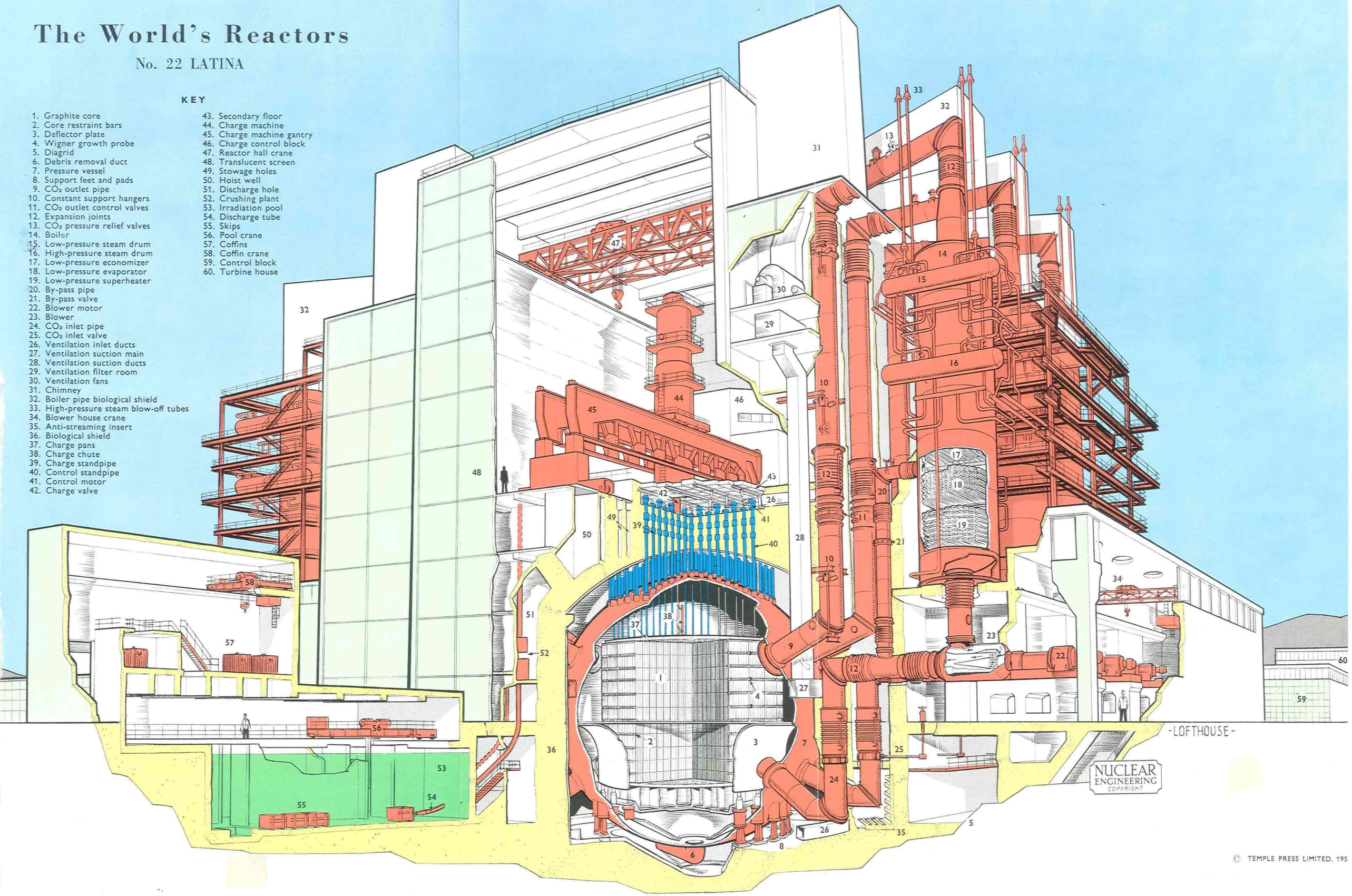
The World's Reactors

No. 22 LATINA

KEY

1. Graphite core
2. Core restraint bars
3. Deflector plate
4. Wigner growth probe
5. Diagrid
6. Debris removal duct
7. Pressure vessel
8. Support feet and pads
9. CO_2 outlet pipe
10. Constant support hangers
11. CO_2 outlet control valves
12. Expansion joints
13. CO_2 pressure relief valves
14. Boiler
15. Low-pressure steam drum
16. High-pressure steam drum
17. Low-pressure economizer
18. Low-pressure evaporator
19. Low-pressure superheater
20. By-pass pipe
21. By-pass valve
22. Blower motor
23. Blower
24. CO_2 inlet pipe
25. CO_2 inlet valve
26. Ventilation inlet ducts
27. Ventilation suction main
28. Ventilation suction ducts
29. Ventilation filter room
30. Ventilation fans
31. Chimney
32. Boiler pipe biological shield
33. High-pressure steam blow-off tubes
34. Blower house crane
35. Anti-streaming insert
36. Biological shield
37. Charge pans
38. Charge chute
39. Charge standpipe
40. Control standpipe
41. Control motor
42. Charge valve
43. Secondary floor
44. Charge machine
45. Charge machine gantry
46. Charge control block
47. Reactor hall crane
48. Translucent screen
49. Stowage holes
50. Hoist well
51. Discharge hole
52. Crushing plant
53. Irradiation pool
54. Discharge tube
55. Skips
56. Pool crane
57. Coffins
58. Coffin crane
59. Control block
60. Turbine house



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The World's Reactors

No. 22 LATINA

OWNER:	Simea.
DESIGNER:	N.P.P.C./Agip Nucleare.
TYPE:	Thermal heterogeneous.
PURPOSE:	Power production.
CAPACITY:	200 MW(E) net. Heat rating: 705 MW. Number of reactors: one.
OPERATION:	1962.
FUEL:	Natural uranium metal rods. Dimensions: 29.3 mm dia. × 914.4 mm. Elements in vertical channels: 8 per channel. No. of fuel element channels: 2,853. Dia. of channels: 105 mm. Total wt. of material: 262.5 tonnes. Maximum temperature: 585°C.
