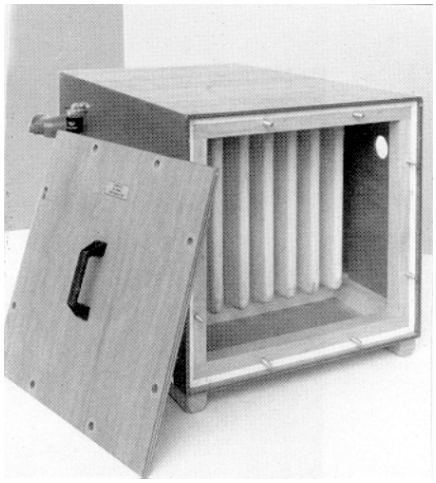
2.2 Supplementary Inlet Filters
2.2.1 Bag Filter (wooden housing)

Dust is damaging

This applies to people, machines and especially to compressors. This is why a KAESER high efficiency fabric-bag type filter is used as an intake filter in polluted environments, i.e. where normal air intake filter would be contaminated in a short time.

Construction



The high pollution air intake filter is a fabric filter using a row of bag-filter elements mounted inside a wooden mainframe. Each bag is made of cotton, which is then pulled over a wooden subframe. The filter element is inserted in the mainframe. Horizontal battens separate the bags from each other and at the same time seal the clean-air side from the intake side. The complete set of bags and main-frame are mounted in a plywood box (see Fig.1).

Fig.1 Bag-filter mounted in a plywood box.
Clean-air side open, tightening bars undone, with one bag removed.

The box is manufactured from marine plywood which is insensitive to most operating environments. For operation in extreme outdoor conditions a filter system using cylindrical sheet-steel housing is available. The space saving arrangement is shown in Fig. 2. If more space is available, the filter housing can of course be installed on the floor.

Degree of solid particle separation and separation efficiency of gas and liquid

The technical quality of the bag-filters has been tested and characterised according to ASHRAE Standard 52-68.

In order to prove the quality of the filter, two characteristics are used: a) Degree of solid particle separation
b) Separation efficiency of gas and liquid

A degree of solid particle separation of 100 % is obtained with a KAESER cotton filter using the following dust composition:

- Road dust	72 %	Particle size	0 - 5 microns	39 %
			5 - 10 microns	18 %
			10 - 20 microns	16 %
- Soot	23 %		20 - 40 microns	18 %
- Cotton fibres	5 %		40 - 80 microns	9 %

Using an aerosol composition of gas and liquid (normal atmospheric pollution), a separation efficiency of 86 % is obtained.

