



Packed Tower Scrubber Catalogue

Meeting the demand for cleaner air.



MASTERJAYA Gas Scrubber

Versatile, reliable systems.

MASTERJAYA Packed Towers are low-energy gas scrubbers available in standard sizes, which can also be specially designed or modified to fit unusual service conditions.

Towers are available in steel, stainless steel, polyester fibreglass and numerous other corrosion-resistant materials. Plus, the packing material is selected to provide the best possible performance and corrosion resistance.

Key Features

- **Spray Nozzle Liquid Distributors**

Spray nozzles are used as they are engineered for even liquid distribution, minimum channelling, easy maintenance, and flexibility under operating conditions.

- **Mist Eliminator**

The mist eliminator is provided in each tower to minimise fluid loss through carryover.

- **Optimum Gas Distribution**

Towers are sized to ensure maximum efficiency at low pressure drops. The MASTERJAYA standard tower facilitates increased packing height if the customer's conditions change.

- **Inspection Openings**

The manways are provided for easy access to internal components.

Applications

Used for gas absorption, cooling and recovery. Due to the high scrubbing efficiency and low power consumption, packing towers are used in various industries for a broad range of applications.

Performance

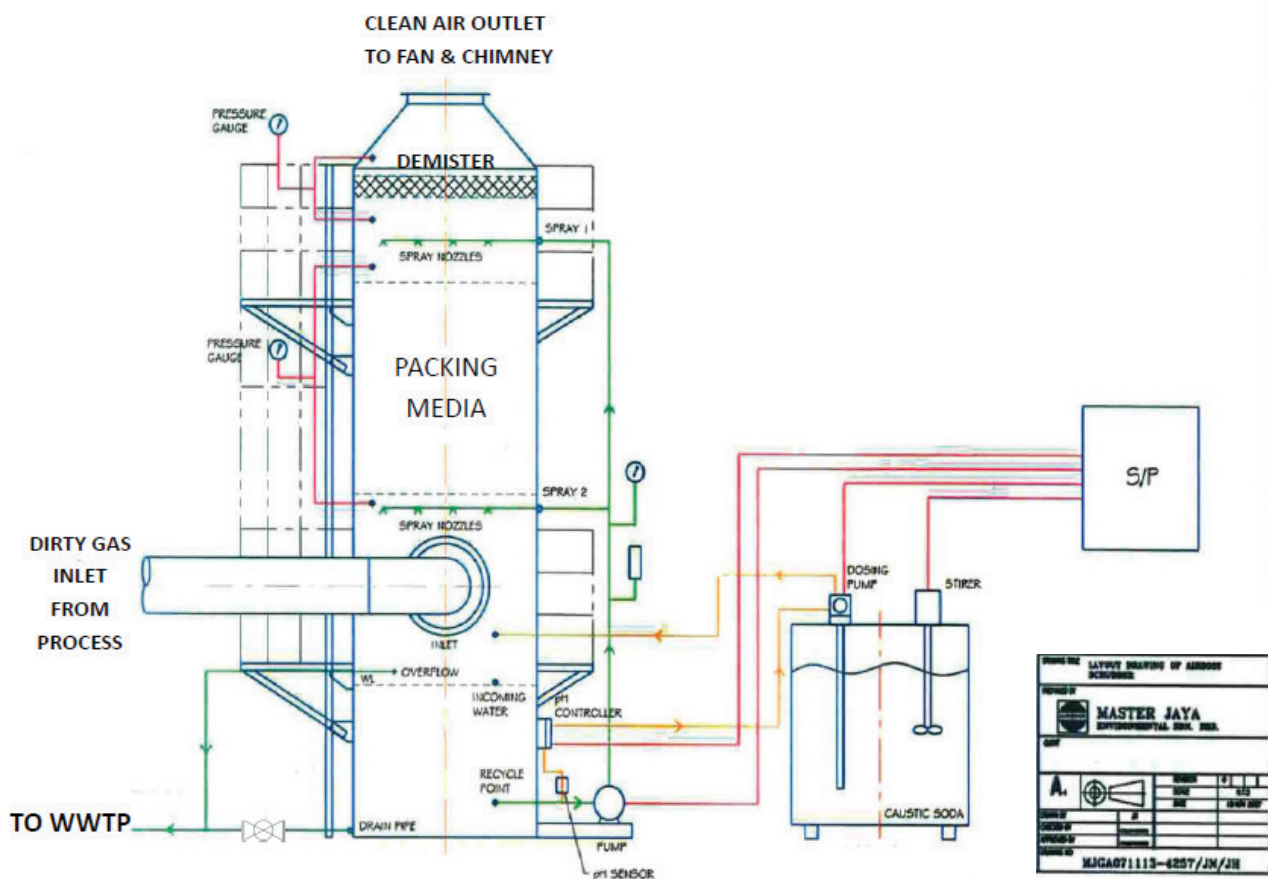
Designed to remove common gas contaminants at very high efficiencies (up to 99%) with low pressure losses (2" of water or less).



