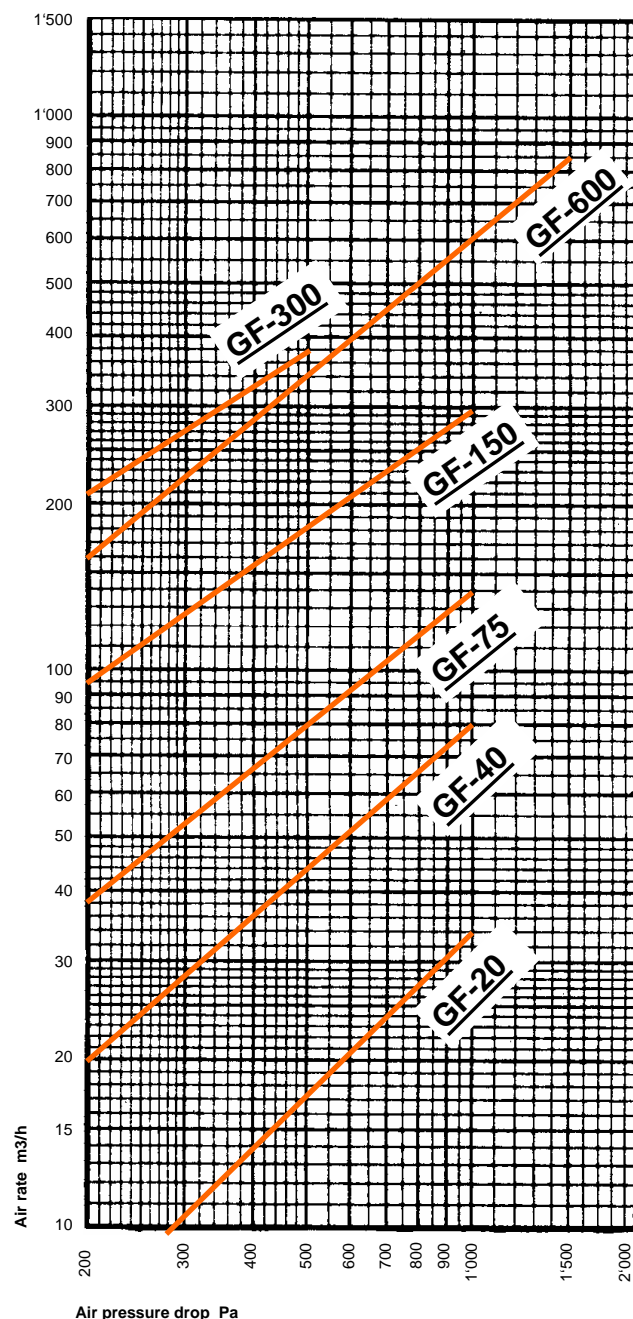


Initial pressure drop as a function to the air volume in the new filter



General requirements for gasfilters

- Gas-tight housing
- Maximum moisture content of the active carbon in processing < 5%
- Entire filter insensitive to
 - Vibrations during transport
 - Pressure changes ± 0.4 bar due to temperature variations

Capacity of the gasfilter

The gasfilter resists the blast impulse wave in the junction pipe of the filter

peak excess pressure P_{sp}	1.3 bar
duration or impulse	5 ms
Impulse	250 Ns / m ²

Performance of activated carbon

The performance of activated carbon against chemical war gases is tested with substitute gases:

- Chloropicrin for the physical adsorption (nerve gases)
- Hydrocyanic acid and chlorocyanide for the chemical adsorption

Test requirements

D = dry carbon is equal to or less than 3 % rh
 M = moist carbon, pre-conditioned 20°C 90% rh
 testing air with substitute gas 20°C 70% rh

Adsorption capacity

Substitute gas		Test concentration	Adsorption capacity of carbon
		g / m ³	g / l
Chloropicrin	d	16	220
Chloropicrin	m	16	110
Chlorocyanide	d	5	45
Chlorocyanide	m	5	45
Hydrocyanic acid	d	2	20

Time or resistance: Calculation example

Adsorption: Gas concentration 30 mg / m³

Question: Time of resistance for gasfilter GF-150 against Chloropicrin d ?

Calculation: Carbon content of filter GF-150 = 66 l
 Adsorption capacity of 66 l carbon =
 $66 \times 220 = 14'520$ g
 Adsorption capacity of GF- 150
 $150 \text{ m}^3/\text{h} \times 30 \text{ mg}/\text{m}^3 = 4,5 \text{ g}/\text{h}$
 Theoretical time of resistance for the gasfilter = $14'520 \text{ g} / 4,5 \text{ g}/\text{h} = 3'226 \text{ h}$
 or $3'226 \text{ h} = 134 \text{ days}$

Shock resistance

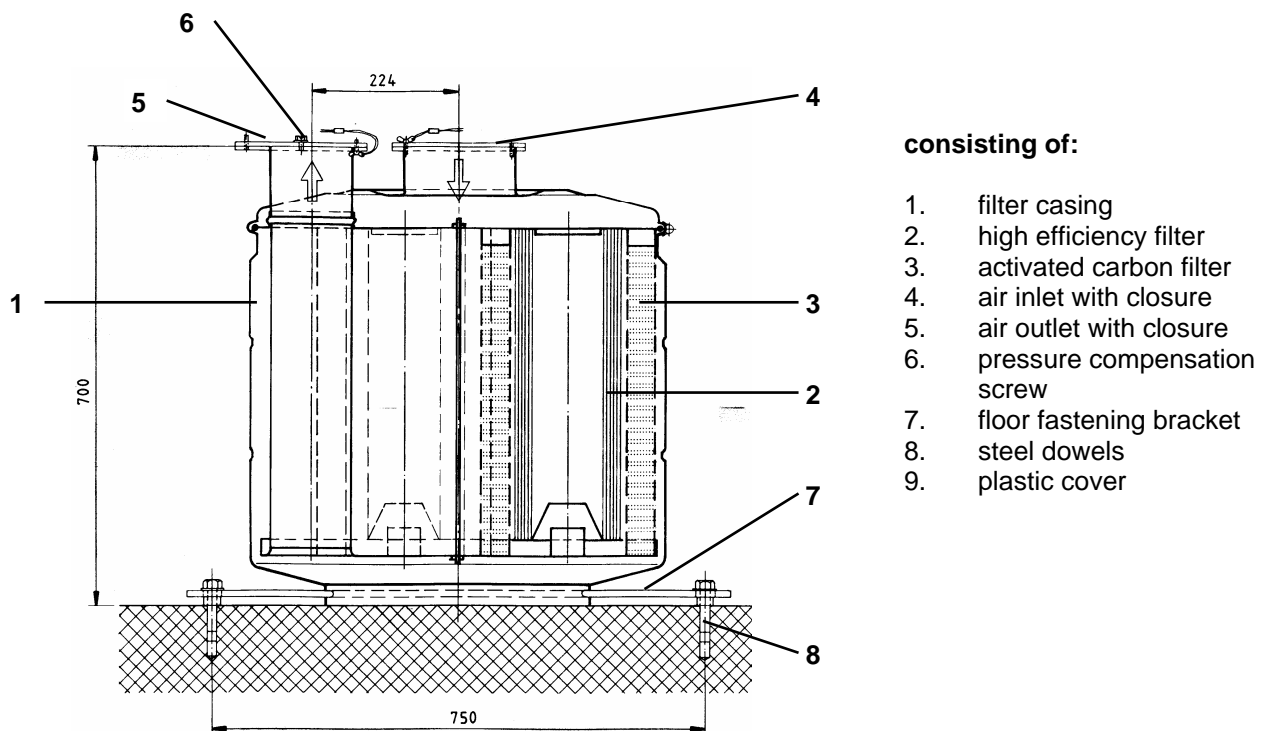
GF 20	max. velocity	0.63 m/sec
GF 40	max. acceleration a =	6.3 gn
GF 75	(corresponds to German class RK 0.63)	
GF 150	max. velocity	1.6 m/sec
GF 300	max. acceleration a =	16 gn
GF 600		

Function of gasfilter

The polluted air first passes through the absolute filter which retains the finest impurities, solid and liquid as well as radioactive particles. Then the air flows through the activated carbon filter which can adsorb gases by physical and chemical action.

GF-300

sectional drawing



Proviso for technical change

Gasfilter GF-300

made by : LUNOR G.Kull AG, CH-8041 Zürich

Design according to the directives of the Swiss Federal Office of Civil Defence. Type tested and approved by the Armament Technology and Procurement Group.

