Boiler House Auxiliary Power from Drive Loads

Total boiler-house auxiliary power from fans, feed pumps and other drives, and the specific power in kWh per tonne of steam.

Method: Definitions (sum of drives; kWh/t = kW ÷ t/h)

Input parameters

Unit system: SI

Parameter	Value	Unit
FD fan	250.00	kW
ID fan	450.00	kW
Secondary / PA fans	120.00	kW
Boiler feed pumps	400.00	kW
Others (feeders, ash, ESP, water treatment)	180.00	kW
Steam generated	100.00	t/h

Calculated results

Parameter	Value	Unit
Total auxiliary power	1,400.0	kW
Auxiliary power per tonne of steam	14.000	kWh/t

Formula and method

$$P = \Sigma P_i, \quad e = \frac{P}{\dot{m}_s}$$

Variables

P_{FD}	FD fan	W
P_{ID}	ID fan	W
P_{SA}	Secondary / PA fans	W
P_{BFP}	Boiler feed pumps	W
P_o	Others (feeders, ash, ESP, water treatment)	W
$\dot{m}_s$	Steam generated	kg/s
P	Total auxiliary power	W
e	Auxiliary power per tonne of steam	J/kg

Method and standards

Definitions.

Assumptions and limits

- Measured loads.

References

- Definitions (sum of drives; kWh/t = kW ÷ t/h)

Report details

Report reference	FCC-336C-CCGJ (the same inputs always give the same reference)
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Release checks	2 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/boilers-power-plant/plant-performance/boiler-auxiliary-power

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.