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OWNER'S MANUAL

M-SECTION

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Revised: 01/2015

Table of contents

1 Definitions of special pictograms used in this document

	Consequences	Probability
GEFAHR	Death/serious injury irreversible	imminent
WARNUNG	Death/serious injury irreversible	potential
VORSICHT	Minor injury reversible	potential
VORSICHT	Material damage	potential

	WARNUNG	**Risk of injury** Only qualified electricians may establish the electrical connections!
	WARNUNG	**Risk of injury** - Wear full protective clothing - Check respiratory connectors - Do not point the nozzle at people
	VORSICHT	**Risk of tipping** Secure the part.

2 Scope of manual

This user manual is intended for those operating and installing the recovery system with M-Section.

The following user manuals must also be taken into consideration:

- User manual for MBX filter

- User manual for single-chamber blast machine

- User manual for pressure cyclone

- User manual for vortex cylinder or vortex tube

3 Overview of installation for recovery system with M-Section

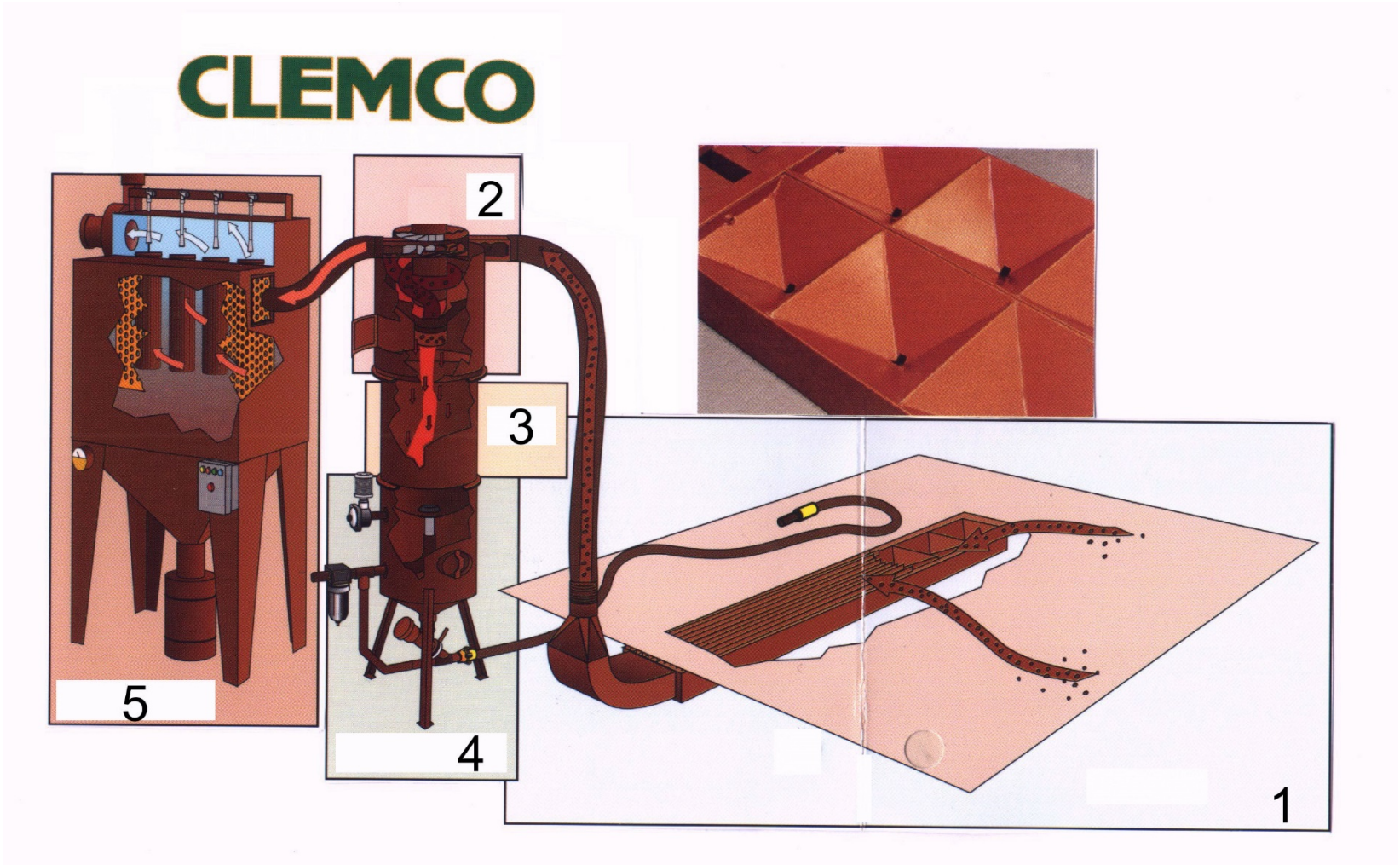
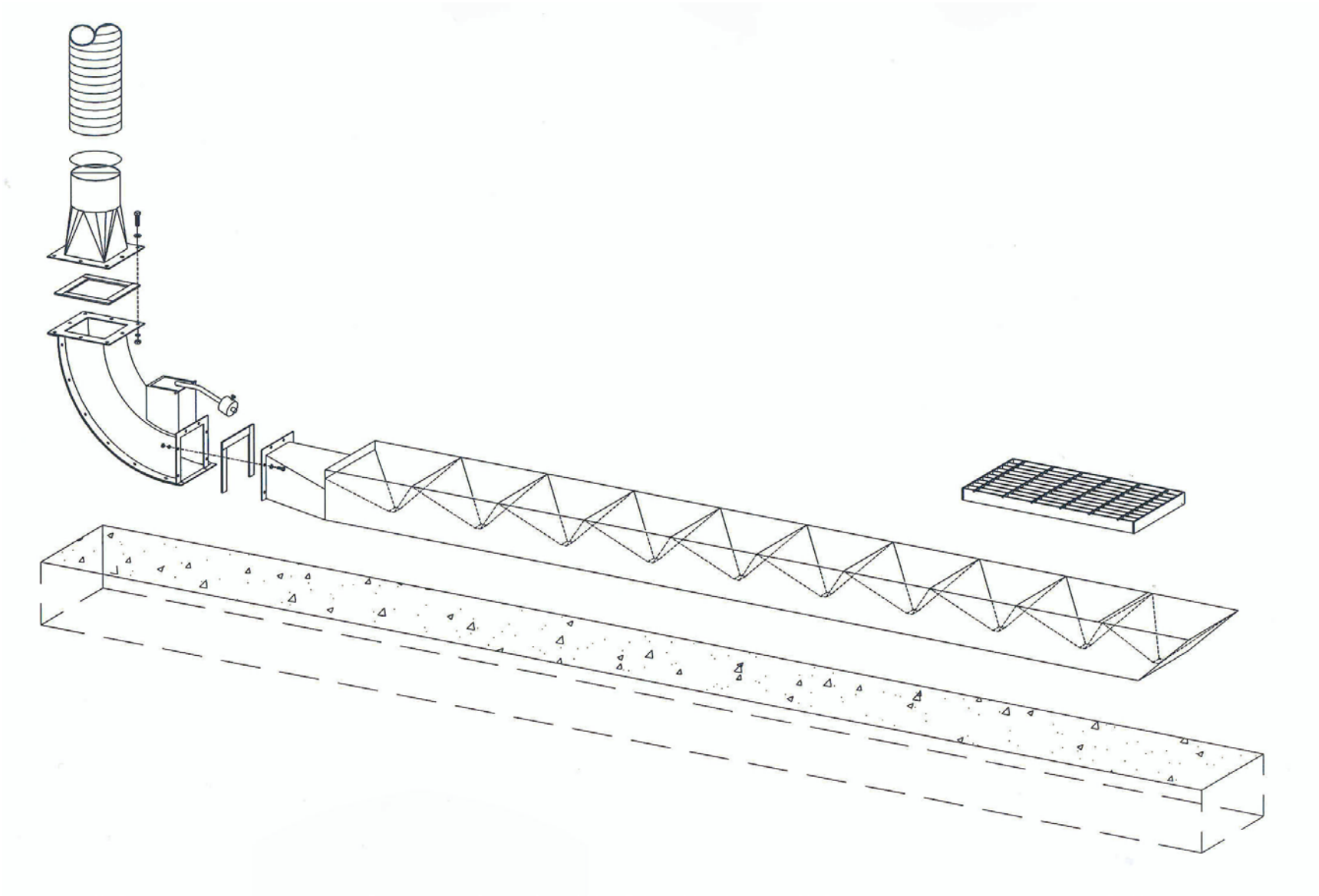


Figure 1



M-Section with foundation pit

4 Application and restrictions

The M-Section system is used to recycle blast media.