Consisting of:

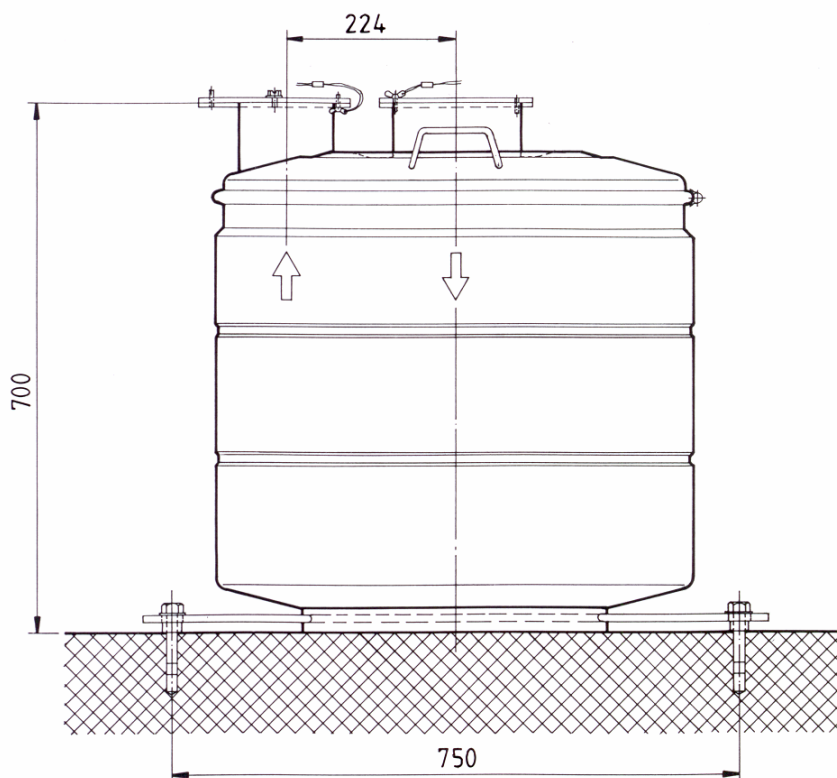
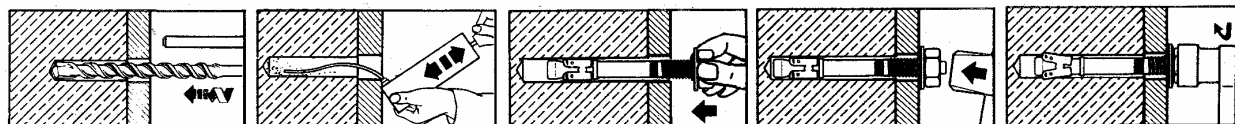
Filter casing, high efficiency filter, activated carbon filter, air inlet with closure, air outlet with closure, pressure compensation screw, floor fastening bracket, steel dowels, plastic cover

Type of gasfilter	GF-300 pcs
-------------------	--------	-----------

Attest Nr.	T 85-019
Air rate	300 m ³ / h
Pressure drop approx.	350 Pa
Approx. weight	84 kg

Convenient to Lunor Ventilation unit VA-300

1. Place the gasfilter and the floor fastening bracket exactly. Mark the holes for the dowels. Distance from the wall min. 50 mm.
2. Drill the holes according to the dowel suppliers instruction. Recommended dowel type: Hilti HST M 10/50
3. Clean and blow out the dowel-holes.
4. Turn the nut of the dowel to upper edge of the thread.
5. Place the gasfilter and the floor fastening bracket definitive.
6. Stick the dowel through the clip and drive in with light hammerblows, untill the washer is self supporting against the floor fastening bracket.
8. Tighten dowels with a torque wrench, torque as in table



A:	basic protection 1 bar	
B:	3 bar	
Gasfilter GF-300	A	B
dowel type	Hilti HST M 10/50	Hilti HST M16/50
quantity	2 pieces	2 pieces
borehole diameter	10 mm	16 mm
borehole depth	110 mm	145mm
Tightening torque	45 Nm	125 Nm
quantity of floor fastening bracket	1 piece	1 piece
slotted hole diameter	13 mm	bore open 18 mm

If you make use of other dowel types, they must have an attest Nr. of the Armament Technology and Procurement Group and possess an approved charge of 3,75 kN for basic protection and 6,1 kN for 3-bar. In this case, you have to pay attention that the corresponding value like the borehole depth, the borehole diameter and the tightening torque get observed appropriately to the specifications of the suppliers.

Proviso for technical change

Function:

The gasfilter absorbs chemical and bacteriological bodies from the fresh air.

Generality:

The air in- and outlets are hermetically closed and sealed. In peace time the filter must **never** be opened. Tests carried out with gasfilters over 20 years old have proven that the filters remain operative over a long period of time, provided they are kept sealed.

Maintenance interval:

Annually

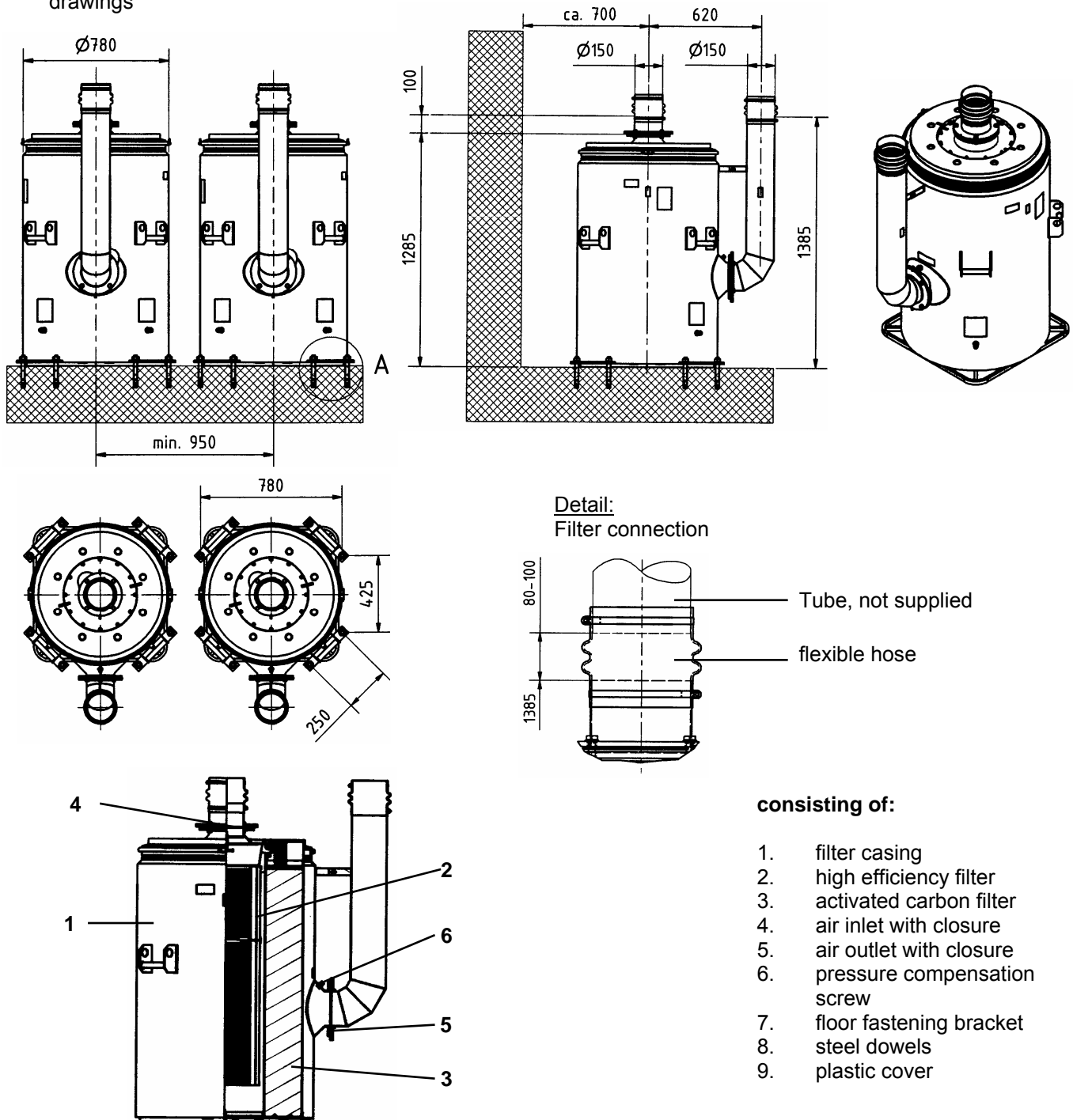
Maintenance / Check:

- are the air in – and outlets closed and sealed ? Check closing and seal for damages.
If the filter is open, it has to be re-conditioned by the supplier.
- check casing for corrosion and if necessary touch up.
- check floor fixing bolts for tightness.
- check weight of gasfilter and with weight given on name plate. The **max. permissible weight increase** due to absorption of humidity of carbon is for the **GF-300 = 600 g**.
If the increase is beyond this figure the gasfilter has to be re-conditioned by the supplier.

Function of gasfilter

The polluted air first passes through the absolute filter which retains the finest impurities, solid and liquid as well as radioactive particles. Then the air flows through the activated carbon filter which can adsorb gases by physical and chemical action.

GF-600 drawings



Mounting instructions see page 05.mont.127.1
Maintenance/ check 05.maint.137

Proviso for technical change

Gasfilter GF 600

made by : LUNOR G.Kull AG, CH-8041 Zürich

Design according to the directives of the Swiss Federal Office of Civil Defence. Type tested and approved by the Armament Technology and Procurement Group.