Installation proposal

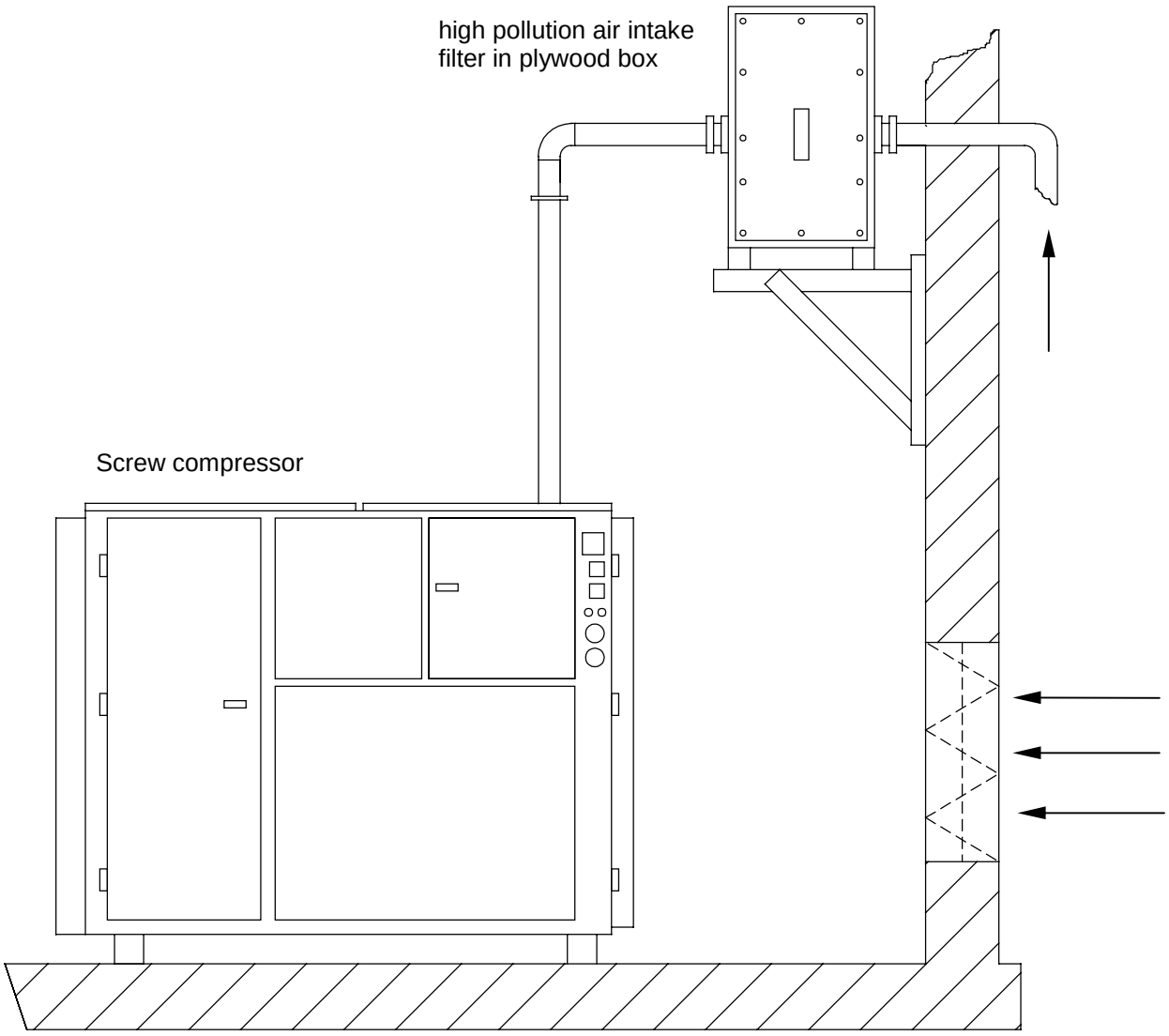


Fig. 2 Screw compressor with high pollution air intake filter; air intake from outside

Before installing the filter, note the number of pipe connections according to the chart on page 5.
For mounting the counter flanges on the housing, place the provided wooden reinforcing flanges between the housing and counter flanges and fasten the counter flanges with the lock screws.

The intake and outlet pipe connections can be mounted on any of the four longer sides of the housing. Leave the covers on the front and rear of the housing free for removal and insertion of the bag-filter elements.

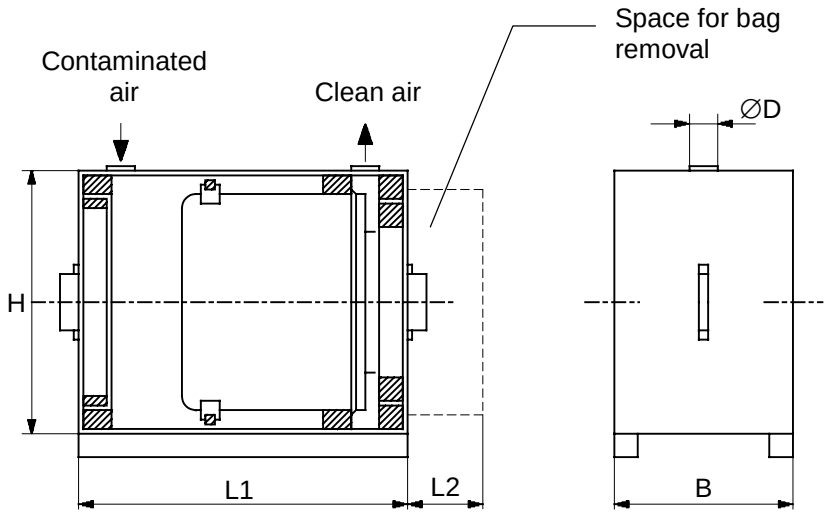
Technical specifications

Cotton fabric with the following technical characteristics is used for the KAESER high pollution air intake filter

- Degree of solid particle separation: 99 %
- Separation efficiency of gas and liquid: 83 %

Filter model	Order No.	Air amount [1])	Dimensions in mm					Weight
		m³/h	B	L1	L2	H	max. ØD	kg
THNF 507	9.1320.0	160	530	840	350	600	125	38
THNF 705	9.1321.0	250	435	1000	500	800	125	50
THNF 707	9.1322.0	350	550	1000	500	800	125	55
THNF 806s	9.1323.0	480	490	1250	550	860	150	65
THNF 808s	9.1324.0	640	605	1250	550	860	150	75
THNF 1107	9.1325.0	820	550	1250	600	1200	200	95
THNF 1108	9.1326.0	930	605	1250	600	1200	200	105
THNF 1109	9.1327.0	1040	665	1250	600	1200	200	110
THNF 1110	9.1328.0	1160	720	1250	600	1200	200	115
THNF 1111	9.1329.0	1280	775	1250	600	1260	200	120
THNF 1113	9.1330.0	1500	890	1250	600	1260	200	130
THNF 1114	9.1331.0	1620	950	1250	600	1260	200	140
THNF 2 x 1108	9.1332.0	1860	1140	1250	600	1260	250	150
THNF 2 x 1109	9.1333.0	2080	1250	1250	600	1260	250	170
THNF 2 x 1110	9.1334.0	2320	1365	1250	600	1260	275	180
THNF 2 x 1111	9.1335.0	2560	1480	1250	600	1260	275	195
THNF 2 x 1112	9.1336.0	2800	1595	1250	600	1260	300	215
THNF 3 x 1109	9.1337.0	3200	1815	1250	500	1260	300	235

[1]) Filter stress: 80 m³/m²/h; Dust separation relative to 5 to 10 microns: near 100 %