This offers the following advantages:

- A low-cost alternative to a complete blasting workshop
- Many different blast media can be used (glass beads, corundum, plastic, ceramic blast media (very fine steel shot only after consultation with Clemco))
- Can be installed in existing blast rooms – the foundation only needs to be 200 mm deep ➔ the system can therefore be installed in rooms where it is not possible to dig deep foundations.

4.1 Description of the equipment

The standard M-Section recovery system consists of the following standard components (see Figure 1):

1 M-Section with grid frame, screen, elbow with wear plate and throttle flap (DN 150 mm suction hose)
2 Cyclone (900 CFM)
3 Storage silo
4 200 l single-chamber blast machine with umbrella
5 Filter (MBX 1500)
6 Pneumatic system and blast hoses
7 Pre-separation screen insert

4.2 Key dimensions for the standard M-Section

Width (mm)	Length in mm (for 900 CFM)	Depth (with grid frame) (mm)	Grid frame (mm)	Elbow joint connection (mm)
310	Variable*	195	610 x 307	Dia. 150

* from a min. of 3 hoppers to a max. of approx. 14 hoppers – corresponds to a length of max. 3660 mm

4.3 Air consumption

Depends on the length of the M-Section and the blast media used (but 900 CFM at minimum). Please contact Clemco for further details.

4.4 Required air velocity

Depends on the blast media used. Please contact Clemco for further details.

4.5 Grid load

1.2 t/m²

5 Set-up and operation

5.1 Set-up for initial installation and reinstallation

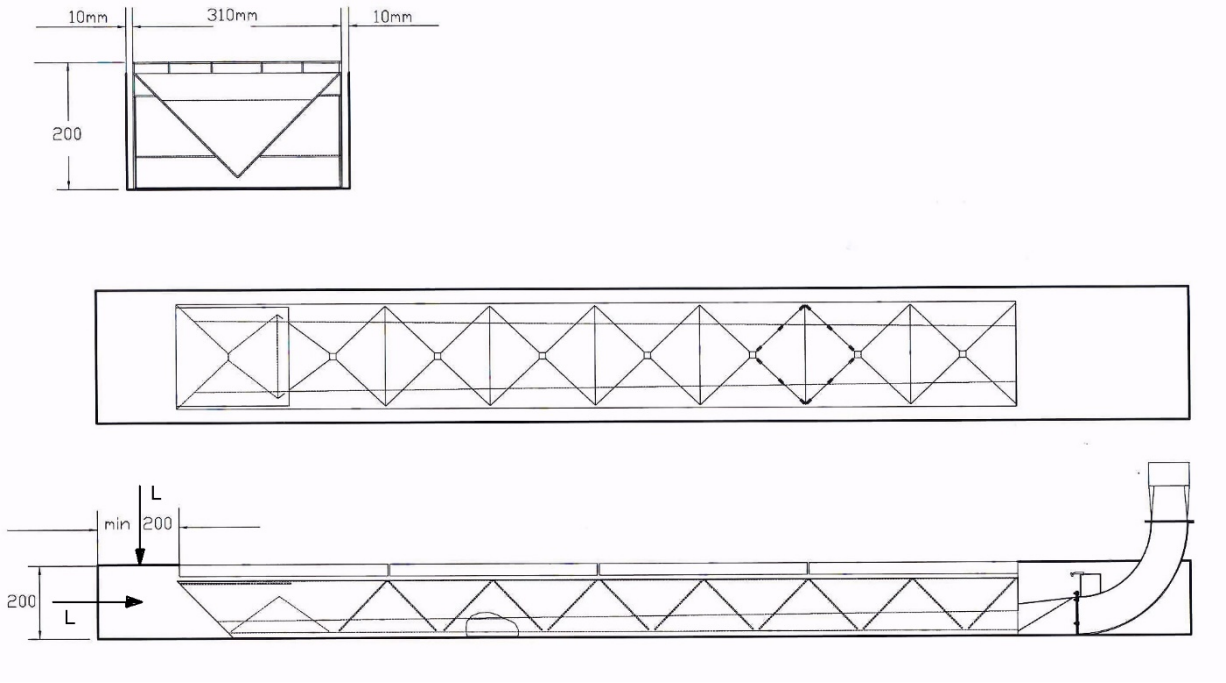
Recommended installation sequence for the complete recovery system

1 M-Section
2 Blast machine
3 Cyclone
4 Filter
5 Suction hoses
6 Connections against electrostatic charge
7 Pneumatic system and blast hoses
8 Electrical connections

5.1.1 M-Section

5.1.1.1 Foundations

	Place M-Section in foundations and align	See Figure 2 for the dimensions for the foundation plan
	Gap (10 mm) between foundations and M-Section	Fill with blast media or installation foam



L = air inlet

Figure 2

Important!