Consisting of:

Filter casing, high efficiency filter, activated carbon filter, air inlet with closure, air outlet with closure, pressure compensation screw, floor fastening bracket, steel dowels, plastic cover

Type of gasfilter	GF-600 pcs
-------------------	--------	-----------

Attest Nr.	T 06-010
Air rate	600 m ³ / h
Pressure drop approx.	800 Pa
Approx. weight	331 kg

Optional:

Frame to cast pcs
Distance profile pcs

Convenient to Ventilation units VA-1200, VA-1800, VA-2400, VA-4800

1. Homologation

nominal air rate
pressure drop

No. BZS
m³/h
Pa

T 06-010
600
≤ 800

2. Activated carbon filter (1-Element)

activated carbon homologation
specific carbon volume, theoretical
specific carbon volume, effective
carbon volume, theoretical
carbon volume, effective
bed thickness
average flow velocity
contact time
max. carbon humidity
carbon weight approx.
gas separation: all to day known war gases

No. BZS
l/(m³/h)
l/(m³/h)
l
l
mm
cm/s
s
%
Kg

T 88-001
0,44
0,47
264
283,5
163
9,92
1,64
3
148,0

spring system of the activated carbon filter bed:
total force on the carbon bed

N

11'400

3. Aerosol filter (1-Element)

aerosol filter paper homologation
separation in the particle range 0,1-0,3 µm
(also after the pressure an shock tests)
filter area
flow velocity

No. BZS
%

m²
cm/s

T 04-011
≥ 99,995

17,31
0,96

4. Dust protection(between activated carbon and perforated steel)

carbon dust separation with a grain size ≤ 0,3 mm

%

≥ 90

5. Casting tightness

gastight in the pressure range

Pa

± 3'000

6. Casing pressure resistance

due to temperature variations in the pressure range

Pa

± 50'000

7. Blast pressure resistance

of the casing and aerosol filter
peak over pressure
impulse

bar
Pa.s

1,03
273

8. Shock resistance

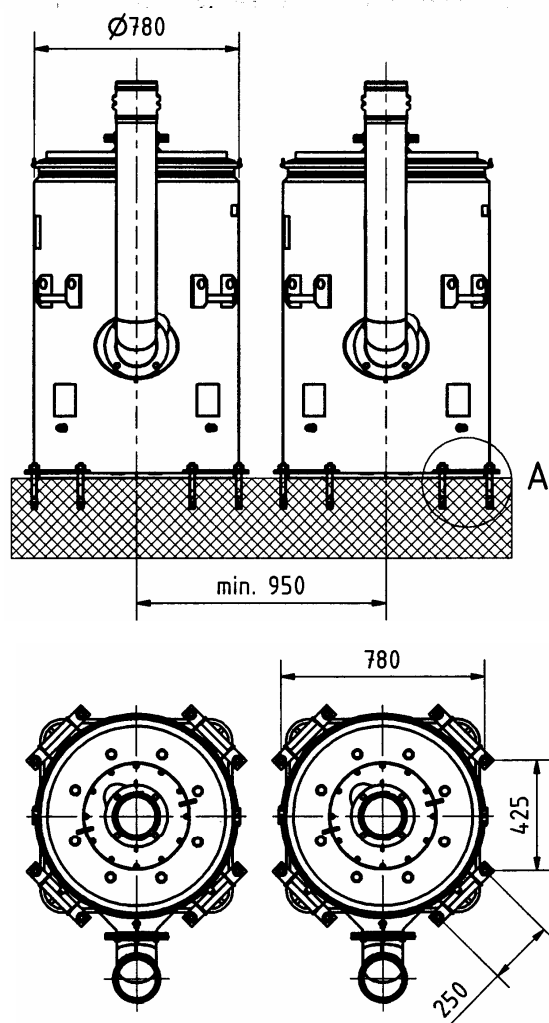
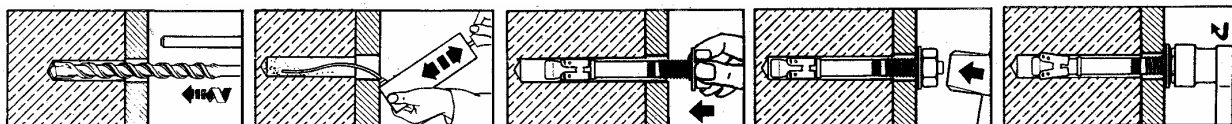
the gasfilter is tested in the 3 main axis in ± directions
velocity
acceleration

m/s
m/s²

1,6
160 (16 g)

1. Place the gasfilter and the floor fastening bracket exactly. Mark the holes for the dowels. Distance from the wall approx. 310 mm.
2. Drill the holes according to the dowel suppliers instruction. Recommended dowel type: Hilti HST M20 x 170/30
3. Clean and blow out the dowel-holes.
4. Turn the nut of the dowel to upper edge of the thread.
5. Place the gasfilter and the floor fastening brackets definitive.
6. Stick the dowel through the clip and drive in with light hammerblows, untill the washer is self supporting against the floor fastening bracket.
8. Tighten dowels with a torque wrench, torque as in table

enclosures: 4 fastening brackets

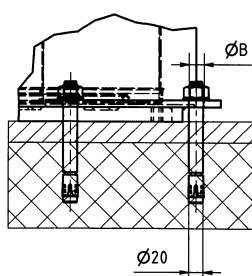


A: basic protection 1 bar

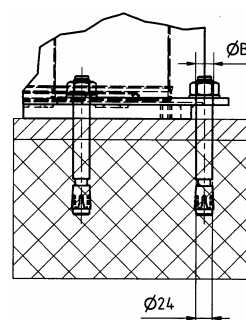
B: 3 bar

Gasfilter GF 600	A	B
dowel type	Hilti HST M20x170/30	Hilti HST M24x200/30
quantity	8 pieces	8 pieces
borehole diameter	20 mm	24 mm
borehole depth	140 mm	170 mm
Tightening torque	240 Nm	300 Nm
quantity of floor fastening brackets	4 piece	4 piece
slotted hole diameter	22 mm	26 mm

basic protection 1 bar



3 bar



If you make use of other dowel types, they must have an attest Nr. of the Armament Technology and Procurement Group and possess an approved charge of 16,4 kN for basic protection and 26,8 kN for 3-bar. In this case, you have to pay attention that the corresponding value like the borehole depth, the borehole diameter and the tightening torque get observed appropriately to the specifications of the suppliers.

Proviso for technical change

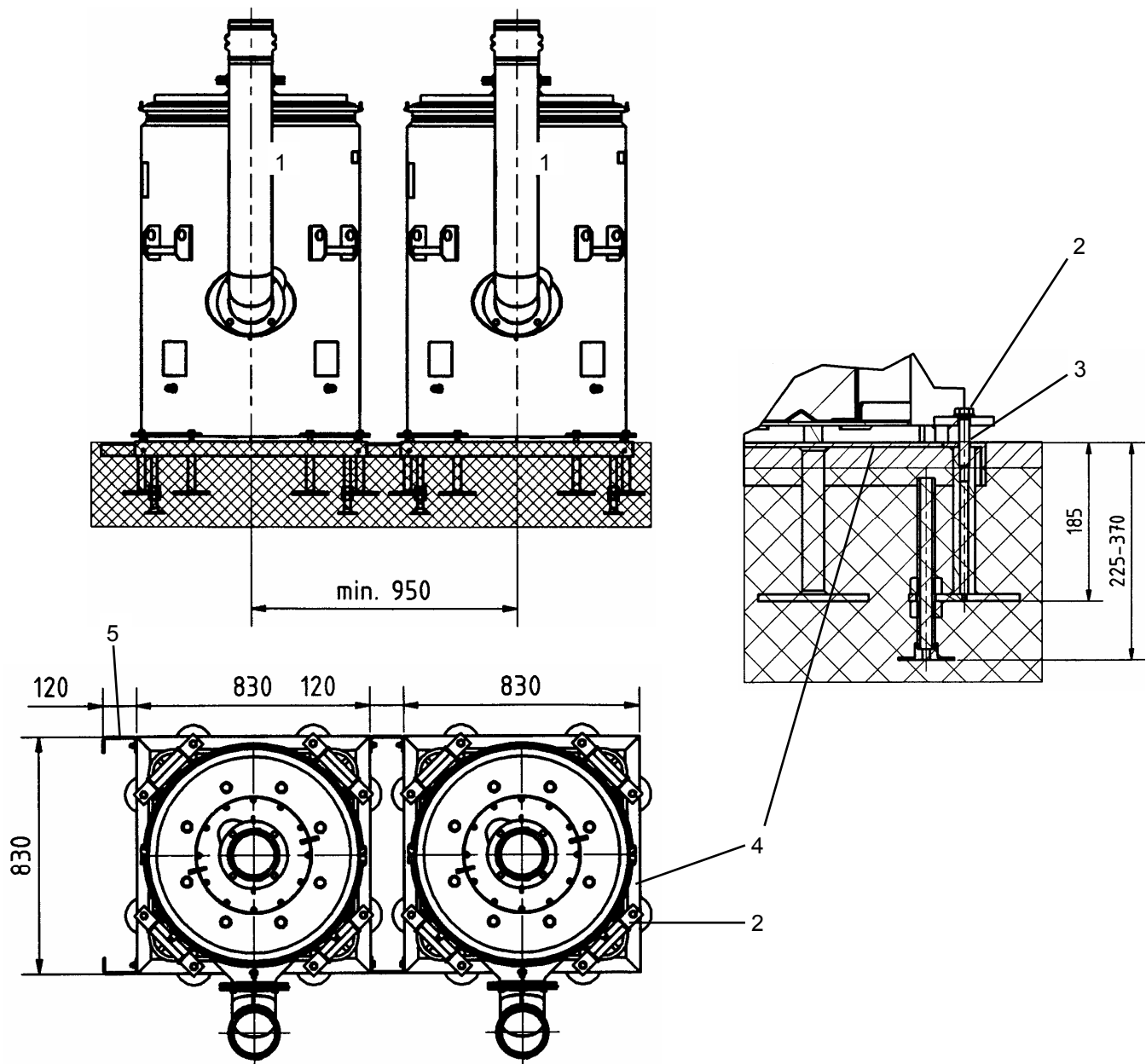
Var.II: frame to cast

Protection degree 1 and 3 bar. Frame to cast for a shock resistant fastening (up to 16 g) of gasfilter Type GF 600.

