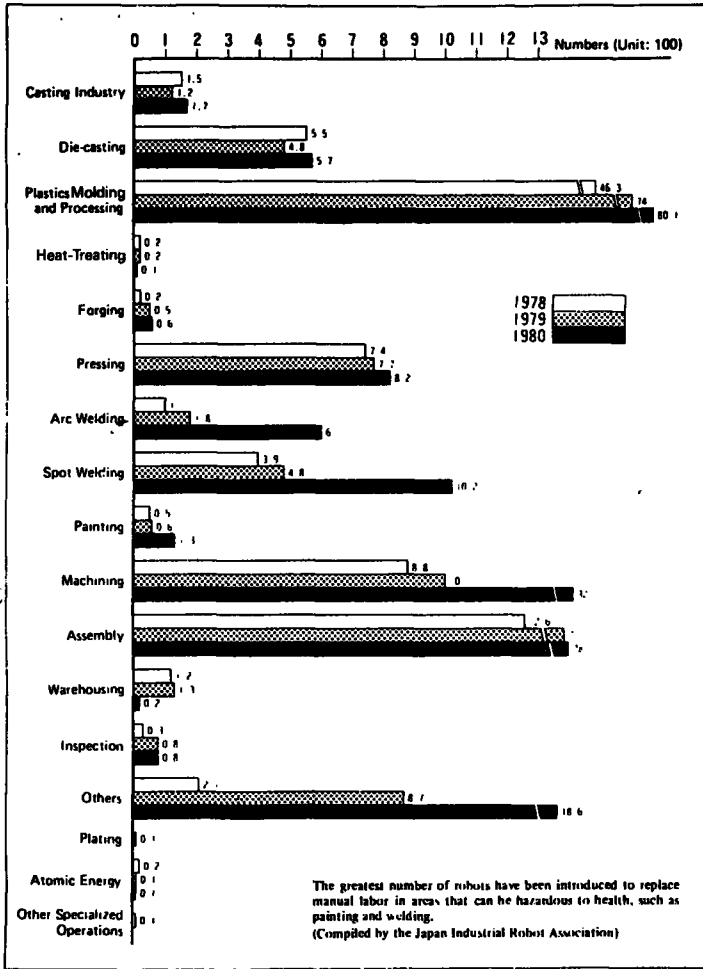


Robots being used in specific application



Industrial Robots in Japan

JAPAN'S LEAD IN THE ROBOT REVOLUTION

Few innovations throughout history stand out as much for their technical, economic, social and cultural consequences as that of the computer/micro-processor technology, recognised today as the most important technology of the late 20th century. Whether at home or at work this innovation is now taken for granted in Japan and many countries of the West and is becoming as common and as essential as electric light. A far reaching development from the micro-processor technology is that of industrial robots which can be programmed to weld cars, work in coal mines or in textile factories. Industrial robots are beginning to transform the way the world works.

Although it is a development that promises major gains in productivity the cost by way of displacement of human labour could be disastrous. When the computer shrank in size and cost, it suddenly became practical to use it as the brains to run a robot. Today's robots do not necessarily look or behave like human beings, all they need is mainly a guiding brain (the computer) and an arm with claws for fingers. The computer is simply plugged into an electric outlet; cables run from the computer along the robot's arm and transmit instructions in the form of electric impulses to the claw; for heavy work, robots use hydraulic pressure.

Types of Industrial Robots in Japan

Types	Operations
Manual Manipulator	Manipulator controlled by a human operator.
Fixed Sequence Robot	Pre-programmed to perform a series of operations in a fixed sequence; changing of procedure is difficult.
Variable Sequence Robot	Pre-programmed to perform a series of operations in a fixed sequence; changing of procedure is easy.
Playback Robot	A manipulator is taught by a human being to memorize procedure, position and other information; and can carry out operations by calling up that information to meet the demands of the situation.
Numerical Control Robot	A manipulator that carries out operations designated by a numbering system. (making use of digital switches, punch cards, etc.)
Intelligence Robot	A robot that can decide its actions, using sensors or cognitive functions.