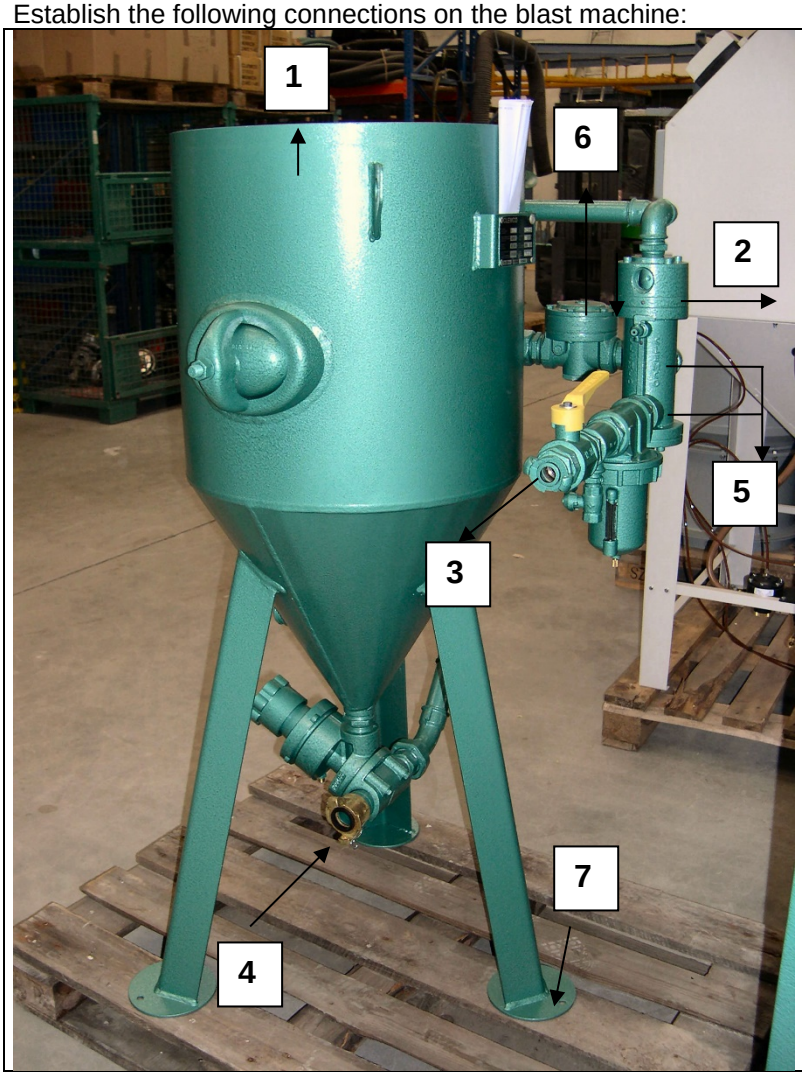
For reinstallations, the air inlet of the M-Section at the rear must be ensured over the entire cross-section!

1 = connection to cyclone
- max. 5 m
- DN: according to the order

5.1.2 Blast machine

	Position blast machine in desired location	
	Screw to the floor	3 x dowels + screws

Establish the following connections on the blast machine:

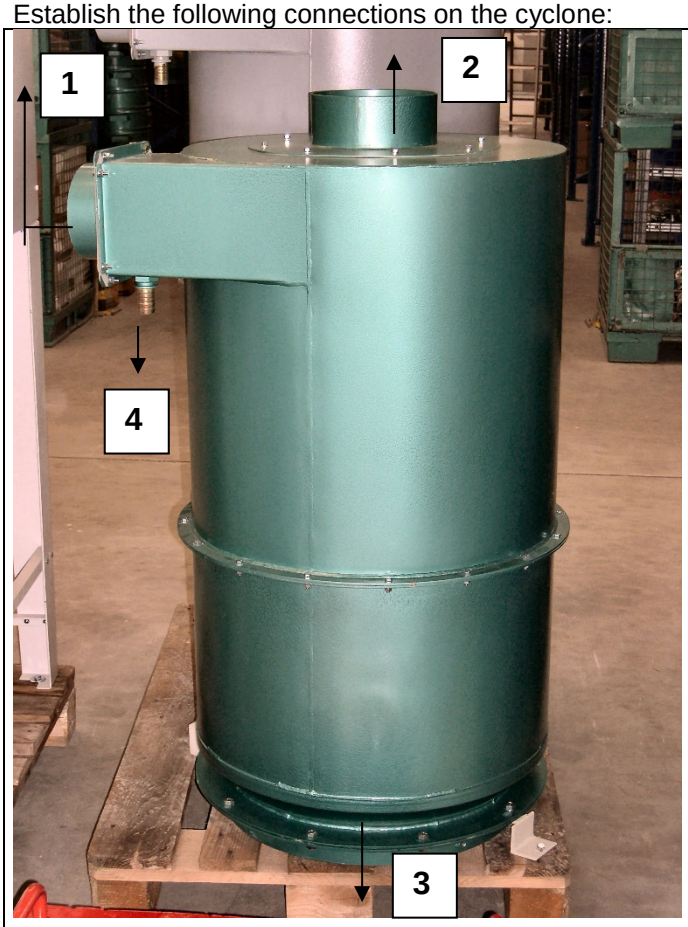


1 = cyclone with seals
2 = blast machine exhaust air ==> 25 x 7 blast hose to cyclone with clip
3 = compressed air connection: min. dia. 32 mm
4 = blast hose with nozzle
5 = remote control hose with manual lever
6 = connection for pressure control
7 = 3 x fixings of blast machine to the floor

5.1.3 Cyclone with silo

		**Risk of injury/risk of tipping** - Secure the cyclone and silo to prevent them tipping over. (Secure them to the wall using flat bars) - not with suction hoses installed
	Position the cyclone complete with silo on the blast machine	When lifting, check that the seal is properly fitted on the flange
	Screw the cyclone complete with silo to the blast machine	Flange area

Establish the following connections on the cyclone:



1 = connection to M-Section
- max. 5 m
- DN: according to the order

2 = connection to filter
- max. 5 m
- DN: according to the order

3 = place flange on blast machine

4 = connection of blast machine exhaust air with clip; 25 x 7 blast hose

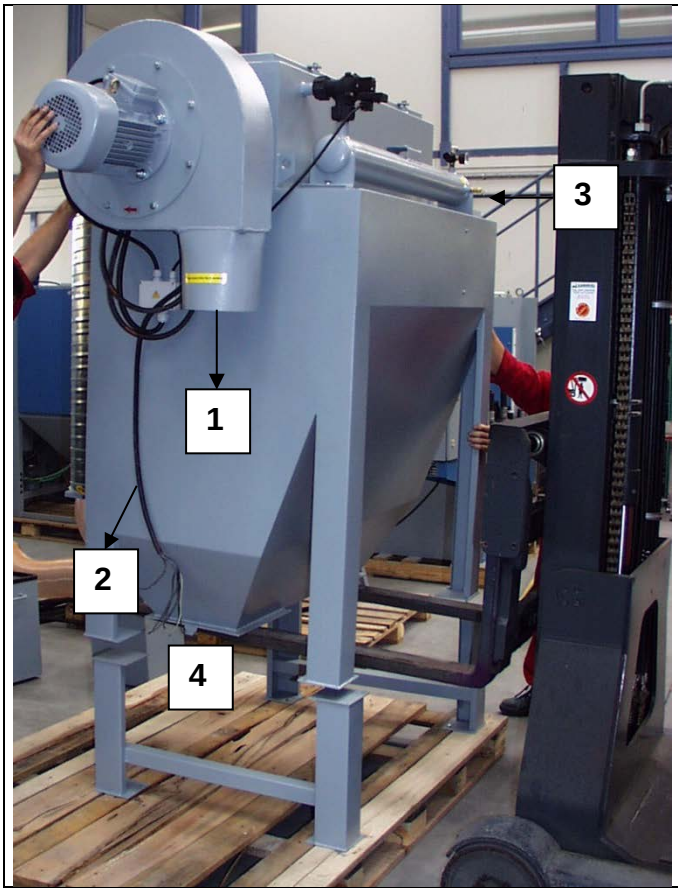
Option Adjust or install vortex tube or vortex cylinder

