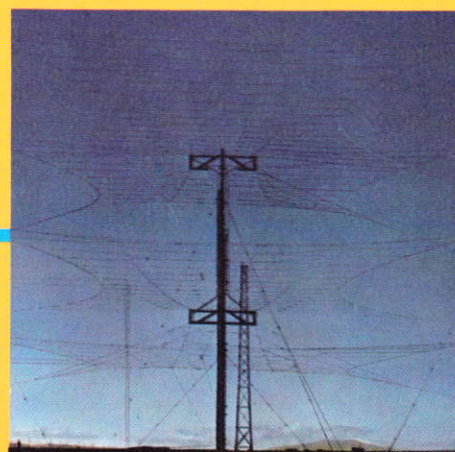
TV and VHF transmitter station with radio relay receiving antenna. Radio relay is often used as the feeder route in cases where cables would be difficult to lay.



TV and VHF antenna tower in the Alps, 1800 meters above sea level. A 50-meter tubular mast supports Band III antennas and Band II triplexed antennas for three VHF-FM-programs.



RF coaxial cable with helix spaced insulation and corrugated copper tube. This cable is suitable for use as an antenna feeder for outlet powers of up to 500 kW.

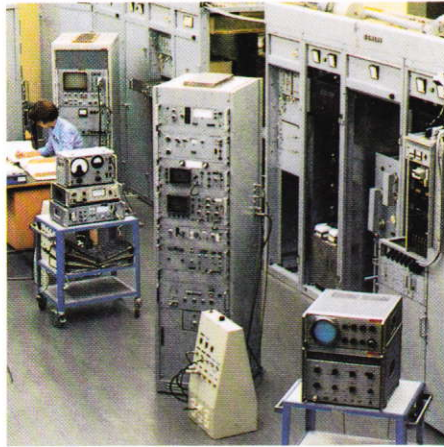


Shortwave high-powered antenna with very high gain across the entire shortwave range.

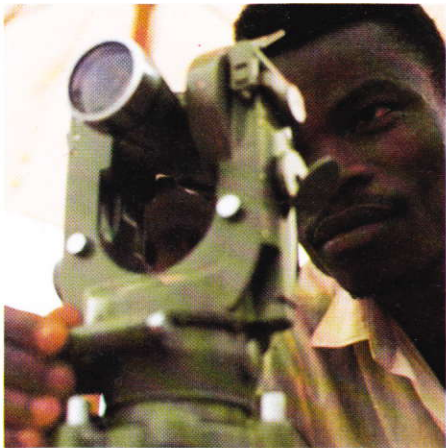
All of these systems and equipments – studio to antenna – are planned and supplied by Siemens. This total delivery capability, plus our many years of experience in handling major projects and our long association with reliable subvendors the world over, has made Siemens the partner of choice in the field of transmitter construction, as in every sector of electrical engineering.



Planning at the drawing board is the first stage of every project.



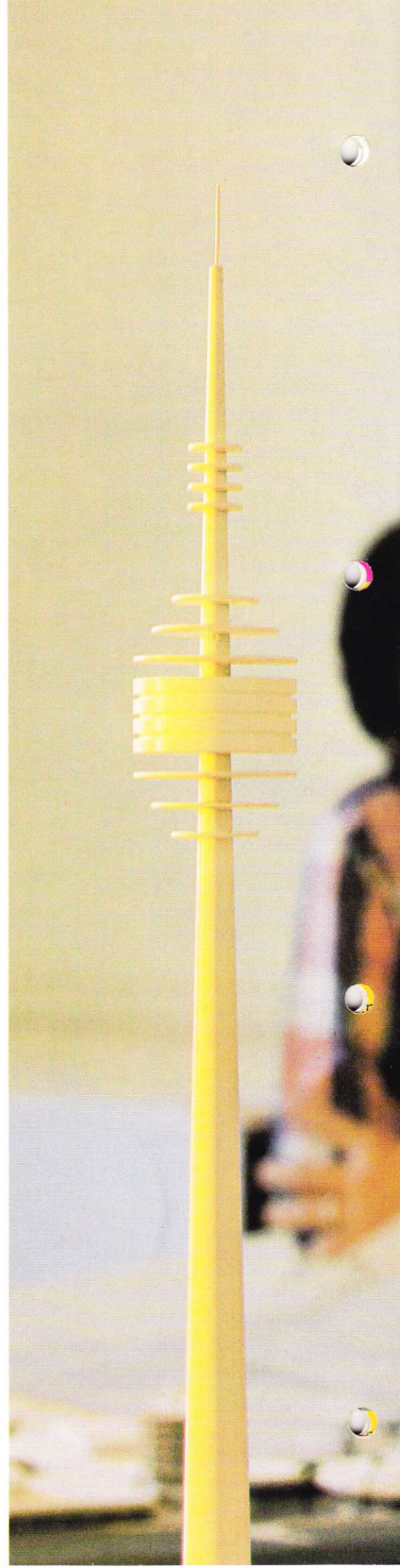
All subcomponents are assembled by experienced installation teams. The total transmitter installation is thoroughly tested before commissioning.



