ILMEG

MACRO

Dust Collector System

Fully pneumatic dust collector system. Designed for improved productivity and improved working conditions in the construction and mining industry.

MACRO

Dust Collector System for 2 drills or 2 breakers

The ILMEG MACRO fully pneumatic dust collectors are used in rock drilling and breaking applications carried out with pneumatic equipment to improve productivity and improve the working conditions with regards to dust. The MACRO is specially designed for rough conditions in combination with excellent mobility due to the low weight.
The filter cleansing function is carried out with reversed air.
ILMEG dust collectors are continuously improved and built of high quality components to ensure long, safe and economical operation.

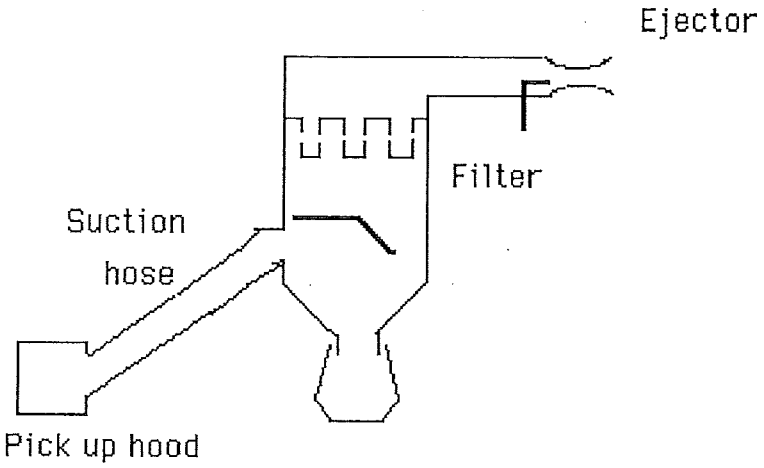
Specification:
Max hole size: 2 x 38 mm (1 1/2")
Filter area: 3.6 m_2
Air consumption: 1.7 m_3 / min
Air pressure: 7 BAR
Width x depth x height: 362x458x1230 mm
Approx weight: 45 Kg
Filter cleansing system: Reversed air
Suction hose: 2 x 10 m (2")
Cuttings collector: 2 x ICC 10
Hose swivel: 2 x 2"

The cuttings collector is specially designed for tough work ensuring that the dust is reduced to a minimum at the operator's position. Close to the cuttings collector the hose is equipped with a swivel to safeguard that the cuttings collector can rotate to keep the cuttings collector always close to the ground.

MACRO is equipped with the latest technology when it comes to filter cleansing system. A valve positioned on top, manually operated, reverse the airflow through the filters to make sure that the suction capacity is maximal over a long time.

The compact design makes the MACRO light weight and easy to move and carry. During use the MACRO is positioned on a sturdy stand which allows easy access for changing the plastic bag which collects the rock cuttings and dust.

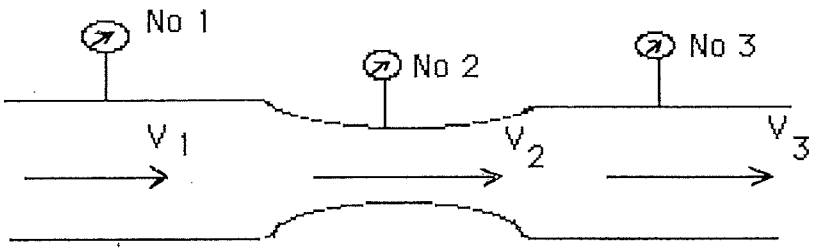
ILMEG Products AB, Företagsvägen 2, 61145 Nyköping, Sweden. Phone +46 155 220270 Fax +46 155 220277
mail: info@ilmeg.se web: www.ilmeg.se



D. The air driven ejector

In the pneumatic dust collectors, suction is produced by an air driven ejector.

The ejector works according to the venturi principle.



As air flows through a restriction, the flow velocity increases in the restriction.

