

CENTRAL INTELLIGENCE AGENCY

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1. The Resita Metallurgical Works were established in 1769 for the production of pig iron, steel, and certain finished goods. In 1854 the ownership of the Works passed into the hands of an Austrian railroad company which owned them until 1919. Under Austrian ownership the Works developed a factory for the manufacture of rolling stock, rails, iron bridges, and various items of railroad equipment. Since 1919 the Works were further expanded for the production of large steam locomotives, turbo-aggregates, compressors, and other items of heavy machinery. By August 1955 the Works covered approximately 4,500,000 square meters and employed some 20,000 workers.
2. The works are divided into two main sections: the metallurgy and the machine building sections. The former comprises the blast and open hearth furnaces, the electric furnaces, the coking plant, the rolling mills, and the refractors. The machine building section has an annual output of 80,000 metric tons of machinery and includes the following plants: cast iron, steel, and non-ferrous metals foundries, a heavy forge and spring forge, a thermal treatment plant, a locomotive factory, a heavy machinery factory, a bridge and metal construction plant, a mounted wheels plant, a boiler and allied equipment plant, an electric motors plant, a tool-making plant, and a belt and screw factory.
3. The Resita Works are equipped with electric motors with a total installed power of some 80,000 kilowatts. Power is supplied by a thermo and hydro-electric complex. Twenty-five percent of the power is manufactured at the Works (a total installed power of c. 55,000 kw) and the rest is brought in from the regional grid (approximately 60,000 kw). Water is supplied by a network of channels approximately 70 kilometers in length and by a private reservoir. Compressed air is supplied by various compressor plants, most of which were constructed at Resita, with a total output of some 500 cubic meters per minute. The gases from the furnaces, coking plants, and generator groups are used in the drying, heating,

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smelting, and treatment ovens of the various plants. Steam is supplied by various boiler stations with a total output of approximately 220 metric tons per hour.

4. Some 166 kilometers of railroad lines run through the Works, over which travel 32 locomotives and more than 1,000 cars. Transportation between sections is mechanized (electric trucks, conveyors, etc.).
5. The planning and drafting institute of the Resita Works has conceived 20 different types of locomotives; various road and railway bridges for domestic construction and export (to the USSR, Hungary, Yugoslavia, and Bulgaria); various types of Pelton, Francis, and Kaplan hydraulic turbines; steam turbine plants for domestic use and for export to Communist China; pumps; fans; hydraulic presses; heavy traveling cranes; generators; and electric motors.
6. The Resita blast furnaces turn out first-cast pig iron for the use of the Works and for sows. The open hearth steel plant with its open hearth and electric furnaces produces simple carbon steel as well as alloyed steels of all types. The rolling mills consist of fine, medium and heavy lines; two sheet lines, and a universal line which turns out all types of section iron, including iron for concrete reinforcement, sheet iron, and rails. The rolling mill for wheel tires and discs is located in a shop by itself. This is the only plant of its kind in Rumania and the largest plant of its type in Southeast Europe. In addition to the rolling mills it contains various hydraulic presses, including a Bering press of 2,000 metric tons pressure, a four-ton hammer, various traveling cranes up to 15 metric tons in capacity, and several ovens, including an electric one with automatic temperature control.
7. The metallurgical section of the Resita Works also includes a coking plant with three batteries; a factory for refractory materials which turns out fire bricks and other items; an oxygen plant; and various warehouses.
8. The machinery division of the Resita Works is divided into two main lines: the locomotive factory and the heavy machine building factory. The construction of locomotives was begun at Resita in 1873. In 1923 a new locomotive plant was built. The mechanical processing shops of the locomotive plant were erected in 1943 and now cover an area of some 17,000 square meters. Among the machines in this shop are a six meter diameter lathe with a horizontal face plate; horizontal drilling and boring machines up to 250 millimeters in diameter; planing machines with a run up to 10 meters; special gantry milling machines for locomotive rods; a machine for turning and boring coupling rods for locomotives; various milling machines; automatic and copying lathes; traveling cranes with a capacity up to 15.3 metric tons; two stands for the testing of steam turbines and other stands for checking locomotive assemblies and compressors.
9. The assembly shops of the locomotive factory occupy approximately 7,500 square meters; they have 25 lines for the assembly of locomotives and 5 lines in the painting shop. Locomotives under construction are transported from one line to another and to the shop exit by means of a 120-ton electric traverser; the lifting of the locomotives is achieved by means of 160-ton mechanical hoists. The locomotive factory was originally designed for an annual output of 100 heavy locomotives, but without an increase in equipment as many as 200 large locomotives (of 110 metric tons each) could be manufactured in a year.