Operations

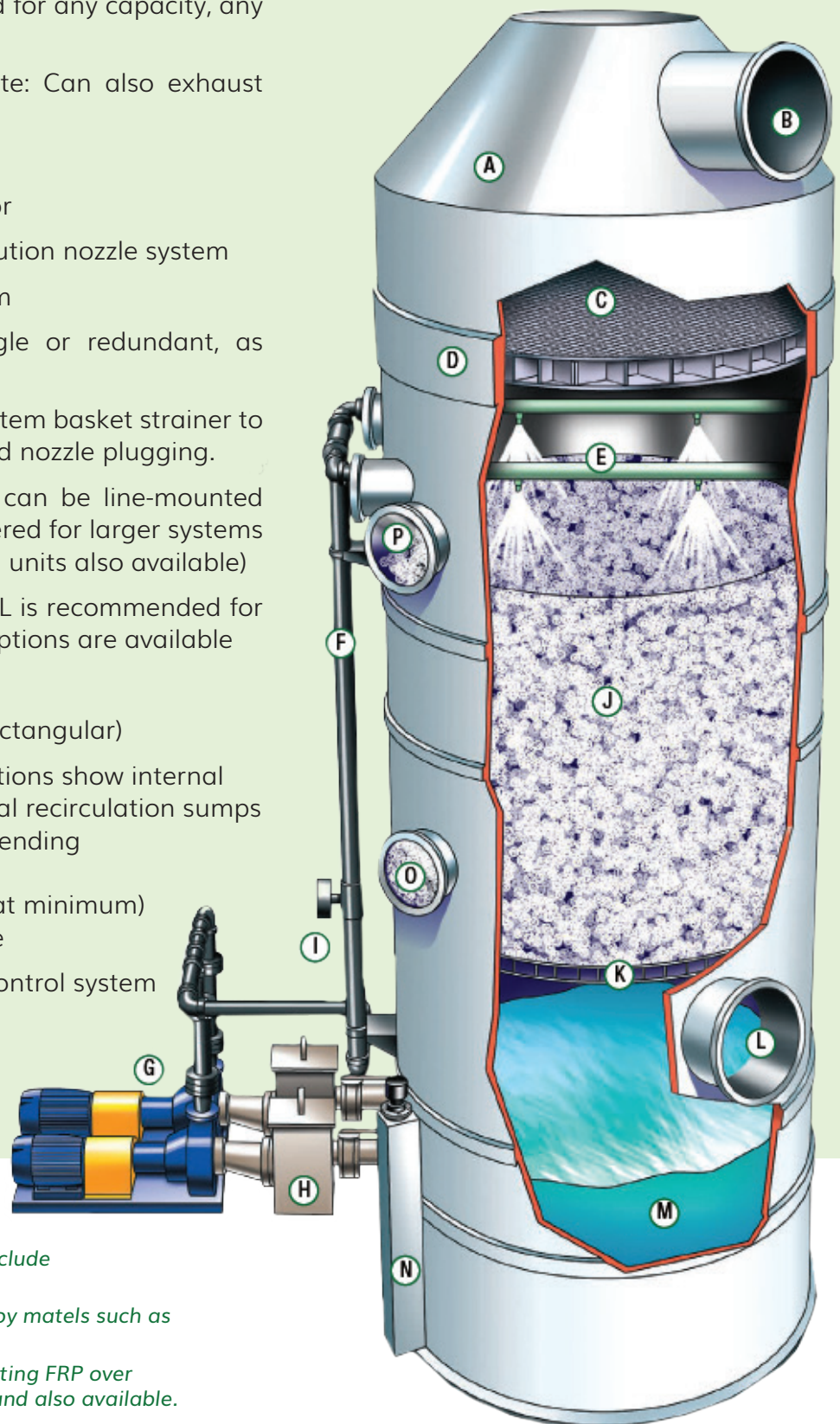
1. Scrubbing liquid enters the tower through a nozzle and is sprayed uniformly across the top of a packed bed. This ensures that it trickles evenly through the packing material from top to bottom without channelling.
2. Gas enters the tower through the inlet near the bottom and passes through the support plate into the packed bed. As the gas stream moves up through the packing bed in a counter-current flow to the scrubbing liquid, contaminants are removed.
3. The packed bed is designed to provide maximum gas to liquid contact at low pressure drops. The packing is carefully selected to provide continuous regeneration of the liquid surface as liquid flows over it while simultaneously dispersing the upward gas flow evenly throughout the bed.
4. After passing through the packed bed, the cleaned gas passes through a mist eliminator section near the top of the tower. Here, any entrained liquid is removed before the clean air is discharged through the outlets.
5. A pH electrode (sensor) will sense the pH value in the scrubbing water. A pH controller will receive the signal from the sensor and activate the chemical dosing pump if there is any change in pH value to dose the contaminated water.
6. The water will be recycled for reuse in the gas scrubber through a recirculation pump. The wet sludge and wastewater will be drained off periodically.