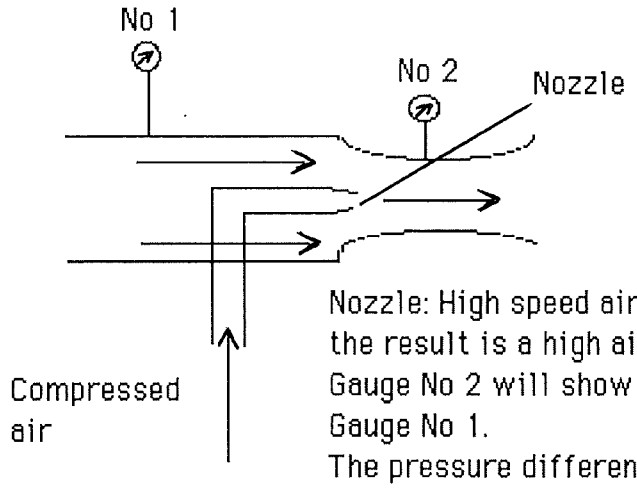
No energy is added or taken away in this smooth restriction, thus the energy content of the flowing air must be the same in all sections.

Energy content = $p + \frac{1}{2} mv^2$ = constant.

Thus as the dynamic energy increases, because the velocity increases, the static pressure must drop.

(The same principle is utilized in the standard car carburator).

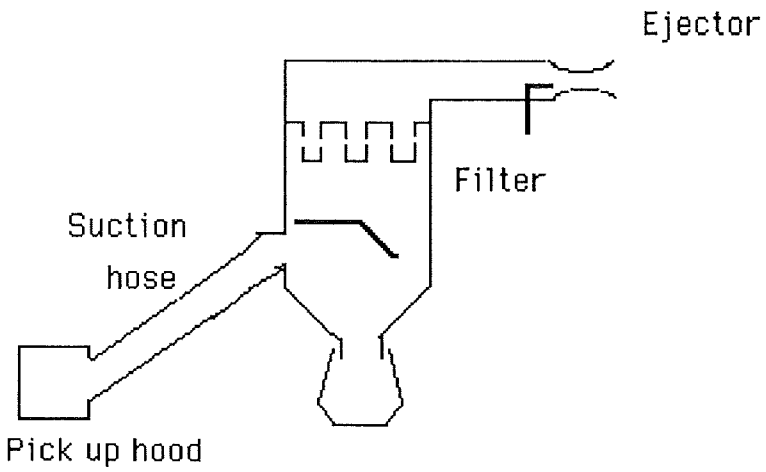
The ejector



Nozzle: High speed air is coming out of the nozzle, the result is a high air speed in the restriction. Gauge No 2 will show a lower pressure than Gauge No 1. The pressure difference between No 1 section and No 2 section moves the air in the direction from 1 to 2.

Exchangeable nozzles are available in different sizes to reduce or increase suction capacity.

If the venturi is connected to a closed box, a vacuum will be created in the box.



AIR CONSUMPTION, DIFFERENT NOZZLE SIZES

Air pressure (Bar)	6.0	7.0	10.5	12.0	15.0	18.0	20.0
Nozzle size mm ø	Air consumption m^3/min						
2.0	0.20	0.20	0.27	0.29	0.32	0.42	0.45
3.0	0.44	0.48	0.60	0.65	0.73	0.80	0.90
3.5	0.63	0.68	0.85	0.90	1.00	1.10	1.20
4.0	0.80	0.85	1.06	1.13	1.26	1.40	1.55
4.5	1.04	1.11	1.37	1.45	1.62	1.80	1.95
5.0	1.32	1.40	1.70	1.83	2.03	2.25	2.40
5.5	1.62	1.73	2.12	2.26	2.50	2.76	2.94
6.0	2.00	2.17	2.63	2.78	3.00	3.30	3.50
6.5	2.20	2.40	2.80	3.20	3.50	3.90	4.20
7.0	2.50	2.80	3.20	3.70	4.00	4.50	4.86
7.5	2.90	3.20	3.70	4.20	4.60	5.16	5.52
8.0	3.30	3.60	4.20	4.80	5.20	5.82	6.18

Note: Optimal operating pressure 7 Bar.
Recommended max. operating pressure 12 Bar.

Air pressure (Bar/PSi)	6.0/86	7.0/100	10.5/150	12.0/172	15.0/215	18.0/257	20.0/286
Nozzle size mm ø	Air consumption CFM						
2.0	7	7	10	10	11	15	16
3.0	16	17	21	23	26	28	32
3.5	22	24	30	32	35	39	42
4.0	28	30	37	40	45	49	55
4.5	37	39	48	51	57	64	69
5.0	47	49	60	65	72	79	85
5.5	57	61	75	80	88	97	104
6.0	71	77	93	98	106	117	124
6.5	78	85	99	113	124	138	148
7.0	88	99	113	131	141	159	172
7.5	102	113	131	148	162	182	195
8.0	117	127	148	169	184	205	218

Note: Optimal operating pressure 100 PSi.
Recommended max. operating pressure 170 PSi.

