Documentation EZ02 Monocyclone

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Gema Switzerland GmbH
Mövenstrasse 17
9015 St.Gallen
Switzerland
Phone: +41-71-313 83 00
Fax.: +41-71-313 83 83
E-Mail: info@gema.eu.com
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General safety regulations

This chapter sets out the fundamental safety regulations that must be followed by the user and third parties using the EZ02.

These safety regulations must be read and understood before the EZ02 is used.

Safety symbols (pictograms)

The following warnings with their meanings can be found in the Gema operating instructions. The general safety precautions must also be followed as well as the regulations in the operating instructions.

**DANGER!**
danger due to live electricity or moving parts. Possible consequences: Death or serious injury

**WARNING!**
Improper use of the equipment could damage the machine or cause it to malfunction. Possible consequences: minor injuries or damage to equipment

**INFORMATION!**
useful tips and other information

Conformity of use

1. The EZ02 Monocyclone is built to the latest specification and conforms to the recognized technical safety regulations. It is designed for the normal application of powder coating.

2. Any other use is considered as non-conform. The manufacturer is not responsible for damage resulting from improper use of this equipment; the end-user alone is responsible. If the EZ02 Monocyclone is to be used for other purposes or other substances outside of our guidelines then Gema Switzerland GmbH should be consulted.

3. Observance of the operating, service and maintenance instructions specified by the manufacturer is also part of conformity of use. The EZ02 Monocyclone should only be used, maintained
and started up by trained personnel, who are informed about and are familiar with the possible hazards involved.

4. Start-up (i.e. the execution of a particular operation) is forbidden until it has been established that the EZ02 Monocyclone has been set up and wired according to the guidelines for machinery (2006/42 EG). EN 60204-1 (machine safety) must also be observed.

5. Unauthorized modifications to EZ02 Monocyclone exempts the manufacturer from any liability from resulting damage.

6. The relevant accident prevention regulations, as well as other generally recognized safety regulations, occupational health and structural regulations are to be observed.

7. Furthermore the country-specific safety regulations must be observed.

<table>
<thead>
<tr>
<th>Explosion protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>![CE Ex II 3D]</td>
</tr>
</tbody>
</table>

**Special security measures**

- The installation work, to be done by the customer, must be carried out according to local regulations
- Before starting up the plant a check must be made that no foreign objects are in the booth or in the ducting (input and exhaust air)
- It must be observed, that all components are grounded according to the local regulations, before start-up

**NOTE:**
For further information, see the more detailed Gema safety regulations!
About this manual

General information

These operating manual contains all important information which you require for the working with the EZ02 Monocyclone. It will safely guide you through the start-up process and give you references and tips for the optimal use of your new powder coating system.

Information about the function mode of the individual system components - reciprocators, booths, powder gun controls, powder guns etc. - you will find in the corresponding enclosed documentations.
EZ02 Monocyclone

The EZ02 Monocyclone (as a matter of principle a centrifugal cyclone) separates the coating powder from the booth exhaust air.

The volume of exhaust air, depending on the booth size, the number of guns etc. is created by a fan fitted after the monocyclone and a filter separator. The powder/air mixture arrives at the cyclone through the ducting and the tangential air input. Now the powder is set in rotation, separated from the air by the centrifugal force and isolated around the cyclone wall. The exhaust air rises up through the central immersion tube in the cyclone and arrives at the filter separator. Herein, the residual powder is retained and the cleaned air is returned into the workshop environment.
Delivery unit

The separated powder is removed from the operating cyclone by the pivoted delivery unit. The delivery unit, consisting of the cyclone connection, the sieve insert and the dense phase conveying, is pivoted manually under the cyclone and fitted pneumatically. The separated powder collects in the lower cone part and passes through the opened upper pinch valve into the intermediate tube between both pinch valves. At regular intervals, the upper pinch valve closes and the lower valve opens. The powder is now transported by the conveying air from the intermediate tube through the transport hose to the sieve machine or to the powder hopper. After the conveying cycle the lower pinch valve closes and the upper valve opens again. During the whole operation a small air movement must exist in the transport hose, therewith no clogging occurs. This is achieved with the transport air, which is introduced into the hose connection after the lower pinch valve (see also chapter "Dense phase conveying"). Consequently, a periodical extraction of powder takes place, which is regained and fed back to the powder coating circuit.