Option Install storage silo

5.1.4 MBX filter

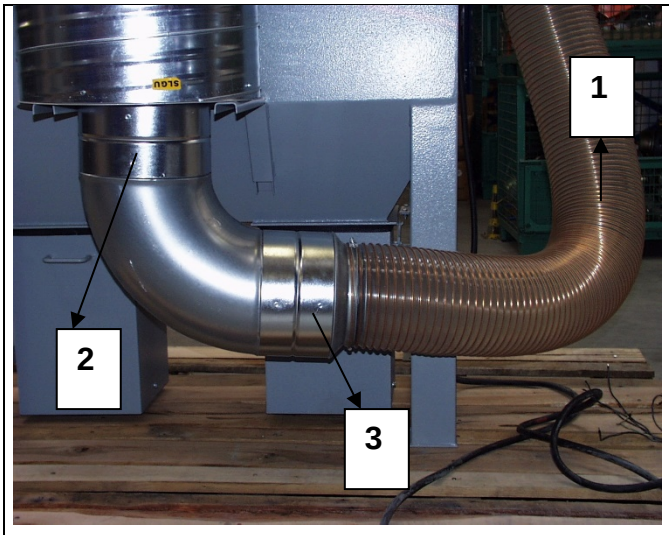
Option: Install separately or connect to the room dust extraction system with Y-piece with throttle flap.

	Position legs/base frame at installation site.	Position them on the floor, not on the pallet.
		**Risk of injury/risk of tipping** Secure the part.
	Position the filter using a forklift truck.	**Securing parts** Risk of tipping! The fork must fully hold the side of the blower.
	Screw together (feet with filter body)	M8x25 screws
	Secure the filter to the floor	Recommended: 4 dowels + screws



1 = suction hose connection for muffler
2 = connection to electric panel (7-wire)
3 = compressed air connection for cleaning down;
+ 9 mm hose (green)
+ max. 10 m
4 = attach dust bucket and fastenings pins

Install muffler and elbow on the rear of the filter; connect the blower and elbow with DN 200 suction hose.



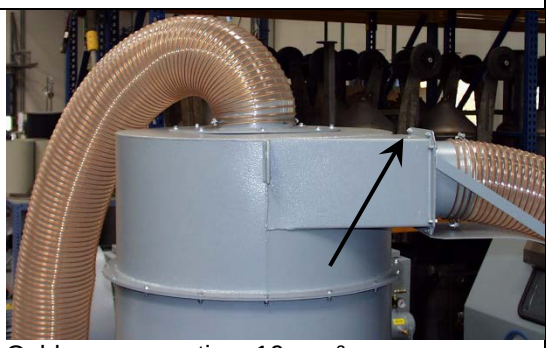
1 = suction hose to fan
2 = screw in place using self-tapping screws
3 = screw in place using self-tapping screws (item 12722)

5.1.5 Compressed air connection

From blast machine or compressed air system – 9 mm compressed air hose with coupling (length of approx. 5 m)

- Compressed air must be free of oil and water
- Connection to compressed air regulator (compressed air circuit)

5.1.6 Connections against static charge

		**Risk of injury** Only qualified electricians may establish the electrical connections!
	Earth the cyclone – see photo	 Cable cross-section: 10 mm²
	Earth the blast machine	Cable cross-section: 10 mm² Earthing screw: on blast machine foot
	Earth the MBX filter	Cable cross-section: 10 mm² Earthing screw: on foot at the rear, opposite the fan

5.1.7 Electrical connection

		**Risk of injury** Only qualified electricians may establish the electrical connections!
	Create a wiring diagram for the entire system	- By customer - Comply with CE regulations - Take note of the wiring diagrams for the components

