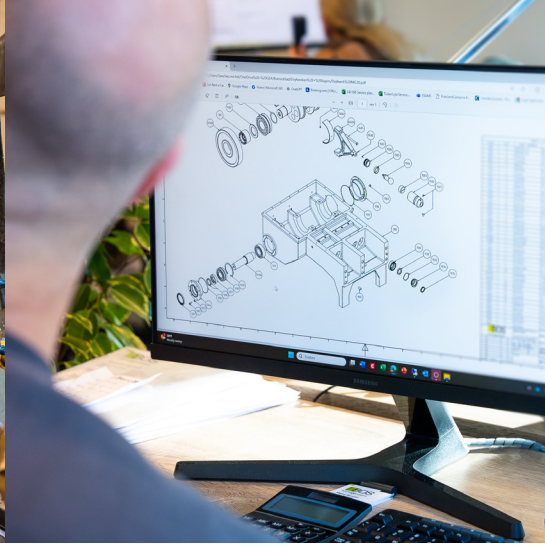




TCO-brochure

Total cost of ownership

At BOS Homogenisers, we use a Total Cost of Ownership (TCO) approach because we believe that the true value of a homogeniser extends beyond its initial purchase price. By evaluating the complete lifecycle costs, we gain deeper **insight into the performance and economics of our homogeniser business**. This enables better-informed operational and investment decisions, helps identify opportunities to reduce **operational expenditures (Opex)**, and ensures that **capital investments (Capex)** deliver the highest possible return on **investment (ROI)**. Ultimately, TCO allows us to create greater long-term value for both our customers and our business.

TCO BOS homogenisers

- Increase insight in the Homogeniser business
- Improve decision making related to the operation
- Be able to reduce operational costs (Opex)
- Improve ROI of investments (Capex)

since 1950 BOS homogenisers

Why BOS?

✓ Better engineering

At BOS Homogenisers, better engineering is the foundation of long-lasting performance and reliability. Our machines are built with oversized bearings and other critical components to maximize durability and extend service life. Heavy-duty eccentric designs enable operation at lower RPM (rotations per minute), reducing mechanical stress and wear while increasing machine lifetime. The ambient cooling system eliminates the need for cooling water, resulting in lower resource consumption, improved sustainability, and a smaller environmental footprint. In addition, the use of a hydraulic system instead of a pneumatic system provides more accurate and reliable actuation of the homogenising valve, ensuring consistent process performance and greater operational stability.

✅ Lower maintenance

BOS Homogenisers are engineered to minimize maintenance requirements and reduce the total cost of operation. The use of fewer spare parts, combined with lower replacement costs, significantly decreases maintenance expenses over the machine's lifetime. Reduced service interventions also lower labor costs while minimizing disruptions to daily operations. In addition, the high reliability of BOS machines results in less unplanned shutdowns and downtime, helping customers avoid costly production losses and maximize equipment availability.

✅ Less operational costs

BOS Homogenisers are designed to minimize operational costs throughout the entire lifecycle of the machine. The extended service life reduces annual depreciation, lowering the total cost of ownership over time. In addition, the efficient design requires less energy and eliminates the need for cooling water, resulting in lower utility consumption and a reduced CO2 footprint. These efficiencies translate into lower operational costs per litre of finished product while supporting more sustainable production processes.

BOS: lower maintenance & operating costs

1 Reinforced Eccentric Shaft

At the heart of the system is a heavy-duty eccentric shaft with oversized bearings. This robust construction minimizes mechanical stress and wear, significantly extending component lifetime and reducing replacement frequency. The larger shaft design also enables operation at lower RPM, which extends packing lifetime and reduces overall maintenance requirements.



2 Optimized Low-RPM Operation

Lower rotational speeds result in less friction, reduced wear, and lower energy consumption. This design philosophy not only increases reliability but also contributes directly to lower operating costs and longer equipment life.

3 Hydraulic Actuated Valve System

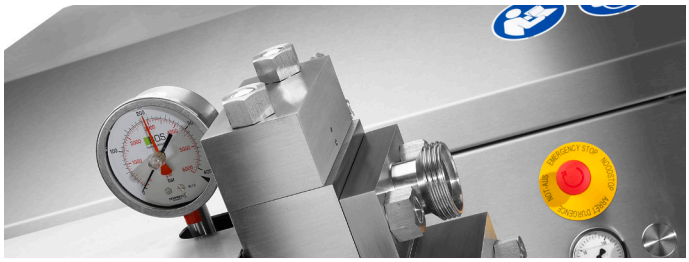
The hydraulic homogenizing valve system delivers precise and stable pressure control with minimal adjustment requirements. Unlike pneumatic systems, no compressed air is required, reducing energy consumption while simplifying the overall system architecture.

4 Integrated Cooling Strategy

A single cooling circuit serves both the plungers and the hydraulic unit. By integrating these functions into one efficient system, infrastructure complexity is reduced while lowering water consumption, maintenance requirements, and operating costs.

5 Lower Costs Throughout the Equipment Lifecycle

Every component is engineered for durability, efficiency, and long-term reliability. The result is a Homogeniser platform that substantially reduces operational costs compared to conventional equipment.