Security-operation of the delivery unit

The delivery unit is pivoted manually under the cyclone and fitted pneumatically. The appropriate operation is provided for safety reasons with a two-hand function.
Technical Data

Exhaust air volume / powder application

<table>
<thead>
<tr>
<th>Monocycle</th>
<th>EZ02-12000</th>
<th>EZ02-16000</th>
<th>EZ02-20000</th>
<th>EZ02-24000</th>
<th>EZ02-32000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaust air volume</td>
<td>11000-12000 m³/h</td>
<td>14000-16000 m³/h</td>
<td>18000-20000 m³/h</td>
<td>22000-24000 m³/h</td>
<td>29000-32000 m³/h</td>
</tr>
</tbody>
</table>

Powder application

| Pinch valve | NW 65 |
| Conveying performance | approx. 2.5 kg/min |
| Compressed air consumption | approx. 4 Nm³/h |

Setting values / parameters

<table>
<thead>
<tr>
<th>Monocycle</th>
<th>EZ02-12000</th>
<th>EZ02-16000</th>
<th>EZ02-20000</th>
<th>EZ02-24000</th>
<th>EZ02-32000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pinch valve control pressure</td>
<td>max. 3 bar</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conveying air pressure</td>
<td>approx. 1 bar</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport air pressure</td>
<td>approx. 0.3 bar</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pinch valve closing time</td>
<td>6 secs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pinch valve opening time</td>
<td>2 secs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conveying air on (retarded)</td>
<td>0.7 secs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dimensions

<table>
<thead>
<tr>
<th>Monocycle</th>
<th>EZ02-12000</th>
<th>EZ02-16000</th>
<th>EZ02-20000</th>
<th>EZ02-24000</th>
<th>EZ02-32000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height (max.)</td>
<td>5010 mm</td>
<td>5383 mm</td>
<td>5707 mm</td>
<td>6057 mm</td>
<td>6747 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>850 kg</td>
<td>950 kg</td>
<td>1100 kg</td>
<td>1200 kg</td>
<td>1350 kg</td>
</tr>
</tbody>
</table>
Pneumatic diagram
Assembly notes

Setting up and mounting

WARNING!
The assembly procedure for setting up the cyclone must be adapted to the available resources of the customer. Since it concerns heavy and bulky parts, special attention must be given to the security of the assembly personnel. In order to guarantee operating safety, all assembly work must be checked by trained personnel!

Especially the following points must be observed:

- The angle between the air entry and exit can be set by 15° with the existing slots (slots ±7.5°). If the angle must be displaced further, the exit spiral must be completely dismantled and can be displaced in 15° steps.
- All connecting joints (exit spiral etc.) must be locked hermetically.
- It must be observed that all connecting joints in the ducting and inside the cyclone etc. are as smooth as possible, so that no powder can deposit.
- In order to ensure the grounding connection from the frame to the cyclone, a vibration damper must be bridged with the supplied grounding cable.
- On the separation point of the frame feet and their extensions, the feet must also be connected to one another. Three connection profiles are supplied for this. The fourth connection point must be left free for pivoting the delivery unit. The position can be chosen by assembly, according to local conditions.
- The monocyclone must be firmly anchored to the workshop floor.
- The ducting must be assembled as tension-free as possible.
- The delivery unit is preassembled ready and for mounting.
- For monitoring the correct position of the delivery unit, a proximity switch must be fitted on the cyclone, which gives a signal when the delivery unit is pivoted and lifted to the cyclone and releases the plant for operation.
- The transport hose must be secured with the supplied steel cable to the spring hook of the dense phase conveyor, so...
that no uncontrolled movement can take place by revertive rinsing and thereby endangering personnel

- The connecting hoses of the delivery unit control and the dense phase conveyor are to be applied in such a way that the delivery unit can be tilted out for cleaning without disconnecting the hose connections
- The delivery unit and the cyclone must be closed tightly during operation. The seals of the cyclone and of the swivel frame are to be examined regularly

---

**Space requirement for delivery unit**

Swinging out the delivery unit needs at least 800 mm swiveling area. This place may not be closed or blocked and is used also for operation, cleaning and maintenance.

![Space requirement for delivery unit](image)
Preparation for start-up

Important notes

WARNING!
The start-up should be done only by trained personnel!
Foreign objects in the booth or in the ducting can cause damages to the plant!

