

HIGH  
EFFICIENCY  
CYCLONES



**MIKROPUL**

DUST COLLECTION  
GAS CLEANING  
PRODUCT RECOVERY  
ENGINEERING  
SERVICES

# MIKROPUL HIGH EFFICIENCY CYCLONES

MikroPul High Efficiency Cyclones are the most cost-effective solution for separating dry particulate material (5 microns or larger) from gas streams.

With more than three decades of experience in research, design, and successful commissioning of cyclones, we have the expertise to select the appropriate design to meet the most demanding needs for any application in the industry.

MikroPul Cyclones feature robust construction for long term, trouble-free service. Careful design results in high efficiency at low pressure drop to keep operating costs low.

## Benefits:

- Low initial cost
- Low operating expenses
- No moving parts
- Minimal space requirement

## System design

Seemingly a relatively simple device, a cyclone consists of components which must be optimized for the application and properly work together to achieve maximum dust removal efficiency.

Consideration is given to the simultaneous forces dust particles are subjected to:

1. Viscous drag or resistance, which is a function of the relative velocity between the carrier gas and the dust particle, its shape and size, and gas viscosity. Each particle must overcome resistance as it moves through the carrier gas stream.
2. Centrifugal force, which is affected by velocity, cyclone curvature profile, and the particulate mass.



*Gas flow in Cyclone*



*Quad Cyclone*

3. Particle inertia, whereby the particle would move in a straight line if not subjected by the other forces.

Based on careful evaluation of your application, MikroPul will custom select:

- Single, twin, or quad arrangements
- Outlet to inlet geometry
- Cyclone dimensions
- Cone length

## Design types

MikroPul supplies cyclones for gas flows from 200 to 200.000 m<sup>3</sup>/h. We can also custom design the following enhancements as required:

- Multi cyclones
- Design for pressure up to 70 bar
- Internal surface finishes to minimize abrasion and build-up caused by sticky particulate
- Wear liners, fixed or removable
- Refractory lining for high temperatures (up to 1.700°C)
- Jacket design for cooling or heating
- ASME or other industrial standard coded construction
- Stainless steel or other weldable alloys

## Operation

Particle laden gas enters the cyclone through a tangential inlet, which imparts a vortex motion to the stream causing the particles to concentrate along the wall. The stream (called the descending vortex) spirals down the cyclone barrel toward a bottom cone which opens into an expansion chamber.

# MIKROPUL HIGH EFFICIENCY CYCLONES



Double-Quad Cyclone in stainless steel for S-PVC production



Wear resistant Quad Cyclone in incineration plant



Heated Twin Cyclone for slurry dedusting (74.000 m<sup>3</sup>/h)

Particle inertia forces the particles to the wall of the expansion chamber, while the lighter gas stream forms a separate vortex (caused by drag) ascending through the center of the descending vortex.

The cleaned gas exits through a tube extending into the center of the main chamber. A tangential outlet removes the cyclonic action of the gas stream.

## Applications (Examples):

### Chemical

- Reactors
- HDPE
- PP
- PVC
- Methyl cellulose

### Iron and Steel

- Sintering
- Pelletising
- Rolling mills
- Sand recovery

### Mining and Raw Materials

- Driers
- Carbon black
- Metal powder
- Salts

### Coal

- Pulverized coal collection
- Lime
- Ash

### Food

- Tobacco
- Coffee/Cocoa
- Flour

### Other Industries

- Powder coating
- Sawdust
- Wood chips

### Pneumatic Conveying

- Product recovery



# MIKROPUL SUPPORT

## Maintenance

MikroPul backs up our products and systems with worldwide customer support. Contact us any time you need help.