5.1.8 Test run

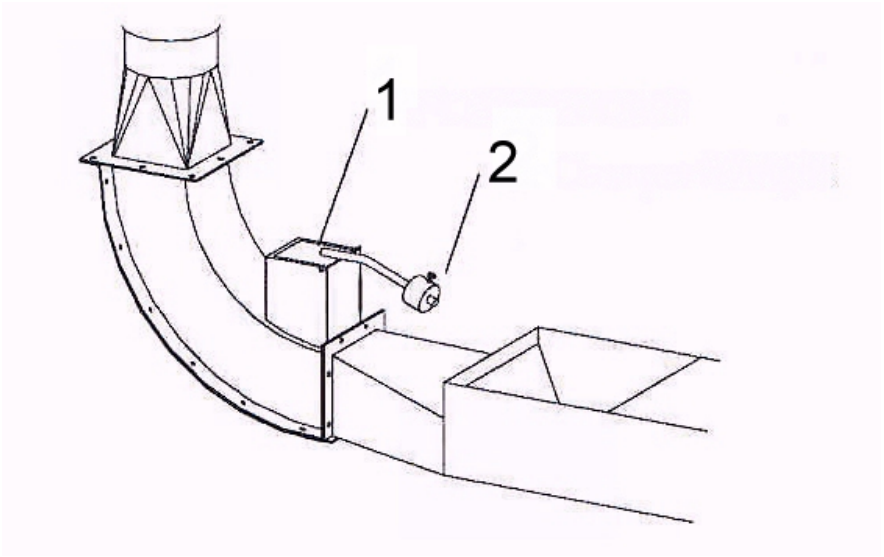
	Test run without blast media, observing the following sequence	:
	Check the function	
	Test run of fan with a system other than the blast machine	- Allow to run for at least 2 h
	Check for leaks	- Hose connections - Seals - Connections between components e.g. blast machine/cyclone
		**Risk of injury** - Wear full protective clothing - Check respiratory connectors - Do not point the nozzle at people
	Check the blast machine	- Pick up hose with manual lever - Do not point the nozzle at people - Test the function of the manual lever Hier sollten Zeiten aufgenommen werden
	Test run with blast media, observing the following sequence:	

	- Feed blast media into scraper line	- Check the delivery of the media to the cyclone

5.1.9 Acceptance and release

5.2 Settings

The air supply must be controlled using the throttle flap from the figure below, which is located on the elbow joint. A weight (2) must be moved for this purpose.



1 = cover of throttle flap

2 = lever with weights to adjust the throttle flap (weight must be moved)

Proceed as follows to set the optimum position for the weight on the throttle flap:

- Fill two hoppers in the system
- Switch on the fan of the recovery system
- Very carefully move the weight (2) along the iron rod until the cover (1) of the throttle flap starts to open.
- Secure the weight in this position to retain the setting

Once set, the throttle flap will open to empty the M-Section if it has become blocked due to the overfilling of the hoppers.

5.2.1 Filling and emptying blast media

5.2.1.1 Capacity

Depends on the blast machine and storage silo

The system is full when the blast media has reached the level below the cone on the blast machine.

Overfilling the system ➔ hose to the filter will be blocked.

Option: check the fill level in the storage silo (level sensor)

5.2.1.2 Filling the blast media

If the system is completely emptied:	
If the fan motor is on	- Pour the blast media directly into the hoppers of the M-Section
If the fan is off	- Pour dry, clean blast media into the silo above the blast machine through the silo door.
CAUTION! **If blast media needs to be added:**	**a)** Do not pour any blast media directly into the hoppers of the M-Section if you do not know how much blast media is currently filled: Consequences ➔ overfilled and therefore blocked system **b)** Do not fill the media until all the blast media has been recovered from the system.

5.2.1.3 Emptying the blast media

Empty the blast machine and hoppers of the M-Section	- Reduce the pressure to approx. 3 bar
	- Position an empty container in the blast room
	- Close the 1 ¼" ball valve (item 02397D)
	- Start the blasting operation
	- Blast media flows directly into the container

Once the container is full, empty it and repeat the process until the system is empty.