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10. The boiler shop of the locomotive factory covers 5,300 square meters and is equipped to manufacture boilers for locomotives, locomobiles, stationary steam engines, autoclaves, and other types of equipment. The shop contains: a hydraulic flanging press for sheets 2.3 meters in diameter and 35 millimeters thickness; electric and autogenous welding aggregates (hand-operated and automatic); and traveling cranes with lifts up to 40 metric tons. All welded joints in boilers and fireboxes are checked by x-ray.
11. The heavy machine building factory of the Resita Works covers 8,000 square meters and contains some 180 machine tools, including a special unit for processing the cylinders and slide valves of locomotives; big lathes with horizontal face plates up to five meters in diameter; planing machines up to 2.8/8.5 meters; slotting machines with a one-meter stroke; and lathes up to one by fourteen meters. The factory is equipped with traveling cranes with a lift up to 30 metric tons. A special section manufactures 14-meter drill collars and grief stems for drilling purposes. The principal products of the factory are: assemblies and sub-assemblies for locomotives; heavy equipment for rolling mills; heavy cranes and other equipment for the metallurgical and iron-working industries.
12. The bridge plant of the Resita Works was first set up in 1860 for the construction of railroad bridges and ramifications. In 1952 the old factory was supplemented by a modern plant at Bocsa Romona, covering 20,000 square meters, for the manufacture of bridges and metal constructions. The equipment of the two plants includes edge planing machines for surfaces up to 15 meters; automatic welding apparatus; sheet metal rolling mills; traveling, gantry, and semi-gantry cranes. The plants have built and mounted numerous road and railway bridges with spans up to 140 meters, and corbels (the Borcea bridge over the Danube, among others).
13. The wheel set plant, which covers 3,600 square meters, first started putting out mounted axles in 1858. The plant's equipment includes a horizontal face plate lathe for wheel discs and tires, slicing lathes for tires and axles, a journal rolling machine; two hydraulic wheel mounting and wedging presses with graphic recorders, and a milling machine for locomotive frame plates. The tires are heated by induction. A special installation provides for the balancing of mounted locomotive axles, they being checked by means of a magnetic detector. The plant has supplied mounted axles to Austria, Hungary, [redacted] Yugoslavia, Bulgaria, and the USSR. The present production capacity amounts to approximately 12,000 mounted car axles and 250 sets of mounted locomotive axles per year.
14. The electrical machinery plant was established in 1920 and modernized in 1950. The plant manufactures: motors for air compressors up to 500 kw; alternating and direct current equipment for cranes, welding aggregates, and turbine generators of 3,000 kw at 3,000 rpm; various rotating electric machines; power transformers and special transformers; low-speed motors for rolling mills; and medium and large transformers. Some time ago the plant constructed for its own use a frequency converter of 8,000 kVa.
15. The screw plant of the Resita Works is located at Anina and turns out bolts, nuts, screws, rail spikes, and tie screws.