Before start-up, the following points are to be checked:

- Are all screw connections on the cyclone and on other plant units firmly tightened?
- Is the ducting and the interior of the cyclone cleaned properly?
- Are all ducting and hose connections connected correctly?
- Are there no foreign objects (e.g. screws, small parts etc.) in the booth, the cyclone or the ducting?
- Is the delivery unit completely assembled?
- Are all plant units grounded?
- Is the delivery unit connected correctly? Does the two-hand function (security-operation) of the delivery unit works correctly?
- Is the transport hose connected correctly on the exhaust side?
- Are the settings for the dense phase conveyor correct?

WARNING!
The plant may be put into operation after all these points are checked and any faults are corrected!
Dense phase conveying

General information

The dense phase conveying serves for the transport of the recovered powder to the powder container/hopper in the powder centre. This transport principle permits a very careful and dust-free powder transport because the air requirement and the transport speed are very low.

Dense phase conveying - PT06

This type is the standard dense phase conveying, which is normally delivered with the cyclone and the delivery unit.

Dense phase conveying - PT07

This type is a curved special version and is only used by lack of space. Further information of this version will be found in the appropriate manual.
Description of function

1. The upper pinch valve QV1 opens. The recovered powder falls through the pinch valve QV1 into the intermediate tube (3), see picture 1
   - The lower pinch valve QV2 is thereby closed
   - The spiral air (5) is constantly in operation
   - The conveying air (2) is switched off
2. The pinch valve QV1 closes
3. The pinch valve QV2 opens
   - The pinch valve QV1 is thereby closed
   - The spiral air (5) is constantly in operation
   - The conveying air (2) is switched on for a short time
   Due to the overpressure in the intermediate tube (3), the powder is transported through the pinch valve QV2 into the delivery tube and through the transport hose (7) into the sieve machine by the Powder Centre, see picture 2
4. The pinch valve QV2 closes, see picture 3
   - After a short delay the pinch valve QV1 opens again
   - The steps 1) to 4) are repeated continuously

\[\text{Dense phase conveying - description of function}\]

1 Switch valve above
2 Conveying air
3 Intermediate tube
4 Switch valve below
5 Spiral air (constantly on)
6 Delivery nozzle
7 Transport hose
The transport efficiency is dependent on the type of powder, the pulse rates and the length of the used transport hose with respective pinch valve and transport hose dimension.

Vibrator mounting kit (option)

By using certain powder types, the danger exists that powder deposits can develop in the delivery unit. This is prevented by the optionally available vibrator mounting kit.

The vibrator is installed between the delivery unit and the dense phase conveying (see illustration). It shifts the cone of the delivery unit into easy oscillations and prevents thus accumulations of powder and the emergence of deposits and blockages.

NOTE!
The vibrator operates only if the upper pinch valve QV1 of the dense phase conveying is opened
Color change

Procedure

The following points are to be observed at colour changes:

1. In order to save time and powder at a colour change, the cleaning should be made in the flow direction of the powder. But cleaning the powder guns and the booth should be done first. During this phase, the powder can be transported back into the powder hopper or the powder container with the dense phase conveyor.

2. The delivery unit is detached from the cyclone. By the aspirated wrong air at the cyclone lower part, the powder separation now is void and all resulting powder is fed to the After Filter.

3. Procedure at an extreme colour change or with increased requirements:
   - Blow out the exhaust air ducting between the booth and the cyclone with compressed air.
   - Let soak in the compressed air hose without nozzle in the ducting at the air exhaust while the exhaust is operating.
   - The turbulences which are caused thereby will detach the powder in the ducting. After that, the powder is transported to the cyclone and discharged.

4. After switching off the dense phase conveyor, the transport hose is now flushed with compressed air from the exhaust side and cleaned in this way.

5. While the delivery unit is slowly being swivelled away from the cyclone, the cone of the delivery unit is blown out and the generated dust is sucked up into the cyclone.

6. Now the inside wall of the cyclone is cleaned with the air nozzle.

7. The cleaning of the immersion tube is done with a special cleaning head (see "Cleaning of the connection sleeves").

8. Now the cleaning of the cyclone, the delivery unit and the ducting is completed.
Checkpoints and references

In order to guarantee a trouble-free operation, the following points should be checked regularly during a operation break:

**WARNING!**
All cleaning work should be carried out without scratching. Any scratches on the surface lead to increased powder sintering and thus to increased cleaning effort!