On major projects outside Germany, our experts work together with experienced local subvendors. Building contracts, in particular, are usually given to indigenous firms.



Laying the transmitter cable to the antenna – one example of many tasks that can be handled by local personnel.



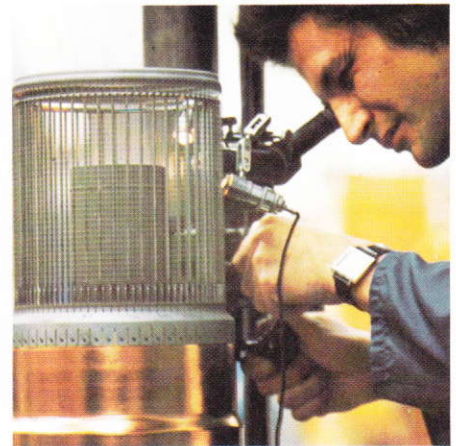


Transmitter tubes to coaxial cables – developed by Siemens

Siemens not only builds transmitters from the ground up but knows transmitters inside and out. Every Siemens-built transmitter station represents, in addition to the expertise born of long experience in transmitter construction, the fruits of a research and development program that embraces every sector of electrical engineering. Transmitter construction benefits in many ways from this general R&D effort, whether it be directed towards miniaturizing electronic components, redesigning satellite transmitter tubes, developing new transmission, antenna, or cable systems, refining frequency measuring techniques, or improving the efficiency of process control computers. This valuable reservoir of know-how is further expanded by the exchange of ideas between our technical experts and the feedback of information from our installation and service personnel throughout the world.



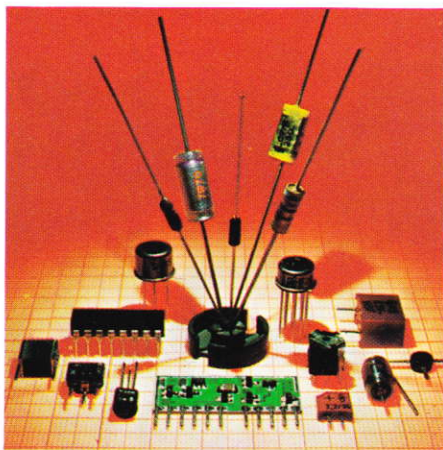
Siemens components are manufactured in many countries around the world.



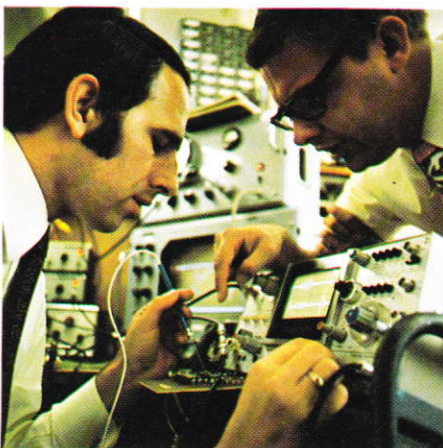
Installation of a 600 kW transmitter tube for a medium-wave transmitter.



44,000 Siemens employees work in Munich, which is also Company headquarters for telecommunications systems development.

