



Chakr Innovation



# चक्र मार्जिक

Founded in  
**2016**

**1000+**  
Skilled professionals

**65+**  
Visionaries from IIT

**2.5ML+**  
Tons of CO<sub>2</sub> Equivalent Reduced

[www.chakr.in](http://www.chakr.in)

# चक्र मार्जक

QUICK, SIMPLE SAFE & EFFICIENT BIODIGESTER HANDLING SYSTEM



Purpose-built to keep biodigester tanks clean and efficient. Its **robust design** meets stringent performance standards, ensuring **reliable upkeep** across small to large-scale operations. Engineered for **durability and versatility**, it supports **maintaining hygiene** and sustainable waste management.

## MAJOR CHALLENGES

### CHOKES UPS IN BIODIGESTER TANKS

Biodigester tanks rely on bacteria to break down waste. However, clogs from sludge, plastics, wipes, and fibrous materials disrupt this process—leading to foul odours, repeated blockages, and extended downtime. Conventional jetting or suction methods failed to completely clear part of the waste, leaving residues behind. These residues interfere with bacterial activity, degrade overall efficiency, and cause recurring failures with even stronger odours over time.

#### MIXED WASTE LOAD

presence of sludge, plastics, wipes, & fibrous material causes frequent blockages

#### MICROBIAL DISRUPTION

bacteria fail to break down waste effectively

#### OPERATIONAL HAZARDS

downtime, and biohazard risk for staff

#### HEALTH HAZARDS

exposure of staff to harmful pathogens

#### CHOKING ISSUES

chamber clog with rags, plastics and waste

#### OVERFLOW & ODOUR

spills, foul smell, and delays from frequent blockages

#### HIGH WATER USE

jetting consumes excess water; manual rodding exposes staff to risks

#### NO TRACEABILITY

untracked maintenance and inconsistent effluent quality



## SMARTER CLEANING, LESS EFFORT — चक्र मार्जक



### Rapid Turnarounds

Cleans the first chamber in under 5 minutes



### Handles Tough Waste

Fibrous material, plastics, and slurries cleared with ease



### Clog-Free Flow

Keeps tanks running smoothly without blockages



### Bacteria-Safe

Returns filtered liquid without disturbing microbial colonies



### Smart Monitoring

Built-in flow and pressure alerts with early blockage warnings



### Fail-Safe Design

Prevents operation on incorrect valve or switch settings



### Low Noise Operation

Quiet operation at <70 dB, minimal disturbance



### Power-Free Anywhere

Works without electricity, ready anywhere



### Clean & Safer Yards

No electrical risks, low noise, and cleaner working conditions



### Positive Depot Feedback

Trusted by NWR and NER depots for reliable performance

## KEY FEATURES

### & VALIDATED SPECS

### Modular System

No moving part, leading to no maintenance

### 1.5 mm+ DEBRIS REMOVAL

Cleaner liquid return, stable digestion.

### pH SAFE RETURN FLOW

Keeps biogas biology stable.

### LIVE MONITORING

Tank alerts, flow & pressure at a glance.

### SMART INTERLOCKS

Prevents unsafe or incorrect operation.

## IMPLEMENTATION MODELS

### Direct Procurement

Ideal for new and renewal AMOC tenders with improved productivity and operational efficiency.

### Rental Deployment

Ideal for existing AMOC contracts with higher productivity and lower upfront investment.



## SOLVING INDIAN RAILWAYS' REAL PROBLEM

## चक्र मार्जक: SMART CLEANING, SAFE BIOLOGY

चक्र मार्जक is a pneumatic-assisted, vacuum-based system designed to clean biogas digester reservoirs without disturbing microbial activity. It ensures obstruction-free evacuation, safe separation of solids, and recirculation of the liquid fraction—protecting bacterial colony performance.

## HOW IT WORKS

### EXTRACT

High-reliability vacuum lifts sludge + debris

### SEPARATE

Cyclonic/mesh stages isolate solids

### RECIRCULATE

Liquids returned, microbes preserved

## WHY IT'S A GAME-CHANGER

### NO CHOKE-UPS

Sustains digestion

### IMPROVED HYGIENIC UPTIME

Faster, odour-free cleaning

### ALL-WEATHER

Rugged & reliable

### HIGH CAPACITY

Smooth operation, no interruptions

## AT-A-GLANCE CAPABILITIES

### CLOG-RESISTANT

hoses & screens

### SMART ALERTS

for full capacity

### TELEMETRY-READY

for tracking & logs

# REWARDS & RECOGNITIONS



## OUR ESTEEMED CLIENTS

### Manufacturing



### Infrastructure



### Defense | Govt & PSU



### FMCG



### IT & Tech



### Hospitality



### Pharma



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Materializing a Cleaner Reality

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SCAN TO KNOW MORE