CANNING:	Material: Magnox A.12. Wall thickness: 2 mm. Diameter over fins: 57.2 mm. Extended surface: helical fins.
MODERATOR:	Graphite: 'A' type. Active core size: 7.82 m high, 12.71 m dia. Overall size including reflector: 9.45 m × 14.25 m.
CORE:	Average temperature: 306°C. Lattice: regular square, 203 mm pitch. Thermal utilization factor, f: 0.57558. Resonance escape factor, p: 0.89295. Fast fission factor: 1.03341. Thermal fission factor: 2.00649. Multiplication factor, k: 1.06572.
PRESSURE VESSEL:	Mean dia.: 20.35 m. Thickness of plate: 90 mm. Total weight estimated: 1636 tonnes. Working pressure: 12.8 kg/cm².
COOLANT:	Carbon dioxide. Inlet temperature: 180°C. Outlet temperature: 390°C.
BLOWERS:	Number of circuits: 6. Number of blowers: 6.
CONTROL:	Number of channels: 100. Coarse: 91. Fine: 9. Rod design and construction: steel tube with ferro-boron insert. Rod length approximately: 8,350 mm. Suspension: chain. Shut-down speed: 1,270 mm/min. Minimum automatic speed: 12.7 mm/min.
REACTIVITY:	Total excess—unflattened region: 5%.
SHIELDING:	Concrete density: 140 lb/cu. ft. Biological sides: 2,565 mm minimum. 2,590 mm minimum top. Cooling: blown air.
HEAT EXCHANGERS:	Number per reactor: 6. Steam conditions: H.P. 52.4 atm. abs. × 373°C. L.P. 14.3 atm. abs. × 373°C.
MAIN TURBO ALTERNATORS:	Number of sets: 3. Rating: 70 MW. Speed: 3,000 r.p.m. Generator voltage: 11.8 kV. Alternator efficiency: 98%.
AUXILIARY TURBO-ALTERNATORS:	Number of sets: 2. Rating: 9.5 MW. Speed: 2,250 r.p.m.

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- *No. 1. BEPO (April, 1956)*
- *No. 2. CP5 (May, 1956)*
- *No. 3. NRX (June, 1956)*
- *No. 4. DIMPLE (August, 1956)*
- *No. 5. ZEUS (September, 1956)*
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