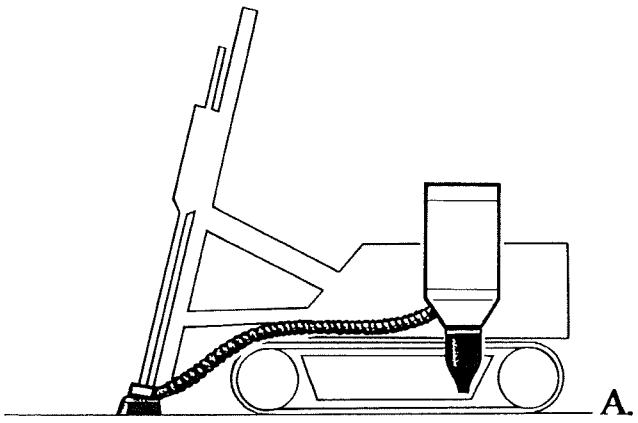
3. How to mount the dust collector on the drill rig

A. The dust collector should be put in a place where it does not hinder boom and feed movements. It should not make tramming or transport of the drill rig difficult, and it should not hinder the access to other components on the rig that need regular service and maintenance.

B. The dust collector must be placed high enough above ground, approx 3', so that emptying it, or putting on bags is convenient. The cuttings should not fall on the tracks or other components of the rig.

C. The suction hose should run as straight as possible between pick up hood and dust collector.

D. Of course, the bracket holding the dust collector must be able to take the strain of tramming the rig over rough terrain.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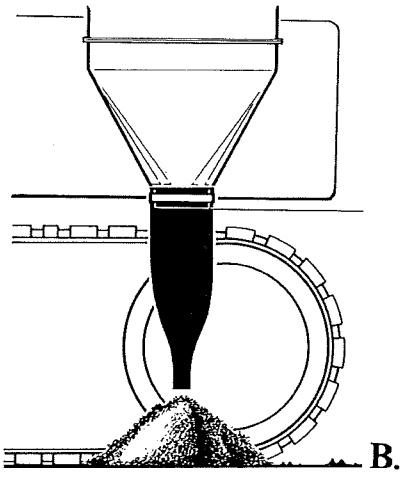
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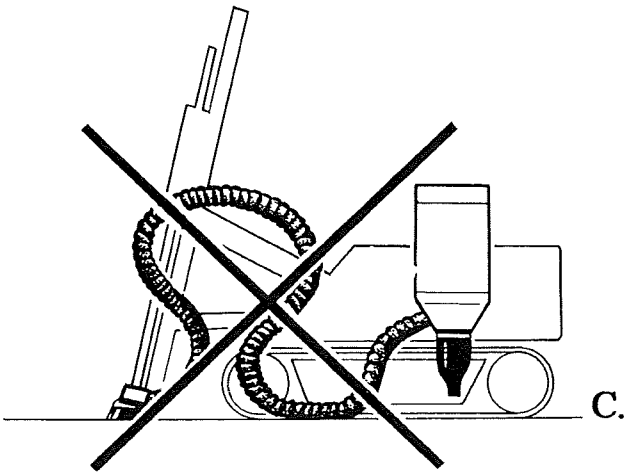
C.

6. Service and trouble shooting

DAILY MAINTENANCE
PNEUMATIC DUST COLLECTOR

1. Start up the dust collector.
   Let it run without drilling for 10-15 sec to clean any condensed water from the system.

2. <u>CLEAN THE FILTER ELEMENTS</u>
   Turn three-way-valve to "cleaning" position - appr. 10 short moves of valve between "cleaning" and "off" (appr. 1 sec. "cleaning" and 1 sec interval).
   <u>Such a cleaning cycle shall also be done between every drill rod.</u>

3. Check that your dust collector sucks properly by looking at the rubber dump valve (or plastic sack) which shall QUICKLY AND STRONGLY be sucked up against dust collector bottom.