<table>
<thead>
<tr>
<th>Points to check</th>
<th>Possible causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check for powder depositing in the booth and the suction tube and clean it</td>
<td>Increased deposits indicate a reduction of the exhaust air and changes in the powder</td>
</tr>
<tr>
<td>Check the cyclone for powder sintering</td>
<td>Increased sintering indicates increased exhaust air and changes in the powder</td>
</tr>
<tr>
<td>Check for powder depositing in the delivery unit</td>
<td>Deposits indicate higher powder development or reduced conveying performance</td>
</tr>
<tr>
<td>Check for sintering in the transport hose</td>
<td>Increased sintering indicates ageing of the hose or changes in the powder</td>
</tr>
<tr>
<td>Check the cleanliness of the cyclone exterior</td>
<td>Contaminations indicate any leakages in the coating environment</td>
</tr>
<tr>
<td>Check the grounding connections of the plant units</td>
<td></td>
</tr>
<tr>
<td>Check the seals of the delivery unit and of the sieve insert</td>
<td>Defective seals worsen the efficiency substantially</td>
</tr>
</tbody>
</table>
Replacing a pinch valve sleeve

**Dismantling:**
1. Remove the dense phase conveying from the cyclone and dismantle the pinch valve
2. Remove the black positioning pin with pliers (1)
3. Turn the pinch valve sleeve 45° counter-clockwise (2)
4. Pull out the pinch valve sleeve and replace it (3)

![Diagram showing dismantling steps](image)

**Pinch valve/pinch valve sleeve**

**Assembly:**
1. Place the wide tongue on the pinch valve sleeve into the wide slot on the pinch valve
2. Push in the pinch valve sleeve to the stop
3. Turn the pinch valve sleeve 45° clockwise to the stop
4. Refit the black positioning pin into its hole
5. Check the O-rings for damage and replace them, if necessary
6. Reassemble the pinch valve

![Diagram showing assembly steps](image)
**Maintenance - Sieve mesh tension**

**NOTE:**
In order to prevent injuries by overhanging wires it is recommended to work with gloves on!

Use the following procedure to cloth the sieve mesh:

1. Place the supporting ring on the workbench

2. Put the sieve mesh (3) on the supporting ring (note that the mesh evenly stands out everywhere)

3. Apply the clamping ring (2), align the supporting ring (1) and the clamping ring (2) holes

4. At one hole, puncture the sieve mesh (3) with a sharp object (e.g. awl) and screw in a screw (6)

5. Stretch the sieve mesh on the opposite side with a combination pliers and, at the same time, puncture the sieve mesh (3) and insert a screw (6)

6. Turn the sieve 90°, stretch the sieve mesh again with a combination pliers, puncture the sieve mesh (3) and insert a screw (6)

7. Stretch the sieve mesh on the opposite side with a combination pliers and, at the same time, puncture the sieve mesh (3) and insert a screw (6)

8. Stretch the sieve mesh at each intermediate hole with a combination pliers, puncture the sieve mesh (3) and insert a screw (6)

9. Fit the additionally grounding spring (4) with two screws

10. Cut away the surplus mesh (3) with a sharp knife and remove the overhanging wires with a grinding wheel

**Sieve insert/sieve mesh tension**

**NOTE:**
In order to achieve a good sieve-performance make sure that the sieve mesh is stretched uniformly tight!

Small damages in the sieve mesh can be filled with 2-components adhesive.
Monocyclone sealing

In order to achieve a good cyclone-performance it is very important that the delivery unit is tightly closed during the operation. In order to ensure a perfect operation, three seals are intended in accordance with following drawing:

![Diagram of monocyclone sealing/delivery unit]

**NOTE:**
The seals are always to be checked during start up as well during the operation. Damaged seals are to be replaced immediately! Leaks on the cyclone site will greatly decrease the efficiency of the cyclone, i.e. it goes more powder to the After Filter than into the recuperation.
Cleaning

Cleaning of the connection sleeves

The cleaning of the cyclone takes place with the provided cleaning lance. It is composed of two blast pipes with the following features:

Cleaning of the clean gas connecting sleeve

The blast lance is put on the clean gas connecting sleeve, pipe 1 inside - pipe 2 outside. By turning on the compressed air on ball valve 2, the cleaning air for the outside diameter is turned on and the clean gas pipe is blown through on the entire level at once. During the blowing process, the lance is now conducted manually throughout the entire clean gas pipe thus cleaning the entire connecting sleeve. Pipe 1 inside the pipe prevents the blowing nozzle from being pushed off during cleaning.
Cleaning of the inlet connection sleeve

By using the pipe 1 and the compressed air at ball valve 1, individual ranges in the cyclone can be blown off purposefully.