6 Reduced Maintenance and Downtime

Premium components and robust engineering minimize unexpected failures and reduce service interventions. In some applications, maintenance time can be reduced by up to 50%, increasing productivity and maximizing uptime.

7 Lower Spare Parts Consumption

Oversized bearings, reinforced shaft construction, and optimized low-RPM operation significantly reduce wear on critical components. This lowers spare parts consumption, inventory requirements, and procurement costs.

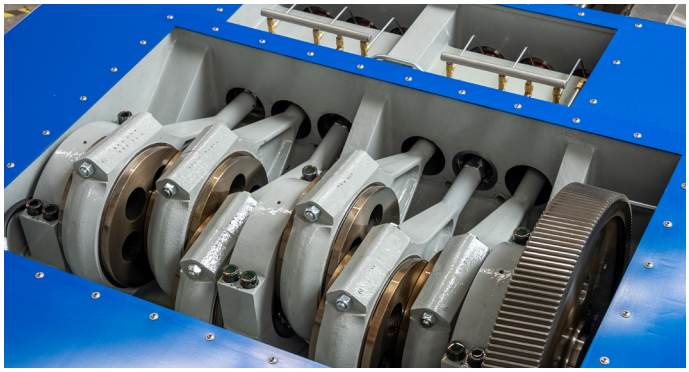


8 Reduced Energy and Water Consumption

Efficient low-speed operation combined with hydraulic actuation lowers overall energy demand. The integrated cooling concept further reduces water usage and associated treatment costs.

9 Extended Service Life and Higher ROI

Every engineering decision is focused on long-term durability and operational efficiency. The result is a longer equipment lifespan, delayed replacement investments, and a substantially higher return on investment over the full ownership period.



General data

Attached data are estimates and will change per location or over time. Attached data is used in the example of the TCO calculation in this brochure. Please contact your Bos Sales Manager in case you would like to calculate the TCO in your situation.

Electricity price ----------	0,12	€/kWh
Water price ----------	2,00	€/m³
Compressed air price ----------	0,02	€/Nm³
Operating hours per year ---------	4.000	h/yr
Analysis period ----------	20,00	€/Nm³
Raw material cost (product input)	0,42	€/L

Machine data

Description	Unit	Bos MG 45	Competitor A	Competitor B	Competitor C
Purchase price	€ 1.000	165	135	100	95
Depreciation period	years	35	25	15	10
Capacity	L 1.000/h	15	15	15	15
Installed power	kW	110	110	110	110
Power utilisation	%	85%	85%	95%	98%
Water consumption (cooling/flush)	L/h	150	225	375	375
Compressed air consumption	Nm³/h	0	30	35	40
Annual service / maintenance (labor)	€ 1.000/ year	1,0	1,3	1,4	1,8
Spare parts per service intervention	€ 1.000/ year	4,0	5,0	6,0	2,5
Interval service	Oper. hours	2.000	2.000	1.333	500
Major overhaul (valves/ pistons/ bearings, etc.)	€ 1.000/ year	10	15	18	10
Interval overhaul	Oper. hours	16.000	16.000	8.000	4.000

Attached data are estimates and will change per location or over time. Attached data is used in the example of the TCO calculation in this brochure. Please contact your Bos Sales Manager in case you would like to calculate the TCO in your situation.

Operational costs

Description	Unit	Bos MG 45	Competitor A	Competitor B	Competitor C
Energy cost	€ 1.000/ year	43,0	43,0	48,1	49,6
Water cost	€ 1.000/ year	1,2	1,8	3,0	3,0
Compressed air cost	€ 1.000/ year	0,0	2,4	2,8	3,2
Routine spare parts	€ 1.000/ year	8	10	18	20
Major overhaul (annualised)	€ 1.000/ year	2,5	3,8	9,0	10,0
Service / maintenance labour	€ 1.000/ year	1	1,3	1,4	1,8
Operational costs	€ 1.000/ year	55,7	62,2	82,2	87,5
Comparison	Index	100	112	148	157

Based on the previous assumptions, the operational costs per machine are represented in attached overview.

Price per liter

Description	Unit	Bos MG 45	Competitor A	Competitor B	Competitor C
Annual production volume	L 1.000/yr	60.000	60.000	60.000	60.000
Operational cost per litre	€ cent/ L	0,09285	0,10368	0,13708	0,14590
Comparison	Index	100	112	148	157

Based on the previous assumptions, the operational costs per machine are represented in attached overview.

BOS TCO benefits quantified

Over a typical five-year operating period, a TCO-optimized design can reduce operational costs by **10% – 35% compared** to conventional homogenisers.



The largest savings are achieved through:

- Reduced maintenance and spare parts usage
- Lower energy consumption
- Reduced water and cooling costs
- Less unplanned downtime
- Extended equipment lifetime

Contact



BOS Homogenisers B.V.
Oscar Romerolaan 18
1216 TK Hilversum
The Netherlands
T +31 (0)35 30 37 190
E sales@boshomogenisers.com



Bos Homogenisers Asia Co. Ltd.
Room 1808, HIC
No. 2218 Huangxing Road
200433 Shanghai
E sales@boshomogenisers.com

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www.boshomogenisers.com
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