Construction: Frame to cast (4) made of welded steel profil and hot galvanized. 4 adjustable feet are mounted to the frame to permit an easy positioning. The supplied distance profil (5) allows the mounting of several frames.

1. Remove plastic plugs and clean treaded holes (3)
2. Place gasfilter (1) and fastening brackets (2).
3. Tighten 8 screws M 12x60 (quality 8.8) with a torque wrench, tightening torque 72 Nm

enclosure: 4 fastening brackets



Proviso for technical change

Function:

The gasfilter absorbs chemical and bacteriological bodies from the fresh air.

Generality:

The air in- and outlets are hermetically closed and sealed. In peace time the filter must **never** be opened. Tests carried out with gasfilters over 20 years old have proven that the filters remain operative over a long period of time, provided they are kept sealed.

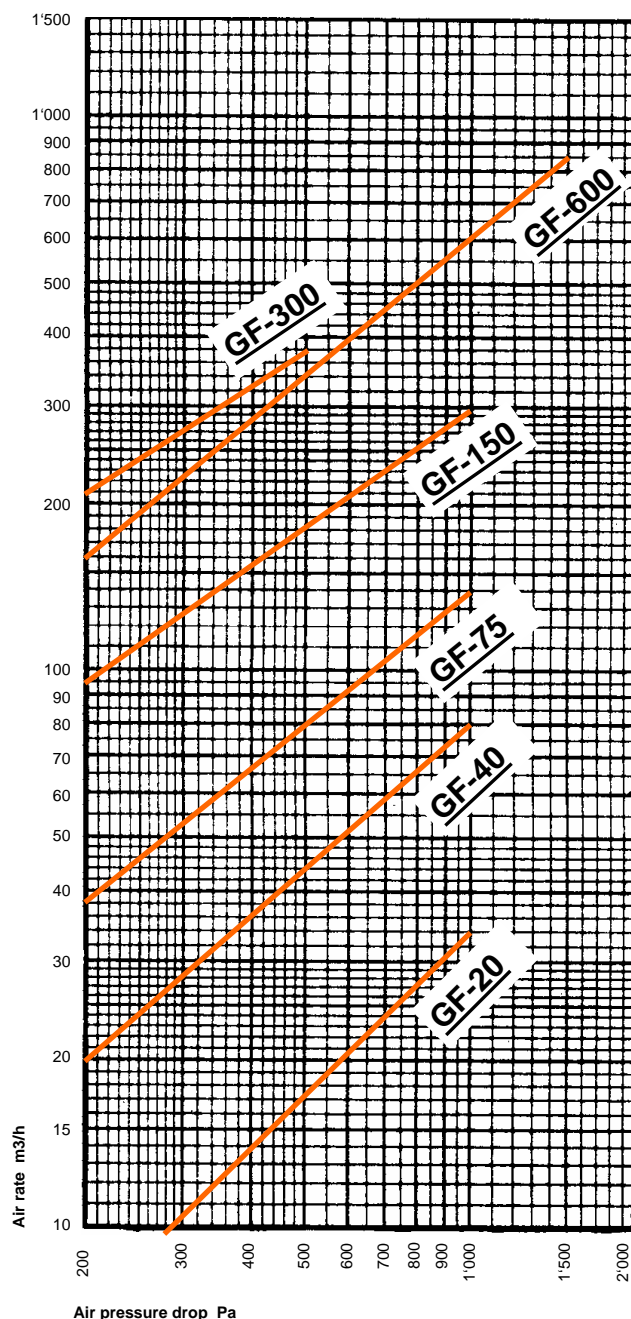
Maintenance interval:

Annually

Maintenance / Check:

- are the air in – and outlets closed and sealed ? Check closing and seal for damages.
If the filter is open, it has to be re-conditioned by the supplier.
- check casing for corrosion and if necessary touch up.
- check floor fixing bolts for tightness.
- check weight of gasfilter and with weight given on name plate. The **max. permissible weight increase** due to absorption of humidity of carbon is for the **GF-600 = 3'500 g**.
If the increase is beyond this figure the gasfilter has to be re-conditioned by the supplier.

Initial pressure drop as a function to the air volume in the new filter



General requirements for gasfilters

- Gas-tight housing
- Maximum moisture content of the active carbon in processing < 5%
- Entire filter insensitive to
 - Vibrations during transport
 - Pressure changes ± 0.4 bar due to temperature variations

Capacity of the gasfilter

The gasfilter resists the blast impulse wave in the junction pipe of the filter

peak excess pressure P sp	1.3 bar
duration or impulse	5 ms
Impulse	250 Ns / m ²

Performance of activated carbon

The performance of activated carbon against chemical war gases is tested with substitute gases:

- Chloropicrin for the physical adsorption (nerve gases)
- Hydrocyanic acid and chlorocyanide for the chemical adsorption

Test requirements

- D = dry carbon is equal to or less than 3 % rh
- M = moist carbon, pre-conditioned 20°C 90% rh
- testing air with substitute gas 20°C 70% rh

Adsorption capacity

Substitute gas		Test concentration g / m ³	Adsorption capacity of carbon g / l
Chloropicrin	d	16	220
Chloropicrin	m	16	110
Chlorocyanide	d	5	45
Chlorocyanide	m	5	45
Hydrocyanic acid	d	2	20

Time or resistance: Calculation example

Adsorption: Gas concentration 30 mg / m³

Question: Time of resistance for gasfilter GF-150 against Chloropicrin d ?

Calculation: Carbon content of filter GF-150 = 66 l
 Adsorption capacity of 66 l carbon =
 $66 \times 220 = 14'520$ g
 Adsorption capacity of GF- 150
 $150 \text{ m}^3/\text{h} \times 30 \text{ mg}/\text{m}^3 = 4,5 \text{ g}/\text{h}$
 Theoretical time of resistance for the gasfilter = $14'520 \text{ g} / 4,5 \text{ g}/\text{h} = 3'226 \text{ h}$
 or $3'226 \text{ h} = 134 \text{ days}$

Shock resistance

GF 20	max. velocity	0.63 m/sec
GF 40	max. acceleration a =	6.3 gn
GF 75	(corresponds to German class RK 0.63)	
GF 150	max. velocity	1.6 m/sec
GF 300	max. acceleration a =	16 gn
GF 600		

Function of gasfilter

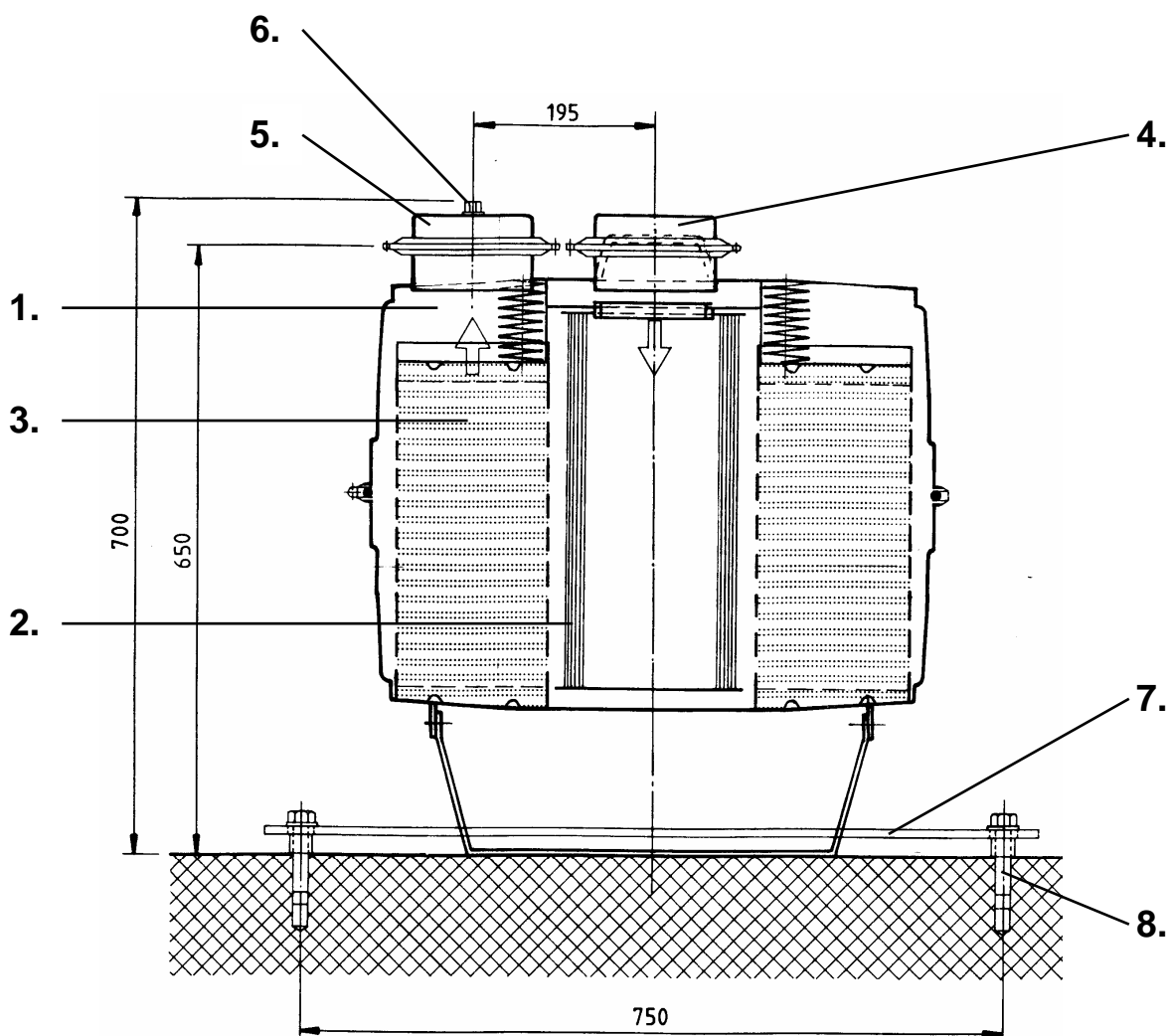
The polluted air first passes through the absolute filter which retains the finest impurities, solid and liquid as well as radioactive particles. Then the air flows through the activated carbon filter which can adsorb gases by physical and chemical action.