∅ = diameter

Fig. 3: Dimensional drawing of high pollution air intake filter in plywood box

Spare filter bags / Wooden sub-frames

Number and size of the filter bags are shown from the filter model designation:

The first two figures = Size of bag
The last two figures = Number of bags

Example: Filter model THNF 1108

Size of filter bag 11
Number of filter bags 08

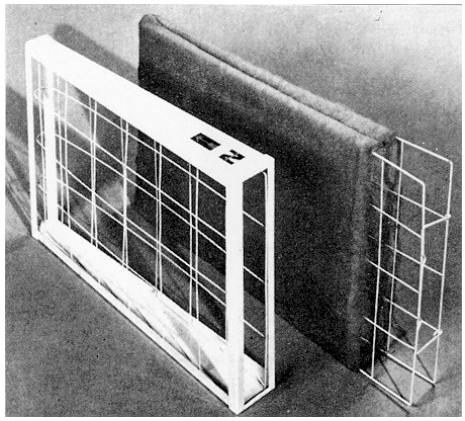


Fig. 4 Wooden sub-frame with pulled over filter bag

Order No., number and size of spare filter bags and dimensions of wooden sub-frame for KAESER high pollution air intake filter model "THNF"

High pollution filter		Spare filter bag			Wooden sub-frame	
Filter model	Order No.	Size	Number	Order No.	Dimensions (H x D)	Order No.
THNF 507	9.1320.0	5	7	9.1340.0	385 x 460 mm	9.1350.0
THNF 705	9.1321.0	7	5	9.1341.0	565 x 640 mm	9.1351.0
THNF 707	9.1322.0	7	7	9.1341.0	565 x 640 mm	9.1351.0
THNF 806s	9.1323.0	8s	6	9.1342.0	665 x 840 mm	9.1352.0
THNF 808s	9.1324.0	8s	8	9.1342.0	665 x 840 mm	9.1352.0
THNF 1107	9.1325.0	11	7	9.1343.0	965 x 840 mm	9.1353.0
THNF 1108	9.1326.0	11	8	9.1343.0	965 x 840 mm	9.1353.0
THNF 1109	9.1327.0	11	9	9.1343.0	965 x 840 mm	9.1353.0
THNF 1110	9.1328.0	11	10	9.1343.0	965 x 840 mm	9.1353.0
THNF 1111	9.1329.0	11	11	9.1343.0	965 x 840 mm	9.1353.0
THNF 1113	9.1330.0	11	13	9.1343.0	965 x 840 mm	9.1353.0
THNF 1114	9.1331.0	11	14	9.1343.0	965 x 840 mm	9.1353.0
THNF 2 x 1108	9.1332.0	11	16	9.1343.0	965 x 840 mm	9.1353.0
THNF 2 x 1109	9.1333.0	11	18	9.1343.0	965 x 840 mm	9.1353.0
THNF 2 x 1110	9.1334.0	11	20	9.1343.0	965 x 840 mm	9.1353.0
THNF 2 x 1111	9.1335.0	11	22	9.1343.0	965 x 840 mm	9.1353.0
THNF 2 x 1112	9.1336.0	11	24	9.1343.0	965 x 840 mm	9.1353.0
THNF 3 x 1109	9.1337.0	11	27	9.1343.0	965 x 840 mm	9.1353.0

Required size and number of connection flanges

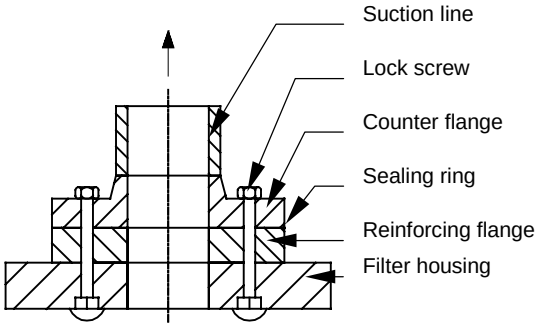


Fig. 5 Pipe connection (principle)

Size and number of connection flanges on compressor unit			Size and number of connection flanges on high pollution filter			
	Air inlet		Air inlet [1])		Air outlet	
Model	Size	Number	Size	Number	Size	Number
SM 8/11	DN 60	1	DN 60	2	DN 60	1
SK 19/26	DN 80	1	DN 80	2	DN 80	1
AS 31/36/44	DN 60	1	DN 60	2	DN 60	1
BS 51/61	DN 80	1	DN 80	2	DN 80	1
CS 76/91/121	DN 100	1	DN 100	2	DN 100	1
DS 140/170/200/220	DN 130	1	DN 130	2	DN 130	1
DSD 141/171/201	DN 130	1	DN 130	2	DN 130	1
ES 240/250/280/300	DN 150	1	DN 150	2	DN 150	1
FS/FSG/FSD 360/440	DN 130	2	DN 130	4	DN 130	2
GS 590/650	DN 150	3	DN 150	6	DN 150	3
HS 690/760	DN 250	2	DN 250	4	DN 250	2

[1]) At least half of the air inlet apertures on the filter must be directed to the atmosphere to avoid a vacuum in the filter housing.