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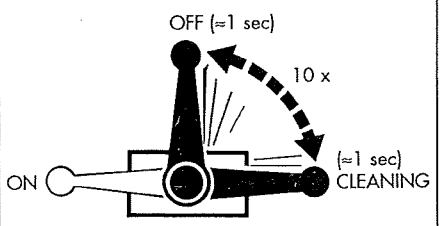

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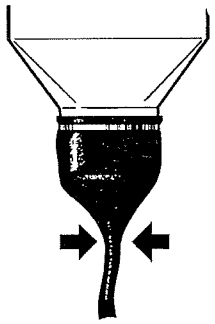

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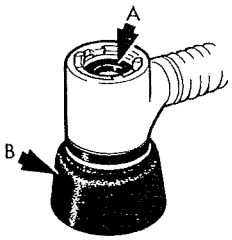


4. Check that GASKET in pick up hood (A) and SKIRT (B) are not worn out.

5. Check that suction hose is not damaged or bent.

6. <u>Every day before stopping machine:</u>
   <u>Clean the filters as described under point 2 above.</u>

TROUBLE SHOOTING
PNEUMATIC DUST COLLECTOR

If your dust collector performance is inefficient though maintained daily, check the following:

1. Check suction hose for blockages. Clean any water or dirt from hose.

2. Check rubber dump valve (or plastic sack). If worn or otherwise damaged, change to a new one.

3. Check incoming air to the ejector by loosening the compressed air hose from connection onto dust collector. Clean away any water or dirt from hose. Check ejector nozzle. Loose particles in compressed air can plug holes in cleaning manifold - making filter cleaning impossible.

4. When risk for ice in nozzles (+/- 5°C, 23-41°F)
   If nozzles are blocked with ice put deicer in air hose to dust collector ejector. When drilling continuously at temperatures shown above, we recommend that you fit an anti freeze equipment to the ejector air hose.

5. Check dust collector inlet inside dust collector. Dust can build up and block inlet - especially when dust is wet.

6. Check that compressor gives OIL FREE AIR, recommended pressure 7-12 bar (100-172 PSi).

7. If dust escapes through the silencer, one or more filters are broken.

   STOP DRILLING IMMEDIATELY and check all filters. Change broken filters - clean other filters.

   Also open the clean air chamber and remove dust which otherwise can fall down into the clean filter inside.

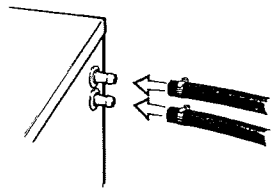
   If necessary clean filter housing and bottom section.

8. Check if any filter is clogged with dust. If necessary change to new filter.

   IMPORTANT: EVERY TIME YOU OPEN FILTER HOUSING FROM BOTTOM SECTION FOLLOW INSTRUCTIONS GIVEN BELOW!

9. Check wear plate inside dust collector inlet. If plate is worn out, high speed dust will blow directly into the filters and destroy them in a very short time.

3



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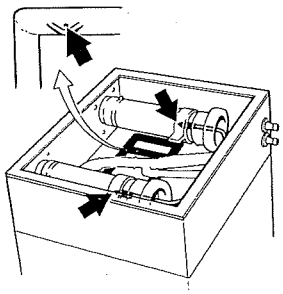

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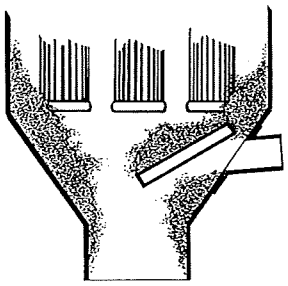

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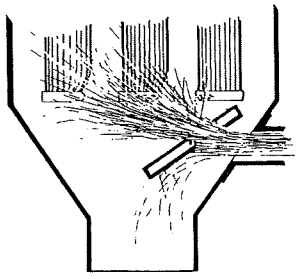


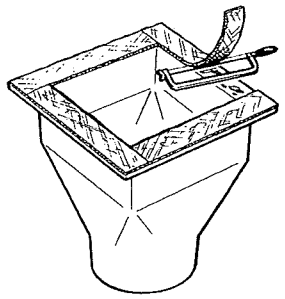
WHEN OPENING FILTER HOUSING FROM BOTTOM, ALWAYS:

Remove damaged foam rubber seal

Clean carefully

Fit new seal

1



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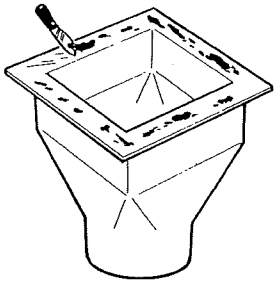

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