GF-150

sectional drawing

consisting of:

1. filter casing
2. high efficiency filter
3. activated carbon filter
4. air inlet with closure
5. air outlet with closure
6. pressure compensation screw
7. floor fastening bracket
8. steel dowels
9. plastic cover



Mounting instructions see page 05.mont.124

Maintenance/ check 05.maint.134

Proviso for technical change

Gasfilter GF-150

made by : LUNOR G.Kull AG, CH-8041 Zürich

Design according to the directives of the Swiss Federal Office of Civil Defence. Type tested and approved by the Armament Technology and Procurement Group.

Consisting of:

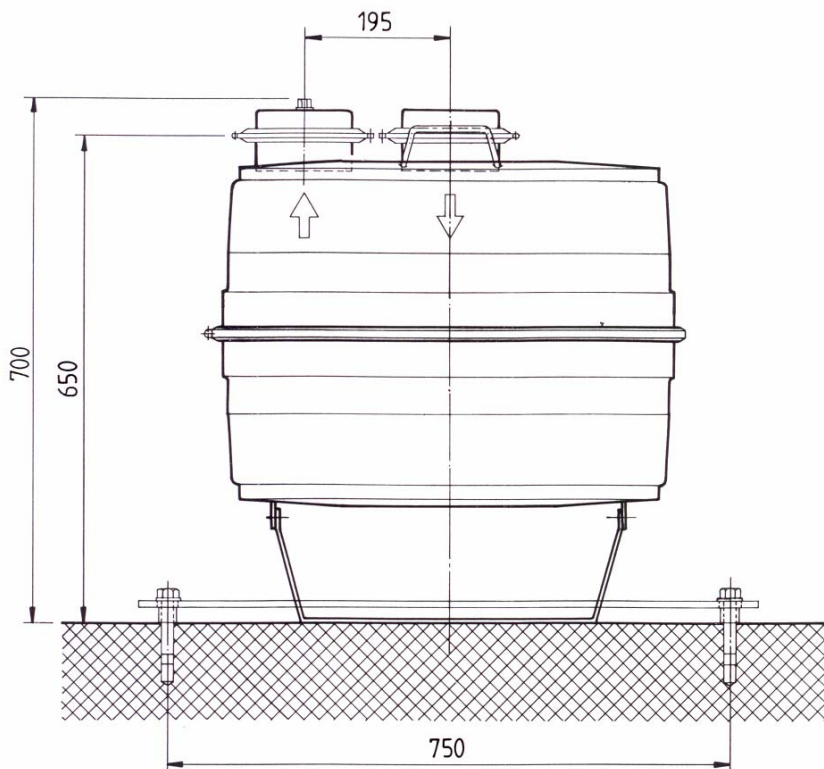
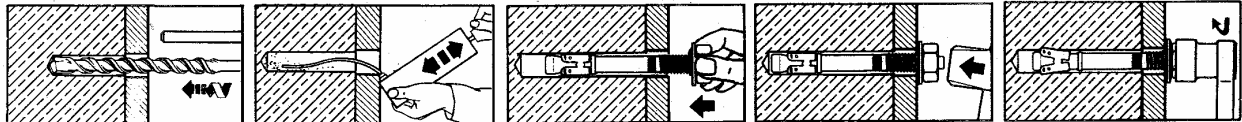
Filter casing, high efficiency filter, activated carbon filter, air inlet with closure, air outlet with closure, pressure compensation screw, floor fastening bracket, steel dowels, plastic cover

Type of Gasfilter	GF-150 pcs
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Attest Nr.	T 89-009
Air rate	150 m ³ / h
Pressure drop approx.	400 Pa
Approx. weight	66 kg

Convenient to Lunor Ventilation unit VA-150

1. Place the gasfilter and the floor fastening bracket exactly. Mark the holes for the dowels. Distance from the wall min. 50 mm.
2. Drill the holes according to the dowel suppliers instructions. Recommended dowel type: Hilti HST M 10/50
3. Clean and blow out the dowel-holes.
4. Turn the nut of the dowel to upper edge of the thread.
5. Place the gasfilter and the floor fastening bracket definitive.
6. Stick the dowel through the clip and drive in with light hammerblows, untill the washer is self supporting against the floor fastening bracket.
8. Tighten dowels with a torque wrench, torque as in table



A: basic protection 1 bar		
B: 3 bar		
Gasfilter GF-150	A	B
dowel type	Hilti HST M 10/50	Hilti HST M16/50
quantity	2 pieces	2 pieces
borehole diameter	10 mm	16 mm
borehole depth	110 mm	145 mm
tightening torque	45 Nm	125 Nm
quantity of floor fastening bracket	1 piece	1 piece
slotted hole diameter	13 mm	bore open 18 mm

If you make use of other dowel types, they must have an attest Nr. of the Armament Technology and Procurement Group and possess an approved charge of 3,75 kN for basic protection and 6,1 kN for 3-bar. In this case, you have to pay attention that the corresponding value like the borehole depth, the borehole diameter and the tightening torque get observed appropriately to the specifications of the suppliers.

Function:

The gasfilter absorbs chemical and bacteriological bodies from the fresh air.

Generality:

The air in- and outlets are hermetically closed and sealed. In peace time the filter must **never** be opened. Tests carried out with gasfilters over 20 years old have proofed that the filters remain operative over a long period of time, provided they are kept sealed.

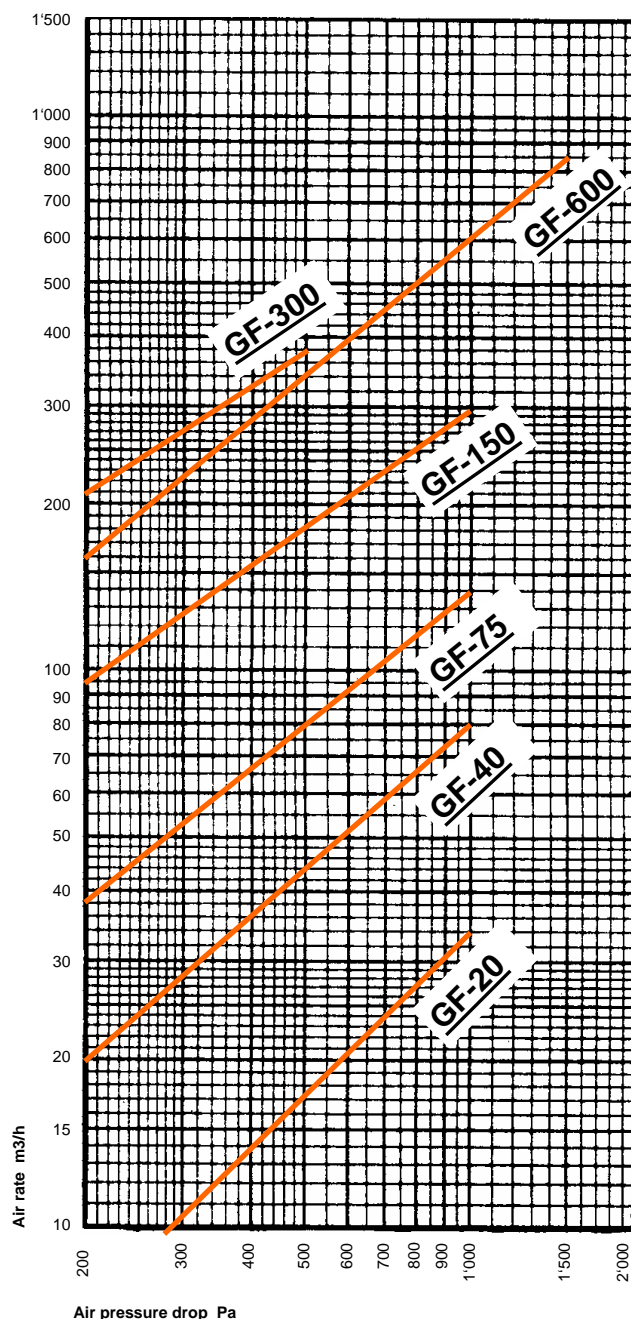
Maintenance interval:

Annually

Maintenance / Check:

- are the air in – and outlets closed and sealed ? Check closure and seal for damages.
If the filter is open, it has to be re-conditioned by the supplier.
- check casing for corrosion and if necessary touch up.
- check floor fixing bolts for tightness.
- check weight of gasfilter and with weight given on name plate. The **max. permissible weight increase** due to absorption of humidity of carbon is for the **GF-150 = 900 g**.
If the increase is beyond this figure the gasfilter has to be re-conditioned by the supplier.

