Oil Deodoriser: Stripping Steam and Heating

Stripping steam and heating duty of an edible oil deodoriser from oil flow, steam on oil, oil temperatures and specific heat, with oil–oil heat recovery.

Method: Definitions and mass and energy balances

Input parameters

Unit system: SI

Parameter	Value	Unit
Oil flow	300.00	t/d
Stripping steam on oil	1.0000	%
Oil specific heat	2.2000	kJ/(kg·K)
Oil in	80.000	°C
Deodorising temperature	240.00	°C
Heat recovered by oil–oil exchange	60.000	%

Calculated results

Parameter	Value	Unit
Stripping steam	125.00	kg/h
Heat to reach deodorising temperature	1,222.2	kW
Net heating after recovery	488.89	kW

Notes for this case

- The final heating to 230–260 °C is done with high-pressure steam or thermic fluid; vacuum of 2–4 mbar keeps stripping steam low.

Formula and method

$$\dot{m}_s = s\dot{M}, \quad Q = \dot{M} c_p (T_2 - T_1), \quad Q_n = Q(1 - \eta_r)$$

Variables

$\dot{M}$	Oil flow	kg/s
s	Stripping steam on oil	-
c_p	Oil specific heat	J/(kg·K)
T_1	Oil in	K
T_2	Deodorising temperature	K
η_r	Heat recovered by oil–oil exchange	-
$\dot{m}_s$	Stripping steam	kg/s
Q	Heat to reach deodorising temperature	W
Q_n	Net heating after recovery	W

Method and standards

Sensible heat and steam rate.

Assumptions and limits

- No losses.
- Only the stripping steam is counted. Motive steam for the vacuum ejectors, often larger than the stripping steam, and heat losses are not included.

References

- Definitions and mass and energy balances

Report details

Report reference	FCC-W8WA-73ZJ (the same inputs always give the same reference)
Generated	17 November 2026, 19:49 UTC
Calculator	Oil Deodoriser: Stripping Steam and Heating
Method last reviewed	13 November 2026
Software release	FireCAD Calc, release of 17 November 2026
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/chemical/textile-rice-oil/deodoriser-steam

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.