NOTE:
In order to provide as much compressed air as possible during cleaning, only one ball valve should be opened for each cleaning process!

The following points are to be considered for the further maintenance and the care of the cyclone:

<table>
<thead>
<tr>
<th>Item</th>
<th>Cleaning and/or check cycle</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collecting funnel inside</td>
<td>daily</td>
<td>Blow out with compressed air - by using some powder types some sintering can develop, these will be cleaned with suitable cleaning agents</td>
</tr>
<tr>
<td>Cyclone cone inside</td>
<td>daily</td>
<td>Blow out with compressed air - by using some powder types some sintering can develop, these will be cleaned with suitable cleaning agents</td>
</tr>
<tr>
<td>Cyclon outside</td>
<td>monthly</td>
<td>Clean from outside, avoid dust deposits</td>
</tr>
</tbody>
</table>

WARNING:
Absolutely consider that no cleaning agent/solvent arrives into the pinch valves of the dense phase conveying (danger of damage and clogging!)
The cleaning agent must be completely evaporated; it may not mix itself with the coating powder!

Cleaning of the sieve

The sieve must be cleaned when the meshes of the sieve are clogged/dirty by sintering of powder. Thereby the sieve is to be immersed into solvent, until all contamination can be removed. Then blow out the sieve and let it evaporate for approx. 1 day, until it is completely dried. It is to be considered that solvent may not contact with coating powder!
Cyclone cleaning granules

Order no.: 269 115  Delivery unit: 4 kg (8.82 lb)

- The solid powder agglomerations inside the Cyclone can be removed with the aid of these Cleaning granules.
- Each cleansing process requires approximately 4 kg (8.82 lb = one delivery unit). Depending on how it is interspersed with powder, the granules can be reused for several cleaning processes.
- It is recommended to clean the cyclone once a month.
- The cleaning granules must be stored in a cool, dry space.

It is recommended to observe the following cleansing process:

**WARNING:**
Avoid heat, sparks etc. during all work!

1. Switch off the suction unit (After filter)
2. Swivel the delivery unit, and the sieve unit to the side
3. Seal up the delivery unit opening (to the pinch valve)
4. Switch off the dense phase conveying
5. Pour 4 kg (8.82 lb) cleaning granules into the delivery unit funnel
6. Close the delivery unit while the sieve insert remains swiveled to the side
7. Switch on the suction unit (After filter)
   - The turbulences which are caused thereby will start the cleansing process.
   - The cleaning procedure can take from 30 minutes to several hours.
8. Switch off the suction unit (After filter)
9. Swivel the delivery unit to the side as soon as the air flow is slowed down
   - If the delivery unit is opened untimely, the cleaning granules are sucked up into the After filter!
10. Check the cleaning result
    - If the cleansing process should go on, then switch the plant on according to point 6
11. Remove the granules from the delivery unit (e.g. with a small shovel)
    - Depending on how it is interspersed with powder, the granules can be reused again
12. Clean the cyclone and the delivery unit thoroughly
13. Remove the sealing from the delivery unit opening (to the pinch valve), and switch on the dense phase conveyor
14. Swivel in the sieve insert and the delivery unit, and close the delivery unit
15. The plant is now ready for operation
# Troubleshooting guide