Initial pressure drop as a function to the air volume in the new filter



General requirements for gasfilters

- Gas-tight housing
- Maximum moisture content of the active carbon in processing < 5%
- Entire filter insensitive to
 - Vibrations during transport
 - Pressure changes ± 0.4 bar due to temperature variations

Capacity of the gasfilter

The gasfilter resists the blast impulse wave in the junction pipe of the filter

peak excess pressure P_{sp}	1.3 bar
duration or impulse	5 ms
Impulse	250 Ns / m ²

Performance of activated carbon

The performance of activated carbon against chemical war gases is tested with substitute gases:

- Chloropicrin for the physical adsorption (nerve gases)
- Hydrocyanic acid and chlorocyanide for the chemical adsorption

Test requirements

D = dry carbon is equal to or less than 3 % rh
 M = moist carbon, pre-conditioned 20°C 90% rh
 testing air with substitute gas 20°C 70% rh

Adsorption capacity

Substitute gas		Test concentration	Adsorption capacity of carbon
		g / m ³	g / l
Chloropicrin	d	16	220
Chloropicrin	m	16	110
Chlorocyanide	d	5	45
Chlorocyanide	m	5	45
Hydrocyanic acid	d	2	20

Time or resistance: Calculation example

Adsorption: Gas concentration 30 mg / m³

Question: Time of resistance for gasfilter GF-150 against Chloropicrin d ?

Calculation: Carbon content of filter GF-150 = 66 l
 Adsorption capacity of 66 l carbon =
 $66 \times 220 = 14'520$ g
 Adsorption capacity of GF- 150
 $150 \text{ m}^3/\text{h} \times 30 \text{ mg}/\text{m}^3 = 4,5 \text{ g}/\text{h}$
 Theoretical time of resistance for the gasfilter = $14'520 \text{ g} / 4,5 \text{ g}/\text{h} = 3'226 \text{ h}$
 or $3'226 \text{ h} = 134 \text{ days}$

Shock resistance

GF 20	max. velocity	0.63 m/sec
GF 40	max. acceleration a =	6.3 gn
GF 75	(corresponds to German class RK 0.63)	
GF 150	max. velocity	1.6 m/sec
GF 300	max. acceleration a =	16 gn
GF 600		

Function of gasfilter

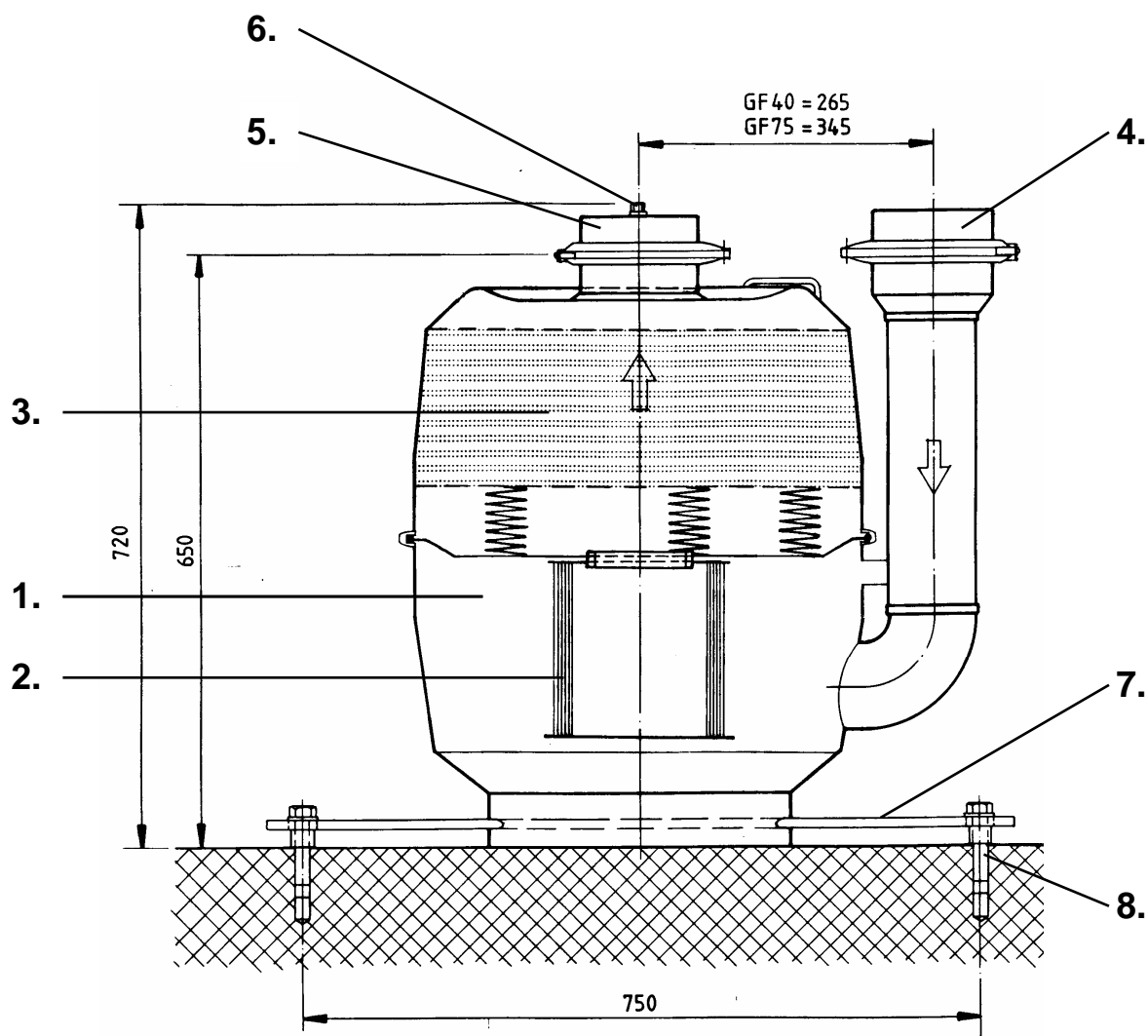
The polluted air first passes through the absolute filter which retains the finest impurities, solid and liquid as well as radioactive particles. Then the air flows through the activated carbon filter which can adsorb gases by physical and chemical action.

GF-75

sectional drawing

consisting of:

1. filter casing
2. high efficiency filter
3. activated carbon filter
4. air inlet with closure
5. air outlet with closure
6. pressure compensation screw
7. floor fastening bracket
8. steel dowels
9. plastic cover



Mounting instructions see page 05.mont.123

Maintenance/ check 05.maint.133

Proviso for technical change

Gasfilter GF-75

made by : LUNOR G.Kull AG, CH-8041 Zürich

Design according to the directives of the Swiss Federal Office of Civil Defence. Type tested and approved by the Armament Technology and Procurement Group.