5.2.2 Static pressure

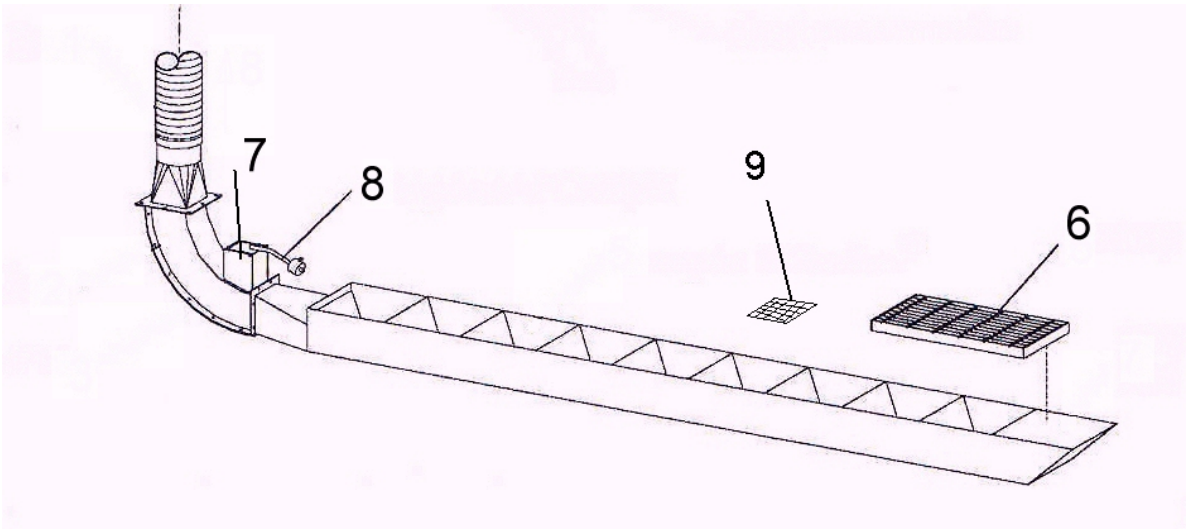
The static pressure must be constant in order for blast media to be recovered effectively.

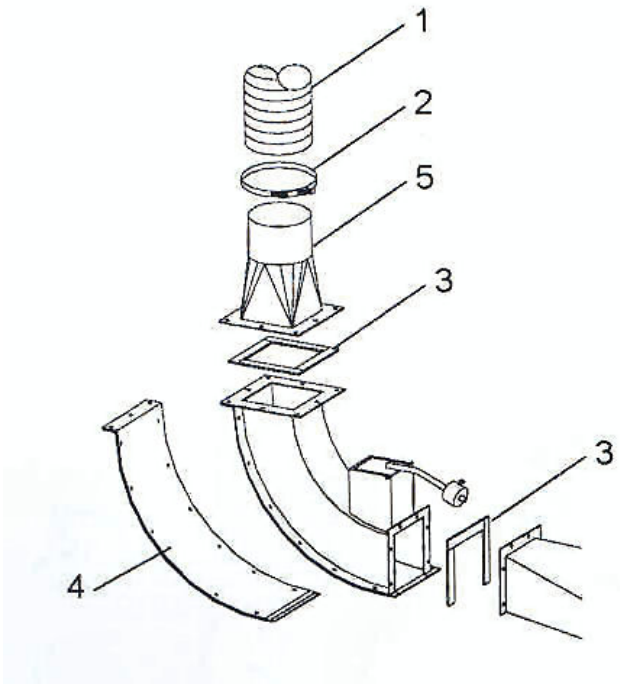
5.2.2.1 Setting the static pressure

- Open and close the throttle flap on the filter
  - Open the flap ➔ increase the static pressure
  - Close the flap ➔ reduce the static pressure
- Aim: maximum dust extraction with minimal capture of blast media

Fault description	Results	Possible cause	Remedy
Cyclone does not remove fine dust particles	- Dusty room - Poor visibility - Delivery hose becomes blocked	Throttle flap not open far enough	Open throttle flap further ➔ adjustment of static pressure
Fine dust particles are delivered to the dust filter together with 'good' blast media	- Very high blast media consumption	Throttle flap open too far	Close throttle flap further ➔ adjustment of static pressure
	- Very high blast media consumption		- Install vortex cylinder or vortex tube – please contact Clemco for further details. (see user manual for vortex cylinder) - Install spacer ring on the cyclone

6 Spare parts list for M-Section





Seq. no.	Part no.	Designation	Quantity
1	12457Z	6" suction hose	depends on the blast machine and cyclone
2	11576Z	6" clamp	1
3	00187Z	Seal	
4	22377Z	Wear plate with fixings	1
5	22375Z	6" adapter with flange	1
6		Grid frame	depends on the number of hoppers
7		Throttle flap	
8		Weight with lever	
9		Pre-separation screen	