## Problem fixing

<table>
<thead>
<tr>
<th>Problem / Fault / Malfunction</th>
<th>Cause</th>
<th>Procedures / Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant cannot be put into operation</td>
<td>The signal from the delivery unit is not present</td>
<td>Connect the delivery unit to the cyclone correctly</td>
</tr>
<tr>
<td>Too little exhaust air in the booth</td>
<td>Ducting booth/cyclone or cyclone/After Filter not leak-proof</td>
<td>Search and repair the leak(s)</td>
</tr>
<tr>
<td></td>
<td>Delivery unit not connected to the cyclone</td>
<td>Connect the delivery unit</td>
</tr>
<tr>
<td>Contamination on the outer cyclone wall</td>
<td>Connection points leaking</td>
<td>Reseal</td>
</tr>
<tr>
<td>Powder sintering in the cyclone</td>
<td>Quick reacting powder quality</td>
<td>Check the room temperature</td>
</tr>
<tr>
<td></td>
<td>Air speed too high</td>
<td>Check the air volume</td>
</tr>
<tr>
<td></td>
<td>Solvent mixed itself with powder</td>
<td>Clean the cyclone</td>
</tr>
<tr>
<td>Powder remains in the delivery unit</td>
<td>Powder accumulation in the cyclone too large</td>
<td>Check the conveying performance</td>
</tr>
<tr>
<td></td>
<td>Settings of the dense phase conveyor not correct</td>
<td>Check setting values / parameters according to technical data</td>
</tr>
<tr>
<td>Continual heavy dust generation at the exit of the transport hose</td>
<td>Spiral air is set too high</td>
<td>Guide value approx. 0.3 bar</td>
</tr>
<tr>
<td>Strong dust generation at the exit of the transport hose during conveying</td>
<td>Conveying air is set too high</td>
<td>Guide value approx. 1 bar</td>
</tr>
<tr>
<td>Too much powder in the After Filter</td>
<td>Sieve clogged</td>
<td>Clean the sieve</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check the powder removal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check the seals on the cyclone and the delivery unit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check the air volume</td>
</tr>
</tbody>
</table>
Spare parts list

Ordering spare parts

When ordering spare parts for powder coating equipment, please indicate the following specifications:

- Type and serial number of your powder coating equipment
- Order number, quantity and description of each spare part

Example:

- **Type** EZ02 Monocyclone,
  **Serial number** 1234 5678
- **Order no.** 203 386, 1 piece, Clamp - Ø 18/15 mm

When ordering cable or hose material, the required length must also be given. The spare part numbers of this yard/meter ware is always marked with an *

The wear parts are always marked with a #.

All dimensions of plastic hoses are specified with the external and internal diameter:

Example:

Ø 8/6 mm, 8 mm outside diameter (o/d) / 6 mm inside diameter (i/d)

**WARNING!**

Only original Gema spare parts should be used, because the explosion protection will also be preserved that way. The use of spare parts from other manufacturers will invalidate the Gema guarantee conditions!
**EZ02 Monocyclone - delivery unit, mechanical part**

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>EAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Counter plate</td>
<td>392 405</td>
</tr>
<tr>
<td>6</td>
<td>Sieve insert - complete (see &quot;Sieve insert&quot;)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Clamp - Ø 40 mm</td>
<td>355 291</td>
</tr>
<tr>
<td>8</td>
<td>Dense phase conveying-PT06 - complete (see &quot;Dense phase conveying - PT06&quot;)</td>
<td>372 820</td>
</tr>
<tr>
<td>21</td>
<td>Snap ring - I 45</td>
<td>256 420</td>
</tr>
<tr>
<td>22</td>
<td>Sealing ring - Ø 42/55x2 mm</td>
<td>267 686</td>
</tr>
<tr>
<td>73</td>
<td>Cylinder screw hex. - M8x20 mm</td>
<td>216 496</td>
</tr>
<tr>
<td>79</td>
<td>Grub screw hex. - M6x10 mm</td>
<td>234 931</td>
</tr>
<tr>
<td>91</td>
<td>Lockwasher - M8</td>
<td>215 953</td>
</tr>
<tr>
<td>99</td>
<td>Foam rubber profile - 30x10 mm (indicate cyclone size/-type!)</td>
<td>100 870*</td>
</tr>
<tr>
<td>100</td>
<td>Foam rubber profile - 40x10 mm (indicate cyclone size/-type!)</td>
<td>105 163*</td>
</tr>
</tbody>
</table>

* Please indicate length
EZ02 Monocyclone - delivery unit, mechanical part

EZ02 Monocyclone - delivery unit
## EZ02 Monocyclone - delivery unit, pneumatic part