Schematic Diagram



System Design

- A. Scrubber body, customised for any capacity, any gases and temperature
- B. Outlet from scrubber (Note: Can also exhaust vertically)
- C. Mist eliminator
- D. Mist eliminator access door
- E. Recirculation liquid distribution nozzle system
- F. Recirculation piping system
- G. Recirculation pumps: single or redundant, as shown.
- H. (Optional) recirculation system basket strainer to prevent pump damage and nozzle plugging.
- I. Liquid flow meter. Meter can be line-mounted for smaller units; self-powered for larger systems (Note: Electrically-powered units also available)
- J. Packing media. LANPAC-XL is recommended for most applications; other options are available
- K. Packing support grid
- L. Scrubber inlet (round or rectangular)
- M. Recirculation tank. Illustrations show internal recirculation sump; external recirculation sumps can be recommended depending on the application. Liquid sump should hold (at minimum) a 5x recirculation flow rate
- N. Recirculation sump level control system
- O. Clear packing manhole
- P. Clear packing manhole



Standard construction materials include polypropylene, fiberglass and PVC.

Optional materials include high alloy metals such as stainless and Hastelloy®.

Dual-laminate structures incorporating FRP over PVC, PP, PVDF, and Teflon® liners and also available.



Type of Packing Media

Advanced drip point technology leads to the most effective mass transfer with lower capital and operating and maintenance costs.

The type of packing media used is a new, high-efficiency tower packing that combines extremely low pressure drops with excellent plugging resistance.

Applications

- Air Strippers and Degasifiers
- High-Efficiency Scrubbers
- Biological Treatment Systems

Advantages

- Advanced design increases the gas-liquid contact surface
- Designed to be used at higher gas velocities without compromising efficiency
- Reduces capital costs for new towers with smaller tower diameter and footprint
- Maximises efficiency in shorter towers
- Amazing low pressure drop
- Allows for smaller, less expensive blowers
- Flow-through structure resists fouling
- Reduces maintenance costs and downtime
- Reduces fan power consumption
- Smaller recirculation pumps reduce overall equipment and operation costs
- Outstanding resistance to fouling, which leads to less downtime for maintenance



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Master Jaya Corporation Sdn Bhd (332530-K)

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