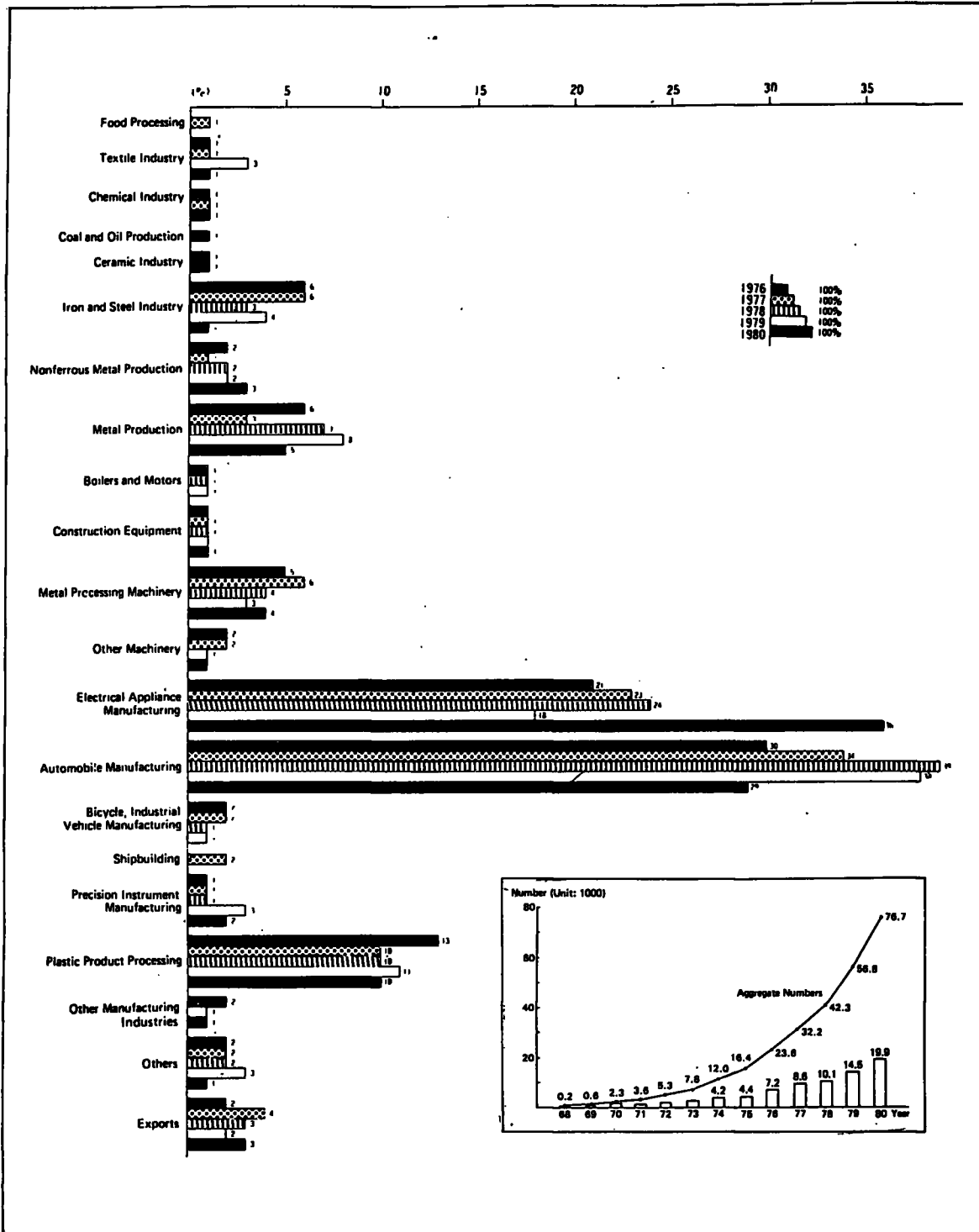
Robot for Extreme Work



Automatic Sewing System
This project aims at establishing the technology required for development of "automatic sewing system" efficiently to perform the small lot production of multiple types of apparels to cope with diversification of consumer needs and shorter life cycle of products.

These steel-collar workers already paint cars, assemble refrigerators drill aircraft wings, mine coal and, for that matter, wash windows; newer robots now on the drawing boards will soon be spraying crops with pesticides, digging up minerals deep under the oceans and repairing satellites in outer space. Not too far off, experts predict, is that landmark day when robots will begin designing and then building other robots.

Robot Introduction According to Industry (%)



● Industrial robots are being used in a variety of industries, with demand being greatest in the automotive and electrical fields.

● In the future, we can foresee application of robots in the fields of social welfare, development of the oceans, industry, forestry, construction, transportation and service industries.

In recent years, the operation of in- over 10,000; compared with 3,000 in used in a variety of industries, with dustrial robots in both types and members the US; 850 in West Germany; 600 demand greatest in the Automobile have increased tremendously in certain in Sweden; 500 in Italy; and about and Electrical Appliances manufacturing parts of the world. For instance, in 1971 200 each in Franch, Norway and Britain. industries. Research and development from less than 1,000 robots Japan had Other significant users were Finland aimed at producing 'intelligent' robots nearly 20,000 operating by 1981. By 130 and USSR 25, according to TIME for use in a wide variety of applications, including medicine, social welfare and of the robots in use in the world, well In Japan industrial robots are being fire-fighting are also in progress here.