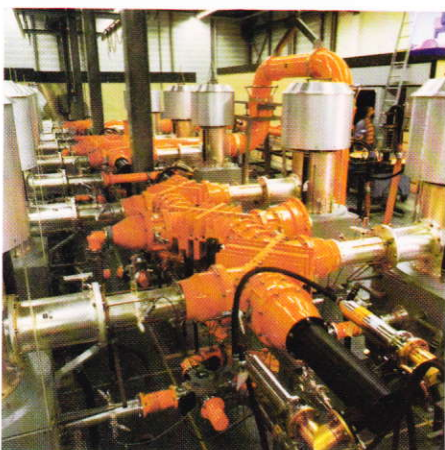


Virtually all Siemens electronic components – from transistors to transmitter tubes – are developed and manufactured in our own laboratories and plants.



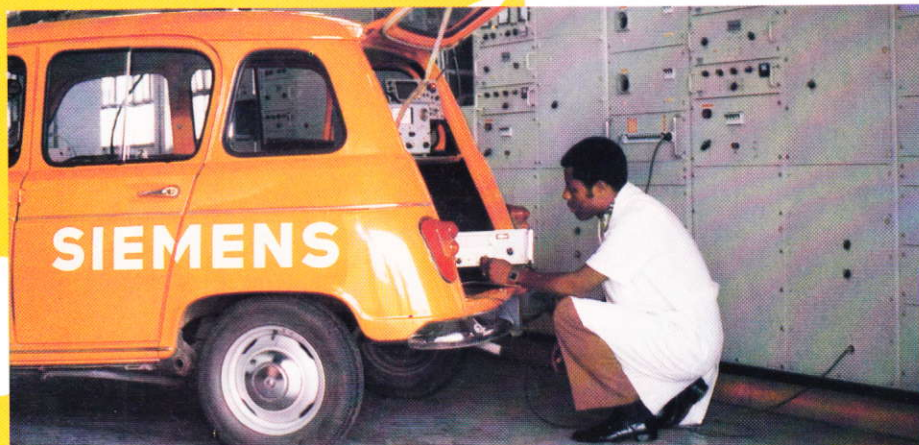
New components, design styles, and manufacturing processes constantly provide development engineers with new incentives.

Transmitter technology pushed to the limits: a 1.5 MW/200 MHz system for a particle accelerator. Fifteen identical cavities are connected in a hybrid circuit to form three 500 kW amplifiers.



Siemens – worldwide supplier of complete transmitter stations

Siemens is the largest German manufacturer of electrical engineering products. Our sales offices and representatives are found on every continent, in more than 450 cities and 130 countries. Nearly one in three of our 300,000 employees works outside Germany. In 1974, international business accounted for more than half of our total orders. Siemens production, too, is worldwide: 40 of our 90 manufacturing plants are located outside Germany.



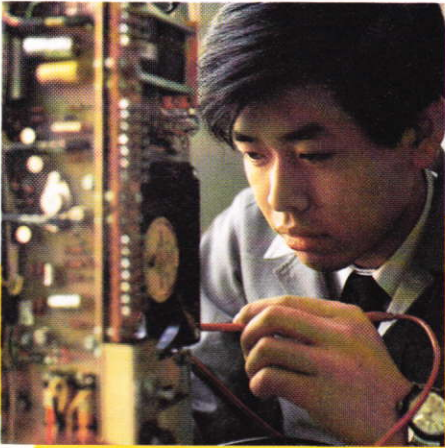
Wherever a major project is tackled – a power station, a telephone or teleprinter network, a satellite station or transmitter station – Siemens consulting and planning engineers cooperate with customer technical staff in finding the solution that offers the greatest technical and cost efficiency, and in preparing a detailed offer and project schedule. During actual execution of the project, German experts continue to cooperate with local subvendors.

Our after sales service network is as extensive as our sales network. Maintenance by Siemens service technicians is your best guarantee of a system that's always in the peak of condition.

Siemens is constantly consolidating its position as one of the world's leading producers of electrical engineering equipment – by the superior quality of its products, its comprehensive know-how, and its ability to be on the spot, in any spot in the world.

Everywhere in the world, our Customer Service personnel – equipped with the latest technical devices and a store of essential spare parts – guarantee the smooth functioning of Siemens systems, and immediate help in eliminating faults.

Final testing of an amplifier.
All equipment manufactured outside
Germany complies fully with the
high Siemens standard of quality.



Wherever Siemens erects a
transmitter, station operating
technicians are given a comprehensive
course of training in which they
are thoroughly familiarized with all
equipment and systems.



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