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16. The various plants of the machine division of the Resita Works are serviced by several foundries and a forge. The foundries include sections for processing steel, pig iron, and non-ferrous metals, and cover a total area of approximately 10,000 square meters. In addition, a new foundry has been set up outside Resita which covers some 14,000 square meters. No information is available on this unit. The pig iron foundry is equipped with several cupola furnaces and a rotary furnace. It is served by 19 traveling cranes with a lift capacity up to 50 metric tons. Forming is done both by hand and mechanically. Locomotive cylinders are made only mechanically. The foundries' output meets not only the demands of the Resita Works for its own products but is also sold to outside customers.
17. The forge covers some 4,500 square meters and is equipped with hammers with a beat up to 7.5 metric tons, mechanical presses from 50 to 200 tons, winding machines for coil springs, machines for leaf springs, two machines for testing springs, several ovens for thermal treatment, 28 traveling cranes and hoists with capacities from two to 30 metric tons, and a special mould workshop. Thermal treatment is performed in a separate annex to the forge. The annex contains some ovens 15 meters in length, as well as special baths.
18. The products of the Resita Works are tested and controlled by a staff of more than 550 employees, both at intermediary stages and for final acceptance. Over 350,000 chemical analyses are carried out yearly in four rapid laboratories, a sand laboratory, a central laboratory, and a metallographic laboratory. Some 120,000 mechanical tests are undertaken in the course of a year. The laboratories contain, among other items: magnetic ferro-flux installations for checking axles, rods, and other products; three x-ray units for checking welded joints; spring-testing apparatus; test stands for turbines and locomotive fittings; five modern dynamic balancing machines with electric and optical recorders for checking parts from five kilograms to 30 metric tons in weight; special stands for testing electrical machinery; a weighing stand for the control and distribution of loads on locomotive axles; and speed tunnels. Furthermore, all the necessary control apparatus is on hand to check that rolling stock meets international (UIC) standards.
19. The Resita Works have the following training facilities: an apprentice school with an annual enrollment of 400; a technical school which trains 80 technicians (designers, norm clerks, calculators, plan clerks, etc.) yearly; a foreman's school which trains 80 foremen per year. In all, approximately 1,600 trainees are schooled at the Works every year. The training center consists of five large blocks of houses with a total floor space of 22,000 square meters. This area includes three boarding houses for apprentices, with a total capacity of 1,000, six laboratories, and 26 classrooms.
20. As for housing facilities, the Resita Works have 181 blocks of dwellings for married workers and employees and six dormitories with room for 3,000 unmarried workers. The Works also contain two day nurseries and a workers' club with a 1,200-seat theater.
21. The Resita Works manufactures the following products:
- a. Metallurgical products:
 - Metallurgic coke
 - Refractory bricks

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White furnace pig iron
 Alloyed and non-alloyed open hearth steel ingots
 Alloyed and non-alloyed electric steel ingots
 Blooms, slabs, billets, plates
 Plain and boiler sheet metal over 5mm.
 Rolled section iron for constructions
 Special sectional steel for springs

b. Rolled goods for railroads:

Heavy rails up to 49 kilograms per meter
 Light rails
 Small parts for heavy rails
 Fish plates and plates for light rails
 Special sectional parts for switches
 Car wheel discs
 Tires for car and locomotive wheels
 UZ and ZV steel for cars
 Round steel for stay-bolts and boiler screws

c. Machine construction:

Steam turbines, 100, 3,000 and 4,500 kw
 Hydraulic turbines: Pelton Kaplan and Francis
 Air compressors: 15, 30, 45, and 90 cubic meters per minute
 Heavy industrial equipment
 Heavy cranes
 Metal constructions
 Highway bridges
 Medium and heavy electric motors
 Generators and turbo-generators
 Electric arc welding aggregates
 Power transformers

d. Railroad equipment:

Steam locomotives of all types
 Mounted wheels for rolling stock
 Railroad bridges
 Railroad ramifications
 Bolts, rail spikes, and tie screws
 Shaped pieces

22. Products of the Resita Works are exported to the USSR, Bulgaria, Austria, Hungary, Yugoslavia, [redacted] and Albania.

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