## Spare parts

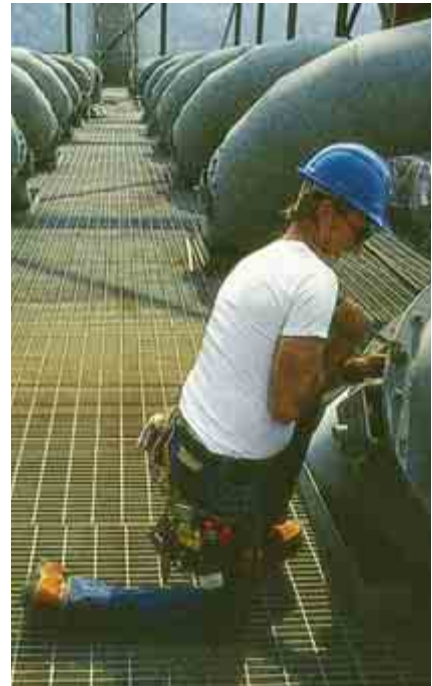
MikroPul systems are known for long lasting, reliable operation. Using original MikroPul spare parts ensures that your plant always operates with maximum performance. We supply a full line of parts, from gaskets, filter bags and hinges or timers and differential pressure gauges to major components, for all our products. High wear items are kept in stock for immediate shipment.

## Service

MikroPul provides an array of services to help you select, install, operate, and maximize your equipment investment. If your collector needs upgrading to meet increased demands or process changes, our engineering and service staffs are here to help you.

Services include:

- Process analysis
- Inspections of plants and components
- Converting old equipment to new technology
- Conversions/Replacements
- Maintenance seminars
- Technical trainings



## MikroPul Global Network

### Europe

MikroPul GmbH  
Welsersstrasse 9-11  
D-51149 Köln  
GERMANY  
Tel: + 49-2203-9391-0  
Fax: + 49-2203-9391-293  
info@mikropul.de  
MikroPul - Hotline:  
+ 49(0)800-64576785

### Filter-Media

Division of MikroPul France S.A.  
Parc Club du Moulin à Vent - Bât 54/2  
33 Av. Docteur Georges Lévy,  
F-69693 Venissieux Cédex  
FRANCE  
Tel: ++ 33-478-78-9900  
Fax: ++ 33-478-01-9458  
mikropul@easy.net.fr

### Africa

MikroPul (Pty.) Ltd.  
2nd Floor, Evapark Block »B«  
Cnr DF Malan Dr. & Judges Ave.  
P.O. Box 4051  
Cresta 2118  
SOUTH AFRICA  
Tel: + 27-11-478-0456  
Fax: + 27-11-478-0371  
sales@mikropul.co.za

### America

MikroPul Headquarters  
4500 Chesapeake Dr.  
Charlotte, NC 28216  
USA  
Tel: ++ 1-704-998-2600  
Fax: ++ 1-704-998-2601  
info@mikropul.com

MikroPul Pittsburgh  
2591 Wexford-Bayne Road, Suite 202  
Sewickley, PA 15143  
USA  
Tel: ++ 1-724-934-3910  
Fax: ++ 1-724-934-3934  
pittsburgh@mikropul.com

MikroPul Chatham  
17 Wachung Avenue  
Chatham, NJ 07928  
USA  
Tel: ++ 1-973-635-1115  
Fax: ++ 1-973-635-0678  
info@mikropul.com

MikroPul Canada, Inc.  
245 Matheson Blvd. E., Unit # 10  
Mississauga, Ontario L4Z 3C9  
CANADA  
Tel: 905-712-0722  
Fax: 905-712-0027  
info@ca.mikropul.com

MikroPul, S de RL de CV  
Av. Lomas Verdes No. 480-302B  
Col. Lomas Verdes  
CP 53120 Naucalpan  
Edo. de Mexico  
Tel: + 52-55-5343-8224  
Fax: + 52-55-5344-5081  
info@mx.mikropul.com

### Asia/Pacific

MikroPul Australia Pty. Ltd.  
P.O. Box 6227  
1 Toohey Road,  
Wetherill Park, NSW. 2164  
AUSTRALIA  
Tel: + 61-2-9756-2933  
Fax: + 61-2-9756-3120  
mikropul.syd@tpg.com.au

www.mikropul.de



INNOVATION IN FILTRATION