Consisting of:

Filter casing, high efficiency filter, activated carbon filter, air inlet with closure, air outlet with closure, pressure compensation screw, floor fastening bracket, steel dowels, plastic cover

Type of gasfilter	GF-75 pcs
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Attest Nr.	T 75-003
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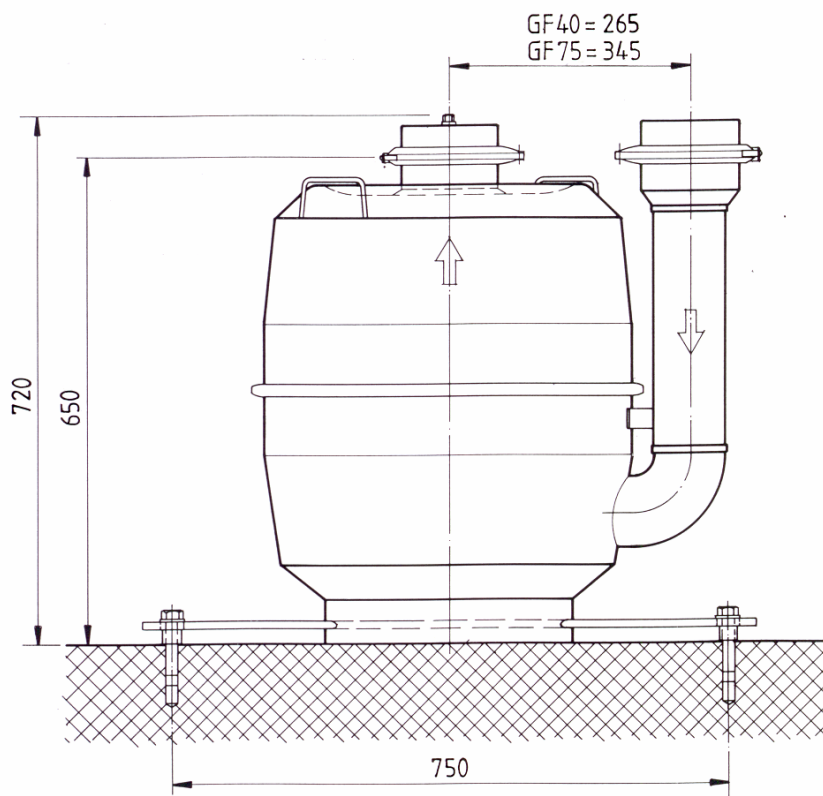
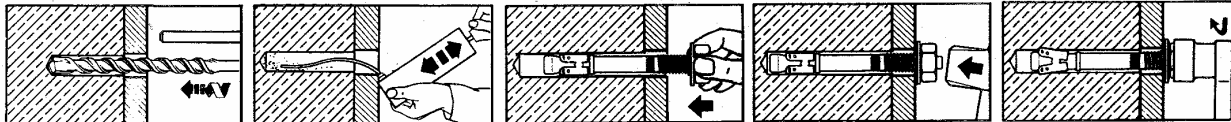
Air rate	75 m ³ / h
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Pressure drop approx.	460 Pa
-----------------------	--------

Approx. weight	42 kg
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Convenient to Lunor Ventilation unit VA-75

1. Place the gasfilter and the floor fastening bracket exactly. Mark the holes for the dowels.
Distance from the wall min. 50 mm.
2. Drill the holes according to the dowel suppliers instructions. Recommended dowel type:
Hilti HST M 10/50
3. Clean and blow out the dowel-holes.
4. Turn the nut of the dowel to upper edge of the thread.
5. Place the gasfilter and the floor fastening bracket definitive.
6. Stick the dowel through the clip and drive in with light hammerblows, untill the washer is self supporting against the floor fastening bracket.
8. Tighten dowels with a torque wrench, torque as in table



GF-75	
dowel type	Hilti HST M 10/50
quantity	2 pieces
borehole diameter	10 mm
borehole depth	110 mm
tightening torque	45 Nm
quantity of floor fastening bracket	1 piece
slotted hole diameter	13 mm

If you make use of other dowel types, they must have an attest Nr. of the Armament Technology and Procurement Group and possess an approved charge of 3,5 kN.

In this case, you have to pay attention that the corresponding value like the borehole depth, the borehole diameter and the tightening torque get observed appropriately to the specifications of the suppliers.

Proviso for technical change

Function:

The gasfilter absorbs chemical and bacteriological bodies from the fresh air.

Generality:

The air in- and outlets are hermetically closed and sealed. In peace time the filter must **never** be opened. Tests carried out with gasfilters over 20 years old have proven that the filters remain operative over a long period of time, provided they are kept sealed.

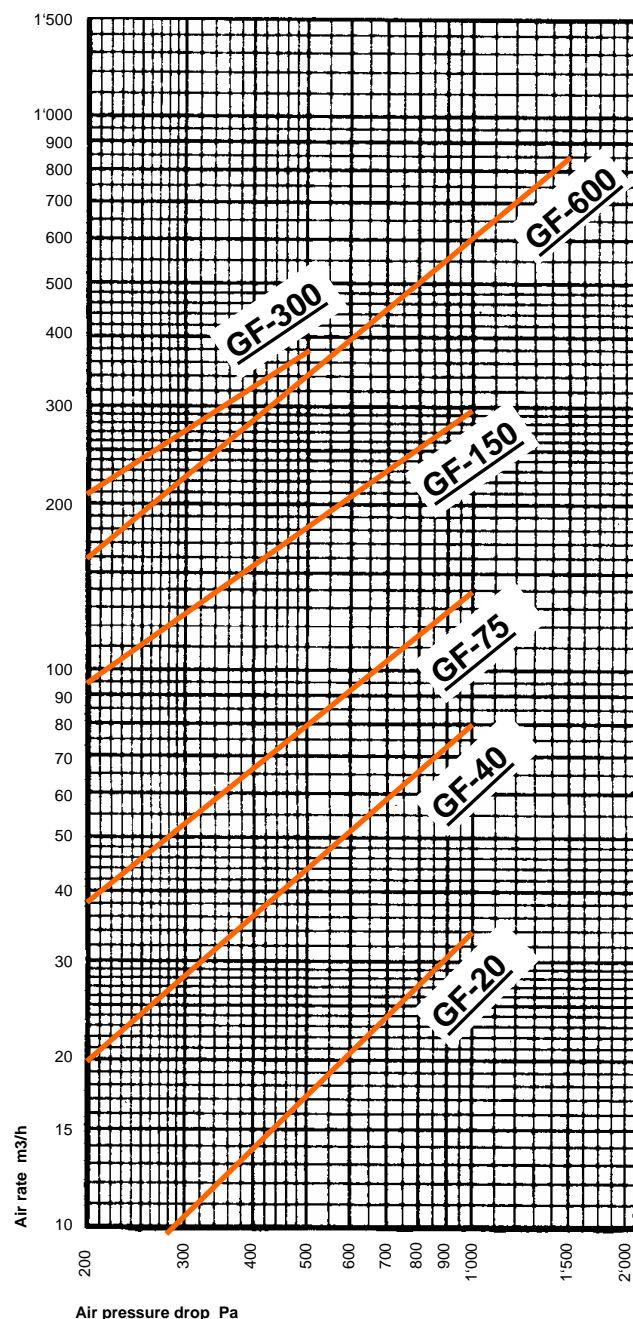
Maintenance interval:

Annually

Maintenance / Check:

- are the air in – and outlets closed and sealed ? Check closing and seal for damages.
If the filter is open, it has to be re-conditioned by the supplier.
- check casing for corrosion and if necessary touch up.
- check floor fixing bolts for tightness.
- check weight of gasfilter and with weight given on name plate. The **max. permissible weight increase** due to absorption of humidity of carbon is for the **GF-75 = 360 g**.
If the increase is beyond this figure the gasfilter has to be re-conditioned by the supplier.

Initial pressure drop as a function to the air volume in the new filter



General requirements for gasfilters

- Gas-tight housing
- Maximum moisture content of the active carbon in processing < 5%
- Entire filter insensitive to
 - Vibrations during transport
 - Pressure changes ± 0.4 bar due to temperature variations

Capacity of the gasfilter

The gasfilter resists the blast impulse wave in the junction pipe of the filter

peak excess pressure P_{sp}	1.3 bar
duration or impulse	5 ms
Impulse	250 Ns / m ²

Performance of activated carbon

The performance of activated carbon against chemical war gases is tested with substitute gases:

- Chloropicrin for the physical adsorption (nerve gases)
- Hydrocyanic acid and chlorocyanide for the chemical adsorption

Test requirements

D = dry carbon is equal to or less than 3 % rh
 M = moist carbon, pre-conditioned 20°C 90% rh
 testing air with substitute gas 20°C 70% rh

Adsorption capacity

Substitute gas		Test concentration	Adsorption capacity of carbon
		g / m ³	g / l
Chloropicrin	d	16	220
Chloropicrin	m	16	110
Chlorocyanide	d	5	45
Chlorocyanide	m	5	45
Hydrocyanic acid	d	2	20

Time or resistance: Calculation example

Adsorption: Gas concentration 30 mg / m³

Question: Time of resistance for gasfilter GF-150 against Chloropicrin d ?