<table>
<thead>
<tr>
<th>Part Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silencer - 1/8&quot;</td>
<td>251 305</td>
</tr>
<tr>
<td>Bezel - 0,9 mm</td>
<td>403 652</td>
</tr>
<tr>
<td>Silencer</td>
<td>251 305</td>
</tr>
<tr>
<td>Elbow joint - 1/8&quot;, Ø 6 mm</td>
<td>254 061</td>
</tr>
<tr>
<td>Hollow screw - 1/8&quot;, dual</td>
<td>226 173</td>
</tr>
<tr>
<td>Swivel ring - 1/8&quot;, Ø 6 mm</td>
<td>226 165</td>
</tr>
<tr>
<td>Push button - green</td>
<td>267 830</td>
</tr>
<tr>
<td>Selector switch</td>
<td>267 864</td>
</tr>
<tr>
<td>Valve support</td>
<td>268 240</td>
</tr>
<tr>
<td>Elbow joint - 1/8&quot;, Ø 6 mm</td>
<td>254 061</td>
</tr>
<tr>
<td>Safety valve</td>
<td>268 275</td>
</tr>
<tr>
<td>Switch valve - 5/3-way-valve</td>
<td>268 283</td>
</tr>
<tr>
<td>Hollow screw - 1/8&quot;, triple</td>
<td>268 461</td>
</tr>
<tr>
<td>Inline regulator - 6 bar</td>
<td>263 320</td>
</tr>
<tr>
<td>Cylinder - DNC-40-100</td>
<td>267 643</td>
</tr>
<tr>
<td>Proximity switch</td>
<td>267 651</td>
</tr>
<tr>
<td>Clevis - M12x1,25 mm</td>
<td>250 678</td>
</tr>
<tr>
<td>Reduction - 1/4&quot;-1/8&quot;</td>
<td>231 932</td>
</tr>
<tr>
<td>Entering angle - Ø 4 mm, Ø 6 mm</td>
<td>261 181</td>
</tr>
<tr>
<td>Elbow joint - 1/4&quot;a, Ø 6 mm</td>
<td>203 041</td>
</tr>
<tr>
<td>Elbow - 1/4&quot;-1/4&quot;</td>
<td>222 674</td>
</tr>
<tr>
<td>Elbow screw connection - 1/4&quot;-1/4&quot;</td>
<td>202 835</td>
</tr>
<tr>
<td>Plug - NW 7,4 mm-1/4&quot;</td>
<td>244 953</td>
</tr>
<tr>
<td>T-connection - Ø 6 mm-1/8&quot;, Ø 6 mm</td>
<td>245 950</td>
</tr>
<tr>
<td>T-connection - 1/8&quot;-1/8&quot;-1/8&quot;</td>
<td>264 717</td>
</tr>
<tr>
<td>Y-piece - 1/8&quot;a-Ø 6 mm</td>
<td>264 725</td>
</tr>
<tr>
<td>Plug-in elbow - Ø 6 mm outside, Ø 6 mm inside</td>
<td>268 453</td>
</tr>
<tr>
<td>Plastic tube - D4/2,5 mm, black</td>
<td>104 469*</td>
</tr>
<tr>
<td>Plastic tube - Ø 6/4 mm, black</td>
<td>103 144*</td>
</tr>
<tr>
<td>Valve - maker</td>
<td>268 267</td>
</tr>
<tr>
<td>Valve - breaker</td>
<td>268 259</td>
</tr>
</tbody>
</table>

* Please indicate length
EZ02 Monocyclone - delivery unit, pneumatic part

- 21; 22; 23; 24; 30
- 33; 48
- 51; 52; 53
- 14; 45; 57; 58; 60
- 25; 27; 46; 103
- 26; 27; 46; 103; 104
- 25; 27; 46; 103
- 101; 102
- 32; 35; 36; 37
- 13; 24; 29; 31; 32
- 14; 45; 56
## Delivery unit - vibrator, mounting kit

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vibrator - complete</td>
<td>395 455</td>
</tr>
<tr>
<td>1 Plastic tube - Ø 8/6 mm, black, antistatic</td>
<td>103 756*</td>
</tr>
</tbody>
</table>

* Please indicate length

*Diagram of Delivery unit - vibrator, mounting kit*
# Sieve insert

The sieve is composed of following parts:

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Supporting ring</td>
<td>392 472</td>
</tr>
<tr>
<td>2</td>
<td>Clamping ring</td>
<td>392 480</td>
</tr>
<tr>
<td>3</td>
<td>Sieve mesh – 600 µm</td>
<td>105 180</td>
</tr>
<tr>
<td>4</td>
<td>Sieve mesh – 400 µm</td>
<td>105 171</td>
</tr>
<tr>
<td>6</td>
<td>Screw</td>
<td>248 568</td>
</tr>
</tbody>
</table>