Calculation: Carbon content of filter GF-150 = 66 l
 Adsorption capacity of 66 l carbon =
 $66 \times 220 = 14'520$ g
 Adsorption capacity of GF- 150
 $150 \text{ m}^3/\text{h} \times 30 \text{ mg}/\text{m}^3 = 4,5 \text{ g}/\text{h}$
 Theoretical time of resistance for the gasfilter = $14'520 \text{ g} / 4,5 \text{ g}/\text{h} = 3'226 \text{ h}$
 or $3'226 \text{ h} = 134 \text{ days}$

Shock resistance

GF 20	max. velocity	0.63 m/sec
GF 40	max. acceleration a =	6.3 gn
GF 75	(corresponds to German class RK 0.63)	
GF 150	max. velocity	1.6 m/sec
GF 300	max. acceleration a =	16 gn
GF 600		

Function of gasfilter

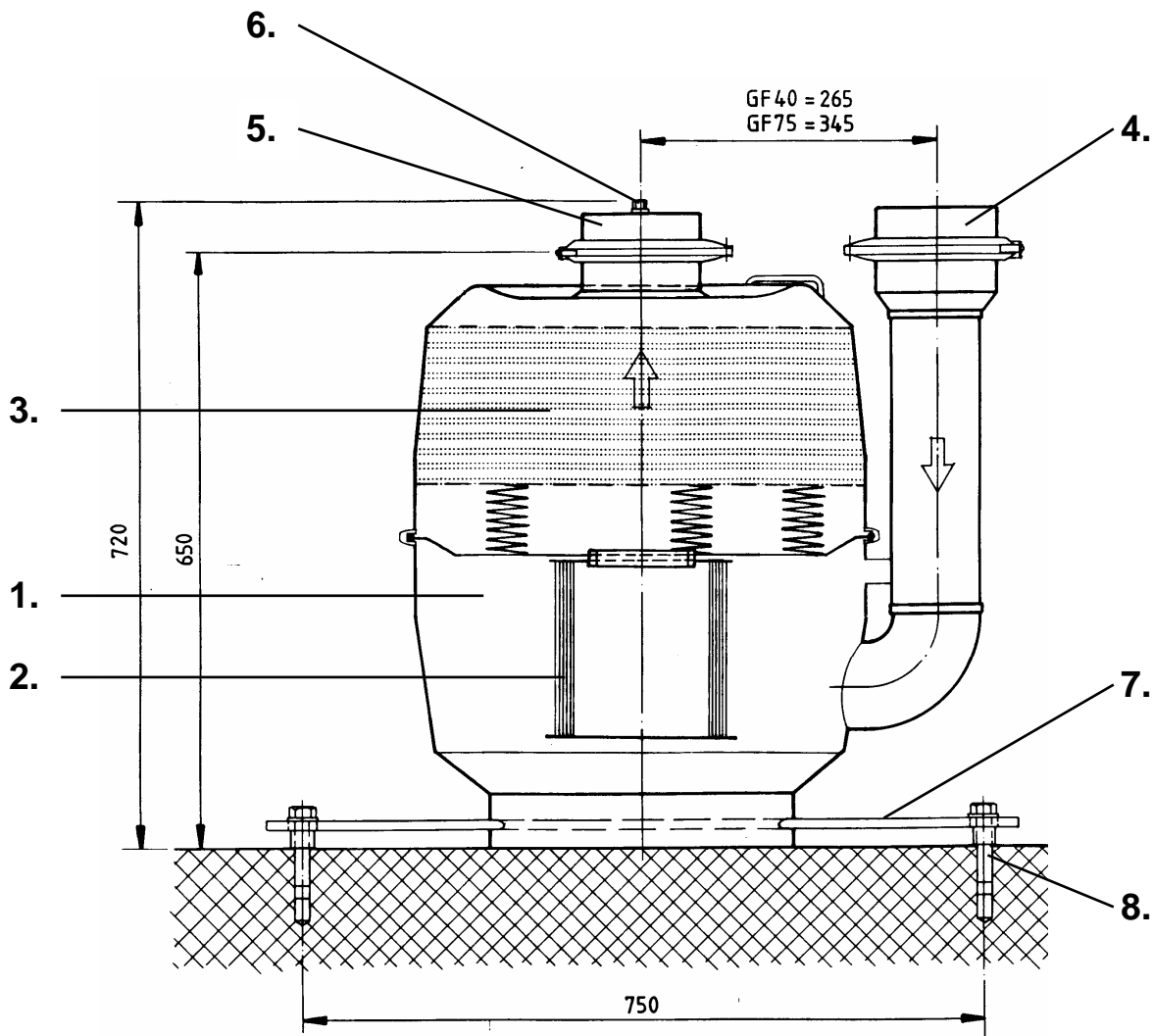
The polluted air first passes through the absolute filter which retains the finest impurities, solid and liquid as well as radioactive particles. Then the air flows through the activated carbon filter which can adsorb gases by physical and chemical action.

GF-40

sectional drawing

consisting of:

1. filter casing
2. high efficiency filter
3. activated carbon filter
4. air inlet with closure
5. air outlet with closure
6. pressure compensation screw
7. floor fastening bracket
8. steel dowels
9. plastic cover



Gasfilter GF-40

made by : LUNOR G.Kull AG, CH-8041 Zürich

Design according to the directives of the Swiss Federal Office of Civil Defence. Type tested and approved by the Armament Technology and Procurement Group.

Consisting of:

Filter casing, high efficiency filter, activated carbon filter, air inlet with closure, air outlet with closure, pressure compensation screw, floor fastening bracket, steel dowels, plastic cover

Type of gasfilter GF-40 pcs

Attest Nr. T 76-003

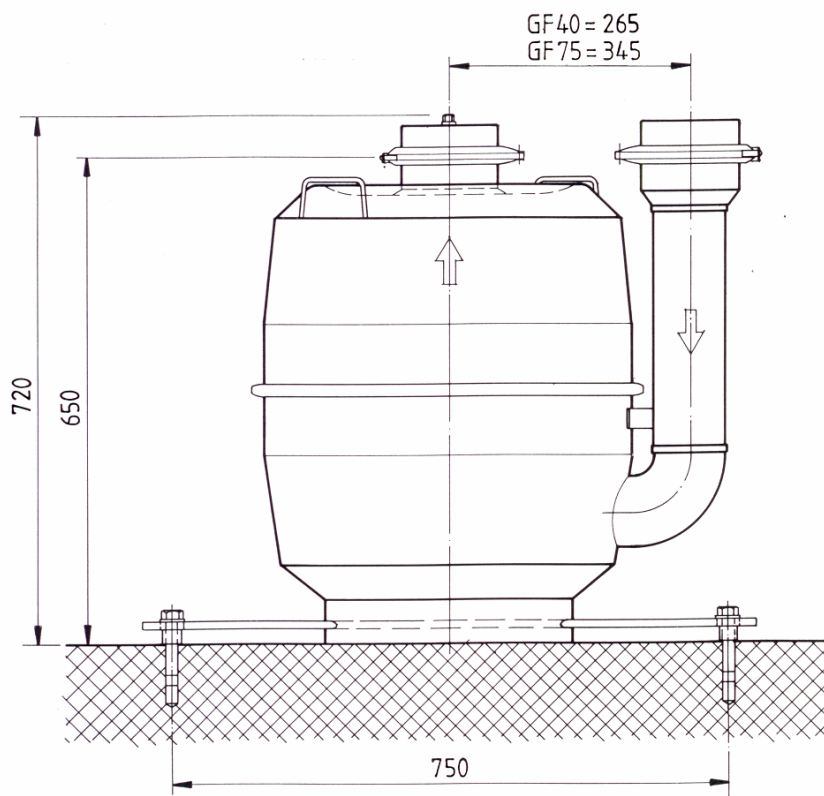
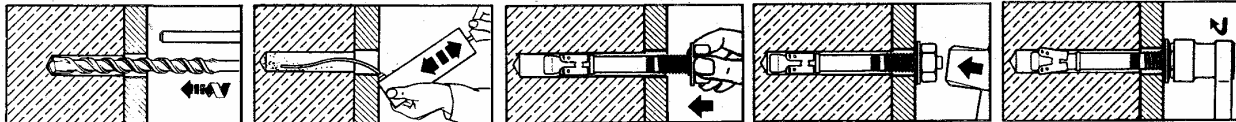
Air rate 40 m³ / h

Pressure drop approx. 450 Pa

Approx. weight 25 kg

Convenient to Lunor Ventilation unit VA-40

1. Place the gasfilter and the floor fastening bracket exactly. Mark the holes for the dowels.
Distance from the wall min. 50 mm.
2. Drill the holes according to the dowel suppliers instruction. Recommended dowel type:
Hilti HST M10/50
3. Clean and blow out the dowel-holes.
4. Turn the nut of the dowel to upper edge of the thread.
5. Place the gasfilter and the floor fastening bracket definitive.
6. Stick the dowel through the clip and drive in with light hammerblows, untill the washer is self supporting against the floor fastening bracket.
8. Tighten dowels with a torque wrench, torque as in table



GF-40	
dowel type	Hilti HST M 10/50
quantity	2 pieces
borehole diameter	10 mm
borehole depth	110 mm
tightening torque	45 Nm
quantity of floor fastening bracket	1 piece
slotted hole diameter	13 mm

If you make use of other dowel types, they must have an attest Nr. of the Armament Technology and Procurement Group and possess an approved charge of 3,5 kN.

In this case, you have to pay attention that the corresponding value like the borehole depth, the borehole diameter and the tightening torque get observed appropriately to the specifications of the suppliers.

Proviso for technical change

Function:

The gasfilter absorbs chemical and bacteriological bodies from the fresh air.

Generality:

The air in- and outlets are hermetically closed and sealed. In peace time the filter must **never** be opened. Tests carried out with gasfilters over 20 years old have proven that the filters remain operative over a long period of time, provided they are kept sealed.

Maintenance interval:

Annually

Maintenance / Check:

- are the air in – and outlets closed and sealed ? Check closing and seal for damages.
If the filter is open, it has to be re-conditioned by the supplier.
- check casing for corrosion and if necessary touch up.
- check floor fixing bolts for tightness.
- check weight of gasfilter and with weight given on name plate. The **max. permissible weight increase** due to absorption of humidity of carbon is for the **GF-40 = 200 g**.
If the increase is beyond this figure the gasfilter has to be re-conditioned by the supplier.