![Sieve insert diagram]

---

Sieve insert
## Dense phase conveying - PT06

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Flange</td>
<td>372 803</td>
</tr>
<tr>
<td>2</td>
<td>Pipe bend</td>
<td>372 811</td>
</tr>
<tr>
<td>3</td>
<td>Intermediate hopper</td>
<td>372 838</td>
</tr>
<tr>
<td>4</td>
<td>Rundown cone</td>
<td>372 846</td>
</tr>
<tr>
<td>5</td>
<td>Bezel - Ø 1,9 mm</td>
<td>372 900</td>
</tr>
<tr>
<td>13</td>
<td>Pinch valve - NW 65</td>
<td>258 520</td>
</tr>
<tr>
<td>13.1</td>
<td>Sleeve</td>
<td>011 576#</td>
</tr>
<tr>
<td>14</td>
<td>Servo valve - 1/8&quot;- NW 5.5</td>
<td>258 512</td>
</tr>
<tr>
<td>15</td>
<td>Connector IG - G1</td>
<td>258 539</td>
</tr>
<tr>
<td>21</td>
<td>Non-return valve unit - 1/8&quot;-1/8&quot;</td>
<td>202 240</td>
</tr>
<tr>
<td>22</td>
<td>Silencer - 1/8&quot;</td>
<td>251 305</td>
</tr>
<tr>
<td>23</td>
<td>Elbow joint - 1/8&quot;-Ø 8 mm</td>
<td>253 987</td>
</tr>
<tr>
<td>24</td>
<td>Elbow joint - 1/8&quot;-Ø 8 mm</td>
<td>203 050</td>
</tr>
<tr>
<td>25</td>
<td>T-connection - 1/8&quot;-1/8&quot;-1/8&quot;</td>
<td>237 760</td>
</tr>
<tr>
<td>26</td>
<td>Connection sleeve - 1/8&quot;-Ø 8 mm</td>
<td>236 020</td>
</tr>
<tr>
<td>27</td>
<td>Screw-in nipple - 1/8&quot;-Ø 8 mm</td>
<td>246 956</td>
</tr>
<tr>
<td>28</td>
<td>Double nipple - 1/8&quot;-1/4&quot;</td>
<td>242 209</td>
</tr>
<tr>
<td>29</td>
<td>Plastic tube - Ø 8/6 mm, black</td>
<td>103 756*</td>
</tr>
<tr>
<td>30</td>
<td>Spring hook - 60x6 mm</td>
<td>250 694</td>
</tr>
<tr>
<td>31</td>
<td>Eyebolt - M6x15 mm</td>
<td>261 122</td>
</tr>
<tr>
<td>35</td>
<td>O-ring - Ø 26,7x1,78 mm</td>
<td>241 415</td>
</tr>
<tr>
<td>40</td>
<td>Hex. cylinder screw - M8x35 mm</td>
<td>216 526</td>
</tr>
<tr>
<td>41</td>
<td>Hex. cylinder screw - M8x20 mm</td>
<td>216 496</td>
</tr>
<tr>
<td>42</td>
<td>Hex. cylinder screw - M6x10 mm</td>
<td>214 841</td>
</tr>
<tr>
<td>43</td>
<td>Lock washer - M8</td>
<td>215 953</td>
</tr>
<tr>
<td>44</td>
<td>Transport hose connection (see &quot;Dense phase conveying - connections&quot;)</td>
<td></td>
</tr>
</tbody>
</table>

* Please indicate length
# Wearing part
Dense phase conveying - PT06

Dense phase conveying - array
## Dense phase conveying – connections

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Transport hose connection - Ø 25 mm</td>
<td>258 547</td>
</tr>
<tr>
<td></td>
<td>Hose - 25/33 mm</td>
<td>104 604*</td>
</tr>
<tr>
<td></td>
<td>Hose clamp - 25-35 mm</td>
<td>226 335</td>
</tr>
<tr>
<td></td>
<td>Safety rope - length=200 mm</td>
<td>374 628</td>
</tr>
<tr>
<td>2</td>
<td>Hose - Ø 8/6 mm, black</td>
<td>103 756*</td>
</tr>
</tbody>
</table>

* Please indicate length

---

**Diagram:**

Dense phase conveying - connections